Gender Differences in Political Career Progression *

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Abstract

This paper quantifies the gender gap in the returns to electoral success on the career progression of novice U.S. state legislators. Winning a state legislature race increases the probability that female state legislators compete for and win a higher-level seat by more than 150% compared to male winners. We provide evidence that these larger returns to winning a state legislative election are consistent with voters or party elites updating their beliefs about female candidates. Specifically, we find that female, but not male, state legislators are more likely to progress up the political hierarchy when working in full-time state legislatures, when representing a larger constituency, when working in a cohort with fewer men, and when serving in districts with limited prior exposure to female candidates. These results have important policy implications for how to promote women in politics in order to increase the share of female politicians in leadership positions.

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1. Introduction

The underrepresentation of women in high-status occupations persists worldwide, even in countries that have made significant progress towards gender equality (Bertrand et al. 2019). This is particularly true in politics where the share of women at the highest levels of government is well below their share of the population in nearly all countries (CAWP 2017).[1] The underrepresentation of female politicians persists despite the fact that, on average, female and male politicians have different policy preferences, and that increasing the share of female politicians can increase overall welfare.[2]

The low share of women at the top of political and corporate hierarchies has been shown to be related to their lower rate of career progression as compared to men with similar productivity and initial career profiles (Mariani 2008; Palmer and Simon 2008; Folke and Rickne 2016; Bertrand et al. 2019). Many reasons have been proposed to explain gender differences in the propensity to climb the career ladder. These include career interruptions due to having children (Fulton et al. 2006; Antecol, Bedard, and Stearns 2018; Kleven, Landais, and Sogaard 2019), higher thresholds for promotion (Lazear and Rosen 1990; Pekkarinen and Vartiainen 2006; Addison, Ozturk, and Wang 2014; Gobillon, Meurs, and Roux 2015; Cassidy, DeVaro, and Kauhanen 2016), gender differences in preferences (Fox and Lawless 2004), differential responses to electoral defeats (Wasserman 2021*a*), and bias by voters or party elites (Fulton 2012; Maestas et al. 2006; Sanbonmatsu 2006; Crowder-Meyer 2013).[3]

Existing studies have found mixed evidence that increasing the share of women in leadership positions (via quotas or other methods) affects the careers of female professionals (Bagues and Esteve-Volart 2010; Kunze and Miller 2017; Bertrand et al. 2019; Brown, Mansour, and O'Connell

[1] In 2018, women comprised 21 percent of the U.S. senate and 19 percent of the U.S. House of Representatives (CAWP 2017). This is not only an American phenomenon: women comprised 32 percent of the U.K. House of Commons in 2018, and 12 percent of the Indian Parliament (Bhalotra, Clots-Figueras, and Iyer 2018).

[2] For instance, studies have found that increasing the share of female politicians affects the types of public goods provided by local governments, improves the health and education outcomes of children, reduces crimes against women, and increases trust in government (Chattopadhyay and Duflo 2004; Miller 2008; Iyer et al. 2012; Kalsi 2017; Clots-Figueras 2012; Bhalotra and Clots-Figueras 2014; Brollo and Troiano 2016). In the U.S., Ferreira and Gyourko (2014) found no evidence that female mayors make different policy choices compared to male mayors.

[3] In a 2002 survey conducted among state legislators, female representatives reported more interest in continuing to serve in their current capacity and less interest in running for higher offices (Fox and Lawless 2004; Carey et al. 2008). See also Schlesinger (1966); Black (1972); Duerst-Lahti (1998), and Maestas, Maisel, and Stone (2005).

2022; Langan 2019; O'Connell 2020).[4] In politics, Broockman (2009) found no evidence that narrowly electing a woman for a state legislature seat in the U.S. mobilizes women to vote or inspires other female candidates from nearby districts to run for office, and Bhalotra, Clots-Figueras, and Iyer (2018) found that electing Indian female state legislators does not change the number of new female candidates who choose to compete in subsequent elections. In contrast, Gilardi (2015) provides evidence that electing female mayors in Switzerland increases the number of female candidates in neighboring municipalities, with the effect fading as more women are elected.[5]

We contribute to this growing literature on the impact of policies aimed at increasing the representation of women in high-status positions by quantifying the effect of winning a state legislature election on the likelihood of running for higher office among novice male and female politicians. Our empirical strategy relies on a regression discontinuity design (RDD) to estimate the effect of a close-won state legislature elections on subsequent career progression and compare these effects across gender and characteristics of the politician's seat and service. While the literature has largely focused on spillover or top-down type effects on other politicians, our study focuses on estimating and explaining the sources behind the gender gap in the career progression of individual politicians and the barriers faced by women who seek to serve in leadership positions.

Another contribution of our paper is with regard to causally identifying gender differences in returns to promotions. Existing studies have documented that conditional on productivity and job assignments, women face higher promotion standards compared to men (Lazear and Rosen 1990; Pekkarinen and Vartiainen 2006; Addison, Ozturk, and Wang 2014; Gobillon, Meurs, and Roux 2015; Cassidy, DeVaro, and Kauhanen 2016). Investigating gender differences in the returns to climbing the career ladder, however, is inherently difficult because labor supply decisions are endogenous to workers' unobserved characteristics and because employers' job assignment decisions are nonrandom. In contrast to existing literature, our identification strategy circumvents these concerns by following the careers of novice politicians who were quasi-randomly assigned to their

[4]Kunze and Miller (2017) found that having more female bosses decreases gender gaps in promotions. In contrast, Bertrand et al. (2019) found no evidence that mandating a higher share of women in boards of Norwegian companies benefited women working in these companies. Langan (2019) shows that appointing female department chairs in academia reduces gender gaps in publications and increases the tenure probability for female assistant professors.

[5]Ladam, Harden, and Windett (2018) show that narrowly electing female governors is associated with an increase in the number of female candidates running for the state legislature, and Baskaran and Hessami (2018) found that electing a female mayor in Germany led to an increase in the vote share received by female council candidates.

position in the hierarchy.

A third novel feature of our analysis is that we examine whether electoral wins in particular environments help to reduce entrenched beliefs about women's ability, desire, or commitment to serve in leadership positions by voters or party elites. By carefully documenting this important heterogeneity in the gendered returns to political appointment, we identify pathways that can increase the pipeline of female politicians and facilitate their career progression in politics (Carroll and Sanbonmatsu 2013; Bhalotra, Clots-Figueras, and Iyer 2018).

We measure the returns to initial political experience as the probability that a state legislature candidate ever competes in or wins a Congressional or a gubernatorial election. We focus on these outcomes for state legislature candidates because the position they are competing for is a typical stepping stone for politicians who aspire to advance their political careers. Between 1976 and 2016, an average of 46.5 percent of members of the U.S. House of Representatives and just under 50 percent of governors had previously served in a state legislature.[6] It is unclear, however, whether winning a state legislative election is causally related to the likelihood of competing for or winning a Congressional seat, and whether the importance of this pipeline in generating Congressional candidates differs by gender. To quantify the effect of state legislative experience on subsequent outcomes, we follow the career trajectories of the near-universe of first-time candidates for U.S. state legislatures since 1976 and, by construction, our strategy ensures that winners and losers are otherwise comparable, and that candidates in our sample are drawn from state legislative and congressional districts with similar constituency characteristics (Duerst-Lahti 1998; Fulton et al. 2006; Maestas et al. 2006; Sanbonmatsu 2006; Palmer and Simon 2008; Carroll and Sanbonmatsu 2013; Mariani 2008).

We estimate that winning a state legislature seat leads to an average increase of 5.28 years of state legislative experience, which is a little over two-and-a-half two-year terms (the modal term length in the data). Consistent with the findings of McCrain and O'Connell (2022), the results also indicate that winning a state legislature election increases the probability of competing in any higher-level election by 4.21 percentage points, and the probability of winning by 3.21 percentage

[6]Over half of the 115th U.S. Congress began their political careers in the state legislature (NCSL 2018). In addition to increasing their wage and influence, Congressional experience has also been shown to have high wage returns in the private sector among politicians who leave, and to increase the chances of incumbency among those who choose to remain in Congress (Diermeier, Keane, and Merlo 2005; Mattozzi and Merlo 2008).

points.[7] The estimated relationship between state legislative service and climbing the political ladder is most pronounced in elections for the House of Representatives, but is also present when running for the Senate or in a gubernatorial race.

Turning to the estimates split by gender, we find that although male winners of close state legislature elections serve an additional 0.59 years in the state legislature compared to female winners, the probability of running in a higher-level election increases by 5.89 percentage points for women that win close state legislature elections compared to only 3.65 percentage points for male winners. Relative to the average probability of running for a higher level seat among losing candidates, these results imply that narrowly winning a state legislature race almost doubles the probability that female state legislators compete for a higher-level seat as compared to male legislators. The chances of winning a higher-level election are also substantially larger for winning female state legislature candidates as compared to male winners.

While our empirical strategy identifies an unbiased estimate of the effect of initial state legislative service on political career outcomes in the full sample, and separately for women and men, interpreting the gender gap in this effect requires care (Anzia and Berry 2011; Fulton 2012). This is because it is likely that elected female and male state legislators have systematically different observed and unobserved characteristics. It is unclear, however, whether these differences represent bias-inducing unobserved heterogeneity or if they are the mechanisms through which societal gender norms influence the empirical relationship we have uncovered. To investigate this, we provide evidence that the gender gap in winning a state legislature election does not simply reflect differences in election, state legislative district, or candidate characteristics among female and male winners. In addition, we show that the gender gap in the returns to winning a state legislature seat is not specific to either the Democratic or Republican party. As a result, we can rule out explanations that hinge on party differences in the type of candidates that can win the party's support, or the differential role played by party elites in recruiting and screening female candidates (Niven 1998; Caul 1999; Sanbonmatsu 2002; Box-Steffensmeier, De Boef, and Lin 2004; Sanbonmatsu 2006; 2010;

[7] Using a close win as an instrument for actual years of state legislative experience implies that one additional year of state legislative experience increases the probability of running in any higher-level elections by 0.80 percentage points and the probability of winning a higher-level position by about 0.61 percentage points. However, it is unlikely the exclusion restriction is satisfied in this case because winning a state legislature election can affect career progression through mechanisms other than actual years of experience (e.g. more media coverage, greater party support, larger political network, etc.).

Elder 2012; Thomsen 2015).

Our approach provides similar advantages to identification as Wasserman (2021*a*), who explores the career paths of novice politicians in California local government. Using an analogous close election design, Wasserman (2021*a*) reports that the gap in the probability of remaining in local California politics is larger for female winners versus female losers than it is for male winners versus male losers, arguing that this gender gap in persistence is the result of greater female attrition from local politics after losing an election. Our paper complements this evidence by observing politicians across all U.S. states for whom assignment to the same place in the career hierarchy — that of a state legislator — was arguably quasi-randomly assigned. Different from earlier work, we quantify the effect of this assignment on individual's pursuit and attainment of a higher-status, national position. In contrast to the conclusion drawn in Wasserman (2021*a*) we find no evidence that the larger return to winning a state legislature seat for female politicians is due to lower persistence among losing candidates. This is consistent with Wasserman (2021*b*), who finds no increased attrition for women relative to men that lose state legislature elections. This difference in the results indicates that the higher attrition among female politicians in response to losing an election does not persist at higher levels of the career ladder. Instead, our analysis suggests that career success at higher stages in the political system has a greater impact on the career progression of women because it provides a platform through which they can dispel ingrained gender biases that obstruct professional advancement.

We hypothesize that because of prevailing gender norms, the larger returns to winning state legislature races among female politicians indicate that their career progression is more strongly determined by the extent to which they can signal their ability and update the beliefs of voters and party officials. We test this hypothesis by leveraging cross-state heterogeneity in the characteristics of the elected positions and the types of experience gained when holding a particular seat.

First, we examine whether the probability of running for a higher-level office varies across full-time or part-time state legislatures. Serving in a full-time state legislature increases the visibility of legislators, signals a stronger commitment to public service, and lessens concerns related to career-family tradeoffs and the ability to serve in a more demanding position (Bertrand, Goldin, and Katz 2010; Goldin 2014; Goldin and Katz 2016; Kleven, Landais, and Sogaard 2019). Although the results

in the full sample do not indicate that serving in a full-time state legislature disproportionately increases the probability of running or winning a higher-level election, we find significant differences by gender. Specifically, while the effect of serving in the state legislature on career progression does not vary for men who serve in a full- or part-time capacity, serving in a full-time state legislature more than doubles the probability that a female legislator runs for a higher level seat, and has a substantially larger effect on their probability of winning.

Second, we explore differential returns to state legislative service by the size of the state legislature seat's constituency. The size of state legislature constituencies varies considerably across states, both as a result of differences in population size and in the number of seats in the legislature. We expect the effects of winning a state legislative election on political career progression to be greater in seats that serve larger constituencies because, among other things, they provide politicians with wider visibility and campaign experience that is more likely to have forced them to court a varied set of voters, which is relevant to running for a Congressional seat. The results in the full sample indicate that winning a more "powerful" seat increases the probability of running for or winning a higher office compared to winning a less "powerful" seat. The higher returns to winning a more powerful seat, however, are not shared equally by women and men. We find that serving in a more powerful state legislature seat triples the probability that female legislators win a higher-level election compared to men in similar seats. Evidence that women have higher returns to being elected to the state legislature when serving a larger constituency or in a full-time legislature is consistent with a scenario in which greater exposure enables more voters or party elites to update their beliefs about a female candidate's overall ability (Folke and Rickne 2016). This empirical pattern is also consistent with theoretical and experimental evidence showing discrimination against women in the absence of prior evidence about their ability (Bohren, Imas, and Rosenberg 2019).

Third, we provide additional support for this hypothesis by examining heterogeneity in the returns to winning a state legislature election by the share of men in the state legislative cohort into which the focal candidate is elected. Fouirnaies, Hall, and Payson (2018) provide evidence that female state legislators are given less prestigious committee assignments and are less likely to be put in leadership positions when there are more men in the state legislature. Thus, these group dynamics can amplify the ability of the female legislators to signal their aptitude when

there are fewer men, and enable them to gain more valuable experience. Our estimates confirm this relationship as we find that returns to serving in the state legislature are equivalent for men regardless of the male share of the state legislature to which there were elected. In contrast, serving in a low male share legislature more than triples the impact on career progression for women, and more than doubles their chances of winning a higher-level seat.

Lastly, we examine gender differences in the returns to winning a state legislature election by the prevailing gender norms of the state legislative districts, which we measure using the historical share of female legislative candidates in each district. We expect the returns from winning for female politicians to be larger in areas with a historically low share of female state legislature candidates as voters and party elites have less previous opportunities to update their beliefs. We find that the career progression of male state legislators is unaffected by the historical share of female candidates in the district. On the other hand, the returns to winning for female state legislators elected in districts with a low share of prior female representation are twice as large compared to those elected in districts with greater prior exposure to female candidates. Overall, the results from these four distinct heterogeneity analyses indicate that the signaling value of these early successes are stronger in environments with entrenched gender norms, suggesting that beliefs about commitments and ability play an important role in the higher promotion standards that women face (Bohren, Imas, and Rosenberg 2019). In turn, this suggests that increasing the representation of female politicians in early-career positions of high visibility and impact is an important way to help narrow the gender gap in representation at the top of the career ladder (Bhalotra, Clots-Figueras, and Iyer 2018).

The remainder of the paper is organized as follows. Section 2 describes the data sources, provides background on U.S. national and state legislative elections, and describes the sample used in the analysis. Section 3 details the empirical strategy. Sections 4.1 and 4.2 present results on the effects of experience in the state legislature on progression to national politics and how it differs by gender. Section 4.3 discusses potential sources of the gender gap in returns to experience, and Section 5 concludes.

2. Context and Data Sources

There are more than 7,000 state legislative seats in the United States, with each position having a two- or four-year term length. Our data contains the near-universe of candidates for U.S. state legislatures since 1967. The primary data source for state legislature elections comes from the State Legislative Election Returns (SLER) data set, hosted by the Inter-University Consortium for Political and Social Research (ICPSR 34297) and constructed by Klarner et al. (2013). The SLER provides candidate-level election returns including information on the name of the candidate, the state, state legislative district, and chamber they are running in, as well as total vote counts and the candidate's party. Additional election-level data provides information on the term length, type of election (e.g., general, special), and the number of candidates who contested the seat.

Congress is comprised of 435 seats in the (lower) House of Representatives and 100 seats in the (upper) Senate. Prior service in state legislatures has become increasingly common among Congressional representatives, increasing from about 40 percent in the mid-1970s to just under 50 percent as of 2019.[8] We merge information on first-time state legislature candidates to records from the U.S. House of Representatives, the Senate, and gubernatorial primary and general election returns from 1968-2016. We match candidates across levels within state using a fuzzy matching algorithm based on first and last name fields. This method is similar in practice to the matching procedures used in Anagol and Fujiwara (2016) and Brown, Mansour, and O'Connell (2022).[9] Although we are only able to track primary participation for Democrat and Republican candidates (or third-party candidates who participate in these elections), candidates of all parties can be observed in general elections.[10]

To determine a candidate's gender, we compare candidates' first names to historical records from the U.S. Census Bureau and the Social Security Administration (SSA).[11] We code a candidate

[8] Within state, there are an average of about 20 legislative seats per Congressional seat. With the exception of Nebraska, each state has a bicameral legislature comprising of a House and a Senate.

[9] To help prevent spurious matches, we only search for Congressional and gubernatorial candidates in the same state in which they appear in the state legislature elections data. Because male candidates may be more prone to move across states, our estimates of the gender gap might represent a lower bound.

[10] In practice, however, there are relatively few third-party candidates, and candidates who pursue Congressional office tend to not switch parties across levels of government.

[11] We first cross-reference all first names with lists of common first names. We classify candidates as male or female if their name only appears in one of the lists, that is, their name is unambiguously male or female, and then compare the remaining names to Census and SSA records.

as male or female if both the Census and SSA records agree on the candidate's gender. We then hand-code the remainder of candidates (about five percent) whose names are not unambiguously indicative of their gender. We drop a small number of elections (3.6 percent of total) where we do not know the gender of either of the top two candidates.

Conditional on ever running for a higher-level office, the average state legislator spends about seven years in the state legislature before running for higher-level office. We thus limit our sample to state legislature elections for years up to and including 2008 (and observe outcomes through 2016), as the inclusion of more recent state legislature elections will increase the frequency and intensity of measurement error (due to right-censoring) in the outcome variable.

We draw our estimation sample of 11,486 first-time candidates in narrowly decided elections, defined as less than a ten percentage point margin, from the broader sample of 53,916 first-time candidates in our data.[12] We focus on first-time candidates because the number of times an individual runs for a state legislative seat before their first victory may be endogenous. Moreover, on average, male politicians start their career earlier than female politicians and have more legislative experience than female candidates, but the focus on novice state legislators ensures that accumulated legislative experience does not vary by gender. Column 1 of Table 1 reports sample means for a set of election characteristics (Panel A), historical state legislative district characteristics (Panel B), and candidate characteristics (Panel C) using our close election sample.[13] There are 2.14 candidates per election and the average term length is approximately 2.3 years (Panel A). Democrats make up 47 percent of the candidates, while the remaining 53 percent are Republicans or third-party affiliated, and 23 percent are female. These statistics are similar to the sample means of all first-time candidates which we report in Column 2. Almost 5 percent of state legislature candidates ever run in a subsequent Congressional or a gubernatorial election and about 3 percent of the sample ever win such elections (Panel D).

[12] Specifically, we focus on candidates who are competing for the first-time in a single-member district, the most common type of legislative position. We also limit our sample to state legislative elections from 1976 onward to ensure we are able to more accurately determine first-time status for candidates as well compute historical district characteristics, as we discuss below.

[13] Historical district characteristics are measured as the mean value of that factor using the 10 years prior to the focal state legislative election.

3. Estimating the Career Effects of State Legislative Experience

3.1. Empirical Model

A state legislature candidate's decision to compete for a higher-level political office is endogenous to their own observed or unobserved characteristics, the characteristics of the Congressional district or state, and the characteristics of the current and future local and national elections. To mitigate these potential confounds, we quantify the causal effect of lower-level political experience on higher-level candidacy among individuals who compete in a state legislative election by implementing a regression discontinuity design on first-time candidates. We first show that winning an initial election increases eventual total state legislative experience by more than five years. This quantity is important to measure because the effect of winning an election on years of future political experience may be different from the length of the term associated with the position. We count the cumulative experience of these representatives across all terms of service. We then estimate a reduced form effect of winning that same initial election on the likelihood of competing for, or winning, a Congressional or gubernatorial office. The advantage of using the regression discontinuity design is that it effectively generates quasi-random assignment of legislative service across otherwise-similar candidates who run for state legislative office in comparable locales.

Formally, we estimate the effect of winning a state legislature seat on the cumulative number of years served in the state legislature using our sample of candidates in narrowly decided state legislature elections via the following regression:

$$Experience_{ist} = \alpha Won\ election_{ist} + \beta f(x_{ist}) + \gamma[Won\ election_{ist} \times f(x_{ist})] + X'_{ist}\delta + \pi_s + \phi_t + \epsilon_{ist} \quad (1)$$

Where $Experience_{ist}$ is the cumulative number of years that candidate i from state legislature election year t in state s served in the state legislature as of 2008. Candidates who have not served in the state legislature by 2008 are assigned zero years of experience. The variable of interest, $Won\ election_{ist}$, is an indicator variable equal to 1 if candidate i won their state legislature election in state s in election year t. We also include a linear measure of the candidate's victory margin, $f(x_{ist})$, and allow the effect of the victory margin to vary for winners and losers, $[Won\ election_{ist} \times f(x_{ist})]$. X_{ist} represents a vector of individual and election-level controls in-

cluding the candidate's party affiliation, the length of the contested seat's term, the number of candidates in the election, and whether it was a general or special election. To control for time- and state-invariant unobservable characteristics and to improve precision, we include state fixed effects, π_s, and state legislature election year fixed effects ϕ_t. ϵ_{ist} represents the error term and standard errors are clustered by state.

Our coefficient of interest is α, which captures the effect of winning a first-time state legislature election on the total number of years of state legislative experience. Equation (1) is estimated using a sample consisting only of narrowly decided first-time elections using a ten percentage point margin of victory bandwidth, which we use throughout the rest of our analysis. Below, we show that our results are robust to alternative bandwidth sizes. We then regress the same specification given in equation (1) on measures of higher-level political candidacy using our sample of narrowly decided state legislature elections. To shed light on whether the returns to experience vary across different types of higher-level positions, we replace the dependent variable with one that is specific to either Congressional races, gubernatorial races, House primaries, or House general elections.

3.2. Investigating the Validity of the Research Design

Our empirical approach compares just-winning candidates to just-losing candidates in order to estimate the impact of winning a state legislature seat on state legislative experience and subsequent career progression. The assumption underlying this approach is that candidates who narrowly win over a competitor are comparable, on average, to candidates who narrowly lose to a competitor. Similarly, the assumption underlying an equivalent analysis that is stratified by gender is that women (men) who narrowly win are comparable, on average, to women (men) who narrowly lose.

We first test for manipulation of the running variable following Cattaneo, Jansson, and Ma (2018) by plotting the distributional density of a candidate's margin of victory in first-time state legislature candidates. In Figure 1, we plot these distributions for all candidates in Panel A, for male candidates in Panel B and for female candidates in Panel C. These plots provide no evidence of discontinuous bunching of elections around a vote margin of zero.

We next test whether individual, election, or historical district characteristics exhibit any discontinuous jump at the identifying threshold. Column 2 of Table 2 shows the difference in the

focal characteristic (described in the row header) for the election winner relative to the election loser. These results indicate that winning a state legislature seat in a "close" election is not associated with any non-linear difference in election or district characteristics, such as the term length of the contested seat, the number of contesting candidates, historical average margin of victory in that district's previous elections, the historical share of previous elections contested by incumbents in that district, and the historical share of female state legislative candidates in that district.[14] We also do not find evidence that winning a state legislature seat is associated with the gender of the candidate or with their party affiliation. In Columns 1 and 2 of Appendix Table 1 we show that these focal characteristics are also not different when comparing winners and losers separately by gender. This supports the identifying assumption that would allow our estimates for male and female candidates to be considered internally valid.

However, the identifying assumption underlying the estimation strategy applies specifically when comparing the effect of winning a state legislature seat *within*, but not necessarily across, gender (Anzia and Berry 2011; Fulton 2012). This is because narrowly elected female and male state legislators may be systematically different in their personal attributes and, importantly, they may compete in different types of races and in different types of districts (Arvate, Firpo, and Pieri Forthcoming). With this limitation in mind, we compare election, district, and candidate characteristics between novice female and male winners in Column 3 of Appendix Table 1. Specifically, we regress each outcome on a female indicator, linear measures of margin of victory and controls for state and year fixed effects.[15] The results in Panel A indicate that novice female and male winners compete in similar elections. In Panel B we see that they compete in districts with mostly similar historical district characteristics, with male winners slightly more likely to compete in places that have had more unopposed elections in the past and female winners slightly more likely to compete in places with a history of female state legislative candidates. Lastly, in Panel C, we find that female winners are more likely to be Democrats than Republican. We provide evidence below that none of these characteristics can explain the gender differences in the returns to state legislative experience.

[14] A joint F-test of all the characteristics tested in Column 2 of Table 2 is not significant at the 10% level.
[15] The running variable is defined to be relative to the female candidate's vote margin.

4. Results

4.1. Career Progression

We start by presenting a graphical analysis of the relationship between state legislative service and career progression into Congressional and gubernatorial politics using the outcomes of first-time candidates in close state legislative elections. Panel A of Figure 2 plots two-percentage point margin of victory bins against the within-bin average number of years served in the state legislature using a 10 percentage point bandwidth. Over these binned means, we also plot a linear regression and the associated confidence intervals, estimated separately for winners and losers. Panels B and C of Figure 2 plot similar margin of victory bins against the within-bin probability of ever running in or winning a higher-level election (primary or general), respectively, along with the associated linear regressions. It is clear from Figure 2 that winning a state legislature seat generates a large and non-linear increase in the number of years served in the state legislature and in the probability that the state legislature candidate ever runs in or wins a higher-level election.

Panel A of Table 3 contains coefficients from the estimation of equation (1). This table shows that winning a state legislature seat increases the amount of time working in the state legislature by 5.27 years (Column 1) and that controlling for candidate and election characteristics (Column 2) does not affect this result. The reduced form effect, provided in Panel B, indicates that winning a state legislature seat significantly increases the probability of running in any higher level election by around 4 percentage points as compared to losing the election. These results are consistent with the findings of McCrain and O'Connell (2022). Since our bandwidth choice of a 10 percentage point victory margin is arbitrary, we provide evidence in Panels A and B of Appendix Figure 1 that these results are robust to a wide range of bandwidth choices. Taken together these findings represent unambiguous confirmation that experience in lower level elected positions plays an important role in political career progression.

In Table 4, we disaggregate the dependent variable into separate measures for ever running in or winning any Congressional race, any gubernatorial race, any House primary elections, and any general elections for the House. The results indicate that the increased likelihood of running for higher office is not unique to any one particular type of high-level election. For example, winning

a state legislative election increases the probability of running in a gubernatorial race (Panel A, Column 3) by about 0.78 percentage points, relative to a mean of 0.40; the effect on running in a House general election increases by 2.32 percentage points over a mean of 1.14 (Panel A, Column 5). The effect of returns to state legislative experience on winning a higher level election (Panel B) are also sizable for all types of higher-level positions and are statistically significant in all cases except winning a gubernatorial race.

4.2. Career Progression by Gender

A primary motivation for this research is to examine whether the returns to legislative experience vary for women and men as this might provide insight about a potential pathway to narrowing the gender gap in political representation in higher level positions. To do this, we estimate equation (1) separately by gender. For completeness, we present a graphical analysis of the effects on state legislative service and higher-level outcomes separately by gender in Appendix Figure 2. As mentioned earlier, we verify that female (male) winners are similar on key election, district, and candidate characteristics compared to female (male) losers (see Appendix Table 1). The results in Panel A of Table 5 indicate that male winners go on to serve an additional 5.42 years in the state legislature compared to male losers. Moreover, winning a state legislature election increases their likelihood of running in or winning a higher-level election by around 3.6 and 2.9 percentage points, respectively. In comparison, female winners in close state legislature elections go on to serve an additional 4.83 years in the state legislature compared to female losers. The estimates in Panel B indicate that winning a state legislature seat increases the probability of running in or winning a higher-level election for female state legislators by about 5.9 and 4.2 percentage points, respectively.

These results suggest that the returns to legislative experience are almost twice as large for first-time female state legislature candidates relative to first-time male state legislature candidates. While this gender gap in the returns to experience could theoretically reflect the impact of other district or party characteristics that are correlated with the gender of the winner, we show in Appendix Table 1 that this is not the case. Specifically, we find that female winners are not different than male winners on most election and district characteristics, and the focus on novice politicians ensures that they do not have prior differential experience in the state legislature.

Appendix Table 1 indicates that first-time female winners of close state legislature elections are more likely to be Democrats, more likely to compete in districts with a historically high share of female state legislative candidates, and less likely to compete in districts with historically unopposed elections than male winners. To rule out the possibility that the gender gap in the returns to experience is driven by the difference in candidate political affiliation, we show in Columns 1-2 of Appendix Table 2 that returns to experience are not larger for Democratic versus Non-Democratic candidates. Since candidates that are Democrats do not show an advantage in career progression, the differential effects we find by gender cannot be a product of the higher proportion of Democrats among female winners of close state legislative elections. Moreover, while there is some marginally significant evidence that female winners are more likely to come from districts with a historically higher share of female state legislative candidates and historically less unopposed races, we find no difference in the effects of experience on candidacy across either of those margins (Columns 3-6 of Appendix Table 2). While we control for candidate and seat characteristics in our main estimates, the results in Appendix Table 2 indicate that the heterogeneity in the returns to experience by gender do not simply reflect differences in the districts or characteristics of winning female candidates. Additionally controlling for historical district characteristics also does not change the results.

Another potential concern with comparing the results across men and women in Table 5 is that female candidates are significantly more likely to be competing in mixed-gender elections than men.[16] As suggested in Marshall (Forthcoming), this could present an issue for identification if unobserved quality/ability differences between winners and losers is greater in close mixed-gender elections as compared to close same-gender elections. For example, it is possible that, due to cultural norms and/or discriminatory beliefs, female candidates need to be of higher quality compared to their male opponents in order to win a close election. In contrast, male candidates in close-won elections are more likely to be of similar ability. If this is indeed the case, the higher share of mixed-gender elections in which female candidates participate may create an imbalance in inherent ability across female and male winners. In order to test the sensitivity of our results to this potential issue, we re-estimate the results in Table 5 using only same-gender elections. The results from this exercise can be found in Appendix Table 3. Reassuringly, these results do not indicate that the

[16] In our close-elections sample, 78 percent of women compete in mixed-gender elections, compared to just 19 percent for men.

higher ratio of mixed-gender elections in the female sample is driving the results.

The takeaway from these results is that while the political career progression of politicians in our sample is positively impacted by a quasi-random promotion to the state legislature, the benefit from this experience is substantially larger for women. These results provide an alternative policy prescription for narrowing the gender gap in high status positions, as attempts to do so using mechanisms directed at the share of women in leadership positions (via quotas or other methods) have not generated consistent and noticeable gains (Bagues and Esteve-Volart 2010; Kunze and Miller 2017; Bertrand et al. 2019; Brown, Mansour, and O'Connell 2022; Langan 2019; O'Connell 2020). Specifically, these findings suggest that substantial gains to reducing gender inequality in high level political positions may be obtained through the encouragement, facilitation, and support of the election of women into local positions. With this policy design and goal in mind, we next seek to identify whether certain seats may provide higher leverage opportunities for the advancement of female politicians.

4.3. Returns by Type of Experience

One hypothesis for why the returns to experience for successful female state legislative candidates are larger than for their male counterparts is that the societal hurdles created by norms and discrimination require female politicians to more definitively and visibly signal their quality to voters or party elites. Thus, once women are given the opportunity to demonstrate their skill and capability there is a larger correction in beliefs. To explore if this mechanism is present in our setting, we use heterogeneity in the type of experience and signal that is provided by different state legislative seats.

We start by using cross-state variation in the time commitment expected of state legislators. State legislative positions can be full-time, hybrid, or part-time, with the seat-holders being required to devote between 60 to 85 percent of an equivalent full-time job's hours to their legislative duties.[17] Slightly more than half of state legislatures are comprised of hybrid positions, and the rest are almost equally split between full- and part-time. Intuitively, serving in a full-time state legislature may signal to voters that candidates are committed to public service and are not deterred by the

[17] These classifications are based on surveys of state legislators from NCSL (2017).

time commitment required to be an effective legislator (Bertrand, Goldin, and Katz 2010; Goldin 2014; Goldin and Katz 2016; Kleven, Landais, and Sogaard 2019). If gender differences in these types of factors are important determinants of our results then we would expect that the returns to experience in full-time legislatures to be larger than in states with part-time legislatures.

The results in Columns 1 and 3 of Table 6 show that winning a state legislature seat increases the probability of higher-level candidacy for a novice politician by about 84 percent (3.74/2.03) in part-time legislatures and by about 71 percent in full-time legislatures (6.23/3.65).[18] This provides evidence that there is no inherent boost to returns to experience gained simply by having a full-time versus part-time state legislature position or that any differential characteristic of full-time or part-time seat candidates is interacting strongly with winning to produce better career outcomes. The results in Table 7, in which we examine these same differences in the returns to experience by the time-commitment of the position separately for each gender, however, present an interesting pattern. We find that winning an election for a full time state legislature increases the probability of running for a higher-level election by a multiple of six (10.61/1.75 = 6.06) for female candidates, about 2.7 times larger than the effect of serving in a part-time legislature (Panel B, Column 1, 5.02/2.21 = 2.27). The returns for men, on the other hand, are smaller and show an opposite pattern being slightly larger for those serving in a part-time legislature (66 percent) relative to those serving in full-time positions (29 percent). The results on winning a higher-level election suggest that winning a state legislative term in a full-time legislature increases the probability of winning by about 4.4 times (6.42/1.46) for female legislators compared to 2.8 times (3.69/1.31) when they serve in a part-time legislature. To ease the interpretation of these results, we plot the estimated effects on candidacy relative to the average among losing candidates in Panel A of Figure 3.[19]

Next, we examine whether returns to experience vary by the size of the constituency that a state legislator represents. Variation in the size of the constituency arises because of differences in the population size of the state and the number of seats in the legislature. Intuitively, we expect seats representing larger constituencies (i.e., "powerful seats") to provide legislators with

[18] The results in Appendix Table 4 provide evidence that the characteristics of winning and losing candidates are balanced within the sub-samples of part-time and full-time legislatures.

[19] Panel A of Appendix Figure 3 plots the relative effects on winning a higher-level election. We also report relative effects by gender over a variety of bandwidths in Appendix Figure 4.

wider visibility and with more relevant campaign experience for Congressional and gubernatorial elections. Indeed, the results in Columns 2 and 4 of Table 6 indicate that the return to initial experience in a more powerful seat improves the probability of the candidate running in a higher-level election by 8.25 percentage points and winning such an election by 6.81 percentage points. In contrast, the effect of serving in smaller constituencies is only 1.77 and 1.04 percentage points, respectively.[20] The effects by gender, however, suggest that the returns to experience in a high visibility seat are disproportionately large for women when comparing to effects from lower visibility seats (see Table 7). To ease the comparison across groups, we plot the relative effects of experience by type of seat in Figure 3.[21] This pattern of results supports the hypothesis that career progression for women is strongly linked to the signal that specific experience can send about their aptitude in the career.

An alternative way to explore the hypothesis that returns to experience are larger for women because they enable voters or party elites to update their beliefs is to investigate whether returns to experience vary by the type of legislative tasks they engage in. The control a state legislator has with regard to setting an agenda and enacting policy is strongly linked to their ability to secure influential committee assignments and high-ranking positions in the party leadership. A study examining how these responsibilities are allotted concluded that female state legislators are much more likely to be placed at the bottom of this hierarchy when their counterparts in the state legislature are made up of a higher share of men (Fouirnaies, Hall, and Payson 2018). With that aspect of the experience of being a state legislator in mind, we examine whether the estimated gender gap in returns to experience varies by the share of men in the state legislature.[22] To ease the interpretation, we plot the effects relative to the average among losing candidates in Panel B of Figure 3 and Appendix Figure 3. The results indicate that the returns to experience for men do not vary substantially based on the share of men elected to the state legislature. In contrast, winning an election in cohorts with below-median share of male legislators about quadruples the

[20] The sample of "powerful" seats includes legislatures with above-median constituency size. The results in Appendix Table 4 provide evidence that the characteristics of winning and losing candidates are balanced within the sub-samples based on constituency size.

[21] Estimates of the effect of winning a state legislature seat on number of years served across different heterogeneity analyses and by gender are available in Appendix Table 5. The effects do not vary by type of experience or other constituency characteristics.

[22] The share of men in the state legislature is calculated as the fraction of male winners in the state-chamber-year in which the candidate won their state legislature election.

chances than female legislators run in a higher-level election, and more than doubles their chances of winning relative to when they receive more experience in a male-dominated legislature.[23]

Lastly, we estimate returns to experience across districts with different historical exposure to female candidates. We expect the effects of experience on competing in or winning higher level elections to be larger in districts that had little experience electing women in the past and where voters may be more likely to update their beliefs about the ability of female candidates to serve in higher level positions.[24] This is exactly what we find in Columns 2 and 4 of Appendix Table 6 and Panel B of Figure 3. Specifically, we find that female state legislators quadruple their chances of running in a higher level election when they gain experience in a state legislative seat with relatively low previous exposure to women in state legislative politics.[25] The effects on Congressional and gubernatorial representation are also large as returns to experience for female state legislators are approximately twice as large when the state legislative seat is in a district with historically fewer female state legislature candidates. In contrast, there is little difference in the returns to experience for men along this margin.

The larger returns to experience for female politicians, relative to males, along all these types of experience are consistent with women facing higher barriers to climbing the political ladder and that state legislative experience allows voters and party elites to update their priors about their ability, policy preferences, and other factors related to career-family tradeoffs. While it is impossible to rule out that the beliefs of voters or party elites do not vary by gender and that simply serving in the state legislature has a larger productivity enhancing effect on women compared to men, it is difficult to match that hypothesis to the full pattern of heterogenous results presented in this section.

An alternative potential mechanism for the gender gap in career progression is that losing

[23]The relative effects of experience on running for a higher level election by the share of state male legislators are based on the estimates reported in Panels B and D of Appendix Table 6. Specifically, women's experience in state legislatures with a below-median share of men increases the portability of running in a higher level election by more than four times (7.21/1.72), compared to a statistically insignificant 16 percent increase when elected to a legislature with an above-median share of men (3.37/2.90). The effects on winning a higher-level election are reported in Column 3.

[24]As before, historical variables are measured as the mean value of the district characteristic over the 10 years that preceded the focal state legislative election.

[25]The relative effects are calculated based on the estimates reported in Column 2, Panels B and D of Appendix Table 6. Specifically, women winning in a district with a low previous share of female state legislature candidates increases their chances of running in a higher-level election by 4.4 times (7.63/1.75), compared to two times (4.49/2.24) when elected to a legislature with above the median share of historical female candidates.

female candidates are less likely to compete in subsequent elections compared to losing male candidates. This is the conclusion drawn in Wasserman (2021*a*) who examined gender differences in the persistence of candidates for local positions in California (e.g. school board, city council, county supervisor, mayor) after they win or lose elections. In our context, however, we find no evidence of a similar behavioral response among losers. Specifically, the average probability of running for a higher level position and the slope of the relationship between margin of election loss and probability of running for a higher level position are not economically or statistically significantly different for male and female losers. This is consistent with Wasserman (2021*b*)'s results which find no gender difference in the response to electoral defeats for losing state legislature candidates.

5. Conclusion

Contemporary discourse frequently points to gender imbalances in high-status occupations, but effective solutions for increasing the representation of women in leadership positions remain elusive. One potential alternative to the strategy of placing women into leadership positions through, for example, quota systems, is a bottom up approach which focuses on supporting women's career progression. In this paper, we estimate the effects of winning a state legislature seat in the U.S. on the likelihood of competing and winning a higher level political position, and investigate how these returns vary by gender. Due to the way in which experience and promotions are acquired in politics, when examining the advancement of women across different hierarchies, focusing on the careers of politicians provides unique advantages.

Using data that track the political careers of the universe of novice U.S. state legislature candidates since 1976 and a regression discontinuity design, we find that the effect of serving in the state legislature on career progression is about two times larger for women than men. We show that neither the overall effect nor the gender difference in returns to winning a state legislature seat is an artifact of party affiliation nor is it explained by the candidate's, the election's, or the legislative district's observed characteristics. We show that this gender difference is particularly large in positions that have more visibility and influence, and in areas with more ingrained social norms. These findings are consistent with voters or party elites updating their beliefs about the ability of female politicians.

Overall our research provides evidence that in order to significantly reduce the gender gap in representation in higher-level political offices there must be a concerted effort to foster early career opportunities for women in stepping-stone positions. The large returns to experience for women, particularly when these initial positions allow for clear and widely observable demonstration of their inherent capacity, has the potential to generate a persistent pipeline to leadership roles at the top of the career ladder.

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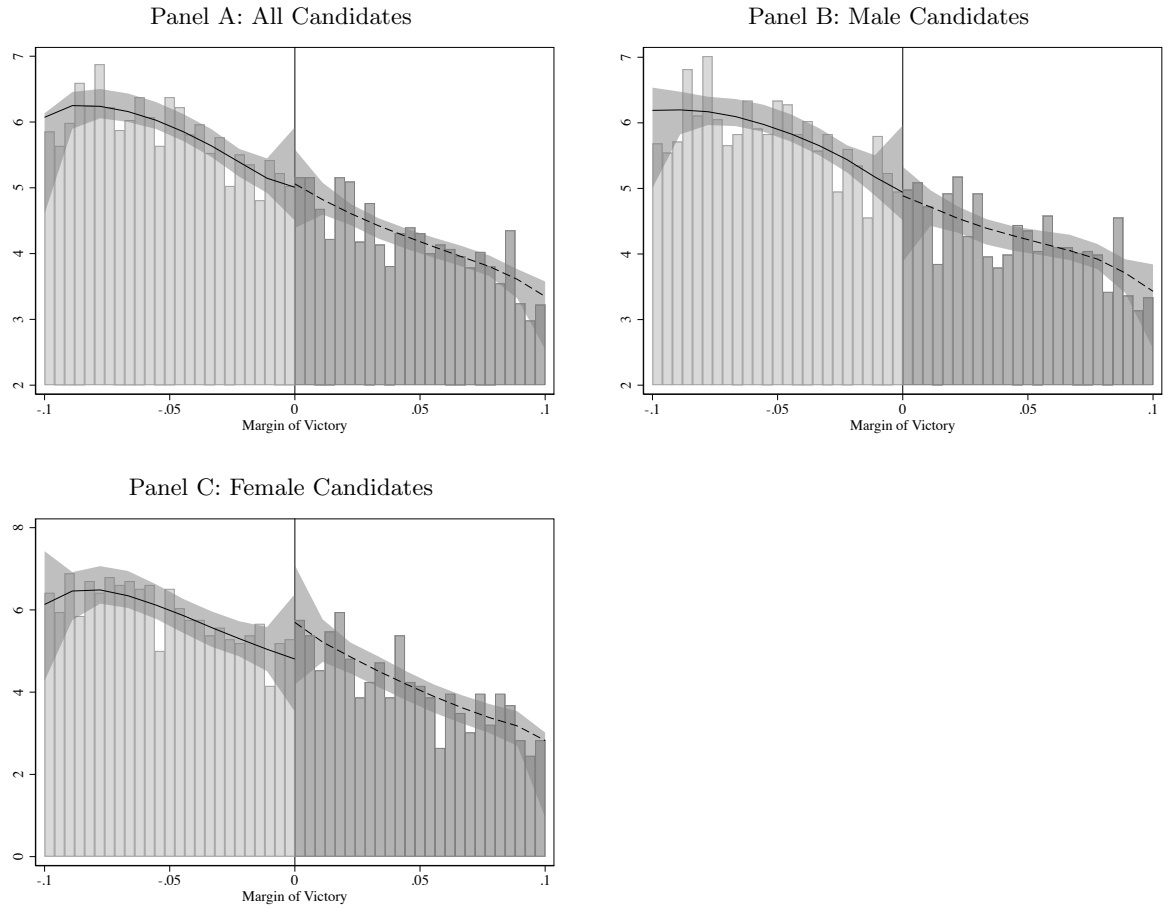
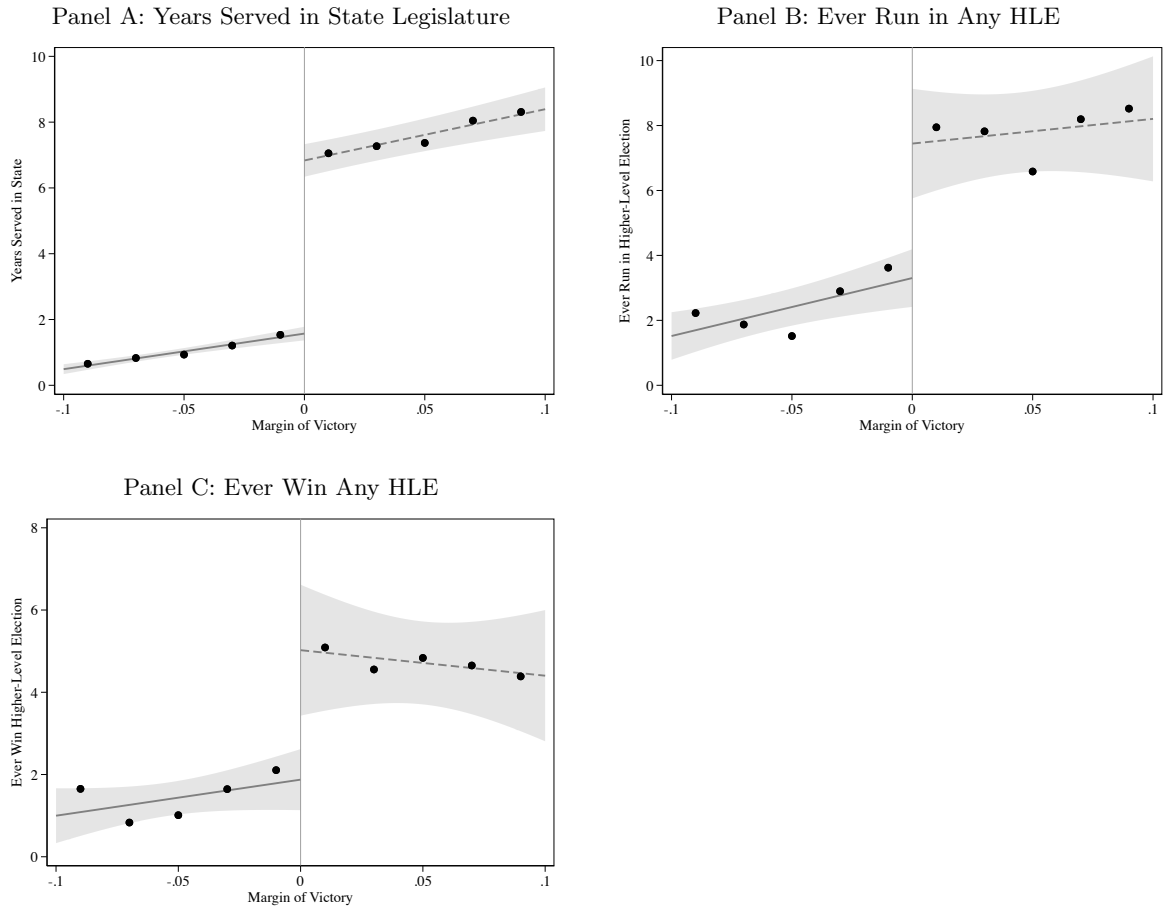
Figure 1: Density Tests for Manipulation of Electoral Outcomes



Notes: This figure reports density tests for manipulation of electoral outcomes among different subsamples. Panel A reports results for all candidates, Panel B reports results for male candidates, and Panel C reports results for female candidates. Histograms denote the distribution of margin of victory. Local polynomial estimates and 95 percent confidence intervals are calculated using the procedure in Cattaneo, Jansson, and Ma (2018).

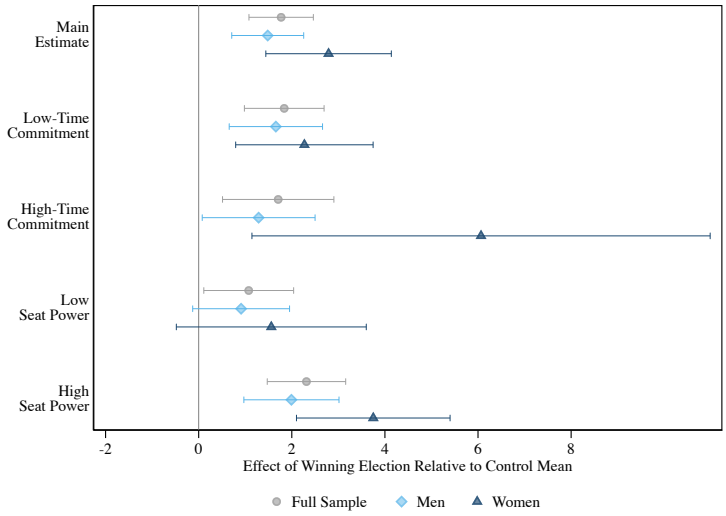
Figure 2: Graphical Evidence of the Effect of Winning a State Legislative Election on Future Political Service and Career Advancement



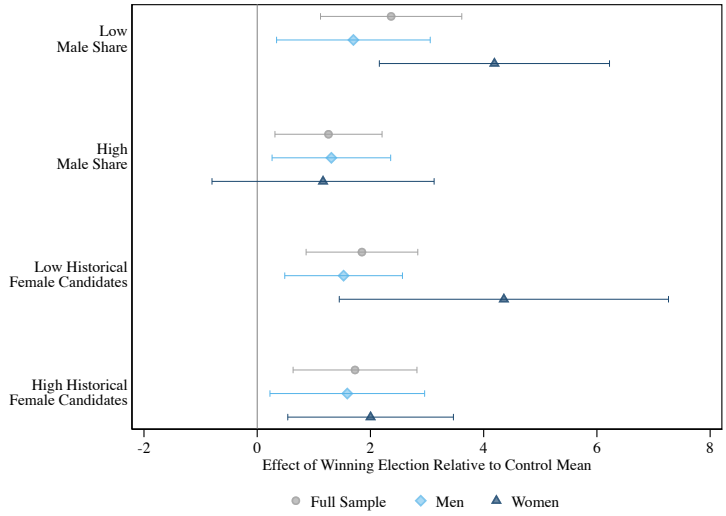
Notes: This figure plots graphical evidence of the effect of winning a state legislative election on future state legislature and higher-level outcomes. Panel A reports results for number of years served in the state legislature, Panel B reports results for ever running in a higher-level (Congressional or gubernatorial) election, including primaries and general elections, and Panel C reports results for ever winning a higher-level election. The vertical line denotes the zero margin of victory threshold. Each dot plots the midpoint of a two-percentage point bin against the within-bin mean. Solid and dashed black lines denote the lines of best fit with associated 95 percent confidence intervals indicated by gray shaded areas.

Figure 3: Relative Effects of Winning State Legislative Election on Higher-Level Candidacy by Gender in Various Subsamples

Panel A: Relative Effects by Type of Experience



Panel B: Relative Effects by Legislative Cohort and Historical District Characteristics



Notes: This figure reports relative effects of winning a candidate's first election on the probability of ever running for higher-level office. Relative effects are calculated as the regression discontinuity estimate divided by the control mean. The subsample is reported in each row title. Gray circles indicate the relative effect for the full sample, light blue diamonds indicate the relative effect for men, and dark blue triangles indicate the relative effect for women. Solid lines indicate 95 percent confidence intervals.

Table 1: Descriptive Statistics

	RD Sample Mean	All First-Time Sample Mean
Panel A: Election Characteristics	(1)	(2)
Number of Candidates	2.143	2.152
Term Length	2.340	2.319
Senate Election	0.244	0.236
Special Election	0.005	0.004
Panel B: District Characteristics		
Share Incumbent Ran	0.656	0.660
Share Unopposed Elections	0.187	0.214
Margin of Victory	0.237	0.301
Share Female Candidates	0.157	0.163
Number of Candidates	1.884	1.881
Panel C: Candidate Characteristics		
Democrat	0.473	0.443
Female	0.231	0.211
Panel D: Electoral Outcomes		
Run in Any Cong. or Gov. Election	4.640	3.507
Run in Any Cong. Election	3.953	3.075
Run in Any Gov. Election	0.888	0.605
Run in Any House Primary	3.517	2.697
Run in Any House General	2.185	1.682
Win Any Cong. or Gov. Election	2.803	2.055
Observations	11,486	53,916

Notes: This table reports sample means. Column 1 reports sample means from the estimation sample of first-time candidates within a ten percentage point bandwidth of margin of victory. Column 2 reports sample means using all first-time candidates. Panel A reports mean election characteristics, Panel B reports mean historical district characteristics, calculated using elections within the ten years prior to the focal election, Panel C reports mean candidate characteristics, and Panel D reports mean probabilities of appearing in different Congressional or gubernatorial elections.

Table 2: Balance Tests

	Control Mean	Won Election
Panel A: Election Characteristics	(1)	(2)
Number of Candidates	2.141	0.001
		(0.009)
Term Length	2.339	–0.012
		(0.016)
Senate Election	0.247	–0.011
		(0.011)
Special Election	0.005	0.000
		(0.001)
Panel B: District Characteristics		
Share Incumbent Ran	0.654	–0.005
		(0.005)
Share Unopposed Elections	0.182	0.001
		(0.005)
Margin of Victory	0.234	0.004
		(0.004)
Share Female Candidates	0.158	0.003
		(0.006)
Number of Candidates	1.895	–0.009
		(0.008)
Panel C: Candidate Characteristics		
Democrat	0.471	0.031
		(0.022)
Female	0.234	0.033
		(0.020)
Observations	6,686	11,486

Notes: This table reports control means and balance tests for the estimation sample. Column 1 reports means for losing candidates within ten percentage points of the cutoff and Column 2 reports results from regressions testing for balance of observable characteristics across the victory margin threshold. Each row represents a separate mean and regression. All regressions include state and year fixed effects and no other controls. The bandwidth is ten percentage points in all regressions. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Table 3: State Legislative Service and Higher-Level Candidacy

Panel A: State Experience	(1)	(2)
Years Served in State	5.272***	5.277***
	(0.235)	(0.236)
Control Mean	1.012	1.012
Panel B: Higher-Level Elections		
Run in Any HLE	4.125***	4.212***
	(0.844)	(0.839)
Control Mean	2.378	2.378
Observations	11,486	11,486
Controls	No	Yes

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on total years of service in the state legislature and the probability of running in any future higher-level election. Panel A reports estimates of winning a candidate's first election on the number of years served in the state legislature. Panel B reports estimates of winning a candidate's first election on the probability they ever run in a higher-level (Congressional or gubernatorial) election, including primaries and general elections. All regressions include state and year fixed effects. Column 2 adds candidate and election characteristics as controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Table 4: State Legislative Service and Higher-Level Candidacy and Representation Across Varying Definitions of Higher-Level Positions

	Any HLE	Any Cong.	Any Gov.	House Primary	House General
Panel A: Candidacy	(1)	(2)	(3)	(4)	(5)
Won Election	4.212***	3.734***	0.780**	3.318***	2.324***
	(0.839)	(0.829)	(0.363)	(0.805)	(0.735)
Control Mean	2.378	2.064	0.404	1.914	1.137
Panel B: Representation					
Won Election	3.207***	2.950***	0.332	2.525***	0.767*
	(0.873)	(0.801)	(0.267)	(0.761)	(0.392)
Control Mean	1.421	1.316	0.165	1.226	0.329
Observations	11,486	11,486	11,486	11,486	11,486

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on the probability of running in or winning a higher-level election (Congressional or gubernatorial) under different definitions of higher-level office. Panel A reports candidacy results and Panel B reports representation results. The outcome definition is listed in the column title. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Table 5: State Legislative Service and Higher-Level Candidacy and Representation by Gender

	Men	Women
Panel A: State Experience	(1)	(2)
Years Served in State	5.418***	4.833***
	(0.278)	(0.386)
Control Mean	1.037	0.931
Panel B: Higher-Level Elections		
Run in Any HLE	3.649***	5.886***
	(0.970)	(1.451)
Control Mean	2.460	2.110
Win Any HLE	2.879***	4.215***
	(1.036)	(1.279)
Control Mean	1.445	1.343
Observations	8,837	2,649

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on total years of service in the state legislature and the probability of running in or winning any future higher-level election, separately by gender. Column 1 reports results for men and Column 2 reports results for women. Panel A reports estimates on total years of service in the state legislature and Panel B reports estimates of on the probability of ever running in or winning a higher-level (Congressional or gubernatorial) election, including primaries and general elections, The outcome is listed in each row. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Table 6: State Legislative Service and Higher-Level Candidacy and Representation by Type of Experience

	Run in Any HLE		Win Any HLE	
	Time Commitment	Seat Power	Time Commitment	Seat Power
Panel A: Low	(1)	(2)	(3)	(4)
Won Election	3.738***	1.769**	2.478**	1.035
	(0.888)	(0.810)	(0.915)	(0.712)
Control Mean	2.034	1.646	1.160	0.871
Observations	9,113	7,143	9,113	7,143
Panel B: High				
Won Election	6.229***	8.247***	6.037***	6.808***
	(2.225)	(1.531)	(1.948)	(1.490)
Control Mean	3.647	3.562	2.384	2.309
Observations	2,373	4,343	2,373	4,343

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on the probability of running in or winning any future higher-level election, estimated separately by heterogeneous sample split of expected time commitment in the state legislature and seat power. Seat power is calculated as constituency size. Panel A reports results for less than full-time or below-median subsamples and Panel B reports results for full-time or above-median subsamples. The outcome in Columns 1 and 2 is the probability of running in any higher-level (Congressional or gubernatorial) election, including primaries and general elections, and the outcome in Columns 3 and 4 is the probability of winning any higher-level election. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. Robust standard errors in Columns 1 and 3, Panel B are reported in parentheses due to small number of clusters. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

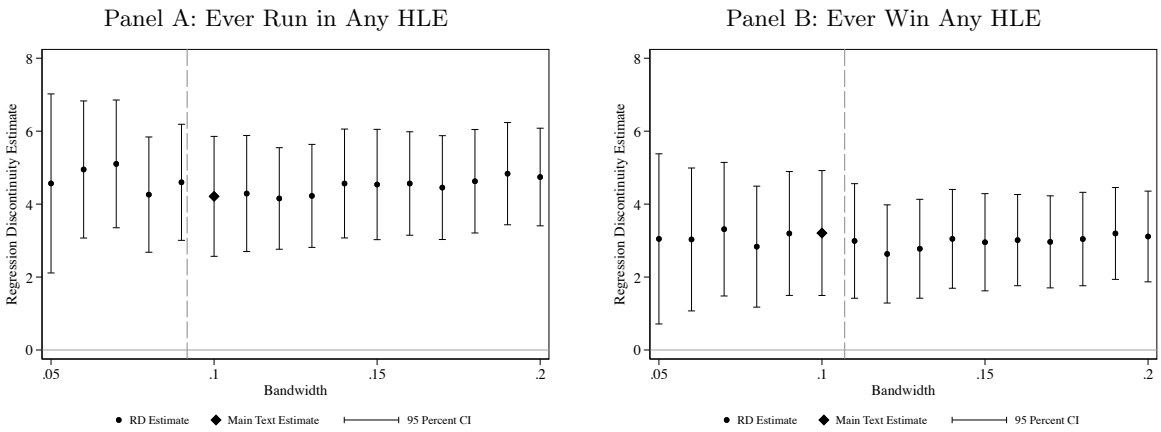
Table 7: State Legislative Service and Higher-Level Candidacy and Representation by Type of Experience and Gender

	Run in Any HLE		Win Any HLE	
	Time Commitment	Seat Power	Time Commitment	Seat Power
Low	(1)	(2)	(3)	(4)
Panel A: Men				
Won Election	3.284***	1.525*	2.112**	1.114
	(1.013)	(0.888)	(1.038)	(0.787)
Control Mean	1.981	1.672	1.114	0.852
Observations	7,025	5,506	7,025	5,506
Panel B: Women				
Won Election	5.021***	2.432	3.690**	0.863
	(1.665)	(1.623)	(1.394)	(0.973)
Control Mean	2.211	1.559	1.310	0.936
Observations	2,088	1,637	2,088	1,637
High				
Panel C: Men				
Won Election	5.471**	7.447***	6.146***	6.028***
	(2.626)	(1.949)	(2.271)	(2.085)
Control Mean	4.247	3.738	2.678	2.407
Observations	1,812	3,331	1,812	3,331
Panel D: Women				
Won Election	10.609**	11.213***	6.415*	9.601***
	(4.392)	(2.517)	(3.857)	(2.546)
Control Mean	1.749	2.990	1.458	1.993
Observations	561	1,012	561	1,012

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on the probability of running in or winning any future higher-level election, estimated separately by heterogeneous sample split of expected time commitment in the state legislature and seat power, and by gender. Seat power is calculated as constituency size. Panels A and B reports results for less than full-time or below-median subsamples and Panels C and D reports results for full-time or above-median subsamples. Panels A and C report results for men and Panels B and D report results for women. The outcome in Columns 1 and 2 is the probability of running in any higher-level (Congressional or gubernatorial) election, including primaries and general elections, and the outcome in Columns 3 and 4 is the probability of winning any higher-level election. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. Robust standard errors in Columns 1 and 3, Panels A and B are reported in parentheses due to small number of clusters. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

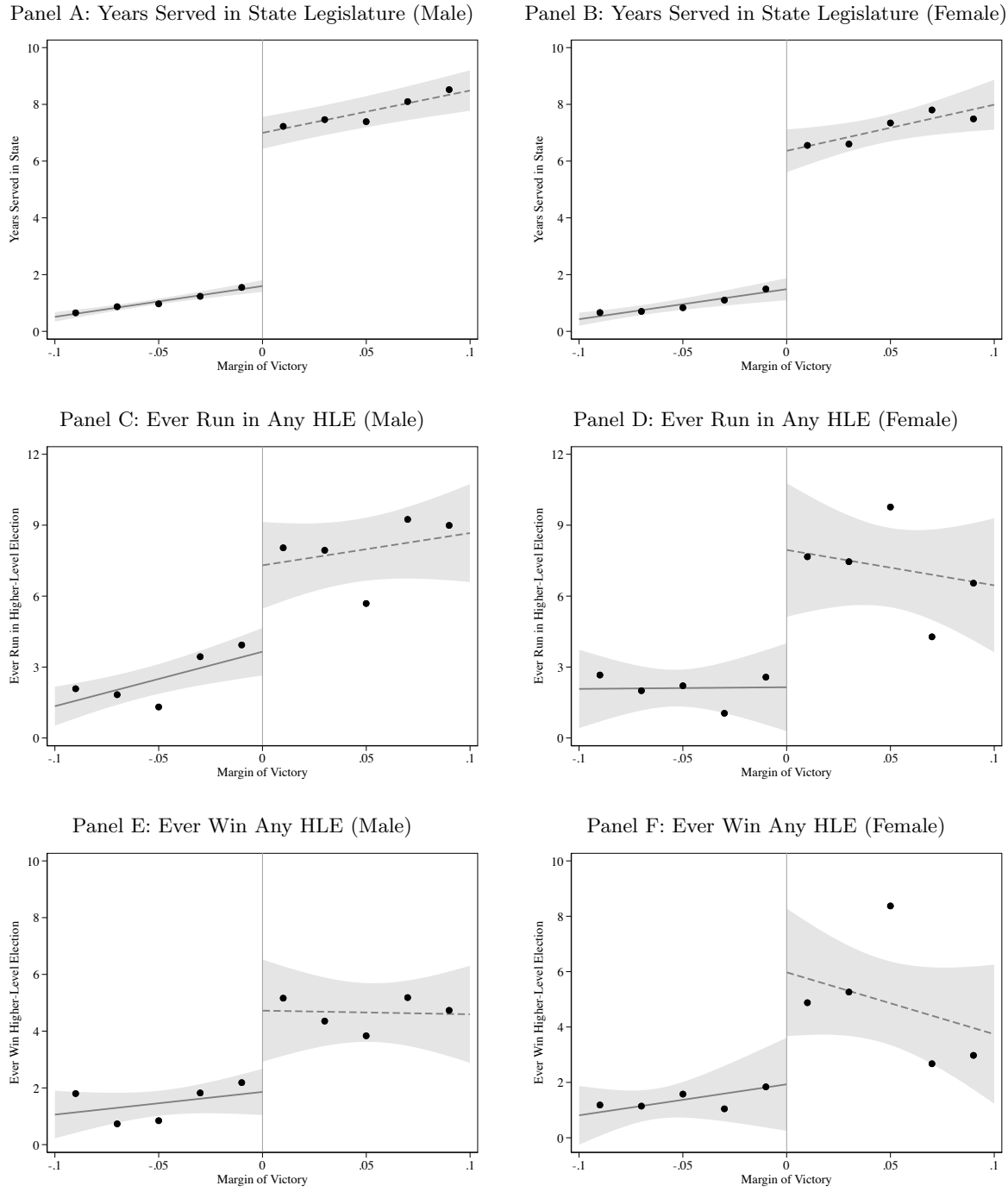
Appendix: Additional Results

Appendix Figure 1: Robustness of Regression Discontinuity Estimates to Alternative Bandwidths



Notes: This figure reports robustness checks for the regression discontinuity estimates across different bandwidths. Panel A reports results for ever running in a higher-level (Congressional or gubernatorial) election, including primaries and general elections, and Panel B reports results for ever winning a higher-level election. Each point represents a separate regression discontinuity point estimate. All regressions include state and year fixed effects as well as candidate and election controls. The dashed vertical line denotes the optimal coverage error rate bandwidth from Calonico, Cattaneo, and Farrell (2020). The larger black diamond denotes the main text estimate using a bandwidth of ten percentage points. Vertical lines denote 95 percent confidence intervals with standard errors clustered at the state level.

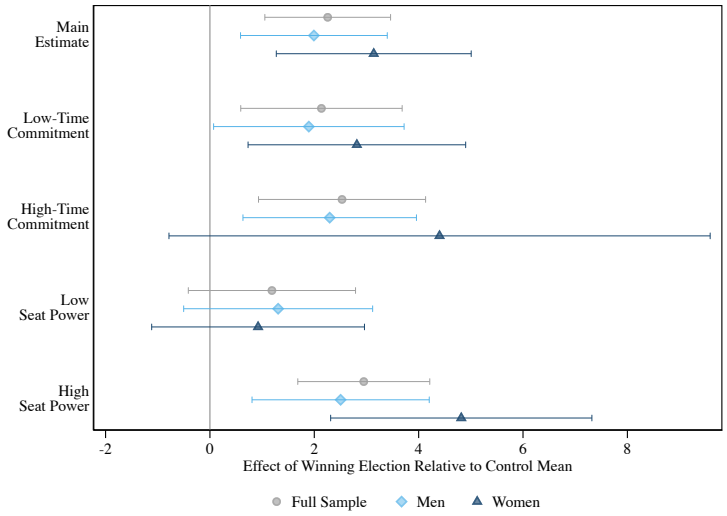
Appendix Figure 2: Graphical Evidence of the Effect of Winning a State Legislative Election on Future Political Service and Career Advancement by Candidate Gender



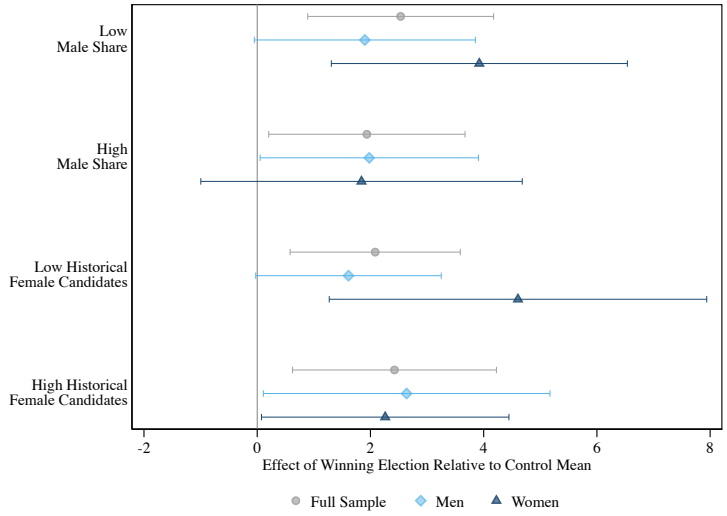
Notes: This figure plots graphical evidence of the effect of winning a state legislative election on future state legislature and higher-level outcomes, separately by gender. Panels A and B report results for number of years served in the state legislature, Panels C and D report results for ever running in a higher-level (Congressional or gubernatorial) election, including primaries and general elections, and Panels E and F report results for ever winning a higher-level election. The vertical line denotes the zero margin of victory threshold. Each dot plots the midpoint of a two-percentage point bin against the within-bin mean. Solid and dashed black lines denote the lines of best fit with associated 95 percent confidence intervals indicated by gray shaded areas.

Appendix Figure 3: Relative Effects of Winning State Legislative Election on Higher-Level Representation by Gender and Subsample

Panel A: Relative Effects by Type of Experience

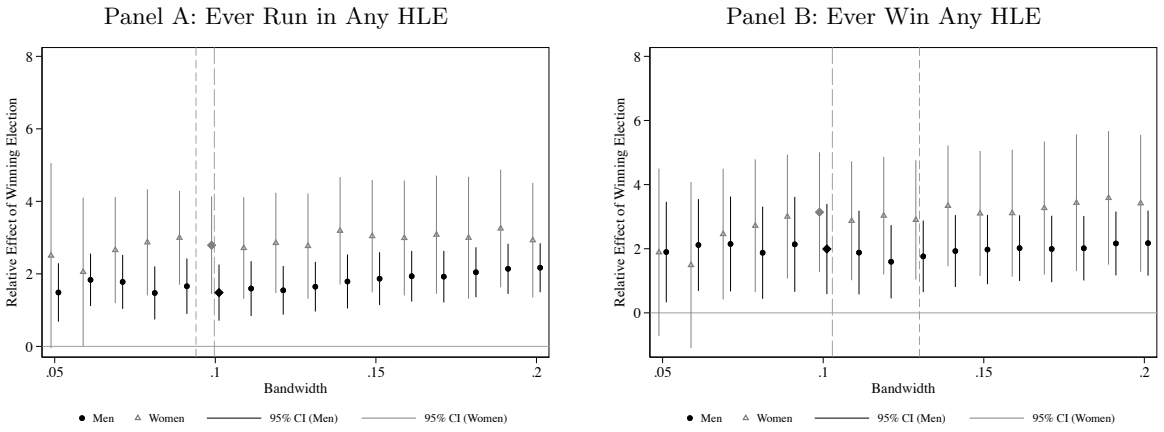


Panel B: Relative Effects by Legislative Cohort and Historical District Characteristics



Notes: This figure reports relative effects of winning a candidate's first election on the probability of ever winning a higher-level (Congressional or gubernatorial) election, including primaries and general elections. Relative effects are calculated as the regression discontinuity estimate divided by the control mean. The subsample is reported in each row. Gray circles indicate the relative effect for the full sample, light blue diamonds indicate the relative effect for men, and dark blue triangles indicate the relative effect for women. Solid lines indicate 95 percent confidence intervals.

Appendix Figure 4: Robustness of Relative Regression Discontinuity Estimates by Candidate Gender to Alternative Bandwidths



Notes: This figure reports robustness checks for the relative regression discontinuity estimates across different bandwidths, estimated separately by candidate gender. Panel A reports results for ever running in a higher-level (Congressional or gubernatorial) election, including primaries and general elections, and Panel B reports results for ever winning a higher-level election. Each point represents a separate regression discontinuity point estimate, divided by the relevant control mean. Black circles represent estimates for male candidates and gray triangles represent estimates for female candidates. All regressions include state and year fixed effects as well as candidate and election controls. The dashed vertical line denotes the optimal coverage error rate bandwidth from Calonico, Cattaneo, and Farrell (2020), separately for men and women, with the shorter dash denoting the optimal bandwidth for female candidates. The larger points denote the main text estimate using a bandwidth of ten percentage points. Vertical lines denote 95 percent confidence intervals with standard errors clustered at the state level.

Appendix Table 1: Balance Tests by Gender

	Candidate Gender		Winning Candidates
	Men	Women	Female-Male Difference
Panel A: Election Characteristics	(1)	(2)	(3)
Number of Candidates	0.002	−0.001	−0.001
	(0.011)	(0.029)	(0.024)
Term Length	−0.007	−0.025	−0.041
	(0.019)	(0.046)	(0.041)
Senate Election	−0.006	−0.026	−0.021
	(0.012)	(0.030)	(0.023)
Special Election	−0.003	0.006	0.006
	(0.002)	(0.006)	(0.004)
Panel B: District Characteristics			
Share Incumbent Ran	−0.001	−0.019	−0.007
	(0.006)	(0.015)	(0.016)
Share Unopposed Elections	0.003	−0.010	−0.025*
	(0.007)	(0.013)	(0.015)
Margin of Victory	0.002	0.017	−0.004
	(0.004)	(0.011)	(0.009)
Share Female Candidates	0.001	0.005	0.028*
	(0.007)	(0.019)	(0.016)
Number of Candidates	−0.007	−0.005	0.029
	(0.012)	(0.017)	(0.020)
Panel C: Candidate Characteristics			
Democrat	0.019	0.057	0.168***
	(0.028)	(0.037)	(0.032)
Observations	8,837	2,649	4,800

Notes: This table reports balance tests for different estimation subsamples. Columns 1 and 2 reports results from regressions testing balance of observable characteristics across the victory margin threshold in subsamples based on candidate gender. Columns 1 and 2 report results from regressions testing balance of observable characteristics across the victory margin threshold for men and women, respectively. Column 3 reports the difference in the listed characteristics for winning female and male candidates, redefining the running variable to be positive for women and negative for men. The outcome is listed in each row and each estimate represents a separate regression. All regressions include state fixed effects and year fixed effects and no other controls. The bandwidth is ten percentage points in all regressions. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Appendix Table 2: State Legislative Service and Higher-Level Candidacy and Representation by Party and Historical District Characteristics

	Democrat	Non-Democrat	Low Historical Female Candidates	High Historical Female Candidates	Low Historical Unopposed Elections	High Historical Unopposed Elections
Panel A: Candidacy	(1)	(2)	(3)	(4)	(5)	(6)
Won Election	3.398***	4.953***	4.780***	3.571***	4.634***	3.529**
	(1.116)	(1.274)	(1.301)	(1.154)	(1.103)	(1.444)
Control Mean	2.065	2.656	2.584	2.067	2.568	1.974
Observations	5,429	6,057	5,343	5,773	6,253	4,869
Panel B: Representation						
Won Election	2.440**	3.842***	3.433***	2.864**	3.341***	2.883**
	(0.974)	(1.318)	(1.263)	(1.085)	(1.072)	(1.271)
Control Mean	1.398	1.441	1.647	1.181	1.703	1.005
Observations	5,429	6,057	5,343	5,773	6,253	4,869

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on the probability of running in any future higher-level election, estimated separately by heterogeneous sample split of candidate party affiliation, historical female candidate share, and historical unopposed share of elections. Historical district characteristics are calculated using elections within the ten years prior to the focal election. Columns 1 and 2 split the sample based on candidate party affiliation, Columns 3 and 4 split the sample based on above- and below-median historical female candidate share, and Columns 5 and 6 split the sample based on above- and below-median historical unopposed election share. The outcome in Panel A is the probability of ever running in a higher-level (Congressional or gubernatorial) election, including primaries and general elections, and the outcome in Panel B is the probability of winning a higher-level election. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Appendix Table 3: State Legislative Service and Higher-Level Candidacy and Representation by Gender in Same-Gender Elections

	Men	Women
Panel A: State Experience	(1)	(2)
Years Served in State	5.652***	6.064***
	(0.336)	(0.792)
Control Mean	1.050	0.834
Panel B: Higher-Level Elections		
Run in Any HLE	2.797**	8.600**
	(1.161)	(3.565)
Control Mean	2.608	0.592
Win Any HLE	2.030*	9.939***
	(1.102)	(3.080)
Control Mean	1.555	0.592
Observations	7,148	585

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on total years of service in the state legislature and the probability of running in any future higher-level election, separately by gender using only same-gender elections. Column 1 reports results for men and Column 2 reports results for women. Panel A reports estimates of winning a candidate's first election on the number of years served in the state legislature. Panel B reports estimates of winning a candidate's first election on the probability they ever run in a higher-level (Congressional or gubernatorial) election, including primaries and general elections. The outcome is listed in each row. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Appendix Table 4: Balance Tests in Subsamples Based on Legislative Characteristics

	Time Commitment		Seat Power	
	Low	High	Low	High
Panel A: Election Characteristics	(1)	(2)	(3)	(4)
Number of Candidates	−0.001	0.005	−0.004	0.008
	(0.009)	(0.038)	(0.009)	(0.016)
Term Length	0.004	−0.077	−0.007	−0.044
	(0.017)	(0.052)	(0.010)	(0.029)
Senate Election	−0.000	−0.053*	−0.009	−0.036**
	(0.012)	(0.031)	(0.008)	(0.016)
Special Election	0.000	0.000	−0.001	0.001
	(0.001)	(0.000)	(0.001)	(0.001)
Panel B: District Characteristics				
Share Incumbent Ran	−0.003	−0.011	−0.003	−0.009
	(0.006)	(0.016)	(0.005)	(0.012)
Share Unopposed Elections	0.000	0.008	−0.003	0.011
	(0.006)	(0.014)	(0.005)	(0.010)
Margin of Victory	0.003	0.005	0.003	0.004
	(0.004)	(0.012)	(0.005)	(0.007)
Share Female Candidates	0.003	0.001	−0.002	0.011
	(0.007)	(0.015)	(0.007)	(0.009)
Number of Candidates	−0.007	−0.017	−0.004	−0.016
	(0.009)	(0.027)	(0.010)	(0.016)
Panel C: Candidate Characteristics				
Democrat	0.030	0.034	0.025	0.042
	(0.027)	(0.041)	(0.031)	(0.035)
Female	0.029	0.048	0.025	0.046
	(0.023)	(0.035)	(0.026)	(0.033)
Observations	9,113	2,373	7,143	4,343

Notes: This table reports balance tests for different estimation subsamples. Columns 1 and 2 reports results from regressions testing balance of observable characteristics across the victory margin threshold in subsamples based on expected state legislative time commitment. Columns 3 and 4 reports results from regressions testing balance of observable characteristics across the victory margin threshold in subsamples based above- or below-median seat power, following the definition in the main text. The outcome is listed in each row and each estimate represents a separate regression. All regressions include state fixed effects and year fixed effects and no other controls. The bandwidth is ten percentage points in all regressions. Standard errors clustered at state-level are reported in parentheses. Robust standard errors in Column 2 are reported in parentheses due to small number of clusters. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Appendix Table 5: State Legislative Service and State Legislative Experience in Various Subsamples

	All Candidates	Men	Women
	(1)	(2)	(3)
Full Sample	5.277***	5.418***	4.833***
	(0.236)	(0.278)	(0.386)
Low Time Commitment	5.150***	5.210***	4.907***
	(0.244)	(0.273)	(0.466)
High Time Commitment	5.771***	6.295***	4.763***
	(0.435)	(0.512)	(0.760)
Low Seat Power	4.911***	4.987***	4.605***
	(0.280)	(0.318)	(0.565)
High Seat Power	5.905***	6.176***	5.252***
	(0.362)	(0.442)	(0.455)
Low Male Share of Legislature	4.902***	4.959***	4.805***
	(0.223)	(0.241)	(0.426)
High Male Share of Legislature	5.832***	6.047***	5.147***
	(0.393)	(0.427)	(0.826)
Low Historical Share Female Candidates	5.783***	6.057***	4.896***
	(0.355)	(0.430)	(0.547)
High Historical Share Female Candidates	4.829***	4.798***	4.817***
	(0.257)	(0.306)	(0.438)
Low Historical Share Unopposed Elections	5.425***	5.454***	5.388***
	(0.294)	(0.338)	(0.558)
High Historical Share Unopposed Elections	5.117***	5.411***	4.036***
	(0.303)	(0.373)	(0.524)
Democrat	5.400***	5.681***	4.761***
	(0.292)	(0.371)	(0.338)
Non-Democrat	5.201***	5.225***	5.094***
	(0.278)	(0.316)	(0.631)

Notes: This table reports regression discontinuity estimates in different subsamples. The subsample is listed in each row. Each coefficient is from a separate regression and represents the effect of winning the candidate's first state legislative election on total years served in the state legislature. Column 1 reports results for all candidates, Column 2 reports results for male candidates, and Column 3 reports results for female candidates. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. Standard errors clustered at state-level are reported in parentheses. Robust standard errors for high-time commitment places are reported in parentheses due to small number of clusters. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.

Appendix Table 6: State Legislative Service and Higher-Level Candidacy and Representation by Historical District Characteristics and Gender

	Run in Any HLE		Win Any HLE	
	Male Share of Legislature	Historical Share Female Candidates	Male Share of Legislature	Historical Share Female Candidates
Low	(1)	(2)	(3)	(4)
Panel A: Men				
Won Election	3.409**	4.266***	2.427*	2.809*
	(1.389)	(1.483)	(1.272)	(1.456)
Control Mean	2.007	2.796	1.277	1.742
Observations	4,712	4,273	4,712	4,273
Panel B: Women				
Won Election	7.210***	7.631***	4.876***	5.867***
	(1.785)	(2.598)	(1.658)	(2.167)
Control Mean	1.721	1.752	1.243	1.274
Observations	1,850	1,070	1,850	1,070
High				
Panel C: Men				
Won Election	3.906**	3.191**	3.241**	2.859**
	(1.594)	(1.398)	(1.611)	(1.399)
Control Mean	2.982	2.006	1.638	1.083
Observations	4,125	4,270	4,125	4,270
Panel D: Women				
Won Election	3.367	4.485***	2.845	3.291**
	(2.898)	(1.671)	(2.237)	(1.623)
Control Mean	2.896	2.240	1.544	1.456
Observations	799	1,503	799	1,503

Notes: This table reports regression discontinuity estimates of winning a candidate's first election on the probability of running in or winning any future higher-level election, estimated separately by heterogeneous sample split based on contemporaneous legislative and historical district characteristics and gender. Panels A and B report results for below-median subsamples and Panels C and D report results for above-median subsamples. Panels A and C report results for men and Panels B and D report results for women. The outcome in Columns 1 and 2 is the probability of running in any higher-level (Congressional or gubernatorial) election, including primaries and general elections, and the outcome in Columns 3 and 4 is the probability of winning any higher-level election. Columns 1 and 3 split the sample based on the share of the legislative cohort that is male. Columns 2 and 4 split the sample based on the historical female share of candidates within the ten years prior to the focal election. All regressions include state and year fixed effects as well as candidate and election controls. The bandwidth is ten percentage points in all regressions. The control means are calculated using losing candidates within ten percentage points of the cutoff. Standard errors clustered at state-level are reported in parentheses. *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level.