

# Legislative Professionalism and the Value of Women's Committee Portfolios in State Legislatures

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## **Abstract**

For numerical gains in American state legislatures to translate into substantive policy, women legislators need access to the institutional power structures where lawmaking occurs. We examine the most important policymaking institution within state legislatures, standing committees, to determine whether women are systematically (dis)advantaged in their committee assignments. Similar to the dynamics at the national level, we expect women candidates to be of higher quality than men in more professionalized legislatures, and as a result, have more valuable committee portfolios than men. For less professionalized legislatures, where there is less competition for legislative seats, we expect women to hold less desirable committee seats, reflecting long-standing gender bias. Using novel over-time data on committee assignments in state legislatures (from 2007-2014), we find evidence for our claims. Our results demonstrate that access to policymaking is uneven across states, and that institutions mediate the relationship between descriptive and substantive representation.

In the U.S. system of federalism, state legislatures are the representative body empowered by the Constitution to produce policy on a wide variety of important issues and provide direct, local representation. State legislators seek to turn their own preferences, and those of their constituents, into public policy while also pursuing their own electoral-based goals of reelection (Mayhew 1974) or career advancement (Dodd 1977; Fenno 1978; Maestas 2003). These goals provide strong incentives to communicate and advocate for their constituents' opinions and perspectives in the policymaking process. Yet, the extent to which individual legislators can perform this crucial task is largely determined by their ability to access institutional power structures where the nitty-gritty of lawmaking occurs. Perhaps the most important legislative institution at both the state and federal levels is the standing committee system, which performs most of the work of drafting and amending legislation, monitoring the executive branch, and organizing legislative business. Not all committees are created equally however (Groseclose and Stewart 1998), and membership on more important committees allows legislators access to policymaking and oversight on more salient and substantive issues, while also giving them access to greater electoral resources (Fowler, Douglass and Clark 1980; Katz and Sala 1996). At the aggregate level, the overall representativeness of a legislature depends on the degree to which its institutional and organizational characteristics empower a diverse set of members (Schwindt-Bayer and Squire 2014). We assess how well women are able to access legislative power through the standing committee system within state legislatures, and the extent to which the professionalism of state legislatures conditions the dyadic and collective representation that women legislators are able to provide.

The extant literature examines the distinction between descriptive and substantive representation, with the former emphasizing ascriptive diversity and the ability of the representatives to “stand for” and “speak for” the represented, while the latter refers to a legislator’s ability to “act for” their constituents (Pitkin 1967). Women are decidedly descriptively underrepresented by American legislatures. While there has been recent improvement in the number of women serving in American legislatures, they comprise just 20% of Congress and 24.8% of state legislatures (Center for American Women and Politics 2017).<sup>1</sup> Much of the recent work suggests that increased descriptive representation directly translates to improved substantive representation, though there is disagreement about the

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<sup>1</sup><http://www.cawp.rutgers.edu/current-numbers>

theoretical mechanisms linking the two (Celis, Childs, Kantola and Krook 2008; Osborn 2014).

We argue that even increases in descriptive representation may not always produce increases in substantive representation if women legislators are systematically excluded from, or marginalized in, the lawmaking process. Institutional variation in the states conditions representational incentives and resources, and this variation can produce a tradeoff between descriptive and substantive representation. That is, conditions that increase descriptive representation may simultaneously deny women legislators access to the institutional resources necessary to effectively “act for” their constituents and women’s interests more generally. On the other hand, legislatures that create barriers to descriptive representation are likely to attract very high quality woman legislators who “outperform” their male counterparts and produce high quality substantive representation for constituents and women’s interests more generally (Anzia and Berry 2011; Volden, Wiseman and Wittmer 2013).

We assess our argument empirically by examining a key indicator of representational resources in state legislatures: committee portfolio values. Holding a seat on desirable standing committees affords legislators with valuable representational resources which allow them to pursue substantive policies for their constituencies. Because there is a diversity of institutional arrangements in the states, with some state assemblies being comparable to Congress, while others are part-time with low legislative capacity, we can leverage variation in candidate quality to determine effects on committee service. We test our comparative institutional theory with a novel and comprehensive data source of committee membership in the states from 2007-2014, and aggregate membership across committees to develop an overall legislator-level committee portfolio value.

We find, consistent with results at the national level (e.g., Anzia and Berry 2011, Volden, Wiseman, and Wittmer 2013) that discrimination in who runs for office, which prevents women from achieving descriptive representation, also allows women to outperform their male counterparts in committee assignments. The opposite is true in states with low levels of legislative professionalism; in these states, women are more likely to win election and increase descriptive representation, but are discriminated against within the legislature itself and receive less valuable committee portfolios than their male counterparts. Our research helps better understand potential trade-offs between descriptive and substantive representation, along with how legislative organization affects the ability of traditionally marginalized legislators to pursue their policy preferences after election.

# The Substantive and Descriptive Representation of Women in American Legislatures

There is strong empirical evidence that women are numerically underrepresented in American legislatures (Rule 1994; Swers 2001)<sup>2</sup>, yet women win election at the same or higher rates than men *when they run* (Lawless 2008; Kanthak and Woon 2015). Thus, women run for office at a lower rate than men, though the exact mechanism is unclear. One possible explanation is a lower-level of political ambition among women, or less willingness or ability to run for political office (Lawless and Fox. 2005; Lawless and Fox 2010). Other possible explanations include discrimination against women candidates by voters (Huddy and Terkildsen 1993), an underestimation by potential women candidates of their qualifications for office (Lawless and Fox 2010), the incumbency advantage of sitting male legislators and associated scare-off effect of quality female candidates (Schwindt-Bayer and Mishler 2005*b*), weak recruitment by party leaders (Sanbonmatsu 2002; Dolan, Deckman and Swers 2007), or inherent election aversion (Kanthak and Woon 2015)).

At the federal level, once elected, women provide *better* substantive representation than their male colleagues (Anzia and Berry 2011; Volden, Wiseman and Wittmer 2013). Because women face barriers to running and election, those that do win are drawn from a more talented distribution than male legislators who do not face discrimination. For example, Anzia and Berry (2011) find that women direct more federal spending to their district, while sponsoring and cosponsoring more legislation. Unfortunately, better electoral performance at the individual-level may not translate into widespread, substantive policy gains as women may still be shut out of the institutions which confer legislative power (Bratton and Haynie 1999; Heath, SchwindtBayer and TaylorRobinson 2005) or they may not have a sufficient “critical mass” within the legislature to effect change (Celis et al. 2008; Childs and Krook 2009).

Though the findings that voters or parties may discriminate against women in the electoral process or that women may undervalue their own strength as candidates are normatively discouraging, high

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<sup>2</sup>Descriptive representation is normatively important for reflecting political equality, but is also practically important for improving the quality, stability, and responsiveness of policy (Kanthak and Krause 2010, 2012) and democratic legitimacy (Mansbridge 1999; Schwindt-Bayer and Mishler 2005*a*)

quality women who do win office can effectively pursue policy changes. In this paper, we examine whether the conditions that lead to lower levels of descriptive representation of women make it more likely that women legislators, who are more competent than their male colleagues, are afforded the legislative resources to effectively pursue substantive representation. These claims contrast with other accounts that theorize that increases in descriptive representation always increase women's substantive representation (Phillips 1995; Young 2002; Carroll 2001).

## **Standing Committee Assignments as Representational Resources**

Standing committees are perhaps the most important institutional resource for individual state legislators. Not only do they provide access to the policymaking process, they also facilitate individual electoral legislator goals (Fenno 1973; Mayhew 1974). Legislators have strong preferences about serving on valuable committees that provide access to policymaking through important jurisdictions and legislator resources, while membership on “burden” committees is avoided (Groseclose and Stewart 1998).

Each of the major theories of legislative organization similarly prioritize committees as loci of individual and collective influence in representative bodies. Distributive theory flows from Mayhew's “single-minded seekers of reelection” thesis and sees jurisdictional committees as visible venues through which members can direct district-concentrated particularistic benefits and claim credit for these benefits (Shepsle 1978; Weingast and Marshall 1988; Adler and Lapinski 1997). Some committees are not clearly distributively beneficial (e.g., Foreign Affairs and Judiciary), but members value them because they allow for policy influence or prestige within the body (Frisch and Kelly 2004, 2006). Distributive theory also explains why members have preferences over their committee assignments, as districts which are “high-demanders” in an issue area (e.g., the district's economy centers around agriculture) should have representatives on committees relevant to those issue areas.

Information theory (Gilligan and Krehbiel 1987; Krehbiel 1991) takes committee influence over policy as a given and seeks to understand why legislative bodies delegate so much procedural authority to them. According to the theory, committees are an efficient mechanism to process complex jurisdictional issues, and allow for specialization among members and expertise within an issue-area that can be transmitted to the floor (Krehbiel 1990). This theory lends credence to the claim that

committee members are advantaged in their pursuit of substantive policy and members of committees possess informational advantages that are both technical and political.

Finally, party-based theories see committees as institutions which serve the party by preventing issues which might “roll” the majority from reaching the floor (Cox and McCubbins 2007, 2005). This protects the party brand and ensures only partisan, outlying legislation is approved by the chamber. Loyal partisans are rewarded with better committee assignments, giving them influence over the content of public policies and more credible claims to delivering high quality substantive representation to their constituents.

There is ample evidence that committee assignments are important to individual members (Fenno 1973; Deering and Smith 1997). Being on the right committees can help members’ electoral prospects (Katz and Sala 1996) and raise campaign funds (Poole and Romer 1985; Grier and Munger 1991) and is an important component of the incumbency advantage at both the national (Fowler, Douglass and Clark 1980) and state (Moncrief, Thompson, Haddon and Hoyer 1992) levels. Service on preferred committees also generates higher vote shares for their seat-holders. Milyo (1997) shows that institutional reforms which dis-empowered the Appropriations Committee led to lower vote share for its members, Grimmer and Powell (2013) demonstrate that members who are “exiled” from valuable committees must focus more attention on district activities to avoid negative electoral effects, while Crain and Sullivan (1997) claim that committees with exclusive jurisdictions increase vote share. And importantly, members believe committees help their reelection, reporting that district-orientation and reelection are foremost among the reasons to prefer a certain committee (Bullock 1976; Smith and Deering 1983). Legislators also transfer to better-aligned committees when given the opportunity (Kellermann and Shepsle 2009). Thus, individual members should seek the most valuable committee assignments they can, in order to maximize their reelection prospects *and* to deliver quality representation to their constituencies, both geographic and demographic.

Representation on powerful committees is important for all legislators but it may be especially so for women and other descriptively underrepresented groups. Mansbridge (1999) argues, for example, that representation in the agenda setting and deliberative stages of the policy process (as opposed to the final stage of voting) is particularly important for substantive representation of these groups. “[T]he best way to have one’s most important substantive interests represented is often to choose a

representative whose descriptive characteristics match one's own on the issues one expects to emerge" (Mansbridge 1999, p.644). The presence of women legislators on high value committees that deal with substantively important policies increase the likelihood that women's unique perspectives on policy development are incorporated in the policy process.

## **Legislative Professionalism and Representation**

As described above, there are a number of possible reasons why women have trouble gaining entry into legislatures. We do not adjudicate between each of these competing claims but theorize that each of these potential causes likely becomes more acute as the professionalism of the legislature increases. Seats in these types of legislatures are more competitive and require more resources to win (Hogan 2003), which we expect will disadvantage women to a greater extent. For example, when the legislature is highly professionalized, women will undervalue their own qualifications to a greater extent than for low professionalism legislatures. Similarly, discrimination at the party recruitment stage is likely to be a greater problem when legislative seats are scarcer and more competitive. Therefore, as the professionalism of a legislature increases, seats becomes more competitive and valuable, and the more likely women are to have difficulty gaining entry to the legislature. That is, we expect factors that produce fewer women candidates in state legislative elections to be amplified as the professionalism of the legislature increases.

The descriptive data on women's representation supports the claim that legislative professionalism conditions levels of descriptive representation. Legislatures that afford more staff resources, salary, and opportunities to advance a political career for members make competition for seats stiffer and accentuate the deleterious effects of the gender gap in political ambition (Squire 1992; Maestas 2000; Schwindt-Bayer and Squire 2014; Lawless 2015). In addition, within more professional legislatures, the incentives for predominantly male party leaders to discriminate women against recruiting female legislators may be exacerbated (Sanbonmatsu 2002). The evidence that more professional legislatures have fewer women lawmakers is somewhat mixed but support the claim, on balance (Diamond 1977; Carroll 1985; Rule 1990; Squire 1992; Schwindt-Bayer and Squire 2014).<sup>3</sup>

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<sup>3</sup>See also appendix figure B1 which shows a negative correlation between descriptive representation of women and levels of legislative professionalism.



Given the increased difficulty of obtaining seats in professionalized legislatures, potential women candidates for these seats will be subject to the same sex-based selection mechanisms that occur for seats in the U.S. House, and as a result, the same type of women are likely to win election. This result has been demonstrated in the context of the U.S. Congress and we expect it to generalize to more professional legislatures, which are similar to Congress in their competitiveness and the resources available to members. As a result, women lawmakers in these legislatures are expected to be more competent and successful as compared to their male counterparts, who face no such discriminatory mechanism.

Committee assignments in professional legislatures are a valuable resource for both the party and the legislator, and women should receive better committee assignments as a result of their competence. Committee seats are scarce, and parties, who determine how committee seats are distributed across members, should be more willing to give more effective legislators better seats. If women are drawn from a more competent and effective distribution of lawmakers, as compared to men, we expect them to serve on more valued committee seats in order to better serve party priorities and reward effective lawmakers. Because legislators serve on more than one committee in many chambers, we characterize the overall value of a legislator's committee portfolio. Hypothesis 1 details this relationship.

*Hypothesis 1: In professional state legislatures, women will have higher committee portfolio values than men.*

In low professionalism states, sex-based selection will be less prominent. Seats in these legislatures are not scarce, require fewer resources to obtain, and generally present a lower hurdle for amateur or unknown candidates. All these factors promote the representation of traditionally marginalized groups, including women, and allow for greater descriptive representation. Because the same sex-based selection mechanism does not exist, women candidates are expected to be similar to men with respect to competence and legislative effectiveness. This suggests that women should have similar committee seats as compared to men in the absence of gender discrimination.

Instead, we expect women to have *poorer* committee seats in these types of legislatures. Despite being the same quality of their male counterparts in amateur legislatures, women may become the

victims of traditional types of intra-institutional sex bias, through either stigmatization or backlash effects (see O'Brien and Rickne (2016) for a review). Such effects hamper the ability of women legislators to substantively “act for” women’s interests, even as decreases in legislative professionalism may drive measurable improvements in the numerical representation of women. We again characterize the overall value of an individual’s collective committee assignments as a committee portfolio, and expect women to do worse in these legislatures.

*Hypothesis 2: In non-professional state legislatures, women will have lower committee portfolio values than men.*

## **Data, Analysis, and Results**

### **Measuring Committee Portfolio Values**

In order to measure the value of individual-level appointment portfolios, we turn to a comprehensive data source on all state committee memberships from 2007-2014. Our data are drawn from Leadership Directories’ *State Yellow Books*. The books contain contact information on all state officials, leadership information, and committee assignments for each year. We obtained digital copies of these directories from the publisher and used the legislator-level data to track committee assignments and how members within a state-chamber move onto, and off of, standing committees. Quantifying committee values has a long and rich history in the congressional literature, but ours is the first attempt that we are aware of to calculate values for all states across many years.

The original formulation of committee-level value was done by calculating a “net transfer score”, simply the number of transfers onto the committee divided by the total number of transfers onto and off of the committee. The basic intuition is that those committees which members tend to move onto over time are more valuable than those committees which see members exit over time (Bullock and Sprague 1969; Bullock 1973). Groseclose and Stewart (1998) and Stewart and Groseclose (1999) implement a more sophisticated measure of committee values for the U.S. House and Senate, and

their scores are now the most commonly used.<sup>4</sup> Here, we replicate the Groseclose and Stewart method using state legislative committees to find committee values.

The method assumes that if a member transfers from committee  $j$  to committee  $k$ , she has a preference for committee  $k$  as compared to committee  $j$ . Additionally, transfers from more valuable committees are worth more to the value of the transferring committee than transfers from a lower value committee. That is, committees are evaluated with respect to the values of the other committees so that pairs of committees represent a “match-up” between the two, and more value is received for a committee when it “defeats” a higher value committee. Committee values are estimated with a probit model where each transfer onto a committee is coded as a one, each transfer off as -1, and zero if the committee was not involved in the transfer (see Groseclose and Stewart 1998 and Stewart and Groseclose 1999 for more details).

One complication with the state data bears mentioning. In Congress, standing committees are relatively permanent, and committee values can be calculated for each committee over the entire study period (for Groseclose and Stewart, 1947-1991). This is decidedly not the case at the state level. Many state standing committees are relatively temporary, lasting for a only a few years at a time as new majorities eliminate committees, restructure their jurisdictions, or create entirely new committees. Because committees are “matched-up” with other committees, only complete sets of committees can be included for any given time period during which committee values are to be calculated. In other words, committees cannot be missing (by entering and exiting and entering the dataset) for a given time period. As a result, it is necessary to make decisions about what constitutes a valid study time period. If for example, we created a study time period spanning the entirety of our data (2007-2014), we could only include those committees which existed during that entire period, and committees which did not exist for even one year could not be included. Clearly, this standard seems too strict as relatively few committees exist across the entire sample, and it would miss newly established, but important committees.

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<sup>4</sup>To cite only a few examples, their committee scores have been used to examine the effects of party loyalty and party power (Clark 2015; Grimmer and Powell 2013; Jenkins and Monroe 2012; Monroe, Roberts and Rohde 2009; Yoshinaka 2005), representation style (Leighton and Lopez 2002), and the structure of the Senate committee system (Canon and Stewart III 2002).

We calculate committee values for four year blocks under the assumption that committees which exist for less than four years are too transient to be deemed a standing committee. Further, four years ensures that at least three years of transfers are observed for the committee,<sup>5</sup> and includes two terms of a two-year legislature, or one term of a four-year legislature. This strategy produces multiple committee values which overlap in the years for which the committee exists in the legislature. For example, committee  $j$  will have a separate committee value for the 2007 to 2010 period, the 2008 to 2011 period, the 2009 to 2012 period, etc. In this case, committee  $j$  will have one estimated committee value in 2007, two in 2008, three in 2009, etc. To create an overall value for the committee for year  $t$ , we take first, the average committee value across these four-year period blocks for each committee to produce a single average committee value. We also create a weighted committee value that scales a committees value by the number of four-year blocks in which the committee exists, where the average value is multiplied by  $\frac{\text{number of four-year blocks present in data}}{\text{total number of four-year blocks}}$ , using the intuition that committees which exist for longer periods of time are inherently more important to the operation of the legislature and its members than shorter-lived committees. Using the “Grosewart” approach gives us both average committee scores and weighted average committee scores.<sup>6</sup>

Finally, we use the committee-level Grosewart values to calculate individual-level portfolio values for each legislator-year in our data (55,648 observations). Most committees have a positive value, indicating that legislators would prefer to be on the committee as compared to no committee assignment, but some are found to be “burden” committees, for which a member would have preferred no assignment at all. The simplest way to convert committee values to member portfolio scores is to add the raw scores for each committee on which a member serves, generally advantaging members

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<sup>5</sup>Starting with committee membership in the first year, transfers may occur after year , after year two, and after year three.

<sup>6</sup>In the analyses below, we use only the average committee scores, but plan on incorporating the weighted scores in future drafts of this research. Within each four-year block, the committee values are cardinal values, consistent with the Groseclose and Stewart scores, so that committee values can be directly compared to each other. Caution should be used however, when interpreting average and weighted average committee value scores as they are averaged cardinal value scores; thus one could say that on *average* a committee with a value of four is twice as valuable as a committee with an average value of two, but if the committees do not have exactly overlapping years, the cardinal values are imprecise.

who serve on many committees. Many legislatures, like Congress, have rules about the number of committees that a legislator can serve on. These rules are constant within legislatures however, so should not affect our inferences about committee portfolio values within a state. Alternatively, we could take the mean committee value score to measure a member's portfolio, but this could inflate the value of members who serve on a few important committees. Since a key benefit of the Groseclose and Stewart III (1998) method is that it produces cardinal values, we prefer the raw additive scores as a measure of a portfolio's value.<sup>7</sup> We also note that a committee's value is for an average legislator; it may be the case that a particular legislator prefers a burden committee for an idiosyncratic reason.

Our theoretical claim is that women will have distinct committee portfolio values, conditioned on the level of professionalism within a state. Figure 1 shows the difference in committee values for women and men within state House chambers. Higher values indicate women have better committee portfolios than men within the state, while the color of the state indicates its level of legislative professionalism. As the figure shows, Missouri which is a hybrid legislature, has the lowest level of women's committee values, while perhaps surprisingly, Mississippi has the highest difference between women and men's committee portfolio, despite it having relatively low legislative professionalism.

There is some support for our basic claim. The states with the three highest level of legislative professionalism, Pennsylvania, New York, and California all had among the highest values of women's committee portfolios. Four of the six states in the lowest category, "gold," has a women's committee portfolio difference less than the average. Appendix Figure B1 shows the same graphs for state senates, and the results are broadly consistent with the House, while Appendix figure B3 displays over-time chamber means of individual committee portfolios.

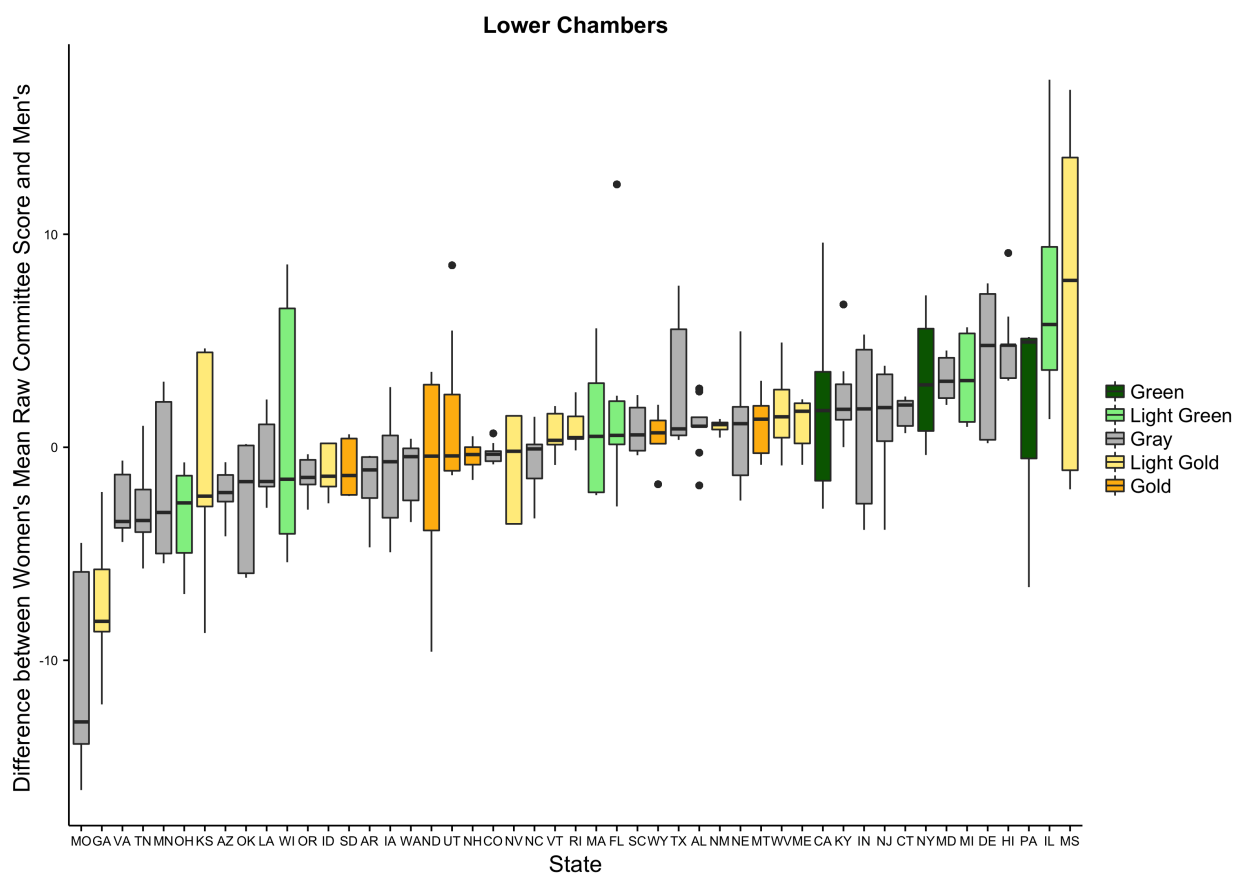
## Empirical Strategy

In order to assess our hypotheses concerning the representation of women, we need to measure whether each legislator in our data is a woman or a man. The *State Yellow Books* do not explicitly

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<sup>7</sup>We would rather have three retirement accounts with a total value of \$800,000 than one with a total value of \$600,000. We do recognize that the financial example does not account for the opportunity costs of serving on committees or that there are likely diminishing returns to valuable committees when a member may not have time to take full advantage of her/his representational resources.

Figure 1: Difference in Raw Committee Portfolio Values between Women and Men, 2007-2014, by State Lower Chambers



Note: Positive values indicate that women legislators have higher mean portfolio value than men. Legend colors refer to NCSL legislative professionalism categories. See <http://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx>. “Green” refers to full-time, well paid legislatures, with large staff resources; “Light Green” are full-time legislatures with fewer resources; “Gray” denotes hybrid legislatures; “Light Gold” are part-time legislatures with moderate pay and staff; “Gold” are part-time legislatures with low pay and few staff.

denote a member’s sex, nor does any available data source of which we are aware. We use the same procedure as Ladam, Harden and Windett (2018) implemented through the `gender` package in R (Mullen, Blevins and Schmidt 2015) to measure each legislator’s sex. (See Appendix A for more details about this process and our validation effort using human coders.)

Because we are interested in gender and committee portfolio value for a legislator within a district-legislative term, our units are state-chamber-legislative term-district observations from 2007-2014. There is variation across state-chamber districts across time in both our independent and dependent variables, and as a result we can control for district-level fixed effects and estimate the effects of within-district changes from male to female and from female to male on committee portfolio values. There are a total of 6,217 districts in our data, of which 1,774 include such a transition in our time period. The fixed effects strategy allows us to control for any time-invariant characteristics that may be associated with the election of female legislators and also be correlated with high value committees. For example, it may be the case that in densely populated urban states, women are more likely to be elected from cities and urban areas’ and their importance to the state economy might mandate that these representatives receive more valuable committee assignments. Our empirical strategy allows us to isolate the effect of a legislator’s sex without having to separately model characteristics of the district. We also control for whether the legislator is a member of the majority party, as committee appointments are largely controlled by the party leadership, which presumably wants to reward its members with valuable assignments and to stack committees with ideological outliers (Kanthak 2009; Masters 1961; Rosenthal 1998; Sinclair 1983).

## Results

Although the district fixed effects models are our preferred empirical specification, we initially assess the relationship between women legislators and raw committee values descriptively. There is a negligibly small negative correlation ( $r = -.03$ ) between our sex variable and individual committee portfolio values in the full data. The lack of a clear bivariate relationship is largely apparent in figure 1 (House chambers) and in Appendix figure 2 (Senate chambers).

The models in Table 1 include an indicator for *Female* legislator within state-chamber-district  $j$ . To test Hypotheses 1 and 2, we interact this with two measures of legislative professionalism. The

first is taken from the coding scheme of the National Conference of State Legislatures.<sup>8</sup> The NCSL groups state legislatures into 5 levels of professionalism, denoted by color. “Green” legislatures are the most professional (California, New York, and Pennsylvania; see appendix table B1 for the full categorization of all state legislatures) in that they meet full-time, have large personal and committee staffs, and get compensated at high enough a rate to making legislating a full-time job. “Light green” legislatures are similar in type, but have discernibly fewer resources than their more professional counterparts. At the other end of the professionalism spectrum, “Gold” legislatures are part-time bodies that provide little staff resources to members and do not compensate lawmakers enough to keep them from working a second job. “Light gold” legislatures provide discernibly more (usually staff) resources than their “gold” counterparts. Between these two categories are “Gray” hybrid legislatures that provide intermediate levels of time on the job, staff resources, and compensation. In order of professionalism, they are: Green, Light Green, Gray, Light Gold, and Gold. We also use *Squire’s Legislative Professionalism Index* as a continuous measure of legislative professionalism (Squire 2007). This index includes measures of legislative salary, staff size, and time in session and is calculated once each decade, resulting in variation within-chamber across time. This variation allows us to estimate state-chamber fixed effects in the models which use this measure of legislative professionalism.

The first model in table 1 includes interaction terms between female and the five levels of legislative professionalism as measured by the NCSL. Gold, the lowest level of professionalism is the reference group and is excluded. We expect the marginal effects of *Female* to differ across levels of legislature professionalism, with women receiving less valuable committee assignments than men in amateur state legislatures and more valuable committee portfolios than men in the professional legislatures.

These results support the expectations from Hypotheses 1 and 2. Female legislators in the least professional legislatures (Gold category) have committee portfolio values 2.5 units lower than males (the mean committee portfolio value across the full data is 37.86), which is statistically distinguishable from zero. As the interaction terms for female and the other categories show, committee values for women are lower in the Light Gold category and is not significantly different from the excluded category for Gray legislatures. The situation is quite different for the more professional categories of

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<sup>8</sup>See <http://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx>.



Table 1: Models of Raw Committee Portfolio Values, 2007-2014

	OLS	OLS	State-Chamber FE	District FE	District FE
Female	-2.54 (0.83)***	-4.63 (0.61)***	-0.13 (0.53)	-0.99 (0.55)*	-1.64 (0.46)***
Majority Party Member	1.12 (0.28)***	1.14 (0.29)***	1.43 (0.18)***	1.44 (0.21)***	1.45 (0.21)***
NCSL Leg. Prof. 2 (Light Gold)	28.39 (0.56)***				
NCSL Leg. Prof. 3 (Gray)	11.04 (0.49)***				
NCSL Leg. Prof. 4 (Light Green)	25.59 (0.61)***				
NCSL Leg. Prof. 5 (Green)	40.09 (0.70)***				
Female × NCSL Leg. Prof. 2	-6.82 (1.09)***		-0.08 (0.69)	0.15 (0.82)	
Female × NCSL Leg. Prof. 3	1.42 (0.97)		0.14 (0.61)	0.21 (0.72)	
Female × NCSL Leg. Prof. 4	6.80 (1.20)***		1.04 (0.76)	1.93 (0.88)**	
Female × NCSL Leg. Prof. 5	5.00 (1.46)***		2.72 (0.92)***	3.84 (1.41)***	
Squire's Leg. Prof. Index		64.22 (1.38)***			
Female × Squire Index		12.44 (2.77)***			7.15 (2.18)***
Intercept	20.44 (0.47)***	25.97 (0.36)***			
Num. obs.	55,648	55,648	55,648	55,648	55,648
State-Chamber Fixed Effects	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
District Fixed Effects	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

legislature. The constitutive terms for *NCSL Leg. Prof. 4 (Light Green)* and *NCSL Leg. Prof. 5 (Green)* indicate that both have higher baseline average committee values than the least professional legislatures.<sup>9</sup>

The interaction terms provide evidence that women receive *better* committee assignments than men do in these professional legislatures. This provides support for hypothesis 1 and 2 and the theoretical argument that only very high quality women candidates run for seats in these types of legislatures. In other words, the institutional characteristics that may dampen descriptive representation of women also drive our finding that women outperform their male counterparts in achieving the very best committees in professional legislatures. The effect of our *Majority Party Member* control variable is significant and increases a member's portfolio value by between 1.12 and 1.45 units across all of our empirical specifications.

Column 2 uses a similar model, but replaces the NCSL categories with the Squire index. Again, the outcome of interest is the interaction between female and legislative professionalism. Column 2 shows similar results, with a positive conditional effect on committee portfolio values as legislative

<sup>9</sup>This is consistent with the findings of McGrath and Ryan (2019), who argue that legislators in less professional legislatures are less electorally ambitious and have weaker overall preferences regarding committee membership than do their counterparts in more professional assemblies.

professionalism increases, for women.

As alluded to above, we have concerns that some omitted variable(s) may be jointly determining levels of legislative professionalism women’s success in securing high value committees in state legislatures. To more effectively control for this possibility, we prefer to examine within-state and then within-legislative district models. We first include fixed effects for the 99 state chambers in our data and present the results in table 1, column 3. We see that, in this specification, men do not out-earn women in committee assignments for any level of legislative professionalism and that women only outperform men in the three most professional legislatures in the Green category.<sup>10</sup>

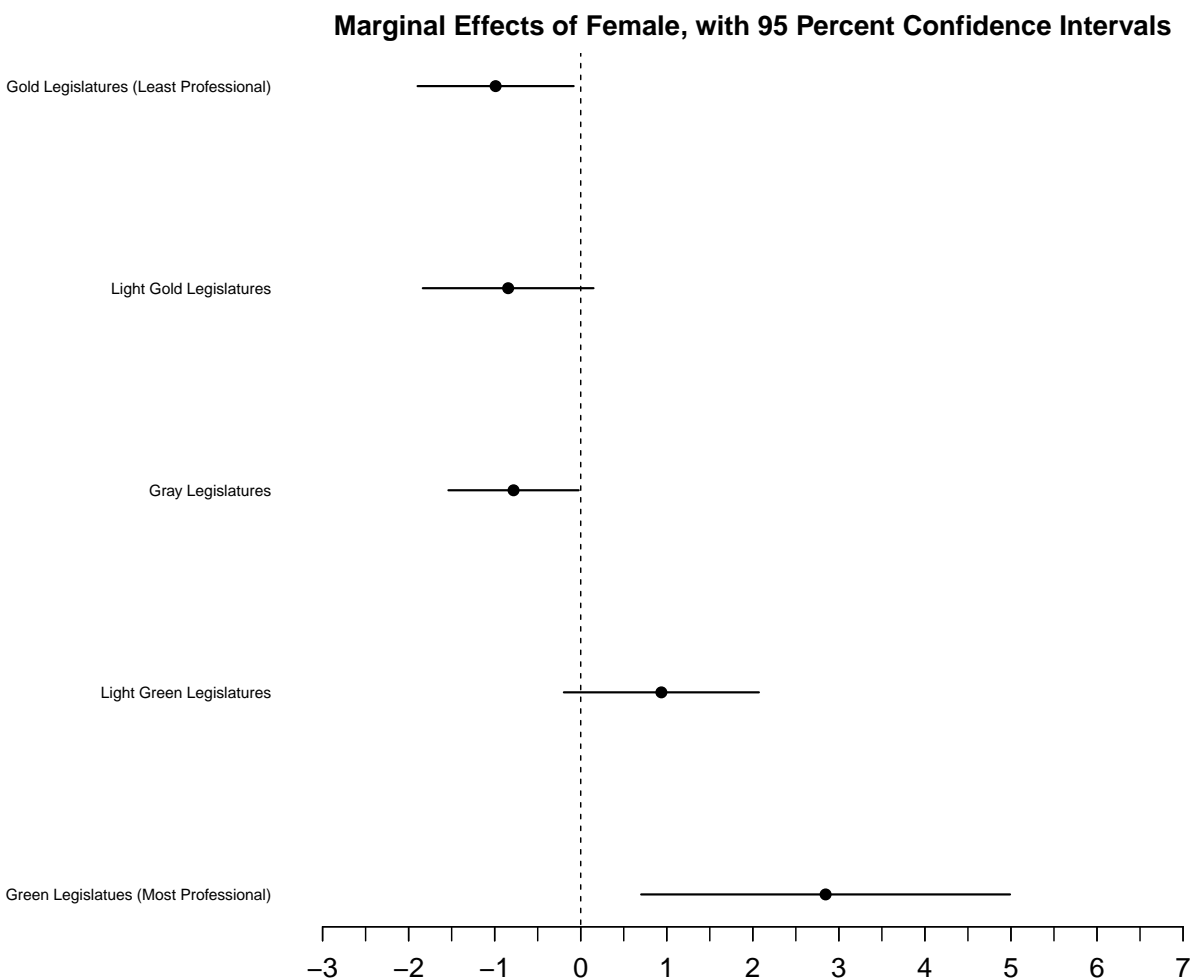
In columns 4 and 5, we control for potentially confounding geographically-based omitted variables by using our district-level data. As mentioned above, we have data on 55,648 legislator years, covering 6,217 total legislative districts. In 1,774 of these districts, a woman legislator replaced a man or a man replaced a woman in our timeframe. We leverage this variation to estimate district fixed effects models similar to those estimated at the national level by Anzia and Berry (2011).

Column 4 mirrors the specification of column 1 with the addition of the district fixed effects. The coefficient for *Female* tells us that women have lower committee values than men in the least professional legislatures, as before. The next two levels of legislative professional do not have statistically distinguishable effects relative to this baseline legislature, but figure 3 demonstrates that the marginal effect of *Female* on committee portfolio values is negative and significant for Gold and Gray (intermediate professionalism). The effects of *Female* for the professional legislatures (Light Green and Green) are statistically distinguishable from the effects for the amateur legislatures. The substantively large marginal effect for the most professional legislatures is strong support for hypothesis 1. Column 5 is the same specification as column 2 and again shows that women increasingly outperform men when it comes to committee assignments in more professionalized legislatures.

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<sup>10</sup>Since legislative professionalism categories are constant within state chambers, we cannot include the constitutive terms of the interaction and identify the model. We omit these constitutive terms, but can still interpret the interactions as the effect of *Female* conditional on legislature type.

Figure 2: Marginal Effects of Female on Raw Committee Portfolio Values, 2007-2014, by Levels of Legislative Professionalism



Note: Marginal effects calculated from District Fixed Effects model reported in column 4 of table 1. This model is identified through male to female and female to male changes within districts over time. The Gold legislatures effect is  $\hat{\beta}_{Female}$ , standard error is  $\sqrt{var(\hat{\beta}_{Female})}$ . For other legislatures, the effect is  $\hat{\beta}_{Female} + \hat{\beta}_{Female \times Leg.Type}$ , with a standard error of  $\sqrt{var(\hat{\beta}_{Female}) + var(\hat{\beta}_{Female \times Leg.Type}) + 2 \times cov(\hat{\beta}_{Female}, \hat{\beta}_{Female \times Leg.Type})}$

## Discussion/Conclusion

We find support for each of our hypotheses. These results contribute to our knowledge of representation in state legislatures in a number of important ways. First, we find strong support for the “Jackie Robinson effect” that Anzia and Berry (2011) find at the national level, using a different measure of legislative “success.” Our findings indicate that in professional legislatures, as in Congress, women “outperform” their male counterparts, presumably because only extremely talented and well-qualified women overcome the barriers to entry in such legislatures, where male legislators are drawn from a distribution with a lower mean talent level. Validating Anzia and Berry’s results in the state legislatures is an important generalization that women are disproportionately selected out of highly professional legislative bodies. Furthermore, our committee value measure goes beyond simply capturing success in achieving desired personal outcomes. Valuable committee assignments allow women legislators to “act for,” or substantively represent their constituents better than they would be able with more burdensome committee work. We see achieving valuable committee seats as a necessary condition for meaningful substantive representation on women in legislatures. On the other hand, if women are systematically placed on trivial committees, it is more difficult for them to affect the policy process. This is true even if women make up greater shares of a legislature over time or if different legislatures have different levels of descriptive representation of women.

Taken together, our research indicates that there is significant bias against women in state legislatures, despite perhaps some modest recent improvements. Professional legislatures exhibit the same kinds of discrimination by sex-based selection that research has found exists within the U.S. Congress. Amateur legislatures exhibit the opposite problem. Women legislators do not outperform men in terms of committee assignments and there is no similar evidence for sex-based discrimination by selection. Instead, the women who serve in amateur legislatures are discriminated against in the committee assignment process, which we argue limits their ability to deliver much in the way of substantive representation. Most importantly, for translating our results into normative considerations, are the institutional determinants of the representation. Legislative professionalism has been specifically identified by previous work as hampering descriptive representation, but our work might caution against a prescription for de-professionalizing legislatures to increase ascriptive diversity, as it likely would come at the cost of a good deal of substantive representation.

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## Appendix A: Identifying Women Legislators

As mentioned in the text, we use the same procedure as Ladam, Harden and Windett (2018) and use the `gender` package in R (Mullen, Blevins and Schmidt 2015) to measure each legislator’s sex. The package categorizes individuals as “male” or “female” based on their first name and year of birth. We don’t have exact years of birth for legislators, so we use a common DOB to make them 56 years old for the year of coding.<sup>1</sup> The algorithm uses historical information from the United States Census and the Social Security Administration to calculate the proportion of males and females in historical data who share legislator’s forenames. The package defaults to categorizing names to the modal sex given historical proportions and reports these proportions as an indicator of uncertainty. We recognize that this procedure may lead to miscategorization, especially for ambiguous names, such as, for example, “Cary,” “Lindsey,” “Taylor,” etc. Thus, we take a number of steps to assess the validity of the computer codes.

We evaluated validity by having 3 research assistants hand-code legislators as male or female by referencing information in public databases, such as Ballotpedia, records from state secretaries of state, and local newspapers covering state legislative politics. As a pilot exercise, the coders were each given 100 identical observations to code by such cross-checking and achieved 100% agreement among the 3 coders on these common legislators. Furthermore, the 3 human coders agreed with the computer-generated (using the `gender` package, as noted above) 100% of the time. Next, each coder was randomly assigned 2,000 legislators to code this way and we calculated inter-rater reliability statistics for each human-coder/computer-code pair. The aggregate Cohens kappa from this process was an overwhelmingly impressive .94. There were only 25 (out of 6,000) instances where a human code disagreed with the code produced by the `gender` package. Thus, we feel comfortable proceeding by using the computer-generated codes to measure women legislators in the states. For more validation of this algorithm in a similar setting, see Ladam, Harden and Windett (2018), appendix 2.2.

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<sup>1</sup>According to the National Conference of State Legislators, 56 is the mean age of state legislators across the states: <http://www.ncsl.org/research/about-state-legislatures/who-we-elect.aspx>

## Appendix B: Descriptive Information

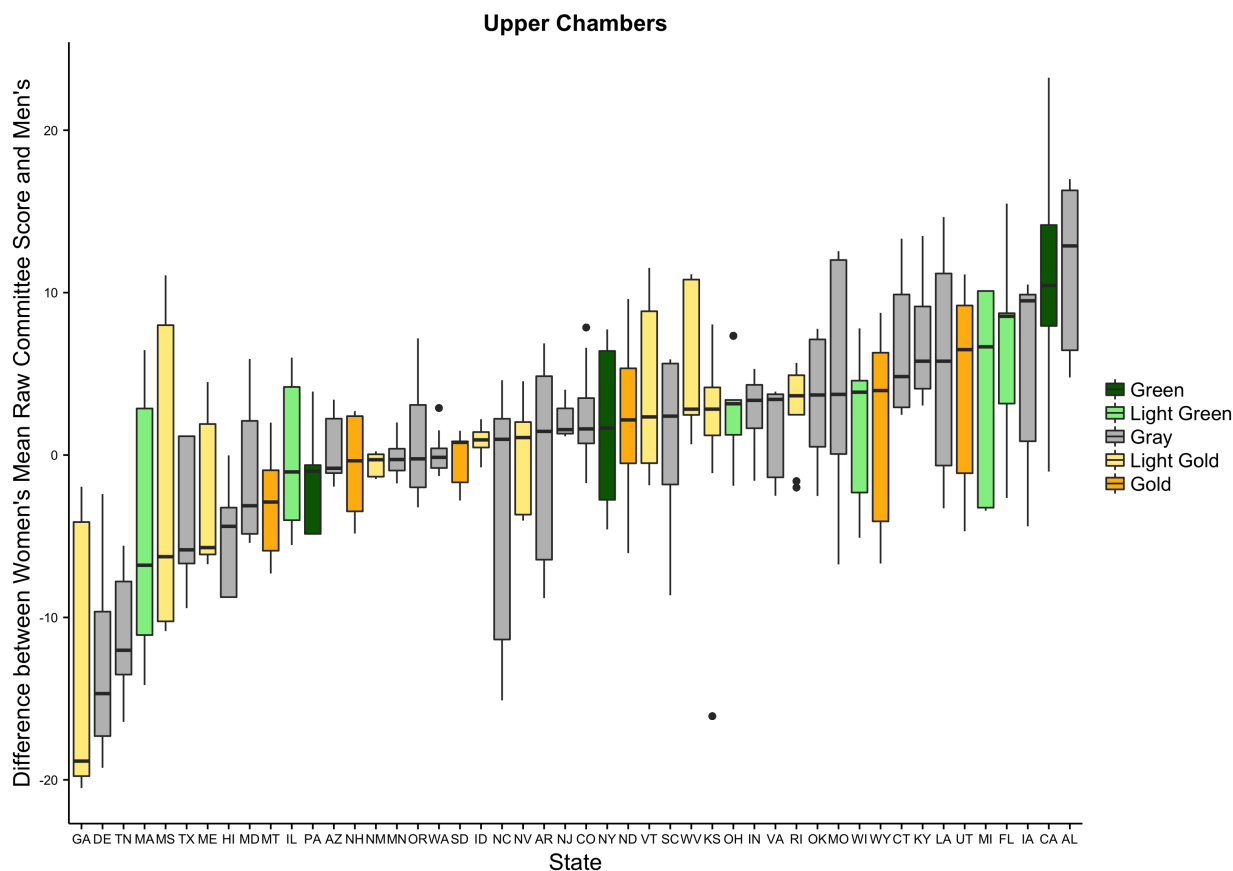
Appendix Table B1: National Conference of State Legislatures Legislative Professionalism Categorization

<b>Green</b>	<b>Light Green</b>	<b>Gray</b>	<b>Light Gold</b>	<b>Gold</b>	
California	Alaska	Alabama	Minnesota	Georgia	Montana
New York	Florida	Arizona	New Jersey	Idaho	New Hampshire
Pennsylvania	Illinois	Arkansas	Missouri	Kansas	North Dakota
	Massachusetts	Colorado	Nebraska	Maine	South Dakota
	Michigan	Connecticut	North Carolina	Mississippi	Utah
	Ohio	Delaware	Oklahoma	Nevada	Wyoming
	Wisconsin	Hawaii	Oregon	New Mexico	
		Indiana	South Carolina	Rhode Island	
		Iowa	Tennessee	Vermont	
		Kentucky	Texas	West Virginia	
		Louisiana	Virginia		
		Maryland	Washington		

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Note: See <http://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx> for more information on coding.

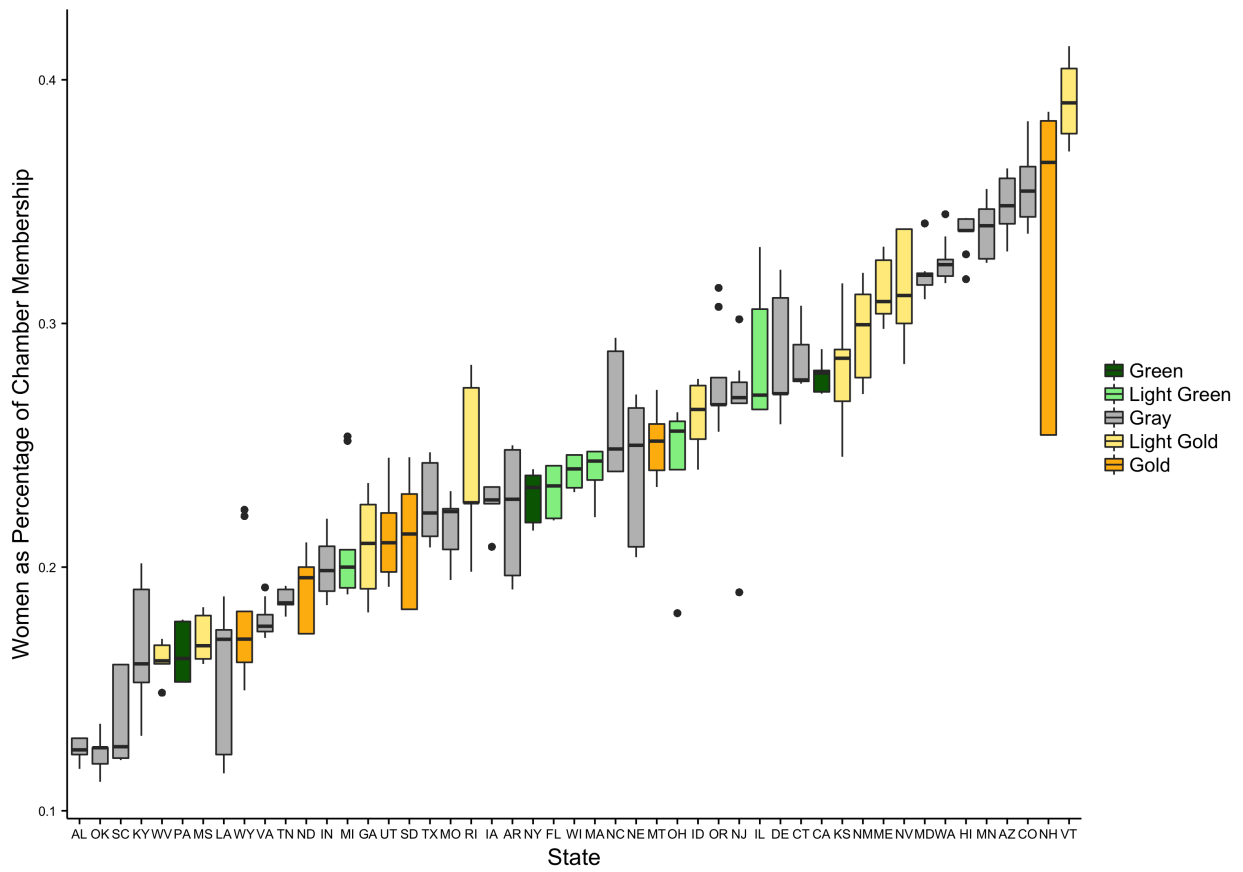
Appendix Figure B1: Difference in Raw Committee Portfolio Values between Women and Men, 2007-2014, by State Upper Chambers



Note: Positive values indicate that women legislators have higher mean portfolio value than men. Legend colors refer to NCSL legislative professionalism categories. See <http://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx>. “Green” refers to full-time, well paid legislatures, with large staff resources; “Light Green” are full-time legislatures with fewer resources; “Gray” denotes hybrid legislatures; “Light Gold” are part-time legislatures with moderate pay and staff; “Gold” are part-time legislatures with low pay and few staff.

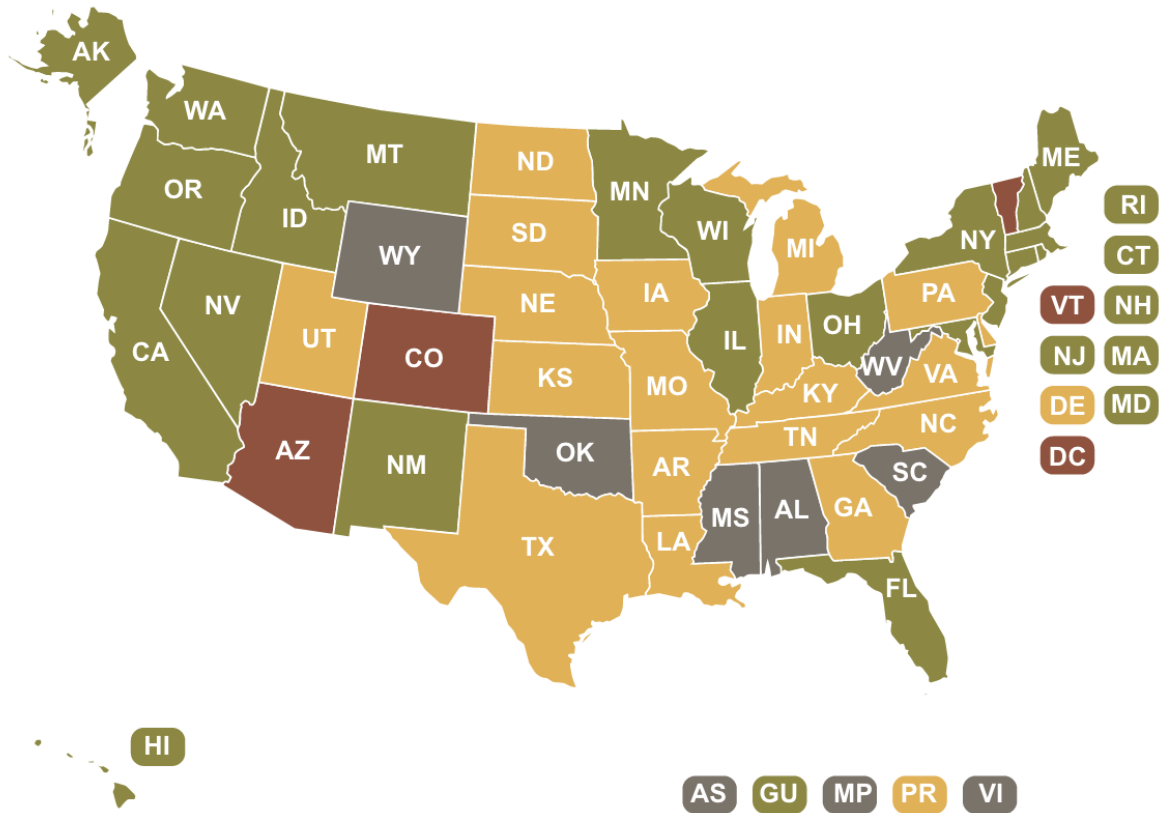
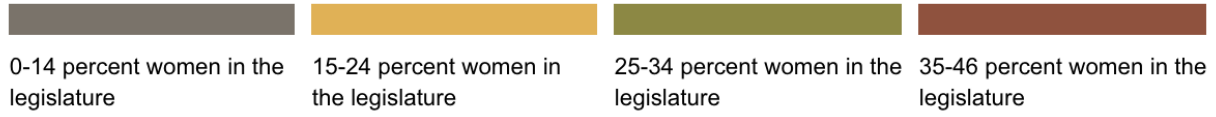
Note: Legend colors refer to NCSL legislative professionalism categories. See <http://www.ncsl.org/research/about-state-legislatures/full-and-part-time-legislatures.aspx>. “Green” refers to full-time, well paid legislatures, with large staff resources; “Light Green” are full-time legislatures with fewer resources; “Gray” denotes hybrid legislatures; “Light Gold” are part-time legislatures with moderate pay and staff; “Gold” are part-time legislatures with low pay and few staff. Percentages averaged across lower and upper chambers.

Appendix Figure B2: Women as a Percentage of Chamber Membership, 2007-2014, by State



Appendix Figure B3: Women as a Percentage of State Legislative Membership, 2016

### WOMEN IN STATE LEGISLATURES FOR 2016



Source: <http://www.ncsl.org/legislators-staff/legislators/womens-legislative-network/women-in-state-legislatures-for-2016.aspx>

Appendix Figure B4: State Chamber Raw Committee Values over Time, 2007-2014, by State

