

# Women and Representation: A Different View of the District?

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In this article we measure the impact of gender on women's legislative behavior by utilizing a unique research design. We compare whether women and men of the same political party represent the same congressional district differently with respect to women's issues. Using bill sponsorship and floor remarks during the 104th to 107th sessions of the U.S. House of Representatives as measures of legislative behavior, we find that female legislators who replace men in the same district introduce more women's issues bills in Congress. Although our conclusion that women legislators represent women's issues more frequently in the House supports existing research, our results do so in a new and more effective way by controlling for the competing explanations of party identification and district opinion as factors determining a legislator's behavior.

**D**escriptive representation assumes that members of certain groups share unique experiences and viewpoints such that only they can adequately represent the group on certain issues (Pitkin 1967, 90). If descriptive representation translates into substantive representation, women's current descriptive underrepresentation in legislatures in the United States can result in a lack of substantive policies that address the unique concerns of women, such as women's health, child care and

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the workplace. Many researchers suggest that female legislators bring unique experiences and viewpoints to the policymaking process and the legislative agenda (e.g., Carroll 1994; Reingold 2000; Swers 2002; Thomas 1994). At the same time, many congressional scholars maintain that reelection concerns are central to legislators' goals, and that therefore, district and/or party concerns dominate legislators' behavior in order to feed the "electoral connection" through representation of the district (Arnold 1990; Fenno 1978; Mayhew 1974; see also Dodd 1977). Although these two points of view are not mutually exclusive, sorting out the effects of gender, relative to constituency interests, remains an important aspect of understanding the policy impacts of electing women to office.

Typically, this question regarding women legislators' representation of women is examined by comparing women's and men's legislative behavior as two groups (male and female legislators) in a specific legislative institution, while controlling for district opinion in some fashion. From these comparisons, we know that women as a group introduce more bills than men that relate to women's issues, and they support these bills in various ways throughout the legislative process (e.g., Bratton and Haynie 1999; Reingold 2000; Swers 2002; Thomas 1994). However, the various methods of controlling for district opinion — demographic indicators, public opinion data, or the proxy of party identification — never entirely control for the effect a district may have on a legislator's actions. Given the emphasis that congressional studies place on district-level influences as the impetus for legislators' behavior, it remains essential to determine the extent to which gender, in relation to district characteristics, shapes women's pursuit of a women's issue policy agenda. In order to do so, we need a more precise measure of district influence.

In this article, we address this problem by attempting to hold constant district and party variables through a natural experimental design. We test whether women and men legislators of the same political party represent the same district differently. That is, in cases where a woman of the same political party is elected to a congressional seat previously held by a man, or a man is elected to a seat previously held by a woman, does he or she represent this district differently with respect to gender? To answer these questions, our cases are men and women of the same party who served the same district in the 104th to 107th (1994–2002) House of Representatives. We find that when controlling for these factors, women who replace men in the same district introduce more women's

issues bills. The conclusion that women legislators represent women's issues more frequently than do men in the House supports existing research. By controlling for the competing explanations of party identification and district opinion as factors determining a legislator's behavior, our findings support this conclusion in a new and more effective way.

## THE QUESTION OF THE REPRESENTATION OF WOMEN

The degree to which female elites elected to serve in legislatures represent the interests of women in the greater population remains a central question in women in politics research. Female legislators continually report, to a greater extent than do their male colleagues, that they have an interest in representing women. For instance, in comparing women and men state legislators, Beth Reingold (2000) finds that women were more likely to express a commitment to representing women's concerns and to see women in their district as an important constituency for reelection purposes. Susan Carroll (2002) finds that in Congress, women legislators view themselves as "surrogate representatives" of women in the United States, beyond the boundaries of district lines. Surrogate representation, a concept borrowed from Jane Mansbridge (1999), is the idea that women legislators will want to represent all women in society because they share the common bond of being a member of a subordinate group in society, and therefore understand and can represent their needs within the legislature. This is similar to the concept of collective representation (Weissberg 1978), which considers that constituents in a district may be underrepresented in some policy areas by their district representative, but may be better represented by other members in the larger representative body. For example, Robert Weissberg (1978) notes that on civil rights issues, southern black constituents in the 1960s were better represented by northern Democrats in Congress than by their own district representatives.

Both conceptualizations of women and representation — that women consider the interests of women in their own district more than men do, or that women consider the interests of women in society more than men do — suggest a similar pattern of behavior for female legislators compared to that of their male colleagues (Carroll 2002). If women legislators believe women are an important constituency to represent, then their legislative actions should reflect this belief. A significant

number of studies of women in legislatures provide empirical evidence to support this assumption. For example, Michele Swers (2002) finds that women in the 103th to 104th House of Representatives sponsor and cosponsor women's issues bills, and advocate these proposals in committees and on the floor, more than do their male counterparts. Swers's (2002) study corroborates similar findings by other studies of women in legislatures, such as Sue Thomas's (1994) study of women's bill sponsorship in 12 state houses, Reingold's (2000) study of women's bill sponsorship and roll call voting in the Arizona and California state legislatures, and Christiana Wolbrecht's (2000) study of sponsorship of women's rights legislation in the House. These researchers examine women's influence throughout much of the legislative process and find that women legislators pursue a women's issues agenda. Differences between female and male legislators are particularly evident in the bill sponsorship and cosponsorship phase; bill sponsorship and cosponsorship are actions on which a legislator has greater freedom compared to a roll call vote in the chamber, which is a limited yes/no choice on an already determined agenda (Swers 2002; Tamerius 1995). However, even in roll call voting (e.g., Norton 1999) and in other areas of legislative behavior, such as speeches on the House floor (Shogan 2001), gender differences emerge. Women vote for, speak about, and generally pursue a women's issues agenda during their time in the chamber.

### THE LARGER PICTURE: MEASURING REPRESENTATION IN CONGRESS

In each of these studies, the conclusion is similar. All else held equal, women legislators expend more effort on women's issues legislation than men — yet the degree to which “all else” is held equal in comparing women and men's behavior as legislators varies considerably. That is, theories of congressional representation almost always note the primacy of district concerns as the impetus for a legislator's behavior in the chamber. This is due to the importance of the electoral connection for a legislator (Mayhew 1974). Because members of the House of Representatives are elected often, they are motivated to create policies in the chamber that will most directly contribute to the goal of their reelection. Since they are reelected by their district, members' efforts to

create and pass legislation are often aimed toward pleasing this district constituency (Mayhew 1974; see also Arnold 1990 and Dodd 1977).

Although legislators juggle multiple concerns, such as creating good public policy or cultivating respect within the chamber (Fenno 1978), the importance of satisfying the district remains a primary assumption within most studies of legislative behavior. Therefore, many analyses of representation in Congress use a measure of how well a legislator behaves according to district wishes to assess representation (Weissberg 1978). For example, one of the first studies of representation in Congress by Warren Miller and Donald Stokes (1963) examined the correlation between public opinion in the district and a legislator's behavior. Though studies of representation have grown more sophisticated in both theory and method (e.g., Achen 1978; Hurley and Hill 2003; Stimson, MacKuen, and Erikson 1995), the underlying rationale for legislators' behavior remains the same. Legislators respond to constituent opinion in "rational anticipation" of their next election and its possible consequences (Stimson, MacKuen, and Erikson 1995, 544–45; see also Wright and Berkman 1986).

On a theoretical level, as mentioned, the mechanisms for these two different types of representation may be different: Women legislators may represent women in a collective fashion while at the same time representing their district in a dyadic fashion. On an empirical level, however, it is important to measure the district and gender influences on a legislator's behavior so that we may attain a more complete picture of a woman representative's behavior in the chamber. In her study of women legislators' views of their own representational role, Carroll (2002) finds that the perceptions of women representatives attest to the difficulty separating these different roles. She notes that "[c]ongresswomen's perceived responsibility to represent women is filtered through their other differences," particularly district and ideological differences among women legislators (2002, 62). Similarly, Swers' (2002) finds that women legislators support women's issues in addition to caring for the needs of their districts.

Most women in politics scholars address this problem by using measures of district opinion common in the legislative literature to control for district-level effects on a legislator's behavior. For instance, one of these measures is district demographic data, such as income level or racial composition, which can be used to approximate district opinion (e.g., Page et al. 1984; Swers 2002). Another measure relies on surveys of public opinion within the district to gauge the district constituency's opinions on a specific issue area (e.g., Miller and Stokes 1963; Reingold 2000).

A third measure consists of district partisan composition or ideological composition, often in the form of presidential voting returns by district (Jackman, Levendusky, and Pope 2005; Swers 2002). Partisan or ideological breakdown within the district can serve as a proxy for district public opinion, but also as a separate and competing explanation for a legislator's behavior, in that a legislator may act with a party in Congress because that party is also dominant in his or her district. That is, party may be the connection between voters in an election and representatives in a chamber (Wright, Osborn, and Winburn 2004), or it may be the alternative structure for legislative behavior aside from district concerns (e.g., Kuklinski 1977). Often, party identification and district opinion are both used as control variables to explain legislative behavior.

The problem inherent in using these three measures to study women's legislative behavior is that in each case it is still difficult to isolate which factor — district opinion (even via a partisan connection) or gender — influences women's actions in the legislative chamber. None of these measures ensures that the effects of district opinion are controlled. Therefore, we propose an alternative research design to control more effectively for the influence of district opinion and party on the legislative behavior of women and men. Doing so will allow us to determine, with more precision than past research, the extent to which gender influences legislative behavior.

#### RESEARCH DESIGN, DATA, AND METHODS: AN ALTERNATIVE CONTROL FOR DISTRICT EFFECTS

Rather than comparing groups of women and men in the House of Representatives, this analysis focuses on the legislative behavior of women and men from the same party who act on behalf of the same district constituency in the 105th, 106th, and 107th Congresses. We examine legislators in four categories. First, we include all cases in which a woman is elected to represent a district previously represented by a man. We are primarily interested in this category because the legislators we compare represent, or previously represented, the same district. This comparison controls for district variation as an explanation for a legislator's behavior in the setting of a natural experiment. Second, we compare these pairs, or dyads, of legislators to all cases in which a man replaces a woman or a woman replaces a woman, and to a sample

of cases in which a man replaces a man in the three Congresses we study.<sup>1</sup> Overall, our data set contains 37 dyads of legislators.

We use these separate categories of cases to control for the effects of changes in policy content across Congresses on legislators' behavior. That is, we expect that in the first set of cases, where a woman replaces a man, and in the set of cases where a man replaces a woman, there will be a significant difference between how the man and the woman legislators represent that district. We expect that women will support women's issues legislation through their behavior in the chamber more than the male representative of that district will. However, we do not expect to see these differences in districts where the sex of the representative did not change across elections, or rather, where a man replaces another man or a woman replaces another woman.

Before moving ahead to the analysis, we wish to acknowledge that our reliance on the dyad as our unit of analysis presents us with several challenges. Primary among these challenges is the potentially compromising effect that our small number of cases has on the statistical analysis we employ in this paper, since  $n \geq 50$  is more ideal for a regression analysis. Our small- $n$  problem is largely caused by the small number of women elected to Congress. The paucity of women elected to Congress is compounded by the incumbency effect, a problem faced by other authors who study women in Congress. Kristi Andersen and Stuart Thorson (1984) employed a computer simulation of congressional turnover and predicted that even by the year 2026, we could expect to see women comprising only 12% of the House. Fortunately, we have already surpassed that number. Women comprise 15% of the House and 14% of the Senate in the 109th Congress.<sup>2</sup> Unfortunately, this is still too few cases to mitigate the problems associated with conducting statistical analysis on a small number of cases. Yet, unless we wait until the numbers increase — a proposition that will take decades — to test the effects we study here, this problem will persist. Scholars who wish to conduct quantitative analyses must balance the limitations posed by the political phenomena they study with the critical need to investigate important questions in social science. We believe that the work presented here is a step in the right direction. Additionally, we hope this

1. The sample of cases where men replace men includes all men-men cases from states where a woman replaced a man in at least one district in the state.

2. Facts and Findings, Center for American Women and Politics, Eagleton Institute of Politics, Rutgers University, <http://www.cawp.rutgers.edu> (accessed April 22, 2007).

analysis is only a first step in using this technique in other legislatures, such as the U.S. state legislatures, in future research.

To measure legislative behavior, we compare the content of bills sponsored and remarks given on the floor for legislators in the House of Representatives in the 105th, 106th, and 107th Congresses (1996–2002) with bills sponsorship and remarks by legislators in the previous 104th, 105th, and 106th Congresses (1994–2000). We have included these Congresses in the sample because they control for change in both redistricting and party control by excluding cases where redistricting occurred between the election of one representative to replace another, or when control of the House switched from Democratic to Republican in 1994. Unfortunately, the 103rd Congress, which was bolstered with a significant number of women representatives replacing men representatives in the “Year of the Woman,” does not fit our criteria because party control changed in the subsequent election from Democratic to Republican and because that Congress followed redistricting from the 1990 Census. This sample yields 37 pairs of one legislator replacing another (dyads) for our analysis. Table 1 gives a summary of our cases.

Our sample includes 12 women replacing men, 2 women replacing women, 9 men replacing women, and a sample of 14 men replacing men. Of the 42 Democrats in our sample, 18 of these are cases of women replacing men (9 dyads), and of the 32 Republicans, 6 of these are cases of women replacing men. Generally, both women and men who were replaced by new legislators served a good deal of time in Congress (18 years for women and 23 years for men) before their retirement or defeat. Across the dyads over time, the number of legislators serving on women’s issues subcommittees remained the same at 8; however, the balance of women and men on the committees shifted, from 2 women and 6 men in the “old” legislators to 5 women and 3 men in the “new” legislators.

Our primary dependent variables are the number of bills a legislator sponsors related to women’s issues and the number of remarks about women’s issues mentioned by legislators on the floor during the session. We choose to utilize bill sponsorship and floor remarks because these are better indicators of legislators’ time spent setting the policy agenda than are roll call votes, which are responses to an already determined agenda and only indicate a dichotomous choice (Swers 2002; Tamerius 1995). According to Swers (2001, 218), “analyses of roll call voting only scratch the surface of potential gender differences in legislative



*Table 1.* Characteristics of data

Number of women replacing men	12
Number of women replacing women	2
Number of men replacing women	9
Number of men replacing men	14
New <sup>a</sup> members to the 104th Congress	0
New members to the 105th Congress	16
New members to the 106th Congress	10
New members to the 107th Congress	11
Number of retirees	25
Number of members who died in office	4
Number of members seeking higher office	4
Number of members defeated in primary	4
Number of Democrats	42
Number of Republicans	32
Number of Democratic women replacing men	9
Number of Republican women replacing men	3
Average years men served before replaced	23
Average years women served before replaced	18
Women on women's issue subcommittee (old/new) <sup>b</sup>	2/5
Men on women's issue subcommittee (old/new)	6/3
Women on environmental subcommittee (old/new)	4/5
Men on environmental subcommittee (old/new)	10/9

*Note:* New members to each Congress matches to members replaced in the previous Congress. Therefore, if there are 16 new members to the 105th Congress, there were 16 members from the 104th Congress that were replaced.

<sup>a</sup> "New" members were elected to represent seats held by "old" members.

<sup>b</sup> Represents the number of replaced and newly elected members who served on relevant subcommittee. For example, two women who were replaced served on a relevant women's issue subcommittee and five newly elected women served on a relevant women's issue subcommittee.

participation," particularly because roll call votes do not reflect "the process by which a bill advanced through the legislative process." More importantly, the number of women's issues bills that actually make it to the floor for a vote is quite small, which necessitates relying on alternative measures of agenda setting that happen earlier in the legislative process, such as bill introduction and floor statements. Floor debates serve to clarify national discussion of the topics of the day and provide a good measure of congressional discussion and a legislator's commitment to a given topic (e.g., Shogan 2001).

In addition to women's issues bills, we also test the number of bills a legislator sponsors related to environmental issues and their floor remarks about environmental issues as dependent variables. We choose this issue in order to compare women and men's behavior on both an issue area

that we expect will be more important to women than to men (women's issues), and on an issue that is a public good that affects rural and urban districts equally<sup>3</sup> and is not overtly gendered (environmental issues).<sup>4</sup> The difficulty we encountered in our attempt to select a "neutral" issue area to compare with women's issues — one that both affects individual states relatively equally and is devoid of a gendered subtext — underscores the difficulty in parsing out the difference between a "women's issue" and a nonwomen's issue. Therefore, we narrowly define "women's issues" as issues that are especially salient to women, particularly those relating to women's health and economic and social well-being. We do not include those issues often defined as traditional women's issues, such as education and general health care (Thomas 1994). Instead, we choose a more narrow definition of those issues relating directly to women themselves (Reingold 2000). Although a broader definition might offer greater variation, using a more conservative definition provides a more rigorous test of our hypotheses.

Our primary independent variable of interest is gender (1 = women). We include several additional independent variables as controls for factors that may also influence legislators' behavior. First, we control for the legislator's party identification (1 = Democrat). Changes in party identification are not included in the dyad pairs; that is, each dyad contains only legislators who share the same party identification. Rather, this control acknowledges it may be the case that a Democrat (man or woman), traditionally more sympathetic to women's issues, might gain support in a district by highlighting the same issues (Wolbrecht 2000). Second, we control for a legislator's electoral circumstances. A legislator who seeks higher office may modify his or her behavior in order to please certain constituencies for the upcoming election (Wright and Berkman 1986). Likewise, a legislator who is defeated may have behaved

3. For example, agriculture is not a possible neutral issue in that focus on agricultural issues would be more salient to members from rural districts, just as transportation concerns would be more relevant to members from urban areas. Environmental issues affect both urban and rural areas — pesticide and fertilizer runoff affect rural areas, air quality plagues most urban areas, and erosion and loss of habitat due to coal mining affect the midwestern states.

4. Some researchers have suggested that environmental issues are a type of women's issue. For instance, Reingold (2000, 164) argues that some researchers consider environmental issues as women's issues because they fit under a more traditional definition of women's issues as those "concerns related to women's domestic and public roles as caregivers and nurturers." However, both Reingold's (2000) research and Thomas's (1994) research on state legislative policy priorities found no differences between female and male legislators on environmental issues (see pp. 173–74 in Reingold; pp. 95–96 in Thomas). Therefore, we feel confident that this is an issue on which we can expect to find only minimal gender differences in bill introduction and floor remarks, particularly when controlling for committee differences.

differently before his or her last election (perhaps leading to his or her electoral demise). Additionally, a legislator who retires may participate less. In the case of retirement, the incentive to remain accountable to constituents may diminish without the motivation of reelection concerns. Third, we control for the number of years a legislator has served in the House because freshmen may sponsor fewer bills or speak less, as they are still learning the ropes. Last, we control for membership on subcommittees that deal with women's issues or environmental legislation, reasoning that a subcommittee member may focus more on legislation relevant to the subcommittees on which he or she serves. It is also more likely that subcommittees will review women's issues legislation than committees (Swers 2002). A specific list of subcommittees we included in each category is available from the authors.<sup>5</sup>

We used the *Congressional Quarterly Politics in America* guide and the *Congressional Record* to identify districts in the four categories described. We exclude cases where a widow replaced her husband. Information about the representative, such as his or her gender, party, and committee assignments, was collected from the *Congressional Quarterly*. We used LexisNexis's congressional search engine to identify the bills that the legislators in the sample sponsored and for their floor remarks. We included extensions of remarks as part of the content of the legislators' floor speaking. House members often attach these remarks to their comments on the floor after the fact, rather than say them on the floor, but we include them because they also reflect the policy goals of the legislator. We then coded the bills and floor remarks into the two categories of women's issues and environmental legislation as defined previously. For the floor comments, we used an electronic content analysis program designed to pull words and phrases related to the two policy categories from large files of text (see Osborn and Morehouse 2002).<sup>6</sup> A specific list of the search words for each issue we included in each category is available from the authors.<sup>7</sup> Two coders manually recorded the policy content of the bills sponsored by each legislator.<sup>8</sup>

5. The list of subcommittees can be found at [http://www.indiana.edu/~iupolsci/bio\\_grad\\_gerrity.html](http://www.indiana.edu/~iupolsci/bio_grad_gerrity.html).

6. This program scanned the transcripts of floor remarks and counted references to women's issues and environmental issues. A remark was considered "about" women's issues or environmental issues if key phrases for that policy area were mentioned at least twice in the body of the remark.

7. Please find a list of key words at [http://www.indiana.edu/~iupolsci/bio\\_grad\\_gerrity.html](http://www.indiana.edu/~iupolsci/bio_grad_gerrity.html).

8. Any bills in dispute were discussed by the authors, and any bill lacking consensus was removed from the analysis.

## ANALYSIS: DO DIFFERENCES BETWEEN WOMEN AND MEN LEGISLATORS PERSIST AT THE DISTRICT LEVEL?

For an initial look at the data, before examining the differences between the specific dyads, we test for differences in means of bill sponsorship and floor remarks among our four categories of legislators: women who replaced men, men who replaced women, women who replaced women, and a sample of men who replaced men. With regard to the women's issues test, our expectations for bill sponsorship and floor speech content for women are as follows: For women replacing men, we expect that the difference in means between the old group (men) and the new group (women) will be less than zero ( $\text{diff} < 0$ ), because we expect women to sponsor more women's issues bills. For men replacing women, we expect the difference in means between the old (women) and new (men) groups to be greater than zero ( $\text{diff} > 0$ ) because we expect that the new male legislators will sponsor fewer women's issues bills. For the remaining two categories (where women replace women or men replace men), we expect no difference in the means because the gender of the old and new members of each category does not change ( $\text{diff} = 0$ ).

Table 2 gives the results of the difference of means for women's issues bills sponsored. In this and the following tables, the bolded hypothesized means indicate we find support for our hypotheses in the data. As Table 2 indicates, we find the expected relationships. In cases of women replacing men (column 1), there is a significant difference between the mean number of women's issues bills sponsored by men and women ( $p = .012$ ). Likewise, there is a significant difference between the mean number of women's issues bills sponsored by men and women in cases where a man replaces a woman (column 3;  $p = .03$ ). In both categories, the mean number of women's issues bills introduced by women is higher. For the categories where we expected the null hypothesis (where women replace women and men replace men), the  $p$ -value for the alternative (difference  $\neq 0$ ) was greater than 0.1 (.5 and .11, respectively), meaning we cannot reject the null.<sup>9</sup> Overall, this indicates

9. Though we find that we cannot reject the null hypotheses of a difference other than zero in the case of women replacing women in Table 2, the mean number of women's issues bills sponsored by the two women who held the congressional seats first (3.5) is much higher than the mean number sponsored by the two following women (0). This is due to one woman, Patricia Schroeder (D-CO), who introduced many women's issues bills and served as the cochair of the Congressional Caucus on Women's Issues before retiring from her seat in 1996.

Table 2. Difference of means tests between old and new representatives for sponsoring women's issues

	Women Replacing Men		Women Replacing Women		Men Replacing Women		Men Replacing Men	
	Old	New	Old	New	Old	New	Old	New
Mean	0.08	0.92	3.5	0	1.67	0.11	0.50	0.07
Difference	-0.83		3.5		1.55		0.43	
Hypothesized mean	Diff < 0		Diff = 0		Diff > 0		Diff = 0	
t-value	-2.59		1.00		2.26		1.71	
p-value	0.012		0.50		0.03		0.11	
N	12	12	2	2	9	9	14	14

Null hypothesis is mean (old member—new member) = mean(diff) = 0.

that on average, women in each of the Congresses, whether they were old or new members, sponsored more women's issues legislation than did men.

We find similar results when we examine the content of legislators' floor remarks about women's issues, which are presented in Table 3. In the category of women replacing men, again, there is a significant difference between the mean number of women's issues mentioned in floor comments by men and women ( $p = .00$ ). However, unlike bill sponsorship, there is not a significant difference in the mean number of mentions of women's issues in floor comments in cases where a man replaces a woman. It is interesting to note that in cases where a woman replaces a woman, there is no significant difference between the mean number of mentions of women's issues ( $p = .61$ ), but in cases where men replace men, there is a significant difference — meaning that on average, men in the new Congresses mentioned women's issues in their floor comments more than did men in the old Congresses. This may indicate that in their floor comments, new members, and not just new women members, paid more attention to women's issues. This is particularly interesting considering that *fewer* new men members served on women's issues subcommittees than did their older male counterparts (see Table 1).

Table 3. Difference of means tests between old and new representatives for remarks concerning women’s issues

	<i>Women Replacing Men</i>		<i>Women Replacing Women</i>		<i>Men Replacing Women</i>		<i>Men Replacing Men</i>	
	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>
Mean	2.58	10.67	7.00	9.50	4.33	6.89	2.78	5.64
Difference	-8.08		-2.50		-2.56		-2.86	
Hypothesized mean	<b>Diff &lt; 0</b>		<b>Diff = 0</b>		<b>Diff &gt; 0</b>		<b>Diff = 0</b>	
t-value	-3.27		-0.71		-2.26		-1.98	
p-value	0.00		0.61		0.97		0.07	
N	12	12	2	2	9	9	14	14

Null hypothesis is mean (old member–new member) = mean(diff) = 0.

Table 4. Difference of means tests between old and new representatives for sponsoring environmental issues

	<i>Women Replacing Men</i>		<i>Women Replacing Women</i>		<i>Men Replacing Women</i>		<i>Men Replacing Men</i>	
	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>
Mean	0.25	0.33	0	0	1.11	0.78	0.79	0.14
Difference	-0.083		0		0.33		0.64	
Hypothesized mean	<b>Diff = 0</b>		<b>Diff = 0</b>		<b>Diff = 0</b>		<b>Diff = 0</b>	
t-value	-0.43		-		0.89		1.66	
p-value	0.67		-		0.40		0.12	
N	12	12	2	2	9	9	14	14

Null hypothesis is mean (old member–new member) = mean(diff) = 0.

These results regarding women’s issues legislation are interesting in comparison to the same tests for differences in women’s and men’s sponsorship of, and floor comments about, environmental issues. Table 4 gives the difference of means results for each category for legislators’

Table 5. Difference of means tests between old and new representatives for remarks concerning environmental issues

	<i>Women Replacing Men</i>		<i>Women Replacing Women</i>		<i>Men Replacing Women</i>		<i>Men Replacing Men</i>	
	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>	<i>Old</i>	<i>New</i>
Mean	0.92	3.08	0.50	3.00	4.11	5.00	1.14	2.64
Difference	-2.17		-2.50		-0.89		-1.50	
Hypothesized mean	<b>Diff = 0</b>		<b>Diff = 0</b>		<b>Diff = 0</b>		<b>Diff = 0</b>	
t-value	-1.71		-1.67		-0.25		-1.92	
p-value	0.12		0.34		0.81		0.08	
N	12	12	2	2	9	9	14	14

Null hypothesis is mean (old member–new member) = mean(diff) = 0.

sponsorship of environmental issues legislation. In these cases, the hypothesized relationship in each category is that there is no difference in the mean number of environmental bills sponsored between the old and new cases — again, because we do not believe gender plays a significant role in legislators' behavior regarding environmental issues. In three of the categories (women replacing men, men replacing women, and men replacing men), the p-value for the alternative (difference  $\neq$  0) was greater than 0.1 (.67, .40, and .12, respectively), meaning we cannot reject the null hypothesis that the difference of means = 0, and so there are not significant differences between the mean numbers of bills introduced regarding environmental legislation for the two groups. In the remaining category (women replacing women), neither group introduced any environmental legislation.

Table 5 presents the results for the difference of means for each category for legislators' floor remarks regarding environmental legislation.

These results are very similar to those for bill sponsorship of environmental legislation. In three of the four categories, the p-values indicate we cannot reject the null hypothesis that the difference of means = 0. In the remaining category, where a man replaced another man, there is a significant difference between the mean number of floor remarks on environmental issues. However, overall, these results indicate that gender differences are significant only on women's issues legislation. As we expected, there are no significant gender differences in behavior toward environmental legislation.

At first glance, these results indicate that women do represent women's issues more than men do when controlling for district and party influences in this way. However, this comparison between new and old groups still does not directly capture whether there are gender differences between a man and a woman representing the same district, particularly while controlling for alternative explanations for a legislator's behavior. To remedy this, again using each dyad as the unit of analysis, we conduct an ordinary least squares analysis of legislator characteristics on the sponsorship of women's issues and environmental issues bills.<sup>10</sup>

In our model, the dependent variables are the number of women's issues and environmental issues bills sponsored by the new member of each dyad, or the new legislator that replaced the previous legislator in that same district.<sup>11</sup> The variable for the type of electoral transfer, under "new member characteristics," is a dummy variable indicating whether the new member is part of a dyad composed of a woman replacing a man, a woman replacing a woman, or a man replacing a woman (a man replacing a man is the base category). For the older member, we control for the number of relevant bills sponsored in each category. This variable allows us to see if the volume of the new member's bill sponsorship in each category is significantly different from the old member's bill sponsorship. Additionally, we control for the factors previously mentioned that may also affect a legislator's choice of bills to sponsor: the legislator's party identification, seniority, electoral circumstances (how a legislator left office, via defeat, etc.), and relevant subcommittee membership (on a women's issue or environmental subcommittee).

We expect that if our general hypothesis about women's behavior in the legislature is supported with these data, then the new legislator's sponsorship of women's issues bills should be positively and significantly related to the "woman replaced man" variable and the "relevant bills sponsored" variable. Table 6 presents the results of this analysis. They

10. While a negative binomial analysis would be more appropriate for a dependent variable that is a count (in our case, of bills or floor remarks), our sample size is too small for such an analysis. In order to use a negative binomial regression, we need at least 100 degrees of freedom. Because our small *n* prevents us from meeting this requirement, we have shifted the statistical analysis from a negative binomial regression to an OLS regression. This change has not altered the results of our analysis substantially, and therefore helps, we believe, to bolster our conclusions. A comparison of the results of a negative binomial regression to the results of the OLS analysis yields similar results.

11. Using an alternative dependent variable, the proportion of all bills sponsored/floor remarks made that are related to women's issues and environmental issues, as the dependent variable achieves similar results in both magnitude and significance of coefficients to our count dependent variable. Moreover, we also control for the volume of bills and floor remarks by the old and new members in the analysis, which addresses the same concern.



Table 6. Sponsorship of women's issues and environmental issues

	<i>Women's Issues</i>	<i>Environmental Issues</i>
Party	-0.23 (0.37)	0.59* (0.32)
<b>New member characteristics</b>		
Woman replaced man	1.23** (0.51)	0.40 (0.44)
Woman replaced woman	-0.80 (0.90)	0.41 (0.67)
Man replaced woman	-0.02 (0.50)	0.47 (0.40)
Relevant subcommittee	-0.17 (0.22)	0.01 (0.24)
<b>Old member characteristics</b>		
Years in office	-0.01 (0.02)	-0.001 (0.02)
Retired	-0.71 (0.61)	0.43 (0.53)
Died in office	-1.60* (0.79)	0.33 (0.74)
Sought higher office	0.32 (0.78)	0.20 (0.62)
Relevant subcommittee	-0.01 (0.32)	0.01 (0.29)
Relevant bills sponsored	0.13 (0.13)	0.14 (0.14)
Constant	0.89 (0.74)	0.61 (0.61)
N size	37	37
R <sup>2</sup>	0.35	0.30

All entries are based on ordinary least squares analysis. \* $p < 0.10$ , \*\* $p < 0.05$ . Standard errors in parentheses.

support our expectations. Under "women's issues," if the new member is a woman replacing a man, there is a significant and positive effect on the number of bills about women's issues that are sponsored. Additionally, this is the case while controlling for the number of women's issues bills sponsored by the congressman she replaced. It is interesting that the "woman replaced man" dummy variable is not significant in determining the number of environmental bills sponsored by the new member of the chamber; rather, party identification plays a significant role in determining this number.

In Table 7, we present the results for the same model using the number of floor remarks made by the new legislator on women's issues and

Table 7. Remarks made concerning women's and environmental issues

	<i>Women's Issues</i>	<i>Environmental Issues</i>
Party	-0.21 (1.66)	-0.39 (1.33)
<b>New member characteristics</b>		
Woman replaced man	2.54 (2.20)	-2.83 (1.71)
Woman replaced woman	3.10 (0.36)	1.29 (2.71)
Man replaced woman	0.63 (2.18)	-1.83 (1.79)
Relevant subcommittee	2.52** (1.10)	1.49 (1.03)
Number of speeches made	0.07*** (0.02)	0.12*** (0.02)
<b>Old member characteristics</b>		
Years in office	0.02 (0.10)	-0.07 (0.08)
Retired	-1.03 (2.87)	4.14* (2.35)
Died in office	-3.30 (3.53)	5.15 (3.10)
Sought higher office	-1.50 (3.43)	3.17 (2.81)
Relevant subcommittee	1.23 (1.47)	0.14 (1.21)
Relevant speeches made	-0.31 (0.32)	0.24 (0.18)
Number of speeches made	0.01 (0.04)	-0.002 (0.03)
Constant	0.52 (3.24)	-5.42 (2.57)
N size	37	37
R <sup>2</sup>	0.71	0.78

All entries are based on ordinary least squares analysis. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Standard errors in parentheses.

environmental issues, again controlling for the factors discussed earlier.<sup>12</sup> For floor remarks, the type of gender dyad to which the new legislator belongs does not significantly affect the number of remarks he or she gives that are related to women's issues. Rather, the significant indicator of how much a legislator comments on women's issues or environmental

12. One other variable, the number of floor remarks given overall, is added to the analysis in Table 7. The variable controls for the overall amount of floor remarks made by each member.

legislation appears to be the number of speeches made. For women's issues, belonging to a subcommittee relevant to women's issues also significantly affects the number of remarks that legislator will make about women's issues on the floor.

## DISCUSSION AND CONCLUSION

The women and politics literature indicates that gender influences legislative behavior (e.g. Carroll 1994; Reingold 2000; Swers 2002; Thomas 1994). Yet, how gender matters relative to other important variables is less clear. This study attempts to explain the extent to which gender influences legislators' behavior while also controlling for the effect a district may have on a legislator's actions. One straightforward, yet previously unexamined, way to study this is to ask whether men and women who represent the same district exhibit different levels of commitment to women's issues. We believe that the natural experiment presented here allows us to understand the influence of gender and the congressional district that goes beyond the usual demographic indicators.

The results of this research have two distinct contributions to the body of knowledge about how women serving in legislatures represent women as a constituency. First, we find that a woman who replaces a man in the same legislative district does sponsor significantly more women's issues legislation. This gender difference does not exist in sponsorship of the other issue we test, environmental issues bills, bolstering the conclusion that women elected to office make a specific difference as agenda setters for women's issues legislation. However, women legislators do not speak about this legislation more in their remarks on the House floor than men do, regardless of district; rather, floor remarks about women's issues appear to be influenced by the subcommittees on which the legislator serves. Certainly, our evidence supports previous findings that demonstrate congresswomen's use of the bill sponsorship process to alter the legislative agenda in a way that is favorable to women (e.g., Swers 2002; Wolbrecht 2000). The empirical evidence presented here supports the theory that women legislators behave differently from men with regard to creating policies that affect women. This finding is important, in that it reinforces the absolute need to consider gender when assessing legislative behavior and larger questions of representation.

The second and more significant contribution of this research, however, is that our conclusions are supported by a rigorous attempt to control for

theoretically important influences on legislative behavior. Using the research design we employ here, specifically examining differences between pairs of dyads, we find that women representatives sponsor more bills dealing with women's issues than did the man who formerly held the same legislative seat. This neutralizes the commonly debated influences of district opinion, in particular, but also party identification, which are almost always considered the main influences on legislative behavior in the congressional literature. This offers researchers in women and politics a new way to assess women's representation of women's issues beyond employing demographic or party-as-a-proxy controls for alternative factors influencing legislative behavior.

It is important to note that the drawback of this research design is the limits it creates on data collection. By limiting the Congresses we study to control for redistricting and party leadership effects, we also limit the number of cases in which we can examine the dyadic relationship described here. Additional studies that employ this research design, particularly at the state legislative level where more cases of women replacing men as legislators exist, or a case study design among a smaller number of districts, will be important to confirm its utility as a tool to assess representation. Additionally, such designs will also allow for continued expansion on the use of alternative measures of legislative behavior, such as the dynamics of committee meetings or dealings with constituents (e.g. Kathlene 1994; Swers 2002). The natural experiment we employ here also has the potential to answer longitudinal and historical questions about the determinants of women's legislative behavior and women's efforts to act as advocates for women's issues in different stages of the legislative process, while also incorporating important theoretical debates found in the congressional politics literature.

The representation of women in society by women elected to public office remains one of the fundamental questions of legislative research and gender and politics research. Accumulating evidence continues to emphasize the need to incorporate gender measures into studies of legislative behavior. This study is one step toward continuing to develop measures of this fundamental relationship within the process of representation.

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