Descriptive Representation of Women and Ideological Congruence in Political Parties

Georgia Kernell
Political Science, Northwestern University

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Abstract

This paper examines the relationship between a party’s descriptive representation of women and its ideological proximity to female and male voters. I find that male and female voters are both objectively closer to parties with more females in their delegations. However, males are more likely to subjectively assess parties with more women as far from them, and females are more likely to place these parties close. Controlling for subjective ideological distance, both women and men are less likely to vote for parties with equal male and female representation.
**Introduction**

When women are represented by female politicians, they are more likely to engage in political discussions (Wolbrecht and Campbell 2007), be able to identify their representatives (Burns and Schlozman 1997), express positive attitudes toward democracy (Karp and Banducci 2008), and vote (Atekenson and Carrillo 2007). This has led to a large body of literature that examines the formal institutions and political conditions that lead to greater descriptive representation for women (Wangnerud 2009). Some of the most important factors include proportional electoral rules (Norris 1996), party organizations that actively recruit women (Kittilson 2006), and national or party-level gender quotas (Krook 2009).

Yet the link between descriptive representation and substantive representation is far more tenuous.¹ This research tends to focus on specific women’s issues to measure substantive representation. For example, a survey of candidates for parliament in the U.K. found that females in every party were less likely than males to agree with traditional gender roles and more likely to favor rules that increased equality in the workplace (Campbell, Childs and Lovenduski 2009). Cross-national studies have found that the percent of members of parliament that are female is positively associated with a country’s adoption of family leave laws (Kittilson 2008), and negatively associated with defense spending (Kock and Fulton 2011).

Standard measures of substantive representation from literature on democratic rules and representation are typically left out of these analyses. Specifically, I am referring to mean-

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¹Substantive representation, or responsiveness, refers the level of congruence between voters and their representatives.
sures of ideological congruence between individuals and parties. We do not have a body of research that examines whether or not a female citizen is closer ideologically to a female representative, a party with more female candidates, or the median member of government in a country with more women in parliament. This prohibits us from fully understanding how descriptive representation shapes women’s attitudes and behavior, and from comparing descriptive representation with other factors that affect congruence, such as the proportionality of electoral systems.

This paper begins to fill this gap by examining how the proportion of women in a party’s parliamentary group is related to female and male voters’ objective and subjective distances from a party, as well as their likelihood of voting for that party. I employ survey data from the Comparative Study of Electoral Systems (CSES) to measure ideological congruence along a left-right scale. I find that parties with a greater share of female candidates in their parliamentary delegation tend to adopt positions that are objectively closer to the ideological positions of both male and female voters. However, when asked about party location, men and women differ: men place parties with more female representatives farther from their own position, while women place these parties at the parties’ objective positions. Moreover, men are significantly less likely than women to vote for parties with more female representatives, even controlling for their subjective assessment of the parties’ ideological locations. Thus, while parties with more women in the parliamentary group are objectively closer to individuals, these parties do not always find greater success at the polls.

\footnote{For examples using this measure, see Huber and Powell 1994, Powell 2000, or Blais and Bodet 2006.}
Four Types of Representation

Pitkin defines four dimensions of representation in her seminal book, *The Concept of Representation* (Pitkin 1967). *Formal representation* identifies democratic institutions that lead to greater congruence between individuals and elected officials. *Descriptive representation* is the degree to which representatives “look like” the public. In studies of women’s representation, this is typically measured using an indicator variable for whether a person is the same sex as their representative. *Substantive representation* or *responsiveness* indicates congruence between the preferences of the public and their representatives. And, *symbolic representation* indicates how well the public’s preferences are being advocated for, independent of the outcome.

In the following, I examine these different aspects of representation at the individual level. Specifically I focus on the effect of descriptive representation (measured as the share of a party’s delegation that is made up of women) on substantive representation (measured as the objective and subjective distance between an individual and a party) and symbolic representation (measured as an individual’s likelihood of voting for a party that cannot be explained by distance). Below I derive several testable hypotheses about the relationship between descriptive representation and congruence.

**Expectations**

*Objective Distance.* The proportion of women in a party’s parliamentary group may be negatively associated with objective distance from a party for female respondents for three

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Schwindt-Bayer and Mischler (2005) identify an “integrated model of representation,” in which they examine the direct and indirect effects of each form of representation on one another at the country level.
reasons. First, descriptive representation (i.e. more women in the party) should increase substantive representation (i.e. objective proximity between a woman and a party) if female representatives are more likely to hold positions similar to those of female voters. Second, a party that adopts rules of formal representation (e.g. party quotas that cause it to nominate more female representatives) may be more sympathetic to women’s issues, and therefore adopt positions that are similar to those of female voters (i.e. increase substantive representation) regardless of the gender composition of its representatives. Third, there may be an increase in the supply of viable female candidates (relative to viable male candidates) in parties that well represent women. I think that causality between descriptive and objective ideological congruence likely runs in both directions, and the following statistical model is not a test of causation but rather association.

The proportion of women in parliament should have the same association (i.e. greater substantive representation and lower objective distance) for men if men hold similar substantive positions to women. It should have the opposite effect (i.e. decrease objective proximity) for men if men’s positions are closer to parties with fewer female representatives.

Subjective Distance. An individual’s subjective distance from a party will reflect her objective distance from that party as well as any unique effect of descriptive representation on her perceived proximity to the party. The proportion of women in a party’s parliamentary group should have a negative effect on a woman’s subjective distance from a party (controlling for objective distance) if descriptive representation has a direct, as well as an indirect, effect on subjective ideological congruence. This may be the case if female candidates overestimate ideological congruence with female representatives. A negative indirect effect may instead, or as well, reflect the salience that a female voter places on a particular issue. If women
prioritize a party’s position on women’s issues when evaluating its ideological position, we would expect parties with more female candidates to be both objectively and subjectively (controlling for objective distance) closer to female voters.

Again, we should expect similar results for men as for women if men hold similar ideological positions to women. A positive effect of subjective distance implies that men feel less represented by parties with more female candidates. This may occur if men erroneously evaluate parties with more women as farther from them ideologically or if they place a higher salience on issues that female representatives are less likely to prioritize or agree with.

*Vote Choice.* The proportion of women in a party’s parliamentary group may also increase symbolic representation, and therefore shape vote choice in ways that are independent of ideological distance. For example, if female voters value descriptive representation, not (only) as a means to achieve policy goals, but (also) as a long-term goal, the proportion of women in a party should have a positive effect on vote choice, independent of subjective distance. We may also observe this effect if women want to increase representation for parties that emphasize women’s issues simply because they are more likely to bring those issues to the agenda (i.e. not because they agree with their policy positions).

Similar results should hold if men are more likely to receive symbolic representation from increased descriptive representation for women. However, if the opposite is true (i.e. decreased descriptive representation for men leads to decreased symbolic representation), men should be less likely to vote for parties with greater shares of women.

To summarize, the proportion of women in a party’s parliamentary group may have a direct effect on objective distance, subjective distance, and vote choice. It should also have an indirect effect on vote through subjective distance, which should in turn be affected by
objective distance. Last, any effect of descriptive representation may be an indirect effect of formal representation (i.e. party quotas), which is not accounted for in the following analyses.

**Empirical Examination**

**Data**

**Case Selection**

To examine the effect of women’s representation on individual-level behavior and attitudes, I combine data on the percent of a party’s delegation that is made up of women with surveys from the Comparative Study of Electoral Systems (CSES). I limit the inquiry to competitive parties in mature parliamentary democracies. By “mature” I mean countries that have at least a continuous 30 year history of democratic rule, making Spain the youngest democracy in the data set. Seventeen countries in the CSES meet this criterion: 13 from Europe, as well as Australia, Canada, Japan and New Zealand.

In choosing parties that are sufficiently similar to warrant comparison, I have limited the analyses to those parties that are the most competitive. Across countries I observed a natural division between parties that received greater or less than eight percent of the vote; namely, almost all parties in government cross that threshold. Thus, I limit the analysis to those parties that received at least eight percent of the vote in the CSES election. These parties have enjoyed some electoral success and voters should be more likely to see them as electorally viable. The number of qualifying parties in a country varies from two (in Australia, Greece,
New Zealand, Portugal and Spain) to six (in Belgium). The combined percent of the total vote ranges from 68.5 percent (in Sweden) to 96.4 percent (in Luxembourg). Overall there are 57 parties from 20 parliamentary democracies in the data. These are listed in Table 1.\footnote{In the following analyses I examine at most 42 parties because I was unable to gather data from the CSES and from the party’s parliamentary delegation for the same time period in 15 of the cases.}
Table 1: Parties included in the data.

<table>
<thead>
<tr>
<th>Country</th>
<th>Election Year</th>
<th>Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2004</td>
<td>Liberal Party</td>
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<td></td>
<td></td>
<td>Labour Party</td>
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<tr>
<td>Belgium</td>
<td>2003</td>
<td>Flemish Liberals and Democrats</td>
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<td></td>
<td></td>
<td>Flemish Democratic Party</td>
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<td></td>
<td></td>
<td>Flemish Progressive Party</td>
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<td></td>
<td></td>
<td>Christian Democratic and Flemish Francophone Social Democratic Party</td>
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<td></td>
<td></td>
<td>Flemish Bloc</td>
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<td>Canada</td>
<td>2006</td>
<td>Conservative Party</td>
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<tr>
<td></td>
<td></td>
<td>Liberal Party</td>
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<td></td>
<td></td>
<td>New Democratic Party</td>
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<td></td>
<td></td>
<td>Quebec Bloc</td>
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<tr>
<td>Denmark</td>
<td>2005</td>
<td>Liberal Party</td>
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<tr>
<td></td>
<td></td>
<td>Social Democrats</td>
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<td></td>
<td></td>
<td>Danish People’s Party</td>
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<td></td>
<td></td>
<td>Conservative People’s Party</td>
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<td></td>
<td></td>
<td>Radical Left</td>
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<tr>
<td>Finland</td>
<td>2003</td>
<td>Agrarian Centrist Party</td>
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<tr>
<td></td>
<td></td>
<td>Social Democratic Party</td>
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<td></td>
<td></td>
<td>National Coalition Party</td>
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<td></td>
<td></td>
<td>Left Alliance</td>
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<tr>
<td>Germany</td>
<td>2005</td>
<td>Social Democratic Party</td>
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<tr>
<td></td>
<td></td>
<td>Christian Democratic Union</td>
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<td></td>
<td></td>
<td>Free Democratic Party</td>
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<td></td>
<td></td>
<td>The Left</td>
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<tr>
<td></td>
<td></td>
<td>The Greens</td>
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<tr>
<td>Iceland</td>
<td>2003</td>
<td>Independence Party</td>
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<td></td>
<td></td>
<td>Social Democratic Alliance</td>
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<td></td>
<td></td>
<td>Progressive Party</td>
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<td></td>
<td></td>
<td>Left-Green Alliance</td>
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<tr>
<td>Ireland</td>
<td>2002</td>
<td>Soldiers of Destiny</td>
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<td></td>
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<td>Family of the Irish</td>
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<td></td>
<td></td>
<td>Labour Party</td>
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<tr>
<td>Japan</td>
<td>2005</td>
<td>Liberal Democratic Party</td>
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<tr>
<td></td>
<td></td>
<td>Democratic Party</td>
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<tr>
<td>Country</td>
<td>Year</td>
<td>Parties</td>
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<td>--------------</td>
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<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2005</td>
<td>Labour Party, National Party</td>
</tr>
<tr>
<td>Norway</td>
<td>2005</td>
<td>Labor Party, Progress Party, Conservatives, Socialist Left</td>
</tr>
<tr>
<td>Portugal</td>
<td>2005</td>
<td>Socialist Party, Social Democratic Party</td>
</tr>
<tr>
<td>Spain</td>
<td>2004</td>
<td>Socialist Workers’ Party, People’s Party</td>
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<tr>
<td>United Kingdom</td>
<td>2005</td>
<td>Labour Party, Conservative Party, Liberal Democrats</td>
</tr>
</tbody>
</table>

**Women in Parliament**

I collected data on the percent of each party’s parliamentary delegation that was elected during the CSES election. To my knowledge, this is the first effort to gather data at the party level on the number or percent of parliamentary members who are women. I collected data on the actual members of parliament rather than parliamentary candidates because obtaining ballots from every district across countries proved prohibitively difficult. As a result, the following analyses are limited to explaining how the percent of women who are
The percent of women in a party’s parliamentary group for 57 parties in 20 parliamentary democracies.

*Figure 1:* The percent of women in a party’s parliamentary group for 57 parties in 20 parliamentary democracies.

...elected by a given party affect ideological congruence. This measure does, however, more accurately capture formal representation.

The share of a party’s parliamentary group that is female ranges from seven percent, in Norway’s Conservative Party, to 57 percent, in Iceland’s Progressive Party, Sweden’s Liberal Party and the Alliance ’90/The Greens in Germany. Figure 1 shows the distribution

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5 This is problematic if we think that the number of women on the party ticket has a unique effect (i.e. in addition to the number of women elected by the party) on voters’ attitudes and behavior. For example, if voters believe that a party well-represents women when the candidate(s) in their district are female, simply examining the percent of the parliamentary group that is female could grossly understate a party’s representativeness. (In single member districts a party that nominates half of its candidates as women could win half of the seats without electing a single woman to parliament.) A second potential issue is that the percent of women in the party’s delegation is measured using the results of the CSES election instead of the time period before. I have not yet gathered data for the party’s share of women prior to the CSES election, but I plan to do so.
of parties by the percent of their parliamentary group that are women. The histogram
demonstrates the high degree of variation among parties in the share of women in their
delegations. Although there is significant variation, the distribution is skewed to the low
end; in only nine parties do women make up at least 45 percent of the delegations, and in
seven parties less than 20 percent of the parliamentary members are female.

Individual Surveys

I combine these data with surveys from the Comparative Study of Electoral Systems to
examine how the share of women in the parliamentary group shape individuals’ proximities
to parties as well as their vote choices. The CSES surveys – funded primarily by the National
Science Foundation, and administered by a consortium of universities around the world – are
designed to explain election outcomes; all were conducted in the first two months following
parliamentary elections. The number of survey respondents varies across countries from 860
(in the U.K.) to 3023 (in Germany).

Measurement

I examine the effect of the women’s share of a party’s parliamentary group on an individual’s
objective and subjective distance from a party, as well as his or her probability of voting
for a party. Objective distance identifies the ideological difference between an individual
and a party as assigned by experts. Because surveys typically cannot ask experts to place
individuals on left-right scales, I measure objective distance using individual self-placement
and expert party placement such that

\[
\text{objective distance}_{ip} = |\text{self position}_i - \text{expert-placed party position}_p|
\]

for the dyad made up of individual \(i\) and party \(p\).\(^6\) I take the mean of experts’ assessments of party positions from the Benoit and Laver (2006) survey of experts to locate party positions. \textit{Subjective distance} is measured in the same fashion, except that the party’s position is placed by the individual, not experts:

\[
\text{subjective distance}_{ip} = |\text{self position}_i - \text{self-placed party position}_p|.
\]

The third dependent variable, \textit{vote}, is binary: an individual is coded as a one if they voted for the party and a zero if they did not.

I run a multilevel model to examine how party-level variables shape individual level outcomes. There are two key independent variables. \textit{Prop female} indicates the proportion of a party’s parliamentary group that is female, and this variable ranges from 0.06 to 0.57 in the data. The indicator variable, \textit{female}, equals zero for men and one for women. Interactions among these variables, such as \textit{prop female} * \textit{female} are included in the following models as well. In addition, in robustness tests I control for a number of individual-level and party-level variables. The former include education, income, age, partisanship, ideology, extremism, and an interaction between education and proportion female. At the party level I control for party ideology and party extremism. In addition, at the country level I control for the effective

\(^6\)One could also create an objective position as an index of respondents’ self-placed positions on a number of issues.
number of parties in the parliament and the presence of legal quotas. The regression tables presented below include no control variables because I do not have a strong theoretical reason as to why any should affect distance or vote. However, the results do not change when all of the variables listed above are included.\(^7\)

Respondents in a country are paired with a single party, and individual-party pairs are the units of analysis. This allows for systematic examination of how party-level characteristics influence vote choice. The pairing is a directed random sample aimed at being representative without underestimating total vote in countries with more parties in the analysis. The procedure I adopt to pair individuals with parties is clarified in detail in the appendix.

**Results**

To start, let us examine the effect of the proportion of a party’s parliamentary group that is female on a respondent’s objective distance from a party. Table 2 presents OLS results for the regression of objective distance on \(female\), \(prop\ female\), and \(female \times prop\ female\). The coefficient on female is positive and statistically significant, and we can interpret this number (0.25) as the difference in objective distance for men and women when there are no women in the parliamentary group. The coefficient on \(prop\ female\) is negative and statistically significant. This value (-1.28) represents the difference in objective distance for men between a party with no women and a party with only women in the parliamentary group.

To evaluate the effect of being female on objective distance when the proportion of the parliamentary group that is women is greater than zero, let us turn to Figure 2. This figure

\(^7\)I have not tried every possible specification, but they all show similar results thus far.
Table 2: The effect of the proportion of women in a party’s parliamentary group, being female, and their interaction, on distance from a party. Standard errors are clustered by party. Models 2a-2c are OLS, Model 2d is a probit.

Plots the predicted objective distance for women and men against the proportion female in a party’s parliamentary group. As we can see from the graph, the change in distance for both women and men is negative and substantively significant. Women are on average one unit closer to a party that has 50 percent of its delegation made up of women than a party with no female representatives. Men are also objectively closer to a party with more women, although the effect is not as strong as it is for women.

Figure 3 graphs the marginal effect of being female (as opposed to male) on objective distance for varying values of prop female. The graph shows that women are significantly farther than men from parties with less than 40 percent female representatives. However, there is no significant difference between females and males for parties with at least 40 percent of the parliamentary group made up of women. (In addition, the difference in the effect of

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8The mean of objective distance in the sample is 2.3 and its standard deviation is 1.7.
Figure 2: The predicted objective distance from a party for women (solid line) and men (dashed line) for varying proportions of women in a party’s parliamentary group.
Figure 3: The marginal effect of being female (rather than male) on objective distance from a party for varying proportions of women in a party’s parliamentary group. Dashed lines indicate 95 percent confidence intervals.
being female for low values and the effect of being female for medium to high values of prop female is itself significant.) The graph shows that men are farther than women from parties with supermajorities of women, and this difference approaches statistical significance as the proportion female increases. However, because the data only ranges from approximately zero to 0.6 for the variable prop female, we are less sure of these effects (as shown by the wide confidence intervals on the right side of the graph).

These results support the claim that descriptive representation for women increases substantive representation for women and men. This may be the case because female policymakers hold positions that are more in line with those of voters. Alternatively the result could simply indicate that those parties that nominate more female candidates are more likely to pursue policies favored by the electorate.

The second model presented in Table 2 examines the effect of being female, and the proportion of women in a party’s parliamentary group, when the dependent variable is subjective, rather than objective, distance. Figures 4 and 5 plot the predicted values and marginal effects from Model 2b, respectively.

As we can see in Figure 4, the effect of prop female is no longer substantively or statistically significant for men. Men assess parties with very few women to be equally close to them as parties with equal levels of men and women in parliament. The marginal effect (shown in Figure 5) of being female (instead of male) is negative and statistically significant for parties that include more than 65 percent women, but the effect is not statistically significant for the range of prop female in the data.

To assess the significance of these differences, Model 2c adds objective distance as an independent variable. Figures 6 and 7 plot the predicted values for men and women, and
Figure 4: The predicted subjective distance from a party for women (solid line) and men (dashed line) for varying proportions of women in a party’s parliamentary group.
Figure 5: The marginal effect of being female (rather than male) on subjective distance from a party for varying proportions of women in a party’s parliamentary group. Dashed lines indicate 95 percent confidence intervals.
Figure 6: The predicted subjective distance from a party, controlling for objective distance, for women (solid line) and men (dashed line) for varying proportions of women in a party’s parliamentary group. Objective distance is held at its median value in the data (two).

the marginal effect of being female, respectively.

Figure 6 demonstrates that the proportion of members in the parliamentary group that are women has a positive effect on distance for men (p=0.12). (The effect is also positive for women, but it is not statistically significant.) While the proportion of women in the parliamentary group has a significant negative effect on objective distance for men, it has a positive effect on subjective distance, controlling for objective distance. Thus, the percent of women in the parliamentary group has no overall effect on subjective distance for men because the independent (negative) effects on objective distance and the (positive) effects on subjective distance cancel each other out. This explains the flat relationship between the proportion of women in the parliamentary group and subjective distance for men in Figure
Figure 7: The marginal effect of being female (rather than male) on subjective distance from a party, controlling for objective distance, for varying proportions of women in a party’s parliamentary group. Dashed lines indicate 95 percent confidence intervals.
Counter to the hypotheses presented earlier, women are not more likely to see themselves as close to a party because of the number of women in that party once we account for objective ideological distance from that party. However, while men are objectively closer to parties with more female representatives, they are inclined to place themselves farther away from those parties. This may be because men erroneously think that parties with more female representatives are not representative ideologically. Alternatively, they may worry that these parties emphasize some issues - such as typical “women’s issues” more than issues that are more salient to men. Because there is no independent effect of prop women on subjective distance for women, however, it is unlikely that these parties do in fact give greater salience to issues that women support and men do not.

Last, I examine the effect of prop female on vote choice among men and women, controlling for subjective distance. The results are presented in Table 2d, and Figures 8 and 9 show the predicted and marginal effects, respectively. The first figure shows that both women and men are less likely to vote for a party that elects a high percentage to its parliamentary group of women than one that does not. These results are substantively and statistically significant, and therefore quite puzzling. If the effect reflects symbolic representation, individuals may feel less effectively represented. Hopefully this is not because men and women both feel that parties with equal shares of men and women are not as effective as those ruled by men. An alternative explanation may have something to do with the party’s campaign strategy. Perhaps parties that are more equal in representation, such as the Green parties, lack the organizational skills to vet candidates and woo voters because they are newer to politics.
Figure 8: The predicted probability of voting for a party, controlling for subjective distance, for women (solid line) and men (dashed line) for varying proportions of women in a party’s parliamentary group. Subjective distance is held at its median value in the data (two).

There is no difference in vote between women and men for parties with a small share of female representatives. However, women are more likely than men to vote for parties with greater than thirty percent women in the parliamentary group. This result is substantively and statistically significant; women are approximately three percent more likely to vote for a party with equal share men and women than are men.

It is also interesting to note that controlling for subjective distance, women are equally or more likely to vote than men. Yet when we do not control for subjective distance (not shown here), men are more likely than women to vote for parties in which less than 50 percent of the representatives are female, and women are more likely to vote than men for parties where there are more female than male representatives. Because far more parties have more male
Figure 9: The marginal effect of being female (rather than male) on the probability of voting for a party, controlling for subjective distance, for varying proportions of women in a party’s parliamentary group. Dashed lines indicate 95 percent confidence intervals. Subjective distance is held at its median value in the data (two).
than female representatives, men are more likely to vote, on average, than women. This suggests that as parties increase the share of females representatives we should see higher voter turnout among women than men.

Discussion

The results indicate that men and women are both objectively closer to parties with more female MPs. Men are subjectively farther from parties with more female representatives than those with fewer women in parliament. On the other hand, women’s subjective and objective assessments are practically identical. Men are less likely to vote for parties that well-represent women than those which do not. Women are also less likely to vote for parties with larger female delegations (although they are more likely to vote for those parties than are men).

Overall the findings raise more questions than they answer. What is the causal mechanism that causes men to feel more distant from parties with greater shares of female representatives? Why are women less likely to vote for parties with female representation even though they are closer to those parties ideologically by both objective and subjective accounts? Does formal representation (e.g. gender quotas) indirectly drive these results or is descriptive representation responsible?

In future steps I plan to examine the causal mechanisms behind these findings. Specifically, I will investigate the effect of quotas on women’s representation, and then subsequently on voters’ attitudes. It may be that some parties with a large percent of women in parliament only recently instituted quotas, and the effects of these quotas on party policies are
still being realized. Subjective distance could be much greater than objective distance for men among parties with more female legislators because men are unaware of the parties’ positions or because there is a confounding factor that affects subjective, but not objective distance. The results do indicate that it is as important to examine the effects of the number of women in a party on men as it is to examine these effects on women.

Last, this analysis raises the question, what level of gender parity should we expect in a party? At the country level it is more straightforward - descriptive representation is highest when 50 percent of the legislators are female and 50 percent are male. However, at the party level we may not see 50/50 splits among supporters. If only 20 percent of a party’s voters are female, should we expect or ask this party to field as many female candidates as male candidates? Extending the examination to political parties not only allows us to answer previous questions by examining the mechanism more closely, but it also enables us to ask new questions, both empirical and normative.
Appendix

For each country, every individual is paired with every party, creating a set of $N_c \cdot P_c$ observations, where $N_c$ and $P_c$ are the number of individuals and parties in country $c$ respectively. I wish to only include each individual once, so I create a subsample of $N_c$ observations by pairing each individual with only a single party. I could do this by simply randomly choosing one of the $P_c$ observations for each individual. Then, the variable $vote$, would be the same as if for each individual $i$, I randomly choose one of the $P_c$ parties $p$, and asked, “Did you vote for this party?” If $i$ is a voter of one of the $P_c$ parties in the analysis, then there is a $1/P_c$ chance that they will respond yes, and thus have $vote = 1$. This however creates a problem because $P_c$ varies from country to country. If the probability of being voting for a party in the analysis is $Q$ in both country $c$ and country $d$, then we would expect to observe $Q \cdot N_c/P_c$ individuals with $vote = 1$ in country $c$ and $Q \cdot N_d/P_d$ individuals with $vote = 1$ in country $d$. Thus, countries with fewer parties would appear to have higher proportions of voters. To correct for this, I non-randomly pair parties with individuals according to the following algorithm. For the non-voters, and those individuals who voted for a party not in the analysis, I choose a random party from the $P_c$ parties. If we denote the fraction of individuals in country $c$ that have voted for a party in the analysis by $Q_c$, then there are $Q_c \cdot N_c$ individuals remaining that must be paired with a party. I have the fewest parties to choose from in those countries that have $P_c = 2$, in which randomly pairing individuals with parties should produce on average $Q_c \cdot N_c/2$ individual-party pairs with $vote = 1$. So, regardless of the number of parties in $c$, I randomly select $Q_c \cdot N_c/2$ individuals from the remaining $Q_c \cdot N_c$ individuals, and pair them with the party that they voted for. I then pair
the remaining $Q_c \cdot N_c/2$ individuals with a random party in the analysis that they did not vote for. This results in a subsample in which $Q_c \cdot N_c/2$ individual-party pairs have $vote = 1$, regardless of the number of parties $P_c$. 