

## **Candidate Sex and the Costs of Voting: New Implications for Turnout**

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### Abstract

Previous scholarship reveals that individuals ascribe ideological and non-ideological characteristics to women candidates. Women are perceived as being more liberal in their ideology, warmer, and more attentive to social welfare issues. Yet, research on voter turnout has not considered whether individuals tap candidate sex when deciding to turnout. We suggest that these inferences about ideology, personality and issue competency serve as a meaningful informational shortcut that reduces the costs associated with voting. Thus, we expect that individuals will be more likely to turnout to vote in a congressional district when a female candidate is present. We find that the propensity to turnout is greater in elections that feature a female candidate, even after controlling for a variety of individual- and district-level characteristics. Part of this effect is attributable to individuals ascribing ideology to female candidates; however, the effect is also evidenced among individuals who lack an ideological orientation, suggesting that inferences about personality traits and issue competency also promote turnout. We find these effects to be especially strong for female Democrats, as both women and Democrats are stereotyped as liberal and compassionate.

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<sup>1</sup> The authors' names appear in alphabetical order. Both made equal contributions to the manuscript.

## **Candidate Sex and the Costs of Voting: New Implications for Turnout**

A growing body of research examines how the presence of female candidates and office-holders influences voters' attitudes and behavior (Atkeson 2003; Broockman 2014; Campbell and Wolbrecht 2006; Dolan 2006; Fridkin and Kenney 2014; Hansen 1997; Koch 1997; Lawless 2004; Reingold and Harrell 2010; Wolak 2014). Female candidates have been shown to increase women's engagement in politics when running in competitive elections (Atkeson 2003) and when there is party congruence between female candidates and voters (Reingold and Harrell 2010). Additionally, when women occupy highly visible positions in elected office, women's knowledge about politics is increased and they become more politically engaged (Fridkin and Kenney 2014). While these studies have made substantial contributions to our understanding of the normatively significant issue of civic engagement, previous scholarship has not yet considered whether the presence of women candidates alters the informational cost of voting, and consequentially promotes turnout.

There are strong theoretical reasons to expect that women's presence as candidates ought to promote voting participation. Previous research shows that candidate sex conveys stereotypical information about ideology, issue competency, and personality traits (Alexander and Andersen 1993; Dolan 2010, Dolan 2004a, 2004b; Huddy and Terkildsen 1993; Kahn 1994, 1992; Koch 2002, 2000; McDermott 1998, 1997; Sanbonmatsu 2002; Sanbonmatsu and Dolan 2009). Compared to males, female candidates are seen as ideologically more liberal; they are expected to be more competent in dealing with "compassion issues"; and they are viewed as more honest and caring. Existing research on informational cost and voting suggests that the use of cognitive heuristics can significantly lessen the demands of political decision-making (Blais 2000; Downs

1957; Niemi 1976; Rosenstone and Hansen 1993; Sanders 1980; Verba, Schlozman, and Brady 1995). Thus, a logical, and yet undeveloped, implication of these two literatures is that sex-based stereotypes serve as a heuristic that mitigate the cost of voting, and enhance an individuals' propensity to turnout. Our research bridges the scholarship on heuristics and voting, with that on sex stereotypes, to make a unique contribution to our understanding about the effect of sex stereotypes on the informational cost of voting and turnout.

Our theory is rooted in the well-established empirical regularity that individuals infer a candidate's ideology, issue competency and personality traits on the basis of her sex. However, unlike previous studies, we extend the observation of sex stereotypes to the arena of informational cost and voting. To the extent that candidate sex provides a cognitive link to stereotypic information, we argue that it ought to lower the informational cost of voting, and subsequently promote turnout.

We explore the nature of the stereotypic information individuals glean from candidate sex, specifically testing whether the information is ideological or non-ideological in nature. For instance, because individuals are more likely to place female candidates on an ideological scale, their propensity to turnout may be improved when a female candidate is present, due to inferences about ideology. Alternatively, individuals who are unable to place the candidates ideologically may use candidate sex as a shortcut to non-ideological information about candidate traits, issue attention, or issue salience; moderating the informational costs of voting. Importantly, these two causal mechanisms are not mutually exclusive. Turnout may increase in the presence of a female candidate both because candidate sex serves as a heuristic to ideological information and non-ideological information. Nevertheless, distinguishing between these two

causal pathways is important if we are to understand how the linkages between candidate sex and turnout operate.

Using the 2006 Cooperative Congressional Election Survey (CCES) along with a supplemental survey of local political experts that corresponds to the congressional districts in the CCES, we find that candidate sex increases voter turnout by supplying ideological and non-ideological information, independent of alternative explanations.

The relationship between candidate sex and voting are complex and often indirect. Although some studies find that female candidates can potentially benefit from the use of sex based stereotypes (Cook 1994; Dolan 2004; Lawless 2004), others suggest that they are disadvantaged by them (Carroll and Dittmar 2010; Huddy and Terkildsen 1993). Moreover, several studies find that the use of stereotypes is conditionally or indirectly related to voting (Bauer 2015; Ditonto, Hamilton, and Redllawsk 2014; Dolan 2015; Fulton and Ondercin 2013). The emergent conclusion is that the presence of female candidates changes the electoral environment and the behavior of voters.

We demonstrate that the presence of female candidates shapes the informational environment in complex ways overlooked by existing studies on voting behavior and informational cost. Candidate sex works indirectly through stereotypes about ideology, traits and issue competency to provide voters with increased information about the candidates and lowers the cost of turning out to vote. Interestingly, we demonstrate that male and female respondents rely on sex stereotypes differently. This study adds to this growing body of literature by demonstrating that female candidates increase turnout in elections, and advances our understanding of how voters use stereotypes and informational shortcuts in the process of voting.

### **Turnout, Stereotypes, and Candidate Sex**

The informational cost of voting plays an important role in both formal and empirical studies of voter turnout (Blais 2000; Downs 1957; Niemi 1976; Rosenstone and Hansen 1993; Sanders 1980; Verba, Schlozman, and Brady 1995).<sup>1</sup> Individual-level characteristics like education, age, income, home-ownership, and church attendance primarily affect turnout by altering the cost of casting a ballot (Verba, Schlozman, and Brady 1995; Wolfinger and Rosenstone 1978). While individual-level characteristics play a central role in shaping participation, contextual factors relating to the election also structure the informational cost of voting and impact turnout (Brady and McNulty 2011; Gimpel et. al 2007; Lassen 2005). Yet, one factor that receives insufficient attention is the role of candidate sex on the informational environment. When one of the candidates is a woman, do citizens draw on sex stereotypes to lower the informational cost of voting, thereby increasing the likelihood of turning out on Election Day?

Previous research shows that individuals extrapolate candidate traits, issue attention, and issue competencies from a variety of category-based candidate characteristics (Conover and Feldman 1989; Lodge, Steenbergen, Brau 1995; Rahn 1993; Wright and Niemi 1983), and use these heuristics and other informational shortcuts to reduce the informational cost of voting (Popkin 1996; Rahn 1993; Sniderman, Brody and Tetlock 1991). Moreover, extensive research demonstrates that individuals use candidate sex to ascribe traits, issue attention, and issue competency to female candidates (McDermott 1997, 1998; Huddy and Terkildsen 1993; Sanbonmatsu and Dolan 2009; Sanbonmatsu 2002). Female candidates are seen as being warmer, more expressive, honest, and compassionate than male candidates (Huddy and Terkildsen 1993;

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<sup>1</sup> Volumes of research have been composed on the subject matter of voter turnout and, more generally, political participation. For more complete reviews of this literature see Schlozman (2002) and Blais (2000).

Kahn 1992). In individuals' minds, female politicians are often defined by their lack of strengths associated with politics (Schneider and Bos 2013). Women are also seen as more competent in dealing with compassion issues, protecting social security, education and health care, while men are seen as more competent dealing with the military, foreign affairs, terrorism, and crime (Dolan 2010; Huddy and Terkildsen 1993; Sanbonmatsu 2002). Additionally, individuals infer ideological positions about candidates based on sex, perceiving female candidates as more liberal (Koch 2000, 2002; McDermott 1997, 1998). Thus, compared to elections where both candidates are men, individuals in elections with a female candidate should have an additional informational shortcut available to them, which ought to reduce the cost of voting. This leads to our first expectation:

*H<sub>1</sub>: Individuals will be more likely to turnout in elections with a female candidate compared to elections where both candidates are men.*

We expect individuals will use candidate sex indirectly and conditionally with ideology. Ideology is one of the key pieces of information individuals glean from candidate sex (Alexander and Andersen 1993; Dolan 2004a, 2004b; Huddy and Terkildsen 1993; Kahn 1994; Koch 2000, 2002; McDermott 1997; Sanbonmatsu and Dolan 2009). Individuals view female candidates as more liberal (Koch 2000, 2002; McDermott 1997, 1998). Given the importance of ideology in voting decisions (Burden 2004; Downs 1957), potential voters who are able identify both candidates' ideology will have lower informational costs associated with voting compared to those who cannot place the candidates. Thus, we expect candidate sex to influence voter turnout through ideology:

*H<sub>2</sub>: Individuals will be more likely to turnout in elections featuring a female candidate because women candidates evoke stereotypes about ideology, and ideological information lowers the cost of voting.*

If this hypothesis is correct, then we should observe individuals being more likely to place female candidates on an ideological scale, compared to their male counterparts. In addition, we should observe the main effect of a female candidate in the turnout model to be diminished once the variable for ideological placement is taken into account. In other words, the presence of a female candidate stimulates turnout because she provides an informational shortcut to ideology, and ideological information promotes voting.

Individuals also infer other candidate characteristics from sex that may ease the task of voting. Candidate sex is a heuristic that elicits stereotypes about issue competency, issue attention, and personality traits (Dolan 2010; Huddy and Terkildsen 1993; Sanbonmatsu 2002). We expect that individuals will also draw on this information to lower the cost of voting. When individuals are unable to identify the candidates' ideology, they will draw on non-ideological sex stereotypes to reduce their cost of voting. In fact, people who lack individuating information about candidates are more likely to draw on stereotypes (Bauer 2014; Kunda and Spencer 2003; McDermott 1998, 1997). Thus, individuals who are unable to identify both candidates' ideological positions draw on other sex stereotypes to mitigate the cost of voting. Candidate sex should increase turnout conditional on ideological placement:

*H<sub>3</sub>: When individuals are unable to identify both candidates' ideological positions, they will be more likely to turnout in elections with a female candidate, because candidate sex communicates non-ideological stereotypes that lower the costs of voting.*

This hypothesis would be confirmed if we observe an increased likelihood of turnout in the presence of a female candidate, but only among those individuals who cannot place both candidates on an ideological scale. In other words, candidate sex can lower the cost of voting both indirectly and conditionally on ideology. First, the presence of a female candidate may spur turnout through ideology among those who are ideologically minded (H<sub>2</sub>). Second, the presence of a female candidate may increase turnout through non-ideological inferences about issue competency, issue attention and personality traits among those who lack an ideological orientation of the candidates (H<sub>3</sub>).

In general, we expect that the effect of candidate sex will be stronger when the female candidate is a Democrat compared to when the female candidate is a Republican. Female Democrats convey a consistent ideological cue, with both women and Democrats stereotyped as being “caring,” “compassionate,” and “liberal” (Dolan 2004; King and Matland 2003; Sanbonmatsu and Dolan 2009; Schneider and Bos 2011). Candidate sex is a simpler cue for individuals to use when paired with Democratic Party identification compared to Republican Party identification. As a result, we expect to see a larger increase in voter turnout when there is a female Democratic candidate compared to a female Republican.

*H<sub>4</sub>: The impact of candidate sex on the likelihood of turning out will be larger when the female candidate is a Democrat compared to when the female candidate is a Republican.*

Our expectations focus on the influence of a single female candidate. There are a growing number of races where two female candidates are present; however, these remain relatively rare. We do not expect there to be any interactive effect when there are two female



candidates.<sup>2</sup> Individuals draw on both candidate sex and party identification to form stereotypes (Sanbonmatsu and Dolan 2009). As a result, the additive effect of these two items transmits the requisite information to enhance the probability of voting.

Lastly, we consider whether men and women respond differently to female candidates. A growing body of research suggests that men and women have different baseline preferences for the sex of their representative (Dolan 2015, Dolan and Sanbonmatsu 2009, Sanbonmatsu 2002). Dolan (2015) finds that women tend to prefer female candidates and men tend to prefer male candidates. These preferences translate into different levels of support for female candidates. Other scholars have also found that under certain conditions women are more supportive of female candidates (Cook 1994; Dolan 1998; Pluzter and Zipp 1996). The conditional impact of respondent sex is not only limited to voting, but also information processing in races with a female candidate (Dittonto, Hamilton, and Redlawsk 2014), stereotype reliance (Bauer 2015) and political engagement (Wolak 2015).

*H<sub>5</sub>: The impact of candidate sex on the likelihood of turning out to vote will be conditional on both ideological placement and respondent sex.*

The state of this research does not allow us to make a directional prediction associated with an individual's sex. Rather, we simply expect that respondent sex should condition the relationship between candidate sex and turnout. To summarize, we expect to observe a greater propensity to vote when a female candidate is present (H<sub>1</sub>). This relationship between candidate

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<sup>2</sup> We tested for the possibility of an additional negative or positive influence on turnout in elections with both a female Democrat and Republican candidate by adding an interaction between female Democrat and female Republican. The likelihood ratio tests showed no difference between models with the interaction term and models without the interaction term. The substantive results of the models also remained unchanged by adding the interaction term. Thus, races with two female candidates can be parsimoniously modeled by including the indicators for a female Democrat and a female Republican and simply summing these effects.

sex and turnout reflects the role of ideology in turnout decisions, and the increased tendency of individuals to ascribe ideology to female candidates (H<sub>2</sub>). It is also reflective of the use of non-ideological heuristics to lower the costs of voting among those who are devoid of ideology (H<sub>3</sub>). This increased likelihood of voting should be especially pronounced for female Democratic candidates (H<sub>4</sub>). Finally, the relationship between candidate sex and ideology will also be conditional on respondent sex (H<sub>5</sub>).

To estimate the effect candidate sex on turnout, it is important to be mindful of factors that are influential to turnout decisions and are correlated with female candidates. Particularly important for our purposes are electoral competitiveness and candidate quality. Omitting these variables, or underspecifying them, would bias the apparent effect of sex on turnout.

Competitive races activate participation by generating more information about the candidates, issues, and stakes. Individuals are aroused to participate by enhanced mobilization efforts by candidates, parties and interest groups. Because female candidates are especially sensitive to the competitiveness of a race (Fulton et al., 2006), and competitiveness is linked to higher turnout (Jackman 1987; Rosenstone and Hansen 1993), omitting a variable for competition would overstate the effect of candidate sex on turnout.

Additionally, individuals desire leaders who exhibit personal integrity, competence and a grasp of the issues. Candidates who possess these qualities summon individuals to the polls (Adams and Merrill 2003; McCurley and Mondak 1995; Mondak 1995; Southwell 1991). To the extent that female candidates exhibit qualities that individuals value, and if these qualities promote participation, then omitting them will also exaggerate the influence of candidate sex in models of turnout. Moreover, many of these quality characteristics (e.g., integrity, competence, grasp of issues) overlap with stereotypes individuals hold about male and female candidates.

Thus, by controlling for them, we present a more conservative test of our hypotheses. In other words, because we expect that individuals who lack an ideological orientation of the candidates to draw on sex stereotypes about competency and personality traits, including measures related to these variables ought to attenuate the effect of candidate sex on turnout.

## **Data**

Because candidate cues and stereotypes ought to be the most prominent in low-information elections (McDermott 1997, 1998), midterm elections provide an ideal setting in which to test our hypotheses due to the lower salience and dearth of information typically available in midterm elections compared to presidential elections (Campbell 1960; Tufte 1975). Also, no presidential election in history has featured a viable female general election candidate. Congressional elections have the additional benefit of yielding a greater number of cases and variation compared to gubernatorial or Senate elections.

We have two primary data sources for this project. The 2006 Cooperative Congressional Election Study (CCES) is the source of our dependent variable and primary source of our individual-level independent variables. The CCES data set is supplemented by a district-level data set that provides the perceptions of expert political informants within the congressional districts. This data set provides us with our measures of candidate quality and candidate characteristics.<sup>3</sup>

The CCES is a nationally-representative study conducted in two waves in the fall of 2006. The pre-election wave was administered in October-November, prior to the November 7<sup>th</sup> midterm elections. This wave includes questions on a variety of respondent demographics and political attitudes. The post-election wave was conducted in November, after the elections, and

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<sup>3</sup> Another advantage of using the CCES is that it allows us to study the use and influence of stereotypes in a non-experimental setting (Dolan 2013).

includes the question used as our dependent variable: whether the respondent turned out to vote (1) or not (0).<sup>4</sup>

Other key individual-level variables are derived from the CCES. Central to our theoretical expectations is the ability to identify the candidates ideologically. We measure this as a dummy variable with 1 indicating that the respondent is able to place both candidates on an ideological scale and 0 indicating the respondent is unable to place both candidates.<sup>5</sup> The CCES asks respondents to place candidates on an ideological scale ranging from very liberal (0) to very conservative (100). Respondents who located the House candidates anywhere on the scale were classified as having placed the candidate. Respondents who answered “don’t know” were classified as not having placed a candidate. Because we are only concerned with whether an individual acts on the ideological inferences s/he holds, we did not make any judgments about whether the respondent correctly classified the candidate.

Respondent sex is a dummy variable with 0 indicating a male respondent and 1 indicating a female respondent. The literature on voter turnout suggests a myriad of individual-level attributes that alter the costs and benefits of voting. As a result, we control for the following characteristics at the individual level: political knowledge, strength of approval of George W.

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<sup>4</sup> In our sample, 67.8% of respondents turned out, while 19.7% abstained from voting. 12.5% of individuals who completed the pre-election survey did not answer the post-election turnout question, and therefore are coded as missing data. Over-reporting of voting is common in survey research (Burns, Schlozman, and Verba 2001; Silver, Anderson and Abramson 1986; Traugott and Katosh 1979). However, previous research has shown that this has little substantive impact on analyses predicting voter turnout (Katosh and Traugott 1981; Silver et.a. 1986).

<sup>5</sup> The CCES asks respondents to place candidates on an ideological scale ranging from very liberal (0) to very conservative (100). Respondents who located the House candidates anywhere on the scale were classified as having placed the candidate. Respondents who answered “don’t know” were classified as not having placed a candidate. Because we are only concerned with whether an individual acts on the ideological inferences s/he holds, we did not make any judgments about whether the respondent correctly classified the candidate.

Bush, partisan strength, education, age, income, homeownership, marriage, race, and religiosity. Details about these variables can be found in Appendix A.

We break down candidate sex by party identification. Female Democrat is a dummy variable where 1 indicates that the Democratic candidate in the district was female, while 0 indicates that the Democrat is male. Female Republican is operationalized the same way.

To capture the electoral context, we merged information about candidate quality and candidate characteristics into the CCES from a 2006 study of political informants who are expert political observers in their districts and are familiar with the Democratic and Republican candidates for Congress (Adams et al. 2011; Buttice and Stone 2012; Stone and Simas 2010).<sup>6</sup> This study includes 155 congressional districts, 100 of which were randomly selected, and 55 of which were oversampled due to their competitiveness. Appendix B provides detailed information on the districts in our sample.

The informant survey contributes insights about the competitiveness of the district and candidate quality; variables that should both be correlated with candidate sex and influential to turnout. To capture competitiveness, informants predicted the winning candidate's vote. The winner's expected vote ranges from 45% to 95%, with an average of 60%. Because greater values of the winning candidate's expected vote indicate lower competition, it may be helpful to think about the variable as a reflection of lopsidedness.<sup>7</sup> To measure quality, we tap a series of

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<sup>6</sup> The political informants include 4400 delegates to the 2004 Democratic and Republican conventions and state legislators who in October of 2006 were asked to provide information about their district's Democratic and Republican candidates for Congress. In total, 925 informants responded, for a response rate of 21%. On average, six informants in a district rated each of the Democratic and Republican candidates. Informants were fairly well-distributed across sex and partisanship. 59% of the informants were male and 41% were female. 55% were Democrats, and 44% were Republicans.

<sup>7</sup>We recognize that demographic characteristics of the informants may influence their evaluation of the winner's expected vote. For instance, informants may rate the electoral prospects of

questions that ask informants to rate the candidates of both parties on seven items related to personal quality: integrity, ability to work well with others, competence, grasp of the issues, ability to find solutions to problems, qualifications to hold office, and overall strength as a public servant.<sup>8,9</sup>

As is customary in models of voting behavior, we exclude uncontested races, and control for seat status and the challenger's office-holding experience (Bond, Covington and Fleisher 1985; Jacobson 1987; Jacobson and Kernell 1983). Details about the coding of district-level variables can be found in Appendix A. Due to the binary nature of our dependent variable, we use logistic regression in all of our multivariate analyses. Because our data incorporates information from both the individual- and district-level, our analyses include a weight variable that takes into account the size of the district sample, and clusters by the district.

## Results

Figure 1 examines the average rate of turnout in races that feature male or female candidates. Supporting H<sub>1</sub>, our results suggest that turnout is greater in races when a female candidate is present. This is particularly true given a female Democratic candidate (H<sub>4</sub>). When the Republican candidate is male (columns 1 & 2), the presence of a female Democratic

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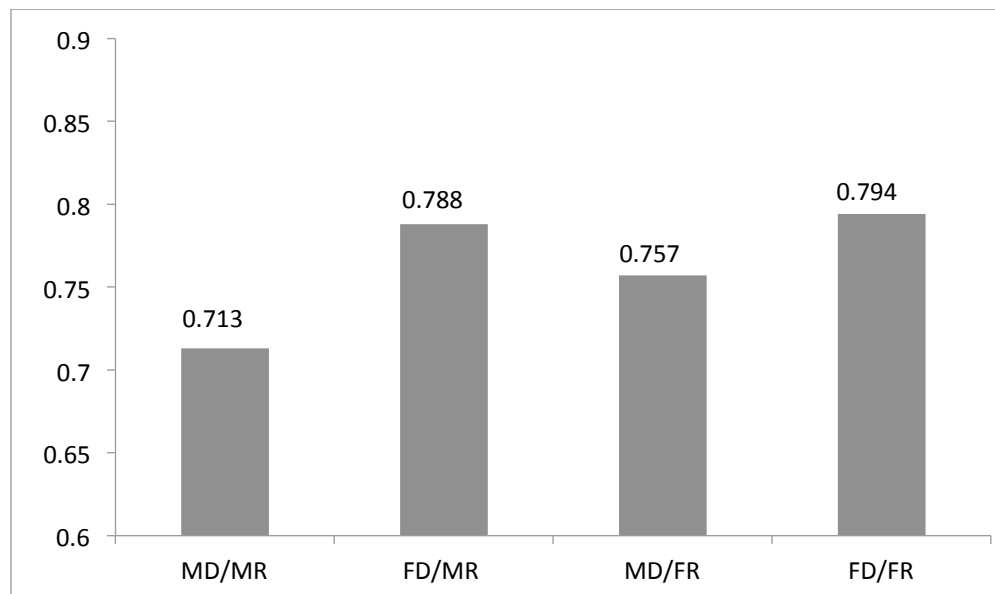
candidates of the same party more highly. To address the concern that informant bias may influence the ratings, we create two dichotomous variables indicating whether the informant shares the same partisanship with the candidate they are rating (-1 = opposite party, 1 = same party), as well as whether the informant shares the same sex with the candidate they are rating (-1 = opposite sex, 1 = same sex). We regress the winner's expected vote on "shared partisanship" and "shared sex." The coefficient for "shared partisanship" and "shared sex" yields a value indicating the extent of the advantage or disadvantage the candidate receives, based on these demographics. This value is then subtracted from the original item score, and aggregated up to the district-level. This procedure has been validated in previous research (Stone, Maisel and Maestas 2003; Stone et al. 2010; Stone and Simas 2010).

<sup>8</sup>We use a procedure similar to the one described above to account for informants more generously appraising the valence of candidates of the same partisanship and/or gender.

<sup>9</sup>Principal components factor analysis confirms that the items tap a single dimension.

candidate spurs turnout by 7.5% (0.788 vs. 0.713,  $p < 0.01$ ). When the Democratic candidate is male (columns 1 & 3), the presence of a female Republican increases turnout by 4.4%, however this difference fails to reach conventional standards for significance (0.757 vs. 0.713,  $p = 0.11$ ). Compared to when there are two male candidates running (column 1), the presence of two female candidates (column 4) boosts turnout by 8.1% (0.794 vs. 0.713,  $p < 0.01$ ). Clearly, turnout is stimulated when there is a female candidate running, especially a female Democrat.  $H_1$  and  $H_4$  are preliminarily supported.

**Figure 1. Turnout by Candidate Sex & Partisanship**



To unpack the mechanisms driving the bivariate relationship between female candidates and voter turnout, we turn our attention to our multivariate analyses that include district- and individual-level controls. Model 1 reported in Table 1 depicts our baseline, and illustrates that the presence of a female candidate increases the likelihood of turning out to vote, even after controlling for confounding factors. Compared to races with two male candidates, individuals

are 2.4% more likely to vote in races with a female Democratic candidate.<sup>10</sup> Substantively, this is larger than the effect of a respondent increasing one educational category (on a six-point scale), which only increases likelihood of turning out by 1.9%. The coefficient for female Republican is indistinguishable from zero. Candidate sex only matters to turnout when the female candidate is a Democrat.

	Model 1 (se)	Model 2 (se)	Model 3 (se)	Model 4 (se)
Female Democrat	0.21** (0.11)	0.17* (0.10)	0.24 <sup>C</sup> (0.13)	0.58 <sup>C</sup> (0.19)
Female Republican	0.06 (0.12)	0.04 (0.11)	0.10 <sup>C</sup> (0.13)	0.07 <sup>C</sup> (0.22)
Ideological Placement	--	0.77** (0.09)	0.84 <sup>C</sup> (0.11)	0.85 <sup>C</sup> (0.11)
Female Democrat x Placement	--	--	-0.19 <sup>C</sup> (0.17)	-0.42 <sup>C</sup> (0.23)
Female Republican x Placement	--	--	-0.13 <sup>C</sup> (0.19)	0.06 <sup>C</sup> (0.27)
Respondent Sex	0.004 (0.07)	0.05 (0.07)	0.05 (0.07)	0.15 <sup>C</sup> (0.08)
Female Democrat x Respondent Sex	--	--	--	-0.57 <sup>C</sup> (0.21)
Female Republican x Respondent Sex	--	--	--	0.04 <sup>C</sup> (0.21)
Female Democrat x Respondent Sex x Placement	--	--	--	0.33 <sup>C</sup> (0.32)
Female Republican x Respondent Sex x Placement	--	--	--	-0.35 <sup>C</sup> (0.38)
Open Seat	-0.06	-0.05	-0.06	-0.07

<sup>10</sup> Predicted probabilities and marginal effects are all calculated with continuous and ordinal variables set to their mean and dichotomous variables set to the median.



	(0.13)	(0.13)	(0.12)	(0.12)
Challenger Experience	-0.15	-0.25*	-0.25*	-0.24*
	(0.12)	(0.12)	(0.13)	(0.13)
Winner's Expected Vote	-0.02**	-0.01	-0.01	-0.01
	(0.008)	(.008)	(0.01)	(0.01)
Dem Candidate's Characteristics	0.13**	0.11**	0.11**	0.10**
	(0.04)	(.04)	(0.04)	(0.04)
Rep Candidate's Characteristics	0.09**	0.06*	0.06*	0.06*
	(0.03)	(0.03)	(0.03)	(0.33)
Strength Party Identification	0.22**	0.20**	0.20**	0.20**
	(0.03)	(0.03)	0.03	0.03
G.W.Bush Approval	0.23**	0.20**	0.21**	0.21**
	(0.06)	(0.06)	(0.07)	(0.07)
Knowledge	2.12**	1.91**	1.91**	1.92**
	(0.12)	(0.12)	(0.12)	(0.12)
Education	0.15**	0.15**	0.15**	0.1**
	(0.03)	(0.03)	(0.03)	(0.03)
Age	0.02**	0.02**	0.02**	0.02**
	(0.003)	(0.003)	(0.003)	(0.003)
Income	0.004	0.002	0.003	0.003
	(0.01)	(0.01)	(0.013)	(0.01)
Homeownership	0.34**	0.33**	0.33**	0.32**
	(0.07)	(0.08)	(0.08)	(0.08)
Married	0.004	-0.01	-0.01	-0.01
	(0.07)	(-.07)	(0.07)	(0.07)
Race	0.31**	0.31**	0.31**	0.31**
	(0.09)	(0.09)	(0.08)	(0.08)
Religiosity	0.17**	0.17**	0.17**	0.18**
	(0.08)	(0.08)	(0.08)	(0.08)
Constant	-2.90**	-3.44**	-3.46**	-3.48**
	(0.65)	(0.64)	(0.64)	(0.63)
Number of Observations	8939	8939	8939	8939
Number of PSU	136	136	136	136
F-Test	33.48**	45.78**	45.06**	38.11**

\*  $p \leq .10$ , \*\*  $p \leq .05$ , <sup>c</sup> conditional relationship resulting from the interaction statistical significance assessed using marginal effects.

Table 1 reports control variables that are stable and in the expected direction, regardless of specification. Consistent with the previous literature on voting behavior, competitiveness and candidate quality promote higher turnout. At the individual-level, the propensity to turnout is

enhanced by strong partisanship, presidential approval, knowledge, education, age, homeownership, race and religiosity. Open seat races and elections featuring an experienced challenger have no independent impact on turnout after controlling for other factors. Income and marital status also appear insignificant in the models, but this may be due to multicollinearity.

But, what is the mechanism underlying the relationship between the presence of a female Democrat and increased turnout? H<sub>2</sub> posits that female candidates are more likely to impart ideological information that eases the task of voting. To see whether this is the case, Table 2 reports the percent of individuals who are able to ideologically place both candidates, varying candidate sex and partisanship. In the baseline race with two males, only 36% of respondents are able to identify an ideological position for both candidates. This increases significantly when races feature a female Democrat (56%), a female Republican (46%), or two females (65%).<sup>11</sup> This supports our argument and previous research that the presence of a female stimulates ideological inferences.

**Table 2. Percent of Respondents Placing Both Candidates by Candidate Sex & Partisanship**

Male Democrat/Male Republican	35.79
Female Democratic/Male Republican	55.52***
Male Democratic/Female Republican	46.42***
Female Democrat/Female Republican	65.47***

\*\*\* p ≤ .001 representing significant difference from Male/Male election

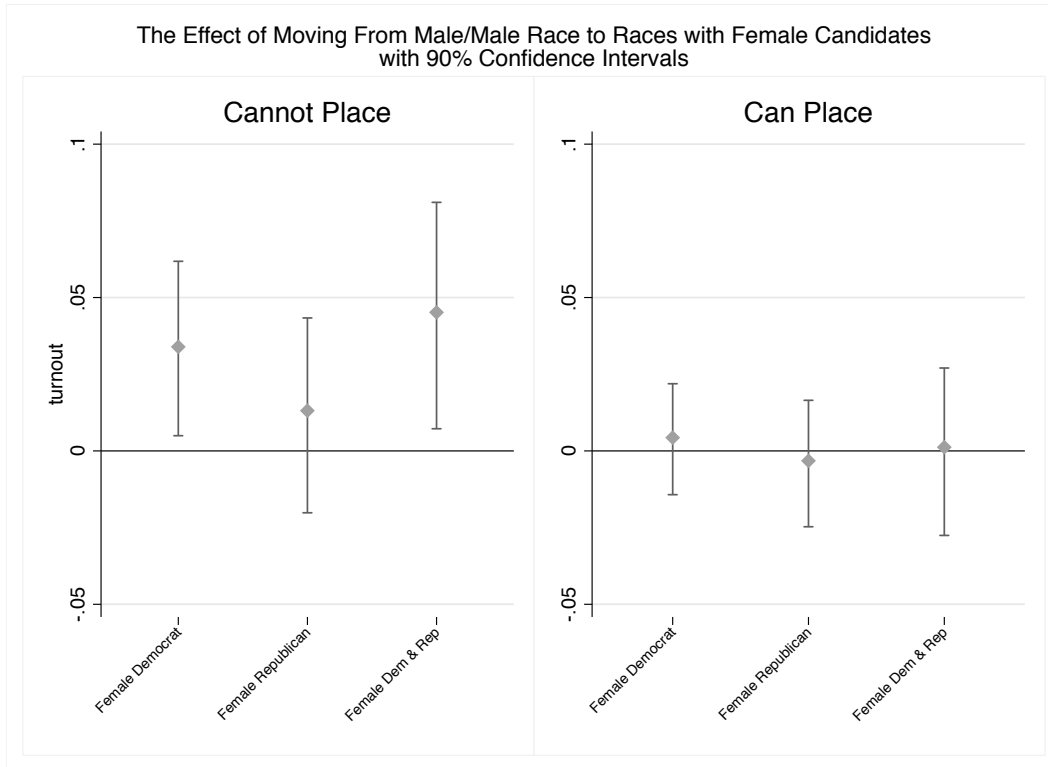
<sup>11</sup> We conducted a multivariate analysis predicting the likelihood that an individual could place both candidates ideologically. Compared to races with two males, individuals in elections with a female Democratic candidate or with two females are significantly more likely to place both candidates. In contrast, individuals in elections with a female Republican are significantly less likely to place both candidates. Female Democrats convey a consistent ideological cue compared to female Republicans (Dolan 2004; King and Matland 2003; Sanbonmatsu and Dolan 2009; Schneider and Bos 2014). The contradictory cues offered by female Republicans make ideological placement more difficult. This effect also helps explain the lack of significance influence female Republicans have on turnout.

Does the ability to make ideological inferences spark turnout? Model 2 tests this expectation by including a measure indicating whether the respondent is able to place both the candidates on an ideological scale. Being able to place both candidates' ideologically significantly increases an individual's likelihood to turnout. These respondents are 9.4% more likely to vote than those who are unable to place candidates. Yet, individuals are still more likely to turnout when a female Democratic candidate is present, even after controlling for the respondent's ability to identify the candidates' ideological positions. Substantively, the effects remain unchanged: a female Democratic candidate increases an individual's likelihood of turning out by 2.4%. However, including the measure of ideological placement reduces the level of significance associated with the coefficient for female Democrat from the 95% level to the 90% level. These results are consistent with expectations outlined in H<sub>2</sub>. Female Democratic candidates evoke stereotypes about ideology, and ideological information about the candidates lowers the cost of voting. This finding is consistent with other work that suggests that the presence of female candidates promotes confidence in vote-choice (Fulton and Ondercin 2013).

We expect that individuals who cannot position the candidates' ideologically will still have a higher likelihood to turnout in elections with a female Democrat, because candidate sex and partisanship imparts stereotypes about issue competency, issue attention and personality traits (H<sub>3</sub>). To test this expectation, Model 3 adds an interaction term between candidate sex and ideological placement. In order to accurately evaluate this hypothesis, we analyze the unit effect of candidate sex conditional on ideological placement instead of interpreting the effects from the

results table.<sup>12</sup> The unit effect is illustrated in Figure 2 and the results for this model are reported in the third column of Table 1.

**Figure 2. Unit Effect of Candidate Sex on Turnout Conditional on Ideological Placement**



Our expectations in H<sub>3</sub> are supported, when there is a female Democrat in the election. Among individuals who cannot place the candidates ideologically, the likelihood of voting significantly increases by 3.4% in elections with a female Democrat and by 4.5% when both candidates are female. In contrast, the effect of a female Republican is positive but does not reach traditional levels of statistical significance. These results are consistent with the interpretation that candidate sex and partisanship serve as an informational shortcut to non-

<sup>12</sup> We analyzed the unit effect of candidate sex because it is inappropriate to directly interpret the effects of interaction terms from the results table. As Brambor, Clark and Golder (2006) explain, the coefficients and significances in an interactive model are only meaningful when the constituent terms are set to 0. They recommend calculating the predicted probabilities or the marginal effects (the first difference of the predicted probabilities) to assess the relationships of interest. Given the binary nature of our constituent variables the unit effect is the appropriate quantity of interest.

ideological information about issue competency, issue attention and personality traits for those who lack an ideological orientation of the candidates. Importantly, the effects depicted in Figure 2 reflect a strict test of H<sub>3</sub>, as Model 3 includes controls for the candidates' quality characteristics, like integrity and competence. To the extent that citizens detect these variations in candidate quality and use them as an informational shortcut, the independent effect of candidate sex on turnout should be biased downward in the presence of this control.

Regardless of candidate partisanship, candidate sex is not a significant predictor of turnout among individuals who can position both of the candidates ideologically. This should not be interpreted as meaning that candidate sex has no impact on turnout for the ideologically-oriented. Instead, sex provides a shortcut to ideological information (Table 2), and ideological information encourages turnout (Model 2), suggesting an indirect pathway for the influence of candidate sex on the propensity to vote for those who can identify the candidates' ideological positions.<sup>13</sup>

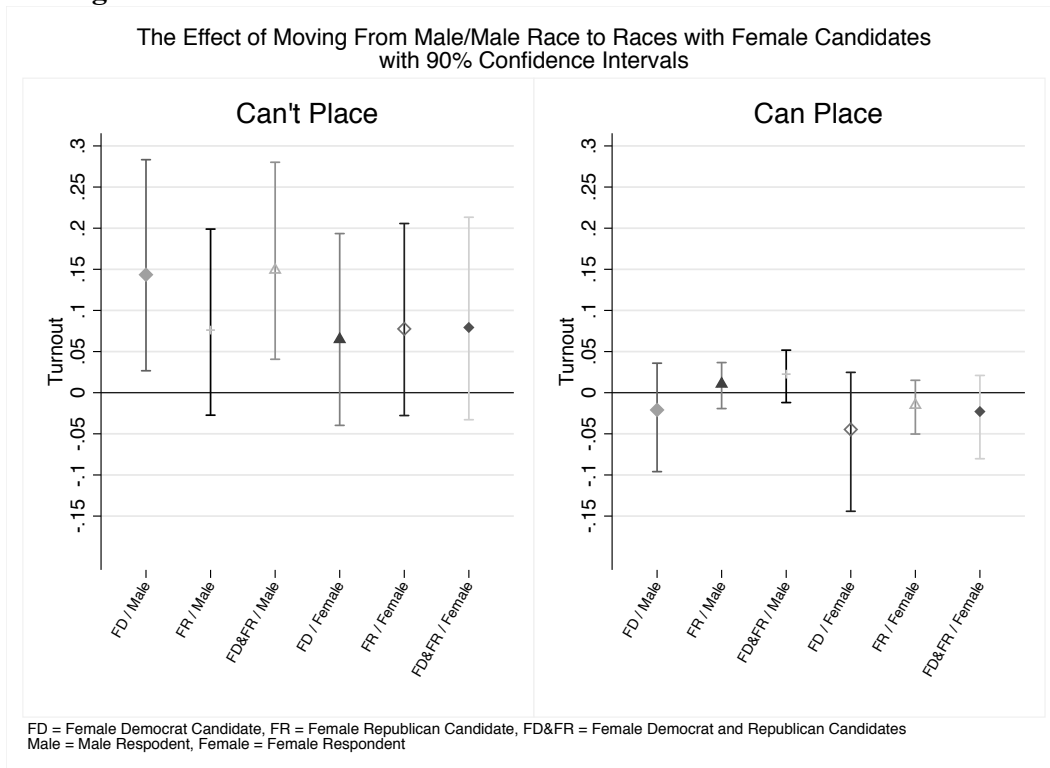
Consistently, the influence of candidate sex only reaches traditional levels of significance when the female candidate is a Democrat. Republican women are positively signed in all the models but fail to reach statistical significance. This provides preliminary support for H<sub>4</sub>, which argues that the effect for female Democrats should be stronger than female Republicans. To directly test this hypothesis, we looked at the difference in the unit effects for female Democrat and a female Republican. While female Democrat is consistently larger than female Republican, we cannot say that the unit effects are significantly larger for female Democrats. Thus, H<sub>4</sub> is only partially supported.

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<sup>13</sup> In Appendix C, we investigate how respondent sex and partisanship may condition the relationships reported above.

We expect that respondent sex to also condition the relationship between candidate sex, ideology placement, and turnout. To test this expectation we use a three-way interaction between respondent sex, candidate sex, and ideological placement, these results are reported in Model 4 in Table 1. Figure 3 reports the unit effects of candidate sex conditional on both ideological placement and respondent sex.

**Figure 3. Unit Effect of Candidate Sex on Turnout Conditional on Respondent Sex & Ideological Placement**



The increased likelihood to turnout out to vote is driven mainly among men who cannot place both of the candidates on an ideological scale, and are voting in races with either a female Democrat or both a female Democrat and a female Republican. For this subgroup, their likelihood to vote is increased by approximately 15% by the presence of a female Democratic candidate. Men voting in races with a female Republican who cannot place the candidates ideologically and women who cannot place the candidates in races with either a female Democrat or female Republican show a positive, but insignificant increase in the likelihood to

turnout. For both men and women who can place the candidates on ideological scales, candidate sex has no significant influence on their likelihood to turnout to vote. Our findings support H<sub>5</sub> and are consistent with other work suggesting that men and women react differently to female candidates.

Because individuals who can place the candidates are no more likely to turnout in the presence of a female candidate, our results are consistent with the interpretation that it is not stereotypes about ideology, but rather stereotypes about traits and issue competency that is driving the enhanced propensity to turnout. Moreover, our analysis suggests that these trait and issue competency stereotypes are particularly impactful on male respondents voting in elections with female Democrats. To the extent that female respondents are no more likely to turnout when a female candidate is present, female candidates do not appear to encourage female respondents to turnout to vote for symbolic reasons.

## **Conclusion**

The scholarship on individuals' usage of informational heuristics to formulate attitudes and mobilize behavior has added significant value to our understanding of individual decision-making. Our work builds on these foundational studies, and integrates principles of each in a novel manner. Our approach demonstrates that the presence of female candidates shapes the electoral context in complex ways that alter the likelihood of voting. Individuals infer information about the candidates' ideological positions, issue competency and personality traits from candidate sex, lowering the cost of voting.

Importantly, we find that candidate sex does not operate uniformly across all circumstances for all individuals. In conjunction with candidate sex, individuals look to the candidates' partisanship to make inferences about the candidates' ideology, issue competency

and traits (Dolan 2004; King and Matland 2003; Sanbonmatsu and Dolan 2009; Schneider and Bos 2011). These findings align with a growing body of literature that suggests that individuals do not uniformly draw-up sex stereotypes in their decision-making process (Dolan 2014). Yet, our research enhances our understanding of when and how individuals use candidate sex as a heuristic and is consistent with previous research that illustrates the subtle role of candidate sex in shaping the informational environment that citizens confront (Fulton and Ondercin 2013).

Given the closeness of many elections, shifts in just a few percentage points could change the election outcome. Moreover, there is a growing debate in the literature as to whether sex stereotypes help or hurt female candidates at the ballot box. We did not examine whom the respondents cast their ballot for. Did individuals turnout to vote for the female candidate or did they turnout to vote for their opponent? Further research is needed to more fully grasp the electoral impact of the use of sex as an information cue in these elections.



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## Appendix A. Descriptive Information on Independent and Dependent Variables

Variable	Coding	Mean & SD
Turnout	0 = Did Not Vote 1 = Voted	0.775 (0.418)
Democratic Female Candidate	0 = Man 1 = Woman	0.225 (0.418)
Republican Female Candidate	0 = Man 1 = Woman	0.139 (0.346)
Respondent Female	0 = Man 1 = Woman	0.515 (0.500)
Open Seat	0 = No 1 = Yes	0.199 (0.399)
Challenger Office-Holding Experience	0 = No 1 = Yes	0.383 (0.486)
Winning Candidate's Expected Vote	45.039% to 94.791%	60.201 (8.019)
Democrat's Quality – Personal Integrity, Ability to Work Well with Other Leaders, Competence, Grasp of Issues, Ability to Find Solutions to Problems, Qualifications to Hold Office, Overall Strength as a Public Servant	1 = Extremely Weak 7 = Extremely Strong	4.496 (0.972)
Republican's Quality – Personal Integrity, Ability to Work Well with Other Leaders, Competence, Grasp of Issues, Ability to Find Solutions to Problems, Qualifications to Hold Office, Overall Strength as a Public Servant	1 = Extremely Weak 7 = Extremely Strong	4.380 (1.039)
Respondent Partisan Strength	0 = Independent 1 = Leaning Partisan 2 = Not So Strong Partisan 3 = Strong Partisan	1.901 (1.035)
Respondent GWB Approval	1 = Neither Approve/Disapprove 3 = Strongly Approve/Disapprove	2.663 (0.497)
Respondent Political Knowledge – Average Ability to Identify Partisanship of MC, Gov, Sen1, Sen2	0 = Incorrectly IDs All Officers 1 = Correctly IDs All Officers	0.821 (0.299)
Can Place Both Candidates on Ideological Scale	0 = Cannot Place Both 1 = Can Place Both	0.417 (0.493)
Respondent Education	1 = No High School 6 = Post-Graduate Degree	3.312 (1.379)
Respondent Age	18 to 95	48.939

		(15.170)
Respondent Income	1 = Less than \$10K 14 = \$150,000+	8.238 (3.364)
Respondent Own Home	0 = Do Not Own Home 1 = Own Home	0.738 (0.440)
Respondent Married	0 = Unmarried 1 = Married	0.627 (0.484)
Respondent White	0 = No 1 = Yes	0.785 (0.411)
Respondent Religious Importance	0 = Unimportant 1 = Important	0.685 (0.464)

## Appendix B. Districts in Sample

Male Republican Male Democrat	Female Republican Female Democrat	Male Republican Female Democrat	Female Republican Male Democrat
15 Open Seats 48 Rep Incumbents 46 Dem Incumbents	1 Open Seat 3 Rep Incumbents 2 Dem Incumbents	9 Open Seats 10 Rep Incumbents 6 Dem Incumbents	5 Open Seats 8 Rep Incumbents 2 Dem Incumbents
AR01, AZ03, AZ05, CA01, CA11, CA18, CA21, CA28, CA31, CO01, CO03, CO05, CO07, CT02, FL02, FL08, FL15, FL16, FL22, GA01, GA03, GA05, GA08, GA12, IA01, IA03, ID01, ID02, IL02, IL03, IL05, IL14, IL15, IN02, IN03, IN08, IN09, KY02, KY04, LA01, LA03, MA04, MA10, MD02, MD03, MD04, MD06, MD08, MI01, MN05, MO02, MO04, MO05, MO07, MO09, NC02, NC03, NC04, NC06, NC11, NE03, NH02, NJ13, NY05, NY06, NY23, NY24, NY25, NY29, OH01, OH04, OH06, OH14, OR01, OR03, PA02, PA07, PA08, PA10, PA15, PA18, RI01, SC05, TN01, TN03, TN04, TN06, TN09, TX02, TX05, TX06, TX07, TX09, TX14, TX15, TX17, TX20, TX28, TX29, UT03, VA03, VA11, WA03, WA04, WI03, WI06, WI07, WI08, WV01	CA05 (Yan/Matsui) CA16 (Winston/Lofgren) CO04 (Musgrave/Paccione) MN06 (Bachmann/Wetterling) NM01 (Wilson/Madrid) OH15 (Pryce/Kilroy)	AZ08 (Graf/Giffords) CA22 (McCarthy/Beery) CA50 (Bilbray/Busby) CT04 (Shays/Farrell) FL09 (Bilirakis/Busansky) FL11 (Adams/Castor) FL13 (Buchanan/Jennings) IL06 (Roskam/Duckworth) IL08 (McSweeney/Bean) KS02 (Ryun/Boyda) MN03 (Ramstad/Wilde) MN04 (Sium/McCollum) NH01 (Bradley/Shea-Porter) NJ07 (Ferguson/Stender) NV02 (Heller/Derby) NV03 (Porter/Hafen) NY11 (Finger/Clarke) NY20 (Sweeney/Gillibrand) OH13 (Foltin/Sutton) PA06 (Gerlach/Murphy) PA13 (Bhakta/Schwartz) TX18 (Hassan/Jackson Lee) WA08 (Reichert/Burner) WI02 (Magnum/Baldwin)	CA45 (Bono-Mack/Roth) CT05 (Johnson/Murphy) IL04 (Melichar/Gutierrez) IL13 (Biggert/Shannon) IL17 (Zinga/Hare) KY03 (Northup/Yarmuth) ME01 (Curley/Allen) NY19 (Kelly/Hall) OH18 (Padgett/Space) OK05 (Fallin/Hunter) PA04 (Hart/Altmire) TX22 (Sekula-Gibbs/Lampson) VA01 (Davis/O'Donnell) VA02 (Drake/Kellam) VTAL (Rainville/Welch)

## **Appendix C: Respondent Sex and Partisanship**

Partisan congruence also plays an important role in mediating the relationships between female candidates and symbolic and substantive representation (Reingold and Harell 2010, Lawless 2004). Partisanship colors perceptions of issue competency, with Democratic voters appraising women Democrats in Congress more generously than Republican voters rating Republican women in Congress, on issues like education and crime (Sanbonmatsu and Dolan 2009). In general, partisanship conditions the use of stereotypes and the effect that stereotypes might have on support for female candidates (Bauer 2015, Dolan 2015). Thus, it is important to understand how these effects are similar or different across partisan groups. However, the existing literature does not provide the consistent guidance necessary to form a directional hypotheses concerning how these variables will mediate the relationships between candidate sex and voter turnout. Instead of adding a four-way interaction term to the model, we chose to split the sample and look at the effects separately for Democrats, Republicans, and Independent. Substantively, this modeling technique provides the same results as including the additional interaction term. However, the one drawback is that it is not possible to test the difference in effects across partisan groups. Since our hypotheses do not call for this type of test, we find the split sample method preferable to adding the additional interaction. Figures C2, C3, and C4 show the unit effects of candidate sex conditional both ideological placement and respondent sex for Democrat identifiers, Republican identifiers, and independent identifiers. The models used to produce these figures can be found in Table C1.

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Table C1: Logistic Regression Analysis of Candidate Sex and Turnout Conditional on Ideological Placement, Respondent Sex, and Party Identification

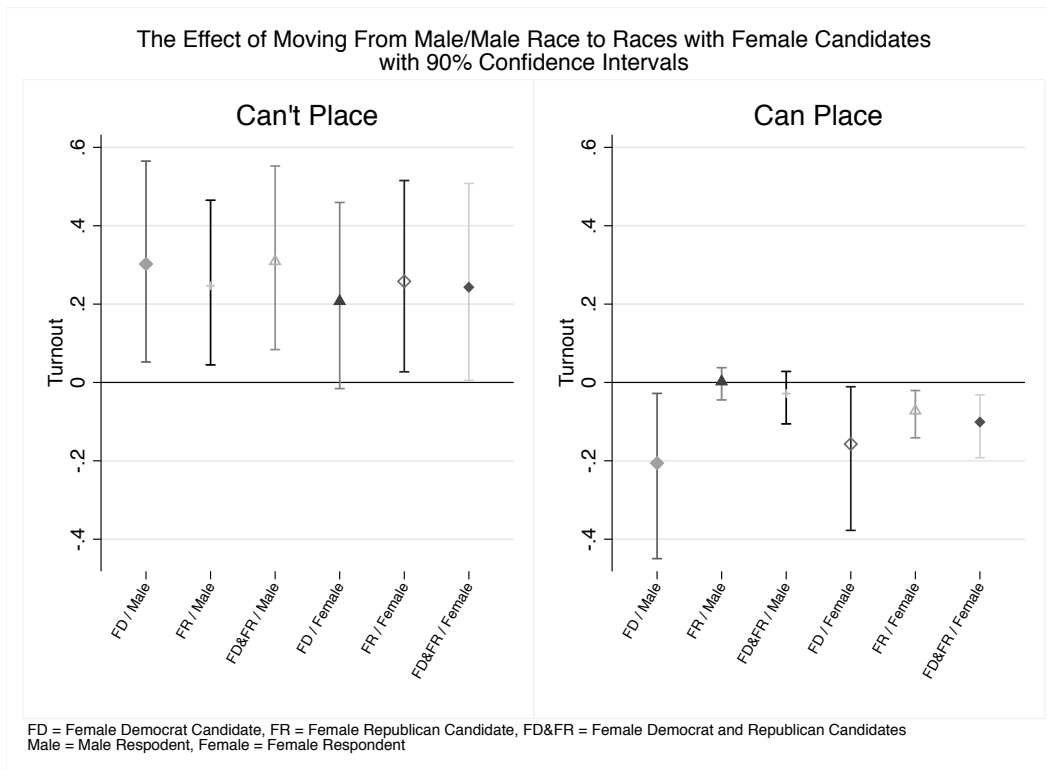
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	Model 5a: Democrats (se)	Model 5b: Republicans (se)	Model 5c: Independent (se)
Female Democrat	0.46 <sup>C</sup> (0.35)	0.40 <sup>C</sup> (0.31)	0.64 <sup>C</sup> (0.27)
Female Republican	0.07 <sup>C</sup> (0.36)	-0.31 <sup>C</sup> (0.47)	0.28 <sup>C</sup> (0.30)
Ideological Placement	1.19 <sup>C</sup> (0.18)	0.73 <sup>C</sup> (0.19)	0.64 <sup>C</sup> (0.17)
Female Democrat x Placement	-0.84 <sup>C</sup> (0.39)	-0.29 <sup>C</sup> (0.35)	-0.18 <sup>C</sup> (0.45)
Female Republican x Placement	0.02 <sup>C</sup> (0.50)	0.14 <sup>C</sup> (0.57)	-0.01 <sup>C</sup> (0.40)
Respondent Sex	0.22 <sup>C</sup> (0.15)	0.03 <sup>C</sup> (0.17)	0.04 <sup>C</sup> (0.14)
Female Democrat x Respondent Sex	-0.57 <sup>C</sup> (0.39)	-0.18 <sup>C</sup> (0.38)	-0.55 <sup>C</sup> (0.35)
Female Republican x Respondent Sex	0.20 <sup>C</sup> (0.40)	-0.23 <sup>C</sup> (0.36)	0.27 <sup>C</sup> (0.33)
Female Democrat x Respondent Sex x Placement	0.71 <sup>C</sup> (0.40)	0.21 <sup>C</sup> (0.55)	0.03 <sup>C</sup> (0.65)
Female Republican x Respondent Sex x Placement	-1.12 <sup>C</sup> (0.63)	0.30 <sup>C</sup> (0.77)	0.05 <sup>C</sup> (0.48)
Open Seat	-0.13 (0.20)	-0.05 (0.24)	-0.02 (0.14)
Challenger Experience	-0.26 (0.23)	-0.16 (0.20)	-0.28 (0.15)
Winner's Expected Vote	0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)
Democratic Candidate's Characteristics	0.09 (0.08)	0.06 (0.08)	0.16** (0.06)
Republican Candidate's Characteristics	0.08 (0.07)	0.12** (0.05)	0.03 (0.06)
Strength Party Identification	0.16 (0.14)	0.21 (0.14)	0.34** (0.13)
G.W.Bush Approval	0.19 (0.16)	0.11 (0.13)	0.28** (0.11)

Knowledge	2.12** (0.22)	2.05** (0.24)	1.57** (0.19)
Education	0.13** (0.06)	0.05 (0.05)	0.26** (0.05)
Age	0.02** (0.01)	0.01** (0.005)	0.02** (0.01)
Income	0.01 (0.02)	0.03 (0.02)	-.01 (0.02)
Homeownership	0.35** (0.14)	0.27** (0.14)	0.35** (0.16)
Married	0.01 (0.14)	-0.03 (0.14)	0.07 (0.14)
Race	0.23 (0.14)	0.17 (0.18)	0.41** (0.15)
Religiosity	0.09 (0.13)	0.18 (0.15)	0.17 (0.13)
Constant	-4.57** (1.14)	-1.99** (1.02)	-3.79** (1.00)
Number of Observations	2818	2895	2722
Number of PSU	136	136	136
F-Test	16.79**	10.17**	10.80**

\*  $p \leq .10$ , \*\*  $p \leq .05$ , <sup>c</sup> conditional relationship resulting from the interaction statistical significance assessed using marginal effects.

**Figure C2. Unit Effect of Candidate Sex on Turnout Conditional on Respondent Sex & Ideological Placement, Democrats Only**



Looking first at Democrats, our general expectations find more support. Democratic men who cannot place the candidates ideologically are more likely to turnout in all types of races. Democratic women who cannot place the candidates on an ideological scale are also more likely to turnout when there is a female Republican or when both a female Democrat and female Republican is running in the election. For those who can place the candidates on an ideological scale we see that candidate sex depresses turnout in some electoral contests. Male Democratic voters who can place the candidates are less likely to turn out when a female Democrat is running. Additionally, female Democratic voters who can place the candidates are less likely to turnout out to vote across all election situations. We should keep in mind that these results are after controlling for ideological placement, thus candidate sex still influences turnout indirectly via placement in these circumstances.

**Figure C3. Unit Effect of Candidate Sex on Turnout Conditional on Respondent Sex & Ideological Placement, Republicans Only**

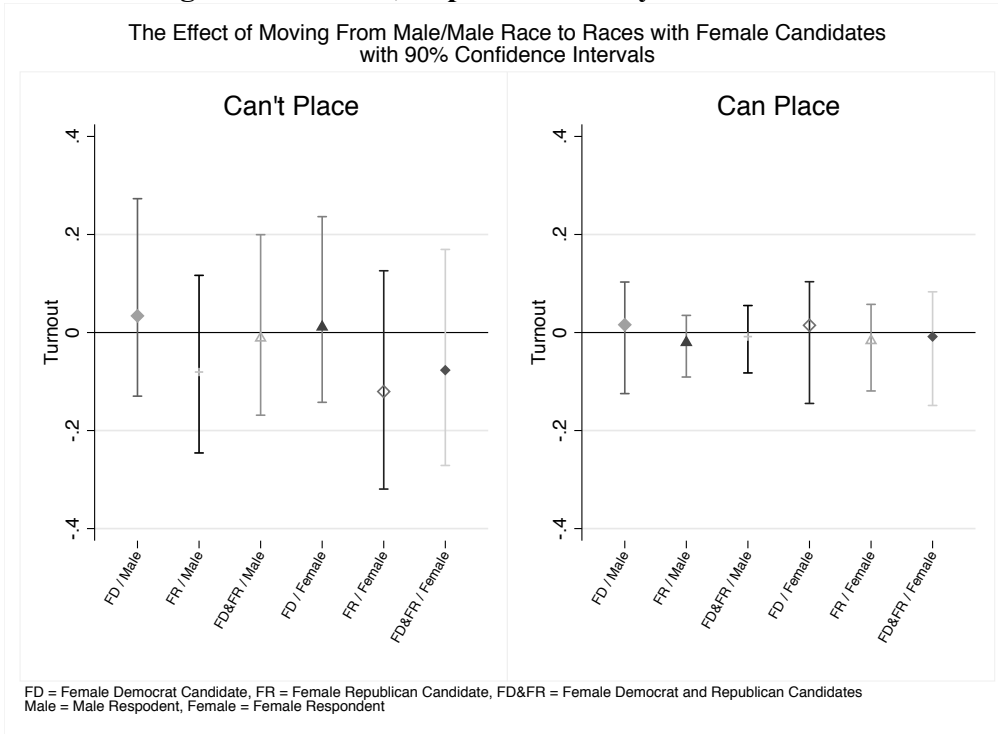


Figure 5 reports the unit effect of candidate sex on turnout conditional on ideological placement and respondent sex for only Republicans. Candidate sex has no influence on the turnout of Republicans under any of the electoral context examined here. The unit effects for Independent respondents are reported in Figure 6. Candidate sex is not statistically related to increased turnout for independents who cannot place the candidates on an ideological scale. However, among independents who can place the candidates on an ideological scale we do observe some increased turnout. Independent identifying men who can place both candidates ideologically are more likely to turnout in races with both a female Democrat and a female Republican. Additionally, women who identify as independent and can identify the candidates ideologically are more likely to turnout when there is a female Republican candidate running in the election.

**Figure C4. Unit Effect of Candidate Sex on Turnout Conditional on Respondent Sex & Ideological Placement, Independents Only**



The Effect of Moving From Male/Male Race to Races with Female Candidates with 90% Confidence Intervals

