Is There Gender Bias Among Voters? Evidence from the Chilean Congressional Elections*

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Abstract

Recent literature has stressed the importance of leaders, in particular female leaders, to economic outcomes. The gender of the leader can be thought of as a signal of the leader's preferences. Therefore, if women share similar policy preferences, as a group they should show greater support for female leaders than for male leaders. Previous research analyzing this question has relied on self-reported surveys, raising the possibility of differential survey response bias. I exploit the unique institution of gender-segregated voting booths in Chile, which allows me to use actual voting data to test for gender bias among voters in the political arena. I find evidence of a small but significant negative gender bias: women overall are less likely than men to vote for female candidates. This decomposes into a positive gender bias among center-left voters and a negative gender bias among center-right voters. My results are robust to controls for endogenous selection of candidates by parties, and are not explained away by municipality characteristics or candidates' incumbency and experience. Roll-call voting data from the Chamber of Deputies show that elected female politicians in the center-right coalition deviate from the party line by taking a stronger pro-women stance on social issues such as health, family, education and justice. Moreover, women voters penalize center-right female legislators who deviate from the party line, but reward those who deviate on social issues. I provide evidence on the possible channels of these effects—lower campaign expenditures and a mismatch of candidates and voter characteristics. Alternative explanations such as gender identity, female candidates running "as men" or strategic sorting of candidates have less support in the data.

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> "He's the girl in the race," explains Marie Wilson, head of the White House Project, a nonprofit that helps women move into positions of leadership. "Clinton came out tough; she voted for the war. Obama came out as the person bringing people together and offering messages of hope and reconciliation." [Why Didn't More Women Vote for Hillary? Amy Sullivan, TIME Magazine, June 8, 2008]

1 Introduction

It is a well known fact that women are under-represented in leadership positions, particularly in the political arena.[1] It has been suggested that an increase in female representation could shift policies to better reflect women's preferences (Chattopadhyay and Duflo, 2004). However, the empirical evidence for this is mixed, particularly in contexts where there are no seats reserved for minorities.[2]

There are two main theoretical approaches that have been used to analyze the effect on economic outcomes of having a female leader. On the one hand, the median voter theory (Downs, 1957), which assumes that candidates can commit to a specific policy platform, predicts policy convergence, with both parties choosing their policy platform to coincide with the median voter's bliss point. Thus, in Downs' model the gender of the politician is irrelevant for policy decisions. On the other hand, the citizen-candidate model (Osborne and Slivinski, 1996; Besley and Coate, 1997) assumes that candidates have a preferred policy platform and cannot commit to implementing a policy different from their preferred one once in office. When the following two additional assumptions are made, the citizen-candidate model predicts policy divergence, with the male and female candidates choosing policies equidistant from the median voter's bliss point: (1) women and men should have sufficiently different preferences over policies, and (2) each candidate should receive more votes from her/his own group than from the opposite group, i.e. the candidate's gender

[1] According to data collected by the Inter-Parliamentary Union, as of March 2011 the average percentage of women in a parliament or congress was 19.2%. Since 2000, this figure has steadily increased: in December 2000, only 13.8% of parliamentary seats were held by women.

[2] Chattopadhyay and Duflo (2004) look at the effect of having a local female leader elected in a reserved seat in the states of West Bengal and Rajastan, India. In those cases, they find that women leaders choose policies more closely related to women's needs. In contrast, Bardhan, Mookherjee, and Parra Torrado (2010) find that reserved seats for women deteriorated the targeting of public goods to disadvantaged groups in West Bengal. Clots-Figueras (2007, 2011) analyzes the effect of increased female representation in Indian state governments. She finds a positive effect of female legislators on health and education investment, but the effect is particularly strong when women are elected in seats reserved for lower castes and disadvantaged tribes. Regarding evidence from settings without reservation policies, Rehavi (2007) finds positive effects of female representation on health expenditures in the context of U.S. state legislatures, while Gagliarducci and Paserman (forthcoming) and Gyourko and Ferreira (2011) do not find these effects in the context of Italian and U.S. municipalities, respectively.

needs to be a good signal of the candidates' policy preferences. There is evidence corroborating the first assumption, namely that women and men have different preferences.[3] However, evidence of the second assumption is more elusive since, due to the introduction of the secret ballot, data on individual voting are impossible to obtain.

In this paper I focus on this second assumption, critically examining the traditional view that voters generally prefer candidates of their same gender. Using data from a unique setup—the Chilean congressional elections, where men and women vote in separate voting booths—I am able to overcome the issues that have plagued previous studies, which relied on the use of surveys or exit polls to analyze the support for female candidates (Paolino, 1995; Dolan, 1998; Dolan, 2008).[4] Survey data can be misleading if there are differential response biases by gender, as shown in Section 2.3 below.[5] Gender-segregated voting allows me to use actual voting data and avoid the shortcomings associated with surveys and exit polls.

I find a small negative gender bias among voters, i.e. women voters are slightly less likely to vote for female candidates than men voters are.[6] This effect decomposes into a positive gender bias among center-left voters and a negative gender bias among center-right voters. These results are not explained away by the inclusion of socio-demographic controls at the municipality level or by controls for candidates' political experience. Candidates' personal characteristics such as education or having a relative in politics significantly decrease women voters' support for female candidates, suggesting that the type of female candidates that run on the center-right may not be appealing to female voters. The positive effect of campaign expenditures on the gender gap, especially on the center-right, indicates that women may react differently to information. I also estimate a selection model to take into account that female candidates may refrain from running in

[3] Chattopadhyay and Duflo (2004) show that women care about drinking water and roads more than men do. Other studies have shown that women have different preferences from men over child welfare policies (Thomas, 1990 and 1994; Duflo, 2003; Miller, 2008), as well as over environmental protection and defense spending (Funk and Gathmann, 2010).

[4] In his 1955's seminal work, Duverger argues that the reason why he finds no difference between the votes of men and women is because of a "tendency for husband and wife to vote in the same way". Dolan (2008) provides a comprehensive summary of the political science literature analyzing this phenomenon. She affirms that a variety of results shows that "the relationship between women voters and female candidates is often conditioned by forces beyond a shared sex identity".

[5] Surveys can present additional problems. Epstein (2006) argues that there is a systematic upward bias in turnout in surveys such as the National Election Studies (NES). There is also evidence that the gender of the interviewer can affect the responses differentially depending on the respondent's gender (Huddy, Billig, Bracciodieta, Hoeffler, Moynihan, and Pugliani, 1997; Flores-Macias and Lawson, 2008).

[6] This definition of gender bias is different from the political gender gap, which compares the relative support of men and women for the left. The political science literature has used the terms "gender gap" and "gender affinity" to describe a preference of voters for same-sex candidates.

districts which are ex-ante less favorable to them, and I find that districts with a large labor force participation gap—defined as the difference in the labor force participation of men and women—in the top quintile of the income distribution are less likely to have female candidates running for office.

To further examine these results and confront them with the existing literature, I analyze roll-call voting data from the Chilean Chamber of Deputies. I find that female legislators in the center-right coalition vote in opposition to the majority of the coalition more often than their male counterparts do. More striking, this effect comes mainly from female legislators voting differently on social issues such as family, health, education and justice. For center-left female legislators the pattern is reversed: they are less likely to vote differently than their male counterparts, particularly on social issues. Even though I am not able to identify pro-female legislation due to the lack of voting scores for the Chamber of Deputies, the evidence suggests that center-right female legislators deviate from their coalition by adopting a stronger pro-women stance on social issues. Finally, combining the election with the roll-call datasets, I show that although voters generally punish center-right female legislators who voted differently from the majority of their coalition in Congress, they reward those who voted differently on social issues.

These results challenge the standard views of political competition, since they do not conform to the predictions of either *Downsian* models or citizen-candidate models. I discuss alternative models which could give rise to these results. Gender identity, defined as the existence of social norms about gender roles which could induce a distaste of women voters for female candidates (Akerlof and Kranton, 2000), nonetheless plays an important role in the selection of female candidates. Other policy-based explanations, such as female candidates "acting tough" to appeal to men voters but in turn losing the support of women voters as in the opening quotation above (Herrnson, Lay, and Stokes, 2003) have less support in the data, as well as more sophisticated versions of the Downsian model ("neo-Downsians") where individuals may care not only about the policy platform's position, but also about its quality (Carrillo and Castanheira, 2008) or the quality of the candidates themselves (Kartik and McAfee, 2007). I also discuss strategic sorting of female candidates across districts. Taken together, these results provide evidence against a policy-based interpretation of the negative gender bias among center-right women voters.

By showing the existence of a small but statistically significant distaste of women voters for center-right female candidates in congressional elections, I add a new dimension to the discussion of gender quotas and reserved seats: women might not always prefer a female leader over a male

one. This result is consistent with Beaman, Chattopadhyay, Duflo, Pande, and Topalova (2009), who find that being exposed to a female leader improves male voters' evaluations of these leaders, but do not find an improvement in female voters' evaluations of them, even though female leaders invest more in public goods preferred by women. The results are also compatible with previous research showing that women do not always perform better when evaluated by a committee with a larger share of women (Bagues and Esteve-Volart, 2010).

The results also give an alternative interpretation to previous research on U.S. elections, which show that women feel more positively than men towards female Democratic candidates, but are indifferent towards female Republican candidates (Dolan, 2008). Dolan's conjecture is that women may experience "cross pressures", with gender considerations bringing them closer to female candidates but the candidate's party pulling them away. I suggest that these cross pressures could have the opposite sign, with women supporters of the Republican party being pulled away from female candidates because of gender considerations. Finally, I provide a cautionary tale for the use of surveys when analyzing gender differences in voting behavior.

The remainder of the paper is organized as follows. Section 2 provides the context for female enfranchisement and gender-segregated voting. It also describes the Chilean electoral system and presents evidence of a differential survey response bias by gender in Chilean presidential elections. Section 3 describes the sources of my data and presents the econometric framework; Section 4 presents the results. Section 5 analyzes legislators' behavior using roll-call voting data. Section 6 provides a discussion of the results in light of the theoretical literature, and Section 7 states the conclusion.

2 The Chilean congressional electoral system

This section describes the several unique features of the Chilean Electoral System, which make this dataset unusually valuable. The first is that women and men vote in separate voting booths, which makes it possible to analyze voting data by gender. Secondly the structure of the two-member congressional districts and the special rules that determine the winners in each district means that most political competition occurs within coalitions rather than across coalitions, which allows me to analyze gender bias for each coalition independently. Finally, by contrasting the election results by gender with an electoral survey, I find that even though the latter is accurate on average, there is a non-negligible response bias when analyzing each gender separately. Moreover, the biases among

women and men voters have opposite signs, which underlines the importance of using actual voting data to analyze the existence of gender bias among voters.

2.1 Women and the vote

Although the women's suffrage movement started in Chile as early as the 1870s, women were finally allowed to vote for the first time in the 1935 municipal elections, though not in either the presidential or congressional elections. As a results of this differentiation, two separate registries were created: The General Male Register, for men older than 21; and the Municipal Register, for women older than 21.[7] Both groups had to vote in different ballot booths and their votes were counted separately (Carrera and Ulloa, 2006).

Eighteen years later in 1949, when women were allowed to vote in presidential, congressional, as well as municipal elections, the separate registers for men and women continued to be maintained. Lewis (2004, p. 720) argues that segregated polling was kept "in order to allow women more freedom to vote according to their preferences".

By the 1970 election women constituted almost half of the electorate. The number of congresswomen started to increase gradually, from 1 out of 147 in 1953, to 9 out of 150 in 1969 (see Figure 1). When the new binominal system was put in place in 1989, the authorities decided to still keep the gender-segregated registers, as well as the gender-segregated polling stations. Since 1989 both the number of candidates and of elected congresswomen have shown an upward trend (see Figure 1), though the number of elected women now seems to be stalled at $1/6th$ of the seats (20 out of 120).

2.2 The binominal system

A new constitution was enacted in 1980, which together with an electoral bill enacted in 1988 changed the electoral system from a proportional one to the current binominal system.[8] The Chilean National Congress consists of two chambers: The *Senado* (Senate or upper house) and the *Cámara de Diputados* (Chamber of Deputies, equivalent to the U.S. House of Representatives). The former has 36 members that represent 18 two-member Senate districts while the latter has 120 members representing 60 two-member congressional districts. Candidates running for these offices are presented by coalitions, which are nationwide conglomerates of parties running on a

[7] The Municipal Register also included (men and women) foreigners.
[8] See Navia (2004) for a complete description of the origins of the binominal system in Chile.

common policy platform. A coalition cannot present more than 2 candidates per district.[9] Each list is open, so voters can cast their vote directly for their preferred candidate.

The two winners in each district are determined by the D'Hondt method, which stimulates most of the political competition to occur *within coalitions* rather than *across coalitions*. In this method, the first seat always goes to the coalition with the largest share of votes (and within this coalition, to the candidate receiving the most votes). Typically, the second seat goes to the coalition with the next highest number of votes, and within this coalition the seat goes to the candidate with more votes. The only exception is in cases where the coalition with the most votes receives more than twice as many votes as any other coalition; in this situation, the coalition with the most votes receives both seats.[10] Since this case is unusual and difficult to obtain (roughly 12% of elections end up in a "doubling"), candidates in the two largest coalitions are forced to compete against their coalition "partner" instead of competing against candidates of other coalitions. This feature allows me to analyze gender bias for each coalition independently, abstracting from ideology considerations.

An additional feature of the Chilean system is that voting is mandatory for registered voters, which makes selective turnout less of a concern.[11]

Previous research using data from the Chilean elections has focused mainly on the innate bias of the electoral system towards the second-largest coalition.[12] To the best of my knowledge, there are only two papers that take advantage of the segregated voting system in Chile. Lewis (2004) uses aggregate data from the Chilean presidential elections in 1952-1999 to analyze the political gender bias; it documented women's bias towards conservatism. Carrera and Ulloa (2006) use data from the Chilean municipal elections in 1992-2004 to show that this bias decreased in more recent elections. In addition, they provide qualitative evidence to document the difficulties that women face when running for office, such as securing support from the parties' central committees and financing their campaigns.

[9] Independent candidates can either join a coalition (in which case their party name is displayed as "Independent") or they can run as completely independent. Figure 2 shows a typical ballot (it is for the lower house elections in 2005), where candidate number 24 is running as Independent within a coalition.

[10] The set of examples presented in Table 2 illustrate all possible election outcomes.

[11] Cerda and Vergara (2009) analyze voters' turnout in Chile using both aggregate and individual data, and conclude that the observed decline in turnout is mainly due to low participation of the youth. This in turn is due to under-registration of this group (registration is voluntary, though voting is mandatory once one has registered), and not due to a lower level of participation once registered to vote.

[12] See Pino (2011) for a discussion of papers on the Chilean electoral system.

2.3 Survey response bias

The availability of voting data by gender allows me to assess the response bias by comparing actual voting data with surveys performed before elections. Even though there are no publicly available surveys for Chilean congressional elections, I analyze survey response bias using data from the 2009 presidential elections.

The most reliable survey is the one conducted by the *Centro de Estudios Públicos (CEP)* and is available online.[13] Table 1 shows the survey predictions for the 2009 presidential election, computed as a proportion of the actual election results. Column 2 presents the results for the electorate as a whole. The survey predictions for the two main contestants are relatively good, with some under-prediction for the front-runner (Piñera) and over-prediction for the follower (Frei). As expected, the survey does not perform well for the other two candidates. What happens when the ratio is computed for each gender separately? Columns 3 and 4 show the results: Piñera's vote-share is over-predicted for male voters and under-predicted for female voters. Interestingly, the opposite happens for Frei. The existence of these biases underscores the importance of using actual voting data instead of surveys.

3 Data collection and empirical strategy

3.1 Data and descriptive statistics

This unique dataset comes from various sources. First, voting data for the Chamber of Deputies at the ballot booth level was obtained from the Chilean Election Qualifying Court (Tribunal Calificador de Elecciones), and is publicly available.[14] It contains the total number of votes per candidate in each of the last 3 congressional elections held in 2001, 2005 and 2009. It also includes an identifier for whether the ballot booth is a male or female one. The determination of candidate gender was done manually. Fortunately, names in Spanish are very easy to classify across genders. Ambiguous cases were looked for in the Chilean Electoral Service (Servicio Electoral) website.[15] Panel A of Table 3 shows the summary statistics for the Chamber of Deputies' elections. The average number of candidates is 6.7, and the average number of female candidates is 1. These candidates come mainly from left-wing coalitions (62%). The rest run in right-wing coalitions (27%), or as independent (11%). Voters' support for women candidates is 15% on average, but

[13] http://www.cepchile.cl/bannerscep/bdatos_encuestas_cep/base_datos.php.
[14] www.tricel.cl
[15] www.servel.cl

it increases to 24% when conditioning on having at least one woman on the ballot. The average support for women candidates within the largest two coalitions (center-left and center-right) is relatively similar. Moreover, when one woman is on the ballot she gets a plurality of votes (54% and 52% for the center-left and center-right respectively). There is also geographic variation in the number of candidates, as seen from Figure 3. The districts with more female candidates are in the extreme north and south, as well as in Santiago and its surroundings.

Socio-demographic controls are available at the municipality level, which is a finer level of detail than district level data, and come from two sources: average age, education, share of urban and indigenous population, income, labor force participation (LFP), LFP gap (defined as the difference between male LFP and female LFP), share of married population and share of women are constructed using the *Encuesta CASEN*[16]. The shares of catholic and evangelical population come from the 2002 Census, and therefore I assume they are constant over time. Panel B of Table 3 shows summary statistics for all municipality controls.

The candidate's age was obtained from the Electoral Service. In addition, I construct 3 more variables that aim to capture candidates' political experience: the dummy variable *incumbent* takes the value of 1 if the candidate was currently in office and running for a subsequent term in the same district; *experience* takes the value of 1 if the candidate was elected for any office in previous elections[17]; and *politics* takes the value of 1 if the candidate has run for any office in previous elections, regardless of whether he or she was elected. Panel C of Table 3 shows statistics for these controls. 23% of candidates are incumbents, while 36% have been previously elected for public office. 62% of candidates have been candidates previously.

A final word on the organization of the data. Since controls are available at the municipality level, I aggregate voting data coming from ballot booths of the same gender, within a municipality. I use information from the last three elections: 2001, 2005 and 2009.

3.2 Econometric framework

The goal is to analyze whether there is gender bias among voters, and in particular, whether women vote more often for female candidates than do men. Let SV_{ibmdt} be the share of votes to candidate i in b-type ballots ($b \in \{female, male\}$), municipality m in district d, election t. This vote-share

[16]This is a nationally representative survey, and it is available online at http://www.mideplan.gob.cl/casen/. I use the 2000 round to construct controls for the 2001 elections, and the 2006 and 2009 rounds to construct controls for the 2005 and 2009 elections, respectively.

[17]Public positions considered are senator, deputy, mayor and member of the city council.

is computed at the gender-municipality level as follows:

$$SV_{ibmdt} = \frac{V_{ibmdt}}{\sum_i V_{ibmdt}} \tag{1}$$

where V_{ibmdt} is the number of votes that candidate i gets. Now define ΔSV_{imdt} as the difference in the vote-share between female voters and male voters:

$$\Delta SV_{imdt} = SV_{i,b=female,mdt} - SV_{i,b=male,mdt} \tag{2}$$

I therefore consider the following specification:

$$\Delta SV^F_{imdt} = \beta_0 + X_{mt}\,\Gamma_1 + Z_{it}\,\Gamma_2 + \eta_t + \theta_{coal} + \mu_d + \epsilon_{imdt} \tag{3}$$

where X_{mt} are municipality controls and Z_{it} are candidate controls. η_t, θ_{coal} and μ_d are election, coalition and district dummies, respectively. The supra-index F in the dependent variable indicates that the model is estimated for the subsample of female candidates. In addition, all controls are centered around their mean value, and therefore the estimate for the constant term $\hat{\beta}_0$ gives the average gender bias between female and male voters, which does not change once controls are included. This is useful since it allows me to directly compare the average gender bias across the different samples analyzed in the next section.[18]

Equation (3) is estimated including candidates from all coalitions. I redefine the dependent variable to estimate the model for each coalition separately. Specifically, I restrict the denominator in equation (1) to candidates in the same coalition and re-compute ΔSV^F. I present the results for the center-left (Concertación) and center-right (Alianza) coalitions, since these are the two largest coalitions and have remained relatively constant over time, as opposed to smaller left and right coalitions which sometimes run together but split afterwards.

Women do not run in all districts, and this sorting is likely to be non-random. That is, women may be less inclined to run for office in districts that are less sympathetic towards women as policy

[18]The specification shown in equation (3) gives identical results to estimating a model where the dependent variable is the share of votes computed as in equation (1), on the dummy variable fem_ballot, which takes the value of 1 when the votes come from a female ballot booth:

$$SV_{ibmdt} = \gamma_0 + \gamma_1\, fem\_ballot_{bmt} + fem\_ballot_{bmt} * (X_{mt}\,\Gamma_4 + Z_{it}\,\Gamma_5 + \eta_t + \theta_{coal} + \mu_d) + \epsilon_{ibmdt}$$

The estimate for γ_1 is identical to the one for β_0.

makers. To account for this I estimate the following selection model with data at the district level:

$$female\_candidate_{cdt} = 1 * [female\_candidate^*_{cdt} = \beta_{10} + X_{dt}\,\Gamma_{11} + \epsilon^1_{cdt} > 0] \tag{4}$$

$$\Delta SV_{icdt} = \begin{cases} \Delta SV^*_{icdt} & \text{if } female\_candidate^*_{cdt} > 0 \\ - & \text{if } female\_candidate^*_{cdt} \leq 0 \end{cases} \tag{5}$$

where

$$\Delta SV^*_{icdt} = \beta_{20} + X_{dt}\,\Gamma_{21} + \epsilon^2_{cdt} \tag{6}$$

Equation (4) is the selection equation where the latent variable $female\_candidate^*_{cdt}$ determines whether a female candidate runs for coalition c in district d. Equation (5) is the outcome equation where ΔSV^*_{icdt} is observed only when $female\_candidate^*_{cdt} > 0$. Both latent variables are assumed to be a linear function of observed and unobserved variables. The model is estimated using the two-step method (Heckman, 1979).

4 Results

4.1 All coalitions

Table 4 reports the results for estimating Specification (3) including all coalitions in the sample. The dependent variable is ΔSV^F_{imdt}, the difference between the vote-share that a female candidate i obtains from female and male voters in municipality m, in election t. The average gender bias, measured by the constant term, is -0.4%, and is significant at the 1% level. This means that female candidates get a 0.4% reduction in their vote-share when votes come from female voters, compared with male voters. How large is this effect? The share of votes to women candidates is 24% (Table 3), therefore a 0.4% reduction implies a drop of 0.1 percentage points. As explained before, it does not vary across specifications, since all covariates are centered around their mean value.

Do candidates' political characteristics have a significant impact on the gender gap? In column 1 I include the set of candidates' political characteristics Z_{it}, and find that female voters value incumbency less than male voters, increasing the negative gender bias by 0.6% when the female candidate is an incumbent.[19] However, the F-test for these controls fails to reject the hypothesis

[19]The direct effect of incumbency on vote-share is well known and studied in the literature. See, for example, Lee (2008), who provides an estimation using a Regression Discontinuity design.

that these coefficients are all equal to zero. In column 2 municipality controls X_{mt} are included, and even though they are jointly significant, the only individually significant effect is on the municipality average share of women. Women living in municipalities with one standard deviation more women are 0.12% more likely to vote for female candidates, compared to men. This might be because more women stand for election in districts with a larger proportion of women, a possibility that I explore later. When I include both the candidates' political characteristics as well as municipality controls (column 3), the coefficient on the average share of women is insignificant, although its magnitude is similar to the one in column 2. The coefficient on the average share of indigenous population, by contrast, is significant at the 10% level, though the effect is small (1 standard deviation increase in the proportion of indigenous population increases the vote-share of female candidates among female voters by 0.21%). Finally, when district dummies are included (column 4), candidate age, experience and the average LFP gap have a significant effect, though all controls are jointly insignificant. This happens because there is little within-district variation, especially among municipality controls.[20]

4.2 Center-left and center-right coalitions

The previous regressions include a coalition dummy to control for party affiliation. But as explained before, the binominal system induces most of the electoral competition to occur within coalitions (as opposed to across coalitions). Recall that coalitions can put up at most two candidates per district, and they usually do. Therefore I now estimate Specification (3) but redefining the dependent variable so that the share of votes for female candidates are computed at the ballot-coalition-municipality level. Tables 5 and 6 present the results for the center-left and center-right coalitions, respectively. These are the two largest coalitions and its party members have remained unchanged in most of the elections since 1989.

The first important thing to notice is that the average negative gender bias found in Table 4 is not the same on these two samples: Center-left female candidates face a positive but small and insignificant gender bias of 0.5%, while the bias is negative and statistically significant on the center-right (1.1%). This means that center-right female candidates receive 1.1% fewer votes from women than from men, which translates to 0.5 percentage points in the vote-share. The effect found in the regressions with all coalitions included is hence decomposed into a slightly positive

[20]Municipalities in a district neighbor each other, with the exception of the municipalities of Eastern Island and Juan Fernández Island, and the several municipalities on Chiloé Island. There is also evidence that districts were gerrymandered to increase the representation of the right (Rahat and Sznajder, 1998).

effect for center-left female candidates and a negative effect for center-right female candidates.

Candidates' political controls play an important role in explaining the gap for center-left female candidates only when district dummies are included (Table 5, column 4). Older female candidates get more votes from women voters than from men. The same is true for incumbent female candidates, though the effect is attenuated if the candidate has had previous experience as an elected official (e.g. mayor). Regarding municipality controls (column 3), women living in municipalities with a larger share of Catholics support female candidates more than men (0.83%). The significance of this coefficient goes away when district dummies are included (column 4), though its magnitude is relatively similar.

Interestingly, none of the municipality controls individually explain the negative gender gap on the center-right (Table 6, columns 2 and 3), even though they are jointly significant. The same is true for the set of political controls, except for the *politics* dummy, which has a negative and significant effect (columns 1 and 3). Since this variable takes the value of 1 when the candidate has run in previous elections but has not been elected, it is possible that it is signaling low quality of the candidate instead of experience. When district dummies are included (column 4), the dummy *experience* has a positive and significant effect, though all controls are jointly insignificant.

4.3 Selection model estimates

The previous regressions estimate ΔVS^F conditional on having a female candidate on the ballot, and therefore are subject to selection issues. Candidates' selection and voters' preferences are likely not independent. To analyze both the selection of candidates and voters' behavior simultaneously I consider the selection model outlined previously in Equations (4), (5) and (6), where in the first stage I estimate the probability of a woman running in a given district, and in the second stage I estimate the share of votes going to the woman candidate, conditional on having a woman on the ballot. The model is estimated with data aggregated at the district level.

One of the difficulties of estimating a selection model is to find a suitable instrument that can be excluded from the outcome equation. I include as such an instrument the LFP gap of the top quintile of the income distribution in each district, as well as its interaction with the overall LFP gap and the married dummy. The intuition is that the LFP gap for the top quintile should not have an effect on the vote share of female candidates, but it should have an effect on the selection of candidates if they are coming from wealthy families in the district.[21] The results for the selection

[21] The validity of the exclusion restriction is arguable, especially considering that the top-quintile LFP gap and the

equation are shown in Table 7a, while the outcome equation results are shown in Table 7b.

Columns 1 and 3 include only the top quintile LFP gap as an instrument, while columns 2 and 4 include the interactions with LFP gap and the married dummy. Districts with a smaller share of indigenous population and a larger share of catholics are more likely to have a center-left female candidate on the ballot (40% and 42% for a 1 standard deviation change in indigenous and catholic, respectively). For the case of the center-right the only significant determinant of having a female candidate is the top-quintile LFP gap: a 1 standard deviation increase in this variable reduces the likelihood of having a female candidate in the center-right by 39%. In all four regressions the estimates of λ, the selectivity effect, are statistically insignificant, failing to reject the hypothesis that both equations are independent. The estimates for ρ and λ are more stable for the center-right than for the center-left, providing evidence that the instruments work better for the former group.

Results for the outcome equation (Table 7b) are similar to those of Tables 5 and 6, but the estimates are noisier and larger in magnitude. This reflects both the effect of the selection correction and the reduced variation in all covariates, since the model is estimated at the district level. The average gender bias on the center-left (columns 1 and 2), given by the constant term, is positive when only top-quintile is included as an instrument (column 1) but is very small and negative (-0.02%) when the interactions are included. By contrast, the average on the center-right (columns 3 and 4) ranges between -6% and -7.4%.

The effects of municipality controls on gender bias are similar to those shown previously, except for the effect of the LFP gap on center-right candidates, which is now significant at the 10% level: Women voters are 4% less likely to vote for a female candidate than men for a 1 standard deviation increase in the LFP gap. Taken together, these results suggest that the LFP gap has an impact both in the selection of female candidates (through the top-quintile LFP gap) and in the relative support of these candidates. Therefore, if the LFP gap conveys information about how prevalent traditional gender roles are in a given district, gender identity seems to play a role both in the selection of female candidates and in women voters' behavior. I discuss these results latter in Section 6.

overall LFP gap are highly correlated (0.54 on the center-left and 0.52 on the center-right regressions). Anecdotal evidence supports the claim that center-right female leaders come from "better-off" families.

4.4 Candidates' campaign contributions and personal characteristics

To further investigate the effect of candidates' attributes on women's voting behavior, I collected information on the candidates' campaign expenditures and personal characteristics. This information is only available for the 2005 and 2009 elections, and only for the center-left and center-right coalitions for the case of personal characteristics. Appendix A contains a detailed description of the data collection process, as well as descriptive statistics.

Table 8 presents the results of including campaign expenditures, measured as the share of the expenditure limit set by the Electoral Service (columns 2, 4 and 6). I have included the results without campaign expenditures (columns 1, 3 and 5), since these regressions include data only for the last two elections. Neither the average gender bias nor the effects of the political controls seem to differ from the previous results shown on Tables 4, 5 and 6. Campaign expenditures affect male and female voters differentially, with women increasing their support for female candidates more than men do, though statistically significant only for center-right candidates: one standard deviation increase in campaign expenditures reduces the gender bias by 0.8%.

Table 9 shows the results of including candidates' marital status, education, number of children, and family political connections. Columns 2 and 4 also include campaign expenditures. Candidate married, a dummy that takes the value of 1 if the candidate is married (with single, divorced or widowed the omitted category), has no significant effect on the gender bias. On the other hand, having one or more child has a positive and significant effect on the gender gap in both center-left and center-right coalitions. The more interesting results are for the last two personal controls: candidate education and family connections. The former is a dummy for whether the candidate has a college or graduate degree, while the latter takes the value of 1 when the candidate is the relative (child, sibling, spouse or parent) of a known politician, in line with the political dynasties literature (Dal Bó, Dal Bó, and Snyder, 2009). Women voters are less sympathetic than men to highly educated and well-connected female candidates. The effect of the latter control can be seen as a distaste of women voters for family-connected female candidates who might act as a proxy for their relative.

Overall, the evidence in this section supports a negative but small gender bias overall, which splits into a positive bias for center-left female candidates and a negative bias for center-right female candidates. The bias is not accounted for by municipality or candidates' political characteristics, but can be partially accounted for by campaign expenditures and candidates' personal

characteristics.

5 Legislators' behavior

Do the findings in the previous section reflect the fact that female legislators do not differentiate themselves from their male counterparts by, for instance, not supporting different bills, or by supporting bills that are not preferred by the female electorate? To analyze this possibility I collected roll-call voting data from the Chamber of Deputies to test whether female legislators vote differently from their male counterparts, and to analyze the effect of the legislators' behavior on their electoral performance if they run for re-election. I describe the data and present summary statistics in Appendix A.

Previous papers analyzing the voting behavior of U.S. congressmen relied on voting scores for "pro-female" legislation,[22] or analyzed a subset of bills with a clear position on a particular issue.[23] This information is not available for bills discussed in the Chilean Congress, so I use a different empirical strategy. Instead, I look at the probability that a legislator voted differently from the majority of her/his coalition.[24] Panel B of Table A-3 presents the average of this variable for each of the congressional periods (2002–2006, 2006–2010 and 2010–2014), each of the coalitions and by gender of the legislator. Overall the variable ranges from 6% to 8%, but it shows important differences across coalitions and gender.

To identify the bills where it is relevant to cast a vote in opposition to the coalition I construct the variable *party unity vote*, which takes the value of 1 when in a given vote the majority of the center-left coalition voted differently from the majority of the center-right coalition.[25] Panel B of table A-3 shows that in party unity votes around 10% of the legislators vote differently from their coalition, as opposed to 5% for non-party unity votes. In addition, this table shows the average share of votes against the coalition majority when there is a special quorum. Special quorums are required when a constitutional amendment is proposed, but also for particular laws specified in the constitution which require a special quorum (Leyes Orgánicas Constitucionales). The proportion of votes that require a special quorum in my sample is only 4%.

[22] See Lee, Moretti, and Butler (2004) and Washington (2008). Also see Ansolabehere, Snyder Jr, and Stewart III (2001) for a discussion on the use of these scores.

[23] See Facchini and Steinhardt (2011) for immigration laws or Conconi, Facchini, and Zanardi (2010) for trade liberalization bills.

[24] A similar strategy was used in Rehavi (2007) to analyze roll-call data from U.S. State Assemblies.

[25] This is a well established measure of discrepancy between parties. The term was introduced by Congressional Quarterly (CQ), a company that produces reports of roll-call voting statistics.

5.1 Legislators' regressions

I estimate the following specification for legislators of each coalition separately:

$$\begin{aligned} Pr(\text{VoteDiff}_{ivt}) =& \gamma_0 + \gamma_1\, female_i + \gamma_2\, issue_v + \gamma_3\, female_i * issue_v + \gamma_4\, senior_{it} + \\ & \gamma_5\, female_i * senior_{it} + \gamma_6\, issue_v * senior_{it} + \gamma_7\, female_i * issue_v * \\ & senior_{it} + \gamma_8\, quorum_v + \eta_t + \epsilon_{ivt} \end{aligned} \tag{7}$$

The dependent variable VoteDiff is a dummy for whether the legislator voted differently from the majority of her/his coalition. The dummy female takes the value of 1 for female legislators, while the dummy senior takes the value of 1 for legislators in their second term and above. I first estimate a probit model of Equation (7) not including the triple interaction of gender, issue and seniority, in order to avoid losing too many observations. Table 10 reports the average marginal effects of the probability of a legislator voting differently from his or her own coalition. The first two columns show the estimates for the whole period, while the other columns correspond to a specific legislative period. In the first row I have computed the average marginal effect of having a female legislator, averaged over all issues. Focusing on the first two columns, the results show that a female legislator from the center-left coalition is 2% less likely to vote differently from her coalition than a male legislator. On the other hand, a female center-right legislator is 3% more likely to vote differently from her coalition than her male counterparts. Both effects are statistically significant. These findings are robust to the analysis of the 2002–2006 and the 2010–2014 congresses separately. In the 2006–2010 legislative period both center-left and center-right female legislators are less likely than men to vote differently.

The following rows in Table 10 break the marginal effect into the different bill issues. Again, focusing on the estimates for the whole period, it turns out that social issues such as education, government, justice, health, and family are the ones in which female legislators of different coalitions show the largest differences in the probability of voting differently. The results for health and family issues are robust to the analysis of each legislative period separately. Particularly striking is the difference among family issues, where center-right females legislators are 10% more likely to vote differently from their coalition majority (column 1), while center-left female legislators are 5% less likely to do so (column 2), compared to their male counterparts. The period analyzed (particularly the 2002–2006 legislative period) coincides with large and important changes in women's rights in Chile, such as the new marriage law (which included for the first time the possibility of divorce).

Table 11 shows the estimates of Equation (7), but now including the triple interaction term.

The table displays the marginal effects of the interaction between the dummies female and senior, for all possible combinations (male legislators serving their first term are the omitted category). Column 1 reports the results for center-left legislators, where male senior legislators have the highest probability of voting differently. Female and male junior follow, with no statistically significant difference between them. Female seniors on the center-left have the lowest probability of voting differently. Center-right legislators, on the other hand, exhibit a different ordering, as seen in column 2. Female junior center-right legislators have the highest probability of voting differently, followed by female seniors, male seniors and then male juniors. Is this ordering robust to the analysis of each legislative period separately? Excluding the 2010–2014 period, the ranking persists for the case of the top-ranked legislators: On the center-left, male seniors always have the higher probability of voting differently (columns 3 and 5). On the center-right, female juniors are always in the lead, though statistically indistinguishable from female seniors (column 4) or male juniors (column 6).

5.2 Do voters react to legislators' behavior?

The previous results show that female legislators on the center-right vote differently from their coalition more often than male legislators do. But most of this behavior comes from junior female legislators, who are more likely to vote differently than senior females. As a result, are center-right female legislators coerced into party discipline by party bosses, or do voters punishing those candidates who "go rogue" toward the left, particularly on social issues? To understand how voters react to the legislators' behavior I construct two variables. Score1 is the proportion of votes when the legislator voted differently on all issues except for education, justice, health and family. Score2, by contrast, is computed considering only education, justice, health and family issues. I include these variables as controls in the estimation of Equation (3) to gauge their impact on gender bias. This exercise can only be performed in those municipalities where there is a female incumbent running for re-election; as a result the sample is reduced considerably (only 76 observations are available on the center-left and 28 on the center-right). The results are shown in Table 12.

In this case the average gender bias for the center-left and center-right is -0.3% and 0.5%, respectively, with both estimates statistically insignificant. Therefore the samples when a female incumbent is running for re-election are different from the ones previously used, and results should be interpreted carefully. Columns 1 and 4 include only score1, and show that voting differently has a negative but statistically insignificant effect on the vote-share difference of female candidates.

Columns 2 and 4 include score2, in addition to score1. Now the estimates for the coefficient of score1 are larger, and significant for the center-right. Regarding score2, female voters are more likely than men to vote for female candidates if they voted differently on social issues, and this effect is only significant on the center-right coalition. Including candidates' campaign expenditures (columns 3 and 6) reduces the magnitude of the coefficient on the center-left, but not on the center-right, where the estimates are still significant at the 5% level, as well as jointly significant at the 10% level.

These results suggest that center-right women voters face a trade-off when voting for a female legislator. On the one hand they value party discipline, and penalize female legislators for voting differently on non-social issues; but on the other hand they may want to reward female legislators who voted against their coalition on social issues.

6 Gender bias and voting theory

What type of model could give rise to these results? In this section I examine the theoretical literature and discuss its predictions vis-à-vis the results obtained in the previous sections. Most of the existing theoretical literature does not pay particular attention to either the politician's gender or voters' behavior across genders. The gender of the politician can therefore be thought of as an observable characteristic or signal that may be correlated with the politician's preferences (Rehavi, 2007).

6.1 The citizen-candidate model

Alesina (1988) introduces a model in which politicians have a preferred policy platform and cannot commit to implement a policy different from their preferred one once in office. In addition to this feature, the citizen-candidate model (Osborne and Slivinski, 1996, Besley and Coate, 1997) deals with the selection of candidates. Individuals choose to run for office if the expected payoff of being elected is larger than the cost of running for office. Equilibria with two candidates exhibit policy divergence, where candidates' preferred policies are equidistant from the median policy.[26] Chattopadhyay and Duflo (2004) adapt the citizen-candidate framework to the situation in which there are two groups of citizens (women and men), each with different policy preferences. If the preferences of these two groups are different enough, the equilibria will feature candidates who

[26] Besley and Coate (1997) rule out three candidate equilibria by adding two assumptions to the model (non-clumping and abstinence of indifferent voters). They cannot rule out equilibria with more than three candidates.

receive more votes from their own group than from the other candidate's group. I do not find this in my data. On the center-left, men and women voters are equally likely to vote for the female candidate, while on the center-right, if anything, women are less likely than men to vote for the female candidate.

Nonetheless, the selection of candidates, a desirable outcome of the citizen-candidate model, seems to be confirmed in the data. Districts with a larger top-quintile LFP gap are less likely to have a center-right female candidate on the ballot. If candidates come from the same districts where they run, women face a higher cost of running if they do not participate in the labor force. They might face other costs, such as being discriminated against by other party members (districts with a more indigenous population are also less likely to receive center-left female candidates), or by the party bosses.[27]

I also show evidence of a different type of selection: the kind of female candidates that run on the center-right might not be appealing to female voters. Female voters particularly dislike highly educated female candidates, who comprise 89% of center-right female candidates.[28] Women also dislike female candidates who are the relative of a politician, since they might be viewed as their husband's proxy.

6.2 Downsians and neo-Downsians

On the opposite extreme there are models where candidates are able to credibly commit to a given policy, which they implement once in office (Downs, 1957). Competition between these politicians delivers convergence to the preferred policy of the median voter, regardless of candidates' characteristics such as gender. Moreover, because candidates can credibly commit to a policy platform, voters do not need to infer policy preferences from the candidates' gender, and therefore no difference in voting between these two groups should be observed. These predictions conflict with the results discussed in the previous sections, since center-right female legislators move away from their coalition's preferred policy and vote differently, particularly on social issues. In a Downsian world women voters should penalize those politicians that deviate from the median policy. Instead center-right women voters, who overall display a negative bias towards female candidates, nonetheless reward female candidates who voted differently on social issues and run

[27] Party bosses do not need to be taste-based discriminators for this mechanism to work. If their belief is that female candidates perform badly in districts with a high indigenous population, they might refrain from putting up a female candidate in those districts.

[28] This result is consistent with the findings of Fujiwara (2010), who finds that better voting technology increased the share of less educated legislators and in turn increased public spending.

for re-election by voting for them more often, relative to men voters.[29]

An alternative to the traditional Downsian framework is a model in which (center-right) female candidates "act tough" in order to appeal to men voters but who in turn alienate women voters. The evidence from the roll-call voting data in the Chamber of Deputies points in the opposite direction, with female legislators moving away from their coalition on precisely those issues which women voters care more about. And the results in table 12 show that women voters penalize less those female candidates who move away from the coalition on those issues. This evidence is consistent with the findings of Herrnson, Lay, and Stokes (2003), who find that women candidates perform better when running their campaign "as women".

It is plausible that the actions taken by politicians during their legislative period are costly to observe by voters. Recent models (so called neo-Downsian models) produce partial convergence when voters value the candidate's character (Kartik and McAfee, 2007), or when some (but not all) information is revealed about the candidates' quality (Carrillo and Castanheira, 2008). In particular, Carrillo and Castanheira (2008) show that when voters care not only about the platform's position (or ideology) but also about its quality, and when this quality is only partially revealed during the campaign, the standard Median Voter Theorem unravels. But for the extreme cases where voters either always or never learn about the quality of the platform, the Median Voter Theorem holds. Therefore candidates only use extremist platforms when it is useful to signal the platform's quality. This is unlikely to be the driving mechanism in the data. As shown in Table 12, voters generally dislike female legislators who move away from the party's prescribed policy, with the exception of female voters rewarding (or penalizing less) female candidates who vote differently on social issues.

The results show that campaign expenditures have a positive effect on the gender gap, particularly on the center-right. Can a model rationalize these results? Grossman and Helpman (1996) develop a probabilistic voting model where candidates trade off campaign contributions that they may receive if they pander to the interest groups' demands against the votes that this may cost them. This trade-off is not supported in my data, since female candidates are not penalized when voting differently on social issues; as mentioned above, they do just the opposite. Campaign expenditures can be also thought of as a signal of candidates' quality Prat, 2002. The results shown in Table 8 suggest that either women react differently when they are informed, or the signaling

[29]Recall that due to the nature of the electoral system, Downsian convergence should be observed at the within-coalition level rather than across coalitions.

aspect of campaign expenditures is more valuable to female voters.

6.3 Gender identity

Another possibility is that the candidate's gender not only signals the candidate's preferred policy platform, but also has an effect on voters' behavior which may depend on voters' identity. Akerlof and Kranton (2000) postulate that social categories, such as "man" and "woman", are associated with physical attributes and prescribed behaviors. From these prescribed behaviors individuals form their identity as a man or as a woman. Acting in a way that differs from these behaviors generates discomfort (i.e. a negative payoff) in oneself and others. In this context, female supporters of a more conservative party, such as the ones in the center-right coalition, could have conservative views of a woman's identity. They might feel their identity threatened when a woman candidate runs for office (which they see as outside appropriate behaviors for a woman), and may therefore refrain from voting for her to validate or preserve the social norm. Gender identity can therefore explain why women vote less often for female center-right candidates than men do. Nonetheless, it is puzzling that the LFP gap, which should be a good predictor of the prevalence of traditional gender roles, does not have a significant effect on the vote-share of female candidates.[30] In fact, I find evidence of female voters living in municipalities with a high LFP gap being less likely to vote for a female candidate than men voters only in the selection model estimates.

It is possible that the LFP gap does not capture the complexity of gender identity. It might also be the case that men voters feel that their identity as breadwinners is also threatened when a female candidate runs for office and therefore, even though it imperfectly measures traditional gender roles, the LFP gap decreases both men and women voters' likelihood of voting for a female

[30]Is the labor force participation gap a good indicator of gender identity? Fortin (2005) analyzes OECD countries and finds that traditional gender roles values, captured by statements such as "being a housewife is just as fulfilling as working for pay", are good predictors of the employment status of women. But this prediction should come not only from what men think women should do, but also what women want (see the discussion in Bertrand, 2011). The LFP gap seems to be a good measure of what both men **and** women think their roles should be. Evidence to support this argument comes from Booth and Van Ours (2009), who analyze the relationship between full- and part-time work and family wellbeing. They find that women part-time workers are more satisfied with working hours than full-time women, but that their satisfaction increases if their partners work full-time. On the other hand, male's satisfaction is unaffected by their partners work decision but it increases if they themselves work full-time. This can be regarded as evidence consistent with the gender identity hypothesis, and generates a prediction for the LFP gap (once one has controlled for the average level of LFP). Are the results of Fortin (2005) valid in the Chilean context? In Appendix B I replicate Fortin's analysis using data from the World Value Survey (WVS) for Chile. Overall I do not find a significant effect on female employment for any of the variables associated with gender role attitudes. But when I split the sample between left-wing and right-wing supporters, I do find a negative correlation between right-wing women's employment status and traditional gender role values (Table B-1). I also find that right-wing women are more likely to agree with the statement "men make better political leaders than women do" (Table B-2).

candidate. But, as mentioned before, the LFP gap (and particularly the top-quintile LFP gap) has a non-negligible effect on the selection of center-right female candidates.

6.4 Strategic allocation of candidates

Party leaders might influence a woman's decision to run in a given district. The party leaders can also be strategically selective, and discourage female candidates from running in contested districts or districts where they think male candidates are likely to perform better. Galasso and Nannicini (2011) show that candidates with more ex-ante quality are more likely to run in contestable districts. Even though the selection of candidates in the Chilean system is complex, there is evidence that the coalitions have to put strong candidates in risky districts if they intend to win both seats.[31] Since due to the binominal system the two largest coalitions almost always get one candidate elected, contestable districts in this context are defined as those where a coalition is likely to get either the two seats in the district or to get none. I analyze this possibility by using the results in the immediatly preceding election to identify contestable districts (Pino, 2011). The results (not presented here) show that female candidates receive fewer votes from women when they run in contested districts where the other coalition is close to receiving both seats. However, when including these controls in the selection model, it turns out that female candidates are not less likely to run in these districts. By and large, these results suggest that women voters opt for the male candidate when there is a risk of losing the seat, but the results do not provide evidence that strategic sorting of female candidates into particular districts is the driving mechanism for gender bias.

7 Conclusion

Recent literature has stressed the importance of leaders, in particular female leaders, to economic outcomes. The gender of the leader can be thought of as a signal of the leader's preferences. Therefore, if women share similar policy preferences, as a group they should show a larger support for female leaders than for male leaders. This is difficult to observe because of the secrecy of the ballot. In order to analyze women's support for female candidates, this paper makes use of a unique dataset from Chilean congressional elections where women and men vote separately.

[31] Siavelis (2002) analyzes the candidate selection process in the Chilean Elections, and describes the decision process as three-tiered: candidates are first screened by parties, then by sub-coalitions and finally negotiated by coalition bosses. Carey and Siavelis (2005) show that the center-left developed the strategy of promising to offer appointed posts to unsuccessful congressional candidates.

I find that on average women vote slightly less often for female candidates than men do. This negative gender bias breaks down into a small but positive gender bias among center-left voters and a significant negative gender bias among center-right voters. The results do not seem to be explained away by female candidates running in less favorable districts, or by candidate or municipality characteristics. Moreover, the analysis of the legislators' voting records provides evidence against a policy-based explanation of this gender bias.

Neither Downsian models nor the citizen-candidate model's predictions find support in my data. Two salient qualities emerge in the analysis of the selection of center-right female candidates: fewer female candidates run in districts with a high top-quintile labor force participation gap, and the type of female candidates that run on the center-right ticket might not be appealing to female voters. These results underline the complexity of the process of aggregation of individual preferences.

The evidence presented in this paper does not question whether female leaders have an effect on economic outcomes, but instead examines the mechanism through which this effect takes place. Thus, women leaders might matter not because they implement policies which are closer to female preferences, but because they perform better in other dimensions such as being less susceptible to corruption (Brollo and Troiano, 2011), or being better at negotiating for others (Bowles, Babcock, and McGinn, 2005).

The paper contributes to the literature in three other aspects. First, it underlines the importance of actual voting data instead of surveys or exit polls, especially when differential response biases could be present. Second, it adds to the growing literature which finds that women do not perform better when evaluated by their gender-peers. Finally, it contributes to the literature showing that gender roles may have an impact on female political participation (Alesina, Giuliano, and Nunn, 2011) by shedding light on the channels through which gender identity may affect participation.

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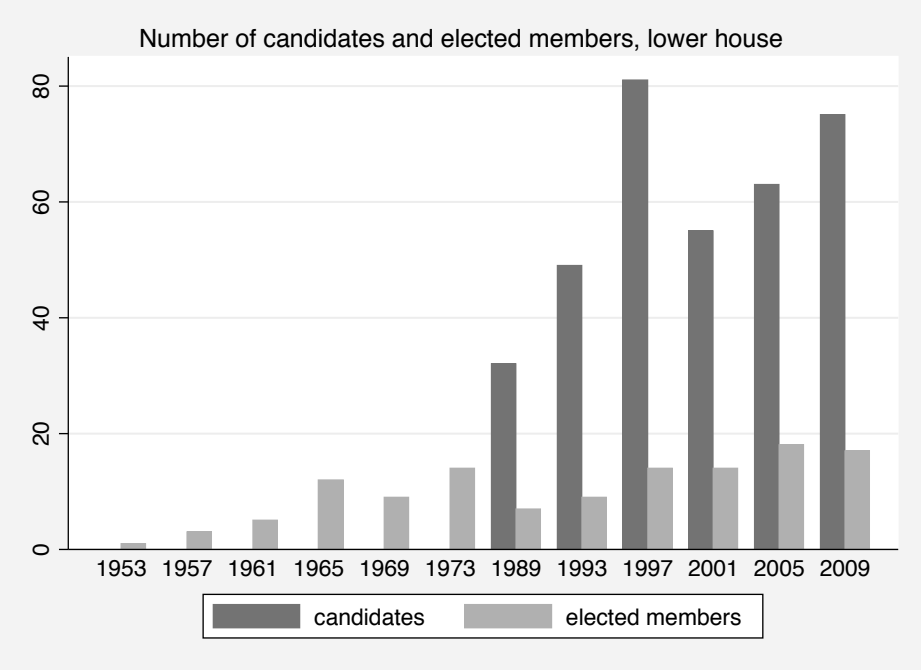
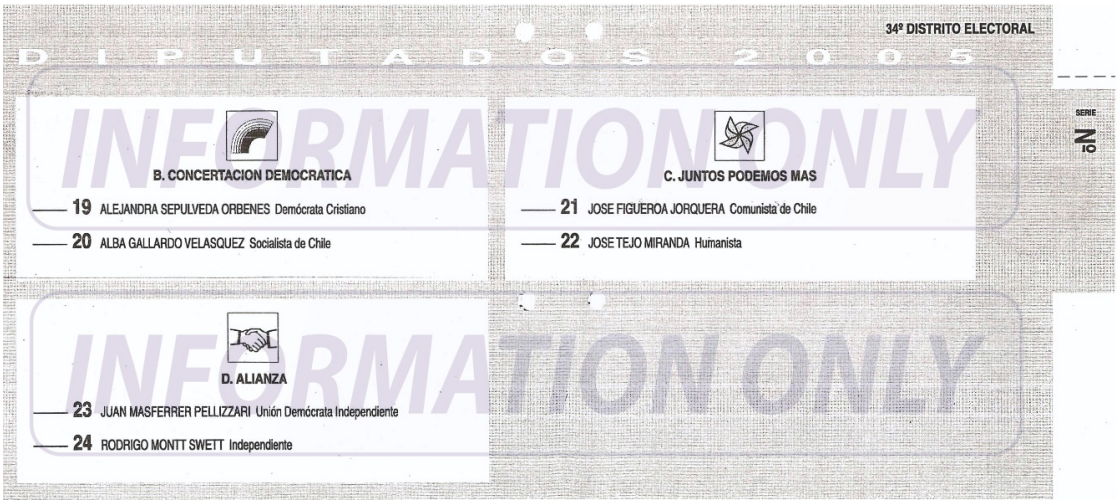
Figure 1: Women in the Chilean Congress.



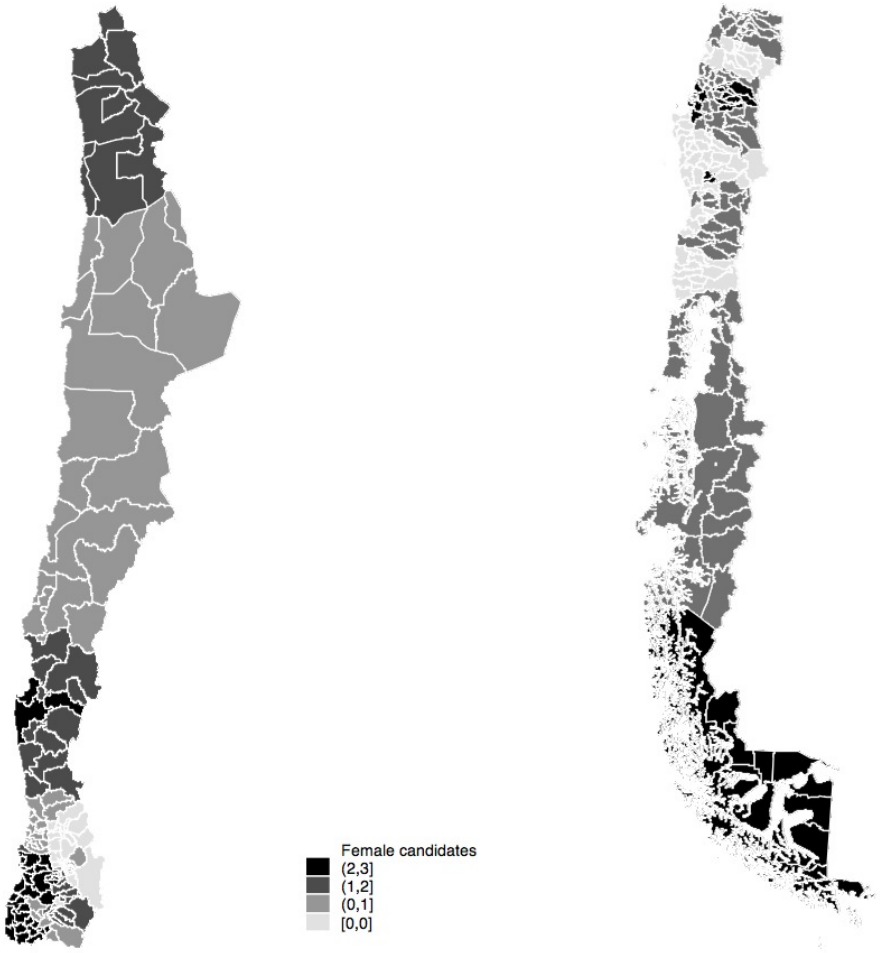
Sources: Chilean Electoral Service (www.servel.cl), Chilean Chamber of Deputies' website (www.camara.cl), and Valdes and Gomariz (1992). The total number of elected members was 147 until 1965, then it was increased to 150 for the 1969 and 1973 elections. No congressional elections were held between 1973 and 1988. From 1989 to the present the Chamber of Deputies has 120 members.

Figure 2: Ballot for district 34 in the 2005 election.



Source: Chilean Electoral Service. In this district 3 coalitions presented 2 candidates each. Candidate number 24 is running as an independent candidate within coalition D.

Figure 3: Female candidates for the 2009 Chamber of Deputies election.



Source: Chilean Electoral Service (www.servel.cl). The map is constructed at the municipality level, while candidates are elected at the district level, which groups several municipalities. The colors indicate the number of female candidates in each district. The left hand side shows the northern regions, while the right hand side shows the southern regions.

Table 1: Survey and actual election vote shares, 2009 presidential election (first round)

	Vote share in actual election	survey to actual election ratio		
		overall	men	women
	(1)	(2)	(3)	(4)
Sebastian Piñera	44%	0.967	1.041	0.895
Eduardo Frei	30%	1.021	0.952	1.089
Marco Enriquez-Ominami	20%	1.089	1.083	1.104
Jorge Arrate	6%	0.842	0.726	0.970

Notes: The survey to actual election ratio takes the value of 1 if the vote share predicted by the survey perfectly matches the actual vote share in the election. To construct the survey vote shares I considered the answers to the first round question from respondents registered to vote. Survey shares exclude undecided, while actual election shares exclude void and blank votes. Sources: Encuesta CEP 61 (October 2009) and Electoral Qualifying Court.

Table 2: Four examples of election outcomes.

	Case 1	Case 2	Case 3	Case 4
Coalition A	40%	50%	60%	70%
Candidate A1	**30%**	**30%**	**35%**	**60%**
Candidate A2	10%	20%	**25%**	**10%**
Coalition B	40%	30%	30%	20%
Candidate B1	**22%**	**18%**	18%	18%
Candidate B2	18%	12%	12%	2%
Coalition C	20%	20%	10%	10%
Candidate C1	11%	11%	6%	6%
Candidate C2	9%	9%	4%	4%

Notes: Vote shares of elected candidates are in boldface. In cases 1 and 2 one legislator in each of the largest coalitions is elected. In case 2 coalition A "fails to double", since even though its two candidates obtain the first and second larger shares of votes, the coalition obtains less than double the votes of coalition B. In cases 3 and 4 coalition A "doubles" coalition B and gets candidates A1 and A2 elected. Case 4 is a peculiar one, since candidate B1 has a larger share of votes than candidate A2. Even though the four cases are possible, during the last 6 elections cases 1 and 2 have been the most frequent outcome with 87% of the total cases.

Table 3: Summary Statistics.

	Mean	Std. Dev.	Min.	Max.	Obs
A. Districts					
No. candidates	6.645	1.226	4	10	180
No. female candidates	1.061	1.058	0	4	180
in left coalitions	.617	.834	0	4	180
in right coalitions	.267	.480	0	2	180
Share of votes for female candidates					
unconditional	.147	.179	0	.698	180
unconditional, women voters	.147	.178	0	.701	180
unconditional, men voters	.148	.179	0	.694	180
conditional on a woman on the ballot	.240	.172	.009	.700	111
center-left, 1 woman candidate	.538	.183	.052	.979	42
center-right, 1 woman candidate	.517	.221	0	.915	41
B. Municipalities					
age (years/10)	3.34	.29	2.57	4.99	1013
education (years/10)	.88	.15	.41	1.53	1013
urban (%)[a]	63.4	29.4	0	100	1013
indigenous (%)[a]	10.6	17.6	0	100	1013
catholic (%)[a]	50.6	11.2	17.0	92.0	1029
evangelical (%)[a]	11.1	7.2	1.7	43.0	1029
income (1,000,000 pesos)	.25	.14	.10	1.7	1013
labor force participation, LFP (%)[a]	57.1	7.1	31.6	88.7	1013
LFP gap (%)[a]	50.8	12.3	-1.5	83.6	1013
women (%)[a]	50.6	2.0	43.0	58.1	1013
married (%)[a]	41.9	3.0	28.3	65.4	1013
C. Candidates					
age (years/10)	4.79	1.14	2.1	8.0	1196
incumbent	.230	.421	0	1	1196
experience	.361	.481	0	1	1196
politics	.615	.487	0	1	1196

Notes: Panel B: All variables are averages constructed at the municipality level. [a] The variable is presented as percentage for easier display, but it is scaled by 10^{-4} in the regressions. Panel C: incumbent takes the value of 1 if the candidate was elected in the same district he/she is currently running; experience takes the value of 1 if the candidate was elected for any office in previous elections; and politics takes the value of 1 if the candidate has run for any office in previous elections.

Table 4: Determinants of gender bias (female candidates from all coalitions).

Dep. Variable: ΔSV_i (Diff. in share of votes to female candidate i)				
	(1)	(2)	(3)	(4)
candidate age	0.000		0.000	0.002**
	(0.001)		(0.001)	(0.001)
incumbent	-0.006*		-0.006	-0.002
	(0.004)		(0.004)	(0.004)
experience	-0.000		-0.001	-0.006*
	(0.004)		(0.004)	(0.004)
politics	-0.001		0.000	-0.002
	(0.002)		(0.002)	(0.002)
mun. av. age		0.003	0.005	-0.019
		(0.042)	(0.041)	(0.051)
mun. av. education		0.017	0.018	0.024
		(0.019)	(0.018)	(0.022)
mun. av. urban		0.433	0.442	-0.340
		(0.437)	(0.435)	(0.544)
mun. av. indigenous		1.005	1.191*	0.773
		(0.651)	(0.643)	(0.935)
mun. av. catholic		0.684	0.811	-1.372
		(1.158)	(1.192)	(1.300)
mun. av. evangelical		3.003	2.965	1.962
		(1.907)	(1.917)	(2.340)
mun. av. income		0.002	0.002	0.001
		(0.002)	(0.002)	(0.003)
mun. av. LFP		-0.416	-0.656	0.394
		(1.474)	(1.655)	(1.981)
mun. av. LFP gap		1.154	0.986	2.990**
		(1.071)	(1.048)	(1.207)
mun. av. women		6.195*	5.460	3.070
		(3.345)	(3.493)	(4.680)
mun. av. married		-0.175	-0.342	0.468
		(2.300)	(2.237)	(2.496)
Constant	-0.004***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
District dummies	NO	NO	NO	YES
Observations	896	896	896	894
R-squared	0.080	0.110	0.121	0.260
F-test (all)	4.285***	8.088***	7.735***	5.231***
F-test (controls)	1.065	3.793***	3.424***	1.204

Notes: Robust standard errors in parentheses, adjusted for clustering at the district level in (1), (2) and (3). Other controls included are age^2, $income^2$, log(*population*), year and coalition dummies. ΔSV_i is defined as the difference between women and men vote-shares to female candidate i. Controls refers to candidate and municipality controls. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 5: Determinants of gender bias (center-left female candidates)

Dep. Var: ΔSV_i (Diff. in vote-shares to female candidate i)				
	(1)	(2)	(3)	(4)
candidate age	0.009*		0.010	0.071***
	(0.005)		(0.006)	(0.014)
incumbent	-0.020		-0.020	0.119***
	(0.016)		(0.016)	(0.028)
experience	-0.026		-0.019	-0.139***
	(0.019)		(0.020)	(0.030)
politics	0.024		0.017	0.015
	(0.014)		(0.012)	(0.015)
mun. av. age		0.073	0.097	0.164*
		(0.119)	(0.117)	(0.098)
mun. av. education		-0.058	-0.047	-0.062
		(0.066)	(0.059)	(0.055)
mun. av. urban		1.595	2.114	1.275
		(1.614)	(1.496)	(1.938)
mun. av. indigenous		-2.327	-0.843	0.566
		(3.275)	(3.634)	(4.107)
mun. av. catholic		6.609	7.413*	5.004
		(4.031)	(3.961)	(3.448)
mun. av. evangelical		9.900	11.557	3.971
		(8.511)	(8.084)	(9.096)
mun. av. income		0.020*	0.013	0.008
		(0.010)	(0.009)	(0.007)
mun. av. LFP		-3.449	-5.899	3.875
		(6.611)	(8.089)	(6.736)
mun. av. LFP gap		-1.136	-1.521	3.606
		(4.221)	(4.372)	(3.741)
mun. av. women		6.751	-2.759	3.484
		(12.618)	(13.190)	(16.215)
mun. av. married		-3.722	-2.779	4.825
		(7.366)	(7.989)	(8.063)
Constant	0.005	0.005	0.005	0.005**
	(0.005)	(0.005)	(0.005)	(0.002)
District dummies	NO	NO	NO	YES
Observations	239	239	239	237
R-squared	0.108	0.112	0.173	0.607
F-test (all)	3.733***	22.50***	34.09***	18.58***
F-test (controls)	3.429**	9.444***	15.68***	3.853***

Notes: Robust standard errors in parentheses, adjusted for clustering at the district level in (1), (2) and (3). Other controls included are age^2, $income^2$, log(*population*) and year dummies. ΔSV_i is defined as the difference between women and men vote-shares to female candidate i. Controls refers to candidate and municipality controls. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 6: Determinants of gender bias (center-right female candidates)

Dep. Var: ΔSV_i (Diff. in vote-shares to female candidate i)				
	(1)	(2)	(3)	(4)
candidate age	-0.002		-0.002	-0.007
	(0.005)		(0.005)	(0.006)
incumbent	0.017		0.005	-0.024
	(0.011)		(0.014)	(0.015)
experience	0.023		0.024	0.042**
	(0.016)		(0.015)	(0.019)
politics	-0.036**		-0.031*	0.011
	(0.016)		(0.016)	(0.011)
mun. av. age		-0.093	-0.076	-0.192
		(0.128)	(0.104)	(0.161)
mun. av. education		-0.070	-0.078	0.065
		(0.098)	(0.107)	(0.076)
mun. av. urban		-0.651	-0.673	-3.025
		(2.160)	(1.889)	(2.233)
mun. av. indigenous		2.435	0.717	3.937
		(2.835)	(2.618)	(3.532)
mun. av. catholic		2.598	3.299	-0.706
		(3.398)	(2.900)	(4.148)
mun. av. evangelical		5.646	4.066	5.689
		(9.178)	(9.036)	(8.797)
mun. av. income		0.007	0.010	-0.005
		(0.015)	(0.016)	(0.013)
mun. av. LFP		0.494	1.508	-5.029
		(9.160)	(7.969)	(7.861)
mun. av. LFP gap		-1.437	-1.263	3.959
		(6.110)	(6.042)	(5.772)
mun. av. women		13.547	11.808	8.197
		(16.336)	(16.687)	(16.884)
mun. av. married		-11.920	-4.956	-8.081
		(9.036)	(7.532)	(10.227)
Constant	-0.011**	-0.011**	-0.011**	-0.011***
	(0.004)	(0.005)	(0.004)	(0.002)
District dummies	NO	NO	NO	YES
Observations	179	179	179	176
R-squared	0.158	0.149	0.216	0.533
F-test (all)	2.288*	7.235***	4.161***	10.64***
F-test (controls)	3.199**	2.726**	3.787***	1.008

Notes: Robust standard errors in parentheses, adjusted for clustering at the district level in (1), (2) and (3). Other controls included are age^2, $income^2$, log($population$) and year dummies. Controls refers to candidate and municipality controls. ΔSV_i is defined as the difference between women and men vote-shares to female candidate i. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 7a: Selection model, selection equation

Dep. Variable:	Pr(female candidate)			
Coalition:	Center-left		Center-right	
	(1)	(2)	(3)	(4)
mun. av. age	-5.658	-5.523	2.771	2.361
	(13.305)	(13.770)	(14.584)	(14.705)
mun. av. education	0.031	0.145	-2.273	-2.095
	(3.389)	(3.416)	(3.263)	(3.396)
mun. av. urban	115.739	111.765	185.531	196.668
	(164.840)	(165.952)	(169.208)	(177.083)
mun. av. indigenous	-428.506*	-422.295*	32.754	49.851
	(219.502)	(221.729)	(190.426)	(193.885)
mun. av. catholic	532.443**	527.965**	-160.269	-174.134
	(222.547)	(235.927)	(216.024)	(218.946)
mun. av. evangelical	180.722	174.779	-369.012	-394.204
	(327.449)	(329.775)	(347.527)	(349.313)
mun. av. LFP	-464.431	-454.344	350.811	371.538
	(461.887)	(475.579)	(479.739)	(480.570)
mun. av. LFP gap	-392.714	-417.595	-99.527	-118.142
	(356.147)	(360.565)	(350.531)	(363.005)
mun. av. married	372.543	421.380	-583.080	-507.240
	(573.987)	(584.241)	(571.962)	(583.716)
mun. av. women	-806.4	-911.7	1,225.5	1,129.5
	(1,189.0)	(1,212.9)	(1,242.5)	(1,250.9)
mun. av. income	-0.202	-0.223	0.282	0.171
	(0.392)	(0.411)	(0.483)	(0.505)
mun. av. top-20% LFP gap	-2.196	-2.285	-3.820**	-3.733**
	(1.563)	(1.579)	(1.645)	(1.647)
mun. av. top-20% LFP gap * LFP gap		-629.0		-442.5
		(1,574.4)		(1,730.5)
mun. av. top-20% LFP gap * married		1,990.8		4,044.0
		(3,764.7)		(4,564.6)
Constant	-0.867***	-0.858***	-0.929***	-0.942***
	(0.130)	(0.141)	(0.133)	(0.140)
Observations	175	175	176	176
ρ	-0.296	-0.0233	0.922	0.812
λ	-0.0096	-0.0007	0.0416	0.0321
	(0.0460)	(0.0478)	(0.0381)	(0.0325)

Notes: Robust standard errors in parentheses. All columns include year of election dummies. Top-20% LFP gap is the municipality average LFP gap for the top quintile of the income distribution. Columns (1) and (3) include this variable as instrument, while columns (2) and (4) also include the interactions of this variable with LFP gap and married as instruments. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 7b: Selection model, outcome equation

Dep. Variable:	ΔSV_i (Diff. in vote-shares to female cand. i)			
Coalition:	Center-left		Center-right	
	(1)	(2)	(3)	(4)
mun. av. age	1.476**	1.432**	-0.509	-0.489
	(0.712)	(0.719)	(0.979)	(0.963)
mun. av. education	-0.320**	-0.324**	-0.470***	-0.459***
	(0.150)	(0.151)	(0.172)	(0.163)
mun. av. urban	10.326	10.904	10.229	9.642
	(8.193)	(8.013)	(8.852)	(8.448)
mun. av. indigenous	-25.556	-27.556	15.546	13.983
	(17.065)	(17.544)	(11.923)	(11.230)
mun. av. catholic	7.188	9.535	6.601	7.777
	(15.994)	(16.439)	(12.524)	(11.547)
mun. av. evangelical	10.106	10.216	-3.754	-2.692
	(17.132)	(17.075)	(20.022)	(18.977)
mun. av. LFP	-28.632	-32.008	2.702	0.092
	(31.485)	(30.456)	(32.743)	(31.517)
mun. av. LFP gap	-19.828	-23.733	-42.625*	-40.023*
	(26.103)	(25.103)	(24.278)	(23.148)
mun. av. married	29.912	31.310	-44.146	-37.421
	(29.072)	(28.052)	(37.562)	(34.144)
mun. av. women	-61.200	-65.205	132.934*	120.588
	(79.066)	(77.552)	(79.170)	(73.523)
mun. av. income	0.054**	0.052**	0.020	0.019
	(0.022)	(0.021)	(0.026)	(0.025)
Constant	0.012	-0.000	-0.074	-0.060
	(0.063)	(0.065)	(0.053)	(0.045)
Observations	175	175	176	176

Notes: Robust standard errors in parentheses. All columns include year of election dummies. ΔSV_i is defined as the difference between women and men vote-shares to female candidate i. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 8: Including campaign expenditures (only 2005 and 2009)

Dep. Variable:	ΔSV_i (Diff. in vote-shares to female candidate i)					
Coalition:	All		Center-left		Center-right	
	(1)	(2)	(3)	(4)	(5)	(6)
campaign expenditures		0.010		0.069		0.034*
		(0.008)		(0.061)		(0.016)
candidate age	0.001	0.001	0.008	0.008	-0.001	-0.001
	(0.001)	(0.001)	(0.007)	(0.006)	(0.006)	(0.006)
incumbent	-0.006	-0.006	-0.018	-0.018	0.006	0.007
	(0.004)	(0.004)	(0.017)	(0.015)	(0.013)	(0.012)
experience	-0.000	-0.001	-0.022	-0.032**	0.029	0.028
	(0.004)	(0.004)	(0.021)	(0.014)	(0.017)	(0.016)
politics	0.000	0.000	0.025*	0.030**	-0.029	-0.032
	(0.002)	(0.002)	(0.013)	(0.012)	(0.021)	(0.022)
Constant	-0.003***	-0.003***	0.004	0.004	-0.011**	-0.011**
	(0.001)	(0.001)	(0.005)	(0.004)	(0.005)	(0.005)
Observations	694	694	184	184	147	147
R-squared	0.111	0.116	0.196	0.221	0.276	0.304
F-test	10.78***	11.64***	34.18***	53.73***	7.560***	13.28***

Notes: Robust standard errors in parentheses, adjusted for clustering at the municipality level. Controls are the same as in column 3 of table 4. (1) and (2) also include coalition dummies. Campaign expenditures is defined as the amount of money spent by the candidate as a proportion of the district expenditure limit. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 9: Including candidates' personal characteristics (only 2005 and 2009, center-left and center-right)

Dep. Variable:	ΔSV_i (Diff. in vote-shares to female cand. i)			
Coalition:	Center-left		Center-right	
	(1)	(2)	(3)	(4)
candidate married	-0.010	-0.004	0.013	0.007
	(0.008)	(0.009)	(0.010)	(0.010)
candidate children	0.030***	0.021**	0.025*	0.028*
	(0.010)	(0.011)	(0.013)	(0.014)
candidate education	-0.013	-0.019	-0.016	-0.022*
	(0.014)	(0.012)	(0.012)	(0.011)
cand. family connections	-0.014	-0.014	-0.024***	-0.028***
	(0.009)	(0.009)	(0.009)	(0.008)
campaign expenditures		0.058		0.045***
		(0.037)		(0.012)
candidate age	0.005	0.006	-0.003	-0.003
	(0.005)	(0.005)	(0.004)	(0.004)
incumbent	-0.020	-0.016	0.013	0.015
	(0.013)	(0.011)	(0.011)	(0.011)
experience	-0.021	-0.032***	0.022*	0.018
	(0.015)	(0.012)	(0.012)	(0.012)
politics	0.026**	0.027***	-0.017	-0.018
	(0.011)	(0.010)	(0.012)	(0.012)
Constant	0.004	0.004	-0.011***	-0.011***
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	184	184	147	147
R-squared	0.232	0.245	0.402	0.446
F-test	7.156***	12.02***	6.626***	6.405***
F-test (personal characteristics)	3.843***	3.232**	6.670***	8.170***

Notes: Robust standard errors in parentheses, adjusted for clustering at the municipality level in (1), (3) and (5). Controls are the same as in column 3 of table 4. Candidate married= 1 if the candidate is married. Candidate children= 1 if the candidate has at least 1 child. Candidate education= 1 if the candidate has a college or graduate degree. Cand. family connections= 1 if the candidate has/had a parent, spouse or child in politics. Campaign expenditure is defined in the note of table 8. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table 10: Probability of different vote, marginal effects

Dep. Variable:	Pr(Vote different from the majority of the coalition)							
Congress:	2002–2011		2002–2006		2006–2010		2010–2014[a]	
Coalition:	Center Left	Center Right	Center Left	Center Right	Center Left	Center Right	Center Left	Center Right
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
gender	-0.018***	0.029***	-0.010***	0.066***	-0.018***	-0.018***	-0.044***	0.009**
	(0.002)	(0.004)	(0.003)	(0.007)	(0.003)	(0.004)	(0.008)	(0.005)
gender*agriculture	0.003	0.005	-0.006	0.087**	0.013	-0.043**	-0.024	-0.036*
	(0.014)	(0.016)	(0.023)	(0.037)	(0.020)	(0.022)	(0.039)	(0.021)
gender*defense	-0.009	0.039*	-0.009	0.035*	-0.036	0.071		
	(0.012)	(0.020)	(0.012)	(0.021)	(0.037)	(0.067)		
gender*education	-0.022***	0.021***	-0.013***	0.078***	-0.010*	-0.018***	-0.051***	0.007
	(0.005)	(0.006)	(0.004)	(0.020)	(0.006)	(0.007)	(0.013)	(0.006)
gender*finance	-0.016***	0.001	-0.012**	0.012	-0.015***	-0.025***	-0.028***	0.008
	(0.003)	(0.005)	(0.005)	(0.014)	(0.004)	(0.006)	(0.010)	(0.007)
gender*government	-0.012*	0.035***	-0.006	0.077***	-0.022	-0.063***	-0.013	-0.036**
	(0.007)	(0.012)	(0.007)	(0.016)	(0.016)	(0.018)	(0.037)	(0.015)
gender*justice	-0.038***	0.051***	-0.007	0.157***	-0.042***	-0.025**	-0.103***	0.004
	(0.007)	(0.011)	(0.007)	(0.023)	(0.009)	(0.011)	(0.024)	(0.006)
gender*mining	-0.014	0.017	-0.027***	-0.026	0.002	0.010		
	(0.009)	(0.022)	(0.005)	(0.029)	(0.017)	(0.021)		
gender*public works	-0.001	0.037**	0.016	0.091**	-0.020	-0.006	0.024	0.056
	(0.014)	(0.017)	(0.022)	(0.045)	(0.017)	(0.012)	(0.029)	(0.058)
gender*foreign relations	-0.016	0.093***	0.028	0.088	-0.046***	0.042*		
	(0.015)	(0.029)	(0.027)	(0.070)	(0.015)	(0.023)		
gender*health	-0.027***	0.091***	-0.012	0.059***	-0.084***	0.036	-0.136***	0.106***
	(0.009)	(0.019)	(0.009)	(0.023)	(0.017)	(0.047)	(0.031)	(0.035)
gender*labor	0.008	0.037*	-0.005	0.032	-0.005	-0.004	0.064	0.073*
	(0.012)	(0.021)	(0.022)	(0.032)	(0.005)	(0.014)	(0.049)	(0.038)
gender*family	-0.046***	0.096***	-0.037***	0.077**	-0.028*	0.186**	-0.173***	-0.039
	(0.010)	(0.032)	(0.009)	(0.034)	(0.015)	(0.078)	(0.055)	(0.033)
Incumbency and age controls	YES	YES	YES	YES	YES	YES	YES	YES
Observations	84,822	71,550	30,831	26,646	36,989	29,767	16,622	14,715
Pseudo R-squared	0.0614	0.0645	0.0836	0.0676	0.0581	0.0707	0.0269	0.0940

Notes: Robust standard errors in parentheses, adjusted for clustering at the vote level. Coefficients show the average marginal effect for each variable. Other controls are quorum and year dummies. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively. [a] Data until September 2011.

Table 11: Probability of different vote, marginal effects (interations with seniority)

Dep. Variable:	Pr(Vote different from the majority of the coalition)							
Congress:	2002–2011		2002–2006		2006–2010		2010–2014[a]	
Coalition:	Center Left	Center Right	Center Left	Center Right	Center Left	Center Right	Center Left	Center Right
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) female senior	-0.016***	0.020***	-0.016***	0.114***	0.012**	-0.147***	-0.087***	-0.040***
	(0.003)	(0.005)	(0.004)	(0.009)	(0.005)	(0.008)	(0.008)	(0.006)
(b) female junior	-0.001	0.051***	0.002	0.123***	-0.085***	-0.009	-0.188***	-0.040***
	(0.004)	(0.005)	(0.004)	(0.013)	(0.006)	(0.006)	(0.009)	(0.006)
(c) difference ((a) - (b))	-0.016***	-0.031***	-0.018***	-0.009	0.097***	-0.138***	0.101***	0.000
	(0.005)	(0.007)	(0.005)	(0.013)	(0.006)	(0.009)	(0.011)	
(d) male senior	0.013***	0.008***	0.008***	0.069***	0.026***	-0.147***	-0.006	-0.006
	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.008)	(0.005)	(0.004)
Observations	84,822	71,550	30,831	26,646	36,989	29,767	16,622	14,715
Pseudo R-squared	0.0614	0.0645	0.0836	0.0676	0.0581	0.0707	0.0269	0.0940

Notes: Robust standard errors in parentheses, adjusted for clustering at the vote level. Coefficients show the average marginal effect for each variable. Other controls are quorum and year dummies. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively. [a] Data until September 2011.

Table 12: Voters reaction to roll call scores of female legislators (only 2005 and 2009)

Dep. Variable:	ΔSV_i (Difference in voteshares to female candidate i)					
Coalition:	Center-left			Center-right		
	(1)	(2)	(3)	(4)	(5)	(6)
score1	-0.140	-0.289	-0.058	-0.084	-0.440*	-0.501**
	(0.367)	(0.471)	(0.614)	(0.096)	(0.230)	(0.220)
score2		0.060	0.015		0.171**	0.206**
		(0.126)	(0.148)		(0.076)	(0.079)
campaign expenditures			0.069			-0.044
			(0.055)			(0.034)
Constant	-0.003	-0.003	-0.003	0.005	0.005	0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)
Observations	76	76	76	28	28	28
R-squared	0.224	0.228	0.259	0.882	0.929	0.938
F-test	3.170***	2.940***	3.246***	148.91***	72.69***	357.1***
F-test (scores)		0.192	0.005		2.592*	3.372*

Notes: Robust standard errors in parentheses, adjusted for clustering at the municipality level. Controls are the same as in column 3 of table 4. *Score*1 is defined as the proportion of votes in which the legislator voted differently from her coalition, excluding education, justice, health and family bills. *Score*2 is defined in the same way but includes only education, justice, health and family bills. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

A Appendix A: Details on data colletion

A.1 Candidates' campaign expenditures

Campaign expenditures for all candidates are available for the last two elections (2005 and 2009) from the Chilean Electoral Service's website. Law 19,884 of 2003 regulates campaign contributions and expenditures, and establishes expenditure limits for each district. It also indicates that all contributions and expenditures have to be informed to the Electoral Service and determines the sanctions for those who infringe the expenditure limit. I use the proportion of campaign expenditures to the district limit instead of using total expenditures to avoid adjustments by district size.

Table A-1 shows summary statistics for campaign expenditures.

Table A-1: Campaign expenditures, summary statistics.

	Mean	Std. Dev.	Min.	Max.	Obs
Campaign expenditures	.273	.262	0	1.210	808
in 2005	.252	.231	.003	1.077	385
in 2009	.291	.286	0	1.210	423
center-left candidates	.378	.182	.025	1.000	240
center-right candidates	.470	.268	.037	1.210	240
female candidates	.240	.252	0	.994	136
male candidates	.279	.264	0	1.210	671

Notes: Campaign expenditure is defined as the amount of money spent by the candidate as a proportion of the district expenditure limit.

A.2 Candidates' personal characteristics

The Chilean Electoral Service does not record information on candidates' personal characteristics. Therefore the information was obtained from diverse sources. I restricted the search to center-left and center-right candidates in the last two elections (2005 and 2009), and to the following attributes: marital status, education, family composition and political family connections (whether the candidate is the offspring, sibling, spouse or parent of a politician).

The website of the Library of the Chilean Congress[32] was the source of information for elected candidates. For those candidates that have never been elected to congress, information was taken from various sources. Facegub.com, a website offering information for the 2009 elections, provided most of the information for 2009 candidates. Personal websites and blogs, such as Facebook, and

[32] http://biografias.bcn.cl/wiki/Portada.

media information, taken mostly form the news website emol.com, and Wikipedia articles, were used to complete missing information.

For the 2005 election information was more scarce, and therefore it was collected form a wider variety of sources. "Emol Elecciones Especiales 2005" provided part of the data, and the remaining was obtained from the online newspapers, professional webpages, and personal blogs, among other sources.

I created four dummy variables. Candidate married takes the value of 1 if the candidate is married, with single, divorced or widowed the omitted category. Candidate children takes the value of 1 if the candidate has 1 or more children. Candidate education takes the value of 1 if the candidate has a college or graduate degree. Finally, candidate family connection takes the value of 1 when the candidate is the relative of a known politician (child, sibling, spouse or parent). When information was missing (particularly with married and education), the candidate was assigned the omitted category. Table A-2 provides the summary statistics.

Table A-2: Candidates' personal attributes, summary statistics.

Gender	female	male
Candidate married (%)	74.75	59.15
Candidate children (%)	74.65	70.59
Candidate education (%)	91.55	82.35
Candidate family connections (%)	45.07	17.65
Total number of candidates	71	408

Notes: Each cell represents, for each gender, the proportion of candidates for which the dummy variable takes the value of 1.

A.3 Roll-call voting data

Data on recorded votes comes from the Chilean Chamber of Deputies website (www.camara.cl). I collected data for votes that took place between March 2002 and September 2011, corresponding to the 2002-2006, 2006-2010, and 2010-2014 legislative periods. The total number of votes is 6,163, but this number reduces to 4,969 when considering votes for bills that were assigned to a specific committee, which determines the broader issue of the bill (25 categories, collapsed into 14). In each of these votes I record the vote (favor, against, or abstain) of each deputy that exercise his right to vote. I also have information on the name of the bill, date and time, quorum required, and the vote of each legislator present in the room (in favor, against, or abstention). Panel A of table A-3 shows summary statistics for the share of votes in each broader issue. Particularly interesting

for my analysis is the votes on Family issues, which gets 6% of the votes in the first legislative period. This is due to the reform to the Civil Code in 2004, which among other changes legalized divorce, and the creation of the family courts.

Table A-3: Votes in the Chamber of Deputies, summary statistics.

Congress	2002-2006	2006-2010	2010-2011[a]
A. Vote-level statistics (%)			
Agriculture	8.92	8.89	12.14
Defense	5.11	1.94	1.97
Education	10.56	14.21	15.86
Finance	12.89	26.73	23.80
Government	10.41	8.94	9.33
Justice	14.53	12.27	12.80
Mining	4.81	3.78	4.59
Public Works	5.90	5.96	5.91
Foreign relations	6.79	5.96	2.45
Health	8.38	4.02	4.04
Labor	5.65	5.56	4.39
Family	6.05	1.74	2.71
Total number of votes	2,017	2,013	951
B. Candidate-vote-level statistics			
Vote different[b]	0.063	0.066	0.077
center-left	0.043	0.065	0.121
men	0.044	0.066	0.123
women	0.037	0.059	0.109
center-right	0.086	0.067	0.028
men	0.085	0.067	0.028
women	0.101	0.069	0.029
no party unity vote	0.044	0.045	0.057
party unity vote	0.102	0.101	0.112
no special quorum	0.064	0.067	0.079
special quorum	0.061	0.061	0.067
Total candidate-votes	173,483	182,124	90,862

Notes: Panel A shows the share of votes in each category. Panel B displays the average of the dummy variable Vote different, which takes the value of 1 when the legislator voter different from the majority of his or her coalition.
[a] Data up to 9/7/2011.

B Appendix B: Gender role attitudes and employment in Chile

Table B-1: Determinants of employment status.

Dep. Variable:	Pr(employed)				
Sample:	All	Left	Right	Left[a]	Right[a]
	(1)	(2)	(3)	(4)	(5)
age	0.139***	0.165***	0.120***	0.241***	0.126***
	(0.018)	(0.026)	(0.026)	(0.058)	(0.034)
age^2	-0.002***	-0.002***	-0.002***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
married	-0.548***	-0.648***	-0.483***	-0.715**	-0.519***
	(0.092)	(0.133)	(0.129)	(0.281)	(0.170)
divorced	0.034	0.126	-0.034	-0.147	-0.138
	(0.139)	(0.197)	(0.204)	(0.481)	(0.260)
no children	0.151	-0.097	0.365**	0.034	0.418*
	(0.124)	(0.174)	(0.182)	(0.400)	(0.239)
Secondary school	-0.005	0.105	-0.133	0.151	-0.308
	(0.121)	(0.200)	(0.156)	(0.461)	(0.212)
Terciary school	0.184	0.179	0.225	-0.037	0.207
	(0.152)	(0.232)	(0.217)	(0.489)	(0.288)
Working mother warm with children	0.076	0.181	-0.024	0.479**	0.154
	(0.080)	(0.114)	(0.115)	(0.231)	(0.150)
Being a housewife fulfilling	-0.096	0.111	-0.274***	0.292	-0.261*
	(0.072)	(0.105)	(0.101)	(0.226)	(0.133)
Both spouses should contribute income	0.150	0.040	0.293*	0.390	0.200
	(0.123)	(0.174)	(0.176)	(0.446)	(0.249)
Scarce jobs should go to men first	-0.004	0.044	-0.029	-0.011	-0.108*
	(0.031)	(0.049)	(0.041)	(0.119)	(0.061)
Important in job: good pay	0.111	0.240*	-0.024	-0.082	0.017
	(0.088)	(0.125)	(0.126)	(0.240)	(0.172)
Important in job: good hours	0.020	-0.077	0.131	-0.531**	0.119
	(0.068)	(0.097)	(0.097)	(0.225)	(0.126)
Constant	-2.898***	-3.364***	-2.591***	-4.222***	-2.687***
	(0.373)	(0.495)	(0.553)	(1.078)	(0.748)
Pseudo R-squared	0.107	0.122	0.121	0.208	0.140
Observations	1,880	922	958	228	560

Notes: Robust standard errors in parentheses. All columns include survey year and region (north, center, south and Santiago) dummies. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.
[a] Centrists were excluded: In a scale from 1 (Left) to 10 (Right), respondents locating themselves between 4 and 7 were excluded in columns (4) and (5).

Table B-2: Agreement with statement "In general, men are better political leaders than women".

Dep. Variable:	Pr(men better political leaders)					
Sample:	All	Left	Right	All	Left	Right
	(1)	(2)	(3)	(4)	(5)	(6)
age	0.000	0.012	-0.013	-0.001	0.016	-0.023
	(0.010)	(0.015)	(0.014)	(0.010)	(0.015)	(0.015)
age^2	0.000	-0.000	0.000*	0.000	-0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
married	0.080	-0.106	0.170*	0.065	-0.125	0.193*
	(0.072)	(0.118)	(0.096)	(0.075)	(0.120)	(0.103)
divorced	-0.165	-0.169	-0.120	-0.169	-0.158	-0.072
	(0.114)	(0.184)	(0.152)	(0.118)	(0.191)	(0.156)
no children	0.031	-0.067	-0.158	-0.009	-0.081	-0.264**
	(0.081)	(0.122)	(0.121)	(0.084)	(0.125)	(0.128)
Secondary school	-0.189***	-0.288***	-0.115	-0.224***	-0.309***	-0.141
	(0.066)	(0.101)	(0.087)	(0.068)	(0.104)	(0.093)
Terciary school	-0.370***	-0.335***	-0.538***	-0.406***	-0.370***	-0.526***
	(0.083)	(0.121)	(0.125)	(0.086)	(0.125)	(0.131)
Ideology (Left=1)	-0.149***	-0.116	-0.248***			
	(0.049)	(0.071)	(0.071)			
Income inequality should be larger				-0.006	0.011	-0.026**
				(0.009)	(0.013)	(0.013)
Larger gov. business ownership				-0.001	0.011	-0.016
				(0.010)	(0.014)	(0.015)
Gov. should take more responsability				-0.013	-0.004	-0.019
				(0.010)	(0.014)	(0.014)
Competition is harmful				0.001	-0.023	0.034**
				(0.010)	(0.015)	(0.014)
Constant	-0.193	0.129	-0.288	-0.070	0.052	-0.048
	(0.238)	(0.361)	(0.332)	(0.275)	(0.406)	(0.384)
Observations	3,046	1,409	1,637	2,849	1,349	1,500
Pseudo R-squared	0.0381	0.0343	0.0648	0.0372	0.0327	0.0738

Notes: Robust standard errors in parentheses. All columns include survey year and region (north, center, south and Santiago) dummies. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.