



# Women's Preferences for Social Spending: Theory and Evidence from Spanish Political Representatives\*

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## Abstract

We analyze whether political representatives have gendered preferences for social policies. We explore interview responses of one third of the Spanish legislators during the IX Spanish Legislature (2008-2011). The data reveal that gender differences arise in the national chambers and within the right-wing party, where female representatives report a stronger preference for social spending on pensions and education. There are no significant gender differences within left-wing representatives or among regional representatives. From a theoretical perspective, we study how differences in gender preferences may affect both the gender identity of the parties' candidates and the parties' policy platforms.

**Keywords:** Gender differences, preferences for social spending, representatives elite survey, Spanish legislators, Downsian electoral competition.

**JEL Classification:** D72, H75, J16.

## 1. Introduction

Over the last few decades, the presence of women in developed Western countries has increased in importance. International institutions and state governments are implement-

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ing measures to recruit more women into leading positions in the economic and political fields. An increasing number of countries have introduced laws that foster the representation of women in relevant decision-making positions. In 2002, Belgium introduced the Gender Equality Act; in 2003, Norway introduced the Gender Equality Ombud; in 2007, Spain introduced the Gender Equality Act, and many other European countries such as Italy, France, Netherlands, Germany and Croatia have developed similar laws. The implementation of these laws is increasing the visibility of females not only on the executive boards of large companies, but also in the seats of national and regional parliaments. For instance, in Spain the Gender Equality Act amended the electoral law so that party lists of national and regional parliaments are now required to have no less than 40 percent of candidates of either sex. Likewise in France, the National Assembly and Senate party lists are required to have an equal number of female and male candidates.

This paper focuses on the political sphere and, in particular, on gender differences among political representatives. Our research question is twofold. First, we study whether political representatives have gendered policy preferences and second, we analyze how differences in gender preferences may affect both the gender identity of the parties' candidates and the parties' policy platforms. To address these questions we use a dual approach that combines empirics and theory. More precisely, we address the first question using an empirical analysis that considers data for Spain and explores whether gender differences in preferences among Spanish political representatives are broadly spread across all the political ideologies, or are instead more particular to an ideology. To address the second question we propose a simple theoretical model that allows for gender differences in preferences and analyzes how, in the presence of such differences, the strategic recruitment of women to a party list may affect the party's policy platform.

In particular, the empirical analysis tests for possible gender differences in preferences of political representatives. We use data from the Elite Survey, carried out by the *Centro de Investigaciones Sociológicas* (CIS) between 2009 and 2011, comprising personal interview responses from about one third of the Spanish national (Congress and Senate) and regional (Autonomous Parliaments) legislators.<sup>1</sup> The gender composition of the sample is similar to the gender composition of the representatives' population for our period of analysis, with 40 percent of female legislators. We use the representatives' responses regarding their preferences for additional public spending in different areas, their left-right self-placement, party membership, chamber membership and gender identity. We group preferences for social policies into four categories, from stronger (including preferences for more public spending in the following areas: pensions, education, health and unemployment insurance), to weaker categories (including one, two or three of these areas). We propose a logistic regression model that estimates the probability of self-reporting preferences for more public spending in some or all of the proposed areas. The data reveal that female Spanish representatives show stronger preferences for social spending than male representatives on pensions and education. However, this gender difference is only statistically significant within representatives of the right-wing party (Partido Popular-PP) and within representatives of the national chambers, but we do not observe any significant difference in representatives of the left-wing party (Socialist Party-PSOE) and in representatives of the regional parliaments.<sup>2</sup> The largest gen-

der difference emerges within national representatives (of Congress and the Senate) where, females in comparison to males and both with mean left-right ideology, show an additional estimated probability of 25 percentage points to self-report their preference for more public spending on education and pensions, and this difference increases by 6 percentage points within national representatives of the PP party.

Before moving to the theoretical approach, it is worth noting that the empirical analysis looks at politicians' preferences rather than enacted policies and/or actions. We acknowledge that revealed preferences might not necessarily coincide with enacted policies, which may raise concerns about the relevance of our results. Despite this concern, we consider that focusing on representatives' preferences is relevant for, at least, two reasons. First, because the literature has found that female (male) representatives have similar opinions to those of female (male) voters (Mansbridge, 1999; Clayton *et al.*, 2019). In this regard, studying politicians' preferences and identifying gender differences is relevant to understand voters' preferences and gender differences within the whole population. Second, because previous literature has also found that political representatives are more responsive to shifts in male citizens' preferences (Homola, 2019), and that a party's responsiveness and congruence with female voters' preferences increases in the number of female representatives in the party (Bertelli and O'Brien, 2019). In this regard, our finding that gender differences in preferences are only statistically significant among representatives of the right-wing party, suggests that unless female representatives in this party are sufficiently relevant or constitute a sizable group, the preferences of right-wing female voters may be poorly represented in parliament when compared to the preferences of left-wing female voters.

Regarding the theoretical approach, we propose a model that allows for gender differences in preferences and studies the parties' optimal decisions concerning the number of female representatives to include on their party list. The purpose of this analysis is to understand the effects that gender differences in preferences (as those identified in the empirical analysis) may have on the parties' policy platforms. The model considers two vote-maximizer parties that differ in their ideological cleavage, left versus right, and their perceived valence.<sup>3</sup> We propose and analyze two scenarios. In the first, gender differences in preferences are assumed to equally affect both parties and, more precisely, whatever the party, female candidates are assumed to move the parties' platforms to the left of the parties' ideological cleavage, i.e., toward a more pro-social position. In the second, gender differences in preferences are assumed to only affect the right-wing party (as found in our empirical analysis). Then, in this case, only female candidates of the right-wing party are assumed to move this party platform to the left of its ideological cleavage. Our results show that the right-wing party, unless its valence advantage is too low, always improves its vote share when including female candidates on its party list, independently of the scenario that we consider. However, the optimal strategy of the left-wing party does depend on the scenario. In particular, we show that in the first scenario, this party improves its vote share when including female candidates only when its valence advantage is sufficiently high; whereas in the second scenario, the party is indifferent to its candidates' gender identity.

This paper belongs to the recent and flourishing empirical literature on gender economics. One branch of this literature studies gender effects on enacted policies and spending.

From the demand side, female voting has been shown to increase government spending, suggesting a female stronger preference for spending in social policies (see Lott and Kenny, 1999; Abrams and Settle, 1999; Edlund and Pande, 2002; Aidt and Dallal, 2008; Bravo-Ortega *et al.*, 2018). From the supply side, there is extensive evidence that female representatives spend more on social policies. For example, Bratton and Ray (2002) show that in Norwegian local councils, a larger percentage of female representatives resulted in additional provision of childcare services. Clots-Figueras (2011) shows that female legislators from the lower castes in India, invest more in “women-friendly” laws such as health and early education; however, female legislators from higher castes do not exert any impact on these policies. Similarly, Clots-Figueras and Bhalotra (2014) find positive effects of female representation on the provision of antenatal and early childhood public health services in India, and Hicks *et al.* (2016) show that the election of female legislators leads countries to increase foreign aid. Chattopadhyay and Duflo (2004) observe that women elected as leaders in India invest more in public goods closely linked to women’s concerns, and Clayton and Zetterberg (2018) show that government expenditure on public health increases after an increase in female representatives.<sup>4</sup>

Another branch of the literature focuses on female representation and gender quotas. Bagues and Esteve-Volart (2012) investigate the reasons behind the low number of female legislators. They analyze Spanish elections during the period 1996–2008, and show that, even though parties have increased the number of women on their party lists, women are usually nominated to poorer positions on the ballot. Also for Spain, Coller *et al.* (2016) observe that the increase in the number of women in the national and regional parliaments brought different opinions, expectations, skills, and more social-based initiatives into parliaments.<sup>5</sup> In the case of Italy, Baltrunaite *et al.* (2014) analyze if gender quotas improve the quality of municipal politicians, showing that gender quotas increase the average education level of elected politicians. In a study for Poland, Goréky and Kukolowicz (2014) show that the introduction of quotas resulted in an increase in the number of female candidates, but also in a decline in women’s electoral performance. As argued by Franceschet and Piscopo (2008), gender quotas cannot change the institutional rules and norms that govern the legislative processes and legislatures may be unequal playing fields for women, who enter as newcomers and who face tougher barriers to empowerment. Homola (2019), in an analysis of twelve western European countries, observes that congruence and responsiveness with female voters’ preferences did not improve with the number of female representatives, possibly because female legislators are expected to vote along party lines. His analysis, however, only focuses on policy shifts in the left-right dimension and not on women’s interests or preferences.

Instead of measuring the effect of female or gender quotas on effective policies, our empirical analysis tries to find evidence of the representatives’ gender preferences regarding public spending. From an attitudinal perspective, Inglehart and Norris (2000) show how structural and cultural trends have transformed men’s and women’s values. They show that by the 90s, in many post-industrial societies, women had shifted leftwards. In their analysis, Spain is an exception. Lovenduski and Norris (2003) analyze gender attitudinal differences within British legislators. They show that the economic concerns of females in the Labour party are more centrist than those of their male colleagues. Besides, regarding support for

equal opportunity policies and affirmative actions, they find strong and significant gender differences among politicians of different parties. In contrast to the Elite Survey that we analyze, their survey questionnaire does not seem to include direct questions on women's interests in education, the elderly or health care. In this regard, Svaleryd (2009) shows that, among Swedish local representatives, women regard childcare as more important than men, and, in a study on Taiwan, Chen (2013) finds that female mayors show stronger preferences for more government spending on social welfare. Finally, several authors examine whether parties and governments represent and respond to female voters' policy priorities. Mansbridge (1999) and Clayton *et al.* (2019) find evidence of responsiveness and congruence between female citizens and female elected officials, and Bertelli and O'Brien (2019) obtain similar results at the party level, showing that parties accurately represent women's preferences, with responsiveness and congruence increasing in the number of female representatives in the parliament. Our data sample only contains information on representatives' self-reported preferences that, regrettably, we cannot match with preferences of the general population.

The work is organized as follows. Section 2 describes the survey data that we use in the empirical analysis and Section 3 performs the regression analysis. Section 4 presents the theoretical model and the results, and Section 5 contains the conclusions. The Appendix presents some robustness checks.

## 2. Data

Our empirical exercise uses personal interview responses collected by the CIS under the title *Élites Políticas en España* (Political Elites in Spain). The interviews with Spanish political representatives were conducted during the IX Spanish Legislature. This is the first legislature that started just after the approval of the Gender Equality Act in 2007, which introduced electoral gender quotas into the Spanish system. The study comprises the responses of 580 randomly selected Spanish political representatives from the Spanish Congress, the Senate and the Autonomous Parliaments, which amount to about one third of the total number of representatives. The Spanish Congress is composed of 350 members, the Senate 265 members, and the Autonomous Parliament 1,206 members. These figures have not varied in the last three decades.

### 2.1. The Spanish political context

The IX Spanish Legislature started in April 2008 and ended in September 2011. The Spanish Presidency was held by Zapatero, leader of the Spanish main left-wing party, the *Partido Socialista Obrero Español* (PSOE). The IX Legislature was characterized by the global financial crisis and the need to reduce public expenditure. In this legislature, about 43 percent of representatives of the Congress, Senate and Autonomous Parliaments, were members of the *Partido Popular* (PP), 42 percent were members of the PSOE and about 39 percent (707 of 1,818) were female. During the IX legislature, 92 percent of the seats in Congress were occupied by members of the aforementioned parties, the PSOE and PP. From 1998

to 2016, these two parties occupied more than 80 percent of seats in Congress, and starting in 2016, with the entry of several new parties, this figure decreased to 60 percent.<sup>6</sup>

The *Secretaría de Estado de Igualdad* (General Secretariat for Equality) is an entity that depends on the Spanish Government and has published the gender composition of the national and regional chambers from the early 80s to date. For this period, we describe the percentage of female elected representatives in Congress and the Senate differentiated by party label, PSOE and PP. As for the Autonomous Parliaments, the aforementioned Secretary of State does not provide the percentage of females by party label, and we just describe the total percentage of female elected representatives.

The percentage of female representatives is described in Figure 1. Both for Congress and the Senate, the straight line on the horizontal axis shows in straight and dotted line which party, the PSOE (straight) or the PP (dotted), achieved a majority in these chambers.

**Figure 1**  
**PERCENTAGE OF SPANISH FEMALE REPRESENTATIVES BY CHAMBER AND PARTY FOR THE PERIOD 1982-2019**

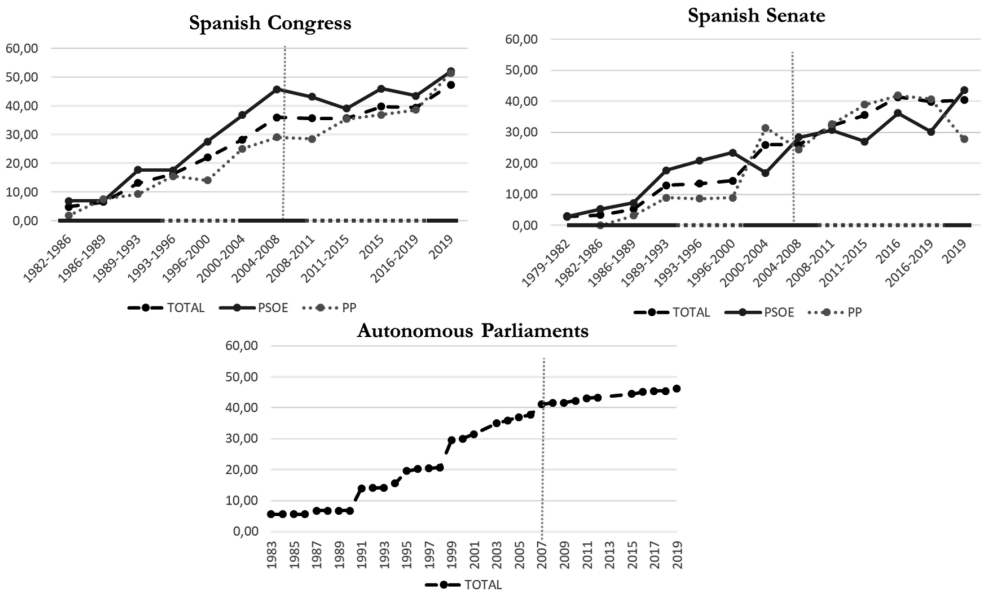


Figure 1 reveals some interesting facts:

First, Spanish legislative chambers show an increase in the incorporation of female politicians. Since the early 80s, the number of women has increased by 40 percentage points in all the Spanish legislative chambers.

Second, the highest increase in the PSOE's female representatives occurred before entry into force of the 2007 Gender Equality Act. Since 2007, we can see how the PP party has shown an increase of 20 percentage points in the share of female representatives in Congress and the Senate (with the 2019 election in the Senate being the exception to this increasing trend). During the same period, the PSOE has shown to be stable with an average of 45 and 35 percent of female representatives in Congress and the Senate, respectively.

Third, up to now, the PSOE, in comparison to the PP, has maintained a higher fraction of female representatives in Congress. We observe, however, how the PP's fraction of female representatives has overtaken the PSOE in the Senate in five out of thirteen legislatures.

Fourth, the rise in the fraction of PP's female representatives in the Senate coincides with the period in which the PP obtained a majority in this chamber. This could be due to poorer female positions in the Senate ballot (Esteve-Volart and Bagues, 2012).

## 2.2. Describing the survey data

The analyzed survey data, *Élites Políticas en España*, was collected from 2009-2011. It contains the interview responses of 580 elected representatives, of which 17 percent are members of Congress (58 interviews), 29 percent are Senate's members (75 interviews), and 37 percent are members of the Autonomous Parliaments (447 interviews).

By gender, 39 percent of the total population of representatives is female and, similarly, 40 percent of respondents in the sample are female. By chambers, the percentage of females is 36 percent in Congress, 31 percent in the Senate, and 41 percent in the Autonomous Parliaments. The percentage of females in the sample is slightly smaller in Congress, 31 percent, and about the same as the real distribution in the Senate and the Autonomous Parliaments. Thus, we can say that the gender composition of the sample reflects the actual composition of the chambers.

By party, the sample slightly under represents the two largest political parties, since 38 percent of respondents are PSOE members (in contrast to 42 percent of the real distribution) and 41 percent of respondents are PP member (compared to over 43 percent of the real distribution). The remaining 20 percent of respondents are members of the nationalist parties (Basque and Catalan) and other minority parties.

## 2.3. The preferences of Spanish political representatives

We explore the political self-reported positions and preferences for public expenditure in certain social areas of male and female Spanish representatives.

For each of the following areas of public budget: environmental protection, health, public safety, education, armed forces and defense, pensions<sup>7</sup>, unemployment insurance, arts and culture, respondents were asked to express how much they would like to spend. There are five pos-

sible answers: 1- “Much more”, 2- “More”, 3- “The same as now”, 4- “Less”, 5- “Much less”. As suggested in the literature, female politicians are expected to prioritise and express different type of values in childcare, health and education (Phillips 1995, Lovenduski, 1997; Lovenduski and Norris, 2003). In this respect, Wängerud (2000) defines the concept of Women’s Interests as those that refer to policies that increase women’s autonomy, and Lovenduski (1997) argues that women are more likely to be concerned about work and family life. In line with these authors, we focus on those areas of social expenditure that are related to a broad concept of family life such as health, education, pensions and unemployment insurance. We exclude from our analysis other areas –environmental protection, public safety, armed forces and defense, arts and culture– that are not traditionally associated with family life or women’s interests in general.

Another variable of interest is the representative’s political position. The survey contains a question about the self-reported left-right ideological position on a 1 to 10 point scale, where 1 stands for extreme left and 10 for extreme right. We use the answers to this question to identify the political position of each representative.

For each of the social spending areas, we group responses “Much more” and “More”, and calculate the fraction of males and females providing these two responses over the total number of valid responses. Table 1 shows the responses.

**Table 1**  
**PREFERENCES FOR MORE EXPENDITURE IN SOCIAL PROGRAMS BY**  
**GENDER GROUP**

<b>Areas of Public Policies</b>	<b>Male</b>	<b>Female</b>	<b>Differential</b>	<b>p-value</b>
Health	74.9%	76.1%	1.2%	0.961
Education	90%	94.1%	4.1%	0.200
Pensions	73.6%	82.9%	9.3%	<b>0.036</b>
Unemployment insurance	51.5%	53.5%	2%	0.642

*Notes:* Percentages of males and females that state they want “Much more” or “More” spending in each of the areas. The last column provides the p-value for the test of the null hypothesis that the difference between male and female medians is zero.

Three observations are in order:

First, in all the selected areas, we observe how the percentage of female representatives expressing their preferences for additional expenditure, is above the percentage of male representatives. Women over men prefer more public expenditure on health, education, pensions and unemployment insurance.

Second, the largest difference between the responses of men and women is in the area of pensions, where about 83 percent of women prefer much more or more spending, over 74 of men. In education, there is a difference of 4 percentage points of women over men who prefer more expenditure and a difference of 2 and 1 percentage points of women over men who prefer more expenditure on unemployment insurance and health, respectively.

Third, we provide a test on the equality of medians between the two gender groups. We find a significant gender difference in the area of pensions and a slight difference in education.

Next, we restrict the sample to those politicians that are members of the two largest nationwide parties of the IX Spanish Legislature, the Partido Socialista Obrero Español (PSOE) and the Partido Popular (PP), each representing the left-wing and right-wing nationwide political parties, respectively. The two parties together won 84 percent of votes in the 2008 General Elections. The members of UPN (Unión del Pueblo Navarro) are included as members of the PP, since this party presented its candidacy in the 2008 General Election in association with the PP. The sample contains 228 representatives from the PP and 218 from the PSOE. In Table 2, we describe the preferences by gender and party-affiliation, PP versus PSOE.

**Table 2**  
**PREFERENCES FOR ADDITIONAL SOCIAL EXPENDITURE BY**  
**GENDER AND POLITICAL PARTY**

Areas of Public Policies	Party	Male	Female	Differential	p-value
Health	PP	66.7%	74.5%	<b>7.8%</b>	0.443
	PSOE	78.8%	76.1%	-2.7%	0.742
Education	PP	84.7%	90.3%	<b>5.6%</b>	0.388
	PSOE	94.4%	98.3%	<b>3.9%</b>	0.166
Pensions	PP	65.8%	81.1%	<b>15.3%</b>	<b>0.016</b>
	PSOE	80%	84.8%	<b>4.8%</b>	0.723
Unemployment insurance	PP	35.1%	40.4%	<b>5.3%</b>	0.890
	PSOE	64.3%	61.9%	-2.4%	0.569

*Notes:* Percentages of males and females that state they want “Much more” or “More” spending in each of the areas, by party membership. The last column provides the p-value for the test of the null hypothesis that the difference between male and female medians is zero.

Several comments are in order:

First, note how both men and women from the PSOE, compared to those from the PP, reveal stronger preferences for additional spending in all social areas. These differences are particularly relevant among men in the area of unemployment insurance, where the number of PSOE representatives who prefer additional unemployment protection is about twice the number of PP representatives.

Second, female PP representatives show stronger preferences for social programs when compared to men in the same political party. Despite the fact that female PP representatives want more public expenditure in all four areas compared to men, within PSOE representatives, women want more expenditure than men in just two areas: education and pensions.

Third, the greatest difference between men and women is in pensions, and among PP representatives. We find that an additional 15 percent of female PP representatives over men report that they want more public expenditure in pensions. An additional 8 percent, 6 percent

and 5 percent of female PP representatives prefer more expenditure on health, education and unemployment insurance, respectively, than male PP representatives. Among the PSOE representatives, an additional 4 percent and 5 percent of women prefer more public expenditure than men in the education and pensions areas, respectively.

Fourth, the test on the equality of medians between the two gender groups reveals a significant gender difference in the preferences for pensions among PP representatives.

In sum, the statistics in Table 2 reveal that women over men in the right-wing party express, on average, stronger support for additional expenditure on social policies. The effect of women representatives over men in the socialist party is not that clear, since in areas such as health and unemployment, a higher percentage of men want more public expenditure than women.

Our sample contains the responses of national and regional political representatives. Our next table measures the extent to which there are gender differences across chambers, national (20 percent of the respondents in the sample) versus regional (80 percent of the respondents in the sample).

Importantly, we find that gender differences are higher among representatives of the national chambers. In all areas of social policies, women representatives in the national chambers want more expenditure than their male representatives do. The difference is more relevant in the area of pensions, where about 19 percent of females of the national chamber prefer additional expenditure compared to men. An additional 12 percent and 9 percent of women in the national chambers prefer more expenditure on unemployment and education than men, and the difference in health is small, as no more than 5 percent of women prefer more public spending in this area than men. In the regional chambers, gender differences are small (no more than 4 percentage points) and these differences only occur in the areas of pensions and education. We observe that the tests on the equality in medians between the two gender groups reveal significant gender differences in pensions and education within national representatives.

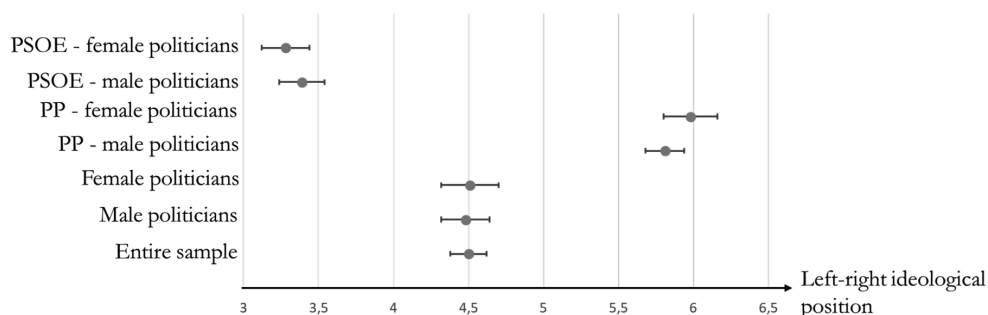
**Table 3**  
**PREFERENCES FOR ADDITIONAL SOCIAL EXPENDITURE BY GENDER AND CHAMBER**

Areas of Public Policies	Chamber	Male	Female	Differential	p-value
Health	Regional	75.1%	74.8%	-.3%	0.861
	National	74.6%	79.3%	<b>4.7%</b>	0.756
Education	Regional	89.5%	91.6%	<b>2.1%</b>	0.482
	National	90.8%	100%	<b>9.2%</b>	<b>0.049</b>
Pensions	Regional	77.5%	81.4%	<b>3.9%</b>	0.311
	National	66.9%	86.4%	<b>19.5%</b>	<b>0.026</b>
Unemployment insurance	Regional	59.8%	55.7%	-4.1%	0.331
	National	36.6%	48.4%	<b>11.8%</b>	0.840

*Notes:* Percentages of males and females that state they want “Much more” or “More” spending in each of the areas by chamber. The last column provides the p-value for the test of the null hypothesis that the difference between male and female medians is zero.

Finally, we compare the average left-right positions of men and women in the 1 to 10 ideological scale, where 1 means extreme left and 10 means extreme right. Answers to this question were provided by 569 out of 580 representatives. Average reported responses are represented in Figure 2. The average response of the sample is 4.5, i.e., the average respondent is centrist-left, and there is no significant gender difference (note that the two confidence intervals overlap one another). The mean left-right position of PP and PSOE representatives is clearly different and, on average, PP representatives report an average position of 5.9, and PSOE representatives report an average position of 3.3. Within each party, PP and PSOE, we do not observe any significant gender difference in the mean left-right position of the representatives.

**Figure 2**  
**AVERAGE SELF-LOCATION IN THE LEFT-RIGHT DIMENSION WITH 95% CONFIDENCE INTERVALS**



## 2.4. A classification of social preferences

Representatives express their preferences for social spending in different areas. We propose a classification of the strength of individual social preferences in terms of the number of areas for which a representative reports that he/she wants “Much more” or “More” public spending. First, we order the areas of public policies in terms of the deduced gender differences in Table 1. From lower to higher gender differences, the order is unemployment insurance, health, education and pensions.<sup>8</sup> Second, we define the following four categories of preferences:

- 1) *Strong Social Preferences*: when a representative reports that he/she likes “Much more” or “More” expenditure in the following four areas: pensions, education, health and unemployment insurance.
- 2) *Moderate Social Preferences*: when a representative reports that he/she likes “Much more” or “More” expenditure in the following three areas: pensions, education and health.
- 3) *Weak Social Preferences*: when a representative reports that he/she likes “Much more” or “More” expenditure in the following two areas: pensions and education.

- 4) *Pro-elderly Preferences*: when a representative reports that he/she likes “Much more” or “More” expenditure on pensions.

In Table 4, we present the frequency and percentage of respondents in each category of preferences over the total number of valid responses. According to our proposed classification, about 43 percent of the respondents (over 573 politicians that provided a valid answer to the expenditure question) want more expenditure in the following four areas: health, education, pensions and unemployment insurance. This amount increases to 61 percent when unemployment is not included in the definition and to 73 percent when education is not included. We find that there is a majority group of representatives which have moderate social preferences, but less than a majority of the representatives in our sample have strong social preferences.

**Table 4**  
**REPRESENTATIVES WITH SOCIAL PREFERENCES**

Type of preferences	Frequency	Percentage
Strong Social	245	42.8%
Moderate Social	352	61.2%
Weak Social	417	72.5%
Pro-elderly	447	77.6%

We use the proposed classification of preferences in our following regression analysis.

**3. Regression analysis**

For each of the proposed types of preferences described in Table 4, we estimate the probability that a representative self-reports such a preference as a function of individual left-right position (discrete variable, taking values 1, 2,... to 10, from leftist to rightist) and the gender group of the representative (binary variable, taking value 1 when the representative is female and value 0 when male). We want to know if women over men are more likely to report a preference for a higher spending on social policies when controlling for self-reported left-right positions. Note that our results in Figure 2, reveal that within the two dominant political parties, PP and PSOE, there is no association between gender and mean self-reported left-right positions, but there is a strong association between party membership and mean left-right positions. Thus, we consider that self-reported left-right positions capture the party effect on individual preferences for more expenditure on social programs.

We use a logistic regression model to estimate the probability of reporting each type of social preference against not revealing. Regressions are run in Stata. Table 5 shows the estimated coefficients for each independent variable: gender and the ideological left-right self-reported position. We analyze four different models, from 1 to 4, each of which measures the probability of reporting one type of preference, from strong social to pro-elderly preferences.

**Table 5**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF**  
**SELF-REPORTING PRO-SOCIAL PREFERENCES**

	(1) Strong social	(2) Moderate social	(3) Weak social	(4) Pro-elderly
Gender	0.168 (0.181)	0.287 (0.181)	0.377* (0.200)	0.444** (0.217)
Ideology	-0.401*** (0.063)	-0.242*** (0.0596)	-0.237*** (0.065)	-0.205** (0.069)
Constant	1.413*** (0.294)	1.462*** (0.294)	1.947*** (0.326)	2.060*** (0.349)
N	563	565	565	566
Pseudo R <sup>2</sup>	0.0591	0.0257	0.0257	0.0217

*Notes:* Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending on social policies (1 = more spending, 0 = equal or less spending). \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

According to Table 5, two comments are in order:

First, the four models reveal that the left-right position of the respondent has a significant effect on the probability of reporting a preference for social spending. As expected, a more leftist reported position is associated with a higher likelihood of showing a preference for social spending, and a more rightist position is associated with a lower probability.

Second, women over men show a higher probability of reporting pro-social preferences (regression coefficients are always positive). This effect increases in statistical significance as we move to weaker definitions of social preferences. The analysis reveals that the effect of gender is significant in models (3) and (4), i. e., when estimating the likelihood of women over men showing weak social and pro-elderly preferences. Thus, women over men show stronger propensity to reveal their preferences for additional spending on education and pensions.<sup>9</sup>

Next, we distinguish between PP and PSOE representatives. The PP representatives comprise 41.7 percent of the sample (242 respondents), whereas the PSOE representatives make up 37.6 percent of the sample (218 respondents). We have already showed that there is no significant gender difference in the mean left-right ideological positions within each group, PP and PSOE. Hence, we next exclusively analyze whether gender differences exert some impact on the probability of reporting pro-social preferences. Table 6 describes the regression results and allows for a comparison between political parties.

The most striking fact in Table 6, is that within PP representatives, females show a higher propensity to report pro-social preferences than males in three out of four of the models (from moderate social to pro-elderly). Interestingly, we find that among PSOE representatives, gender differences have no significant effect on the probability of reporting pro-social preferences (regression coefficients are close to zero and, in model (2), the gender coefficient is negative).

**Table 6**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING**  
**PRO-SOCIAL PREFERENCES BY POLITICAL PARTY**

	(1) Strong social		(2) Moderate social		(3) Weak social		(4) Pro-elderly	
	PP	PSOE	PP	PSOE	PP	PSOE	PP	PSOE
Gender	0.367 (0.295)	0.0683 (0.274)	0.649** (0.269)	-0.0945 (0.291)	0.579** (0.286)	0.155 (0.345)	0.752** (0.316)	0.128 (0.361)
Constant	-1.156*** (0.197)	0.118 (0.184)	-0.182 (0.168)	0.757*** (0.197)	0.411** (0.171)	1.324*** (0.225)	0.714*** (0.178)	1.494*** (0.236)
N	238	216	239	216	239	216	239	217
Pseudo R <sup>2</sup>	0.0056	0.0002	0.0179	0.0004	0.0136	0.0009	0.0213	0.0006

*Notes:* Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending on social policies (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05.

We next explore how regional versus national chambers make a difference over the propensity of women to report social preferences. We distinguish between representatives of the Spanish Congress and the Senate, and members of the Autonomous Parliaments. The former group contains 133 politicians, of which 91 are male (68 percent) and 42 (32 percent) are female. The latter group contains 447 politicians, of which 289 are male (58 percent) and 188 are female (42 percent). For each of these groups we replicate our analysis in Table 5, i. e., we estimate a logistic probability function explaining the probability of self-reporting pro-social preferences as a function of the left-right ideology and the gender of the representative.

**Table 7**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING**  
**PRO-SOCIAL PREFERENCES BY CHAMBER**

	(1) Strong social		(2) Moderate social		(3) Weak social		(4) Pro-elderly	
	National	Regional	National	Regional	National	Regional	National	Regional
Gender	0.228 (0.398)	0.106 (0.206)	0.627 (0.403)	0.177 (0.204)	1.379*** (0.511)	0.128 (0.224)	1.190** (0.517)	0.226 (0.245)
Ideology	-0.166 (0.129)	-0.475*** (0.0728)	-0.108 (0.124)	-0.287*** (0.0685)	-0.298** (0.141)	-0.231*** (0.0740)	-0.343** (0.146)	-0.172** (0.0798)
Constant	0.0741 (0.594)	1.856*** (0.345)	0.636 (0.587)	1.747*** (0.343)	1.829*** (0.676)	2.064*** (0.378)	2.246*** (0.707)	2.073*** (0.406)
N	125	438	126	439	126	439	126	440
Pseudo R <sup>2</sup>	0.0119	0.0804	0.0181	0.0327	0.0788	0.0204	0.0738	0.0125

*Notes:* Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending on social policies (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05.

Table 7 below describes the results of the regression analysis accounting for the two types of chambers: national versus regional. The independent variables are gender and self-reported left-right ideological positions. As already mentioned, we account for the left-right ideology as a control for political party membership.

Our regression analysis in Table 7, reveals that gender differences are only significant at the national level, but there is no clear effect of gender at the regional level. That is, women in the *Cortes Generales* (Spanish Parliament, which includes the Congress and the Senate), show a higher propensity than men to reveal their preferences for additional spending on pensions and education. Both models, in which we estimate weak social preferences and pro-elderly social preferences, show that women over men are significantly more likely to report pro-social preferences.

The summary of our results in Tables 6 and 7 suggest there is a significant gender difference in reporting social preferences at the national level and within right-wing representatives, but there is no significant gender difference at the regional level and within left-wing representatives.

### 3.1. Quantifying the gender gap in social preferences

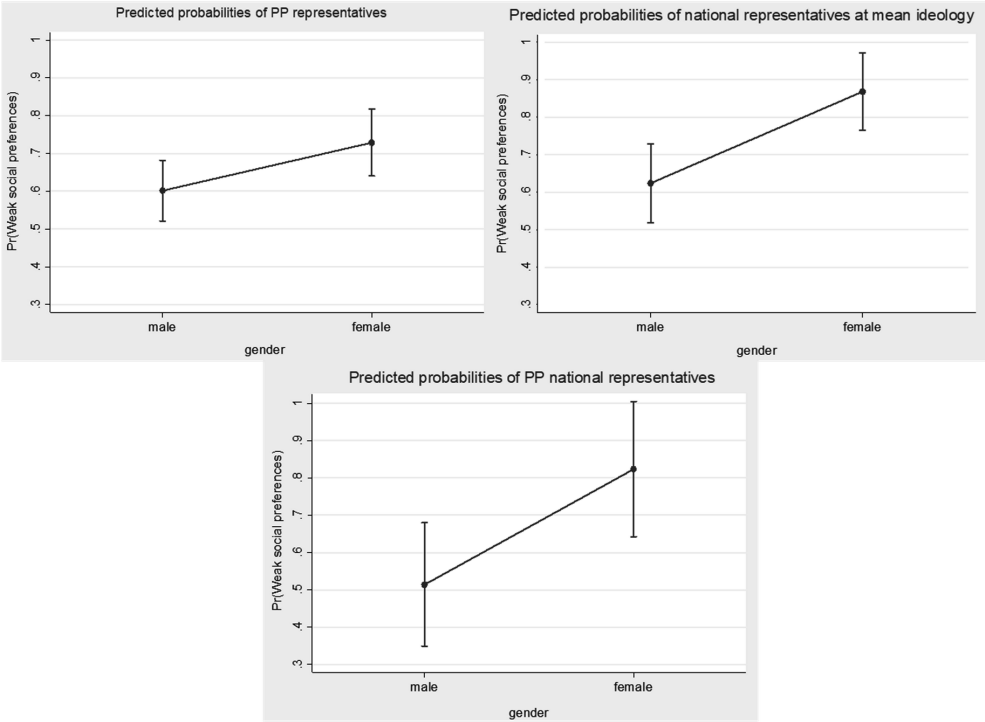
We now estimate the differential probability of a female versus a male to self-reporting pro-social preferences, which we refer to as a gender gap. In this section, we focus on the definition of weak social preferences that encompasses additional spending on education and pensions. We explore the gender gap in three cases: first, the gender gap within PP representatives; second, the gender gap within representatives of the national chambers and; third, the combined gender gap within PP representatives of the national chambers. The first two cases correspond to scenarios where we have shown that gender exerts a statistically significant impact (at the 95 percent confidence interval) on the probability of self-reporting weak social preferences; the third scenario is the combination of the previous ones. For the first case, the sample size comprises 239 respondents, for the second the sample size is 126 and, in the final scenario, the sample decreases to 52. Consequently, the predicted probabilities are less accurate the smaller the sample size.

Figure 3 shows the marginal effects of gender in the logistic regression that estimates the probability of self-reporting weak social preferences in the three abovementioned scenarios. Several comments are in order:

First, the upper-left panel represents the gender gap within PP representatives. It indicates that on average, PP male representatives show a 60 percent (estimated) probability of self-reporting weak social preferences compared to a 72 percent probability shown by female PP representatives. Thus, on average, a PP female representative has an additional probability of 12 percentage points of self-reporting weak social preferences than a male representative of the same party. Confidence intervals intersect each other and we cannot therefore assert that the two groups, male and female, show statistically different probabilities.

Second, the upper-right panel represents the gender gap within representatives in the national chambers (evaluated at the mean of self-reported left-right ideology). In comparison to the previous panel, it shows a higher gender gap and besides, confidence intervals do not intersect with each other, which imply that the estimated probabilities for each group are statistically different. A national representative with mean left-right ideology shows an average probability of 62 percent of reporting weak social preferences if he is a man, and 87 percent if she is a woman. Thus, fixing the ideology at the mean in the left-right dimension, a female over a male representative shows on average an additional probability of 25 percentage points of self-reporting weak social preferences.

**Figure 3**  
**MARGINAL EFFECTS OF GENDER OVER ADJUSTED PREDICTED PROBABILITIES OF REPORTING WEAK SOCIAL PREFERENCES, CALCULATED WITH THE LOGISTIC REGRESSION AT THE 95% CONFIDENCE INTERVAL**



*Notes:* Predicted probabilities of reporting weak social preferences as a function of gender. The upper-left panel is calculated with the logistic regression described in model (3) of Table 6. The upper-right panel is calculated with the logistic regression described in model (3) of Table 7, with the left-right ideological evaluated at its mean value. The bottom panel is calculated with a logistic regression where gender is the only explanatory variable.

Third, the bottom panel represents the gender gap within PP representatives of the national chambers. We find that both male and female average probabilities of self-reporting weak social preferences decrease with respect to our previous scenarios. We observe that male PP national

representatives are less pro-social and show an average probability of 51 percent of self-reporting weak social preferences, a probability that is about 10 percentage points lower than that of a male national representative with mean left-right ideology. The gender gap among PP representatives added 12 percentage points, and notably, among PP representatives of the national chamber, it increases to 31 percentage points. The gender gap that we have just measured, however, is not based on statistically different probabilities among gender groups. We believe, however, that this is due to the small sample size and we conjecture that the deduced effect may persist when exploring some larger scale surveys, which, for instance, comprise representatives from several nations.

### 3.2. Robustness checks

To check for the robustness of the previous main results, we next perform some robustness checks that consist of including additional explanatory variables of a representative's preferences for social spending. We include the following variables: seniority, religion, and having offspring, all corresponding to questions included in the same *Élites Políticas en España* survey. There are other variables of interest that do not appear in the survey, such as the age of the interviewed representatives or their income levels.

Regarding the selected variables, seniority is an explanatory variable that measures the experience of the respondent as a political representative. We define this variable such that it takes value 1 when the respondent has already occupied a seat in a previous legislature and 0 otherwise. About 59 percent of the representatives in the sample have already occupied a seat in a previous legislature. The second explanatory variable is religion. This variable indicates whether a representative is Catholic or not, and it takes value 1 when the representative reports to be Catholic and 0 otherwise. About 60 percent of respondents report that they are Catholics. The last explanatory variable that we include is offspring. This is a dummy variable that takes value 1 when the respondent has offspring and 0 otherwise. About 75 percent of the respondents have offspring.

First, we check for the robustness of the results presented in Table 5, where we estimated the probability of self-reporting pro-social preferences as a function of the gender and left-right ideology of the respondent. The new estimates are reported in Table 8 below.

**Table 8**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING**  
**PRO-SOCIAL PREFERENCES INCLUDING NEW EXPLANATORY VARIABLES**

	(1) Strong social	(2) Moderate social	(3) Weak social	(4) Pro-elderly
Gender	0.147 (0.188)	0.269 (0.187)	0.361* (0.207)	0.467** (0.225)
Ideology	-0.333*** (0.076)	-0.243*** (0.074)	-0.206** (0.080)	-0.206** (0.086)
Seniority	-0.109 (0.205)	0.060 (0.201)	0.021 (0.218)	0.221 (0.238)

(Continued)

	(1) Strong social	(2) Moderate social	(3) Weak social	(4) Pro-elderly
Religion	-0.330 (0.221)	-0.008 (0.227)	-0.178 (0.252)	-0.029 (0.270)
Offspring	-0.054 (0.216)	-0.156 (0.217)	-0.166 (0.242)	-0.103 (0.259)
Constant	1.381*** (0.351)	1.570*** (0.351)	2.044*** (0.390)	2.099*** (0.416)
N	554	556	556	557
Pseudo R <sup>2</sup>	0.0636	0.0273	0.0283	0.0245

Notes: Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional social spending (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

In all four models of Table 8, we observe that the new estimated coefficients of the gender variable are very similar to the ones reported in Table 5. Note how none of the included explanatory variables has any significant effect on the probability of reporting social preferences.

Next, we check the robustness of the results of models (3) and (4) of Table 6, where we estimated the probability of self-reporting either weak social preferences or pro-elderly social preferences, by political party. The new estimates are reported in Table 9 below.

**Table 9**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING**  
**PRO-SOCIAL PREFERENCES BY POLITICAL PARTY, INCLUDING NEW**  
**EXPLANATORY VARIABLES**

	(3) Weak social		(4) Pro-elderly	
	PP	PSOE	PP	PSOE
Gender	0.543* (0.294)	0.039 (0.360)	0.798** (0.327)	-0.033 (0.378)
Seniority	-0.089 (0.298)	-0.150 (0.395)	0.327 (0.330)	-0.176 (0.410)
Religion	0.930 (0.607)	-0.199 (0.369)	0.896 (0.607)	-0.145 (0.390)
Offspring	0.036 (0.347)	-0.318 (0.443)	0.261 (0.366)	-0.545 (0.491)
Constant	-0.480 (0.655)	1.731*** (0.469)	-0.473 (0.660)	2.100*** (0.519)
N	235	212	235	213
Pseudo R <sup>2</sup>	0.0214	0.0057	0.0355	0.0096

Notes: Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending on social policies (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

Note how, for the PP party, the new estimated coefficients of the gender variable in Table 9 are similar to the ones reported in Table 6, whereas there are some differences in the estimated coefficients of the PSOE party. Noteworthy is the fact that none of the included variables in the regression of the PP representatives reduces the explanatory power of the gender variable, and none of the additional variables shows any significant effect on self-reported pro-social preferences.

Last, we check the robustness of the results of models (3) and (4) of Table 7, where we estimated the probability of self-reporting either weak social preferences or pro-elderly social preferences, by chamber. The new estimates are reported in Table 10 below.

**Table 10**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING**  
**PRO-SOCIAL PREFERENCES BY CHAMBER, INCLUDING NEW EXPLANATORY**  
**VARIABLES**

	(3) Weak social		(4) Pro-elderly	
	National	Regional	National	Regional
Gender	1.597*** (0.571)	0.092 (0.230)	1.359** (0.576)	0.243 (0.251)
Ideology	-0.229 (0.175)	-0.207** (0.091)	-0.278 (0.181)	-0.198** (0.099)
Seniority	0.493 (0.484)	-0.119 (0.246)	0.470 (0.501)	0.129 (0.273)
Religion	-0.553 (0.564)	-0.089 (0.286)	-0.561 (0.590)	0.141 (0.309)
Offspring	0.010 (0.634)	-0.160 (0.267)	-0.200 (0.673)	-0.027 (0.285)
Constant	1.711* (0.912)	2.168*** (0.440)	2.368** (0.978)	2.075*** (0.470)
N	121	435	121	436
Pseudo R <sup>2</sup>	0.1040	0.0217	0.1011	0.0134

Notes: Standard errors in parentheses. Dependent variable is self-reporting preferences for additional spending on social policies (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1.

We observe that the new estimated coefficients of the gender variable in Table 10 are very similar to the ones reported in Table 7. On a national level, however, the left-right dimension reduces its explanatory power; two other variables, seniority and religion, gain some explanatory power. Note how the respondents who are Catholic report lower pro-social preferences (this could be due to the association between religion and conservative political positions), and senior legislators at the national level report lower pro-social preferences (which can capture some age effect).

The Appendix provides additional robustness tests. Table A1 shows that there is no significant gender effect in all the other areas of public policy when analyzed in isolation (unem-

ployment, health and education). Finally, Table A2 shows that our definition of weak social preferences (that includes the areas of pensions and education), is the only combination of two areas for which gender exerts a significant effect on self-reported social preferences.

#### 4. A model of electoral competition with gender identity

In this section, we propose a simple theoretical model that explores the consequences that gender differences in preferences for social policies may have on both the gender identity of the parties' candidates and the parties' policy platforms.

To this aim, we propose a model of spatial competition between two political parties. We consider a one-dimensional policy space such as left versus right, or liberal versus conservative. Let the interval  $[0,1]$  be the policy space where 0 can be interpreted as extreme left and 1 as extreme right, and where  $x \in [0,1]$  denotes a specific policy.

There are two political parties,  $L$  and  $R$ , which aim at maximizing their vote share. Each political party  $j \in \{L, R\}$  is characterized by its preferred policy  $\bar{x}_j \in [0,1]$  and its valence characteristic  $v_j \geq 0$ . The most preferred policies of the parties  $\bar{x}_L$  and  $\bar{x}_R$  can be ordered so that  $\bar{x}_L < \bar{x}_R$ , i.e., party  $L$  is more leftist and party  $R$  is more rightist. The valence characteristic is an additional issue on which all voters have the same preferences (higher valence is preferred to lower valence) and it can represent the ability of the party to foster economic growth, or the competence of the party's leader (Stokes, 1963). The valence (dis)advantage of party  $R$  over party  $L$ ,  $v_R - v_L$ , can take any value in the interval  $[-a, a]$ . When  $v_R - v_L > 0$ , we say that party  $R$  has valence advantage over party  $L$ ; whereas  $v_R - v_L < 0$  indicates that party  $L$  has valence advantage over party  $R$ .

An important differentiation with respect to existing literature is to consider that political parties do not choose their policy platforms directly; rather, a party's platform is indirectly determined by the number of women the party includes on its party list. That is, we assume that candidates' gender identity can affect the perceived party platforms and thus, political parties strategically select the gender composition of their party lists.<sup>10</sup>

Let  $w_j \in [0, w_j^{max}]$  be the number of women that each party  $j$  includes on its party list. Then, the policy platform for each party  $x_j$  will be a function of  $w_j$ , as described next. In this respect, we consider two scenarios. The first scenario is inspired by the idea that more women than men tend to show stronger preferences for social policies, both in right-wing and left-wing parties. The second scenario is inspired by our empirical findings, which suggests that (among Spanish representatives), there is a significant gender difference in the right-wing party, but there is no significant gender difference in the left-wing party. Even though the latter case corresponds to our empirical findings, we consider it as the second scenario since, as will be clear from the analysis, it is a subcase of scenario 1.

**SCENARIO 1.**—In this scenario, we consider that gender identity has an impact both on parties  $L$  and  $R$ . Under the consideration that a more pro-spending social policy is a more left-

wing policy, a party that includes women on its party list shifts the party's policy platform to the left of the party's most preferred policy. Formally, the policy platform of each party is determined by:

$$x_j(w_j) = \bar{x}_j - g(w_j), \quad (1)$$

where  $g(\cdot) > 0$  and  $g'(\cdot) > 0$ , that is, a higher number of women on the party list moves the party's platforms towards the left. Function  $g(\cdot)$  is bounded above so that  $\bar{x}_L - g(w_L^{max}) > 0$  and  $\bar{x}_R - g(w_R^{max}) > \bar{x}_L$ . Note that equation (1) indicates that the gender composition of a party list equally affects each of the parties' platforms.

SCENARIO 2.—In this scenario, we consider that gender identity has an impact on party  $R$  but it does not affect party  $L$ . Formally, equation (1) describes party  $R$ 's policy platform, whereas party  $L$ 's policy platform is fixed at  $\bar{x}_L$ , that is:<sup>11</sup>

$$x_L(w_L) = \bar{x}_L. \quad (2)$$

We consider a continuum of voters. Each voter  $i$ 's preferred policy is  $x_i$ , with  $x_i \sim F[0,1]$  and  $F$  being a continuous distribution function. Voters observe the parties' platforms,  $x_L$  and  $x_R$ , their valence characteristics,  $v_L$  and  $v_R$ , and, based on this information, decide which party they will vote for. The utility function representing the preferences of each voter  $i$  decreases in the distance between the voter's most preferred policy and the party's platform, and increases in the parties' valence characteristic. Formally, the utility of voter  $i$  when voting for party  $j \in \{L, R\}$ , is defined as:

$$u_i(x_i; x_j, v_j) = -(x_i - x_j)^2 + \beta v_j, \quad (3)$$

where  $\beta > 0$  is the intensity of the voter's preferences for the valence issue over the policy issue.

Given the parties' platforms and valence characteristics,  $(x_A, v_A)$  and  $(x_B, v_B)$ , there is a voter who is indifferent between voting for either party  $L$  or  $R$ , as the utility she receives from voting for either party is the same. Let  $\hat{i}$  be the indifferent voter and let  $x_{\hat{i}}$  be her ideal policy defined by condition  $u_i(x_{\hat{i}}, x_L, v_L) = u_i(x_{\hat{i}}, x_R, v_R)$ . Note that the indifferent voter divides the policy space  $[0,1]$  into two intervals, such that all  $i$  to the left of  $\hat{i}$  (i.e., with  $x_i < x_{\hat{i}}$ ), vote for party  $L$ , and all  $i$  to the right of  $\hat{i}$  (i.e., with  $x_i > x_{\hat{i}}$ ), vote for party  $R$ . Simple algebra determines the expression of the indifferent voter's preferred policy,  $x_{\hat{i}}$ , which is given by:

$$x_{\hat{i}} = \frac{\beta(v_L - v_R)}{2(x_R - x_L)} + \frac{x_L + x_R}{2}. \quad (4)$$

Note that the indifferent voter can be located to the right or to the left of the parties' average platform  $\frac{x_L + x_R}{2}$ , depending on the sign of the first term  $\frac{\beta(v_L - v_R)}{2(x_R - x_L)}$ . At this point, we would like to draw attention to two (simple) ideas and one (subtle but very important)

comment. To ease the exposition of these points, we consider  $v_L - v_R > 0$  (similarly, they can be discussed for the case  $v_L - v_R < 0$ ). Firstly, we observe that when  $v_L = v_R$ , we are in the traditional Hotelling-Downs model, where political parties gain votes by approaching the location of its rival party. Additionally, we observe that an increase in  $v_L - v_R$  (*ceteris paribus* the rest of parameters) shifts the indifferent voter to the right, which yields an increase in the mass of voters voting for party  $L$ . Secondly, we observe that an increase in  $x_L$  (*ceteris paribus* the rest of parameters) also shifts the indifferent voter to the right, implying an increase in the mass of voters voting for party  $L$ . Lastly, and very importantly, note that the smaller the distance  $x_R - x_L$  (*ceteris paribus* the rest of parameters), the higher the effect that the valence advantage of one party over the other,  $v_L - v_R$ , has on shifting the location of the indifferent voter. That is, the small distinctiveness between parties' positions in the left-right dimension magnifies the effect of the valence dimension on the preferences of voters.<sup>12</sup> Thus, for example, in the limit, when  $x_L = x_R$ , and provided that  $v_L - v_R > 0$ , the indifferent voter will locate at  $x_i = 1$  (which implies that party  $L$  obtains all the votes).<sup>13</sup> In contrast, the higher the distance  $x_R - x_L$  (the more different the parties' policy platforms are), the smaller  $\frac{\beta(v_L - v_R)}{2(x_R - x_L)}$  is; hence, the smaller the effect that a given valence advantage of one party over the other has on determining the location of the indifferent voter.

Finally, we can describe parties' utility in terms of the location of the indifferent voter. Political parties seek to maximize votes, that is, given the distribution of voters' ideal policies  $F(\cdot)$ , party  $L$  obtains more votes the higher the ideal policy of the indifferent voter is, and party  $R$  obtains more votes the lower the ideal policy of the indifferent voter is. We consider a simultaneous game with complete information and use the Nash equilibrium concept as the solution concept. We say that a profile of strategies  $(w_L^*, w_R^*)$  is a (Nash) equilibrium of the game when each party's strategy is a best response to the other party's strategy. That is to say, the strategy profile  $(w_L^*, w_R^*)$  is an equilibrium of the game when:

$$w_L^* \in \arg \max_{w_L \in [0, w_L^{max}]} x_i \quad \text{and} \quad w_R^* \in \arg \min_{w_R \in [0, w_R^{max}]} x_i,$$

with  $i$  being the indifferent voter. For every distribution of voters' ideal policies, the mass of voters that prefers party  $L$  over party  $R$ , is measured by  $F(x_i)$ , and the mass of voters that prefers party  $R$  over party  $L$ , is measured by  $1 - F(x_i)$ . We next analyze the two distinct scenarios.

#### 4.1. First scenario: when gender identity equally affects both parties

In this section, we assume that including women on a party list always shifts the party's policy platform to the left of its most preferred policy. The next result characterizes the equilibria of the game under this first scenario.<sup>14</sup>

**Proposition 1.**—*Suppose that gender identity equally affects both parties. Let  $\theta = \frac{(x_R - x_L)^2}{\beta}$ , with  $\theta > 0$ .*

- i) Suppose  $v_R - v_L \in [-a, -\theta]$ . In this case, both parties reduce their vote shares by increasing the number of women on their party lists. In the unique equilibrium, no party includes women on their list, that is,  $(w_L^*, w_R^*) = (0, 0)$ .
- ii) Suppose  $v_R - v_L \in [\theta, a]$ . In this case, both parties increase their vote shares by increasing the number of women on their party lists. In the unique equilibrium, the parties include the maximal number of women on their party lists, that is,  $(w_L^*, w_R^*) = (w_L^{max}, w_R^{max})$ .
- iii) Suppose  $v_R - v_L \in [-\theta, \theta]$ . In this case, party R increases its vote share by increasing the number of women on its party list and party L reduces its vote share by increasing the number of women on its party list. In the unique equilibrium, party L includes no women and party R includes the maximal number of women, that is  $(w_L^*, w_R^*) = (0, w_R^{max})$ .

*Proof.* First, substituting (1) into (4), with  $j = L$ , we have

$$x_i = \frac{\beta(v_L - v_R)}{2(x_R - \bar{x}_L + g(w_L))} + \frac{\bar{x}_L - g(w_L) + x_R}{2}.$$

Then:

$$\frac{\partial x_i}{\partial w_L} > 0 \Leftrightarrow -\frac{1}{2}g'(w_L) - \frac{2\beta(v_L - v_R)g'(w_L)}{4(x_R - \bar{x}_L + g(w_L))^2} > 0 \Leftrightarrow v_R - v_L > \frac{(x_R - x_L)^2}{\beta}.$$

Now, substituting (1) into (4), with  $j = R$ , we have

$$x_i = \frac{\beta(v_L - v_R)}{2(\bar{x}_R - g(w_R) - x_L)} + \frac{x_L + \bar{x}_R - g(w_R)}{2}.$$

Then:

$$\frac{\partial x_i}{\partial w_R} < 0 \Leftrightarrow -\frac{1}{2}g'(w_R) + \frac{2\beta(v_L - v_R)g'(w_R)}{4(\bar{x}_R - g(w_R) - x_L)^2} < 0 \Leftrightarrow v_R - v_L > -\frac{(x_R - x_L)^2}{\beta}.$$

This proves the result. QED.

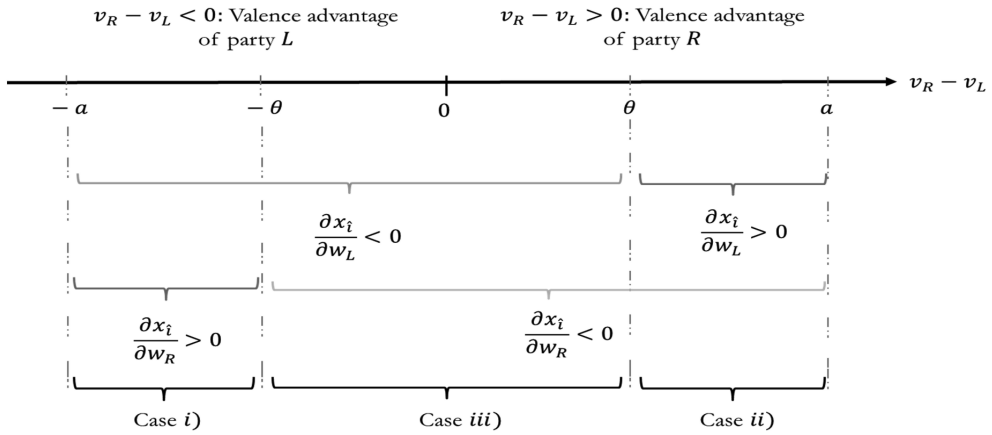
Note how the calculated equilibrium strategies are (strictly) dominant strategies, which implies that the predicted behavior is very robust. The results of points i)-iii) of Proposition 1, are illustrated in Figure 4. The horizontal axis measures the valence advantage of party R.

Figure 4 shows three different situations, according to the sign of the derivative  $\frac{\partial x_i}{\partial w_j}$ , for  $j \in \{L, R\}$ . Case i) corresponds to a situation in which  $\frac{\partial x_i}{\partial w_L} < 0$  and  $\frac{\partial x_i}{\partial w_R} > 0$ ; hence, to the case where both parties decrease their vote shares by increasing the number of women on the party list. Then, in the equilibrium, both parties choose the minimum number of women that they are allowed, i. e., zero. Case ii) corresponds to the opposite situation, in which

$\frac{\partial x_i}{\partial w_L} > 0$  and  $\frac{\partial x_i}{\partial w_R} < 0$ . In this case, both parties increase vote shares by increasing the number of women on their party lists. Then, in the equilibrium of this case, both parties choose the maximum (permitted) number of women. Finally, case *iii*) corresponds to a situation in which  $\frac{\partial x_i}{\partial w_L} < 0$  and  $\frac{\partial x_i}{\partial w_R} < 0$ . In this case, party  $R$  ( $L$ ) increases (decreases) its vote share by increasing the number of women on the party list. Then, in the equilibrium of this case, party  $L$  does not include women on the list, whereas party  $R$  includes as many women as allowed.<sup>15</sup>

Figure 4

We represent the sign of the derivative  $\frac{\partial x_i}{\partial w_j}$ , which determines party  $j$ 's best response, as a function of the valence (dis)advantage of party  $R$  over party  $L$ ,  $v_R - v_L$ . We denote  $\theta = \frac{(x_R - x_L)^2}{\beta}$



We next provide an intuition for these results. To this end, suppose first that none of the two parties have a high valence advantage over the other, i.e.,  $v_L \sim v_R$ . This corresponds to case *iii*). In this case, note that  $\frac{\beta(v_L - v_R)}{2(x_R - x_L)} \sim 0$ , independently of  $x_L$  and  $x_R$ ; which implies that the location of the indifferent voter, given by (1), will be mostly determined by the average parties' policy platforms,  $\frac{x_L + x_R}{2}$ . In this case, we are in the traditional Hotelling-Downs model, where political parties gain votes by approaching its rival's location. Since, in the present (first) scenario, including women on a party list, shifts the party list to the left of its preferred policy, in equilibrium, party  $R$  chooses  $w_R^* = w_R^{max}$  and party  $L$  chooses  $w_L^* = 0$ .

Now let us move to cases *i*) and *ii*), which correspond to situations in which there is large valence advantage of one party over the other. We first consider case *i*), i.e., party  $L$  has large

valence advantage over party  $R$ . In this case, party  $L$  (the one with the valence advantage) increases its vote share by proposing a policy platform as close as possible to party  $R$ 's policy platform. The reason is twofold: by approaching  $x_R$  (which requires increasing  $x_L$ , as  $x_L < x_R$ ), party  $L$  increases both  $\frac{x_L + x_R}{2}$  and  $\frac{\beta(v_L - v_R)}{2(x_R - x_L)}$ , which shifts the location of the indifferent voter to the right. Now, because in the present scenario including women on a party list shifts the party list to the left, party  $L$  optimally chooses  $w_L^* = 0$ . Regarding party  $R$  (the one with the valence disadvantage), it increases its vote share by proposing a policy platform as different as possible to party  $L$ 's platform, that is, by maximizing the distance between the two parties' policy platforms. Note that this is in contrast to the traditional Hotelling-Downs result. The reason is that although an increase in  $x_R$  increases  $\frac{x_L + x_R}{2}$ , which reduces party  $R$ 's vote share, an increase in  $x_R$  also reduces the relevance that the difference in valences,  $v_L - v_R$ , has on determining the indifferent voter. This is due to the fact that in case  $i$ ), party  $R$  has a large valence disadvantage, the second effect outweighs the first; hence, party  $R$  gains by differentiating its platform from party  $L$ 's platform. Finally, since including women on a party list shifts the party platform to the left of the party's preferred policy, party  $R$  optimally chooses  $w_R^* = 0$ .

The argument behind case  $ii$ ) is analogous to the aforementioned. In this case, the party with the large valence advantage, is party  $R$ . Therefore, party  $R$  increases its vote share by proposing a policy platform as close as possible to party  $L$ 's policy platform. Now, since including women on a party list shifts the party list to the left, party  $R$  optimally chooses  $w_R^* = w_R^{max}$ . Party  $L$ , in contrast, has a clear valence disadvantage in this case. Hence, the best strategy for this party is to differentiate its platform as much as possible from party  $R$ 's platform as, by so doing, it reduces the effect of the valence issue in voters' preferences. To this aim, party  $L$  optimally chooses  $w_L^* = w_L^{max}$ .

#### 4.2. Second scenario: when gender identity only affects the right-wing party

In this scenario, we assume that there are no gender differences in preferences within party  $L$ , but that there are within party  $R$ . This scenario is inspired by our empirical finding in Section 3. Hence, we now consider that including women on a party list only shifts party  $R$ 's policy platform to the left, whereas it has no effects on party  $L$ 's policy platform. The next result characterizes the equilibria of the game under this second scenario.<sup>16</sup>

**Proposition 2.**—*Suppose that gender identity only affects the right-wing party. Let  $\theta = \frac{(x_R - x_L)^2}{\beta}$ , with  $\theta > 0$ . Party  $L$  is always indifferent with respect to the number of women to include on its party list, i. e., in equilibrium,  $w_L^* \in [0, w_L^{max}]$ . Additionally:*

- i) Suppose  $v_R - v_L \in [-\alpha, -\theta]$ . In this case, party  $R$  reduces its vote share by increasing the number of women on its party list and, in equilibrium, it does not include women on its list, that is,  $w_R^* = 0$ .*

- ii) Suppose  $v_R - v_L \in [-\theta, a]$ . In this case, party  $R$  increases its vote share by increasing the number of women on its party list and, in equilibrium, it includes the maximal number of women, that is,  $w_R^* = w_R^{max}$ .

*Proof.* Note that  $x_L(w_L) = \bar{x}_L$  for all  $w_L$ ; hence, party  $L$  is indifferent regarding the number of women to include on the party list. Regarding party  $R$ , Proposition 1 proves the result in this case. QED.

The results in Proposition 2 suggest that, under this new scenario, party  $R$  always gains by including women on the party list (hence, by approaching the location of party  $L$ ), except for when party  $L$  has large valence advantage over  $R$ . In the latter case, our results suggest that party  $R$  will prefer not to include women on the party list, trying to differentiate its platform from party  $L$ 's policy platform; hence, trying to reduce the effect of the valence issue in the voters' preferences. Regarding party  $L$ , our results suggest that this party will always be indifferent regarding the number of women to include on its party list, as there are no gender differences in preferences that shift the party's policy platform.

## 5. Conclusions

This paper explores whether political representatives have gendered policy preferences, and if they exist, how such differences in gender preferences can affect the parties' policy platforms. The first question is addressed with an empirical exercise, while the second question is addressed with a theoretical model.

From an empirical perspective, we use data from the Spanish political elite to explore differences in gender preferences. In Spain, the percentage of female elected representatives in the national and regional legislative chambers has moved from 5 percent to more than 40 percent over the last four decades. We analyze interview responses from one third of the national and regional representatives during the IX Spanish Legislature (2008-2011). We find that female Spanish representatives show a stronger preference for social spending than male representatives, notably in the area of retirement pensions, and to a lesser degree in the education area. Our most interesting findings emerge when analyzing gender differences across groups: *i*) member of the right-wing party (PP) *versus* member of the left-wing party (PSOE), and *ii*) national *versus* regional representatives. We find that left-wing representatives are homogenous in terms of their preferences for social spending. However, we find that it is significantly more likely for a right-wing female representative to prefer more public expenditure on pensions, education and health, than for a male representative of the same right-wing party. Two reasons might explain this result. First, gender roles and stereotypes, such as women taking care of children and the elderly, might be stronger within the conservative right-wing party. Second, at the time interviews were carried out, the left-wing party (PSOE) was the incumbent, while the right-wing party (PP) was in the opposition. Both arguments could help explain our result. In the first case, because differences in gender preferences are more likely to emerge when gender roles are stronger; otherwise, i.e., in a more gender equal

cultural context, women and men are expected to hold more similar points of view. In the second case, because being in office might induce left-wing representatives to toe the party line, while gender discrepancies could emerge more easily within the party in opposition. Finally, when controlling by party, we find no significant gender difference among representatives of the regional parliaments, but a significant gender difference among representatives of the national chambers. In the national chambers (Congress and the Senate), a female representative versus a male representative (both with mean left-right ideology) shows an additional probability of 25 percentage points on average of self-reporting a preference for additional spending on education and pensions. Thinking on an explanation for this result, we conjecture that it might relate to differences in the underlying selection process to become a national versus a regional representative, with the process being tougher at the national level; hence inducing women and men to play gender norms more strongly at that level.<sup>17</sup>

From a theoretical perspective, we study how differences in gender preferences can affect the parties' policy platforms. To this aim, we consider a two-party competition model, in which parties are characterized by their positions in the left-right dimension and their valence characteristics. We analyze two scenarios. In the first scenario, we consider that introducing female representatives into a party list always moves the public perception of the party's platform to the left of the party's traditional position. This scenario corresponds to a situation in which gender differences in preferences for social policies hold across the left-wing and right-wing political parties. In the second scenario, we consider that the previous effect only holds for one of the political parties, in particular for the right-wing party. This scenario corresponds to a situation in which gender differences in preferences for social policies only apply within one fraction, i.e., ideology, of the population. For each of the scenarios, we analyze how political parties, seeking to maximize their vote share, might strategically include women on a party list. Our results show that, unless the right-wing party has large valence disadvantage in the valence issue, it always increases its vote share by including female candidates on its party list. As for the left-wing party, the optimal strategy of this party depends on the scenario we consider. Thus, whereas in the first scenario, this party only gains vote share by introducing women on its party list when it has a clear valence disadvantage, in the second scenario, it is indifferent as to the number of women to include on its party list. These results suggest that the introduction of female representatives in political life has effects that go beyond attaining gender parity, which should be without question. They suggest that the introduction of female candidates by political parties can serve to shift the parties' policy platforms, affecting the perception that citizens have about the parties' preferred policies; hence, affecting a party's probability of winning an election.

The results in this work pose interesting questions which we consider merit future research. A first question is whether the documented gender differences are idiosyncratic to Spain or if they can be extrapolated to other countries. In this regard, we conjecture that gender differences in preferences might be more likely to be observed in cultural contexts where gender roles and stereotypes are stronger and deeply established. When this is the case, and based on our results, we expect women to play gender norms more strongly. Additionally, we conjecture that gender differences in preferences might also be more likely to be found in

more competitive electoral systems, where the candidate selection process is tougher, especially for women. Again, when this is the case, our results lead us to think that women will play gender norms more strongly. According to these ideas, we expect gender differences to be smaller in more gender equal countries and/or in countries where women find lesser obstacles in their political career. For those cultural contexts, such as Scandinavian countries, we expect gender differences to be smaller, if not negligible, which is in line with our result for the Spanish left-wing party and the Spanish regional parliaments.

Other questions that we consider merit future research are whether the identified gender differences in preferences translate into different policies or not, depending on the ideology of the party in office; and if voters' perception of the political parties' ideological positions have changed in the last decades and, if so, whether this change can be partially explained by the introduction of women in politics. These are open question that we plan to explore in our future research.

## Appendix

**Table A1**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING PREFERENCES FOR EACH CATEGORY OF PUBLIC SPENDING**

	Pro-unemployment	Pro-health	Pro-education	Pro-elderly
Gender	-0.427 (0.18)	0.022 (0.201)	0.446 (0.316)	0.444** (0.217)
Ideology	-0.405*** (0.061)	-0.281*** (0.066)	-0.236** (0.099)	-0.205*** (0.069)
Constant	2.012*** (0.3)	2.389*** (0.34)	3.260*** (0.514)	2.060*** (0.349)
N	563	565	565	566
Pseudo R <sup>2</sup>	0.0591	0.0257	0.0257	0.0217

*Notes:* Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending in each category of social spending (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \*\* p < 0.05.

**Table A2**  
**LOGISTIC REGRESSION ESTIMATING THE PROBABILITY OF SELF-REPORTING PREFERENCES FOR EVERY ALTERNATIVE DEFINITION OF WEAK SOCIAL PREFERENCES**

	Health & Unemployment	Education & Unemployment	Education & Health	Pro-elderly & Unemployment	Pro-elderly & Health	Pro-elderly & Education
Gender	0.002 (0.181)	0.02 (0.18)	0.161 (0.196)	0.081 (0.178)	0.189 (0.182)	0.377* (0.200)
Ideology	-0.448*** (0.063)	-0.417*** (0.062)	-0.261*** (0.064)	-0.374*** (0.061)	-0.247*** (0.06)	-0.237*** (0.065)
Constant	1.865*** (0.299)	1.904*** (0.299)	2.107*** (0.326)	1.651*** (0.293)	1.602*** (0.298)	1.947*** (0.326)
N	565	564	566	564	566	565
Pseudo R <sup>2</sup>	0.0721	0.0637	0.0261	0.0524	0.0247	0.0257

*Notes:* Logistic regression coefficients with standard errors in parentheses. The dependent variable is self-reporting preferences for additional spending in each category of social spending (1 = more spending, 0 = equal or less spending). \*\*\* p < 0.01, \* p < 0.1.

## Notes

1. The CIS is a public entity that depends on the Spanish Government. We use data from study survey # 2827, which is the only survey carried out by the CIS on Spanish political representatives.
2. Our result is in line with a recent analysis of Spanish municipalities by Bagues and Campa (2017), revealing that the effect of gender quotas on the size of local government expenditure is not statistically different from zero.
3. In this respect, our model follows the political competition setting described by Ansolabehere and Snyder (2000) and Groseclose (2001). The valence characteristic is an additional issue on which all voters have the same preferences (higher valence is preferred to lower valence) and it can represent the ability of the party to foster economic growth, or the competence of the party leader (Stokes, 1963).
4. Other interesting works are Clots-Figueras (2012), who finds that increasing female political representation in India increases the probability of individuals finishing primary education in urban areas (although not in rural areas); and Brolo and Troiano (2016), who in a study of Brazilian municipalities, find that female mayors are less likely to engage in corruption.
5. As Heath *et al.* (2005) point out, there is a disproportional assignment of women with respect to men to committees that focus on social and women's political issues.
6. Starting in 2016, other left-wing (such as Podemos) and right-wing political parties (such as Ciudadanos and Vox) gained substantive political representation.
7. Pensions usually refer to retirement pensions, although it also includes widow's pensions or disability pensions, among others.
8. Note that unemployment insurance and health generate about the same gender difference. However, health, as opposed to unemployment insurance, is more widely understood as part of the welfare state. Thus, unemployment is the first area that we discard in the definitions of pro-social preferences.
9. The pseudo  $R^2$  shows low values and, therefore, the model does not provide an accurate explanation of the preferences for social expenditure. Note, however, that we do not explore any behavioral model explaining the heterogeneity in preferences, besides the differences in gender and ideology. There could be missing explanatory variables, such as age (which is not available in the survey), religion or other. At the end of this section, we provide a robustness check that includes additional explanatory variables.
10. Note how candidates' identity goes beyond gender, and we might consider other distinguishing differences such as race, religion or age.
11. Additionally, we could consider a third scenario, in which including women on a party list (only) shifts party  $L$ 's platform to the left, and it does not affect party  $R$ 's platform. The results for this scenario will follow directly from Proposition 2.
12. See Ansolabehere and Puy (2018) for a discussion on how parties' distinctiveness in positional issues interact with the salience of the issues.
13. Note that if  $v_L - v_R < 0$ , i.e., party  $R$  has the valence advantage, the indifferent voter will locate at 0; hence, party  $R$  wins the election. Summarizing, when  $x_L \sim x_R$ , the location of the indifferent voter is mostly determined by the valence issue, with the policy issue having almost no effect on this location; hence, on the determination of which party wins the election.
14. When  $v_R - v_L = -\theta$ , party  $R$  is indifferent regarding the number of women to include on the party list. Hence,  $w_R^* \in [0, w_R^{max}]$ . When  $v_R - v_L = \theta$ , the indifferent party is  $L$ . Then,  $w_L^* \in [0, w_L^{max}]$ .
15. The equilibria described above might include situations in which one party losses the election with probability one. This is the case when  $x_l | (w_L^*, w_R^*) \neq x_m$ , with  $x_m$  being the median voter, which satisfies  $F(x_m) = \frac{1}{2}$ .

16. As in footnote 9, when  $v_R - v_L = -\theta$ , party  $R$  is indifferent regarding the number of women to include on the party list. Hence,  $w_R^* \in [0, w_R^{max}]$ .
17. Our result for the regional parliaments in Spain is in line with the evidence found by Bagues and Campa (2017) when studying Spanish municipalities where gender quotas have no effect on the amount of local government expenditure.

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**Resumen**

Este trabajo estudia el sesgo de género en las preferencias de los políticos participantes en la encuesta “Élites Políticas en España 2009-2011”. Encontramos sesgo de género entre los representantes de las cámaras nacionales y entre los representantes de partidos de derecha. Ser mujer en estos grupos aumenta la probabilidad de manifestar una preferencia por mayor gasto social en pensiones y educación. No hay sesgo, sin embargo, entre representantes de partidos de izquierda ni parlamentos regionales. Desde un punto de vista teórico, estudiamos cómo los partidos políticos pueden usar estratégicamente las diferencias de género para ganar las elecciones.

*Palabras clave:* diferencias de género, preferencias por gasto social, encuesta elites políticas, legisladores españoles, modelo downsiano de competencia.

*Clasificación JEL:* D72, H75, J16.