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1 Introduction

1.1 Women's Political Representation

There has been a fundamental shift in the way women are represented politically around the world in the last 20 years, but we do not yet fully grasp the repercussions this shift will have on parliaments and parties. This thesis makes the argument that internal and external forces lead to parties nominating an increasing number of women and that these women change how policy is made and what policy issues are dealt with. As of 2019, around 25% of delegates in parliaments around the world are women¹. Both politically and academically, there has been increasing attention paid to women's representation as parties have focused on achieving parity, cabinets of many countries are formed with equal number of women and men and political science research has seen many important contributions to the study of women's representation.

Research on women in politics builds on [Pitkin \(1967\)](#) and her outline of descriptive (numeric), substantive (acting for) and symbolic (standing for) representation. Research on descriptive representation focuses on the number or share of women elected

¹All numbers from the Interparliamentary Union

to parliament or present in government. Studies of substantive representation have focused on the policy-making process and political outcomes, while taking the different preferences and issue attentions of women and men into account. Finally, research on symbolic representation looks at the impact that women's representation has on the public. Here, studies deal with questions of efficacy, participation, engagement or perceived legitimacy.

While descriptive representation in itself is fairly straightforward to study provided we have data on the gender of MPs, it had to be connected to substantive representation in order to gain practical relevance. In other words, researchers had to establish why the presence of women (and other underrepresented groups) was relevant. One argument for what Phillips (1995) calls the "politics of presence" is that equal political presence of all groups in society should be the norm and parliament should be a microcosmic representation of society. Political recruitment, however, has commonly focused on staffing positions with elites through merit-based elections and restricting the access to these positions to the wealthy and powerful (Manin, 1997). In patriarchal societies in which elections were contested by equally patriarchal parties, political power mostly rested with men (Phillips, 1995).

Still, the challenge remains to establish the substantial impact of equal descriptive representation. Mansbridge (1999) brings forward the issue of uncrystallized interests, issues that are simply not present when no women are included in decision-making. However, both Mansbridge and Phillips point out that it is not sufficient to assume that electing more women would automatically lead to better substantive representation of women's interests. For this to work, representatives would have to work as surrogates, representing both their voters directly as well as the group they belong to (Mansbridge, 2003, 2011). In other words, women representatives would need to work for women

that did not help them get elected and who do not have any claim to their representation in an electoral sense (Wolkenstein and Wratil, 2020).

Building on Mansbridge, the literature outlined below has shown three important paths forward: First, we need to explicitly establish the way in which male and female MPs represent women in practice. It is not sufficient to assume this transition and simply take the share of women in parliament as an indication of the quality of women's substantive representation. Many studies now focus on the microfoundations of representation: In which way do women and men work differently in parliament and how does policy-making (both in terms of agenda-setting and output) change when more women are elected? Second, there is good reason to expect a considerable impact of women in parliament beyond what Phillips, Mansbridge or Pitkin see as the baseline for the inclusion of underrepresented groups. There is robust evidence that policy outputs across the world would be remarkably different without the increase in women's representation as women impact the way politics works and is perceived by the public. Third, especially in the party-focused political systems of Europe, the role of parties should be at the forefront of debates around representation. Not only do they control who gets into parliament, they also structure the parliamentary process by controlling nominations, speaking time and promotions of politicians.

Consequently, the two research questions of this thesis are: 1) When and why do parties push for a higher inclusion of women? 2) How do women change policy-making in parliament?

In the following I will briefly outline the state of the field of research into women's political representation. I will then walk through the theoretical argument of the thesis. Chapter 2 will take a look at nomination and election patterns of parties in the United Kingdom and show how Labour has successfully promoted women using All-Women-

Shortlists, while the Conservatives have failed to do the same. Chapter 3 will then study voters' reactions to women's descriptive representation in parties and show that voters strongly dislike all-male parties. These two chapters address research question 1, while the two following question look at research question 2 and what changes with women's presence in parliament. Chapter 4 uses speech data to study the different way in which women use political speech in parliament. Finally, Chapter 5 focuses on bill cosponsorship and shows that women are more collaborative than men, work together with other women and use collaboration to overcome underrepresentation in parliament.

1.2 State of the Field

Research on the representation of women in politics has shown an important collaboration between theory, quantitative and qualitative work. On the theoretical side, contributions have mostly been rooted in the study of representation as described above. Since the 1980s and 90s, quantitative researchers have looked at the factors that influence women's numerical representation (e.g. Wilma Rule (1987; 1994) and Richard Matland (1993; 1998)). These studies commonly took on between-country comparisons and focused on the whole world or a subset of democracies.

Subsequently, studies have zoomed in on more nuanced explanations for the underrepresentation of women. Researchers such as Pippa Norris (1995) focused on recruitment by political parties and Richard Fox and Jennifer Lawless (2004; 2010) explored the role of both individual motivations and active persuasion to motivate women to run for office. This fits a shift in the literature outlined by Wängnerud (2009) from system-oriented (focusing on factors external to parties and women such as the electoral system) to strategy-oriented approaches (focusing on the ways parties and politi-

cians influence women's representation). Another strand of literature (e.g. Dahlerup and Freidenvall (2005)) focused on the origins and impact of gender quotas that were increasingly used around the world to increase the number of women in politics. While these studies focus on representation in parliament, research, for example by Krook and O'Brien (2012), has also increasingly focused on women entering the executive branch.

While these studies focus on descriptive aspects of women's representation and the factors that lead to a higher or lower share of women in political office, scholars have also focused on the consequences of women's representation. These include symbolic effects measured in the general public, such as increased efficacy, engagement and perceived legitimacy of the political system. Additionally, we can see composition effects in parliaments as younger, often more qualified women enter and older men leave politics.

However, showing effects on policy has been a considerable challenge for researchers. Policy outcomes are hard to measure and attribute to individual politicians. Here, more recent research has employed causal designs, such as regression discontinuity or differences-in-differences setups to dissect the causal effect of additional women in power. Finally, together with researchers from the field of legislative politics, studies have looked at political actions, such as debates in parliament, bill sponsorship or roll call voting to dig deeper into changes that occur when women enter parliament in greater numbers.

1.2.1 When and Why are Women Represented in Politics?

In her 1987 article Rule writes:

"Numerous researchers have observed a positive relationship between proportional representation (PR) and women's opportunity for election to parliament (Duverger

1955; Currell 1974; Bogdanor 1984). However, with few exceptions (Rule 1981, 1984, and Norris 1985) there has been no systematic empirical verification of this hypothesis, nor has there been an attempt to control for other political and socio-contextual factors. In addition, except for Norris (1985) there has been no systematic study of the effect of different PR, majoritarian and plurality systems on women's election to parliament."

Her paper goes on to provide empirical support for the hypothesis that a proportional representation (PR) system increases political opportunities for women. Additionally, she makes the case that larger electoral districts also increase the chances of women to get elected. [Norris \(2000\)](#) expands on the latter point and shows that this effect is due to parties being able to balance their lists in these systems.

The basic relationship between PR systems and higher shares of women was later confirmed in many other studies ([Kenworthy and Malami, 1999](#); [Paxton, Hughes and Painter, 2010](#); [Reynolds, 1999](#)). [Matland \(1998\)](#) added the important distinction that this electoral system effect only held in OECD democracies and not in other countries. This has led to subsequent research that showed that this effect was due to economic development, rather than democracy ([Stockemer, 2009](#); [Paxton, Hughes and Painter, 2010](#); [Yoon, 2004](#)). Another system-oriented factor is culture: [Inglehart and Norris \(2003\)](#) show that a change in values from traditional towards egalitarian views has led to a change in public perceptions towards women's political representation and allowed women to successfully enter parliaments around the world.

Quota systems achieve their fundamental goal of increasing the share of women in parliament ([Franceschet, Krook and Piscopo, 2012](#); [Paxton, Hughes and Painter, 2010](#); [Tripp and Kang, 2008](#)). However, this increase has been found to be smaller than mandated by the quota, as some parties do not comply or find ways to comply with the quota without providing real electoral success to women ([Paxton, Hughes and Painter,](#)

2010; Hughes et al., 2019). Nevertheless, Dahlerup and Freidenvall (2005) describe quotas as the 'fast track' to equal representation, arguing that incremental increases through cultural changes are insufficient to increase women's representation. Besides the numerical increase of women in parliament, the effect that quotas will have on the political system is contested (Dahlerup and Freidenvall, 2010). The success of quotas depend on the political system and the cultural context of the country (Dahlerup and Freidenvall, 2005; Davidson-Schmich, 2006; Schmidt and Saunders, 2004).

Once women are elected through quotas, they are repeatedly found to be as capable and successful as other members. Allen, Cutts and Campbell (2016) describe how women elected through All-Women-Shortlists in the UK² are just as qualified and receive similar vote shares as other candidates. While the public is often opposed to quota measures, especially when they are as forceful as All-Women-Shortlists (Nugent and Krook, 2016), this often does not translate into actual voting (Cutts and Widdop, 2013).

As individual candidates, evidence points to women being as successful as men. Schwarz and Coppock (2021) analyse 67 factorial survey experiments that look at candidate gender as a variable of interest across the world. On average, women are favoured by voters, while there are some contexts in which voters do not seem to discriminate between women and men and some in which they actually prefer men. Overall though, these results point to the fact that voters' decisions would, if at all, advantage women over men in politics. This fits with the positive evaluation of parties with equal representation of men and women that will be discussed in chapter 3 of this dissertation.

As there are shifts towards higher representation of women over time, it is clear that

²All-Women-Shortlists are lists of women from which local parties in the UK can choose candidates for elections. They guarantee certain seats for women and have been mostly used by Labour to increase their share of women elected to the House of Commons. A more detailed discussion around the share of women in the House of Commons and All-Women-Shortlists can be found in chapter 2 of this dissertation.

parties are the deciding force that drive these developments. Because almost all political posts in Europe are filled through parties, either after nominations by party members or elites or after primaries, recruitment by parties is the first step that influences the gender composition of parliaments (Fox and Lawless, 2004; Lawless and Fox, 2010). In this recruitment phase, parties need to actively try and find female candidates rather than rely on their traditional candidate pool (Crowder-Meyer, 2013).

Whenever this process is centralised, for example through national selection committees or party congresses rather than local nomination, this change becomes easier and it is more likely that women get nominated (Bjarnegård and Kenny, 2016; Medeiros, Forest and Erl, 2018). Meanwhile, less decentralised selection processes make more descriptively representative MPs more likely as local party members tend to not prioritise equal representation on the party level as much as party elites do (Rahat, Hazan and Katz, 2008; Kenny and Verge, 2012).

The selection structures in place are often controlled by men, which effectively limits the actual power women can achieve (Krook, 2010a; O'Brien, 2015). Even after party gender quotas have increased the number of women among MPs, male-dominated party leadership structures persist and make the success of women within political parties less likely (Verge and de la Fuente, 2014). When women come to power in leadership positions, it is often in situations in which the party has lost seats, setting them up for a tough tenure and punishing them in case the party fails to win back voters (O'Brien, 2015). On the MP level, researchers have pointed out the so-called "glass cliff", as women are nominated in hard-to-win districts where success is unlikely (Bruckmüller et al., 2014; Murray, Krook and Opello, 2012; Ryan, Haslam and Kulich, 2010; Thomas and Bodet, 2013). Chapter 2 of this dissertation will take a closer look at how this dynamic plays out in the UK.

One factor that influences the adoption of policies that foster higher women's representation by parties is the contagion of rules between parties. [Matland and Studlar \(1996\)](#) distinguish between macrocontagion (adoption of rules at the party level) and microcontagion (adoption of nomination decisions on the district level). Macrocontagion happens when parties feel pressured to adopt nomination rules that increase women's representation because their competitors have done so. Besides the presence of women in party leadership, macrocontagion is an important reason for parties to adopt gender quotas ([Caul, 2001](#)). Microcontagion looks at whether one party nominating a woman in a certain district makes it more likely that other parties do the same. This second process is commonly found to be more likely in proportional representation systems ([Matland and Studlar, 1996](#)). For Switzerland, [Gilardi \(2015\)](#) describes how this process led to an increase of women candidates, especially early after the adoption of suffrage.

While contagion refers to pressures from outside of parties, [Weeks \(2018\)](#) also points to internal interest groups that pressure parties into adopting gender quotas. Similarly, [Valdini \(2019\)](#) argues that men in decision-making position within parties promote women when it is in their own or the party's interest. The introduction of measures to increase women's representation is therefore a rational reaction of parties to the incentives of their surrounding ([Murray, Krook and Opello, 2012](#); [Murray, 2010](#)).

While many studies have focused on the parliamentary level, increasingly researchers have also looked at the role of women in the executive. While we know a lot about the factors that influence women's entry into politics, they often hit a 'glass ceiling' when it comes to ascending to the highest political positions ([Folke and Rickne, 2016](#)). ([Krook and O'Brien, 2012](#)) find that political variables, such as women in the legislature and in leadership positions are important for increasing the power that

women hold in a country. Similarly, [Escobar-Lemmon and Taylor-Robinson \(2005\)](#) outline how both a higher share of women in parliament and left-leaning governments increases the share of female cabinet ministers. While the number of women among political elites increases the likelihood that cabinets have a higher share of women ([Krook and O'Brien, 2012](#); [Cheng and Tavits, 2011](#); [Jalalzai and Krook, 2010](#)), women prime ministers themselves seem to not be sufficient for increasing women's representation in cabinet ([O'Brien et al., 2015](#)).

1.2.2 What Changes When Women are Represented?

While we have learned a lot about when and why women's representation is high, the literature has also progressed considerably when it comes to explaining the effects of women's representation both on the general public and within politics. In an early study, [Verba, Burns and Schlozman \(1997\)](#) outline gender gaps in political information, interest and efficacy, with men more likely to feel a part of the political process. They propose that these differences are politics-specific rather than rooted in other gender differences, such as education or occupation.

One important aspect that links these symbolic effects of political representation with descriptive representation are role model effects. Mansbridge states that one of the reasons for focusing on descriptive representation in the first place is "creating a social meaning of 'ability to rule' for members of a group in historical contexts where that ability has been seriously questioned" ([Mansbridge, 1999](#), p.628). [Wolbrecht and Campbell \(2007\)](#) describe that women's higher numeric representation has a positive impact on women's active political participation, especially for younger girls. Additionally, [Ladam, Harden and Windett \(2018\)](#) show that prominent women in politics make it more likely for other women to also run for office. [Liu and Banaszak \(2017\)](#)

find that this effect is larger for women in cabinet than in parliament. Across the world, more women among the political elite is linked to higher symbolic representation of women (Desposato and Norrander, 2009; Franceschet, Krook and Piscopo, 2012)

When it comes to the general public, Clayton, O'Brien and Piscopo (2019) outline how decisions made by gender-equal committees are more likely to be perceived as legitimate than those by male-dominated ones. This is especially true for decisions that go against women's interest, as respondents are critical of these decisions when made without women's involvement. However, this research also show how the public may weight the involvement of women higher than objective policy outputs for women. Finally, Hinojosa and Kittilson (2020) show that increasing women's representation, for example through gender quotas, is associated with more political knowledge, interest and efficacy among women.

Moving to the parliament itself, more research has recently focused on the role of parliaments as "gendered workplaces" in which the status quo is set by men (O'Brien and Piscopo, 2019; Barnes and O'Brien, 2018). In this workplace, women are faced with pressures and have to struggle to establish their place (Erikson and Josefsson, 2019). This can go as far as outright harassment, sexism and violence (Collier and Raney, 2018; Krook, 2018).

One of the reasons why descriptive might translated into substantive representation is that women and men in office generally have different political preferences and behaviour (Gerrity, Osborn and Mendez, 2007; Homola, 2019). The composition of skills in parliament changes once women are elected as they replace less qualified men (Baltrunaite et al., 2014; Besley et al., 2017). Anzia and Berry (2011) find that women are also more productive once they are elected, as they sponsor more bills and obtain more cosponsors. In parliament, women tend to work on different issues from men (Barnes,

2016; Swers, 2005; Schwindt-Bayer, 2006).

One way to measure the impact of women in politics is to look at political outcomes directly. However, this is often far from straightforward as separating the effect of women politicians from the factors that led to their election in the first place is a challenge. Studies find that women bring new policy issues to the political agenda (Bratton and Haynie, 1999; Devlin and Elgie, 2008). Women also impact the agenda of political parties, both in terms of issues and ideological direction (Kittilson, 2011; Greene and O'Brien, 2016). Looking more closely at women in parliament, studies find that women work actively on women's issue legislation (Wängnerud, 2000; Bratton, 2005; Franceschet and Piscopo, 2008). Catalano (2009), for example, finds that women are more likely to participate in health care debates. The policy areas that women work on are often less prestigious than others (Barnes and O'Brien, 2018) and are often quite different from the ones that the women campaigned on during the election (Schwindt-Bayer, 2006).

The aforementioned policy effects are found in many different policy areas. Funk and Philips (2019) as well as Svaleryd (2009) find that when women enter parliament, local government spending changes towards education, health care and social services. Additionally, when women's representation increases, spending priorities on the national level change in a similar manner (Clayton and Zetterberg, 2018). Finally, Mavisakalyan and Tarverdi (2019) show that more women in politics leads to more stringent environmental and climate change policies.

As mentioned before, changes in policy cannot always be easily attributed to women's representation. Therefore, researchers increasingly look at the microfoundations of policy-making such as bill (co-)sponsorship and speeches in parliament. Focusing on political speech, women talk differently from men in parliament (Ballington,

2009). They also make less speeches overall, especially on male policy issues such as defence, the economy or finance (Bäck, Debus and Müller, 2014; Bäck and Debus, 2019; Mendelberg, Karpowitz and Goedert, 2014). While women increase their speaking time when there are gender quotas in place (and therefore the share of women increases), this increase in speaking time again is focused on less salient policy areas (Fernandes, Lopes da Fonseca and Won, 2021).

Finally, cosponsorship of legislation is another way in which women impact legislatures. On average, women cosponsor more legislation than men (Anzia and Berry, 2011). Women therefore create a more collaborative work environment in parliament, partially by pushing legislation on policies that were previously not discussed in parliament (Diekman and Schneider, 2010; Eagly and Karau, 2002). This collaboration between women is especially prevalent when there are few women in parliament (Barnes, 2016). In sum, women change both the content of politics and the day-to-day work process once they enter parliament.

1.3 Theoretical Argument

As outlined above, parties and political elites are the key actors for the representation of women. They control nomination processes, speaking time in parliament and assignment of committee and cabinet positions. Meanwhile, these positions are still dominated by men across Europe, which can stop women from entering powerful political positions.

The inclusion of women has benefits and costs for party leadership and elites. The remainder of this thesis will outline how these benefits and costs influence the strategic consideration parties make when deciding to promote women. The central idea of

parties including women based on a cost-benefit analysis by party elites follows [Valdini \(2019\)](#) and [Murray, Krook and Opello \(2012\)](#).

Intra-party Struggles Around Including Women

The second chapter of this thesis will look at the decision of a party - the UK Labour party - to establish a very strong quota system, namely All-Women-Shortlists (AWS). As outlined in the chapter, AWS has greatly increased the share of women in parliament soon after its introduction and has rapidly increased the disparity in women's representation between the two major parties in the UK.

Since the 1990s, both the Conservatives and Labour have publicly stated their willingness to raise the share of women in parliament. However, while the Conservatives have introduced some measures to increase recruitment of female candidates that are ultimately only somewhat effective, Labour has introduced AWS that increased the share of female MPs to more than 50%.

Party leadership in the Labour party was pressured by party activists to increase women's representation for a long time ([Geddes, 1995](#); [Saggar, 2000](#)). After losing the 2010 election, a renewal of MPs was possible as the party had many open seats to fill. The increasing use of AWS shows that the party leadership was willing to accept opposition both from within the party and the general public in order to make sure that many of these seats were filled by women ([Krook and Nugent, 2016](#)).

The Conservative leadership on the other hand never had the mandate to introduce such a robust quota measure. Both David Cameron and Theresa May supported increasing the share of women, but many powerful MPs opposed the introduction of quota systems that could threaten their own seats ([Childs and Webb, 2012](#)).

This analysis shows that it is not sufficient for the party leader themselves to support introducing measures to promote women. Rather, it is a combination of support among the broader party leadership (including tenured MPs and the party administration), pressures from party interest groups, a window of opportunity (for example after losing elections) and a renewal of personnel that limit the threat of reforms to incumbent MPs.

The Public Perception of Women's Representation

A lot of research has focused on whether individual candidates are evaluated based on their gender (Schwarz and Coppock, 2021). These studies range from gender stereotypes to advantages or disadvantages in attracting votes. Meanwhile, in party-centred systems, controlling their public image is important for parties as voters most often don't vote for individual candidates, but rather for the party they represent.

Even within countries, parties differ wildly in the share of women they have among their MPs, with left-leaning parties commonly sending many more women to parliament than right-leaning parties. The share of women among party MPs is a much more accessible piece of information for the public than, for example, the policy position of a party on women's rights. Chapter 3 of this dissertation uses a survey experiment to show that voters do in fact have strong preferences for equal representation of men and women among MPs. Additionally, parties having many male MPs, but a female party leader, are evaluated more positively than all male parties.

For parties, this adds another piece to their calculation of including women: Even when central party control over nomination is limited (such as in the UK), voters might judge parties for the lack of female representation. This might hurt parties at the polls, but also in fundraising, volunteering and in the media. Right-leaning and far right

parties across Europe, such as the CDU, AfD, Front National and the Conservatives in the UK have recently had female (co-)leaders. After both Theresa May and Angela Merkel have left the front row of politics, these parties might feel the effect that an all-male image has and feel pressured to find other ways to change that image.

Changing the Political Debate

As outlined above, parties are unlikely to change towards including more women without internal or external pressure. In the chapters two and three I look at two of these: internal pressures that can, given windows of opportunity, lead to effective quota construction, even in single-member-district electoral systems and public perceptions of women's representation among MPs from a party that might influence voting decisions and therefore require an nomination and recruitment adjustment by parties.

[Valdini \(2019\)](#) outlines five factors affecting whether women are included by political parties or not. Displacement (replacing incumbents with women), threat (leaders' fears of women undermining their power), incongruity (voters disliking women), domestic responsiveness (reacting to domestic pressures for inclusion) and international responsiveness (benefits by international organisations). I suggest two further processes that are rooted in the way women change the party group in parliament: policy focus and collaboration.

The first argument is explored in chapter 4 of this dissertation. We find that women speak differently from men and that this difference is not only stylistic, but also substantial: women raise issues that are important to them, be it child care, the elderly or health. We also found that the difference between men's and women's speaking style is more pronounced in policy areas that female voters care more about, but persist in all policy areas. Importantly, we look at countries in which party discipline is high, such

as Germany and the Netherlands.

The implication of these findings is that women entering parliament for a party will shift the policy focus of the party. While this is a good thing in terms of representation generally (as outlined in the chapter), parties might be wary of this, as this might water down their party image. This might be especially true for right-leaning parties, as left-leaning parties already include many of these policy positions into their party programme.

Secondly, chapter 5 of this dissertation shows how women decide to cosponsor legislation in parliament. Especially when party constraints through nomination are low, women form female cosponsorship networks and continue to do so even when there are many women in parliament. When women's representation is low, we find that women use bill cosponsorship to work together on legislation. Similar to debate in parliament, cosponsorship changes once women enter parliament and party leadership might feel that this threatens their control over the party group.

This thesis builds on existing research that treats parties as rational actors that influence women's representation weighing the pressures from within the party, the public image their party portrays in terms of gender composition, the policy focus of the MPs in parliament and powerful collaboration among women. Understanding these incentives and the parties' reactions to them are the key to the progress of women's political representation.

2 Parity or Patriarchy? The Nomination of Female Candidates in British Politics

Abstract: In recent years, parties in the United Kingdom have increasingly pushed for higher descriptive representation of women. To achieve this goal, Labour has introduced All-Women Shortlists, while the Conservatives have used the A-List and similar tools to promote women in their party. This article shows how All-Women Shortlists were effective at levelling the playing field between women and men, while the measures of the Conservatives did not fully achieve that effect. In fact, women are consistently nominated in less promising constituencies for the Conservatives. Nominating female candidates leads to more women being nominated in neighbouring constituencies in subsequent elections, while there is no evidence of cross-party contagion effects. Overall, these findings present strong evidence that the introduction of All-Women Shortlists started a dynamic process that consistently increased the number of female candidates and MPs for Labour, while the measures introduced by the Conservatives failed to achieve a similar effect.

2.1 Introduction

Following the 2019 General Election in the United Kingdom, the House of Commons saw a modest increase in the share of female Members of Parliament to 34 per cent, driven largely by Labour nominating more women than men for the first time. However, the loss in seat shares for Labour and the consistently low number of women nominated for the winning Conservatives led to a stagnation in the number of women in the House of Commons.

Both Labour and Conservative leadership have been pushing for an increase of women in the House of Commons in recent years. Under David Cameron, the Conservative party aimed to increase numbers of both women and non-white candidates to broaden their descriptive representation and appeal to a wider range of voters (Campbell, Childs and Lovenduski, 2006). They introduced the A-list, a tool that is designed to raise the number of women and BME (Black and Minority Ethnic) potential candidates. While this instrument has been shown to be somewhat effective at recruiting these candidates to the party, the A-list is not a strict party quota, was not consistently applied, and much of the actual nomination power still lies with constituencies. Meanwhile, Labour introduced All-Women Shortlists (AWS) in 1997 and even though they were challenged in court and suspended in the 2001 election, AWS now provide the party leadership with a strong tool to force constituencies to nominate women. Through AWS, party leadership can essentially reserve a proportion of seats for female candidates that they are confident they can win. While constituencies can still decide who to nominate, the AWS limits the choice to a list of women.

Institutions, such as party nomination systems, play an important role in regulating the access of women to political office (Krook, 2010a). While running for office has few formal restrictions in most countries, the systems parties put in place to formal-

ize the nomination process can have very different effects on women's representation. Importantly, they regulate the impact of gender stereotypes on selection outcomes.

In the most extreme case, this might happen through gender quotas that proscribe the sex of a candidate in a given constituency. Alternatively, local parties could remain powerful in the process, which might impede women from competing for safe seats that are held by men. In quota seats, gender stereotypes that may prevail in the selectorate are effectively nullified, while a more decentralized selection process might lead to a less descriptively representative group of candidates (Rahat, Hazan and Katz, 2008; Bjarnegård and Kenny, 2016).

Women's descriptive representation might also increase through geographical and ideological diffusion: Parties might be motivated to nominate female candidates because neighbouring constituencies began nominating women, or because competing parties did so. These processes are important to model in order to understand how parties increase women's representation, specifically in a context in which the national party only has limited control over candidate selection. While quota systems ensure an increase of female candidates, the diffusion of female candidates into other seats would be a strong indication of a party promoting women's representation in a sustainable way that is also supported by party activists on the local level.

This study shows how the informality and local control that is still prevailing for the Conservatives counteracts the increase in the number of women candidates that the party gets through the A-list. Meanwhile, All-Women Shortlists have granted the party leadership of Labour with wide-ranging powers for promoting women. This study has implications for the representation of women around the world: Table 1 shows that the majority of democracies around the world do not have legislated (national) gender quotas and party-level gender quotas, such as AWS, are commonplace, even in other

majoritarian systems, and have a large impact on women's representation worldwide (for more details, see Appendix I). This study therefore answers two questions that have implications beyond the UK: Can a quota in a majoritarian electoral system be effective at raising the number of women in parliament and can the diffusion of female candidates between districts gradually increase the representation of women even without quotas?

Table 2.1: Most Recent Elections and Gender Quotas

Country	Election	Electoral System	Legislative Quota	Number of Parties with Quotas	Share of Seats Won by Parties with Quotas
Australia	18/05/2019	Majoritarian	none	1	45.00
Canada	21/10/2019	Majoritarian	none	2	53.50
United Kingdom	12/12/2019	Majoritarian	none	2	32.90
Germany	24/09/2017	Mixed	none	4	68.90
Hungary	08/08/2018	Mixed	none	2	14.10
Japan	22/10/2017	Mixed	none	none	none
Lithuania	09/10/2016	Mixed	none	1	12.10
New Zealand	23/09/2017	Mixed	none	2	45.00
Austria	29/09/2019	Proportional	none	3	74.90
Bulgaria	26/03/2017	Proportional	none	none	none
Cyprus	22/05/2016	Proportional	none	2	37.50
Czech Republic	21/10/2017	Proportional	none	1.00	7.50
Denmark	05/06/2019	Proportional	none	none	none
Estonia	03/03/2019	Proportional	none	none	none
Finland	14/04/2019	Proportional	none	none	none
Iceland	28/10/2017	Proportional	none	3	41.30
Israel	02/03/2020	Proportional	none	2	35.80
Latvia	06/10/2018	Proportional	none	none	none
Luxembourg	05/12/2018	Proportional	none	4	70.00
Malta	03/06/2017	Proportional	none	1	55.20
Netherlands	15/03/2017	Proportional	none	1	6.00
Norway	11/09/2017	Proportional	none	4	51.40
Romania	11/12/2016	Proportional	none	1	46.80
Slovakia	29/02/2020	Proportional	none	none	none
Sweden	09/09/2018	Proportional	none	3	41.30
Switzerland	20/10/2019	Proportional	none	1	19.50
Turkey	24/06/2018	Proportional	none	1	11.20
Portugal	06/10/2019	Proportional	33%	none	none
Poland	13/10/2019	Proportional	35%	none	none
Slovenia	03/06/2018	Proportional	35%	1	11.10
Croatia	11/09/2016	Proportional	40%	1	25.80
Greece	07/07/2019	Proportional	40%	1	7.30
Ireland	08/02/2020	Proportional	40%	none	none
Spain	10/11/2019	Proportional	40%	4	38.90
France	18/06/2017	Majoritarian	50%	1	5.20
Italy	04/03/2018	Mixed	50%	1	17.80
Belgium	26/05/2019	Proportional	50%	none	none

By studying General Elections in Great Britain from 1997 to 2019, I show how party nominations influence the discrepancy between women getting nominated and women getting elected. Women get nominated in constituencies in which they have a higher chance of winning the seat than men for Labour, while the opposite is true for

the Conservatives. Additionally, I find evidence of contagion effects between Labour and, more recently, Conservative constituencies: the more women neighbouring constituencies nominated in the past, the higher the chance the nominee is female. This is evidence of intra-party contagion of nominating female candidates. Finally, there is no evidence of cross-party contagion of the nomination of female candidates for either party.

2.2 Parties Nominating Women

Research on nomination processes has argued that the number of women that are nominated and elected is a function of demand and supply. In terms of supply, candidate motivation and resources, such as time and money are the crucial factors (Norris and Lovenduski, 1995). Studies in the US have shown that women often consider themselves less likely to enter political life, show less ambition to run for political office and are less certain that they could run a successful campaign (Fox and Lawless, 2011; Kanthak and Woon, 2014). Allen and Cutts (2018) show that people indicating ambition to run for public office in the UK are quite different from the general population: Individuals with higher education levels, from privileged backgrounds and men are more likely to show political ambition. While ambition as a measure of self-selection seems to stop women from running for office, this problem appears to also apply more generally to people from outside the political class that has controlled Britain's politics (Allen and Cairney, 2017). On the other hand, demand factors describe the efforts that parties make to increase the number of women running for political office. Women are less likely to be recruited for political positions than men, especially if parties do not focus on recruitment of candidates outside the traditional party structure and clientele (Crowder-Meyer, 2013). Informal and localised candidate selection procedures, which

continue to play a major role in British politics, are instrumental in entrenching male control over parties and parliaments (Bjarnegård and Kenny, 2016).

2.2.1 The Glass Cliff

However, treating the nomination of women for political office purely as a function of supply and demand ignores the institutional structure that underlies candidate selection in political parties (Krook, 2010a). Selection processes often take place on the local level and depend on informal rules and personal relationships, where women are often disadvantaged as non incumbents in a political world that is still dominated by men (Bjarnegård and Kenny, 2016). The theory of the “glass cliff” describes the finding, that in business, law and politics, women are put in charge or nominated, when times are bad and success is unlikely (Ryan, Haslam and Kulich, 2010; Murray, Krook and Opello, 2012; Thomas and Bodet, 2013; Bruckmüller et al., 2014). This effectively allows parties to show support for female candidates, while men continue to be nominated in seats they are more likely to win (Kulich, Ryan and Haslam, 2014; Lamprinakou et al., 2017). A strategy that successfully raises women’s representation among candidates and MPs alike, needs to ensure that women get nominated in constituencies they can win. All too often, women gain power in opposition roles or in parties with declining vote shares, leading to an unequal playing field between men and women (O’Brien, 2015). This process is connected to the more commonly used “glass ceiling” that describes the difficulty women face in trying to reach top positions in an organization such as a political party (Folke and Rickne, 2016). In sum, even if more women come forward to run for office and parties nominate more women, nomination rules still heavily influence how many women actually get elected for parliament.

Hypothesis 1: Women are nominated in constituencies that give them a smaller

chance of winning the seat than men.

2.2.2 Quotas

In order to combat the low representation of women in politics, countries and parties have used women quotas that led to increases in women's descriptive representation (Franceschet, Krook and Piscopo, 2012; Paxton, Hughes and Painter, 2010). Their success depends to some extent on the electoral system and the cultural context (Dahlerup and Freidenvall, 2005; Davidson-Schmich, 2006). In Britain, Allen, Cutts and Campbell (2016) show that women elected via All Women Shortlists are subsequently equally qualified and successful as other members of parliament and are equally likely to get re-elected. De Paola, Scoppa and Lombardo (2010) provide evidence from Italy that gender quotas can increase women's descriptive representation even after they are withdrawn, corroborating evidence from India provided by Bhavnani (2009). Quotas for parliamentary seats also have a positive influence on women in party leadership positions (O'Brien and Rickne, 2016), which in turn promote the representation of women in influential cabinet positions (Krook and O'Brien, 2012). However, there is some evidence of a backlash against individual candidates elected via quotas: While quota candidates in Italy were more qualified than others, they were subsequently less likely to be re-elected (Weeks and Baldez, 2015).

Quotas differ in how they are constructed and in how rigorously they are implemented. How a group is represented in politics and consequently how effectively they can lobby for measures that improve their standing such as quotas, depends on the political influence that these groups have achieved within the political system (Krook and O'Brien, 2010). Majoritarian electoral systems pose an additional difficulty to a party that aims to increase the number of women among their candidates: Due to the decen-

tralized nature of the nomination system, the national party generally has very limited influence on candidate nominations, especially if the party structure is not centralized (Kenny and Verge, 2012). In these systems, parties cannot simply put a quota on the share of women on a candidate list and local demands for female representation, party culture as well as local networks are the main drivers for the share of women among candidates (Medeiros, Forest and Erl, 2018; Bjarnegård and Kenny, 2016). Additionally, the institutionally enshrined power structure in a political party cannot simply be broken up through introducing a gender quota, but political power for women has to be constantly renegotiated and reestablished (Verge and de la Fuente, 2014). However, parties have found ways to force local party branches to nominate women, such as All-Women Shortlists. Overall, I would expect national parties to introduce quota-like rules (such as All-Women Shortlists) to force local parties to increase the share of women in seats that they are likely to win.

Hypothesis 2: Parties introduce quota-like rules to raise the share of women nominated in seats they are likely to win.

2.2.3 Contagion

Contagion has been recognized as an important mechanism of party change in political science. Duverger (1954) and Epstein (1967) describe tactical adjustments that mainstream parties need to make to react to challengers from the left and the right. The theory states that parties, while being fundamentally structurally conservative in nature, react and adapt to outside challenges if those threaten their electoral standing (Panebianco, 1988; Harmel and Janda, 1994).

Matland and Studlar (1996) argue that contagion is a major factor increasing the number of women in politics. They hypothesise that especially parties in PR systems

have to react to challenger parties nominating an increasing number of women. They differentiate between macro- and microcontagion. Macrocontagion supposes adoption of strategies to promote women by national parties, for example when a party reacts to a high share of women in a challenger party by introducing a women's quota on their list. Meanwhile, microcontagion describes changes in women's representation at the local level, for example if a constituency starts nominating more women after neighbouring constituencies have also done so.

On the macro level, [Caul \(2001\)](#) argues that women's quotas are subject to contagion in the political system: The adoption of gender quotas is influenced, among other factors, by entrepreneurial parties that establish gender quotas that subsequently get adopted by other parties. [Meier \(2004\)](#) shows the contagion effect between legal and party quotas that create a mutually reinforcing dynamic of increasing women's representation.

Constituency magnitude, the number of representatives elected in a constituency, works against contagion in single member constituencies: The larger the constituency magnitude, the larger the possibility for parties to balance their tickets ([Lucardi and Micozzi, N.d.](#)). Contagion is therefore less likely to happen in single member district electoral systems, such as the United Kingdom. In a study of gender diffusion in Scotland, [Kenny and Mackay \(2014\)](#) describe this limit of diffusion theory: While there is evidence that quota adoption within the Labour party diffuses across party levels, there is no evidence that the adoption of electoral rules that increase women's representation within the Labour party affects other parties in Scotland.

Meanwhile on the micro level, [Borisjuk, Rallings and Thrasher \(2007\)](#) show that parties in the UK are more likely to nominate women in local elections if other parties also do so. Notably, this finding persists for the Conservatives, so the contagion effect

of nominating female candidates is present across the political spectrum. We therefore expect:

Hypothesis 3: A party is more likely to nominate a woman if competing parties in the constituency also nominated women.

We should not only see this effect within one constituency, but also across neighbouring constituencies (albeit to a lesser degree). [Gilardi \(2015\)](#) finds that the election of women increases the likelihood that women are nominated in the surrounding area. Focusing on municipal elections in Switzerland, he finds that, while the effect fades away over time, it exists specifically in areas without female incumbents – areas that should be preferentially targeted by AWS.

Hypothesis 4: A party is more likely to nominate a woman if competing parties in neighbouring constituency also nominated women.

Contagion can also occur within one party when constituencies learn from each other. Here, the causal mechanism is probably not related to competition, but rather to internal party pressures, positive examples of women succeeding in other constituencies and female potential candidates successfully lobbying for an increase of female representation in their constituency. We would assume some relationship between neighbouring constituencies, due to shared media markets, and voters moving from one constituency to another.

Hypothesis 5: A party is more likely to nominate a woman if neighbouring constituencies also nominated women for the same party.

2.3 The case of Britain

In recent elections in the United Kingdom, both Conservatives and Labour have pushed for an increase in women and BME (Black and Minority Ethnic) representation. In a 2010 report by the “Speaker’s Conference on Parliamentary Representation”, descriptive representation received an even higher priority (House of Commons, 2010). The Conservatives introduced the “A-List”, a system to promote women in the party that focuses mostly on recruitment, an area in which the Conservatives lag behind (McIlveen, 2009; Campbell, Childs and Lovenduski, 2010, 2006; Williams and Paun, 2011). Both female party members as well as voters have significantly different policy preferences from their male counterparts, calling into question whether the modern Conservative party should still rely on a mostly male group of MPs (Campbell and Childs, 2015; Childs and Webb, 2012). On the other hand, Labour’s efforts to promote women reach back to the 1970s (Geddes, 1995). Besides trying for more female descriptive representation, the Conservatives also try to make gains with ethnic minorities, nominating more BME candidates, a demographic group that has traditionally supported Labour (Saggar, 2000).

The Conservative party tried different ways to raise the number of women running for them that were centred on the supply-side of candidates and increasing the number of potential candidates (Williams and Paun, 2011). In order to become a candidate for the Conservatives, individuals need to be put on the “Approved List of Conservative Candidates” that is controlled by the Conservative Campaign Headquarters (CCHQ). While local parties ultimately have the opportunity to choose their candidate, the CCHQ aimed to create the opportunity for women to be on the potential list of candidates. The “A-List” was a tool to increase the number of women that are eligible to run for the Conservative party, specifically in constituencies that the Conservatives expected

to win, such as open seats (Williams and Paun, 2011). Additionally, the party used 50-50 quotas for single seats, meaning that 50 percent of candidates that were short-listed in a given seat had to be female. However, the programme's effectiveness was limited as constituencies could apply for exceptions and ultimately still preferentially selected men for the candidacy (Williams and Paun, 2011). The A-list was only used in 2010 and subsequently abandoned, as the Conservatives showed their uneasiness with institutionalized forms of promoting female politicians such as quotas (Childs and Webb, 2012). These efforts by the Conservative leadership can also be seen as efforts to centralize selection procedures and power with the central party rather than local chapters (Low, 2014). However, after David Cameron openly talked about instituting AWS in the Conservative Party in 2014, he ultimately backed away from the idea after widespread protest from local party organizations. During her time as Prime Minister, Theresa May also did not institute quotas to raise the number of women in the party, but rather relied on the group "women2win", which is founded and led by her and is designed to recruit more women for the Conservatives.

In 1993, the Labour party decided to introduce All-Women Shortlists (AWS) in 50 percent of vacant or winnable seats, practically guaranteeing these seats for female candidates (Williams and Paun, 2011; Kelly and White, 2016). Local parties were given a shortlist composed entirely of women to choose a candidate from. This measure led to a sizable increase in female candidates in the 1997 general election. However, AWS were challenged in court and not used in the 2001 general election, which led to a decrease in both female candidates and MPs for Labour. After changing legislation on positive discrimination, Labour reinstated the AWS in 2005, leading to a large increase of female candidates in seats Labour was likely to win. While not without controversy, AWS has become the standard way in which Labour leadership strategically places women in

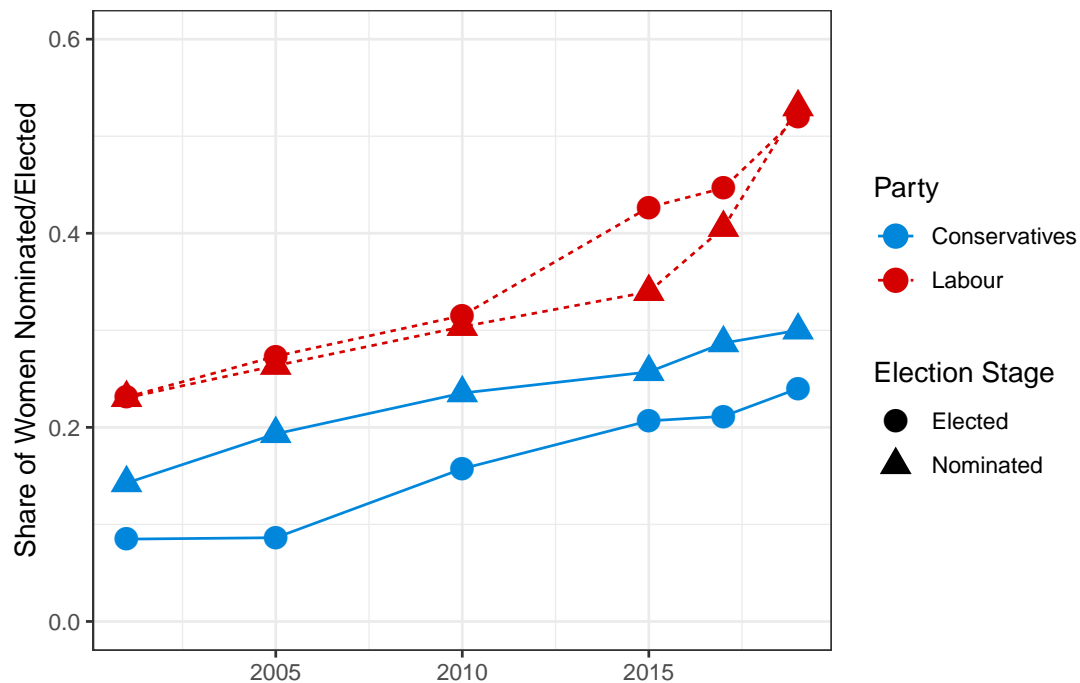
winnable seats. In a YouGov survey in 2014, 56% of the British public opposed AWS and even within the Labour party, the practice has strong critics (Nugent and Krook, 2016). Voters, on the other hand, did not seem to punish AWS candidates for being selected through the AWS system: AWS candidates received as many votes as their non-AWS colleagues (Cutts and Widdop, 2013). Some critics of AWS were concerned about racial diversity of women selected on All-Women Shortlists. While especially in 1997 and 2005 predominantly white women were selected in AWS seats, analysis by Nugent and Krook (2016) shows that the Labour party has increasingly chosen non-white women in AWS seats since 2010. However, integrating the representation of an ethnically diverse set of (female) candidates continues to be a challenge and ultimately forces parties to think about candidate nomination in an intersectional way (Krook and Nugent, 2016).

The introduction of the A-list by the Conservative party can be seen as macro-contagion as described above (Matland and Studlar, 1996): An electoral rule, designed to promote women in politics introduced by a party on the left, was adapted by a right-leaning party (albeit in an attenuated way). In recent elections, the Liberal Democrats have also greatly increased the share of women nominated and elected from their party through All-Women Shortlists.

Figure 1 shows the percentage of women that are nominated and elected for the Conservatives and Labour. Both parties exhibit a positive trend in recent years with Labour reaching close to equal numbers of women and men. However, there are two clear differences between the two parties: First, the percentage of elected women for the Conservatives lags behind Labour by a wide margin. Second, there is a gap between the percentage of women elected and the percentage of women nominated.

Most importantly, this gap is positive for Labour (meaning that a higher share of

Figure 2.1: Percentage of Women being Nominated and Elected for Conservatives and Labour



women get elected than nominated) and negative for the Conservatives. This means that women for Labour outperform their male colleagues, while there is a substantial negative gap for Conservative women. I argue that the key to these developments lies both in the kind of constituencies in which parties nominate women and the contagion of female nominations between constituencies and parties.

2.4 Data and Methods

I test these hypotheses with data from General Elections in the UK between 1997 and 2019. Data on constituency level results in British General Elections is provided by Pippa Norris in three datasets covering 1992 through 2001, 1992 through 2005 and

2010 to 2019 (because of redistricting between those periods) (Norris, 2017). Results are provided for each of the constituencies and all major parties. Additionally, names, sex and ethnicity for all candidates are coded in the dataset, together with census results. Candidate level data is provided by Jennifer vanHeerde Hudson and Rosie Campbell in the Representative Audit of Britain (VanHeerde-Hudson and Campbell, 2015). In some instances, data had to be added by hand as name and candidate sex were missing. A major obstacle are the boundary changes for the 2005 and 2010 elections. Scotland redrew their constituency boundaries for the 2005 election, the rest of Great Britain followed in 2010. All election results were converted to the new boundaries in the dataset so constituency marginality can be calculated for all elections. In order to determine open seats, the incumbents from Scotland are included in the 2005 dataset if their constituencies were not changed at all or only experienced minor changes. Some constituencies were excluded from the analysis, either because they are the seat of the Speaker of the House, or the elections were not comparable for other reasons (see Appendix II).

I use constituency marginality as a measure of how likely a party is to win a seat at nomination time. The marginality of a constituency is calculated as the difference between a party's result in the previous election and the result of the second best party. If the party did not win the election in that constituency, the marginality is the difference between the party's result and the winning vote share. Appendix IV shows the relationship between marginality and electoral success: Across the board there is a strong relationship between past results and likelihood of winning the election. Since past results are the main indicator that parties can use in their nomination decisions, I use this measure as the key independent variable in the models. Occupational statistics (manual workers, management jobs, unemployment and percent retired), education levels and urbanization are included in the models as control variables following Clarke and

colleagues (Clarke et al., 2016). For an overview of these variables and how they are constructed, see Appendix V.

As described above, Labour used All-Women Shortlists for only some of the elections in the sample: While they ran them in 1997 and in elections since 2005, they were not allowed to do so in 2001. Meanwhile, the Conservatives' A-List was only used in 2010. To see the impact of these top-down measures, I will compare different elections within-party.

Spatial diffusion of female candidates is operationalized by determining the share of female candidates among neighbouring constituencies in recent elections. Neighbouring constituencies are defined as being located within different radiuses around a constituency (see details in the result section) and distances are calculated based on shapefiles provided by the Office for National Statistics of the United Kingdom (Office for National Statistics, 2019). Diffusion among parties is first measured by including indicators for competing parties running female candidates at the previous election. This variable ranges from zero (no other party nominated a woman) to 1 (all other parties nominated a woman). Subsequently I use the nomination decisions of neighbouring constituencies. To study cross-party contagion from neighbouring constituencies, I create a variable that measures the share of candidates in neighbouring constituencies for other parties, ranging from zero (no other parties in neighbouring constituencies have nominated a woman) to one (all other parties in all neighbouring constituencies have nominated a woman). Finally, I use a variable that measures the exact same concept, but within a party.

Tables 2 and 3 show the average share of women in neighbouring constituencies per region. The Conservatives are predominantly nominating women in Wales, Scotland, and the South East, while Labour nominate large numbers of women in Scotland,

London, and the South West. The tables also show the average number of constituencies the party won in the region since 1997. The Conservatives nominate the most women in regions in which they are historically weak. However, they also nominate a considerable number of female candidates in the South East, a region they are very successful in. Meanwhile, few women are nominated in the South West and East of England in which the Conservatives win a lot of constituencies. For Labour, a high share of London constituencies nominate women and Labour has been very successful in that region. However, Labour also nominates many women in the traditionally less successful constituencies in Scotland and South West (see Appendix III for maps of these distributions).

All analysis of diffusion (both spatial and inter-party) assumes that this diffusion happens over time, with parties adapting their nomination strategies after observing the nomination strategies of other parties and constituencies at the previous election.

Table 2.2: Electoral Success and Nomination of Women for the Conservatives by Region

Region	Average Share of Women in Neighbouring Constituencies	Average Number of Constituencies Won Since 1997
1 Wales	43.63	18.72
2 Scotland	38.27	8.01
3 South East	35.36	83.46
4 East Midlands	32.20	57.45
5 London	31.35	29.50
6 West Midlands	30.91	48.63
7 North West	27.01	26.15
8 East of England	26.35	80.37
9 Yorkshire and The Humber	25.56	30.69
10 North East	24.24	11.45
11 South West	20.37	77.88

Table 2.3: Electoral Success and Nomination of Women for Labour by Region

Region	Average Share of Women in Neighbouring Constituencies	Average Number of Constituencies Won Since 1997
1 Scotland	59.93	35.10
2 London	59.89	65.82
3 South West	58.69	14.83
4 North East	57.94	87.19
5 Wales	54.24	70.74
6 Yorkshire and The Humber	53.56	67.31
7 East Midlands	52.73	42.55
8 East of England	51.48	16.95
9 North West	47.36	71.25
10 South East	46.92	14.03
11 West Midlands	43.85	50.81

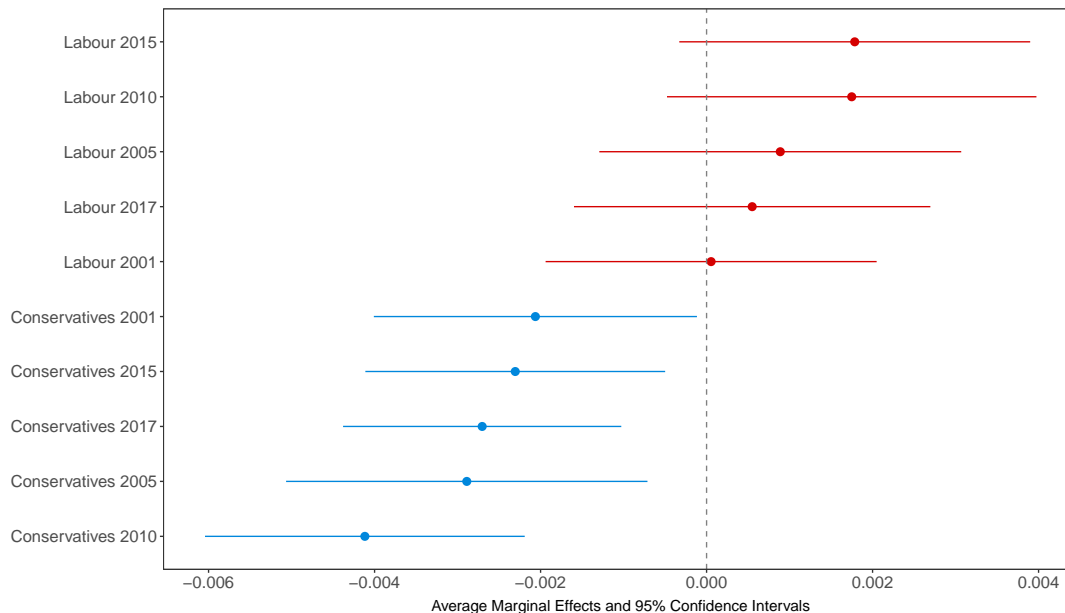
2.5 Results: Women, Party Nominations and Spillovers

2.5.1 Constituency Marginality

The dependent variable in the model is whether the respective party nominates a woman in a constituency. Using logistic regression, I study whether the probability of nominating a woman changes with the marginality of the constituency for the respective party, controlling for the variables mentioned above.

Figure 2 shows the average marginal effect of the margin of victory on the probability of nominating a woman for Conservatives and Labour in the elections in 2001, 2005, 2010, 2015, 2017 and 2019. It shows point estimates and 95 percent confidence bounds. The full regression can be found in Table 4. A positive value means that the safer (in terms of marginality in the previous election) a constituency is for the respective party, the more likely that party is to nominate a woman in this constituency. This relationship describes the allocation rather than the overall level of women. In other words, parties might run very few women but nominate them in very safe constituencies and therefore achieve a positive effect in this analysis. Nevertheless, this relationship describes whether women get preferentially nominated in constituencies they are more or less

Figure 2.2: Average Marginal Effects of Constituency Marginality on Probability to Nominate a Woman



likely to win.

Consistently, the relationship between constituency marginality and nominating women is negative for the Conservatives. This means that the smaller the Conservative vote share was compared to the winning party in the previous election, the larger the possibility of nominating a woman in that constituency, thereby limiting the chances of women to get nominated in promising situations. Appendix VII analyses the share of women running in constituencies split by their eventual success chance. In 2019, among constituencies in which the Conservatives had a less than 25% chance of winning based on marginality, more than 40% of candidates were female. In constituencies that were more than 75% likely to be won, only around 25% of candidates were female. This lends support to Hypothesis V for the Conservative party: women get nominated in constituencies in which they are at an electoral disadvantage. The A-List employed

Table 2.4: Regression Table for District Marginality on Probability to Nominate a Woman

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman						Labour Nominating Woman					
	2019	2017	2015	2010	2005	2001	2019	2017	2015	2010	2005	2001
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Conservative vote margin (t-1)	-0.013*** (0.005)	-0.014*** (0.004)	-0.012** (0.005)	-0.022*** (0.007)	-0.020*** (0.008)	-0.017** (0.008)						
Labour vote margin (t-1)							0.002 (0.005)	0.002 (0.005)	0.008 (0.005)	0.008 (0.006)	0.005 (0.006)	0.001 (0.006)
Manual	-0.022 (0.073)	-0.092 (0.075)	0.029 (0.076)	0.038 (0.091)	-0.063 (0.075)	-0.078 (0.109)	0.129* (0.068)	0.038 (0.068)	0.129* (0.071)	-0.024 (0.083)	-0.033 (0.069)	0.009 (0.096)
Management	0.021 (0.029)	0.026 (0.028)	-0.002 (0.029)	0.040 (0.034)	0.023 (0.043)	-0.031 (0.048)	0.003 (0.027)	-0.004 (0.028)	-0.019 (0.027)	-0.023 (0.031)	-0.009 (0.036)	0.014 (0.041)
Unemployed	-0.111 (0.150)	-0.047 (0.153)	-0.039 (0.151)	-0.270 (0.181)	0.057 (0.091)	-0.001 (0.102)	0.188 (0.143)	0.230 (0.143)	0.193 (0.147)	0.046 (0.177)	0.064 (0.084)	0.057 (0.090)
Retired	-0.099** (0.049)	-0.012 (0.049)	-0.036 (0.050)	-0.038 (0.060)	0.023 (0.036)	-0.053 (0.044)	0.040 (0.043)	0.032 (0.044)	0.035 (0.047)	0.049 (0.055)	0.027 (0.031)	0.018 (0.034)
Urban	-0.011* (0.006)	0.004 (0.006)	0.001 (0.006)	0.007 (0.007)	0.002 (0.007)	-0.005 (0.008)	0.002 (0.006)	0.001 (0.006)	0.007 (0.006)	0.007 (0.007)	0.004 (0.006)	0.001 (0.007)
No_Qualification	0.061 (0.044)	0.042 (0.045)	0.0003 (0.045)	0.071 (0.053)	0.045 (0.037)	-0.032 (0.043)	-0.100** (0.042)	-0.059 (0.042)	-0.115*** (0.044)	-0.046 (0.050)	-0.043 (0.035)	-0.035 (0.038)
Constant	-0.520 (1.667)	-1.102 (1.651)	-0.822 (1.707)	-3.268 (2.036)	-3.900 (2.796)	1.874 (3.178)	-0.929 (1.586)	-0.911 (1.585)	-0.714 (1.641)	0.187 (1.856)	-0.243 (2.397)	-1.410 (2.750)
Observations	631	631	631	491	626	638	631	631	631	492	626	638

Note:

*p<0.1; **p<0.05; ***p<0.01

by the Conservatives in 2010 did not seem to have any discernible effect on this trend, lending no support to Hypothesis 2 as far as the Conservatives are concerned.

Meanwhile, Labour shows no statistically significant relationship in elections since 2001. However, the estimates are consistently positive and statistically significant in a bivariate regression in 2010, 2015 and 2017, indicating that Labour women get nominated in constituencies they are more likely to win overall (The results for the bivariate regression can be found in Appendix VI). This fits with results described in Appendix VII: In recent elections, Labour nominated about as many candidates in seats they were expected to win as those they were expected to lose: In 2019, 54% of candidates in constituencies that only had a 25% winning probability were women, very similar to the 52% of candidates in constituencies with more than 75% of success. The analysis also shows that Labour ran many women in competitive seats since the 2005 election,

showing that AWS did not exclusively put women in very safe seats. This ensures that female Labour candidates frequently run in constituencies in which they have a good chance of winning the seat, providing no support for Hypothesis 1 in the Labour party.

While Labour reinstated All-Women Shortlists in 2005, it took until 2010 for Labour women to run in more preferential seats. Nevertheless, AWS appear to be an important part of a Labour strategy that ensure electoral success for women or at the very least evens the playing field between women and men. Table VI.2 in Appendix VI shows the regression for seats that were not designated as AWS (the list of AWS seats is taken from [Kelly and White \(2016\)](#)). The results show that women were only selected in non-AWS seats they were likely to win after the 2010 election. This is evidence for a process that established female candidates permanently in electorally promising seats through All-Women Shortlists. Additionally, Appendix VIII shows the analysis for open seats only: The Labour party was targeting open seats that they were likely to win since 2005 for female candidates, especially when a female incumbent retired. I therefore find support for Hypothesis 2 in relation to Labour.

However, we might see unsuccessful nominations by women as a pathway to eventual electoral success: Many MPs, and indeed many Prime Ministers, have lost their first election and needed multiple tries to reach the House of Commons. I present an analysis of losing candidates being nominated again in Appendix IX. The findings presented there should dampen expectations of unsuccessful nominations eventually leading to an erosion of the gender imbalance in parliament. While many women are nominated again after losing an election, men tend to be nominated again at an even higher rate, a relationship that is true for both parties.

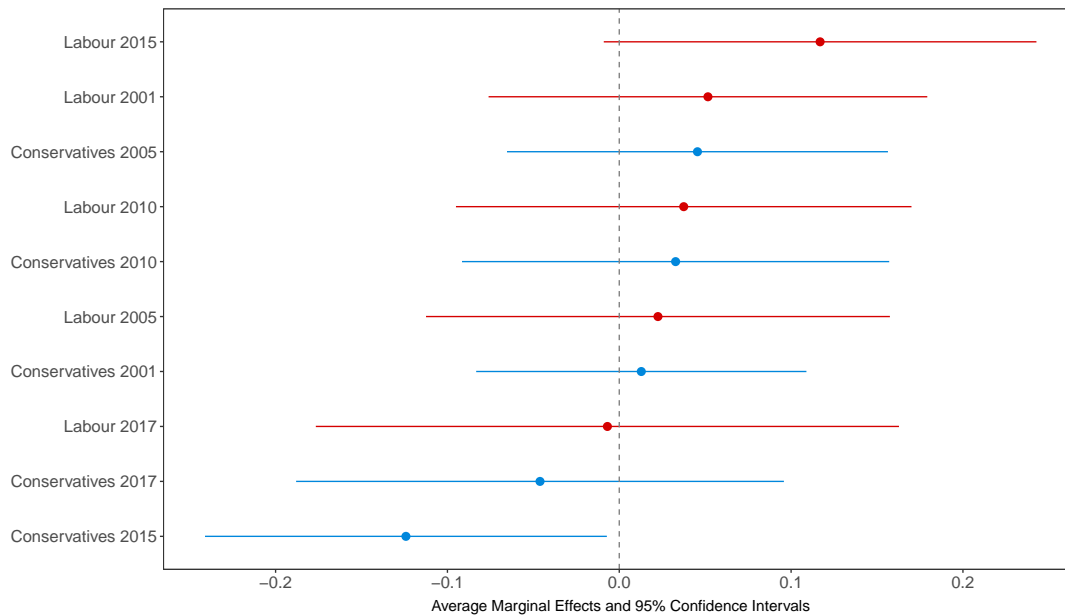
2.5.2 Spillover between Parties

Subsequently, I add variables of spillover to the existing model (keeping the constituency marginality as a control variable). In this first step, I introduce the nomination of women by other parties in the previous election into the model.

Figure 3 shows the average marginal effect of other parties nominating women in the previous election on the probability of nominating a woman for Conservatives and Labour. Overall, there is no support for Hypothesis 3: In all elections except one (Conservatives in 2015), parties do not seem to react to other parties' decisions regarding candidate gender. In other words, Labour or the SNP nominating a woman does not have an effect on the Conservatives doing so in the next election and vice versa. The sole exception to that is the Conservative party in 2015 that nominated women preferentially where other parties had not nominated a woman before. However, the absence of that effect in any other election speaks against a systematic party strategy to avoid running female candidates in races with few other women.

Additionally, Figure 4 shows the average marginal effect of other parties nominating women in the previous election in neighbouring constituencies on the probability of nominating a woman for Conservatives and Labour. If this was the case, a higher share of women from Labour, the Liberal Democrats or the Scottish National Party being nominated in neighbouring constituencies would lead to a higher share of women being nominated for the Conservatives. I run the model for this analysis with different definitions of neighbouring constituencies, from a narrow definition that only keeps constituencies whose boundaries are within one kilometer radius to a wide definition using a 50 kilometer radius. Again, I do not find evidence for a contagion effect across parties (Hypothesis 4). Nomination decisions in terms of gender do not seem to be affected by other parties' decisions in that matter.

Figure 2.3: Average Marginal Effects of Other Parties Nominating Women on Probability to Nominate a Woman

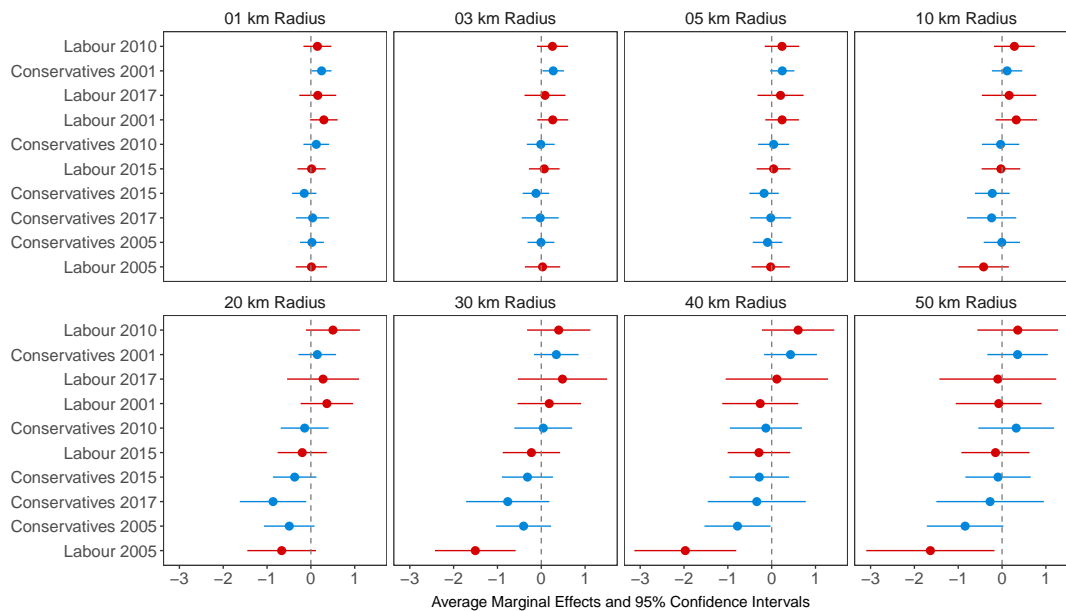


2.5.3 Spatial Spillover Within Parties

Figure 5 shows the average marginal effect of neighbouring constituencies nominating women for the same party in the previous election on the probability of nominating a woman for Conservatives and Labour. A positive effect in this graph indicates that constituencies that had many neighbouring constituencies also nominate women for a certain party in the previous election are more likely to nominate a woman for that party. For Labour, there are considerable effects of neighbouring Labour constituencies nominating women, suggesting some spill-over of nominating women between constituencies. This effect is robust for definitions of neighbouring constituencies between one and 10 kilometres, while the effect gets diminished and only holds for certain elections for wider definitions.

Meanwhile, estimates for the Conservatives before 2017 are substantially small and

Figure 2.4: Average Marginal Effects of Other Parties in Neighbouring Constituencies Nominating Women on Probability to Nominate a Woman

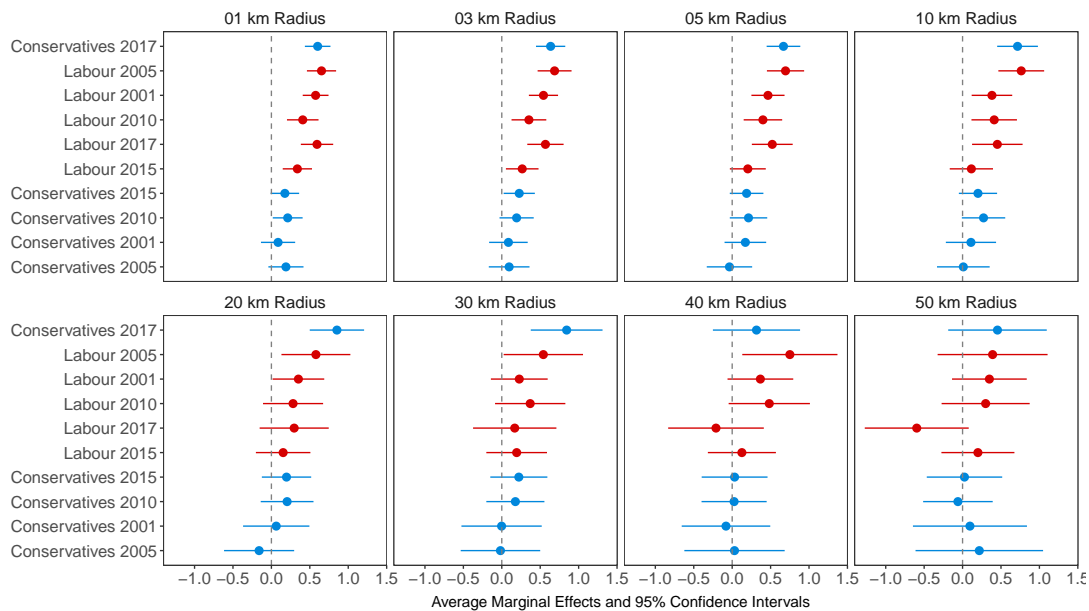


mostly not statistically significant. Since 2017, there is a positive effect of neighbouring constituencies nominating female Conservative candidates on female nomination, indicating spillover of female candidates in recent elections. However, it is unclear whether this can really be interpreted in the context of the more centralised nomination procedure of the 2017 and 2019 snap elections. I therefore conclude that there is strong evidence for such a diffusion effect in the Labour party and also more recently within the Conservative party (Hypothesis 5).

2.6 Conclusion

Nomination rules allow political parties to influence the demographic composition of their representatives in parliament. This is especially true for party quotas and other

Figure 2.5: Average Marginal Effects of Neighbouring Constituencies Nominating Women on Probability to Nominate a Woman (Same Party)



strong instruments such as All-Women Shortlists and the A-List. These instruments yield considerable power, but they can be set up in different ways to either advance the representation of certain underrepresented groups or protect existing power structures. The analysis of elections in the UK over the last 20 years shows that Labour women are nominated in constituencies they are more likely to win than men, which leads them to outperform the rate at which they are nominated. Conservative women are consistently nominated in constituencies they are less likely to win than men. Additionally, Labour nominates women preferentially where neighbouring Labour constituencies have nominated women in the past, indicating some degree of learning across space, a trend that can also be seen in the Conservative party in recent elections. Meanwhile, there is no evidence that the nomination of women from other parties affects nomination decisions either in the same or neighbouring constituencies.

The quota-like systems that were introduced by Labour and Conservatives work very differently for the two parties. All-Women Shortlists are a good way to nominate women in beneficial situations as they allow party leadership to preferentially select women for safe seats. Consequently, the relationship between the marginality of a constituency and the likelihood to nominate a woman showed a positive relationship for Labour after the introduction of the AWS, especially in open seats. The Conservatives' A-List and shortlist quotas failed to achieve a similar result, as have measures by other British parties (Ashe et al., 2010). In line with findings by De Paola, Scoppa and Lombardo (2010) and Bhavnani (2009), the increase in the number of women nominated by Labour seems to be sustaining itself, indicated by the diffusion of female candidacies across space. The 2017 and 2019 snap elections had a big impact on the recruitment of candidates: As Appendix IX shows, both parties nominated a large number of previous candidates again, even if they lost in the previous election. The candidate pool became essentially stagnant with parties largely relying on the existing pool of candidates. If the next election takes place as scheduled, both parties will have the opportunity to use the full four years for recruitment.

These findings underline the importance of party nomination institutions for women's representation. Even when more women are running and are recruited by political parties, the way that these parties organize the nomination process influences how pervasive male control over safe seats in parliament is. This effect is especially strong in majoritarian electoral systems due to the limited control of national parties and the decentralized nature of the nomination process. In Canada, parties do not exercise a lot of control over the nomination process and local networks as well as party culture prevail (Medeiros, Forest and Erl, 2018), but quotas exist on the party level. In the United States and Australia, political action groups such as Emily's list try to promote

female candidates for political office, often with specific political goals in mind (Sawer, 2006; Hannagan, Pimlott and Littvay, 2010). Table 1 and Appendix I gives a more complete overview of quota systems in recent elections and shows that party quotas make up the majority of quota systems across democracies. Especially in majoritarian systems, large parties, such as the Australian Labor Party and the Liberal Party of Canada use party quotas. The analysis of AWS therefore has important implications for raising women's representation through quotas around the world.

Expectations for the contagion of nomination patterns between neighbouring constituencies and other parties should be tempered: While there seems to be a positive association between neighbouring constituencies, there is no indication of cross-party contagion. This also means that quota shocks introduced by one party abruptly raising the number of female candidates is unlikely to spread to other parties, at least in a majoritarian electoral system, a finding in line with Matland and Studlar (1996). Importantly, this should also temper expectations of increases in women's representation without any form of quota: As Table 1 and Appendix I show, seven out of 37 countries have neither legislated nor party-level quotas. Especially in single-member districts, diffusion will likely not make up for the missing effect of quotas on the share of women in these parliaments.

Overall, these results show both a general improvement in the situation of women in British politics and a still sizable discrepancy between the two major parties in the United Kingdom. The leadership of David Cameron and Theresa May did not produce the desired wide-ranging effects on women's representation in the Conservative party and a turn towards a more diverse electorate. While Labour shows how parties can construct quotas in order to achieve high descriptive representation of women even in a first-past-the-post electoral system, the United Kingdom will not achieve equal de-

scriptive representation of women if one of the two major parties keeps lagging behind.

3 Not All Men: Public Perceptions of Gender Representation in Political Parties

Abstract: While parties have a large role in influencing the representation of women, much less is known of how voters perceive parties' efforts to promote female candidates. Existing evidence from the literature suggests that, on an aggregate level, voters value female candidates at least to the same extent as male candidates. Meanwhile, evidence points both towards a general under-representation of women in politics as well as large differences between left-leaning and right-leaning parties when it comes to selecting female party leaders and members of parliament. This study investigates voters' preferences for gender representation inside political parties. Using a single vignette survey experiment in five European countries, I show that voters have strong preferences for equal descriptive representation of men and women in political parties. Importantly, having a female party leader can even out low female descriptive representation among members of parliament. While women and left-leaning voters show the largest effect of parties' gender composition, all voters prefer gender-balanced to imbalanced parties.

3.1 Introduction

As one of the longest-serving female heads of government in the world, as well as the leader of the German Christian Democratic Party (CDU) since 2000, Angela Merkel has been the face of German conservative politics for almost two decades. While her prominence has earned her the nickname “Mutti” (mom) in the German media, a key factor for her success has been her ability to manage and control the party (Wiliarty, 2010). However, the CDU has not experienced large increases in women’s representation among members of parliament, with the party never topping 25% women among their MPs. In a speech commemorating the day women achieved the right to vote in Germany, Angela Merkel said in regard to the low number of women as party MPs: “My presence [as the head of the CDU] should not be an excuse.”¹

Meanwhile, left-leaning parties in Germany commonly nominate an equal number of female and male candidates but one key difference between the left-leaning German Social Democrats (SPD) and the CDU is that the SPD has never had a female lead candidate during a national election campaign. This gender split between right-leaning and left-leaning parties exists in many other countries such as between Labour and Conservatives in the United Kingdom or the parties on the left and right in France in recent years. While right-leaning parties continue to have low shares of female representatives, there is evidence that these parties have recently selected more and more female party leaders: The Front National in France, the CDU and AfD in Germany and the Conservatives in Britain have had women as party leaders in recent years.

This raises three fundamental questions: Does having women as members of parliament and party leaders affect the way voters perceive a party? In particular, is there a

¹The exact quote in German was: “Aus der Tatsache, dass es mich gibt, darf aber kein Alibi werden.” (Zeit Online, 2018)

trade-off in the eyes of voters between a higher representation of women as parliamentarians and having a female lead candidate? Finally, do these effects hold for men and women or left- and right-leaning voters?

Parties have chosen different strategies to promote women inside the party: some make sure that female candidates are nominated in equal numbers or even in better electoral districts, like Labour in the UK (Geddes, 1995; Saggar, 2000). Others seem to have no intention of increasing the share of women among their candidates and MPs, but see female politicians reach powerful positions inside the party, like the AfD in Germany. Finally, some countries like Spain and France introduced gender quotas, so even right-leaning parties such as Les Républicains in France and Partido Popular in Spain nominate a considerable number of female politicians.

Scholars have proposed different mechanisms that increase women's descriptive representation in political parties: O'Brien et al. (2015) and Caul (2001) describe the importance of female party leadership in promoting women's descriptive representation. Additionally, Weeks (2018) shows that both challenging parties from the left and internal pressures from local parties can force parties that are led by men to adopt gender quotas. In this study, I propose an additional mechanism that could influence the nomination strategies of political parties: Voters' preferences for equal representation. While the effect of gender for individual politicians has been studied extensively (Schwarz and Coppock, 2021), almost nothing is known on how voters perceive political parties in terms of how they promote women as leaders and members of parliament.

I test the public perception of female descriptive representation within a party by running a vignette survey experiment in five European countries (Poland, France, Italy, Spain and Germany), covering a wide range of quota systems and historical evolution of women's representation. I show that voters indeed prefer parties with equal numbers

of men and women among their MPs over imbalanced representation. Additionally, parties with predominantly male members of parliament are regarded more positively if they have a female party leader. This study fills several research gaps: It extends findings on gender preferences of voters beyond the context of the US and UK, shows that gender preferences of voters are relevant for political parties and provides evidence that party systems in Europe are becoming more congruent with their voters' preferences on women's representation. These findings provide an important missing piece for analyzing parties' efforts to promote women and show that getting an equal number of men and women elected lies in the strategic interest of parties across the political spectrum.

3.2 Female Representation within Political Parties

Political parties greatly influence the representation of women in politics. This process starts with recruiting potential political candidates. Already at that early stage, parties are more likely to approach and promote men than women (Fox and Lawless, 2004, 2010; Lawless and Fox, 2010) and many parties have realized this step as an important barrier to the equal representation of women (Campbell, Childs and Lovenduski, 2010, 2006). Subsequently, parties are less likely to nominate women than men, a factor that is the key determinant of the share of women in parliaments (Krook, 2010b). This nomination pattern is especially problematic because it gets reinforced as female candidates get nominated in less promising situations, such as constituencies the party is likely to lose (Ryan, Haslam and Kulich, 2010; Wäckerle, 2020). Finally, even after reaching the parliament, women are less likely to be promoted to powerful positions in the party group (Barnes, 2016; Barnes and O'Brien, 2018) and less likely to get significant speaking time on the parliament floor (Bäck and Debus, 2019).

Parties' efforts to focus on recruiting and nominating more women are often connected to external and internal pressure. Weeks (2018) describes how new parties and internal constituencies push parties to nominate more women. In the UK, the Conservatives have explicitly tied their efforts to promote women through the A-List to a changing electorate and losses in support from female voters (McIlveen, 2009). In her book "The Inclusion Calculation", Valdini (2019) describes how men strategically promote female politicians when it helps the party's or their own agenda. Especially when the public perception of a party is negative, male gatekeepers are likely to react by including more women in decision making, albeit this does not necessarily translate into more political power for women. In sum, parties' efforts to promote women as MPs are often strategic, rather than purely driven by the will to achieve parity between men and women.

Looking at party leadership, a substantial number of parties across the political spectrum have had female party leaders. O'Brien (2015) argues that parties are most likely to first have female leaders in times of crisis, but are likely to stay in power if their party gains influence subsequently. While women might face tougher situations when they enter positions of power, they manage to have political careers similar to men (Jalalzai, 2013; Escobar-Lemmon and Taylor-Robinson, 2015). Female leadership at the top might also shatter the glass ceiling that has held women back from achieving offices (Jalalzai and Krook, 2010).

Women's leadership in political parties has been shown to impact policy agendas of parties (Kittilson, 2011), as well as lead to more recruitment of female candidates (Cheng and Tavits, 2011). Wolbrecht and Campbell (2007) describe the role model effect of politics as the presence of female representatives encourages political activity, particularly among young women. Political offices occupied by women, especially if

they are high-profile, motivate other women to get involved in politics as well (Ladam, Harden and Windett, 2018; Campbell and Wolbrecht, 2006).

3.2.1 Voters' Preferences for Female Representation

While the aforementioned biases in selecting and nominating women matter for those that aim to achieve political power in parties, it is unclear how the public judges the situation of women in political parties. When evaluating individual politicians, stereotypes are part of responses of many voters (Sanbonmatsu, 2002; Dolan, 2010). These stereotypes can take on different forms: voters may prefer men to women as politicians or vice versa. Alternatively, they might expect gendered behaviour from women and men and punish politicians for not conforming to these expectations (Bauer, 2017). In list-PR systems (which are present in most of the cases in this study), Devroe and Wauters (2018) find that women and men are judged similarly in terms of competence, but women are perceived to be more leftist.

Nonetheless, it is questionable how these preferences transfer to voting decisions: Dolan (2014) has shown that voting decisions that exhibit gender bias in lab experiments do not translate into real-world behaviour. In fact, a meta-analysis of 67 candidate choice experiments revealed that respondents in conjoint or vignette experiments prefer women to men overall (Schwarz and Coppock, 2021). Women are preferred by an average of 2 percentage points, a result that is largely consistent across a multitude of studies. While many findings rest on data from the United States, Wüest and Pontusson (2017) present a similar result in Switzerland, as do Vivyan and Wagner (2015) in the UK.

However, this does not mean that women face a level playing field in politics: Women in politics commonly have higher qualifications, higher accomplishments out-

side parliament and a better track record once they are elected ([Anzia and Berry, 2011](#); [Volden, Wiseman and Wittmer, 2013](#); [Fulton, 2012](#)). [Bauer \(2020\)](#) shows that voters hold female candidates to higher standards than male candidates, which impedes women from entering parliament. Consequently, when women are found to achieve an equal vote share to men, this in fact means that their qualifications were valued less.

While these studies predominantly focus on the evaluation of individual politicians, voters' judgment of parties is less well studied. Research has shown that voters often exhibit preferences for equal distributions and fairness. [Sauermann and Kaiser \(2010\)](#) show that besides self-interest, overall fairness considerations shape decision-making in a laboratory experiment. In a similar vein, [Miller and Vanberg \(2015\)](#) provide experimental evidence that individuals tend to reject propositions that are unequal. These 'social preferences' are important for understanding markets, collective action, cooperation and social norms ([Fehr and Fischbacher, 2002](#)).

Moreover, procedural aspects of decision-making have important implications how people evaluate the legitimacy of a decision ([Dancygier et al., 2015](#); [Esaiasson et al., 2019](#)). [Clayton, O'Brien and Piscopo \(2019\)](#) have shown that descriptive representation of women in a decision-making body increases the legitimacy that voters attribute to that decision.

One tool that is specifically designed to raise the level of women in parliament are gender quotas and support for them is considerable among the public: [Barnes and Córdova \(2016\)](#) show fairly broad support for gender quotas in Latin American countries. Furthermore, more gender egalitarian values increase support for gender quotas. Additionally, [Cowley \(2013\)](#) shows that respondents have one set of preferences on the individual level and another on the aggregate: They value similar viewpoints to their own and local representation in individual voting choices, but show a preference for

equal representation of men and women on the aggregate. Meanwhile, research by [Espírito-Santo \(2016\)](#) suggests that there might be an upper limit to the public support of measures introduced to increase women's presence, suggesting that while there might be high support for some approaches (e.g. avoiding very uneven levels of representation), more strict approaches (e.g. parties nominating many more women than men) might be fairly unpopular.

In sum, research has unveiled considerable levels of support for equal representation, fair and inclusive decision-making and measures such as gender quotas among voters. However, many parties seem to not feel the need to nominate men and women to an equal extent, which could either be due to these preferences not translating to the party level and nomination results or an institutional failure of many parties to take these preferences into consideration during nominations.

Given that preferences for egalitarian outcomes in general and support for measures such as quotas specifically should correlate strongly with other aspects of politics, I argue that the preference for equal descriptive representation on the aggregate level translates to the evaluation of parties and would expect that parties with equal numbers of men and women are evaluated more positively than those with unequal representation.

Hypothesis 1: Voters are more willing to vote for parties whose MPs are equally male and female over those with predominantly male or female MPs.

Even if voters have preferences for equal representation of men and women, it is unclear if parties with few female MPs can soften the negative perception they would evoke in voters. In other words, do voters only judge descriptive representation by the share of female MPs or is it possible to balance out a low number of female MPs with a female party leader? For descriptive representation of women to translate into substantive representation, the literature has recently put more emphasis on 'critical actors',

powerful political actors that advance women's interests rather than the absolute number of female representatives (Schwindt-Bayer and Mishler, 2005; Childs and Krook, 2008, 2009). In line with this theory, female party leaders might have an out-sized influence on the representation of women and voters might recognize the importance of a woman reaching one of the most powerful position in a party.

Additionally, voters might generally be unaware of the share of women in political parties. Findings by Sanbonmatsu (2003) and Stauffer (2021) suggest that individual voters are very unlikely to know the gender composition of parliaments. It is unlikely that voters are more aware of women's representation in parties than in parliament. A female party leader might therefore be a useful information shortcut voters use to overcome this lack of knowledge. As outlined above, there is considerable evidence of a role model effect of women in leadership positions, especially on women. Consequently, a woman as party leader might provide a strong signal, especially to women, that the party is welcoming women's participation and valuing their ideas, cancelling out the negative perception of a predominantly male group of MPs.

Hypothesis 2: Voters are least willing to vote for a party that has both male MPs and male leadership, but a female leader increases the willingness to a similar extent as more female MPs.

3.3 Research and Survey Design

I am interested in how factors such as the gender of the party leader of a party or the share of women among their candidates affect voters' evaluations of parties. However, observational studies of parties and voting decisions struggle with disentangling the specific effect of an attribute such as the gender of the party leader on vote choice.

When observing real world parties, voters bring a set of preconceptions with them, based for example on partisanship, personal experiences, upbringing or socialization. Furthermore, respondents might adhere to social expectations, specifically when judging female representation and might be unwilling to state opinions that do not conform to equal representation. Some combinations of parties might also prevail in reality (e.g. parties with predominantly male MPs and a male party leader), while others are uncommon or not observed at all in a specific country (e.g. parties with predominantly female MPs and a male party leader). This makes it hard or impossible to estimate the effect of any of these attributes individually.

To tackle these issues, I use a single-profile vignette experiment that allows me to randomly vary the properties of a hypothetical party. Respondents are presented with a short paragraph describing a fictional party, which is defined by several attributes, each of which is randomly drawn from a set of levels. The design therefore guaranteed complete randomization and all possible combinations of attribute levels could be shown to the respondent. Compared to a forced vote choice experiment (that instructs respondents to pick between two profiles of parties, resembling voting in a two-party system), a single vignette experiment allows respondents to judge parties individually, revealing nuanced preferences between multiple parties commonly found in a multiple party system. Additionally, I am interested in changes in degrees in support, arguing that a decrease in support for a party, or multiple parties, represents a meaningful quantity in a political system, especially considering the implications for efficacy and legitimacy discussed above.

[Hainmueller, Hangartner and Yamamoto \(2015\)](#) have shown that different forms of vignette and conjoint survey experiments produce revealed preferences that converge to behavioral benchmarks. In addition, vignette and conjoint experiments have high

internal validity because they allow the researcher to fully control what respondents see and the randomization ensures that effects of single attributes can be isolated. Respondents also do not have to clearly state their preferences regarding the share of women in a party and can reveal them as part of a holistic assessment of the hypothetical party presented to them. This should alleviate concerns about social desirability biases. In recent years, conjoint and vignette experiments have been used extensively in political science, for instance, for studying immigration (Hainmueller, Hangartner and Yamamoto, 2015), elections (Horiuchi, Smith and Yamamoto, 2020) and EU institutional reform (de Vries, 2018). Clayton and Anderson-Nilsson (2021) outline the increasing use of experimental gender articles in political science and show how they can contribute important findings to the literature.

The vignette design presented in this paper presents the respondent with a familiar task: Deciding how likely he or she is to vote for a party based on a set of limited information. While the kind of information commonly available to citizens is much broader than in this experiment (crucially involving information about policy preferences and legislative track record), voters should still be able to form an opinion on a hypothetical party based on limited, but highly relevant information about that party. Importantly, the survey is designed to limit associations to real parties, therefore revealing preferences citizens have about political parties rather than simply reflecting partisan ratings. This allows me to draw general conclusions about public preferences of gender representation rather than reproducing a snapshot of the current political landscape.

3.3.1 Experimental Setup

After making clear that all parties shown are purely hypothetical, I presented five vignettes that describe hypothetical political parties that run in an upcoming national

election to respondents, each on a separate page. In a vignette design, certain attributes of the vignette that is presented to the respondent are randomly drawn from a set of levels. The levels and attributes for this survey are presented in Table 3.1. I not only vary the gender composition of the party, but also their ideology and government participation to control for inferences made by the respondent about the ideological leaning of the party from the number of women among the MPs. This allows us to estimate the effect of an attribute holding every other attribute constant. One of the potential vignettes, translated to English, looked like this (the words in bold font were randomly drawn from the levels in Table 3.1):

“For an upcoming national election, party A nominated **a woman** as the lead candidate. Prior to the election, this **right-leaning** party was **the prime minister party in government**. The members of parliament for this party are **predominantly female**.”²

Table 3.1: Attributes and Levels for Vignette Design

Attributes	Levels
government	Party is in the opposition; Party is part of the government; Party is the prime minister party in government
ideology	centrist; left-leaning; right-leaning
leader	male lead candidate; female lead candidate
Members of Parliament	equally male and female; predominantly male; predominantly female

After showing the vignette, I asked respondents to indicate whether they would vote

²The vignette is set in an electoral context. Therefore, I use the term “lead candidate” instead of party leader. In most cases, these two positions coexist. Exceptions are for example Prawo i Sprawiedliwość in Poland in 2015 and the Parti Socialiste in France in 2012.

for the hypothetical party with a voting propensity scale ranging from 0 (very unlikely) to 10 (very likely).

3.3.2 Sample

I fielded this vignette experiment in five European countries, namely Germany, France, Italy, Spain and Poland. Taken together, those countries have almost 300 million inhabitants, more than half of the European Union. These countries cover a wide range of how women are represented today: In Germany, the Christian Democrats, Social Democrats, the Greens, the Left and the Alternative für Deutschland have women among their party leaders, but the level of women among MPs differs greatly between the parties. In Poland, the major moderate opposition party (Platforma Obywatelska) has had a female leader in recent years, while other parties on the right have not had female leadership historically. In France we find the opposite situation: the main right-wing opposition party (Front National) has a female leader while other parties on the political left are led by men. Finally, both Spain and Italy do not have extensive experience with female party leaders (except for Fratelli d'Italia), but recently saw large increases in the number of women in parliament after introducing electoral quotas. Using this country selection, I can see how women's representation in the respective party systems have developed in recent decades and how that corresponds to preferences of voters.

The literature on women in politics has long focused on the United States and the United Kingdom. [Schwarz and Coppock \(2021\)](#) cite 67 studies on gender preferences by voters of which 28 are done in the US and 10 in the UK. This research project extends these findings to new countries and party-centered electoral systems. While much of the literature has been developed in candidate-centered systems, parties are the central political actors especially in Germany, Poland, Italy and Spain. The case selection pre-

sented here should significantly enhance our understanding of gender dynamics across different political systems and countries. Additionally, including multiple countries allows me to base the analysis of party support on a broader range of parties: While in one country, the main parties might not have female leaders (such as in Spain), across these five countries we find all combinations of female representation among MPs as well as party leadership.

The survey was conducted with Dalia Research and field time was 30 November 2018 to 13 December 2018.³ In each country, 800 voting-age citizens rated five vignettes each, adding up to a total of 20000 decisions. I had the English survey translated into German, French, Spanish, Italian and Polish and checked the translations with the help of political scientists that are native speakers of these languages. The exact wording of all questions that were presented can be seen in Appendix L. Dalia Research contacts respondents on a network of apps and websites and invites them to participate to their survey. Screening questions ensure that the pool of respondents match the voting-age population in regard to age, education and gender. The resulting sample is consistent with the broader public both in terms of demographics as well as political preferences. More details on the sample can be found in Appendices A and B.

⁴ The research project has received ethics approval from the Ethics Committee at the University of Cologne.

Results

Hainmueller, Hopkins and Yamamoto (2014) show that vignette experiments can be

³In Germany and Spain, the survey ran from 30 November to 12 December, in France and Italy from 30 November to 5 December and in Poland from 2 December to 13 December.

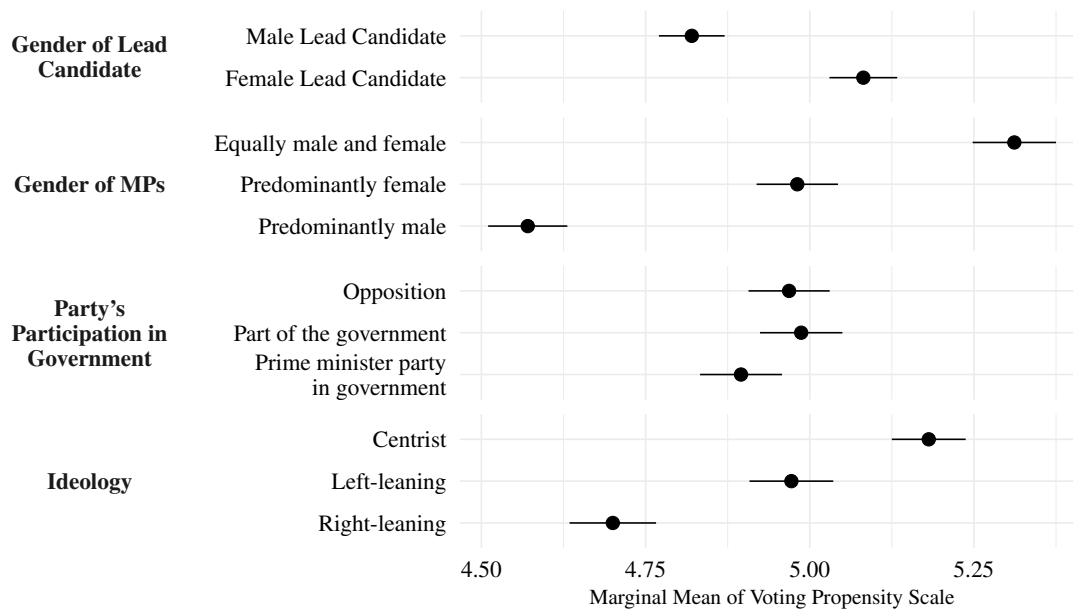
⁴This project was part of a collaborative research project. The question this article is based on were asked after a similar survey experiment on the European Union.

analyzed non-parametrically and the effect of single attributes can be isolated, even when many combinations of attribute levels are not shown to the respondents. Using respondent-level cluster-robust standard errors and guaranteeing full randomization, I can obtain the average marginal component effect (AMCE). The AMCE represents the effect of one attribute level (compared to a baseline), keeping all other attributes constant. However, I present the plots in the main section of this study using marginal means (MMs) rather than AMCEs, as MMs can be interpreted as predicted values of the dependent variable and have the benefit of requiring no arbitrary choice of reference category (Leeper, Hobolt and Tilley, 2020). The AMCE results can be found in Appendix C. Also, marginal means facilitate the analysis of subgroup preferences. In subsequent plots, I present the marginal mean estimate as well as 95% confidence intervals.⁵

Figure 3.1 shows the main result of the marginal mean analysis. I show pooled results of all 20,000 vignettes from all five countries with respondent-level clustered standard errors. While there are no statistically significant effect of government status, centrist parties are preferred to both left-leaning and right-leaning parties in that order. Respondents prefer parties with female over those with male lead candidates by 0.26 points on a scale from 0 to 10 (this corresponds to 0.10 standard deviations on the dependent variable). The strongest effect in the survey exists for parties whose members of parliament are predominantly male. Those parties lost 0.74 points on the approval scale compared to parties with equal numbers of male and female candidates, which corresponds to 0.28 standard deviations on the dependent variable. Parties with predominantly female MPs are also less popular than parties with equal numbers of men and women. These findings support Hypothesis 1 and underline preferences for

⁵Vignette analysis is done with the *cregg* package (Leeper, Hobolt and Tilley, 2020). All vignette graphs are done with the *dotwhisker* package (Solt and Hu, 2018).

Figure 3.1: Marginal Means of Willingness to Vote for a Party by All Attributes



descriptive equality between men and women at the party level.⁶

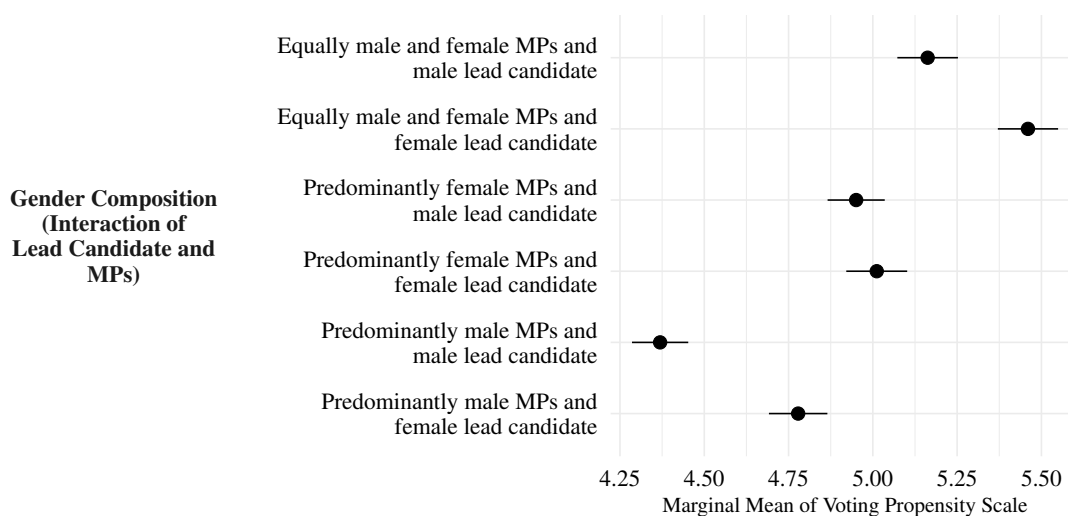
Appendix E shows this main model for the different countries in the survey. Germans are least willing to vote for right-leaning parties, while respondents in Italy and Poland prefer right-leaning to left-leaning parties, in line with recent election results. Running a female lead candidate results in a more positive evaluation in France, Italy and Spain, whereas there are no differences in Germany and Poland. Parties with predominantly male MPs are rated the most negatively in all countries except for Poland, where respondents prefer equal representation to both the overrepresentation of women and men. Appendix H shows that only supporters of very few parties actually pre-

⁶One concern when running survey experiments is the attention respondents pay towards the survey, especially when asked about multiple vignettes. While respondents for this survey spent less time looking at later vignettes than on the first, they still spent a considerable amount of time reading them. While the median amount of time spent reading the first vignette was 19 seconds, this number fell to ten and nine seconds respectively for the final two vignettes. Details can be found in Appendix D. Figure D2 shows that there were almost no differences in answering patterns across vignettes: on average, respondents did not answer the fifth vignette they saw differently from the first one they saw.

fer predominantly male MPs to equal representation (voters of UDI in France, PSL in Poland and FdI in Italy, although not to a statistically significant degree). Conversely, even voters of right-leaning parties such as PiS in Poland or CDU/CSU in Germany prefer equal representation, as do voters of centrist and left-leaning parties. Finally, Appendix I shows that it is unlikely that the rating of some randomly generated party profiles that resembled real parties influenced the results: Effects for those party profiles are virtually the same as for others. This addresses a key warning raised by Clayton and Anderson-Nilsson (2021): Studying political gender preferences of voters might be biased because it takes candidate (or party) profiles into account that are extremely unlikely to exist in real life. In Appendix I, I show that the results presented above are not driven by combinations of attributes that are likely to occur in practice.

3.3.3 Interactions Between Members of Parliament and Lead Candidates

Figure 3.2: Interaction between lead candidate and gender composition of MPs



Subsequently, I am interested in the effect party leadership has on balancing out the negative perception caused by predominantly male representatives from a party. Figure 3.2 shows the interaction between party leadership and the share of women among the MPs (this graph only shows the relevant portion of the analysis, for a full version see Appendix F). Importantly, among parties with predominantly female MPs, the gender of the lead candidate does not have an effect on the willingness to vote for the party. Meanwhile, when the MPs of the party are predominantly male, parties with female lead candidates are preferred to those with male lead candidates. A similar effect exists for parties with equal gender representation among MPs.

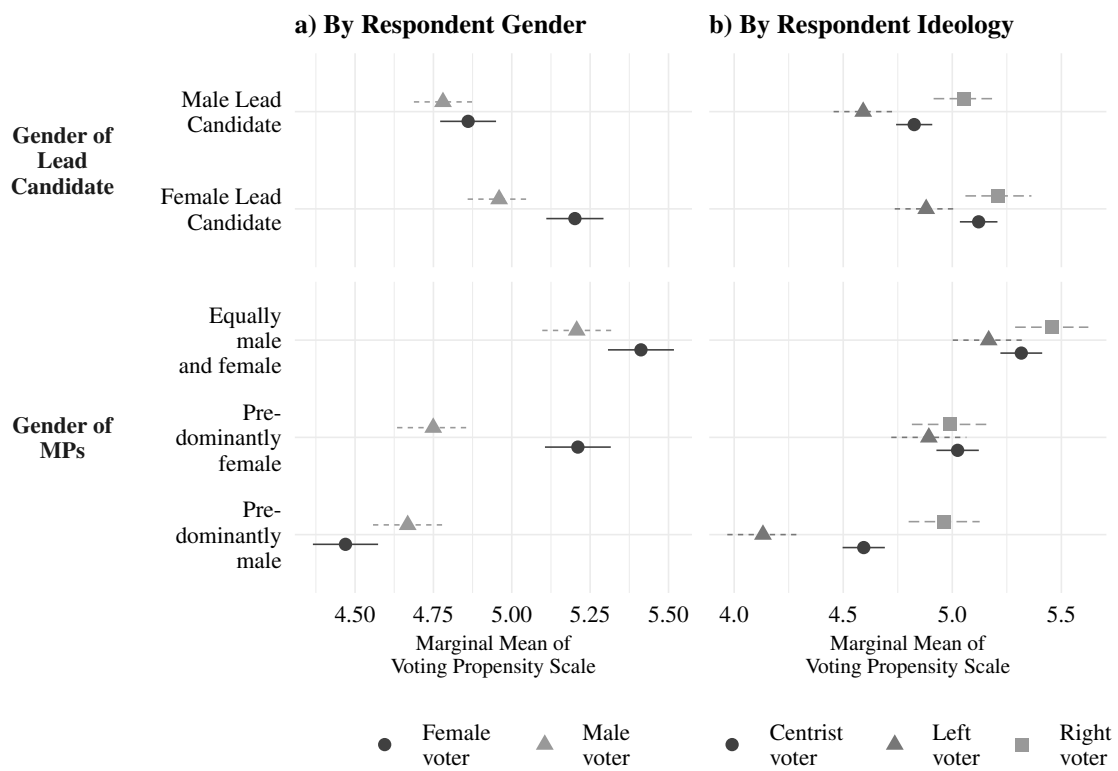
This effect is substantially large: While parties with predominantly male MPs and female lead candidates are regarded almost as positively as those with predominantly female MPs, those with male lead candidates are regarded almost half a point more negatively on the voting propensity scale (0.15 standard deviations on the dependent variable). The contrast between the configuration that is rated the worst (male MPs and male lead candidate) and the one rated the most positively (equal male and female MPs and female lead candidate) is 1.09 on the voting propensity scale or 0.41 standard deviations on the dependent variable. This underlines the possibility of evening out low female representation with female lead candidates, supporting Hypothesis 2. This finding has important implications for parties that run female lead candidates together with male dominated candidates, such as the German CDU and the British Conservative Party. For the overall electorate, running a female lead candidate has a positive effect precisely in those situations in which voters would punish low female descriptive representation in the party.

3.4 Unlikely Allies? Men and Right-leaning Voters

Finally, I am interested in the way these preferences hold for male and female as well as left- and right-leaning voters. The left panel in Figure 3.3 shows the marginal mean of voting for a party for men and women, zoomed in on the effect of lead candidate and MP gender (a full version of this plot can be found in Appendix G) . While there is no difference in marginal means between men and women for male lead candidates, the positive effect of running a female lead candidate is stronger for women. Similarly, both men and women prefer equal over unequal gender representation among MPs. However, women rate parties with predominantly female MPs almost as positively as those with equal representation while men dislike predominantly male and female parties to a similar extent. Figure G3 in the Appendix shows the interaction of MPs and lead candidates, similar to Figure 3 for both men and women. For both men and women, running a female candidate can even out the negative effect of predominantly male MPs. While women have more clearly defined preferences in terms of descriptive gender representation, men also strongly prefer equal to unequal representation. This matches findings by [Beauregard \(2018\)](#), who shows that differences among men and women are larger than those between them, indicating there are indeed many men that have preferences for gender equality (although they are still more present among women).

The effects for left- and right-leaning as well as centrist voters are shown in the right panel of Figure 3.3, again zoomed in on the gender composition. I find some differences between ideological groups in judging parties based on their gender composition. All voters prefer equal over unequal representation, but right-leaning voters do not distinguish between predominantly female and predominantly male MPs. The change in willingness to vote is larger for left-leaning voters, but all voters prefer gender balance to imbalance. Also, Figure G4 in the Appendix shows that both right- and left-leaning

Figure 3.3: Marginal Means of Willingness to Vote for a Party in Subgroups



voters accept compensating predominantly male MPs with a female lead candidate.

Conclusion

Voters exhibit strong preferences for equal representation of men and women. In all subgroups (men, women, left- and right leaning), as well as all countries in this study, voters prefer an equal share of men and women among MPs of a hypothetical party to parties that have predominantly male or female MPs. Additionally, female party leaders lead to a more positive evaluation of parties and can even out the negative effect of predominantly male MPs.

These findings support the importance of gender balance within political parties for voters: It is very likely that left-leaning parties benefit from being perceived more inclusive towards women as voters across the political spectrum have preferences for equal representation. Additionally, it is a worthwhile strategy to balance out low numbers of women among MPs with women as party leaders, as right-leaning parties across Europe have been doing in recent years. For party leadership, the survey found that female party leaders are not only important for promoting women within the party but have a substantial impact on how voters judge political parties.

From a party politics perspective, there are good reasons to expect parties to not simply reflect public preferences on women's representation: Parties are gendered institutions and power within these institutions has traditionally been in the hands of men (Krook, 2010b; O'Brien, 2015). Even when women reach the highest position in a country, this does not automatically lead to more women being promoted (O'Brien et al., 2015). Even besides incumbency, decision-making structures such as party conventions are far from efficient markets that make sure voter preferences are reflected

in candidate nomination (compare e.g. [Rahat, Hazan and Katz, 2008](#)). In proportional representation systems, party institutions have to make decisions about nominations. While doing so, parties need to take a multitude of actors into account: different policy areas have to be covered, local factions, youth organizations, incumbents and interest groups have to be taken into consideration ([Rahat and Hazan, 2001](#)).

As this survey design relied heavily on randomization of attributes and hypothetical parties, these findings cannot be extrapolated easily to existing parties. It is reasonable to expect that, as soon as real party labels were applied to these parties, many of the effects would be weaker and partisanship would prevail. [Clayton and Anderson-Nilsson \(2021\)](#) warn against using experiments with hypothetical scenarios to study biases that might only manifest in real-world behaviour. This study design aimed to uncover underlying preferences of voters, which are independent of real political parties. In the trade-off between preferences getting drowned out by partisanship versus revealed preferences not being perfectly applicable to real-world settings, this study chooses the latter. Clearly, combining these findings with a similar study that uses a setup that is closer to a real-life electoral setting would be very important in understanding this subject even better.

Meanwhile, there are good reasons to take these results seriously on their own. In campaigning, parties could activate these general preferences and groups within parties that promote women's representation should be more vocal about the importance of women's representation for electoral success. Additionally, lower excitement about the pool of candidates may lead to less willingness to campaign for a party, motivate friends and family to vote or splitting a ticket in races with multiple candidates or tiers.

Social desirability might also play a role in the findings presented above: Some respondents might not want to state that they prefer male to female politicians (or female

to male politicians) when asked directly. However, online vignette experiments are designed to minimize such an effect, as respondents anonymously rate complete profiles rather than explicitly state their preferences to an interviewer.

Future research could focus on parties' strategies of promoting women: Are parties aware of the dynamics described in this study and do they nominate female MPs and party leaders at least partly with voters' preferences in mind? Why do so many people, especially on the right fail to nominate equal numbers of men and women, even though voters would support it? How do these findings translate to actual parties? For this, researchers should look at popular support around important moments such as the introduction of a party gender quota and the election of a female lead candidate or party leader. The findings presented in this paper lay the groundwork for this by establishing voters' preferences for equal representation of men and women in political parties.

4 Distinctive Voices: Speech and Women's Representation in Five European Parliaments

Abstract: With shares of female politicians rising across the world, researchers have worked to establish the empirical link from descriptive to substantive representation in parliament. We argue that, besides policy outputs, bill cosponsorship and roll call voting, the primary venue for female MPs to substantively represent female voters are parliamentary speeches. We measure substantive representation in parliamentary speeches using the predictive accuracy of machine learning models, and propose that the certainty with which algorithms can predict a speaker's gender based on text carries substantial information. Using data from five European national parliaments from 2000 to 2018, we show that female and male MPs talk about policy differently, and that this difference is especially pronounced on topics that have high salience to female voters. These findings show a direct connection between descriptive and substantive representation.

4.1 Introduction

Abstract: With shares of female politicians rising across the world, researchers have worked to establish the empirical link from descriptive to substantive representation in parliament. We argue that, besides policy outputs, bill cosponsorship and roll call voting, the primary venue for female MPs to substantively represent female voters are parliamentary speeches. We measure substantive representation in parliamentary speeches using the predictive accuracy of machine learning models, and propose that the certainty with which algorithms can predict a speaker's gender based on text carries substantial information. Using data from five European national parliaments from 2000 to 2018, we show that female and male MPs talk about policy differently, and that this difference is especially pronounced on topics that have high salience to female voters. These findings show a direct connection between descriptive and substantive representation.

Europe has seen a general but uneven increase in the share of female parliamentarians in recent decades. While in some countries, such as Sweden, more than 40% of members of parliament are women, others, such as Ireland, have only very recently seen women make up more than 15% of the legislature.¹ Equality in gender representation is a desirable goal in politics as a matter of justice in itself, but also because we know that, among the public, women have systematically different preferences and behavior than men (Chattopadhyay and Duflo, 2004; Gerrity, Osborn and Mendez, 2007; Homola, 2019). Having fewer women in politics than their share in the population means that their voices and interests are underrepresented in politics, marking an essential flaw in presumed representative democratic systems.

However, this argument rests on a fundamental and contentious assumption: that

¹Numbers in this section are from the database at the Interparliamentary Union (IPU, 2018).

having more women in parliaments (descriptive representation) seamlessly translates into more distinctively female voices in the public debate who will also fight for women's interests (substantive representation). As Jane Mansbridge and others have argued, the presence of women has a substantive but far from straightforward impact on how well women are represented in politics (Mansbridge, 1999, 2003; Phillips, 1995). For female politicians to effectively change agenda setting towards incorporating topics such as child care provisions or sexual violence, they need to be heard on issues relevant for female voters (Mansbridge, 1999).

Meanwhile, these changes are made even more difficult by the fact that parliaments have to be understood as gendered workplaces and the status quo of policies has been set by men in power (O'Brien and Piscopo, 2019). Work realities for female MPs are different from their male counterparts as they face situations ranging from pressure and anxiety (Erikson and Josefsson, 2019) to outright sexism, sexual harassment and violence (Collier and Raney, 2018; Krook, 2018). Finally, entry of women into politics alone does not change how parliament works: Like many institutions, parliaments are slow to change their way of working, but a starting point for this is the way parliamentarians talk (Ballington, 2009). This paper asks exactly whether and how female parliamentarians speak differently than their male counterparts, and what that tells us about women's substantive representation by female politicians.

We argue that the most relevant place to look for indications of how women represent women is in how and what they talk, for "speech is what makes men political" (Arendt, 1998, p. 3). For example, several studies have looked at whether the share of women in parliament affects, among other things, policy outcomes towards assumed women's preferences (e.g. Clayton and Zetterberg, 2018; Mavisakalyan and Tarverdi, 2019). However, there is a long chain of causality between women's presence in parlia-

ment and policy output, which passes through agenda-setting powers, party preferences and constraints, legislative processes, and so on. Meanwhile, female parliamentarians can serve as a symbol, a role-model, seen speaking in a way that women are not used to hear from their male representatives. Seeing women representatives increases political knowledge, interest and perceptions of efficacy among women (Hinojosa and Kittilson, 2020). Women MPs are exercising substantive representation when they take to the parlour and speak up on a certain issue that is gendered and salient for female voters even if, due to parliamentary process intricacies, that issue does not end up being enacted as policy.

We look into these two issues using advanced techniques of natural language processing, applied to a corpus of speeches from five national parliaments (Germany, Ireland, Netherlands, Spain, and Sweden), over almost two decades. A recent insight by Peterson and Spirling (2018) showed that the predictive accuracy of machine learning models trained on speeches from the British House of Commons serves as an indicator of political polarization: the easier it is for a statistical model to tell whether a speech is given by a Labour or Tory MP, purely based on the words used, the more different the two parties are speaking and hence the more polarized politics is. We adapt this to the gender context: the easier it is for a model to tell whether a speech is given by a male or female MP, the more distinctively women are speaking in relation to men. We then proceed to identify the sources of prediction accuracy: is it because women have a different style from men (how they speak), because women speak about different issues (what they talk about), or both?

The machine learning approach allows us to use an inductive approach to substantive representation: As we apply the model to the whole speech corpus, we do not have to have a pre-defined notion of how women's representation looks like. Especially

when it comes to a comparative study over a considerable time span, the approach will identify speech patterns that are more predictive of men or women at a specific moment in time in a country. We can therefore learn more about how female politicians represent women without using pre-conceived notions of how this representation should look like. Additionally, we use survey data on the national level to establish the kind of policy areas that were important to female voters at the time to get an even better understanding of how well substantive representation in parliament matches public opinion.

Our findings show that women's speeches are remarkably different from men's, in all countries and even when we look only at speeches given within a specific policy area. Women both use a different style, and emphasize different issues when talking about a given topic. Moreover, female MPs' discourse is most gendered in issues that are most relevant for female voters. Taken together, these findings provide strong evidence that women's presence in parliament is directly linked to symbolic and substantive representation of female citizens.

4.2 How do women represent women?

Most legislatures of the world do not resemble the public they are elected or selected to represent in a descriptive way. Analyzing representation in this way, focusing on the characteristics and likeness of representatives vis-à-vis the general public is what Pitkin calls representation as standing for, commonly known as descriptive representation (Pitkin, 1967, pp.60ff). Importantly, Pitkin is quite critical towards focusing on that concept, as it presumes the mere similarity between a legislature and the public to be sufficient for congruence between actions of the legislature and the actions the public would have taken in its place (Pitkin, 1967, pp.84ff.) Jane Mansbridge calls this view

of representation microcosmic, the legislature being a miniature version of the country it governs (Mansbridge, 1999, p.631). She argues for a system of selective descriptive representation (Mansbridge, 1999, p.632) that solves imbalances in descriptive representation through the electoral system.

Mansbridge points to important aspect of descriptive representation for the political system: Uncrystallized interests, experiences and political views that are unique to a political group need to be represented (Mansbridge, 1999, pp.643ff.). Additionally, the presence of women affects the social standing of women more generally and legitimizes political decisions more broadly (Mansbridge, 1999; Clayton, O'Brien and Piscopo, 2019, pp.648ff.).

However, these authors stress that the translation between descriptive and substantive representation is far from straightforward. Phillips states: "While the politics of ideas is an inadequate vehicle for dealing with political exclusion, there is little to be gained by simply switching to a politics of presence. Taken in isolation, the weaknesses of the one are as dramatic as the failings of the other." (Phillips, 1995, p.24f.) Pitkin writes: "In the realm of action, the representative's characteristics are relevant only insofar as they affect what he does." (Pitkin, 1967, pp.142)

Meanwhile, representatives have to justify their actions to multiple actors: In modern political systems these could be the party that nominated them, the local constituency that supported their nomination or the people that voted for her for a range of reasons only some of which might be related to her gender. Jane Mansbridge also only provides contingent agreement to prioritizing descriptive representation, but argues that the benefits outweigh the costs in many cases (Mansbridge, 1999).

In this paper, we treat member of parliaments as individuals and go beyond the party level to examine individual members' actions. Wolkenstein and Wratil (2020) describe

this as "personalization", the extent to which representatives act as individuals rather than agents of their party. Additionally, we treat women MPs as "surrogates", acting for women, even if they have no direct electoral connection to them (e.g. they are elected in a different single member district).

4.2.1 Women acting for women in parliament

A common way to study women's representation in legislatures is to look at how policy output changes when there are more women in parliament. For example, a larger share of female MPs has been shown to affect government spending (Funk and Philips, 2019; Svaleryd, 2009), particularly health care and military spending (Clayton and Zetterberg, 2018), maternity and childcare leave (Kittilson, 2008) and lead to more stringent climate change policies (Mavisakalyan and Tarverdi, 2019).

Catalano (2009) shows that women MPs are more likely to participate in debates on health care than on other policy areas in the UK, specifically if the topics are salient to women. Similarly, bill cosponsorship has been used to show that women do engage with topics that are generally regarded as women's issues such as education, children, families and women's health (Barnes, 2016; Swers, 2005; Schwindt-Bayer, 2006). Homola (2019) shows that higher descriptive representation of women does not reduce the gender gap in Western European parties' responsiveness to public opinion.

If the presence of women has no direct effect on the bills that pass a legislature, a measure that only looks at policies approved would claim that no substantive representation took place. However, given all other factors which may influence legislation, we argue for looking at signs of representation in earlier steps during the legislative process. Specifically, women in parliament standing up for and defending a policy that female constituents prefer is a strong action of substantive representation, even if the

eventual policy output is not their favored option. Only by looking at speeches are we able to capture the actual event of “women acting for women”, and thus of the translation between descriptive and symbolic/substantive representation. Therefore, while policy output and bill cosponsorship do uncover essential aspects of women’s political representation, they cannot tell the whole story, as both are subject to various partisan and institutional constraints. For this reason, we should look for substantive representation in earlier steps of the parliamentary process.

Our argument is that parliaments are the primary fora where substantive representation of women can appear. Descriptive representation is straightforward – the share of female members of parliament. The first and easiest connection then is to symbolic representation. Seeing a woman in parliament can already serve for role-model effects (Campbell and Wolbrecht, 2006; Ladam, Harden and Windett, 2018). The (low) baseline role-model effect, which most countries have surpassed today, is simple: if there are women in parliament, it means it may be possible for women to have a (successful) political career and this can affect public opinion towards the political system.

No doubt, speeches are not free of constraints: women are less likely to speak in general, and more often speak on so-called “female issues” such as health care and education (Bäck, Debus and Müller, 2014; Mendelberg, Karpowitz and Goedert, 2014), be it on their own volition, or selection by party leaders. Nevertheless, what female MPs express in their speeches, and how, is something that can mark the difference to words and actions by men in parliament. The question then is, do female parliamentarians speak differently from their male counterparts? In a highly formalized setting such as parliamentary politics, most other social group symbols are somewhat restricted: conduct and dress codes are standardized with little space for individual expression. With the prevalence of speech as a centerpiece of political action for individuals to disclose

themselves to others (Arendt, 1998), parliamentary performance through language is the primary way in which female politicians could stand out from men and represent female voters through their actions in parliament.

4.2.2 Gender and Language in Parliament

If we are able to accurately tell whether parliamentary speeches were given by men or women, there are two possible reasons which are well documented among the general public (Newman et al., 2008; Leaper, 2014): a) emphasis on different topics, and b) different speaking styles. By topics, we mean that female speakers may focus on different issues than men. We may expect that from a variety of speeches, some would be classified as given by a woman because female politicians are more likely to talk about that topic. This includes the typical “female” areas of education, family, and women’s health (Bäck, Debus and Müller, 2014; Swers, 2005).

The other reason refers to style of speaking, which is related to the grammatical elements of text used. Along this line, Yu (2014) looks at twenty years of House floor speeches from the US, between 1989 and 2008, and find that Congresswomen addressing the House were more likely to use nouns and less likely to use verbs than Congressmen, and there were little differences in pronoun use. This follows research stating that people adapt their communication style to fit that of their surrounding and listeners, as a way of blending into that group (Giles and Coupland, 1991). On the other hand, Childs (2004) finds evidence in the UK that women approach politics in a less confrontational way, especially when it comes to language, while studies in the United States have found that male MPs appear to react strongly to incoming female members, for example through challenging and aggressive language (Rosenthal, 1998; Kathlene, 1995; Grey, 2002). Based on these substantive and stylistic differences, our

first hypothesis is:

H1: Speeches by female MPs are systematically different from those by male MPs.

It is important to note that finding evidence for H1 is not necessarily evidence for substantive representation. Parliamentarians do not decide alone on what topics they will speak. Committee allocation and speaking time on certain issues are oftentimes decided by party leaders, who might make these decisions based on gender stereotypes, therefore assigning female MPs to talk about healthcare simply because it is structurally perceived as a female policy area (Bäck, Debus and Müller, 2014).

Given what is known about legislative speech, we may expect that both style and content may play a role when looking at all speeches delivered in a parliament. For this reason, we should also focus on speeches given within the same topic area. If speeches by women can still be distinguished from those given by men on the same topic, based on the text alone, this would mean that men and women express themselves differently even when discussing what is broadly the same thing. One reason might still be that women and men, when talking about the same topic, focus on different issues within it – for example, when talking about healthcare, women discuss reproductive rights more often than men. Hence, our second hypothesis is that:

H2 : Speeches by female MPs on a given topic are systematically different from speeches by male MPs on the same topic.

Finally, we argue that real substantive representation is not only connected to women speaking more about typically ‘female’ topics. Substantive representation happens if female MPs act most distinctively in parliament on those issues that are most

gendered in society – meaning, those where female voters care more than male voters. Mansbridge (1999) stresses the “distinctive attention” (p.647) that female legislators bring to issues that are of salience to female voters, but are not present in parliamentary discourse. MPs from a certain social group would be more likely to act on group-salient issues, and more expected to do so, than other MPs (Paolino, 1995). Empirically, women have been the proponent and the key force behind a large portion of legislation on what are commonly considered women’s issues (Wängnerud, 2000; Bratton, 2005; Franceschet and Piscopo, 2008). If we suppose that health care is a highly gendered issue, this would translate into female MPs also speaking more differently from male MPs on this topic. We treat all policy areas as potentially gendered, rather than assuming that some policy areas, such as health care, is a women’s topic in all countries at all times. Note that we assume this relationship not to be U-shaped: The distinctiveness of female speeches is not due to a general difference in salience, but rather specifically present in policy areas in which female voters care more than male ones. We suggest the reason for this is that female politicians act to overcome the underrepresentation of women in parliament, specifically by focusing on policy areas that matter to female voters, collaborating and pushing the way politics have been done in these areas in the past (Barnes, 2016; Swers, 2005). Our third hypothesis is

H3 : Speeches by female MPs are more distinct in policy areas that matter more to female voters.

4.3 Empirical Strategy

Researchers have for a long time been using machine learning to show that statistical models can accurately distinguish communication from male or female authors based purely on text, using sources as diverse as blog posts (Janssen and Murachver, 2004; Koppel, Argamon and Shimoni, 2002; Mukherjee and Liu, 2010), academic papers (Sarawgi, Gajulapalli and Choi, 2011), or social media content (Bamman, Eisenstein and Schnoebelen, 2014). Dahllöf (2012) uses Support Vector Machines to predict the gender of Swedish MP's who served between 2003 and 2010, based on parliamentary speech excerpts. This method achieved an accuracy rate of around 80% across a few different specifications, showing that it is possible to identify personal characteristics purely based on speech patterns from elected members of parliament. This can be considered a high level of accuracy, given that parliamentary speeches are a formal communication medium, in which gender-specific language styles are not expected to be as high as in more unstructured means, such as personal communication or social media (Janssen and Murachver, 2004).

To test our hypotheses we use parliamentary speeches from recent legislatures in five countries: Germany, Ireland, Netherlands, Spain, and Sweden. These countries are a good selection because, first, they include varying levels of female participation in politics: within the OECD, Ireland has notoriously low levels of women in parliament (never above 20%), while Sweden is one of the Western countries closest to achieving parity, currently at around 44% of female members of parliament. Spain, on its turn, has a strong gender quota on party lists. Moreover, we have very different gender attitudes and issues in society in these countries – for instance, the fight for abortion rights is a highly salient cause in Ireland during this period, which is not the case in Germany or Sweden. Finally, given our time-frame, it is important to include countries that were

differently affected by the financial crisis in 2008-09, since scholarship has found that demands for female politicians' gendered behavior change in times of security and economic hardship (Bauer, 2017).

There are two other practical implications of using this diverse set of countries, which goes beyond current scholarship. First, studies of gendered language in parliament have been done in the US (Yu, 2014) and Sweden (Dahllöf, 2012). The US is notorious for its high levels of partisanship and, more recently, by the fact that one of the two parties has a much more equal ratio of female-to-male members of congress. Therefore, to be able to say something generalizable about representation, we must look at countries with different party systems and with varying levels of women's political participation. Second, the speeches in those studies were in English and Swedish – languages that themselves are not very gendered. It is important to see, therefore, if and how gendered communication works also in different languages.

4.3.1 Parliamentary Speech Data

Regarding the specific kinds of speeches used, we focus on those debating government-proposed bills. Those are debates in which the government has proposed a bill, and members of parliament speak on it. Consequently, these speeches and debates are comparable across countries – it is clear from the bill what issue is being discussed. This allows us to code the policy area of the bill under discussion, as discussed below. Moreover, we subset to only use speeches longer than 50 words.² That eliminates short speeches which are sometimes not much more than a question or an interruption, and which do not carry useful information.

²For the first part of the analysis, on the entire corpus in each country, we remove speeches shorter than 100 words.

Table 4.1 describes our data. We have between the two and five most recent completed legislatures per country. A few patterns emerge from this: first, Spain has much fewer speeches than the others, while the Netherlands has much more, both of which might prove a challenge for the accuracy of classifiers. Second, Ireland is clearly the laggard when it comes to female representation: at its best, it has 15.8% of female MPs in its 2011-16 legislature. Sweden, on the other hand, is closer to achieving parity. Nevertheless, one must notice that the share of speeches given by women in any legislature is almost always smaller than the share of women in parliament. This is most pronounced in Spain, where for example women made up 35% of the legislature in 2008-11 but delivered fewer than 25% of the speeches. The two exceptions are Ireland 2007-11 and the Netherlands 2012-17.

Table 4.1: Descriptives of Parliamentary Speech Data

Legislature	Speeches	Prop. Speeches by women	Prop. Female MPs
Germany 2009-13	4, 575	0.333	0.361
Germany 2013-17	5, 359	0.325	0.357
Ireland 2002-07	15, 005	0.100	0.133
Ireland 2007-11	9, 326	0.143	0.138
Ireland 2011-16	5, 770	0.117	0.158
Netherlands 2002-03	505	0.240	0.349
Netherlands 2003-07	34, 438	0.360	0.415
Netherlands 2007-10	35, 437	0.332	0.393
Netherlands 2010-12	27, 661	0.351	0.401
Netherlands 2012-17	45, 006	0.404	0.390
Spain 2000-04	2, 652	0.202	0.247
Spain 2004-08	1, 751	0.290	0.352
Spain 2008-11	1, 250	0.243	0.350
Spain 2011-15	2, 790	0.310	0.395
Sweden 2002-06	8, 753	0.384	0.447
Sweden 2006-10	11, 690	0.441	0.471
Sweden 2010-14	9, 155	0.423	0.440
Sweden 2014-18	10, 158	0.433	0.457

These overall numbers, however, can mask important differences across issues.

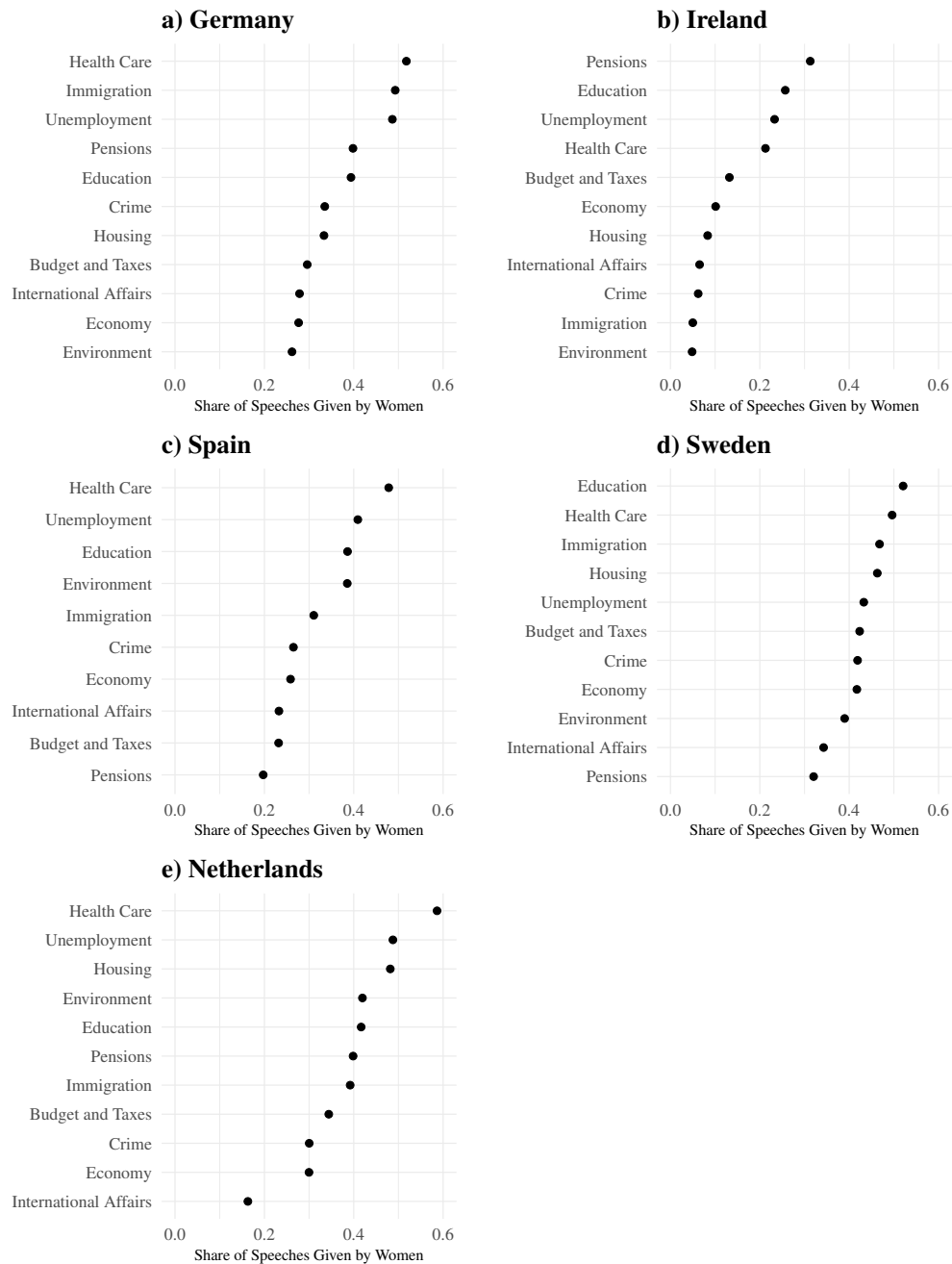
Based on the debate titles, we have manually coded the topic, or policy area, of all speeches in this sample, into the following: ‘Economy’, ‘Environment’, ‘Budget and Taxes’, ‘International Affairs’, ‘Crime’, ‘Education’, ‘Health Care’, ‘Housing’, ‘Unemployment’, ‘Pensions’, and ‘Immigration’.³ Figure 4.1 describes the share of speeches given by women across the four countries by area. In Germany, 52% of speeches in the policy field of health care were given by women, compared to 33% of speeches overall. Meanwhile, only 27 % of speeches on economic issues were given by women. We see a remarkably similar pattern in all countries: health care and education are consistently among the four policy areas on which women give the most speeches, while speeches on the economy and international affairs are mostly given by men. This corroborates findings by [Wängnerud \(2009\)](#), [Bäck and Debus \(2019\)](#) and [Schwindt-Bayer \(2005\)](#), showing how gendered legislative activity in Europe is, even in countries such as Sweden that have long achieved a high share of women’s representation.

4.3.2 Survey data

Often, studies on women’s representation assume that certain areas are more “female”, or gendered, such as health care and education. This means that women would generally find those more important, and female politicians would focus on them. However, it may well be the case that what issues women tend to find most important may vary across countries and over time. For instance, higher incidences of sexual assault and domestic violence might make “crime” a highly gendered issue in some countries during certain periods of time, but not others. Also, if women and minorities are more affected by a financial crisis, we could potentially see issues such as “unemployment” become more gendered during crisis times. We may therefore expect that female representatives

³Two coders judged independently each debate title, to ensure intercoder reliability.

Figure 4.1: Share of Speeches Given by Women by Policy Area



would be in tune with their constituency and recognize the more fluid genderedness of issues than the static model of education and health care as “women’s topics”.

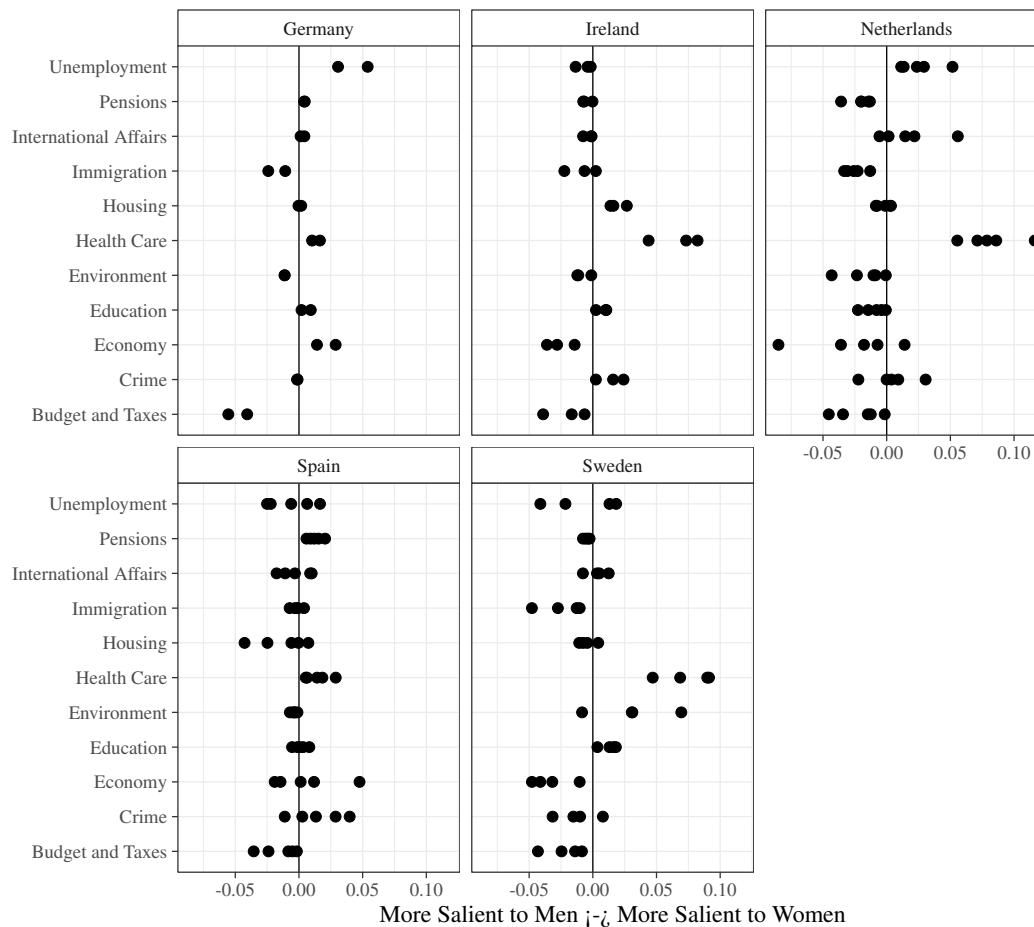
For this reason, we look at survey data to establish what issues were more relevant for women in each country over the years in our study. We use the Eurobarometer surveys, which are fielded multiple times every year in all EU countries, by the European Commission, with nationally representative samples. It includes a question where respondents are asked what the two most important issues facing the country at that moment are, with the options to choose two from ‘crime’, ‘economy’, ‘inflation’, ‘taxation’, ‘unemployment’, ‘terrorism’, ‘housing’, ‘government debt’, ‘defence’, ‘immigration’, ‘health’, ‘education’, ‘pensions’, ‘environment’, and ‘energy’. We group them into the same policy areas of the speeches, so that they are comparable⁴. Details of how policy areas in the speech data map onto the survey data can be found in Online Appendix C.1.

To judge how gendered each issue is in each country, we calculate the percentage difference between the number of men who mentioned an issue minus the number of women who mentioned it or each survey since 2002⁵. Higher values indicate issues about which women care more, while lower (negative) values indicate issues about which men care more. These are presented by country in Figure 4.2, where each dot corresponds to the average within one legislative period. We start noticing how the salience of different issues vary across countries and years. In line with previous assumptions, health care is consistently more salient for women than men, across all countries and time periods. Other issues, however, do not conform so well with previ-

⁴The coding of policy areas for the speech data was done completely independently from the surveys by research assistants that were not aware of the categories asked in the survey.

⁵The Eurobarometer asks: “What do you think are the two most important issues facing (OUR COUNTRY) at the moment?”. Therefore, increases in salience in one of the policy areas will decrease salience in others, because respondents can only list two. Shifts in the salience of a policy area are therefore not independent from other policy areas.

Figure 4.2: Importance of different topics for women and men – Eurobarometer, 2002-18.



ous models: education is mixed, being more salient for men in the Netherlands, women in Germany and Sweden, and both ways in Spain and Ireland. Immigration and budget and taxes seem to be two consistently more “male” issues in almost all cases. While the economy is highly salient for men in Ireland and Sweden, there is little difference in Spain and it is more salient for women in Germany – nevertheless, as we have seen, female MPs in those countries are still much less likely to speak on the economy than on traditional “female” topics, apparently going against the actual salience of topics for female voters.

4.3.3 Machine Learning

We employ a machine learning approach to estimate the degree to which parliamentary speech is gendered in those five countries. We build on [Peterson and Spirling \(2018\)](#), who use machine learning algorithms on parliamentary speech to predict the party of speakers in the House of Commons. They find that the predictive accuracy is a valid indicator of polarization, meaning, the easier it is for a supervised classifier to tell the party of a speaker based on the text of speeches, the larger the difference in discourse between the parties (for a similar approach, see [Goet, 2019](#); [Gentzkow, Shapiro and Taddy, 2019](#)). We adapt this intuition for gender. The easier it is for a classifier to identify whether a speaker is male or female, the more gendered is the discourse. When looking into the words used to make the classification, we gain insights into whether markers of gendered language are substantive.

The method we use for all analysis is a binomial linear model with Ridge regularization. This is a form regression that performs coefficient shrinkage ([James et al., 2013](#)), but adding a penalty to the residual sum of squares (RSS) that is minimized in a typical regression. In a linear regression framework, the Ridge model minimizes

$$(4.1) \quad RSS + \lambda \sum_{j=1}^p \beta_j^2$$

with λ being a tuning parameter that receives a value equal to or higher than 0. When $\lambda = 0$, this estimator returns the same result as an ordinary least squares. However, as λ increases, it penalizes the sizes of coefficients (β_j), forcing them to be smaller, whereby only those most predictive of the outcome retain high values ([James et al., 2013](#); [Tibshirani, 1996](#)).⁶

⁶We have also tried Lasso regression and various values of α for an elastic-net classifier. However, predictive accuracy is more consistently higher with the Ridge.

Regularized regressions have been applied successfully in other classification problems in political science recently, due to its good performance for this kind of data and interpretability (e.g. [Cranmer and Desmarais, 2017](#); [Hawkins and Castanho Silva, 2018](#)). Contrary to some “black-box” machine learning approaches, they give us regression coefficients for each word in the model, allowing us to investigate which terms carry more weight when predicting the gender of a speaker.

To test H1, namely whether there are systematic differences in speeches between men and women, we also use two other commonly employed techniques: an XGboost algorithm ([Chen and Guestrin, 2016](#)), and the `quanteda` implementation of Support Vector Machines (SVM, [Benoit et al., 2020](#)). We use these two alternatives to show that, on the entire corpus, different methods are able to accurately predict speakers’ gender based on text. However, since their results are not as interpretable as those of a ridge regression – and their performance, as seen below, is similar – we focus on the previously described Ridge for the remainder of the paper.⁷ Next, to investigate differences within policy-areas (H2), we generate a model on a corpus of speeches from each country split into legislative periods and policy areas. For some countries and periods, we do not have predictions for certain areas, because fewer than eight different women gave speeches on it, making prediction virtually meaningless and highly likely to only reflect within-speaker rather than within-gender similarity. Given the number of speeches, and especially the fact that some policy areas have fewer than others, we cannot go for yearly corpora, otherwise there would be too few speeches, impairing the meaningfulness and accuracy of predictions. Once we fit the model to each legislature, we calculate the accuracy of the classifier on that corpus.

An important note here is that we do not use cross-validation or a validation-set

⁷It is not possible to do the classification across languages, and the substantive value of erasing country-differences by using machine-translations into a single language is limited for this application.

approach to get an estimate of the test-set error rate in the results reported below. Our goal is not to train a model that would be able to accurately make out-of-sample predictions, in which case test-set error estimates (such as obtained with cross-validation) are essential. We use machine learning techniques exactly to identify, in this training set, what are the factors driving the classification of speeches into speakers' gender. Therefore, we aim at achieving the highest possible within-sample accuracy. In any case, there is a case to be made for using out-of-sample predictions (see [Slapin and Kirkland, 2020](#)), and we report results with out-of-sample predicted probabilities and AUC's in the Online Appendix.

4.4 Analysis

In the next sections we describe our stepwise analysis, starting with models fit to the entire corpus in each country, and moving towards those fit to specific policy areas in each legislative period. First, a note on pre-processing the texts. We have not stemmed the words, since the endings in this case can carry important information: two of the languages in this study decline words according to gender using different endings – for example, in German, one would say *Student* for a male student, and *Studentin* for a female one. In Spanish, even verbs are conjugated differently: 'I am convinced' would be said 'estoy convencido' by a man, and 'estoy convencida' by a woman. The common process of stemming would lose all this information which can prove very relevant: for instance, women in parliament might be more likely to use female forms of nouns, as well as address other women more often. Still, in the Online Appendix we show results obtained when stemming the words before classification, and all findings hold. Very rare and very common words are removed – meaning, words that appear in fewer than 0.1% of speeches, and more than 80%. This is a standard step which removes terms

that do not carry much information but slow down computation.

4.4.1 Distinguishing Male and Female Speakers

We start by testing H1 with a model that predicts the gender of speakers in the entire corpus in each country, and evaluate based on four standard metrics. The first is precision, which is the share of speeches correctly predicted to be given by female speakers among all speeches predicted to be given by women. This indicates the accuracy of our classifier on those cases it identifies a female speech. Second is the recall, which is the share of speeches given by women that the classifier correctly picked up as such. A low recall means that there are several false negatives, i.e., several speeches given by women which the classifier missed out. Next is the F1 Score, which is a harmonic mean between the previous two. These three metrics range from 0, worst performance, to 1, a perfect classification performance. The last metric we use is the Area Under the Curve (AUC). It improves upon the previous on an important account: for those, we have to assign one value for the predicted probability above which a speech should be classified as being given by a woman: usually 0.5. If, however, the category of interest is unbalanced, because there are many more speeches given by men than women, this cutoff might be too high. The AUC calculates the precision at different levels of this cutoff, and returns a value ranging from 0 (worst possible classifier) to 1, for the best possible. In case of the AUC, 0.5 indicates a random classifier.

When looking at the AUC in Table 4.2, all classifiers work extremely well for Germany, Ireland, Spain, and Sweden. They are all above 0.9, and sometimes are at 0.999. For the Netherlands they are a bit lower, but still denoting accuracy much higher than the 0.5 of a random classifier. The precision, recall, and F1 scores show sometimes the limitations of their usage with the traditional 0.5 cutoff: for example. in Ireland

the Boosting recall is 0.581, indicating that only 58% of speeches that were given by women were given a predicted probability higher than 0.5 of being such. However, the precision is 0.997, meaning that from the speeches that received a predicted probability above 0.5, 99.7% were indeed given by women. Moreover, we also see that all algorithms have very similar performance, so that our choice for a Ridge in the remainder of the analyses does not come at a cost of accuracy. The main takeaway here is that H1 can be confirmed, in that different classifiers are able to very accurately predict the gender of speakers based on the text of their speeches.

Table 4.2: Accuracy of classifiers on the entire corpora for each country

Model	Metric	Germany	Ireland	Netherlands	Spain	Sweden
Ridge	Precision	.950	.541	.626	.934	.791
	Recall	.997	.918	.785	.965	.862
	F1 Score	.973	.681	.696	.949	.825
	AUC	.999	.968	.854	.997	.928
XGboost	Precision	.997	.997	.836	.999	.865
	Recall	.993	.581	.477	.921	.753
	F1 Score	.995	.734	.608	.959	.805
	AUC	1.000	.984	.869	.999	.930
SVM	Precision	.999	1.000	.865	1.000	.150
	Recall	.972	.265	.386	.873	.224
	F1 Score	.985	.419	.534	.932	.179
	AUC	1.000	.934	.853	.998	.945

Notes: Accuracy values for models trained on the entire corpus of speeches in each country (i.e., training set errors). **Ridge:** ridge regression with 20-fold cross-validation and using the value of λ that returns the lowest error to calculate the accuracy; **XGboost:** boosted decision trees with a logistic objective function, 600 trees, maximum number of nodes = 3 and $\eta = .3$; **SVM:** linear Support Vector Machine with cost = 1.

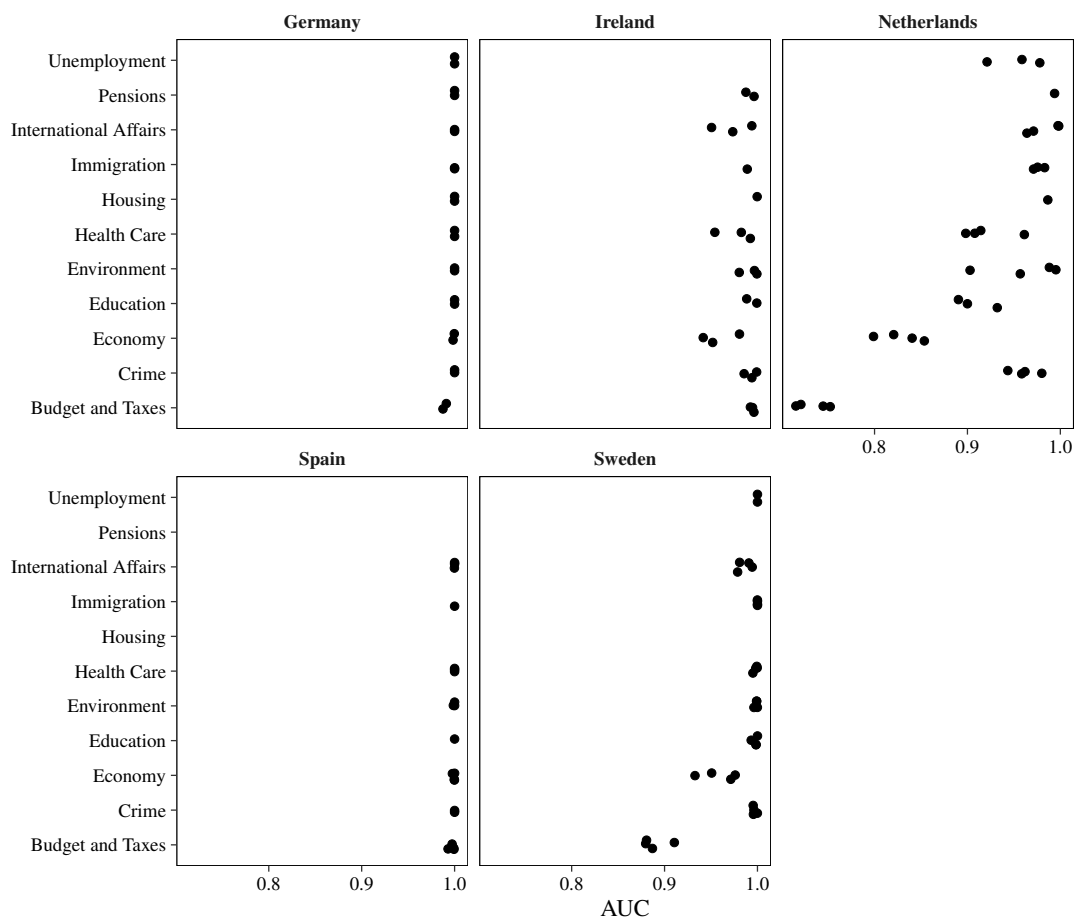
What this analysis does not tell us is why these classifiers work and whether the difference between speeches given by male and female MPs is due to substantial topics or rather stylistic. For this, we can take a close look at the words that are the strongest

predictors in each country. Table C.2.1 in the Online Appendix contains the top 25 terms for both male and female speeches prediction in each country. First, we notice that genderedness of languages is not determining the classification – in Spain, only one of the top 25 terms is a gendered version, and is exactly the female word for “we” or “us”: *nosotras*. This is a strong indication of women speaking in the collective name of women in parliament. We also do not see evidence of the classifiers simply picking up on style (so-called “conciliatory” or “adversarial” speaking). Regarding topics, it seems that coefficients more associated with male speeches are linked with economic topics, such as *compensation payment*, *benefits*, *capitalised*, *borrowed*, *borrow*, *expenditure*, or *entrepreneurship*. This is in line with the fact that, first, men speak about the economy much more often than women, as seen previously in Figure 4.1, and that speeches about the economy and on budget and taxes are the majority, making up between 50% and 70% of all speeches given in each country (Figure C.1.1). For this reason, we turn to classifiers within policy areas, in order to investigate the predictive power of those models when topics are kept constant.

4.4.2 Variation within policy areas

For the next step we run the classifier in each policy area separately for each legislative period for each country. The accuracy is nearly perfect in almost all policy areas and legislatures for Germany, Ireland, Spain, and Sweden, as visualized in Figure 4.3. The AUC in almost all is above 0.90, often very close to 1.00. When fitting models within each area, therefore, it seems that classifiers work even better than when looking at all speeches at once. This is also true for the Netherlands, where classifiers on the entire corpora were not working as well. Most policy areas remain above 0.90, and only

Figure 4.3: Predictive Accuracy by Area and Country



“budget and taxes” goes below 0.80.⁸

These results provide support for H2: even when looking only at speeches given within a policy area, it is possible to tell apart those given by women from those delivered by men. The overall accuracy is even improved when we control for the different topics. Now, the question is whether these within-topic differences are related simply to

⁸Figure E.1 in the Online Appendix reproduces Figure 4.3 with the AUC’s obtained on out-of-sample predictions. Since we fit a ridge regression with 20-fold cross-validation, every speech was once part of the test set. There we show the results of AUC when using the predicted value for when it was in the test-set (or out-of-sample, OOS). Accuracy falls in all, as would be expected, and most in Germany, but for all countries it is still better than chance for the vast majority of policy areas.

style, or to women speaking about issues differently, and about different issues, within the same broad topics. Once again, we check this by turning to the lists of words used by the classifiers.

Table 4.3: Top 25 most predictive terms by country across policy areas

Germany	
Female	Reduced earnings, temperatures, Hartz-IV reference, charities, social agreements, reads, German Medical Association, general suspicion, four-year period, hospice, interns, overwhelming, unborn, valid, prevention strategy, recognizable, disabled, insurance, gambling, terrorist attack, charities, child protection law, Cambodia, quick process, independent
Male	14-year-old, traffic politician, unconstitutional, rapporteur, securities, transmission system operators, innovation program, validity, video, minister of labor, integration measures, permits, dramatic, federal ministry of justice, constantine, increasing, terrible, early retirement wave, domination, smoker, french, needed negotiations, stable, price austerity measures
Ireland	
Female	parenting, reilly's, well-off, twomey, surprised, reaches, prepare, accountants, esri, o'donnell, divide, pays, finish, wild, fleming, tough, revenues, phased, department's, display, modest, stalking, widow, trap, liquidity
Male	burton's, amendmentno, shareholders, biofuel, burton, howlin, deputy's, worst, morris, anxiety, fixed, tested, economically, assure, briefing, historic, disgrace, room, chain, nationalisation, leadership, withdraw, secretaries, looked, tidal
Netherlands	
Female	preserved, wolbert, vulnerable, bopz, ortega-martijn, reinspection, reporting, goals, class, autonomy, national, care homes, remediation, monday, t, wout, les, brinkman, care home, humanitarian, improve, biskop, terrible, prevention, articles
Male	all, just now, heemskerk, right, in short, buttons, of this, detailed, individual, ratify, taken, dam, bank, ministers, mohandis, therefore, municipal, turnout, local, orphan, changes, hence, primary education, how far
Spain	
Female	concluding, process, unsustainable, water, modify, shorten, violation, bring, listening, repressive, engineering, umbrella, travel, alicante, coffers, inferiors, arguments, environments, got, hit, increased, destroy, based, advance, minorities
Male	losing, peak, these, I will intervene, theoretical, penalty, yearnings, take, carry out, installed, we will give, requests, interpretations, noticeably, proportional, students, legalize, disappointed, theft, assisted, convinces, saint, adapts, rejected, sent
Sweden	
Female	åberg, jenny, climate release, very important, social ministry, mentions, propositions, new start job, body, pick, facto, feel comfortable, described, preschool class, participate, producers, activities, escape, mix, nice, considered, examinations, list of drugs, proposal
Male	prime minister, l, anti, minimum taxes, stay, politicization, listener, hultqvist, sd, added, point, understood, clutch, sage, södertälje, etcetera, message, probably, justice, found, doctor's visit, point, pleasure, payments, notes

Terms were machine-translated into English from Dutch, German, Spanish, and Swedish with Google Translate. They have the highest/lowest average coefficients across all models (within each country) trained in each policy area and legislature. Remaining words in original language are proper names.

Table 4.3 contains the list of 25 words, by country, which received the highest (i.e., predicting for women)/lowest (i.e., predicting for men) average coefficients across all models in that country.⁹ They represent those words that consistently, across topics, could be used to discern between male and female speakers. Here we see some evidence that, even across policy areas, women seem more likely to use words referring to “female” policy areas. For example, terms related to caring activities (both health care but also elderly/infant care) appear among female coefficients across all countries: *hospice*, *disabled*, *Medical Association*, *unborn*, and *insurance* (Germany), *parenting* and *widow* (Ireland), *care home(s)*, *BOPZ* (acronym for a psychiatric hospital internment bill, Netherlands), *social ministry*, *preschool*, and *list of drugs* (Sweden).

This list provides some evidence in favor of H2: when men and women debate the same topic, we see differences in salience of concrete issues start appearing. While differences in style might still account for some of the predictive accuracy, it is clear that the differences are also about substance. For example, women bring up social topics when debating various issues.

4.4.3 Relation to Public Opinion

To test H3, we turn to the public opinion data from the Eurobarometer. We match the categories of important issues from the survey to those codified on the speeches, and calculate whether each one, in each legislature, is more salient for men or for women. The extremely high AUC’s observed for predictions within each policy area mean that we cannot really correlate them, as a measure of interest, with anything. Therefore, we turn to another metric to evaluate the relation between predictions and public salience: *average prediction certainty*. It is calculated as the absolute value of

⁹The original terms are in Table C.2.3 in the Online Appendix.

the average predicted probability for each speech minus 0.5, or

$$(4.2) \quad APC = \frac{1}{n} \sum_{i=1}^n |(\hat{\rho}_i - 0.5)|$$

where $\hat{\rho}_i$ is the predicted probability that speech i was given by a woman. Suppose that the classifier attributed a predicted probability of 0.98 to a speech for it being delivered by a woman. It means it was very certain of the score. If we subtract 0.5 from it, it will be 0.48, close to 0.5. Now, suppose it attributed a predicted probability of 0.01. That is high certainty of it being delivered by a man, and the formula of taking the absolute value after subtracting 0.5 would lead to 0.49. Therefore, values closer to 0.5 on the average prediction certainty mean high certainty, and those close to 0 are closer to a coin toss (say, a predicted probability of 0.51). APC is thus bound between 0 and 0.5.

Table 4.4 shows the average prediction certainty in each country by salience (higher for men or women) and by a split by topics that are traditionally seen as “female” (here: health care and education)¹⁰. In all cases, the APC is higher (or – in the case of Ireland split by policy area – equal) in the policy areas that are more important to female voters. The last column shows the correlation between the average prediction probability and the salience of topics to female voters. The general correlation is positive ($r = 0.13$), where topics that are more salient to female voters tend to be those where the classifiers have higher certainty. Moreover, this overall correlation hides higher numbers in four of the countries: Pearson’s r is 0 for Ireland, but 0.29 for Germany, 0.55 for Spain, 0.22 in Sweden and 0.32 in the Netherlands.¹¹ This marks a tendency of, in general, female

¹⁰We add the traditional distinction to show that our results do not depend on the choice of focusing on the policy areas identified in the Eurobarometer surveys. However, we believe that it is theoretically preferable to interpret the results according to salience from the surveys.

¹¹Visualized in Figure C.3.1 in the Online Appendix.

MPs speaking most distinctively from male ones on topics that are of special salience for female voters.¹²

Table 4.4: Average Prediction Certainty by country and topics.

	Higher Salience for [...] voters		Male vs. female topics		Correlation Salience and APC
	male	female	male	female	
Ireland	0.13	0.14	0.13	0.13	0
Sweden	0.19	0.20	0.19	0.21	0.22
Germany	0.30	0.32	0.30	0.34	0.29
Spain	0.21	0.30	0.23	0.32	0.55
Netherlands	0.17	0.19	0.17	0.19	0.32
Overall	0.19	0.22	0.20	0.22	0.13

Notes: Average prediction certainty for speeches within each group. **Higher salience for ... voters:** Defined as women or men having higher salience on the policy area; **Male vs. female topics:** Following the literature on women and politics, we define welfare and education as female policy areas and all other as male.

In the Online Appendix we provide several robustness test for these analyses. First, we look at the predictive accuracy numbers by country and area (Figure 4.3) with two alternative model specifications: one is by stemming the words before running the classifiers. Stemming gets rid of endings, and thus erases the gender linguistic markers that are common in German or Spanish. The accuracy remains the same, showing that what the classifiers are capturing is indeed substantive or stylistic differences, and not simply that in certain languages women use different grammatical forms than men. Second, we provide these accuracy estimates based on out-of-sample prediction. The accuracy naturally gets lower, but is still much better than chance and the substantive results of comparing estimates to public opinion holds. Third, we fit the classifiers within parties. We first fit the models predicting male from female speakers for all speeches given by

¹²In Table E.1 in the Online Appendix, we reproduce Table 4.4 with APC's calculated from out-of-sample predictions. The differences between male and female areas get smaller, since the accuracy is generally lower, but the overall correlation between APC and Salience is still positive at 0.10, and across countries the average APC is higher for areas more salient for women than for men.

each party within each country. The accuracy is very high across all of them. Next, we break it down even more and fit classifiers within legislative term, policy area, and party – restricting to those with at least eight women and eight men speaking. For all parties-area-legislature in which this can be fit, the accuracy remains very high, showing that even when we look at speeches given by co-partisans talking about the same issues, women and men speak differently. Moreover, where possible to compare these estimates to salience, the predictive accuracy is still higher for areas which women find more important than men among the public. These robustness tests indicate that partisanship is not an important omitted variable for the models and analyses ran here.

4.5 Conclusion

Quantifying how descriptive representation of women in politics translates to substantive representation has long been a challenge for researchers. Due to multiple potential barriers in between the presence of women in parliament and policy outputs, it is difficult to study to what extent women in parliament are acting in ways that represent how female citizens would act in politics. We argue that a highly relevant space to look for indications of substantive representation is in parliamentary speeches: are female MPs talking differently from male MPs, and is that connected to issues which women care the most about? Our results, based on the predictive accuracy of machine learning algorithms, show that female MPs communicate differently from their male counterparts, but also that they focus on different issues even when talking about the same broad topic. Importantly, we find that female parliamentarians' discourse is the most distinctive in areas which women care the most about, providing evidence in favour of the connection between descriptive and substantive representation.

This paper contributes to the literature on women in politics on substantive and

methodological grounds. First, we demonstrate the clear connection between descriptive and substantive representation across five European countries. No matter the level of female representation (from low numbers in Ireland to higher shares in Sweden), we find that female do speak differently from male politicians. Moreover, they do so across different policy areas: as we see in the second set of analyses, terms denoting care for kids or elderly receive higher average coefficients across all policy areas, and these are exactly an issue where women are still responsible for most of the workload in contemporary societies, permeating large parts of their lived experiences and beyond narrow discussions on specifics of pensions or health care. Therefore, it is a very positive sign of functioning substantive representation that female MPs do speak up about parenting or care homes even when the debate is not centered on these issues.

Further, the relationship between speech genderedness and public opinion also confirms the link between descriptive and substantive representation. Female politicians act most distinctively on issues that are most gendered in society, assuring that women's voices are at the very least heard in parliament. While there are several hurdles to turn these voices into effective policy, we confirm that measures to increase the share of female MPs are likely to generate better substantive representation for female citizens. This paints a more nuanced picture of substantive representation of women than those that purely focus on policy output or bills co-sponsorship.

Using a machine learning approach has several advantages over other methods which can or have been used to study gendered communication in politics. First, it is inductive instead of deductive: we do not have a dictionary with pre-established categories and see if reality fits into it. Rather, we allow the algorithms to identify which words are most associated with female/male speeches, allowing us to investigate the patterns that emerge. As we have shown, in most cases the distinction between male

and female speeches is not given by style. Therefore, dictionary approaches based on part-of-speech analysis (e.g. Yu, 2014) might indicate that there are no differences in speaking between men and women in parliament. Using dictionaries that fix certain topics as “female”, on the other hand, would have missed the fact that how gendered a certain policy area is varies across time and countries, and that female MPs appear to be tracking this variance when speaking in parliament.

Moreover, one interpretation for the accuracy of the machine learning algorithms is that, the higher it is, the more gendered is someone’s discourse. This can be used in future comparative research onto, for example, career perspectives of politicians who have a more/less gendered performance, or how voters react to these differences. Is it the case that (conservative) women are punished by voters if they have a more distinctively female discourse? These are but a few examples of research agendas that can be furthered by this approach, to help us better understand the dynamics of substantive female representation in parliaments all over the world.

5 A Bill of Their Own: Collaboration of Women in European Parliaments

Abstract: Researchers of political representation need to explicitly establish the link between descriptive and substantive representation to understand how increases in women's representation can lead to substantial changes in political outcomes. Collaboration of women in parliaments is one way through which descriptive representation of women translates into substantive representation. Collaboration through co-sponsoring legislation is used to complement the analysis of legislative activity by voting records and speeches. I expand the analysis that has been conducted in the United States and Argentina to European countries and describe the way in which the gender of legislators influences their cosponsorship behaviour. Using a unique dataset of cosponsorship data scraped from the archives of fourteen European parliaments, taking advantage of the broad range of electoral systems, quota regimes and levels of women's representation present in these countries, I find that women are more likely than men to collaborate on bill cosponsorship and also have more female cosponsorship networks. Results also point to the importance of party constraints for female MPs to sustain their female cosponsorship networks when the share of women in parliament increases.

5.1 Introduction

Substantive representation, understood as representatives "acting for" the citizens they represent (Pitkin, 1967) has played an increasingly important role in the theoretical literature on women's representation. As Hannah Pitkin laid out, "the representative's characteristics are relevant only insofar as they affect what he does" (Pitkin, 1967, pp.142). While an extensive empirical literature has dealt with factors that influence the number of women getting elected in different countries, electoral systems and how for example quotas affect descriptive representation (for an overview, see Hughes et al. (2019)), we don't know much about how the institutional structure of a parliament will influence how well presence translates into policy.

When women enter parliament, they are facing a gendered workspace (O'Brien and Piscopo, 2019): Parliamentarians have long been overwhelmingly men and many countries have only recently seen increases in women's representation, often due to quotas. This gendered environment has implications for day-to-day interactions of parliamentarians such as speeches, roll call votes and bill sponsorship but also can lead to female MPs facing issues such as harassment and violence (Collier and Raney, 2018; Krook, 2018). Research has shown that women speak differently than men (Childs, 2004; Ballington, 2009) and about different issues (Bäck, Debus and Müller, 2014; Mendelberg, Karpowitz and Goedert, 2014), they have different policy positions from male colleagues (Chattopadhyay and Duflo, 2004; Gerrity, Osborn and Mendez, 2007; Homola, 2019) and work on different substantial issues (Barnes, 2016; Swers, 2005; Schwindt-Bayer, 2006).

From a theoretical angle, researchers of representation have stressed for decades that the way in which descriptive representation translates into substantive representation is not straightforward. Hanna Pitkin (1967) points to a pitfall of focusing on

descriptive representation or what she calls representation as standing for: By assuming that the resemblance to the general public of a parliament is sufficient for policy to serve the interests of all groups in society is short-sighted. According to [Mansbridge \(1999\)](#), representatives' characteristics are relevant when it comes to bringing ideas into public debate that have so far not been represented, but she warns of the dangers of essentialism, reducing women solely to their descriptive role as women. Finally, [Anne Phillips \(1995\)](#) points out that simply switching from political exclusion to a politics of presence is not enough (Phillips, 1995, p.24f.).

This article contributes to the study of substantive representation in three ways: First, it provides a tangible measurement for studying women's presence in politics: cooperation in parliament. Second, it connects this political tool to institutional rules that shape how men and women engage in politics differently. Third, it provides evidence from a wide range of institutional settings in Europe, making the results of this study highly generalisable.

I use data from fourteen European parliaments to show how collaboration across gender lines works in Europe. Using European countries not only extends this analysis to a new geographical area, but also provides greater variation in institutions that can be analysed. The analysed countries differ in their electoral system, the power of the legislature, agenda setting powers in government and quotas they use in order to influence women's representation. The analysis shows that women are generally more likely to collaborate and preferably with other female MPs. The level of party constraint also matters for cosponsorship as female MPs continue to uphold their more female cosponsorship networks under weak party constraints, but gender differences dissipate when the share of women increases under strong party constraints. These results hold for both within-party and across-party collaboration.

In shedding light on this important aspect of legislative politics, the project adds to both the analysis of political behaviour in parliament and the substantive representation of women. By analysing how female delegates act and interact, we can draw important conclusions about how descriptive representation translates into substantive representation. By analysing behaviour beyond roll-call voting and political debate, we can extend our knowledge about the impact of institutional structures on legislative behaviour.

5.2 Collaboration of Women in Parliaments

Research on the difference women make in parliament during policy-making outlines the considerable changes that occur when women enter politics. Descriptive representation affects both agenda-setting (Bratton and Haynie, 1999; Devlin and Elgie, 2008) and adopted policy (Lovenduski and Norris, 2003). A sudden increase of female representation, for example through the introduction of quotas, can have a substantial effect on health care and military spending (Clayton and Zetterberg, 2018). A more diverse parliamentary delegation is connected to a broader set of policy issue addressed in party manifestos (Greene and Haber, 2014). However, as party discipline is strong, it is often hard to identify the effect of additional members from a social group in parliament (Bratton, 2002; Childs and Withey, 2004). While the demographic composition of a parliament does matter for policy (Carnes, 2012), not all women or ethnic minority candidates are the same and the enactment of policies that help women or ethnic minorities might depend on the candidates' party (Dovi, 2002).

Cooperation in parliament is one way in which female legislators act differently than men (Barnes, 2016). One reason why women cooperate with each other is that they are in a minority position in parliament. This minority position is not only defined

by a numerical minority, but also by the fact that power in many legislatures is still controlled by men (Barnes, 2016; Barnes and O'Brien, 2018). Women also make less speeches in parliament, especially on "male" policy issues (Bäck, Debus and Müller, 2014). In an analysis of collaboration in Argentinian state legislatures, Barnes (2016) finds that women strategically collaborate to overcome their minority position. She shows this using bill co-authorship and finds collaboration even across party lines.

These tools have been used to analyse the way groups of legislators act in parliament. In some systems, such as the United States, bill cosponsorship is a major part of legislative activity (Campbell, 1982). In a study on Black and Latino legislators in the US, Rocca and Sanchez (2008) show that these groups are less likely to sponsor bills, especially when Congress is controlled by the Republicans. They point to an important aspect of bill (co-)sponsorship: Besides roll call voting and speeches, it is one of the tangible, measurable tools members of parliament use.

However, in many democracies, successful legislation is mainly proposed by the government and private member bills have little chance of passing into law. One exception to this might be times of unsuccessful government formation: Van Aelst and Louwerse (2014) describe private member bills in Belgium and find that a decent amount of them pass and they play a substantial role in policy-making, especially during the prolonged years of failed government negotiations in 2007 and 2010-2011. While the lack of substantial policy effect of some private member bills might be concerning, there are additional benefits to cosponsoring legislation that makes the analysis worthwhile: Delegates might choose to signal policy preferences to their constituents and they might use cosponsorship to rebel against their party. Additionally, marginalised groups in parliament might use cosponsorship to act as a group and advance substantive representation of their social group.

5.3 Women Acting for Women in European Parliaments

One way in which women act in parliament is through cosponsorship of bills. As described above, this tool is collaborative in nature; it commonly exists outside the central conflict of government and opposition in parliament. This cooperative element should be a way for female politicians to foster a synergetic work experience in parliament (Diekman and Schneider, 2010; Eagly and Karau, 2002). Also, women are more likely to deal with consensus topics in parliament, such as education, family and social services, whereas men are more likely to be engaged with topics such as the economy or defence, where compromise is less likely (Schwindt-Bayer, 2006). Therefore higher numbers of collaboration between women might be due to the policy areas they specialise in.

Additionally, women tend to replace less qualified men when they enter parliament (Besley et al., 2017; Baltrunaite et al., 2014). Therefore, women that are in parliament might be more motivated and capable to work on legislation. One way to observe this is through the larger amount of legislation they cosponsor (Anzia and Berry, 2011).

Hypothesis 1: Women are more likely than men to collaborate in parliament.

If women are more likely to collaborate generally, this would lead to all MPs' cosponsorship networks to be more female than the legislature they are in (as their female colleagues are more available for cosponsorship). However, there are two good reasons to expect this effect to be mostly true for women: First, one can assume that when certain topics are primarily addressed by female MPs (such as women's health), the cosponsorship networks of women would be more female, not necessarily because of their gender, but rather due to the policy area they specialise in. Second, Barnes

(2016) also suggests that women's collaboration is also a result of group identity and a deliberate choice to pick female cosponsors. Legislators that are more similar generally, are also more likely to work together on legislation (Bratton and Rouse, 2011). Therefore we can expect that:

Hypothesis 2: Women are more likely than men to collaborate with other women.

The second point outlined above can be tested in more depth: If the effect of women collaborating with other women rests to a large extent on the reaction of female politicians to their marginalisation in parliament and group identity, this effect should be stronger when women are in a more marginalised position in parliament (Barnes, 2016). While this can take many forms, such as women ascending to leadership positions in political groups, committees or the legislature, the key variable for this study is the share of women in parliament. I therefore expect:

Hypothesis 3: Collaboration among women is more likely when women are in a marginalised position in parliament.

5.4 Power Dynamics, Party Control and Women's Collaboration

The context of Europe enables us to analyse a broader set of institutional situations, posing different challenges to women in parliament. Institutional structures such as the power of groups of legislators to introduce legislation or to set up parliamentary enquiry committees influence the position of women in parliament and therefore motivate collaboration. The way in which parties control legislative action through nomination, which will be the focus of this paper, is another institutional factor influencing women's collaboration.

One way in which parties can control their members of parliament is through the nomination of candidates. Proportional representation (PR) systems allow the nominating body (for example the party congress or party leadership) to select candidates directly and therefore reward behaviour that is preferred by the party. Meanwhile, politicians that stray from the party line and act as rebels might be punished in these nomination processes. On the other hand, lower party control and an individualised electoral system, such as SMDs raise the incentive to cultivate a personal vote (Carey and Shugart, 1995; Proksch and Slapin, 2015). These incentives should lead candidates in SMDs to be more likely to collaborate, as bill (co-)sponsorship is one important way in which MPs in European countries foster an individual vote (Bräuninger, Brunner and Däubler, 2012). Legislatures that were (at least partially) elected through SMDs should also have a higher rate of collaboration.

However, PR systems generally elect members on the basis of multi-member constituencies to ensure regional representation. This means that these countries use regional or state-level rather than national lists and seats are allocated at the regional level. Therefore, members elected in less populated areas under PR might in fact contest few seats, essentially putting them in a situation similar to a SMD system.

It is less clear how party control affects men and women differently. While personal vote-seeking applies to both men and women, Clark and Caro (2013) describe how multimember districts in fact foster collaboration among women in parliament. Here, we might expect some form of trade-off between creating a personalised vote on an individual level and acting as a group of female MPs. This collaborative behaviour might be a threat to the prevailing power structure and party leaders could try to reign in cosponsorship among women, especially when they are an increasingly large group in parliament (Barnes, 2016). However, the capacity to do so depends on party constraints

and consequently on the ability of party leaders to police their members.

Therefore, systems with strong party constraints (in which party leadership has a lot of control over their members, e.g. a pure PR system) allow party leaders to limit the extent to which women collaborate. Additionally, in these systems party - rather than individual - success affects reelection. Selection of cosponsors should consequently not be very gendered:

Hypothesis 4: In systems with strong party constraints, differences between men and women will be small, especially when there are many women in parliament.

In systems with weak party constraints (e.g. electoral systems using single-member districts or small district magnitude), party leadership have a much harder time constraining members from cooperating. Additionally, members draw more power from their personal image, party interest groups, and colleagues rather than from the party. Therefore, the selection of cosponsors should be gendered, especially when there are more women in parliament:

Hypothesis 5: In systems with weak party constraints, differences between men and women will be large, especially when there are many women in parliament.

Table 5.1 summarises the hypothesis and theory. It demonstrates that these arguments relate to key ways in which MPs' gender, the descriptive representation of women in parliament and party constraints affect the gendered collaboration of MPs.

5.5 Data and Methods

The challenge of conceptualizing and measuring substantial representation lies in the concrete concepts and observations that signify substantive political representation. If we take Hanna Pitkin's concept of "representing as acting for" seriously, actual political

Table 5.1: Overview of Theoretical Arguments and Hypotheses

Theoretical Argument	Hypotheses	Variable of Interest
Women are more inclined to work cooperatively, more likely to work on consensus topics and more qualified.	Hypothesis 1: Women are more likely than men to collaborate in parliament.	MP gender
Women cooperate with other women as they share group identity and work on similar topics.	Hypothesis 2: Women are more likely than men to collaborate with other women.	MP gender
Women cooperate due to a shared group identity.	Hypothesis 3: Collaboration among women is more likely when women are in a marginalised position in parliament.	Share of women in parliament
Strong party constraints: leaders can control MPs and MPs have incentive to work as party.	Hypothesis 4: In systems with strong party constraints, differences between men and women will be small, especially when there are many women in parliament.	Party Constraints + Share of women in parliament
Weak party constraints: leaders cannot control MPs and MPs have incentive to cultivate their own profile.	Hypothesis 5: In systems with weak party constraints, differences between men and women will be large, especially when there are many women in parliament.	Party Constraints + Share of women in parliament

actions have to be a feature of substantial representation. We therefore need to supplement studies focusing on policy outputs (such as spending (Clayton and Zetterberg, 2018) or environmental protection (Mavisakalyan and Tarverdi, 2019)), by connecting them to tangible actions by female and male politicians. I argue that cosponsoring bills in parliament is one of these tangible actions, together with political speech and voting on bills. Bill cosponsorship is used to study legislative behaviour in many different countries and is regarded as a reliable and valid measure of collaboration (Aléman et al., 2009; Barnes, 2016; Krupnikov and Bauer, 2014; Carey and Shugart, 1995).

Data on collaboration in European parliaments has to be collected chamber-by-chamber, with varying difficulty based on the transparency and digitisation of the respective institution. As an initial sample, I consider all parliamentary democracies in

the EU, the UK and the members of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) as potential cases to include.

However, not all of these countries meet the relevant criteria for inclusion. Some countries did not have sufficient data to establish cosponsorship networks and were excluded from the analysis (Austria, Estonia, Ireland, Slovakia and Spain). While cosponsorship might be measured, they are based on single bills and it is problematic to establish collaboration between two MPs purely based on single observations. Other countries, such as Germany do not offer small groups of MPs the right to sponsor legislation and others only do so for very specific types of bills such as Early Day Motions (e.g. the Netherlands and the UK). Finally, some countries did not provide data on bills that was easy to access (e.g. Croatia and Greece). This leaves 14 countries that are included in the analysis. For all these countries, I limit the data collection to the lower chamber as lower chambers dominate legislative activity in those countries.

The countries range from some of the largest countries in Europe, such as Italy, to some of the smaller ones such as Belgium or Iceland. There is wide variance in the share of women in parliament, from countries with few women, such as Hungary (10%) or Romania (13%) to those with many such as Finland (42%) or Norway (40%). Geographically, all regions of Europe are covered and the dataset even covers non-EU countries. While a lot of the literature on representation focuses on the United States, the United Kingdom or large EU member states, this dataset allows us to study smaller countries with more varied democratic traditions and experiences, crucially extending the realm of cases.

I constructed the database by first scraping bills from the parliamentary archive, then extracting cosponsors and calculating the quantities of interest on the MP level. [Briatte \(2016\)](#) has provided scrapers for 27 parliamentary chambers in 19 European

countries, which covers most of the cases in this study. While some adjustments were necessary after several of the websites in question were updated since his publication, this provides the basis for the data collection on this research project. In most countries, more data is available than in the original paper. Some countries even allow for continuous collection of data, leading to the data being extended to 2021 in some countries as detailed in Table A1 in the appendix.

Table 5.2 shows an overview of the countries included in the dataset (a list split up by legislative terms can be found in Appendix D.1). A low number of average cosponsorships can indicate both a general reluctance in the legislature to cosponsor legislation and a low number of cosponsors per piece of legislation. In some chambers, it is more customary to have a large number of cosponsors on a single bill whereas in others cosponsorships tends to be between small groups of MPs. For example, Hungary and the Czech Republic saw rather low rates of cosponsorship, especially in the early nineties, which can at least partly be explained by the fact that the chamber had just been formed after the democratization processes at the beginning of the decade and collaboration networks were not established.

Table 5.2: Dataset Overview

Country	Years	Average Share of Women	Electoral System	Total Cosponsors	Average Number of Cosponsorships per Year
Belgium	1991-2019	26%	PR	1026	6.3
Bulgaria	2005-2021	22%	Mixed/PR	1193	3.8
Czech Republic	1996-2017	18%	PR	1233	3.3
Denmark	2005-2019	38%	PR	569	5.4
Finland	2003-2021	42%	PR	1053	9.1
Hungary	1998-2018	10%	Mixed	1312	1.5
Iceland	1995-2017	34%	PR	478	6.6
Italy	1987-2018	17%	Mixed/PR	6351	16.7
Lithuania	1996-2020	21%	Mixed	755	8
Norway	1985-2021	40%	PR	1170	2.8
Portugal	1991-2021	24%	PR	2407	19.7
Romania	1996-2020	13%	Mixed	2140	23.2
Sweden	1991-2018	43%	PR	3082	32.2
Switzerland	1999-2021	29%	PR	1323	30.5

The kind of bills that are cosponsored in the respective parliaments differ. Some countries have cosponsorship for specific forms of bills. In other countries, cosponsorship is used by the opposition because the agenda setting power lies with the government. In these cases, the bills are likely to fail and are used for other purposes as discussed above. Finally, in case of government dysfunction (such as during the long government formation periods in Belgium), private member bills effectively supplant the role of legislation introduced by the government. However, as argued above, I treat any cosponsorship as collaboration and argue that the initial step of working together on a bill proposal, successful or not can be recorded as collaboration. Differences between the way cosponsorship works in different parliaments is beyond the scope of this study.

I interpret cosponsorship as a tie between two legislators for the purpose of collaboration. As the analysis uses country and legislature random effects, variation in bill cosponsorship is analysed within chamber, which controls for different overall levels of cosponsorship due to institutional rules.

While overall cosponsorship levels vary, I treat decisions that individual legislators make to collaborate with other members as an individual-level variable. To operationalise bill cosponsorship along gender lines, I follow [Barnes \(2016\)](#) and define the Gender Cosponsorship Score (GCS) for each legislator that cosponsored at least one bill during a legislature. The GCS is defined as the difference between the share of female cosponsorships and the share of women in parliament. Parliamentarians with a positive GCS are more likely to collaborate with women than we would expect based on the number of women in parliament. A baseline score of 0 would indicate that the legislator is picking cosponsors independent of gender.

Consider an example: Jos Ansoms a MP for the party CVP in the Belgian parlia-

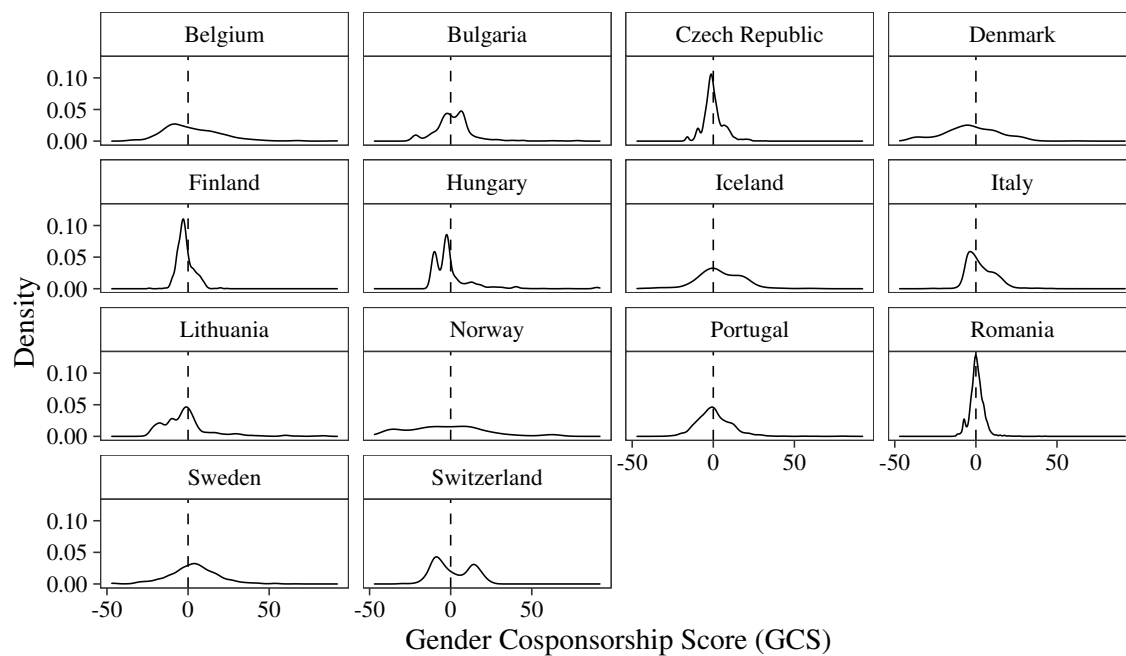
ment participated in 12 cosponsored bills during the 2003-2007 legislative period. In total, he cosponsored legislation with twelve other MPs of which one was a woman, giving him a share of female cosponsorships of 8.3 %. In the same parliamentary period, Colette Burgeon was a MP for PS and cosponsored a total of 47 bills. Among her 152 cosponsors were 74 women, which leads to a share of female cosponsorship of 48.7 %. During the 2003-2007 legislature, the share of women in parliament in Belgium was 33%. Consequently, Jos Ansoms has a GCS of -24.7 and Colette Burgeon has a GCS of 15.7.

Figure 5.1 plots the gender cosponsorship score (GCS), the dependent variable in all countries. The graph shows that most legislators are distributed close to a GCS of zero, meaning they are unbiased in terms of gender in their cosponsorships. However, legislators in Belgium, Finland, Hungary, Italy and Switzerland have a negative modulus, meaning they are slightly less likely to cosponsor legislation than expected based on the share of women in parliament.

Table D.1.1 in the appendix shows an overview of the cases in this study. For each legislature, I record the share of women in parliament and how many individual MPs cosponsored legislation. On an individual level, the key independent variable is legislator gender, which was collected and coded based on information provided on the web pages of the legislators. Additionally, I code whether a MP was under strong or weak party control. Following Barnes (2016), I denote MPs that were elected in district with fewer than nine seats as falling under weak party control (as seats in that district are more similar to a single member district system) and those at or above nine seats as strong party control because parties exert more control through list nominations¹. This coding leads to considerable variation across, but also within constituencies. In

¹As shown below and in Appendix D.4, the results hold for different cutoffs.

Figure 5.1: Distribution of Gender Cosponsorship Score Across Countries



fact only five legislatures in the dataset have no MPs elected under weak party control as they were all elected in districts that had nine seats or more. The dataset includes 24092 individual cosponsors.

The dataset encompasses fourteen countries and spans 38 years. Additionally, MPs are in the dataset multiple times if they are reelected. Finally, there are clear similarities between cases within one country. Therefore, I choose a multilevel linear model to model the relationship between the explanatory variables and cosponsorship activity. I treat individual MPs in each legislature as cases nested in countries and legislatures. The model therefore has random effects for country and legislature, alleviating concerns of heterogeneity and independence between observations. I run all models first on the complete dataset and then on data subset by the degree of party constraints, regressing the indicators for cosponsorship (overall level and GCS) on an interaction of MP gender

and the share of women in parliament. This largely follows the approach implemented by Barnes (2016).

5.6 Women's Collaboration in European Parliaments

5.6.1 Levels of Cosponsorship

Are women *generally* more likely to cosponsor legislation? Table 5.3 shows gender and institutional effects on the number of bills an MP cosponsored within one legislature. In line with Hypothesis 1, model (1) shows that men are less likely than women to collaborate in parliament. On average, men cosponsor about 1.6 fewer bills per year than women, controlling for the share of women in parliament. This is a substantial difference and shows that women behave differently in parliament than men, seeking to collaborate with others and approaching politics in a different, more cooperative way (Hypothesis 1).

Model (1) shows a statistically significant effect for the share of women in parliament but not for the interaction term: If more women are in parliament, both men and women cosponsor more bills. This makes intuitive sense: As women cosponsor more bills, more women in parliament allows for more potential bills to be introduced and cosponsored.

5.6.2 Gender Cosponsorship Score

The results for the Gender Cosponsorship Score (GCS) are reported in Table 5.4, first for all MPs in model (1) and then split by party control in models (2) and (3). In line with Hypothesis 2, women are more likely than men to collaborate with other women,

Table 5.3: Gender and Institutional Effects on Bill Cosponsorships in European Parliaments

	<i>Dependent variable:</i>
	Number of Cosponsored Bills per Year per MP All MPs
Male MP	-1.616*** (-2.240, -0.991)
Share of Women in Parliament	0.334*** (0.135, 0.532)
Male MP x Share of Women in Parliament	-0.020 (-0.069, 0.029)
Intercept	12.267*** (7.365, 17.168)
Observations	24,092
Log Likelihood	-105,710.600
Akaike Inf. Crit.	211,435.300
Bayesian Inf. Crit.	211,491.900
<i>Note:</i>	*p<0.05; **p<0.01; ***p<0.001

Table 5.4: Gender and Institutional Effects on Gender Cosponsorship Score in European Parliaments

	<i>Dependent variable:</i>		
	Gender Cosponsorship Score (GCS)		
	All MPs (1)	Strong Party Constraints (2)	Weak Party Constraints (3)
Male MP	−6.062*** (−6.458, −5.666)	−6.366*** (−6.797, −5.935)	−4.745*** (−5.719, −3.770)
Share of Women in Parliament	−0.172*** (−0.254, −0.091)	−0.196*** (−0.284, −0.107)	−0.001 (−0.116, 0.115)
Cosponsorship per Year	−0.0001 (−0.008, 0.008)	−0.004 (−0.013, 0.004)	0.022* (0.001, 0.044)
Male MP x Share of Women in Parliament	0.147*** (0.116, 0.178)	0.191*** (0.158, 0.225)	−0.068 (−0.149, 0.013)
Intercept	5.590*** (4.113, 7.067)	6.091*** (4.570, 7.612)	3.521*** (1.863, 5.180)
Observations	24,022	19,129	4,893
Log Likelihood	−94,387.760	−74,722.960	−19,610.790
Akaike Inf. Crit.	188,791.500	149,461.900	39,237.590
Bayesian Inf. Crit.	188,856.200	149,524.800	39,289.550

Note:

*p<0.05; **p<0.01; ***p<0.001

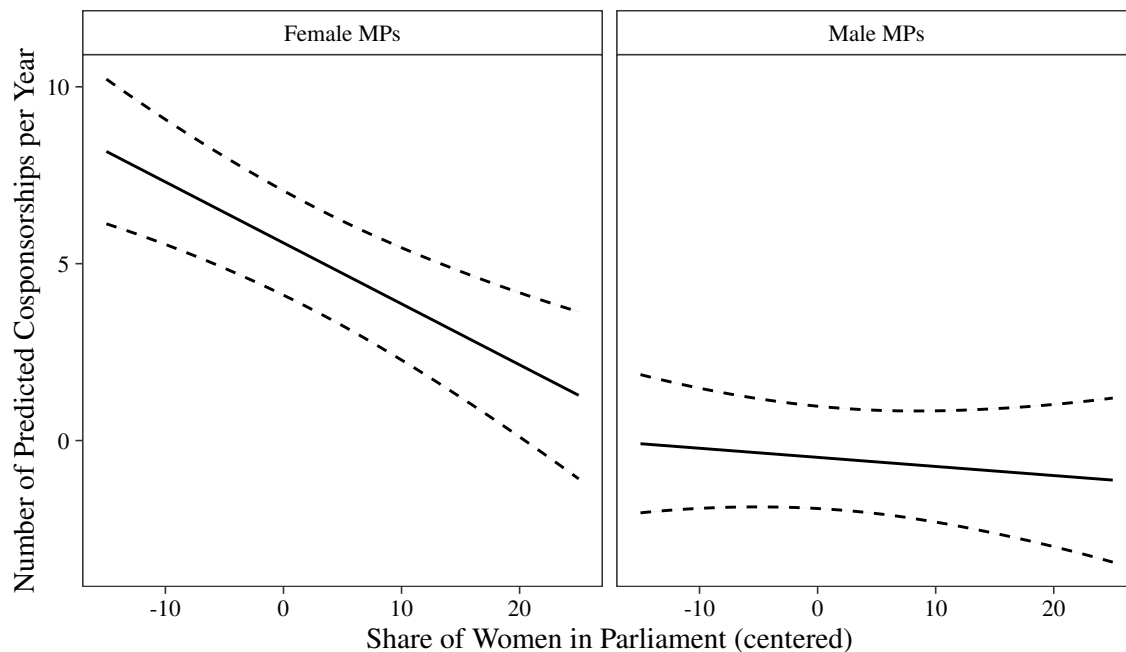
leading to a higher average GCS. While controlling for the number of women in the legislature and the number of cosponsored bills, men have a GCS that is estimated to be about six points lower than women. This means that the difference between the share of women in their cosponsorship network and the share of women in parliament is about six percentage points lower than for women.

The share of women in parliament has the expected effect: The more women in parliament, the lower the GCS for MPs. In other words, MPs have a particularly *high* GCS when there are very few women in parliament. This is support for Hypothesis 3. Additionally, the interaction effect is statistically significant. As Figure 5.2 shows, the effect of women's representation is almost zero for men, as mostly women are especially likely to cosponsor legislation with other women when they are in a marginalised position in parliament. The effect of the share of women in parliament is completely driven by women, as men do not adjust the relative gender makeup of their cosponsorship networks based on the share of women in parliament.

Finally, models (2) and (3) in Table 5.4 split the sample according to the degree of party control. Here, we can see some important differences, as plotted in Figure 5.3. MPs under strong party constraints (plotted in the left panel) act differently when there are few women in parliament: While men have a GCS of around zero, women have a GCS that is about eight points higher on average. In these situations of marginalisation, women have the opportunity to form cosponsorship groups out of the spotlight of party leadership, a finding in line with Barnes (2016). However, once the share of women in parliament grows, the difference between men and women dissipates, indicating that predominantly female cosponsorship networks are no longer tolerated by party leadership. This supports Hypothesis 4.

In the right panel of Figure 5.3, we can see the a tellingly different story: Women un-

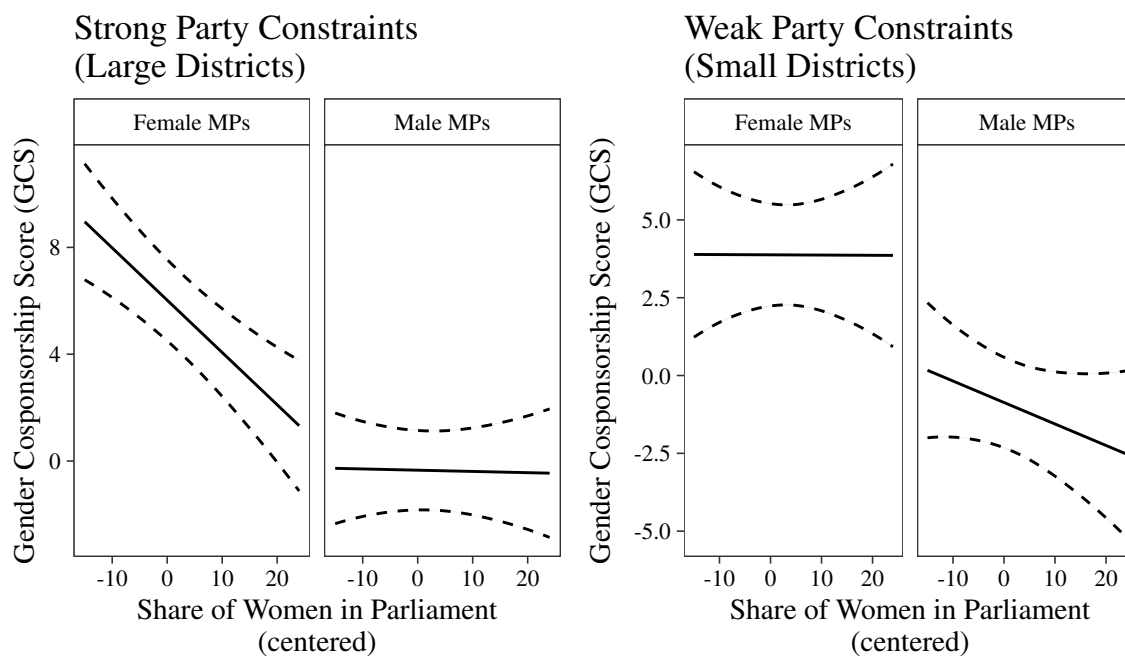
Figure 5.2: Interaction Effect on Gender Cosponsorship Score: Share of Women in Parliament and MP Gender



der weak party control have a higher GCS than men independent of the share of women in parliament. However, once the share of women increases, men tend to cosponsor with women less, while women continue to have a fairly female cosponsorship network. This supports Hypothesis 5: Under weak party control, party leadership does not have the ability to reign in women and it is possible for them to continue to form female cosponsorship groups, now more potent with a larger share of women in parliament.

This illustrates the importance of considering the power structure in parliament when studying substantive representation. One of the reasons why the transition from descriptive to substantive representation is less than straightforward is that parliaments are gendered workplaces that have traditionally been dominated by men (O'Brien and Piscopo, 2019). While female cosponsorship is tolerated, when constrained to a limited number and specific policy areas, it is a challenge to the existing power structure once

Figure 5.3: Interaction Effect on Gender Cosponsorship Score: Electoral System and MP Gender



more women enter parliament. The analysis of party constraints has shown that the institutional setup of a parliament defines the power balance between party leaders and women MPs that determines how descriptive is translated into substantive representation.

It should be said that the measure of GCS, while an important contribution that provides valuable insight into legislative behaviour, has some limitations. First, it could be problematic around the extremes, mainly the lower bound of women's representation. In legislatures that have no or very few female MPs, it is practically impossible to have a negative GCS. I therefore replicate the models in Table 5.4 using only MPs in parliaments with at least 10% women. The results can be found in Appendix D.2 and show that the results remain unchanged.

Additionally, MPs with very few cosponsors might have more extreme values for

GCS as either all or none of their cosponsors are women. Appendix D.3 shows the main models for MPs that have at least 10 cosponsorship per year over a legislative period. The results for this subgroup are very similar to the main model.

Finally, the choice of cutoff to differentiate between large and small districts and consequently between strong and weak party control might seem arbitrary. In its definition, I follow Barnes (2016), however, in Appendix D.4, I simulate the regression results shown above for different cutoffs between 1 (where only single-member-district MPs are under weak party control) and 20. The results are largely robust to the choice of cutoff. One exception is the interaction effect in the weak party control model that is negative for small cutoffs and positive for very large cutoffs. The results point towards a negative interaction effect, especially when choosing a strict definition of weak party control.

5.7 Discussion: Cross-Party Cosponsorship and Policy

Areas

One challenge to the results presented above could be that as most cosponsorship presumably happens between members of the same party and women are clustered in some parties more than others, female cosponsorship networks might be nothing remarkable. For example, if all cosponsorship would only happen within parties and some parties have 50% and others 25% women MPs, women would, on average, have a higher GCS than men.

We can test whether this distorts the effects presented here by splitting cosponsors into in-party and out-party cosponsors. For each MP, I separate all cosponsors for all bills into in- and out-party and calculate the GCS separately for both groups. Results

can be found in Appendix D.5. Overall, the results are consistent for both in-party and out-party cosponsorship. The effect of women's share in parliament is even larger for cosponsorship across party, while the interaction effect is slightly weaker, but statistically significant for MPs under strong party constraints. Overall, clustering of women into parties does not seem to be the reason for the effects described above.

A second challenge to these findings could be that as women work more on certain topics in parliament than others, female cosponsorship could be driven by policy areas rather than by strategic decisions of women and party leaders as suggested above. Bill cosponsorship has been used to show that women do engage with topics that are generally regarded as women's issues such as education, children, families and women's health (Swers, 2005; Schwindt-Bayer, 2006). On the one hand, this is an important indicator for the importance of substantive representation, as female politicians deal with topics that are of importance to female voters. On the other hand, we could say that as women are in a marginalised position in parliament, they are pushed to more niche or less prestigious policy areas. Even though female legislators have distinctive attitudes on topics like the economy, the policy allocation in parliament and within parties pushes them towards women's issues (Schwindt-Bayer, 2006).

Unfortunately, there is no policy area data for all countries in the dataset. However, we can look at the ministries assigned to the bills in Denmark and the committees assigned in Norway to get a glimpse at this dynamic. Within each policy area, I calculate the share of women cosponsors and the share of bills that are exclusively sponsored by women or men. Results for both countries can be found in Table 5.5.

In Denmark and Norway, policy areas that are commonly regarded as women's issue areas, such as health care, education and gender have the highest share of women sponsors. However, only very few bills are sponsored only by women, while about half

the bills in men-dominated policy areas such as finance and taxation are sponsored only by men. In sum, while women are more active in some policy areas than others, they do so by forming gender-diverse cosponsorship groups.

Table 5.5: Policy Area Assignment of Cosponsored Bills

(a) Denmark				(b) Norway			
Policy Area	% Women Sponsors	% All-Women	% All-Men	Policy Area	% Women Sponsors	% All-Women	% All-Men
Gender	50.00	0.00	4.20	Health	50.27	11.50	6.70
Health	49.69	5.10	7.60	Family	48.06	12.40	15.60
Education and Research	44.47	5.60	6.80	Education and Research	45.25	13.30	20.60
Labour and Social Affairs	40.44	2.70	19.30	Justice and Legal Affairs	41.42	10.70	31.70
Housing	36.73	3.60	17.90	Labour and Social Affairs	41.07	10.80	38.20
Justice and Legal Affairs	36.64	1.80	13.00	Economic Affairs	40.74	17.90	39.30
Immigration	34.16	2.40	8.90	Foreign Affairs and Defence	33.73	7.50	42.50
Environment and Energy	34.03	0.90	11.90	Other/No policy area	31.79	7.70	42.30
Other/No policy area	32.19	2.20	18.90	Environment	30.44	8.30	41.60
Economic Affairs	32.05	1.70	20.80	Transportation	28.29	4.40	28.60
Culture	29.87	1.70	15.30	Agriculture	27.23	6.10	48.80
Foreign Affairs and Defence	29.41	1.60	39.80	Finance and Taxation	22.12	6.70	52.40
Agriculture	28.96	0.00	16.50				
Europe	24.70	3.40	22.40				
Transportation	24.15	0.00	37.80				
Finance and Taxation	21.55	0.80	50.80				

5.8 Conclusion

When studying the representation of women in politics, the literature has increasingly focused on the actions through which female representatives act for women. (Co-)sponsoring legislation is an important aspect of legislative behaviour and has been studied extensively in the United States and Latin America. This project is the first to analyse cosponsorship in European parliaments on a comparative level, covering multiple elections and countries. Gender dynamics largely work as expected: Women are more likely to collaborate than men overall and have a more female cosponsorship network than men.

A central finding is the importance of the level of party constraints on the ability of women to work together on legislation: When party constraint is strong, women only

work together with other women when they are in the minority in parliament, but are limited once the share of women increases. Meanwhile, MPs under weak party control do not face similar constraints and continue to cosponsor legislation within a female cosponsorship network. By understanding both the effect of party constraints on male and female politicians and the strategic decisions politicians make in parliament, we can add substantial insight into the effect of electoral systems on legislative behaviour.

The dataset presented here opens multiple avenues for future research. As the dataset covers multiple elections, we can follow the career paths of individual politicians and see how they react to changes in the institutional environment as well as an increase or decrease of the share of women in parliament. There is plenty more institutional variation to exploit: The way in which legislation can be introduced, the strength of the parliament vis-a-vis the government, the way parties control legislative activity or on an individual level ideology, experience and the marginality of the district a legislator is elected in. Understanding how these variables affect the legislative behaviour of men and women is key to understanding how descriptive representation translates into substantive representation.

A Appendix to Chapter 2: Parity and Patriarchy

A.1 Women's Quotas Around the World

Many parties in countries that do not have legislated quotas on the general election level use their own quotas. Table A.1.1 shows the most recent election in the countries included in the ParlGov database (all EU countries and most OECD democracies). Legislative quotas are coded based on information from the Gender Quotas Database by the IDEA. The table also includes a column on the number of parties in parliament that use a quota as well as the share of seats in parliament that are held by parties with quotas. For this analysis, all quotas are treated the same. Ten of those 37 countries have legislated gender quotas between 33 and 50%. Most notably, France has a gender quota, even though it has a majoritarian electoral system which makes it particularly hard to nominate an equal number of men and women. Meanwhile, the majority of countries in the group do not have legislative quotas. However, many parties in those countries institute their own quotas. In Sweden, for example, three parties in parliament use a voluntary gender quota of 50% in the absence of a general quota. Overall, 41% of seats in the Riksdag are held by parties using a quota.

In order to contextualize the All-Women-Shortlists (AWS) used by the Labour party in the UK, we can compare the UK to similar electoral systems across the world. The IDEA considers AWS a voluntary party quota. The two most obvious cases for comparison are Australia and Canada, two countries without a general legislated quota, but with major parties using voluntary quotas. Consequently, around half the seats in the two countries' parliaments are held by parties using a quota. The Australian Labor Party uses a quota of 40%, the Liberal Party of Canada one of 25%. Additionally, the New Democratic Party in Canada uses a 50% quota.

Quota system construction is extremely diverse, including different minimum levels for male and female candidates, different sanctions for not complying with quotas and, in mixed and majoritarian systems, different approaches to implementing quotas in single-member districts. Consequently, AWS should be discussed as the particular way in which the UK Labour party has managed to construct a quota, which also has important implications for other countries.

Table A.1.1: Most Recent Elections and Gender Quotas

Country	Election	Electoral System	Legislative Quota	Number of Parties with Quotas	Share of Seats Won by Parties with Quotas
Australia	18/05/2019	Majoritarian	none	1	45.00
Canada	21/10/2019	Majoritarian	none	2	53.50
United Kingdom	12/12/2019	Majoritarian	none	2	32.90
Germany	24/09/2017	Mixed	none	4	68.90
Hungary	08/08/2018	Mixed	none	2	14.10
Japan	22/10/2017	Mixed	none	none	none
Lithuania	09/10/2016	Mixed	none	1	12.10
New Zealand	23/09/2017	Mixed	none	2	45.00
Austria	29/09/2019	Proportional	none	3	74.90
Bulgaria	26/03/2017	Proportional	none	none	none
Cyprus	22/05/2016	Proportional	none	2	37.50
Czech Republic	21/10/2017	Proportional	none	1.00	7.50
Denmark	05/06/2019	Proportional	none	none	none
Estonia	03/03/2019	Proportional	none	none	none
Finland	14/04/2019	Proportional	none	none	none
Iceland	28/10/2017	Proportional	none	3	41.30
Israel	02/03/2020	Proportional	none	2	35.80
Latvia	06/10/2018	Proportional	none	none	none
Luxembourg	05/12/2018	Proportional	none	4	70.00
Malta	03/06/2017	Proportional	none	1	55.20
Netherlands	15/03/2017	Proportional	none	1	6.00
Norway	11/09/2017	Proportional	none	4	51.40
Romania	11/12/2016	Proportional	none	1	46.80
Slovakia	29/02/2020	Proportional	none	none	none
Sweden	09/09/2018	Proportional	none	3	41.30
Switzerland	20/10/2019	Proportional	none	1	19.50
Turkey	24/06/2018	Proportional	none	1	11.20
Portugal	06/10/2019	Proportional	33%	none	none
Poland	13/10/2019	Proportional	35%	none	none
Slovenia	03/06/2018	Proportional	35%	1	11.10
Croatia	11/09/2016	Proportional	40%	1	25.80
Greece	07/07/2019	Proportional	40%	1	7.30
Ireland	08/02/2020	Proportional	40%	none	none
Spain	10/11/2019	Proportional	40%	4	38.90
France	18/06/2017	Majoritarian	50%	1	5.20
Italy	04/03/2018	Mixed	50%	1	17.80
Belgium	26/05/2019	Proportional	50%	none	none

A.2 Excluded Constituencies

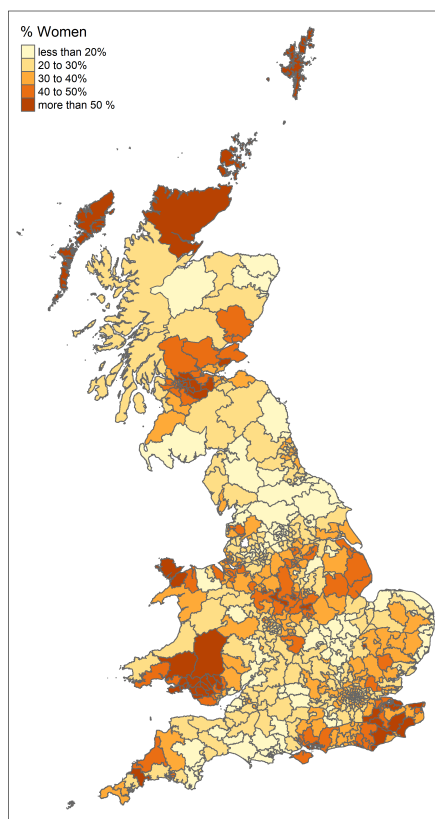
Table A.2.1: Excluded Constituencies

Year	Constituency	Reason
2019	Chorley	Speaker's seat
2017	Buckingham	Speaker's seat
2015	Buckingham	Speaker's seat
2015	Thirsk and Malton	No 2010 results in the dataset
2010	Buckingham	Speaker's seat
2010	Glasgow North East	Speaker's seat in previous election
2010	Thirsk and Malton	No 2010 results in the dataset
2005	Glasgow North East	Speaker's seat in previous election
2005	Staffordshire South	No result in dataset due to candidate death
2001	Tatton	Independent win in previous election
2001	West Bromwich West	Speaker's seat in previous election
2001	Glasgow Springburn	Speaker's seat
1997	Tatton	Independent win
1997	West Bromwich West	Speaker's seat

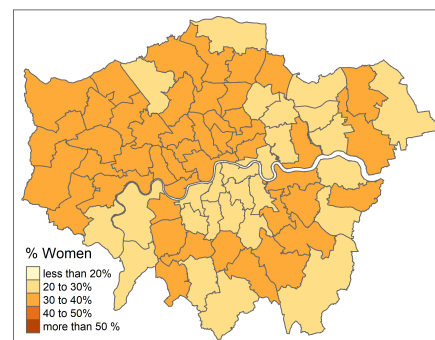
A.3 Geographic Distribution of Female Candidates

Figures A.3.1 and A.3.2 show the share of female candidates among neighbouring constituencies for Conservatives and Labour in 2019. Figures A.3.3 and A.3.4 show the electoral results over the last 20 years.

Figure A.3.1: Nomination of Women by the Conservative Party

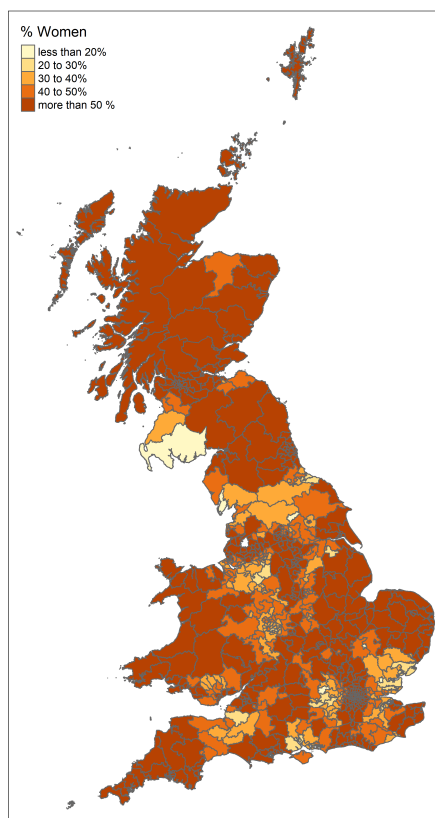


(a) United Kingdom

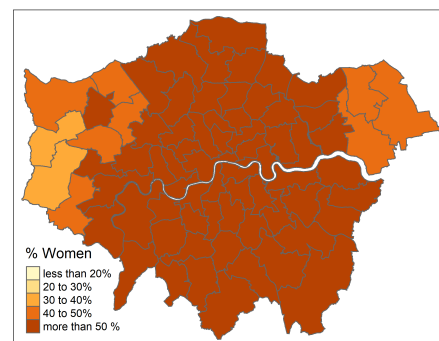


(b) London

Figure A.3.2: Nomination of Women by the Labour Party

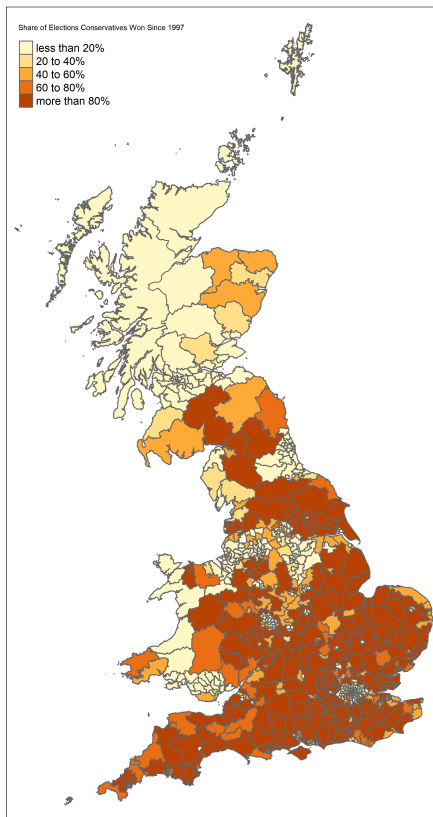


(a) United Kingdom

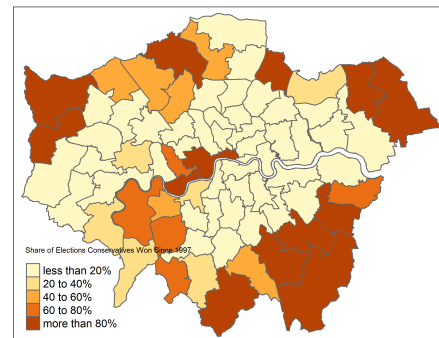


(b) London

Figure A.3.3: Electoral Results of the Conservative Party

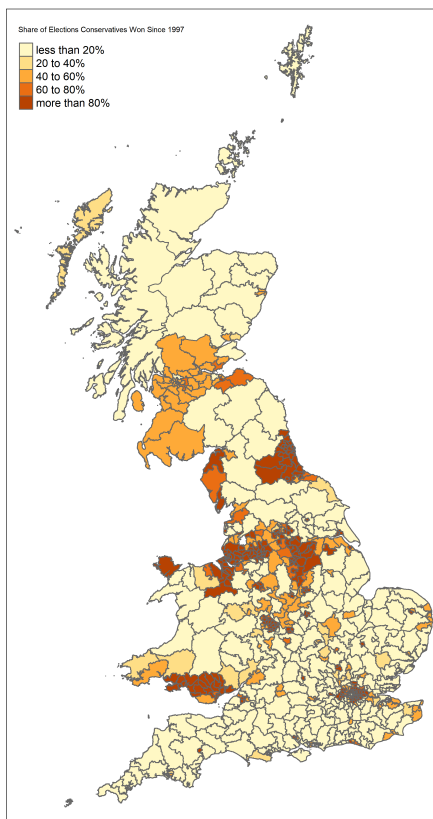


(a) United Kingdom

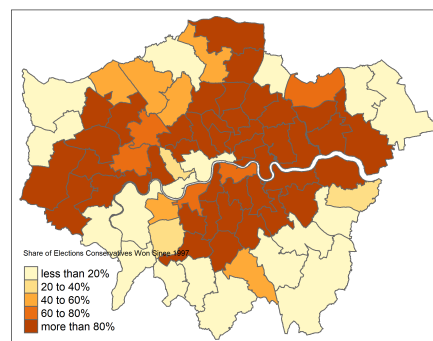


(b) London

Figure A.3.4: Electoral Results of the Labour Party



(a) United Kingdom



(b) London

A.4 Marginality and Electoral Success

Figures A.4.1 to A.4.7 show the relationship between marginality in the previous election and success in the present election. As in the main model, marginality is calculated as the difference between a party's result and the winning party or, if the party won in the previous election, the difference to the winning party. Consequently, a marginality of greater than zero denotes constituencies in which the party won the seat in the previous election. The figures show predicted probabilities from a logistic regression model for each party and election separately.

All plots show a positive correlation, meaning that the better a party was in the previous election, the more likely it is to win the election in the following one. In some elections, this relationship is more steep, such as for Labour in 2001, where a marginally better result in 1997 led to a sharp increase in electoral success. The odds ratio for that election is 1.52, meaning that an increase in marginality in the 1997 election leads the odds of winning the election to be multiplied by a factor of 1.52. On the other hand, the 2015 election for Labour proved to be more unpredictable, as the relationship between previous results and success in 2015 was much weaker.

Figure A.4.1: Marginality and Success in the 1997 General Election

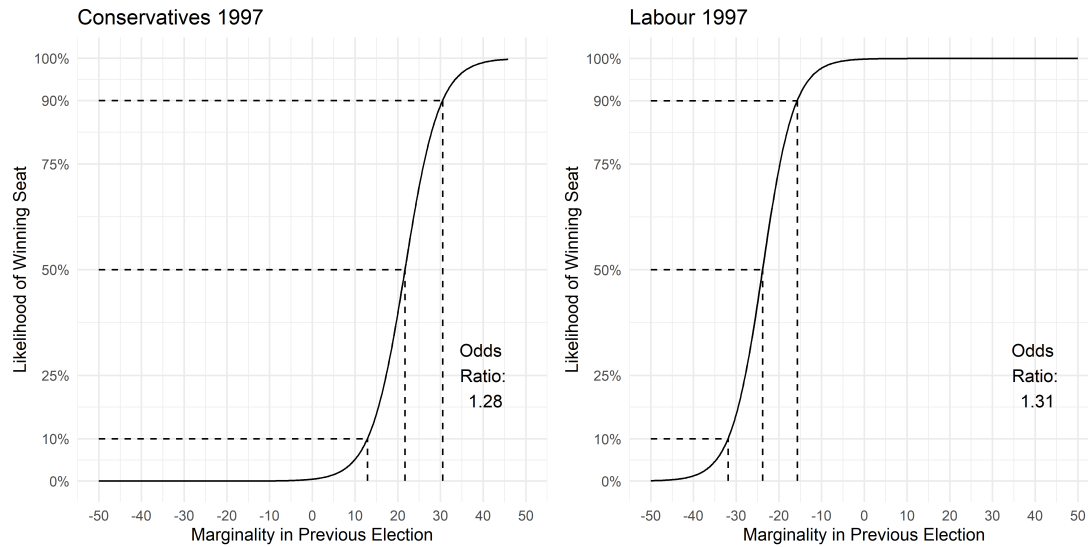


Figure A.4.2: Marginality and Success in the 2001 General Election

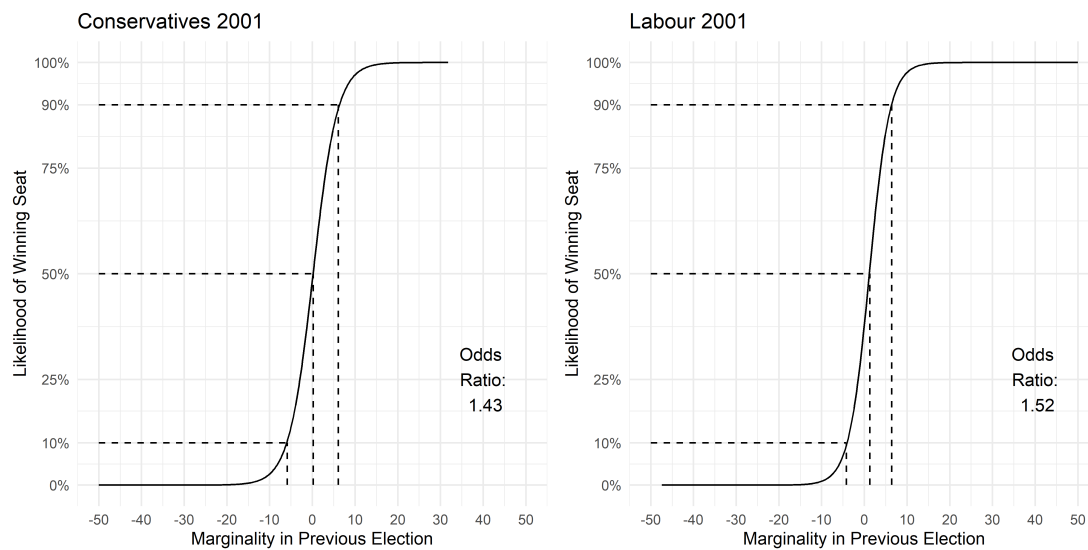


Figure A.4.3: Marginality and Success in the 2005 General Election

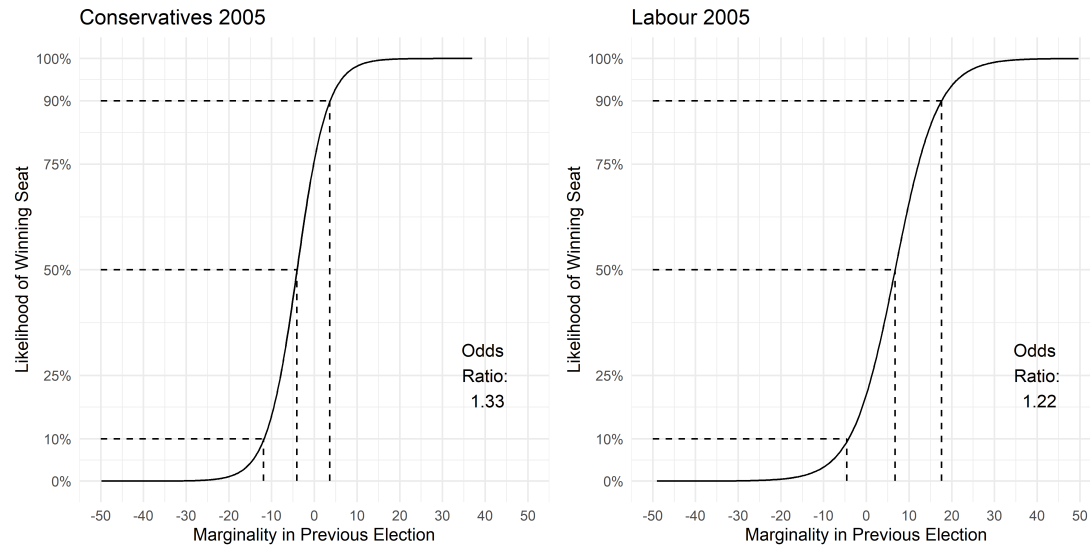


Figure A.4.4: Marginality and Success in the 2010 General Election

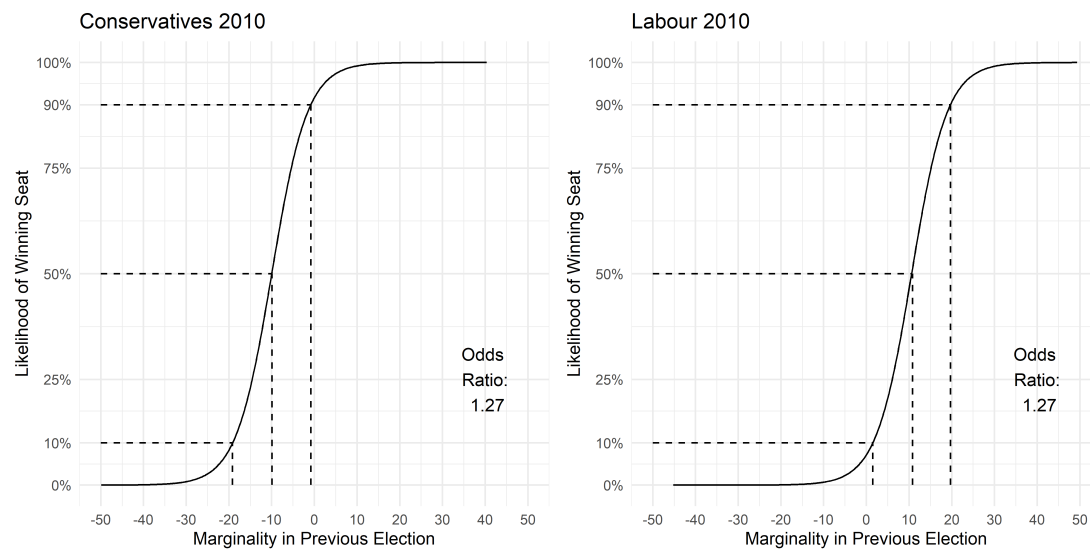


Figure A.4.5: Marginality and Success in the 2015 General Election

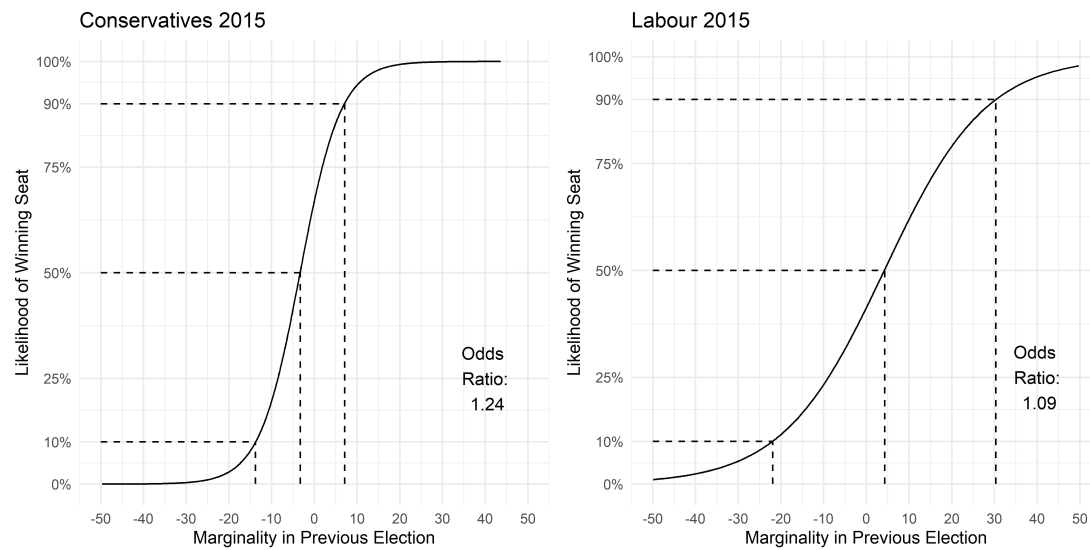


Figure A.4.6: Marginality and Success in the 2017 General Election

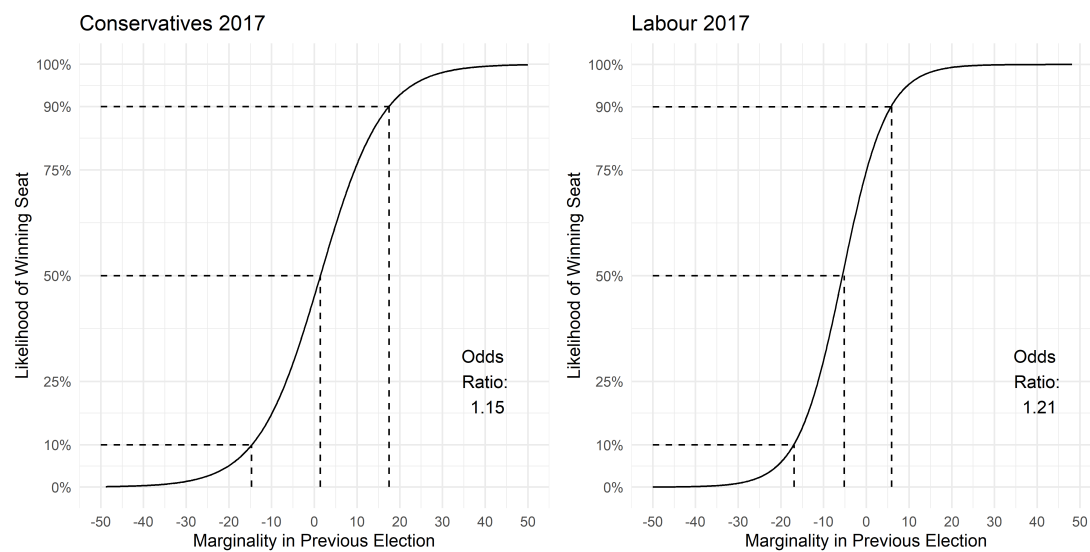
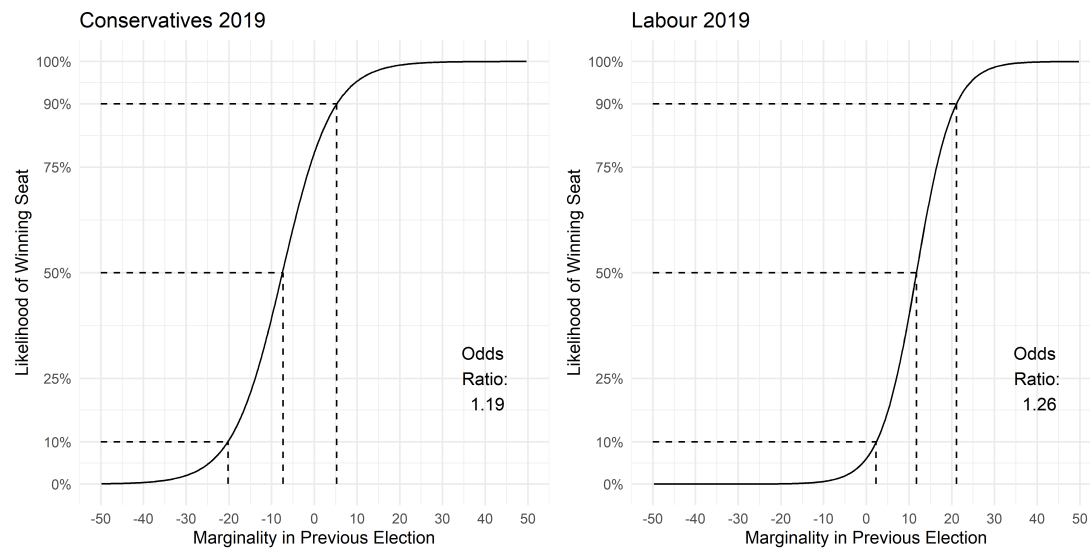


Figure A.4.7: Marginality and Success in the 2019 General Election



A.5 Independent Variables

Table A.5.1: Overview of Independent Variables

Variable	2010 - 2017	1997 - 2005
Management	c11NSSECHigherManager + c11NSSECHigherProfessional + c11NSSECLowerManager	Percent_Management*
Manual	c11NSSECSemiRoutine +	Percent_Semi_Routine* +
Retired	c11Retired	Percent_pensioners*
Unemployed	c11Unemployed	Percent_Unemployed*
Education	c11QualNone	Percent_NoQual*
Urban	c11PopulationDensity	Population_density*

Notes. If not stated differently, variables for the 2010-2017 elections are based on the 2011 census, whereas variables for 1997-2005 are based on the 2001 census. The variable Percent_Management in 1997-2005 is equivalent to the management categories in 2010-2017.

*: Due to redistricting before the 2005 election in Scotland (but not in the rest of the UK), I use the 2011 census data for the Scottish constituencies in 2005.

A.5.1 Managerial Jobs

Figure A.5.1: Distribution of Share of Constituents Working in Managerial Jobs by Candidate Gender for Conservatives

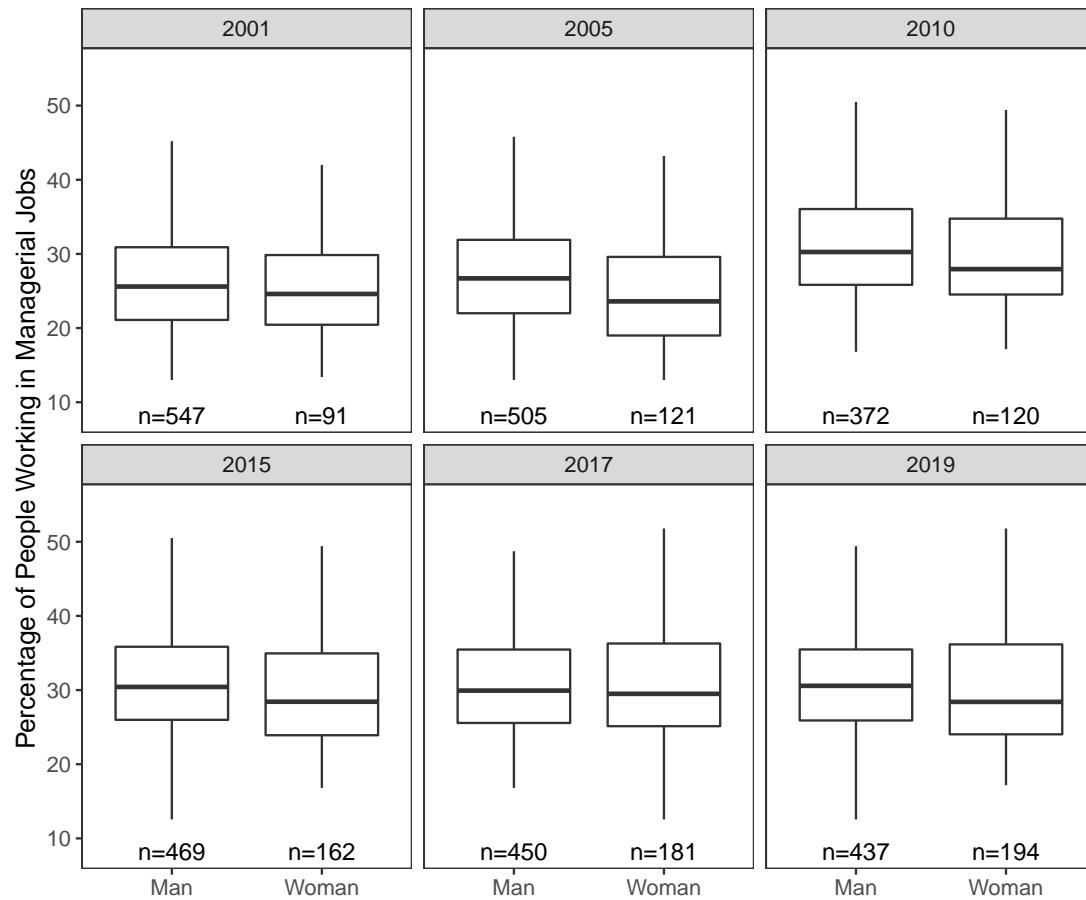
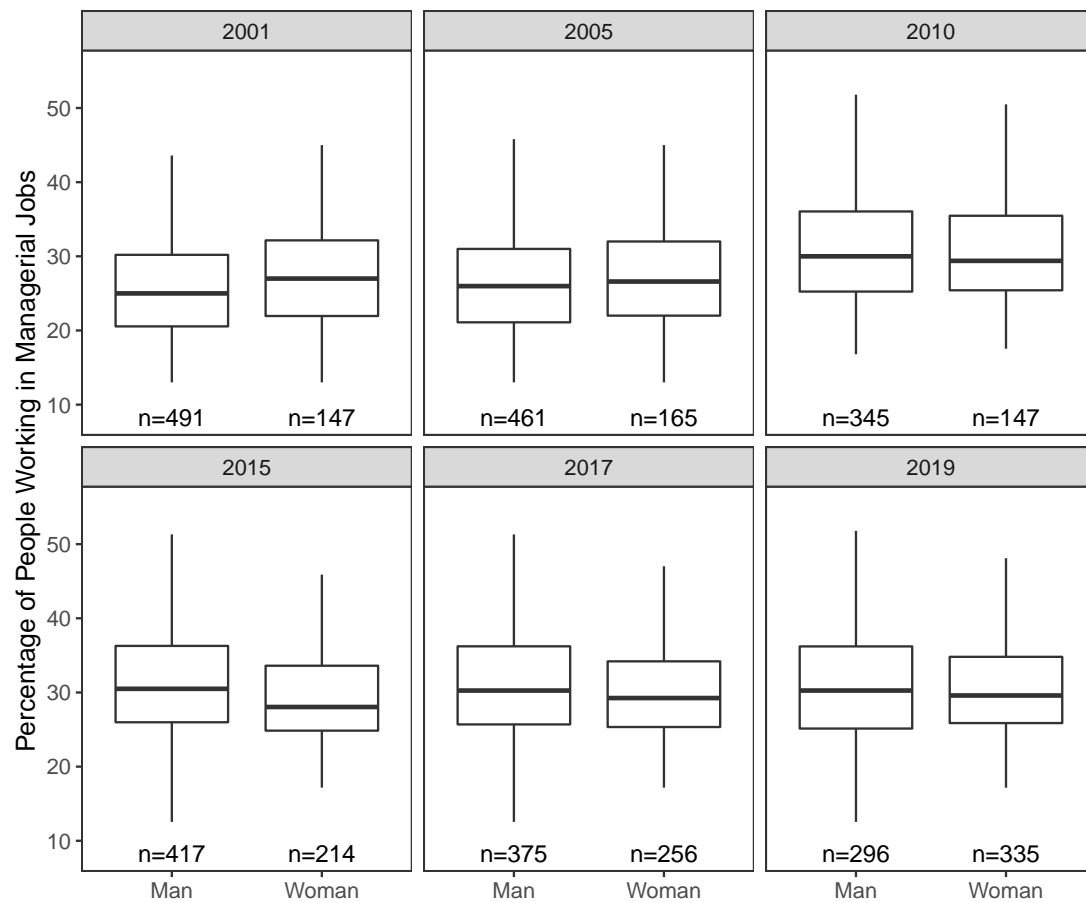


Figure A.5.2: Distribution of Share of Constituents Working in Managerial Jobs by Candidate Gender for Labour



A.5.2 Manual Jobs

Figure A.5.3: Distribution of Share of Constituents Working in Manual Jobs by Candidate Gender for Conservatives

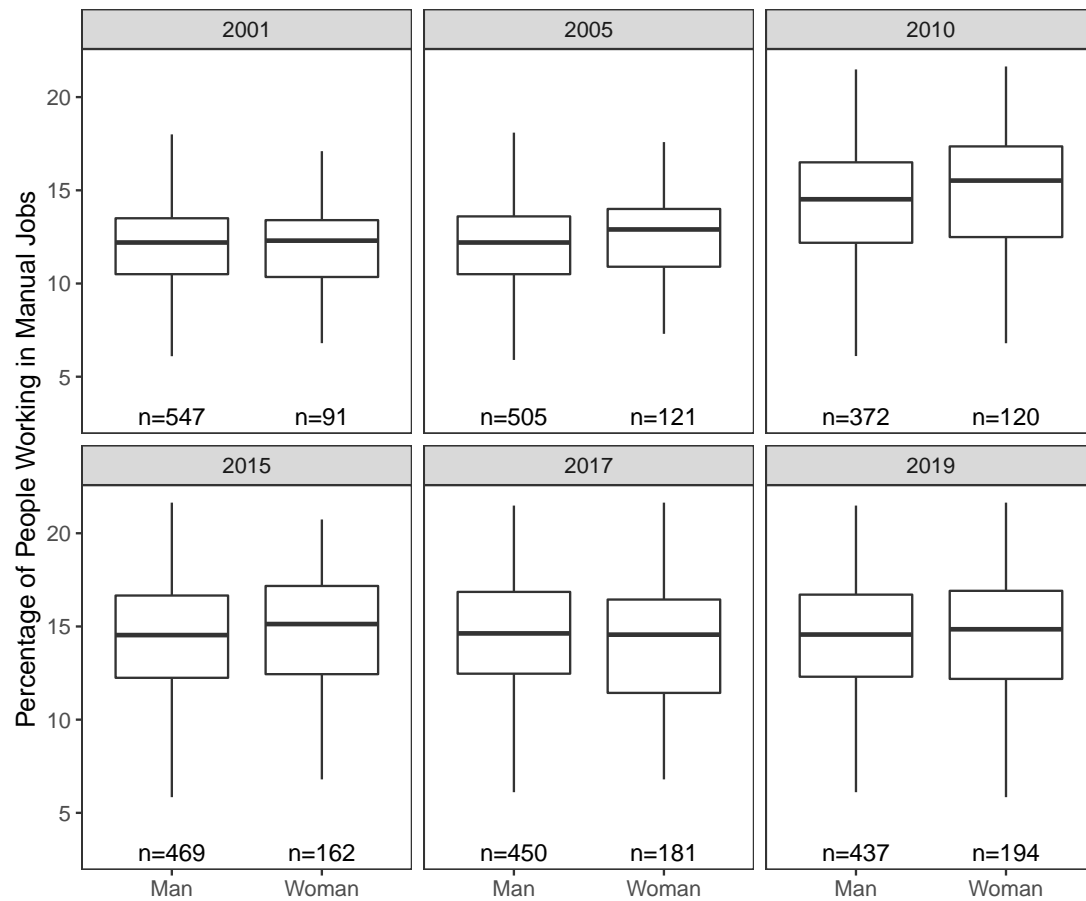
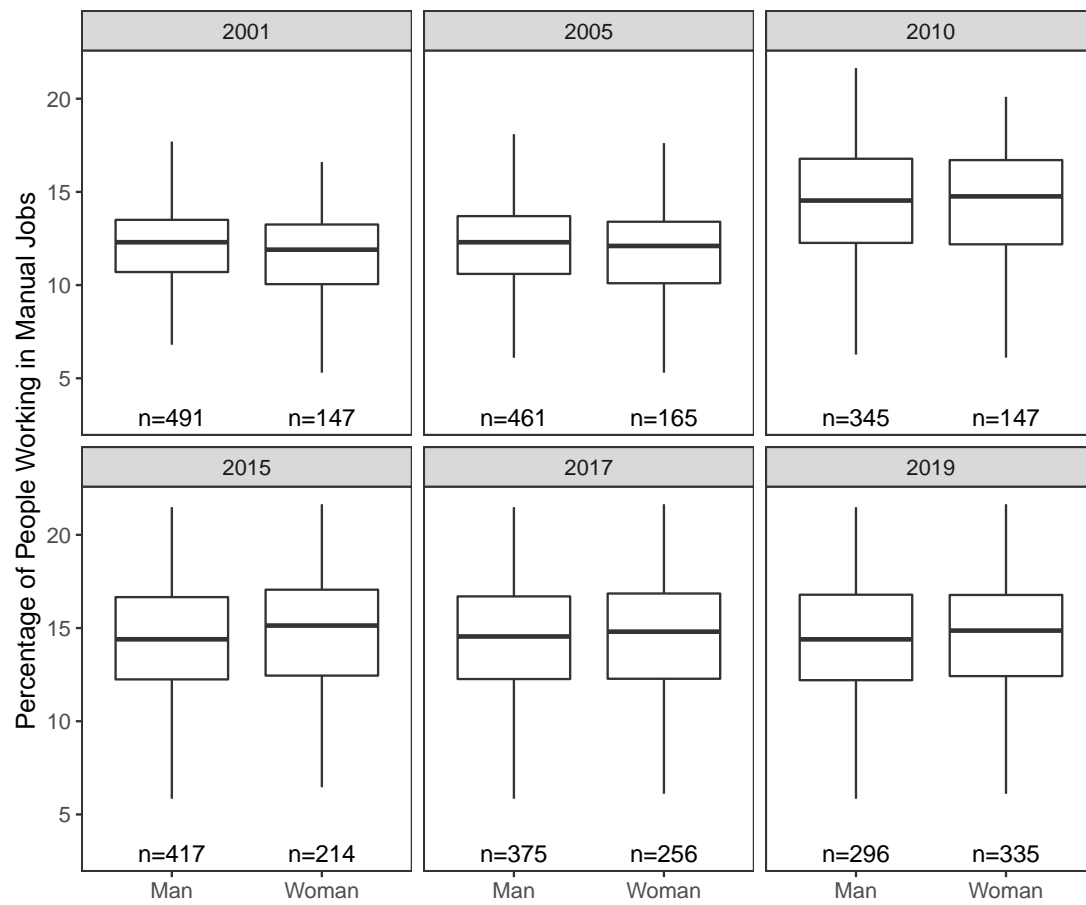


Figure A.5.4: Distribution of Share of Constituents Working in Manual Jobs by Candidate Gender for Labour



A.5.3 Retirees

Figure A.5.5: Distribution of Share of Constituents that are Retired by Candidate Gender for Conservatives

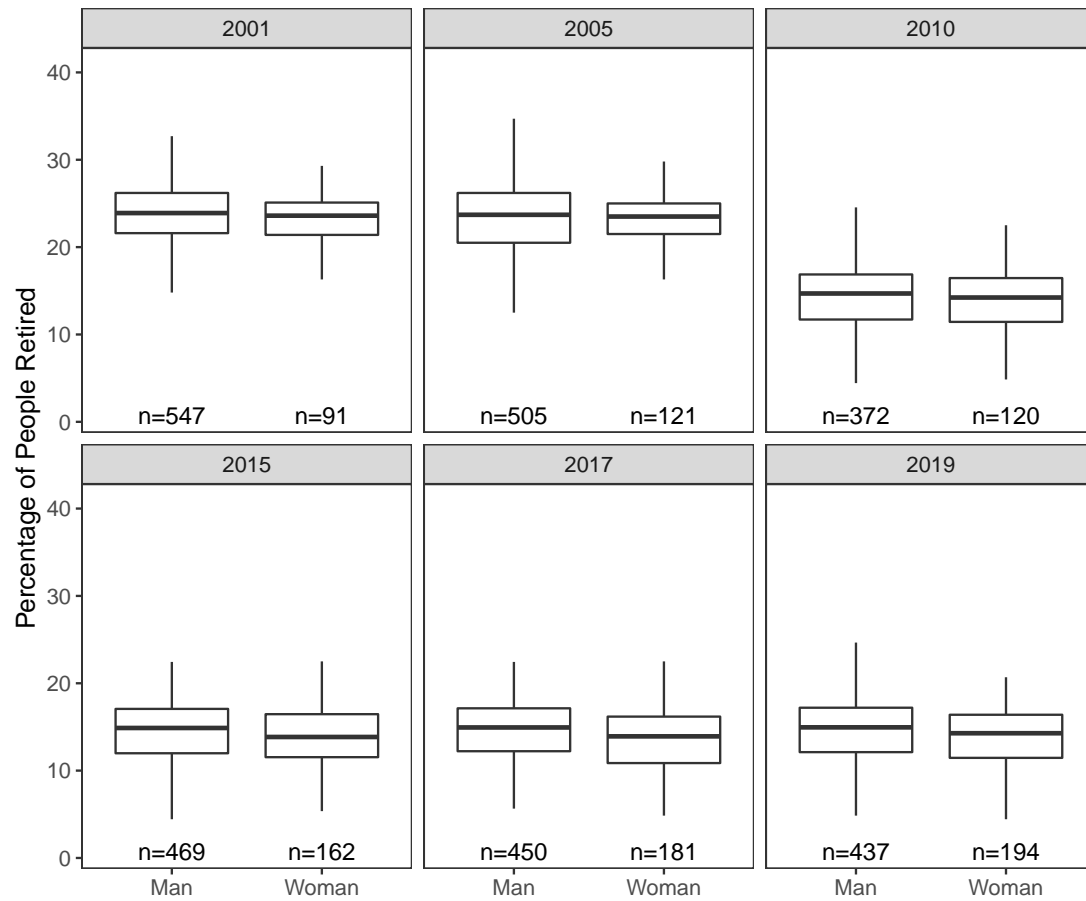
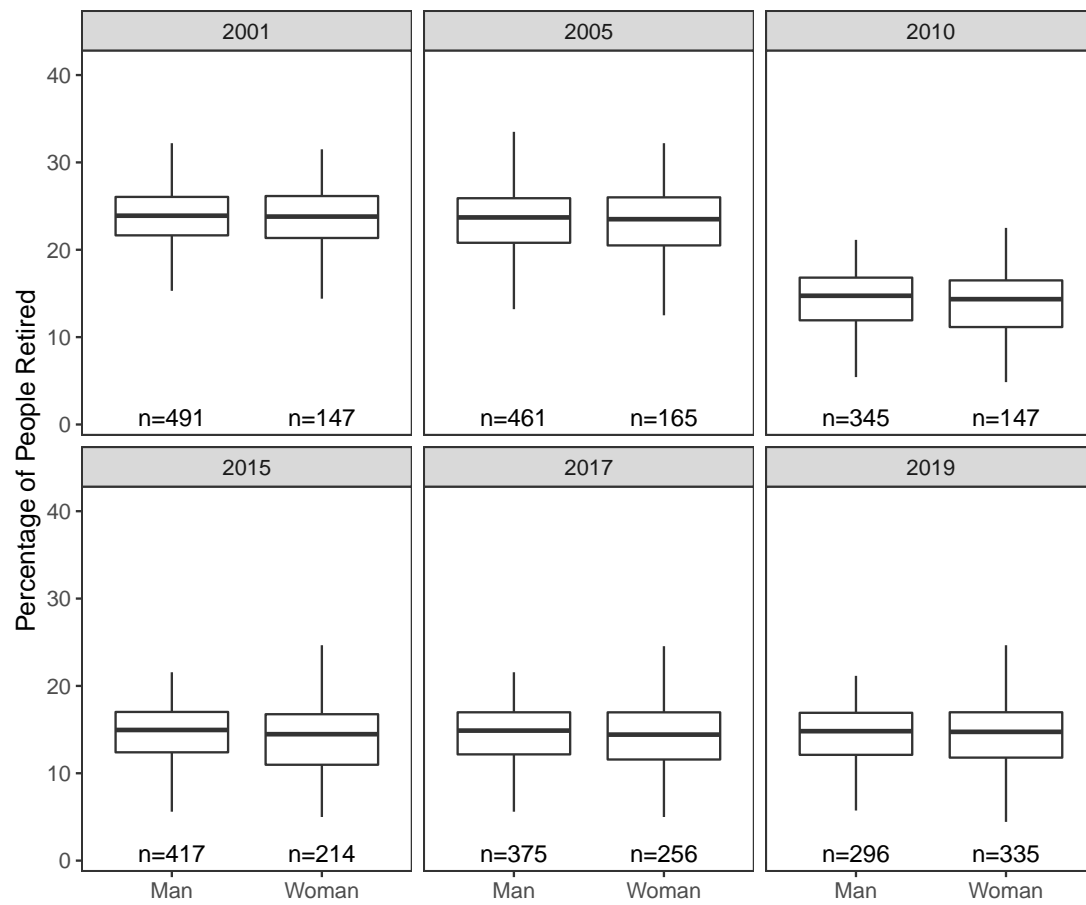


Figure A.5.6: Distribution of Share of Constituents that are Retired by Candidate Gender for Labour



A.5.4 Unemployed

Figure A.5.7: Distribution of Share of Constituents that are Unemployed by Candidate Gender for Conservatives

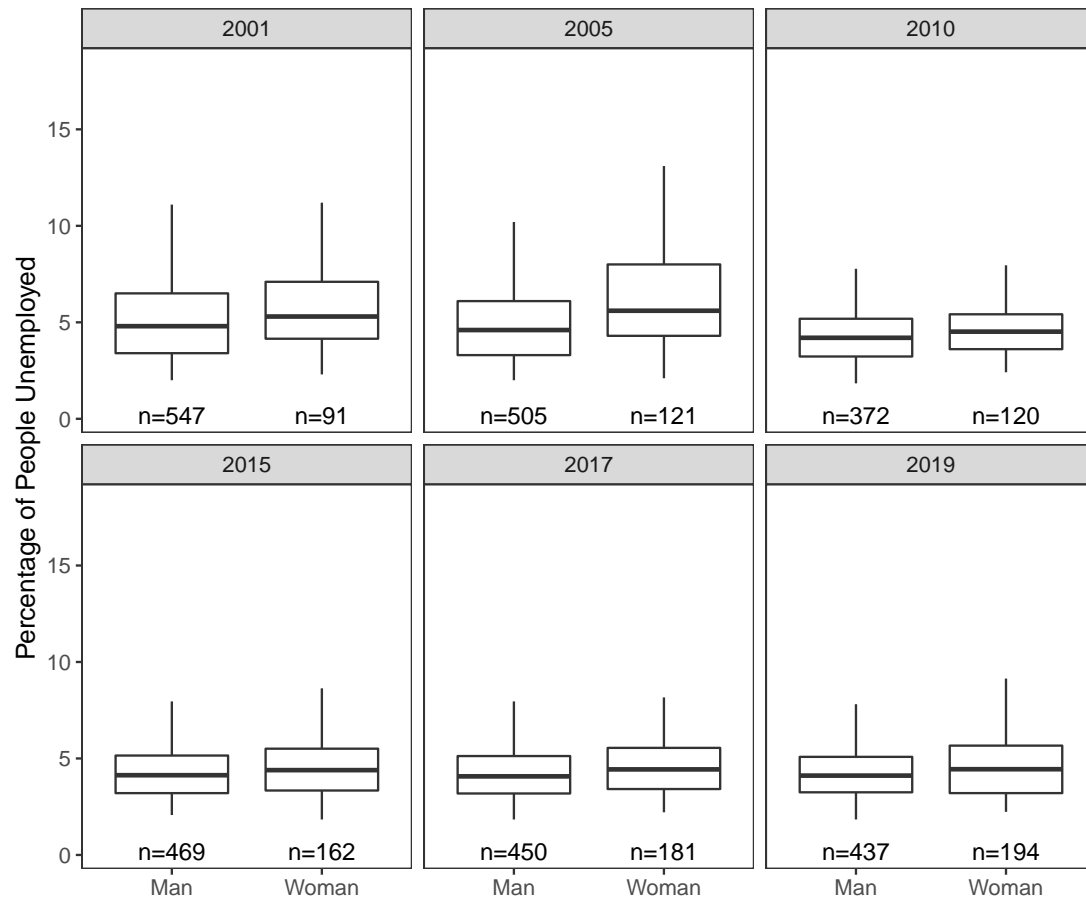
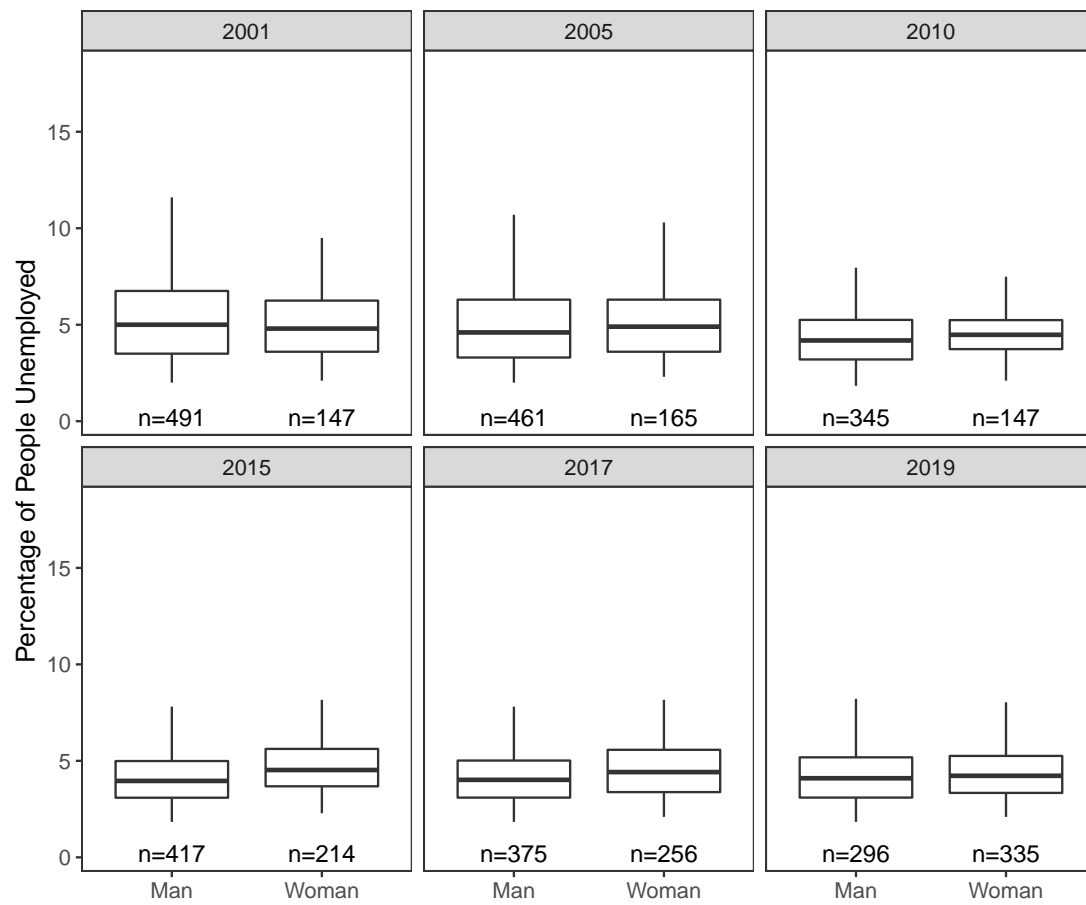


Figure A.5.8: Distribution of Share of Constituents that are Unemployed by Candidate Gender for Labour



A.5.5 Education

Figure A.5.9: Distribution of Share of Constituents that have no Qualification by Candidate Gender for Conservatives

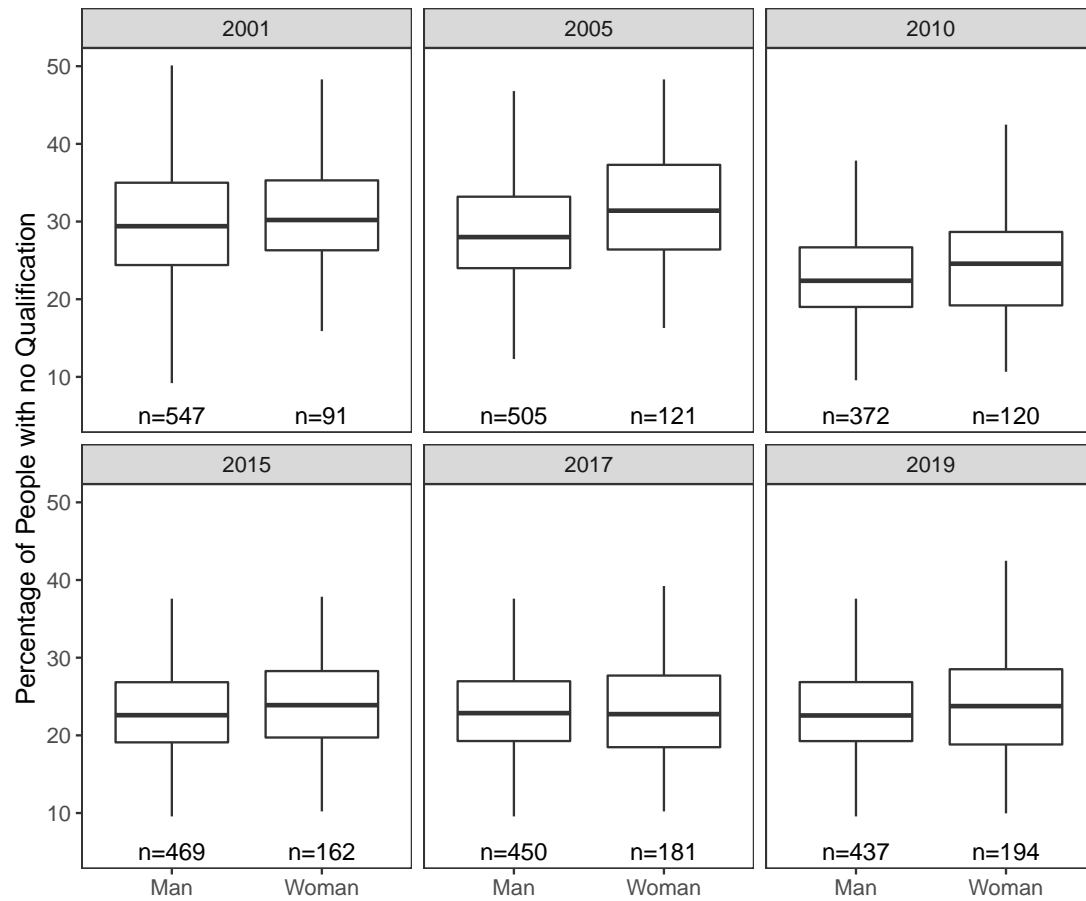
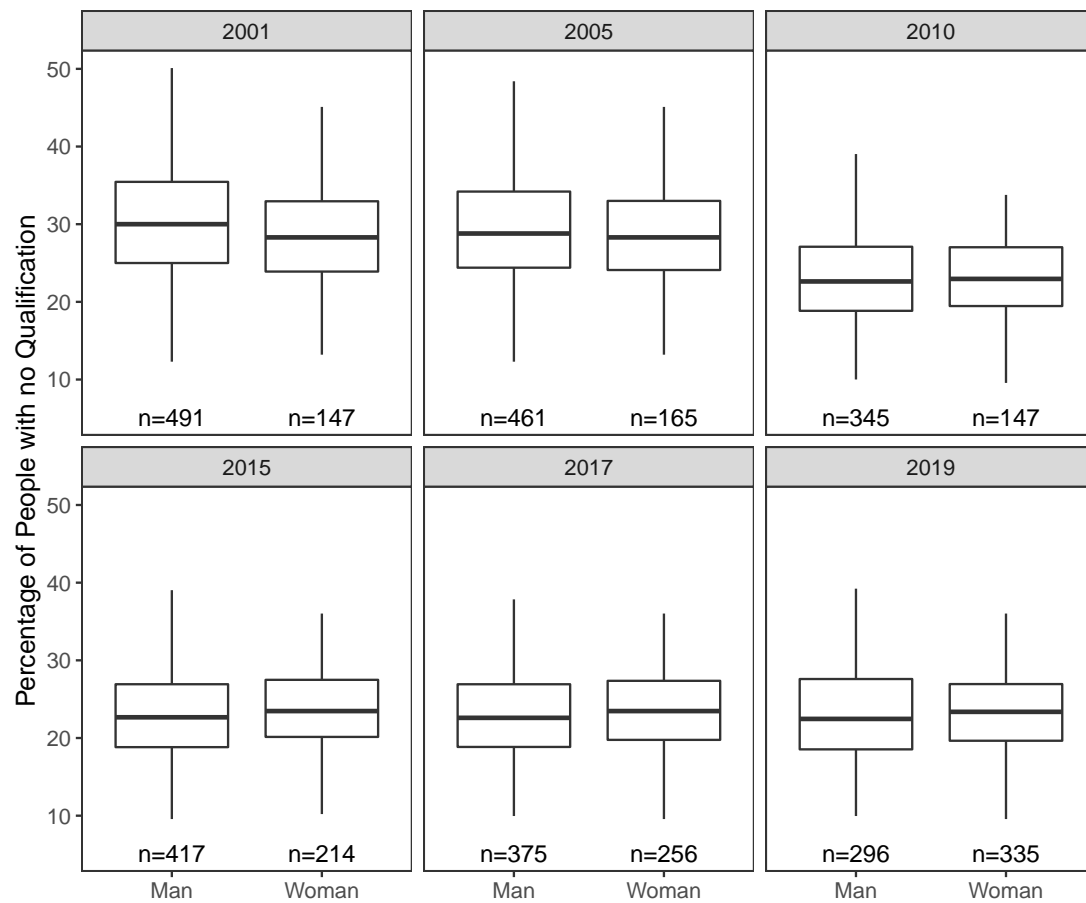


Figure A.5.10: Distribution of Share of Constituents that have no Qualification by Candidate Gender for Labour



A.5.6 Urbanisation

Figure A.5.11: Distribution of Inhabitants per Hectar by Candidate Gender for Conservatives

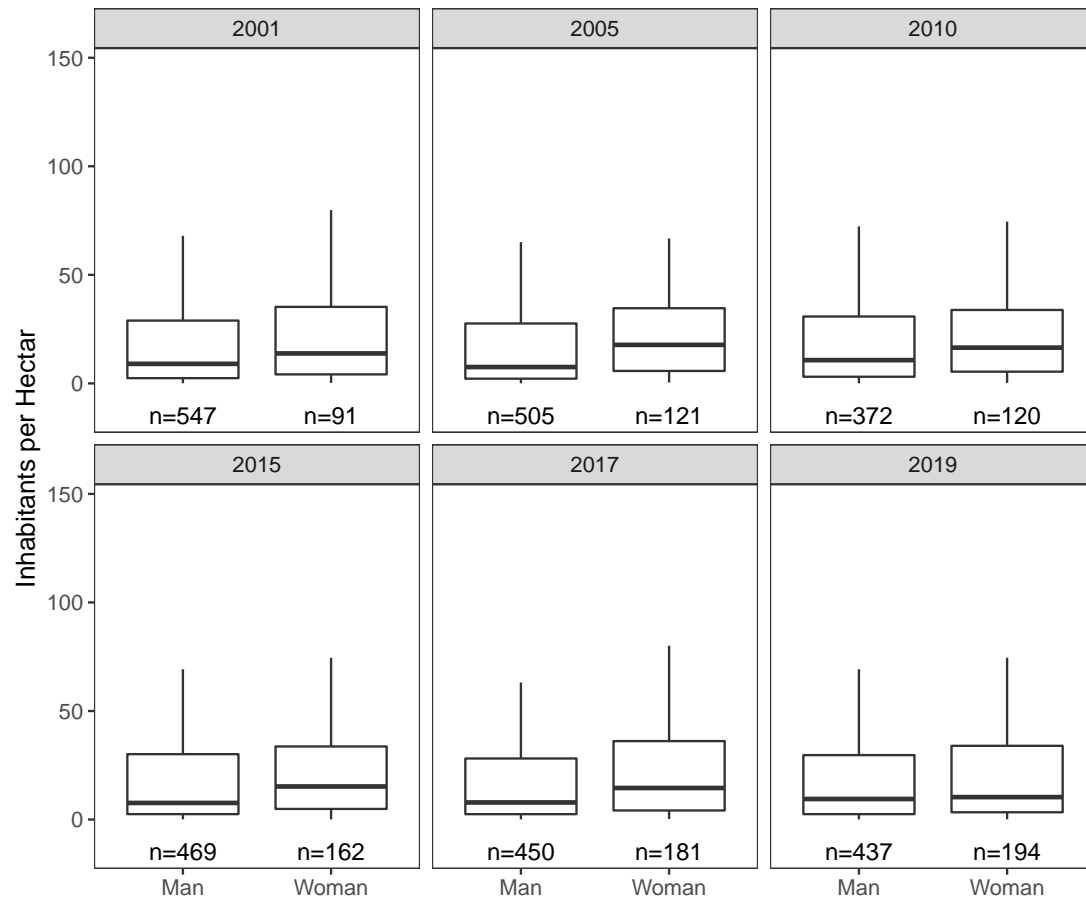
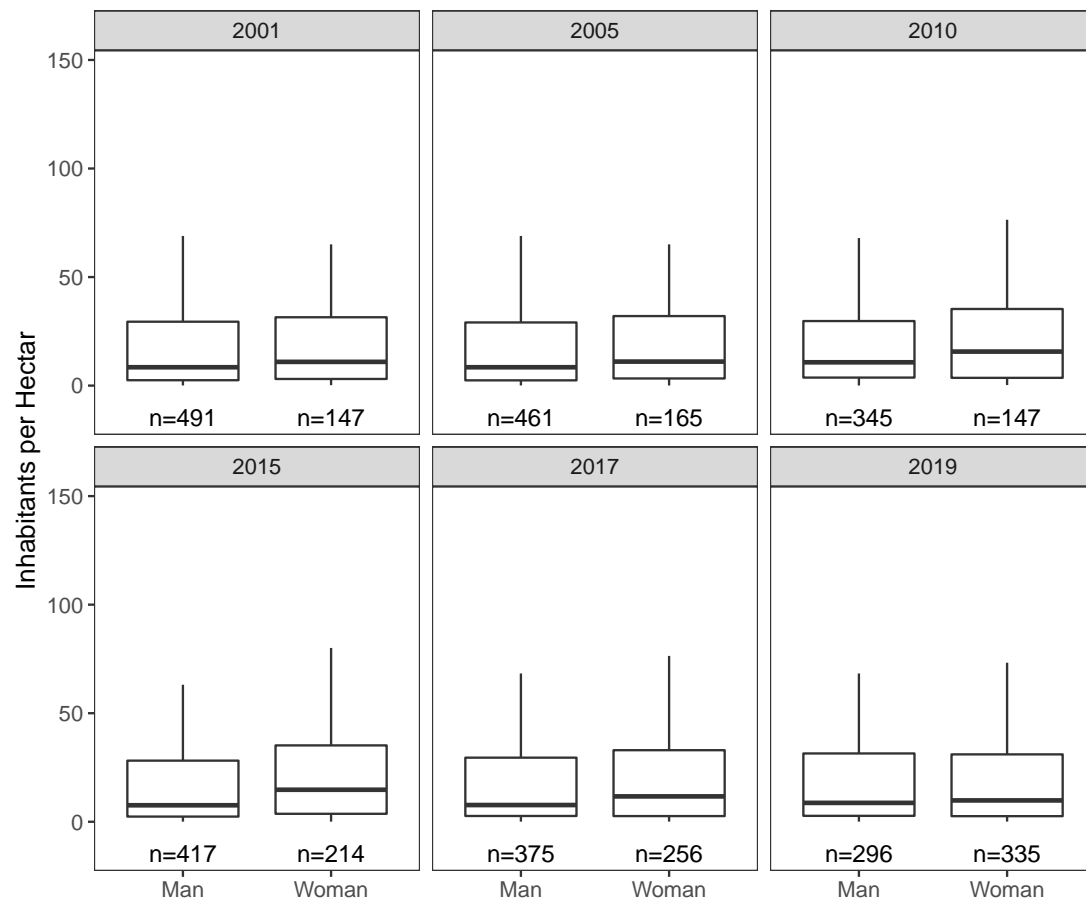


Figure A.5.12: Distribution of Inhabitants per Hectar by Candidate Gender for Labour



A.6 Regression Tables

Table A.6.1: Regression Table for District Marginality on Probability to Nominate a Woman (no controls)

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman					Labour Nominating Woman						
	2019 (1)	2017 (2)	2015 (3)	2010 (4)	2005 (5)	2001 (6)	2019 (7)	2017 (8)	2015 (9)	2010 (10)	2005 (11)	2001 (12)
Conservative vote margin (t-1)	-0.011*** (0.003)	-0.012*** (0.003)	-0.014*** (0.004)	-0.021*** (0.004)	-0.024*** (0.005)	-0.015*** (0.005)						
Labour vote margin (t-1)							0.003 (0.003)	0.006** (0.003)	0.012*** (0.003)	0.008** (0.003)	0.002 (0.003)	-0.004 (0.003)
Constant	-0.848*** (0.088)	-0.937*** (0.090)	-1.121*** (0.095)	-1.452*** (0.118)	-1.924*** (0.153)	-2.130*** (0.166)	0.130 (0.080)	-0.331*** (0.084)	-0.586*** (0.087)	-0.854*** (0.088)	-1.046*** (0.097)	-1.159*** (0.102)
Observations	631	631	631	629	626	638	631	631	631	630	626	638
Log Likelihood	-382.613	-370.389	-352.605	-330.659	-292.353	-256.180	-435.703	-423.641	-396.802	-383.731	-360.897	-343.717
Akaike Inf. Crit.	769.225	744.777	709.210	665.317	588.707	516.359	875.406	851.281	797.604	771.462	725.794	691.433

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A.6.2: Regression Table for District Marginality on Probability to Nominate a Woman (Non-AWS Seats)

	<i>Dependent variable:</i>					
	Labour Nominating Woman					
	2015 (1)	2010 (2)	2005 (3)	2015 (4)	2010 (5)	2005 (6)
Labour vote margin (t-1)	0.004 (0.006)	0.002 (0.007)	-0.001 (0.006)	0.009*** (0.004)	0.002 (0.004)	-0.002 (0.004)
Manual	0.043 (0.086)	0.026 (0.097)	-0.017 (0.074)			
Management	-0.019 (0.031)	0.002 (0.037)	0.012 (0.039)			
Unemployed	0.207 (0.174)	-0.033 (0.206)	0.125 (0.091)			
Retired	0.074 (0.055)	0.041 (0.063)	0.020 (0.033)			
Urban	0.011* (0.006)	0.014* (0.007)	0.001 (0.007)			
No.Qualification	-0.080 (0.050)	-0.026 (0.059)	-0.036 (0.038)			
Constant	-1.464 (1.883)	-1.854 (2.270)	-1.429 (2.633)	-1.045*** (0.101)	-1.224*** (0.100)	-1.201*** (0.102)
Observations	554	441	596	554	567	596
Log Likelihood	-301.437	-228.483	-315.483	-306.427	-303.868	-319.931
Akaike Inf. Crit.	618.874	472.966	646.965	616.853	611.736	643.863

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A.6.3: Regression Table for Other Parties Nominating Women on Probability to Nominate a Woman

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman						Labour Nominating Woman					
	2019	2017	2015	2010	2005	2001	2019	2017	2015	2010	2005	2001
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Conservative vote margin (t-1)	-0.013*** (0.005)	-0.014*** (0.004)	-0.012** (0.005)	-0.021*** (0.007)	-0.021*** (0.008)	-0.017** (0.008)						
Share of Women in Parties other than Conservatives (t-1)	0.214 (0.311)	-0.231 (0.418)	-0.665** (0.325)	0.230 (0.408)	0.353 (0.378)	0.110 (0.411)						
Labour vote margin (t-1)							0.002 (0.005)	0.002 (0.005)	0.008 (0.005)	0.008 (0.007)	0.005 (0.006)	0.0004 (0.006)
Share of Women in Parties other than Labour (t-1)							0.085 (0.293)	-0.043 (0.397)	0.537* (0.303)	0.145 (0.370)	0.184 (0.349)	0.298 (0.372)
Manual	-0.026 (0.073)	-0.089 (0.076)	0.030 (0.076)	0.036 (0.096)	-0.082 (0.089)	-0.077 (0.109)	0.127* (0.068)	0.039 (0.068)	0.127* (0.072)	-0.016 (0.088)	0.026 (0.079)	0.010 (0.096)
Management	0.021 (0.029)	0.027 (0.028)	-0.0003 (0.029)	0.049 (0.036)	0.014 (0.046)	-0.032 (0.048)	0.003 (0.027)	-0.004 (0.028)	-0.023 (0.027)	-0.009 (0.033)	-0.002 (0.039)	0.012 (0.041)
Unemployed	-0.117 (0.150)	-0.040 (0.153)	-0.037 (0.152)	-0.228 (0.187)	0.040 (0.095)	-0.004 (0.103)	0.185 (0.143)	0.230 (0.143)	0.195 (0.147)	0.028 (0.186)	0.082 (0.087)	0.053 (0.090)
Retired	-0.098** (0.049)	-0.013 (0.050)	-0.036 (0.051)	-0.059 (0.064)	0.017 (0.038)	-0.053 (0.044)	0.040 (0.043)	0.032 (0.044)	0.039 (0.047)	0.015 (0.059)	0.013 (0.032)	0.018 (0.034)
Urban	-0.011* (0.006)	0.004 (0.006)	0.001 (0.006)	0.005 (0.008)	0.001 (0.007)	-0.005 (0.008)	0.001 (0.006)	0.001 (0.006)	0.007 (0.006)	0.006 (0.007)	0.002 (0.006)	0.001 (0.007)
No_Qualification	0.063 (0.044)	0.041 (0.045)	0.0004 (0.046)	0.090 (0.057)	0.043 (0.039)	-0.032 (0.043)	-0.099** (0.042)	-0.059 (0.042)	-0.118*** (0.044)	-0.026 (0.054)	-0.056 (0.036)	-0.036 (0.038)
Constant	-0.526 (1.667)	-1.128 (1.651)	-0.737 (1.714)	-3.831* (2.177)	-3.222 (3.002)	1.875 (3.176)	-0.918 (1.586)	-0.916 (1.586)	-0.684 (1.642)	-0.294 (1.989)	-0.458 (2.588)	-1.368 (2.746)
Observations	630	631	630	432	590	638	630	631	630	432	590	638
Log Likelihood	-378.437	-363.555	-349.684	-229.557	-272.864	-253.592	-431.152	-421.699	-388.428	-257.463	-341.884	-340.422
Akaike Inf. Crit.	774.875	745.109	717.368	477.113	563.728	525.184	880.304	861.397	794.856	532.925	701.769	698.844

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A.6.4: Regression Table for Other Parties in Neighbouring Constituencies Nominating Women on Probability to Nominate a Woman

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman						Labour Nominating Woman					
	2019 (1)	2017 (2)	2015 (3)	2010 (4)	2005 (5)	2001 (6)	2019 (7)	2017 (8)	2015 (9)	2010 (10)	2005 (11)	2001 (12)
Conservative vote margin (t-1)	-0.013*** (0.005)	-0.014*** (0.004)	-0.012** (0.005)	-0.021*** (0.007)	-0.020*** (0.008)	-0.017** (0.008)						
Share of Women in Parties other than Conservatives in Neighbouring Cons. (t-1)	0.182 (1.018)	-1.139 (1.480)	-0.280 (1.117)	-0.345 (1.345)	0.095 (1.094)	-2.907** (1.417)						
Labour vote margin (t-1)							0.002 (0.005)	0.002 (0.005)	0.008 (0.005)	0.008 (0.007)	0.006 (0.006)	0.001 (0.006)
Share of Women in Parties other than Labour in Neighbouring Cons. (t-1)							-0.403 (0.861)	-0.676 (1.338)	0.115 (0.983)	-1.490 (1.304)	0.871 (1.243)	-0.096 (1.210)
Manual	-0.023 (0.073)	-0.093 (0.075)	0.029 (0.076)	0.038 (0.096)	-0.081 (0.089)	-0.091 (0.110)	0.127* (0.068)	0.038 (0.068)	0.127* (0.072)	-0.013 (0.088)	0.028 (0.079)	0.008 (0.096)
Management	0.023 (0.029)	0.026 (0.028)	-0.003 (0.029)	0.050 (0.036)	0.017 (0.046)	-0.033 (0.048)	0.004 (0.027)	-0.004 (0.028)	-0.020 (0.027)	-0.007 (0.032)	-0.0002 (0.039)	0.014 (0.041)
Unemployed	-0.116 (0.150)	-0.045 (0.153)	-0.043 (0.151)	-0.241 (0.189)	0.044 (0.094)	0.006 (0.103)	0.188 (0.143)	0.229 (0.143)	0.187 (0.147)	0.008 (0.186)	0.082 (0.087)	0.057 (0.090)
Retired	-0.099** (0.049)	-0.013 (0.050)	-0.034 (0.050)	-0.065 (0.064)	0.017 (0.038)	-0.056 (0.044)	0.040 (0.043)	0.032 (0.044)	0.036 (0.047)	0.011 (0.059)	0.014 (0.032)	0.018 (0.035)
Urban	-0.011* (0.006)	0.003 (0.006)	0.001 (0.006)	0.005 (0.008)	0.001 (0.007)	-0.006 (0.008)	0.001 (0.006)	0.001 (0.006)	0.008 (0.006)	0.006 (0.008)	0.002 (0.006)	0.001 (0.007)
No_Qualification	0.063 (0.044)	0.043 (0.045)	-0.0005 (0.046)	0.092 (0.057)	0.043 (0.039)	-0.034 (0.043)	-0.099** (0.042)	-0.059 (0.042)	-0.114*** (0.044)	-0.022 (0.054)	-0.056 (0.036)	-0.035 (0.038)
Constant	-0.587 (1.698)	-0.781 (1.704)	-0.717 (1.745)	-3.686* (2.211)	-3.263 (3.030)	2.833 (3.242)	-0.814 (1.602)	-0.723 (1.630)	-0.709 (1.651)	-0.003 (1.998)	-0.681 (2.620)	-1.396 (2.755)
Observations	630	631	630	432	590	638	630	631	630	432	590	638
Log Likelihood	-378.656	-363.409	-351.811	-229.681	-273.290	-251.500	-431.085	-421.576	-389.980	-256.857	-341.776	-340.735
Akaike Inf. Crit.	775.312	744.818	721.622	477.362	564.579	520.999	880.169	861.153	797.961	531.714	701.552	699.469

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A.6.5: Regression Table for Neighbouring Constituencies Nominating Women on Probability to Nominate a Woman (Same Party)

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman						Labour Nominating Woman					
	2019 (1)	2017 (2)	2015 (3)	2010 (4)	2005 (5)	2001 (6)	2019 (7)	2017 (8)	2015 (9)	2010 (10)	2005 (11)	2001 (12)
Conservative vote margin (t-1)	-0.013*** (0.005)	-0.015*** (0.005)	-0.012** (0.005)	-0.021*** (0.007)	-0.020** (0.008)	-0.017** (0.008)						
Share of Women for Conservative Party in Neighbouring Cons. (t-1)	1.523** (0.607)	3.741*** (0.689)	1.645** (0.686)	1.175 (0.969)	1.262 (0.948)	1.203 (1.241)						
Labour vote margin (t-1)							0.003 (0.005)	0.002 (0.005)	0.008 (0.005)	0.008 (0.007)	0.007 (0.006)	0.002 (0.006)
Share of Women for Labour Party in Neighbouring Cons. (t-1)							2.364*** (0.627)	1.539** (0.600)	1.508** (0.730)	1.743** (0.861)	4.708*** (0.714)	3.907*** (0.756)
Manual	-0.020 (0.073)	-0.102 (0.077)	0.028 (0.076)	0.039 (0.096)	-0.073 (0.090)	-0.078 (0.110)	0.124* (0.069)	0.038 (0.068)	0.125* (0.072)	0.009 (0.090)	0.030 (0.081)	0.033 (0.098)
Management	0.021 (0.029)	0.034 (0.029)	-0.004 (0.029)	0.051 (0.036)	0.018 (0.046)	-0.031 (0.048)	0.004 (0.027)	-0.003 (0.028)	-0.016 (0.027)	-0.006 (0.033)	0.004 (0.040)	0.023 (0.042)
Unemployed	-0.135 (0.151)	-0.062 (0.157)	-0.039 (0.153)	-0.238 (0.187)	0.051 (0.095)	0.002 (0.103)	0.191 (0.145)	0.211 (0.144)	0.194 (0.148)	0.046 (0.187)	0.114 (0.091)	0.042 (0.092)
Retired	-0.106** (0.049)	-0.018 (0.051)	-0.035 (0.051)	-0.069 (0.064)	0.018 (0.038)	-0.055 (0.044)	0.049 (0.044)	0.032 (0.044)	0.036 (0.047)	0.013 (0.060)	0.023 (0.034)	0.031 (0.035)
Urban	-0.011* (0.006)	0.003 (0.006)	0.0002 (0.006)	0.004 (0.008)	0.001 (0.007)	-0.005 (0.008)	0.001 (0.006)	0.001 (0.006)	0.007 (0.006)	0.004 (0.008)	0.001 (0.007)	0.002 (0.007)
No_Qualification	0.067 (0.044)	0.058 (0.046)	-0.003 (0.046)	0.092 (0.057)	0.040 (0.039)	-0.032 (0.043)	-0.102** (0.042)	-0.056 (0.042)	-0.109** (0.044)	-0.034 (0.054)	-0.064* (0.038)	-0.031 (0.039)
Constant	-0.899 (1.680)	-2.433 (1.717)	-1.040 (1.715)	-3.971* (2.191)	-3.505 (3.016)	1.786 (3.193)	-1.945 (1.622)	-1.466 (1.604)	-1.376 (1.679)	-1.027 (2.043)	-1.961 (2.728)	-3.328 (2.844)
Observations	630	631	630	432	590	638	630	631	630	432	590	638
Log Likelihood	-375.475	-347.950	-348.945	-228.984	-272.419	-253.168	-423.764	-418.360	-387.820	-255.470	-317.493	-326.393
Akaike Inf. Crit.	768.950	713.899	715.889	475.967	562.838	524.336	865.527	854.720	793.639	528.939	652.986	670.787

Note:

*p<0.1; **p<0.05; ***p<0.01

A.7 Share of Women Running and Success Chance

Figure A.7.1: Women Running in the 2001 Election by Chance of Success

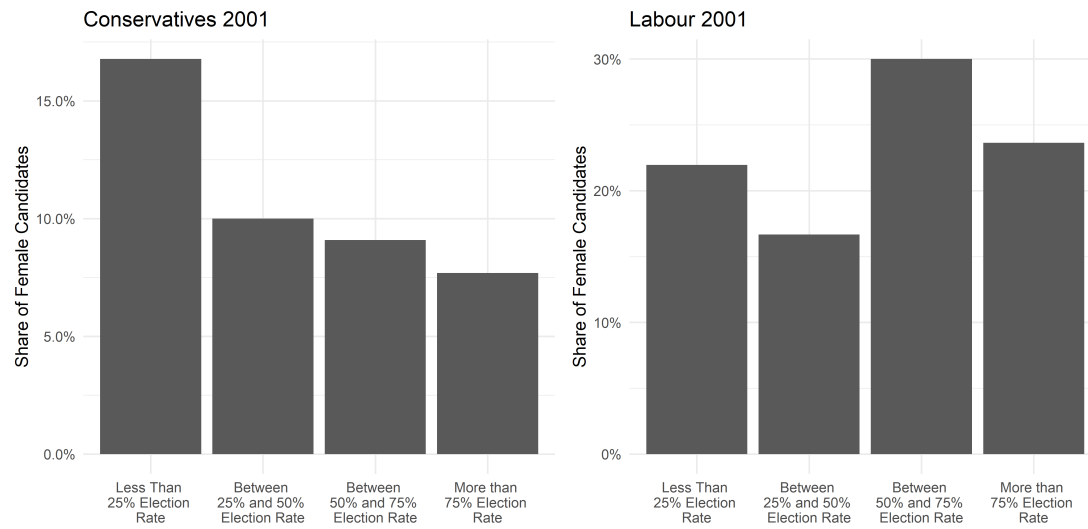


Figure A.7.2: Women Running in the 2005 Election by Chance of Success

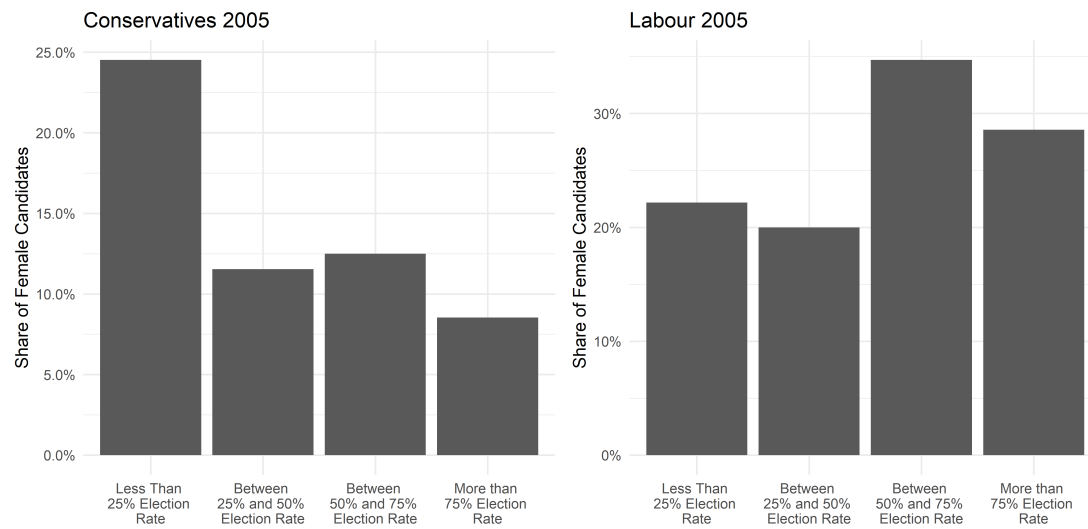


Figure A.7.3: Women Running in the 2010 Election by Chance of Success

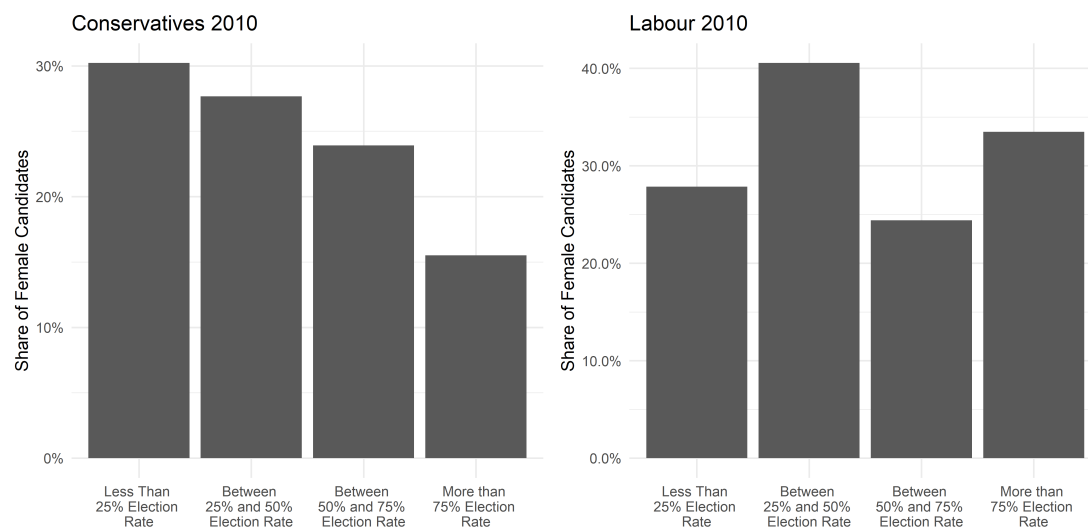


Figure A.7.4: Women Running in the 2015 Election by Chance of Success

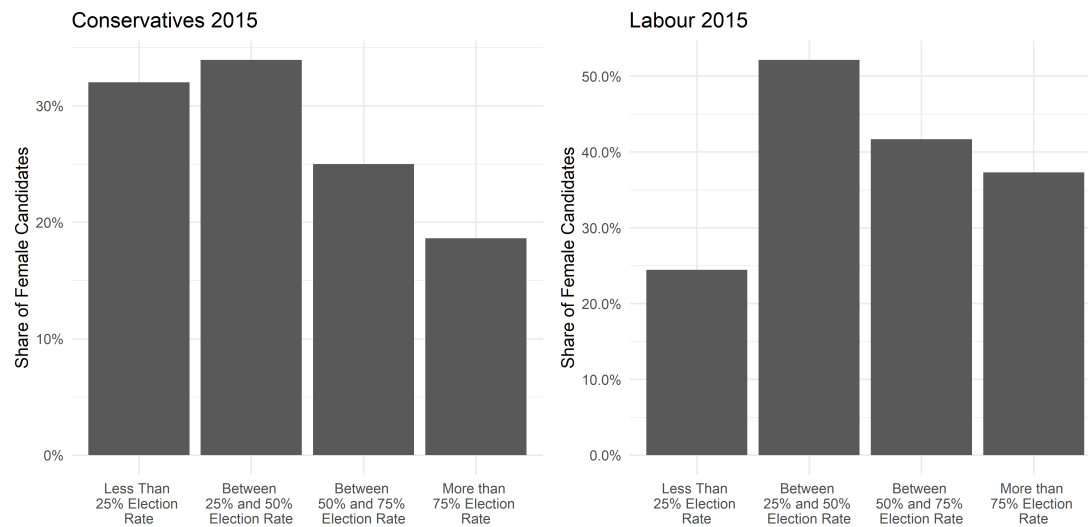


Figure A.7.5: Women Running in the 2017 Election by Chance of Success

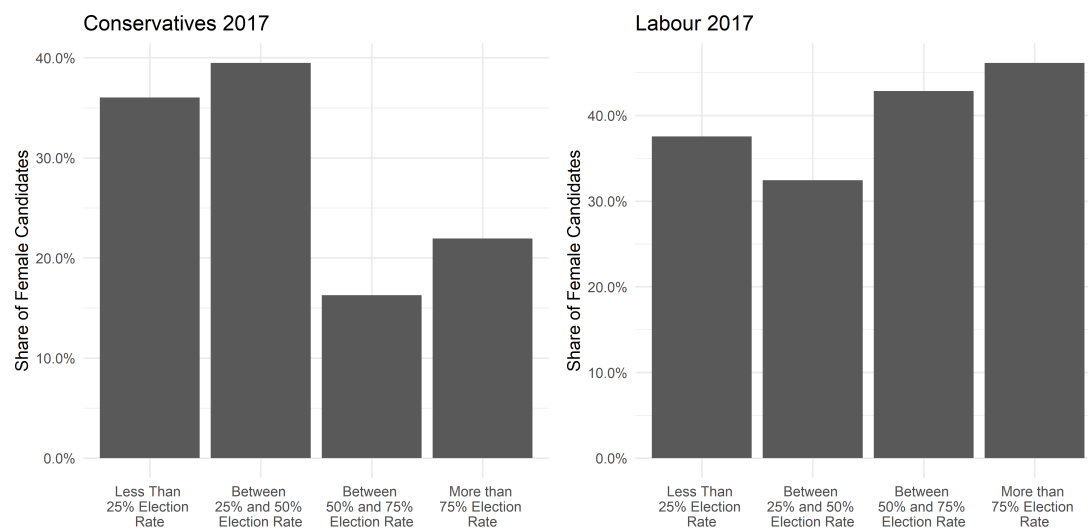
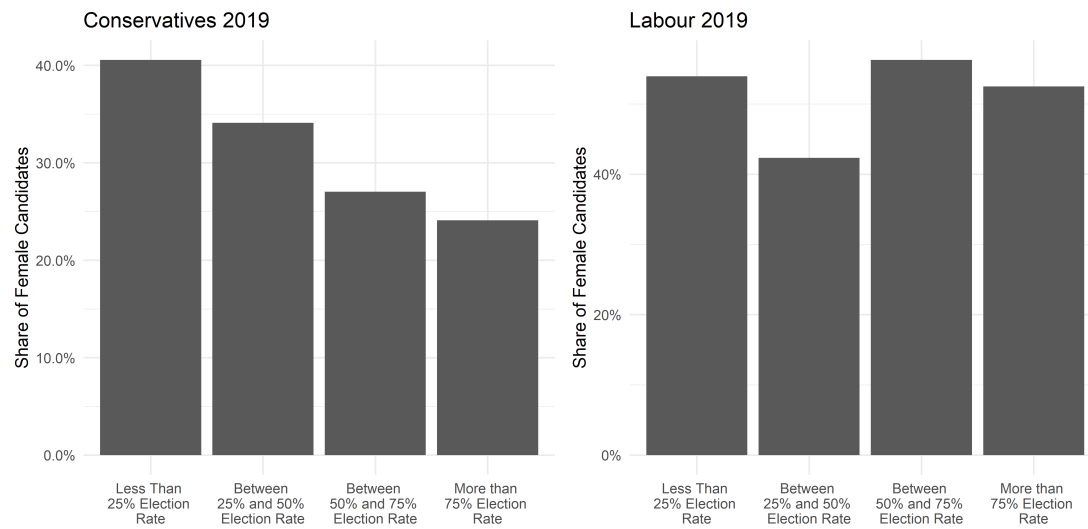


Figure A.7.6: Women Running in the 2019 Election by Chance of Success



A.8 Open Seats

Figure A.8.1 shows the average marginal effect of constituency marginality on nominating women in open seats, where the incumbent is not running. In contrast to the analysis reported in Figure 3 in the paper, Labour is showing a positive relationship for the 2005 and 2010 elections, meaning that in those elections, among open seats women were more likely to be selected in those that have a high marginality and were therefore more likely to be won by Labour. This reflects a strategy by Labour to put women in promising open seats using All-Women Shortlists, especially starting with the 2005 election. On the other hand, no such effect can be found for the Conservatives, indicating that the party did not target open seats they were likely to win for female candidates. Table A.8.1 shows the regression table for the regression in open seats. You can also see that Labour was much more likely to nominate a female candidate in cases in which there already was a female incumbent in the constituency in the previous election. This reflects the replacement of female Labour incumbents that stand down with new female candidates.

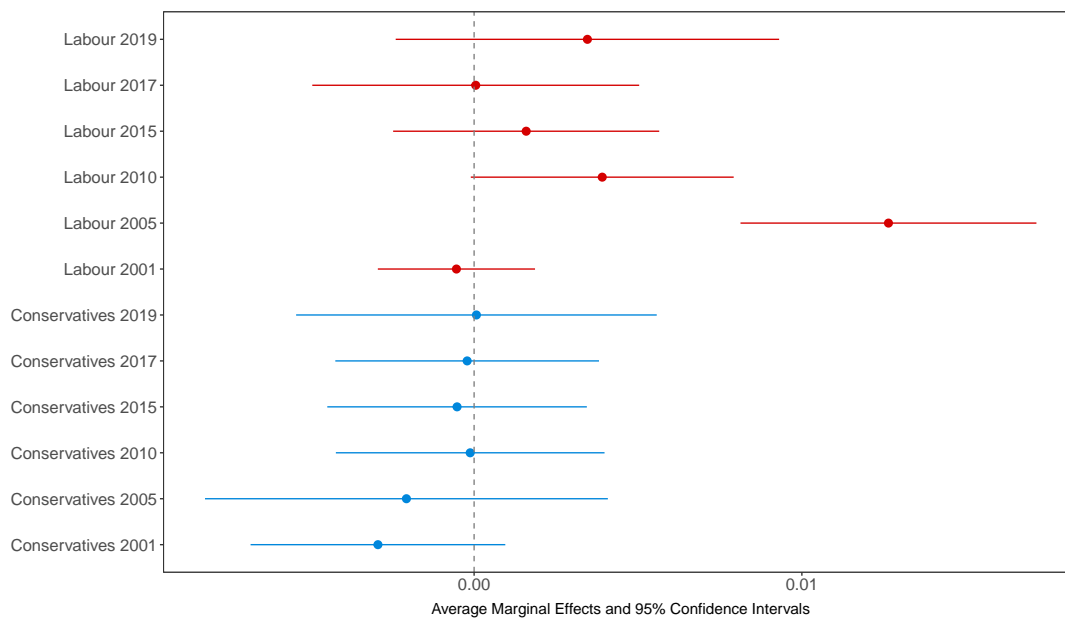
Table A.8.1: Regression Table for District Marginality on Probability to Nominate a Woman (Open Seats)

	<i>Dependent variable:</i>											
	Conservatives Nominating Woman					Labour Nominating Woman						
	2019 (1)	2017 (2)	2015 (3)	2010 (4)	2005 (5)	2001 (6)	2019 (7)	2017 (8)	2015 (9)	2010 (10)	2005 (11)	2001 (12)
Conservative vote margin (t-1)	0.0003 (0.012)	-0.001 (0.010)	-0.002 (0.009)	-0.001 (0.011)	-0.013 (0.019)	-0.023 (0.016)						
Labour vote margin (t-1)							0.015 (0.013)	0.0002 (0.011)	0.008 (0.011)	0.021* (0.012)	0.078*** (0.022)	-0.006 (0.014)
Manual	0.103 (0.174)	-0.267 (0.177)	0.110 (0.155)	-0.025 (0.151)	0.082 (0.223)	0.012 (0.186)	0.003 (0.179)	0.099 (0.165)	0.001 (0.158)	-0.188 (0.155)	0.083 (0.239)	0.021 (0.241)
Male Incumbent in (t-1)	-0.335 (0.456)	-0.684 (0.453)	0.747 (0.619)	-0.345 (0.510)	0.173 (0.691)	0.298 (0.615)	-0.682 (0.489)	-0.737 (0.451)	-1.821*** (0.605)	-1.653*** (0.499)	-1.933** (0.821)	-4.011*** (0.641)
Management	0.027 (0.069)	-0.027 (0.064)	0.065 (0.067)	-0.026 (0.058)	0.183 (0.123)	-0.047 (0.095)	-0.026 (0.074)	-0.040 (0.066)	-0.165** (0.070)	-0.062 (0.056)	-0.123 (0.103)	0.135 (0.131)
Unemployed	0.039 (0.378)	0.198 (0.316)	-0.120 (0.304)	-0.226 (0.308)	-0.128 (0.267)	0.145 (0.159)	-0.196 (0.395)	-0.004 (0.296)	0.232 (0.326)	0.024 (0.338)	0.003 (0.263)	0.202 (0.183)
Retired	-0.039 (0.106)	-0.013 (0.103)	-0.026 (0.089)	0.037 (0.101)	0.024 (0.107)	0.020 (0.075)	0.036 (0.106)	-0.082 (0.095)	0.174 (0.108)	0.152 (0.108)	0.406*** (0.134)	0.192** (0.089)
Urban	0.003 (0.015)	-0.021 (0.019)	0.005 (0.013)	0.020 (0.017)	0.007 (0.019)	0.001 (0.014)	-0.003 (0.015)	-0.005 (0.018)	0.020 (0.014)	0.025 (0.017)	0.030 (0.020)	-0.034 (0.024)
No_Qualification	-0.051 (0.101)	0.047 (0.096)	0.030 (0.102)	0.085 (0.096)	0.204* (0.109)	-0.099 (0.079)	-0.013 (0.106)	-0.056 (0.095)	-0.183* (0.109)	0.051 (0.096)	-0.297** (0.118)	0.033 (0.100)
Constant	-0.942 (4.152)	2.941 (3.585)	-4.830 (3.938)	-1.554 (3.437)	-13.502* (8.208)	0.184 (6.028)	2.459 (4.422)	2.885 (3.504)	6.354 (3.916)	1.332 (3.264)	1.484 (6.769)	-8.520 (8.648)
Observations	111	112	139	154	81	189	111	112	139	154	81	189
Log Likelihood	-73.641	-68.391	-87.392	-84.705	-40.526	-78.244	-72.159	-74.614	-77.133	-84.211	-39.506	-56.783
Akaike Inf. Crit.	165.282	154.782	192.784	187.410	99.052	174.488	162.319	167.227	172.265	186.421	97.013	131.567

Note:

*p<0.1; **p<0.05; ***p<0.01

Figure A.8.1: Average Marginal Effects of Constituency Marginality on Probability to Nominate a Woman (Open Seats)

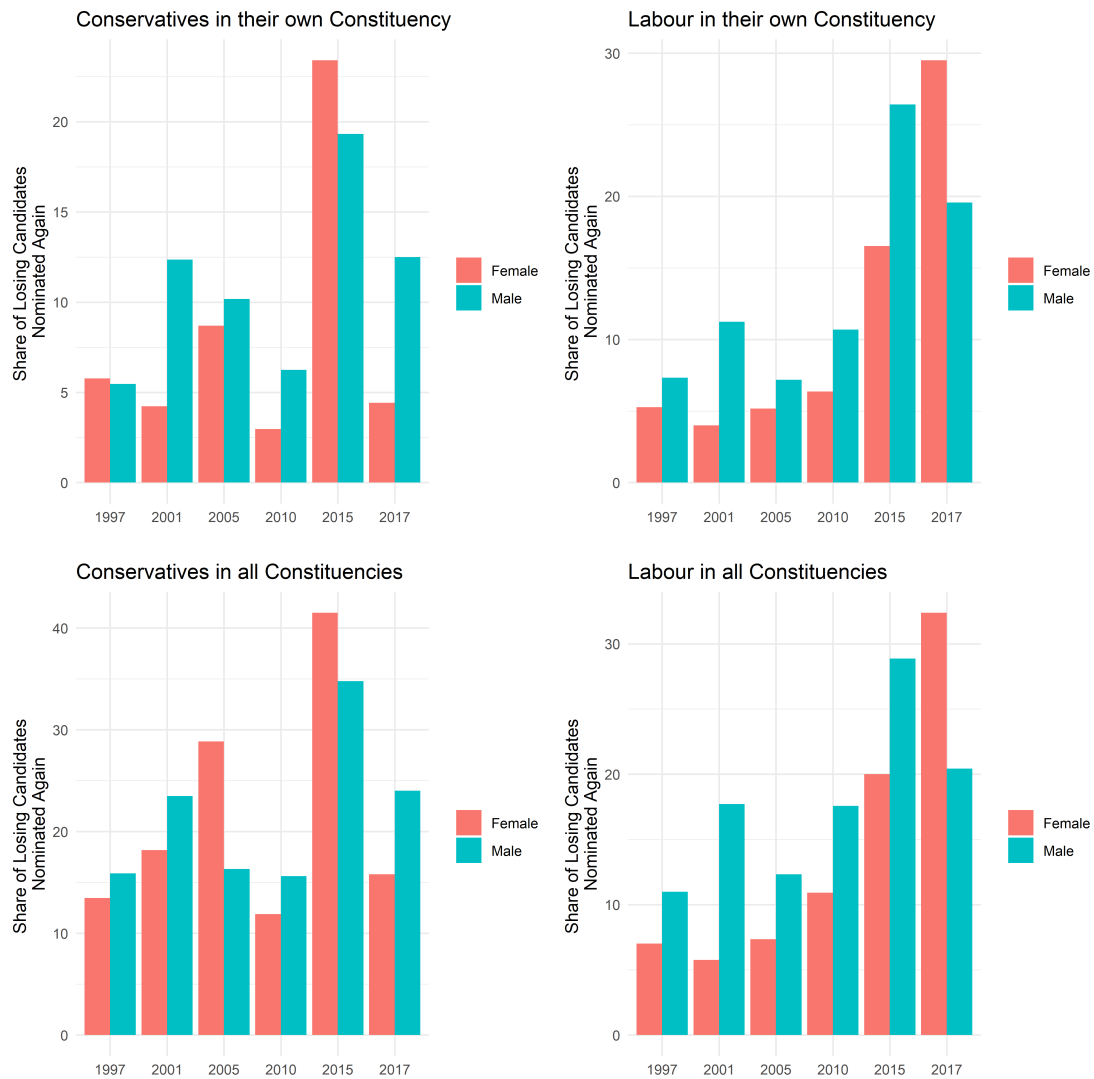


A.9 Losing Candidates that are Nominated Again

Candidates that do not win election might still benefit by gaining experience, political standing or media attention and subsequently making it to parliament. Figure A.9.1 shows the renomination rate for losing Labour and Conservative candidates in the subsequent election. The top two subfigures describe renomination in the original constituency and the bottom subfigures describe renomination across all of Great Britain. However, due to name misspellings in the datasets, there might be additional cases in which candidates were nominated again, but are not recorded in this analysis. Not surprisingly, the highest rate overall of losing candidates being nominated again comes in the 2017 and 2019 snap elections when both parties had limited time to make up their list of potential candidates. Also, these elections were much sooner after the previous election, making attrition due to relocation or new occupations less likely.

The analysis shows that men are considerably more likely to be renominated than women. Some particularly stark examples are the 2001 election, where 12% of losing male but only 4% of losing female Conservative candidates were nominated again in 2005 (the numbers for Labour are similar: 11% and 4% respectively). This pattern does not differ between the parties: Overall losing male Labour candidates are three percentage points more likely to be renominated in their own constituency than female losing candidates (14% versus 11%). For the Conservatives, the number are lower, but similar (11% for men, 8% for women).

Figure A.9.1: Share of Losing Candidates that are Nominated Again



B Appendix to Chapter 3: Not All Men

B.1 Demographic Description of the Sample

Figures [B.1.1](#) to [B.1.4](#) show the demographic distribution of the sample. Gender is roughly evenly distributed and the age distribution is normal around 41, with Polish respondents tending to be younger than the respondents in other countries. There are more urban than rural respondents and the prevalent education levels are medium to high.

Figure B.1.1: Gender Distribution of the Sample

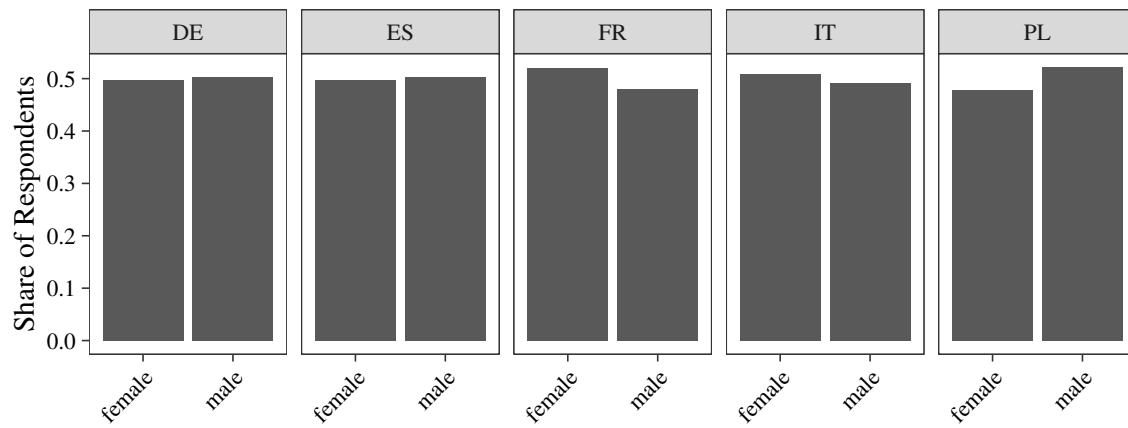


Figure B.1.2: Age Distribution of the Sample

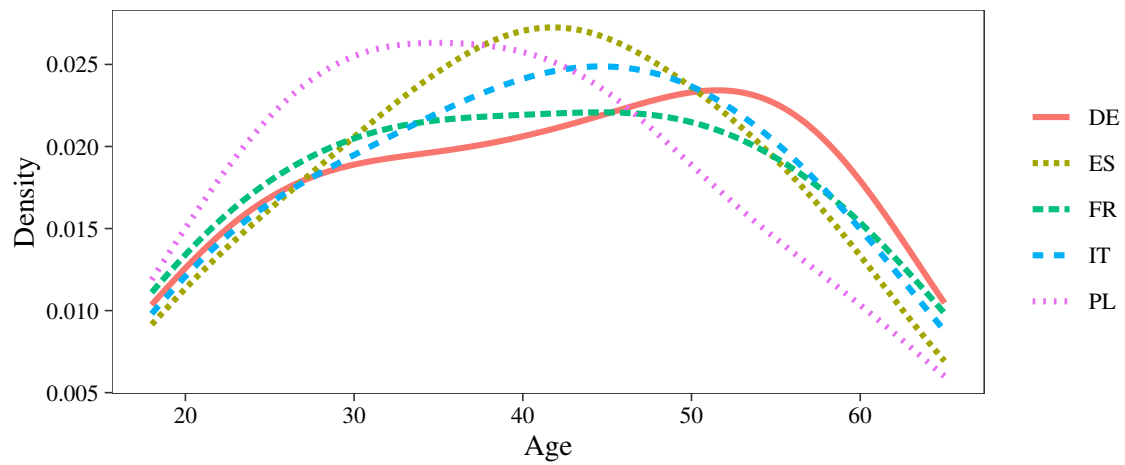


Figure B.1.3: Urban and Rural Distribution of the Sample

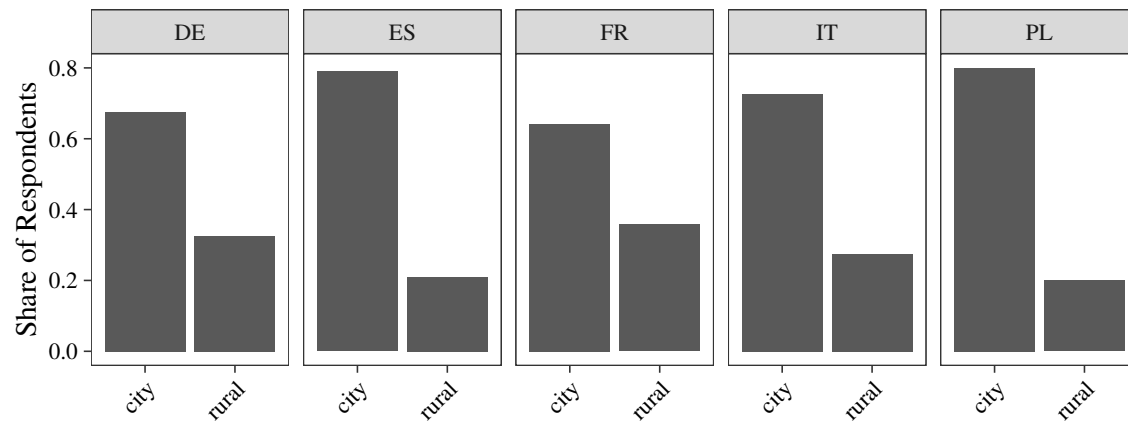
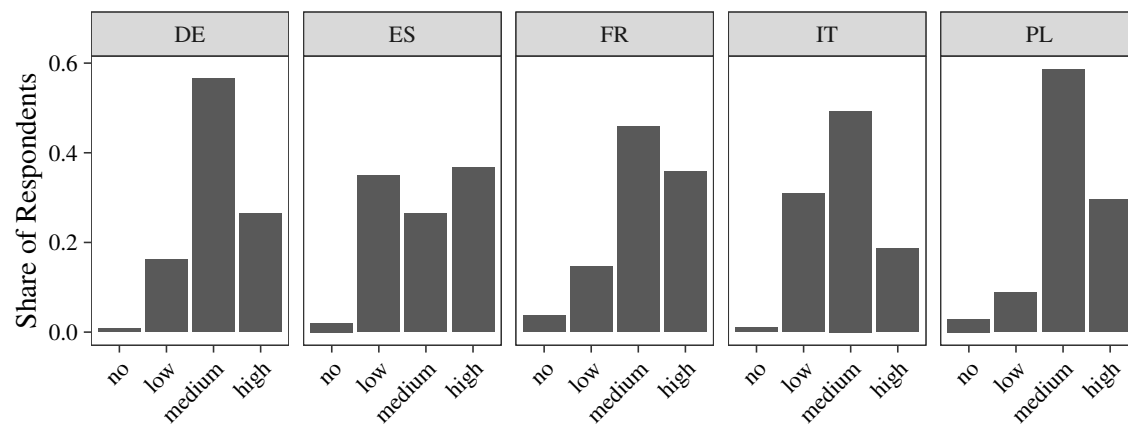


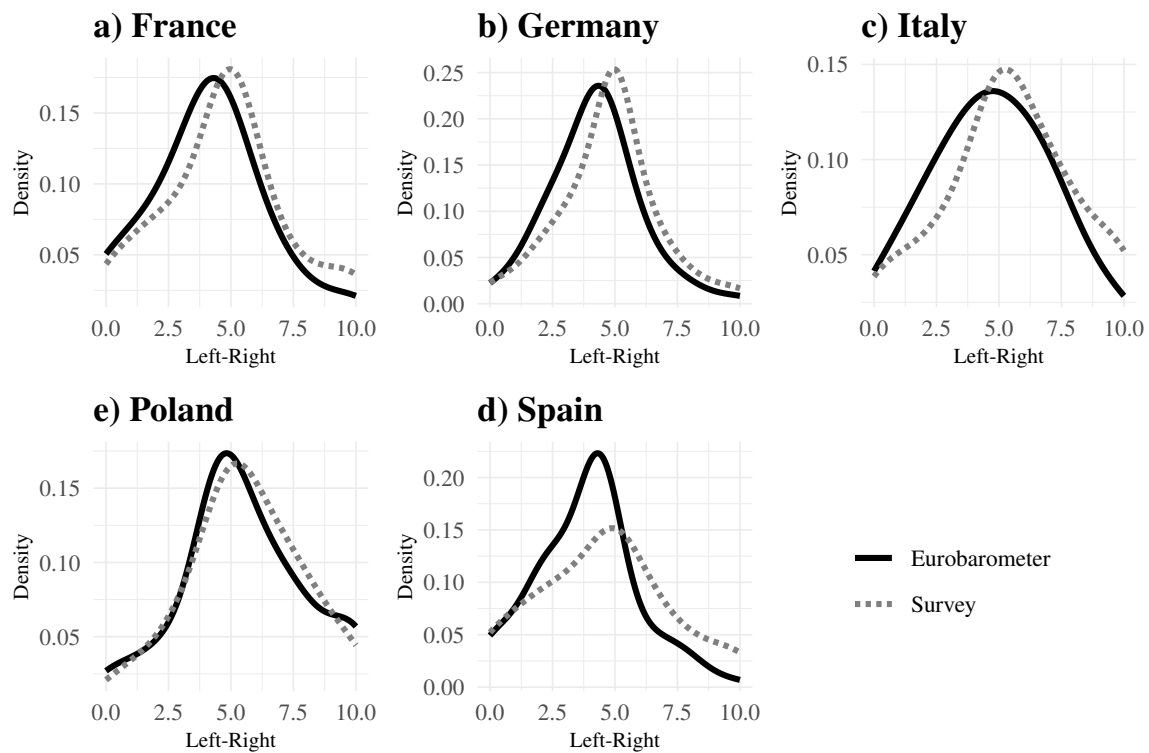
Figure B.1.4: Education Distribution of the Sample



B.2 Political Preferences of the Sample

I check the quality of the sample by comparing it to the distributions found in the Eurobarometer, that uses multi-stage random probability samples from each EU member state. We adjust the Eurobarometer data to match the specifications regarding age and nationality. To compare left-right self-placement, we use Eurobarometer 89.1, which is closest to our fieldwork. As Figure B.2.1 shows, our sample is very similar to the left-right distribution found in the Eurobarometer. One exception is Spain: our sample is more right-leaning than the Eurobarometer sample. This is quite likely due to the rise of the right-wing party Vox that was very prominent in the polls towards the end of 2018 when we collected answers, while it played a very small role when the data for the Eurobarometer was collected in March 2018 (Hedgecoe, 2019).

Figure B.2.1: Left-Right Self-Placement of Respondents

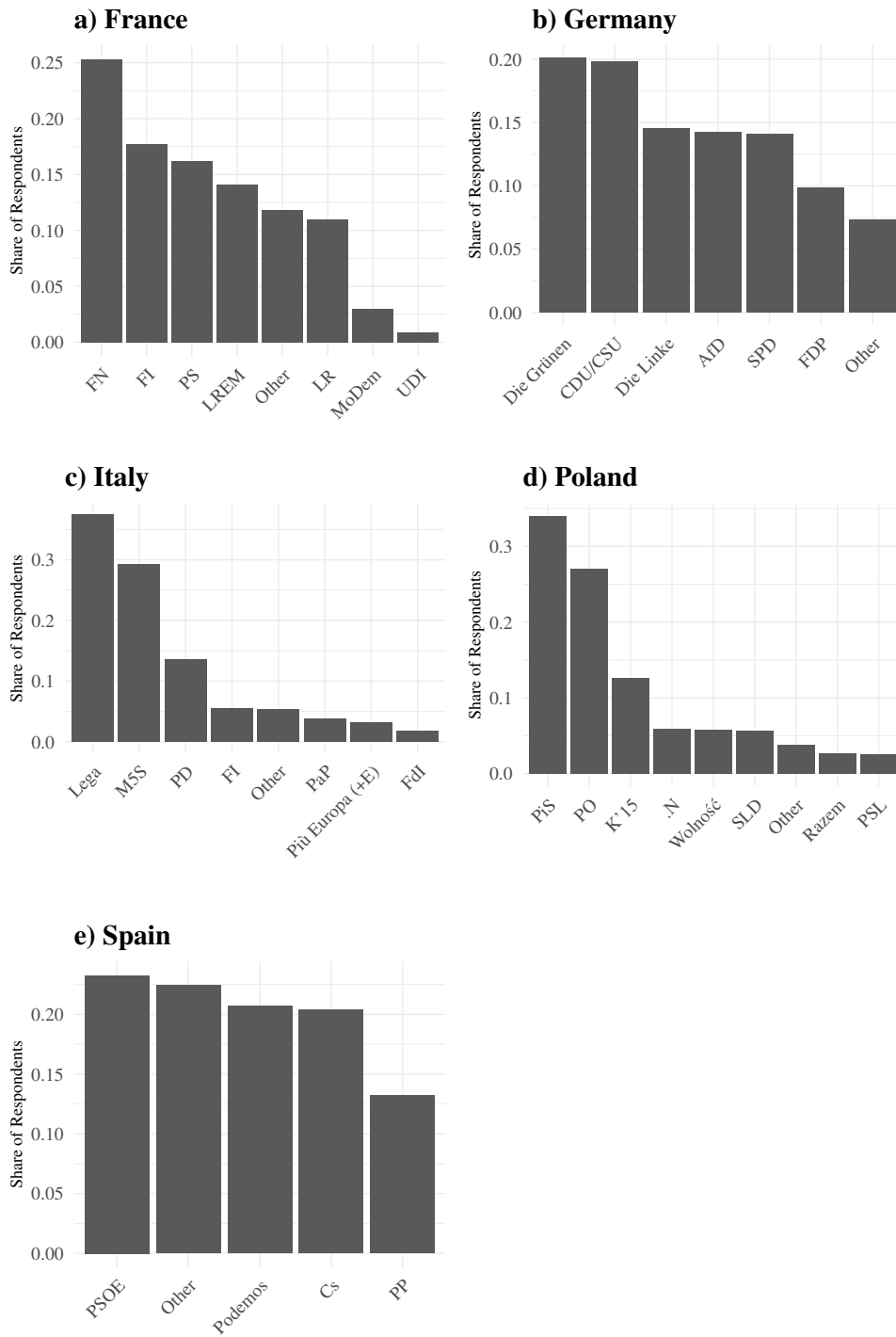


Second, I look at voting intentions and compare them to national polls around the time of survey. The distributions from our sample are in Figure B.2.2. In France, there were no public opinion polls close to the survey time, but President Macron's party En Marche was struggling with the president being unpopular. Meanwhile, the right-wing Front National plays a major role in French politics, as it does in our sample. In Germany, the Greens are overrepresented in our sample: While they were on the rise in late 2018, the CDU/CSU still lead most polls. However, we exclude citizens over 65, which is a strong constituency for the CDU/CSU, while the Greens were the most popular party for voters below 65.

In Italy, Lega and Movimento 5 Stelle make up the two strongest parties, as they were in late 2018. The Polish result matches polls, with the incumbent PiS party receiving the most support. In Spain the PP and PSOE were joined in popularity with Ciudadanos, which were still polling strongly in late 2018. The large number of respondents answering "Other" is probably due to the rise of the right-wing Vox party, as described above, as well as regional parties.

Overall, the samples broadly converge to polls of national survey organizations with regard to party preferences. I do not believe any party to be severely under- or overrepresented.

Figure B.2.2: Voting Behaviour of Respondents



B.3 AMCE of Full Model

Table B.3.1: AMCE of Full Model (Figure 1 in Main Text)

Feature	Level	Estimate	Std.Error	z	p	Lower	Upper
Party's Participation in Government	in the opposition	0.00					
Party's Participation in Government	part of the government	0.02	0.04	0.52	0.60	-0.06	0.11
Party's Participation in Government	the prime minister party in government	-0.06	0.05	-1.36	0.17	-0.15	0.03
Ideology	centrist	0.00					
Ideology	left-leaning	-0.20	0.05	-4.04	0.00	-0.30	-0.10
Ideology	right-leaning	-0.48	0.05	-9.21	0.00	-0.58	-0.38
Gender of Lead Candidate	man	0.00					
Gender of Lead Candidate	woman	0.26	0.04	7.07	0.00	0.19	0.34
Gender of MPs	equally male and female	0.00					
Gender of MPs	predominantly female	-0.33	0.05	-6.92	0.00	-0.42	-0.24
Gender of MPs	predominantly male	-0.73	0.05	-15.72	0.00	-0.83	-0.64

B.4 Experimental Attention

In this section, I assess whether respondents paid appropriate attention to the survey. First, Figure B.4.1 shows response time for each vignette. Most respondents looked at the first vignette the longest (around 19 seconds), while they took a shorter time with subsequent vignettes. However, even the last vignette was looked on on average for 10 seconds.

Figure B.4.1: Duration of Vignette Impressions

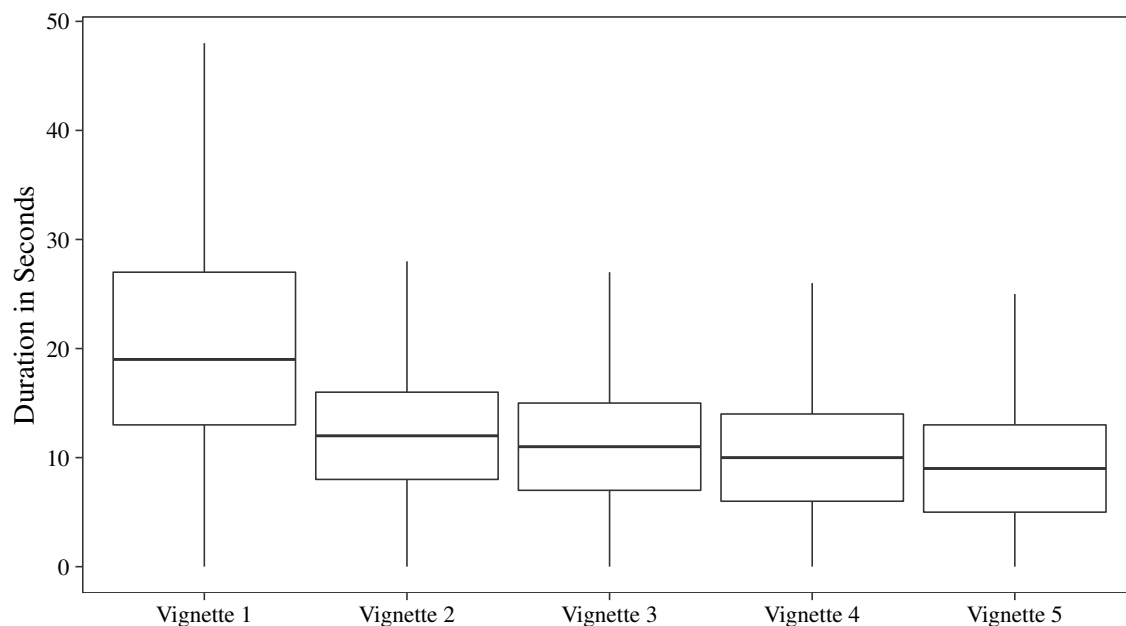


Figure B.4.2 plots the Marginal Mean for each vignette separately. There is a slight indication that respondents do not strongly differentiate between equal representation among MPs and predominantly female MPs on the first vignette and start to draw a larger distinction between the two in later vignettes. Conversely, the difference in rating between male and female lead candidates is largest in the first vignette a respondent sees. This might indicate a shift of attention from party leadership to MPs over the

course of the survey. However, the overall picture remains consistent and the results presented in the main text hold across vignettes. Additionally, we can see that the statistical significance of effects described in the article are not due to large sample size.

Figure B.4.2: Main Analysis by Vignette Number

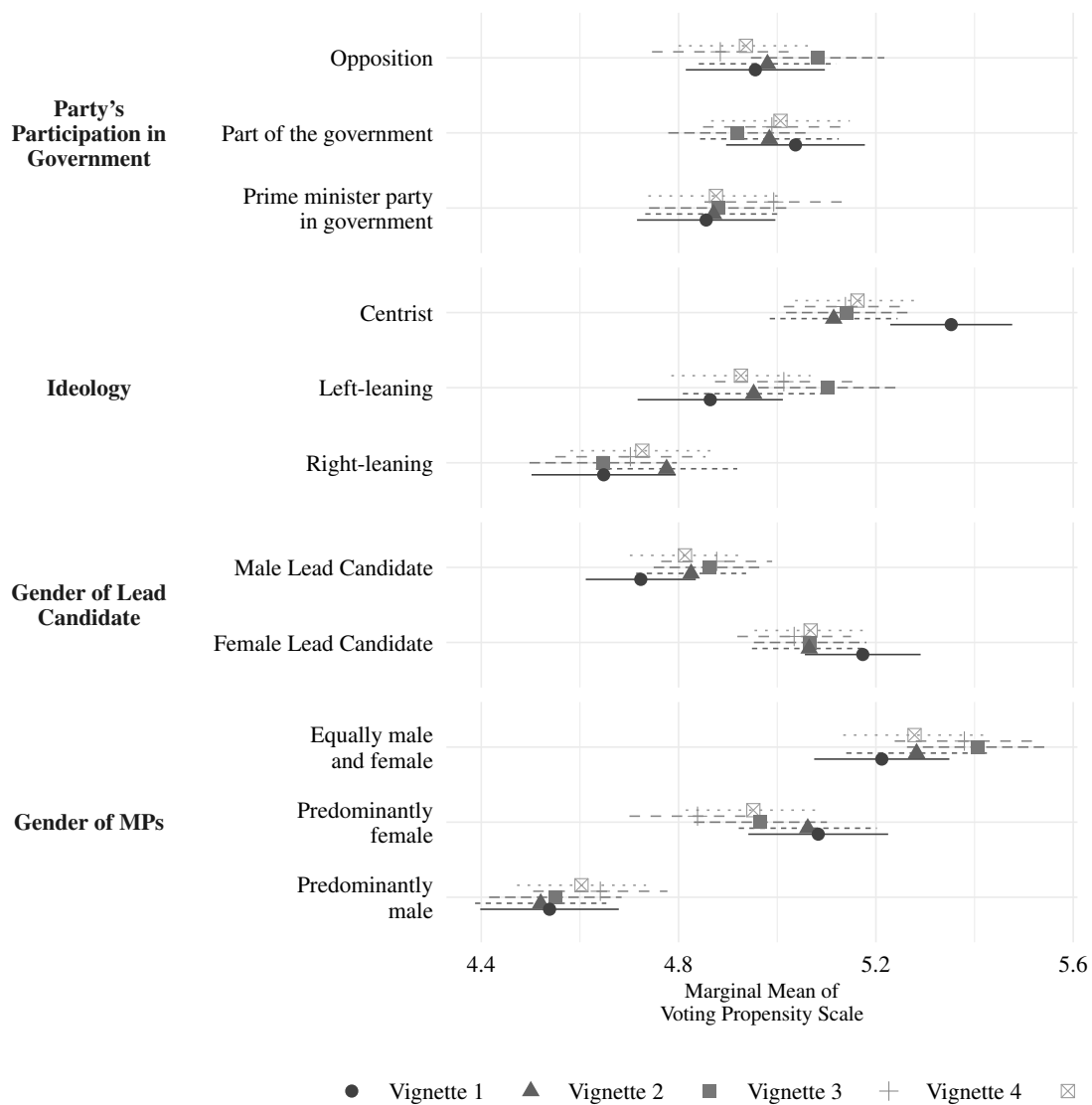
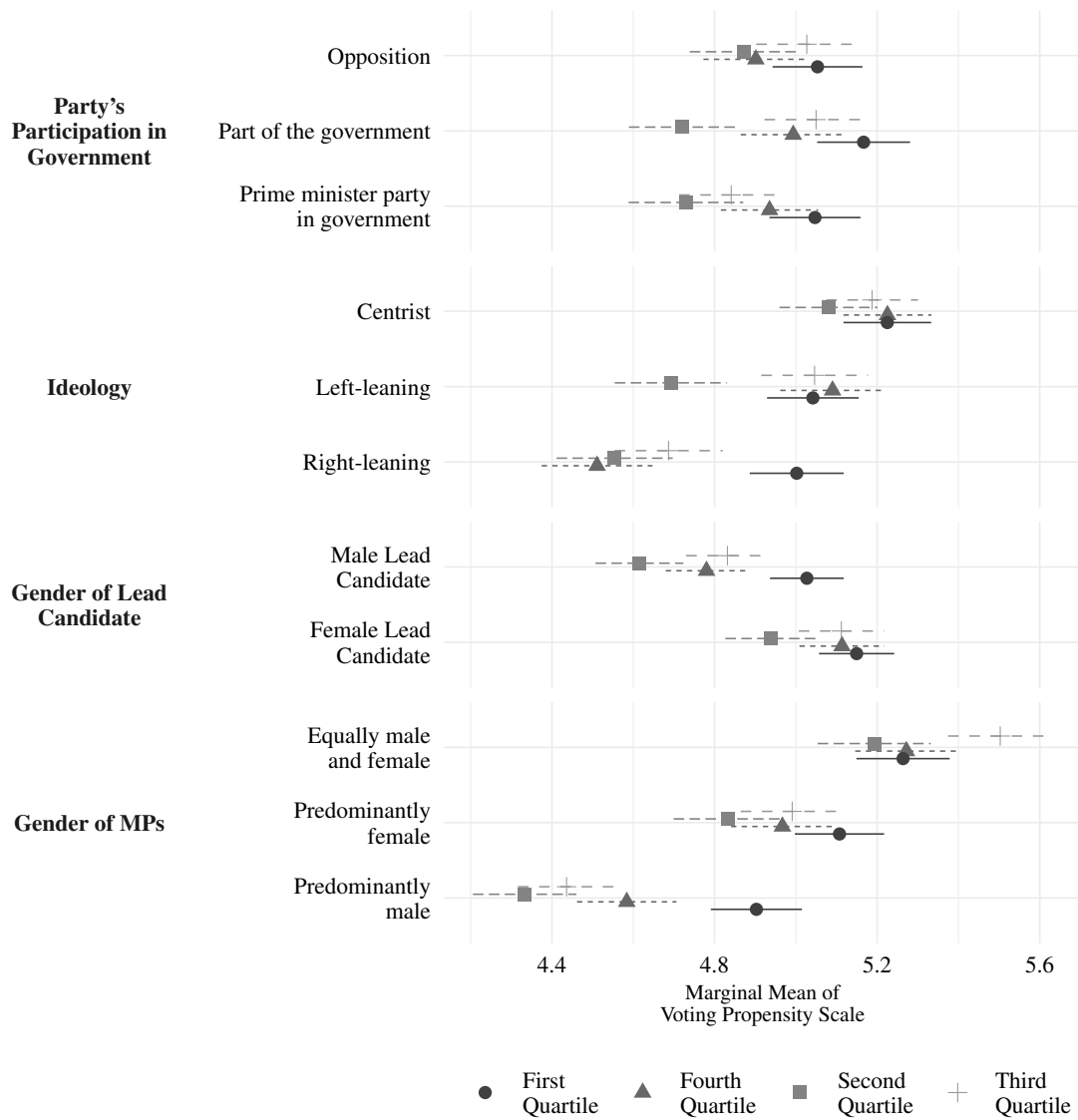


Figure B.4.3 plots the Marginal Mean by the time the respondent took to answer the

question. The slowest quartile took up to seven seconds, the second between seven and eleven seconds, the third between 11 and 17 seconds and the fourth quartile more than 17 seconds to answer. Respondents that answered fast generally show smaller effect sizes on all variables (not only those related to gender). This should be due to satisficing and generally lower attention that these respondent were able to pay towards the vignette text. The effect sizes (particularly in the case of predominantly male parties) for respondents that studied the vignettes longer are considerably larger. For those respondents that studied the vignettes the longest, the effect size of equal representation over predominantly male parties is 0.69 units or 0.27 standard deviations, those in the third quartile show effects of 1.07 units or 0.39 standard deviations. Effect sizes, both in terms of absolute values and standard deviations are therefore similar or higher when looking at those respondents that paid a lot of attention to the survey compared to those reported in the paper.

Figure B.4.3: Main Analysis by Duration of Response

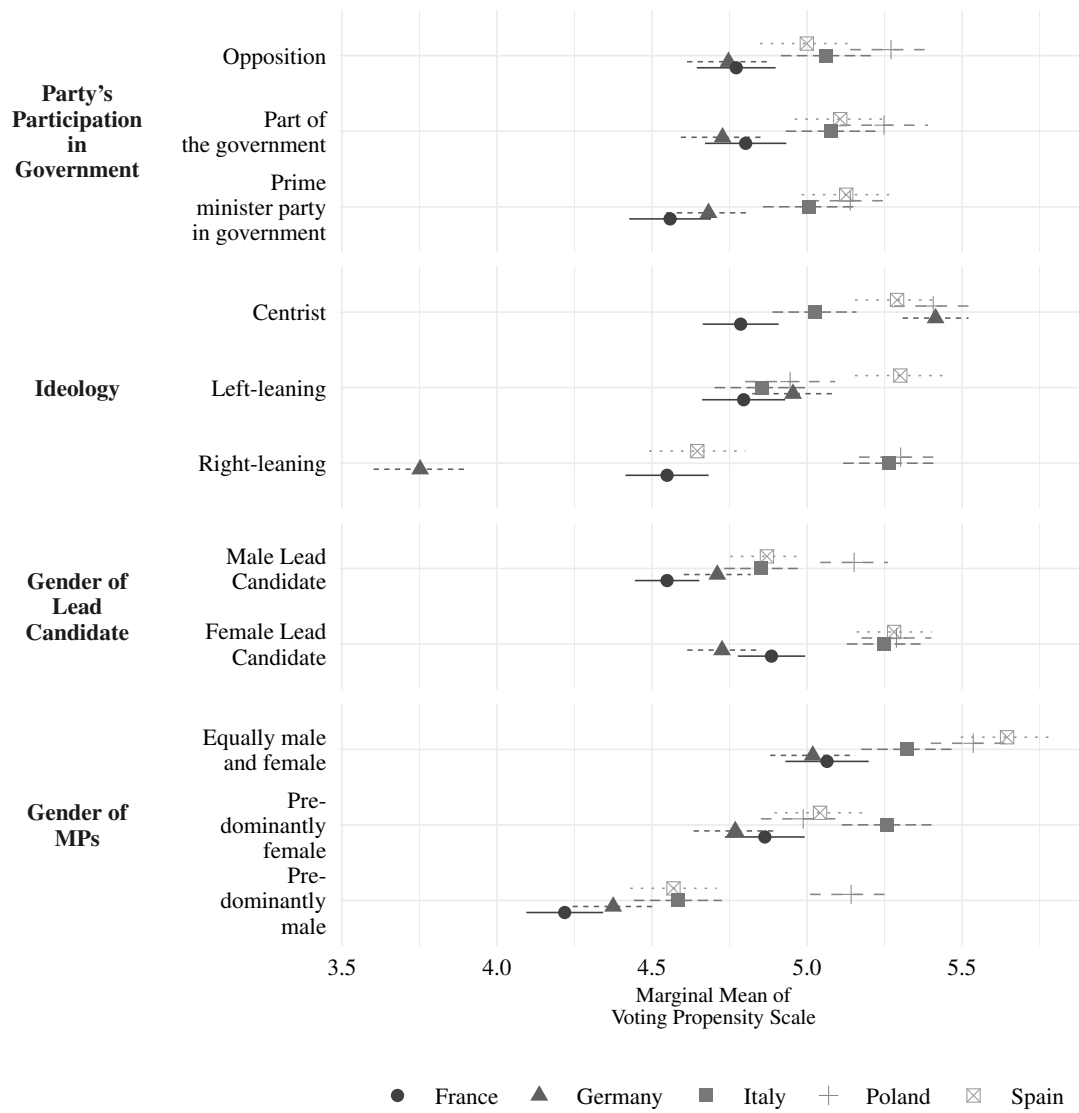


B.5 Analysis by Country

Figure B.5.1 shows marginal means for the analysis by country. For a party's participation in government, we don't see any much variance between countries. For party ideology, German and Spanish voters seem to oppose right-leaning parties quite strongly, whereas voters in Poland and Italy are more negative towards left-leaning parties. The differences in ideology in France are much smaller. Overall, this supports the approach of controlling for ideology in the experiment so respondents wouldn't infer ideology from the other information given.

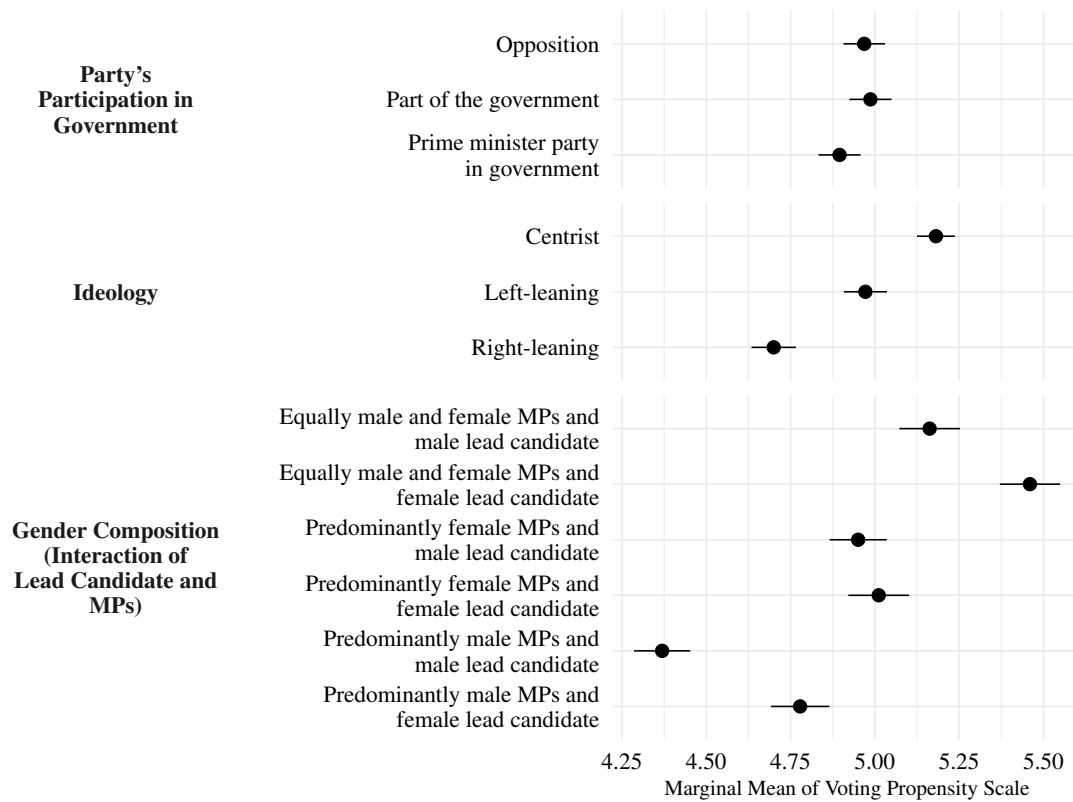
For the gender effects of the lead candidate, we can see that female lead candidates are preferred by respondents in France, Italy, Poland and Spain, but not in Germany. For gender effects among MPs, the negative effect of predominantly male MPs is strongest in France and Spain, while there is no difference between predominantly male and predominantly female MPs in Poland as both are less highly related than parties with equal representation.

Figure B.5.1: Analysis by Country



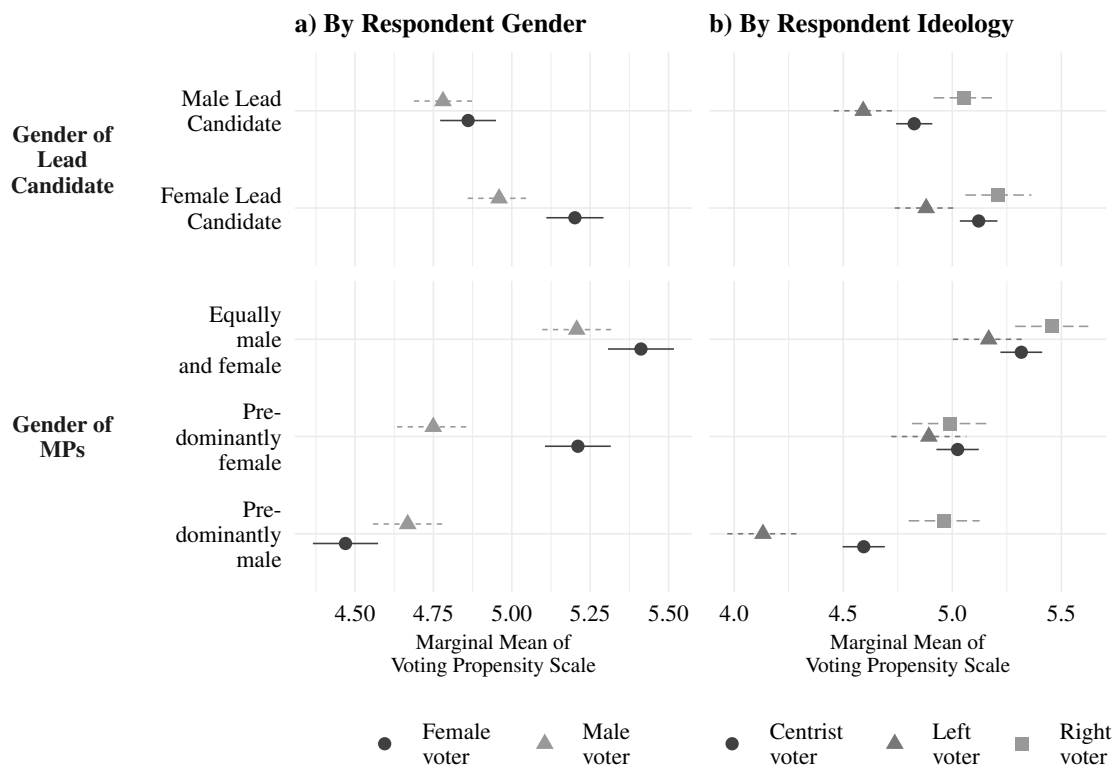
B.6 Full Interaction Model

Figure B.6.1: Full Graph of Interaction Analysis



B.7 Subgroup Analysis

Figure B.7.1: Marginal Means of Willingness to Vote for a Party by Subgroups



In this section, I am interested in the way the results described in the main paper hold for male and female as well as left- and right-leaning voters. The left panel in Figure B.7.1 shows the marginal mean of voting for a party for men and women, zoomed in on the effect of lead candidate and MP gender (a full version of this plot can be found in Figure B.7.2.¹ While there is no difference in marginal means between men and women for male lead candidates, the positive effect of running a female lead candidate is stronger for women. Similarly, both men and women prefer equal over unequal gender representation among MPs. However, women rate parties with pre-

¹Figure B.7.6 in the Appendix shows the balance of covariates for male and female respondents. None of the attributes in the vignette predicted respondent gender, meaning that women on average saw similar vignettes as men. Figure B.7.7 shows the same result for ideology.

dominantly female MPs almost as positively as those with equal representation while men dislike predominantly male and female parties to a similar extent. The effect for an equally male and female group of MPs over a predominantly male group of MPs for female respondents is 0.94 points or 0.37 standard deviations. Figure B.7.3 shows the interaction of MPs and lead candidates, similar to Figure 2 in the main paper for both men and women. For both men and women, running a female candidate can even out the negative effect of predominantly male MPs, although again this effect is larger for women.

The effects for left, centre and right voters are shown in the right panel of Figure B.7.1, again zoomed in on the gender composition. The respondents are split at tertiles. I do not find large differences between ideological groups in judging parties based on their gender composition. Left and centre prefer equal over unequal representation and predominantly female over predominantly male MPs. Right voters support equal representation over both predominantly male and female MPs. Also, Figure B.7.4 shows all voters accept compensating predominantly male MPs with a female lead candidate.

Finally, Figure B.7.5 shows the analysis split by whether the rated party has the same or a different ideological leaning as the respondent. In both cases, respondents take the gender composition of the party into account. This shows that gender information is relevant for voters even when they are already ideologically inclined to support a party. While this is not a test of whether voters would switch allegiances between existing parties, especially in highly partisan settings, it is reasonable to expect the gender composition to have some effect on secondary political activities, such as turning out in second order elections, canvassing, convincing friends and family, or tactical voting.

Figure B.7.2: Full Analysis by Subgroups

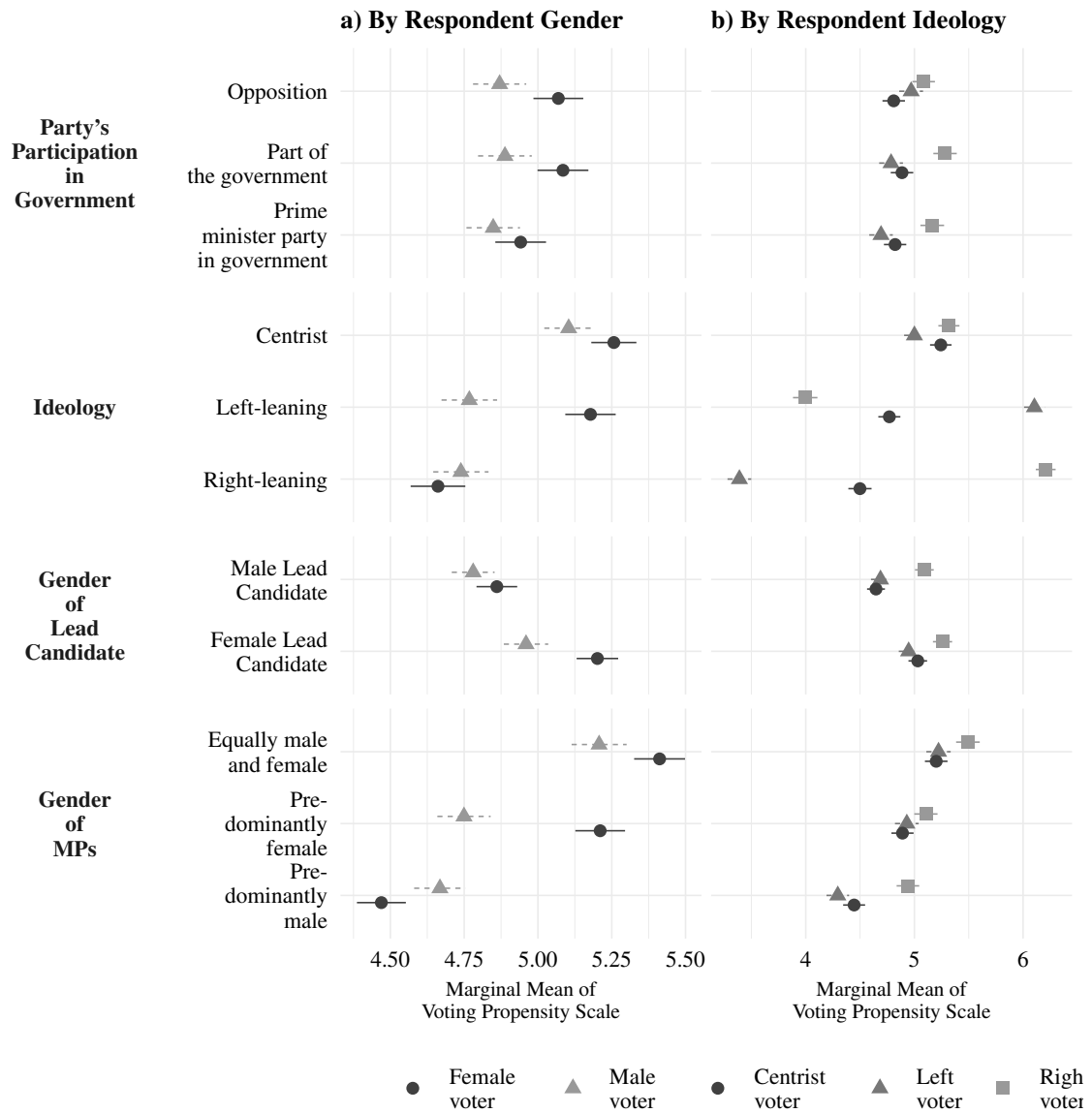


Figure B.7.3: Interaction Analysis by Gender

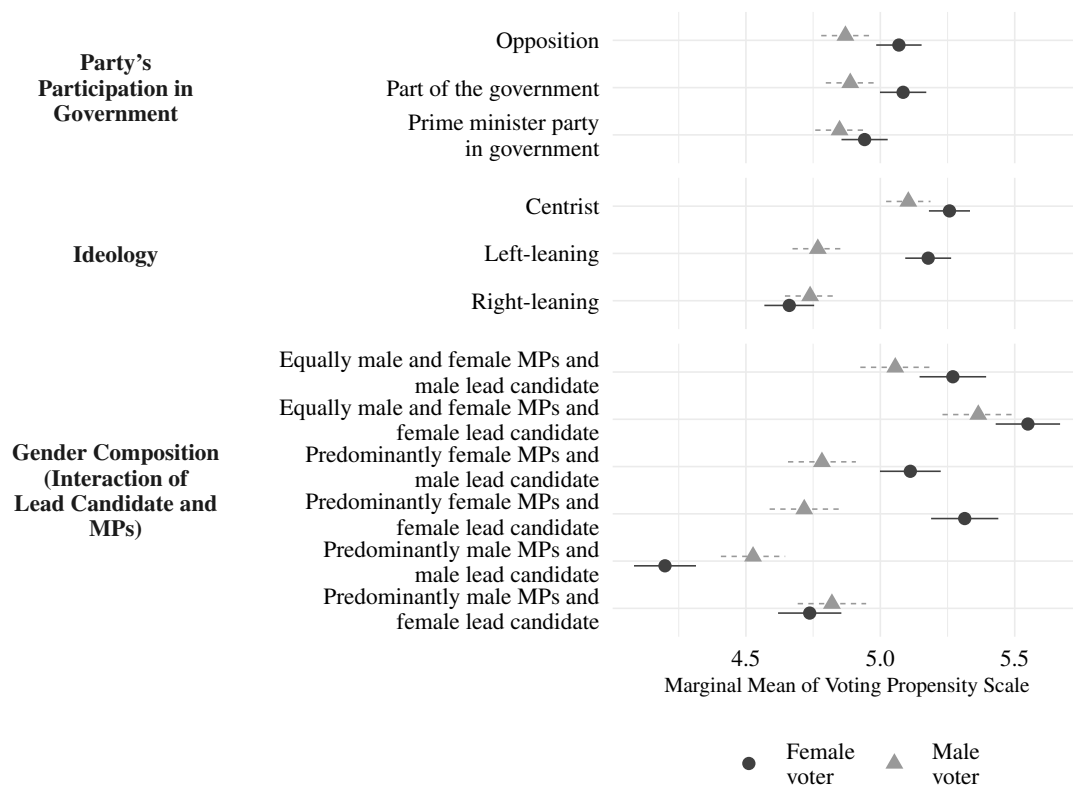


Figure B.7.4: Interaction Analysis by Ideology

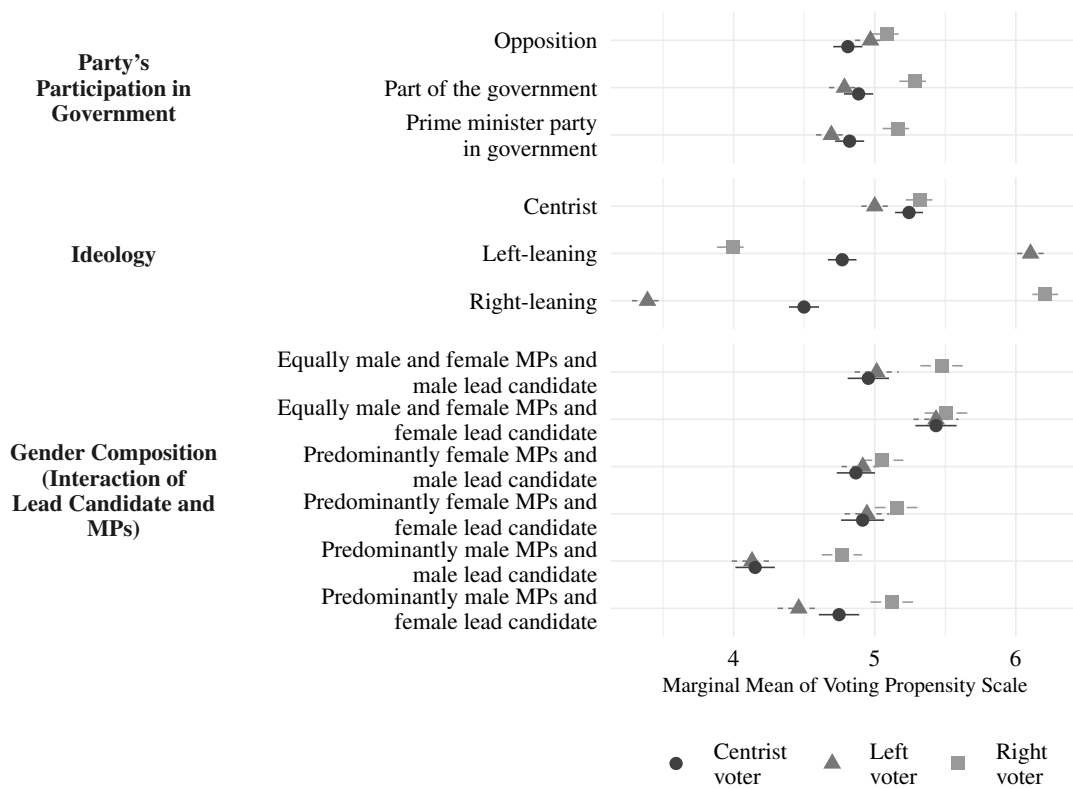


Figure B.7.5: Parties with Same or Different Ideology as Respondent

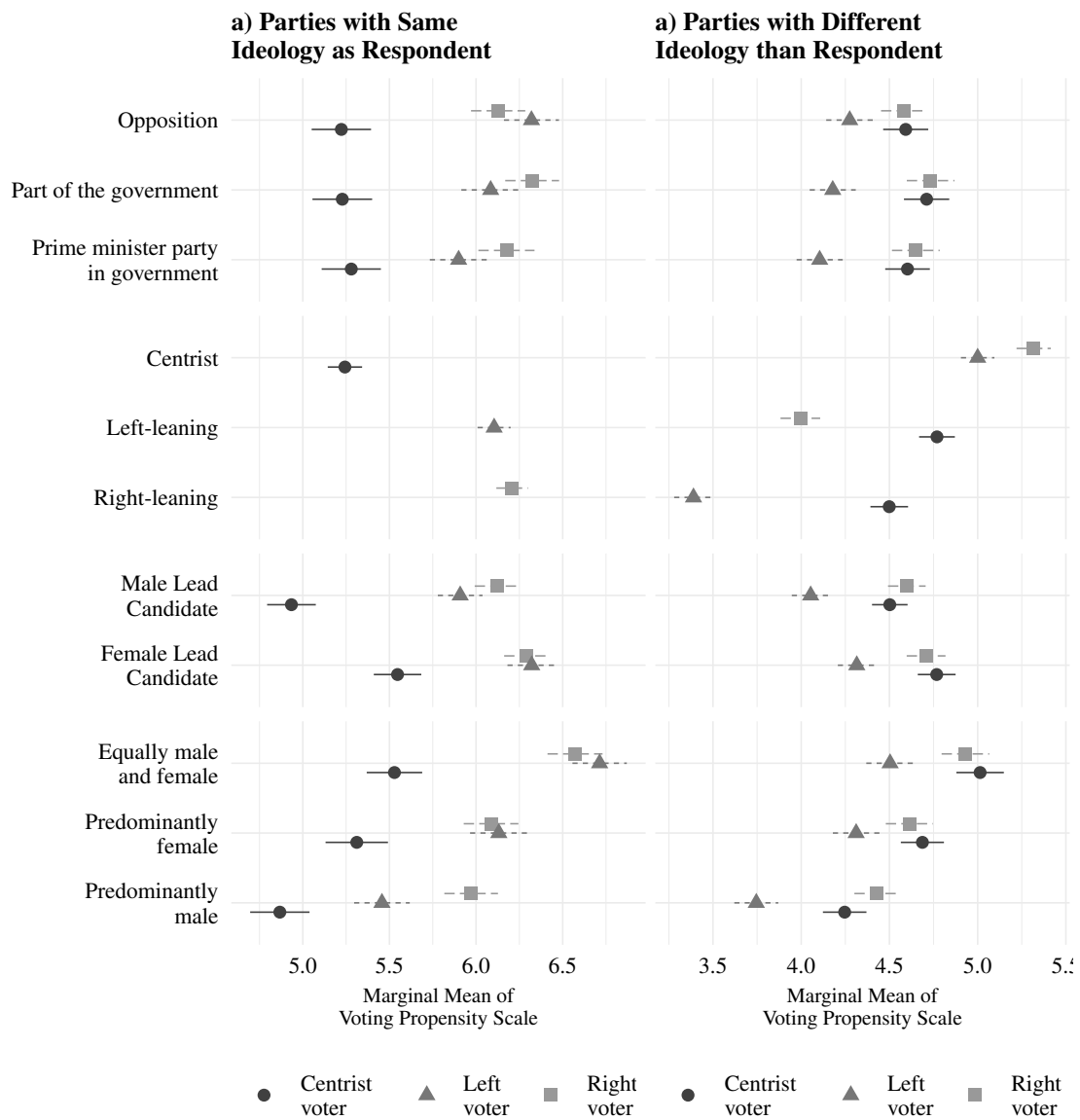


Figure B.7.6: Balance Test for Gender

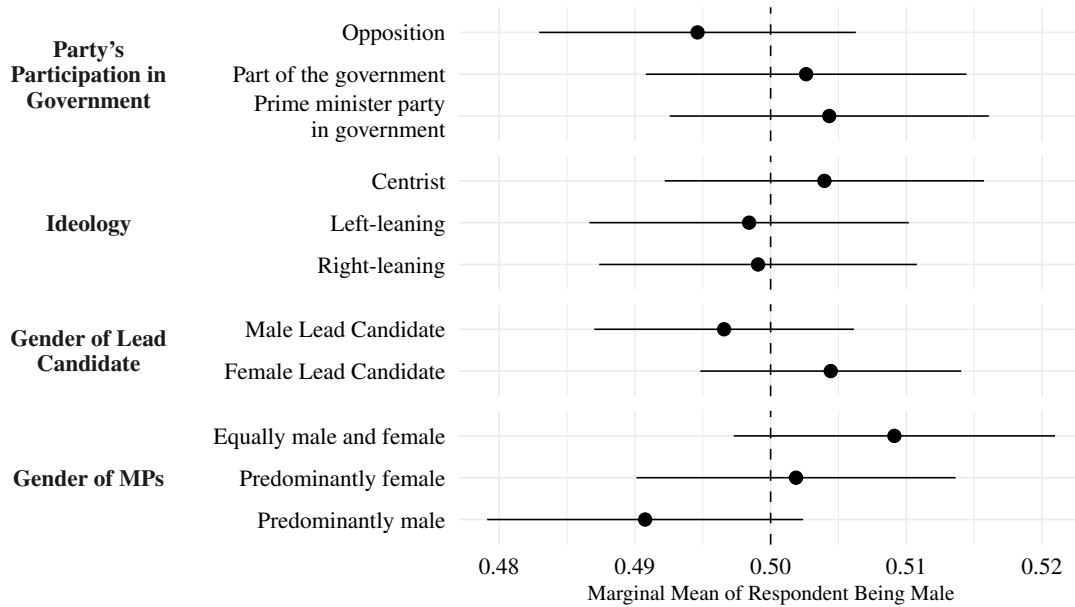
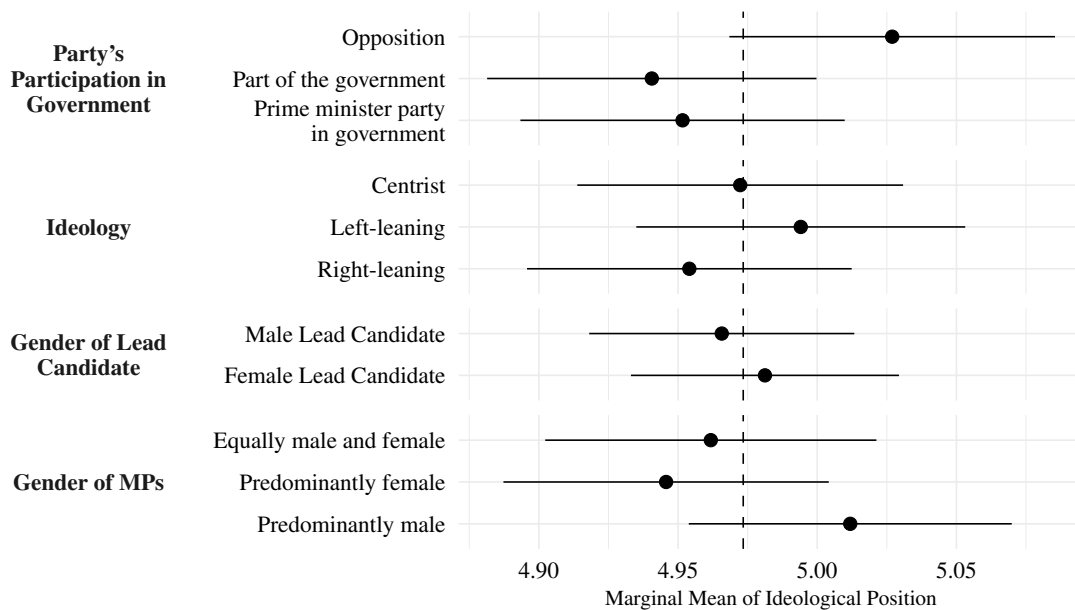


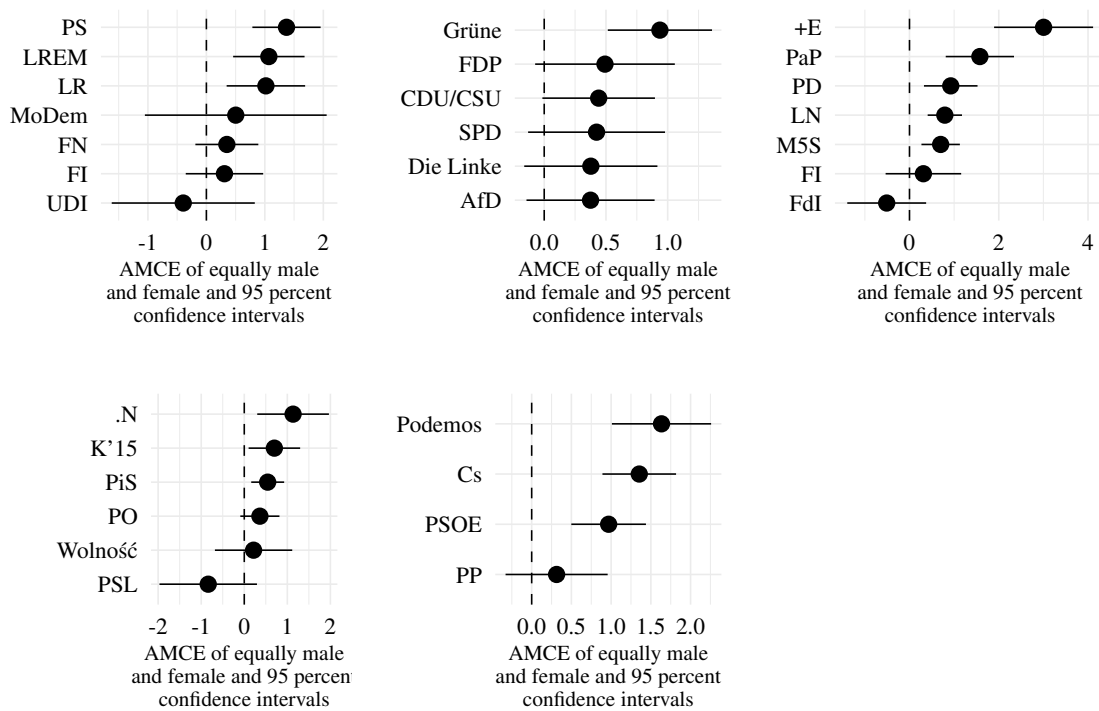
Figure B.7.7: Balance Test for Ideology



B.8 Party Supporters

Examples for this in recent years are the Partido Popular in Spain (53% female MPs), Forza Italia in Italy (38%) and Prawo i Sprawiedliwość in Poland (24%). Figure B.8.1 shows the AMCE for equally male and female groups of MPs as compared to predominantly male MPs across political parties. As expected, the most left-leaning parties in the sample show a clear positive effect when evaluating parties with equally male and female MPs (conversely, since many of these parties already nominate equal numbers of men and women, they might lose support if they stopped doing so). However, even some of the right-leaning party supporters such as voters of PiS or Kukiz '15 in Poland, Les Républicains in France and CDU/CSU or FDP in Germany prefer parties that have equal numbers of men and women over those dominated by male MPs. In fact, there is not a single party whose supporters prefer a party with predominantly male MPs over one with equal number of male and female MPs to a statistically significant degree. In Germany, party supporters across the ideological spectrum support equal representation, although there are large differences between right-leaning parties that have below 25% female MPs and left-leaning parties that have more than 40% female MPs. Meanwhile, there are much smaller differences in descriptive representation between right- and left-leaning parties in the other countries, as right-leaning parties have recently elected higher share of women. Most of the parties that make up the core of European politics at the end of the 2010s have supporters that react negatively to these parties having a majority male group of MPs. This finding suggests that many parties, especially on the right would benefit from nominating more women for political office.

Figure B.8.1: AMCE of Equally Male and Female MPs (Baseline is Predominantly Male Parties)

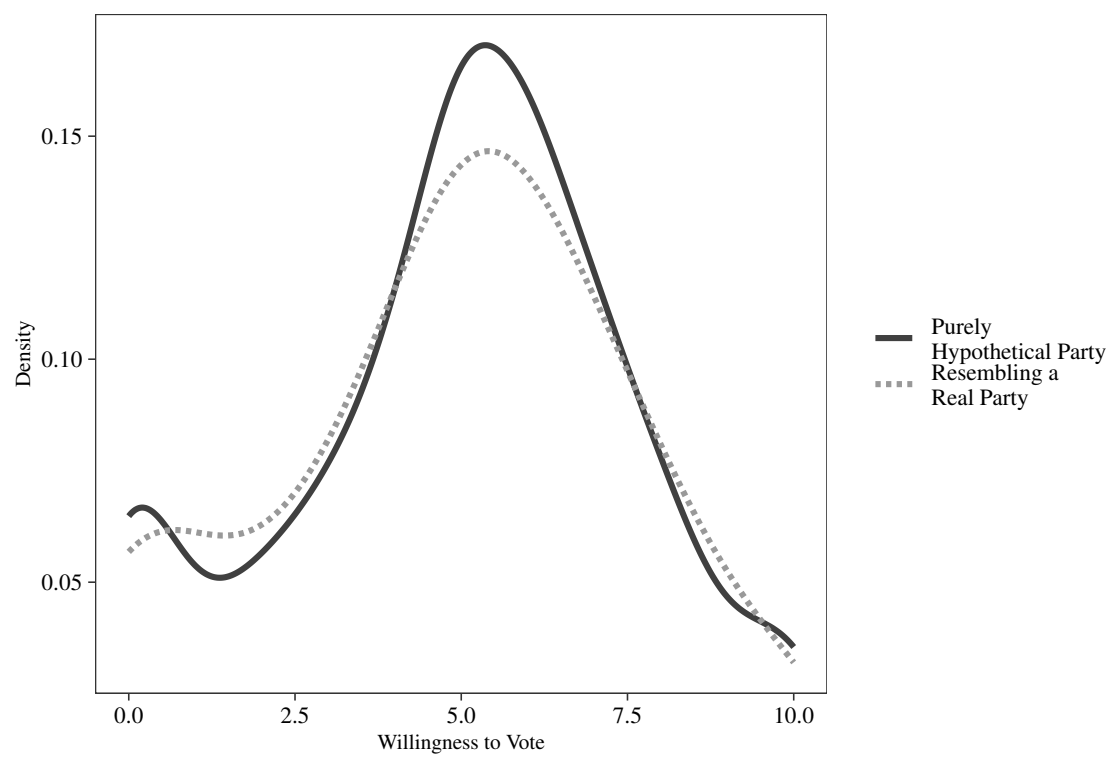


B.9 Robustness Test: Rating of Real Versus Purely Hypothetical Parties

One concern in presenting profiles of fictional parties is that respondents may recognize parties they know in real-life and then answer the question according to their judgment of that party rather than the experimental design. This would then make it impossible to solve the observational problem mentioned above: we would not be able to disentangle whether voters prefer a female lead candidate because they believe women to be more capable at the job or because they recognise their preferred party that has a female lead candidate in the vignette. To explore this concern, I created profiles of the main parties in the survey countries, coded them according to the attributes in the vignette design and checked whether a respondent was randomly shown a profile she might recognise as a real party. For example, the German Alternative für Deutschland according to the attributes in this study is a right-leaning opposition party with a woman lead candidate and predominantly male MPs. Whenever a respondent is presented with such a combination of attributes she might then report her opinion of the AfD instead of the hypothetical party that was presented. As the AfD only recently entered German party competition on the extreme right in Germany, recognizing a party profile as resembling the AfD might trigger extremely negative responses from some respondents. Respondents saw 2006 profiles of parties that resemble real parties opposed to 18874 profiles of purely hypothetical parties.

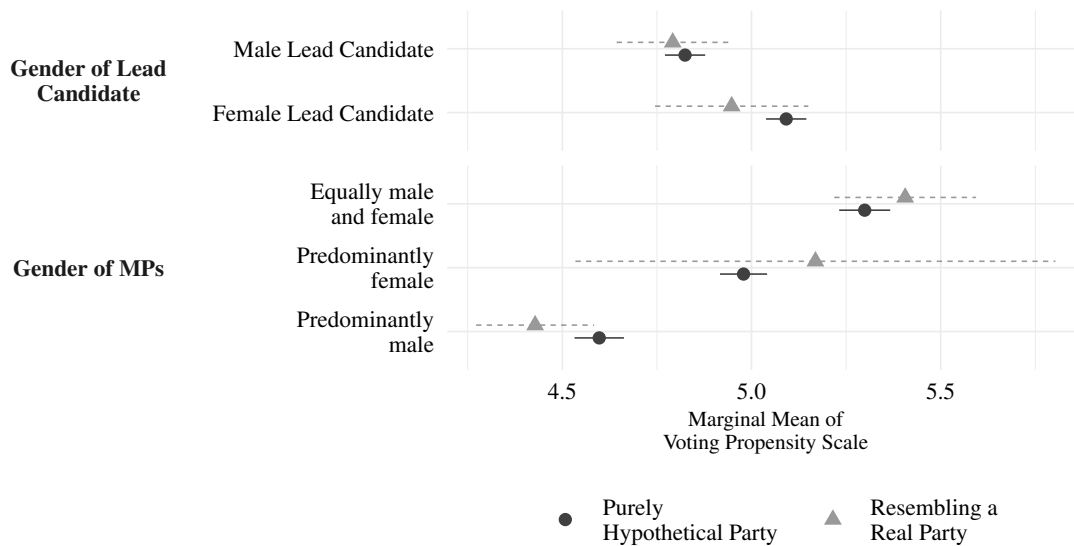
A first indication of an impact of the vignette resembling a real party might be, whether respondents spent less time looking at these profiles because they recognized the party and had an easier time coming to a conclusion. This is indeed the case: On average, respondents looked at the profiles resembling real parties for 15 seconds, while

Figure B.9.1: Rating of Hypothetical and Real Parties



they looked at the other profiles for more than 20 seconds. Additionally, these parties were rated more extremely: Parties resembling real parties were more often rated negatively than others (see Figure B.9.1) and especially right-leaning parties got rated more negatively. Also, there was a greater tendency to rate a party at the middle of the scale if the party did not resemble a real party. However, the marginal mean analysis presented in Figure B.9.2 shows that the overall takeaway for purely hypothetical parties is similar to the results presented above: parties with equal representation are preferred over those with unequal representation.

Figure B.9.2: Marginal Mean of Rating Real and Hypothetical Parties



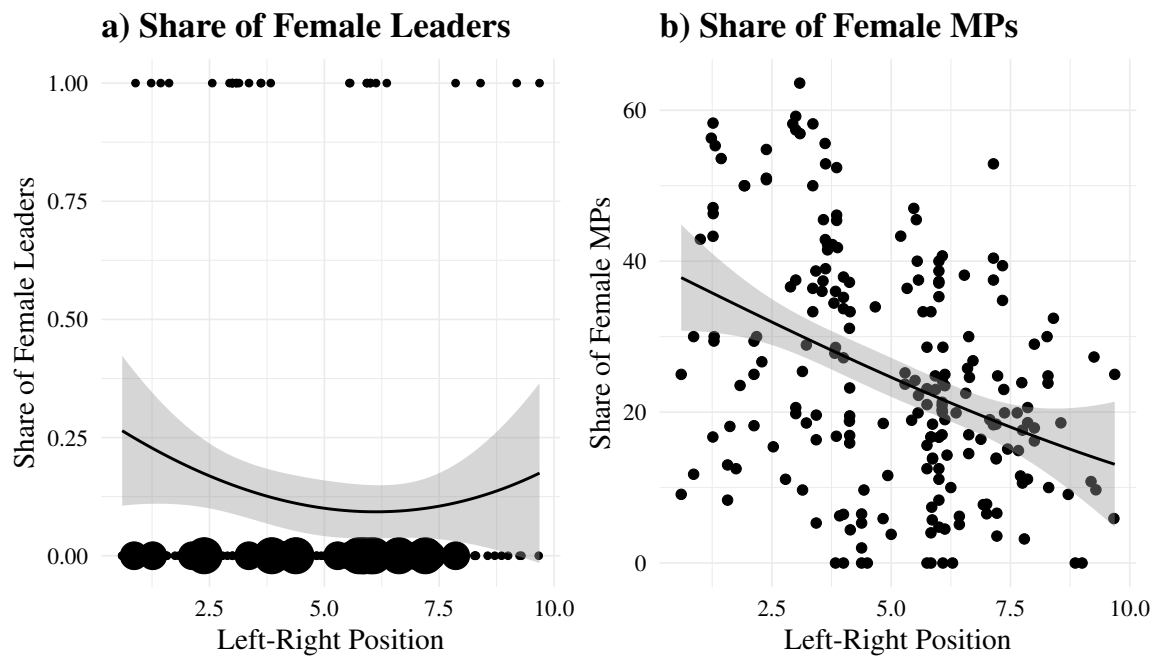
B.10 Women in Parliament and Leadership Positions

In this section, I will describe the situation of women in political parties in Europe today. The left panel in Figure B.10.1 shows female leaders in relation to the ideological position of their party. Each dot represents a party-election observation that achieved more than 1% of the vote. The underlying data is from ParlGov (Döring and Manow, 2018), using the left-right dimension from the Chapel Hill Expert Survey, matched to the closest election (Bakker, Jolly and Polk, 2012). The gender of the party leader is handcoded at the time of election. I include all elections in the countries that are part of the analysis presented below (Spain, Germany, France, Italy and Poland) between 1990 and November 2019. The solid line represents a loess regression.

Overall, 13% of all parties in the dataset had a female leader at the time of election. On the political left, this figure rises to 25%. These include the German far left and green parties, as well as French and Spanish parties on the left, such as the Parti Socialiste in 2012, the Parti communiste française and the Coalició Compromís. Meanwhile, centre and centre-right parties in Poland and Germany (Platforma Obywatelska and CDU/CSU) have had female leaders and lead candidates in recent years. Finally, far right parties such as the Front National in France and the Alternative für Deutschland have also nominated female party leaders. As the regression line shows, the parties that are least likely to have female leaders are centre and centre-left parties. These include the German Social Democrats (up to 2018), the Spanish PSOE and the Italian Partito Democratico, major parties in Europe that have not have a woman as leader during an election.

The right panel in Figure B.10.1 shows the share of female MPs by political orientation of the party. Again, each point represents one party-election observation, data for this is based on the EveryPolitician database and national parliamentary homepages

Figure B.10.1: Occurrence of Female Party Leaders and Share of Female MPs by Ideological Position



(details can be found in Appendix A). The loess regression line clearly indicates a negative correlation between left-right position and share of female MPs a party has: the more right-leaning a party is, the fewer female MPs it has on average. In sum, while female leadership resembles a U shape on the left-right ideological spectrum, with extreme parties on both ends being more likely to have female leaders, the share of MPs differs significantly between the political right and left.

Country	Data Source (with clickable links)
Germany	Everypolitician
France	Everypolitician (2002-2017) and Homepage of the Assemblée Nationale
Italy	Everypolitician (2013-2018) and Homepage of the Camera dei Deputati
Spain	Everypolitician (2011-2016) and Homepage of the Congreso de los Diputados
Poland	Everypolitician (up to 2015) and Homepage of the Sejm

Table B.10.1: Data Sources for Women's Representation in Political Parties

B.11 Country Data for Discussion

Table B.11.1: Share of Female MPs and Women as Party Leaders per Decade

Decade	Country	Share of Female MPs (seat-weighted mean)	Female Leader (seat-weighted mean)
1990	DEU	25.89	5.20
1990	ESP	20.08	0.00
1990	FRA	8.30	0.70
1990	ITA	12.29	0.00
1990	POL	12.47	0.00
2000	DEU	32.25	40.20
2000	ESP	35.19	0.10
2000	FRA	18.35	2.30
2000	ITA	16.94	0.00
2000	POL	20.69	0.00
2010	DEU	33.48	60.50
2010	ESP	41.47	1.70
2010	FRA	33.38	28.20
2010	ITA	34.48	3.30
2010	POL	27.30	20.40

Country	Data Source (with clickable links)
Germany	Everypolitician
France	Everypolitician (2002-2017) and Homepage of the Assemblée Nationale
Italy	Everypolitician (2013-2018) and Homepage of the Camera dei Deputati
Spain	Everypolitician (2011-2016) and Homepage of the Congreso de los Diputados
Poland	Everypolitician (up to 2015) and Homepage of the Sejm

Table B.11.2: Data Sources for Women's Representation in Political Parties

B.12 Survey Questionnaire English Version (Translations into Survey Languages Available on Request)

Intro_main: Welcome to our short survey. This is a survey on political attitudes towards the European Union and political parties. All your data is collected anonymously and will only be used for research. You can interrupt or exit the survey at any time. First, we will start with some questions about you.

Question 1: In political matters people talk of left and right. Where would you place yourself on the following scale?

- Scale from "Left" to "Right" (0 to 10)

Question 2: In general elections, many citizens do not manage to cast their vote or do not take part in the election for other reasons. If there were a general election held tomorrow, which party would you vote for, or would you not vote?

- List of parties and the option to not vote

Block with questions about the legitimacy of the European Union

intro_women: Now we would like to present short descriptions of five fictional political parties that compete in separate hypothetical national elections. These parties have nothing to do with the political decisions that you just saw.

FIVE VIGNETTES WITH TWO QUESTIONS EACH (Data to be embedded (after the \$ sign in the curly brackets) is shown at the end of the questionnaire)

Vignette_women: In an upcoming national election, party A nominated a \$leader as their lead candidate. Before the election, this \$ideology party has been \$government. The members of parliament from this party are \$mp.

Vignette_women_Q1: How likely is it that you would vote for this party?

- Scale from 0 (very unlikely) to 10 (very likely)

women_decision: Now a question on the ;COUNTRY; parliament: How high do you think the share of women in the current ;ENTER PARLIAMENT NAME; is?

- Slider from 0 to 100 percent with increments of 5.

Thanks a lot for your participation. Before you leave, we would like to remind you that all political decisions and political parties shown in this survey were hypothetical.

Embedded data for vignettes:

- leader:
 - man
 - woman
- government:
 - part of the government
 - the prime minister party in government
 - in the opposition

- MPs:
 - predominantly female
 - predominantly male
 - equally male and female

- ideology:
 - Left-leaning
 - Right-leaning
 - Centrist

C Appendix to Chapter 4: Distinctive Voices

C.1 Policy Areas

The policy areas used in the article are based on hand coding done by research assistants. For the coding of policy areas, we use the debate title as provided in the ParlSpeech dataset (Rauh, De Wilde and Schwalbach, 2017) or the dataset of Irish parliamentary speeches. All coders are students of political science and familiar with policy-making and comparative politics. We describe the share of speeches given by women and men in the different policy areas in section 4.3.1. The inter-coder reliability for the five parliaments ranged between 65% and 75%. To be able to identify policy areas, we only selected debates on government bills. In Ireland, we did so by filtering for debate titles containing “act” or “bill”, but not “private member”. In Spain, Sweden, Germany and the Netherlands we used data from the parliamentary archives to identify the bill types from the debate titles. Table C.1.1 provides an overview of the policy areas including a brief explanation of the kinds of debates that are covered in each. We made two major adjustments compared to the policy areas used in Klüver and Zubek (2017): We subset the civil rights policy area to only include criminal matters, therefore dropping civil rights issues such as minority rights and discrimination. Also, we split the welfare category into unemployment, housing, healthcare and pensions.

We link these policy areas to the salience Europeans attribute to different policy areas. The Eurobarometer surveys regularly ask Europeans to state the most important issues facing their country at the time¹. The respondents can then name up to two issues from a list. Table C.1.2 shows how the issues from the Eurobarometer match the policy areas described above. Some categories were added later (such as Government Debt), others combined over time (such as environmental protection and energy issues).

¹The question in the Eurobarometer is “What do you think are the two most important issues facing (OUR COUNTRY) at the moment?” (some Eurobarometers have tried out other versions of the question, these are not included in the analysis)

Table C.1.1: Overview of Operationalization of Policy Areas

Budget & Taxes	Taxation, budgetary deficits, public spending, monetary supply, central banks
Crime	crime, law enforcement, prisons, terrorism
Economy	Regulations, consumer protection, banking sector (excluding central banks), public investments, protectionism, trade policy agriculture, subsidies, labor regulations, unions
Education	Education spending, excellence initiatives, international cooperation, universities, research spending
Environment	Environmental protection, energy sector, global warming, waste disposal, pollution (air, water)
Immigration	Immigration and refugees, minority issues, discrimination, integration of immigrants
International Affairs	Foreign aid, membership in international organisations, Terrorism and international police cooperation, diplomacy, European Union
Health Care	Health care, medicine, elderly and long-term care, drug and alcohol policy
Unemployment	Employment initiatives, unemployment
Housing	Social housing, regulation of housing
Pensions	Pensions, retirement

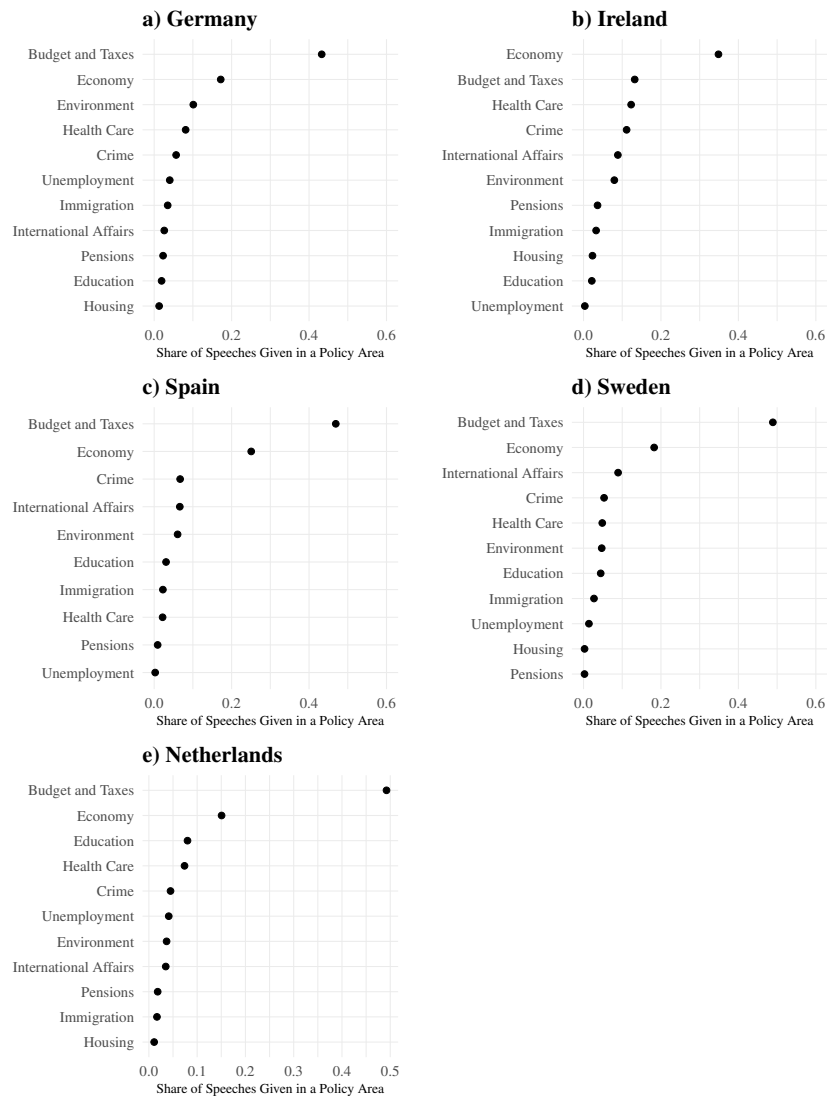
We tried to keep the definitions as consistent as possible over time. For example, we believe that respondents that would have answered with "Government Debt" in 2009 would have most likely chosen "Taxation" as their category and combined the two. Unfortunately the category "Defence, Foreign Affairs" was no longer offered starting with the November 2011 Eurobarometer, which somewhat limits the policy area of international affairs.

Figure C.1.1 shows the distribution of all speeches in parliament on the policy areas. In most countries, Budget and Taxes is the most frequent policy area under debate (only in Ireland it is the economy). Meanwhile, health care and crime make up a relevant percentage of speeches in most parliaments, while pensions, housing and immigration are debated less frequently.

Table C.1.2: Link between policy areas and Eurobarometer categories

Policy Area	April 2002 to May 2006	May 2006 to November 2011	November 2011 onwards
Budget & Taxes	Taxation	Taxation	Taxation & Government Debt
Crime	Crime	Crime	Crime
Economy	Rising prices, inflation & Economic Situation	Rising prices, inflation & Economic Situation	Rising prices, inflation & Economic Situation
Education	The educational system	The educational system	The education system
Environment	Protecting the environment	Protecting the environment Energy	The environment, Energy
Immigration	Immigration	Immigration	Immigration
International Affairs	Terrorism & Defence, Foreign affairs	Terrorism & Defence, Foreign affairs	Terrorism
Unemployment	Unemployment	Unemployment	Unemployment
Housing	Housing	Housing	Housing
Health care	Healthcare system	Healthcare system	Healthcare system
Pensions	Pensions	Pensions	Pensions

Figure C.1.1: Share of Speeches Given in each Policy Area



C.2 List of predictive words

Table C.2.1: Top 25 most predictive terms by country

Germany	
Female	Greifswald; inflated; mental; four-year-old; bulky; different; early warning system; spongy; reflexes; energy minister; housekeeper; disputed culture; integration summit; unauthorized; curious; undisturbed; déjà-vu; memory culture; patient data; kmus (small and medium enterprises); auditor; food security; officer; courage; total weight
Male	approach; parenting; medical offices; club; legislative project; benefits; health insured; applicable; ore mountains; commuters; oversubscribed; advanced; parliamentary debate; counter terrorism center; need for adjustment; leading; separates; most effective; consumer protection policy; impacted; programmatic; compensation payments; functional; confident; reports
Ireland	
Female	faulty; consciously; scam; logically; stalled; self-explanatory; caoláin's; underhand; shatter's; heartbreaking; havens; robinson; echelons; conceded; shirk; one-size-fits-all
Male	capitalised; mischievous; infringe; broughan's; mid-1980s; comfortably; invigilate; onset; casting; nut; eloquent; phraseology; derives; bereavement; clash; devoid; left-wing; domestically; remunerated; periodically; mathews; commons
Netherlands	
Female	meticulously; wolbert; innocent; huizinga-heringa; far-reaching; opinions; but; verve; neutral; 21st; insecure; cubes; strengthen; forgive; bruises; poluter; bite; pathetic; native; hand over; retina; balemans; totality; opposite; to pay for
Male	socialist; please; necessarily; perception; attempt; percentages; borrowed; marquis; lifting; publicly; blocked; seems; meaningful; green; question; head; dijck; old fashioned; again; expenditure; leader; intervene; virtues; borrow; saddle up
Spain	
Female	making them; doing; them; twentieth; repeal it; derogate; the; we (<i>female form</i>); accused; let's defend; reached; single out; service; daily; we position; aroused; reductionist; removed; boasted; conflicting; sheltering; sheltering; I know; would proceed; generalized
Male	Andalusians; reproduced; terra; mandated; prolonging; explained; will consider; very briefly; perfect; scandalizes; solve; loud; understand; figured; thank circumscribed; nuances; postponed; guarantee you; to guarantee; you; hope inapplicable; congruent; comprehensive
Sweden	
Female	very interesting; evaluated; promised; commune; useful; amazed; sovereignty; is titled; giant; voltage; saving; theory; freeze; worsened; Economic; insane; fossil; play; distorted; fixed; change; circuit; fair; the Public; labor measures
Male	reality image; treatment; audience; hesitate; feedback; distance; Larry; immigration; spirit; considerations; entrepreneurship; similarly; arrogant; peddling; to push; First; clarification; literally; component; parliamentary; argued; conducted; alliance side; shot; slightly

Terms were machine-translated into English from German, Spanish, and Swedish with Google Translate. They have the highest/lowest coefficients for models trained in the entire corpus in each country.

Table C.2.2: Top 25 most predictive terms by country: Original words from Table C.2.1

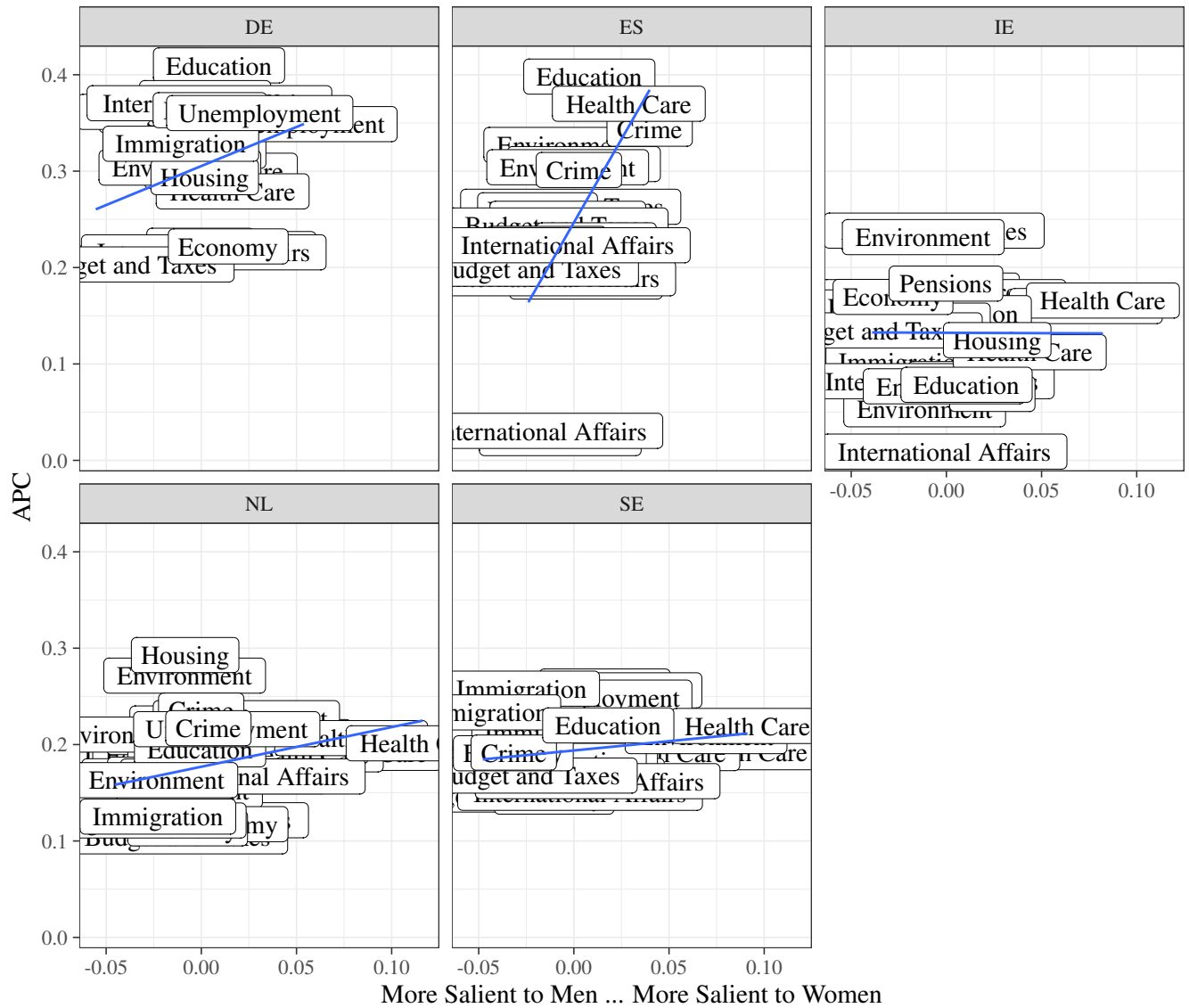
Germany	
Female	greifswald; aufgeblasen; geistes; vierjährigen; sperriger; abweichenden; frühwarnsystem; schwammig; reflexe; energiminister; haushälterin; streitkultur; integrationsgipfel; unerlaubten; kurios; unentwegt; déjà-vu; erinnerungskultur; patientendaten; kmus; betriebsprüfer; ernährungssicherheit; mutet; berichterstatterin; gesamtgewicht
Male	näheren; elternschaft; arztstize; keule; gesetzgebungsvorhabens; bevorteilt; krankenversicherte; zutreffende; erzgebirge; pendlerinnen; überzeichnet; fortgeschrittenen; parlamentsdebatte; terrorismusabwehrzentrum; anpassungsbedarf; vorausseilendem; scheidet; wirksamsten; verbraucherschutzpolitik; ausgwirkt; programmatik; ausgleichszahlungen; funktionsfähigen; selbstbewusste; referiert
Netherlands	
Female	nauwgezet; wolbert; onschuldig; huizinga-heringa; vergaand; meningen; but; verve; neutrale; 21ste; onzekere; blokjes; verstevigen; vergeer; bruins; vervuiler; verbeet; treurig; autochtone; overhandigen; netvlies; balemans; totaliteit; tegengestelde; bekostigen
Male	socialistische; gaarne; noodzakelijkerwijs; waarneming; trachten; procenten; ontleend; merkies; tillen; publiekelijk; geblokkeerd; dunkt; zinvolle; brink; vraagstelling; hoofde; dijck; ouderwetse; andermaal; bestedingen; leider; interveniëren; deugen; ontlenen; opzadelen
Spain	
Female	haciéndoles; haciendo; les; vigésima; derogarla; derogar; la; nosotras; acusa; defendamos; alcanzadas; singularizar; atenderá; cotidianamente; posicionamos; suscitaba; reduccionista; eliminadas; presumía; conflictivas; amparándose; amparando; se; procedería; generalizados
Male	andalucistas; reproducidas; terra; mandatado; prolongando; explicadas; considerara; brevísimamente; perfeccionan; escandaliza; solventa; estrepitoso; entendieran; figurara; agradezca; circunscrito; matiza; aplazada; garantizarle; garantizar; le; esperanza; inaplicable; congruentes; comprensiva
Sweden	
Female	jätteintressant; utvärderat; utlovats; kollektivet; användbara; förundrad; suveränitet; benämns; jättestort; spänning; sparandet; teori; frysa; förvärrats; economic; vansinnigt; fossilt; glapp; snedvriden; fix; förändringsarbete; kretsen; rättvisande; offentlighets; arbetsmarknadsåtgärder
Male	verklighetsbild; behandlingsmetoder; åhörarna; tveka; återkoppling; fjärran; larry; invandringspolitiken; andan; anförda; entreprenörskapet; likartat; förmätet; sysslat; tillskjuta; förste; klarläggande; bokstavligen; komponent; riksdagsgrupp; argumenterade; bedrev; alliansidan; skjutas; aningen

Table C.2.3: Original Versions of terms in Table 4.3

Germany	
Female	mindereinnahmen, temperaturen, hartz-iv-bezug, wohlfahrtsverbänden, sozialabkommen, liest, bundesärztekammer, generalverdacht, vierjahresfrist, hospiz, praktikantinnen, überforderung, ungeborenen, valide, präventionsstrategie, erkennbaren, behinderten, versicherungspflicht, glücksspiel, terroranschlag, wohlfahrtsverbände, kinderschutzgesetz, kambodscha, schnellverfahren, eigenregie
Male	14-jährige, verkehrspolitiker, verfassungswidrigen, berichterstatter, wertpapiere, übertragungsnetzbetreibern, innovationsprogramm, geltung, video, arbeitsminister, eingliederungsmaßnahmen, zulässt, dramatischen, bundesjustizministerium, konstantin, zunehmenden, schreckliche, frühverrentungswelle, herrschaft, raucher, französischen, brauchte, stabiler, preisverhandlungen, sparmaßnahmen
Netherlands	
Female	behouden, wolbert, kwetsbare, bopz, ortega-martijn, herkeuring, melden, doelen, klas, autonomie, nationaal, verzorgingshuizen, sanering, maandag, t, wout, les, brinkman, verzorgingshuis, humanitaire, verbeteren, biskop, ontzettend, preventie, artikelen
Male	allen, zo-even, heemskerk, juiste, kortom, knops, hiervan, uitvoerig, individueel, ratificeren, meegenomen, dam, bank, bewindslieden, mohandis, derhalve, gemeentelijke, opkomst, lokaal, wezen, keijzer, veranderingen, vandaar, basisonderwijs, hoeverre
Spain	
Female	concluyendo, tramite, insostenibles, hídrica, modificaran, acortar, violación, traiga, escuchando, represiva, ingeniería, paraguas, recorrer, alicante, arcas, inferiores, argumentaciones, entornos, consiguieron, acertar, incrementó, destruir, basados, avanza, minorías
Male	perdiendo, pico, éstos, intervendré, teórico, penalidad, anhelos, tomara, efectuar, instalada, daremos, solicita, interpretaciones, sensiblemente, proporcional, alumnas, legalizar, defraudado, robo, asistido, convence, santa, adapta, rechazada, enviado
Sweden	
Female	åberg, jenny, klimatutsläpp, jätteviktigt, socialdepartementets, nämner, propositioner, nystartsjobben, kroppen, plocka, facto, trivs, nen, beskrev, förskoleklassens, medverka, producenter, aktiviteter, fly, blanda, skönt, betraktas, undersökningar, läkemedelslistan, propositionstexten
Male	statsminister, l, anti, minimiskatter, uppehålla, politiseringen, lyssnare, hultqvist, sd, läggas, poängen, förstod, kopplingen, viset, södertälje, etcetera, beskedet, troligen, justitie, hittat, läkarbesök, punkten, nöjer, utbetalningar, noterar

C.3 Correlation Between Salience and APC

Figure C.3.1: Prediction Certainty by Salience of Policy Area to Female Voters



C.4 Stemming

Since some languages in this corpus have words with more gendered endings, it is possible that the classifier is picking up on these endings rather than substantive terms for prediction. For this reason, we run the models within countries and policy areas on a stemmed version of the corpus, where those endings are removed. For example, in Spanish a woman would say “estoy convencida” to say “I am convinced”, while a man would say “estoy convencido”. With stemming, both instances of the verb become “convenc”, thus losing the gendering marker and making sure that is not what the classifier picks up on. Figure compares the AUC across countries and policy areas for the predictions made with original words, as in the main manuscript, and using stemmed words. We see no drop in accuracy in any country or policy area, showing that the accuracy in countries such as Spain or Germany is not driven by grammar.

C.5 Out-of-sample Estimates

We have run the ridge models for results in the main paper using 20-fold cross-validation. This means that every observation was nineteen times part of a training set, for training the model, and once part of a test-set. In the main paper, we used training-set numbers since, as explained, our intention is not out-of-sample prediction but identifying the factors that make the algorithm predict one outcome or the other. For this section, we report results if instead we take the predicted probability of a speech being given by a woman for the turn in the cross-validation procedure in which the speech was not part of the training data. Therefore, the AUC’s in Figure C.5.1 is a test-set accuracy estimate, and the Average Predictive Certainty’s in Table C.5.1 are calculated with the predicted probabilities from each observation when it was out-of-sample.

Figure C.4.1: Predictive Accuracy by Area and Country, using Out-of-Sample Predicted Values

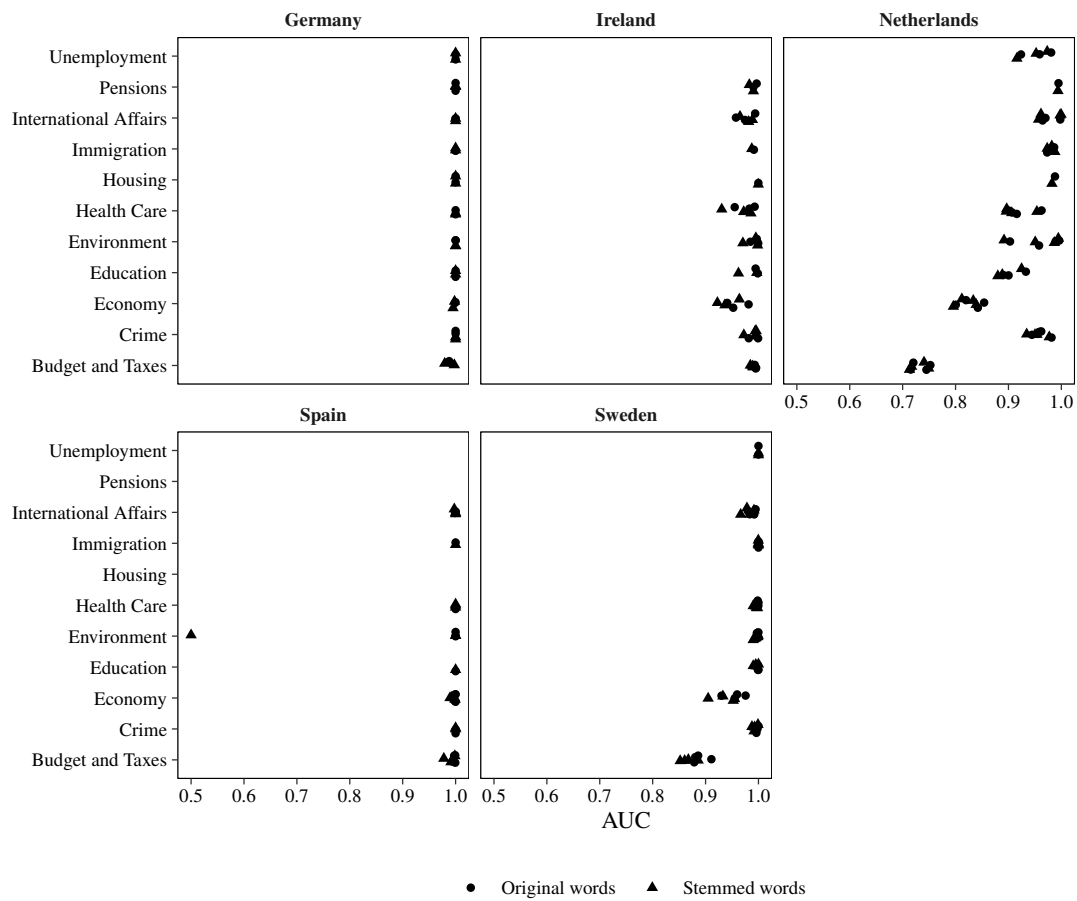


Figure C.5.1: Predictive Accuracy by Area and Country, using Out-of-Sample Predicted Values

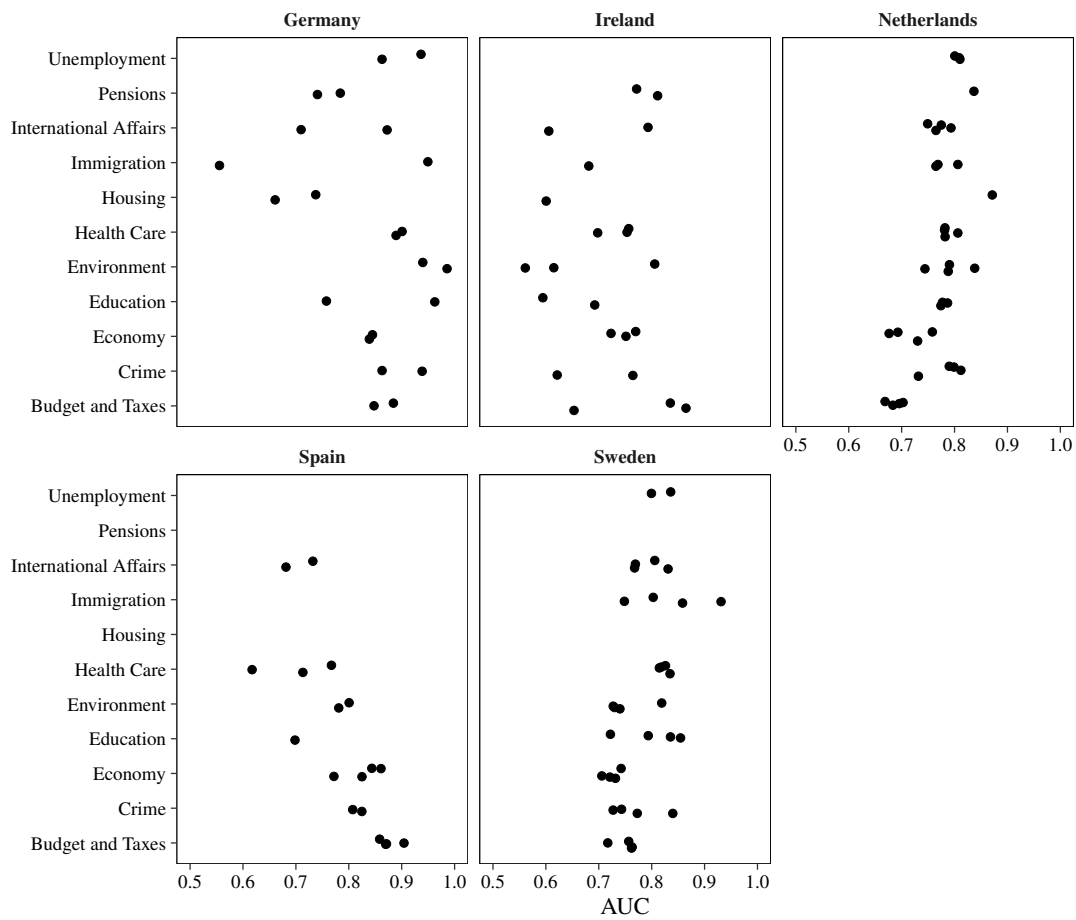


Table C.5.1: Average Prediction Certainty by country and topics - using out-of-sample predicted probabilities.

	Higher Saliency for [...] voters		Male vs. female topics		Correlation Saliency and APC
	male	female	male	female	
Ireland	0.12	0.10	0.11	0.11	-0.11
Sweden	0.14	0.13	0.14	0.13	0.09
Germany	0.20	0.21	0.19	0.22	0.18
Spain	0.13	0.14	0.14	0.10	0.17
Netherlands	0.15	0.18	0.16	0.19	0.38
Overall	0.15	0.15	0.15	0.15	0.09

Notes: Average prediction certainty for speeches within each group, with predicted probabilities calculated for each speech when it was not part of the training set during the 20-fold cross-validation procedure. **Higher saliency for ... voters:** Defined as women or men having higher saliency on the policy area; **Male vs. female topics:** Following the literature on women and politics, we define welfare and education as female policy areas and all other as male.

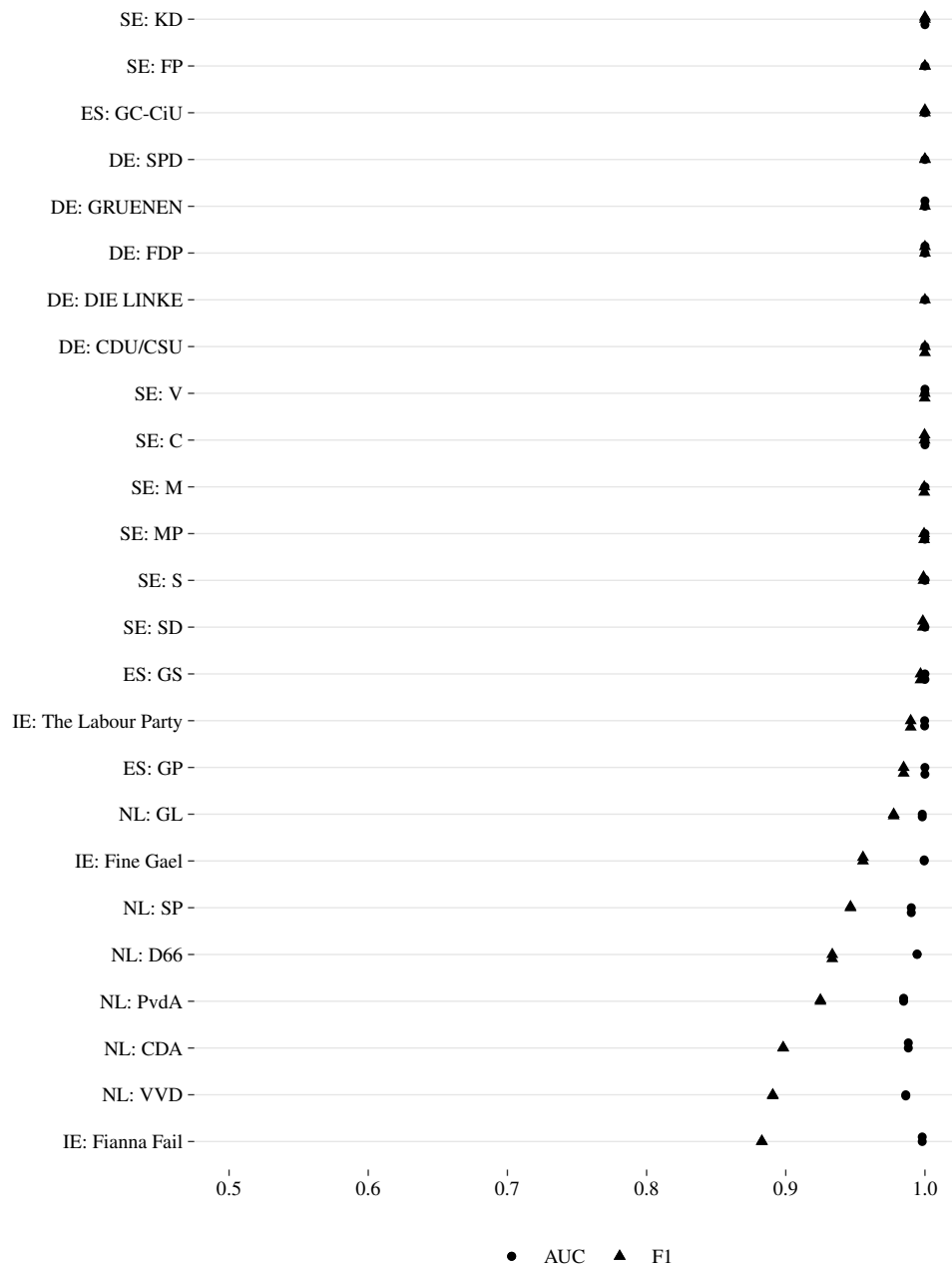
C.6 Estimates by Party

A possible confounder to all estimates in the paper is that parties have different shares of female MPs, and also speak differently about different topics. In the next pages we provide results by party (where possible or sensible) to show that the classifiers are capturing variance beyond partisanship. Figure C.6.1 shows the accuracy obtained when fitting a ridge regression separately to speeches given by each party in each country. We use all speeches by members of each party for the entire period in each country, similar to Table 2 in the paper. We restrict it to parties with at least eight female speakers. This loses smaller parties, but notice that both mainstream right and left parties in all countries remain. F1 scores and the AUC shows that the classifier can accurately predict female from male speakers across all parties in all countries.

Next we investigate the accuracy of classifiers fit within parties by policy area. To do so, we split the corpus into legislative terms and policy areas, and then into parties, and run the classifier within each party that still has at least eight female and eight male MPs giving a speech on that area during that legislative period. We then take the average AUC across parties within a policy area, to estimate the accuracy numbers in Figure C.6.2. Naturally, this decreases the number of areas covered, since in several of them now there are no parties which had at least eight women speaking on it. Also, in most of the remaining ones, only one or two parties had enough speakers to fit the models. Nevertheless, we observe that where possible, the classifiers are highly accurate when predicting whether a speech was given by a male or female speaker even if they all belong to the same party and are talking about the same topic.

Finally, due to there being so few policy areas left with predictions, and several having only one or two parties, it becomes less informative or impossible to compare means across topics salient for men or women, as done in Table 4. The only country

Figure C.6.1: Predictive Accuracy by Party and Country – Entire Corpus



for which there are enough observations to at least calculate a mean across groups is Sweden (due to having the highest share of women in parliament). There, the average

**D Appendix to Chapter 5: A Bill of
Their Own: Collaboration of
Women in European Parliaments**

D.1 Overview of Cases

Table D.1.1: Overview of Cases in Dataset

Country	Year	Number of Cosponsor-ing MPs	Share of Women MPs	Average Number of Cosponsorships per MP per Year	Percentage of MPs under weak party control
Belgium	1991	154	9	3.35	8.44
Belgium	1995	130	14	4.43	8.46
Belgium	1999	137	22	5.10	14.60
Belgium	2003	154	33	6.34	8.44
Belgium	2007	159	36	9.07	6.92
Belgium	2010	152	32	9.14	5.26
Belgium	2014	140	32	5.99	6.43
Bulgaria	2005	179	22	0.92	57.54
Bulgaria	2009	253	21	2.37	38.74
Bulgaria	2013	245	25	4.10	41.63
Bulgaria	2014	254	20	6.41	38.98
Bulgaria	2017	262	24	4.24	34.35
Czech Republic	1996	184	16	2.96	0
Czech Republic	1998	204	16	2.73	0
Czech Republic	2002	214	16	2.61	6.07
Czech Republic	2006	215	18	3.25	2.33
Czech Republic	2010	209	21	3.97	6.22
Czech Republic	2013	207	21	4.05	6.28
Denmark	2005	139	37	5.24	40.29
Denmark	2007	154	38	6.30	3.90

Denmark	2011	121	39	4.80	11.57
Denmark	2015	155	37	5.16	3.87
Finland	2003	210	37.50	11.83	10.48
Finland	2007	211	41.50	7.82	9.48
Finland	2011	209	42.50	10.34	9.57
Finland	2015	217	41.50	7.74	4.15
Finland	2019	206	46	7.62	3.88
Hungary	1998	175	10	0.98	40.57
Hungary	2002	292	9	1.26	18.15
Hungary	2006	259	11	1.18	19.31
Hungary	2010	387	10	1.46	1.81
Hungary	2014	199	9	2.95	36.68
Iceland	1995	74	25.40	5.70	47.30
Iceland	1999	76	34.90	6.09	35.53
Iceland	2003	89	30.20	6.47	0
Iceland	2007	82	33.30	6.97	1.22
Iceland	2009	85	42.90	8.78	0
Iceland	2013	72	39.70	5.24	0
Italy	1983	635	8	13.47	3.78
Italy	1987	661	12	15.48	3.18
Italy	1992	633	8	21.03	4.74
Italy	1994	631	15	21.37	1.90
Italy	1996	637	11	14.93	3.30
Italy	2001	607	11	15.49	2.31
Italy	2006	610	17	20.14	1.48

Italy	2008	656	20	15.52	1.37
Italy	2013	656	31	12.28	1.37
Italy	2018	625	36	17.84	2.08
Lithuania	1996	65	16.33	3.80	49.23
Lithuania	2000	121	10.22	3.88	47.93
Lithuania	2004	125	21.88	3.96	52
Lithuania	2008	142	18.83	6.13	47.89
Lithuania	2012	150	27.56	13.94	47.33
Lithuania	2016	152	24.03	12.22	50
Norway	1985	62	36.92	0.67	100
Norway	1989	112	36.31	0.94	49.11
Norway	1993	110	35.98	1.80	60
Norway	1997	138	37.38	1.81	46.38
Norway	2001	136	36.21	2.38	55.88
Norway	2005	118	41.43	3.66	43.22
Norway	2009	140	41.91	4.38	54.29
Norway	2013	169	43.36	2.89	46.15
Norway	2017	185	45.91	4.73	32.43
Portugal	1991	260	11.82	3.54	22.31
Portugal	1995	279	14.46	3.77	20.79
Portugal	1999	272	19.28	5.74	17.65
Portugal	2002	272	20.70	6.57	20.59
Portugal	2005	282	24.46	8.85	18.79
Portugal	2009	236	27.38	43.50	25.85
Portugal	2011	282	28.67	21.22	18.79

Portugal	2015	280	34.25	39.13	16.07
Portugal	2019	244	38.40	50.50	22.95
Romania	1996	336	7.30	2.86	50
Romania	2000	349	10.70	7.24	48.14
Romania	2004	357	11.40	18.10	44.82
Romania	2008	339	11.40	24.34	94.69
Romania	2012	414	13.30	38.13	95.65
Romania	2016	345	20.70	45.35	44.35
Sweden	1988	367	38	51.40	9.81
Sweden	1991	374	33	27.03	18.18
Sweden	1994	395	43	22.36	27.09
Sweden	1998	377	44	32.60	20.69
Sweden	2002	392	46	32.45	7.40
Sweden	2006	386	47	24.20	7.51
Sweden	2010	387	46	24.18	6.46
Sweden	2014	404	44	43.78	9.65
Switzerland	1999	210	24.76	26.64	33.33
Switzerland	2003	224	26.64	33.84	29.46
Switzerland	2007	219	27.65	44.89	32.88
Switzerland	2011	228	28.98	31.56	33.33
Switzerland	2015	230	29.82	28.96	26.96
Switzerland	2019	212	37.17	16.28	31.60

D.2 Robustness: Analysis with minimum of 10% women in parliament

Table D.2.1: Gender and Institutional Effects on Bill Cosponsorships in European Parliaments (Minimum Share of Women in Parliament: 10%)

	<i>Dependent variable:</i>		
	Gender Cosponsorship Score (GCS), min 10% women in parliament		
	All MPs	Strong Party Constraints	Weak Party Constraints
	(1)	(2)	(3)
Male MP	-5.853*** (-6.283, -5.423)	-6.112*** (-6.582, -5.642)	-4.877*** (-5.913, -3.842)
Share of Women in Parliament	-0.183*** (-0.275, -0.092)	-0.193*** (-0.294, -0.091)	-0.021 (-0.148, 0.105)
Cosponsorship per Year	0.002 (-0.006, 0.011)	-0.001 (-0.010, 0.008)	0.022 (-0.0003, 0.044)
Male MP x Share of Women in Parliament	0.128*** (0.094, 0.162)	0.169*** (0.132, 0.206)	-0.056 (-0.144, 0.031)
Intercept	5.524*** (3.929, 7.119)	5.857*** (4.195, 7.519)	3.721*** (1.960, 5.483)
Observations	21,211	16,757	4,454
Log Likelihood	-83,558.100	-65,570.900	-17,940.260
Akaike Inf. Crit.	167,132.200	131,157.800	35,896.530
Bayesian Inf. Crit.	167,195.900	131,219.600	35,947.740

Note:

*p<0.05; **p<0.01; ***p<0.001

D.3 Robustness: Analysis with minimum of 10 Cosponsorships per Year

Table D.3.1: Gender and Institutional Effects on Bill Cosponsorships in European Parliaments (Minimum 10 Cosponsorships per Year)

	<i>Dependent variable:</i>		
	Gender Cosponsorship Score (GCS), min 10 cosponsorships		
	All MPs	Strong Party Constraints	Weak Party Constraints
	(1)	(2)	(3)
Male MP	−6.507*** (−6.976, −6.038)	−7.096*** (−7.635, −6.557)	−4.436*** (−5.338, −3.535)
Share of Women in Parliament	−0.162* (−0.300, −0.024)	−0.236*** (−0.375, −0.096)	0.163 (−0.004, 0.330)
Cosponsorship per Year	0.003 (−0.004, 0.011)	0.0002 (−0.009, 0.009)	0.021** (0.005, 0.036)
Male MP x Share of Women in Parliament	0.196*** (0.161, 0.231)	0.252*** (0.213, 0.292)	−0.089* (−0.163, −0.016)
Intercept	5.171*** (2.474, 7.867)	6.049*** (3.515, 8.582)	1.027 (−2.680, 4.733)
Observations	10,782	8,682	2,100
Log Likelihood	−39,928.490	−32,475.660	−7,381.590
Akaike Inf. Crit.	79,872.990	64,967.320	14,779.180
Bayesian Inf. Crit.	79,931.270	65,023.880	14,824.380

Note:

*p<0.05; **p<0.01; ***p<0.001

D.4 Robustness: Different Cutoffs for District Size

Figure D.4.1: Cutoff Simulation for Gender Effect (Male MP), Strong Party Control

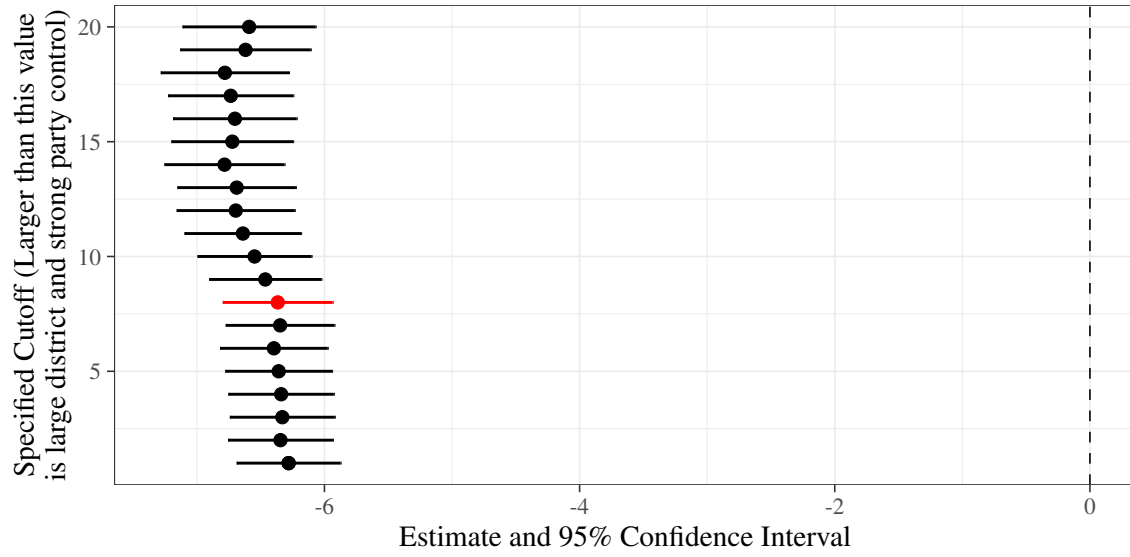


Figure D.4.2: Cutoff Simulation for Gender Effect (Male MP), Weak Party Control

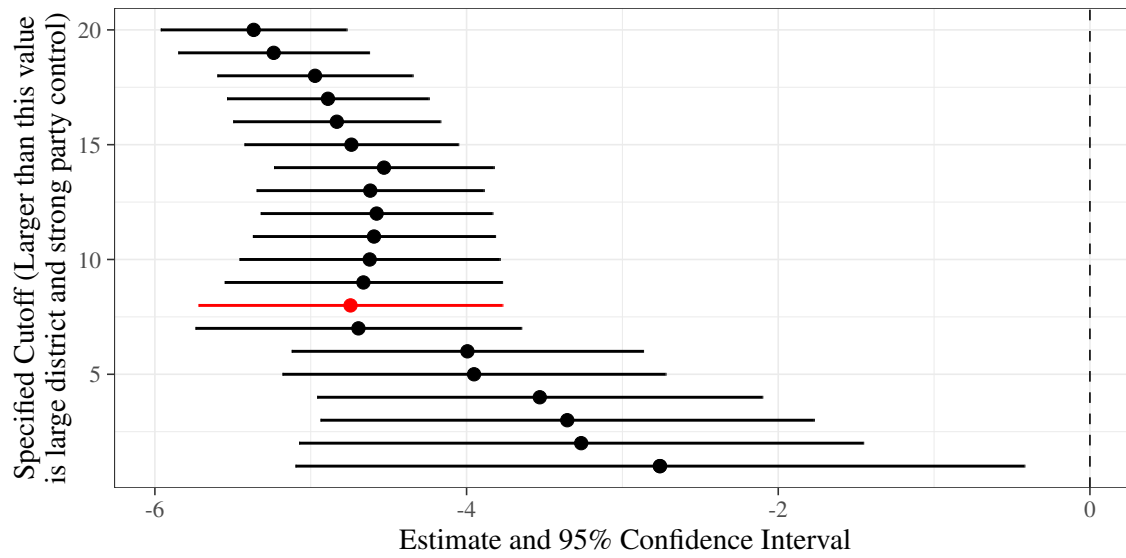


Figure D.4.3: Cutoff Simulation for Share of Women in Parliament, Strong Party Control

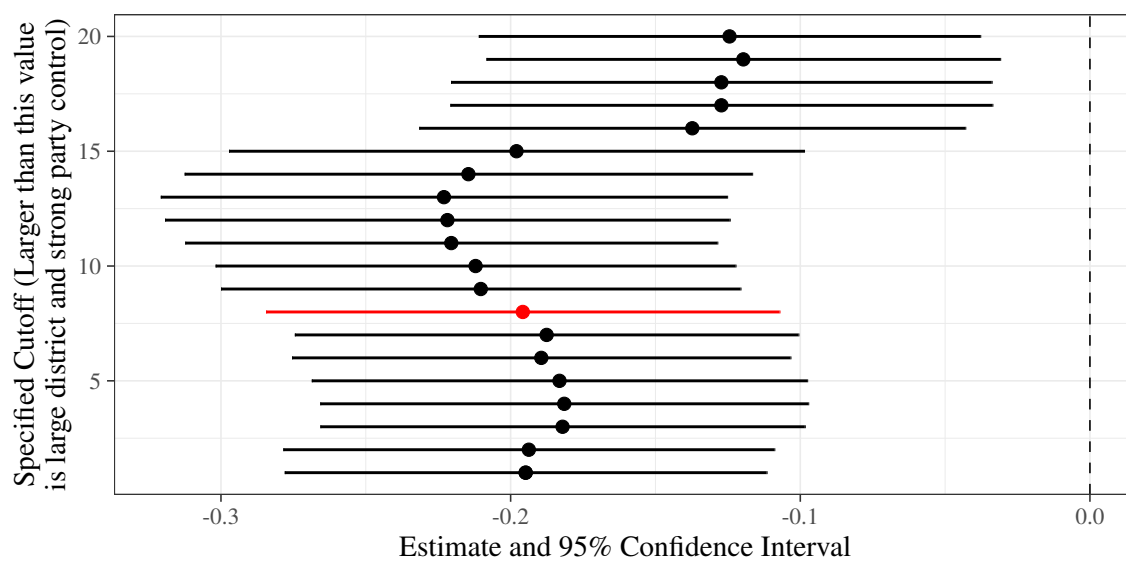


Figure D.4.4: Cutoff Simulation for Share of Women in Parliament, Weak Party Control

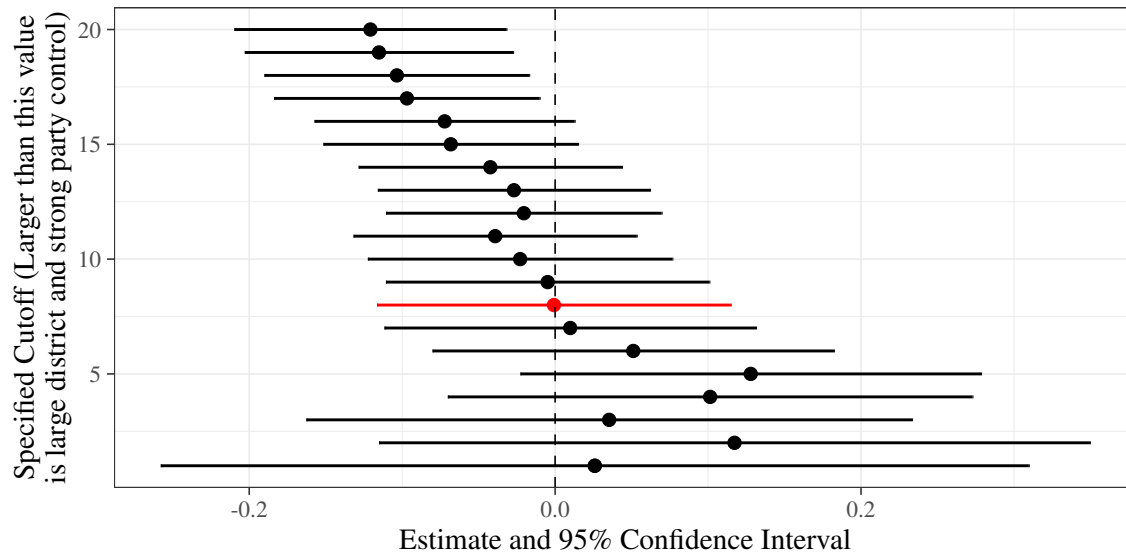


Figure D.4.5: Cutoff Simulation for Interaction Effect, Strong Party Control

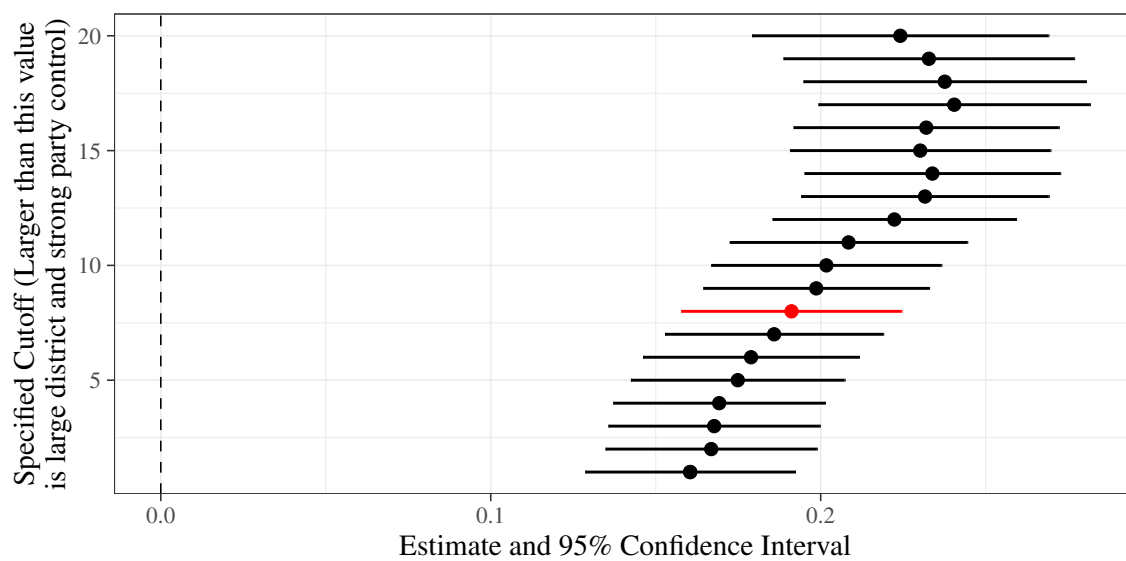
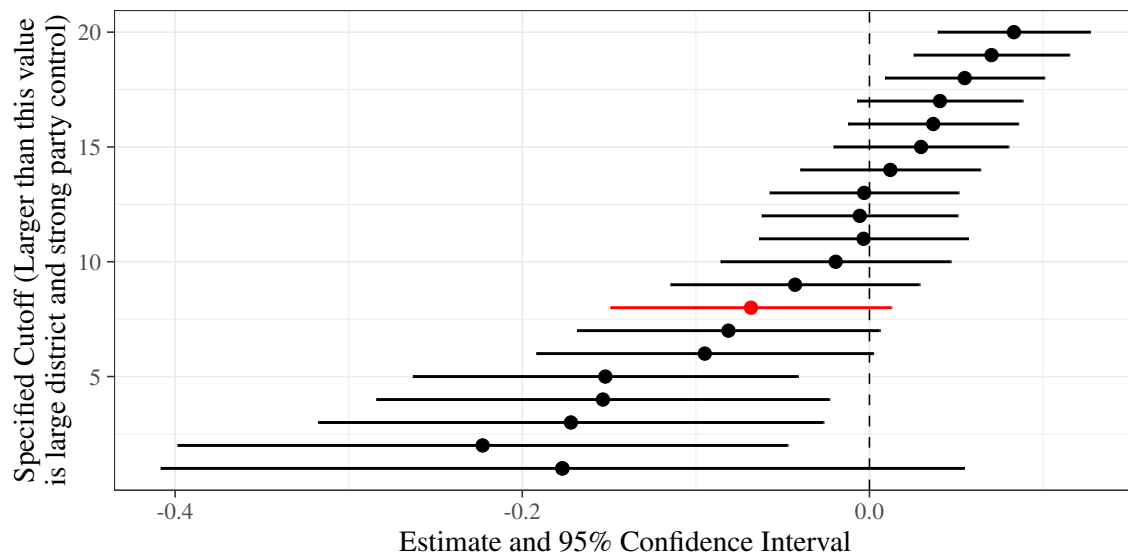


Figure D.4.6: Cutoff Simulation for Interaction Effect, Weak Party Control



D.5 Discussion: Analysis across and within party

Table D.5.1: Robustness Test for GCS Model 1

	<i>Dependent variable:</i>		
	GCS All MPS All MPs (1)	GCS All MPS Out-Party (2)	GCS All MPS In-Party (3)
Male MP	−6.062*** (−6.458, −5.666)	−5.609*** (−6.170, −5.048)	−6.431*** (−6.927, −5.934)
Share of Women in Parliament	−0.172*** (−0.254, −0.091)	−0.300*** (−0.431, −0.169)	−0.156*** (−0.239, −0.073)
Cosponsorship per Year	−0.0001 (−0.008, 0.008)	0.062*** (0.050, 0.073)	−0.004 (−0.014, 0.006)
Male MP x Share of Women in Parliament	0.147*** (0.116, 0.178)	0.039 (−0.006, 0.084)	0.152*** (0.113, 0.191)
Intercept	5.590*** (4.113, 7.067)	3.884*** (1.579, 6.189)	6.203*** (4.800, 7.606)
Observations	24,022	20,256	23,576
Log Likelihood	−94,387.760	−85,061.520	−97,750.280
Akaike Inf. Crit.	188,791.500	170,139.000	195,516.600
Bayesian Inf. Crit.	188,856.200	170,202.400	195,581.100

Note:

*p<0.05; **p<0.01; ***p<0.001

Table D.5.2: Robustness Test for GCS Model 2

	<i>Dependent variable:</i>		
	GCS Strong Party Constraints All MPs	GCS Strong Party Constraints Out-Party	GCS Strong Party Constraints In-Party
	(1)	(2)	(3)
Male MP	-6.366*** (-6.797, -5.935)	-6.124*** (-6.743, -5.506)	-6.606*** (-7.151, -6.060)
Share of Women in Parliament	-0.196*** (-0.284, -0.107)	-0.309*** (-0.451, -0.167)	-0.166*** (-0.244, -0.087)
Cosponsorship per Year	-0.004 (-0.013, 0.004)	0.064*** (0.052, 0.076)	-0.009 (-0.020, 0.001)
Male MP x Share of Women in Parliament	0.191*** (0.158, 0.225)	0.069** (0.020, 0.117)	0.199*** (0.157, 0.241)
Intercept	6.091*** (4.570, 7.612)	4.387*** (1.942, 6.832)	6.510*** (5.195, 7.825)
Observations	19,129	16,329	18,853
Log Likelihood	-74,722.960	-68,526.610	-77,958.950
Akaike Inf. Crit.	149,461.900	137,069.200	155,933.900
Bayesian Inf. Crit.	149,524.800	137,130.800	155,996.700

Note: *p<0.05; **p<0.01; ***p<0.001

Table D.5.3: Robustness Test for GCS Model 3

	<i>Dependent variable:</i>		
	GCS Weak Party Constraints All MPs	GCS Weak Party Constraints Out-Party	GCS Weak Party Constraints In-Party
	(1)	(2)	(3)
Male MP	-4.745*** (-5.719, -3.770)	-3.333*** (-4.665, -2.000)	-5.826*** (-7.014, -4.639)
Share of Women in Parliament	-0.001 (-0.116, 0.115)	0.012 (-0.165, 0.188)	-0.066 (-0.190, 0.057)
Cosponsorship per Year	0.022* (0.001, 0.044)	0.053*** (0.026, 0.081)	0.027* (0.001, 0.052)
Male MP x Share of Women in Parliament	-0.068 (-0.149, 0.013)	-0.119* (-0.233, -0.004)	-0.064 (-0.162, 0.035)
Intercept	3.521*** (1.863, 5.180)	1.454 (-1.014, 3.921)	4.680*** (3.012, 6.349)
Observations	4,893	3,927	4,723
Log Likelihood	-19,610.790	-16,536.970	-19,780.570
Akaike Inf. Crit.	39,237.590	33,089.930	39,577.130
Bayesian Inf. Crit.	39,289.550	33,140.140	39,628.810

Note: *p<0.05; **p<0.01; ***p<0.001

Bibliography

- Aléman, Eduardo, Ernesto Calvo, Mark P. Jones and Noah Kaplan. 2009. "Comparing Cosponsorship and Roll-Call Ideal Points." *Legislative Studies Quarterly* 34(1):87–116.
- Allen, Peter and David Cutts. 2018. "An analysis of political ambition in Britain." *Political Quarterly* 89(1):73–81.
- Allen, Peter, David Cutts and Rosie Campbell. 2016. "Measuring the Quality of Politicians Elected by Gender Quotas - Are They Any Different?" *Political Studies* 64(1):143–163.
- Allen, Peter and Paul Cairney. 2017. "What Do We Mean When We Talk about the 'Political Class'?" *Political Studies Review* 15(1):18–27.
- Anzia, Sarah F. and Christopher R. Berry. 2011. "The Jackie (and Jill) Robinson effect: Why do congresswomen outperform congressmen?" *American Journal of Political Science* 55(3):478–493.
- Arendt, Hannah. 1998. *The Human Condition*. 2nd ed. Chicago: University of Chicago Press.

- Ashe, Jeanette, Rosie Campbell, Sarah Childs and Elizabeth Evans. 2010. "Stand by your man': Women's political recruitment at the 2010 UK general election." *British Politics* 5(4):455–480.
- Bäck, Hanna, Marc Debus and Jochen Müller. 2014. "Who Takes the Parliamentary Floor? The Role of Gender in Speech-making in the Swedish Riksdag." *Political Research Quarterly* 67(3):504–518.
- Bakker, Ryan, Seth Jolly and Jonathan Polk. 2012. "Complexity in the European party space: Exploring dimensionality with experts." *European Union Politics* 13(2):219–245.
- Ballington, Julie. 2009. Gender Sensitive Parliaments Julie. In *Is Parliament Open to Women? An Appraisal*, ed. Conference for Chairpersons and Members of Parliamentary Bodies Dealing with Gender Equality. Interparliamentary Union.
- Baltrunaite, Audinga, Piera Bello, Alessandra Casarico and Paola Profeta. 2014. "Gender quotas and the quality of politicians." *Journal of Public Economics* 118:62–74.
- Bamman, David, Jacob Eisenstein and Tyler Schnoebelen. 2014. "Gender identity and lexical variation in social media." *Journal of Sociolinguistics* 18:135–160.
- Barnes, Tiffany D. 2016. *Gendering Legislative Behavior*. New York: Cambridge University Press.
- Barnes, Tiffany D. and Abby Córdova. 2016. "Making Space for Women: Explaining Citizen Support for Legislative Gender Quotas in Latin America." *The Journal of Politics* 78(3):670–686.

- Barnes, Tiffany D. and Diana Z. O'Brien. 2018. "Defending the Realm: The Appointment of Female Defense Ministers Worldwide." *American Journal of Political Science* 62(2):355–368.
- Bauer, Nichole M. 2017. "The Effects of Counterstereotypic Gender Strategies on Candidate Evaluations." *Political Psychology* 38(2):279–295.
- Bauer, Nichole M. 2020. "Shifting Standards: How Voters Evaluate the Qualifications of Female and Male Candidates." *Journal of Politics* 82(1):1–12.
- Beauregard, Katrine. 2018. "Partisanship and the gender gap: support for gender quotas in Australia." *Australian Journal of Political Science* 53(5):290–319.
- Benoit, Kenneth, Kohei Watanabe, Haiyan Wang, Stefan Müller, Patrick O. Perry, Benjamin Lauderdale and William Lowe. 2020. *quanteda.textmodels: Scaling Models and Classifiers for Textual Data*. R package version 0.9.1.
URL: <https://CRAN.R-project.org/package=quanteda.textmodels>
- Besley, Timothy, Olle Folke, Torsten Persson and Johanna Rickne. 2017. "Gender Quotas and the Crisis of the Mediocre Man: Theory and Evidence from Sweden." *American Economic Review* 107(8):2204–2242.
- Bhavnani, Rikhil R. 2009. "Do Electoral Quotas Work after They Are Withdrawn? Evidence from a Natural Experiment in India." *American Political Science Review* 103(01):23–35.
- Bjarnegård, Elin and Meryl Kenny. 2016. "Comparing Candidate Selection: A Feminist Institutional Approach." *Government and Opposition* 51(3):370–392.

- Borisyuk, Galina, Colin Rallings and Michael Thrasher. 2007. "Women in English local government, 1973–2003: Getting selected, getting elected." *Contemporary Politics* 13(2):181–199.
- Bratton, Kathleen A. 2002. "The Effect of Legislative Diversity on Agenda Setting: Evidence from Six State Legislatures." *American Politics Research* 30:115–142.
- Bratton, Kathleen A. 2005. "Critical Mass Theory Revisited: The Behavior and Success of Token Women in State Legislatures." *Politics & Gender* 1(1):97–125.
- Bratton, Kathleen A. and Kerry L. Haynie. 1999. "Agenda Setting and Legislative Success in State Legislatures: The Effects of Gender and Race." *The Journal of Politics* 61(3):658–679.
- Bratton, Kathleen A. and Stella M. Rouse. 2011. "Networks in the legislative arena: How group dynamics affect cosponsorship." *Legislative Studies Quarterly* 36(3):423–460.
- Bräuninger, Thomas, Martin Brunner and Thomas Däubler. 2012. "Personal vote-seeking in flexible list systems: How electoral incentives shape Belgian MPs' bill initiation behaviour." *European Journal of Political Research* 51(5):607–645.
- Briatte, François. 2016. "Network patterns of legislative collaboration in twenty parliaments." *Network Science* 4(2):266–271.
- Bruckmüller, Susanne, Michelle K. Ryan, Floor Rink and S. Alexander Haslam. 2014. "Beyond the Glass Ceiling: The Glass Cliff and Its Lessons for Organizational Policy." *Social Issues and Policy Review* 8(1):202–232.

- Bäck, Hanna and Marc Debus. 2019. "When Do Women Speak? A Comparative Analysis of the Role of Gender in Legislative Debates." *Political Studies* 67(3):576–596.
URL: <https://doi.org/10.1177/0032321718789358>
- Campbell, David E. and Christina Wolbrecht. 2006. "See Jane Run: Women politicians as role models for adolescents." *Journal of Politics* 68(2):233–247.
- Campbell, James E. 1982. "Cosponsoring Legislation in the U. S. Congress." *Legislative Studies Quarterly* 7(3):415–422.
- Campbell, Rosie and Sarah Childs. 2015. "'To the left, to the right': Representing conservative women's interests." *Party Politics* 21(4):626–637.
- Campbell, Rosie, Sarah Childs and Joni Lovenduski. 2006. "Women's Equality Guarantees and the Conservative Party." *The Political Quarterly* 77(1):18–27.
- Campbell, Rosie, Sarah Childs and Joni Lovenduski. 2010. "Do Women Need Women Representatives?" *British Journal of Political Science* 40(1):171–194.
- Carey, John M. and Matthew Soberg Shugart. 1995. "Incentives to Cultivate a Personal Vote: a Rank Ordering of Electoral Formulas." *Electoral Studies* 14(4):417–439.
- Carnes, Nicholas. 2012. "Does the Numerical Underrepresentation of the Working Class in Congress Matter?" *Legislative Studies Quarterly* 37(1):5–34.
- Catalano, Ana. 2009. "Women Acting for Women? An Analysis of Gender and Debate Participation in the British House of Commons 2005–2007." *Politics and Gender* 5(1):45–68.
- Caul, Miki. 2001. "Political Parties and the Adoption of Candidate Gender Quotas: A Cross-National Analysis." *The Journal of Politics* 63(4):1214–1229.

- Chattopadhyay, Raghavendra and Esther Duflo. 2004. "Women as Policy Makers : Evidence from a Randomized Policy Experiment in India." *Econometrica* 72(5):1409–1443.
- Chen, Tianqi and Carlos Guestrin. 2016. "XGBoost: A Scalable Tree Boosting System." *22nd SIGKDD Conference on Knowledge Discovery and Data Mining* .
URL: <https://arxiv.org/abs/1603.02754>
- Cheng, Christine and Margit Tavits. 2011. "Informal influences in selecting female political candidates." *Political Research Quarterly* 64(2):460–471.
- Childs, Sarah. 2004. "A Feminised Style of Politics? Women MPs in the House of Commons." *The British Journal of Politics and International Relations* 6(1):3–19.
- Childs, Sarah and Julie Withey. 2004. "Women Representatives Acting for Women: Sex and the Signing of Early Day Motions in the 1997 British Parliament." *Political Studies* 52:552–564.
- Childs, Sarah and Mona Lena Krook. 2008. "Critical Mass Theory and Women's Political Representation." *Political Studies* 56:725–736.
- Childs, Sarah and Mona Lena Krook. 2009. "Analysing Women's Substantive Representation: From Critical Mass to Critical Actors." *Government and Opposition* 44(2):125–145.
- Childs, Sarah and Paul Webb. 2012. *Sex, Gender and the Conservative Party: From Iron Lady to Kitten Heels*. Basingstoke, UK: Palgrave Macmillan.
- Clark, Jennifer Hayes and Veronica Caro. 2013. "Multimember districts and the substantive representation of women: An analysis of legislative cosponsorship networks." *Politics and Gender* 9(1):1–30.

- Clarke, Harold D., Peter Kellner, Marianne C. Stewart, Joe Twyman and Paul Whiteley. 2016. *Austerity and Political Choice in Britain*. Basingstoke, UK: Palgrave Macmillan.
- Clayton, Amanda, Diana Z. O'Brien and Jennifer M. Piscopo. 2019. "All Male Panels? Representation and Democratic Legitimacy." *American Journal of Political Science* 63(1):113–129.
- Clayton, Amanda and Georgia Anderson-Nilsson. 2021. Gender Experiments in Comparative Politics. In *Advances in Experimental Political Science*, ed. James Druckman and Donald P. Green. Cambridge University Press pp. 485–506.
- Clayton, Amanda and Pär Zetterberg. 2018. "Quota shocks: Electoral gender quotas and government spending priorities worldwide." *The Journal of Politics* 80(3).
- Collier, Cheryl N. and Tracey Raney. 2018. "Understanding sexism and sexual harassment in politics: A comparison of westminster parliaments in Australia, the United Kingdom, and Canada." *Social Politics* 25(3):432–455.
- Cowley, Philip. 2013. "Why not ask the audience? Understanding the public's representational priorities." *British Politics* 8(2):138–163.
- Cranmer, Skyler J. and Bruce A. Desmarais. 2017. "What Can We Learn from Predictive Modeling?" *Political Analysis* 25(2):145–166.
- Crowder-Meyer, Melody. 2013. "Gendered Recruitment without Trying: How Local Party Recruiters Affect Women's Representation." *Politics & Gender* 9:390–413.
- Cutts, David and Paul Widdop. 2013. "Was Labour Penalised where it Stood All Women Shortlist Candidates? An Analysis of the 2010 UK General Election." *British Journal of Politics and International Relations* 15(3):435–455.

- Dahlerup, Drude and Lenita Freidenvall. 2005. "Quotas as a 'Fast Track' to Equal Representation for Women: Why Scandinavia is no longer the model." *International Feminist Journal of Politics* 7(1):26–48.
- Dahlerup, Drude and Lenita Freidenvall. 2010. "Judging gender quotas: predictions and results." *Policy & Politics* 38(3):407–425.
- Dahllöf, Mats. 2012. "Automatic prediction of gender, political affiliation, and age in Swedish politicians from the wording of their speeches – A comparative study of classifiability." *Digital Scholarship in the Humanities* 27(2):139–153.
- Dancygier, Rafaela M., Karl-Oskar Lindgren, Sven Oskarsson and Kåre Vernby. 2015. "Why Are Immigrants Underrepresented in Politics? Evidence from Sweden." *American Political Science Review* 109(4):703–724.
- Davidson-Schmich, Louise K. 2006. "Implementation of Political Party Gender Quotas: Evidence from the German Länder 1990-2000." *Party Politics* 12(2):211–232.
- De Paola, Maria, Vincenzo Scoppa and Rosetta Lombardo. 2010. "Can gender quotas break down negative stereotypes? Evidence from changes in electoral rules." *Journal of Public Economics* 94:344–353.
- de Vries, Catherine E. 2018. *Euroscepticism and the Future of European Integration*. Oxford: Oxford University Press.
- Desposato, Scott and Barbara Norrander. 2009. "The Gender Gap in Latin America: Contextual and Individual Influences on Gender and Political Participation." *British Journal of Political Science* 39(1):141–162.
- Devlin, Claire and Robert Elgie. 2008. "The Effect of Increased Women's Representation in Parliament: The Case of Rwanda." *Parliamentary Affairs* 61(2):237–254.

- Devroe, Robin and Bram Wauters. 2018. "Political Gender Stereotypes in a List-PR System with a High Share of Women MPs: Competent Men versus Leftist Women?" *Political Research Quarterly* 71(4):788–800.
- Diekman, Amanda B. and Monica C. Schneider. 2010. "A Social Role Theory Perspective on Gender Gaps in Political Attitudes." *Psychology of Women Quarterly* 34(4):486–497.
- Dolan, Kathleen. 2010. "The Impact of Gender Stereotyped Evaluations on Support for Women Candidates." *Political Behavior* 32(1):69–88.
- Dolan, Kathleen. 2014. "Gender Stereotypes, Candidate Evaluations, and Voting for Women Candidates: What Really Matters?" *Political Research Quarterly* 67(1):96–107.
- Döring, Holger and Philip Manow. 2018. "Parliaments and governments database (Parl-Gov): Information on parties, elections and cabinets in modern democracies."
- Dovi, Suzanne. 2002. "Preferable Descriptive Representatives: Will Just Any Woman, Black or Latino Do?" *American Political Science Review* 96(4):729–743.
- Duverger, Maurice. 1954. *Political Parties: Their Organization and Activity in the Modern State*. London: Methuen.
- Eagly, Alice H. and Steven J. Karau. 2002. "Role congruity theory of prejudice toward female leaders." *Psychological Review* 109(3):573–598.
- Epstein, Leon. 1967. *Political Parties in Western Democracies*. New York: Praeger.
- Erikson, Josefina and Cecilia Josefsson. 2019. "The legislature as a gendered workplace: Exploring members of parliament's experiences of working in the Swedish parliament." *International Political Science Review* 40(2):197–214.

- Esaiasson, Peter, Mikael Persson, Mikael Gilljam and Torun Lindholm. 2019. "Reconsidering the Role of Procedures for Decision Acceptance." *British Journal of Political Science* 49(1):291–314.
- Escobar-Lemmon, Maria C. and Michelle M. Taylor-Robinson. 2015. "Sex, Survival, and Scandal: A Comparison of How Men and Women Exit Presidential Cabinets." *Politics and Gender* 11(4):665–688.
- Escobar-Lemmon, Maria and Michelle M. Taylor-Robinson. 2005. "Women ministers in Latin American government: When, where, and why?" *American Journal of Political Science* 49(4):829–844.
- Espírito-Santo, Ana. 2016. "Citizens' attitudes towards descriptive representation: The case of women in Portugal." *European Journal of Women's Studies* 23(1):43–59.
- Fehr, Ernst and Urs Fischbacher. 2002. "Why Social Preferences Matter-The Impact of Non-Selfish Motives on Competition." *Econpapers.Repec.Org* 112:1–33.
- Fernandes, Jorge M., Mariana Lopes da Fonseca and Miguel Won. 2021. "Closing the Gender Gap in Legislative Debates: The Role of Gender Quotas." *Political Behavior* Online First.
- Folke, Olle and Johanna Rickne. 2016. "The Glass Ceiling in Politics: Formalization and Empirical Tests." *Comparative Political Studies* 49(5):567–599.
- Fox, Richard L. and Jennifer L. Lawless. 2004. "Entering the Arena? Gender and the Decision to Run for Office." *American Journal of Political Science* 48(2):264–280.
- Fox, Richard L. and Jennifer L. Lawless. 2010. "If Only They'd Ask: Gender, Recruitment, and Political Ambition." *The Journal of Politics* 72(2):310–326.

- Fox, Richard L. and Jennifer L. Lawless. 2011. "Gendered Perceptions and Political Candidacies: A Central Barrier to Women's Equality in Electoral Politics." *American Journal of Political Science* 55(1):59–73.
- Franceschet, Susan and Jennifer M. Piscopo. 2008. "Gender Quotas and Women's Substantive Representation: Lessons from Argentina." *Politics & Gender* 4:393–425.
- Franceschet, Susan, Mona Lena Krook and Jennifer M. Piscopo. 2012. *The Impact of Gender Quotas*. New York: Oxford University Press.
- Fulton, Sarah A. 2012. "Running Backwards and in High Heels: The Gendered Quality Gap and Incumbent Electoral Success." *Political Research Quarterly* 65(2):303–314.
- Funk, Kendall D. and Andrew Q. Philips. 2019. "Representative Budgeting: Women Mayors and the Composition of Spending in Local Governments." *Political Research Quarterly* 72(1):19–33.
- Geddes, Andrew. 1995. "The 'Logic' of Positive Action?" *Party Politics* 1(2):275–285.
- Gentzkow, Matthew, Jesse M. Shapiro and Matt Taddy. 2019. "Measuring Group Differences in High-Dimensional Choices: Method and Application to Congressional Speech." *Econometrica* 87(4):1307–1340.
- Gerrity, Jessica C, Tracy Osborn and Jeanette Morehouse Mendez. 2007. "Women and Representation: A Different View of the District?" *Politics & Gender* 3(2):179–200.
- Gilardi, Fabrizio. 2015. "The Temporary Importance of Role Models for Women's Political Representation." *American Journal of Political Science* 59(4):957–970.
- Giles, Howard and Nikolas Coupland. 1991. *Language: Contexts and Consequences*. Florence, NY: McGraw-Hill Education.

- Goet, Niels D. 2019. "Measuring Polarization with Text Analysis: Evidence from the UK House of Commons, 1811–2015." *Political Analysis* pp. 1–22.
- Greene, Zachary and Diana Z. O'Brien. 2016. "Diverse parties, diverse agendas? Female politicians and the parliamentary party's role in platform formation." *European Journal of Political Research* 55:435–453.
- Greene, Zachary and Matthias Haber. 2014. "Leadership Competition and Disagreement at Party National Congresses." *British Journal of Political Science* 46:611–632.
- Grey, Sandra. 2002. "Does Size Matter? Critical Mass and New Zealand's Women MPs." *Parliamentary Affairs* 55:19–29.
- Hainmueller, Jens, Daniel J. Hopkins and Teppei Yamamoto. 2014. "Causal inference in conjoint analysis: Understanding multidimensional choices via stated preference experiments." *Political Analysis* 22(1):1–30.
- Hainmueller, Jens, Dominik Hangartner and Teppei Yamamoto. 2015. "Validating Vignette and Conjoint Survey Experiments against Real-World Behavior." *Proceedings of the National Academy of Sciences* 112(8):2395–2400.
- Hannagan, Rebecca J., Jamie P. Pimlott and Levente Littvay. 2010. "Does an EMILY's list endorsement predict electoral success, or Does EMILY pick the winners?" *PS - Political Science and Politics* 43(3):503–508.
- Harmel, Robert and Kenneth Janda. 1994. "An Integrated Theory of Party Goals and Party Change." *Journal of Theoretical Politics* 6(3):259–287.
- Hawkins, Kirk A. and Bruno Castanho Silva. 2018. Textual Analysis: Big Data Approaches. In *The Ideational Approach to Populism: Concept, Theory & Methods*,

- ed. Kirk Hawkins, Ryan Carlin, Levente Littvay and Cristóbal Rovira Kaltwasser. London: Routledge.
- Hedgecoe, Guy. 2019. "Spanish elections: How the far-right Vox party found its footing."
URL: <https://www.bbc.com/news/world-europe-46422036>
- Hinojosa, Magda and Miki Caul Kittilson. 2020. *Seeing Women, Strengthening Democracy: How Women in Politics Foster Connected Citizens*. Oxford: Oxford University Press.
- Homola, Jonathan. 2019. "Are Parties Equally Responsive to Women and Men?" *British Journal of Political Science* 49(3):957–975.
- Horiuchi, Yusaku, Daniel M. Smith and Teppei Yamamoto. 2020. "Identifying Voter Preferences for Politicians' Personal Attributes: A Conjoint Experiment in Japan." *Political Science Research and Methods* 8(1):75–91.
- House of Commons, Speaker's Conference (on Parliamentary Representation). 2010. Final Report, HC 239-I. Technical report House of Commons.
- Hughes, Melanie M., Pamela Paxton, Amanda Clayton and Pär Zetterberg. 2019. "Global Gender Quota Adoption, Implementation, and Reform." *Comparative Politics* 51(2):219–238.
- Inglehart, Ronald and Pippa Norris. 2003. *Rising Tide: Gender Equality and Cultural Change around the World*. New York, NY: Cambridge University Press.
- IPU. 2018. "Women in National Parliaments."
- Jalalzai, Farida. 2013. *Shattered, Cracked, or Firmly Intact? Women and the Executive Glass Ceiling Worldwide*. New York: Oxford University Press.

- Jalalzai, Farida and Mona Lena Krook. 2010. "Beyond Hillary and Benazir: Women's political leadership worldwide." *International Political Science Review* 31(1):5–21.
- James, Gareth, Daniela Witten, Trevor Hastie and Robert Tibshirani. 2013. *An Introduction to Statistical Learning with applications in R*. New York: Springer-Verlag.
- Janssen, Anna and Tamar Murachver. 2004. "The Relationship between Gender and Topic in Gender-Preferential Language Use." *Written Communication* 21(4):344–367.
- Kanthak, Kristin and Jonathan Woon. 2014. "Women Don't Run? Election Aversion and Candidate Entry." *American Journal of Political Science* 59(3):1–18.
- Kathlene, Lyn. 1995. Position Power Versus Gender Power: Who Holds the Floor? In *Gender Power, Leadership, and Governance*, ed. Georgia Duerst-Lahti and Rita Mac Kelly. Ann Arbor, MI: University of Michigan Press.
- Kelly, Richard and Isobel White. 2016. All-women shortlists. Technical report House of Commons.
- Kenny, Meryl and Fiona Mackay. 2014. "When is contagion not very contagious? Dynamics of women's political representation in Scotland." *Parliamentary Affairs* 67(4):866–886.
- Kenny, Meryl and Tània Verge. 2012. "Decentralization, political parties, and women's representation: Evidence from Spain and Britain." *Publius* 43(1):109–128.
- Kenworthy, Lane and Melissa Malami. 1999. "Gender Inequality in Political Representation: A Worldwide Comparative Analysis." *Social Forces* 78(1):235–269.
- Kittilson, Miki Caul. 2008. "Representing Women: The Adoption of Family Leave in Comparative Perspective." *The Journal of Politics* 70(2):323–334.

- Kittilson, Miki Caul. 2011. "Women, parties and platforms in post-industrial democracies." *Party Politics* 17(1):66–92.
- Klüver, Heike and Radoslaw Zubek. 2017. "Minority governments and legislative reliability: Evidence from Denmark and Sweden." *Party Politics* pp. 1–12.
- Koppel, Moshe, Schlomo Argamon and Anat Rachel Shimoni. 2002. "Automatically Categorizing Written Texts by Author Gender." *Literary and Linguistic Computing* 17(4):401–412.
- Krook, Mona Lena. 2010a. "Beyond Supply and Demand: A Feminist-institutionalist Theory of Candidate Selection." *Political Research Quarterly* 63(4):707–720.
- Krook, Mona Lena. 2010b. "Why Are Fewer Women than Men Elected? Gender and the Dynamics of Candidate Selection." *Political Studies Review* 8:155–168.
- Krook, Mona Lena. 2018. "Violence against Women in Politics: A Rising Global Trend." *Politics and Gender* 14(4):673–701.
- Krook, Mona Lena and Diana Z. O'Brien. 2010. "The Politics of Group Representation: Quotas for Women and Minorities Worldwide." *Comparative Politics* 42(3):253–272.
- Krook, Mona Lena and Diana Z. O'Brien. 2012. "All the President's Men? The Appointment of Female Cabinet Ministers Worldwide." *The Journal of Politics* 74(3):840–855.
- Krook, Mona Lena and Mary K. Nugent. 2016. "Intersectional institutions: Representing women and ethnic minorities in the British Labour Party." *Party Politics* 22(5):620–630.
- Krupnikov, Yanna and Nichole M. Bauer. 2014. "The Relationship Between Campaign Negativity, Gender and Campaign Context." *Political Behavior* 36:167–188.

- Kulich, Clara, Michelle K. Ryan and S. Alexander Haslam. 2014. "The Political Glass Cliff: Understanding How Seat Selection Contributes to the Underperformance of Ethnic Minority Candidates." *Political Research Quarterly* 67(1):84–95.
- Ladam, Christina, Jeffrey J. Harden and Jason H. Windett. 2018. "Prominent Role Models: High-Profile Female Politicians and the Emergence of Women as Candidates for Public Office." *American Journal of Political Science* 62(2):369–381.
- Lamprinakou, Chrysa, Marco Morucci, Rosie Campbell and Jennifer van Heerde-Hudson. 2017. "All Change in the House? The Profile of Candidates and MPs in the 2015 British General Election." *Parliamentary Affairs* 70:207–232.
- Lawless, Jennifer L. and Richard L. Fox. 2010. *It Still Takes A Candidate: Why Women Don't Run for Office*. Cambridge, UK: Cambridge University Press.
- Leaper, Campbell. 2014. Gender Similarities and Differences in Language. In *The Oxford Handbook of Language and Social Psychology*, ed. Thomas Holtgraves. Oxford: Oxford University Press pp. 62–81.
- Leeper, Thomas J, Sara B Hobolt and James Tilley. 2020. "Measuring Subgroup Preferences in Conjoint Experiments." *Political Analysis* 28(2):207–221.
- Liu, Shan Jan Sarah and Lee Ann Banaszak. 2017. "Do Government Positions Held by Women Matter? A Cross-National Examination of Female Ministers' Impacts on Women's Political Participation."
- Lovenduski, Joni and Pippa Norris. 2003. "Westminster Women: The Politics of Presence." *Political Studies* 51:84–102.

- Low, Mark. 2014. "Parliamentary candidate selection in the Conservative Party: The meaning of reform for party members and membership parties." *British Politics* 9(4):401–429.
- Lucardi, Adrián and Juan Pablo Micozzi. N.d. "District Magnitude and Female Representation: Evidence from Argentina and Latin America." *American Journal of Political Science*. Forthcoming.
URL: <https://onlinelibrary.wiley.com/doi/abs/10.1111/ajps.12575>
- Manin, Bernard. 1997. *The Principles of Representative Government*. Cambridge: Cambridge University Press.
- Mansbridge, Jane. 1999. "Should Blacks Represent Blacks and Women Represent Women? A Contingent "Yes"." *The Journal of Politics* 61(3):628–657.
- Mansbridge, Jane. 2003. "Rethinking Representation." *The American Political Science Review* 97(4):515–528.
- Mansbridge, Jane. 2011. "Clarifying the Concept of Representation." *The American Political Science Review* 105(3):621B630.
- Matland, Richard E. 1993. "Institutional Variables Affecting Female Representation in National Legislatures: The Case of Norway." *The Journal of Politics* 55(3):737–755.
- Matland, Richard E. 1998. "Women's Representation in National Legislatures: Developed and Developing Countries." *Legislative Studies Quarterly* 23(1):109–125.
- Matland, Richard E. and Donley T. Studlar. 1996. "The Contagion of Women Candidates in Single-Member District and Proportional Representation Electoral Systems: Canada and Norway." *The Journal of Politics* 58(3):707–733.

- Mavisakalyan, Astghik and Yashar Tarverdi. 2019. "Gender and climate change: Do female parliamentarians make difference?" *European Journal of Political Economy* 56:151–164.
- McIlveen, Robert. 2009. "Ladies of the Right: An Interim Analysis of the A-List." *Journal of Elections, Public Opinion and Parties* 19(2):147–157.
- Medeiros, Mike, Benjamin Forest and Chris Erl. 2018. "Where women stand: parliamentary candidate selection in Canada." *Politics, Groups, and Identities* pp. 1–12.
- Meier, Petra. 2004. "The mutual contagion effect of legal and party quotas: A Belgian perspective." *Party Politics* 10(5):583–600.
- Mendelberg, Tali, Christopher F. Karpowitz and Nicholas Goedert. 2014. "Does Descriptive Representation Facilitate Women's Distinctive Voice? How Gender Composition and Decision Rules Affect Deliberation." *American Journal of Political Science* 58(2):291–306.
- Miller, Luis and Christoph Vanberg. 2015. "Group size and decision rules in legislative bargaining." *European Journal of Political Economy* 37:288–302.
- Mukherjee, Arjun and Bing Liu. 2010. "Improving Gender Classification of Blog Authors." *Proceedings of the 2010 Conference on Empirical Methods in Natural Language Processing* pp. 207–217.
- Murray, Rainbow. 2010. *Parties, Gender Quotas and Candidate Selection in France*. Palgrave Macmillan UK.
- Murray, Rainbow, Mona Lena Krook and Katherine A. R. Opello. 2012. "Why Are Gender Quotas Adopted? Party Pragmatism and Parity in France." *Political Research Quarterly* 65(3):529–543.

- Newman, Matthew L., Carla J. Groom, Lori D. Handelman and James W. Pennebaker. 2008. "Gender Differences in Language Use: An Analysis of 14,000 Text Samples." *Discourse Processes* 45(3):211–236.
- Norris, Pippa. 2000. Women's Representation and Electoral Systems. In *Encyclopedia of Electoral Systems*. Vol. 348 CQ Press pp. 51–61.
- Norris, Pippa. 2017. "British Parliamentary Constituency Database 2010-2017: General Election results file version 1.2."
- Norris, Pippa and Joni Lovenduski. 1995. *Political Recruitment: Gender, Race and Class in the British Parliament*. Cambridge, UK: Cambridge University Press.
- Nugent, Mary K and Mona Lena Krook. 2016. "All-Women Shortlists: Myths and Realities." *Parliamentary Affairs* 69:115–135.
- O'Brien, Diana Z. 2015. "Rising to the Top: Gender, Political Performance, and Party Leadership in Parliamentary Democracies." *American Journal of Political Science* 59(4):1022–1039.
- O'Brien, Diana Z. and Jennifer M. Piscopo. 2019. The Impact of Women in Parliament. In *The Palgrave Handbook of Women's Political Rights*, ed. Susan Franceschet, Mona Lena Krook and Netina Tan. London: Palgrave Macmillan.
- O'Brien, Diana Z. and Johanna Rickne. 2016. "Gender Quotas and Women's Political Leadership." *American Political Science Review* 110(1):112–126.
- O'Brien, Diana Z., Matthew Mendez, Jordan Carr Peterson and Jihyun Shin. 2015. "Letting Down the Ladder or Shutting the Door: Female Prime Ministers, Party Leaders, and Cabinet Ministers." *Politics & Gender* 11(04):689–717.

Office for National Statistics. 2019. “Westminster Parliamentary Constituencies.”

URL: <https://geoportal.statistics.gov.uk/datasets/westminster-parliamentary-constituencies-december-2017-generalised-clipped-boundaries-in-the-uk>

Panbianco, Angelo. 1988. *Political Parties: Organization and Power*. Cambridge: Cambridge University Press.

Paolino, Phillip. 1995. “Group-Salient Issues and Group Representation: Support for Women Candidates in the 1992 Senate Elections.” *American Journal of Political Science* 39(2):294–313.

Paxton, Pamela, Melanie M. Hughes and Matthew A. II Painter. 2010. “Growth in women’s political representation: A longitudinal exploration of democracy, electoral system and gender quotas.” *European Journal of Political Research* 49:25–52.

Peterson, Andrew and Arthur Spirling. 2018. “Classification Accuracy as a Substantive Quantity of Interest: Measuring Polarization in Westminster Systems.” *Political Analysis* 26(1):120–128.

Phillips, Anne. 1995. *The Politics of Presence*. Oxford: Oxford University Press.

Pitkin, Hanna. 1967. *The Concept of Representation*. Berkeley and Los Angeles, CA: University of California Press.

Proksch, Sven Oliver and Jonathan B. Slapin. 2015. *The Politics of Parliamentary Debate: Parties, Rebels, and Representation*. Cambridge: Cambridge University Press.

Rahat, Gideon and Reuven Y. Hazan. 2001. “Candidate Selection Methods: An Analytical Framework.” *Party Politics* 7(3):297–322.

- Rahat, Gideon, Reuven Y. Hazan and Richard S. Katz. 2008. "Democracy and Political Parties." *Party Politics* 14(6):663–683.
- Rauh, Christian, Pieter De Wilde and Jan Schwalbach. 2017. "The ParlSpeech data set: Annotated full-text vectors of 3.9 million plenary speeches in the key legislative chambers of seven European states."
- Reynolds, Andrew. 1999. "Women in Legislatures and Executives of the World: Knocking at the Highest Glass Ceiling." *World Politics* 51(4):547–572.
- Rocca, Michael S. and Gabriel R. Sanchez. 2008. "The effect of race and ethnicity on bill sponsorship and cosponsorship in Congress." *American Politics Research* 36(1):130–152.
- Rosenthal, Cindy Simon. 1998. *When Women Lead: Integrative Leadership in State Legislatures*. New York: Oxford University Press.
- Rule, Wilma. 1987. "Electoral Systems, Contextual Factors and Women's Opportunity for Election to Parliament in Twenty-Three Democracies." *Political Research Quarterly* 40:477–498.
- Rule, Wilma. 1994. "Women's Underrepresentation and Electoral Systems." *PS: Political Science and Politics* 27(4):689–692.
- Ryan, Michelle K., S. Alexander Haslam and Clara Kulich. 2010. "Politics and the Glass Cliff: Evidence that Women are Preferentially Selected to Contest Hard-To-Win Seats." *Psychology of Women Quarterly* 34:56–64.
- Saggar, Shamit. 2000. *Race and representation: Electoral politics and ethnic pluralism in Britain*. Manchester, UK: Manchester University Press.

- Sanbonmatsu, Kira. 2002. "Gender Stereotypes and Vote Choice." *American Journal of Political Science* 46(1):20–34.
- Sanbonmatsu, Kira. 2003. "Gender-Related Political Knowledge and the Descriptive Representation of Women." *Political Behavior* 25(4):367–388.
- Sarawgi, Ruchita, Kailash Gajulapalli and Yejin Choi. 2011. "Gender Attribution: Tracing Stylometric Evidence Beyond Topic and Genre." *Proceedings of the Fifteenth Conference on Computational Natural Language Learning* pp. 78–86.
- Sauermann, Jan and André Kaiser. 2010. "Taking others into account: Self-interest and fairness in majority decision making." *American Journal of Political Science* 54(3):667–685.
- Sawer, Marian. 2006. When women support women... EMILY's List and the substantive representation of women in Australia. In *Representing Women in Parliament*. Routledge pp. 125–141.
- Schmidt, Gregory D. and Kyle L. Saunders. 2004. "Effective Quotas, Relative Party Magnitude, and the Success of Female Candidates: Peruvian Municipal Elections In Comparative Perspective." *Comparative Political Studies* 37(6):704–734.
- Schwarz, Susanne and Alexander Coppock. 2021. "What Have We Learned About Gender From Candidate Choice Experiments? A Meta-analysis of 67 Factorial Survey Experiments." *The Journal of Politics* Online First.
URL: <https://www.journals.uchicago.edu/doi/abs/10.1086/716290>
- Schwindt-Bayer, Leslie A. 2005. "The incumbency disadvantage and women's election to legislative office." *Electoral Studies* 24:227–244.

- Schwindt-Bayer, Leslie A. 2006. "Still Supermadres? Gender and the Policy Priorities of Latin American Legislators." *American Journal of Political Science* 50(3):570–585.
- Schwindt-Bayer, Leslie A. and William Mishler. 2005. "An Integrated Model of Women's Representation." *The Journal of Politics* 67(2):407–428.
- Slapin, Jonathan B and Justin H Kirkland. 2020. "The Sound of Rebellion: Voting Dissent and Legislative Speech in the UK House of Commons." *Legislative Studies Quarterly* 45(2):153–176.
- Solt, Frederick and Yue Hu. 2018. "dotwhisker: Dot-and-Whisker Plots of Regression Results.".
URL: <https://cran.r-project.org/package=dotwhisker>
- Stauffer, Katelyn E. 2021. "Public Perceptions of Women's Inclusion and Feelings of Political Efficacy." *American Political Science Review* forthcoming.
- Stockemer, Daniel. 2009. "Women's parliamentary representation: are women more highly represented in (consolidated) democracies than in non-democracies?" *Contemporary Politics* 15(4):429–443.
- Svaleryd, Helena. 2009. "Women's representation and public spending." *European Journal of Political Economy* 25(2):186–198.
- Swers, Michele L. 2005. "Connecting Descriptive and Substantive Representation: An Analysis of Sex Differences in Cosponsorship Activity." *Legislative Studies Quarterly* 30(3):407–433.
- Thomas, Melanee and Marc André Bodet. 2013. "Sacrificial lambs, women candidates, and district competitiveness in Canada." *Electoral Studies* 32:153–166.

- Tibshirani, Robert. 1996. "Regression Shrinkage and Selection Via the Lasso." *Journal of the Royal Statistical Society. Series B (Methodological)* 58(1):267–288.
- Tripp, Aili Mari and Alice Kang. 2008. "The Global Impact of Quotas: On the Fast Track to Increased Female Legislative Representation." *Comparative Political Studies* 41(3):338–361.
- Valdini, Melody Ellis. 2019. *The Inclusion Calculation*. Oxford: Oxford University Press.
- Van Aelst, Peter and Tom Louwense. 2014. "Parliament without Government: The Belgian Parliament and the Government Formation Processes of 2007-2011." *West European Politics* 37(3):475–496.
- VanHeerde-Hudson, Jennifer and Rosie Campbell. 2015. "Parliamentary Candidates UK Dataset."
- URL:** www.parliamentarycandidates.org
- Verba, Sidney, Nancy Burns and Kay Lehman Schlozman. 1997. "Knowing and Caring about Politics : Gender and Political Engagement." *The Journal of Politics* 59(4):1051–1072.
- Verge, Tània and Maria de la Fuente. 2014. "Playing with different cards: Party politics, gender quotas and women's empowerment." *International Political Science Review* 35(1):67–79.
- Vivyan, Nick and Markus Wagner. 2015. "What do voters want from their local MP?" *The Political Quarterly* 86(1):33–40.

- Volden, Craig, Alan E. Wiseman and Dana E. Wittmer. 2013. "When Are Women More Effective Lawmakers Than Men?" *American Journal of Political Science* 57(2):326–341.
- Wäckerle, Jens. 2020. "Parity or patriarchy? The nomination of female candidates in British politics." *Party Politics* online first.
- Wängnerud, Lena. 2009. "Women in Parliaments: Descriptive and Substantive Representation." *Annual Review of Political Science* 12:51–69.
- Weeks, Ana Catalano. 2018. "Why Are Gender Quota Laws Adopted by Men? The Role of Inter- and Intraparty Competition." *Comparative Political Studies* 51(14):1935–1973.
- Weeks, Ana Catalano and Lisa Baldez. 2015. "Quotas and qualifications: the impact of gender quota laws on the qualifications of legislators in the Italian parliament." *European Political Science Review* 7(1):119–144.
- Wiliarty, Sarah Elise. 2010. *The CDU and the Politics of Gender in Germany: Bringing Women to the Party*. Cambridge University Press.
- Williams, Rhys and Akash Paun. 2011. Party People: How do - and how should - British political parties select their parliamentary candidates? Technical report Institute for Government.
- Wolbrecht, Christina and David E. Campbell. 2007. "Leading by Example: Female Members of Parliament as Political Role Models." *American Journal of Political Science* 51(4):921–939.
- Wolkenstein, Fabio and Christopher Wrátil. 2020. "Multidimensional Representation." *American Journal of Political Science* online first.

- Wüest, Reto and Jonas Pontusson. 2017. "Do Citizens Prefer Affluent Representatives? Evidence from a Survey Experiment In Switzerland." *SSRN Electronic Journal* .
URL: <https://ssrn.com/abstract=3077598>
- Wängnerud, Lena. 2000. "Testing the Politics of Presence: Women's Representation in the Swedish Riksdag." *Scandinavian Political Studies* 23(1):67–91.
- Yoon, Mi Yung. 2004. "Women's Legislative Representation in Sub-Saharan Africa." *Legislative Studies Quarterly* 29(3):447–468.
- Yu, Bei. 2014. "Language and gender in Congressional speech." *Literary and Linguistic Computing* 29(1):118–132.
- Zeit Online. 2018. "Angela Merkel fordert vollständige Parität."
URL: <https://www.zeit.de/politik/deutschland/2018-11/100-jahre-frauenwahlrecht-angela-merkel-gedenkfeier-gleichberechtigung>

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Current Position

Chair for European Politics

Doctoral Researcher
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September 2017 - today

Cologne Center for Comparative Politics

Project Administrator
"Curriculum 4.0", modernising methods teaching at the
Cologne Center for Comparative Politics

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September 2020 - today

Education

Universität zu Köln

PhD in Political Science

Cologne, Germany
September 2017 - today

- Topic: Women in Different Levels of Politics:
The Importance of Female Representation for Voters, Parties and Legislatures
- Supervisor: Prof. Dr. Sven-Oliver Proksch

University of Essex

MSc in Public Opinion and Political Behaviour

Colchester, UK
2016-2017

- Thesis: The Success of Women and Ethnic Minorities in British Politics.
- Supervisor: Prof. Jonathan Slapin

Sciences Po

Semester abroad

Paris, France
2013

Zeppelin University

BA in Politics, Administration and International Relations

Friedrichshafen, Germany
2011-2016

- Thesis: Geschlecht und Wahlerfolg: Ein Mehrebenenmodell des Wahlerfolgs von Frauen und Männern bei baden-württembergischen Landtagswahlen.
- Supervisor: Prof. Dr. Joachim Behnke

Teaching

Comparing European Democracies (MA Lecture in English)

Course Instructor

University of Cologne
Winter 2021/2022

Introduction to European Politics (Bachelor Lecture in German)

Teaching Assistant to Sven-Oliver Proksch

University of Cologne
Summer 2018-2021

Women in European Politics (Bachelor Seminar in German)

Course Instructor (together with Franziska Pradel)

University of Cologne
Winter 2019/2020

Quantitative Text Analysis (Bachelor Seminar in English)

Course Instructor

Zeppelin Universität, Friedrichshafen
Summer 2019

Introduction to Machine Learning

Teaching Assistant for Bruno Castanho Silva

ECPR Summer School, Budapest
Summer 2019

Publications

- 2021:** Wäckerle, J. (2021). XXXXXXXX *Revise and Resubmit with Journal of Elections, Public Opinion Parties*
- 2021:** Wratil, C., Proksch, S. and Wäckerle, J. (2021). XXXXXXXX *Revise and Resubmit with American Political Science Review*
- 2021:** Wratil, C., and Wäckerle, J. (2021). XXXXXXXX *Revise and Resubmit with European Journal of Political Research*
- 2020:** Wäckerle, J. (2020). Parity or patriarchy? The nomination of female candidates in British politics. *Party Politics*, Online First. doi:10.1177/1354068820977242
- 2019:** Mertens, A., Pradel, F., Rozyjumayeva, A., and Wäckerle, J. (2019). As the Tweet, so the Reply? Gender Bias in Digital Communication with Politicians. *Proceedings of the 10th ACM Conference on Web Science (WebSci '19)*. ACM, New York, NY, USA, 193-201. doi:10.1145/3292522.3326013
- 2019:** Proksch, S., Wratil, C., and Wäckerle, J. (2019). Testing the Validity of Automatic Speech Recognition for Political Text Analysis. *Political Analysis*, 27(3), 339-359. doi:10.1017/pan.2018.62
- 2019:** Proksch, S., Lowe, W., Wäckerle, J. and Soroka, S. (2019), Multilingual Sentiment Analysis: A New Approach to Measuring Conflict in Legislative Speeches. *Legislative Studies Quarterly*, 44: 97-131. doi:10.1111/lsq.12218

Professional Experience

Political Research, TNS Infratest <i>Intern</i>	Berlin, Germany <i>July-September 2016</i>
Omnibus Unit, YouGov Deutschland AG <i>Intern</i>	Cologne, Germany <i>January-April 2016</i>
Political Department, German Embassy <i>Intern</i>	Washington DC, US <i>August-October 2015</i>
Chair for Political Science, Zeppelin University <i>Teaching Assistant</i>	Friedrichshafen, Germany <i>January-August 2015</i>
Chair for Political Science, Zeppelin University <i>Student research assistant</i>	Friedrichshafen <i>January-August 2013</i>
Publixphere e.V. <i>Intern</i>	Berlin <i>July-August 2012 and July-August 2013</i>
Bureau of Dr. Franziska Brantner (MdB), European Parliament <i>Intern</i>	Brussels <i>February-March 2011</i>

Awards

- 2018:** Part of the winning team in the Dataset Challenge as part of the European Symposium on Societal Challenges in Computational Social Science – Cologne, Germany
- 2016:** Best Bachelor Thesis Award – Zeppelin University Friedrichshafen
- 2009:** Award for linking social engagement with professional performance – Schubart Gymnasium Ulm

Grants

- 2020:** ECPR Joint Sessions Conference Travel Grant – postponed due to Covid-19
- 2019:** DAAD Conference Travel Grant – 1400 €
- 2014:** Deutschlandstipendium (National Scholarship Program) – 3600 €

Dissertation Supervisions

- BA, 2021:** Erfolg trotz Rollenkonflikt? Der innerparteiliche Umgang mit weiblichen AfD-Kandidierenden
- BA, 2021:** Führt höhere politische Frauenrepräsentation zu mehr Gleichstellung? Eine vergleichende Analyse der Abtreibungsdebatte in Europa
- BA, 2021:** Mehr Frauen in der Politik: Wie politische Parteien die politische Teilhabe von Frauen fördern
- BA, 2021:** Perceived Representation and Legitimacy Deficits as a Catalyst for the Rise of Authoritarianism and Right-Wing Populism in the European Union
- BA, 2021:** Die Entwicklung nationalkonservativer und antieuropäischer Einstellungen in Europa am Beispiel von Polen und Kroatien
- BA, 2021:** Wie unterscheidet sich die Darstellung der Geschlechterrollen in den Wahlprogrammen der Parteien des Deutschen Bundestages voneinander und über den zeitlichen Verlauf und in welchem Verhältnis stehen gesellschaftliche Werte dazu?
- BA, 2021:** Gender as a factor in the appointment process of committee seats in local councils in North Rhine-Westphalia
- BA, 2020:** Phänomen Europaskeptizismus: Was Europäer am Projekt Europa zweifeln lässt
- BA, 2020:** Von Santer bis Juncker: Bewertung der Politik der EU Kommissionspräsidenten in deutschen Medien
- BA, 2019:** Applause as a Substantive Indicator of Approval: Quantitative Evidence from the German Bundestag
- BA, 2019:** Subnationale politische Kultur in Deutschland - Eine empirische Untersuchung eines Mehrebenenmodells
- BA, 2018:** Attitudes Toward Domestic Politics, Immigration and Support for European Integration
- BA, 2018:** Finance Ministers or Coalition Compromise: What Shapes EU Tax Harmonisation

Support for the Discipline

- Reviewer:** American Political Science Review, Political Analysis, Political Research Quarterly, Legislative Studies Quarterly
- Member of the Organising Committee:** Lecture Series at the Cologne Center for Comparative Politics: Microfoundations of Political Science 2017-2019
- Additional:** Member on the Expert Panel for the "Social Scientific Data Analysis" Master Program at Lund University

Software

- 2018:** 'wersim: Simulating and Measuring Word Error'. R package.
available at: <https://github.com/jenswaeckerle/wersim>

Methods Training

GESIS Spring Seminar

Cologne, Germany
March 2019

- Introduction to Bayesian Models for the Social Sciences
- Bayesian Multilevel Modelling

PhD Coursework

Cologne, Germany
2017-2018

- Advanced Quantitative Analysis: Experiments and Causal Inference
- Strategies of causal analysis and comparative research designs

Essex Summer School

Colchester, UK

August 2017

- Web Scraping and Data Management in R
- Quantitative Text Analysis

Oxford Spring School in Social Science Research Methods

Oxford, UK

March 2017

- Social Network Analysis
- Forecasting
- Spatial Analysis

GESIS Summer School in Survey Methodology

Cologne, Germany

August 2014

- Introduction to Research Data Management
- Introduction to Web Surveys

Conference and Research Seminar Presentations

American Political Science Association

Online due to Covid-19

Annual Meeting and Exhibition

September 2021

- Who Sits Where? The Member of Parliament Power Index and Committee Membership in 19 Countries

European Political Science Association

Online due to Covid-19

Annual Conference

June 2021

- Who Sits Where? The Member of Parliament Power Index and Committee Membership in 19 Countries

ECPR Joint Sessions

Online due to Covid-19

Workshop

May 2021

- Collaboration of Women in European Parliaments

Connected Politics Lab University College Dublin

Online due to Covid-19

Research Seminar

July 2020

- Exogenous Shocks, Policy Responses and Legislative Debates

European Political Science Association

Online due to Covid-19

Annual Conference

June 2020

- Collaboration of Women in European Parliaments

Zurich Text as Data

Zurich, Switzerland

Workshop

October 2019

- Blending in or Standing out - Gender Polarization and the Substantive Representation of Women in European Parliaments

American Political Science Association

Washington DC, United States

Annual Meeting and Exhibition

August 2019

- Voters' perceptions of women's representation within political parties

European Political Science Association

Belfast, UK

Annual Conference

June 2019

- Does Representation Increase Public Legitimacy?
Survey-Experimental Evidence from the European Union
- Voters' perceptions of women's representation within political parties

Midwest Political Science Association

Annual Conference

Chicago, United States

April 2019

- Minority Governments and Legislative Debate

Euro CSS

2nd European Symposium on Societal Challenges in CSS

Cologne, Germany

December 2018

- Gender Bias in Digital Communication

European Political Science Association

Annual Conference

Vienna, Austria

June 2018

- The Electoral Fortune of Women Candidates in British Politics

Computer skills

Basic: HTML, STATA, SPSS

Advanced: R, L^AT_EX

Languages

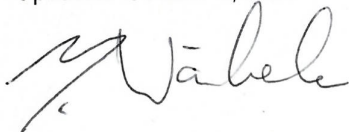
German: Native speaker

English: Fluent

French: Basic

TOEFL iBT Score 111

Updated: October 5, 2021



Eidesstattliche Erklärung
nach § 8 Abs. 3 der Promotionsordnung vom
17.02.2015

"Hiermit versichere ich an Eides Statt, dass ich die vorgelegte Arbeit selbstständig und ohne die Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus anderen Quellen direkt oder indirekt übernommenen Aussagen, Daten und Konzepte sind unter Angabe der Quelle gekennzeichnet. Bei der Auswahl und Auswertung folgenden Materials haben mir dienac hstehend aufgeführten Personen in der jeweils beschriebenen Weise entgeltlich/unentgeltlich (zutreffendes unterstreichen) geholfen:

Weitere Personen, neben den ggf. in der Einleitung der Arbeit aufgeführten Koautorinnen und Koautoren, waren an der inhaltlich-materiellen Erstellung der vorliegenden Arbeit nicht beteiligt. Insbesondere habe ich hierfür nicht die entgeltliche Hilfe von Vermittlungs- bzw. Beratungsdiensten in Anspruch genommen. Niemand hat von mir unmittelbar oder mittelbar geldwerte Leistungen für Arbeiten erhalten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen.

Die Arbeit wurde bisher weder im In- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt.

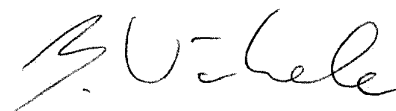
Ich versichere, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Ich versichere, dass die eingereichte elektronische Fassung der eingereichten Druckfassung vollständig entspricht.

Die Strafbarkeit einer falschen eidesstattlichen Versicherung ist mir bekannt, namentlich die Strafandrohung gemäß § 156 StGB bis zu drei Jahren Freiheitsstrafe oder Geldstrafe bei vorsätzlicher Begehung der Tat bzw. gemäß § 161 Abs. 1 StGB bis zu einem Jahr Freiheitsstrafe oder Geldstrafe bei fahrlässiger Begehung.

Köln, 30.09.2021

Ort, Datum


Unterschrift