Less but better? The influence of gender on political activity

Nicolas Fremeaux, Paul Maarek

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Abstract

In this article, we study gender differences in the quality of politicians. We analyze the activity (number of bills, amendments, reports, questions and interventions) and effectiveness (number of bills and amendments passed) of parliamentarians. We collected detailed data on the activity of French parliamentarians between 1993 and 2022. Using fixed-effect regressions and RDD strategies based on close elections, we do not find any systematic gender difference regarding activity except for the number of bills authored, which is lower for women. However, this difference is observed only for newcomers and fades after a few years, suggesting a behavioral explanation. Regarding effectiveness, female parliamentarians are more likely to have their amendments passed. This is probably due to the quality of their amendments, as women author fewer amendments with the sole objective of obstruction, are more often present for the vote on their amendments and bills, have a higher share of sponsored amendments and have a lower proportion of their amendments deemed inadmissible, which again suggests a behavioral explanation. On the other hand, women in the opposition party are less likely to have their bills passed than men in the opposition party. This is linked to discrimination within the party, which less often selects bills drafted by women to submit them to a vote.

Keywords: gender, elections, lawmaking, French parliament

JEL Classification: D72, J16, C14

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1 Introduction

The feminization of politics is a widespread phenomenon observed in developed and developing countries, in local positions as well as at national levels.[1] Beyond the determinants of female representation in politics[2], a large body of literature in economics and political science has attempted to study the consequences of this feminization. The underlying question is whether this change has improved or deteriorated the quality of politicians and political decisions. There are many reasons to think that gender could have an effect. First, selection issues may be at play. Indeed, achieving gender balance in politics in order to increase the representativeness of politicians has become an objective in most countries. To do so, quotas and other policies have been implemented, and they have dramatically changed the selection process of politicians through the massive recruitment of women in a short period of time in a potentially reduced pool of candidates.[3] Second, behavioral differences across genders in terms of competition outcomes, self-confidence, negative feedback aversion and in terms of attitudes such as honesty, selfishness and cooperation are reported in the experimental literature. In the context of politics, these gender differences could affect the activity of politicians and the quality of their policies.[4]

Choosing the relevant measurement is a crucial issue when analyzing the quality of politicians and their policy making. Whereas most papers focus either on the characteristics of politicians (e.g.,

[1] See Hessami and da Fonseca (2020) for an extensive literature review.

[2] Among the main reasons explaining the gender gap in representation, Niederle and Vesterlund (2007) point out the willingness to enter competitive situations. Other explanations can be found in gender differences in recontest elections (Peveri and Sangnier (2021)), the propensity to resign (Lassébie (2020)), the biases that voters may have against women (Barbanchon and Sauvagnat (2022)), the biases that political parties may have against women (Esteve-Volart and Bagues (2012); Casas-Arce and Saiz (2015) and, more recently, institutional constraints such as voting rules (Profeta and Woodhouse (2018); Baltrunaite et al. (2019).

[3] See for instance Bagues and Campa (2021) or Besley et al. (2017).

[4] See, for instance, Niederle and Vesterlund (2007), Niederle and Vesterlund (2011) or Buser (2016) for attitude toward competition, Kanthak and Woon (2015) for aversion to entering into a competitive environment in the specific context of election, Ellison and Swanson (2018) for attitude toward negative feedback at school on exams, Eckel and Grossman (1998) for selfishness, Kamas and Preston (2018) for self-confidence and labor market outcomes and Buser et al. (2020) for self-confidence on preference for redistribution or Cremer and Janssen (2007) for cooperation. These behavioral differences across genders may have some important implications. For instance, in the labor market, Bosquet et al. (2019) show that an important part of the gender gap in promotion in academia in France is due to the fact that fewer female researchers apply to professorship positions, which is compatible with behavioral differences toward competition and self-confidence.

occupation, degree or cognitive skills) or on the policies implemented (e.g., public expenditures), we use a different measurement that has rarely been studied: the activity and the effectiveness of politicians. By activity, we mean all the tasks related to the elaboration of the legislation (amendments, bills and reports) and the control of the government (questions for the government and interventions in plenary sessions). Quantity is a crucial outcome *per se* and is also a proxy for visibility, but it may be seen as an incomplete measure of the quality of politicians, as much of the production of legislative texts does not necessarily result in laws. To complete the measurement of quality, we also consider the parliamentarians' effectiveness, defined as the number of bills or amendments passed. We do not find any systematic gender gap regarding activity, except the number of bills authored, which is lower for women. The results on effectiveness are mixed. Women are more effective in passing amendments but less effective in passing bills. We show that the higher quality of amendments produced by women is likely to explain their higher probability of passing amendments. The study of mechanisms also suggests that a behavioral explanation is likely to be at play behind those outcomes. In terms of women's lower efficiency on bills, however, discrimination within the party regarding the choice of political agenda is likely to explain this outcome. Selection is unlikely to explain our results, as gender differences are observed both before and after the implementation of incentives to reach a gender balance in parliament.

There is no consensus in the literature on the measurement of politicians' quality or the quality of their actions. The politician's quality production function is undoubtedly multidimensional. Two main approaches have been implemented thus far. First, papers have analyzed politicians' characteristics, especially following the implementation of gender quotas. For instance, Besley et al. (2017) use labor market performances to measure the variation in the quality of politicians after the implementation of quotas.[5] The main limitation of this type of measurement is that identifying the

[5]In contexts other than gender differences, Ernesto Dal Bo and Rickne (2022) used IQ, labor market performances, previous occupations or education as a measure of the quality of politicians in the context of increasing populism in Sweden, Besley et al. (2017) examined these factors more generally to understand who becomes a politician and if they differ from average citizens. Besley et al. (2011) use education as a measure of the quality of politicians and investigate whether regime type has an impact.

characteristics that make a competent politician is a complex and highly subjective process.[6]

Second, a body of work has studied whether the policy choices of female politicians differ from those of male politicians. First, there may be gender differences in the issues that politicians focus on. Gender imbalance among representatives can therefore lead to a lack of laws in some areas relative to the preferences of the whole population. Second, policies implemented by women may be different due to direct observable characteristics of the politicians or to unobservable traits. Most of these papers analyzed public expenditures as an aggregate outcome and provide mixed evidence.[7] At the parliamentary level, Thomas (1991) and Lippmann (2022) studied whether men and women author bills or amendments on different topics. They both found that women are marginally more likely to initiate bills or amendments that address women's issues. For the previous measurement, gender differences in topics (measured with a dictionary-based method) do not reveal much about the content of these bills or amendments. Indeed, a bill on women's issues could very well improve women's rights or, on the contrary, damage them.

In this paper, we choose a third approach by examining the parliamentarians' activity and effectiveness. As stated earlier, the quality of politicians is likely multidimensional. Quantifying a politician's activity is crucial *per se* because it is a direct indicator of his or her involvement. For some outcomes, such as questions for the government and interventions, activity is a direct measure of the parliamentarian's visibility and ability to relay constituents' concerns. Activity is also key for bills and amendments. Indeed, the elaboration of the law can sometimes be considered a quan-

[6] If we exclude some obvious traits such as the propensity to be corrupted (Dollar et al. (2001); Swamy et al. (2001).

[7] On the one hand, women are found to increase public expenditures on health and education (Clots-Figueras (2011, 2012)) and on infrastructure (Bhalotra and Clots-Figueras (2014)), to set higher compensation for state workers (Besley and Case (2000)) and to provide public goods that better reflect women's preferences (Chattopadhyay and Duflo (2004)). Related to budgetary policies, Accettura and Profeta (2021) show that female mayors in Italy are less likely to engage in strategic and visible spending in preelectoral and electoral years than male mayors. On the other hand, Ferreira and Gyourko (2014) find no effect of the mayor's gender on policy outcomes related to the size of local government. A similar result is found by Bagues and Campa (2021) in Spain, by Geys and Sørensen (2019) in Norway and by Baltrunaite et al. (2019) in Italy. Budget orientation is, however, only a proxy for the quality of policies. Indeed, a proper evaluation of the use of these budgets would be necessary to provide a clear answer about quality. Moreover, the decisions about public expenditures and their implementation are collective, and it is therefore difficult to attribute the decision to a specific individual. In addition to collective decision making, some authors also focus on individual decisions.

tity/quality trade-off if a high-quality bill (or amendment) is unraveled by many poor-quality-bills. Effectiveness, on the other hand, is a proxy for quality because it measures the capacity of parliamentarians to modify the law and thus their capacity to convince the other parliamentarians to vote for their bill/amendment, especially if the parliamentarian does not belong to the majority party.

We collected unique data about French parliamentarians from 1993 to 2022. France provides a rare advantage because very detailed data about both the characteristics and the activities of its parliamentarians is collected. Using constituency fixed effects regressions and regression discontinuity design (RDD) based on close elections, we do not find any systematic gender difference regarding activity except for the number of bills authored, which is lower for women. This difference is not driven by observable characteristics such as occupation or by women elected after the implementation of financial incentives to promote female candidates. In fact, this effect is observed only for the first years of activity of newcomers and fades over time, suggesting a behavioral explanation rather than fundamental differences in terms of the quality of politicians. Indeed, the lower self-confidence, aversion to competition and negative feedback documented in the literature are compatible with the fact that activity is lower during the very first year in office for female newcomers, who take more time than male newcomers to learn how to be more effective.

When looking at effectiveness, we find that women are more likely to have their amendments passed. The underlying reason is likely to be that the quality of amendments is lower for men. Indeed, men more frequently engage in obstructive behaviors by producing a large number of amendments whose main goal is to delay debates and which are not intended to be accepted. Moreover, women also author more admissible amendments, and they are more likely to attend plenary sessions to defend the amendments they author. Amendments authored by women are also more commonly sponsored, which has a direct impact on the likelihood of them passing. This is again consistent with a behavioral explanation and, more specifically, with gender differences in honesty or the ability to cooperate documented in the literature. On the other hand, women are less likely to have their

bills passed, especially when they are in the opposition party. Indeed, the opposition party faces constraints and has to select which bills will be examined and voted on. Bills authored by women are less likely to be selected, but conditional on their bills having been selected, the gender gap in effectiveness disappears. We discard other potential mechanisms, such as the implementation of quotas or other differences in observables. Therefore, our results are probably driven by behavioral differences rather than selection issues between men and women.

Papers analyzing politicians' activity are scarce. Those papers do not focus on gender differences.[8] Cox and Terry (2008) study the difference between minority and majority groups in the US, whereas Arnold et al. (2014) study the influence of outside earnings in Germany. In France, authors have analyzed the influence of holding multiple offices (Bach (2012); Francois and Weill (2014)), of electoral competition (Gavoille and Verschelde (2017)) and of experience (Volle et al. (2021)). on activity. They generally look at composite indices. We prefer to use separate outcomes for activity (because all types of activity differ) and effectiveness. Moreover, the data collected allow us to tackle the plausible mechanisms through which gender differences appear. Effectiveness is even less well documented. To our knowledge, all empirical evidence relies on US data. Thomas (1991), Anzia and Berry (2011), Volden et al. (2013) and Volden and Wiseman (2018) find that female are more effective than male parliamentarians in passing the bills they sponsor, especially when they belong to the minority party. Jeydel and Taylor (2003), however, do not find any statistically significant difference between men and women when considering bills and amendments.

Our results are somewhat in line with Peveri and Sangnier (2021), who also find some behavioral gender differences in the context of French politics using a similar empirical strategy. They focus on recontesting decisions in municipal elections and show that women are less likely to persist in competition after losing an election, but they also suggest that behavioral gender differences have

[8] Francois and Weill (2014) and Volle et al. (2021) do not detect any statistically significant difference between male and female parliamentarians. In contrast, Gavoille and Verschelde (2017) and Gavoille (2018) show that women are significantly more active than males, even after controlling for other individual characteristics.

broader implications for political behavior while in office. More generally, the increasing share of female politicians does not reduce parliamentarian activity and tends to improve its quality.

The remainder of the article unfolds as follows. Section 2 describes the features of the French parliament. Section 3 presents the dataset and descriptive statistics. Then, we investigate how gender affects the parliamentarians' activity (Section 4.2) and effectiveness (Section 4.3). Section 5 presents our conclusions.

2 Context

The elections for the Lower House of the French parliament occur every 5 years[9]. A total of 577 representatives in 577 constituencies are elected by direct universal suffrage. Like most elections in France, the parliamentary election (for the Lower House) follows a two-round plurality voting rule system. To be elected in the first round, an individual must obtain more than 50% of the votes from 25% of the registered citizens. If this is not the case, a second round is organized. Candidates qualify only if their first-round vote share was higher than 12.5% of the registered citizens. To be elected in the second round, a relative majority is sufficient, and the candidate who receives the highest vote share is the winner.

There is no quota that directly affects the representation of women in the French parliament. However, financial incentives were introduced in 2002 to motivate political parties to nominate women as candidates. If less than 50% of a political party's nominees are women, the party's public funding will be reduced proportionally to the gender gap among its nominees. For instance, between 2012 and 2017, the value of penalties totaled 28 million euros overall, accounting for a loss of up to 16% of the public funding for some parties.

Parliamentarians' work can be divided into two main activities.[10] First, they help elaborate

[9] Actually, in our data, there is a 4-year gap between the 1993 and 1997 elections because the parliament was dissolved in 1997 to organize early elections.

[10] An important missing dimension is the activity done in the constituency. We do not have any way of measuring this dimension even though it can be an essential part of the work of parliamentarians.

legislation. More specifically, **bills** can come from both the government (*projet de loi*) and from parliamentarians (*proposition de loi*). The government sets the agenda of both houses for two weeks per month. One week per month is dedicated to the control of government policies and to public policy evaluation. One day each month, political groups set the agenda. As a consequence, the introduction of a bill by parliamentarians does not necessarily lead to its examination. The bill is first examined by the relevant parliamentary commissions. This commission nominates another parliamentarian who will study the bill and write a **report**.[11] In this report, the parliamentarian can modify, delete or add articles to the bill through **amendments**. Then, the Lower (resp. Upper) House votes on each article of the bill and then on the whole bill. If the bill is accepted, it passes to the Upper (resp. Lower) House for a vote. During this process, amendments proposed by other parliamentarians from both Houses can be added to the bill. Amendments (and bills) can be cosponsored by other parliamentarians.[12] It is important to note that the number of amendments is not limited. All amendments must be examined and put to a vote (as long as they are admissible).[13] The bill is accepted when the exact same text obtains a majority of votes in both Houses. In case of disagreement, a mixed commission composed of 7 parliamentarians and 7 senators is nominated to propose a new version of the bill. Then, there is a final vote in the Lower House.

The second activity is to control the government. They can ask **oral questions** to government members during plenary sessions.[14] The time dedicated to questions is proportional to the size of the political group. The minutes for each session also include information about **oral interventions**

[11] The parliamentarian is chosen according to his or her knowledge of the subject, but there is no specific rule regarding gender. To write his or her report, the parliamentarian may consult with experts and/or members of relevant ministries.

[12] In the guidelines provided to parliamentarians of the Lower and Upper Houses, it is clearly stated that amendments that are sponsored (especially by head of political group or of parliamentary commission, etc.) are more likely to be accepted. These guidelines can be found here:https://www.senat.fr/fileadmin/Fichiers/Images/relations_internationales/Cooperation_interparlementaire/Guides_et_recueils/Rediger_la_loi_juin_2007.pdf.

[13] Amendments can be declared inadmissible for two main reasons. First, amendments authored by parliamentarians are not admissible when their adoption would result in a reduction in public resources. Second, amendments can be considered inadmissible for legal reasons, such as if the amendment is not within the scope of the law or if the amendment is filed too late and does not allow the authors of the law time to prepare their response. If it is considered inadmissible (whatever the motive), the amendment is not put to a vote.

[14] Parliamentarians can also write questions to a minister, who must answer within 2 months. This variable is available starting in 2007. We do not detect any gender difference in this variable. On this issue, see also Lazardeux (2005).

made by each parliamentarian during debates.

3 Data

3.1 Presentation of the dataset

To build our dataset, we collected information from the *Assemblée Nationale* website for the last six terms: 1993-1997, 1997-2002, 2002-2007, 2007-2012, 2012-2017, 2017-2022. The website of the Lower House provides detailed information about the parliamentarians' activity as well as their characteristics.[15]

To measure the activity of parliamentarians, we use five outcomes: 1) number of reports written; 2) number of bills authored[16]; 3) number of amendments authored[17]; 4) number of oral questions to the government in plenary sessions; 5) number of oral interventions in plenary sessions[18]. For each of these outcomes, the unit is the yearly average value. We also collect the number of bills and amendments that have been accepted to measure the effectiveness of parliamentarians. This information has been available only since 2002.

Beyond the result of the votes, supplementary information is available about amendments and bills. Thus, for amendments, we know whether they are considered admissible, whether they are defended by the author in plenary sessions and whether they are sponsored by other parliamentarians. For specific laws, we also collect the number of amendments authored by each parliamentarian. Then, for bills, we collect information about the selection process by the political group, as all bills are not put to a vote. All this information allows us to test specific mechanisms behind differences in

[15] Since 2007, part of this information has been extracted by the *Observatoire citoyen de l'activité parlementaire*. We also use the dataset built by Gavoille and Verschelde (2017) for data prior to 2007.

[16] In most cases, the bills are sole-authored. When the bill is coauthored, we attribute the bill to all the authors. As a robustness test, we also attribute the bill to the first author only (as is done for amendments). The results remain unchanged with this definition.

[17] The parliamentarian is the author of the amendment if his or her name appears first in the list of contributors. The other parliamentarians listed are considered to be the sponsors of the amendments. Thus, we use the same definition as Lippmann (2022). We discuss the issue of sponsorship in section 4.3.2. Before 2002, the identification of the author of amendments is difficult, so we use this variable only from 2002 to 2022. The amendments proposed in commissions since 2007 are included. Before 2007, the amendments are limited to those voted in plenary sessions.

[18] We restrict the oral statements to long statements (more than 20 words).

effectiveness.

We also collect information about the characteristics of parliamentarians: gender, age, experience (number of past terms, local or governmental experience), if the parliamentarian is a mayor at the same time, other positions in the Lower House (president/vice-president/secretary of the parliament, head of political group, number of friendship/study groups the parliamentarian belongs to), political orientation (majority/opposition group, left/right), size of the political group the parliamentarian belongs to, permanent parliamentary commission the parliamentarian belongs to (cultural affairs and education; defense; economic affairs; finance and budgetary control; foreign affairs; law; social affairs; sustainable development) and previous occupation.[19]

All the information about the parliamentary elections comes from the official website of the *Ministère de l'Intérieur*. For each election and each round, we know the number of candidates, their name and their score. This information is necessary for the regression discontinuity design implemented (see section 4.1).

We restrict the sample to the parliamentarians with full terms only.[20] Indeed, some activities, such as the elaboration of bills or reports, take time, so we want the parliamentarians to share the same working conditions. Moreover, parliamentarians can be replaced by their substitutes when they leave parliament. In this case, it may be difficult to identify the parliamentarian who actually authored the text. Therefore, our full sample includes 2,944 observations.

The empirical analysis of this comprehensive sample is completed using a regression discontinuity design framework in which we focus on close elections. Table B.1 summarizes the characteristics of parliamentary elections since 1993. The sample is unbalanced, as the number of parliamentarians with full terms varies from one term to another. The share of elections for which a second round is called between a male and a female candidate equals 36% overall, but it has significantly increased

[19] We classified the last occupation into 12 categories: academic, business owner, engineer, executive, farmer, health-care worker, industry worker, legal occupation, politicians, teacher, other civil servant and other occupation.

[20] We studied more precisely the main reasons for incomplete terms during the 2017-2022 term (12% of our sample): ministry appointment (35%), municipal election (31%), other elections (12%), and death (9%).

over time, reaching over 46% in 2007. The number of close elections depends on the bandwidth chosen (columns 4, 5 and 6).

3.2 Descriptive statistics

Table 1 describes the characteristics of male and female parliamentarians in our sample. The women are younger than the men (particularly after 2002), and male parliamentarians are significantly more experienced than female parliamentarians. This holds whether we consider the number of terms as well as local[21] and governmental experience. Even when there is a majority of newcomers (such as during the 2017-2022 term), we still notice this gap. It is more likely for female parliamentarians to be in the majority group when the government is led by the socialist party (1997-2002 and 2012-2017) and during the first term of Emmanuel Macron (2017-2022). Male and female parliamentarians are unevenly distributed across permanent parliamentary commissions. Women are overrepresented in several commissions (cultural affairs and education, social affairs) and underrepresented in others (defense, law). Parliamentarians from highly skilled occupations are overrepresented [22], but we do not notice any major gap between men and women.

Figures 2 and 3 describe the changes in activity over time by gender. For all outcomes except bills (for which there is no clear trend), the parliamentarians are increasingly active.[23] This growth in activity comes from both the extensive margin (especially for reports and amendments) and the intensive margin (especially for amendments and interventions). However, we find more "ghost" parliamentarians (i.e., parliamentarians without any activity) for outcomes such as bills (stable at approximately 30-40% of our sample) and, to a lesser extent, reports (from 43% between 1993 and 1997 to 9% between 2017 and 2022). In contrast, the share of ghosts is almost zero for oral questions, interventions and amendments. This increase in activity is noticeable for both male and female

[21] The share of parliamentarians who are also a mayor at the same time dropped starting in 2017 because of a bill passed in 2014 that limits the permissibility of holding multiple offices.

[22] On this issue, see Boelaert et al. (2018).

[23] One may suspect that part of this growing activity may come from the growing publication of quantitative indicators on parliamentary activity over time. This issue is beyond the scope of this paper to examine.

parliamentarians. Overall, the gender gap, if any, is limited. At the extensive margin, the share of ghosts is slightly larger among male parliamentarians. There are more fluctuations at the intensive margin, but men are generally more active than women.

4 Empirical analysis

4.1 Empirical strategy

To identify the influence of the parliamentarian's gender, we use two complementary analyses. First, on the whole sample, we regress the outcomes measuring the parliamentarian's activity Y_{it} on a dummy variable $FemaleParliamentarian_{it}$ equal to 1 if the parliamentarian is a woman. We use the five outcomes defined *supra*: reports, bills, amendments, questions and interventions. The unit of observation is the parliamentarian-term level. The first specification is as follows:

$$Y_{it} = \beta_0 + \beta_1 FemaleParliamentarian_{it} + \beta_2 X_{it} + u_{it} \quad (1)$$

where i is the subscript for the parliamentarian level and t indicates the term. For each outcome, the unit is the yearly average value. We first consider all values, including zeroes. Given that the distribution varies from one outcome to another, we use either Poisson (reports and bills) or OLS (amendments, questions and interventions) models.[24] Then, we consider the extensive margin (to determine whether there is any activity), so we use logit. Finally, we keep only the positive values, so we use OLS.

X_{it} includes several sets of control variables. More specifically, we control for the parliamentarian's experience (age, number of past terms, local and governmental experience), political characteristics (other positions in the Lower House, political orientation (majority/minority group, left/right), size

[24] In Table B.4 in the appendix, we use all models (OLS, Poisson and negative binomial, with and without constituency fixed effects) for reports, bills and amendments as a robustness test. The results are confirmed regardless of the model used, even though the gender gap is larger and more statistically significant for amendments when we use the Poisson model, but this model is less appropriate than OLS given the distribution of amendments.

of his or her political group), the permanent parliamentary commission to which the parliamentarian belongs and previous occupation. Controlling for experience and political characteristics is crucial because it strongly influences activity and effectiveness, as these factors determine certain outcomes, such as bills or questions. The sharp increase in the proportion of women implies that female politicians are, on average, less experienced than male politicians. Previous occupation is often a proxy for the quality of politicians, and the implementation of quotas may have affected selection and favored the entry of women with lower external labor market options (or, on the contrary, the eviction of men with lower outside options, as shown in Besley et al. (2017)). We also include term fixed effects to capture the global evolution of the activity of parliamentarians, as shown in section 3. Finally, we add constituency fixed effects in a separate specification to control for time-invariant characteristics. Indeed, the election of female parliamentarians is not random, and their election likely reflects constituents' preferences. Fixed effects at the constituency level can help disentangle individual and constituency effects, but the identification of causal effects requires that the factors that determine the result of the election and the parliamentarian's activity do not vary over time.

To overcome this issue and potential omitted variable biases, we use a second specification that approximates a randomly assigned male or female parliamentarian. We use a regression discontinuity design (RDD) exploiting close mixed-gender elections, following Lee (2008).[25] In this type of election, the gender of the elected parliamentarian can be considered to be random. This second specification is as follows:

$$Y_{ct} = \beta_0 + \beta_1 D_{ct} + \beta_2 f(X_{ct}) + u_{ct} \tag{2}$$

where c is the subscript for the constituency level and t for the term. X_{ct} is our running variable, and D_{ct} is equal to 1 if a woman is elected. $f(X_{ct})$ is a polynomial interacting with D_{ct}. Our parameter β_1 captures the local average treatment effect (LATE) of electing a woman instead of a

[25] This empirical strategy has also been used in recent papers about the effect of gender on policies. See, for instance, Ferreira and Gyourko (2014); Bagues and Campa (2021); Lippmann (2022).

man after a close election. This equation is estimated on close elections. In our preferred specification, we follow Cattaneo et al. (2020) by nonparametrically estimating this coefficient using a local linear function with a triangular kernel, and our inference is based on their robust bias-correction method. To define the reference bandwidth, we follow the approach of Calonico et al. (2014).[26] We also provide robustness tests in which we report results using alternative bandwidths and kernels.

Our empirical strategy is valid as long as there is no manipulation around the threshold. Figure A.1 shows that male candidates are slightly more likely to win against female candidates. However, following Cattaneo et al. (2020), we test whether there is a manipulation: we do not reject the null hypothesis of no manipulation. This result is consistent with Lippmann (2022), who uses similar data (from a shorter period). Moreover, to be valid, we need to test the continuity of the main confounders to check whether male and female parliamentarians close to each side of the threshold are comparable. In Figure A.2, we report the outcomes of a local linear regression, estimated separately on each side of the threshold. We find a statistically significant gap for only two variables related to experience (age and number of past terms), but the gap is not affected by the distance to the threshold, as a gap is also found for the parliamentarians elected by a wider margin. Therefore, the parliamentarians close to the cutoff are not different from those of the full sample, which is crucial when interpreting the results. For all the other characteristics depicted, we do not detect any statistically significant difference.

4.2 Activity

4.2.1 Results

Table 2 describes the estimates on the full sample for the five types of activity: reports, bills, amendments, questions and interventions. In columns 1 to 3, we study all the values including zeroes by using either the Poisson model (bills and reports) or OLS (amendments, questions and

[26] The bandwidths are selected with the Stata package *rdrobust* (Calonico et al. (2017)).

interventions). Column 1 presents the results without any control variable. Then, in column 2, we add the control variables, and in column 3, we add constituency fixed effects.[27] In column 4, we focus on the extensive margin, and in column 5, we restrict the sample to active parliamentarians.

Our results highlight an absence of systematic differences between male and female parliamentarians. More specifically, we do not detect any gender difference for reports and questions when we consider all values (columns 1, 2 and 3). However, for these outcomes, the share of ghost parliamentarians is significantly larger for men (approximately 5 pp). The activity of female parliamentarians is significantly lower for bills and, to a lesser extent, for amendments and interventions. The gap mostly comes from the intensive margin (column 5), as highlighted in Figure 3. For bills, up to half of the gross gap (column 1) is explained by control variables (mostly experience), but when we add constituency fixed effects, the coefficient returns to its initial value. Among active parliamentarians, the activity of women is approximately one-third lower than that of men. Without any control variable, female deputies introduce 10 fewer amendments each year than male deputies (who introduce 46.6 amendments each year on average). This gap decreases to 4 amendments when we add all control variables and fixed effects (column 3). For interventions, the gender gap is sizeable but not statistically significant when we include constituency fixed effects.

Figure 4 illustrates the results of our RDD estimates. These results confirm those of Table 2. More specifically, a discontinuity at the threshold is visually clear for bills (Figure 4b) and, to a lesser extent, for amendments and questions (Figures 4c and 4d). For reports and interventions, there is no visible gap at the threshold, but the activity of both men and women tends to increase when they win the elections by a large margin. Table B.6 reports estimates with different specifications (without and with controls), bandwidths (MSE-optimal bandwidth) and kernel choices (uniform or triangular). Estimates are in line with Table 2, but they are globally statistically insignificant except

[27] As a robustness test, we consider the rank instead of the levels of activity (Table B.3). We do not detect any significant gender gap for amendments, questions or interventions. However, the rank of female parliamentarians is slightly higher for reports and slightly lower for bills. We also consider alternative specifications for reports, bills and amendments: OLS, Poisson and negative binomial (Table B.4). The results remain unchanged.

for reports (when using a triangular kernel) and bills (when using a Poisson model).

In Table B.5, we study the change in these gender gaps over time. For almost all items, we note a U-shaped curve between 1993 and 2017 for men and women. Therefore, we do not detect a change in the gender gap due to either the implementation of quotas in 2002 or the renewal of parliamentarians in 2017 (Boelaert et al. (2018)). More specifically, when we estimate the gender gap for each term, there is no significant gap for reports. For bills, the overall gap detected in Table 2 is actually driven by the 2012-2022 terms. For amendments, female parliamentarians are less active during the 2007-2012 term. For questions, there is no clear trend, as women are found to be significantly more active in 1997-2002 and 2012-2017 and significantly less active in 2007-2012. For interventions, the estimates are close to those of bills, as the gap is driven only by the last term.

4.2.2 Mechanisms

Newcomers and learning costs One possible explanation for the gender gap for bills and amendments is the learning costs to the parliamentarian position. Since 2007, information about monthly activity has been available. This allows us to refine the analysis by examining the change in activity during the term. In Table 3, we consider men and women separately but also newcomers (whose first term is the current term) and more experienced parliamentarians (for whom the current term is at least the second term). Overall, the activity of newcomers is lower than experienced parliamentarians for bills and interventions (column 1), even if insignificantly for interventions. For the other outcomes, we do not detect any difference between newcomers and the other parliamentarians. However, the yearly analysis (columns 2 to 6) hides sizeable changes during the term. Indeed, except for questions, the activity of male and female newcomers is lower during the first years (generally the first two or three years), whereas there is no clear trend during the term for experienced parliamentarians. We note a gender gap among newcomers for all outcomes except questions, but this gap is statistically significant only for bills. The gender gap decreases over time and is statistically significant for all

years except the fourth year. This result suggests a behavioral explanation. As mentioned earlier, it has been shown in the literature that women tend to have an aversion to competition (Niederle and Vesterlund (2007), Niederle and Vesterlund (2011) or Buser (2016)) and negative feedback (Ellison and Swanson (2018)) and a lower degree of self-confidence (Kamas and Preston (2018)). This could explain why newly elected women take more time to adapt and wait longer before drafting bills and amendments.

Quotas Another potential mechanism could be related to the implementation of quotas starting in 2002, which could have affected the selection of female and male politicians differently. Indeed, before 2002, there were no financial incentives for political parties to nominate women as candidates. Therefore, women who were elected for the first time before 2002 may differ from those who benefit from these quotas because of selection issues (i.e., if being elected before 2002 as a woman was harder, so those who were elected may have been more competent, following Anzia and Berry (2011)) and/or because of peer effects (i.e., being the only woman in their political group may either limit one's activity or, on the contrary, lead one to be put forward more frequently).

In Table B.7 (Panel A), we show that male parliamentarians elected before 2002 are globally less active than those elected after 2002 when we look at reports and bills but more active when considering amendments,[28] questions and interventions. However, the differences are never significantly different from 0. Women elected before 2002 are more active than women elected after 2002, except when we consider bills. For this outcome, all women are less active than men, but women elected before 2002 are even less active. However, despite large gaps among women, the differences are statistically significant only for questions.

Therefore, the gender gap we observe for bills is not related to a selection issue following the introduction of quotas, as it is observed both before and after 2002. This also points to a more

[28] Notably, information about amendments has been available only since 2002. Therefore, to appear in our sample, parliamentarians elected before 2002 have to be reelected, causing potential selection issues.

fundamental gender difference between female and male politicians consistent with a behavioral explanation.

Peer effects A more direct way to account for peer effects is to estimate the share of elected women within the political group.[29] In Table B.7 (Panel B), we test whether being in a political group with a low proportion of women (i.e., less than the average in parliament during the current term) affects the activity of parliamentarians. When we compare the activity of men and women belonging to the same category, we do not detect any statistically significant difference except with bills. Indeed, as with the other mechanisms tested *supra*, women author a lower number of bills than men within each category. Interestingly, for all outcomes, we note that parliamentarians are significantly more active when the share of women is lower. This effect is found for both men and women, and it is particularly large for bills, questions and interventions.

Alternative explanations In addition to experience (studied in Table 3), several observed variables affect the parliamentarians' activity: being in the majority group, size of the political group and permanent parliamentary commission (for bills and reports). The first two variables are related to the constraints faced by parliamentarians. Indeed, parliamentarians are more likely to be nominated to write a report if they are in the majority group and less likely if their political group is small. The opposite result is found for bills, but this is probably related to the chances of the bill being examined and passed (see section 4.3.2). The parliamentary commission also directly affects parliamentarian activity, as some topics may require different levels of activity. This channel matters because the gender distribution across commissions is uneven (Table 1), suggesting that male and female parliamentarians tend to specialize in different issues (Lippmann (2022)).

Then, we test whether the effects of some of the control variables differ between men and women

[29] A naive analysis of the overall effect of feminization on activity consists of comparing the changes in parliamentarians' activity when the share of elected women in the Lower House increases. This type of descriptive analysis is already implemented in Figures 2 and 3. Again, for all outcomes (except bills), we note increasing activity. For bills, there is no visible trend.

(Table B.7 in Appendix). The results are unchanged when we compare men and women with the same political orientation. When we consider majority/opposition groups, the conclusion is likewise similar. Women write fewer bills than men regardless of whether they belong to the majority or opposition group. For the other outcomes, women in the majority group are generally as active as men in the majority group, except in terms of interventions. In the opposition group, however, the gender gap is more marked. Women tend to be more active, but the gap is statistically significant only for reports and questions.

Finally, we include supplementary control variables. First, we control for the influence of parliamentarians using the number of study or friendship groups to which the parliamentarians belong as a proxy (available only since 2007). The results remain unchanged. Second, we test whether the results are explained by the number of parliamentary assistants. Data about assistants have been available only since 2017. Female and male parliamentarians have the same number of assistants[30], and the number of assistants does not affect their activity. Third, following Gavoille and Verschelde (2017), we control for electoral competition (measured by the gap). Again, the results remain unchanged.

These results suggest a behavioral explanation for the gender gap we observe for activity and, more specifically, for bills. The specific behavioral traits highlighted in the literature, such as aversion to competition and self-confidence, seem to hold for politicians and have some implications for the activity of politicians. The gender gap seems to be triggered by a gender difference among newcomers, mostly observed during the first years in office, which is compatible with the lower self-confidence observed for women in other fields. Our results clearly eliminate potential explanations such as selection, peer effects and other observables. This result is not necessarily negative, as a lower activity and a longer observation period can result in higher quality and effectiveness.

[30] 3.1 on average for women and 3.3 for men in 2017-2022 and 3.5 for both men and women among the newly elected parliamentarians in 2022.

4.3 Effectiveness

One could argue that the parliamentarians' activity only partially measures their contribution. Indeed, even if the parliamentarians' activity *per se* is a crucial outcome and a signal of their influence and visibility, it is essential to know whether this activity is effective. One way to characterize the effectiveness of bills and amendments is to know whether they have passed into law. However, this effectiveness is not measurable for reports, questions and interventions.

We use the same empirical strategy as in section 4.2. We use three measurements for effectiveness: a dummy variable indicating whether at least one bill/amendment authored by the parliamentarian has passed, the number of bills/amendments that have passed into law and the share of all bills/amendments proposed by the parliamentarian that have passed. We restrict the sample to the 2002-2022 period and to the parliamentarians who have initiated at least one bill/amendment.

4.3.1 Results

The probability of passing differs between bills and amendments. Between 2002 and 2022, 75% of parliamentarians have at least one amendment that passed has into law and 17% of amendments have passed on average.[31] The rates for bills are lower: 12% of parliamentarians have had at least one bill pass and 6% of their bills have passed on average.[32] These figures are fairly stable for amendments, and the rate for bills increased from 3% to 8%.

Table 4 presents the results. In panel A, we show that female parliamentarians are less likely to have at least one bill that has passed, with a marginal effect of 2.3 pp. The coefficients for the number and the share of bills that have passed are close to 0. Regardless of the measurement, the difference between men and women is not statistically significant. The RDD estimates confirm this result (Figure 5a). In columns 2, 5 and 8, we separately consider men and women who belong

[31] This share includes the parliamentarians who had all of their amendments rejected. Before 2007, the amendments are limited to those voted on in plenary sessions. If we restrict the sample to 2007-2022 when all amendments are considered, this share is stable at approximately 20%.

[32] These figures are consistent with those of all parliamentarians over the period (including those who did not complete their term).

to the opposition or to the majority group. Being in the majority group greatly increases the parliamentarians' effectiveness. More importantly, we detect a gap within each group: the likelihood of having at least one bill that has passed and the share of bills that have passed is significantly lower (and statistically significant at 10%) for women in the opposition group. Among the majority group, we do not detect any gender gap, even if the number of bills that have passed is slightly (but insignificantly) larger for men. This is consistent with the fact that men author more bills than women.

In Panel B, we replicate the analysis for amendments. Unlike with their bills, female parliamentarians are more likely to get their amendments passed. The marginal effect equals 3.9 pp. The number of amendments that have passed does not differ between men and women, but the share of accepted amendments is larger for women. The economic significance of the gender gap is large at 3.5 pp. (compared with the average rate of 17%).[33] We find an even larger effect when we use the RDD estimate (column 7). This result is confirmed by graphical evidence (Figure 5b). As in Panel A, we compare majority and opposition groups (columns 2, 5 and 8). We show that female parliamentarians belonging to the opposition group are more effective regardless of the outcome examined (even if the difference is not statistically significant for the number of amendments). This gap is all the more noteworthy because the average rate of the opposition group equals only 5.3%.[34] Moreover, this difference can also be found in the majority group except for the number of amendments, which is larger for men. However, these gaps are not statistically significant.

4.3.2 Mechanisms

Quality of amendments Evaluating the quality of amendments, and all the other activities of parliamentarians more generally, can be a subjective process. The main challenge is therefore finding an appropriate measurement.

[33] This gap equals 5 pp. without any control variables or fixed effects.

[34] Actually, the share of passed amendments (without any control variables) from men in opposition groups equals 4.8%, and that from women is 7%.

We can first document the share of men and women among the most active parliamentarians. Indeed, the top 10% most active parliamentarians (respectively, the top 5%) each author an average of 260 (resp. 344) amendments each year.[35] One can assume that some of these amendments are meant to obstruct the functioning of parliament and to delay debates and votes. They could also be a way for the parliamentarians to be more visible. Figure B.1a shows that women are underrepresented among the top 10% and top 5% most active parliamentarians. These results are confirmed when we focus on specific bills that have generated a high number of amendments (Table 5, columns 1-3).[36] In Figure B.1b, we describe the share of amendments that have passed, along with the distribution of proposed amendments. This share continuously decreases as the number of amendments increases, confirming that the parliamentarians who initiate a larger number of amendments are less effective, probably because they are not actually trying to modify the bills. This trend is visible for both male and female parliamentarians.

The status of amendments is another proxy for measuring their quality. First, before being put to a vote, amendments must be considered admissible.[37] The number of inadmissible amendments is larger for male than for female parliamentarians, but this gap is not statistically significant (Table 5, columns 4-6). Then, when the amendment is considered admissible, it must be defended by its author in plenary sessions or in commissions in order to pass. Again, we find that women are more likely than men to defend their amendments (columns 7-9). One last indicator of the quality of amendments relates to cosponsorship. Indeed, amendments can be sponsored by members of the same political group and by members of other groups, both of which likely affect the probability of the amendment passing (see section 2). Again, we note a net gender difference (columns 10-12). The number of nonsponsored amendments is lower for women than for men. However, we cannot directly

[35] If we restrict the sample to 2007-2022 (when all amendments are accounted for, including those in parliamentary commissions), these figures equal 319 and 423, respectively.

[36] More specifically, we selected the two laws that have generated the highest number of amendments for the last two terms (2012-2017 and 2017-2022). When we focus on the subsample of parliamentarians who authored at least one amendment for either of these two laws (66% of the sample), we find that men authored more amendments than women (133 versus 116, respectively). This gap is not affected when we add our set of control variables.

[37] For a definition of this, see section 2. Information about admissibility is available only for 2017-2022.

compare the effectiveness of sponsored vs. nonsponsored amendments.

Therefore, all the results converge and reflect the fact that the amendments authored by men differ from those authored by women, which is likely to affect the amendments' effectiveness. Here again, the results point to a behavioral explanation for the gender difference. Obstruction behavior, which consists of filing a large number of amendments for the sole purpose of delaying the debates and votes on a bill, entails significant costs and may deteriorate the functioning of legislative institutions. Thus, the gender gap in selfishness (Eckel and Grossman (1998)) and in the ability to cooperate (Cremer and Janssen (2007)) could explain this result.

Selection within political group For bills, it is important to remember that not all the bills authored by parliamentarians are subject to a vote. Indeed, each month, one political group is designated to set the agenda for a one-day period ("niche parlementaire"). Therefore, each political group has to select the bills they want to put to a vote because only 3 or 4 bills (depending on the number of articles of law) can be put to vote by the end of the day.[38] In Table B.9, we show that bills initiated by women are less likely to be selected for these one-day periods even though the gender gap is not statistically significant. This effect is mostly driven by women in the opposition group. In Table 6, we reestimate the effect of gender on the share of bills that passed into law with controls measuring this selection (number or share of selected bills). We still do not detect any gap overall, but the lower effectiveness of women in the opposition group is eliminated once we add this control variable (column 8). Therefore, the competition and selection within each political group help explain this gender gap in effectiveness.

Gender discrimination within the party on the political agenda seems to explain the gender difference in the effectiveness of passing bills. This result is important because it suggests that quotas alone are not sufficient to increase female representation in politics, especially when the objective is

[38] During these "niches parlementaires", a large number of amendments can delay the debates about a bill and postpone the vote to the next "niche" several months later.

to have policymakers more in line with voters' preferences.

Topics One may think that this difference in effectiveness could also come from differences in the topics addressed by male and female parliamentarians. Thomas (1991) suggests that women could be more effective than men because they promote consensual issues that are more likely to be passed into law. This channel could be a credible explanation if men and women author bills and amendments on completely different topics. Lippmann (2022) shows that this is partially true for amendments, as female parliamentarians are more likely to be active regarding women's issues, whereas men are more active regarding military issues. However, on all the other issues listed (justice, labor, security, business, culture, etc.), the author does not detect any significant difference. More importantly, women's issues represent only 2% of all amendments on average.[39] Consequently, the explanatory power of this mechanism is likely to be limited. Moreover, even though this information is not available for bills, the fact that the gender gap in effectiveness moves in the opposite direction for each outcome indicates that this mechanism is probably not relevant.

Alternative explanations First, as for activity, we can look at the control variables. Effectiveness is less well predicted than activity. Apart from the majority/opposition groups, few variables significantly affect effectiveness: parliamentary experience and political orientation for amendments and leadership positions (head of political group or commission) for bills. Thus, we then test whether these variables affect men and women differently. For amendments, we find only that female newcomers are more effective than male newcomers. For bills, male parliamentarians in leadership positions are more effective than female parliamentarians.

We also include supplementary variables such as electoral competition, and we compare the pre- and postquota periods. Indeed, according to Anzia and Berry (2011), women face gender discrimination in being elected, so those who manage to gain office are more talented and hard-

[39]This share slightly increases over time: from 1% of all amendments during the 2002-2007 term to 3% during the 2012-2017 term.

working and should thus perform better. Our results seem to contradict their finding because we do not find any effect of electoral competition or quotas.

One might also think that differences in effectiveness could come from the specialization of parliamentarians in a given type of activity.[40] This channel is unlikely to be relevant. Indeed, in Table 2, we have shown that gender differences in activity are limited regardless of the type of activity, if we exclude bills for which the gender difference is mainly explained by differences in learning costs. Moreover, we do not detect any difference in other types of activity, such as membership in study or friendship groups.

5 Conclusion

This paper highlights gender-related differences in the activity and effectiveness of French parliamentarians using close elections as an identification strategy. For most outcomes, we do not find any significant gender differences. However, while women author fewer bills, this gender gap is observed only for newly elected parliamentarians during the first years of their mandate. This result is compatible with a behavioral explanation, as the experimental literature has shown that women tend to be more averse to competition and have a lower degree of self-confidence. On the other hand, it is unlikely that the difference can be explained by a selection effect linked to the massive entry of women into politics in recent decades. Indeed, the results are unchanged whether we consider parliamentarians elected for the first time before and after the implementation of quotas. This result is far from constituting an argument against quotas and policies aimed at increasing the share of women in politics. Being less active at the beginning of one's term for newcomers is not necessarily negative insofar as a learning period is undoubtedly necessary to produce quality bills.

We also show that female parliamentarians are more effective in proposing amendments that pass. This is largely because they author fewer amendments with the sole purpose of obstructing parliamen-

[40] On this issue, see also Boelaert and Étienne Ollion (2020).

tary activity. Similarly, female parliamentarians produce a higher share of sponsored amendments with a greater chance of being accepted and are more likely to defend their amendments. Again, a behavioral explanation seems plausible, as the experimental literature has highlighted a greater ability among women to cooperate as well as more virtuous behaviors. However, women have a lower probability of proposing laws that pass. This is not due to a lower quality of female parliamentarians but rather to discrimination within political parties, which less often chose bills authored by women to vote on.

Measuring the quality of political action is a crucial issue, and our measurement of activity and effectiveness is only a partial measure of it. More efforts should be made in future research to measure the quality of laws by, for example, focusing more precisely on the content of laws. This task is difficult insofar as there is no nonpartisan consensus on what constitutes the quality of a given policy or legislative text.

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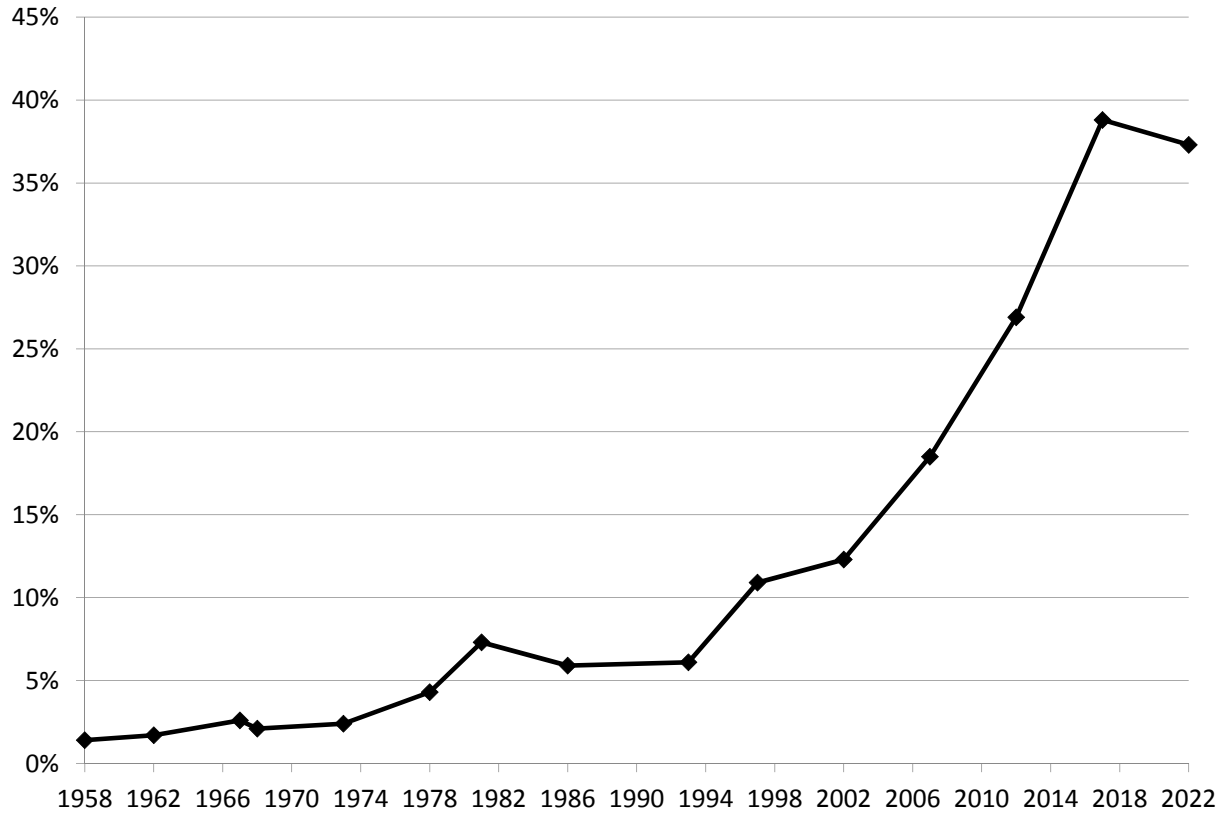
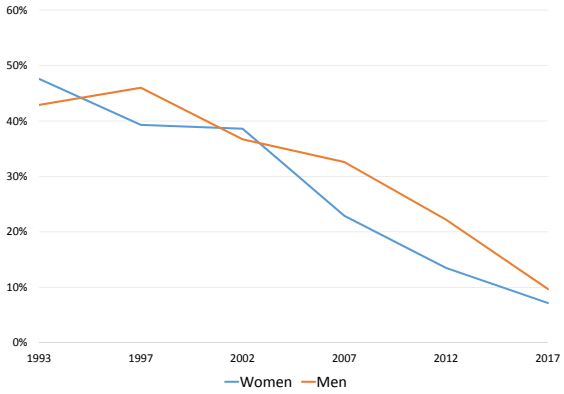
Figure 1: Share of female parliamentarians (1958–2022)

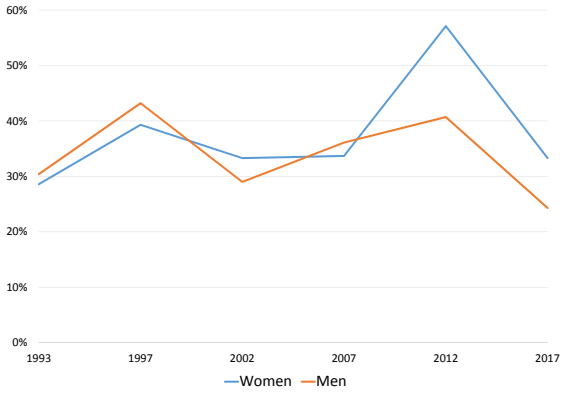


Note: each diamond represents a parliamentary election.
Source: *Assemblée Nationale* website.

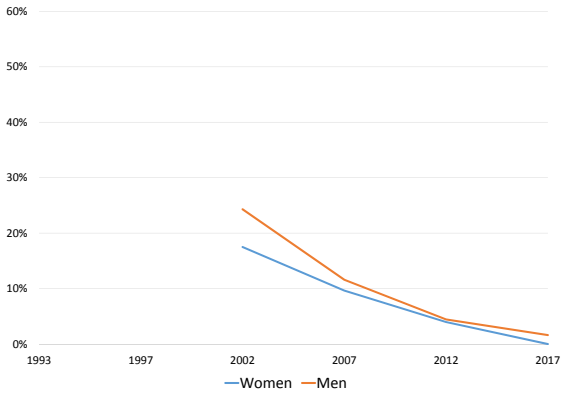
Figure 2: Parliamentarians with no activity (in %)



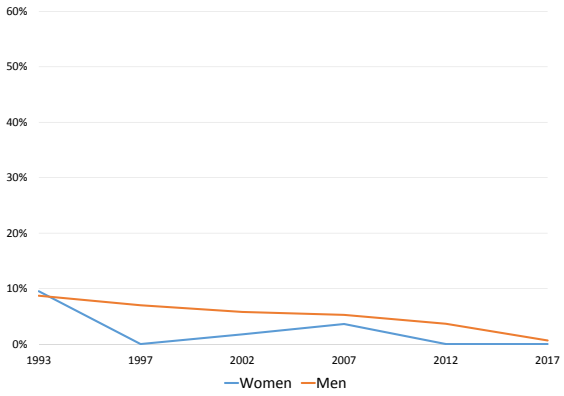
(a) Reports



(b) Bills



(c) Amendments



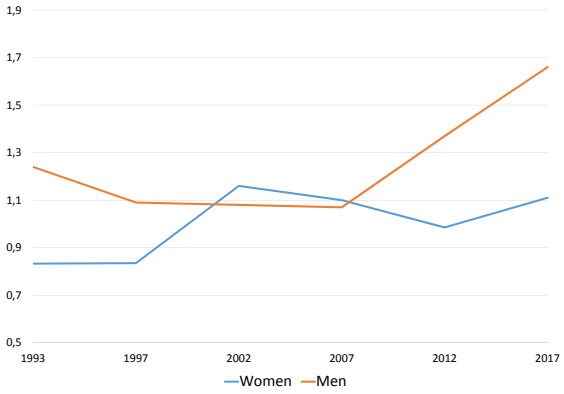
(d) Questions

(e) Interventions

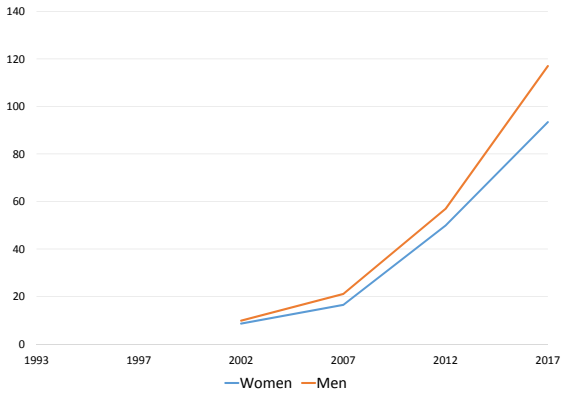
Note: We restrict the sample to parliamentarians with full terms only. Information about amendments is not available before 2002.

Figure 3: Yearly activity among active parliamentarians

(a) Reports

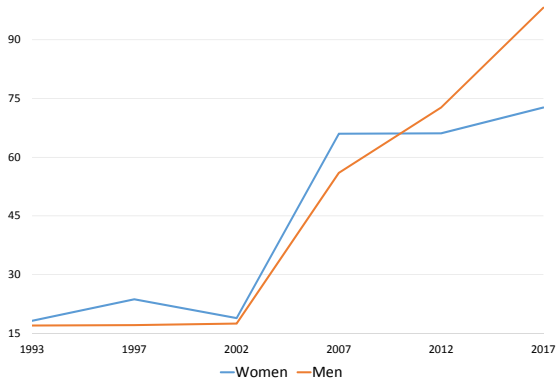


(b) Bills



(c) Amendments

(d) Questions



(e) Interventions

Note: We restrict the sample to parliamentarians with full terms only. For all outcomes, the unit is the yearly activity. Information about amendments is not available before 2002.

Table 1: Characteristics of parliamentarians (1993-2017)

	1993		1997		2002		2007		2012		2017	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Age	52.4	52.3	52.2	52.5	52.1	53.9	53.8	55.7	54.1	55.6	47.6	49.9
% 1st term	0.57	0.47	0.50	0.41	0.63	0.35	0.52	0.21	0.61	0.42	0.89	0.75
Nb of terms served	0.8	1.3	1.0	1.4	0.6	1.5	0.7	1.8	0.7	1.5	0.2	0.6
% deputy and mayor	0.29	0.52	0.18	0.58	0.32	0.52	0.23	0.51	0.19	0.43	0.00	0.01
% government exp.	0.05	0.11	0.14	0.11	0.11	0.08	0.10	0.07	0.03	0.06	0.01	0.02
% majority group	0.76	0.81	0.61	0.54	0.53	0.68	0.42	0.61	0.69	0.42	0.72	0.56
Parliamentary commission (%):												
Culture-education	0.62	0.23	0.50	0.23	0.51	0.20	0.18	0.09	0.18	0.10	0.17	0.09
Defence	0.00	0.12	0.04	0.12	0.04	0.13	0.07	0.14	0.10	0.14	0.06	0.14
Foreign affairs	0.09	0.13	0.21	0.12	0.07	0.14	0.11	0.14	0.09	0.13	0.11	0.14
Economy	0.24	0.30	0.14	0.28	0.21	0.27	0.17	0.13	0.15	0.13	0.12	0.13
Public finance	0.00	0.12	0.00	0.14	0.05	0.14	0.07	0.15	0.05	0.16	0.11	0.14
Environnement	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.11	0.13	0.11	0.12	0.11
Social policies	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.09	0.17	0.10	0.19	0.10
Law	0.05	0.10	0.11	0.11	0.12	0.12	0.10	0.15	0.14	0.13	0.11	0.16
Occupation (%):												
Civil	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.11	0.08	0.11	0.10
Teacher	0.19	0.12	0.18	0.20	0.14	0.14	0.17	0.13	0.17	0.11	0.09	0.10
Academic	0.05	0.06	0.11	0.07	0.02	0.06	0.04	0.05	0.02	0.05	0.03	0.04
Legal	0.10	0.08	0.00	0.08	0.11	0.10	0.07	0.11	0.05	0.10	0.08	0.08
Business	0.05	0.10	0.00	0.07	0.05	0.08	0.04	0.07	0.03	0.07	0.10	0.09
Executive	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.13	0.19	0.18	0.21	0.23
Health	0.05	0.15	0.14	0.11	0.12	0.13	0.08	0.14	0.06	0.08	0.09	0.09
Engineer	0.00	0.06	0.00	0.04	0.02	0.05	0.00	0.04	0.02	0.02	0.03	0.03
Politics	0.05	0.04	0.11	0.05	0.07	0.06	0.06	0.05	0.03	0.04	0.02	0.04
Farmer	0.05	0.05	0.00	0.04	0.00	0.03	0.01	0.03	0.02	0.03	0.01	0.05
Industry	0.05	0.02	0.04	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.00	0.00
Other	0.43	0.32	0.43	0.32	0.46	0.35	0.29	0.19	0.29	0.23	0.25	0.16

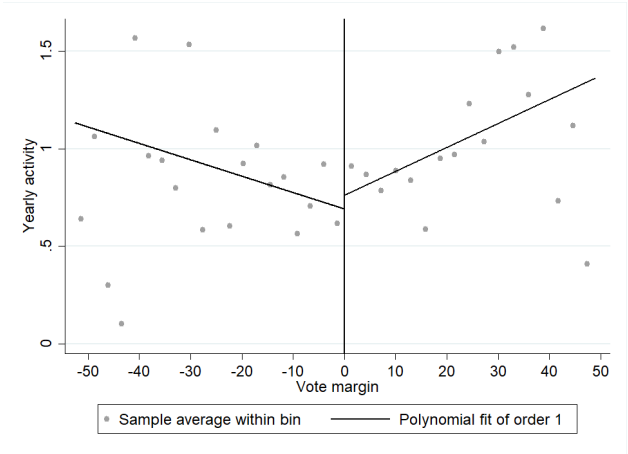
Note: we restrict the sample to deputies with full terms only. % 1st term represents the share of deputies for whom the current term is their first term. % gouvernmental experience represents the share of deputies who have been either minsiter or secretary of state. The number and the composition of parliamentary permanent commissions have changed in 2007.

Table 2: Effect of the parliamentarian's gender on activity

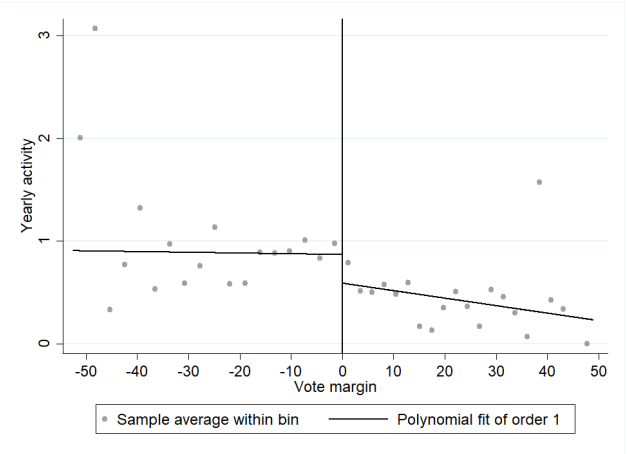
	(1) Pooled	(2) Pooled	(3) Fixed-effects	(4) Any activity	(5) Mean activity if parliamentarian active
	Panel A: Reports (% of ghosts = 31% / mean if active = 1.17)				
Female	0.006	-0.007	0.049	0.321**	-0.120
	(0.054)	(0.058)	(0.076)	(0.145)	(0.105)
				[0.057]	
N	2944	2944	2913	2944	2040
Spec	Poisson	Poisson	Poisson	Logit	OLS
	Panel B: Bills (% of ghosts = 35% / mean if active = 1.24)				
Female	-0.390***	-0.210***	-0.365***	-0.097	-0.476***
	(0.062)	(0.064)	(0.087)	(0.125)	(0.156)
				[-0.018]	
N	2944	2944	2896	2939	1906
Spec	Poisson	Poisson	Poisson	Logit	OLS
	Panel C: Amendments (% of ghosts = 10% / mean if active = 53.7)				
Female	-9.853*	-6.826	-4.009	0.247	-6.791
	(5.517)	(5.114)	(7.077)	(0.276)	(8.000)
				[0.017]	
N	1977	1977	1977	1956	1780
Spec	OLS	OLS	OLS	Logit	OLS
	Panel D: Questions (% of ghosts = 4.7% / mean if active = 2.13)				
Female	0.018	0.026	0.0790	0.939**	0.019
	(0.084)	(0.075)	(0.091)	(0.448)	(0.092)
				[0.040]	
N	2944	2944	2944	2908	2805
Spec	OLS	OLS	OLS	Logit	OLS
	Panel E: Discussions (% of ghosts = 2.6% / mean if active = 49.6)				
Female	-7.934	-8.818*	-8.613	1.086	-8.688
	(5.432)	(5.128)	(6.496)	(0.748)	(6.645)
				[0.038]	
N	2944	2944	2944	1932	2868
Spec	OLS	OLS	OLS	Logit	OLS
Controls:					
Year	Yes	Yes	Yes	Yes	Yes
Experience	No	Yes	Yes	Yes	Yes
Constraints	No	Yes	Yes	Yes	Yes
Field	No	Yes	Yes	Yes	Yes
Occupation	No	Yes	Yes	Yes	Yes
Constituency f.e.	No	No	Yes	No	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002. For all outcomes, the unit is the yearly activity except in column 4 where the dependent variable is a dummy variable equal to 1 if the outcome is strictly positive.

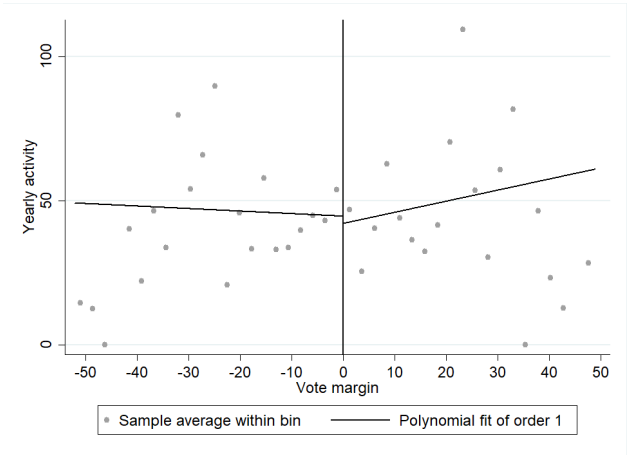
Figure 4: RDD plots - Effect of the parliamentarian's gender on activity



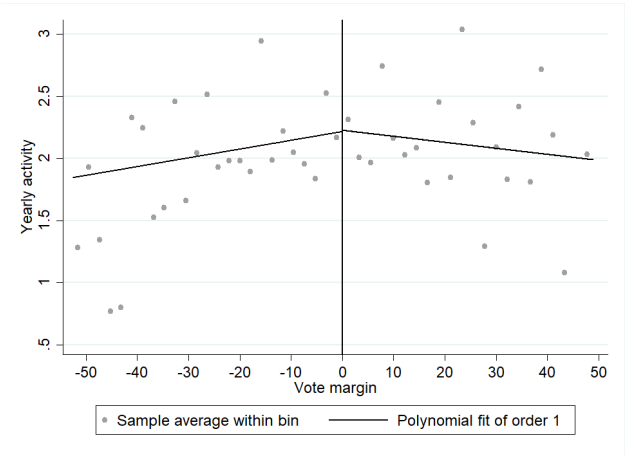
(a) Reports



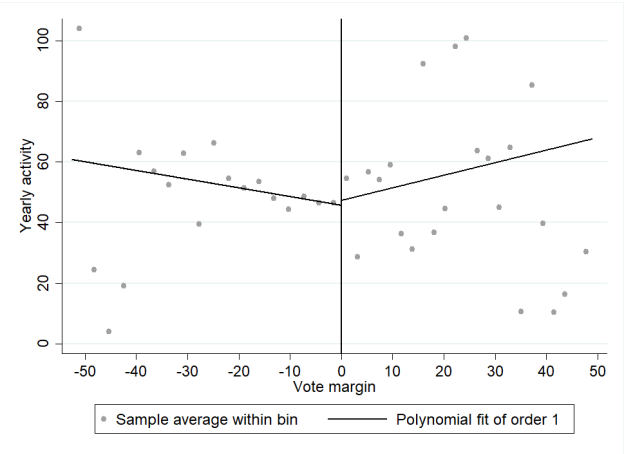
(b) Bills



(c) Amendments



(d) Questions



(e) Interventions

Note: We restrict the sample to parliamentarians with full terms only and to elections for which a second round between a male and a female candidate has been organized. For all outcomes, the unit is the yearly activity. Information about amendments is not available before 2002. The graphs report quantile-spaced bins that capture averages from the same number of observations for each treatment group (Calonico et al. (2014)). The solid lines represent a first-order polynomial. The vertical lines capture the discontinuity point at zero. The x-axis represents the vote margin for the female candidate. On the right-hand side of the vertical line, a woman is elected, and on the left-hand side, a man is elected.

Table 3: Effect of the parliamentarian's gender and experience on his or her activity during his or her term

	(1) All	(2) year 1	(3) year 2	(4) year 3	(5) year 4	(6) year 5
Panel A: Reports (mean = 0.94)						
Experienced male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Newcomer male	-0.110	-0.431***	-0.182	-0.120	-0.00652	0.257**
	(0.110)	(0.135)	(0.115)	(0.119)	(0.115)	(0.107)
Experienced female	0.298*	-0.0118	-0.299	-0.540**	-0.193	-0.158
	(0.180)	(0.223)	(0.194)	(0.214)	(0.190)	(0.184)
Newcomer female	0.0186	-0.505***	-0.458***	-0.0826	-0.0933	0.161
	(0.137)	(0.160)	(0.141)	(0.151)	(0.140)	(0.135)
Panel B: Bills (mean = 0.86)						
Experienced male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Newcomer male	-0.275**	-0.550***	0.0542	0.0676	-0.127	0.342**
	(0.130)	(0.139)	(0.128)	(0.136)	(0.132)	(0.142)
Experienced female	0.261	0.170	0.524*	0.580*	0.338	0.308
	(0.257)	(0.341)	(0.302)	(0.299)	(0.284)	(0.268)
Newcomer female	-0.512***	-1.622***	-0.599***	-0.576***	-0.184	-0.141
	(0.178)	(0.223)	(0.192)	(0.193)	(0.177)	(0.184)
Panel C: Amendments (mean = 62.3)						
Experienced male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Newcomer male	15.76	3.112	10.39	37.82	1.079	16.48
	(15.449)	(10.712)	(15.112)	(42.952)	(25.018)	(10.205)
Experienced female	25.43	9.520	54.27**	7.231	27.28	6.276
	(27.635)	(19.161)	(27.034)	(76.835)	(44.753)	(18.255)
Newcomer female	16.33	-17.95	-0.972	50.85	11.59	23.26*
	(18.371)	(12.738)	(17.972)	(51.078)	(29.751)	(12.136)
Panel D: Questions (mean = 2.29)						
Experienced male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Newcomer male	0.125	0.451***	0.567***	0.560***	0.702***	0.528***
	(0.143)	(0.150)	(0.161)	(0.204)	(0.186)	(0.113)
Experienced female	0.151	0.179	0.322	0.367	0.425	0.0284
	(0.245)	(0.257)	(0.276)	(0.350)	(0.318)	(0.193)
Newcomer female	0.210	0.571***	0.558***	0.611**	0.972***	0.627***
	(0.180)	(0.189)	(0.203)	(0.257)	(0.234)	(0.142)
Panel E: Interventions (mean = 79.9)						
Experienced male	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Newcomer male	-8.526	-6.954	-16.08	-0.779	-4.592	9.017
	(12.426)	(11.566)	(13.862)	(11.444)	(12.712)	(8.422)
Experienced female	34.60	13.92	40.56*	29.08	30.65	-10.90
	(21.320)	(19.844)	(23.783)	(19.635)	(21.809)	(14.450)
Newcomer female	-12.00	-35.44**	-16.75	-7.988	-7.538	0.448
	(15.669)	(14.585)	(17.480)	(14.431)	(16.029)	(10.620)
Controls:						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	Yes	Yes	Yes	Yes	Yes	Yes
N	1473	1473	1473	1473	1473	1473

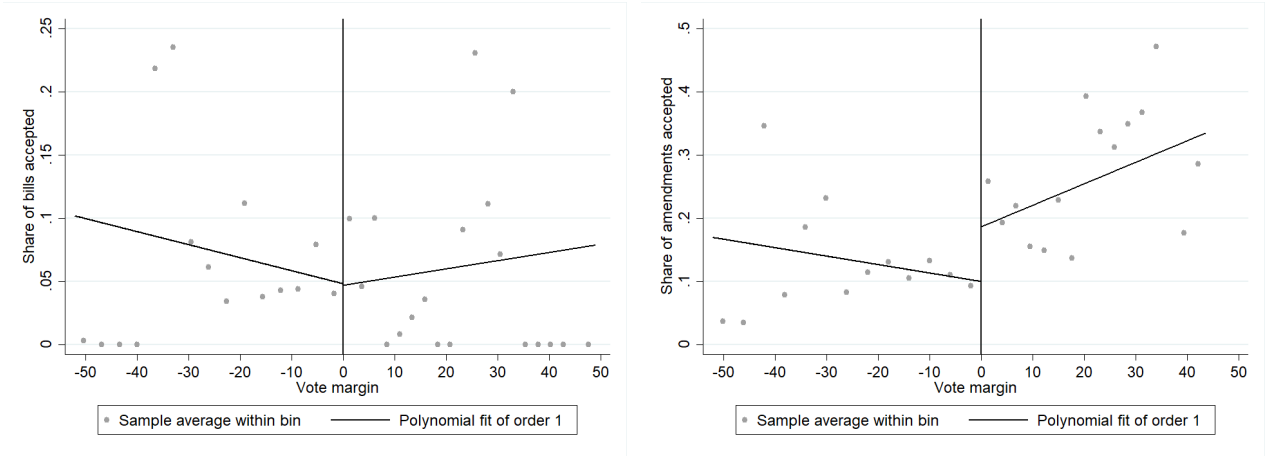
Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only and to the last three terms (2007-2012, 2012-2017, 2017-2022). The information about amendments is available since 2012. For all outcomes, the unit is the yearly activity. In Panels A and B, we use a Poisson model. In Panels C, D and E, we use OLS.

Table 4: Effect of the parliamentarian's gender on his or her accepted bills and amendments

	(1) Accepted (=1) All	(2) Accepted (=1) All	(3) Number All	(4) Number RDD	(5) Number All	(6) Share All	(7) Share RDD	(8) Share All
	Panel A: Bills (Accepted (=1) = 87% / number = 0.04 / share = 6%)							
Female	-0.244		-0.0110	0.019		-0.0261	-0.008	
	(0.233)		(0.031)	(0.022)		(0.024)	0.052	
	[0.023]							
Male × Opposition		Ref.			Ref.			Ref.
Male × Majority		1.228***			0.126***			0.0958***
		(0.269)			(0.029)			(0.023)
Female × Opposition		-0.924*			0.0200			-0.0654*
		(0.475)			(0.043)			(0.033)
Female × Majority		1.249***			0.0941**			0.0960***
		(0.320)			(0.041)			(0.032)
N	1282	1282	1296	325	1296	1296	324	1296
	Panel B: Amendments (Accepted (=1) = 25% / number = 7.2 / share = 18%)							
Female	0.330		-0.829	1.517		0.035*	0.065*	
	(0.204)		(1.708)	(1.289)		(0.018)	(0.066)	
	[-0.039]							
Male × Opposition		Ref.			Ref.			Ref.
Male × Majority		0.769***			14.27***			0.278***
		(0.219)			(1.639)			(0.017)
Female × Opposition		0.697**			3.952			0.0528*
		(0.307)			(2.576)			(0.027)
Female × Majority		0.815***			11.24***			0.305***
		(0.292)			(2.201)			(0.023)
N	1778	1778	1780	338	1780	1780	308	1780
Controls:								
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	No	No	Yes	No	Yes	Yes	No	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about accepted bills and amendments is not available before 2002. In columns 4 and 7, the RDD coefficient is estimated using MSE-optimal bandwidth with a triangular kernel.

Figure 5: RDD plots - Effect of the parliamentarian's gender on his or her share of accepted bills and amendments



(a) Bills

(b) Amendments

Note: We restrict the sample to parliamentarians with full terms only and to elections for which a second round between a male and a female candidate has been organized. For all outcomes, the unit is the share of texts accepted. Information about the share of accepted texts is not available before 2002. The graphs report quantile-spaced bins that capture averages from the same number of observations for each treatment group (Calonico et al. (2014)). The solid lines represent a first-order polynomial. The vertical lines capture the discontinuity point at zero. The x-axis represents the vote margin for the female candidate. On the right-hand side of the vertical line, a woman is elected, and on the left-hand side, a man is elected.

Table 5: Effect of the parliamentarian's gender on the quality of his or her amendments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Bills with most amendments			Inadmissible amendments			Non-defended amendments			Non-supported amendments		
Female	-36.93	-27.11		-2.103	-1.236		-5.792**	-2.844		-0.798***	-0.653**	
	(44.059)	(39.743)		(2.375)	(2.043)		(2.577)	(2.535)		(0.301)	(0.320)	
Male MP × Opposition			Ref.			Ref.			Ref.			Ref.
Male × Majority			-251.5***			-17.95***			-22.99***			0.416*
			(67.039)			(3.677)			(4.267)			(0.252)
Female × Opposition			-37.22			0.774			2.651			-0.497
			(67.075)			(3.539)			(4.431)			(0.420)
Female × Majority			-273.9***			-20.14***			-28.05***			-0.323
			(72.177)			(3.823)			(4.568)			(0.404)
N	886	886	886	496	496	496	983	983	983	1284	1284	1284
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Constraints	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Field	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Occupation	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Constituency f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: We restrict the sample to deputies with full terms only, to the terms for which the information is available (2002-2017 for non-supported amendments 2012-2022 for bills with most amendments and non-defended amendments and 2017-2022 for inadmissible amendments) and to the active parliamentarians (who have authored at least one amendments). The unit is the yearly number of amendments.

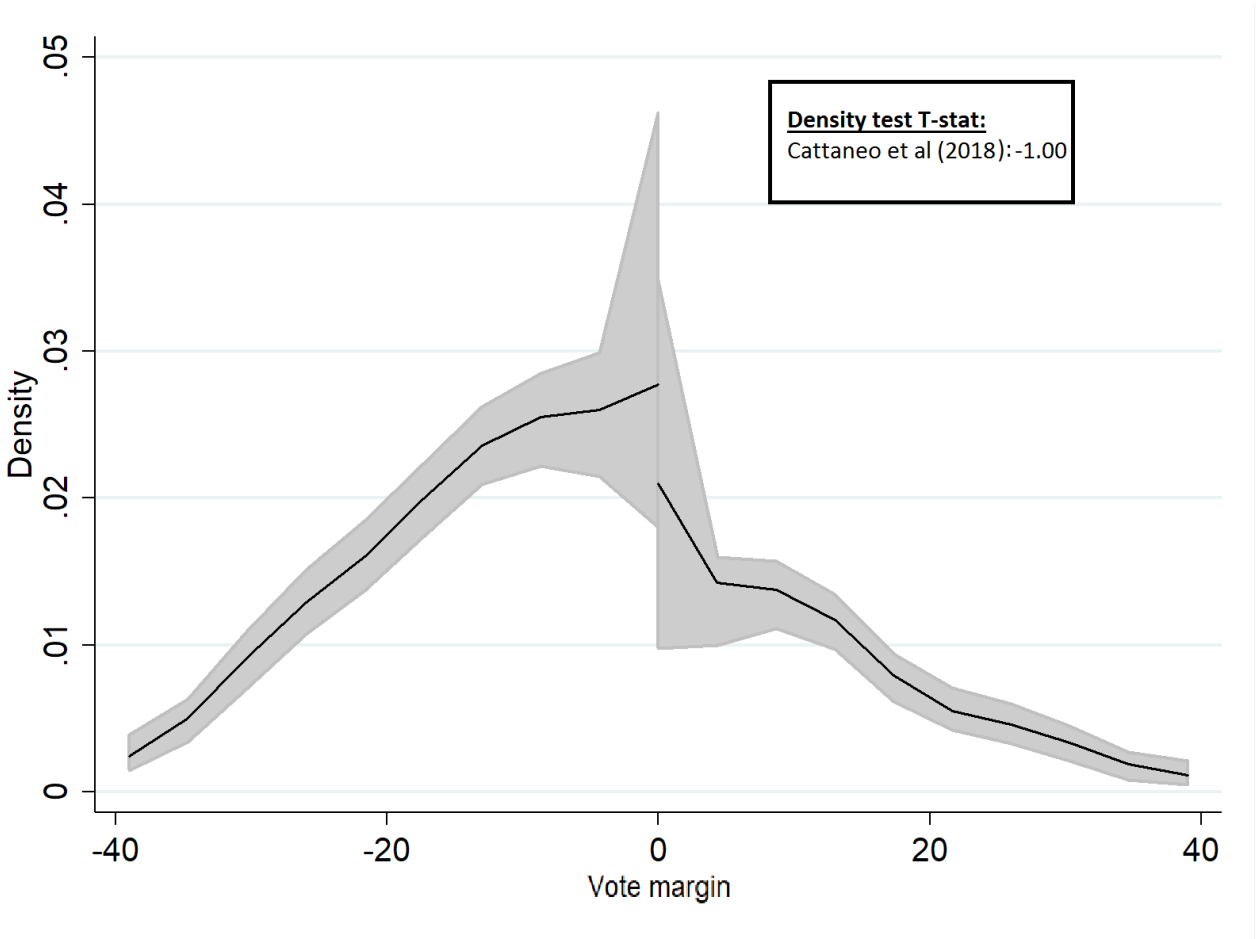
Table 6: Effect of the parliamentarian's gender on his or her accepted bills controlling for selection

	(1) Accepted (=1) All	(2) Accepted (=1) All	(3) Number All	(4) Number RDD	(5) Number All	(6) Share All	(7) Share RDD	(8) Share All
Female	0.164		0.005	-0.004		-0.012	-0.018	
	(0.288)		(0.015)	(0.177)		(0.016)	(0.036)	
	[-0.020]							
Male × Opposition		Ref.			Ref.			Ref.
Male × Majority		2.795***			0.073***			0.053***
		(0.420)			(0.014)			(0.015)
Female × Opposition		-0.231			0.010			-0.020
		(0.592)			(0.021)			(0.023)
Female × Majority		3.092***			0.075***			0.045**
		(0.459)			(0.020)			(0.022)
N	1282	1282	1296	258	1296	1296	296	1296
Controls:								
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	No	No	Yes	No	Yes	Yes	No	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only.

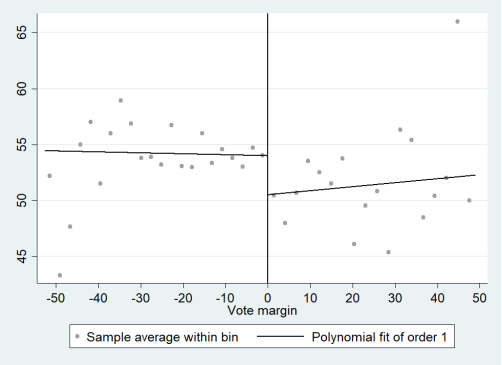
A Internal validity tests

Figure A.1: Manipulation test

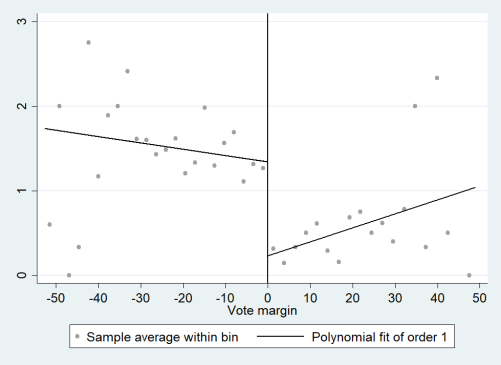


Note: We restrict the sample to parliamentarians with full terms only and to elections for which a second round between a male and a female candidate has been organized. The x-axis represents the vote margin for the female candidate. On the right-hand side of the vertical line, a woman is elected, and on the left-hand side, a man is elected.

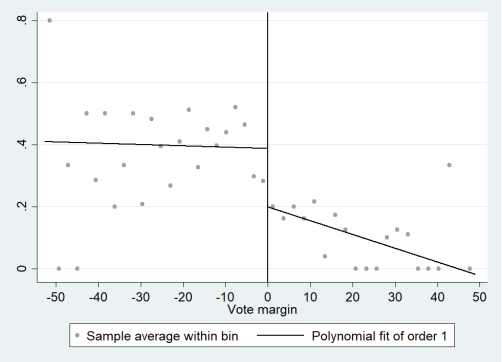
Figure A.2: RDD plots - Continuity assumption



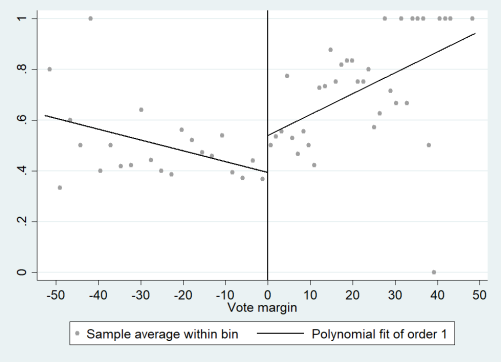
(a) Age (in years)



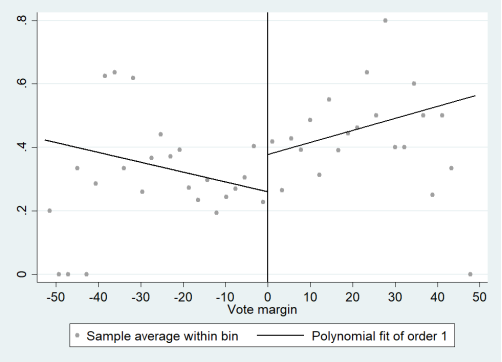
(b) Experience (number of terms)



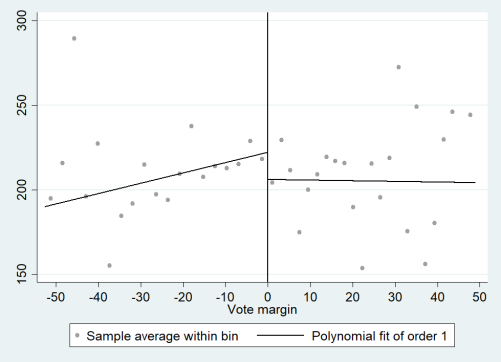
(c) Parliamentarian/mayor at the same time



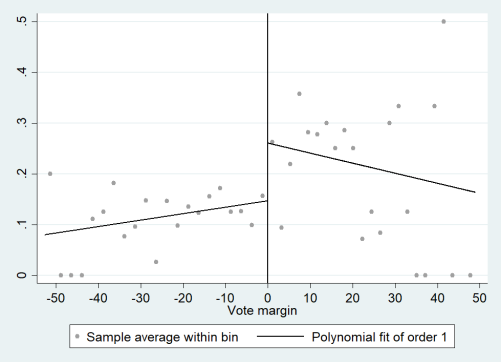
(d) Majority group



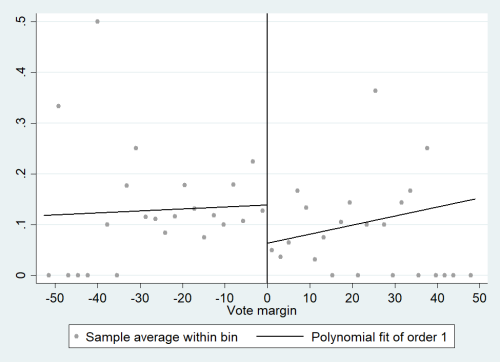
(e) Left party



(f) Group size



(g) Commission - Culture-education



(h) Commission - Public finances

Note: We restrict the sample to parliamentarians with full terms only and to elections for which a second round between a male and a female candidate has been organized. The solid lines represent a first-order polynomial. The vertical lines capture the discontinuity point at zero. The x-axis represents the vote margin for the female candidate. On the right-hand side of the vertical line, a woman is elected, and on the left-hand side, a man is elected.

B Supplementary results

Table B.1: Parliamentary elections since 1993

	Number of elections	**No 2nd round**	**2nd round male-female**	**Gap < 10**	**Gap < 5**	**Gap < 2.5**
All	2951	210	1071	408	208	120
			36%	38%	19%	11%
1993	469	48	71	20	8	5
			15%	28%	11%	7%
1997	500	7	129	59	30	15
			26%	46%	23%	12%
2002	506	45	176	66	35	19
			35%	38%	20%	11%
2007	463	81	211	84	39	23
			46%	40%	18%	11%
2012	509	27	235 1	99	54	37
			46%	42%	23%	16%
2017	504	2	249	80	42	21
			49%	32%	17%	8%

Note: we restrict the sample to deputies with full terms only. "Gap" represents the difference between the winner's score and and the majority threshold. In other words, "Gap < 10" accounts for all the elections for which the winner's score was between 50 and 60% of votes.

Table B.2: Effect of the parliamentarian's gender on his or her presence and voting turnout

	(1) Pooled	(2) Pooled	(3) Fixed-effects	(4) RDD
Panel A: Presence in plenary sessions (in weeks) (mean= 143)				
Female	1.243	-1.196	5.728**	-1.754
	(1.911)	(1.900)	(2.850)	(5.672)
N	1473	1473	1473	299
Spec	OLS	OLS	OLS	OLS
Panel B: Presence in parliamentary commissions (in weeks) (mean = 241)				
Female	10.93*	1.450	19.71**	- 10.101
	(5.776)	(5.817)	(8.718)	(20.825)
N	1473	1473	1473	212
Spec	OLS	OLS	OLS	OLS
Panel C: Voting turnout (mean = 19%)				
Female	0.033***	0.018***	0.021***	-0.025**
	(0.005)	(0.005)	(0.007)	(0.011)
N	931	931	931	146
Spec	OLS	OLS	OLS	OLS
Controls:				
Year	Yes	Yes	Yes	Yes
Experience	No	Yes	Yes	Yes
Constraints	No	Yes	Yes	Yes
Field	No	Yes	Yes	Yes
Occupation	No	Yes	Yes	Yes
Constituency f.e.	No	No	Yes	No

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about presence is available between 2007 and 2022. The information about presence is available between 2012 and 2022.

Table B.3: Effect of the parliamentarian's gender on his or her activity (ranks)

	(1) Reports	(2) Bills	(3) Amendments	(4) Questions	(5) Interventions
Female	0.034*	-0.013	-0.018	0.027	0.014
	(0.018)	(0.017)	(0.019)	(0.017)	(0.017)
N	2944	2944	1977	2944	2944
Controls:					
Year	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002.

Table B.4: Effect of the parliamentarian's gender on his or her activity (alternative specifications)

	(1) OLS	(2) OLS Fixed-effects	(3) Poisson	(4) Poisson Fixed-effects	(5) Neg. binomial	(6) Neg. binomial Fixed-effects
			Panel A: Reports			
Female	-0.00396	0.0198	-0.00741	0.0485	0.00599	0.0543
	(0.061)	(0.078)	(0.058)	(0.076)	(0.063)	(0.077)
N	2944	2944	2944	2913	2944	2913
			Panel B: Bills			
Female	-0.172**	-0.223**	-0.210***	-0.365***	-0.207***	-0.263***
	(0.078)	(0.094)	(0.064)	(0.087)	(0.080)	(0.094)
N	2944	2944	2944	2896	2944	2896
			Panel C: Amendments			
Female	-6.826	-4.009	-0.144***	-0.0791***	-0.170**	0.0428
	(5.114)	(7.077)	(0.008)	(0.015)	(0.072)	(0.063)
N	1977	1977	1977	1938	1977	1938
Controls:						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	No	Yes	No	Yes	No	Yes

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002. For all outcomes, the unit is the yearly activity.

Table B.5: Effect of the parliamentarian's gender on his or her activity over time

	(1) Reports	(2) Bills	(3) Amendments	(4) Questions	(5) Discussions
Male × 1993	Ref.	Ref.	na	Ref.	Ref.
Male × 1997	-0.136	-0.492***	na	-0.389***	-14.11**
	(0.095)	(0.089)		(0.097)	(6.916)
Male × 2002	-0.250**	-0.705***	Ref.	-1.061***	-36.11***
	(0.123)	(0.110)		(0.124)	(8.820)
Male × 2007	-0.108	-0.483***	50.43***	-0.492***	16.82**
	(0.107)	(0.099)	(7.118)	(0.118)	(8.396)
Male × 2012	0.168	-0.324***	91.06***	0.131	37.03***
	(0.107)	(0.102)	(8.317)	(0.121)	(8.602)
Male × 2017	0.497***	0.136	184.8***	0.384***	83.34***
	(0.102)	(0.099)	(10.283)	(0.122)	(8.732)
Female × 1993	0.265	-0.745**	na	0.173	-1.430
	(0.312)	(0.324)		(0.332)	(23.684)
Female × 1997	0.133	-1.028***	na	-0.0399	-19.38
	(0.280)	(0.316)		(0.296)	(21.108)
Female × 2002	-0.442*	-0.891***	-0.528	-0.954***	-35.35**
	(0.250)	(0.205)	(15.073)	(0.227)	(16.175)
Female × 2007	0.298*	-0.437***	35.66***	-0.665***	22.96
	(0.167)	(0.169)	(13.325)	(0.196)	(13.980)
Female × 2012	0.165	-0.803***	90.39***	0.421**	43.41***
	(0.140)	(0.177)	(12.036)	(0.169)	(12.042)
Female × 2017	0.456***	-0.289**	181.5***	0.361***	54.05***
	(0.115)	(0.125)	(12.010)	(0.139)	(9.950)
$Male_{1993} \neq Female_{1993}$	ns	ns		ns	ns
$Male_{1997} \neq Female_{1997}$	ns	*		**	ns
$Male_{2002} \neq Female_{2002}$	ns	ns	ns	ns	ns
$Male_{2007} \neq Female_{2007}$	**	ns	*	ns	ns
$Male_{2012} \neq Female_{2012}$	ns	***	ns	*	ns
$Male_{2017} \neq Female_{2017}$	ns	***	ns	ns	***
N	2913	2896	1977	2944	2944
Controls:					
Year	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002. For all outcomes, the unit is the yearly activity. ns = non statistically significant

Table B.6: RDD - Alternative specifications and bandwidths

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Spec.	OLS	OLS	OLS	OLS	OLS	OLS	OLS	Poisson	Poisson	Poisson
Kernel		Uniform	Uniform	Uniform	Triangular	Triangular	Triangular	Uniform	Uniform	Uniform
Bandwidth		mserd	mserd	55-45	mserd	mserd	55-45	mserd	mserd	55-45
					Panel A: Reports					
Female MP	0.0382	0.141	0.229	0.347*	0.181	0.276**	0.278*	0.201	0.425	0.457
	(0.063)	(0.203)	(0.175)	(0.186)	(0.187)	(0.159)	(0.162)	(0.230)	(0.262)	(0.377)
N	2948	334	334	208	384	384	208	334	334	208
					Panel B: Bills					
Female MP	-0.191*	-0.260	-0.016	-0.369	-0.244	-0.088	-0.154	-0.351*	-0.243	-0.662
	(0.081)	(0.229)	(0.241)	(0.284)	(0.240)	(0.209)	(0.244)	(0.206)	(0.231)	(0.440)
N	2948	356	356	208	547	547	208	547	547	208
					Panel C: Amendments					
Female MP	-6.863	-21.304	-12.972	9.860	-14.404	-5.789	18.645			
	(5.012)	(21.671)	(15.591)	(19.239)	(19.968)	(15.748)	(20.447)			
N	1478	269	269	170	294	294	170			
					Panel D: Questions					
Female MP	-0.081	-0.005	-0.225	0.154	-0.108	-0.104	0.386			
	(0.089)	(0.265)	(0.243)	(0.266)	(0.278)	(0.225)	(0.264)			
N	2948	337	337	208	434	434	208			
					Panel E: Interventions					
Female MP	-5.600	-0.767	-8.863	-4.778	4.345	-6.269	19.23			
	(4.541)	(14.031)	(12.618)	(13.768)	(13.398)	(10.534)	(13.803)			
N	2948	258	258	207	438	438	207			
Controls:	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Constituency f.e.	Yes	No	No	No	No	No	No	No	No	No

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002. For all outcomes, the unit is the yearly activity except in column 4 where the dependent variable is a dummy variable equal to 1 if the outcome is strictly positive.

Table B.7: Effect of the parliamentarian's gender on his or her activity - Potential mechanisms

	(1) Reports	(2) Bills	(3) Amendments	(4) Questions	(5) Discussions
Panel A: First election before quotas					
Male × After quotas	Ref.	Ref.	Ref.	Ref.	Ref.
Male × Before quotas	-0.0515	-0.167	6.434	0.031	6.777
	(0.121)	(0.125)	(13.499)	(0.138)	(9.875)
Female × After quotas	0.029	-0.375***	-6.104	0.0109	-9.679
	(0.082)	(0.096)	(7.323)	(0.100)	(7.138)
Female × Before quotas	0.0932	-0.544***	30.40	0.463**	6.816
	(0.214)	(0.207)	(23.429)	(0.231)	(16.489)
Panel B: % of women in the political group					
Male × High % of women	Ref.	Ref.	Ref.	Ref.	Ref.
Male × Low % of women	0.208*	0.790***	5.978	0.481***	38.05***
	(0.109)	(0.095)	(11.842)	(0.119)	(8.460)
Female × High % of women	0.093	-0.291**	-11.23	0.0347	-14.27*
	(0.092)	(0.138)	(8.557)	(0.115)	(8.162)
Female × Low % of women	0.180	0.372***	16.44	0.684***	42.50***
	(0.145)	(0.126)	(14.337)	(0.160)	(11.418)
Panel C: Majority party					
Male × Opposition	Ref.	Ref.	Ref.	Ref.	Ref.
Male × Majority	0.699***	-0.808***	-66.84***	-0.918***	-26.72***
	(0.077)	(0.075)	(6.840)	(0.085)	(6.055)
Female × Opposition	0.391***	-0.186*	19.27*	0.286**	9.815
	(0.125)	(0.110)	(10.651)	(0.138)	(9.857)
Female × Majority	0.631***	-1.370***	-81.90***	-0.941***	-44.43***
	(0.103)	(0.126)	(9.206)	(0.120)	(8.582)
Panel D: Left-wing party					
Male × Non-left	Ref.	Ref.	Ref.	Ref.	Ref.
Male × Left	0.293**	-0.490***	97.13***	1.086***	19.18*
	(0.143)	(0.120)	(12.357)	(0.158)	(11.242)
Female × Non-left	-0.0285	-0.394***	-6.802	0.0916	-12.09
	(0.094)	(0.097)	(8.533)	(0.111)	(7.901)
Female × Left	0.463***	-0.763***	98.03***	1.144***	16.48
	(0.165)	(0.174)	(14.182)	(0.189)	(13.494)
Controls:					
Year	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	Yes	Yes	Yes	Yes	Yes
N	2913	2896	1977	2944	2944

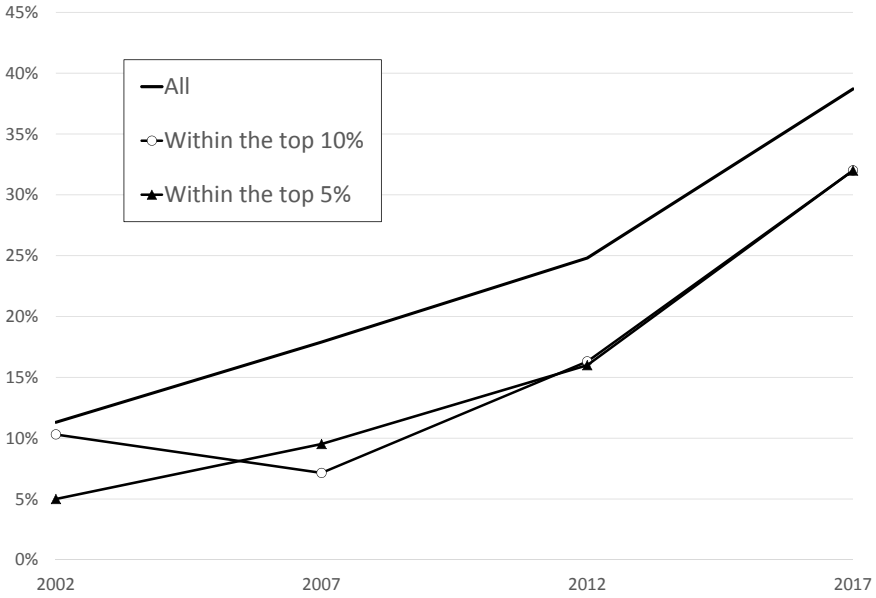
Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about amendments is not available before 2002. For all outcomes, the unit is the yearly activity. "Low % of women" (Panel B) means that the share of female parliamentarians in the political group is lower than the overall share of women in the parliament during the term.

Table B.8: Effectiveness of amendments after excluding the most active parliamentarians

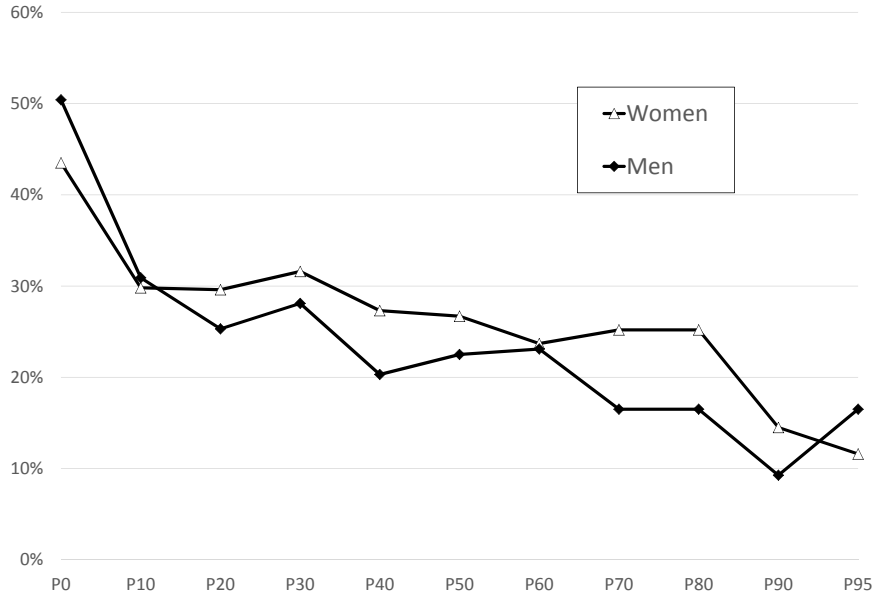
	(1) Never accepted All	(2) Share All	(3) Share All	(4) Share All	(5) Share RDD	(6) Share All
Female	-0.395*	0.0524***	0.0178	0.0404**	0.077***	
	(0.207)	(0.014)	(0.013)	(0.019)	(0.039)	
	[-0.039]					
Male MP × Opposition						Ref.
Male × Majority						0.270***
						(0.018)
Female × Opposition						0.0622**
						(0.027)
Female × Majority						0.301***
						(0.025)
N	1670	1690	1690	1690	307	1690
Controls:						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	No	Yes	Yes	Yes	Yes
Constraints	Yes	No	Yes	Yes	Yes	Yes
Field	Yes	No	Yes	Yes	Yes	Yes
Occupation	Yes	No	Yes	Yes	Yes	Yes
Constituency f.e.	No	No	No	Yes	No	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We restrict the sample to deputies with full terms only. The information about accepted bills and amendments is not available before 2002. In column 5, the RDD is estimated using MSE-optimal bandwidth with a triangular kernel.

Figure B.1: Distribution and acceptance rate of amendments (2002–2017)



(a) Share of women among the most active parliamentarians



(b) Acceptance rate along the distribution of amendments

Table B.9: Effect of the parliamentarian's gender on the selection of his or her bills subject to a vote

	(1) Selected (=1) All	(2) Selected (=1) All	(3) Number All	(4) Number RDD	(5) Number All	(6) Share All	(7) Share RDD	(8) Share All
Female	-0.195		-0.029	0.044		-0.024	0.009	
	(0.180)		(0.048)	(0.036)		(0.031)	(0.088)	
	[-0.032]							
Male × Opposition		Ref.			Ref.			Ref.
Male × Majority		-0.201			0.095**			0.074**
		(0.200)			(0.046)			(0.029)
Female × Opposition		-0.384			0.018			-0.079*
		(0.254)			(0.067)			(0.042)
Female × Majority		-0.216			0.034			0.087**
		(0.252)			(0.063)			(0.040)
N	1296	1296	1296	329	1296	1296	310	1296
Controls:								
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constraints	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Field	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constituency f.e.	No	No	Yes	No	Yes	Yes	No	Yes

Note: Standard errors in parentheses and marginal effect in brackets; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
We restrict the sample to deputies with full terms only.