

# How Do Legislated Gender Quotas Impact Representation?

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## **Abstract**

How does biased political recruitment – and the subsequent legislation of quotas – affect the quality of women’s performance as representatives in Parliament?

I draw on insights from the literature on political agency to distinguish between the effects of selection and sanction. First, if recruitment in the absence of quotas implies higher requirements for women, then selected women are of higher quality. Second, when quotas lower the bar, new women enter office. However, parties are less certain about the quality of these women and react by increasing accountability.

I investigate representation in the European Parliament (1999-2014) before and after the legislation of quotas in several member states. Absent quotas, I find that biased selection leads to female representatives who pursue longer careers and perform better at equal levels of effort. When quotas are legislated, parties emphasize women’s service records during reselection. Women are thus incentivized to put in more effort.

Gender quotas, which are designed to bring more women into elected positions, remain a disputed policy instrument. When effective, they replace men deemed qualified by women suspected of thwarting fair competition. Quotas vary in their efficiency to boost the number of female representatives (Krook and Schwindt-Bayer, 2013, p. 557-559). They vary in their origin and enforcement. Yet, within-case comparisons of quota adoption rarely distinguish between predictions from different quota types (Krook, 2014, p. 1283).

In this article, I consider the top-down adoption of mandatory quotas: the so-called legislated (“statutory”) quotas. While applicable to all parties within a system, their perceived legitimacy among recipients may be all the lower. I contend that introducing quotas to an otherwise biased selection process has a direct effect on the substantive representation women provide. In particular, I ask *how biased political recruitment – and the subsequent legislation of quotas – affect the quality of representation provided by women.*

Representation is “high-quality” when legislators pass legislation and are held accountable for it. Theories of democratic accountability distinguish between the effects of electoral sanction and selection (Fearon, 1999). I draw on these insights and suggest that both are at work.

On the one hand, biased recruitment is a selection process with a higher hurdle for women than for men. I show that, absent quotas, biased selection brings higher-type women into office (Anzia and Berry, 2011). They are higher-performing at equal levels of effort and aspire to longer careers (Black, 1972). On the other hand, quotas aim to lower that bar. The predicted effects occur in the tension between “old” and “new” practices, creating a “label effect” on women (Franceschet and Piscopo, 2008). I demonstrate that when quotas are legislated, democratic accountability increases for the women involved. Parties are uncertain about the quality of these women and react by relying more heavily on sanctions post hoc. Women, in turn, respond by working harder. The results are driven by the fact that legislated quotas – in contrast to party-level quotas – are exogenous and compulsory: Parties comply but do not fully adhere to them.

I rely on extensive data on 15 years of performance, behavior and candidate selection

in the European Parliament (EP). The EP offers an ideal case to test my claims. Three member states – France, Portugal and Spain – introduced legislated quotas during the period of study. By using a “before-after” design with a control group, I observe the change in behavior among women and their parties and trace it back to the change in policy. In all other respects, I hold institutional constraints and behavioral incentives constant by considering only members of the same transnational assembly who are elected from a closed-list PR ballot. The EP also provides natural variation in the selection hurdle among women. Comparisons are thus made across female legislators. Consequently, the findings cannot be explained by innate characteristics of gender, but rather by elements of the political recruitment process.

The article proceeds as follows: I start by reviewing extant literature on electoral accountability, quotas and candidate selection. Second, I outline my expectations for the impact of selection bias on candidate quality in the absence of quotas and sketch out how behavior changes in anticipation of prospective sanctions when quotas apply. Third, I present and justify my choice of the European Parliament as a case, my data and main operationalizations. Fourth, I show how pre-reform recruitment bias leads to higher-performing women who value office more. Last, I investigate the post-reform behavior of parties and women.

## **The literature on candidate selection and the effect of quotas**

There is frequently a divide between the intended purpose of legislated quotas and parties’ willingness to comply with such quotas (Dahlerup and Freidenvall, 2005). Norms and practices do not immediately change when quotas are introduced. Rather, the new requirements need to be “accommodated” to the parties’ existing procedures (Verge and Espírito-Santo, 2016). Legislated quotas therefore follow an inherently different logic from that of party-level quotas. The effects of quota adoption investigated here flow from that tension between “old” and “new” practices.

I start by observing the old practices (i.e., candidate selection absent gender quotas) with the aim of detecting the effect of biased recruitment on candidate quality. The next subsection reviews the purported causes of a bias so as to better conceptualize observable implications (Subsection 1). I then move to debate how the literature on political agency may enlighten our understanding of gender quotas and their effect on representation (Subsection 2).

## **Causes for biased candidate selection**

Political recruitment is a sequential process. It begins with a pool of eligible candidates (1). Some of them aspire to run for office (2), but only a minority are nominated (3) and finally elected (4) (Norris, 1997). The proportion of women has been observed to decrease at all stages of the recruitment process. The phenomenon is often conceptualized within the framework of the supply-and-demand model of candidate selection (Norris and Lovenduski, 1995).

Supply-side explanations highlight the lack of women who aspire to a political career. Norris and Lovenduski (1995) emphasize factors such as resources (time, money, relevant experience) and motivation (ambition, interest in politics). More recent research has observed that – although the group of eligible women has grown – they generally deem themselves unqualified (Fox and Lawless, 2004, 2011). Women consequently “fall off” in the passage from the eligible pool to aspirant candidates. The conclusions are corroborated by experimental studies that indicate that women avoid winner-take-all environments – even when their performance is high – so that fewer high-ability women and more low-ability men enter the competition (Niederle and Vesterlund, 2007). Drawing on those results, Kanthak and Woon (2015) find that women overall are more sensitive to institutional context. When messages concerning skills are truthful, they enter into competitions at rates equal to men, while avoiding electoral-campaign-like situations in which information is noisy. The main takeaway is that women who decide to run are, on average, more qualified because of the higher standards to which they hold themselves.

Demand-side explanations, in contrast, point to the lack of interest among party selec-

tors. Fox and Lawless (2010) find, for example, that women with similar qualities to men are less likely to be recruited by party officials. Except for incidences of outright discrimination, the causal mechanism for party disinterest can be conceptualized as “statistical” discrimination (for an overview, see Altonji and Blank, 1999). It is impossible to know how new candidates will perform in office. Party selectors therefore rely on information about visible skills to infer future performance. They start with a prior belief which they update based on signals of quality. Discrimination flows either from differences in the prior belief (Arrow, 1973; Coate and Loury, 1993) or from the precision of the signal (Aigner and Cain, 1977; Lundberg, 1991). Gender stereotypes are prior beliefs that lead selectors to assume that individual women conform to preconceptions about all women. The same information about two aspirant candidates thus results in different decisions, depending on the selectors’ prior beliefs. Niven (1998) observes, for example, that the strong notion of women as an “outgroup” consistently leads male party chairs to prefer male candidates. Noisy signaling, on the other hand, occurs when selectors interpret the value of some pieces of information differently than other pieces. Selectors are unable to correctly observe and interpret women’s signaling. An example is when recruitment is done within social networks. This has spurred a rich literature on the gendered nature of candidate recruitment.

The implication of demand-side explanations for later stages is similar to that of supply-side factors: Successful female candidates need to possess higher skills and/or work harder to display their aptitudes. The selection bias would also explain why female candidates tend to perform at least as well as their male counterparts during election (Fox and Lawless, 2004). Moreover, the final set of elected women would be overqualified for office. Assuming equal opportunities in Parliament, these women should be expected to overperform (Anzia and Berry, 2011).

The current subsection has looked at potential mechanisms leading to biased recruitment. The next subsection delves into the effect on representation when attempts are made to mend biased selection by implementing a quota law.

## Political agency and the effect of quotas

Theories of political agency generally distinguish between the effect of selection and the effect of sanction. In *sanctioning models* of political accountability (Ferejohn, 1986) voters reject representatives whose efforts do not meet a set standard, while higher-performing incumbents return to Parliament. The threat of rejection influences in-house representation, as re-election-seeking candidates increase their efforts to pass the electoral hurdle. Other models draw their insight from the observation that candidatures are not all equivalent, and voters cannot always induce legislators to change behavior. During their last term, candidates do not seek reelection, and are therefore not sensitive to incentives. To counter the effect of this phenomenon, voters in *selection models* choose candidates with better intrinsic qualities (Fearon, 1999). The representation they obtain is the result of ability and effort. The choice is made by discounting effort from performance so as to consider only a candidate's abilities. Following these insights, we might infer that high-quality representation is ensured by legislators who possess a certain talent and/or are responsive to electoral incentives.

The debate about gender quotas has mainly revolved around their effect on selection. Two questions recur: First, are *more* women elected into office? The question pertains mostly to quotas' impact on descriptive representation, and contributions are centered on the efficiency of different policies (Dahlerup and Freidenvall, 2005; Tripp and Kang, 2008). Second, are the women selected to meet quotas *less* qualified? Some studies concentrate on activities in office and find little evidence of marginalization or lower activity (Murray, 2010; Zetterberg, 2008; Devlin and Elgie, 2008). Others look at what candidates bring into office: their socioeconomic background or political experience (Franceschet and Piscopo, 2008; Murray, 2010; Franceschet and Piscopo, 2012; O'Brien, 2012; Murray, 2012a). While differences between male and female representatives exist, they seem of little consequence. From her study of French MPs before and after the parity reform, Murray (2010, p. 116) even concludes that "... quota women are more like men than their nonquota counterparts, rather than the other way round." Her observation points to an equally pertinent question: namely, are non-quota women different from men?

This article argues in line with Anzia and Berry (2011) that *gender bias* has a selection effect on the quality of non-quota female representatives, while *legislated quotas* mainly have a sanction effect. The literature on electoral systems has long relied on the prospect of sanction to predict the behavior of members of Parliament (e.g., Carey and Shugart, 1995; Carey, 2007; Hix, 2004). These studies do not consider legislated quotas as a part of the electoral setup. Yet, quotas determine in part how the competition is framed and what defines successful strategies (for an exception, see: Finke, 2016).

The question of quotas has most often been treated within the literature on women and politics. Quotas aim explicitly to “make space” within existing parties (Htun, 2004). Their efficiency often depends on the political will to implement them (Davidson-Schmich, 2006). While some studies indicate that exogenous quota adoption has propelled more women to the position of lead candidates (O’Brien and Rickne, 2016), other scholars point to the “stickiness” of intra-party practices of recruitment (Verge and Espírito-Santo, 2016). Franceschet and Piscopo (2008) argue that the “top-down” introduction of quotas creates a “label effect” on women. This latter term designates the perception that quota women did not win their seat in a free and fair competition, but rather through favorable treatment. Women are thus subject to a “super surveillance” under which they need to prove their competence to hold office (Puwar, 2004; Verge and de la Fuente, 2014).

In the next section, I lay out my theoretical argument and its empirical implications. I start by discussing whether the “old” practices would lead to the selection of a dissimilar type of non-quota women. I then contend that while parties do not immediately alter their most preferred selection criteria following the adoption of quotas, they do choose to add women to their electoral lists. This creates an uncertainty about quota women to which parties react by holding them more accountable.

## Theory

This article explores the effect of quota adoption when recruitment is biased. Since my interest lies with the effect of quotas on representation effect on representation, I take a

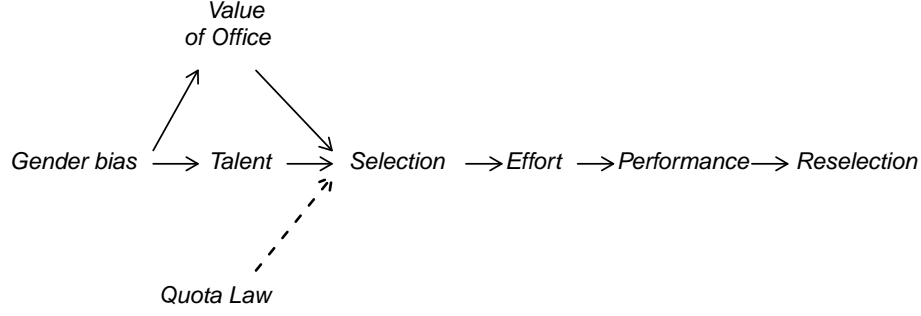


Figure 1: The process of incumbent candidate selection. When the initial selection is biased – and eventually combined with a legislated quota – all other stages are affected.

wide view of the candidate selection process with a focus on incumbent members. The stages are illustrated in Figure 1.

The analysis starts with the initial selection of representatives. This stage subsumes aspirant candidates’ decision to run, parties’ choice of candidates and the casting of votes by the electorate.<sup>1</sup> Once in office, a candidate exerts effort to provide representation. This effort – in combination with talent – leads to a level of performance. At the end of the legislative period, the candidate and the party may consider a reselection.

I argue that variations in the effort, performance and reselection of candidates can be traced back to features of the initial selection stage. I consider two such features: First, absent quotas, a preexisting bias affects elected women’s performance and value of office (Subsection 1); and second, when quotas are imposed, uncertainty from the initial selection alters parties’ emphasis on reselection criteria and candidates’ efforts (Subsection 2).

## Consequences of biased recruitment

Biased recruitment is a selection with a higher hurdle for women than for men. A candidate has to invest talent and energy to successfully contest elections. The additional requirements implied in a biased selection mean that only women with lower opportunity costs enter office: They are more talented and/or place higher value on the mandate so that they are willing to work harder.

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<sup>1</sup>By restricting my study to closed-list proportional representation (PR) systems, I assume that voters can only pick a party and do not impact the final choice of candidates. Their decision is not further discussed and is treated as noise in the remainder of this article.



First, if women anticipate discrimination or underestimate their talent, they have to work harder to succeed. The pool of elected women would value office more, due to their bigger investment. The logic is parallel to the one pursued by Black (1972) in his seminal study of political ambition among local councilmen. He argues that representatives place a higher value on their office when it was hard to obtain. It is the effect of a screening process: Only the most committed candidates enter the most demanding races. He furthermore points out that those who initially had a considerable desire to be selected are also the most likely to seek reelection. This leads to the first hypothesis that female representatives are more likely to aspire to a long career in Parliament when the threshold is hard to pass.

**Hypothesis 1a.** *The probability that women aspire to a long career in Parliament increases when the initial selection hurdle is harder to pass.*

Second, parties seek to select the most talented legislators for their list.<sup>2</sup> If the party discounts talent – either by relying on stereotypes or due to an inability to observe signals – only the most qualified women will pass. The same logic applies if women themselves discount their aptitudes. Although we cannot directly measure talent, we can observe the performance of elected officials. At equal levels of effort, the most talented members perform better. This leads to the hypothesis that women perform better when the initial selection is tough.

**Hypothesis 1b.** *The performance of female members of Parliament increases when the initial selection hurdle is harder to pass.*

The purpose of this part of the study is to observe the selection effect of biased recruitment. In the transition from “old” to “new” practices following the adoption of a quota, I anticipate several observable changes in talent and behavior within the group of elected members.

As far as candidate quality is concerned, all quotas are designed to lower the entry costs for female candidates. We would therefore expect a decrease in the talent of female

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<sup>2</sup>“Talent” in this respect pertains to any quality which the candidate cannot himself alter over the period of study.

members when quotas apply. The point of comparison is important, however. In the absence of quotas, we expect that women overperform compared to men. Because of that initial difference, the effect of a policy change can only be assessed within each gender. Women should be compared to women. Moreover, the flipside of a quota being introduced is that the number of seats available to men is reduced. This would imply a harder competition among men for the remaining slots. A corollary would be an increase in male talent when quotas apply.

In addition to the immediate effect on candidate quality, I also expect a change in party and candidate behavior depending on the type of quota implemented. Legislated quotas are exogenous and compulsory. Parties may comply without fully adhering to them. If effective, quotas induce parties to deviate from their preferred selection criteria and name candidates they would not otherwise have chosen. In such cases, parties are uncertain about the outcome of the initial selection. The result is a “super surveillance” under which women need to prove their aptitude to hold elected office.

## **Consequences of uncertain candidacies**

The argument is similar to the more formalized notion in the literature on political agency that voters and parties are sensitive to the informational context in which candidates are selected. Banks and Sundaram (1998) present, for example, a two-period model which combines the effect of selection with the behavioral incentives of a sanction. Parties make repeated decisions over the course of a member of Parliament’s career, each time using the information at hand. The first selection is made based on parties’ prior beliefs about the future performance of candidates. At the end of each term, parties may update their beliefs in light of the candidate’s record and decide whether to retain him or her for another term.

Banks and Sundaram (1998) assume short political careers, which means that parties seek to (re)select the best candidate by discounting efforts made in office. Reelection-seeking incumbents, however, react in anticipation of a potential deselection (as if it were a sanction) by exerting more effort in order to display their competence. The rationale

behind selection will thereby dominate when careers can be expected to be short, while accountability increases when career lengths are foreseeably long.

The model predicts that uncertain prior beliefs lead parties to rely more heavily on incumbent records, since they, at the reselection stage, have the occasion to reassess their choice. I expect the same logic to apply following the adoption of legislated quotas. A party which has not yet internalized the new requirements from a quota is more likely to nourish doubts about the aptitude of the women selected. This leads to a greater reliance on in-house performance when deciding whether to retain incumbent female members. My third expectation is therefore that a good record of service has a bigger impact on women's careers when legislated quotas apply.

**Hypothesis 2a.** *In-house performance has an increased effect on the reselection of women who entered through legislated quotas.*

It is important to note that the prediction is driven by the *uncertainty* which surrounds the initial entry into office of quota women, and not the belief that they are unqualified. Such a belief would imply a lower probability of female reselection, while the effect of service would be constant across all candidates. In contrast, I expect that parties have little confidence in their original evaluation and are willing to make a reassessment.<sup>3</sup>

My last hypothesis is not a direct effect of the quota per se, but a consequence of parties' reactions to the quota. Women stand to gain more from a good record of service when quotas are legislated. They are well aware of the parties' increased emphasis on a track-record. Reelection-seeking female candidates are therefore incentivized to work harder during their mandate. This leads to my fourth expectation that women from legislated quotas work harder than their peers.

**Hypothesis 2b.** *Women from legislated quotas know the selectorate emphasizes performance, and therefore increase their effort to perform well.*

Note that I distinguish between *effort* and *performance*. Effort pertains to all actions that representatives may undertake freely to promote the interests of their constituents.

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<sup>3</sup>The two expectations are compatible: Parties may well expect quota women to be of lower quality, yet recognize being uncertain about how these women will perform. The baseline prediction for quota women would be negative, increasing rapidly with performance.

Performance, on the other hand, is a measure of the influence they obtain through these actions, which they cannot control.

In the next section I detail how I measure and test my hypotheses on the case of the European Parliament.

## **Data and variables**

In this section, I start by explaining why the period in the European Parliament (EP) between 1999 and 2014 is ideal to test the effect of exogenous quotas (Subsection 1). I then explain my data sources and structure, my empirical strategy and how I measure key variables (Subsection 2).

### **The European Parliament – before and after the legislation of quotas**

As a supranational assembly, the EP hosts over 700 representatives directly elected from the current 28 member states. In office, members of the European Parliament (MEPs) share the same institutional context. They sit within transnational political groups and face the same legislative agenda. Key positions in Parliament are controlled by the transnational leadership, which applies a single set of criteria to decide how effort translates into influence. In order to make cases more comparable, I restrict my study to the 11 member states which applied closed lists during election.<sup>4</sup> While all MEPs are elected from a PR ballot, approximately half hail from candidate-centered systems. The increased intra-party competition induces members to spend less time in Parliament (Carey and Shugart, 1995; Høyland, Hobolt and Hix, 2013), and policy leadership tends to have a negligible effect on reelection prospects (Wilson et al., 2016). Their incentives to attend committee meetings and pass legislation are therefore less pronounced. For reasons of comparability, these cases are excluded.

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<sup>4</sup>Austria, Bulgaria, Estonia (2009), France, Germany, Greece (2004 and 2009), Hungary, Portugal, Romania, Spain and Great Britain

Despite the similarities in the retained cases, the sample contains considerable variation in how MEPs enter into Parliament. I observe a total of 68 national parties that are responsible for recruiting candidates. Their perception of women in politics and application of party-level quotas varies. I draw on that variation in order to observe how changes in the selection hurdle lead to changes in the quality of elected women. More importantly, three countries – France (2000), Portugal (2006) and Spain (2007) – adopted legislated quotas under the period of study. In the first term (1999-2004) these countries are observed prior to the change in policy. France is observed after the policy implementation over the following 10 years, while Portugal and Spain only in the last term (2009-2014). I thus follow a “before-after” design in which the remainder of the member states serves as control group to account for time-dependent idiosyncrasies.

The legislated quotas can be seen as exogenous, although not randomized. They were passed by a majority of the members of the national Parliaments, but are addressed to the electorate in all parties across the political spectrum and at all levels of government. Furthermore, the public debate was mainly concerned with the underrepresentation of women at the national – and not the European – level. Last, the quotas were first applied in the European elections at two different time points, which further controls for time-dependent characteristics.

Three conditions have to be present for the legislated quotas to produce the hypothesized effects: First, recruitment has to be biased to begin with. Second, quotas must be mandatory, with few loopholes, so that parties in fact alter their selection. Third, parties do not immediately change their preferred selection criteria but proceed to an ad hoc addition of women in order to comply with the law.

The countries in this study can be qualified as neither critical nor most-likely cases of such an implementation of quotas. On the one hand, the quotas did not seem to produce a substantial effect. A number of left-wing parties had already applied party-level quotas for some time prior to the legal change. Moreover, the proportion of women from France, Portugal and Spain was higher than in the control group<sup>5</sup> to begin with (40% against

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<sup>5</sup>The proportion for the control group is calculated among the countries which are present in the sample during all three periods: Austria, Germany and Great Britain. Including the other countries does

33% in the 5<sup>th</sup> Parliament). Last, the relative increase in female representatives in the national delegations has not been very different from that of other member states which did not adopt new quotas (up to 46% against 39% in the the 7<sup>th</sup> Parliament).

On the other hand, country-level studies indicate that the reforms also encountered substantial resistance. Parties did not immediately change their preferred selection criteria. In all three countries, laws were adopted as high-profile policies following the entry into power of leftist governments.

In addition to the opposition from the major right-wing parties, the reforms also met opposition from the left side of the spectrum. For example, Luc Ferry, a member of the French Socialist Party, worried that the reform "...runs the risk of creating '*quota women*', elected women who could, rightly or wrongly, be suspected of owing their entry into politics more to legal obligations than to their personal merit" (my italics; Micheline Amar, *Le piège de la parité*, 1999, p. 124, cited in Murray, 2010, p. 95). The Portuguese Communist Party similarly rejected the law, arguing that differences in political participation had socioeconomic origins that could not be fixed by quotas (Baum and Espírito-Santo, 2012, p. 327).

The adoption seemed to be the least controversial in Spain where, by the time of the reform, even the fiercest opponent of quotas (the Popular Party) had adopted targets to boost female representation (Verge, 2012, p. 399).

Resistance continued after the reforms, with parties often choosing to field women in unwinnable seats in all three countries (Murray, 2004, 2012b, 2013; Verge, 2013). Election concerns had a particularly negative effect in the French case where the national electoral system (two-round single-member plurality) led parties to prefer the financial penalties incurred by naming male incumbents over losing seats. Thus, even the main instigator of the law, the French Socialist Party, sustained a yearly loss of 1.5 million euros in the 2002-2007 period. (Murray, 2007, p.575).

While the problem has been less pervasive in the second-order PR context of the European Parliament, Southwell (2013) still notes that the passage from a nation-wide

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not modify the results much.

French constituency to eight regional entities in 2004 has dampened the effect of the reform. Overall, these considerations have led Murray (2013) to conclude in the French case that the on-the-surface “fast-track” solution of quotas has led to an incremental change in women’s representation. Her observation meshes with the argument that top-down introduction is frequently accompanied by inertia in the actual recruitment criteria. The tension between targeted goals and party practice leads to the hypothesized post hoc accountability of quota women.

## **Variables**

I have described a theoretical understanding of the recruitment process of incumbent candidates. Now, I observe empirical implications at the different stages of the process. Several measures successively serve as explanatory and explained variables. Unless otherwise stated, all information is drawn from the EP website.

### **Explained variables in the exploration of biased recruitment**

I start with a pre-reform observation of biased recruitment. If women have to work harder or be more talented to obtain office, then these differences are observable in the pool of elected candidates. I start by tracing variations in value of office and talent back to variations in how elected candidates were recruited. I draw on performance as a proxy for talent. The effort MEPs produce is, in this respect, an intermediate variable.

*Value of Office* is measured as the intention to stay in Parliament at least another ten years. That is, the MEP aspires to reelection. The variable is binary and only observed among the respondents to the EPRG Survey (Farrell et al., 2011). The survey is administered following the election of each new legislature and, in the current sample, had a response rate of 27%. Some 27% of the respondents also expressed a clear intention to extend their term beyond a decade. Career spans are indeed short in the European Parliament. The median length of tenure among individuals in the sample was 6 years, only slightly longer than one term. In contrast, the sample also includes 39 members who had stayed more than a quarter of a century. If women have to work harder to be

selected, I expect they aspire to longer careers.

*Performance* is measured as the count number of high-impact pieces of legislation an MEP handles during a term. Drafting legislation on behalf of their committee is a position which members can strive for, but not self-select into. The European Parliament is a committee-oriented legislature: proposals are drafted and consensus is reached in committee prior to the plenary reading. In committee, draft legislation is delegated to one of the political groups which appoint an individual member to handle the dossier. The member writes a “report” on behalf of the entire committee and defends the amended proposal during the committee meetings, plenary deliberations and inter-institutional bargaining (Corbett et al., 2007). The institution of “rapporteurs” clearly identifies key players in Parliament other than the leadership itself. If national parties seek influence, they need their members to be chosen to write reports. Previous studies have shown that having an influential position increases the probability that a candidate will be selected by their party for reelection (van Thomme et al., 2015; Frech, 2016). This is particularly true in the case of high-impact reports, which are allocated on a selective basis and are thus a clear signal of candidate quality (Hermansen, 2016). Legislation is defined as “high impact” if it is passed under a procedure in which the European Parliament is a co-equal legislator to the Council (i.e., codecision and budget procedures). Allocations are not evenly distributed among members, and thus help discriminate between rank-and-file legislators. In the sample, 58% of the observations did not serve as high-impact rapporteurs during their term. Among those who did serve at least once, in contrast, the average is three. The performance measure first enters the analysis as a dependent variable, reflecting the consequence of gender bias at the pre-election stage. It then reenters as an independent variable, explaining reselection.

### **Explained variables in the exploration of uncertain candidates**

In the second part of the analysis, I compare the post-reform behavior of parties and quota women with their pre-reform behavior, as well as with the control group. I suggest that quota parties dissipate uncertainty by relying more heavily on incumbent candidates’



records of service. Reselection is, in this case, the explained variable, while performance acts as an explanatory factor. I also expect that quota women anticipate parties' reactions and are incentivized to work harder once elected. In the last analysis, effort is the explained variable, whereas it was previously included as a control.

*Reselection* is a binary measure of the allocation of safe seats to incumbent members. It is coded from electoral lists presented in the European elections (the 1999, 2004, 2009 and 2014 elections). These lists were gathered from the European Parliament information offices as well as national websites. A list placement is classified as "safe" if a member is put higher than the number of seats held in a given circumscription prior to the election. 46% of the MEPs in the sample were renominated to a safe seat, while 54% returned to office.<sup>6</sup>

*Effort* is measured in two different ways. *Attendance in Committee* – in contrast to report allocations, which are selective – only depends on the individual and requires no cooptation from the group leadership. It is operationalized as the proportion of times an MEP has attended committee meetings as compared to the most assiduous members (capped at 400 meetings). The information is drawn from attendance lists reported in the minutes of committee meetings. Committees convene between one and three times per month during each session. Recent studies emphasize that a minimum of parliamentary activity is required in order to qualify for reports. Attendance in plenary sessions is thus a strong predictor of allocations (Yoshinaka et al., 2010; Hurka and Kaeding, 2012; Hurka et al., 2015). Attendance in committee meetings is a fortiori a prerequisite for entrusting members with other committee tasks. In order to further ensure the robustness of the measure of effort, *Questions* captures the number of parliamentary questions (capped at 100) asked over the term. While I do not expect that written or oral questions lead to report allocations, I consider them to be a core parliamentary task and an open-to-all activity which can boost an MEP's profile with his or her national party. Therefore, asking questions seems a reasonable strategy for candidates who seek exposure.

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<sup>6</sup>The measure closely approximates the probability of reelection. While more sophisticated operationalizations may be possible, I have opted for a measure which is uniform to all member states in all elections regardless of circumscription size, political context etc.

## Explanatory variables – gender and the institutional setting

*Female* indicates whether an MEP is a woman. While I consistently use men as a baseline to which all comparisons are made, I expect that gender differences appear *as a function of* the candidate selection. All models therefore explore the combined effect of gender and the institutional setting through interaction terms. The context can either be characterized by formalized requirements (such as quotas) or informal biases (in the absence of quotas).

I start with a pre-reform analysis of how biased recruitment impacts the quality of elected candidates. I expect that biased recruitment leads to significant differences between male and female MEPs. I further nuance the proposition by assuming that gender quotas intervene to lower the threshold for women.

*All Quotas* indicates whether an MEP entered office within a formalized quota system. It serves to distinguish non-quota women from other women. In the sample, 77% of the women in their first term were elected through quotas, while 23% were not. There were two types of quotas in the sample, distinct in their origin and enforcement.

*Party Quota* and *Legislated Quota* designate MEPs who entered through quotas imposed by the party or by electoral law, respectively. Information is drawn from the quotasProject – Global Database of Quotas for Women (International Institute for Democracy and Electoral Assistance (IDEA) and the University of Stockholm, 2016) and completed where necessary by country-level studies (Baum and Espírito-Santo, 2012; Verge, 2012). I do not expect these two types of quotas have the same effect on candidate selection, and I only theorize the effect of legislated quotas.

The party-level quotas considered here are aimed mainly at national elections and are endogenous to the party. On the one hand, they may be the result of a genuine will to change practices or promote more women. They are more frequently used among left-wing parties. The cost they imply means they are more easily implemented in parties with a certain female power base (Dahlerup, 1988) and are often preceded or accompanied by other actions to promote female candidacies, such as women’s training sessions (Loven-duski and Norris, 1993, p. 8). This would indicate that parties already have leveled the playing field, and that their quota women are quite similar to men. However, as noted

in the Spanish case, parties may even strategically seek to promote female candidacies in order to gain credibility with their voters (Verge, 2012). In these cases, quotas are not merely applied to mend a perceived injustice or select the best candidates. The visibility of female representatives is valued as such, and their quality is of less importance. On the other hand, the de facto application of party-level quotas is not sanctioned by an external actor. As noted in the case of the Portuguese socialists, parties may well adopt formalized quotas, while omitting to apply them over long periods of time (Verge and Espírito-Santo, 2016). In such cases, the qualities of quota women would be similar to those possessed by non-quota women. In other words, the empirical implications of party quotas are ambiguous and unique to each party. Where relevant, they are included as a control but not explored further.

Legislated quotas, in contrast, are adopted and enforced exogenously. While the French law, in particular, has been criticized for containing a number of loopholes, all three countries have adopted laws with strong sanctions and fewer gaps for the large-district PR ballot applied in European elections.

### **Control variables for the multivariate analysis**

The analyses include a number of controls. *Incumbent* indicates whether an MEP also served in Parliament during the last term. It is an important control when considering performance, as experienced members are preferred when high-impact reports are allocated (e.g.: Yordanova, 2011). This also means that MEPs need to provide less effort as their career advances, although their performance may continue to improve (Banks and Sundaram, 1998). Given the short median tenure in Parliament, it is to be expected that incumbent members are less likely to aspire to long service. Generally, we also know that male incumbency tends to work against female newcomers. In the sample, 34% of the observed incumbents were female, while the same figure among freshmen is 40%.

Performance is measured as the count number of high-impact pieces of legislation that a member is involved in drafting. However, the complexity of the dossier may vary from case to case. Where relevant, analyses thus include a control for the difficulty implied in

drafting reports. *Complexity of Reports* accounts for the mean number of recitals that rapporteurs have included in their drafts. Recitals formalize the reasons for the contents of the text. A similar measure has previously been used by Kaeding (2006) to explain delays in member state transposition of EU directives. It controls for the possibility that women may be assigned to a high number of low-salience dossiers, rather than obtaining real policy sway. Non-rapporteurs naturally have a zero count. The median high-impact rapporteur also did not use the opportunity to use recitals, while the mean rapporteur used two recitals. The distribution is thus heavily skewed and has – in line with previous research – been log-transformed.

*Elected on a Safe Seat* is the lagged version of the Reselection variable. It indicates whether an MEP entered Parliament on a safe seat. It is included as a control in two instances. First, while representatives who value office are likely to seek reelection, they also make a calculation of the probability of winning next election (Black, 1972). If the party has previously allocated a safe seat, it is an indicator of the likelihood of a future reselection. Second, a lag is included when modeling the party’s choice of candidates at the reselection stage so as to isolate the effect of candidates’ performance in office from parties’ prior beliefs during the initial selection.

## **Bivariate statistics – differences between women**

Bivariate statistics for new entrants displayed in Table 1 give some indication of the consequences implied by differences in quota origin: About half of the women entered the EP through party-level quotas. They tend to have about the same experience from national politics as male newcomers but are the most likely to have entered on a safe seat. They are also slightly more likely to obtain a safe seat in the upcoming election. Yet – at the beginning of the term – they were the least likely to aspire to a long European career. They spend the most time in committee and ask at least as many questions as other MEPs, although their track records of high-impact legislation are somewhat worse. The figures suggest that parties that adopt quotas are better at recruiting women and put more value on female presence regardless of level of ambition. I have not theorized

either the quality or the behavior of these women and will not dwell on it any further.

In contrast, women from legislated quotas tend to be older and more highly educated than their peers, while they have less experience from national politics. They were less likely to enter on a safe seat and less likely to obtain one in the next election. These observations are in line with the idea that quotas are legislated to address the dearth of women in (national) politics while parties hold on to old practices. When they access office, these women are more likely to aspire to a long career – surpassed only by the non-quota women. The effort they produce is also higher than that of non-quota women, while their record of service is in fact higher, and equal to that of the men.

Finally, bivariate statistics lend some support to the hypothesis that non-quota women are of higher quality than other elected members: They are twice as likely as men to aspire to a lengthy career and – despite their lower investment in committee work – they handle almost the same amount of high-impact legislation. Overall, the table shows that – while there are few differences between men and women in general – global statistics hide substantial variation within the group of female representatives. The remainder of the article is devoted to tracing these differences back to the initial candidate selection using a multivariate approach.

## **The data structure and model choices**

My unit of analysis is MEPs who were registered as members at the end of each legislative term. The list of names, age, gender, background and party affiliation is provided by the EP website. Since I assume a defined party selectorate seeking influence in the European arena, the data does not include independent members and members of technical and eurosceptic groups (i.e., the EDD, IND/DEM, UEN, TDI, EDF, ECR and ITS groups are excluded). The data set thus includes 1,131 observations of a total of 765 individual MEPs over three legislative periods (1999-2014).

In order to test my hypotheses, I run a series of generalized linear models with a varying link function ( $g()$ ), depending on the explained variable in question ( $Y_i$ ). My interest lies in the interaction between gender and the institutional setting, whether it

concerns the effect of a gender bias among women (in the absence of quotas) ( $b_1$ ) or the effect of quota law among women ( $b_2$ ).

$$Y_i \sim g(\mu_i)$$

$$\begin{aligned} \mu_i = & a_{Nationality_i} + a_{Party_i} + a_{Legislative\ term_i} + a_{Transnational\ group_i} \\ & + b_1 \times Female_i \\ & + b_2 \times Female_i \times Quota_i \\ & + b_3 \times Quota_i \\ & + b_{4,...,j} \times Controls_{1,...(j-3)} \end{aligned}$$

All models further control for unexplained variation from different sources: They include varying intercepts for each legislative term, transnational party group, nationality and national party. The effect of legislated quotas can thus be attributed to the change in legislation, and not to national, party level or other time-dependent differences. For clarity, more detailed descriptions of each model are provided in the empirical subsections and in the online appendix.

	Women		Men		
			No Quotas	Party Quotas	Legislated Quotas
Age	51.31	53.44	49.46	51.86	54.01
Education (1 - 4)	3.27	3.34	3.19	3.19	3.64
National MP or Minister (0 or 1)	0.25	0.29	0.24	0.27	0.19
Elected on a Safe Seat (0 or 1)	0.55	0.54	0.52	0.63	0.42
Party Quota (0 or 1)	0.46	0.41	-	-	0.28
Legislated Quota (0 or 1)	0.24	0.19	-	0.14	-
Effort (Attendance in Committee) (0 - 1)	0.37	0.37	0.34	0.4	0.38
Effort (Questions) (0 - 100)	31.35	32.53	27.21	31.22	35.66
Performance (High-Impact Reports) (0 - 24)	0.72	0.79	0.76	0.64	0.79
Value of Office (Aims at Lengthy Career) (0 or 1)	0.45	0.32	0.61	0.33	0.44
Reselection (Renominated to Safe Seat) (0 or 1)	0.5	0.48	0.5	0.53	0.38
Number of observations	224	333	82	104	53

Table 1: Bivariate statistics: Mean values among MEPs in their first legislative period (1999-2014).

## Results – the effect of biased selection on the quality of elected candidates

In this section, I explore the selection effect on the pool of representatives when recruitment is biased. If women are held to higher standards than men (by themselves or by their selectorate), only women who are willing to work harder to gain office (Subsection 1) or are more talented (Subsection 2) are able to secure (s)election.

### Women who pass the selection hurdle aspire to longer careers ( $H_{1a}$ )

When recruitment is biased, I expect women elected without quotas to be significantly more likely to aspire to long careers than men. My argument is that women who aspire to hold office need to value the office more highly than men do in order to make the additional investment.

I fit a binomial logit model to explain *Value of Office*. It is modeled on the subset of 305 MEPs who answered the EPRG Survey in the sample. The respondents were asked whether they could see themselves in Parliament a decade from now. The different categories of women (no quota/all quotas) are included as dummies depending on whether a quota system applied. The baseline is therefore all men. My expectation is that non-quota women are significantly more likely to answer “yes”. Although the elected officials who value office the most are the most likely to seek reelection, they also calculate the probability of winning before they rerun (Black, 1972). The party’s previous decision to put candidates in a safe seat is indicative of the future probability that the candidate will earn the same privilege. The model therefore controls for whether MEPs entered office in a safe seat, as well as incumbency, the legislative term, transnational group and nationality.

The results are reported in Table 2 and illustrated in figure 2. They are in line with the predictions of  $H_{1a}$ . Upon entering Parliament, women elected without quotas are more than twice as likely to plan on a lengthy career as men. The difference is not observable among quota women. The effect can therefore not be attributed to qualities inherent in



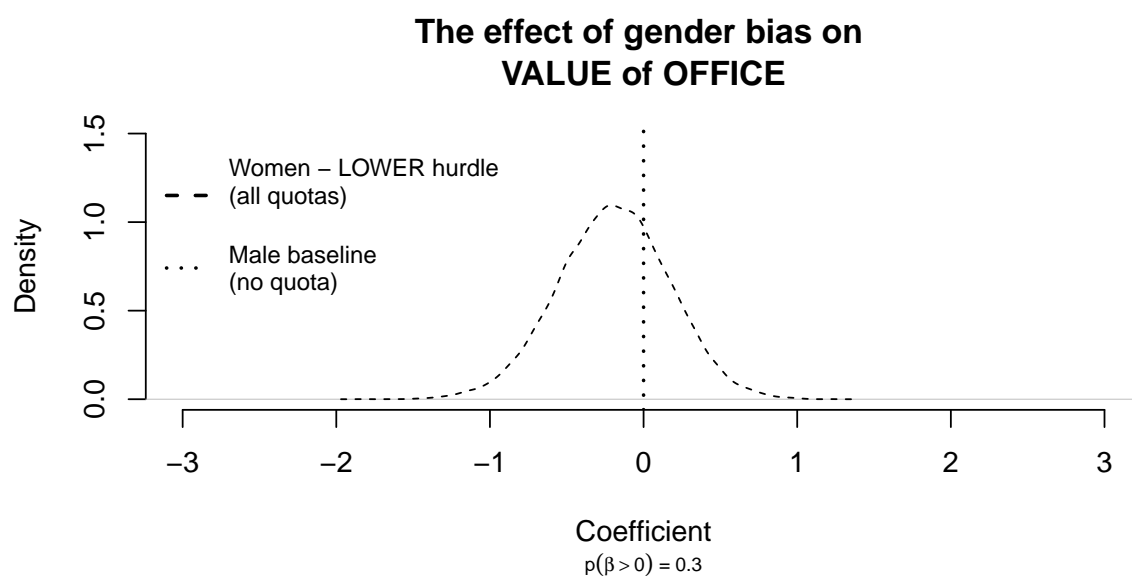
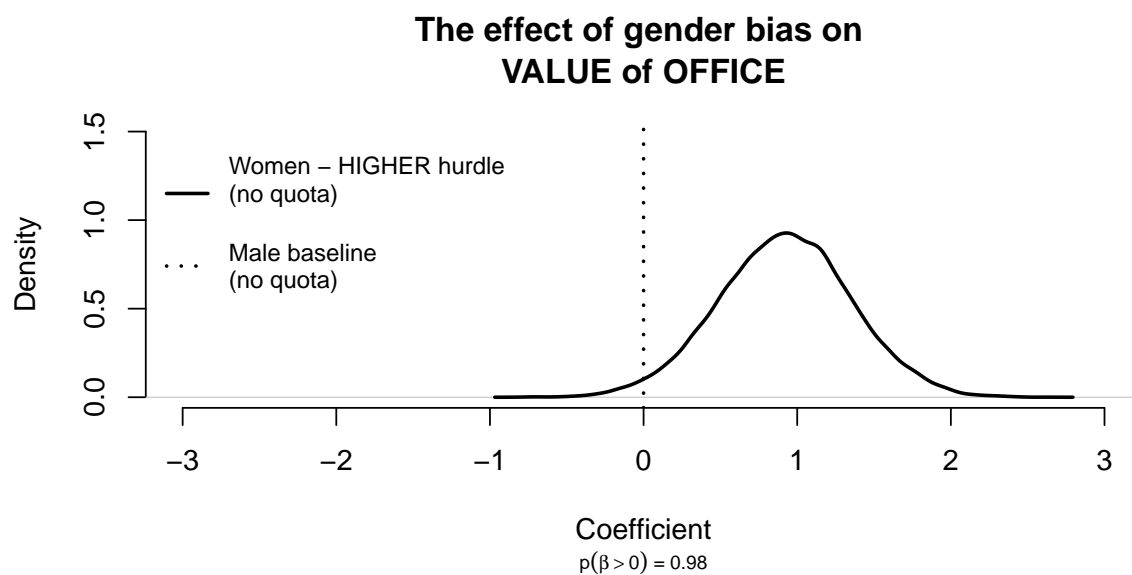


Figure 2: Women not elected from quotas aspire to longer careers in Parliament than other members of Parliament.

Dependent variable: 'Aims at Lengthy Career'	Coef.
Intercept	-0.48 [ -1.06 , 0.07 ]
Female (Elected without Quota)	0.92 [ 0.06 , 1.77 ]
Female (Elected from All Quotas)	-0.19 [ -0.92 , 0.5 ]
Incumbent	-0.78 [ -1.36 , -0.23 ]
Elected on a Safe Seat	-0.49 [ -1.08 , 0.11 ]
Number of observations	305
$\sigma^2$ (Legislative Term)	0.11
$\sigma^2$ (Transnational Group)	0.17
$\sigma^2$ (Nationality)	0.21
<b>Note:</b> Median effect with 95 % symmetric posterior density interval.	

Table 2: Women elected without help from quotas are more likely to seek a EU-level career. Results from a binomial model.

women. The results speak to the higher investment that women have to make to obtain office due to biased selection.

In the next subsection, I examine whether gender bias also leads to the selection of better-skilled female legislators. I then contrast the results with situations in which quotas lower the requirements for women.

### **Women who pass the selection hurdle are higher-performing ( $H_{1b}$ )**

In terms of  $H_{1b}$  the performance of female members of Parliament increases when the initial selection hurdle is tougher. I consider different variations of the threshold: I compare female with male performance in the absence of quotas (1). It is an explicit test of biased recruitment. Furthermore, since all gender quotas are designed to lower the bar for women, I also compare the performance of non-quota women with those from party-level quotas (2) and the effect before and after the adoption of legislated quotas (3). The

comparisons across women make the design robust to alternative explanations related to characteristics inherent to women.

The dependent variable is *Performance*, measured as the number of high-impact reports handled on behalf of a committee. I fit a Poisson regression. The independent variables of interest are *Female* and the interaction terms between *Female* and *Legislated Quotas* as well as *Female* and *Party Quotas*. I expect that women perform significantly better than the male baseline in the absence of quotas, while the application of quotas (the interaction terms) has a negative effect. Specifically, I am interested in the selection effect on women's talent as legislators. The model consequently controls for covariates other than talent that impact performance: the level of effort in office, incumbency and the average complexity of reports. Varying intercepts account for unexplained variation between legislative terms, transnational groups, nationality and party affiliation.

The results are reported in Table 3. When no formal mechanism ensures female representation, women who pass the selection hurdle perform better. The difference is sizeable. Even when controlling for effort in office, the predicted number of reports among non-quota women is 54% higher than that of non-quota men. The data lends support to the idea that candidate selection in the absence of quotas is biased in favor of men. The cost of forwarding a candidacy is higher for female aspirants. As a consequence, women who finally pass the hurdle are able to garner more reports. Although there can be multiple mechanisms causing the bias, the differences cannot be explained by gender, as they are only observable among sub-categories of women.

When quotas are legislated, the effect of being a woman disappears. The difference is substantial and different from zero. The finding is corroborated by a similar effect when party quotas apply. Furthermore, we also observe an increase in the general performance of MEPs following the electoral reform. A partial explanation may be that quotas restrict the number of seats available to men. This was particularly true immediately after the change in policy, as there was a surplus of qualified (incumbent) male competitors. When competition increases, so does the quality of (retained) male candidates (Murray, 2014).

The same is true for women, insofar as the quality of elected women depends on the

parties' capacity to attract female talent. The quotas enlarge the number of seats available to women. Following the adoption, new women were able to access office who previously did not meet the old standards for female candidates, if only barely. While their ability to garner reports is expectedly lower than their female non-quota homologues, they may still be of equal talent as the non-quota males. When the reform has a minor effect on the number of elected women – as is the case in this sample – it means that the effective threshold for quota women is no lower than the old threshold for men. The sum of these effects is illustrated in Figure 3. While gender differences in talent prior to the quota law were substantial due to biased selection, the differences have been negligible since its implementation.

The analysis conforms to Anzia and Berry (2011)'s observation for the US Congress: Biased selection leads to higher-performing women. Quotas intervene in this relationship to lower the selection hurdle for women while increasing it for men. The outcome is a group of representatives whose performance is not differentiable according to gender.

Dependent variable: 'Performance'	Coef.
Intercept	-0.66 [ -0.9 , -0.45 ]
Female	0.43 [ 0.23 , 0.64 ]
Female * Legislated Quota	-0.38 [ -0.68 , -0.09 ]
Legislated Quota	0.78 [ 0.5 , 1.07 ]
Female * Party Quota	-0.32 [ -0.57 , -0.07 ]
Party Quota	-0.02 [ -0.37 , 0.31 ]
Incumbent	0.51 [ 0.38 , 0.64 ]
Effort (Attendance in Committee)	0.24 [ 0.18 , 0.29 ]
Effort (Questions)	0 [ 0 , 0.01 ]
Complexity of Report	0.48 [ 0.41 , 0.55 ]
Number of observations	1122
$\sigma^2$ (Legislative Term)	0.19
$\sigma^2$ (Transnational Group)	0.1
$\sigma^2$ (Nationality)	0.19
$\sigma^2$ (Party)	0.5

**Note:** Median effect with 95 % symmetric posterior density interval.

Table 3: Women who were not elected through a quota system perform better than other MEPs. Quotas lowers female performance compared to previous levels. Results from a poisson model with varying intercepts.

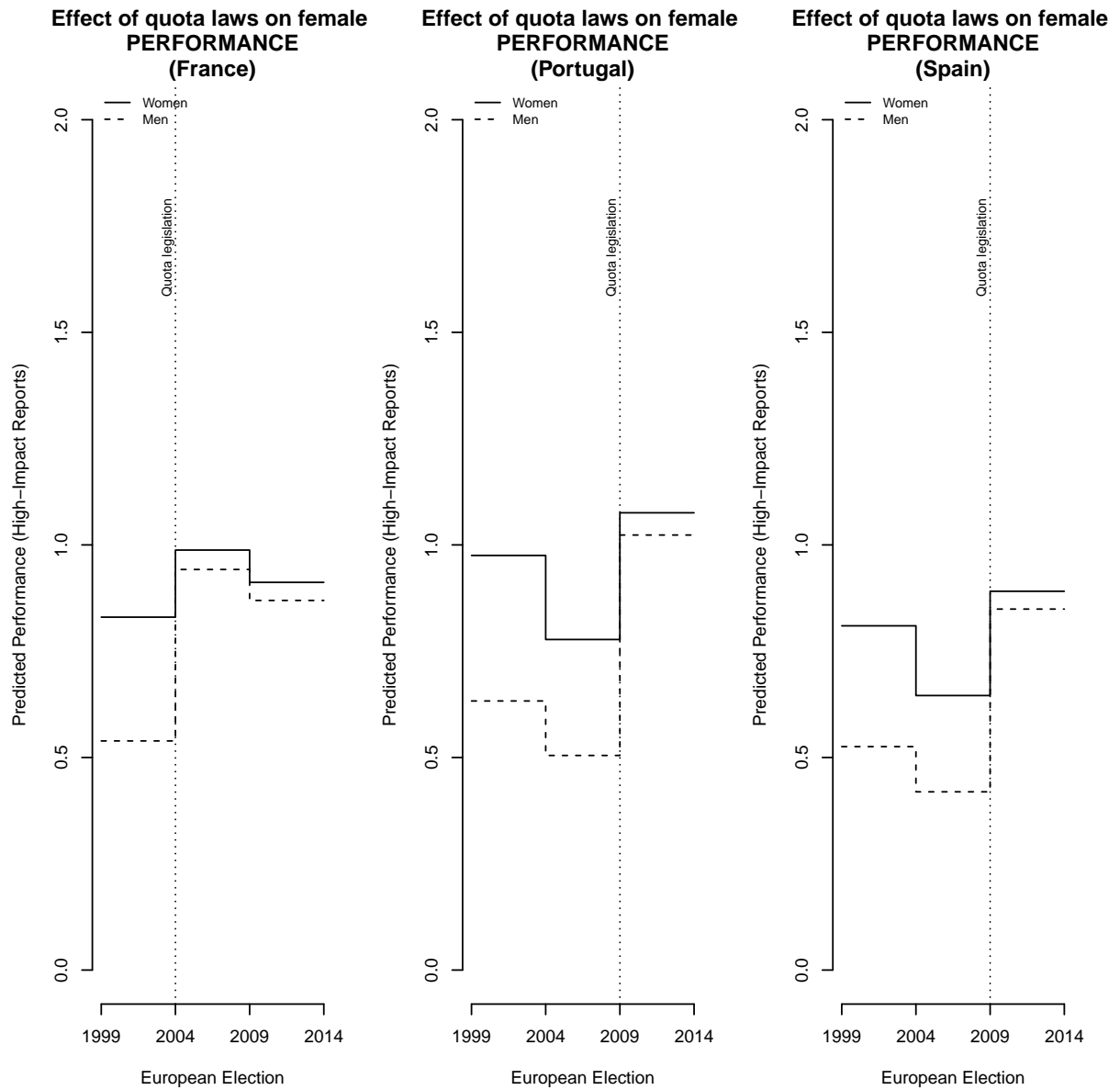


Figure 3: In the absence of quotas, women perform better than men at equal levels of effort. Differences are smaller after the quota reform. Predicted results from a Poisson model of high-impact report allocations with varying intercepts.

## Results – the change in behavior when quotas are imposed

The discussion thus far has concerned the effect of a biased selection on the *quality* of female MEPs. In this section, I explore the change in *behavior* when quotas induce parties to deviate from their preferred selection. I start by observing how parties alter their reselection strategy (Subsection 1) before inquiring how women react (Subsection 2) when quotas apply.

### Higher accountability of quota women ( $H_{2b}$ ).

Quotas can be a “fast track” to increase female representation. However, when they originate from Parliament rather than within the party, the commitment to address the bias may be lower. Legislated quotas consequently tend to be less effective than party quotas (Tripp and Kang, 2008, p. 351-52). When quotas bring women into office whom parties otherwise would not have selected, their ability to perform as legislators appears uncertain. During reselection, parties update their beliefs about all candidates. However, their prior uncertainty about female candidacies leads them to put more emphasis on new information. Candidates’ records of service are valuable signals in this respect.

I run a binomial logit model to explain *Reselection*, measured as the allocation of safe seats to incumbent members. Predictors of interest are the *Performance* interacted with *Female* and *Legislated Quota*. I expect the term to be positive and different from zero, implying that women from legislated quotas benefit from a greater effect of a good track record than other MEPs. The model controls for the average complexity of reports, incumbency, whether an MEP entered Parliament on a safe seat (i.e., a lagged version of the dependent variable) and an estimation of his or her intention to seek reelection. The latter is considered a latent/unobserved trait which is estimated simultaneously to the main equation. Details are provided in the online appendix. The model also includes varying intercepts for the legislative term, transnational group, party affiliation and nationality.

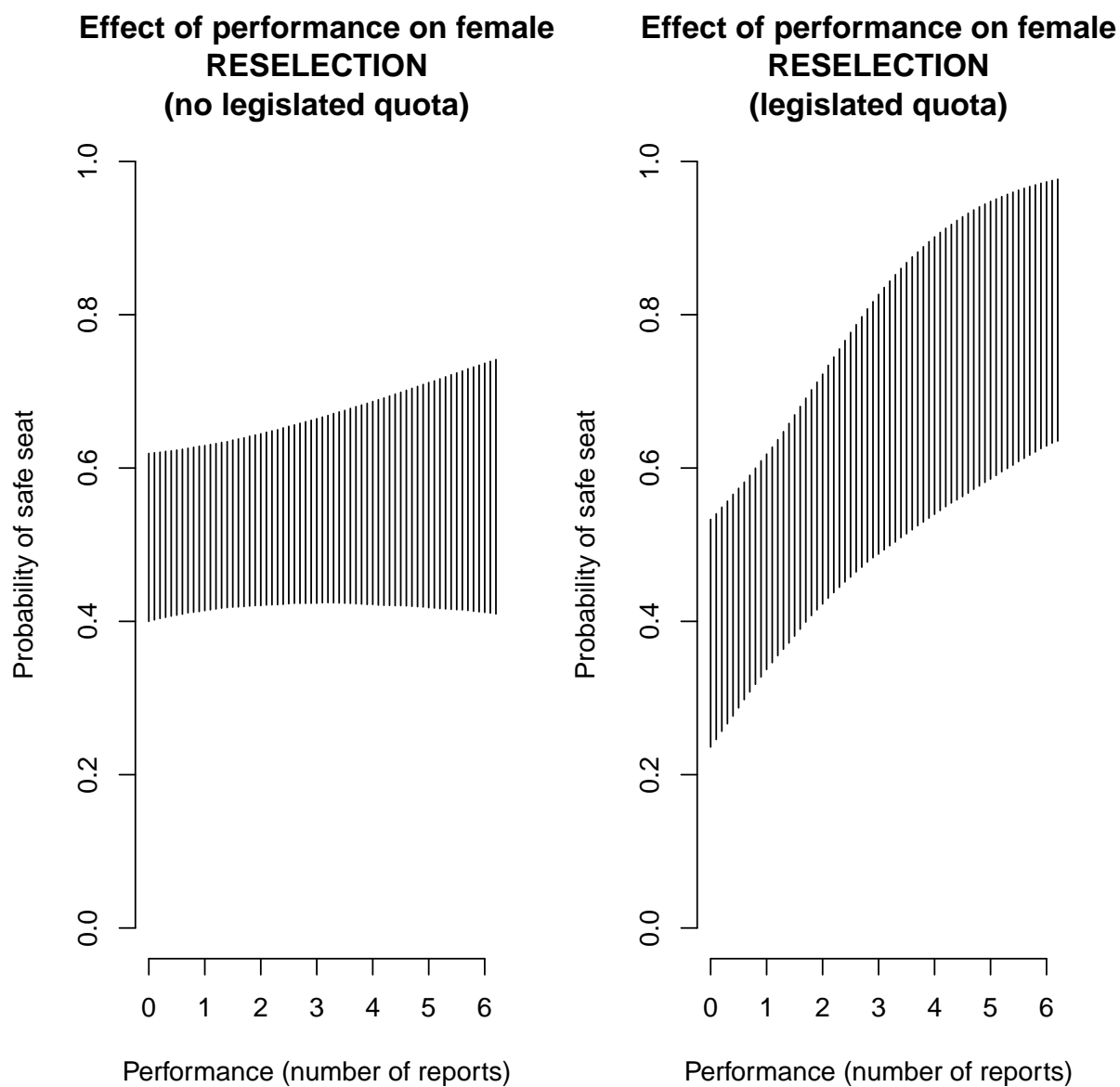


Figure 4: Legislated quotas lead parties to hold women more accountable: They have a greater effect on performance.



Dependent variable: 'Safe Seat'	Coef.
Intercept	-1.33 [ -1.78 , -0.92 ]
Performance	0.13 [ 0.04 , 0.24 ]
Female * Legislative Quota * Performance	0.48 [ 0.08 , 0.93 ]
Female * Performance	-0.08 [ -0.25 , 0.07 ]
Female * Legislative Quota	-0.48 [ -1.37 , 0.38 ]
Legislative Quota * Performance	-0.12 [ -0.33 , 0.09 ]
Female	-0.05 [ -0.42 , 0.32 ]
Legislative Quota	-0.06 [ -0.68 , 0.56 ]
Complexity of Report	0.04 [ -0.32 , 0.41 ]
Incumbent	-0.67 [ -0.98 , -0.35 ]
Aims at Lengthy Career (estimated)	1.4 [ 0.85 , 1.95 ]
Lag (Elected on a Safe Seat)	0.99 [ 0.65 , 1.35 ]
Number of observations	1122
$\sigma^2$ (Legislative Term)	0.1
$\sigma^2$ (Transnational Group)	0.42
$\sigma^2$ (Nationality)	0.42
$\sigma^2$ (Party)	0.33
<b>Note:</b> Median effect with 95 % symmetric posterior density interval.	

Table 4: Women elected from legally binding qutoas have a greater effect of performance during reselection to office. Results from a binomial model with varying intercepts.

The results are reported in Table 4 and give support to the hypotheses. The change in the effect of performance among women following the reform is illustrated in Figure

4, and it is substantial. Performance has a positive effect on the odds of reselection for all MEPs: For each piece of high-impact legislation handled by the baseline MEP – male or female – the odds of obtaining a safe seat increases by 14%. In contrast, the similar figure for women elected within a legislated quota is 85%. The model controls for both party-specific and time-varying elements as well as gender. The alteration in reselection criteria can therefore be traced back to the change in quota policy.

The effect is driven by the *uncertainty* following the selection of additional women. In contrast, the interaction between *Female* and *Legislated Quota* (necessarily included) captures the prior belief that quota women are inferior. I have not theorized such a belief, and the model is not calibrated to test it convincingly.<sup>7</sup>

Two elements of the quota legislation drive the results: First, it has an exogenous origin. Parties do not necessarily adhere to the policy and/or have not (yet) altered their selection practice in a more gender-neutral direction. Second, candidate quotas are mandatory. To comply with the law, parties add women to the list without being entirely convinced about their quality. A candidate’s record of service therefore provides valuable information that the party did not have prior to the first selection. The result is a “super surveillance” of quota women: increased accountability to compensate for perceived glitches in the initial recruitment. The system creates strong incentives for reelection-seeking women who can expect a greater payoff for their investment in office.

### **Greater efforts of quota women ( $H_{2b}$ ).**

Women elected from legislated quotas struggle with a “label effect.” In-house performance can dissipate doubts about their quality as legislators. Quota women are thereby incen-

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<sup>7</sup>First, in order to isolate the effect of an MEP’s record of service, I have included a lagged version of the dependent variable which subsumes many of the beliefs parties held before the last selection. Second, I have included an estimate of the candidate’s intention to seek reelection in order to isolate the party’s decision from that of the candidate. Women who anticipate a lower probability of reselection are also less likely to forward their candidature. Thus, the intention to seek office is, at least partially, an intermediate variable. However, while vastly imprecise, the baseline effect of legislated quota women is negative and of the same magnitude as the allocation of one report. It would imply that these women have substantially lower odds of being reselected unless they obtain reports. This would be in line with the idea that parties hold negative prior beliefs about the women they select. The results neither support nor invalidate such a statement, however.

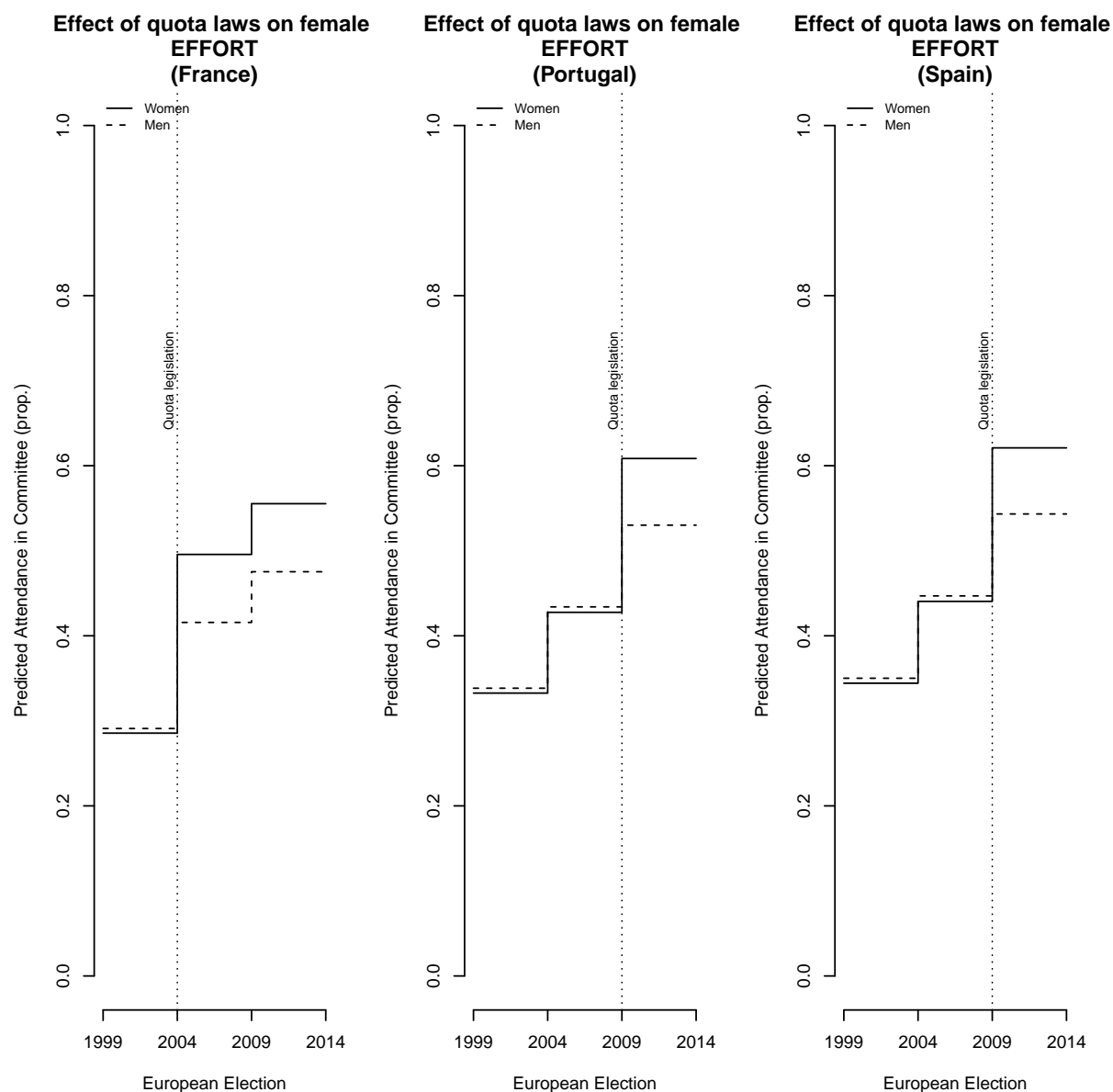


Figure 5: Legislated quotas lead women to increase their efforts. Predicted results from a linear model with varying intercepts.

tivized to provide more effort. Bivariate statistics in Table 1 indicate that these women handle on average slightly more legislation than other MEPs in their first term. According to my argument, this is not the effect of biased selection. Rather, it is the effect of increased effort.

I test the hypothesis through two operationalizations: committee attendance and parliamentary questions. Most legislative work in the EP is done in committees. Attending meetings is a prerequisite for obtaining more influential committee tasks such as rapporteurships. As such, attendance has a direct effect on report allocations. Parliamentary questions furthermore allow members to build a policy profile perceivable by their party. While oversight of the executive is a key parliamentary task, it does not capture my definition of candidate performance in terms of influence insofar as it is accessible to all and dependent only on the MEPs' choice.

*Effort* is modeled as a function of the interaction between *Female* and *Legislated Quota*. I expect the term to be positive. For comparison, the model also includes a similar interaction for party quotas. Given that the incentive to exert effort decreases as retirement approaches, I further include a control for whether the MEP has already been reelected at least once, as well as for the number of years the MEP has been a member during the current term. The model also contains varying intercepts for the legislative period, transnational group, nationality and party affiliation. First, I run a linear model in which committee attendance is the dependent variable operationalizing effort. Since the measure is bounded between 0 and 1, it is transformed to obtain an approximately normal distribution ( $\log(\frac{x}{1-x})$ ). Second, I test the same hypothesis in a Poisson regression by considering the number of parliamentary questions asked by a given member (capped at 100).

The results displayed in Table 5 are in line with the expectations. The effects are substantial and bounded away from the constituent terms of the interaction. The predicted effect of the reform on women's investment in committee meetings is further illustrated in Figure 5. While quotas contribute to leveling out gender differences in terms of performance, the reverse is true for investment in office. Following the adoption of legally

binding quotas, the attendance rate for female MEPs increased by 42%; the growth in parliamentary questions was 19%. Once again, the inclusion of relevant controls means that the cause can be traced back to the change in the electoral law.

The findings indicate that quota women are receptive to electoral incentives in a similar way as other elected officials. The effect is driven by two factors: On the one hand, parties' visible resistance to the law means women know that parties are uncertain about their quality. The importance of the origin of legislated quotas (exogenous) for the change in behavior is further corroborated by the lack of effect of party quotas (endogenous). It is not the gender quotas themselves that cause women to exert more effort, but rather the parties' reaction to the policy. On the other hand, quotas are exogenously enforced and thus perceived as credible. It means that quota women know they are participating in a competition in which gender-related prior beliefs and noisy signals cannot affect the outcome. Performance, in contrast, provides precise signals which distinguish them from other female candidates. They thereby produce more effort. The incentive structure implied in legislated quotas contrasts with the example of party quotas which may be visibly enforced in one election, while remaining uncertain in the next.

Dependent variable:	Attendance (linear mod.)	Questions (poisson mod.)
Intercept	-3.4 [ -3.73 , -3.07 ]	1.75 [ 1.64 , 1.86 ]
Female	-0.03 [ -0.26 , 0.2 ]	0.07 [ 0.04 , 0.11 ]
Female * Legislated Quota	0.35 [ 0 , 0.7 ]	0.18 [ 0.12 , 0.23 ]
Legislated Quota	0.15 [ -0.08 , 0.37 ]	-0.19 [ -0.24 , -0.14 ]
Female * Party Quota	-0.03 [ -0.3 , 0.25 ]	-0.07 [ -0.12 , -0.02 ]
Party Quota	-0.15 [ -0.47 , 0.17 ]	0.14 [ 0.06 , 0.21 ]
Incumbent	-0.31 [ -0.45 , -0.17 ]	-0.06 [ -0.09 , -0.04 ]
Years of Term	0.64 [ 0.57 , 0.71 ]	0.35 [ 0.34 , 0.37 ]
Number of Observations	1050	1120
$\sigma^2$ (Legislative Term)	0.4	0.41
$\sigma^2$ (Transnational Group)	0.13	0.35
$\sigma^2$ (Nationality)	0.22	0.67
$\sigma^2$ (Party)	0.07	0.68

**Note:** Median effect with 95 % symmetric posterior density interval.

Table 5: Women elected from legally binding quotas provide more effort in office than other MEPs – male or female. Results from a linear and a poisson model with varying intercepts.

## Conclusion

This article has explored the direct effect of legislated quotas and gender bias on the quality of representation ensured by female members of Parliament. Quality is defined as a candidate’s talent for legislative work and value of office. The latter is important because reelection-seeking candidates can be held accountable.

I have shown that non-quota women tend to obtain more influence and put greater value on office than other representatives because they have had to pass a higher hurdle. I have further demonstrated that all quotas – whether put in place by parties or legislated

by Parliament – contribute to leveling out the differences in talent between men and women. Last, I have established that quotas with an exogenous origin – namely, legislated quotas – also have behavioral effects on democratic representation. Women are held more accountable because of the uncertainty which parties experience in their initial candidate selection. Women are thereby incentivized to invest more effort in the exercise of their mandate.

I have found the European Parliament to be an especially well-suited case on which to test my expectations. On the one hand, I hold institutional constraints and incentives to invest in parliamentary activities constant. On the other hand, the variation in types of quotas and their application to a subset of parties means that comparisons are made across women. The design precludes essentialist explanations of gender differences. Most notably, I have drawn on the adoption of quota laws in some member states to do a “before-after” analysis with a control group.

The study starts with a pre-reform analysis of political recruitment. It concludes that candidate selection in the absence of gender quotas is biased in favor of men. Hence, only higher-quality women are selected. The findings show that, at equal levels of effort, non-quota women capture on average 54% more high-impact legislation than other members. These women are furthermore more than twice as likely to aspire to a long career in the European Parliament.

I have not identified the causal mechanisms for the bias. However, the results shed light on some alternative explanations. First, throughout the study, the differential effect of candidate selection has been compared not only between men and women, but also across female MEPs. The findings cannot be explained by supply-side factors alone, but must come from an interaction with the party selectorate. Second, statistical discrimination based on a biased prior belief (gender stereotypes), seems unlikely to hold over time, as women elected without quotas outperform men. Third, Kanthak and Woon’s (2015) argument that women tend to shy away from competitions with noisy informational environments is partially resolved for the selection of incumbent candidates. The institution of rapporteurs clearly identifies rank-and-file members who perform well. In closed-list

systems where parties are the main principals, this information is likely to influence the decision of who will return to office.

In the second part, I explore the behavioral effect of one specific kind of quota: legislated quotas. The observed change in behavior among women and parties occurs from the tension between “old” and “new” practices which creates a “label effect” on quota women. When quotas have an exogenous origin, parties may not immediately change their selection procedures. The recruitment of women thus entails a greater uncertainty which the selectorate reacts to. These findings hold on two conditions: 1) parties hang on to biased recruitment criteria and 2) mandatory quotas induce them to add women to their lists.

There are two measurable consequences of legally imposed quotas: First, parties react by holding women more accountable post hoc when candidacies are pushed through in the initial selection. Thus, drafting one piece of high-impact legislation increases the odds of a safe seat by 14% among ordinary members of Parliament, while the similar figure for legislated quota women is 85%. Second, women elected under legislated quotas work harder than other members because they stand to gain more by it. Thus, their investment in committee work is 42% higher than among other members – male or female.

The findings entail several interesting policy implications. They take away some of the concerns voiced against legislated quotas: While the selection process might entail uncertain candidate talent, quota women are also held more accountable. Parties’ ability to attract ambitious women who aim to have long careers – and who are therefore responsive to electoral incentives – is of the utmost importance for the quality of representation.

Policy makers may furthermore observe that the average performance of women is lower when quotas apply. This is not to say that representation would have been better in the absence of quotas. There are two reasons for this. First, non-quota women tend to overperform because they are more talented. If quotas are effective, new women access office. The average female performance therefore decreases, even if the party retains the higher-type incumbent women. Second, the average male performance goes up. After the reform only the highest performing men are retained, while the least talented are



supplanted by women who previously did not meet the biased standards. In short, gender quotas lower the threshold for women, while they effectively increase the threshold for men. The empirical question is whether the worst quota women perform worse than lower-tier of non-quota men.

This study suggests several ways forward for future research. First, my main theoretical claim pertains to the effects of *exogenous* and *mandatory* quotas. I have argued that legislated quotas in closed-list systems can be qualified as such. However, the differentiation between party and legislated quotas may be less relevant in other electoral systems. Future research could investigate effects in candidate-centered systems where voters are the main principals. In these systems, all quota are exogenous to the voters, whereas only reserved seats are mandatory. I would therefore expect that the most relevant distinction is between candidate quotas (regardless of their origin) and reserved seats. On the one hand, the knowledge that candidate quotas apply might induce voters to discount female performance, thereby disincentivizing female candidacies. Hence, successful female candidates would look more like non-quota women from closed-list systems. On the other hand, reserved seats would entail a separate competition for men and women, thereby producing a similar effect to what legislated quotas yield in closed-list systems. In addition to this, I would expect that the effect of performance on reelection differs in candidate-centered systems. While parties are well aware of the influence candidates obtain in office and can act upon it, voters are more likely to respond to highly visible signals such as media appearances.

Second, little research has been done on how quotas affect the representation provided by men. I have observed that men tend to perform better after the quota reform, and have suggested that this is the effect of increased competition. This may come from a selection effect (only the “better”-type men are retained) or a sanction effect (men increase their effort to perform better). The selection effect would be observable after a reform. The sanction effect would be of particular importance before the reform when male incumbents consider reelection and anticipate a reduction in the number of seats available. Also, it would entail that men’s performance increases as the level of the quota is high compared

to previous levels.

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## Online Appendix



	Nationality	Party	Year of intro.	Quota	Prop. female	MEPs
1	Austria	Sozialdemokratische Partei Österreichs	1985	40%	0.39	18
2	Austria	Die Grünen - Die Grüne Alternative	1993	50%	0.67	6
3	Austria	Österreichische Volkspartei	1995	33%	0.26	19
4	France	Parti Socialiste	1990	50%	0.47	60
5	Germany	Bündnis 90/Die Grünen	1986	50%	0.53	34
6	Germany	DIE LINKE.	1986	>50%	0.62	8
7	Germany	Sozialdemokratische Partei Deutschlands	1988	40%	0.42	79
8	Germany	Christlich Demokratische Union Deutschlands	1996	33%	0.26	117
9	Greece	Panellinio Socialistiko Kinima	?	40%	0.47	17
10	Hungary	Magyar Szocialista Part	?	20%	0.62	13
11	Portugal	Partido Socialista	1988	33%	0.32	31
12	Romania	Partidul Democrat	?	30%	0.14	7
13	Romania	Partidul Social Democrat	2004	30%	0.55	20
14	Spain	Partit dels Socialistes de Catalunya	1982	40%	0.4	5
15	Spain	Partido Socialista Obrero Espanol	1988	40%	0.44	62
16	Spain	Izquierda Unida	1989	40%	0.14	7
17	Spain	Bloque Nacionalista Galego	2002	40%	-	-
18	Spain	Esquerra Republicana de Catalunya	2004	40%	-	-
19	United Kingdom	Labour Party	?	50%	0.37	60
20	United Kingdom	Liberal Democrats Party	1999	40%	0.5	10

Table 6: List of party quotas.

## Variable description

The data set includes 1,131 observations of MEPs from 11 member states.

**Performance:** Count. Indicates the number of high-impact reports for which an MEP has acted as rapporteur. The impact is defined as all legislation falling under the codecision and budget procedures. The list is collected from the EP website. (**ImportantReports**)

**Value of Office:** Binary. Indicates if an MEP would like to stay in Parliament the next 10 years. The variable is drawn from the EPRG Survey (Farrell et al., 2011). The question asked in the 2000 and 2006 waves read as follows: “Where would you most like to be 10 years from now?”. The 2010 wave rephrased the question: “What would you like to be doing 10 years from now?” (**FutureInEP**)

**Reselection:** Binary. A seat is defined as “safe” when the list placement of the candidate is above the number of seats the party won in the same circumscription following the previous election. (**SafeSeat**)

**Effort (Attendance in Committee):** Proportion. The untransformed variable indicates the number of committee meetings an MEP has attended during the term, expressed as a proportion of the most assiduous member of that committee (capped at 400). (**AttendanceCommittee.prop**)

Continuous. The variable used in the analysis is transformed  $\log(\frac{x}{1-x})$  to look more like normal distribution: The normalization implies that the measure is not sensitive to the fact that the number of committee meetings varies across committees and over time. (**Attendance**)

**Effort (Questions):** Count. Indicates the number of parliamentary questions (written or oral) asked by the MEP during the term (capped at 50). The list is collected from the EP website. (**Questions**)

**Female:** Binary. Indicates whether an MEP is female. (**Female**)

**All Quotas:** Binary. Indicates all MEPs who have been elected under either a party-level or a statutory quota system. Information is collected from the IDEA database (International Institute for Democracy and Electoral Assistance (IDEA) and the University of Stockholm, 2016) (**AllQuota**)

**Party Quota:** Binary. It indicates MEPs who were elected from parties which applied party-level gender quotas. Information is collected from from the IDEA database (International Institute for Democracy and Electoral Assistance (IDEA) and the University of Stockholm, 2016). The data base only lists party quotas which exceed the legislated quotas. For France, Portugal and Spain I have additionally relied on information from case studies (Baum and Espírito-Santo, 2012; Verge, 2012). A list of the parties, their nationality, the number of observations in the sample and the proportion of women among the observed MEPs is displayed in table 6. (**PartyQuota**)

**Legislated Quota:** Binary. Includes the member states in which legally binding gender quotas applied for the election of the legislature. In the sample this includes France (enacted in 2000, applied for the 2004 and 2009 elections), Spain and Portugal (enacted in 2007 and 2006 respectively, applied for the 2009 election). Information about the quota system was drawn from the database of International Institute for Democracy and Electoral Assistance (IDEA) and the University of Stockholm (2016). (**StatutoryQuota**)

**Age:** Continuous. The age (expressed in years) of a member of Parliament as of June the year of his/her election. (**Age**)

**Education:** Ordinal. Ranges from 1 to 4. Drawn from Daniel (2013) and completed with information from MEPs' curriculum on the EP website. (**Education**)

**National MP or Minister:** Binary. Has the MEP previously served as a minister of government or member of Parliament at the national level? Information from MEPs curriculum on the EP website. (**NationalPolitics**)

**Incumbent:** Binary. Indicates whether an MEP has previously been reelected at least once. (`Incumbent`)

**Years of Term:** Continuous. Expresses the number of years of the current term the MEP has been registered as a member of Parliament. Most members stay for a full term (5 years). (`TimeInEPTerm`)

**Complexity of Report:** Continuous. Expresses the average number of recitals in the report delivered by the MEP during the term. Information is collected from the EP website. In the analyses the variable is logtransformed ( $\log(x+1)$ ). (`Complexity.N.recitals` and `Complexity.N.recitals.log`)

**Elected on a Safe Seat:** Binary. Indicates whether an MEP entered office in the current term on a safe seat. In the case of new member states, the variable is calculated from the number of observers to the EP from the party. (`SafeSeatLastElection`)

**Party Size:** Proportion. Proportion of of the seats held by the national party. (`PartySeats.prop`)

**In Favor of EU Integration:** Ordinal. Ranges from 1 to 7 where higher values indicate more favorable. The variable is drawn from the Chapel Hill Expert Survey (Bakker et al., 2015). It expresses the “overall orientation of the party leadership towards European integration”. (`position`)

**MEP:** Categorical. An anonymous personal identifier for each MEP. (`ID`)

**Nationality:** Categorical. Indicates an MEPs’ nationality. (`Nationality`)

**Transnational Group:** Categorical. Indicates an MEPs’ transnational group affiliation. (`EPGroup`)

**Legislative Term:** Count. Indicates the legislative term: EP5 (1999-2004), EP6 (2004-2009) and EP7 (2009-2014) (`EP`)

**Party:** Categorical. The Chapel Hill ID number indicating an MEP's national party affiliation. (`ChapelHillID`)

Table 7: Descriptive statistic

Statistic	N	Mean	St. Dev.	Min	Max
Performance	1131	1.105	2.148	0	24
Value of Office	305	0.269	0.444	0	1
Reselection	1131	0.460	0.499	0	1
Effort (Attendance in Committee)	1058	0.387	0.202	0.002	1.000
Effort ( $\log(\text{Attendance}/1\text{-Attendance}))$	1058	-0.594	1.288	-5.989	4.595
Effort (Questions)	1129	33.144	32.257	0	100
Female	1131	0.370	0.483	0	1
All Quotas	1131	0.627	0.484	0	1
Party Quota	1131	0.507	0.500	0	1
Legislated Quota	1131	0.187	0.390	0	1
Age	1131	55.359	9.669	26.510	79.671
Education	1091	3.258	0.908	1	4
National MP or Minister	1125	0.264	0.441	0	1
Incumbent	1131	0.508	0.500	0	1
Years of Term	1131	4.530	1.142	0.181	5.005
Complexity of Report	1093	0.808	19.176	0.000	632.000
$\log(\text{Complexity of Report}+1)$	1093	0.093	0.390	0.000	6.450
Elected on a Safe Seat	1058	0.682	0.466	0	1

## Model descriptions

All models are Bayesian, estimated via the MCMC algorithm. Each model is run with 60,000 iterations with 5,000 iterations burn-in, keeping every 10<sup>th</sup> iteration, and shows no signs of non-convergence. Priors on the  $\beta$ -coefficients are non-informative multivariate normal ( $\beta \sim N(0, 10)$ ). Varying intercepts are centered around a grand mean, and are fitted with slightly stricter priors ( $\alpha \sim N(0, 1)$ ).

**The model testing  $H_{1a}$ :** Fitted as a binomial model in which the dependent variable is binary, indicating whether a newly elected MEP intends on staying in Parliament at least 10 more years. The model is run among the respondents to the EPRG survey (Farrell et al., 2011), and therefore includes 305 observations. The model includes varying intercepts for the legislative term, the EP group, and nationality.

Given the low number of respondents, the different categories of women are estimated as dummies depending on whether a quota applied rather than through interaction terms. The model furthermore controls for incumbency, as MEPs who have already been reelected once are more likely to retire, and whether (s)he entered on a safe seat.

$$Aims\ at\ Lengthy\ Career_i \sim \text{Binomial}(p_i)$$

$$\log(p_i) = \alpha$$

$$+ \alpha_{EPGroup,i}$$

$$+ \alpha_{EP,i}$$

$$+ \alpha_{Nationality,i}$$

$$+ \beta_1 \times Female\ Outside\ of\ Quota\ System_i$$

$$+ \beta_2 \times Female\ from\ Statutory\ Quota_i$$

$$+ \beta_3 \times Female\ from\ Party\ Quota_i$$

$$+ \beta_4 \times Incumbent_i$$

$$+ \beta_5 \times Elected\ on\ a\ Safe\ Seat_i$$

**The model testing  $H_{1b}$ :** Fitted as multilevel Poisson model in which the dependent variable is the count number of high-impact reports drafted by an MEP during term.

The number of reports varies over time and across political groups. The model therefore includes varying intercepts for the legislative term (*EP*) and the transnational political group to which MEPs belong (*EPGroup*) as well as national characteristics (*Nationality*) and national party affiliation (*Party*).

The model furthermore controls for the effort MEPs provide (*Attendance*). The variable is transformed ( $\log(\frac{x}{1-x})$ ) and missing observations (6%) are imputed through a second, linear equation estimated simultaneously to the main regression. Predictors include plenary attendance, age, committee chairmanship, whether an MEP was elected in a safe seat and whether he or she intends on having a long career (where available). All other missing observations are assumed to be random and imputed by drawing from an empirically informed distribution. Count variables are drawn from a normal distribution with empirically informed mean and standard deviation. Binary predictors are drawn from a binomial distribution with an empirically informed proportion of “successes” and a size of 1. MEPs who do not have a national party affiliation as registered in the Chapel Hill survey are listwise excluded ( $N = 1,120$ ).

The model includes an interaction between *Female* and *Legislated Quota*.  $\beta_1$  thus captures the difference in performance among non-quota women (the baseline woman) compared to non-quota men.  $\beta_2$  captures the difference in performance between women elected from a legislated quota system and women elected without quotas.



$$\begin{aligned}
\text{Reports}_i &\sim \text{Poisson}(\lambda_i) \\
\log(\lambda_i) &= \alpha \\
&+ \alpha_{ID,i} \\
&+ \alpha_{EPGroup,i} \\
&+ \alpha_{EP,i} \\
&+ \alpha_{Nationality,i} \\
&+ \beta_1 \times \text{Female}_i \\
&+ \beta_2 \times \text{Female}_i \times \text{Legislated Quota}_i \\
&+ \beta_3 \times \text{Legislated Quota}_i \\
&+ \beta_4 \times \text{Female}_i \times \text{Party Quota}_i \\
&+ \beta_5 \times \text{Party Quota}_i \\
&+ \beta_6 \times \text{Incumbent}_i \\
&+ \beta_7 \times \text{Attendance}_i \\
&+ \beta_8 \times \text{Questions}_i \\
&+ \beta_9 \times \text{Complexity of Report}_i
\end{aligned}$$

**The model testing  $H_{2a}$ :** Fitted as a binomial model in which the dependent variable is binary, indicating whether an incumbent member obtained a safe seat in the upcoming elections. The model includes varying intercepts for the legislative term, the EP group, nationality and party affiliation. The model controls for the prior belief of parties (lagged dependent variable) (*Elected on a Safe Seat*), the average complexity of the reports drafted, incumbency and an estimation of the likelihood that the member intends on seeking reelection (*Aims at Lengthy Career*). Missing observations mainly exist on the lagged dependent variable (6%). These are assumed to be random and imputed by drawing from a binomial distribution with an empirically informed proportion of “successes” and a size of 1. Most of these missing observations stem from Romania and Bulgaria which joined the EU in 2007. MEPs who do not have a national party affiliation as registered

in the Chapel Hill survey are listwise excluded ( $N = 1,120$ ).

The hypothesis is tested in a three-way interaction term between the candidate's gender (*Female*), the quota system (*Legislated Quota*) and high-impact legislation (*Performance*).

**Main model:**

$$\begin{aligned}
Safe\ Seat_i &\sim \text{Binomial}(p_i) \\
\log(p_i) &= \alpha \\
&+ \alpha_{ID,i} \\
&+ \alpha_{EPGroup,i} \\
&+ \alpha_{EP,i} \\
&+ \alpha_{Nationality,i} \\
&+ \beta_1 \times Performance_i \\
&+ \beta_2 \times Female_i \times Legislated\ Quota_i \times Performance_i \\
&+ \beta_3 \times Female_i \times Performance_i \\
&+ \beta_4 \times Female_i \times Legislated\ Quota_i \\
&+ \beta_5 \times Legislated\ Quota_i \times Performance_i \\
&+ \beta_6 \times Female_i \\
&+ \beta_7 \times Legislated\ Quota_i \\
&+ \beta_8 \times Complexity\ of\ Report_i \\
&+ \beta_9 \times Incumbent_i \\
&+ \beta_{10} \times Aims\ at\ Lengthy\ Career_i \\
&+ \beta_{11} \times Lag\ (Elected\ on\ a\ Safe\ Seat)_i
\end{aligned}$$

The main equation is estimated simultaneously to two supplementary equations. The first supplementary model estimates the likelihood that an MEP will wish to seek re-election. Is based on the question from the EPRG Survey about the intention to stay in Parliament. Given the low response rate, for most of the MEPs the estimation is in-

formed by a number of contextual factors. Intention is therefore modeled as a function of where the MEP is in his or her career (*Age, National MP or Minister*), the salience of a European mandate (*Party Size*, i.e., larger parties are able to offer better opportunities to their members) and the effort he or she has put into office (*Committee Attendance*).

A second supplementary model accounts for whether the response rate to the survey is correlated with the dependent variable of the main model (*Safe Seat*). The absence of correlation gives an indication that the survey sample is representative for the population under study. Results are reported in table 8.

**Measurement model:**

$$Aims\ at\ Lengthy\ Career_i \sim \text{Binomial}(p_i)$$

$$\begin{aligned} \log(p_i) = & \gamma_1 \\ & + \gamma_2 \times Age_i \\ & + \gamma_3 \times Proportion\ of\ Party\ Seats_i \\ & + \gamma_4 \times National\ MP\ or\ Minister_i \\ & + \gamma_5 \times Committee\ Attendance_i \end{aligned}$$

$$Pr(Aims\ at\ Lengthy\ Career = NA) \sim \text{Binomial}(p_i)$$

$$\begin{aligned} \log(p_i) = & \delta_1 \\ & + \delta_2 \times Safe\ Seat_i \\ & + \delta_3 \times Years\ of\ Term_i \\ & + \delta_4 \times In\ Favor\ of\ EU\ Integration_i \end{aligned}$$

**The models testing  $H_{2b}$ :** Two models test the hypothesis using different dependent variables.

The first model is fitted as a linear regression in which the dependent variable is a transformed version of committee attendance (*Effort*). Attendance is measured as a

Dependent variable: 'Aims at Lengthy Career'	Coef.
Intercept	3.75 [ 2.13 , 5.48 ]
Age	-0.09 [ -0.12 , -0.07 ]
Party Seats	0.14 [ 0.01 , 0.27 ]
Former Mandate on National Level	0.38 [ -0.23 , 0.99 ]
Effort(Attendance in Committee)	0.34 [ 0.13 , 0.57 ]
Dependent variable: 'Aims at Lengthy Career=NA'	Coef.
Intercept	7.33 [ 4.77 , 10.75 ]
Safe Seat	-0.09 [ -0.36 , 0.19 ]
Years of Term	-1.49 [ -2.16 , -1 ]
In Favor of EU Integration	0.17 [ 0.06 , 0.27 ]
Number of observations	1129
Number of respondents	305

**Note:** Median effect with 95 % symmetric posterior density interval.

Table 8: Results from a binomial model run in parallel to the main model predicting safe seat allocations.

proportion, and is thus transformed ( $\log(\frac{x}{1-x})$ ) so as to approximate a normal distribution.

The second model is fitted as a Poisson regression in which the dependent variable is the number of parliamentary questions. The variable is very long tailed, and is therefore capped at 100.

Both models include varying intercepts for the legislative term, the EP group, nationality and party affiliation. They control for lower incentives to provide effort among members who have already been reelected at least once (*Incumbent*) and the number of years the MEP has been a member during the term. (*Years of Term*). Missing ob-

servations on the dependent variables are listwise excluded, as are MEPs without party affiliation (as listed in the Chapel Hill survey), so that the first model is estimated on 1,048 observations while the second is estimated on 1,118 observations.

$H_{2b}$  is tested through an interaction between gender (*Female*) and legislated quota system (*Legislated Quota*). I expect  $\beta_2$  to be positive and distinguishable from zero. On the other hand, I do not expect that women in general ( $\beta_1$ ) spend more time in committees. For comparison of the differential effects of different quotas, an equivalent interaction is fitted between gender (*Female*) and party-level quotas (*Party Quota*).

$$Attendance_i \sim \text{Normal}(\mu_i, \tau)$$

or

$$Questions_i \sim \text{Poisson}(\mu_i)$$

$$\begin{aligned} \log(\mu_i) = & \alpha \\ & + \alpha_{ID,i} \\ & + \alpha_{EPGroup,i} \\ & + \alpha_{EP,i} \\ & + \alpha_{Nationality,i} \\ & + \beta_1 \times Female_i \\ & + \beta_2 \times Female_i \times Legislated Quota_i \\ & + \beta_3 \times Legislated Quota_i \\ & + \beta_2 \times Female_i \times Party Quota_i \\ & + \beta_3 \times Party Quota_i \\ & + \beta_4 \times Incumbent_i \\ & + \beta_5 \times Years\ of\ Term_i \end{aligned}$$