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Electoral Rules, Women's Representation and the Quality of Politicians*

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Abstract

Proportional electoral rules favour the election of women with respect to majoritarian ones. This is consistent with the fact that in majoritarian systems personal exposure of the candidate is more relevant than in proportional systems and that women tend to be averse to such exposure. To test the effects of electoral rules on women's representation and the quality of politicians, we collect panel data on the universe of Italian politicians from all levels of government over the period 1987-2013 and analyse an Italian reform which, in 2005, changed the electoral rule for national elections from (mostly) majoritarian to proportional, but did not affect subnational level elections. We find that this reform increased the number of women elected, while not decreasing the quality of politicians. We provide evidence of a negative selection effect under proportional rules: the elected women are not the best candidates and the quality of elected politicians could have increased (rather than remain constant) if the best female candidates had been elected. Our results are stronger in gender traditional regions, suggesting that culture matters in terms of how electoral rules affect female political representation.

Key Words: Electoral reforms; Majoritarian; Proportional; Electoral Competition; Political Selection, Difference-in-Differences.

Word Count: 9,519

1 Introduction

Women are under-represented on the political stage across the globe. According to the Inter-Parliamentary Union database, only 11 countries out of 193 have more than 40% of women in their national parliaments and 121 countries have less than 25% female representation (IPU, 2017). Not a single OECD country has yet reached gender parity in its national parliament: the highest is Iceland with 47.6% of women and the OECD average remains at 28.68% (OECD, 2017).

There is a rich and lively debate surrounding whether this phenomenon is due to voter bias (Fréchette et al., 2008; Murray et al., 2012; Dolan, 2014; Dolan and Lynch, 2016; Hayes and Lawless, 2016; Dolan, 2018; Le Barbanchon and Sauvagnat, 2018) or party bias (Norris and Lovenduski, 1993; Fox and Lawless, 2010; Lawless and Fox, 2010) and whether contextual and structural factors can be moderated by competition (Folke and Rickne, 2016). Existing studies have argued that electoral rules play an important role (Rule, 1987) in explaining women's under-representation across the globe, mainly because proportional systems favour the election of women with respect to majoritarian ones. In parallel, electoral rules may affect the quality of elected politicians (Galasso and Nannicini, 2011). Women's representation and the quality of politicians are also directly related (Baltrunaite et al., 2014). What is the impact of electoral rules on women's representation and the quality of politicians?

To provide an answer, we assemble data on the universe of Italian politicians from all levels of government - national, regional, provincial, municipal - over the period 1987-2013. We exploit the existence of different electoral rules across levels of government: in 2005, a reform was introduced which changed the electoral rule for national elections from a mixed-member system - whereby 75% of representatives were elected via a majoritarian system

and 25% via a proportional system - to a closed list proportional rule with a majority bonus. Since the reform applies only to national elections and not to subnational ones, we use a Difference-in-Differences (hereafter, DiD) approach to show that the proportional electoral rule increases female political representation at the national level.

We then show that the increase in the number of women does not come at the price of the quality of elected politicians. We measure quality by educational level and subnational experience, and provide evidence that the quality of the politicians elected to national office following the proportional reform remains stable or, if anything, slightly increases. Interestingly, for the 2013 national election we find evidence of a negative selection within the group of women (and not of men): the elected women under the proportional system are not those with the highest quality among the female candidates. Thus, the quality of politicians could actually have *increased* had the best female candidates been selected. Exploiting within-country variation in cultural norms, we provide evidence that the more gender traditionalist regions of Italy are those that most increased their female representation with the reform, but also those driving the divergence between the quality of candidates and elected female politicians.

Greater female representation in proportional versus majoritarian systems is consistent with the fact that in majoritarian systems 'personal exposure' of the candidate is more salient than in proportional ones, and women tend to be averse to such exposure. By personal exposure we refer to the fact that in majoritarian systems more emphasis is placed on individuals than on parties, with candidates' personal traits and experience being much more closely scrutinised than under proportional rule, where the party, its ticket and policies, is of more central importance (Norris, 1985).[1] As a consequence of tougher

[1]The more intense personal exposure of the candidate in majoritarian than in proportional systems is also

political races, one may expect higher quality politicians to be elected under majoritarian as opposed to proportional systems (Galasso and Nannicini, 2011). However, this paper will show that if women are more qualified than men, their increased representation in proportional systems may counterbalance the negative selection effect and the overall quality of politicians may remain stable or even increase.

This paper builds on existing literature in several ways. First, it develops an original within-country analysis to appropriately identify the causal effects of electoral rules on female political representation. Most of the existing evidence on the favourable conditions of proportional electoral rules for female representation are cross-national (see Section 2) or compare pre- and post-electoral chance levels of female representation without a within-country counterfactual (Roberts et al., 2013). Moreover, apart from few exceptions (Cayer and Sigelman, 1980; Bratton and Ray, 2002), most of the existing studies have concentrated solely on *national* governments. However, this is only the tip of the iceberg. Subnational levels of government are crucial for how power gets translated into action. Second, we shed light on the possible quantity-quality trade-offs associated with electoral rules and female representation. This literature remains underdeveloped: the focus has been placed on the quality of politicians under quotas and affirmative action policies, but not under more wide-reaching electoral reforms. Third, we exploit within-country variation in gender culture within Italy to explore how electoral reforms interact with gender culture to produce heterogeneous results in terms of both the number of women elected to national office and the quality of elected politicians.

Our analysis focuses on Italy, a compelling country to consider for several reasons.[2]

associated with stronger accountability in majoritarian systems, see Carey and Hix (2011) for a review

[2]Information about Italy's gender equality performance is included in Section 8 of the Appendix.

First, it has experienced several reforms in electoral rules which affect differently its various levels of government, thus providing an opportunity to exploit the within-country variation in electoral systems over time. Second, Italy displays high heterogeneity in gender culture within the country (see Campa et al. (2010)), thus allowing us to study the role of culture within a single given institutional setting. Since we find that the effects are stronger in more unequal gender contexts, we expect our results to be amplified in other contexts, such as developing countries where unequal gender norms are dominant. This contributes to making our analysis an interesting benchmark.

The paper is organised as follows. Section 2 discusses the related literature. Section 3 describes the Italian institutional context. Section 4 describes our data and provides descriptive statistics. Section 5 presents the estimation strategy and main results. Section 6 discusses the results and concludes.

2 Electoral Rules and Female Political Representation

There is consensus in the literature on political representation that countries applying proportional rules are associated with higher numbers of women in their national parliaments than those with majoritarian rules (Norris, 1985; Rule, 1981, 1987; Rule and Zimmerman, 1994; Rule, 1994; Matland and Studlar, 1996; Matland, 1998; Vengroff et al., 2003; Kittilson and Schwindt-Bayer, 2012; Thames, 2017). Indeed, the Inter-Parliamentary Union reports that in 2016 women won 23.9% of seats in chambers elected by proportional rule and 24.4% in those using either proportional or mixed electoral systems, compared to 15% of seats in chambers elected through a majority rule and 22.2% where the chamber is

appointed or indirectly elected (Inter-Parliamentary Union, 2016). There has been some careful and well-argued debate as to the robustness and magnitude of the effect of electoral rules on women's parliamentary representation (Salmond, 2006; Roberts et al., 2013), but the influence of the electoral rule on women's electoral fortunes is widely reported and persistent.

Many other factors also play a role in the number of women elected to political office, including political culture (Norris, 1985; Rule, 1987; Kenworthy and Malami, 1999; Reynolds, 1999; Inglehart and Norris, 2003; Yoon, 2004), the distribution of party ideology (left-wing and more environmentally conscious parties nominate more female candidates (Caul, 1999; Kunovich, 2003; Kittilson, 2006)), the interaction between female labour force participation and whether the electoral system is oriented towards candidates or parties (Iversen and Rosenbluth, 2010), the interaction between a district's social eligibility pool and party culture (Sanbonmatsu, 2010), female labour force participation which can increase women's likelihood of participating in politics (Norris, 1985; Rule, 1987; Matland, 1998), a stronger welfare state that helps women to enter the labour force, directly provides jobs and changes the political interests of working women (Rosenbluth et al., 2006), and targeted policy interventions such as gender quotas in candidate lists that have been shown to be effective in increasing female representation.[3]

[3]Electoral gender quotas are widely studied (see, for example, Dahlerup and Freidenvall (2011); Krook (2010); Krook and Mackay (2010). Recent research has shown that they may be effective not only at increasing female representation, but also at reducing voters' gender stereotypes (Beaman et al., 2009), and increasing the overall level of quality of politicians (Baltrunaite et al., 2014; Weeks and Baldez, 2015; Allen et al., 2016; Besley et al., 2017). However, gender quotas may also not be sufficient to increase female representation if parties discriminate against women and place them in weak strategic positions (Bagues and Campa, 2017; Casas-Arce and Saiz, 2015).

Proportional systems are argued to promote greater representation of women through the following mechanisms: candidates' characteristics, incumbency patterns, district magnitude and specific features of proportional systems (e.g. open/closed lists or zipper systems, single or multi-member districts). First, in proportional systems a balanced and diverse ticket is preferable in order to appeal to a wider spectrum of voters, whereas in majoritarian systems the optimal strategy is to choose the strongest candidate with the broadest appeal, experience or vote base. As Norris (1985)[p.99] puts it, given that in majoritarian settings more emphasis is placed on individuals than on parties, "candidates' abilities, experience, policies, and personal characteristics are scrutinised, their sex may play a more important role than under proportional arrangements". Second, fewer incumbents are re-elected under proportional rules (Norris, 1985, 2006), which should favour women who have historically been under-represented in most political contexts. Third, proportional systems have consistently higher district magnitudes (and higher party magnitudes), so parties can pull from deeper in their lists, which scholars have argued increases the chances of women being elected (Rule, 1987; Norris, 2006).[4] Fourth, proportional representation rules allow for features such as closed lists which encourage - or even force in the case of zipper systems - parties to include women in their lists. However the evidence on how the nature of the list - open or closed - used in proportional elections affects female representation is mixed. Early work argued that open lists were preferable for female candidates (Shugart, 1994; Rule and Shugart, 1995) as voters can express a preference for a particular candidate and move them higher/lower on the list,

[4]See evidence on US Matland and Brown (1992), specific cases of Wyoming (Clark et al., 1984) and West Virginia (Welch and Studlar, 1990), a US-wide candidate survey (Carroll, 1994) and Brazil (Meireles et al., 2017). See, however, Welch and Studlar (1990). In Norway, Matland (1993) finds a cyclical pattern.

thus preventing parties from holding women back by putting them low on the list. Open lists, however, tend to lead to the cultivation of the personal vote (Carey and Shugart, 1995) which can could hinder women in presence of cultural bias against women (Larserud and Taphorn, 2007; Valdini, 2013; Buitrago and Aroca, 2017). Finally, the nature of a district itself - whether it is a single- or multi-member district - has been found to affect female representation, with multi-member districts being found to favour higher female representation (King, 2002). In sum, not all proportional systems are equal for women's representation.

2.1 Electoral Rules, Political Races and the Quality of Politicians

The literature has shown the benefits of electoral competition for political outcomes: competition is related to the election of higher quality politicians (Galasso and Nannicini, 2011; Besley et al., 2017), the reduction of discrimination against women (Esteve-Volart and Bagues, 2012; Besley et al., 2017), and the retention and promotion of the most competent politicians to top positions (Folke and Rickne, 2016). It is however difficult, if not impossible, to compare the competitiveness of a proportional and a majoritarian system (see Galasso and Nannicini (2017)). What is certain is that in majoritarian systems personal exposure of the candidate matters more than in proportional ones, a fact that affects women's representation and may have consequences for the quality of elected politicians.

If female politicians are more averse to personal exposure in political races (Kanthak and Woon, 2015), they prefer not to come forward as candidates in majoritarian systems, which are based on head-to-head individual races. Moreover, female politicians are less

likely to be nominated as candidates by parties in majoritarian systems because they are perceived as less likely to be elected or to be able to commit to a continuous, long-term political career (Norris and Lovenduski, 1995; Matland and Studlar, 1996; Hinojosa, 2009, 2012; Iversen and Rosenbluth, 2010).[5] Female politicians' aversion to political exposure may itself be the result of their relative lack of political ambition: women with comparable credentials to their male counterparts are substantially less likely to perceive themselves as qualified to run for political office (Fox and Lawless, 2011, 2014) and to be recruited to run for public office by all types of political actors (Fox and Lawless, 2010; Lawless and Fox, 2010). That is not to say, however, that women's risk aversion to personal exposure in political races is due to them being less qualified. In fact, using education as a proxy of quality, female politicians are broadly found to be of higher quality than male politicians in developed countries (e.g. Comparative Candidates Survey (2018)).[6] Moreover, the literature on gender quotas has shown that increases in the presence of female politicians (thanks to quotas) are related to increases in the overall quality of politicians, (Baltrunaite et al., 2014; Weeks and Baldez, 2015; Besley et al., 2017) rather than decreases, because highly qualified women are elected in the place of low-qualified men. Building on what the existing literature suggests, then, it is important to evaluate the impact of electoral reforms - which affect the level of female representation - on the quality of politicians.

[5]The importance of electoral rules' impact on candidate nomination and selection processes cannot be overstated, such effects can even overshadow gender quotas. For example, Hinojosa (2009) notes that the conservative *Unión Demócrata Independiente* party outperforms all three major Chilean centre-left parties in terms of female representation even though the latter three use gender quotas. Gender quotas themselves can be difficult to implement for constitutional or cultural reasons.

[6]Female political candidates are more educated than their male counterparts in a selection of over 20 developed countries in over 30 different elections (Comparative Candidates Survey, 2018).

Theoretically, the direction of the effect is not obvious: on the one hand, the nature of the political race in proportional systems may not promote the election of the best candidates within each gender group (Becher and González, 2019). On the other, if greater female representation is achieved, this may in turn increase the quality of politicians due to female candidates', on average, higher quality. This paper will test what happens in a real political scenario.

Previous literature has also suggested that gender norms and culture - mainly views about men's and women's roles in the economy and society - may be important for female political representation (see Ipsos (2018)) and economic outcomes (Giuliano et al., 2004; Fernández et al., 2004; Fernández and Fogli, 2006). Indeed, in the USA women are not elected from the same kinds of districts across different political parties (Evans, 2005; Palmer and Simon, 2010) who play a crucial role in their recruitment (Sanbonmatsu, 2006; Sanbonmatsu and Dolan, 2009). This paper will look at the role of culture as a potential driver of the effect of electoral rules on female representation and the quality of politicians, by exploiting the high gender culture heterogeneity across Italy.

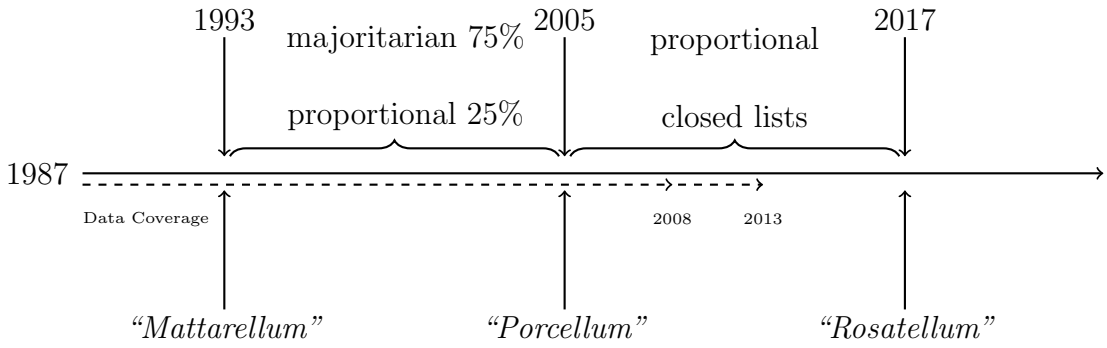
3 The Italian Electoral System

The Italian Parliament is composed of the House (*Camera*) and the Senate (*Senato).* Italy has experienced several major electoral reforms over the years. From 1946-1993 parliamentarians were elected under an open list proportional system with 32 districts for the House and 21 for the Senate. Following the 1993 *Mattarellum* reform, parliamentarians were elected via a mixed methods system with two tiers (25% closed-list proportional with a 4% vote threshold and 75% single round majoritarian with 475 single-member districts, hereafter SMDs). The electoral rules were changed again in 2005 with the *Legge Calderoli*

or *Porcellum* reform, returning to a proportional system, but this time with closed lists and 27 districts for the House and 20 for the Senate. This system entailed a majority bonus for the winning coalition of party lists. Most recently, the *Rosatellum* passed in the autumn of 2017.[7]

Timeline 1 summarizes the timeline of national electoral reforms in Italy. We consider national elections held in 1987, 1992, 1994, 1996, 2001, 2006, 2008 and 2013. The number of parliamentarians and senators has remained fixed for this period: 630 parliamentarians and 315 senators.

Timeline 1. National Electoral Reforms in Italy, 1993-2017



We focus on the 2005 *Porcellum* reform. This reform was not intended to influence female representation, the reformers were more interested in the balance of power between parties.[8]

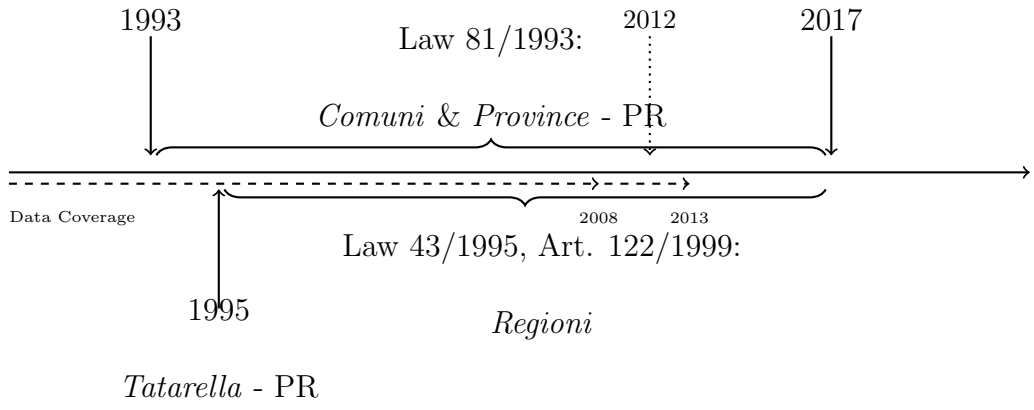
Moving to the subnational levels of government, Italy is a unitary state composed of 20 regions with devolved powers. The provincial level of government consists of 97 provinces.

[7]See Appendix Section 1.2 for more information.

[8]The debate around electoral reform at the time centred on party politics and which parties were likely to benefit most from the reform. In general "the desire to increase women's representation [...] is rarely, if ever, a primary demand of reformers" (Thames, 2017). The 2005 Italian reform differs from the 1993 one, where gender quotas were integrated into the reform and a significant part of the debate focused on them.

The municipal level of government consists of 7,971 *comuni* and 14 *città metropolitane*. More information on the functioning of these administrative levels is available in the Appendix (Section 1).

Timeline 2. Subnational Electoral Rules in Italy, 1993-2017



Timeline 2 shows the subnational electoral rules in place during the time period under consideration. The regional elections during this period were mostly governed by (versions of) the 1995 *Legge Tatarella*, which was mixed, with 80% of the seats being assigned via an open list proportional rule and 20% via a majoritarian rule.[9]

The provincial and municipal elections, on the other hand, were governed by Law 81/1993. The electoral rule here was also proportional, but the 1993 law established that mayors were to be directly elected by their own constituents and instigated a majoritarian mechanism (assigning 60% of available seats to the winning coalition).[10]

[9] *Panachage* was permitted, so voters could distribute their votes to a candidate for the presidency and a list that was not the one he/she was associated with. The law also had mechanisms to protect minorities in case of a landslide win for a single list and to ensure some stability of governance in case of a split election.

[10] See Section 1 of the Appendix for more information.

4 Data

To assemble our unique dataset, we combine various data sources and we manually collect additional information when missing.

Starting from politicians at subnational levels of government, we collect the name, date of birth, gender, education level, profession, district of election and political role of all elected politicians for the years 1987-2013 from the municipal, provincial and regional levels of government. These data are provided by the Ministry of Internal Affairs (*Ministero dell'Interno*) and include all mayors, councillors, executive officers and presidents for the aforementioned subnational levels of government. The data are provided in a sparse way and separately for the different levels of government, so we had to make a concerted effort to collect, assemble and render them all usable. Figure 1 shows that female representation has increased significantly in Italy over the years, but remains overall at just over 20% at its highest point in our sample. Figure 2 shows that female political representation at subnational levels is very low and varies significantly from level to level.

FIGURES 1 & 2 ABOUT HERE

Moving to national politicians, we first collect aggregate data on the candidates[11] who put themselves forward for the national elections in the period 1987-2013. These data are provided by Michele Castiglioni, collected from the official online published Italian election data. For the 2013 national election only, we also have detailed information at individual level on candidates (age, gender, education, district of election and of birth, profession, party affiliation), drawn from Galasso and Nannicini (2015).

[11]Data on candidates are available only for national elections, as there is no systematic collection of data on candidates at subnational levels.

We then collect data on elected politicians at the national level, i.e. members of the Italian Parliament from 1987 to 2013. For the national elections of 1987, 1992, 1994, 1996, 2001 and 2006 data come from Gagliarducci et al. (2011) and include detailed demographic characteristics (age, gender, place of residence, education), self-declared previous job, parliamentary appointments (president, vice-president, secretary of the parliament or of a legislative committee), party affiliation and experience (member of the party directive board at the local, regional or national level), local government experience (mayor, councillor, regional president etc.) and system of election. For the national elections of 1994, 1996 and 2001 (pre-reform elections) Gagliarducci et al. (2011) also provide information on the margin of victory with which a given politician won his/her election. Similar data containing individual characteristics on elected politicians are provided by Armando Miano for the 2008 election and from Galasso and Nannicini (2015) for the 2013 election. For the 2013 election, Galasso and Nannicini (2015) also provide information on political *candidates* and estimates of how many seats each party was expected to obtain, according to polls, in each district, both in the House and the Senate. These estimates are elaborated based on data from a research centre specialised in electoral studies (Centro Italiano Studi Elettorali, CISE) which conducted both original polls and performed projections.

The same datasets also provide the variables which we use as controls in the main analysis: year (a linear time trend), region of election and the regional magnitude for the region where the politician is elected. They also provide a measure of regional magnitude.[12]

[12]That is to say, the number of seats available per region calculated by summing the electoral districts within a given region. We do this as districting changed across electoral systems over time, but the geographical regions remained the same so the seats available within their borders are comparable.

Summary statistics about the individual characteristics of these politicians are provided in Table 1 (all levels of government), Table 2 (national politicians, 1994-2001) and Table 3 (national politicians, 2013).

TABLES 1, 2 & 3 ABOUT HERE

Our final dataset delivers a complete picture of female political representation at all levels of government for the same country and its evolution over the considered period. As aforementioned, such a comprehensive picture is rare in existing studies. A table summarising all of our data sources is provided in the Appendix (Section 2, Table A1).

5 Empirical Strategy and Main Results

We use our dataset to answer the following questions:

- **Question 1:** Are more female politicians elected under a proportional electoral system than under a majoritarian system?
- **Question 2:** Is the quality of elected politicians affected by the electoral reform (from majoritarian to proportional)?
- **Question 3:** Does culture contribute to explain the effects of the reform on both female representation (question 1) and the quality of politicians (question 2)?

5.1 The effect of the electoral reform on the election of women

We take a DiD approach in order to identify within-country electoral system effects on the political career outcomes of women. The treated group is made up of the national level politicians who were exposed to the 2005 change in electoral rule from a mixed,

largely majoritarian system to a proportional system.[13] The control group is made up of subnational politicians, who were not exposed to the change in electoral rule. Only 0.17% of politicians in our sample move from municipal politics to national politics, thus confirming that our treated group is not contaminated by the control group. In fact, subnational and national elections occur at different times and preparing a national-level political campaign requires time, making it difficult for politicians to switch from control to treatment group. For our main analyses we exclude the years 2012 and 2013 as the effect of the 2005 reform could be contaminated by a subnational reform implemented at the very end of 2012 (*Legge n.215*, see Timeline 2 dotted arrow).[14] We also exclude the years prior to the national election of 1994, as the national electoral system was reformed in 1993 and these years could contaminate our results (see Appendix Sections 1.2 and 9). This means that, for our main analyses, the pre-reform period refers to the years 1994-2005 (national elections: 1994, 1996, 2001) and the post-reform period refers to the years 2006-2011 (national elections: 2006, 2008).

In order to justify inference from the DiD model, in addition to classical linear regression model assumptions, parallel trends have to be verified, i.e. the subnational (control) and national (treated) groups must have been moving in parallel to one another in terms of female political representation ahead of the 2005 reform which, we argue, exogenously affected the number of women being elected to national office, but not to subnational offices. If these parallel trends hold, then the DiD estimator can be interpreted as the treatment effect on the treated. Thus, the difference in pre- and post-treatment differences

[13]We only consider members of the House (*Camera*), as the electoral rules for the Senate (*Senato*) were slightly different to those of the House and we want to avoid any contamination of the results (both at the aggregate and individual level). Adding the Senate does not change the results (see Appendix, Section 9).

[14]See Appendix Section 1 for more information.

equates to the effect of the 2005 reform on national level female representation. Parallel trends are shown in Figures 3 and 4.[15]

FIGURES 3 & 4 ABOUT HERE

In the equations that follow, l refers to the level of government that the individual politician (i) has been elected to (national, regional, provincial or municipal) and t refers to the time period of the election. We present both aggregate estimates where all variables are measured at the average level for the level of government and time period in question and individual level estimates.

We first estimate the following equation on aggregate data:

$$Y_{lt} = \alpha + \gamma TREAT_l + \lambda POST_t + \delta_{DiD}(TREAT_l \times POST_t) + \boldsymbol{X}'_{lt}\beta + e_{lt} \qquad (1)$$

Where Y_{lt} is the share of women in political level l and year t, $TREAT_l$ is a dummy variable equal to 1 if we consider women elected at the national level and to 0 for subnational levels, $POST_t$ is a dummy variable equal to 1 if the politician has been elected after 2005 and 0 for years before and the interaction term $TREAT_l \times POST_t$ indicates national observations for post-reform years. δ_{DiD} is the DiD estimate that captures the effect of the 2005 reform on the share of female politicians in national office. $\boldsymbol{X}'_{lt}$ is a vector of controls (a linear time trend, macro-regional controls, and regional magnitude) measured for each political level in each year. We also include district magnitude as a control.[16] Thus, α captures the effect for the non-treated group (subnational politicians)

[15]We check for discontinuities in other trends around the date of the reform in Section 3 of the Appendix and we test the parallel trends assumption in Table A10.

[16]Details provided in Section 1.2 of the Appendix.

prior to the reform, $\alpha + \gamma$ captures the effect for the treated group (national politicians) prior to the reform, $\alpha + \lambda$ captures the effect for the non-treated group post-reform and $\alpha + \gamma + \lambda + \delta$ captures the effect for the treated group post-reform.

We also estimate a similar equation using individual level information:

$$Y_{ilt} = \alpha + \gamma TREAT_{il} + \lambda POST_{it} + \delta_{DiD}(TREAT_{il} \times POST_{it}) + \boldsymbol{X}_i'\beta_i + e_{ilt} \quad (2)$$

Where Y_{ilt} is a dummy variable equal to 1 if the politician i elected at level l and year t is a woman and 0 if the politician is a man. $\boldsymbol{X}_i'$ is the same vector of controls and the other variables are the same as in Equation 1, but measured at the individual level for politician i.

Results are presented in Table 4. The control variables are all measured at the individual level, apart from regional magnitude (pooled constituencies to regional level) and overall number of candidates (national level). Using the fullest specification (Column 6, Table 4), the marginal effect on the likelihood of seeing a woman elected to national office moves from 11.5% prior to the reform to 17% following the reform, an increase of 5.5 percentage points. The message to be taken from Table 4 is that the 2005 reform changing the electoral rule from a majoritarian to a proportional system has a statistically significant, positive impact on women elected to national office.[17] The share of women being elected to subnational offices was following a positive trend ahead of the reform (Row 1) and the share of women elected to subnational offices prior to the reform was significantly higher than the share of women elected to national office (Row 2). The change in the electoral rule modified the national representation of women significantly (Row 3),

[17]We exclude three regions (Valle d'Aosta, Molise, and Trentino-Alto Adige) from our analyses because they elected their parliamentarians with a different (majoritarian) system in the post-reform period.

almost entirely compensating for the pre-existing higher levels of female representation at the subnational levels ($Treatment + Post * Treatment$).[18] Robustness analyses are presented in Section 9 of the Appendix.

TABLE 4 ABOUT HERE

5.1.1 Personal exposure

Both *across* electoral systems and *within* the same electoral system (see Section 4 of the Appendix for within-electoral system analyses), more women come forward as candidates under proportional rule. In the Appendix (Section 5), we argue that the higher share of female candidates in proportional as opposed to majoritarian systems (Figure 5) is consistent with the different nature of the political race of the two electoral rules. We show that female political candidates are more averse to personal exposure: they tend to prefer to align with the party when there is a conflict between their own opinion and the party position and they are inclined to withdraw from a political competition after a loss. This is in line with a rich literature that documents this phenomenon amongst the general female population i.e. non-politicians (see Section 2). Thus, we expect women to dislike majoritarian systems and the "winner-takes-all nature" of the process (Mattozzi and Merlo, 2015). Parties themselves are expected to rely on more exposure-ready candidates in such majoritarian systems. Moreover, even if women candidates face a similar electoral landscape to male candidates in terms of media coverage, voter evaluation and campaign strategy (Dolan and Lynch, 2017) - as Hayes and Lawless (2016) argue is the case in the USA for recent elections - they would still *perceive* the exposure more negatively than

[18]For example, in the case of Column 1 the mean difference in the share of women being elected to national office was -0.0584 + 0.0552 = -0.0032, as compared to the prior difference of -0.0584.

their male counterparts. In a non-egalitarian electoral landscape, such as the Italian one (see Section 6 for more details), personal exposure aversion amongst female candidates is expected to be even stronger.

FIGURES 5 & 6

The shift from a majoritarian to proportional system seems to come with both an increase in the overall share of safe seats and with a concentration of female candidates in safe seats (see Table 5). This, combined with the sharp increase in the overall number (and share) of female candidates (see Figure 5), further bolsters the notion that female political candidates are happier to come forward under electoral rules with less personal exposure. In Table 5, we show the share of female candidates in safe, competitive and no chance seats in the national elections with the majoritarian and proportional system respectively. To define a seat safe, competitive or no chance we follow two different definitions (described in Section 6 of the Appendix) for the majoritarian and proportional system respectively. Table 5 shows that, while in elections with the majoritarian system female candidates are almost equally split between the safe and competitive seats, in the proportional system women are more concentrated in safe seats.[19] In the Appendix (Section 6), we show that being a woman significantly increases the probability of being placed in a safe seat in the proportional system, while this was not the case in the majoritarian system.

TABLE 5 ABOUT HERE

[19] As the definitions are different, Panel A and Panel B cannot be directly compared.

5.2 The effect of the electoral reform on the quality of politicians

In a specific within-country context, we have shown that proportional electoral rules increase female representation, in line with what suggested by the literature. What are the consequences for the quality of elected politicians?

We measure quality in two ways, using education and previous experience, in line with the literature (Jacobson, 1989; Shugart et al., 2005; Galasso and Nannicini, 2011): higher education and more experience proxy higher quality. We also create a measure of the share of politicians who are parachuted to the national level with no subnational experience whatsoever, as a proxy of low quality. As can be seen in Panel A of Table 6, there is no difference in the education level of elected politicians (male and female) before and after the reform, while the years of subnational experience increase (for male and female) and the share of males parachuted decreases after the reform. For women, there are slightly more parachuters following the reform (statistically significant at the 0.1 level). It is difficult to argue, then, that following the 2005 reform the quality of politicians decreases. If anything, overall quality seems to increase (with similar levels of education, more subnational experience for both males and females, and fewer male parachuters - the increase in female parachuters is very small and only just statistically significant).

Our data also reveal that at all subnational levels of government for all the years available in our sample, female politicians are more educated than their male counterparts and the differences are statistically significant at the 0.01 level (see Figure 7). Interestingly, there seems to be a selection effect at the national level, whereby this difference disappears.

TABLE 6 & FIGURE 7 ABOUT HERE

In order to analyse this selection question at the national level more closely, we use detailed candidate data, which include information on the individual level of education, which are available only for the 2013 election. We find that - unlike for male candidates - it seems that the best female candidates are not elected. Figure 8 shows the kernel distribution of the education level of all male and female candidates (Panel A) and elected men, elected women, non-elected men and non-elected women (Panel B). Female candidates are more educated than male ones. Indeed, non-elected women are the most educated of all the categories of politicians i.e. these *unelected* women are more educated than their *elected* male counterparts. Whereas there is no difference in the quality of elected men and women or between male candidates and elected politicians, the best female candidates are left behind. Kolmogorov-Smirnov tests for equality of distribution functions for each of these education level distributions confirm that the differences are statistically significant. This evidence suggests that, while overall the election of women does not come at the expense of the quality of representatives, the proportional system is not able to select the best women - this is in line with recent contributions regarding proportional electoral rules undermining the selection of good politicians (Becher and González, 2019). The quality of politicians would benefit from a further increase in elected women.

To clarify the effects on quality summarized by Table 6, in Table 7 we focus on the educational level as a measure of quality and divide politicians in two groups, low and high quality, which correspond to low and high education.[20] In majoritarian elections, 13% of women are elected and 87% of men, while these percentages become 19% and 81%

[20]High quality politicians are those with qualifications equivalent to a Bachelor's degree or above and low quality politicians are those with qualifications equivalent to anything less than a Bachelor's degree.

in proportional elections respectively. In both systems, 75% of the elected women are high quality and 25% are low quality, while for men the respective percentages are 70% and 30%. Thus, women are of a higher quality than men. When we look at 2013 elections, women of high quality are still 75% amongst the female candidates, but they are only 70% amongst the elected (Panels C and D). The best women in the pool of candidates are, therefore, not elected. This does not happen to men, who display a lower percentage of high quality individuals, equal to 65% among the candidate and 66% among the elected. Thanks to the high percentage of elected women, however, in spite of the best individuals not being elected, the overall level of quality does not decrease. If women had remained only 13% of the elected politicians, with the same share of high quality women, the total amount of high quality politicians would have reduced with respect to what we observe now. Similarly, if the share of high quality elected women had remained the same as that of the candidate pool (i.e. 75% instead of 70%) the total amount of high quality elected politicians would have *increased* with respect to the current situation.[21]

TABLE 7 & FIGURE 8 ABOUT HERE

5.3 The role of gender culture

Does culture contribute to explaining how electoral rules affect female political representation and the quality of politicians? Can culture help us to understand why proportional rules promote female representation while at the same time not promoting the best female candidates? In this section we present evidence to answer these questions. Our findings are in line with a literature that argues that context - in terms of salient themes for a

[21]In Section 7 of the Appendix we present results showing that there is no *voter* bias against female candidates that could explain this selection.

given election as well as local features and issues that make a national election's stakes vary from district to district - has important mediating effects in terms of the gender of the representatives who are elected to office (Sapiro and Conover, 1997; Dolan, 2012).

Italy features highly varied gender outcomes within the same country and the same institutional setting. The most recent ISTAT figures for female employment levels across the country run as follows: North: 58.2%, Centre: 54.4%, South: 31.3% (ISTAT, 2017). Studies have shown that this divergence is associated with a different gender culture across regions of the country, with regions of the South being dominated by traditional gender roles (Campa et al., 2010). Despite the same institutional setting across the country, one could argue that this heterogeneity in cultural norms may drive some of our result. We undertook factor analyses of responses to questions about gender norms from the European Value Survey in order to create measures of the regional gender norms in Italy (see Appendix, Section 8 for more details). We find support for the generally held notion that the North of the country is more gender progressive and the South more gender traditional. We then reproduce Column 6 of Table 4, splitting the regions into high and low gender traditionalist regions. Table 8 shows that the effect of the reform is stronger in the most gender traditional districts.

Further to this, we investigate the role of culture on the relationship between electoral rules and the quality of politicians. Table 9 shows that while in the North the share of high quality women is similar in the candidate and elected pool, in the South the proportional system is not able to elect the best women: the share of high quality women in the candidate pool, equal to 76%, decreases to 69% amongst the elected.

TABLES 8 & 9 ABOUT HERE

This result is confirmed by Figure 9 which shows the kernel distribution of the level

of education of elected men, elected women, non-elected men and non-elected women in the North and South of the country. While in the North (Figure 9) the women elected from the pool of candidates are of the same quality as the non-elected women and the elected women and men are of the same quality, in the South (Figure 9) a divergence occurs whereby - despite these *unelected* women being more educated than their *elected* male counterparts - the best quality female politicians are not elected. This result is confirmed by a Kolmogorov-Smirnov test for equality of distribution functions for each of these education level distributions.

FIGURE 9 ABOUT HERE

6 Discussion and Conclusion

In a within-country context, we find causal evidence that proportional electoral rules promote women's representation without a reduction of the quality of politicians. Our study of the Italian 2005 reform, which changed the national electoral system from (mainly) majoritarian to proportional, shows that the reform had a stronger impact in more gender traditionalist regions. Even if the number of women increased more in gender traditional regions, for the 2013 elections, in these regions we also found a greater discrepancy between female candidates and elected politicians: the best female candidates are not elected. As there is no evidence of voter bias (see Table A7, Appendix), party bias, which is expected to be stronger in more traditional regions, seems the most likely source of the discrepancy between the quality of elected and non-elected women.

This conclusion is not surprising. A large evidence suggests that Italian political parties do not necessarily see women as competitive, capable political agents. Many prominent contemporary political figures in Italy have expressed less than flattering opinions of their

female colleagues, despite female politicians in Italy - as in many other countries - having been shown to be as qualified (if not more so) than their male counterparts.[22]

Overall our results indicate that proportional rules can be effective in attracting more women to politics and that this does not come at a price in terms of quality, but they also highlight the moderating effect of cultural norms and the need for vigilance when it comes to contexts with well-established traditional gender roles and stereotypes. This result is particularly informative for countries with unequal gender norms, which are consolidating their democracies at present and which may consider electoral reforms in the coming years or decades.

[22]To cite just two examples, during the 2008 election female politicians in Italy were called *"sciampiste"* and *"letteronze"* ("shampooers" and "showgirls" (Soffici, 2010)). Even more recently, in 2013 Beppe Grillo called the President of the Chamber of Deputies, Laura Boldrini, "a furnishing object" (Il Corriere della Sera, 2013).

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Figures and Tables

Figures

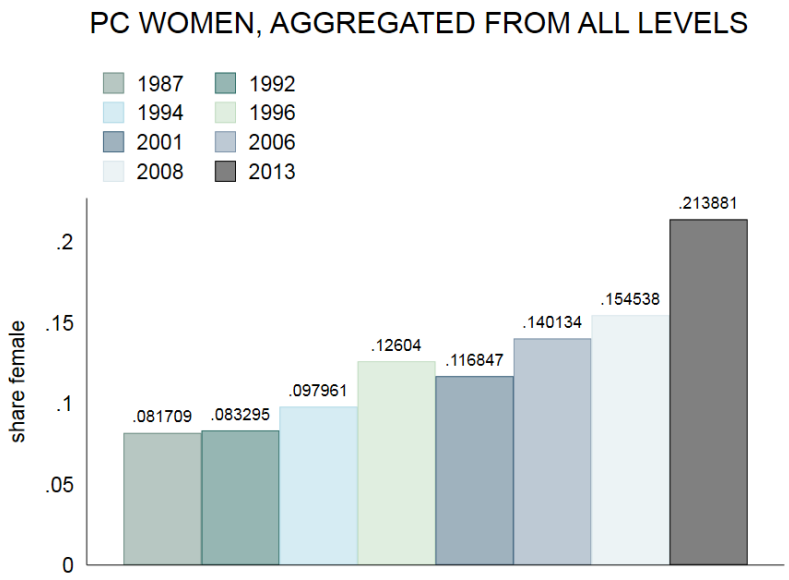

Figure 1

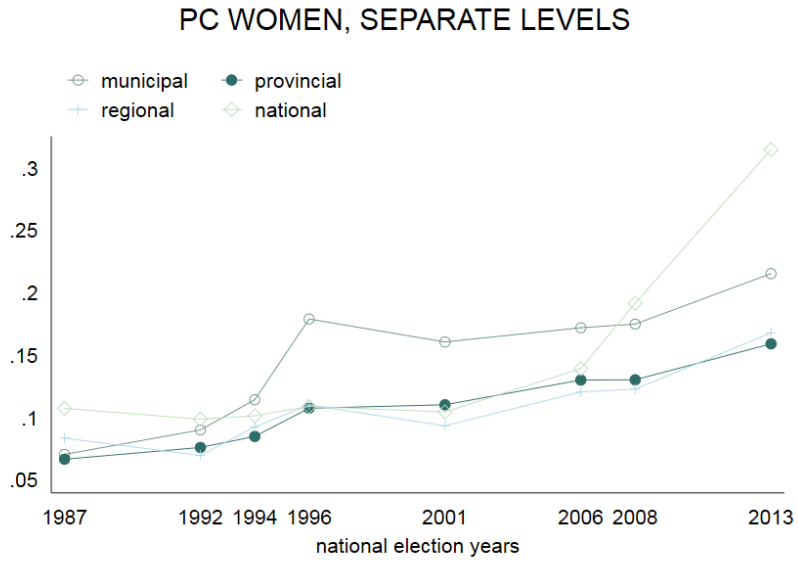

Figure 2

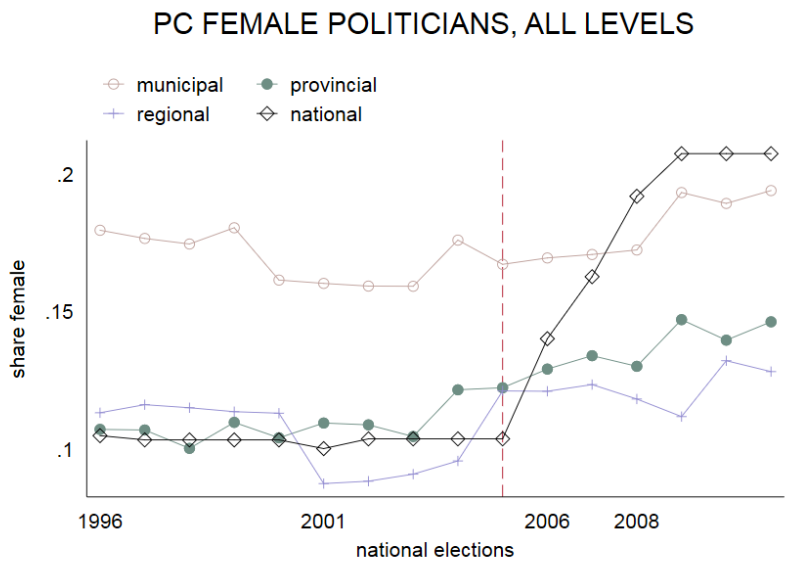

Figure 3

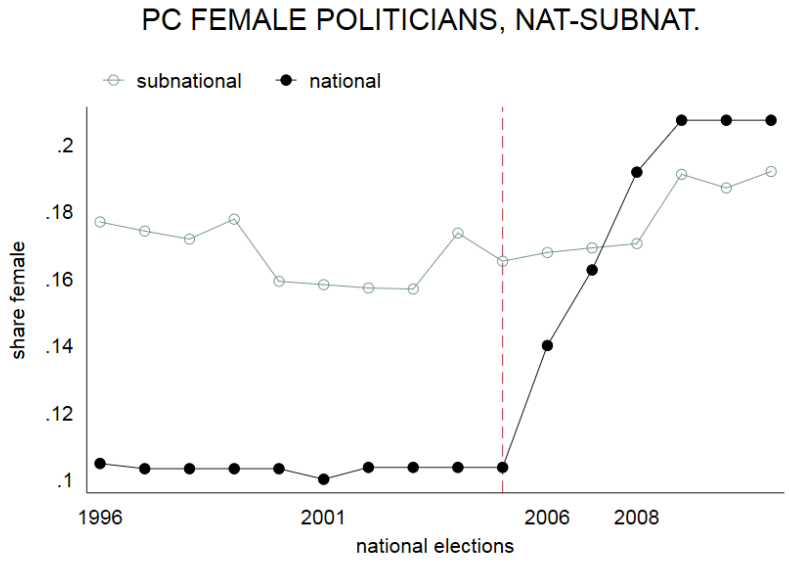

Figure 4

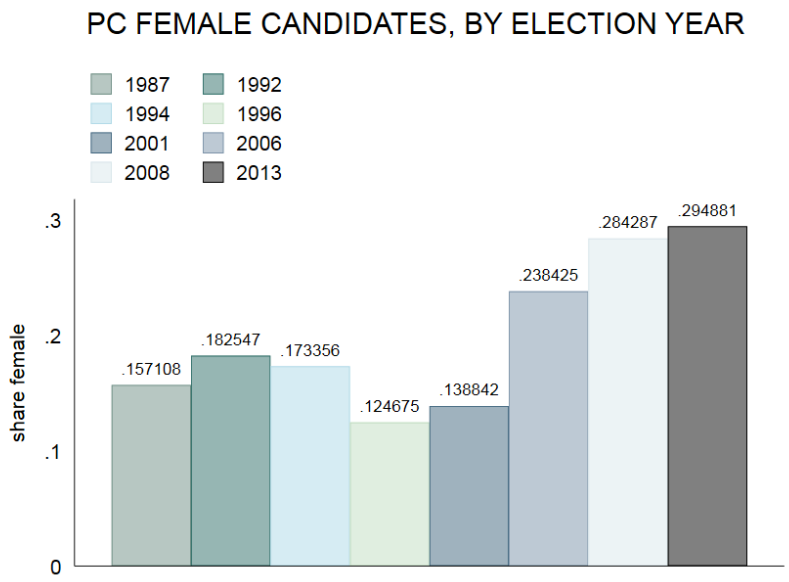

Figure 5
(National elections only)

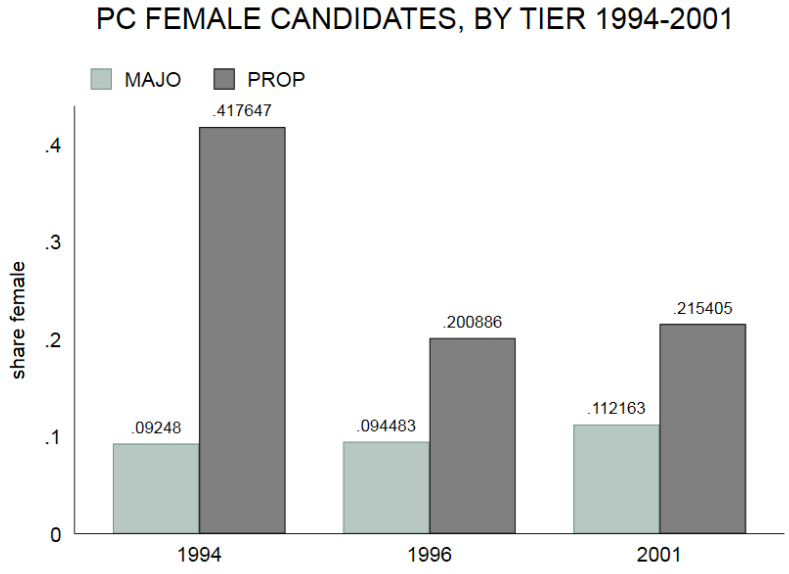

Figure 6
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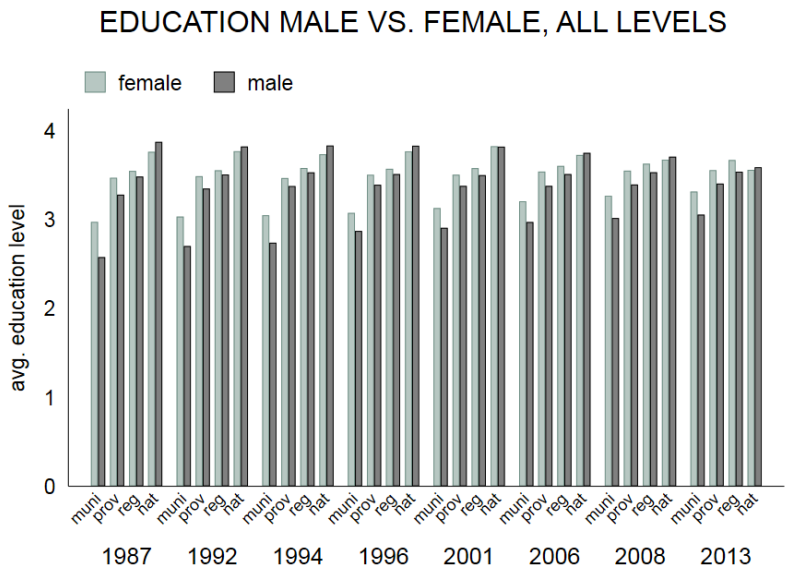

Figure 7

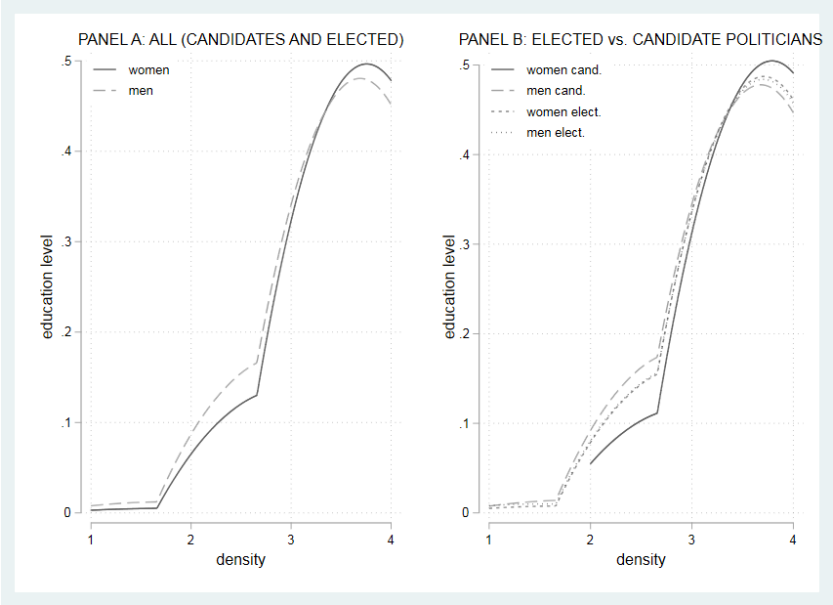

Figure 8*

*These kernel density estimates are for data for the 2013 national elections, where we have data on both candidates and politicians.

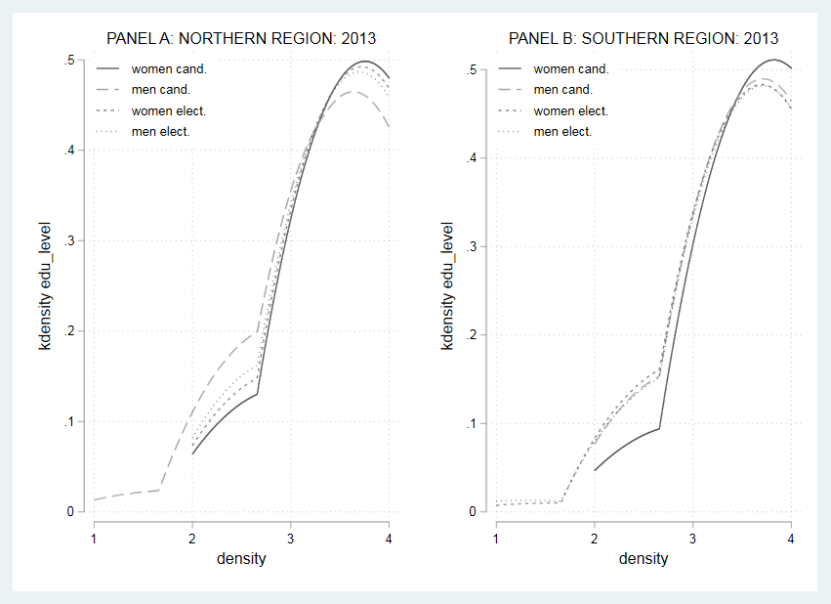

Figure 9*

*These kernel density estimates are for data for the 2013 national elections, where we have data on both candidates and politicians.

Tables

Table 1. Summary Statistics

Panel A: All Levels							
	ind. id	male	treated	post	year	regions	reg. magn.
mean	313669.7	.8521951	.0061248	.3188665	1999.82	1.780413	50.17872
p50	313525	1	0	0	2000	1	48
min	3	0	0	0	1987	1	3
max	630163	1	1	1	2013	4	101
N	4048998						

Note: Macro regions of Italy (1=North, 2=Centre, 3=South, 4=Other i.e. overseas district).

Panel B: Pre-Treatment, Control							
	ind. id	male	treated	post	year	regions	reg. magn.
mean	311812.1	.8685136	0	0	1995.565	1.775968	50.18049
p50	311211	1	0	0	1995	1	48
min	4	0	0	0	1987	1	4
max	628038	1	0	0	2004	3	99
N	2741326						

Panel C: Pre-Treatment, Treated							
	ind. id	male	treated	post	year	regions	reg. magn.
mean	496731.9	.896454	1	0	1995.608	1.913707	51.0196
p50	628307	1	1	0	1995	2	49
min	190	0	1	0	1987	1	7
max	630163	1	1	0	2004	3	99
N	16582						

Table 2. Summary Statistics: Controls, National Only, 1994-2001

	male	age	edu.	subnat. exp.	incumbent	total comp.	total safe
mean	.9141762	48.24828	15.97625	2.681226	.1984674	164.4475	102.4107
p50	1	48	17	0	0	236	154
min	0	27	5	0	0	0	0
max	1	84	20	19	1	260	155
N	1305						

Note: male = 1, female = 0, age in years, education level (in years of schooling: 5, 8, 13, 17 or 20 - these are later standardised to correspond to 1: primary education, 2: middle school education, 3: high school education, 4: degree-level or equivalent education, 5: PhD or equivalent education), years of sub-national political experience, incumbent status, total number of safe/competitive seats. No district magnitude here due to single member districts.

Table 3. Summary Statistics: National Only, 2013

	male	age	edu.	subnat. exp.	incumbent	dist. magn.	total comp.	total safe
mean	.6965443	48.946	5.714286	1.643629	.3455724	29.27763	508	849
p50	1	49	6	0	0	28	508	849
min	0	25	0	0	0	3	508	849
max	1	89	9	21	1	45	508	849
N	926							

Note: as above, except: education level (0, 3/9 categorisation from no schooling to degree level - these are later standardised to match scaling described above) and district magnitude.

Table 4. Share of Women Elected and Female Election Probability

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	No Controls	Time Trend	Controls	No Controls	Time Trend	Controls
post	0.0161**	-0.0121	-0.00956	0.0163***	-0.00654***	-0.00577***
	(0.00705)	(0.0121)	(0.0110)	(0.000863)	(0.00107)	(0.00107)
treated	-0.0584***	-0.0584***	-0.0355***	-0.0592***	-0.0591***	-0.0543***
	(0.00669)	(0.00726)	(0.00782)	(0.00753)	(0.00753)	(0.00799)
post*treated	0.0552***	0.0552***	0.0563***	0.0545***	0.0546***	0.0578***
	(0.0170)	(0.0150)	(0.0115)	(0.00971)	(0.00970)	(0.0104)
Constant	0.161***	-6.119**	-4.617**	0.162***	-4.860***	-4.689***
	(0.00549)	(2.760)	(2.178)	(0.000698)	(0.207)	(0.207)
Observations	36	36	108	2,731,303	2,731,303	2,729,675
R-squared	0.694	0.748	0.637	0.001	0.001	0.007
Time Trend	NO	YES	YES	NO	YES	YES
Controls	NO	NO	YES	NO	NO	YES

Note: dependent variable (DV), Columns 1-3: share of female politicians, aggregate data. DV, Columns 4-6: politician: female (1)/male (0), individual data. Standard errors are clustered at the national-sub-national levels (Columns 1-3) and at the individual level (Columns 4-6) and are reported in parenthesis. Controls described in Table 1). ***p $<$ 0.01, **p $<$ 0.05, *p $<$ 0.1

Table 5. Concentration of Types of Seat

Panel A: Pre-Reform: Female Politicians		
Seat-Type	Count	Share
Safe	**35/79	44%
Comp.	*40/79	51%
No chance	4/79	5%

Panel B: Post-Reform: Female Politicians		
Seat-Type	Count	Share
Safe	**222/281	79%
Comp.	*41/281	15%
No chance	18/281	6%

***p<0.01, **p<0.05, *p<0.1

Table 6. Quality of Politicians, Pre- and Post-Reform

Panel A: Pre/Post Comparisons			
Measure of Quality	*Pre vs. Post: Overall*	*Pre vs. Post: Men*	*Pre vs. Post: Women*
Education Level	No Difference	No Difference	No Difference
Years of Sub-Nat. Exp.	+3.13***	+3.26***	+2.86***
Parachuters	-.08***	-.11***	+.04*

Panel B: Absolute Measures						
Measure of Quality	*Pre vs. Post: Overall*		*Pre vs. Post: Men*		*Pre vs. Post: Women*	
Education Level	3.831	3.835	3.832	3.831	3.817	3.853
Years of Sub-Nat. Exp.	6.078	9.210	6.145	9.406	5.328	8.195
Parachuters	0.353	0.271	0.356	0.248	0.331	0.375

Note: Education level: ranges from 1 (primary education), to 5 (PhD or equivalent). Subnational experience: measured in years. A parachuter politician (binary variable) is one who arrives at the national level with 0 years of subnational experience; figures shown represent the share of parachuters over the total of national politicians. ***p $<$ 0.01, **p $<$ 0.05, *p $<$ 0.1

Table 7. Quality Summary Statistics

Panel A: Women, Elected		
	Pre	*Post*
Overall Percentage	13%	19%
Of which, *High Qlty*	75%	75%
Of which, *Low Qlty*	25%	25%

Panel B: Men, Elected		
	Pre	*Post*
Overall Percentage	87%	81%
Of which, *High Qlty*	71%	70%
Of which, *Low Qlty*	29%	30%

Panel C: Women Candidates versus Elected, 2013		
	Candidate Pool	*Elected Pool*
Overall Percentage	32%	30%
Of which, *High Qlty*	75%	70%
Of which, *Low Qlty*	25%	30%

Panel D: Men Candidates versus Elected, 2013		
	Candidate Pool	*Elected Pool*
Overall Percentage	68%	70%
Of which, *High Qlty*	65%	66%
Of which, *Low Qlty*	35%	34%

Table 8. Low vs. High Gender Traditionalism

	(1)	(2)
VARIABLES	LOW	HIGH
post	0.00165	-0.0181***
	(0.00128)	(0.00214)
treated	-0.0437***	-0.0457***
	(0.00954)	(0.0146)
post*treated	0.0219*	0.0636***
	(0.0112)	(0.0175)
Constant	-1.450***	-11.69***
	(0.321)	(0.366)
Observations	1,413,271	1,110,274
R-squared	0.007	0.013
Full Controls	YES	YES

Note: Equivalent of Column 6 of Table 4. Sample years: 1994-2013. DV: binary, politician is female (1), male (0). Column 1: regions of below-average gender traditionalism. Column 2: regions with above-average gender traditionalism. ***p $<$ 0.01, **p $<$ 0.05, *p $<$ 0.1

Table 9. Quality Summary Statistics, North-South Comparisons

Panel A: Women, Elected				
	Pre		*Post*	
	North	*South*	*North*	*South*
Overall Percentage	12%	11%	21%	16%
Of which, *High Qlty*	74%	78%	73%	77%
Of which, *Low Qlty*	26%	22%	27%	23%

Panel B: Men, Elected				
	Pre		*Post*	
	North	*South*	*North*	*South*
Overall Percentage	88%	89%	79%	84%
Of which, *High Qlty*	68%	77%	71%	74%
Of which, *Low Qlty*	32%	23%	29%	26%

Panel C: Women Candidates vs Elected, 2013				
	Candidate Pool		*Elected Pool*	
	North	*South*	*North*	*South*
Overall Percentage	32%	31%	30%	30%
Of which, *High Qlty*	74%	76%	73%	69%
Of which, *Low Qlty*	26%	24%	27%	31%

Panel D: Men Candidates vs Elected, 2013				
	Candidate Pool		*Elected Pool*	
	North	*South*	*North*	*South*
Overall Percentage	68%	69%	70%	70%
Of which, *High Qlty*	62%	68%	66%	66%
Of which, *Low Qlty*	38%	32%	34%	34%

Electoral Rules, Women's Representation and the Quality of Politicians

Online Appendix: Supplementary Material

June 21, 2019

Contents

1 Additional Information on Subnational and National Levels of Government in Italy

1.1 Subnational Levels

In terms of the functioning of these administrative levels, there are different areas of competence that dictate which level administers which services. The national government has exclusive competence over certain policy areas, such as foreign policy or competition. Indeed, unless it is expressly stated that the State has a given competence it is automatically the regions' responsibility.[1] For example, the regions are responsible for the programming and organisation of health services, for providing educational facilities and for infrastructure on their territories. These macro areas are then delegated further down the administrative structure with the provinces, for example, being responsible for urban development, public transport and the management of school buildings in their jurisdictions. Municipalities, in turn, are responsible for an array of services from the registry of births and deaths, to the provision of local public services such as water supply, waste management and municipal police, to the implementation of housing and welfare policies.

In terms of organisation, at each of the levels a *presidente* (president, regions and provinces) or a *sindaco* (mayor, municipalities) is elected. This figure then heads a *consiglio* (legislative body) and a *giunta* (executive body). The former body is made up of elected councillors who manage the political and bureaucratic activities of the government in question. The latter body is composed of *assessori* (councillors) chosen by the figurehead

[1]That being said, until 2015 when amendment was made to Art. 117 of the Constitution that clearly separated the responsibilities of the national and regional governments, the distinctions between what was of national or regional competence were not always hard and fast.

to take charge of a specific kind of activity. For example at the regional level, the *Assessore all'Economia, Crescita e Semplificazione* (Councillor for the Economy, Growth and Simplification) manages the region's balance sheets and tax system, its financial resources to encourage growth, the streamlining of its bureaucracy and digitalisation. This brings us to the electoral rules determining how such figures are elected.

Referring back to Timeline 2, we would like to make the following three points (in chronological order). First, with respect to law 81/1993 governing the municipal and provincial levels of government, the law split municipalities into two groups: those with less than 15,000 inhabitants and those with more. Both groups had to be elected directly by citizens via plurality rule. See Bordignon et al. (2016) for more details. Second, in 1999, an amendment was made to Article 122 of the Constitution that allowed the regions to choose their *form* of government, even if central government laws determined the fundamental principles of the electoral law (Bologna et al., 2003). This came before the reform we are looking at and did not involve a uniform, decisive change across all regions in electoral rules, rather a gradual piecemeal evolution.[2] The *Tatarellum* continued to govern any regional elections where the regional law had not been changed and, as mentioned before, was maintained even in some cases where the regional law was changed. The dash-dotted 2014 arrow refers to a major reform of the provinces and the structure

[2]Modifications to the regional laws took place slowly and in a highly varied fashion - some kept the 1995 *Legge Tatarella* almost entirely in tact, whereas others modified it significantly. The first regional elections held under new regional electoral rules were in Friuli-Venezia Giulia in 2002 (following a modification of the regional law in 2001) and changes are still occurring today. Regional law modifications were gradually made over the period 2001-today by the following regions: Friuli-Venezia Giulia (2001), Toscana (2004), Sicilia (2005), Calabria (2005), Campania (2009), Lombardia (2012), Veneto (2012), Abruzzo (2013), Emilia Romagna (2014), Liguria (2015), Marche (2015) and Umbria (2015).

of municipalities (Law 56/2014 or *Legge Delrio*), with the birth of *città metropolitane*, for example. However, this occurred after the period that we are analysing. Thus, the changes indicated by our dash-dotted arrows do not affect our estimates.[3] Third, Law n.215/2012 introduced a candidate quota for all subnational levels of government, stipulating that no single gender could represent more than 2/3 of the candidates on a list and establishing a double preference so that voters can express two preferences rather than one as long as each preference is for a candidate of a different gender. This reform has been shown to have increased the number of female councillors significantly (Baltrunaite et al., 2017). Our results, available upon request, are robust to including 2013.

Italy's 20 regions are the following: Abruzzo, Basilicata, Calabria, Campania, Emilia-Romagna, Friuli-Venezia Giulia, Lazio, Liguria, Lombardia, Marche, Molise, Piemonte, Puglia, Sardegna, Sicilia, Toscana, Trentino-Alto Adige, Umbria, Valle d'Aosta, Veneto. 5 of these regions (Sicilia, Sardegna, Trentino-Alto Adige/Südtirol, Valle d'Aosta and Friuli-Venezia Giulia) have special degrees of autonomy and there are 2 autonomous provinces (Trento and Bolzano, which compose the Trentino-Alto Adige/Südtirol region). Article 116 of the Italian Constitution grants these regions powers related to legislation, administration and finance. We invite interested readers to consult the Italian constitution (L'Assemblea Constituente, 1946) for more information on the *Regioni a Statuto Speciale* as we must limit our attention to the other regions due to space constraints.

Italy's *città metropolitane* are the following: Bari, Bologna, Cagliari, Catania, Firenze, Genova, Messina, Milano, Napoli, Palermo, Reggio Calabria, Roma Capitale, Torino and Venezia.

[3]We also run all of our regressions on control groups made up of each of the different levels separately and our findings are robust. See Section 9, Robustness Tests.

1.2 National Levels

Under the 1993 *Mattarellum* electoral rules, in the House, there was an electoral threshold of 10% for coalitions and of 4% for party lists running alone; there was also a threshold of 2% for party lists belonging to a coalition above the 10-percent threshold. In the Senate, the same thresholds were 20% for coalitions and 8% for parties running alone. The main difference between the Senate and the House is that both the majority bonus and the electoral thresholds were calculated at the regional level for the Senate.

Under the *Mattarellum* the proportional seat tier district magnitudes had ranged from a minimum of 2 (Basilicata, Umbria) to a maximum of 11 (Lombardia 2) in the House and from a minimum of 2 (Friuli-Venezia Giulia, Umbria, Marche, Abruzzo, Basilicata) to a maximum of 12 (Lombardia) in the Senate. We exclude Valle d'Aosta, Molise and Trentino-Alto Adige from the analyses, due to their autonomous status and different electoral rules. Whereas after the 2005 reform, in the 2013 election, for example, the census-based district magnitude ranged from a minimum of 6 (Basilicata) to a maximum of 45 (Lombardia 2) in the House, and from a minimum of 7 (Friuli-Venezia Giulia, Umbria, Abruzzo, Basilicata) to a maximum of 49 (Lombardia) in the Senate.

The 2017 *Rosatellum* introduced a mixed electoral system with 232 SMDs (37%) to be elected via majoritarian rule and 386 districts (plus 12 seats for foreign constituencies) (63%) to be elected via closed list proportional rule, with a gender quota imposed on all parties ensuring that no more than 60% of the candidates can be of one sex.

2 Summary of Data Sources

TABLE A1 ABOUT HERE

3 Checking for other Discontinuities

Here we check that there are no discontinuities around the 2005 reform date apart from that we identify and are interested in: the share of women being elected to national office. As can be seen in Figures A1-A3, all the other characteristics of politicians we are able to test for do not display discontinuities around the reform date.

FIGURES A1, A2 & A3 ABOUT HERE

4 Two-Tier Analyses

We also explore the two-tiered feature[4] of the *Mattarellum* reform, which introduced a mixed-member system, whereby 75% of representatives were elected via a majoritarian system and 25% via a proportional system. In the majoritarian tier, members of parliament were elected in SMDs with simple plurality voting. In the proportional tier, representatives were elected from closed party lists at the regional level (Bartolini and D'Alimonte, 1996; Bartolini et al., 2004). The main advantage of this feature is that we can see how parties and politicians react to electoral rules when they have an alternative available. Indeed, Figures 5 and 6 (in the main text) confirm that both *across electoral systems* over time and across tiers *within the same electoral system*, proportional rules are associated with more female *candidates*. Figure 5 shows that the share of candidates who are women reduces significantly during the years where a mostly majoritarian rule was in place (the elections of 1994, 1996, 2001). Figure 6 illustrates how within the same electoral system,

[4]See Weeks and Baldez (2015) for a study exploiting this tier feature of the Italian electoral system in these years comparing the quality of quota and non-quota female politicians.

the share of female candidates is markedly higher in the proportional tier as compared to the majoritarian. Even under the same electoral system, these differences in the numbers of female candidates coming forward translate into differences in the number of *elected* women, with an average of 24% of elected politicians being female in the PR tier as compared with 9% in the majoritarian tier (the difference is statistically significant at the 1% level).

5 Political Candidates and Personal Exposure

We construct two measures which capture the different attitudes of male and female political candidates towards personal exposure. We use the Comparative Candidate Survey (hereafter, CCS), Module 1 Data (FORS, 2016) which covers candidates running for national parliamentary elections in different countries using a common core questionnaire to allow for cross-country comparison. The data include surveys of candidates as well as relevant context information concerning the constituency of the candidate and the political system at large. The core CCS candidate questionnaire focuses on the relationships between the candidate, the party and the voters. Issues such as campaigning, recruitment, career patterns, ideology, democracy and representation are included in the questionnaire. CCS is conducted in modules that are in the field about 5 years. The surveys for Module 1 of the CCS were conducted between 2005-2013 and cover 35 elections.

Measure 1 is created on the basis of the question "A MP in a conflict between own opinion and the party position should follow: 1. His/Her own opinion; 2. The party's position?". So, a higher value response indicates greater amenability to following the party's position when in a position of conflict. This measure is intended to capture the extent to which candidates are willing to sacrifice their own beliefs in order to avoid

conflict with the party, a form of individual political exposure. As can be seen in Table A2, female candidates are more likely than their male counterparts to toe the party line even when they disagree with it.

Measure 2 is created on the basis of a series of questions regarding how often the candidate re-presents his/her candidature after a failure in an election: "Stood as a candidate in year of most recent [second most recent etc.] national election". A higher value indicates more resilience to losing elections, in the sense of trying again more frequently after a loss. This measure is intended to capture how willing a candidate is to try again if he/she loses an electoral race, a form of personal self-confidence. As can be seen in the Table A2, female candidates are less likely than their male counterparts to re-run in an electoral race after they lose.

TABLE A2 AROUND HERE

6 Differential Seat Placement Across Electoral Systems

In order to evaluate if men and women are placed in safe, competitive and no chance seats differentially under different electoral systems, we estimate the following probit specification of a binary response model:

$$Y^* = \beta_1 MALE + \boldsymbol{X}_j' \beta_j + \epsilon \tag{1}$$

$$Y_i = \begin{cases} 1 & \text{if } Y_i^* > \tau \\ 0 & \text{if } Y_i^* \leq \tau \end{cases}$$

Where Y^* is the latent likelihood of being placed in a competitive seat, τ is the threshold over which the probit link function,[5] which created the continuous, real-valued Y^*, predicts a positive value of Y_i. $\beta_1 MALE$ is our independent variable of interest the gender of the politician, $\boldsymbol{X}'_j$ is a vector of controls for politician j (education level, party affiliation, subnational political experience and district magnitude) and ϵ is an error term.

We create our own measures of seat safety or competitiveness. For the pre-reform elections, we define as 'safe' a seat where in the previous election the same party (or party grouping, given the high frequency with which parties and coalitions change name from election to election in Italy) won with a margin that exceeded the mean for that election, 'competitive' a seat that was won or lost in the previous election by less than the average margin for that election or that was won by the same party (or party grouping) in the previous election but by a tight margin,[6] and 'no chance' a seat that was won in the previous election with a margin that exceeded the mean for that election by another party (or party grouping).[7] Our measures predict the seat correctly in 86.5% of cases. For the 2013 election (post-reform election), Galasso and Nannicini (2015) provide information on political *candidates* and estimates of how many seats each party was expected to obtain, according to polls, in each district, both in the House and the Senate. These estimates are

[5] $Y = \Phi(X\beta + \epsilon)$, $\Phi^-1(Y) + X\beta + \Phi$, $Y* = X\beta + \epsilon$, so the link function is: $F(Y) = \Phi^-1(Y)$.

[6] Tight margin here defined as half of the mean margin of victory for that election.

[7] We are aware of several alternative methods (Stoffel, 2014; Kotakorpi et al., 2017) that would be more appropriate than the measures we are able to calculate, but unfortunately data restraints mean that we cannot implement them.

elaborated based on data from a research centre specialised in electoral studies (Centro Italiano Studi Elettorali, CISE) which conducted both original polls and performed projections. We use these predictions as our measure of seat safety/competitiveness for the post-reform period. The poll-based estimates categorise positions on each list in each district into different statuses: safe (i.e. the candidate in this position is expected to win), competitive (i.e. the candidate in this position in is a tight race where the seat could be just won or lost according to the polls) and 'no chance' (the candidate is in a position where the seat is expected to be lost). The CISE polls were generally accurate, predicting the seat correctly in 90% of cases. Table 5 in the main text presents a summary of our classification of seats pre- and post-reform.

Tables A3, A4, A5 and A6 show our results for the allocation of safe and competitive seats across gender both pre- and post-reform. Results are obtained using a binary response model (with a binary measure categorising a seat as competitive or not as the dependent variable) estimated with maximum likelihood. Prior to the 2005 reform (Tables A3 and A4), whether or not one is a woman does not seem to matter for one's placement in a safe or competitive seat (Row 1). Indeed, other characteristics such as one's education level or position as a loyalist matter for the kind of seat one is allocated: more educated candidates belong to competitive seats and more loyalists to safe seats. Whereas following the 2005 reform, the fact that one is a woman seems to be the most salient factor in the kind of seat being allocated (Tables A5 and A6, Row 1), apart from the case where education is included (Column 3). This is probably due to the fact that on the one hand women are allocated to safe seats, while on the other women are more educated than men and more educated candidates are less likely to stay in safe seats.

TABLES A3, A4, A5 & A6 ABOUT HERE

In all these specifications we control for the individual and electoral system features thought to influence one's likelihood of being elected as a woman: individual characteristics (age, education, party affiliation), subnational experience, incumbency and district magnitude. These features have been proposed by the literature (see Section 2 in the main text) to explain why proportional systems are associated with a larger presence of women.

7 Voter Bias

Finally, the 2013 data including information on candidates allow us to estimate the following equation, which tests whether one's likelihood of being elected is affected by one's gender, controlling for the kind of seat - safe or competitive or 'no chance', as described in Section 4 of the main text - that one is placed in.

$$Y^* = \beta_1 MALE + \beta_2 SEAT + \beta_3 (MALE \times SEAT) + \boldsymbol{X}'\beta_j + \epsilon \tag{2}$$

Where Y^* is the latent likelihood of being elected, $\beta_2 SEAT$ is the nature of the seat one has been assigned to (competitive/safe/'no chance' measured as a binary variable for each type of seat) and the interaction term $\beta_3(MALE \times SEAT)$ captures the effect that being a man as opposed to a woman has on your chances of being elected given the kind of seat you have been allocated.

Table A7 shows results of this estimate. We see that, if anything, female politicians are more likely to be elected than their male counterparts in safe and competitive seats. This lack of a voter bias, is in line with the majority of existing literature. In 'no chance'

seats they are less likely to be elected than men, but this may be less indicative of female politicians' overall ability to convince voters as the 'no chance' seats are relatively few and not where parties are concentrating their election efforts. Column 4 shows that, when looking only at seats that are fiercely competitive, one's gender does not have an impact on the likelihood of being elected. Although limited to the 2013 elections, these results raise doubts regarding the presence of voters' bias against women.

TABLE A7 ABOUT HERE

8 Measures of Regional Gender Traditionalism

In terms of background, before describing how we created the following measures, it is important to note that, in general, Italy performs poorly in terms of gender equality. Italy lags behind its Western neighbours in all gender statistics, including female political empowerment. In 2000 Italy had only 11% women in national office, in 2005 still only 11.5%, and in 2010 21.3%. At different levels of subnational government female representation varies substantially, but remains low: in 2013 in Italy, 17% of politicians at the regional level were female, 16% at the provincial level, and 21% at the municipal level.

Turning now to how we capture regional gender traditionalism. We create a measure of regional gender norms, using different waves of the European Value Survey (hereafter, EVS). We use the 1990, 1999 and 2008 EVS surveys as they are those that match most closely to the time period under consideration and include questions about attitudes towards women's role in society. The variables have been coded such that the higher the score, the more gender traditional the view being expressed is. The questions that we use for our factor analysis are as follows:

1. "Having a job is the best way for a woman to be an independent person"*[8]

2. "Both the husband and wife should contribute to household income"*

3. "Do you think that a woman has to have children in order to be fulfilled or is this not necessary?"

4. "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work"*

5. "A pre-school child is likely to suffer if his or her mother works"*

6. "A job is alright but what most women really want is a home and children"*

7. "Do you agree or disagree with the following statement: Marriage is an outdated institution?"

8. "If a woman wants to have a child as a single parent, but she doesn't want to have a stable relationship with a man, do you approve or disapprove?"

We create a general measure of gender traditionalism on the basis of responses to these questions. Then, from our factor analysis, the following separate strands of gender traditionalism emerge:

How a person feels about:

1. Equality within the household and labour force.

2. Women as care-givers to children, their identity being essentially bound to childcare.

[8]The asterisked questions were to be answered on a scale of agree strongly/agree/disagree/disagree strongly. Whereas, the non-asterisked questions had a binary tend to agree/tend to disagree or needs children/not necessary choice option.

3. The institution of marriage as a defining feature of modern life.

9 Robustness tests

In this section we perform several robustness tests. In Table A8, we present equivalent results to equation 2 (Table 4, Column 6), but broken down by party affiliation and show that the effect of the reform is not driven by a specific party.

In Table 9, we test the robustness of our findings in various ways. In Columns 1-3, we change the time span used to define the sample for our main estimations from 1994 to 1993, 1995, 2000.[9] In Column 4, we eliminate politicians with very high political longevity[10] in terms of subnational experience to be sure that results are not driven by individuals with very long subnational careers (over 15 years). In Column 5, we bring senators into the analysis. In Columns 6-8, we change the control group from the usual pooling of all three levels (municipal, provincial and regional) to each of the separate groups. Finally, in Column 9 we include individual controls for each of Italy's 20 regions as opposed to the macro regions (north, centre, south) used in the main models. Our findings are robust to all these tests.

In Table 10, we estimate the same regression equations as in the main results, but we use lags for 5 years prior to the reform and leads for 3 years following the reform (we use this number of lags and leads to ensure that we include at least 1 national level election

[9]The cut-off date is key: we cannot use data before 1993 as there was another major national-level electoral reform that could confound our results. Equally, we cannot use data only very close to the 2005 reform date as we would lose the essential time trends we need for the estimation.

[10]Outliers are here defined as those individuals with more than 15 years of subnational experience, as only the top 5% the distribution have more than 15 years of subnational experience.

each side of the reform) to replicate placebo reform years. As can be seen in Table 10, none of the lag years have an effect on female representation, which reassures us that there are no pretreatment effects contaminating the effect of the reform itself. For the lead years, only Lead 3 (equivalent to the 2008 national election) is statistically significant at the 5% level with a coefficient of 0.02, so weaker than the reform year itself. This testifies to the lasting effect of the 2005 reform, which is carried over - though more weakly - into the 2008 national election.

Finally, in Table 11 we consider the effects of a previous 1993 reform from a (see 'Mattarellum, 1993' in Timeline 1) full proportion system into the mixed (75% majoritarian) system. We prefer not to consider this reform in our main analysis because this national reform comes together with a reform at the municipal level which introduces gender quotas in candidate lists which increase the share of elected women (see Baltrunaite et al. (2017)). Gender quotas in municipal elections can confound the effect of the national reform which we want to estimate. In fact, we find that the 1993 national reform has an adverse effect on female representation, with a negative coefficient for the DiD estimator of a much larger magnitude that the one obtained for the 2005 reform.

TABLES 8, 9, 10 & 11 ABOUT HERE

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10 Figures and Tables for the Appendix

10.1 Figures

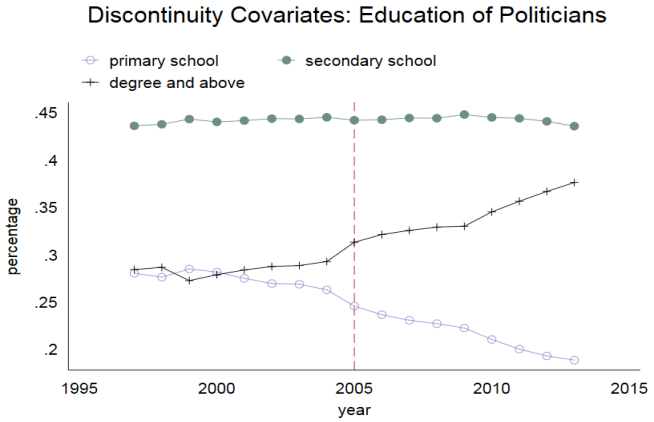

Figure A1

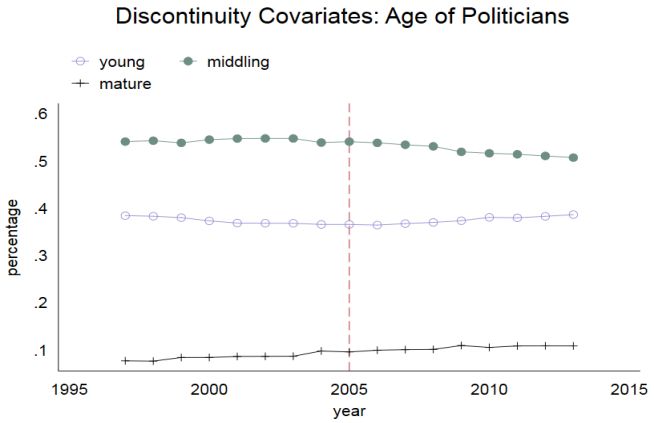

Figure A2

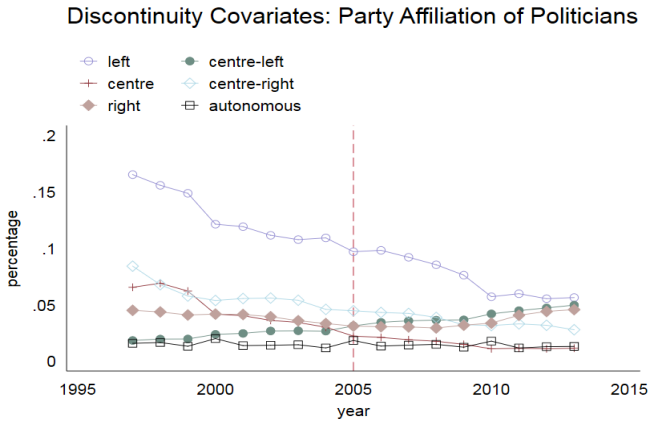

Figure A3

10.2 Tables

Table A1. Data Sources Summary

Level of Government	Politician Type	Information	Elections	Source
Sub-national levels: regional (president, member of the regional council), provincial (member of the provincial council, president), municipal (mayor, member of the municipal council).	Elected politicians	Name, date of birth, gender, education level, profession, party affiliation, district of election and political role.	All elections in the period 1987-2013	Ministry of Internal Affairs
National level: members of the Parliament (House and Senate)	Candidates	Aggregate data by gender.	1987, 1992, 1994, 1996, 2001, 2006, 2008, 2013	Castiglioni
		Individual data: name, date of birth, gender, education level, profession, party affiliation district of election, whether born out of election region. Position on ballot, whether expected to win, whether elected or not, whether in parliament due to other elected candidate refused position.	2013	CISE, Galasso and Nannicini (2015)
	Elected Politicians	Individual data: Name, date of birth, gender, education level, profession, party affiliation, sub-national experience, status as incumbent, region of election, regional magnitude and political role.	1987, 1992, 1994, 1996, 2001, 2006	Gagliarducci et al (2001)
			2008	Miano
			2013	Galasso and Nannicini (2015)
		Individual data: margin of victory, whether elected in MAJ/PR tier.	1994, 1996, 2001	Gagliarducci et al (2011)
		Individual data: type of seat (safe, competitive, no chance).	2013	CISE, Galasso and Nannicini (2015)

Table A2. Personal Exposure Measures

	M	F	Diff.	SE	Obs.
Measure 1: Conflict	1.3579	1.4080	0.0501***	0.0086	14352
Measure 2: Resilience	1.6580	1.5167	-0.1413**	0.0572	1610

Note: FORS (2016) data on survey responses from political candidates running for national parliamentary elections. T-tests of the difference between Measures 1 and 2 by gender. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%.

Table A3. Likelihood of Being Placed in Safe Seat: PRE-2005

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
female	0.407		0.476		0.284		0.353		0.341*
	(0.333)		(0.352)		(0.185)		(0.246)		(0.198)
edu_high		-0.278***	-0.270**						
		(0.106)	(0.111)						
female*edu_high			-0.137						
			(0.388)						
loyalist				0.245*	0.203				
				(0.133)	(0.140)				
female*loyalist					0.239				
					(0.408)				
parachute						-0.142	-0.158		
						(0.173)	(0.177)		
female*parachute							-0.00995		
							(0.323)		
incumbent								0.343***	0.345***
								(0.107)	(0.111)
female*incumbent									0.0596
									(0.365)
Constant	-3.987***	-4.733	-4.458***	-4.730**	-4.734***	-5.938	-5.005	-4.531**	-4.511***
	(0.241)	(3.750)	(0.810)	(1.909)	(1.333)	(12.65)	(5.581)	(1.867)	(1.103)
Observations	1,246	1,238	1,238	1,238	1,238	1,238	1,238	1,238	1,238
Pseudo R2	0.234	0.253	0.256	0.250	0.253	0.248	0.252	0.256	0.260
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The table reports the coefficients from probit regressions of the likelihood of seeing politician placed in a safe seat prior to the 2005 reform. Dependent variable: a binary measure indicating whether a seat is competitive (1 if safe, 0 otherwise). Controls as described in Table 5. Columns 4-5 exclude education and sub-national experience as they are used to created the loyalist variable. Columns 6-9 exclude sub-national experience as it is used to create the parachute and incumbent variables. Robust standard errors clustered on the district are reported in parentheses. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%.

Table A4. Likelihood of Being Placed in Comp. Seat: PRE-2005

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
female	-0.842		-0.258		-0.287		-0.139		-0.308
	(2.280)		(0.348)		(0.181)		(0.241)		(0.189)
edu_high		0.261**	0.275**						
		(0.106)	(0.110)						
female*edu_high			-0.0864						
			(0.395)						
loyalist				-0.216	-0.204				
				(0.133)	(0.141)				
female*loyalist					-0.00134				
					(0.414)				
parachute						0.172	0.211		
						(0.170)	(0.173)		
female*parachute							-0.275		
							(0.312)		
incumbent								-0.132	-0.137
								(0.105)	(0.110)
female*incumbent									0.0105
									(0.361)
Constant	-3.023***	-3.264***	-3.185***	-3.083***	-3.013***	-3.221***	-3.152***	-3.150***	-3.072***
	(0.155)	(0.309)	(0.317)	(0.303)	(0.308)	(0.311)	(0.315)	(0.301)	(0.307)
Observations	1,246	1,238	1,238	1,238	1,238	1,238	1,238	1,238	1,238
Pseudo R2	0.316	0.328	0.331	0.326	0.328	0.325	0.327	0.325	0.327
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The table reports the coefficients from probit regressions of the likelihood of seeing politician placed in a competitive seat prior to the 2005 reform. Dependent variable: a binary measure indicating whether a seat is competitive (1 if competitive, 0 otherwise). Controls as described in Table 5. Columns 4-5 exclude education and sub-national experience as they are used to created the loyalist variable. Columns 6-9 exclude sub-national experience as it is used to create the parachute and incumbent variables. Robust standard errors clustered on the district are reported in parentheses. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%.

Table A5. Likelihood of Being Placed in Safe Seat: POST-2005

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
female	0.248**		0.0875		0.402***		0.385***		0.286**
	(0.110)		(0.189)		(0.105)		(0.121)		(0.132)
edu_high		0.165	0.0837						
		(0.136)	(0.158)						
female*edu_high			0.231						
			(0.217)						
loyalist				-0.247*	0.317				
				(0.136)	(0.199)				
female*loyalist					-1.660***				
					(0.331)				
parachute						0.481**	0.741***		
						(0.191)	(0.253)		
female*parachute							-0.881***		
							(0.299)		
incumbent								0.160	0.178
								(0.191)	(0.194)
female*incumbent									-0.142
									(0.228)
Constant	0.558***	0.738***	0.597**	0.822***	0.628**	0.854***	0.725**	0.833***	0.670**
	(0.0607)	(0.280)	(0.287)	(0.287)	(0.287)	(0.285)	(0.298)	(0.292)	(0.306)
Observations	926	742	742	742	742	742	742	742	742
Pseudo R2	0.00595	0.0500	0.0565	0.0490	0.0734	0.0582	0.0736	0.0488	0.0547
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The table reports the coefficients from probit regressions of the likelihood of seeing politician placed in a safe seat following the 2005 reform. Dependent variable: a binary measure indicating whether a seat is safe (1 if safe, 0 otherwise). Controls as described in Table 6. Columns 4-5 exclude education and sub-national experience as they are used to created the loyalist variable. Columns 6-9 exclude sub-national experience as it is used to create the parachute and incumbent variables. Robust standard errors clustered on the district are reported in parentheses. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%.

Table A6. Likelihood of Being Placed in Comp. Seat: POST-2005

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
female	-0.288**		0.0491		-0.440***		-0.432***		-0.336**
	(0.125)		(0.221)		(0.119)		(0.128)		(0.154)
edu_high		-0.177	-0.0418						
		(0.123)	(0.136)						
female*edu_high			-0.437*						
			(0.239)						
loyalist				0.371**	-0.274				
				(0.149)	(0.235)				
female*loyalist					1.847***				
					(0.392)				
parachute						-0.347**	-0.665***		
						(0.142)	(0.218)		
female*parachute							1.047***		
							(0.285)		
incumbent								0.0183	-0.0373
								(0.133)	(0.140)
female*incumbent									0.277
									(0.229)
Constant	-0.766***	-0.729**	-0.599*	-0.825***	-0.619**	-0.833***	-0.705**	-0.791**	-0.626**
	(0.0687)	(0.299)	(0.305)	(0.312)	(0.314)	(0.306)	(0.318)	(0.312)	(0.319)
Observations	926	742	742	742	742	742	742	742	742
Pseudo R2	0.00800	0.0221	0.0314	0.0230	0.0548	0.0250	0.0465	0.0188	0.0264
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: The table reports the coefficients from probit regressions of the likelihood of seeing politician placed in a competitive seat following the 2005 reform. Dependent variable: a binary measure indicating whether a seat is safe (1 if competitive, 0 otherwise). Controls as described in Table 6. Columns 4-5 exclude education and sub-national experience as they are used to created the loyalist variable. Columns 6-9 exclude sub-national experience as it is used to create the parachute and incumbent variables. Robust standard errors clustered on the district are reported in parentheses. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%.

Table A7. Likelihood of Election, 2013

VARIABLES	(1) Safe	(2) Competitive	(3) No Chance	(4) Tight Races
male	0.160	0.190**	-0.291***	-0.243
	(0.167)	(0.0894)	(0.105)	(0.212)
safe	2.413***			
	(0.212)			
safe*male	-0.441*			
	(0.239)			
comp.		0.0205		
		(0.200)		
comp*male		-0.458**		
		(0.229)		
no chance			-2.894***	
			(0.315)	
no chance*male			0.725**	
			(0.362)	
Constant	-1.294***	-0.385**	0.656**	0.935
	(0.249)	(0.191)	(0.268)	(0.942)
Observations	1,058	1,058	1,058	249
Pseudo R2	0.384	0.0161	0.345	0.0257
Controls	YES	YES	YES	YES

Note: Probit regressions of the likelihood of seeing a candidate elected to national office in the 2013 election. DV: binary indicating if a candidate was elected (1) or not (0). The seat classifications define a seat as safe (1) or not (0), competitive (1) or not (0) and 'no chance' (1) or not (0). Columns 1-3: likelihood of a candidate being elected given his/her gender and other individual characteristics and his/her seat position. Column 4: likelihood of being elected in a sample reduced only to tight races. Controls described in Table 3. Robust standard errors clustered on the district are reported in parentheses. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%

Table A8. Party Analysis

VARIABLES	(1) Left	(2) CL	(3) Centre	(4) CR	(5) Right
post	-0.00718***	-0.0226***	0.00925***	0.000524	0.0134***
	(0.00210)	(0.00453)	(0.00341)	(0.00251)	(0.00407)
treated	-0.0384**	-0.00106	-0.0602	-0.0652***	-0.0795***
	(0.0194)	(0.0553)	(0.0444)	(0.0108)	(0.0181)
post*treated	0.0612**	0.0852*	0.0472	0.0306**	0.0786***
	(0.0255)	(0.0495)	(0.0617)	(0.0150)	(0.0276)
Constant	-2.742***	-10.94***	7.907***	1.003**	3.033***
	(0.406)	(0.896)	(0.723)	(0.464)	(0.922)
Observations	693,439	104,346	258,909	341,016	145,397
R-squared	0.010	0.018	0.009	0.004	0.008

Note: DV: binary (politician: female (1) or male (0)). OLS. Baseline regressions with controls. Equivalent to Column 6 of Table 4 with controls (described in Table 1), plus a linear time trend. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%

Table A9. Robustness Checks

VARIABLES	(1) 1993 Span	(2) 1995 Span	(3) 2000 Span	(4) Outliers	(5) Senators	(6) Muni. CG	(7) Prov. CG	(8) Reg. CG	(9) Reg. Cntrls
post	-0.0166***	-7.71e-05	-0.0122***	-0.00114	-0.00538***	-0.00632***	0.00974*	0.0103	-0.00563***
	(0.00107)	(0.00104)	(0.00106)	(0.00113)	(0.00107)	(0.00111)	(0.00527)	(0.00943)	(0.00107)
treated	-0.0513***	-0.0564***	-0.0537***	-0.0555***	-0.0495***				-0.0525***
	(0.00757)	(0.00823)	(0.00883)	(0.00802)	(0.00808)				(0.00796)
post*treated	0.0542***	0.0592***	0.0574***	0.0505***	0.0521***				0.0578***
	(0.0109)	(0.0110)	(0.0104)	(0.0107)	(0.0104)				(0.0104)
muni. CG						-0.0563***			
						(0.00796)			
post*muni						0.0581***			
						(0.0104)			
prov. CG							-0.00156		
							(0.00859)		
post*prov							0.0429***		
							(0.0114)		
reg. CG								-0.00464	
								(0.0107)	
post*reg								0.0559***	
								(0.0136)	
Constant	-8.033***	-3.398***	-9.696***	-6.078***	-4.567***	-4.705***	-4.583***	-1.599	-4.688***
	(0.178)	(0.204)	(0.308)	(0.216)	(0.206)	(0.212)	(0.941)	(1.409)	(0.214)
Observations	3,149,205	2,837,602	2,031,520	2,605,634	2,731,609	2,629,192	94,727	36,188	2,729,675
R-squared	0.010	0.009	0.011	0.010	0.008	0.008	0.019	0.016	0.013
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: DiD coefficient from OLS regressions of the likelihood of seeing a woman elected to national office. DV: binary male (0) or female (1). The sample, as in the main regressions, covers 1987-2011 except where we test robustness by changing the span of years. CG stands for control group. Columns 1-3: change the time span surrounding the reform year for the main estimation, respectively to 1993, 1995 and 2000. Column 4: eliminates all politicians with more than 15 years of sub-national experience. Columns 6-8: replace the usual pooled (muni-prov-reg) control group to a control group made up only of each group separately. Column 9: includes individual controls for each of the 20 regions of Italy as opposed to the macro regions used in the main models. The models are estimated on individual data with controls (described in Table 1). The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%

Table A10. Lags and Leads, Placebo Test

VARIABLES	(1)
lag5*treated	0.00258
	(0.00387)
lag4*treated	-0.00946
	(0.00977)
lag3*treated	0.00564
	(0.0100)
lag2*treated	0.00624
	(0.0100)
lag1*treated	-0.00670
	(0.0100)
lead1*treated	-0.0143
	(0.0121)
lead2*treated	-0.00432
	(0.0109)
lead3*treated	0.0237**
	(0.00933)
Constant	-14.01***
	(0.283)
Observations	2,729,675
R-squared	0.009
Time Trend	YES
Controls	YES

Note: DiD coefficient from OLS regressions of the likelihood of seeing a woman elected to national office. Equivalent to Column 6 of Table 4, with controls (described in Table 1), plus a linear time trend. DV: binary (politician: female (1) or male (0)). Here lags for 5 years prior to the reform and leads for 3 years after the reform are used as 'fake' reform years. The following symbols indicate different significance levels: *** significant at 1%, ** significant at 5%, * significant at 10%

Table A11. 1993 Reform

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
post 93	0.0756***	0.0515***	0.0486***	0.0743***	0.0280***	0.0287***
	(0.0101)	(0.0182)	(0.0486)	(0.000740)	(0.000810)	(0.000810)
treated	0.0319***	0.0319***	0.0216**	0.0294***	0.0291***	0.0326***
	(0.00590)	(0.00692)	(0.00849)	(0.01000)	(0.0100)	(0.00977)
post 93*treated	-0.0857***	-0.0857***	-0.0809***	-0.0836***	-0.0836***	-0.0842***
	(0.0122)	(0.0117)	(0.0097)	(0.0108)	(0.0109)	(0.0109)
Constant	0.0789***	-6.297*	-5.407**	0.0798***	-12.63***	-12.75***
	(0.00406)	(3.312)	(2.379)	(0.000587)	(0.241)	(0.241)
Observations	30	30	90	2,300,383	2,300,383	2,298,952
R-squared	0.725	0.774	0.701	0.012	0.014	0.019
Time Trend	NO	YES	YES	NO	YES	YES
Cntrls	NO	NO	YES	NO	NO	YES

Note: DiD coefficient from OLS regressions of the likelihood of seeing a woman elected to national office. The sample covers years 1987-2001. DV, Columns 1-3: continuous (share of female politicians), aggregate data. Dependent variable, Columns 4-6: binary (politician: female (1)/male (0)), individual data. Standard errors are clustered at the national-sub-national levels for Columns 1-3 and at the individual level for Columns 4-6 and are reported in parenthesis. Columns 1 and 4: basic DiD model with no controls. Column 2: aggregate DiD model with a linear time trend. Column 3: aggregate model with controls (as described in Table 1). Column 5: individual DiD regression with a linear time trend included. Column 6: individual DiD regression with controls (described in Table 1).