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DO FEMALE LEADERS CHOOSE WOMEN? EVIDENCE FROM VISIBLE AND HIDDEN APPOINTMENTS

by Andrea Cintolesi* and Edoardo Frattola**

Abstract

We study whether female leaders appoint more women to executive positions than their male counterparts. We use mixed-gender close elections in Italian municipalities since 1993 and observe the share of women appointed by mayors to the local government (visible appointments) and to the boards of directors of municipal state-owned enterprises (hidden appointments). We find that when a woman narrowly defeats a man, the share of women appointed to visible positions *drops* by 5.7 percentage points, while the share of women appointed to hidden positions does not change. The effect does not appear until the early 2000s, when gender issues began to receive attention, and it occurs earlier in regions where public opinion is more sensitive to gender equality. These findings suggest that male leaders appoint more women to visible positions because they are subject to greater scrutiny on gender issues than female leaders.

JEL Classification: J16, D72, M50.

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1 Introduction

Women are still vastly underrepresented in leadership and decision-making roles, in both the economic and political spheres. In 2022 only 8.2% of CEOs and 22.1% of executives of the largest listed companies were female. As of today, women are just one-third of the members of national parliaments in EU countries, and regional and local assemblies show similar proportions of gender inequality, with an average female share of 35% in the EU.¹ These low figures, while slowly improving over time, are still concerning because female representation is linked to many positive outcomes such as economic growth, lower corruption, and higher investments in children (Baskaran, Bhalotra, and Uppal (2021); Baskaran and Hessami (2019); Brollo and Troiano (2016); Chattopadhyay and Duflo (2004)). For this reason, understanding which channels may favor female empowerment in business and in politics is a policy-relevant research ground.

Women who ‘break the glass ceiling’ can help to further increase female representation by shattering stereotypes and offering a new role model, or by showing the positive value-added they can bring to their party or to their company, thus encouraging the selection of more women for key positions in society. Female leaders may also help women’s empowerment by directly appointing other women to executive positions. However, the impact of female versus male leaders on the gender of appointees is ambiguous: on the one hand, women should be less prejudiced by gender stereotypes and therefore discriminate less against women; on the other hand, for example, they may tend to appoint more men in order to avoid future competition of other women or because, in contexts of public attention to gender issues, they are held to less stringent pressure on this topic than male leaders. We bring this argument to empirical test and we study the effect of having women in power instead of men on the appointments of other women. We focus separately on positions with high and low public visibility, and we analyze the effect over a long time period and in culturally diverse regions.

The empirical ground consists in Italian municipalities, the lowest administrative level in the country. We focus on mixed-gender races (i.e. elections in which the two most-voted candidates are a man and a woman) held between 1993 and 2019 and we set up a close-election regression discontinuity (RD) design, looking at those elections where the first-ranked candidate narrowly wins over the second-ranked: in such elections, whether the mayor is a woman or a man is as good as randomly assigned. We then observe appointees for two types of positions: the *visible* positions for members of the executive committee (i.e. the local government), typically appointed right after the election of the new mayor and subject to significant public attention and debate; and the *hidden* positions for directors of local state-owned enterprises (SOEs), usually appointed when the term of the SOE’s current board of directors expires and thus not coinciding with the timing of local elections,

¹Source: Gender Statistics Database, European Institute for Gender Equality.

receiving much less attention from the public opinion.

When a female mayor is elected, the share of female appointees to visible positions falls from around 27% to 22% and we estimate a negative RD coefficient of 5.7 percentage points. On the other hand, we find no difference in the appointments of hidden positions based on whether they are made by a male or a female. These results are robust to a battery of placebo tests and model specifications, and we fully account for any other gender-related policies introduced during our time period. Our study focuses on the causal impact of electing a female mayor rather than the causal impact of gender itself because, as Marshall (2022) points out, gender cannot be disentangled from other personal traits with which it is likely to be correlated. Indeed, female candidates in our mixed-gender close elections are younger, more educated, and less experienced than male candidates. From a policy standpoint, the compound effect we estimate is probably more interesting than the effect of gender alone because common policies (such as quotas) are unable to target gender *ceteris paribus*, so when they mandate the appointment of a woman instead of a man, they may implicitly change a bundle of individual characteristics in addition to gender.

Identifying the mechanism that drives our results is critical for providing relevant policy insights on how to improve female representation. Our data allow us to investigate in depth the heterogeneity of the effects over time and across Italian regions. First, the appointment of more women to visible positions by male mayors is absent in the 1990s; it begins to appear in the early 2000s and then gradually increases in magnitude. Moreover, the effect shows up first in the North of the country and subsequently in the Center, while it is not present yet in the South. These findings are consistent with the hypothesis that male mayors appoint more women to visible positions because they feel more pressure from public opinion, while female leaders (thanks to the fact that they are women themselves) face less pressure regarding gender issues. In particular, three factors support this mechanism: first, the effect is significant only for visible positions and not for hidden positions; second, it appeared only when the importance of gender issues began to permeate the Italian culture and the public debate; and third, it emerged first in the most progressive areas of the country (North and Center), while it still remains absent in areas characterized by a more traditional view on the role of women in society (South).

From a policy perspective, understanding whether women's empowerment fosters the promotion of other women is a timely research question to instruct new policies to achieve shared goals like those of the Gender Equality Strategy 2020-2025 of the European Commission, which aims at "achieving a gender equal Europe where [...] structural inequality between women and men is a thing of the past". According to this paper's findings, the advantages of gender quotas and other policies that support women in leadership roles may be offset by fewer women being appointed, at least in positions where public pressure would have compelled men to appoint more women.

This paper contributes to two main streams of research. The first focuses on female

empowerment in politics, and in particular on the effects of electing a female instead of a male representative. Given the need to have a sufficient sample size and source of variation, these studies typically consider elections and outcomes at the local level. Most of them look at gender differences in implemented policies. Using mixed-gender close elections, Casarico, Lattanzio, and Profeta (2022) find that electing a female mayor in Italy does not affect the size and composition of local public expenditures and revenues.² A similar result is shown by Carozzi and Gago (2023) for municipalities in Spain and by Ferreira and Gyourko (2014) for cities in the US. On the other hand, some papers find that gender seems to matter for implemented policies, with female politicians spending more for those public goods and infrastructures that are more aligned with women’s local preferences (such as public childcare in Baskaran and Hessami (2019), or drinking water and roads in Chattopadhyay and Duflo (2004)).³ Apart from the effect on policies, electing a female representative could also affect broader socioeconomic outcomes. Brollo and Troiano (2016) and Baskaran, Bhalotra, and Uppal (2021), for instance, find a positive effect of female politicians on corruption in Brazil and economic growth in India, respectively, while Ferreira and Gyourko (2014) estimate a null effect on crime rates in the US. Looking instead at the individual choices of residents, it has been shown that individuals growing up in Indian districts with an elected female representative are more likely to attain a primary education (Clots-Figueras (2012)) or to work in wage employment (Priyanka (2020)). Finally, another group of papers closer to ours studies whether the election of a female politician leads to a further increase in female participation and representation in the near future. The existing evidence is mixed. Baskaran and Hessami (2018) find that the election of female mayors in Bavaria clears the way for more votes in favor of female candidates and a higher female share in municipal councils, with positive spillovers also on neighboring areas. Bhalotra, Clots-Figueras, and Iyer (2018) document instead a decline in the entry of new women candidates in Indian states with a female incumbent, while Ferreira and Gyourko (2014) show that electing a female mayor in the US does not affect the political success of other female mayoral candidates in the same city or of female candidates in local congressional elections.

To the best of our knowledge, no paper in this literature looks at the ‘direct effect’ of electing a female representative on the empowerment of other women, that is at the causal effect on direct appointments of other women to executive positions. In this work, we find no evidence of such a positive ‘direct effect’ in the context of Italian municipalities, showing instead that female mayors tend to appoint significantly fewer women to executive

²Similarly, Rigon and Tanzi (2012) find no evidence that the percentage of female representatives in Italian municipal councils affects the amount of resources distributed among different spending categories.

³This conflicting empirical evidence reflects the ambiguity of what we should expect in theory. While the lack of significant results is in line with the implications of the median voter theorem (Downs (1957)), according to which policy choices should not depend on the characteristics of the policymaker but only on the preferences of the median voter, more recent theoretical contributions (e.g. Besley (2005)) suggest that elected politicians may be able to change public policies based on their own characteristics and preferences.

committees than male mayors.

This result also contributes to a second stream of research that focuses on ‘women helping women’ outside of the political arena. These papers typically study whether having more women in relevant positions in private firms or committees has a positive windfall effect on other women in terms of hiring, promotions, or wages. Empirical results are contrasting. Some papers find that women at the top are beneficial to the cause of other women trying to climb the job ladder: having more female bosses is shown for instance to increase the female share in companies’ top management (Matsa and Miller (2011)) or midlevel management (Kurtulus and Tomaskovic-Devey (2012)), to positively affect the top of the female wage distribution (Flabbi, Macis, Moro, and Schivardi (2019)) and to reduce the gender gap in promotions from lower ranks (Kunze and Miller (2017)); similarly, De Paola and Scoppa (2015) find that the gender gap in promotions to associate or full professorship disappears when candidates are evaluated by a mixed-gender evaluation committee. However, other scholars have found zero or even negative top-down effects: Bagues and Esteve-Volart (2010), for instance, show that female candidates are significantly less likely to be hired when the share of females in recruiting committees for the Spanish Judiciary is relatively higher. Likewise, Bagues, Sylos-Labini, and Zinovyeva (2017) find that female evaluators are not significantly more favorable toward female candidates applying for associate and full professorships and that a larger number of women in the evaluation committee does not increase the probability of success for female candidates; as for the effect on promotions and wages, both Bertrand, Black, Jensen, and Lleras-Muney (2019) and Maida and Weber (2022) estimate a null effect of gender quotas in Norwegian and Italian companies, respectively, on the outcomes of female employees.

With respect to this literature, we contribute by looking at a setting in which female (and male) leaders are publicly accountable and have to make both visible and hidden appointments. Thanks to this feature, we are able to check whether pressure from public opinion plays a role in these choices and to show that in fact male leaders appoint women more often than female leaders when making visible appointments.

The rest of the paper is organized as follows. Section 2 describes the institutional background and the data of the empirical analysis, while Sections 3 and 4 report the identification strategy, the results, and a thorough inspection of the mechanism. Finally, Section 5 draws the conclusions.

2 Institutional Background and Data

2.1 Italian Municipalities and SOEs

Municipalities are the lowest local administrative level in Italy, below regions and provinces. As of today, Italy is made up of 20 regions, 107 provinces, and 7,901 municipalities, a number that has steadily decreased during the last decades (8,101 in 2001 and 8,003 in

2016). Municipalities are responsible for the administration of the local territory regarding a number of functions. They manage public works, social assistance, and waste disposal; they guarantee public order, maintain local roads and define a municipal master plan to regulate building activity in the area. They often provide additional services such as kindergartens and schools, sports facilities, or pharmacies. To finance these projects, municipalities collect local revenues and taxes and receive transfers from the central government.

Municipalities are governed by an executive committee (*giunta comunale*) headed by the mayor (*sindaco*), while the legislative power is held by a municipal council (*consiglio comunale*). The mayor and the council are elected together every five years (four, until 1995). In municipalities with less than 15,000 inhabitants, elections follow a single round rule and the party or coalition that gets more votes receives two-thirds of the council seats; instead, in municipalities above 15,000 inhabitants, there is a runoff system and the winning party gets three-fifths of the seats.⁴ The executive committee is chaired by the mayor, who directly chooses the other components (*assessori*) up to a maximum number established by the law based on municipal population;⁵ the appointment of the *assessori* is typically the very first decision of the new mayor. In most cases, the assessori are chosen among the members of the new municipal council, but if the municipal statute allows for it, mayors are free to appoint whomever they want. Since 2014, Italian law provides that the share of each gender in the executive committee must be at least 40% in municipalities above 3,000 inhabitants. Table A1 summarizes the Italian laws introducing gender quotas for the composition of both the executive committee and the municipal council.

Each municipality performs its tasks mostly through the action of the executive committee, but for the provision of some public goods or services, it may also rely on local state-owned enterprises (SOEs). These enterprises are owned by public administrative units but fall within the legal framework that regulates private companies. As of 2018, 7,944 SOEs were owned by Italian municipalities. In 2,130 SOEs, the municipality held the absolute majority of shares. In 1,157 of them, the municipality was the sole owner.⁶ SOEs are often meant to provide products and services of public interest which are not or cannot be offered by the private sector. In addition, SOEs can also be used to circumvent the bureaucracy and the rules related to the use of public money (e.g. public procurement, recruitment, budget constraints). To guarantee that the newly elected municipal governments have full control over their local SOEs, the law allows them to replace, within 90 days of the election, all the staff whose role is crucial to implement the main objectives of the enterprise.⁷ In particular, they can replace the members of the SOE executive board and

⁴Some exceptions may take place in the five ‘autonomous regions’ of Valle d’Aosta, Trentino-Alto Adige, Friuli-Venezia Giulia, Sicily, and Sardinia, where the population threshold for the runoff system may be lowered.

⁵In the largest municipalities, the maximum size of the executive committee is 12 members.

⁶For a detailed analysis of Italian SOEs, see Mocetti and Roma (2020).

⁷The two laws that regulate this practice, known as *spoil system*, are the D.Lgs. n.80/1998 and the D.Lgs. n.165/2001.

appoint new directors. However, few directors appointed by previous administrations are actually fired, and new mayors almost always wait until the end of the directors' contracts, which last three years, to replace them. For this reason, and differently from what happens with the members of the executive committee, these appointments are not typically made right after municipal elections. In 2011, Italian Law 120/2011 (so-called Golfo-Mosca Law) introduced the obligation to reserve seats in favor of the underrepresented gender in SOE administrative bodies. Since February 2013, the share has been progressively increased, up to 33%, in favor of the less represented gender for the following three renewals of the board. In 2019, Law 160/2019 raised this requirement to 40% for three additional renewals (Table A1). The newly appointed directors have typically replaced older and less talented men, thereby rejuvenating the boards and improving their quality (Baltrunaite, Cannella, Mocetti, and Roma (2021)).

In the rest of the paper, we will consider these two types of appointments (to the executive committees of local administrations and to the SOE boards) and exploit their difference in terms of timing and relevance for public opinion. Data from Google Trends show that Italian citizens are much more interested in what happens to their local government than to SOEs (Figure A1); in particular, searches for the word '*giunta comunale*' tend to peak in the months of May and June of each year, immediately after the period in which most local elections are held. For this reason, taking the perspective of public opinion, we define as 'visible' the appointments made by mayors to the executive committees, and instead as 'hidden' the appointments made to SOE boards.

2.2 Data

We use three main sources to combine data on municipal election outcomes and mayoral appointments. The first dataset is provided by the Ministry of Interior and includes data on all municipal elections held in Italy from 1993 to 2019. These data contain information on the outcome of the elections and on the main characteristics of each mayoral candidate (name, gender, age, and the parties that supported him/her in the ballot). In order to focus on a set of municipalities that were subject to the same electoral rules, we consider only the elections that took place in 'ordinary' Italian regions.⁸ Moreover, because of the empirical strategy we will discuss in Section 4, we select only mixed-gender elections, i.e. those where the two most voted candidates are a man and a woman. After these restrictions, we end up with a sample of 7,272 municipal elections.⁹

The Ministry of Interior also publishes yearly data on the current members of municipal councils and executive committees (*Anagrafe degli amministratori locali e regionali*), with details on their name, gender, age, and education. The same database also allows us to build

⁸These are all the regions except the five listed in footnote 3.

⁹Mixed gender elections were around 19% of the total number of elections held in ordinary regions between 1993 and 2019.

a measure of political experience, taking into account whether current municipal politicians already served in executive or legislative bodies at the regional or provincial level in previous years.

Information on Italian SOEs comes from a third database elaborated by the Bank of Italy using data from Infocamere and described in Mocetti and Roma (2020). The collection covers the period 2011-2018 and includes annual information on the age, gender, and place of birth of public directors, as well as on the share owned by each administrative unit. In the rest of the paper, we consider only those SOEs in which a municipality owns at least 50% of the shares. To take into account the restrictions introduced by the Golfo-Mosca law described in Table A1, in our analysis we focus on the subsample of SOEs not affected by the reform, i.e. those observed up to 2012 or with single-director boards.

Finally, we gather data on some municipal characteristics (population, geographic location, employment rate, and education level of residents) from the Italian National Statistical Institute (ISTAT).

2.3 Descriptive Statistics

Restricting our sample only to mixed-gender elections, we might focus on a peculiar group of municipalities, not representative of the entire population. To address this issue, in Table 1 we report summary statistics for some covariates in municipalities holding and not holding mixed-gender elections. On average, these two groups are similar in terms of population size, but mixed-gender elections are significantly more common in the North of the country and less in the South; both the employment rate and the share of individuals with at least a high school diploma are only slightly higher in municipalities with mixed-gender elections.

In Table 2 we compare instead municipalities where mixed-gender elections are won by a male and by a female candidate, respectively. We do not find meaningful differences when looking at the average size of executive committees, municipal councils, or SOE boards, as well as at the main socioeconomic covariates, with the only exception of geographical location (municipalities with female mayors are more likely to be in the North). The female share in municipal councils is comparable in the two groups, while on average women account for a larger share in both executive committees (27% vs. 22%) and SOE boards (15% vs. 10%) when the mayor is male.

Finally, Figure 1 shows the evolution over time of the female share in executive committees (left panel) and SOE boards (right panel), separately looking at municipalities placed in different macro-regions. Women in executive committees were around 10% in the early 1990s, while they were close to 40% in 2019; municipalities in the South, which lagged behind for most of our time period, have finally converged in the last few years. As for SOE boards, the female share more than doubled between 2011 and 2018 in the North and in the Center, while it is still stuck around 10% in the South.

Table 1: Municipalities with and without mixed-gender elections

| | Mixed-Gender | | | Not Mixed-Gender | | | Difference in means |
|-----------------|--------------|--------|-------|------------------|--------|--------|------------------------|
| | mean | sd | N | mean | sd | N | |
| Population | 7,690 | 46,880 | 7,272 | 7,497 | 46,117 | 31,675 | 193.4 |
| North | 0.66 | 0.47 | 7,272 | 0.56 | 0.50 | 31,675 | 0.108*** |
| Center | 0.15 | 0.36 | 7,272 | 0.15 | 0.36 | 31,675 | 0.002 |
| South | 0.18 | 0.39 | 7,272 | 0.29 | 0.45 | 31,675 | -0.110*** |
| Employment rate | 0.47 | 0.07 | 7,264 | 0.45 | 0.07 | 31,643 | 0.020*** |
| High school | 0.37 | 0.07 | 7,264 | 0.36 | 0.06 | 31,643 | 0.003*** |

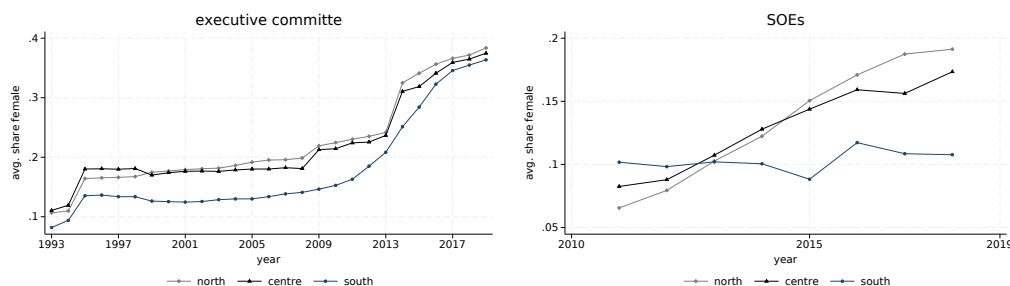
Note: The table reports the mean, the standard deviation, the number of observations, and the difference in means between the two groups. The number of observations refers to municipality-election year pairs. *** $p < 0.01$

Table 2: Municipalities with male and female mayors

| | Male Mayor | | | Female Mayor | | | Difference in means |
|------------------------------|------------|--------|-------|--------------|--------|-------|------------------------|
| | mean | sd | N | mean | sd | N | |
| Exec. committee size | 3.69 | 1.61 | 4,259 | 3.74 | 1.58 | 3,013 | -0.050 |
| Female share exec. committee | 0.27 | 0.24 | 4,259 | 0.22 | 0.22 | 3,013 | 0.052*** |
| Munic. council size | 13.30 | 4.55 | 4,253 | 13.33 | 4.69 | 3,005 | -0.036 |
| Female share munic. council | 0.22 | 0.13 | 4,253 | 0.23 | 0.13 | 3,005 | -0.008** |
| SOE board size | 1.97 | 1.71 | 639 | 1.93 | 1.63 | 124 | 0.046 |
| Female share SOE board | 0.15 | 0.31 | 639 | 0.10 | 0.23 | 124 | 0.050* |
| Population | 6,954 | 29,933 | 4,259 | 8,731 | 63,536 | 3,013 | -1777.2 |
| North | 0.65 | 0.48 | 4,259 | 0.69 | 0.46 | 3,013 | -0.044*** |
| Center | 0.16 | 0.36 | 4,259 | 0.15 | 0.36 | 3,013 | 0.008 |
| South | 0.20 | 0.40 | 4,259 | 0.16 | 0.37 | 3,013 | 0.036*** |
| Employment rate | 0.47 | 0.07 | 4,255 | 0.47 | 0.07 | 3,009 | -0.006*** |
| High school | 0.37 | 0.06 | 4,255 | 0.37 | 0.06 | 3,009 | 0.001 |

Note: The table reports the mean, the standard deviation, the number of observations, and the difference in means between the two groups. The number of observations refers to municipality-election year pairs except for the variables ‘SOE board size’ and ‘Female share SOE board’, where it refers instead to municipality-SOE-election year triplets. The variable ‘Female share munic. council’ does not include the mayor and the losing candidate in the count. ** $p < 0.05$; *** $p < 0.01$

Figure 1: Political appointments of women over time



Note: Female share in executive committees (left panel) and SOE boards (right panel) over time in different macroregions of the country.

3 Identification and Empirical Strategy

In order to identify whether a female mayor appoints more women as members of the executive committee or the SOE board, we set up a sharp regression discontinuity (RD) design in which we compare municipalities where a female candidate slightly wins and municipalities where she slightly loses against a male candidate. Therefore, as anticipated above, we focus only on elections where the two most voted candidates were a man and a woman, picking the last and decisive ballot of each election (i.e. the second round for municipalities above 15,000 inhabitants in which no candidate got 50% of the votes in the first round, and the first round for all the other municipalities).

For municipality i in election year t we run the following model:

$$Y_{it} = \alpha_0 + \alpha_1 \cdot F_{it} + \alpha_2 \cdot f(V_{it}) + \alpha_3 \cdot (f(V_{it}) \times F_{it}) + \lambda_t + \epsilon_{it} \quad (1)$$

where Y_{it} is one of our outcomes of interest; F_{it} is a dummy equal to 1 if the female candidate wins over the male candidate; $f(V_{it})$ is an unknown function of the running variable, which is the difference in vote share between the female and the male candidate; and λ_t are election year fixed effects. Our two main outcome variables are the share of women in the executive committee (measured at the end of the election year t) and in SOE boards (measured instead at the end of year $t+3$ to be sure that we are looking at the board appointed by the new mayor, as discussed in section 2.1). Given that a municipality can own more than one SOE, when we estimate the effect on appointments to SOE boards we run the analysis at the SOE level (so that the unit of observation becomes a municipality-SOE-election year triplet).

The main parameter of interest in this equation is α_1 , which captures the effect of electing a female mayor at the cutoff. Our identification strategy relies on the standard assumption of the sharp regression discontinuity framework, namely the continuity of potential outcomes at the cutoff point (Imbens and Lemieux (2008)): both $\mathbb{E}[Y_{it}(1) | V_{it} = 0]$ and $\mathbb{E}[Y_{it}(0) | V_{it} = 0]$ must be continuous functions. This assumption is not directly testable since it involves potential outcomes, but in Section 3.1 we perform the standard RD validity checks.

Before moving to the results, it is worth clarifying the definition of our estimand. What we are identifying here is the causal effect of electing a female mayor, not the causal effect of gender itself. As highlighted in Marshall (2022), since gender is likely to be correlated with other individual characteristics, mixed gender close election RD frameworks cannot isolate the causal effect of gender unless imposing strong and implausible assumptions. In our setting, as shown in Panel A of Table A2, female mayors who narrowly win a mixed-gender election are indeed significantly younger and more educated than male mayors, and they also have less political experience at the provincial and regional levels.¹⁰ The parameter α_1 then identifies the compound treatment effect of gender plus any other (observed or

¹⁰This is true also in the subsamples where we find the main results described in Figure A5.

unobserved) differences between female and male mayors.¹¹ From a policy perspective, this compound effect is probably more interesting than the effect of gender itself, because common policies like gender quotas in listed companies' boards or political bodies are not able to separately target gender *ceteris paribus*, so that when they promote the appointment of a woman instead of a man it is not only gender but a bundle of individual characteristics that might change.

3.1 Validity of the RD Setting

We validate our empirical framework with the standard tests of the RD setting. In Figure A2 we inspect the density of the running variable around the threshold, and in Panel B of Table A2 we look for jumps at the cutoff in some municipal covariates (columns 1-6). In particular, we check whether treated and untreated municipalities differ in terms of population size, employment rate, share of residents with at least a high school diploma, and geographical location. Because the density is smooth around the threshold and municipal covariates are continuous, we can safely conclude that units do not sort around the threshold and that the treatment is as good as randomly assigned in a narrow bandwidth of the running variable around zero.

4 Results

4.1 Main Results

Figure 2 shows the graphical representation of our main results, considering the entire sample and fitting a linear polynomial on both sides of the cutoff. When a woman narrowly defeats a man and becomes mayor, the proportion of women appointed to executive committees sharply drops from around 27% to 22%. On the other hand, there seems to be no clear discontinuity around the threshold in the proportion of women appointed to SOE boards.

Panels A and B of Table 3 report the main regression results for executive committees and SOEs, respectively. For all regressions, standard errors are clustered at the municipality level. In our preferred specification (column 1), we use a linear polynomial of the running variable, a uniform kernel and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017). We find that when a woman defeats a man by a small margin, the share of women appointed to the executive committee drops by 5.7 percentage points. This result is highly significant and robust to different specifications: in columns 2 to 5 we obtain the same result when we double and halve the optimal bandwidth or when we use a

¹¹This bundle of characteristics could also include what Marshall (2022) calls 'compensating differentials', that is some individual traits that allow female candidates to overcome voters' negative bias and remain in close races with male candidates (e.g. competence).

quadratic polynomial with the optimal bandwidth or the entire sample. The magnitude of the estimated coefficient is always between -4 and -7 percentage points.^{12,13}

Instead, the percentage of women appointed to SOE boards does not change when a woman is elected to office: point estimates are negative but never statistically different from zero, vouching for the fact that whether a man or a woman is elected as mayor has no clear effect on the proportion of women sitting on SOE boards.¹⁴ We obtain the same results, reported in Table A4, when we look only at SOEs wholly owned by the municipality, when we weigh the observations by the share held by the municipality, by the number of directors or by the product between the two, or when we run the regression at the municipality level.

The number of observations in the two panels of Table 3 is clearly different, both because not all municipalities with mixed-gender elections hold a majority share in a SOE and because our data on SOEs are available only for the period 2011-2018 (i.e. for elections held between 2008 and 2015). In order to make the two sets of results more comparable, in column 6 of Panel A we re-estimate the regression on executive committees for the subsample of mixed-gender elections held in the period 2008-2015: reassuringly, the result is similar to those in columns 1 to 5.

Summing up, we find robust evidence that female (male) mayors appoint fewer (more) women when the appointment is visible, while there is no significant difference in the case of hidden appointments.

4.2 Interpretation

We interpret the results as being determined by actual choices of female as opposed to male mayors. In order to show that the effect on executive committees is not just mechanical, we rule out the following three potential threats.

First, because executive committee members are frequently chosen among those elected as councilors, the fact that female mayors appoint fewer women might depend on a difference in the gender composition of the municipal council on the two sides of the cutoff. For instance, parties that select a woman to run for mayor might also select fewer women to run for councilors (to have a gender-balanced list of candidates), thus constraining the choice set of the future female mayor. However, Panel B of Table A2 (columns 7-8) shows that there is no discontinuity at the cutoff in the share of elected women in the municipal council (either considering all parties or just the winning party).¹⁵

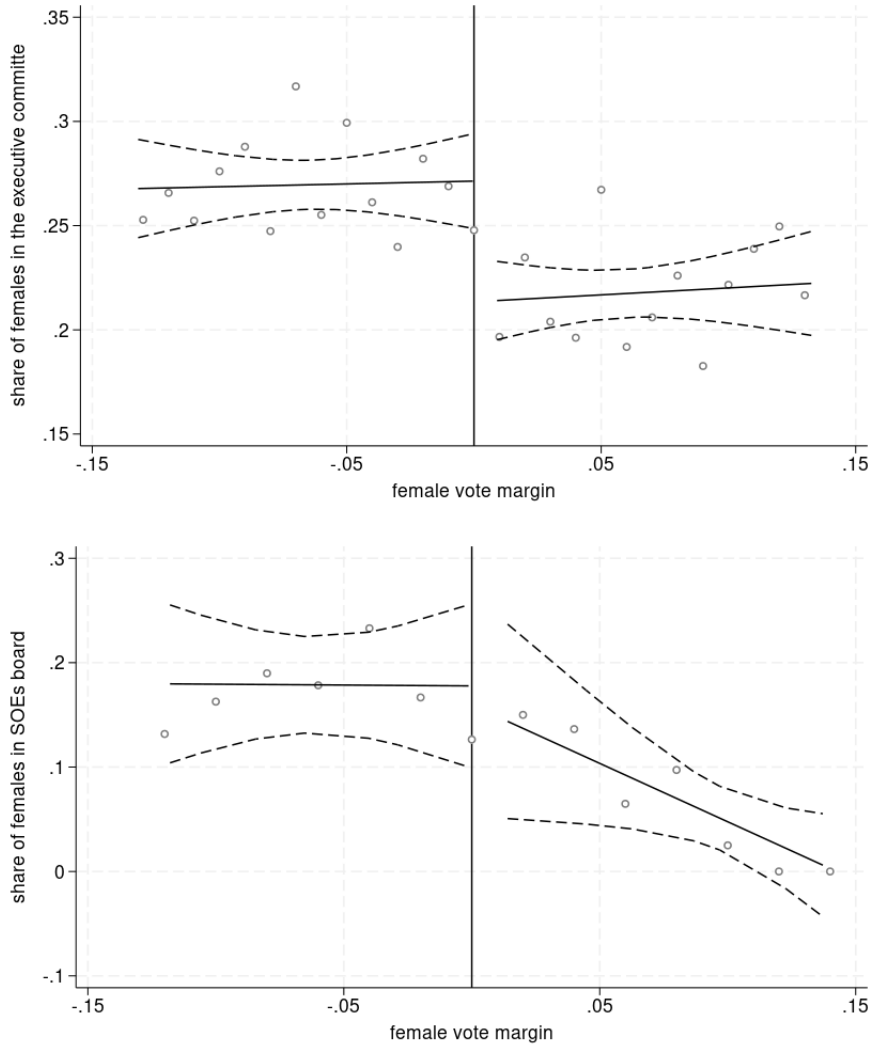
¹²In addition, as a placebo exercise, in Figure A3 we show the point estimates and confidence intervals when measuring the outcome variable in each year from 5 before to 4 after the mixed-gender election. As expected, the estimated coefficient becomes statistically different from zero only in the years after the election. The fact that the magnitude remains quite constant in years 0-4 suggests that replacements of members of the executive committee between two elections are quite uncommon.

¹³Results are also robust to the exclusion of year fixed effects, to the inclusion of macroregion fixed effects, or to the use of robust standard errors (see Table A3).

¹⁴Point estimates are not statistically different from zero even if we measure the outcome variable 1, 2, or 4 (instead of 3) years after the elections. These results are available upon request.

¹⁵We classify the political affiliation of elected officials using the name of the lists in which they are elected

Figure 2: RD graphical evidence



Regression discontinuity plots for the share of women in executive committees (above) and the share of women in SOE boards (below). The solid line is the predicted value of the outcome obtained with the model $Y_{it} = \alpha_0 + \alpha_1 \cdot F_{it} + \alpha_2 \cdot V_{it} + \alpha_3 \cdot (V_{it} \times F_{it}) + \lambda_t + \epsilon_{it}$ and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017). Dashed lines mark the 95% confidence interval.

Table 3: Main results

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|----------------------|----------------------|---------------------|----------------------|----------------------|--------------------|
| A. Executive committee | | | | | | |
| Female mayor | -0.057*** (0.015) | -0.049*** (0.012) | -0.043** (0.021) | -0.069*** (0.017) | -0.056*** (0.010) | -0.046* (0.026) |
| Female margin | 0.016 (0.162) | -0.088 (0.067) | -0.233 (0.470) | 0.221 (0.285) | -0.038 (0.057) | -0.014 (0.276) |
| Fem. margin \times Fem. mayor | -0.016 (0.241) | 0.075 (0.094) | 0.092 (0.650) | 0.074 (0.416) | 0.075 (0.084) | -0.136 (0.392) |
| (Fem. margin) ² | | | | 1.401 (1.365) | -0.128 (0.085) | |
| (Fem. margin) ² \times Fem. mayor | | | | -2.941 (1.987) | 0.002 (0.125) | |
| Observations | 2,624 | 4,475 | 1,415 | 4,146 | 7,272 | 1,009 |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Polynomial degree | 1 | 1 | 1 | 2 | 2 | 1 |
| Bandwidth | 0.12 | 0.24 | 0.06 | 0.21 | 1.00 | 0.12 |
| R ² | 0.17 | 0.16 | 0.20 | 0.17 | 0.14 | 0.09 |
| B. SOE board | | | | | | |
| Female mayor | -0.025 (0.088) | -0.102 (0.069) | -0.018 (0.136) | -0.002 (0.098) | -0.066 (0.054) | |
| Female margin | -0.081 (0.882) | 0.651** (0.309) | -4.073* (2.364) | -1.868 (1.809) | 0.133 (0.240) | |
| Fem. margin \times Fem. mayor | -1.215 (1.411) | -0.998 (0.858) | 8.096** (3.698) | 1.640 (2.471) | -0.365 (0.503) | |
| (Fem. margin) ² | | | | -14.897 (13.261) | 0.117 (0.374) | |
| (Fem. margin) ² \times Fem. mayor | | | | 6.434 (18.234) | 0.418 (0.902) | |
| Observations | 210 | 360 | 106 | 291 | 763 | |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Polynomial degree | 1 | 1 | 1 | 2 | 2 | |
| Bandwidth | 0.09 | 0.19 | 0.05 | 0.15 | 1.00 | |
| R ² | 0.06 | 0.05 | 0.12 | 0.06 | 0.03 | |

Standard errors are clustered at the municipality level and shown in parentheses. All regressions use a uniform kernel and include an interaction of the treatment dummy with the polynomial of the running variable. In column 1 we use a linear polynomial with the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017); in columns 2-3 a linear polynomial with double and half the optimal bandwidth, respectively; in columns 4-5 a quadratic polynomial with the optimal bandwidth and the full sample, respectively. In column 6 of Panel A, we only consider elections held in the period 2008-2015 and use a linear polynomial with the optimal bandwidth.

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

provided by the Ministry of Interior. Because in the period of the analysis parties merged or changed names, we classify councilors as Left, Centre, or Right. Some politicians are registered as members of civic lists; in this case, we assign them to one of the three areas using the name of the most recent civic list. When the list has no name or we cannot infer the political area of the list from the name, we do not classify the political affiliation of the councilor. In the analysis of the share of women that belong to the winning party, we drop the councils in which the number of majority councilors is lower than the majority bonus awarded to the winner. The full algorithm to map political affiliation is available upon request.

A second threat to our interpretation might come from a difference in the size of the executive committee, with women appointing larger executive committees with more women in absolute value, but less as a share of the total.¹⁶ If this were the case, the effect shown in Table 3 would be just a ‘denominator effect’. In Panel B of Table A2 (column 9) we check whether the number of executive committee members is balanced at both sides of the cutoff and the lack of significant discontinuities highlights that female mayors do seem to choose fewer women in the executive committees.

Finally, we test whether our results depend on gender quotas that differently constrain female and male mayors’ choices. We consider the gender quotas introduced in 2014 in municipalities with more than 3,000 residents, according to which the share of each gender in the executive committee must be at least 40%, mayor included (see Table A1 for details). Given the inclusion of the mayor in the total count, the legal requirement to have at least 40% of women in executive committees could have been a more binding constraint for male mayors than for female mayors, thus implying that male mayors were forced to appoint more women. In Table A5, we remove municipalities above 3,000 residents either for the entire period (column 2) or just for the post-reform period (column 3):¹⁷ in both cases, the estimated coefficient remains remarkably similar to our baseline (column 1) in terms of size and statistical significance, so that we can conclude that gender quotas are not driving our main result.

4.3 Mechanism

Understanding how public officials are selected is of crucial interest in improving the effectiveness of policies aimed at equal opportunities for men and women. In this respect, the finding that female mayors appoint fewer women to visible positions is intriguing and calls for an explanation.

Public pressure related to the growing prominence of gender issues is one potential mechanism behind our result. In the days following the formation of the executive committee, newspapers and social media typically discuss the choices of the new mayor and in particular the number and proportion of women appointed, also making comparisons with previous governments. And the expectation on the percentage of women appointed may be higher for male than for female mayors: a male leader must signal his trust in women and avoid being accused of adhering to gender stereotypes, whereas female leaders have less pressure on this aspect. In turn, different expectations and pressure from public opinion can lead men to appoint more women, especially when and where concerns for gender equality are particularly relevant.

We bring this argument to empirical scrutiny by exploring temporal and geographical

¹⁶The law prescribes a maximum size for the executive committee based on municipal population, but below that limit, mayors are free to choose the exact number of members.

¹⁷Observations affected by the reform (i.e. municipalities above 3,000 residents with elections held from 2014 onwards) are 18% of our sample.

differences in our causal estimates. Starting from the early 2000s, gender issues have slowly permeated the public debate in Italy, but the country is highly heterogeneous in terms of culture and economic development. While Southern Italy showed accentuated delays in recognizing the relevance of gender issues for its deeper roots in a traditional view of the role of women in society, the Center-North was faster. This difference is evident if we look at the results of surveys on gender equality conducted in 2018 by ISTAT at the regional level, reported in Figure A4: the percentage of people who adhere to the suggested gender stereotypes - regarding male and female roles in the society - decreases as one moves up the country, and the gap is particularly clear comparing the South and the Center-North. For instance, 26% of the respondents in Southern regions are in favor of giving priority to men over women when jobs are scarce, and almost 40% of them believe that men are less suited to take care of household chores. In Figure A5 we examine the heterogeneity of the main RD effect on visible appointments over time and across the country's macro-regions. The left panel shows that the effect appeared in the 2000s, when gender issues became more prominent in the public debate, and increased in magnitude in the following decade, while it was not significantly different from zero in the 1990s. The right panel breaks down the time trend for macro-regions: the effect appears in the first decade of the new century in the North, in the second decade in the Center, while in the South it still remains small and not significant today. These findings are consistent with the possibility that public pressure is pushing men to appoint more women to visible positions in circumstances characterized by a higher relevance of gender issues. The fact that we do not find a gender difference in the appointments of SOE directors (which receive much less media attention, as shown in Figure A1) is further evidence in favor of a mechanism related to public pressure.

In principle, the main finding of this paper could also be compatible with a variety of other possible channels, but the time and geographical heterogeneities that we detect suggest that these channels are not at work. First, if we assume that female politicians mostly compete among themselves to reach higher positions (for instance because parties want to reserve a given proportion of seats to each gender, or because gender quotas impose it), then female mayors may appoint fewer women to the executive committee because, unlike men, these might represent future competition for them. However, if this was the mechanism, the effect should be homogeneous across regions, while we find a strong geographical heterogeneity. Second, as it has been shown that women who have achieved success in traditionally male-dominated fields may tend to dislike other women in their work environment (the so-called *queen bee syndrome*, first defined by Staines, Tavis, and Jayaratne (1974)), one might argue that this is the reason why female mayors appoint fewer women. The prevalence of this behavior could correlate with the local relevance of gender issues, but this channel would fail to account for the difference in the results for the executive committees and the SOEs.

5 Conclusions

The inclusion of women in a society's economic and political life is a common goal of many developed countries, both for intrinsic reasons of fairness and equality, as well as for all the potential that women can bring.

In this paper we study whether women in power appoint more women than their male counterparts, using Italian mayors as a case study; this could be a plausible way for women who break the glass ceiling to create a trickle-down effect for other women. The analysis looks at all mayors elected between 1993 and 2019 and focuses on two types of appointments: those to the local administration's executive committee (i.e. the local government), which are more visible and relevant for the public, and those to local SOE boards, which are less visible and relevant for the public. We set up a regression discontinuity design using mixed-gender elections, an empirical design in which whether men or women become mayors is as good as randomly assigned. When a female mayor is in office, the percentage of women in visible positions declines by almost 6 percentage points; instead, the percentage of those in hidden positions does not change. We find evidence that these results may be driven by an increase in public awareness of the importance of gender equality in the selection of politicians, which may put more pressure on male mayors as a result of the perception that they tend to penalize women. Indeed, the effect started to show up in the North around the 2000s, when gender issues became relevant in the public debate, and then spread to the Center, with the southern part of the country, with more delays in acknowledging the relevance of gender issues, remaining unaffected. Other mechanisms are not supported in the data.

Our findings can be used to evaluate policies aimed at empowering women, such as gender quotas. Even if such policies have a direct positive impact, requiring the appointment of one woman may reduce the number of other women who are promoted in situations where public opinion puts more pressure on male leaders and expects them to show commitment to gender equality in their choices.

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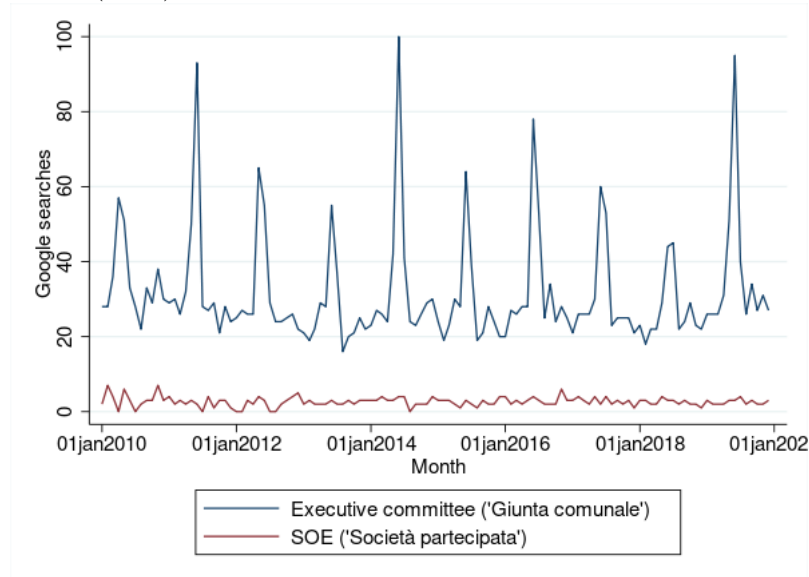
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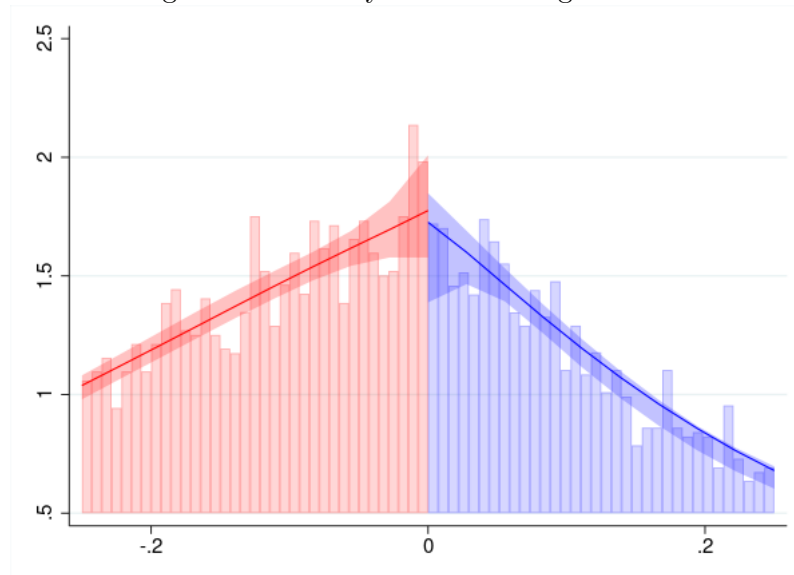
A Additional Figures and Tables

Figure A1: Google searches for the keywords '*giunta comunale*' (executive committee) and '*società partecipata*' (SOE)



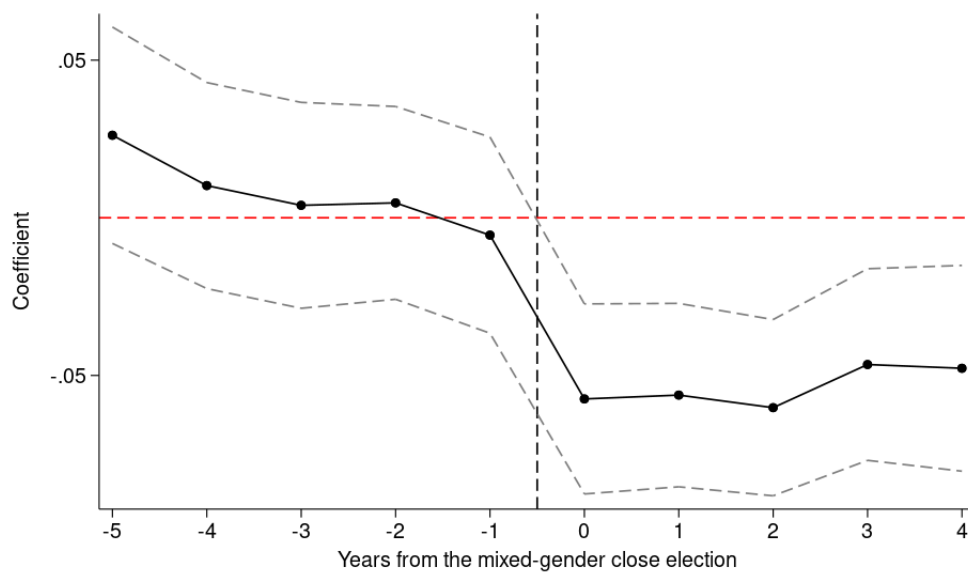
Source: <https://trends.google.it>. Trends in Google searches. Values are rescaled to 100, which represents the highest number of searches for one of the two keywords over the time span considered.

Figure A2: Density of the running variable



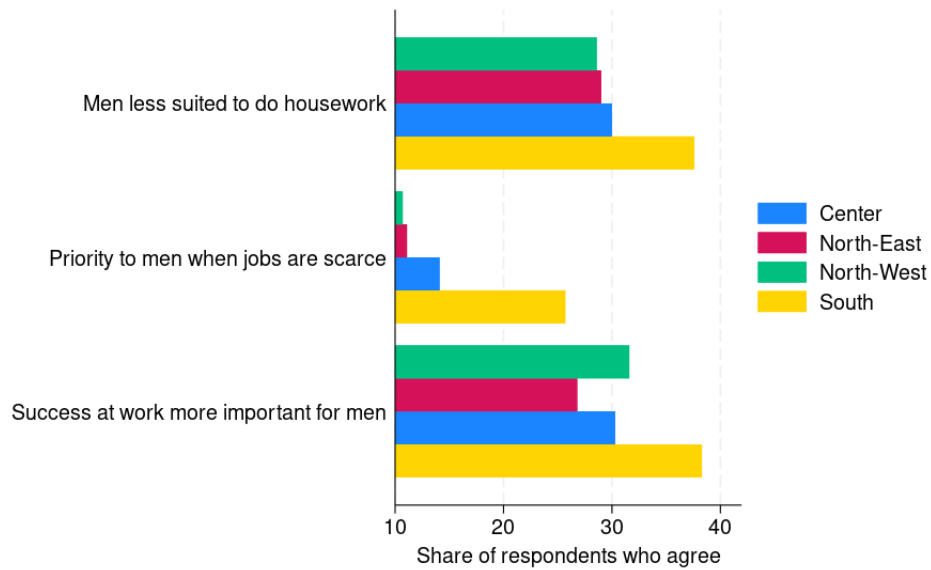
Histogram of the difference in vote share between the female and the male candidate. The distribution is continuous around zero, suggesting that there is no manipulation of the running variable.

Figure A3: Placebo exercise: effect on the share of women in the executive committee before and after the mixed-gender election



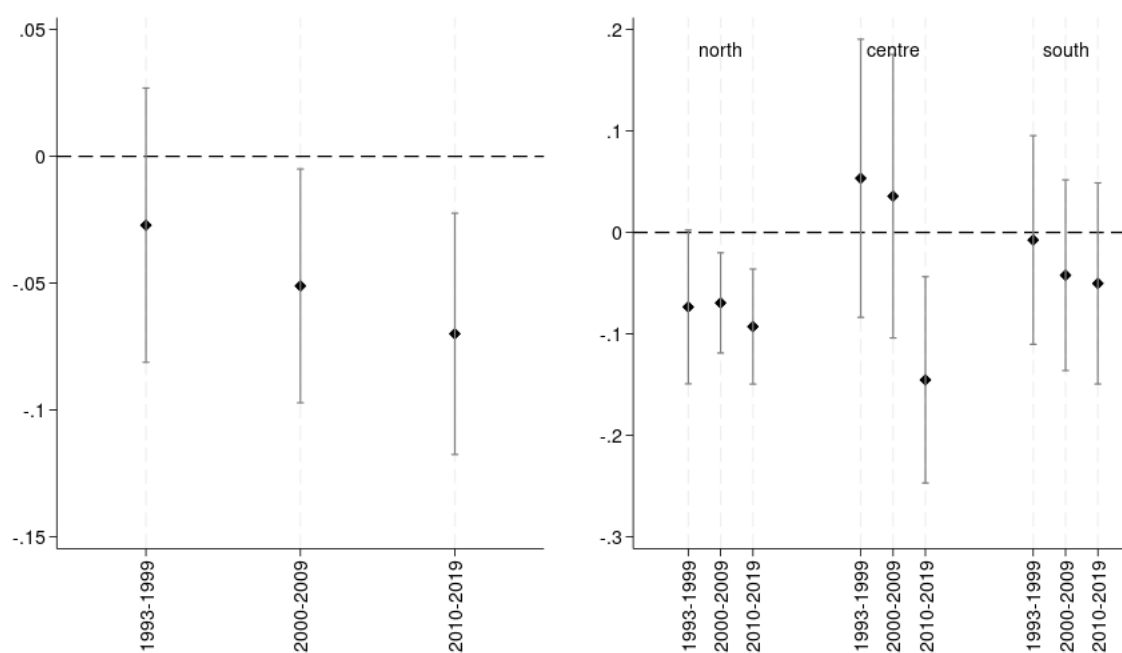
Point estimates and 95% confidence intervals for the parameter α_1 of Equation 1, assuming a linear polynomial and using the optimal bandwidth by Calonico, Cattaneo, Farrell, and Titiunik (2017). The share of women in the executive committee is measured in each year from 5 before to 4 after the mixed-gender election.

Figure A4: Geographical variation in gender stereotypes in Italy in 2018



Source: ISTAT - Survey on ‘Stereotypes about gender roles and the social image of sexual violence’. The survey was conducted as an ad-hoc module within the Labor Force Survey, aimed at a subsample of respondents aged 18 to 74 in the period June - November 2018. Respondents were asked to express their degree of agreement with the following sentences: (i) “Men are less suited to do housework”; (ii) “When jobs are scarce, employers should give priority to men over women”; (iii) “For the man, more than for the woman, it is very important to be successful at work”. On the horizontal axis, we measure the share of respondents who somewhat or strongly agree with these sentences. We omit from the graph the value for the macro-region of the Islands (Sicily and Sardinia) since it was not considered in the rest of the paper.

Figure A5: Heterogeneity of the effect on executive committees over time and across macro-regions



Point estimates and 95% confidence intervals for the parameter α_1 of Equation 1, over time (left panel) and over time and across macro-regions (right panel). Standard errors are clustered at the municipality level. All regressions use a uniform kernel and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017) and include a linear polynomial of the running variable, its interaction with the treatment dummy, and year fixed effects.

Table A1: Laws on gender representations in municipal councils, executive committees and SOE boards

| Law | Description | Target | Approved | Implemented | Conditions | Notes |
|--|---|----------------------|----------|-------------|--|--|
| Law 120/2011 (<i>Golfo-Mosca Law</i>) | Gradually increasing gender quota up to 33% for 3 consecutive board renewals | SOE boards | 2011 | 2013 | Holds only for firms whose majority of shares are held by central or local public entities, and excludes firms with single-director boards (<i>amministratore unico</i>) | In 2019 the Law 160/2019 extended the application for 3 more board renewals and raised the percentage of directors of the less represented gender to 40% |
| Law 215/2012 | Double preference voting conditioned on gender, coupled with gender quota of 33% in candidate lists | Municipal councils | 2012 | 2013 | >5,000 inhab. | With the judgment 62/2022, the Italian Constitutional Court has imposed the application of the law also for municipalities with fewer than 5,000 inhabitants |
| Law 56/2014 | Gender quota of 40% in the executive committee | Executive committees | 2014 | 2014 | >3,000 inhab. | |

Table A2: Continuity of individual and municipal characteristics

| A. Individual characteristics | | | | | | | | | |
|--------------------------------------|------------------------|----------------------|----------------------|-------------------|-------------------|----------------------|--------------------------|-----------------------------------|-----------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | |
| | education | age | munic. gov. | province gov. | region gov. | province coun. | region coun. | left | |
| Female mayor | 0.882*** (0.251) | -4.424*** (0.771) | -1.071*** (0.393) | -0.071 (0.057) | -0.003 (0.003) | -0.311*** (0.114) | -0.091** (0.040) | 0.076 (0.066) | |
| Observations | 2,457 | 2,741 | 2,363 | 2,503 | 1,373 | 2,484 | 2,410 | 846 | |
| Bandwidth | 0.14 | 0.15 | 0.13 | 0.13 | 0.07 | 0.13 | 0.13 | 0.17 | |
| B. Municipal characteristics | | | | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | population | empl. rate | share high school | north | center | south | female share councillors | female share majority councillors | executive committee members |
| Female mayor | 2474.516 (3150.736) | 0.002 (0.005) | -0.002 (0.004) | 0.007 (0.031) | -0.002 (0.023) | -0.010 (0.023) | 0.003 (0.008) | -0.025 (0.031) | 0.115 (0.104) |
| Observations | 2,548 | 2,929 | 3,002 | 3,370 | 3,153 | 4,019 | 2,886 | 352 | 2,714 |
| Bandwidth | 0.11 | 0.13 | 0.14 | 0.16 | 0.15 | 0.20 | 0.13 | 0.11 | 0.12 |

Standard errors are clustered at the municipality level and shown in parentheses. All regressions use a uniform kernel and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017) and include a linear polynomial of the running variable, its interaction with the treatment dummy, and year fixed effects. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Robustness checks: executive committees

| | (1) No Year FE | (2) Macroarea FE | (3) Robust st. err. |
|-----------------|----------------------|----------------------|------------------------|
| Female mayor | -0.058*** (0.016) | -0.059*** (0.015) | -0.061*** (0.017) |
| Observations | 2,961 | 2,624 | 2,624 |
| Bandwidth | 0.14 | 0.12 | 0.12 |
| Year FE | X | ✓ | ✓ |
| Macroarea FE | X | ✓ | X |
| Standard errors | Clustered | Clustered | Clustered Robust |

Standard errors are shown in parentheses. All regressions use a uniform kernel and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017) and include a linear polynomial of the running variable and its interaction with the treatment dummy. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Robustness checks: SOEs

| | (1) | (2) | (3) | (4) | (5) |
|--|-------------------|--------------------|-------------------|-------------------|-------------------|
| A. Weight for share of ownership | | | | | |
| Female mayor | -0.016 (0.092) | -0.095 (0.073) | -0.036 (0.132) | 0.000 (0.101) | -0.064 (0.055) |
| Observations | 210 | 360 | 106 | 291 | 763 |
| Bandwidth | 0.09 | 0.19 | 0.05 | 0.15 | 1.00 |
| B. Weight for number of directors | | | | | |
| Female mayor | 0.059 (0.127) | 0.023 (0.086) | -0.012 (0.148) | 0.030 (0.132) | 0.031 (0.067) |
| Observations | 210 | 360 | 106 | 291 | 763 |
| Bandwidth | 0.09 | 0.19 | 0.05 | 0.15 | 1.00 |
| C. Weight for (num. of directors \times share ownership) | | | | | |
| Female mayor | 0.064 (0.139) | 0.026 (0.094) | -0.030 (0.141) | 0.029 (0.142) | 0.033 (0.071) |
| Observations | 210 | 360 | 106 | 291 | 763 |
| Bandwidth | 0.09 | 0.19 | 0.05 | 0.15 | 1.00 |
| D. Only single ownership | | | | | |
| Female mayor | -0.042 (0.107) | -0.076 (0.067) | -0.094 (0.144) | -0.027 (0.120) | -0.066 (0.068) |
| Observations | 161 | 282 | 77 | 203 | 456 |
| Bandwidth | 0.12 | 0.24 | 0.06 | 0.16 | 1.00 |
| E. Municipal-level analysis | | | | | |
| Female mayor | -0.002 (0.091) | -0.111* (0.061) | 0.019 (0.130) | 0.094 (0.116) | -0.073 (0.061) |
| Observations | 167 | 295 | 81 | 235 | 502 |
| Bandwidth | 0.11 | 0.11 | 0.11 | 0.17 | 0.17 |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ |
| Polynomial degree | 1 | 1 | 1 | 2 | 2 |

Standard errors are clustered at the municipality level and shown in parentheses. All regressions use a uniform kernel and include an interaction of the treatment dummy with the polynomial of the running variable. In column 1 we use a linear polynomial with the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017); in columns 2-3 a linear polynomial with double and half the optimal bandwidth, respectively; in columns 4-5 a quadratic polynomial with the optimal bandwidth and the full sample, respectively. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Robustness check: 2014 gender quota reform for executive committees

| | (1) | (2) | (3) |
|--------------|----------------------|----------------------|---------------------------------|
| | Full sample | Population<3000 | Population<3000 or Year<2014 |
| Female mayor | -0.057*** (0.015) | -0.064*** (0.021) | -0.052*** (0.015) |
| Observations | 2,624 | 1,927 | 2,797 |
| Bandwidth | 0.12 | 0.19 | 0.17 |

Standard errors are clustered at the municipality level and shown in parentheses. All regressions use a uniform kernel and the MSE-optimal bandwidth proposed by Calonico, Cattaneo, Farrell, and Titiunik (2017) and include a linear polynomial of the running variable, its interaction with the treatment dummy, and year fixed effects. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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