Gender differences in re-contesting decisions: New evidence from French municipal elections

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Abstract

This paper studies differences across genders in the re-contesting decisions of politicians following electoral wins or defeats. Using close races in mixed-gender French local elections, we show that women are less likely to persist in competition when they lose compared to male runners-up, but are equally or more prone than male winners to re-contest when they win. Differences in observable characteristics or in the expected electoral returns of running again cannot fully account for these gender gaps in persistence. In contrast, evidence suggests that results are driven by behavioural explanations such as cross-gender differences in candidates' attitudes toward competition, or by political parties behaving differently toward female and male candidates for a given electoral outcome. Additionally, we provide evidence that a woman's victory encourages former female challengers to re-contest but does not trigger the entry of new female candidates.

Keywords: Gender, Competition, Persistence, Candidates, Self-selection, Elections
JEL Codes: J16, D72, J24

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1 Introduction

Achieving gender balance among decision-makers has become a goal in many countries for at least two reasons. First, because it is a normative objective that should characterize modern societies. Second, because evidence indicates that women are more likely to take decisions that are more relevant to the needs and complaints of female citizens than male politicians; therefore, only equal representation of genders among office-holders can ensure a fair representation of a society's preferences.[1] However, we are far from this target, as women occupy only 25.5% of the world's parliamentary seats in 2021. This share increases to 29.3% for countries with a 2019 Human Development Index that qualifies them as highly developed and only to 37.2% in the world's 10 most developed countries. Even in the 21 countries where the Human Development Index of women is higher than that of men, only 23.0% of the members of parliament are women.[2] These facts suggest that women's under-representation in politics is not only driven by development or social gender inequality. Understanding what drives the low presence of women in politics is thus key to eliminate this gender gap.

Women's reluctance to run for office and voters or political parties' discrimination against female candidates have been active topics of research.[3] In contrast, gender differences *vis-à-vis* persistence in political competition have received much less attention with the exception of the recent works by Bernhard and de Benedictis-Kessner (2021), Baskaran and Hessami

[1] See Dollar et al. (2001), Swamy et al. (2001), Chattopadhyay and Duflo (2004), Iyer et al. (2012), Miller (2008), Clots-Figueras (2011, 2012), Bhalotra and Clots-Figueras (2014), Brollo and Troiano (2016), Baskaran et al. (2018), Baskaran and Hessami (2019), Hessami and da Fonseca (2020), Lippmann (2021, 2022) and Accettura and Profeta (2021) among others.

[2] These shares are calculated using data from United Nations Development Programme (2020) and the number of seats and women in the lower and upper chambers of each country from Inter-Parliamentary Union (2021).

[3] See Schlozman et al. (1994), Sanbonmatsu (2002), Fox and Lawless (2004), Kunovich and Paxton (2005), Fulton et al. (2006), Beaman et al. (2009), Croson and Gneezy (2009), Esteve-Volart and Bagues (2012), Shair-Rosenfield and Hinojosa (2014), Kanthak and Woon (2015), Casas-Arce and Saiz (2015), Preece and Stoddard (2015), Folke and Rickne (2016), Besley et al. (2017), Baskaran and Hessami (2018), Eyméoud and Vertier (2018), Bagues and Campa (2020), Smrek (2020), Cipullo (2021), Le Barbanchon and Sauvagnat (2021) and Lippmann (2021) among others.

(2022) and Wasserman (2023). There are however many reasons to believe that women may not react in the same manner as men when winning or losing an election given that differences across genders in attitudes toward competition, self-confidence, and negative feedback aversion are reported in laboratory experiments and in competitive education contexts.[4] Differences in political persistence are of great importance as they could slow-down the path towards gender parity in political offices even in a context without discrimination against female politicians, and/or in presence of policies that favor women's participation such as gender-quotas.

In this paper, we study differences across genders in re-contesting decisions of candidates who ran as heads of lists in the 2008 and 2014 French municipal elections in cities with more than $3,500$ inhabitants. Using a regression discontinuity design to examine mixed-gender races, i.e., elections whose top two candidates are of different genders, we find that female candidates appear to be more affected by the outcome of the vote than male candidates. This difference in the win-loss gap across genders is mainly driven by female runners-up re-contesting less often than male runners-up. In contrast, female winners prove to be as or more persistent in political competition than male winners. To ensure that this result is not driven by particular decisions of male candidates involved in mixed-gender races, we verify that their behaviour does not significantly differ from that of male candidates participating in men-only races.

We show that this difference between genders cannot be explained by female and male candidates having systematically different characteristics in terms of past participation in elections, age, occupation, political orientation or affiliation to a political party. We explore the heterogeneity in candidates' decisions and find that the win-loss gender gap mostly appears among older and more experienced candidates, candidates occupied in the public sector, left-wing candidates and candidates formally affiliated to a political party. We also

[4]See Niederle and Vesterlund (2007), Rask and Tiefenthaler (2008), Niederle and Vesterlund (2011), London et al. (2012), Ahlqvist et al. (2013), Kanthak and Woon (2015), Ellison and Swanson (2018), Kolev et al. (2019), Kaganovich et al. (2021) and Kugler et al. (2021), among others.

show that the cross-gender structure of probabilities of victory in past and future elections cannot fully explain the documented gender gap. These two sets of results are consistent with behavioural explanations being at play.[5] Alternatively, the fact that the win-loss gender gap is mostly driven by candidates who are formally affiliated with a political party—and thus appointed and supported by local affiliated committees and/or by national political organizations—is also consistent with political parties being more likely to replace a female candidate after a loss. Such a "glass cliff" in fact corresponds to differential preferences or beliefs by political parties toward male and female candidates. Unfortunately, data do not allow us to disentangle the role of politically organized groups in nominations from the possibility that female and male candidates take different decisions depending on the election outcome and on whether they are part of a formally organized political group. Both behaviours might be at play.

When we assess the relative importance of the uncovered gender gap in politicians' persistence *vis-à-vis* other channels, we find that it can at best account for one-tenth of observed women's under-representation among office-holders. This finding echoes the conclusion by Wasserman (2023) and highlights the role of voter preferences and, more importantly, the simple shortage of female candidates that remain the main factors in explaining women's under-representation in politics.

We also analyse whether the electoral victory of female candidates differently affects the re-contesting decisions of candidates other than the top two and whether it favours the entry of new candidates of the same gender. Evidence indicates that lower-performing female candidates are more likely to re-contest whenever the election is won by a woman. In contrast, we do not find any evidence that a victory by a woman attracts more new female candidates in the next election.

To the best of our knowledge, Bernhard and de Benedictis-Kessner (2021), Baskaran and Hessami (2022) and Wasserman (2023) are the only other papers that explicitly study cross-

[5]We use the term "behavioural explanations" to refer to differences in attitudes toward competition outcomes, self-confidence and negative feedback aversion.

gender differences in re-contesting decisions following electoral outcomes. We mainly differ from previous studies by focusing on candidates running for mayoral positions. Wasserman (2023) observes candidates running for a variety of municipal, city, county, and school district councils, Bernhard and de Benedictis-Kessner (2021) also study Californian local elections, as well as state legislative and mayoral elections in the United States, while Baskaran and Hessami (2022) focus on candidates running for the Hessian local council elections. Therefore, the most marginal candidates in previous studies are not in a position of occupying significant executive positions.[6] As we document below, mayors of French municipalities face important legal and executive responsibilities that substantially exceed those faced by other members of the municipal council. This goes along with mayors benefiting from higher trust from citizens than other politicians and municipal elections being the elections with the highest turnout in France.

Our result that female candidates are less likely to persist in elections when they lose is consistent with Wasserman (2023)'s finding and contrasts with Bernhard and de Benedictis-Kessner (2021). However, we differ in several aspects. First, evidence we report suggests that female candidates re-contest more frequently than male candidates following an electoral victory. Second, French local elections combine candidates supported by national parties with independent candidates, which allows us to show that the former are driving cross-gender differences in persistence. While this finding is consistent with behavioural biases of candidates, it is also consistent with political parties behaving differently with female and male candidates following the same electoral outcome. Third, Wasserman (2023) shows that the cross-gender differential reaction to an electoral defeat only holds for novice politicians. In contrast, we find that gender differences in re-contesting behaviour, both among winners and runners-up, are more pronounced among older or former candidates. While we are not able to conclude about the core reason(s) for these discrepancies, the studied contexts differ in several dimensions. Besides differences in candidates' hierarchy previously mentioned, Cali-

[6] While the sample used in Wasserman (2023) includes mayors, the results for this category are not shown separately.

fornian local elections are organized using a plurality voting system, while French municipal elections use a proportional closed-list majority voting system. Moreover, California and France generally differ in their institutional and cultural contexts.

Baskaran and Hessami (2022) investigate the re-contesting decisions of candidates running in all positions in local elections held in a German state. They report cross-gender differences in re-contesting decisions that do not vary along with electoral outcomes. In addition to differences in the position of candidates and in institutional contexts that echo differences between our paper and that of Wasserman (2023), our paper also differs from Baskaran and Hessami (2022) as we use a regression discontinuity design approach that allows us to safely interpret estimates of interest.[7]

More generally, this paper also speaks to the literature that documents differences in attitudes across genders in competitive contexts. Works by Niederle and Vesterlund (2007, 2011) and Kanthak and Woon (2015), among others, demonstrate that women are less comfortable than men in competitive environments and are more likely to shy away from such contexts. This feature is consistent with women representing a smaller share of candidates than men in elections but could also explain the cross-gender difference in persistence following an electoral loss that we document. Closely related is the evidence provided by Kolev et al. (2019), who explore gender differences in funding proposals and document that women are less likely than men to apply again following a rejection of their proposal. Nonetheless, our evidence of a higher propensity of women to stay in electoral races following a victory questions the generalization of women being less competitive than men and opens doors for further research on the asymmetry of persistence in competitive environments with respect to the outcome of the competition.

Additional results we present contribute to the literature on role models in politics. In particular, our finding of lower-performing female candidates being more likely than male

[7] Lassébie (2020) also documents cross-gender differences in re-contesting decisions of candidates running in French municipal elections. This question is however not central to that paper as its identification strategy is tailored to investigate the aggregate effect of gender quotas on political representation rather than the effect of wins or defeats on individual candidates.

candidates to re-contest if the election is won by a woman suggests that a high-achieving female candidate can act as a model for other female office-seekers. Since other male candidates do not modify their decisions in a symmetric direction, this evidence is also consistent with behavioural explanations of the main results, as candidates of different genders interpret the same signal in different ways. In contrast, our investigation of gender differences in the profile of candidates who will enter political competition suggests that electoral victories by women do not trigger the entry of new female candidates. This finding limits the aforementioned role model effect to the set of current candidates and is consistent with Broockman (2014) and Bhalotra et al. (2018), who study close US and Indian legislative elections and find no support for a larger entry of women in politics in the aftermath of a female candidate winning an election.

The remainder of the paper is organized as follows. Section 2 describes the institutional and political context of French municipal elections. Section 3 lays out the data and the estimation strategy that will help us to study cross-gender differences in candidates' re-contesting decisions. The empirical results are presented, challenged, and interpreted in Section 4. Last, Section 5 contains concluding remarks.

2 Institutional context

Elections take place every six years in French municipalities, the country's lowest level of administrative organization. Voters elect a municipal council, whose members designate the mayor.

A proportional two-round ordered- and closed-list voting system with a majority premium is used in municipalities of more than $3,500$ inhabitants.[8] If no list reaches an absolute majority of votes cast in the first round, a second-round takes place between lists whose first-

[8]The electoral system varies according to the size of municipalities. Two-round plurality-at-large with *panachage* voting is used in smaller municipalities: voting takes place at the candidate rather than at the list level, and voters can vote for more than one candidate and/or vote for candidates from different lists. The threshold below which this voting system is used was lowered to $1,000$ inhabitants beginning with the 2014 municipal elections.

round score is above 10% of registered voters. Municipal council seats are then allocated to the lists as follows: half of the seats are first allocated to the list with the highest vote share; then, the remaining seats are allocated to lists in proportion to votes cast in the decisive round. This allocation ensures that the winning list secures the majority of seats. The total number of municipal councilors is determined by law and ranges from 7 to 69 depending on the size of the municipality. Members of the newly elected council elect the mayor during the first session of the council. While it is not a legal requirement, the mayor is virtually always the candidate who was ranked first on the winning list. The latter is actually the most prominent person on the list as best illustrated by the sample of campaign posters of candidates in the 2008 and 2014 elections, which are available in Online Appendix Figure A1.

Once in office, the mayor is an agent of both the state and the municipality. As an agent of the state, the mayor fulfils administrative duties that include the publication of general laws and executive orders, the application of national safety rules, and some judiciary tasks. As an agent of the municipality, the mayor presides over the municipal council, signs contracts on behalf of the municipality, prepares and administrates the budget, rules on municipal properties, organizes the work of the municipal staff, and is head of the local police. The mayor is also responsible for building permits and vehicle traffic organization in the municipality's territory. Finally, other important responsibilities of the municipal council to be assumed by the mayor include the security of the town, the professional insertion of the active population, and childhood and youth policy (including the logistics of primary education). Ultimately, the mayor assumes a large number of responsibilities in a variety of areas. While some tasks can be delegated to deputy mayors, the mayor is the only executive authority of the municipal council and is the only member to be legally responsible for the management of the city.

Data from the *Baromètre de la confiance politique* make it possible to track reported trust of citizens in different political personalities since late 2009. Figure 1(a) displays the share

of interviewees who report having much or some trust in different political personalities. French mayors appear to consistently benefit from a higher trust from citizens than other politicians. This and the importance of mayors' responsibilities mentioned above translate into a higher turnout in municipal than in other local elections. As shown by Figure 1(b), which plots turnout in the different rounds of all elections held in France from 1995 to 2020, presidential elections are the only ones to outclass municipal elections in terms of turnout.

The involvement of political parties is typically not systematic in municipal elections. Together with official results, the *Ministère de l'Intérieur* releases *ad hoc* political orientation codes that describe local lists' broad political orientation or associate them with national parties or national party alliances. According to these codes, only 46.69% of the lists that ran in the 2008 and 2014 elections were associated with a political party. The remaining lists are predominantly labeled as "*liste divers gauche [droite]*" (miscellaneous left-[right-]wing list), or simply as "*liste divers*" (miscellaneous list) if no party affiliation or political orientation is attributed.

A 2000 law mandated lists to be balanced in terms of gender. It was first in force for the 2001 municipal elections and was further complemented by a 2007 law that mandates strict alternation of women and men on lists starting with the 2008 municipal elections. Importantly, there is no restriction regarding the gender of the head of the list. This decision remains at the complete discretion of participating groups. Only 16.79% of all the lists running in the 2008 and 2014 municipal elections were led by female candidates. These elections resulted in 9.93% of mayoral positions being occupied by women.[9]

Altogether, French local elections are characterized by a strong focus on candidates running as heads of lists, competition for important responsibilities, heterogeneity in party involvement across candidates, and the absence of gender quotas for lists' leaders.[10]

[9] Lassébie (2020) shows that the introduction of gender quotas did not result in more women running as heads of lists at the local level.

[10] As we further discuss below and in Online Appendix D, other French local elections are typically not suitable to study candidates' re-contesting decisions as they exhibit several features that would make the identification of cross-gender differences in participation decisions unreliable.

3 Data and methodology

This section describes the data used in this paper and describes the estimation strategy.

3.1 Election data

We collected the universe of electoral results of municipal elections held in 2008 and 2014 in 2,853 French municipalities with more than 3,500 inhabitants.[11] In what follows, we use the term *candidate* to refer to individuals who are the head of a list.

Of these 5,706 local elections, we exclude 392 elections (6.87%) that attracted only one candidate. We further restrict the sample to municipalities where the winning candidate actually completed her term. Namely, we further exclude from the sample 801 municipalities (14.04%) in which by-elections will take place before the next national wave of municipal elections or in which the winning candidate is no longer in office by this time.[12] While comprehensive information about the reasons for such events is not readily available, potential causes include cancellation of the election by the national commission in charge of monitoring local elections, massive dismissal of the municipal council, and death of the mayor. All these situations are likely to affect the decision of former candidates to run for office again by the time of the next election.[13]

The above restrictions leave us with 4,578 elections. We exploit candidates' gender

[11] As of 2014, France comprised 36,617 municipalities and had a total population of 64,129,660 inhabitants (Insee, 2016). The 2,853 municipalities with more than 3,500 inhabitants contain 28,3555,634 registered voters. This represents 59.57% of 47,602,881, the total number of registered voters in 2014.

[12] We assemble the list of by-elections using information available from the *Ministère de l'Intérieur* and from *Wikipedia*. We use the *Répertoire national des élus* to check the identity of the mayor by the time of the next election.

[13] We manually collected information about the causes of incomplete terms for the sub-sample of elections with top two candidates of different genders. Online Appendix Table A1 displays the distributions of reasons for incomplete terms across elections by the gender of the winning candidate. It shows that male and female winners are equally likely to complete their term as mayors, but that the reasons for not completing terms do vary across gender. Conditional on not completing their term, male winners are more likely than female winners to die before the next election, and female winners are more likely than male winners to move to other political positions (differences across genders in decisions to run for other political positions will be discussed below). Importantly, female winners are not more likely than male winners to face a political scandal or a local *coup*.

information to categorize these elections as single-gender and mixed-gender races depending on the gender of the two candidates who received the highest vote share in the decisive round.[14] Only 80 elections (1.75%) have two women as top two candidates. We further exclude these women-only races from the analysis because they represent an insufficient number of observations for any conclusion to be drawn. This left us with 4,498 elections, of which 3,305 (73.48%) are *men-only* races—elections where the top two candidates are both male—and 1,193 have top two candidates of different genders. These *mixed-gender* races account for 26.52% of elections.

We complement the data with 2020 municipal elections results and use fuzzy matching *à la* Raffo and Lhuillery (2009) on the first and last names of candidates to track candidates across consecutive elections within each municipality. The matching algorithm we use is presented in Online Appendix B and enables us to determine whether each candidate who runs in 2008 and 2014 will run again for office in 2014 and 2020, respectively. In total, 14,254 candidates participated in the selected 2008 and 2014 elections. The average raw re-contesting probability amounts to 39.86%. This figure peaks at 51.68% for the sub-category composed of the top two candidates in each election.

The first round of the 2020 municipal elections took place on March 15, 2020, i.e., just at the start of COVID-19 anti-contagion policies in France. The second round, first scheduled to take place on March 22, was postponed until June 28. This naturally raises the question of whether these elections can be considered comparable to the preceding races. For instance, turnout in the first round dropped dramatically to 44.6%, against 65.0% on average in the first rounds of the 2008 and 2014 municipal elections as shown in Figure 1(b). While some or all of this change might be due to the start of the COVID-19 pandemic, we are not aware of any consistent evidence that the pandemic affected electoral outcomes.[15] However, even if the COVID-19 pandemic had impacted the outcome of the 2020 vote, our use of the 2020

[14] 2,795 elections (61.05%) were resolved in one round only.

[15] Cassan and Sangnier (2020) provide suggestive evidence that turnout differences across *départements*—the third-highest administrative level in France—were not associated with differences in the early spread of the pandemic, measured by official hospitalization records, by the time of the first round.

data is mainly limited to the identification of candidates. Several facts advocate in favour of the use of 2020 data not being a threat to our results. First, citizens' awareness of the local emergence of the pandemic was low before February 27, 2020, the deadline for candidacy declarations. This is best illustrated by the daily Google search index of the "coronavirus disease 2019" topic plotted in Online Appendix Figure A2(a). This series shows that while interest in the pandemic started before the candidacy declaration deadline, it was still very low compared to that measured by mid-March. This sharply contrasts with the timing of candidacy announcements that is illustrated by Online Appendix Figure A2(b). This series was constructed using *Cision Europresse*—a media monitoring platform—and counting the weekly number of French press articles that relate to candidacy announcements. It shows that candidacy announcements occurred many months before the official candidacy declaration deadline and before COVID-related interest actually started. Second, the pandemic spread was low at the time candidates decided to run for election. As shown by Online Appendix Figure A2(c), no hospitalizations for COVID-19 suspicion were recorded before February 27. Similarly, postponing the municipal elections was not discussed until the very last days before the first round, as shown in Online Appendix Figure A2(d) that plots the daily count of press articles about postponing the election because of the pandemic (the March 15 peak actually contains articles that discuss the postponing of the second round). Third, our main interest lies in the comparison of the re-contesting decision of female and male candidates, so that the early pandemic would have needed to affect decisions differently for male and female candidates to threaten the use of 2020 data. While the literature does document differences in risk attitudes across genders and while the average of the re-contesting rate differs over time—for the top two candidates in each election, this share moved from 55.30% to 47.86% between 2008 and 2014—a formal test rejects the hypothesis that the re-contesting rate evolved differently between genders (p-value = 0.477). Finally, differences estimated between genders are of the same order of magnitude when separately using the 2008 and 2014 elections, as we will show.

3.2 Methodology

Our analysis of the difference in competition-related persistence across male and female candidates exploits close electoral races and uses a regression discontinuity design.

3.2.1 Political persistence of winners and runners-up

We first study how the re-contesting probability of the top two candidates in each election varies across genders and election outcomes by examining the re-contesting decisions of candidates who barely won or barely lost the election. We follow Cattaneo et al. (2020a, forthcoming, 2020c) by fitting order 1 polynomials using observations that lie within an optimal range of vote margins. Formally, we select the top two candidates in mixed-gender races and estimate the following expression:

$$\begin{aligned} \mathbb{P}\left(R_{i,t+1}\right) = \quad & \alpha_g^L + \alpha_g^W \times \mathbb{1}(\text{Margin}_{i,t} > 0) \\ & + \beta_g \times \text{Margin}_{i,t} + \gamma_g \times \text{Margin}_{i,t} \times \mathbb{1}(\text{Margin}_{i,t} > 0) + \varepsilon_{i,t}, \\ & \text{if } g(i) = g, \text{ for } g = m, f, \end{aligned} \tag{1}$$

where $\mathbb{P}\left(R_{i,t+1}\right)$ is equal to 1 if candidate i running in $t = 2008, 2014$ runs again in $t+1 = 2014, 2020$ as a head of a list, $\text{Margin}_{i,t}$ is the victory or loss margin of candidate i in t, $\mathbb{1}(\text{Margin}_{i,t} > 0)$ identifies winners, $\varepsilon_{i,t}$ is the error term, $g(i)$ is the gender of candidate i, and m and f identify male and female candidates, respectively.[16] We select observations to be used in the estimations by allowing for different mean squared error-optimal bandwidth selectors for each gender and each vote outcome. The bounds of these intervals are used to construct triangular kernel weights that assign greater importance to observations near the cut-off.

The estimate of α_g^L provides us with the re-contesting probability of losers, while that of

[16] Estimating (1) for each gender is fully equivalent to estimating a unique more general expression that would include all interaction terms between genders and winning statuses or to estimating a separate expression for each of the four combinations of gender and winning status.

winners is given by $\alpha_g^L + \alpha_g^W$. The effect of an electoral victory on the re-contesting decision is captured by α_g^W. Differences in these quantities across genders can be calculated directly from differences in estimates obtained for male and female candidates. To further facilitate the interpretation of these estimated re-contesting probabilities, we also estimate expression (1) over the sample composed of the top two candidates in men-only races. We account for the small sample size by calculating p-values of differences across genders, vote outcomes, and groups calculated from permutations of gender, outcome, and group.

Identifying assumption and covariates balance checks

The main assumption for the validity of this regression discontinuity design is that individuals can not influence the assignment variable. Although "inherently untestable" as recalled by Cattaneo et al. (2015), its violation would require "a substantive scenario about particular sorting behavior" of candidates "that [would push] would-be barely losers up above the threshold or [would move] potential barely winners down below the threshold" (de la Cuesta and Imai 2016). In the frame of our study, this would imply that candidates manipulate electoral results, which is unlikely to be the case in the French context, especially since we dropped elections canceled by the national commission in charge of monitoring local elections. In addition, Figure 2 shows that we cannot reject the null hypothesis of no manipulation.[17] There is nonetheless a visible jump in elections' density around the cut-off.

Table 1 and Figure 3 display differences in observable characteristics between male and female candidates in mixed-gender races. They suggest that female candidates who win or lose close elections differ from male candidates with a similar outcome. Compared to female candidates, male candidates are more likely to have previous electoral experience, they are more likely to be on the right in terms of political orientation, and male winners are more

[17] The manipulation test employs a local polynomial density estimation following Cattaneo et al. (2020b).

likely to be incumbents.[18, 19] On the other hand, in close elections, they are similar in terms of age, occupation, and likelihood of being the head of a list that is affiliated with a (national) party. Online Appendix Figure A3(a) further shows that male candidates tend to win in slightly larger municipalities. This difference is however driven by very large municipalities as best illustrated by Online Appendix Figure A3(b) that excludes municipalities that have more than 100,000 inhabitants. To deal with this issue, we will present results controlling for imbalanced covariates following Calonico et al. (2019) and test whether these characteristics drive reported estimates.

In order to further verify the quasi-random assignment of electoral victories and to explore whether discontinuities in observed characteristics affect the discontinuity in density, we take inspiration from Esteve-Volart and Bagues (2012) and Lippmann (2021) and use a random forest model to predict each candidate's probability to be elected depending on her/his characteristics, excluding gender, and on the municipality's past electoral history. To this end, we train the following random forest model on the sample of top two candidates in men-only elections:

$$\begin{aligned}\mathbb{P}\left(W_{i,t}\right) = \; & f(\text{Incumbent}_{i,t},\ \text{Affiliated}_{i,t},\ \text{Novice}_{i,t},\ \text{Age}_{i,t},\ \text{Occupation}_{i,t},\\ & \text{Winner orientation}_{i,t-1}, \text{Share of votes orientation}_{i,t-1},\\ & \text{Population}_{t},\ \#\ \text{of candidates}_{t-1},\ \text{Margin of victory}_{t-1})\end{aligned} \tag{2}$$

where $\mathbb{P}\left(W_{i,t}\right)$ is equal to 1 candidate i wins in election t, $\text{Incumbent}_{i,t}$ is a dummy that equals one if candidate i is the incumbent at time t, $\text{Affiliated}_{i,t}$ equals one if candidate i is affiliated to a party, $\text{Novice}_{i,t}$ equals one if candidate i has not run before, $\text{Age}_{i,t}$ refers to the age of candidate i at time t, $\text{Occupation}_{i,t}$ is a set of dummy variables that capture candidate i occupation, $\text{Winner orientation}_{i,t-1}$ equals one if candidate i belongs to the same

[18] The participation of 2014 candidates in the 2008 elections is assessed exactly as future participation of 2008 candidates in the 2014 elections. Data on the 2001 elections do not allow us to identify all participating candidates, and the participation of 2008 candidates in the 2001 elections is thus assessed using available information and an *ad hoc* imputation procedure. See Appendix C for more details.

[19] Unfortunately, available data do not enable us to proxy candidates' or mayors' *quality*.

political orientation as the winner of the preceding election in the same municipality, Share of votes orientation$_{i,t-1}$ refers to the share of votes obtained by the municipal list(s) from the same orientation as candidate i in the initial round of the previous election, Population$_t$ is the log of the population in the municipality, # of candidates$_{t-1}$ and Margin of victory$_{t-1}$ denote the number of candidates and the margin of victory at the preceding election in the municipality, respectively.

We then use the outcome of the random forest to predict the probability of victory of the top two candidates in mixed-gender elections. We average predicted probabilities by gender and vote outcome using 2% vote share intervals and construct Figure 4. The figure shows that there are no strong discrepancies in the predicted probability of victory between genders or across electoral outcomes in closely contested races. Next to the 0% margin of victory threshold, the four predicted probabilities are all within the $[45.7\%; 49.7\%]$ interval and formal statistical tests reject differences in predicted probabilities of victory as shown by Online Appendix Table A2 that displays estimates from expression (1) using the predicted probability of victory as dependent variable. This evidence supports the validity of the regression discontinuity assumption in close elections, i.e that the outcome of the election is as good as random when the margin of victory tends toward zero. Furthermore, it demonstrates that disparities in observable characteristics do not undermine the core identifying assumption as long as it's possible to account for differences in these characteristics.

To further address concerns about the validity of the core assumption, section 4 will present estimates obtained using only the largest municipalities where there is even lower support for a discontinuity in elections' density around the cut-off as shown in Online Appendix Figure A4.

3.2.2 Persistence of other candidates and attraction of new candidates

Comprehensive election results also allow us to observe the re-contesting decision of candidates in an election other than the top two. To formally study how the electoral victory of

a woman affects other candidates' decision to run again for office, we select all but the top two candidates in mixed-gender races and estimate the following expression:

$$\begin{aligned}\mathbb{P}\left(R_{i,t+1}\right) = \quad & \alpha_g^L + \alpha_g^W \times \mathbb{1}(\text{Margin}_{j(i),t} > 0) \\ & + \beta_g \times \text{Margin}_{j(i),t} + \gamma_g \times \text{Margin}_{j(i),t} \times \mathbb{1}(\text{Margin}_{j(i),t} > 0) + \varepsilon_{i,t}, \\ & \text{if } g(i) = g, \text{ for } g = m, f,\end{aligned} \tag{3}$$

where the notation is the same as in expression (1) except that $\text{Margin}_{j(i),t}$ denotes the vote margin of a female candidate who is among the top two candidates in election j in which candidate i participates.

In expression (3), α_g^L captures the re-contesting probability of candidates of gender g if a male candidate barely wins the mixed-gender race and $\alpha_g^L + \alpha_g^W$ denotes the re-contesting probability of candidates of gender g if a female candidate wins the election. As before, α_g^W measures the change in the re-contesting decision that is induced by the victory of a woman. In contrast to the analysis of the top two candidates, no similar estimates can be constructed for male and female candidates in races where the top two candidates are both males. We will thus simply compare the estimates of interest to raw re-contesting probabilities of male and female candidates among the top two candidates in men-only races.

While the above-presented analyses study the re-contesting decision of running candidates, the comprehensive list of candidates also allows us to identify new candidates, i.e., candidates who ran in a given election but did not run in the preceding election. This makes it possible to test whether the gender of future new candidates differs depending on the gender of the current winning candidate. To this end, we use mixed-gender races and estimate the following expression:

$$\begin{aligned}n_{j,t+1} = \quad & \alpha^L + \alpha^W \times \mathbb{1}(\text{Margin}_{j,t} > 0) \\ & + \beta \times \text{Margin}_{j,t} + \gamma \times \text{Margin}_{j,t} \times \mathbb{1}(\text{Margin}_{j,t} > 0) + \varepsilon_{j,t},\end{aligned} \tag{4}$$

where $n_{j,t+1}$ denotes the number of new candidates of some type in an election held in

municipality j at time $t+1$ and $\text{Margin}_{j,t}$ denotes the vote margin of the female candidate who is among the top two candidates in the election held in municipality j at time t.

In expression (4), α^L captures the limit value of n when a female candidate barely lost the election against a male candidate, $\alpha^L + \alpha^W$ represents the mirror quantity when the genders of the winner and runner-up are switched, and α^W is the difference between these two situations. As in the analysis of the re-contesting decision of other candidates, comparing these estimates to the average value of n in men-only races will facilitate interpretation.

4 Results

In this section, we first present estimates of differences across genders in win-induced changes in the re-contesting decisions of the top two candidates. We then investigate the robustness of the results and discuss mechanisms at play. Finally, we study how the decisions of other candidates are affected by the gender of the winner and whether the latter affects the entry of new candidates in the next election.

4.1 Political persistence of winners and runners-up

Figure 5(a) uses moving windows of 2% vote margin to plot the re-contesting probability of the top two candidates in mixed-gender races by gender and vote outcome for candidates whose vote margin lies within the $[-25\%, 25\%]$ interval. The quantities of interest are the values of the four series next to the 0% margin. Visual observations of the series suggest that female winners (runners-up) are slightly more (less) likely to re-contest than male winners (runners-up). Estimating expression (1) will allow us to obtain more precise estimates thanks to polynomial approximations obtained from observations that lie within optimally selected ranges as illustrated by Figure 5(b).

4.1.1 Main results

Estimates of re-contesting probabilities that flow from expression (1) are displayed in Table 2.[20] Unsurprisingly, winners of an election are more likely than runners-up to run again in the next election. The difference in the re-contesting rate across vote outcomes is positive and statistically significant within both genders. The win-loss gap amounts 42.3 percentage points among female candidates and 28.4 percentage points among male candidates. The difference in this gap across genders equals 13.9 percentage points (p-value = 0.026). This suggests that the electoral outcome has a stronger effect on the re-contesting decision of female candidates than on that of male candidates. As shown by the re-contesting probabilities estimated separately for runners-up and winners, this difference consists of both a lower re-contesting rate for female candidates among runners-up and a higher re-contesting rate for female candidates among winners.

The bottom part of Table 2 displays the estimated re-contesting probabilities of runners-up and winners in men-only races and compares them to those of female and male candidates in mixed-gender races. There are two reasons that the sub-sample of men-only races is an important comparison benchmark. First, the number of observations is larger than for mixed-gender races, thereby leading to *a priori* more precise estimates. Second, candidates in this sub-sample are, by construction, of the same gender as their opponent, which allows checking whether differences across genders and electoral success observed in mixed-gender races are driven by candidates' gender or by that of their opponent.[21, 22] The penultimate line in the bottom panel of Table 2 shows that male candidates in mixed-gender races behave as male candidates in men-only races. This suggests that the effect of the outcome of electoral competition for the former is not driven by the fact that their opponents are female candidates. The last line of Table 2 confirms that female candidates are more affected than

[20] See Online Appendix Table A3 for regression's form coefficients.

[21] As explained in Section 3, the number of women-only races is unfortunately too low to allow for a similar comparison with candidates in elections in which the top two candidates are both women.

[22] See Online Appendix Figure A5 for a graphical representation of the re-contesting probabilities of runners-up and winners in men-only elections that mirrors Figure 5.

male candidates by the outcome of the vote. It also suggests that this difference is mostly driven by a 6.4 percentage points lower persistence of female runners-up than that of male runners-up (p-value =0.062). The positive difference across genders among winners is of the same order of magnitude (4.0 percentage points) but is not statistically significant at conventional levels (p-value =0.216).

4.1.2 Robustness tests

Panels A and B of Online Appendix Table A4 display estimates obtained after modifications to the selection of bandwidths. The results are hardly affected by using only gender-specific bandwidths or a unique common optimal bandwidth in lieu of gender- and vote outcome-specific bandwidths. Estimates obtained when separately using the 2008 and 2014 elections are presented in panels C and D of Online Appendix Table A4. While the p-values differ, the point estimates are similar across the two sub-samples. Finally, panel E shows that estimates are highly significant and larger in magnitude in larger municipalities, where there is no jump in the density of mixed-elections around the cut-off (see Figure A4).

While designed to explore the mechanisms at play, some of the tests presented below also serve as robustness tests.

4.1.3 Mechanisms

Four potential channels can account for the above-documented gender gap in re-contesting decisions. First, it can be driven by differences in observable characteristics, discussed in section 3. Indeed, occupation, political ideology, previous experience, incumbency status, age, occupation, or municipality size, may trigger different re-contesting decisions across genders because they correlate with unobserved selection mechanisms or different outside options or attitudes toward competition. Also, the lower (higher) persistence of female runners-up (winners) could be driven by participating groups, e.g. formally organized political parties, deciding to replace female candidates more (less) frequently when they lose (win) than they

would for male candidates. These channels will be tested by splitting the sample along observable characteristics, and by accounting for differences in the latter. Second, a demand effect could be at play. Reported differences in political persistence are consistent with an expected higher probability of being re-elected for female incumbents and a lower probability for female runners-up than for their male counterparts, i.e., a higher incumbency (challenger) advantage (disadvantage) for women. Exploration of expected returns to run again will help us to assess the importance of this mechanism. Third, cross-gender differences might exist in the decisions to run for other (higher level) political positions, or to run again for a mayoral position but not as head of a list. Detailed lists of candidates at other elections and of members of lists in municipal elections will allow us to explore these possibilities. Fourth, behavioural explanations of gender differences in competitiveness may play a large role (Niederle and Vesterlund 2007). These include gender differences in general attitudes towards competition, differences in beliefs about relative performance, and risk and feedback aversion. Wrapping-up some of the above-mentioned tests will help us to provide support for this mechanism.

Differences in candidates' characteristics

To account for cross-gender differences in observable characteristics that might correlate with the above-documented differences in re-contesting decisions by male and female candidates, we follow Calonico et al. (2019) and re-estimate expression (1) supplemented by variables and associated interaction terms that identify categories displayed in Table 1 and Figure 3. We allow the effect of these variables to differ across genders and across election outcomes and center each variable on its sample average to preserve the immediate interpretation of constant terms in model (1). Panels A–H of Online Appendix Table A5 display the estimates of interest obtained when separately accounting for past participation of candidates, incumbency status, age, occupation, political orientation, population, and party involvement. Panel G presents estimates that simultaneously account for all dimen-

sions. The estimated re-contesting probabilities and the associated cross-gender differences are stronger than those displayed in Table 2. The estimated re-contesting probabilities and the associated cross-gender differences are similar to those displayed in Table 2 for runners-up. For winners, the positive difference between female and male candidates is stronger (7.2 percentage points) and statistically significant when controlling for observable covariates. This suggests that, while female and male candidates do differ on various dimensions, these dimensions do not drive the uncovered differences in re-contesting decisions.

We further explore heterogeneity effects in re-contesting probabilities by estimating (1) for different sub-populations defined by previously mentioned dimensions. Table 3 displays the estimates of interest.[23] Panel A splits the sample with respect to candidate participation in the previous election. Among new candidates, women are significantly less likely to re-contest than men regardless of the outcome of the vote. As this lower re-contesting probability is similar for runners-up and winners, it translates to a similar win-induced change in decision across genders. For former candidates, female runners-up are also less likely to re-contest than male runners-up. In contrast, persistence is much larger for female winners who have already participated. These results sharply differ with evidence reported by Wasserman (2023) who uses Californian elections for local councils and documents that new female candidates are more affected by the outcome of political competition than new male candidates and that this difference vanishes with previous electoral experience. In contrast, our estimates indicate that while they are less likely to run again, new female candidates are affected by the electoral outcome like new male candidates and that the gender difference in persistence induced by electoral victories mostly applies to more experienced candidates.

Panel B of Table 3 shows differences in re-contesting probabilities when distinguishing between challengers and incumbents. Among runners-up, the gender gap in political persistence is stronger for challengers. This is consistent with the negative gap in persistence being driven by differences in self-confidence, which translates into greater discouragement

[23] See Online Appendix Table A6 for cell-level differences across sub-samples of each panel.

for women if they lose, which is mitigated if they have won in the past. Note that the greater perseverance of female winners reported previously is no longer significant when dividing the sample along the incumbency dimension and when controlling for incumbency status alone (Panel B of Table A5). Thus, the higher proportion of male incumbents combined with the overall propensity of candidates to run for a third consecutive term (regardless of their gender) partially explains the average positive gender gap in persistence among women.

Panel C of Table 3 displays the estimates when splitting the sample into younger and older candidates using 55 years, the median age, as a cut-off. Among runners-up, the gender gap is negative for both groups. Among younger winners, there is no significant difference in persistence across genders, while among older candidates, female winners are more likely to re-contest than male winners. Interestingly, this difference, contrary to the previous ones, appears to be partly driven by the opponent's gender as suggested by the comparison with males running in men-only elections. Older male winners are less likely to re-run when they win facing a woman than when they win facing another man.

Panel D of Table 3 further divides the sample depending on candidates' broad political orientation. It shows that left-wing female candidates are less likely than male candidates to re-contest following a loss. In contrast, right-wing female candidates seem to be as persistent as male candidates when losing and slightly more persistent when winning.

Panel E of Table 3 tabulates estimates obtained for candidates in different occupations. It shows that the excess re-contesting probability of female winners only appears for retired candidates and that there are hardly any differences in the re-contesting decisions of female and male candidates who hold occupations in the private sector.[24] In contrast, female candidates employed in the public sector are significantly less likely to re-contest than males employed in the same sector following an electoral loss.

Panel F of Table 3 differentiates between candidates from small and large municipalities,

[24]The excess re-contesting probability of female winners could partly be explained by the fact that French women face a longer time horizon than men once retired. Indeed, according to OECD data, the expected number of years in retirement was 28.1 for women and 24.1 for men in 2015. This difference would however not explain why females are less likely to run again than males among runners-up.

corresponding to those below and above 10,000 inhabitants, respectively. The differences when dividing along this dimension are sharp. While in small municipalities, both female runners-up and winners are less likely to run than their male counterparts, in more populated localities, we recover the asymmetry in cross-gender persistence from the baseline results. Nonetheless, the estimates are larger in magnitude and significant at the 95% confidence level. Overall, the outcome of an election has an effect of 50.4 percentage points higher for female than for male candidates in large municipalities, which is more than three times higher than the baseline estimates. This is consistent with the degree of responsibilities accentuating the cross-gender differences in re-contesting decisions.

The estimates for men in men-only elections presented in panels A–F of Table 3 suggest that the documented cross-gender differences among winners may be triggered by male candidates running in mixed-gender elections behaving differently from male candidates running in men-only races. For instance, older and left-wing male winners of mixed-gender races appear to be less likely to re-contest than male winners of men-only races. In contrast, female winners who share the same characteristics appear to behave similarly to male winners of men-only races. This suggests that the opponent's gender might play a role in explaining some decisions of these particular male winners but not those of comparable female winners.

Ultimately, the sub-sample analyses suggest that the outcome-induced gender gap is concentrated among candidates who are more experienced, challengers, older, retired, or occupied in the public sector, and running in large cities. However, as stated above, differences in these dimensions across genders are not sufficient to explain the uncovered different attitudes across genders following the outcome of elections.

Another potential explanation for our results is that they are not driven by cross-gender differences in individual decisions but rather by different decisions by other agents depending on the candidate's gender and on the outcome of the elections when selecting the candidate to be head of the list in the next election. To explore this mechanism, panel G of Table 3 distinguishes between candidates depending on whether the list they head is affiliated with

a political party. While women are as likely as men to head an affiliated list (see Table 1), a sharp difference in re-contesting probabilities appears along this dimension. The evidence indicates that non-affiliated female candidates behave like non-affiliated male candidates and that there is no difference in outcome-induced change in behaviour across genders in this sub-sample. In contrast, the sub-sample composed of affiliated candidates features both a smaller re-contesting probability for female runners-up and a slightly larger probability for female winners. As shown by Online Appendix Figure A6 that documents the strong correlation that exists between a municipality's size and the importance of political parties in elections, this finding echoes the heterogeneity with respect to the size of municipalities. This result is compatible with local party members or national parties' staff members taking different decisions toward male and female candidates depending on the outcome of the election. This would echo evidence by Lippmann (2021) and Le Barbanchon and Sauvagnat (2021) who document that, in Parliamentary elections, French political parties favour male over female candidates by appointing the former rather than the latter in the most contestable districts. However, this result is also compatible with mixed-gender election candidates taking different decisions depending on their gender, the outcome of the vote, and the existence or nature of involved groups. Unfortunately, data do not allow us to assess the relative plausibility of these two alternative interpretations. Note however that both interpretations fall back to differences in preferences or beliefs toward candidates depending on their gender and on electoral outcomes, either from the side of parties or from that of candidates themselves.

Differences in expected outcome

Whether they arise from individual candidates or from the group they are affiliated with, cross-gender differences in re-contesting decisions might be driven by the expected outcome of running again. We undertake two analyses to assess whether such expectations can explain the structure of uncovered decisions.

Let us first assume that candidates form expectations about future elections from the

average gender-specific outcome of the election in which they just participated. Figure 2 shows that female candidates are more likely to win close races, although the discontinuity is not significant as discussed in section 3. Figure 6(a) illustrates that the share of winning women is above 50% in races that are resolved with a victory margin that is below 5% of votes cast. While this contrasts with the average lower probability of female candidates to win against a male opponent, this finding indicates that just-elected female candidates benefit from a vote advantage. This should encourage both female runners-up and winners involved in close races to expect a win if they run again, thereby leading them to re-contest more frequently. This prediction is at odds with the reported results and cannot explain them.

Another way to form expectations about the returns of re-contesting is to examine the incumbency advantage, i.e., the difference between the future electoral performance of re-contesting winners and that of re-contesting runners-up. To check whether this quantity differs between genders, we limit the sample to re-contesting candidates and re-estimate expression (1) replacing the dependent variable with a dummy variable that is equal to one if the candidate wins the next election. This approach provides us with estimates of the (re-)election probabilities of runners-up and winners and allows us to compute the associated incumbency advantage for each gender. Figure 6(b) plots the probability of victory in the next election for candidates in mixed-gender races. It shows that winners of both genders experience a large electoral advantage over runners-up in the next election. This suggests that female and male candidates benefit from a past electoral victory compared to candidates of the same gender who lost. This is confirmed by formal estimates displayed in the upper part of Table 4 that show that the incumbency-advantage is the same within each gender. The absolute value of incumbency does however vary across genders as female incumbents and runners-up are less likely to be elected in the following election than their male counterparts. In fact, men who previously lost seem to be approximately as likely to be elected as women who previously won. Overall, the evidence suggests that female winners hardly outperform

male runners-up in the next election and that female runners-up will likely not perform better if they run again. The bottom lines of Table 4 and Online Appendix Figure A7, which plots the probability of victory of candidates running in men-only races, suggest that the uncovered male-female structure of the incumbency (dis)advantage is particular to mixed-gender races, as male candidates in mixed-gender races also outperform male candidates in men-only races. This is further confirmed by the fact that female winners underperform less relative to male winners of men-only races than relative to male winners of mixed-gender races. In summary, the returns of running again in the next election appear significantly lower for female candidates regardless of the outcome of the vote.[25, 26] This finding is consistent with female candidates being less likely to re-contest regardless of the outcome of the vote. Therefore, it cannot explain the above-documented cross-gender difference in the win-induced change in the re-contesting decision, which consists of both a lower persistence of female runners-up and a higher or equal probability of female incumbents to re-contest.

Running for other positions, demotion or dropping out of politics?

A further potential explanation for the reported cross-gender differences in the decisions to re-contest in municipal elections is that it is a by-product of cross-gender differences in

[25] Brollo and Troiano (2016) also report a lower re-election rate for female incumbents in Brazilian municipal elections than for male incumbents. They attribute it to gender differences in strategic behaviour when seeking re-election, as male incumbents attract more campaign contributions and are more likely to increase temporary public employment. This gap could also be explained by differences in performance if female incumbents prove less successful than male incumbents in managing the municipality during their term. Lippmann (2019) studies French municipal elections in the smallest municipalities and reports that female candidates have more difficulty replacing a female than a male incumbent. He discards supply-side mechanisms, such as a shortage of qualified women or differences in performance, and instead highlights behavioural effects such as a backlash or stereotype threat.

[26] As discussed in Section 3, the first round of the 2020 municipal elections took place at the onset of the COVID-19 pandemic, and both rounds were characterized by unusually low turnout rates as shown by Figure 1(b). These features might have affected the choice of voters and the observed distribution of (re-)election outcomes of re-contesting 2014 candidates. To ensure that this particular context does not drive our estimates of the incumbency advantage, Online Appendix Table A7 displays the (re-)election probabilities estimated when separately using the 2008 and 2014 elections (and the 2014 and 2020 election outcomes, respectively). Importantly, the structure of the incumbency (dis)advantage across genders is similar in both election waves as shown by panels A and B. Only the reference gap (estimated from men-only elections) fully differs. The incumbency advantage cannot be regarded as different from zero for the 2008 candidates who ran in the 2014 elections. In contrast, it is very large for the 2014 candidates who ran in the 2020 elections. Explaining this important average change and assessing whether it is due to the COVID-19 pandemic or to other events that occurred between 2014 and 2020 is beyond the scope of this paper.

broader political career choices or aspirations. For example, there might be cross-gender differences in the decision to run for other positions. Unfortunately, the French institutional design does not allow us to properly test this because higher-level elections exhibit several features that would make the identification of cross-gender differences in participation decisions unreliable. First, *départemental*, regional and parliamentary elections are events in which (national) political parties are systematically and strongly involved, which would make it difficult to draw conclusions about candidates' decisions. Second, gender quotas directly or indirectly apply in these elections. Online Appendix D nevertheless tentatively explores cross-gender differences in the decisions of municipal election candidates to run for other local elections. Results show that there is no suggestive evidence of female candidates having an attitude that strikingly differs from that of male candidates regarding decisions about participating in other elections.

While the reported results focus on candidates running as heads of lists and on whether they re-contest or not with the same status, the fact that the voting system uses lists makes it possible for a non-re-contesting candidate to run again but not as head of a list, i.e. in a position that is much less publicly exposed and associated with fewer responsibilities in case of electoral victory as explained in section 2.

To document the likelihood of candidates to run as members of lists, we collected the data that contain all the members of all the lists running for the 2014 and 2020 elections. We then matched these data to 2008 and 2014 candidates running as heads of lists in the election of interests but not in the next one (i.e., candidates we consider as "*not* re-contesting" in the main analysis). This allows us to also identify those who will run again in the next election but only as a member of a list. We use this piece of information to construct a variable that equals one if the candidate re-contests in the next election, independently of their rank on the list. We then estimate equation (1) using this as dependent variable and report the associated broader re-contesting probabilities in Table 5. Using this more inclusive definition of re-contesting, we discover no differences across genders in win-induced persistence. When

combined with our primary findings, this shows that women candidates are more likely to be demoted following an electoral loss, while male winners who choose not to re-contest maintain their position as municipal councillors. This shows that the cross-gender differences we report are not driven by women being more likely to drop out of politics at large, but by losing female candidates being more likely not to run again as heads of lists.

Behavioural explanations

Behavioural explanations of gender differences in attitudes toward competition are hardly testable outside the experimental environment. However, several arguments speak in favour of this class of mechanisms to explain the documented cross-gender differences in re-contesting decisions. First and as discussed above, composition effects and differences in expected returns cannot fully explain the uncovered differences. Second, the sub-sample analysis that splits the sample along candidates' political orientation shows that differences across genders are more important among left-wing than among right-wing women (Table 3, panel D). This dimension likely correlates with unobserved but large differences in values, norms, beliefs, and attitudes. This, therefore, leaves room for an important role of behavioural explanations that would also be consistent with the fact that reported differences are larger when the candidate's list is formally affiliated with a political party as discussed above.

Altogether, while we can discard that differences in observables or in expected outcomes drive our results and support instead behavioural explanations, the available data leaves unanswered the question of the main source of such behavioural bias. Political party staff can play a role by discriminating against (in favor of) women when they lose (win), but it is also possible that candidates take different decisions when surrounded by affiliated partisans or that individuals of different genders behave differently when affiliated with a political party.[27]

[27] A further dimension along which men and women could take different decisions following different outcomes is the degree of competition of elections. However, such an analysis cannot be implemented here as it would necessitate comparing estimates from close and less-competitive races, while only the first group of elections allows us to safely estimate differences of interest.

4.2 Persistence of other candidates and the attraction of new candidates

Figure 7 plots the local average re-contesting rate of candidates who are not among the top two candidates in each election depending on candidates' gender and the gender of the winning candidate of a mixed-gender race. Both male and female candidates seem to be less likely to run again in the next election if the race is won by a male rather than by a female candidate. Visual observation further suggests that female candidates are more likely than their male counterparts to run again if a female candidate wins the election. Estimates of expression (3) are displayed in Table 6 and help us to rigorously test these claims.

Formal tests reject the hypothesis that men behave differently when a man or a woman wins the election (p-value = 0.449). In contrast, female candidates experience a 26.3 percentage points increase in their re-contesting decision rate if a woman wins the race (p-value = 0.001). To further interpret the estimates, we compare the re-contesting probabilities of male and female candidates in mixed-gender races to the raw re-contesting rate of male and female candidates in men-only elections. As shown by the bottom panel of Table 6, formal tests suggest that the only group that consistently differs from the others is female candidates who are more likely to run again if a woman wins the election. This effect can arise from women updating their beliefs on voters' preference for politicians' gender and greater self-confidence after a woman has won the previous election. It is however not accompanied by a decline in the re-contesting decision of male candidates when the election is won by a woman. This would therefore suggest that male and female candidates differently interpret the same signal.

Table 7 displays estimates of expression (4). While the total number of new candidates seems to be slightly larger when a man wins a mixed-gender race than when a woman does, the difference is not statistically significant. Moreover, both quantities cannot be considered statistically different from the average number of new candidates observed in men-only races.

Similarly, electoral victories by female candidates do not appear to induce a significant change in the number of male or female new candidates. This result is consistent with Broockman (2014) and Bhalotra et al. (2018) who study close US and Indian legislative elections and find no evidence of a larger entry of women in politics in the aftermath of a female candidate winning an election.

5 Conclusion

The evidence we present in this paper documents cross-gender differences in re-contesting decisions following electoral victories and defeats for politicians with large responsibilities. We find that women are equally or more likely to re-contest than men if they win. In contrast, our results indicate that female candidates are significantly more likely than male candidates to exit political competition after an electoral defeat. Importantly, we show that differences in characteristics between women and men enrolled in close elections do not drive these differences and that voters' discrimination against women cannot fully account for the documented gaps. This leaves room for behavioural explanations of these differences, either driven by candidates' gender differences in attitudes toward competition, or by political parties behaving differently toward female and male candidates for a given electoral outcome. Our results are thus generally consistent with the literature that documents differences in attitudes across genders in competitive contexts (see Niederle and Vesterlund 2007, 2011 and Kanthak and Woon 2015, among others). Specifically, the observed higher discouragement of female runners-up supports previous findings by Kolev et al. (2019) and Wasserman (2023), who emphasize that, following a negative competition outcome, women are less likely than men to make a new attempt.

We also analyse whether the electoral victory of a female candidate differently affects the re-contesting decision of candidates other than the top two candidates and favours the entry of new candidates of the same gender. Evidence indicates that lower-performing female candidates are more likely to re-contest whenever the election is won by a female candidate.

In contrast, we do not find any evidence that a victory by a woman attracts more new female candidates in the next election.

We undertake a final quantification exercise to assess the relative contribution of cross-gender differences in persistence in explaining women's under-representation in politics. Online Appendix E presents the simplified model we use and calibrate by employing estimates presented in the paper. We find that differences in persistence across genders cannot be considered the main driver of women's under-representation among office-holders. This channel can at best account for one-tenth of observed female under-representation. This finding is in line with Wasserman (2023) and contrasts with the importance of voters discrimination representing the most important mechanism to explain the low share of women among office-holders for a given intensity of female participation in politics. In addition, both mechanisms hardly compete with the simple shortage of female candidates that remains the main driver of women's under-representation in politics.

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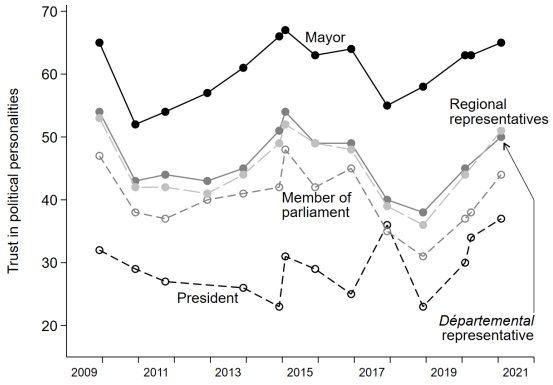
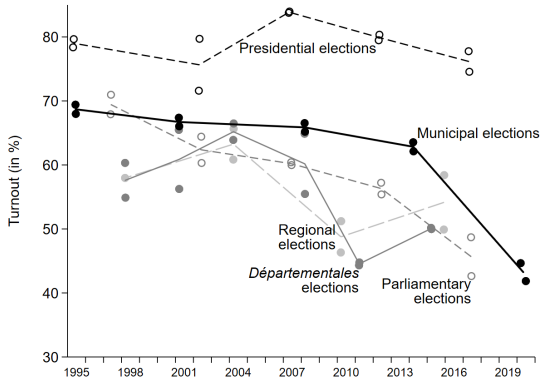
Figure 1: Trust in political personalities and electoral turnout.

(a) Trust in political personalities.

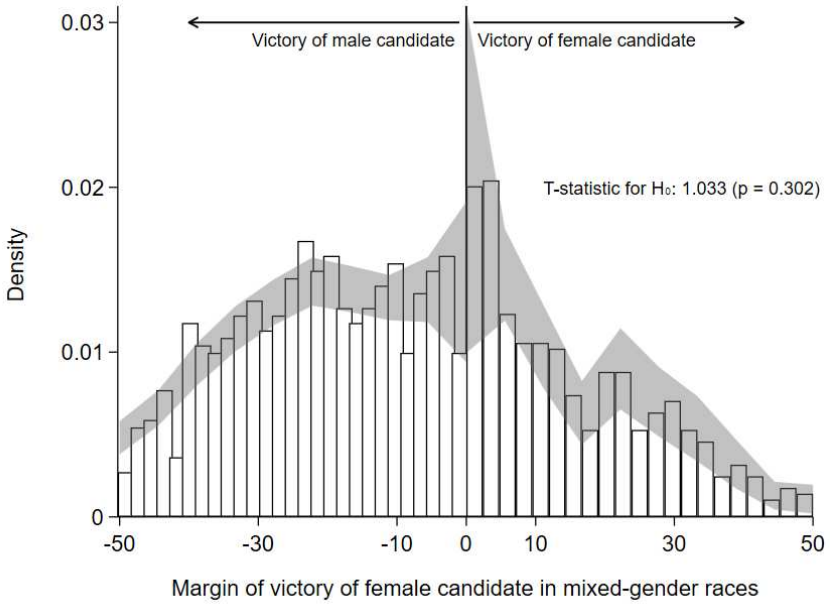


(b) Turnout.



Sub-figure (a) uses the *Baromètre de la confiance politique* and plots, for each wave of the survey, the share of interviewees who report having much or some trust in different political personalities. The question is framed as follows: "*Avez-vous très confiance, plutôt confiance, plutôt pas confiance ou pas confiance du tout dans les personnalités politiques suivantes: Le maire de votre commune, votre conseiller général; vos conseillers régionaux; votre député; le président de la République actuel.*" Which translates into " *Do you very much trust, somewhat trust, somewhat distrust or not trust at all the following political figures: your municipality's mayor; your representative at the départemental level; your representatives at the regional level; your member of parliament; the current President*". Sub-figure (b) uses official reports from the *Ministère de l'Intérieur* and plots turnout at the different rounds of all elections held in France from 1995 to 2020, but at referenda and European elections. For each series, the line goes through the values of average turnout across the two rounds of each election.

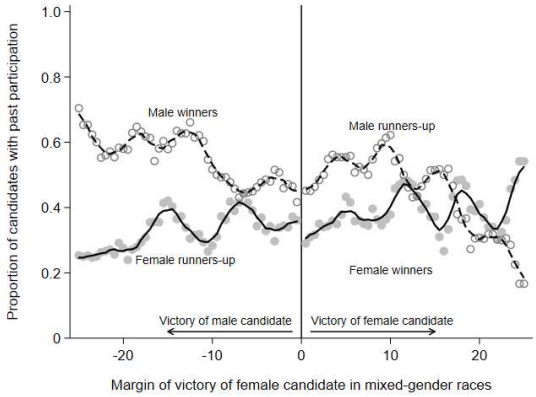
Figure 2: Distribution of mixed-gender races.



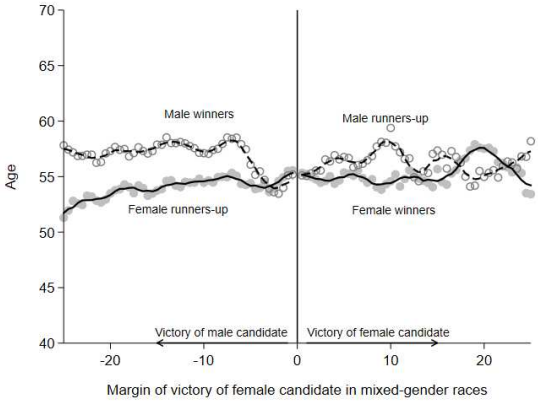
The sample is made of 2008 and 2014 elections whose two best candidates are of different genders. The figure plots the distribution of gender-mixed races along the margin of victory of the female candidate. The displayed t-statistic tests for the null hypothesis of no manipulation. It is obtained following Cattaneo et al. (2020b) using bandwidth selection based on mean squared error-optimal selectors on each side of the cut-off and first-order polynomials.

Figure 3: Differences in individuals' characteristics.

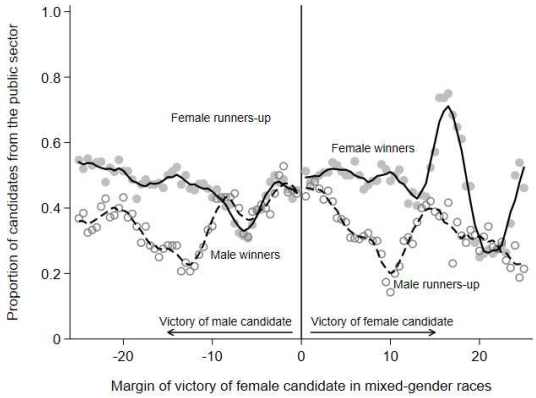
(a) Past participation.



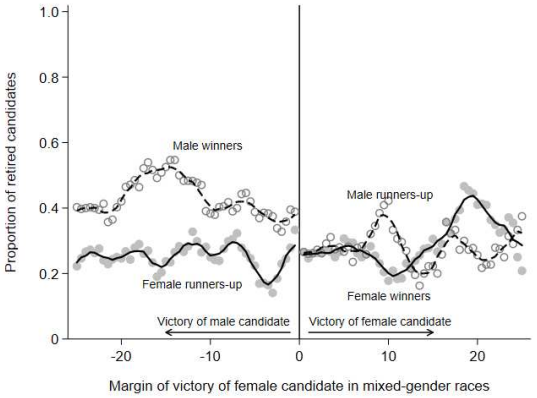
(b) Age.



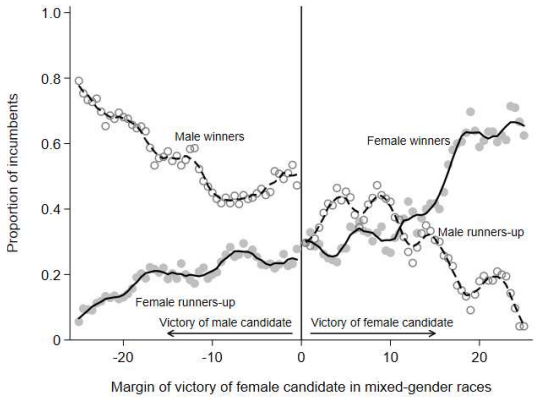
(c) Public and private sector.



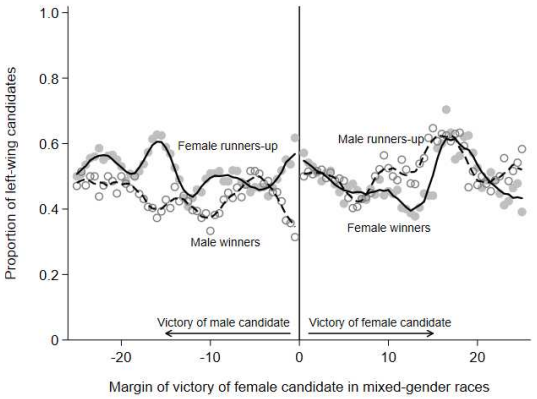
(d) Retired candidates.



(e) Incumbency status.

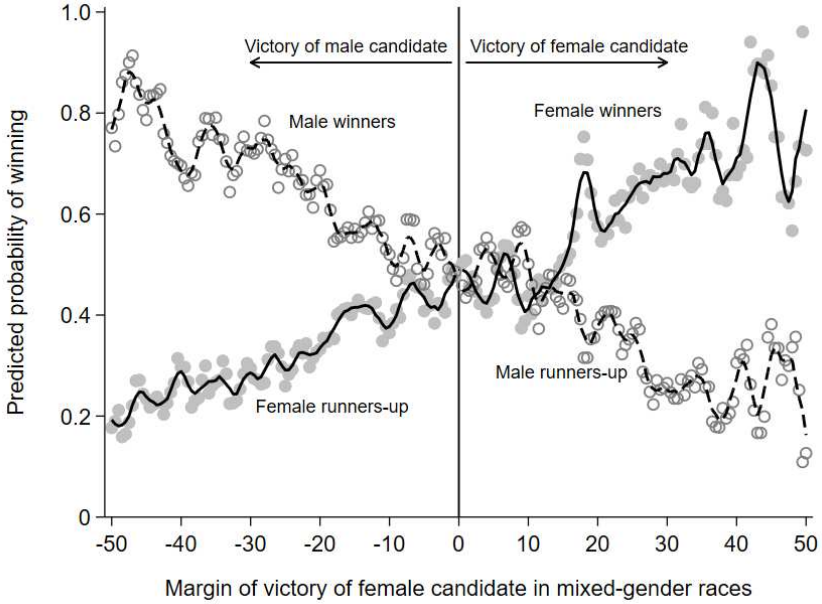


(f) Political orientation.



The sample is made of 2008 and 2014 elections whose two best candidates are of different genders. Each sub-figure plots the local average of the corresponding covariate along the margin of victory of the female candidate using 2.5% vote share intervals. Lines are locally smoothed series using a 5-dot window. See notes of Table 1 for the definition of the different categories.

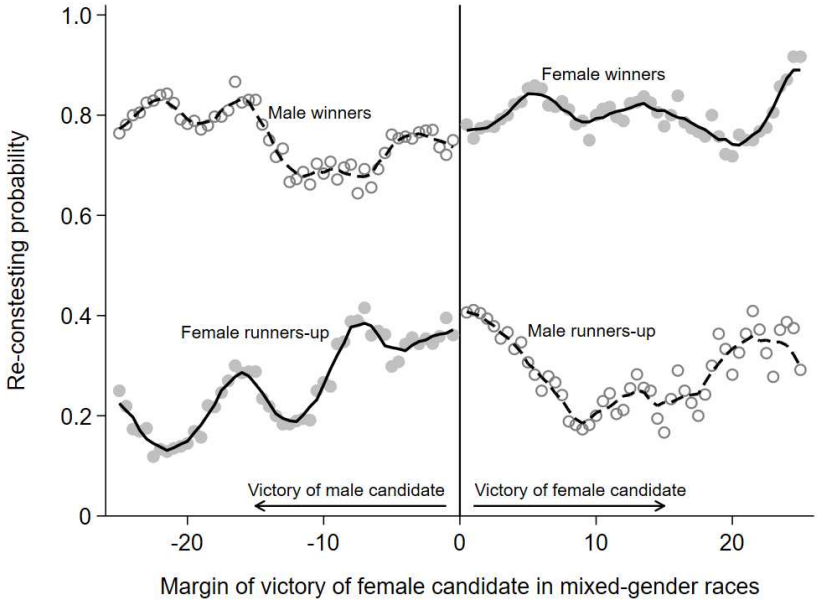
Figure 4: Predicted probability of winning in mixed-gender races.



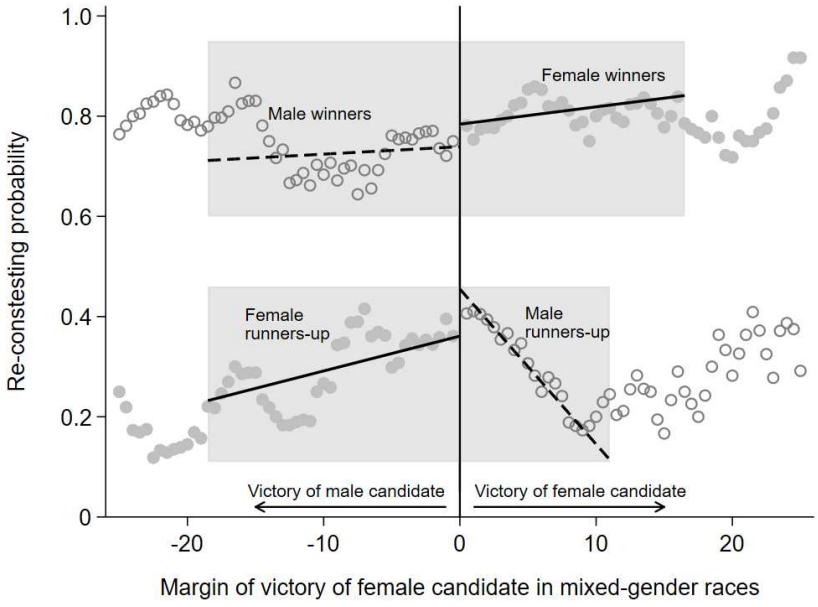
The figures plot the local average of the predicted probability of winning the election estimated using a random forest model following equation (2). The model is trained using men-only elections and used to predict the probability of victory of mixed-gender elections candidates. Observations are candidates who ran in the 2008 and 2014 municipal elections. The sample is restricted to the best two candidates of each election and to *mixed-gender* races. Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines are locally smoothed series using a 5-dot window.

Figure 5: Re-contesting probability of runners-up and winners by gender in mixed-gender races.

(a) Data.



(b) Optimal bandwidths and polynomial adjustments.

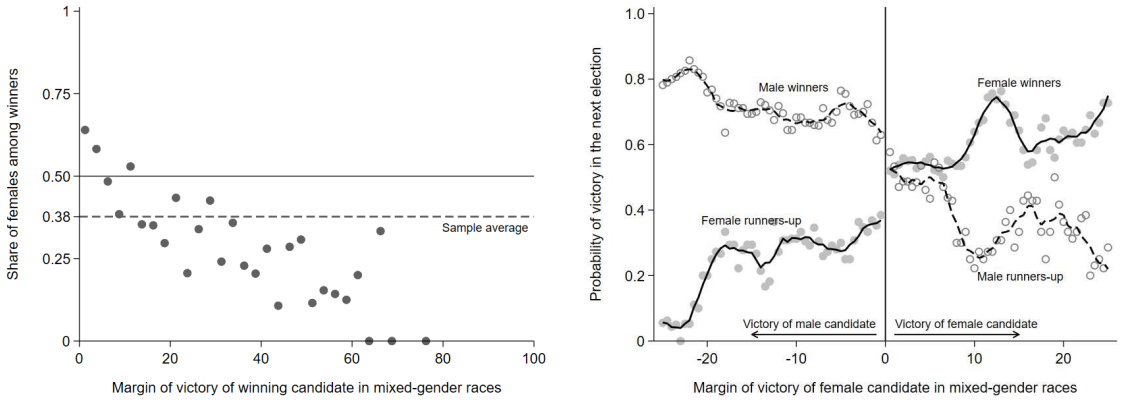


Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election and to *mixed-gender* races. Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines of sub-figure (a) are locally smoothed series using a 5-dot window. In sub-figure (b), the width of shaded areas materializes gender- and vote outcome-specific optimal bandwidths, and lines are order 1 polynomials fitted using triangular kernel weights. Graphical representation is restricted to the $[-25\%, 25\%]$ interval.

Figure 6: Female candidates' probability of victory in mixed-gender races and probability of victory in the next election of runners-up and winners of mixed-gender races.

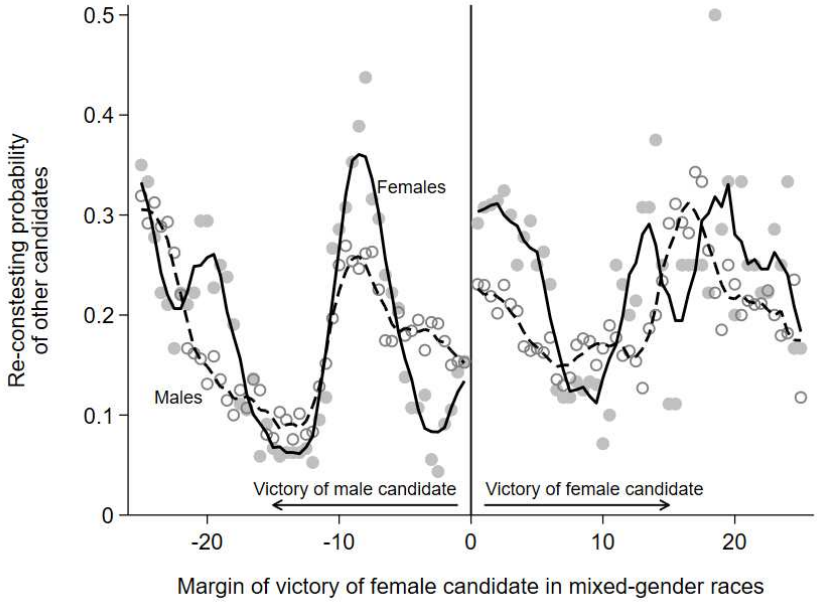
(a) Female candidates' probability of victory.

(b) Probability of victory in the next election of runners-up and winners by gender.



In sub-figure (a), the sample is made of 2008 and 2014 elections whose two best candidates are of different genders. It plots the share of winning females within each 2.5% vote share interval. In sub-figure (b), observations are candidates who ran in the 2008 and 2014 municipal elections and who will run again for office in the next election. A 2008 (2014) candidate is considered as (re-)elected if she wins in the 2014 (2020) election. The sample is restricted to the best two candidates of each election and to *mixed-gender* races. Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines are locally smoothed series using a 5-dot window. Graphical representation is restricted to the $[-25\%, 25\%]$ interval.

Figure 7: Re-contesting probability of other candidates by gender in mixed-gender races.



Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to candidates other than the best two candidates of each election and to *mixed-gender* races (elections whose two best candidates are of different genders). Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines are locally smoothed series using a 5-dot window. Graphical representation is restricted to the $[-25\%, 25\%]$ interval.

Table 1: Within-gender distributions of past participation, incumbency status, age, political orientation, occupation, municipality size and party involvement.

	Mixed-gender races		Men-only races
	Females	Males	Males
New candidates	800 (67.1%)	513 (43.0%)	3,463 (52.4%)
Former candidates	386 (32.4%)	673 (56.4%)	3,105 (47.0%)
Unknown	7 (0.6%)	7 (0.6%)	42 (0.6%)
Challengers	894 (74.9%)	565 (47.4%)	3,982 (60.2%)
Incumbents	299 (25.1%)	628 (52.6%)	2,628 (39.8%)
Young candidates	593 (49.7%)	453 (38.0%)	2,804 (42.4%)
Old candidates	567 (47.5%)	714 (59.8%)	3,607 (54.6%)
Unknown	33 (2.8%)	26 (2.2%)	199 (3.0%)
Private sector job	388 (32.5%)	422 (35.4%)	2,446 (37.0%)
Public sector job	335 (28.1%)	252 (21.1%)	1,475 (22.3%)
Retired candidates	363 (30.4%)	501 (42.0%)	2,576 (39.0%)
Unknown	107 (9.0%)	18 (1.5%)	113 (1.7%)
Left-wing candidates	591 (49.5%)	491 (41.2%)	2,862 (43.3%)
Right-wing candidates	545 (45.7%)	635 (53.2%)	3,343 (50.6%)
Others	57 (4.8%)	67 (5.6%)	405 (6.1%)
Small municipalities	735 (61.6%)	735 (61.6%)	4,046 (61.2%)
Large municipalities	458 (38.4%)	458 (38.4%)	2,564 (38.8%)
Non-affiliated candidates	578 (48.4%)	574 (48.1%)	3,261 (49.3%)
Affiliated candidates	615 (51.6%)	619 (51.9%)	3,349 (50.7%)

Observations are candidates who ran in the 2008 and 2014 municipal elections. The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. *New* and *former* candidates are 2008 (2014) candidates who did not or did run in the 2001 (2008) elections. See Online Appendix C for the *ad-hoc* procedure used to assess participation of 2008 candidates in 2001 elections. *Young (old) candidates* are candidates who are younger (older) than 55 by the time if the election. Incumbents are listed in the *Répertoire national des élus*. *Left-* and *right-wing candidates* are identified from lists' political orientation as coded in official elections results. Occupations listed in the *Répertoire national des élus* have been used to asses whether candidate are retired or occupied in the public or private sectors by the time of the election. *Small* and *large* municipalities are municipalities with less and more than $10,000$ inhabitants, respectively. Candidates are considered as *affiliated* or *non-affiliated* depending on whether the list is linked to a national political party or parties alliance or not in official elections results.

Table 2: Re-contesting probability of runners-up and winners by gender.

	Runners-up	Winners	Win - loss gap
Males	45.5	73.9	28.4 [0.000]
Females	36.1	78.4	42.3 [0.000]
Females - Males	-9.4 [0.067]	4.5 [0.275]	13.9 [0.026]
Males in men-only races	42.5	74.4	31.9 [0.000]
Males - Males in men-only races	3.0 [0.455]	-0.5 [0.848]	-3.5 [0.498]
Females - Males in men-only races	-6.4 [0.062]	4.0 [0.216]	10.4 [0.024]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office as head of the list in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively. See Online Appendix Table A3 for information about optimally selected bandwiths and the number of observations in each group.

Table 3: Re-contesting probability of runners-up and winners by gender: Heterogeneity along past participation, age, occupation, political orientation, municipality size and party involvement.

A - New and former candidates

	New candidates			Former candidates		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	54.9	90.8	35.9 [0.000]	34.9	56.7	21.8 [0.000]
Females	42.1	80.5	38.3 [0.000]	25.4	76.6	51.2 [0.000]
Females - Males	-12.7 [0.073]	-10.3 [0.060]	2.4 [0.779]	-9.5 [0.186]	19.9 [0.002]	29.4 [0.001]
Males in men-only races	48.3	87.4	39.1 [0.000]	37.5	62.6	25.1 [0.000]
Males - Males in men-only races	6.6 [0.282]	3.4 [0.404]	-3.2 [0.670]	-2.5 [0.577]	-5.9 [0.148]	-3.3 [0.585]
Females - Males in men-only races	-6.1 [0.165]	-6.9 [0.055]	-0.8 [0.893]	-12.1 [0.054]	14.0 [0.007]	26.1 [0.000]

B - Challengers and incumbents

	Challengers			Incumbents		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	52.6	88.3	35.8 [0.000]	33.4	65.9	32.5 [0.003]
Females	40.9	85.0	44.1 [0.000]	20.1	63.3	43.2 [0.000]
Females - Males	-11.7 [0.052]	-3.4 [0.444]	8.3 [0.261]	-13.3 [0.164]	-2.6 [0.739]	10.7 [0.309]
Males in men-only races	45.4	89.7	44.2 [0.000]	39.6	48.1	8.5 [0.020]
Males - Males in men-only races	7.1 [0.149]	-1.3 [0.727]	-8.5 [0.165]	-6.2 [0.438]	17.8 [0.004]	24.0 [0.004]
Females - Males in men-only races	-4.5 [0.279]	-4.7 [0.143]	-0.2 [0.973]	-19.5 [0.029]	15.2 [0.006]	34.8 [0.000]

C - Young and old candidates

	Younger candidates			Older candidates		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	55.4	94.0	38.7 [0.000]	42.5	56.6	14.1 [0.061]
Females	45.3	90.9	45.6 [0.000]	22.9	66.6	43.7 [0.000]
Females - Males	-10.0 [0.153]	-3.1 [0.453]	6.9 [0.411]	-19.6 [0.003]	10.1 [0.093]	29.6 [0.000]
Males in men-only races	58.1	89.3	31.2 [0.000]	37.2	63.4	26.2 [0.000]
Males - Males in men-only races	-2.7 [0.650]	4.7 [0.164]	7.4 [0.242]	5.3 [0.342]	-6.8 [0.095]	-12.1 [0.062]
Females - Males in men-only races	-12.7 [0.009]	1.6 [0.635]	14.3 [0.020]	-14.3 [0.012]	3.3 [0.472]	17.6 [0.010]

D - Political orientation

	Left-wing candidates			Right-wing candidates		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	47.3	66.2	18.9 [0.008]	36.0	77.9	41.9 [0.000]
Females	32.0	77.2	45.2 [0.000]	34.9	83.2	48.4 [0.000]
Females - Males	-15.3 [0.031]	11.0 [0.080]	26.2 [0.005]	-1.1 [0.886]	5.3 [0.317]	6.5 [0.441]
Males in men-only races	45.8	76.6	30.8 [0.000]	39.8	73.9	34.1 [0.000]
Males - Males in men-only races	1.5 [0.810]	-10.3 [0.055]	-11.9 [0.121]	-3.8 [0.474]	4.0 [0.360]	7.8 [0.247]
Females - Males in men-only races	-13.7 [0.004]	0.6 [0.909]	14.4 [0.031]	-4.9 [0.360]	9.3 [0.038]	14.2 [0.034]

Continued on next page. See notes on page 48.

Table 3: Re-contesting probability of runners-up and winners by gender: Heterogeneity along past participation, age, occupation, political orientation, municipality size and party involvement (continued).

E - Candidates' occupation

	Private sector job			Public sector job		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	42.4	84.6	42.3 [0.000]	49.5	69.7	20.3 [0.060]
Females	36.1	87.2	51.1 [0.000]	33.5	62.5	29.0 [0.000]
Females - Males	-6.2 [0.311]	2.6 [0.658]	8.8 [0.273]	-16.0 [0.075]	-7.3 [0.362]	8.7 [0.427]
Males in men-only races	41.8	77.0	35.2 [0.000]	43.6	68.6	25.1 [0.000]
Males - Males in men-only races	0.6 [0.892]	7.6 [0.113]	7.0 [0.268]	5.9 [0.454]	1.1 [0.818]	-4.8 [0.591]
Females - Males in men-only races	-5.7 [0.200]	10.2 [0.025]	15.8 [0.008]	-10.1 [0.063]	-6.2 [0.341]	3.9 [0.617]

	Retired candidates		
	Runners-up	Winners	Win-loss gap
Males	43.5	41.8	-1.7 [0.881]
Females	22.4	56.8	34.4 [0.005]
Females - Males	-21.1 [0.019]	15.0 [0.141]	36.1 [0.006]
Males in men-only races	31.6	53.3	21.8 [0.000]
Males - Males in men-only races	11.9 [0.085]	-11.6 [0.049]	-23.5 [0.015]
Females - Males in men-only races	-9.2 [0.214]	3.5 [0.688]	12.6 [0.229]

F - Municipality size

	Small municipalities			Large municipalities		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	47.0	86.0	38.9 [0.000]	41.2	67.6	26.4 [0.002]
Females	39.0	75.5	36.5 [0.000]	8.8	85.6	76.8 [0.000]
Females - Males	-8.0 [0.181]	-10.5 [0.073]	-2.5 [0.762]	-32.3 [0.000]	18.1 [0.014]	50.4 [0.000]
Males in men-only races	37.8	72.5	34.7 [0.000]	47.3	76.2	29.0 [0.000]
Males - Males in men-only races	9.2 [0.046]	13.5 [0.011]	4.3 [0.526]	-6.1 [0.343]	-8.7 [0.081]	-2.6 [0.744]
Females - Males in men-only races	1.2 [0.782]	3.0 [0.475]	1.8 [0.750]	-38.4 [0.000]	9.4 [0.078]	47.8 [0.000]

G - Political party involvement

	Non-affilated candidates			Affiliated candidates		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	37.9	77.2	39.3 [0.000]	53.7	71.0	17.3 [0.020]
Females	43.5	79.7	36.2 [0.000]	30.5	78.6	48.2 [0.000]
Females - Males	5.6 [0.392]	2.5 [0.671]	-3.1 [0.727]	-23.2 [0.001]	7.6 [0.223]	30.9 [0.000]
Males in men-only races	40.2	73.7	33.5 [0.000]	45.3	75.8	30.5 [0.000]
Males - Males in men-only races	-2.3 [0.644]	3.5 [0.487]	5.8 [0.403]	8.4 [0.177]	-4.8 [0.190]	-13.2 [0.058]
Females - Males in men-only races	3.3 [0.519]	6.0 [0.190]	2.7 [0.691]	-14.8 [0.001]	2.8 [0.581]	17.7 [0.004]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from 1,000 permutations of gender, outcome, and group, respectively. In each panel, the sample is split in sub-samples. See notes of Table 1 for the definition of the different categories. See Online Appendix Table A6 for cell-level differences across sub-samples of each panel.

Table 4: Probability of victory in the next election of runners-up and winners by gender.

	Runners-up	Winners	Win - loss gap
Males	56.5	71.9	15.3 [0.045]
Females	32.9	51.0	18.0 [0.013]
Females - Males	-23.6 [0.007]	-20.9 [0.000]	2.7 [0.804]
Males in men-only races	37.7	61.1	23.4 [0.000]
Males - Males in men-only races	18.8 [0.006]	10.7 [0.011]	-8.1 [0.285]
Females - Males in men-only races	-4.8 [0.444]	-10.2 [0.010]	-5.4 [0.439]

P-values of differences reported in brackets. Election and re-election probabilities estimated from expression (1), using a dummy equal to one if the candidate wins the next election, with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections and who will run again for office in the next election. A 2008 (2014) candidate is considered as (re-)elected if she wins in the 2014 (2020) election. The sample is restricted to the best two candidate of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from 1,000 permutations of gender, outcome, and group, respectively.

Table 5: Probability to re-contest as member of a list of runners-up and winners by gender.

	Runners-up	Winners	Win-loss gap
Males	59.5	80.3	20.8 [0.000]
Females	55.9	82.0	26.1 [0.000]
Females - Males	-3.6 [0.473]	1.7 [0.690]	5.2 [0.397]
Males in men-only races	57.9	78.5	20.6 [0.000]
Males - Males in men-only races	1.5 [0.695]	1.8 [0.510]	0.2 [0.958]
Females - Males in men-only races	-2.1 [0.583]	3.4 [0.305]	5.5 [0.225]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in a municipal list in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from 1,000 permutations of gender, outcome, and group, respectively.

Table 6: Re-contesting probability of candidates other than the best two candidates, by gender of the winning candidate.

	Male winner	Female winner	Female - male winner gap
Males	18.2	21.1	2.9 [0.449]
Females	10.3	36.6	26.3 [0.001]
Females - Males	-7.9 [0.134]	15.5 [0.016]	23.5 [0.007]
Males in men-only races	20.4		
Females in men-only races	17.3		
Males - Males in men-only races	-2.2 [0.466]	0.7 [0.818]	
Females - Females in men-only races	-7.0 [0.263]	19.3 [0.004]	

P-values of differences reported in brackets. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to candidates other than the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. For mixed-gender races, re-contesting probabilities are estimated from expression (3) with candidate- and winner-gender specific optimal bandwidths and triangular kernel weights. In men-only races, re-contesting probabilities are sample averages. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively.

Table 7: Number of new candidates in the next election by gender of the winning candidate.

	Male winner	Female winner	Female - male winner gap	Men-only races	Male winner - Men-only races	Female winner - Men-only races
# of new candidates	2.22	1.97	-0.25 [0.210]	1.96	0.25 [0.620]	0.00 [1.000]
# of new male candidates	1.66	1.51	-0.15 [0.400]	1.44	0.21 [0.560]	0.06 [0.780]
# of new female candidates	0.56	0.46	-0.10 [0.260]	0.52	0.04 [0.850]	-0.06 [0.700]

P-values of differences reported in brackets. Estimates from expression (4) with winner-gender specific optimal bandwidths and triangular kernel weights. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences calculated from $1,000$ permutations of winner's gender or group of elections. The sample is made of 2008 and 2014 municipal elections. The unit of observation is a municipality. Within each municipality, a 2014 (2020) candidate is considered as a new candidate if she did not participate in 2008 (2014).

Online Appendix

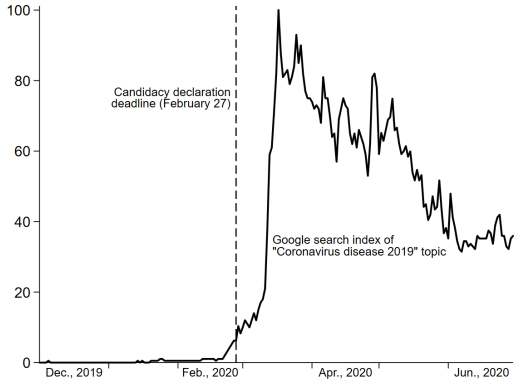
A Supplementary tables and figures

Figure A1: Illustrative sample of campaign posters.

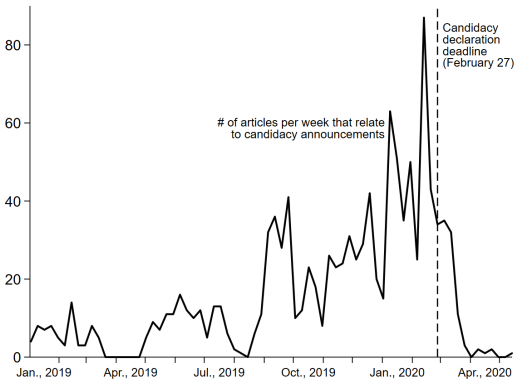
Pictures of campaign posters used in the 2008 and 2014 municipal elections, collected via *Google Images*.

Figure A2: COVID-related online search, press coverage of candidacy announcements, COVID-related hospitalizations and press coverage that report about postponing the election around the 2020 candidacy declaration deadline.

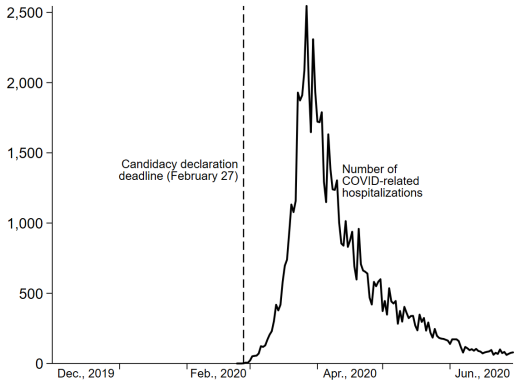
(a) COVID-19 topic online search.



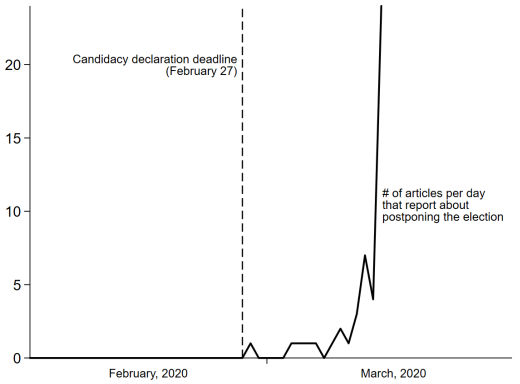
(b) Press coverage of candidacy announcements.



(c) COVID-related hospitalizations.



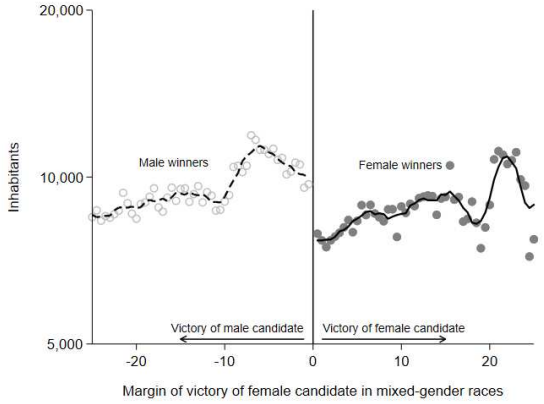
(d) Press coverage about postponing elections.



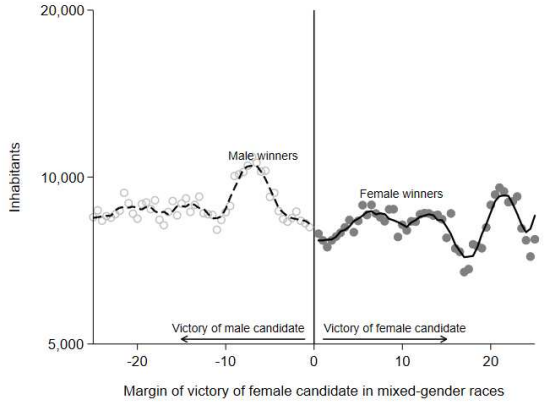
Sub-figure (a) displays the search volume index—from Google Trends—of "Coronavirus disease 2019" topic for France from December 1, 2019 to June 30, 2020. Sub-figure (b) uses data from *Cision Europresse* and plots the weekly number of French press articles that contain the words "*annonce* (announcement)", "*candidature* (candidacy)" and "*élection municipale* (municipal election)" from January 1, 2019 to April 30, 2020. Sub-figure (c) plots the daily national count of COVID-related hospitalizations—available from *Santé publique France*—from the earliest available date (February 24, 2020) to June 30, 2020. Sub-figure (d) uses *Cision Europresse* data and plots the dailty number of French press articles that contain the words "*premier tour* (first round)", "*élection municipale* (municipal election)", "*report* (postponement) or *annulation* (cancellation) or *maintien* (confirmed organization)" and "*covid* or *coronavirus*" for February 1 to March 15, 2020.

Figure A3: Differences in municipality size.

(a) Population.



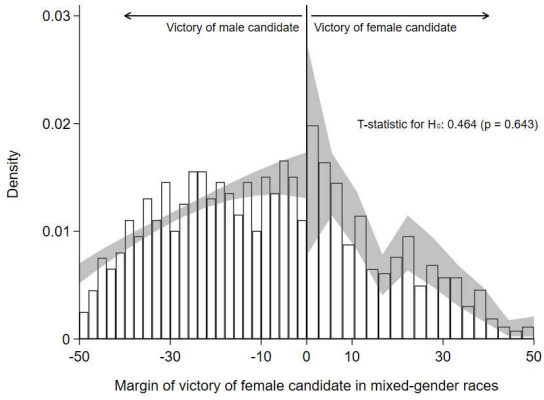
(b) Population, excluding municipalities of more than 100,000 inhabitants.



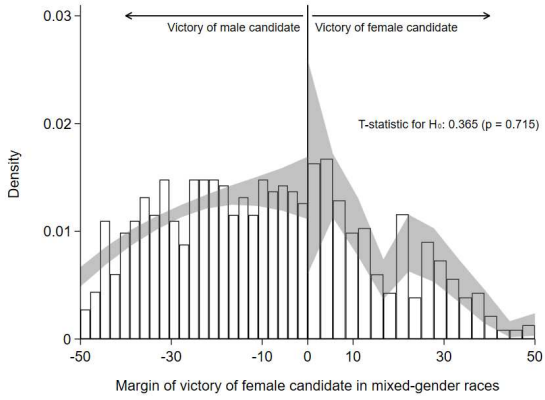
The sample is made of 2008 and 2014 elections whose two best candidates are of different genders. Each sub-figure plots the local average of municipalities' size along the margin of victory of the female candidate using 2.5% vote share intervals. Lines are locally smoothed series using a 5-dot window. Sub-figure (b) excludes 35 municipalities with more than 100,000 inhabitants.

Figure A4: Distribution of mixed-gender races in municipalities of more than 4,500 inhabitants.

(a) Mixed-gender races in municipalities of more than 4,500 inhabitants.

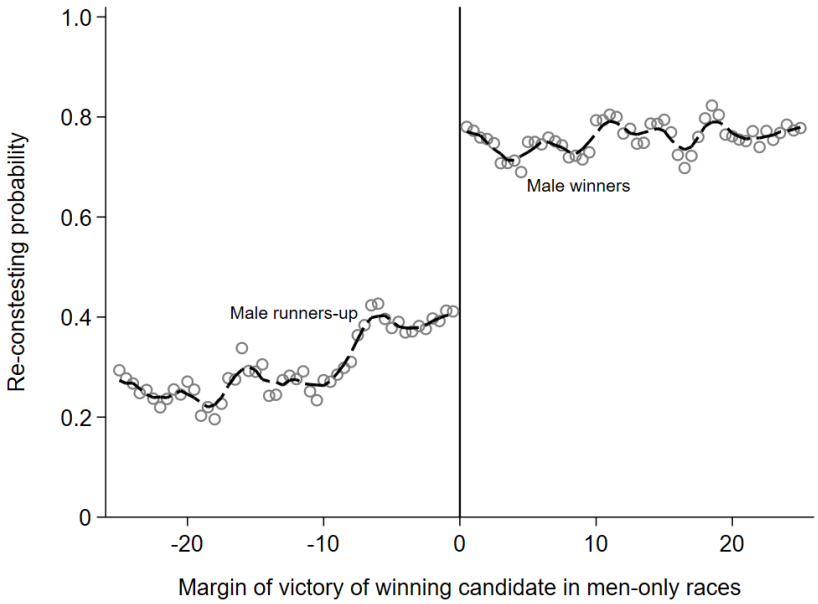


(b) Mixed-gender races in municipalities of more than 5,500 inhabitants.



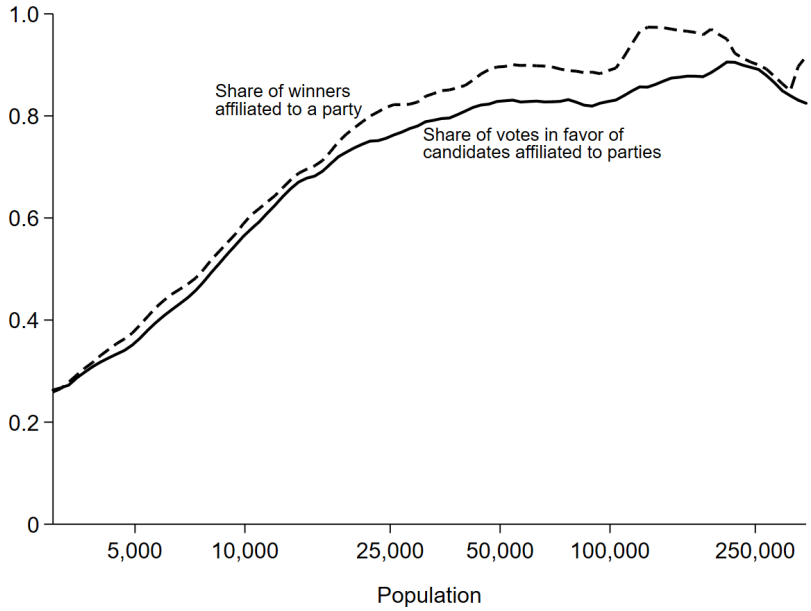
The sample is made of 2008 and 2014 elections whose two best candidates are of different genders. Sub-figure (a) further restricts the sample to municipalities of more than 4,500 inhabitants, and sub-figure (b) to municipalities above 5,500 inhabitants. Each sub-figure plots the distribution of gender-mixed races along the margin of victory of the female candidate. The displayed t-statistic tests for the null hypothesis of no manipulation. It is obtained following Cattaneo et al. (2020b) using bandwhith selection based on MSE criteria for each side of the cutoff separately and a first-order polynomial.

Figure A5: Re-contesting probability of runners-up and winners in men-only races.



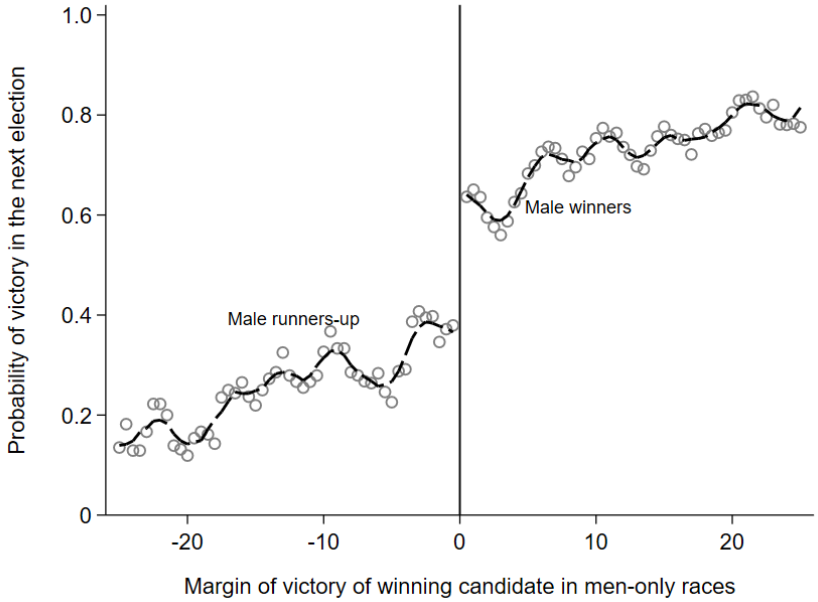
Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election and to *men-only* races. Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines are locally smoothed series using a 5-dot window. Graphical representation is restricted to the $[-25\%, 25\%]$ interval.

Figure A6: Relationship between municipality size and party presence.



The sample is made of 2008 and 2014 elections. Lines are locally smoothed averages of the share of elections around each municipality population value that have a winner who is formally affiliated to a political party or of the share of first round votes that are in favor of candidates formally affiliated to a political party.

Figure A7: Probability of victory in the next election of runners-up and winners in men-only races.



Observations are candidates who ran in the 2008 and 2014 municipal elections and who will run again for office in the next election. A 2008 (2014) candidate is considered as (re-)elected if she wins in the 2014 (2020) election. The sample is restricted to the best two candidate of each election and to *men-only* races. Dots represent averages within windows of 2% vote margin that moves in 0.5% steps. Lines are locally smoothed series using a 5-dot window. Graphical representation is restricted to the $[-25\%, 25\%]$ interval.

Table A1: Incomplete terms by gender.

	Female winners	Male winners	Total
# of races	478	815	1,293
Complete terms	450 (94.1%)	743 (91.2%)	1,193 (92.3%)
Incomplete terms	28	72	100
Ageing or health	8 (28.6%)	20 (27.8%)	28 (28.0%)
Death	1 (3.6%)	15 (20.8%)	16 (16.0%)
Move to other position	15 (53.6%)	23 (31.9%)	38 (38.0%)
Political scandal or *coup*	2 (7.1%)	8 (11.1%)	10 (10.0%)
Other	2 (7.1%)	6 (8.3%)	8 (8.0%)

This table lists reasons of incomplete terms by winning candidates of 2008 and 2014 municipal elections. The sample is restricted to elections with top two candidates of different genders and to elections that won't be followed by a by-election before the next national wave of municipal elections. Information manually collected from *ad-hoc* online searches using media websites and municipalities' pages on *Wikipedia*.

Table A2: Predicted probability of victory for runners-up and winners by gender in mixed-gender elections.

	Runners-up	Winners	Win - loss gap
Males	45.7	49.7	4.1 [0.116]
Females	45.7	47.6	1.8 [0.436]
Females - Males	0.1 [0.973]	-2.1 [0.400]	-2.2 [0.520]

P-values of differences reported in brackets. Estimate from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights, using as dependent variable the predicted probability of victory estimated from expression (2) with a random forest model. The model is trained with men-only elections and used to predict the probabilities of winning in mixed-gender elections. Observations are candidates who ran in the 2008 and 2014 municipal elections. The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders and vote outcomes calculated from $1,000$ permutations of gender and outcome respectively.

Table A3: Re-contesting probability of runners-up and winners by gender: Regression's form coefficients.

A - Mixed-gender races	Will run in next election
Winner $(\alpha_m^W - \alpha_m^L)$	0.284
	[0.000]
Margin	0.031
	[0.043]
Winner × Margin	-0.029
	[0.071]
Female $(\alpha_m^L - \alpha_f^L)$	-0.094
	[0.067]
Winner × Female $\left((\alpha_m^W - \alpha_m^L) - (\alpha_f^W - \alpha_f^L)\right)$	0.139
	[0.026]
Female × Margin	-0.024
	[0.143]
Winner × Female × Margin	0.019
	[0.312]
Constant (α_m^L)	0.455
	[0.000]

	Optimal bandwidth	# of observations
Female winners	16.86	261
Female runners-up	18.90	297
Male winners	19.18	299
Males runners-up	11.44	204
Total		1,061

B - Men-only races	Will run in next election
Winner $(\alpha^W - \alpha^L)$	0.319
	[0.000]
Margin	-0.012
	[0.000]
Winner × Margin	0.012
	[0.005]
Constant (α^L)	0.425
	[0.000]

	Optimal bandwidth	# of observations
Winners	16.82	1,442
Runners-up	17.28	1,482
Total		2,924

P-values calculated from 1,000 permutations reported between brackets. Estimated coefficients from expression (1) with gender- and vote outcome-specific optimal bandwidths, and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. Panel A reports estimated coefficients from expression (1) estimated simultaneously from female and male candidates in mixed-gender races by supplementing (1) with gender-related interaction terms. Panel B reports estimated coefficients from expression (1) estimated from candidates in men-only races.

Table A4: Re-contesting probability of runners-up and winners by gender: Robustness checks.

A - Gender-specific optimal bandwidths

	Runners-up	Winners	Win - loss gap
Males	41.2	73.7	32.5 [0.000]
Females	36.2	78.8	42.6 [0.000]
Females - Males	-5.0 [0.279]	5.1 [0.204]	10.1 [0.083]
Males in men-only races	42.5	74.4	31.9 [0.000]
Males - Males in men-only races	-1.3 [0.722]	-0.8 [0.817]	0.5 [0.910]
Females - Males in men-only races	-6.3 [0.071]	4.4 [0.172]	10.6 [0.017]

B - Unique optimal bandwidth

	Runners-up	Winners	Win - loss gap
Males	42.3	75.5	33.2 [0.000]
Females	36.2	78.4	42.2 [0.000]
Females - Males	-6.1 [0.172]	2.9 [0.492]	9.1 [0.144]
Males in men-only races	42.6	74.4	31.8 [0.000]
Males - Males in men-only races	-0.2 [0.956]	1.1 [0.749]	1.3 [0.783]
Females - Males in men-only races	-6.4 [0.085]	4.0 [0.225]	10.4 [0.027]

C - 2008 elections

	Runners-up	Winners	Win - loss gap
Males	42.4	77.8	35.4 [0.000]
Females	33.3	80.7	47.5 [0.000]
Females - Males	-9.1 [0.293]	3.0 [0.591]	12.1 [0.211]
Males in men-only races	41.7	75.1	33.4 [0.000]
Males - Males in men-only races	0.7 [0.915]	2.7 [0.532]	2.0 [0.780]
Females - Males in men-only races	-8.4 [0.164]	5.6 [0.285]	14.1 [0.064]

D - 2014 elections

	Runners-up	Winners	Win - loss gap
Males	46.3	72.0	25.7 [0.001]
Females	33.5	76.3	42.8 [0.000]
Females - Males	-12.8 [0.043]	4.3 [0.448]	17.1 [0.037]
Males in men-only races	44.0	74.2	30.2 [0.000]
Males - Males in men-only races	2.3 [0.696]	-2.3 [0.581]	-4.5 [0.512]
Females - Males in men-only races	-10.5 [0.022]	2.1 [0.661]	12.6 [0.045]

E - Municipalities with more than $5,500$ inhabitants.

	Runners-up	Winners	Win - loss gap
Males	42.7	71.9	29.3 [0.000]
Females	21.1	84.7	63.6 [0.000]
Females - Males	-21.6 [0.000]	12.8 [0.009]	34.4 [0.000]
Males in men-only races	45.0	74.8	29.8 [0.000]
Males - Males in men-only races	-2.3 [0.658]	-2.9 [0.412]	-0.6 [0.925]
Females - Males in men-only races	-23.9 [0.000]	10.0 [0.012]	33.8 [0.000]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with triangular kernel weights and optimal bandwidths. Bandwidths are gender-specific in panel A, while a unique common bandwidth is used in panel B. Bandwidths are gender- and vote outcome-specific in panels C and D. Observations are candidates who ran in the 2008 and 2014 municipal elections. In panels C and D, the sample is restricted to 2008 and 2014 candidates, respectively. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively.

Table A5: Re-contesting probability of runners-up and winners by gender: Accounting for past participation, incumbency status, age, political orientation, occupation, municipality size and party involvement.

A - Accounting for past participation

	Runners-up	Winners	Win-loss gap
Males	45.0	72.4	27.4 [0.000]
Females	35.4	78.3	42.9 [0.000]
Females - Males	-9.7 [0.056]	5.9 [0.149]	15.5 [0.012]
Males in men-only races	43.2	75.0	31.8 [0.000]
Males - Males in men-only races	1.9 [0.645]	-2.5 [0.429]	-4.4 [0.385]
Females - Males in men-only races	-7.8 [0.027]	3.3 [0.290]	11.1 [0.015]

B - Accounting for incumbency status

	Runners-up	Winners	Win-loss gap
Males	43.2	75.9	32.7 [0.000]
Females	33.5	76.5	43.0 [0.000]
Females - Males	-9.7 [0.050]	0.6 [0.864]	10.3 [0.087]
Males in men-only races	42.7	71.7	29.0 [0.000]
Males - Males in men-only races	0.5 [0.916]	4.1 [0.177]	3.7 [0.453]
Females - Males in men-only races	-9.2 [0.007]	4.7 [0.132]	13.9 [0.002]

C - Accounting for age

	Runners-up	Winners	Win-loss gap
Males	48.0	71.5	23.6 [0.000]
Females	35.8	77.9	42.1 [0.000]
Females - Males	-12.1 [0.020]	6.4 [0.111]	18.5 [0.002]
Males in men-only races	45.8	74.4	28.6 [0.000]
Males - Males in men-only races	2.2 [0.593]	-2.9 [0.341]	-5.1 [0.307]
Females - Males in men-only races	-10.0 [0.006]	3.5 [0.254]	13.4 [0.003]

D - Accounting for political orientation

	Runners-up	Winners	Win-loss gap
Males	42.9	72.8	29.9 [0.000]
Females	35.2	80.3	45.1 [0.000]
Females - Males	-7.7 [0.139]	7.5 [0.075]	15.2 [0.017]
Males in men-only races	42.5	75.1	32.6 [0.000]
Males - Males in men-only races [0.926]	-2.3 [0.499]	-2.7 [0.601]	
Females - Males in men-only races	-7.2 [0.045]	5.2 [0.128]	12.4 [0.008]

E - Accounting for occupation

	Runners-up	Winners	Win-loss gap
Males	44.2	73.5	29.4 [0.000]
Females	37.2	76.5	39.4 [0.000]
Females - Males	-7.0 [0.166]	3.0 [0.458]	10.0 [0.110]
Males in men-only races	43.7	74.5	30.8 [0.000]
Males - Males in men-only races	0.4 [0.921]	-1.0 [0.755]	-1.4 [0.779]
Females - Males in men-only races	-6.6 [0.060]	2.0 [0.528]	8.6 [0.071]

Continued on next page. See notes on page 62.

Table A5: Re-contesting probability of runners-up and winners by gender: Accounting for past participation, incumbency status, age, political orientation, occupation, municipality size and party involvement (continued).

F - Accounting for municipality size

	Runners-up	Winners	Win-loss gap
Males	47.9	73.0	25.1 [0.000]
Females	35.5	80.2	44.7 [0.000]
Females - Males	-12.4 [0.017]	7.2 [0.088]	19.5 [0.002]
Males in men-only races	41.6	74.4	32.8 [0.000]
Males - Males in men-only races	6.3 [0.125]	-1.4 [0.694]	-7.7 [0.141]
Females - Males in men-only races	-6.0 [0.089]	5.8 [0.087]	11.8 [0.011]

G - Accounting for party involvement

	Runners-up	Winners	Win-loss gap
Males	46.5	74.0	27.5 [0.000]
Females	36.6	79.0	42.4 [0.000]
Females - Males	-9.9 [0.047]	5.0 [0.237]	14.9 [0.016]
Males in men-only races	42.5	74.4	32.0 [0.000]
Males - Males in men-only races	4.0 [0.317]	-0.5 [0.880]	-4.5 [0.380]
Females - Males in men-only races	-5.9 [0.098]	4.6 [0.161]	10.4 [0.023]

H - Accounting for past participation, incumbency, age, political orientation, occupation, municipality size and party involvement

	Runners-up	Winners	Win-loss gap
Males	43.8	74.3	30.6 [0.000]
Females	35.0	81.1	46.1 [0.000]
Females - Males	-8.7 [0.081]	6.8 [0.093]	15.5 [0.013]
Males in men-only races	46.4	73.8	27.4 [0.000]
Males - Males in men-only races	-2.6 [0.541]	0.6 [0.851]	3.1 [0.532]
Females - Males in men-only races	-11.3 [0.001]	7.3 [0.019]	18.7 [0.000]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights, supplemented by mean-centred variables (interacted with genders and election outcomes) that identify correspond to dimensions indicated in each panel's head. Dummy variables are used for past-participation, incumbency status, political orientation, occupation and party involvement. See notes of Table 1 for the definition of the different categories. Continuous variables are uses for candidates' age and municipality's size, measured with the log of a municipality's population. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively.

Table A6: Re-contesting probability of runners-up and winners by gender: Differences across subgroups along past participation, age, occupation, political orientation, municipality size and party involvement.

A - New and former candidates

	Former candidates - New candidates		
	Runners-up	Winners	Win-loss gap
Males	-20.0 [0.004]	-34.1 [0.000]	-14.1 [0.105]
Females	-16.8 [0.013]	-3.9 [0.511]	12.9 [0.145]
Females - Males	3.2 [0.742]	30.2 [0.000]	27.0 [0.030]
Males in men-only races	-10.8 [0.000]	-24.7 [0.000]	-13.9 [0.000]
Males - Males in men-only races	9.2 [0.221]	9.3 [0.098]	0.2 [0.985]
Females - Males in men-only races	-6.0 [0.424]	20.9 [0.001]	26.9 [0.006]

B - Challengers and incumbents

	Incumbents - Challengers		
	Runners-up	Winners	Win-loss gap
Males	-19.1 [0.003]	-22.5 [0.001]	-3.3 [0.719]
Females	-20.8 [0.000]	-21.7 [0.000]	-0.9 [0.919]
Females - Males	-1.7 [0.845]	0.8 [0.930]	2.5 [0.844]
Males in men-only races	-5.8 [0.024]	-41.6 [0.000]	-35.8 [0.000]
Males - Males in men-only races	13.3 [0.059]	-19.1 [0.010]	-32.5 [0.001]
Females - Males in men-only races	-15.0 [0.022]	19.9 [0.005]	34.9 [0.000]

C - Young and old candidates

	Older candidates - Younger candidates		
	Runners-up	Winners	Win-loss gap
Males	-12.9 [0.068]	-37.5 [0.000]	-24.6 [0.003]
Females	-22.4 [0.001]	-24.3 [0.000]	-1.9 [0.823]
Females - Males	-9.6 [0.326]	13.2 [0.062]	22.7 [0.053]
Males in men-only races	-20.8 [0.000]	-25.9 [0.000]	-5.1 [0.163]
Males - Males in men-only races	-8.0 [0.300]	11.6 [0.026]	19.5 [0.034]
Females - Males in men-only races	-1.6 [0.828]	1.6 [0.770]	3.2 [0.724]

D - Political orientation

	Left-wing candidates - Right-wing candidates		
	Runners-up	Winners	Win-loss gap
Males	11.3 [0.107]	-11.6 [0.062]	-23.0 [0.013]
Females	-2.8 [0.669]	-6.0 [0.263]	-3.2 [0.702]
Females - Males	-14.1 [0.142]	5.6 [0.496]	19.8 [0.115]
Males in men-only races	6.0 [0.034]	2.7 [0.286]	-3.3 [0.376]
Males - Males in men-only races	-5.3 [0.477]	14.3 [0.033]	19.6 [0.050]
Females - Males in men-only races	-8.8 [0.230]	-8.7 [0.142]	0.1 [0.989]

Continued on next page. See notes on page 64.

Table A6: Re-contesting probability of runners-up and winners by gender: Differences across sub-groups along past participation, age, occupation, political orientation, municipality size and party involvement (continued).

E - Candidates' occupation

	Public sector job - Private sector job		
	Runners-up	Winners	Win-loss gap
Males	7.1 [0.393]	-14.9 [0.045]	-22.0 [0.049]
Females	-2.6 [0.678]	-24.7 [0.001]	-22.1 [0.022]
Females - Males	-9.7 [0.352]	-9.8 [0.357]	-0.1 [0.993]
Males in men-only races	1.8 [0.572]	-8.4 [0.003]	-10.2 [0.018]
Males - Males in men-only races	-5.3 [0.544]	6.5 [0.404]	11.8 [0.313]
Females - Males in men-only races	-4.4 [0.532]	-16.3 [0.035]	-11.9 [0.254]
	Retired candidates - Non retired candidates		
	Runners-up	Winners	Win-loss gap
Males	1.5 [0.836]	-42.4 [0.000]	-44.0 [0.000]
Females	-17.8 [0.006]	-25.2 [0.005]	-7.4 [0.507]
Females - Males	-19.3 [0.050]	17.3 [0.118]	36.6 [0.014]
Males in men-only races	-12.9 [0.000]	-29.8 [0.000]	-16.9 [0.000]
Males - Males in men-only races	-14.4 [0.105]	12.6 [0.036]	27.0 [0.009]
Females - Males in men-only races	-4.9 [0.535]	4.6 [0.535]	9.6 [0.379]

F - Municipality size

	Large municipalities - Small municipalities		
	Runners-up	Winners	Win-loss gap
Males	-5.9 [0.413]	-18.4 [0.005]	-12.6 [0.195]
Females	-30.2 [0.000]	10.2 [0.066]	40.4 [0.000]
Females - Males	-24.3 [0.017]	28.6 [0.001]	52.9 [0.000]
Males in men-only races	9.4 [0.000]	3.7 [0.132]	-5.7 [0.111]
Males - Males in men-only races	15.3 [0.039]	22.2 [0.002]	6.9 [0.502]
Females - Males in men-only races	-39.6 [0.000]	6.4 [0.287]	46.0 [0.000]

G - Political party involvement

	Affiliated candidates - Non affiliated candidates		
	Runners-up	Winners	Win-loss gap
Males	11.2 [0.126]	-6.0 [0.291]	-17.2 [0.058]
Females	-12.7 [0.045]	1.7 [0.754]	14.4 [0.082]
Females - Males	-23.9 [0.014]	7.8 [0.328]	31.6 [0.010]
Males in men-only races	5.1 [0.064]	2.0 [0.409]	-3.1 [0.398]
Males - Males in men-only races	-6.1 [0.434]	8.0 [0.176]	14.1 [0.145]
Females - Males in men-only races	-17.7 [0.010]	-0.3 [0.965]	17.5 [0.055]

P-values of differences reported in brackets. Differences of coefficients reported in Table 3. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from 1,000 permutations of gender, outcome, and group, respectively. In each panel, the sample is split in sub-samples. See notes of Table 1 for the definition of the different categories.

Table A7: Probability of victory in the next election of runners-up and winners by gender: Separate estimates for 2008 and 2014 elections.

A - 2008 elections

	Runners-up	Winners	Win - loss gap
Males	50.5	73.4	22.9 [0.032]
Females	30.1	57.8	27.7 [0.007]
Females - Males	-20.4 [0.091]	-15.6 [0.043]	4.8 [0.725]
Males in men-only races	45.9	48.1	2.2 [0.582]
Males - Males in men-only races	4.7 [0.628]	25.4 [0.000]	20.7 [0.136]
Females - Males in men-only races	-15.8 [0.079]	9.7 [0.136]	25.5 [0.034]

B - 2014 elections

	Runners-up	Winners	Win - loss gap
Males	61.2	69.8	8.6 [0.421]
Females	37.6	45.5	7.8 [0.506]
Females - Males	-23.6 [0.085]	-24.3 [0.004]	-0.8 [0.968]
Males in men-only races	27.6	73.7	46.1 [0.000]
Males - Males in men-only races	33.6 [0.000]	-3.9 [0.522]	-37.5 [0.005]
Females - Males in men-only races	10.1 [0.270]	-28.2 [0.000]	-38.3 [0.005]

P-values of differences reported in brackets. Election and re-election probabilities estimated from expression (1), using a dummy equal to one if the candidate wins the next election, with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections and who will run again for office in the next election. A 2008 (2014) candidate is considered as (re-)elected if she wins in the 2014 (2020) election. The sample is restricted to the best two candidate of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively. In panel A (B), the sample is restricted to 2008 (2014) candidates who run again in 2014 (2020).

B Matching algorithm used to track candidates across consecutive elections

The matching algorithm we use to identify 2008 and 2014 candidates who run again in 2014 and 2020, respectively, proceeds in two steps and was applied separately to the two pairs of consecutive elections (2008–2014 and 2014–2020).

We first use official administrative codes and occasional manual corrections to create a comprehensive correspondence matrix between municipalities for which electoral data are available for consecutive elections.

Second, we create within each municipality all possible pairs between candidates of an election and candidates of the next election. We then calculate the similarity scores between both first names and last names of paired candidates using bigrams (Raffo and Lhuillery 2009). We consider that a candidate of the early election is the same person as a candidate of the next election if any of the following condition is met:

1. First names and last names are identical, i.e., both similarity scores are equal to 1;
2. Family names are identical and one first name contains the other one, i.e., the exact chain of characters of a first name can be found in the other one;
3. First names are identical and one family name contains the other one, i.e., the exact chain of characters of a family name can be found in the other one;
4. Family names are identical and the similarity score between first names is above some threshold chosen after inspection of the data;
5. First names are identical and the similarity score between family names is above some threshold chosen after inspection of the data;
6. Similarity scores between first names and between family names are above some thresholds chosen after inspection of the data.

Condition 2 deals with cases where people have either a first name made of multiple first names, or sometimes use their second and/or third first names in addition to their main first name, but do not always appear with the same first names (by choice or because of

data entry issues). Condition 3 deals with cases where people have a family name composed of two original names (either their parents' family names or their maiden name and the name of their husband) but do not always use both (by choice or because of data entry issues). Conditions 4–6 allow us to increase the number of matches while avoiding false positive matches thanks to a careful inspection of the data that relies on visual inspection and occasional manual verification using online search engines.

All the above conditions rely on similarities between first and family names. While condition 3 already accounts for the case of women changing their family name when marrying or divorcing, it only accommodates cases where women keep using a name that has a constant component, i.e., adding or removing the name of their husband to their maiden name. It might however be the case that some women choose to use the family name of their husband as their only name in an election and their maiden name in the other one (by choice, by chance, or because their marital status has changed). While using the husband's family name as the only surname is less and less frequent and *a prioi* less spread among women of higher social status or who are publicly exposed, it might still produce false negative matches, i.e., candidates that we would consider as different according to conditions 1–6 while they are identical. We developed an *ad-hoc* approach to assess the importance of such cases and to recast some false negative matches as actual matches. Restricting the data to pairs that were not matched using conditions 1–6, we first list all the pairs for which first names are identical. This provides us with about 300 pairs for each pair of consecutive elections. We next go through each pair of candidates that share a female first name and use manual online queries to check whether the two paired women are actually identical or different. Out of the 47 verified pairs of women candidates, only 4 turned out to be identical and were re-qualified as matches. Collected information shows that the remaining pairs are made of factually different women that are correctly considered non-matches. While the rate (4/47) of re-qualified false negative matches might look high, it is worth noting that this situation is likely limited to these cases only. We indeed further checked 127 unmatched pairs (in

both pairs of elections) that have a similarity score between first names that is above 0.8 but could not find any other case of women that should actually be considered as identical.

Table B1 displays the frequencies of conditions that lead to matching 2008 and 2014 candidates to candidates of 2014 and 2020 elections, respectively.

Assessing the risk of false positive matches that is associated with our matching routine is difficult. It is however likely small as we perform within-municipality comparisons and use quite strict matching conditions as described by conditions 1–6. These two facts make the probability that we wrongly consider as identical two candidates of the same municipality in 4 years apart elections very low.

Table B1: Conditions used to match candidates running in an election to candidates running in the next election.

	2008 candidates matched to 2014 candidates	2014 candidates matched to 2020 candidates
Condition 1	2,945	2,589
Conditions 2 or 3	79	60
Conditions 4 or 5	27	8
Condition 6	4	0
Re-qualified	3	1
Unmatched	4,032	4,634
Total	7,090	7,292

See the text for more details.

C Incomplete information about 2001 candidates and imputed past participation of 2008 candidates

Available data for the 2001 municipal elections are separated into two distinct data sets. On the one side, official election results are made available at the list level, but the data do not contain the name of the list or the name of the candidate who leads it. Only the political orientation code created by the *Ministère de l'intérieur* is available from these data. On the other hand, a list of all heads of the list is available. This data set also contains the name of the list and its political orientation code. The data set is however incomplete because not all municipalities are included in these data and because the name of the candidate is blank for 35.01% of the observations. Additionally, in only 42.40% of the 2008 municipalities, can all 2001 candidates be identified. Neither source can thus be used to directly identify 2008 candidates who ran in 2001.

We developed an *ad hoc* procedure to distinguish between new and former candidates among participants in the 2008 municipal elections.

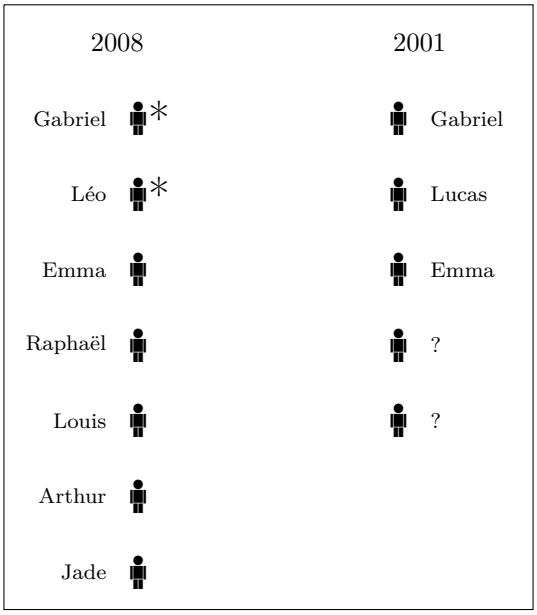
Figure C1(a) illustrates the initial situation in a fictitious municipality. This municipality has 7 and 5 candidates in the 2008 and 2001 municipal elections, respectively.[28] The data allow us to identify all of the 2008 candidates but only a share s_{2001} of the 2001 candidates as illustrated by the presence of (fictitious) first names or question marks next to candidates' symbols. Starred 2008 candidates are the top two candidates in this election.

We first use the comprehensive list of 2008 candidates and link them to identifiable 2001 candidates using a fuzzy matching *à la* Raffo and Lhuillery (2009) on candidates' first and last names within each municipality (see Online Appendix B). Matches allow us to identify some 2008 candidates who were former 2001 candidates, such as Gabriel and Emma in Figure C1(b), as well as 2001 candidates who will not run in 2008 as illustrated by the case of Lucas in Figure C1(b). This step leaves us with a set $\mathbb{N}_{2001}$ of n_{2001} non-identifiable 2001 candidates and two types of 2008 candidates: $n^*_{2008} \in \{0, 1, 2\}$ candidates of type $\mathbb{N}^*_{2008}$ who belong two

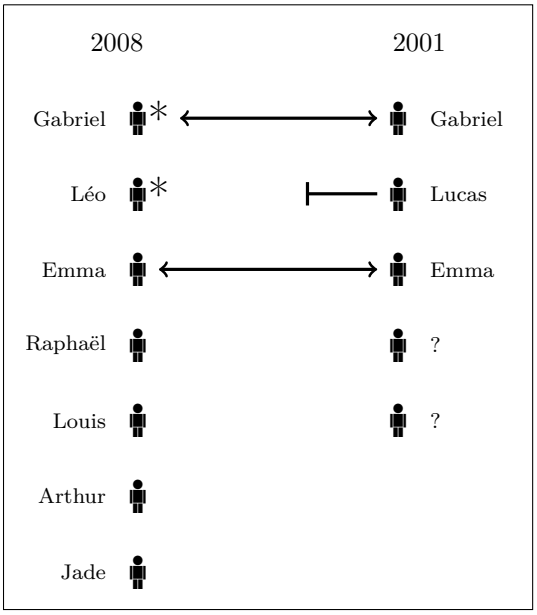
[28] We use official results to retrieve the number of candidates running in 2001 in municipalities that are missing from the list of candidates.

Figure C1: Illustration the procedure used to input past candidacy status of 2008 candidates running in cities with incomplete information about 2001 candidates.

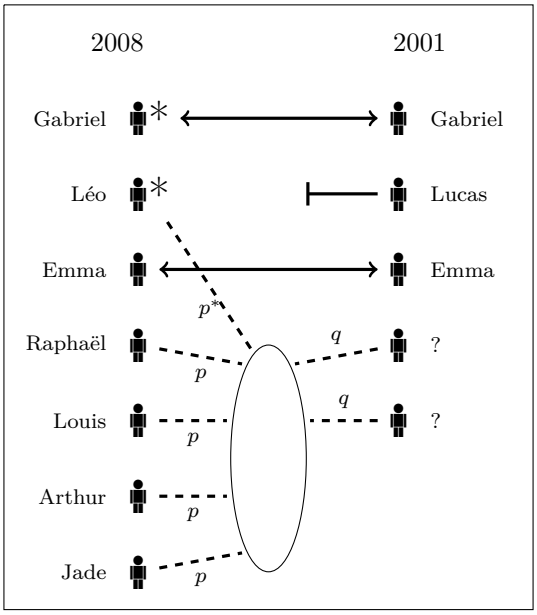
(a) Starting situation.



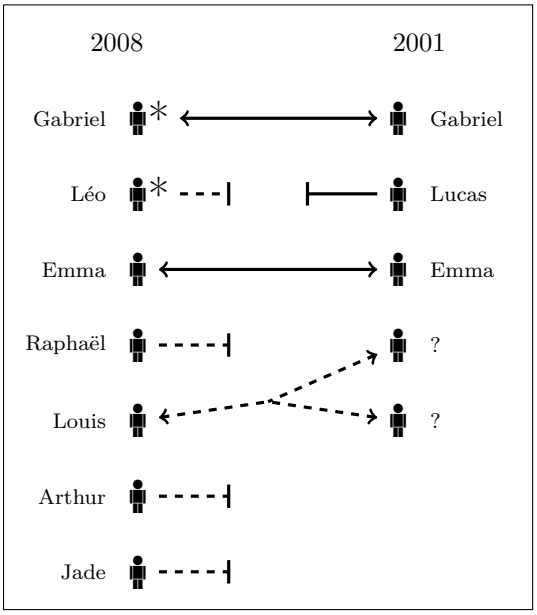
(b) Outcome of fuzzy matching.



(c) Matching probabilities.



(d) Final realization.



Sub-figures illustrate steps of the imputation procedure using a fictitious illustrative municipality. See the text for more details.

the top two candidates in this election and n_{2008} other candidates of type $\mathbb{N}_{2008}$. In Figure C1(b), the set $\mathbb{N}_{2001}$ is composed of the two anonymous candidates, $\mathbb{N}^*_{2008} = \{\text{Léo}\}$ and $\mathbb{N}_{2008} = \{\text{Raphaël, Louis, Arthur, Jade}\}$.

Let us denote by p^* and p the probabilities that type $\mathbb{N}^*_{2008}$ and type $\mathbb{N}_{2008}$ candidates ran in 2001. Similarly, let q be the probability that a type $\mathbb{N}_{2001}$ candidate will run again in 2008. This structure is illustrated by Figure C1(c). By construction, the number of 2008 candidates who are former candidates cannot be larger than the number of 2001 candidates:

$$n^*_{2008}p^* + n_{2008}p \leq n_{2001}, \tag{C1}$$

the number of re-contesting 2001 candidates cannot exceed the number of 2008 candidates:

$$n_{2001}q \leq n^*_{2008} + n_{2008}, \tag{C2}$$

and both quantities must match:

$$n^*_{2008}p^* + n_{2008}p \leq n_{2001}q. \tag{C3}$$

By combining conditions (C1)–(C3), we obtain:

$$n^*_{2008}p^* + n_{2008}p \leq \min(n^*_{2008} + n_{2008}, n_{2001}) \Leftrightarrow \begin{cases} p \leq \frac{\min(n^*_{2008}+n_{2008},n_{2001})-n^*_{2008}p^*}{n_{2008}} \\ p^* \leq \frac{\min(n^*_{2008}+n_{2008},n_{2001})-n_{2008}p}{n^*_{2008}} \end{cases} \tag{C4}$$

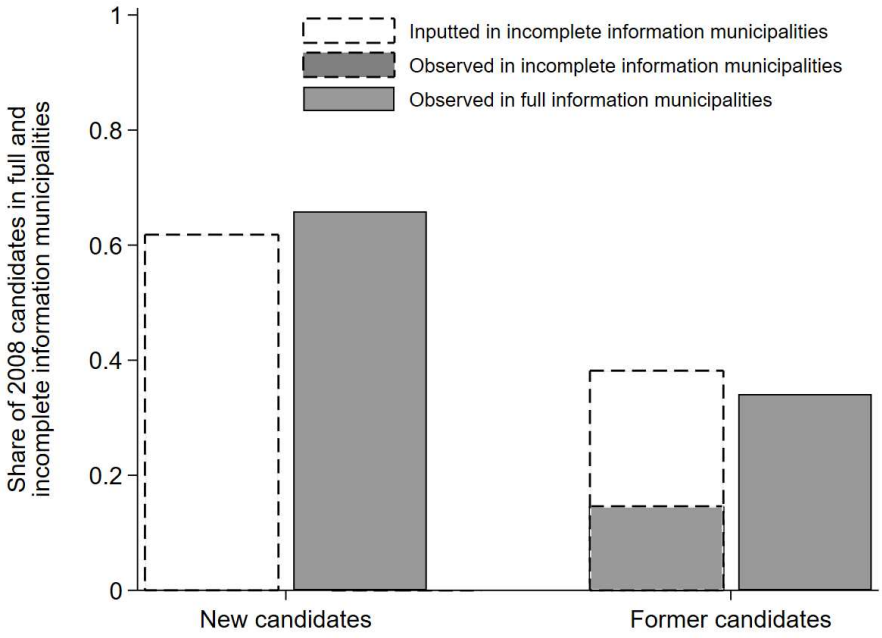
Condition (C4) defines the space of possible values of p^* and p and holds for each municipality. We solve for these probabilities in municipalities where $s_{2001} < 1$—that is, municipalities in which not all the 2001 candidates are identifiable—by selecting a realization of municipality-specific probabilities that satisfy condition (C4) for each municipality and minimize the distance between the average 2008 past candidacy rates in these municipalities and that of candidates in municipalities where $s_{2001} = 1$—that is, municipalities for which all 2001 candidates are identifiable.

Figure C1(d) displays the final outcome of the procedure for the fictitious illustrative municipality. The realization of probabilities is such that only one 2008 candidate (Louis)

was finally regarded as matched to a 2001 candidate. Figure C2 further describes the outcome of the procedure thanks to the distributions of past candidacy statuses of 2008 candidates across municipalities with full or incomplete information about 2001 candidates.

To ensure that the above-presented procedure introduced no bias in the reported estimates, Table C1 reproduces the sub-sample decomposition along past electoral participation of candidates but excluding all 2008 municipalities for which information about 2001 candidates is incomplete. Estimates differ little from those displayed in panel A of Table 3.

Figure C2: Distributions of past candidacy status of 2008 candidates across municipalities with incomplete and full information about 2001 candidates.



Grey solid-outlined bars represent the shares of observed new and former candidates in 2008 municipalities for which the identity all 2001 candidates is known. The grey dash-outlined bar represents the share of observed former candidates in 2008 municipalities for which not all 2001 candidates are identifiable. White dash-outlined bars represent the shares of inputted new and former candidates in 2008 municipalities for which not all 2001 candidates are identifiable. See the text for more details about the imputation procedure.

Table C1: Re-contesting probability of runners-up and winners by gender: Heterogeneity along past participation, excluding 2008 municipalities in which candidates' past candidacy status is inputted.

	New candidates			Former candidates		
	Runners-up	Winners	Win-loss gap	Runners-up	Winners	Win-loss gap
Males	53.0	87.1	34.2 [0.000]	25.6	52.9	27.4 [0.000]
Females	38.8	76.9	38.0 [0.000]	3.2	76.8	73.6 [0.000]
Females - Males	-14.1 [0.039]	-10.3 [0.093]	3.8 [0.675]	-22.4 [0.012]	23.8 [0.003]	46.2 [0.000]
Males in men-only races	52.0	89.6	37.7 [0.000]	39.1	59.7	20.6 [0.000]
Males - Males in men-only races	1.0 [0.900]	-2.5 [0.565]	-3.5 [0.658]	-13.5 [0.021]	-6.7 [0.167]	6.8 [0.351]
Females - Males in men-only races	-13.1 [0.004]	-12.8 [0.006]	0.3 [0.958]	-35.9 [0.000]	17.1 [0.007]	53.0 [0.000]

P-values of differences reported in brackets. Re-contesting probabilities estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. A 2008 (2014) candidate is considered as re-contesting if she will run again for office in 2014 (2020). The sample is restricted to the best two candidates of each election, and to 2014 elections and 2008 elections in municipalities for which information about 2001 candidates is complete. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively.

D Participation of winners and runners-up in higher-level elections

As stated in the main text, the French institutional setting does not make it possible to properly study cross-gender differences in the decisions of municipal election candidates to run in other local elections. *Départemental*, regional and parliamentary elections are indeed elections in which (national) political parties are much more involved than in municipal elections, and gender quotas directly or indirectly apply in these elections. These features would therefore make it difficult to draw conclusions about cross-gender differences in candidates' decisions to participate.

In *départemental* elections, which use a uni-nominal majority two-round voting system at the *canton* level to elect members of the *départemental* assembly, representatives are elected in unordered pairs consisting of one female and one male candidate since 2015, such that exactly 50% of candidates are female. The scope of regional elections, which use the same proportional two-round ordered- and closed-list voting system as municipal elections, mechanically reduces the number of heads of list, whose gender is unregulated, such that only the detailed lists would contain a sufficient number of observations. Lists must however be gender-balanced such that half of the candidates are female. Finally, funding penalties have been imposed since 2002 on political parties that do not nominate enough women in parliamentary elections, which use a uni-nominal majority two-round voting system at the legislative constituency level to elect members of the French parliament, such that the proportion of women in candidates has consistently increased, reaching approximately 40% in 2017 (Lippmann 2021).

Ultimately, *départemental*, regional and parliamentary elections are contexts that do not allow us to cleanly investigate cross-gender differences in individuals' decisions to run. To nevertheless explore these dimensions, we collected the lists of candidates running in local elections that followed the 2008 and 2014 municipal elections. We collected the names of the $10,357$ ($18,187$) candidates running in the 2011 (2015) *départemental* elections and of the 262 (183) heads and $20,671$ ($21,880$) members of lists in the 2010 (2015) regional

elections. In parliamentary elections, candidates run in ordered pairs consisting of a main and a substitute candidate. We collected the composition of the 6,602 (7,877) pairs of candidates that participated in the 2012 (2017) parliamentary elections.

We next matched these lists to that of candidates in the municipal elections to assess whether the latter decided to run in higher administrative level elections before the next municipal election took place. We matched 2008 candidates to candidates in the 2010 regional, 2011 *départemental* and 2012 parliamentary elections and 2014 candidates to candidates in the 2015 regional, 2015 *départemental* and 2017 parliamentary elections. We then estimated model (1) using as the dependent variable a dummy variable equal to one if a candidate in the 2008 or 2014 municipal elections ran in any of the next higher-level elections. Table D1 displays the estimates of interest and shows that candidates in municipal elections are less likely to run for other local elections than to re-contest the next municipal election (see Table 2). This fact is however likely to be largely mechanical because there are more positions to be taken in municipal elections than in other local elections.

Table D1 conveys several important messages. It first shows that female runners-up's decisions about participating in other elections do not significantly differ from those of male runners-up. Second, while female winners appear slightly less likely than male winners to participate in other elections, so do the latter when compared to male winners of men-only races. Third, win-induced changes in running probabilities are lower than those estimated for the probabilities to run again in municipal elections. Ultimately, the estimates do not provide evidence of female candidates having an attitude that strikingly differs from that of male candidates regarding decisions about participating in other elections, and the revealed differences in these attitudes cannot account for the documented cross-gender differences in re-contesting decisions.

Table D1: Probability to participate in higher-level elections of runners-up and winners by gender.

	Runners-up	Winners	Win - loss gap
Males	23.4	34.9	11.5 [0.011]
Females	25.1	31.0	6.0 [0.294]
Females - Males	1.7 [0.732]	-3.9 [0.463]	-5.6 [0.428]
Males in men-only races	30.7	40.5	9.8 [0.000]
Males - Males in men-only races	-7.3 [0.035]	-5.6 [0.084]	1.8 [0.701]
Females - Males in men-only races	-5.6 [0.172]	-9.5 [0.029]	-3.8 [0.530]

P-values of differences reported in brackets. Probabilities to participate in higher-level elections estimated from expression (1) with gender- and vote outcome-specific optimal bandwidths and triangular kernel weights. Observations are candidates who ran in the 2008 and 2014 municipal elections. The sample is restricted to the best two candidates of each election. *Mixed-gender* races are elections whose two best candidates are of different genders. *Men-only* races are elections who two best candidates are both males. P-values of differences across genders, vote outcomes, and groups calculated from $1,000$ permutations of gender, outcome, and group, respectively. A 2008 (2014) candidate is considered as participating in higher levels elections if she runs as head or member of a list in the 2010 (2015) regional elections, as candidate in the 2011 (2015) *départemental* elections, or as main or substitute candidate in the 2012 (2017) parliamentary elections.

E Comparison of the relative importance of channels in explaining the gender gap in office-holding

Let us consider a population of female and male candidates who run for office in pairs. Genders are denoted by $g = f, m$. Candidates can be either *new* or *experienced* depending on whether they are running for the first time. These types are denoted by N and E, respectively. Label shares of types of candidates in the population at time t as $s_f^N(t)$, $s_f^E(t)$, $s_m^N(t)$ and $s_m^E(t)$.

Denote by e_g^Y the exogenous campaigning effort of a candidate of gender $g = f, m$ and experience $Y = N, E$. Let us assume that experienced candidates benefit from an electoral advantage E and that female candidates suffer from a disadvantage F because of voters discrimination. The campaigning efforts of the different types of candidates are:

$$\begin{cases} e_f^N = 1 - F, \\ e_f^E = 1 - F + E, \end{cases} \text{ and } \begin{cases} e_m^N = 1, \\ e_m^E = 1 + E. \end{cases}$$

Let us model the victory probability of candidate i who is opposed to candidate j using a simple contest success function:

$$\mathbb{P}\left(e_i, e_j\right) = \frac{e_i}{e_i + e_j},$$

where $(i, j) \in \left\{\binom{f}{N}, \binom{f}{E}, \binom{m}{N}, \binom{m}{E}\right\}^2$.

After elections have taken place in t, the quantity of winners of type $\binom{g}{Y}$ is given by:

$$\mathbb{W}_g^Y(t) = s_g^Y(t)^2 + 2s_g^Y(t) \sum_{j \in \left\{\binom{f}{N}, \binom{f}{E}, \binom{m}{N}, \binom{m}{E}\right\} \setminus \binom{g}{Y}} s_j(t) \mathbb{P}\left(e_g^Y, j\right), \tag{E1}$$

and the quantity of losers of the same type is:

$$\mathbb{L}_g^Y(t) = 2s_g^Y(t) \sum_{j \in \left\{\binom{f}{N}, \binom{f}{E}, \binom{m}{N}, \binom{m}{E}\right\} \setminus \binom{g}{Y}} s_j(t) \left(1 - \mathbb{P}\left(e_g^Y, j\right)\right). \tag{E2}$$

These quantities enable us to express the share of women among elected candidates as:

$$S_f(t) = \frac{\mathbb{W}_f^N(t) + \mathbb{W}_f^E(t)}{1/2}. \tag{E3}$$

Let us further model candidate persistence in political competition with p_g^W and p_g^L being the probabilities that a candidate of gender g will re-contest the next election if she won or lost, respectively.[29] Using the above expressions, the quantity of t candidates of gender $g = f, m$ who will re-contest in $t+1$ and be considered experienced by this time is:

$$s_g^E(t+1) = p_g^W \mathbb{W}_g^Y(t) + p_g^L \mathbb{L}_g^Y(t), \tag{E4}$$

and, assuming that exiting candidates are randomly replaced by new candidates among whom the share of women is denoted by $\theta \lesseqgtr 0.5$ that captures whether women are less, equally, or more likely than men to enter political competition, the quantity of new female candidates running in the next elections is:

$$s_f^N(t+1) = \theta \left(1 - \sum_{g=f,m} (1 - p_g^W)\mathbb{W}_g^Y(t) + (1 - p_g^L)\mathbb{L}_g^Y(t)\right), \tag{E5}$$

while that of new male candidates is:

$$s_m^N(t+1) = (1-\theta) \left(1 - \sum_{g=f,m} (1 - p_g^W)\mathbb{W}_g^Y(t) + (1 - p_g^L)\mathbb{L}_g^Y(t)\right). \tag{E6}$$

Denote by $\mathbb{S}_t = \left(S_f(t), s_f^N(t), s_f^E(t), s_m^N(t), s_m^E(t)\right)$ the state vector that describes the outcome of elections and the composition of the pool of candidates at time t. $\mathbb{S}_{t+1}$ is linked to $\mathbb{S}_{t+1}$ via equations (E1)–(E6). It can be verified that the $\mathbb{S}_t$ series converges to $\mathbb{S}^*$, the stationary equilibrium value of the series.

While the model can *a priori* be solved analytically, the number of possible pairs of candidates makes the necessary expressions nearly intractable. We thus opt for a numerical solution approach. For each potential value of θ, we simulate the model over $1,000$ periods and store the average value of the share of women among office-holders in the last 90% of periods.[30]

[29] This simplified framework neglects the possibility of an incumbency (dis)advantage and, therefore, of a possible difference in this dimension between genders. However, if relevant in explaining the gender gap in office-holding, such a mechanism would mostly translate into cross-gender differences in persistence as discussed in the main text, which is explicitly modelled here.

[30] The number of replications ensures that numerical solutions converge to the solution that would be obtained after the model is solved analytically.

We set the model's parameters to different values that will help us to compare the mechanisms at play. To neutralize or activate voters' discrimination, we set F equal to zero or such that $\mathbb{P}([f,N] \text{ wins against} [m,N]) = 0.37$ (from Figure 6(a)). To disallow or allow for experienced candidates to be advantaged, we either set E to zero or, arbitrarily, such that $\mathbb{P}([m,E] \text{ wins against} [m,N]) = 0.60$. Finally, we assume equal persistence of female and male candidates by setting $p_f^L = p_m^L = 0.43$ and $p_f^W = p_m^W = 0.75$ (from Table 2) and introduce cross-gender differences in persistence by setting $p_m^L = 0.43$, $p_f^L = p_m^L - 0.07$, $p_m^W = 0.75$, and $p_f^W = p_m^W + 0.04$ (also from Table 2).

Figures E1(a) and (b) plot S^*, the value of women among office-holders, at different values of θ, the share of women among new candidates, in different scenarios. The grey dashed line describes the situation with a gender gap in persistence only. As shown by the location of the line with respect to the 45° line, the gender gap in persistence has hardly any effect per se, as it only slightly reduces the share of female candidates who participate in elections. It actually only reduces the share of women among office-holders because the parameters are set such that female winners' excess re-contesting does not fully compensate for the lower re-contesting likelihood of female losers. In contrast, voters discrimination substantially reduces office-holding by women as shown by the black dashed line. Combining both mechanisms moves the situation farther away from the 45° as illustrated by the solid black curve.

Finally, introducing an electoral advantage in favour of experienced candidates makes the situation, as depicted by the sold grey line, closer to gender parity because, among winners—who are more likely to re-contest than losers—women are marginally more likely to re-contest than men and are therefore more likely to benefit from this experience premium.[31]

The curves in Figure E1(a) allow us to compute the share of women among newly entering candidates that would be necessary to achieve gender parity among office-holders under the different scenarios. If voters discrimination against women is the only active mechanism, then women should represent 59% of new candidates. This necessary share is further increased

[31] Introducing only the experience premium has no impact on the share of women among office-holders because it has no gender-related effect in the absence of voters discrimination or a gender gap in persistence.

by 1% if the gender gap in persistence is at play. This discrepancy sharply underlines the relative importance of both channels in explaining the gender gap in office-holding.

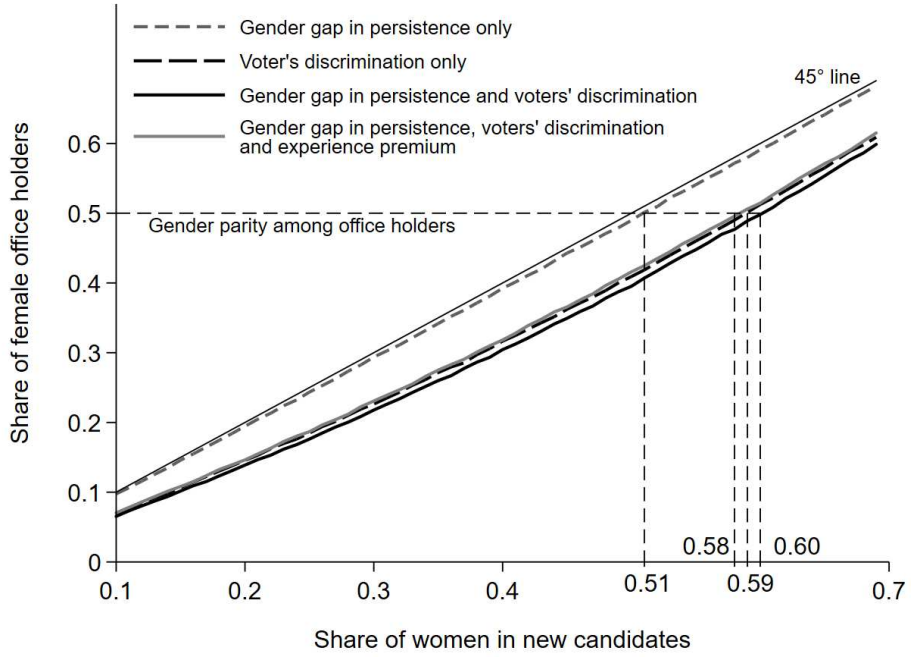
Alternatively, the share of women among office-holders for a given share of women among new candidates can also help to grasp the relative importance of the channels. As shown by Figure E1(b) for a gender-balanced set of new candidates ($\theta = 0.5$), this quantity amounts to 39.5% when both voters discrimination and the gender gap in persistence are at play, against 40.9% and 49.0% when only the former and the latter are active. This suggests that differences in persistence explain only 10% of the gender gap in office-holding (as measured with respect to the share of women among new candidates). [32]

Finally, the overall pattern of Figures E1(a) and (b) makes clear that none of the above-discussed mechanisms can account for the gender gap in office-holding as much as a simple shortage of female candidates. This suggests that the latter remains the main driver of women's under-representation in politics.

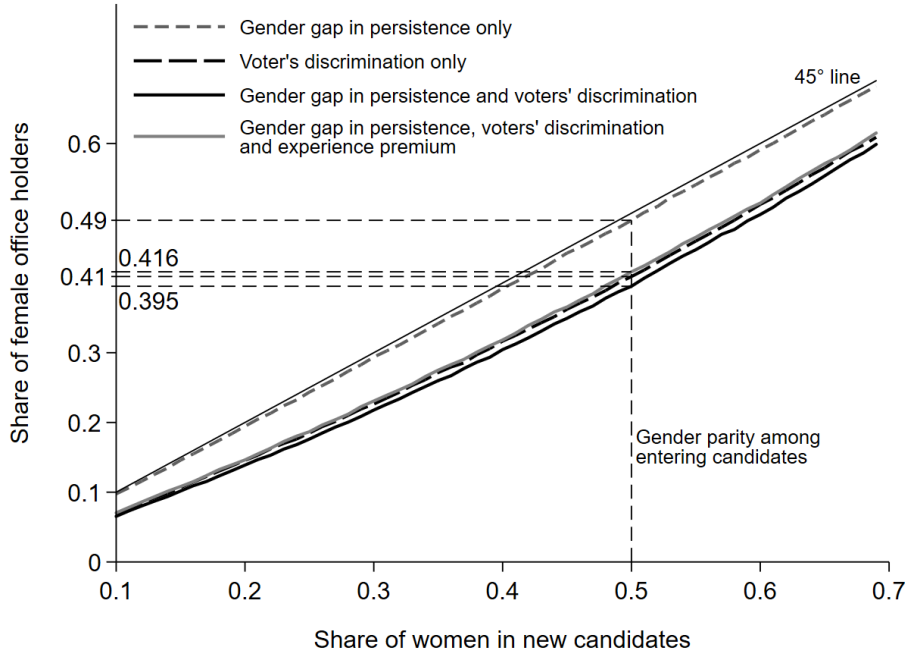
[32] The share that can be attributed to differences in persistence between genders is $\frac{50-49.0}{50-39.5} = 0.097$. The share that can be attributed to voters discrimination against women is $\frac{50-40.9}{50-39.5} = 0.867$. The share that can be attributed to the interaction of the two channels is $1 - 0.097 - 0.867 = 0.036$. Performing the same calculation at other values of θ leads to similar results.

Figure E1: Share of female office-holders under different scenarios.

(a) Showing women's share in new candidates necessary to achieve gender parity among office-holders.



(b) Showing women's share among office-holders implied by gender parity among new candidates.



The two sub-figures are identical. Only the vertical and horizontal lines used for interpretation change. See the text for more details.