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# Persistence of Incumbents and Female Access to Political Positions

Quentin Lippmann<sup>12</sup>

## Abstract

This article studies whether the incumbent advantage for reelection reduces female access to political positions. I use a regression discontinuity exploiting close electoral races in French municipalities to randomize the eligibility of incumbent mayors for reappointment. After a male incumbent, I show that incumbency largely reduces the stock of places where women have historically been appointed mayor by about 24%. After a female incumbent, I find that there are fewer women appointed mayor than after a male one. I investigate the mechanisms and argue that this effect is consistent with a backlash or stereotype threat effect penalizing women after a female incumbent.

**JEL codes:** D72, J16, J71

**Keywords:** gender, elections, incumbency

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# 1 Introduction

Women are underrepresented in politics. In 2020, only 26% of parliament seats around the world were held by women.<sup>3</sup> Increasing this figure is important both for symbolic reasons and because the presence of women in positions of power influences policy objectives. Research from various settings has shown that an increased share of female politicians can impact the allocation of public goods, educational and health outcomes in the population, the degree of corruption and lawmaking.<sup>4</sup>

What explains the under representation of women in politics? A large literature explores this question. On the demand side, women may be discriminated by voters or insiders. On the supply side, women may lack role models, have specific preferences or constraints that makes them less willing than men to run for political positions.

On top of these gender-specific factors, women may face institutional constraints that are independent of their gender. Incumbency is often cited as one of the main barriers. The argument is that the access of women to political positions may be limited when incumbents are predominantly men who run for reelection and enjoy an electoral advantage. Existing studies have provided support for this argument by establishing positive correlations between incumbents' turnover rate and the share of women in politics (Schwindt-Bayer 2005). On this basis, it has been suggested that introducing term limits could accelerate women's entry in politics. Yet, despite important implications, we know very little on the causal impact of incumbency and it remains unclear whether correlations are due to incumbency or the decreasing influence of alternative factors, such as discrimination, improving women's electoral prospects over time.

The main contribution of this article is to investigate the causal impact of incumbency on the election of women. I study this question in the context of small municipalities in France and the position of mayor. In this setting, the mayor is appointed by the municipal council from its members. Councillors are elected by voters using a full preferential voting system where votes are counted at the candidate level. Therefore, the cutoff rank to obtain the last seat of the

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<sup>3</sup> <http://data.worldbank.org/indicator/SG.GEN.PARL.ZS>

<sup>4</sup> For instance Chattopadhyay & Duflo (2004), Clots-Figueras (2012), Bhalotra & Clots-Figueras (2014), Brollo & Troiano (2016), Baskaran & Hessami (2019), Lippmann (2022). An exception to this is Ferreira & Gyourko (2014) which finds that the gender of U.S. mayor does not influence policies implemented. See Hessami & da Fonseca (2020) for a review.

council is plausibly unpredictable and there can be cases where the incumbent mayor seeking reelection is in a close race to obtain the last council seat. I use a regression discontinuity focusing on these close races. I compare the identity of the newly appointed mayor depending on whether the incumbent mayor was (barely) reelected in the council, and hence eligible to be appointed again.

Using data from the 2014 municipal elections, I first study whether the incumbent advantage hinders the appointment of female mayors in municipalities with a male incumbent. I show that incumbency reduces the stock of municipalities that have appointed a female mayor at least once by about 24%. This result has important implications as several papers have emphasized that it is when a position of power is occupied by a woman for the *first time* that this event has the largest impact on stereotypes (Beaman et al. 2009, Gilardi 2015).

Second, I analyze the effect of incumbency in municipalities with a female incumbent. I show that, when female incumbents are ineligible for reappointment, they are overwhelmingly replaced by men. In particular, the share of newly appointed female mayors is significantly lower after a female incumbent than after a male one. As a consequence of these different replacement rates, I estimate that if all the incumbents were ineligible for reelection, the overall share of female mayors would not increase.

Third, I study the mechanisms behind these findings. I find a large gender gap in the probability to be appointed mayor among experienced councillors only in municipalities with a female incumbent. After a male incumbent, experienced female councillors have the same probability to be appointed mayor than their male counterparts. But after a female incumbent, female councillors have a lower probability to be appointed mayor suggesting that potential female candidates suffer from a penalty undermining their chances to replace the incumbent.

As the empirical strategy does not provide exogenous variations determining the gender of the incumbent, but only whether the incumbent is eligible for reappointment, it is difficult to precisely pinpoint what lies behind this penalty. Yet, it remains possible to rule out several alternative mechanisms. I consider three alternative mechanisms and show that, if anything, women should have better chances to replace a female incumbent than a male one. First, I show that the results are not driven by a shortage of qualified women in places with a female incumbent mayor. On the opposite, it appears that women are more qualified in municipalities with a female incumbent mayor. Second, female mayors also do not seem to perform worse than their male counterparts when they manage the municipality. This rules out the possibility

that female incumbents are objectively less competent than their male counterparts. Finally, to alleviate concerns about the role of the gendered composition of the municipal council, I implement a systematic placebo exercise replicating the results with the sample of incumbent councillors. Their non-reelection does not trigger similar results comforting the idea that the results stem from incumbency at the position of mayor and cannot be explained by a variation of the share of women in the council.

These findings are consistent with the fact that, in a context with a low share of female mayors, women's failure to be reelected could be costly for new female candidates. This could be because of a backlash effect against women or a stereotype threat effect reducing women's willingness to replace a female incumbent.

These results make several contributions to the literature related to the determinants of the underrepresentation of women in politics. First, this paper adds to this literature by studying the causal effect of incumbency on the election of women. A vast literature has considered the influence of gender discrimination from voters or parties (Sanbonmatsu 2002, Kunovich & Paxton 2005, Fréchette et al. 2008, Beaman et al. 2009, Gagliarducci & Paserman 2012, Esteve-Volart & Bagues 2012, Casas-Arce & Saiz 2015, Eymeoud & Vertier 2018, Lassébie 2019, Le Barbanchon & Sauvagnat 2021, Lippmann 2021). Another strand of this literature has considered factors leading to a lower supply of female candidates such as lower ambition (Fox & Lawless 2004, Fox & Lawless 2014), aversion towards election (Kanthak & Woon 2015), lack of role models (Gilardi 2015, Bhalotra et al. 2017, Baskaran & Hessami 2018), lower likelihood to recontest due to family obligations (Baskaran & Hessami 2022), differences in persistence (Wasserman 2021) or lack of women in career stages that precede high-level positions (Brown et al. 2021). A smaller number of studies have shown positive correlations between incumbents' turnover rate and the underrepresentation of women (see for instance Andersen & Thorson 1984, Studlar & McAllister 1991, Darcy et al. 1994, Gaddie & Bullock 2000, Matland & Studlar 2004, Schwindt-Bayer 2005 and Labonne et al. 2021). The causality of this channel has, to my knowledge, not been investigated. Besides understanding the validity of this mechanism, this investigation has important policy implications embedded in the discussion on the relevance of term limits to increase the number of women in politics.

These findings also contribute to the literature on the incumbent advantage. Its size (Erikson 1971, Lee 2008, Butler 2009, Troustine 2011, Erikson & Titiunik 2015) and sources (Cox & Katz 1996, Levitt & Wolfram 1997, Hall & Snyder 2015, Eggers et al. 2015, Fowler et

al. 2016) have been extensively studied. I make two contributions to this literature. First, the setting allows to measure a different component of the incumbent advantage. In the seminal work of Lee (2008), the incumbent advantage designates the increased probability for a politician to be reelected relatively to the vote margin to be elected during the previous election. Here, it designates the increased probability for a politician to be appointed mayor relatively to the vote margin to be eligible for this position on the same election year. Second, this paper contributes to our understanding of the consequences of incumbency, which have received less attention empirically (an exception is Fournaies & Hall 2014 on campaign contributions). This paper shows that the persistence of incumbents has an impact on the identity of leaders.

This paper is organized as follows. Section 2 describes the institutional setting. Section 3 describes the data and the empirical strategy. Then, section 4 presents the results and the main mechanisms. Section 5 studies alternative mechanisms and provides robustness checks. Finally, Section 6 concludes.

## **2 Institutional Context**

The analysis focuses on the French municipal elections in towns below 1,000 inhabitants. There are about 26,000 municipalities below 1,000 inhabitants in France using a preferential voting election system. In the past two decades, women have been increasingly involved at this political level.

### **2.1 The French Municipalities**

#### **2.1.1 Demographics**

On January 1st 2020, with a population of about 67 million people living in 34,971 municipalities, France accounted for about 13% of the population of the European Union but

30% of the municipalities.<sup>5</sup> The distribution is very skewed as about 70% of the municipalities have less than 1,000 inhabitants and about 10 million people were living in such cities. There are thus 26,879 municipalities below 1,000 inhabitants.

The competencies of municipalities include the creation and financing of pre-elementary and elementary schooling, the creation and management of cultural organisms and sports equipment, the delivery of construction permits, the maintenance of public roads and water system, etc. Their resources come mainly from local taxes that are directly determined by the municipal council and direct transfers from the State.

### **2.1.2 Election System of Municipalities Below 1,000 Inhabitants**

This paper focuses on municipalities below 1,000 inhabitants in France. Municipal elections occur every 6 years in France. Voters choose the municipal council which appoints a mayor among its members. In these municipalities, the appointment of the mayor requires two steps.<sup>6</sup> The first step is the election of the municipal council by voters. Voters are given more than one vote and have to allocate them on different individual candidates. The second step is the appointment of the mayor by the municipal council which has to select one of them for the position.

**First Step - Election of the Municipal Council.** The election is individual and each candidate must obtain a sufficient number of votes to be on the council. Candidates can either run alone or put their name on the same ballot but voters can modify the ballot by erasing names and voting for alternative candidates. The number of candidates selected by a voter cannot exceed the total number of available seats in the council.<sup>7</sup> To be elected at the first round, a candidate has to obtain the absolute majority (and several can). If some seats remain

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<sup>5</sup> Source: Eurostat data. Data for the number of municipalities comes from the correspondence table at the Local Administrative Unit 2. Data for the population comes from the population accounts on 1st January of 2020.

<sup>6</sup> In municipalities above 1,000 inhabitants, the election system is a closed-list system where votes are given for only one list. As such, in this system, it is not possible to observe the individual popularity of candidates which is needed for the current analysis and the newly appointed mayor is almost always the individual on the first position of the winning list. Furthermore, in these municipalities, a gender quota was introduced in 2001 (See Lippmann 2018).

<sup>7</sup> The size of the municipal council increases with the population of the town at two different thresholds: 100 (from 7 to 11 councillors) and 500 (from 11 to 15 councillors).

vacant, a second round is organized and relative majority is sufficient to win. This procedure is called *Panachage*. Additionally, given the small size of these municipalities, traditional parties are completely absent from these elections.

**Second Step - Appointment of the Mayor.** The mayor is appointed by the municipal council from its members. To be elected, the mayor has to obtain the absolute majority among the municipal council and if none is reached after two rounds, relative majority is sufficient. Councillors are free to vote for their favorite candidate and the vote is done with secret ballot.

**An Example.** Suppose there are 20 candidates for the municipal council in a municipality of 700 inhabitants. The first step is the election of 15 individuals by voters among the pool of 20 candidates. They constitute the municipal council. The second step is the appointment of the mayor. The 15 members of the municipal council have to appoint one of them to the position of mayor. Only them are eligible and able to vote.

**Comparison with other countries.** The electoral system for the mayor described above is similar to an open list system applied for example in small municipalities in Germany. In other countries, the mayor can be elected directly by the voters, as in large cities in the US or some states in India.<sup>8</sup> It is also common to have closed list systems where votes are counted at the list level, as in Spain, and not at the individual level as here.

## 2.2 A Rising Share of Female Politicians

The persistence of incumbents at positions of power should reduce the share of female politicians in a situation increasingly favorable to the election of women. This is simply because the pool of potential female leaders would be higher than the effective number of female leaders. In the French municipalities, although men remain largely overrepresented at the position of mayor, the share of female mayors has been steadily increasing during the past 25 years. Figure I describes this evolution from 1989 until 2014. In 1989, only 5% of mayors were women. Since that date, the share of female mayors has increased by about 3 percentage points at each election to reach 18% in 2014. Consistently, the share of female councillors has also been rising. Between 2008 and 2014, it increased by more than 10%, from 30% to 34% of all the councillors.

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<sup>8</sup> Mayors elected directly by voters have generally stronger electoral incentives than appointed ones (Hessami 2018).



## 3 Empirical Setting

### 3.1 Data

The main data source comes from the 2014 municipal elections results. This dataset provides the name and vote share of each candidate for the municipal council. I focus on the 2014 elections because starting from this election, it became mandatory to be registered to run for a position of councillor. Therefore, I can observe the vote share of each candidate in 2014, whether they were elected or not. For the 2008 election results, only the vote shares of elected officials are observable.<sup>9</sup>

To identify the identity of the incumbent and of the newly appointed mayor, I use an administrative dataset produced by the French Ministry of Interior: the *Répertoire National des Elus*. It provides information on mayors from 2001 onwards and information on other members of the municipal council only since the 2008 elections. These information include the name, sex, age, profession, position held in the municipal council and the date at which the individual was elected and at which the term stopped.

### 3.2 Methods: Regression Discontinuity Design

The objective of this work is to measure whether the incumbent advantage of mayors reduces the access of women to the position of mayor. To measure this phenomenon, I use a regression discontinuity that exploits whether the incumbent mayor is eligible to be appointed mayor again.

To be eligible for reappointment as mayor, an incumbent must first be a member of the municipal council. There are cases where an incumbent is narrowly reelected to the municipal

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<sup>9</sup> The 2020 elections are not exploited in this paper because they are difficult to compare to the 2014 elections as the first round occurred at the start of the Covid-19 pandemic on March 15th 2020 (two days before the first lockdown) and the second round was delayed by three months and happened on June 28th. The turnout was therefore exceptionally low at about 44.6% (against 80% in 2014). Furthermore, as shown by Baskaran et al. (2022), voters may prefer new candidates when they vote during a pandemic, leading incumbents to be less likely to be re-elected during a pandemic.

council and thus eligible to be appointed mayor again. There are other cases where an incumbent is not reelected to the municipal council and therefore ineligible to be nominated as mayor. The regression discontinuity compares these two sets of cases and studies the identity of the newly appointed mayor depending on whether the incumbent mayor was (barely) reelected in the municipal council. This strategy provides exogenous variations determining whether the incumbent is eligible for reappointment.

Therefore, the running variable is the vote margin relative to the cutoff to be a member of the municipal council. This cutoff is plausibly unpredictable given the full preferential voting system. For an incumbent mayor reelected to the council, this running variable is positive and equal to his/her vote share minus the vote share of the first non-elected candidate. For a non-reelected incumbent, this running variable is negative and equal to his/her vote share minus the vote share of the last elected council member.<sup>10</sup> Formally, I estimate the following equation:

$$FemaleMayor_i = \alpha + \beta IncumbentNotEligible_i + \gamma X_i + \delta IncumbentNotEligible_i * X_i + \varepsilon_i \quad (1)$$

Where  $i$  is the subscript for the municipality (since there is only one incumbent mayor per municipality).  $X_i$  is the running variable, i.e. the vote margin of the incumbent mayor of municipality  $i$ .  $IncumbentNotEligible_i$  is a dummy that equals 1 if  $X_i < 0$ , i.e. if the incumbent is not reelected to the municipal council and therefore not eligible to be appointed mayor. The key variable is  $IncumbentNotEligible_i$  and  $\beta$  identifies the impact of incumbency at the position of mayor. This equation is estimated on a narrow margin around the elimination threshold following the approach of Calonico et al. (2014).<sup>11</sup>

Importantly, the empirical strategy does not provide exogenous variations determining the gender of the incumbent, but only whether the incumbent is eligible for reappointment. Yet,

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<sup>10</sup> For example, if, the last elected council member obtains 55% of the votes, the first not elected 48% and the incumbent 60%. Then, the running variable would be equal to 12 percentage points (60 - 48).

<sup>11</sup> To probe the robustness of the results, I also estimate the equation using the IK bandwidth (Imbens & Kalyanaraman 2012) which is often larger than the reference bandwidth. The bandwidths were selected with the Stata packages *rdrobust* and *rdob*. In both specifications, observations are weighted with a rectangular kernel (following Imbens & Lemieux 2008). I also run an additional specification on the entire sample which fits a second order polynomial in the running variable  $X_i$ .

we expect incumbency to have a different effect depending on the gender of the incumbent. Incumbency may block women from being appointed mayor in municipalities with a male incumbent. In those with a female incumbent, incumbency may help appointing a female mayor. Therefore, most of the subsequent analyses consider separately cases with a male and a female incumbent. Section 5 studies whether these two sets of municipalities differ significantly besides the identity of the incumbent.

Table I provides descriptive statistics on the sample used for the analysis. Panel A refers to individual level characteristics related to the incumbent mayor and panel B to municipality characteristics. There are 5,774 incumbent mayors in the sample, 16% of them are women and they are about 55 years old. The share of female mayors has been increasing by about 3 percentage points at each election since 1989 from 5% to 16% in 2008. Additionally, about 34% of council members are women. These figures are close to those observed at the level of the European Union where, in 2022, about respectively 18% of mayors and 35% of council members were women.<sup>12</sup> Additionally, in Section A.2, I provide further evidence on the external validity of the findings. I show that municipalities in close races do differ from those in safe races on budget and demographics indicators but not particularly regarding women's involvement in politics.

### 3.3 Internal Validity Tests

The validity of the empirical strategy relies on the randomization of the treatment over a narrow margin. In this section, I provide evidence on this matter by establishing that the vote margin is not manipulated and that potential confounders behave continuously at the threshold.

First, in Figure II, I provide evidence on the absence of manipulation of the running variable around the elimination threshold. Visually, there is no evidence of a discontinuity in the density of the incumbent vote margin relative to the elimination threshold. The McCrary test (McCrary 2008) does not reject the null hypothesis of no manipulation.<sup>13</sup> This was expectable as manipulation would require to either commit electoral frauds which are extremely rare in France or predict the election results with extreme accuracy which is unlikely

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<sup>12</sup> [https://eige.europa.eu/gender-statistics/dgs/indicator/wmidm\\_pol\\_parl\\_\\_wmid\\_locpol/datatable](https://eige.europa.eu/gender-statistics/dgs/indicator/wmidm_pol_parl__wmid_locpol/datatable)

<sup>13</sup> I also ran an additional manipulation test based on Cattaneo et al. (2018) which confirmed that the drop is not significant (p-value = 0.79)

because in these municipalities, there are no polls and because unpredictable events (such as weather condition) on the election day could still happen and change the results.

Second, I test the continuity assumption for each potential confounder. To do so, I run Equation 1 using as an outcome variable a set of covariates. If the setting is valid, there should not be any discontinuity in these covariates and the coefficient  $\beta$  related to the treatment effect, i.e. *IncumbentNotEligible<sub>i</sub>* should not be significant. Three sets of covariates are considered: one representing preferences for women in politics (a dummy representing whether the incumbent mayor is a woman, the share of women in the council as well as the total vote share for women in 2014 and their variation between 2008 and 2014), one representing election characteristics (the number of registered voters, the abstention rate, total number of candidates, the share of female candidates) and a last one representing municipal council characteristics (size of the council, incumbent's mayor age and the number of terms served). As shown in Table II, the continuity assumption seems verified as there is no significant jump at the cutoff for each of these covariates (the relevant graph for each of the covariates can be found in Figure A2). Consequently, there is no evidence that the results are driven by any other characteristic than the treatment considered.

Additionally, since the analysis focuses on the heterogeneity between municipalities with female and male incumbents, it is important to test whether the continuity assumption holds in the sub-samples (as suggested by Becker et al. 2013). Tables A1 and A2 show that in both municipalities with a female and a male incumbent, covariates are continuous at the threshold. Furthermore, in Table II, we observe that the gender of the incumbent does not jump discontinuously at the threshold. This suggests that assumptions required to perform the heterogeneity analysis hold.

## 4 Results

This section first establishes the contribution of incumbency to the inertia at the position of mayor. Then, I measure whether the persistence of incumbents reduces female access to the position of mayor.

### 4.1 Advantage of Incumbent Mayors

For incumbents to impede the election of women, they must enjoy an advantage for reappointment. This section establishes the existence of this advantage which designates the probability that an incumbent is reappointed mayor when eligible for this position.<sup>14</sup> To measure the advantage of incumbents, I estimate Equation 1 using as an outcome variable a dummy that equals 1 if an incumbent mayor is reappointed mayor depending on his/her eligibility for the position.

Figure III plots the share of incumbents who are reappointed mayor depending on their vote margin relative to the elimination threshold. On the left side of the vertical dashed line, the incumbent is not reelected in the municipal council and consequently cannot be appointed as mayor again. On the contrary, on the right side, the incumbent is reelected in the council and, as we can see, the incumbent's probability to be reappointed mayor jumps starkly by about 50-60 percentage points. The size of this jump is all the more impressive given that when incumbent mayors are closely reelected in the municipal council, they are ranked among the council's least popular members and yet, by far, the ones with the highest chances to be appointed mayor.

Table III confirms the visual impression of an impressive 50 percentage points jump in the probability to be appointed mayor. The coefficient related to *IncumbentNotEligible<sub>i</sub>*, which measures the discontinuity, is significant at the 1% level and ranges from 42 (column 2 with the local linear specification and half the CCT bandwidth) to 76 percentage points (column 4 with the polynomial specification) depending on the specification.

Importantly, the incumbent advantage appears to be similar for male and female incumbents. In Figure A5 and Table A4, I test for the equality of the discontinuity between male and female incumbent mayors using the usual specifications. I find no statistical difference between the incumbent effect of male and female incumbent mayors.

## 4.2 Effect of Incumbency After a Male Incumbent

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<sup>14</sup> Note that it differs from the usual incumbent advantage measured in Lee (2008) where the vote margin is measured in T and determines whether a politician becomes an incumbent (the outcome is measured in T+1 and determines whether the incumbent is reelected). Here, both the vote margin and the outcome are measured in T. The vote margin determines whether the incumbent is eligible for reappointment, and the outcome measures whether the incumbent is reappointed.

In a context where incumbents are predominantly men, their persistence is assumed to block female access to political positions. I first test this possibility by focusing on municipalities with a male incumbent. The outcome is a dummy that equals 1 if a municipality appoints a female mayor for the first time since 1989.<sup>15</sup> This outcome is interesting as several papers have emphasized that it is the *first time* a position of power is occupied by women that this event has the largest impact on negative stereotypes (Beaman et al. 2009, Bhavnani 2009, De Paola et al. 2010) and the largest chances to create role models (Campbell & Wolbrecht 2006, Wolbrecht & Campbell 2007, Gilardi 2015).

Figure IV displays the discontinuity graph. Visually, we see that the share of municipalities that have ever appointed a female mayor in their history jumps starkly when the male incumbent mayor is not eligible. Table VII confirms this visual impression. Looking at column 1, when an incumbent is not eligible for reelection, the probability that the municipality appoints a female mayor for the first time of its history increases by about 7 percentage points. Given that in the control group, only 30% of municipalities have ever appointed a female mayor, the 7 p.p. jump corresponds to a 24% increase in the stock of municipalities. Again, the effect is consistent across specifications (columns 2 and 3) and significant at the 5 or 1% level (10% with half the CCT bandwidth).

### **4.3 Is There a Lower Share of Female Mayors after a Female Incumbent ?**

I now compare the impact of incumbency depending on the gender of the incumbent mayor. Figure V displays the two discontinuity graphs. Looking at municipalities with a male incumbent mayor (graph a), we observe that when the mayor is not eligible for reappointment, the probability that a woman becomes mayor jumps by more than 10 p.p. and is about 23%.<sup>16</sup> However, in municipalities with a female incumbent mayor (graph b), when the mayor is not eligible for reelection, the probability that a woman is appointed mayor drops sharply and falls

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<sup>15</sup> As the administrative dataset starts in 2001, I collected data on the identity of the mayor during the 1989-1995 and 1995-2001 terms. I then build a dummy that equals 1 if the municipality appoints a female mayor for the first time since 1989. Before that date, less than 5% of municipalities had appointed a woman as mayor.

<sup>16</sup> This jump is larger than the one of the previous section because the sample also includes municipalities that had appointed a female mayor in the past.

below 20%. Table V confirms the existence of these two effects. Columns 1 and 2 are respectively restricted to municipalities with male and female incumbents. Looking at column 1, we see that when male incumbents are not eligible to their succession, the probability that a woman is appointed mayor increases by about 16 percentage points. In column 2, we see that when female incumbents are not eligible to their succession, they are overwhelmingly replaced by male politicians. The probability that a woman becomes mayor sharply drops by about 62 percentage points. Columns 3 to 5 confirm the existence of these effects using three different specifications including interaction terms.

Visually, the share of newly elected female mayors seems to be lower after a female incumbent than a male one (see Figure V). To statistically test this hypothesis, I restrict the sample to municipalities where the mayor is ineligible and estimate the probability that a woman is appointed mayor depending on the gender of the incumbent .

The results are displayed in Table VI. Column 1 displays the results using the entire sample of ineligible incumbent mayors. We see that after a female incumbent, the probability to appoint a female mayor is reduced by about 10 percentage points, out of a baseline of 23%. This effect persists when we restrict the sample to municipalities where the incumbent fails by a narrow margin (column 2) and when we include control variables likely to represent the demand and supply for female politicians such as the share of women in the council and the total female vote share.

### **4.3 Net Effect of Incumbency on the Appointment of Female Mayors ?**

After a male incumbent, the probability to appoint a female mayor for the first time increases by about 24% while female incumbents are overwhelmingly replaced by male mayors when ineligible. What is the net effect on the appointment of female mayors? To answer this question, I use a dummy that equals 1 if the newly appointed mayor is a woman. The results are displayed in Table VII. From column 1 to 4, the coefficients related to *IncumbentNotEligible<sub>i</sub>* are not significant and close to zero.<sup>17</sup> This suggests that if all the incumbents were ineligible to be reappointed, the overall share of female mayors would remain about the same. We would only observe displacement effects, where a substantial share of municipalities headed by a man

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<sup>17</sup> The discontinuity graph is displayed in Figure A6.

would appoint a female mayor for the first time and where most municipalities that were headed by a woman would witness the appointment of a male mayor.

## 5 Mechanisms

Why are female incumbents overwhelmingly replaced by male mayors? This effect could be due to a penalty affecting potential female candidates after the loss of a female incumbent. This section tests this mechanism and alternative channels.

### 5.1 Are Women Penalized After a Female Incumbent ?

To investigate the possibility that women suffer from a penalty after a female incumbent, I switch the level of analysis to the individual level within council. It allows to identify the size of the penalty and the categories of women who experience a penalty after a female incumbent. To do so, I estimate the following Equation:

$$Mayor_i = \alpha + \delta Woman_i + \delta FemaleIncumbent_c + \gamma FemaleIncumbent_c * Woman_i + f(X_c) + \varepsilon_{ic} \quad (2)$$

Where  $i$  is the indicator for the individual and  $c$  for the city.  $f(X_c)$  is a first degree polynomial controlling for the distance to the elimination threshold.  $FemaleIncumbent_c$  is a dummy that equals 1 when the incumbent mayor is a woman.  $Woman_i$  is a dummy that equals 1 if the councillor is a woman.  $Mayor_i$  is the outcome variable. It is a dummy that equals 1 if the councillor is appointed mayor.

This equation is estimated on the sample of incumbents who fail to be reelected by a narrow margin.<sup>18</sup> If women suffer from a penalty after a female incumbent, we expect  $\gamma$  to be negative and  $\delta$  to be positive indicating that the gender gap is larger in municipalities with a

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<sup>18</sup> The results are displayed using the bandwidth selected to determine the average impact of incumbency on the share of female mayors. I use only the bandwidth on the left-side of the elimination threshold. In the Appendix, Section B.3, I show that the findings are robust to a wide range of bandwidths closer to the threshold.



female incumbent. Moreover, because the newly appointed mayor is often chosen among experienced councillors, I distinguish between councillors who served in the council during the previous term and those that are newly elected.

Table VIII displays the results. Estimates in column 1 are based on the entire sample of councillors while those of columns 2 and 3 are respectively restricted to inexperienced and experienced councillors. Looking at column 1, we see that the coefficient related to  $Woman_i$  is negative and significant at the 1% level indicating that after a male incumbent, the probability that a woman is appointed mayor is 5 p.p. lower than the one of male councillors. The next two rows inform us on the differences between municipalities with a male and female incumbent. We see that the coefficient related to  $FemaleIncumbent_c$  is positive and the one related to  $FemaleIncumbent_c * Woman_i$  is negative and significant at the 1% level. This shows that the gender gap in the probability to be appointed mayor is larger in municipalities with a female incumbent and at the disadvantage of women.

In columns 2 and 3, we can observe the heterogeneity depending on the experience of councillors. In column 2, we see that, for inexperienced councillors, the gender gap is not different in municipalities with a male and female incumbent. Women are less likely to be appointed mayor but the effect is similar in both places. While in column 3, we observe a large gender gap among experienced councillors only in cities with a female incumbent mayor. This implies that the results observed on the entire sample of councillors are driven by the inability of experienced female councillors to be appointed mayor.

These results suggest two different patterns depending on the gender of the incumbent. First, in municipalities headed by a man, the impact of incumbency on the access of women to the position of mayor seems to depend almost entirely on the pool of experienced female councillors. Since their probability to be appointed mayor is the same as the one of male councillors, we can expect that if female councillors were as numerous as their male colleagues, there would be as many female mayor than male mayors after a male incumbent mayor.

Second, in municipalities headed by a woman, there exists a larger gender gap in the propensity to replace the female incumbent and it is more difficult for women to replace a female incumbent than it is for a man. This effect is concentrated on the pool of experienced councillors. It is consistent with a signal effect where, in a context of low female political representation, the errors of past female politicians would be costly for future female leaders.

This effect could come from insiders who discriminate against new women and vote less for them (backlash effect) or alternatively from a stereotype threat leading experienced female councillors to be reluctant at replacing the female incumbent due to her failure to be reelected.

## 5.2 Alternative Mechanisms

As the gender of the incumbent is not randomized, other mechanisms could be at play. This section tests their relevance.

### 5.2.1 Gender Gap in Candidates' Quality ?

It is possible that the larger gender gap to access the position of mayor in places where the incumbent is a woman comes from a larger gender gap in terms of quality of candidates. In particular, female councillors could be of lower quality in municipalities with a female incumbent. This could explain the different gender gaps.

To investigate this channel, I take advantage of all the data available on councillors, namely their age, profession (9 categories) and electoral outcome (measured by the rank at election in 2014 and the election round in 2014). Based on these information, I predict the probability to be appointed mayor. I then estimate Equation 2 using this predicted probability as dependent variable. If differences in terms of observable characteristics mattered, we should observe a similar gender gap in the probability to become mayor in female-headed cities and nothing in male-headed cities.

The results are displayed in Table IX. Looking at the first row of column 1, we see that in municipalities with a male incumbent, female councillors are of lower quality than men. However, this gender gap in quality is *lower* in municipalities with a female incumbent, suggesting that women should access more often to the position of mayor. Indeed, the coefficient related to  $FemaleIncumbent_c * Woman_i$  is positive and significant at the 5% level. In column 2, we see that the greater quality of female councillors is concentrated on the sample of inexperienced councillors. Finally, in column 3, looking at the sample of experienced councillors, we do not observe a gender gap in quality, neither in municipalities with a male incumbent, nor in those with a female incumbent mayor.

These findings suggest that (i) inexperienced women should access more often to the position of mayor in municipalities with a female incumbent mayor and (ii) experienced female councillors should access to the position of mayor as often as their male counterparts in both types of cities. Therefore, differences in observable characteristics cannot explain the gender gap in the probability to be appointed mayor after a female incumbent. On the contrary, they suggest that the gender gap should be lower.

### **5.2.2 Gender Gap in Incumbents' Performance?**

One alternative explanation would be that incumbent female mayors are less successful than their male counterparts in running the municipality. If this was true, it could cast doubts on the competencies of female candidates to the position of mayor and impede them from replacing the incumbent mayor. Measuring the performance of an individual running a municipality is an empirical challenge as it is obviously difficult to develop indicators encompassing all the dimensions of performance and because these dimensions may vary for each individual. For this reason, I follow the existing literature and focus on budget variables (Gagliarducci & Nannicini 2013) and the population growth rate that has been identified as a predictor of economic growth rate (Glaeser et al. 1995).

Budget variables come from an administrative dataset that includes fiscal and accounting characteristics of French municipalities from 2000 until 2015. I select three budget indicators per capita: total expenditure, total revenues and deficit. These variables are averaged over the term from 2009 until the end of 2013 (hence excluding election years). The population growth rate is measured with the official population figures of municipalities from 2009 until the end of 2013. Using these variables as outcomes, I estimate whether they differ significantly depending on the gender of the incumbent.

Table A5 displays the results. The estimates suggest that none of these indicators differ depending on the gender of the incumbent. With the data at hand, there is thus little evidence that female incumbent are less successful in running the municipality than their male counterparts and therefore.

### **5.2.3 Gendered Composition of the Council**

Finally, I implement a placebo test to tackle the potential role of the gendered composition of the municipal council. When an incumbent mayor becomes ineligible for reelection, the gendered composition of the council may change and alters the probability to appoint a mayor of either sex. This could be true if individuals of the same gender tended to vote for each other.

To alleviate this concern, I replicate the main results using the sample of incumbent councillors. For instance, if we observed that female (male) mayors were less likely to be appointed when a female (male) incumbent councillor was not eligible, this would suggest that the gendered composition of the council matters. This exercise also serves as a placebo test to confirm that the results are driven by incumbency at the position of mayor and not simply at the position of councillor.

The results are displayed in Section B.5. There is no evidence of a jump in the probability to appoint a woman when an incumbent councillor, man or woman, is not eligible for the position of mayor (Tables A7 and A8). This suggests that the results are driven by the ineligibility of the incumbent mayor and not by the mere loss of an experienced man/woman from the municipal council or by incumbency at any position within the council.

## **6 Conclusion**

This article studies the impact of incumbency on the appointment of female mayors. I use a regression discontinuity exploiting close electoral races in France to randomize the eligibility of incumbents for being appointed mayor again. After a male incumbent, I show that incumbency largely reduces the stock of places which have appointed a female mayor at least once by about 24%. After a female incumbent, I find that there are fewer women appointed mayor than after a male one.

Investigating the mechanisms, I find a large gender gap in the probability to be appointed mayor among experienced councillors only in municipalities with a female incumbent. This is consistent with the existence of a penalty affecting potential female candidates. I study alternative mechanisms and show that this penalty is not due to differences in competencies, in incumbents' performance or the gendered composition of the council. While the results are obtained in the context of small municipalities in France, this setting is interesting because there are no gender quotas, little media coverage and parties are completely absent. It is therefore likely that there are less incentives than at the national level to increase the number of

women elected and this allows to identify the effect of the persistence of incumbents. In other elections, this effect may depend on the level of incentives to increase the number of women in politics. When these incentives are strong, in the presence of gender quotas for example, the departure of an incumbent could lead to more women being elected. If they are weak, the departure of an incumbent may have little effect on the election of women because it does not guarantee that women would run for the available position.

From a public policy perspective, it would therefore be interesting to combine policies that increase incentives to elect women with others that could accelerate the turnover of incumbents. Combining gender quotas with term limits could serve this purpose. Gender quotas can guarantee that there will be female candidates but may have their effectiveness undermined by the persistence of incumbents in winnable positions. Term limits have the advantage to make positions of power available but are not necessarily accompanied with a higher number of female candidates for these positions. Therefore, the two policies could be complementary to increase the number of women elected in politics.

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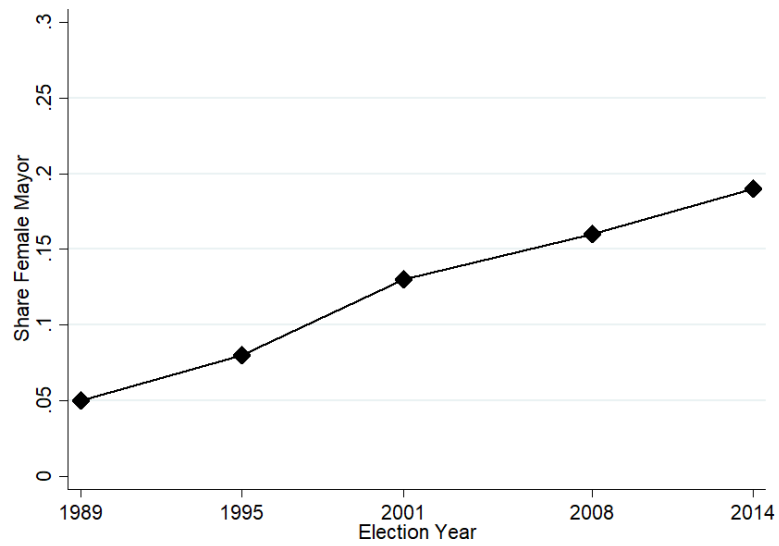
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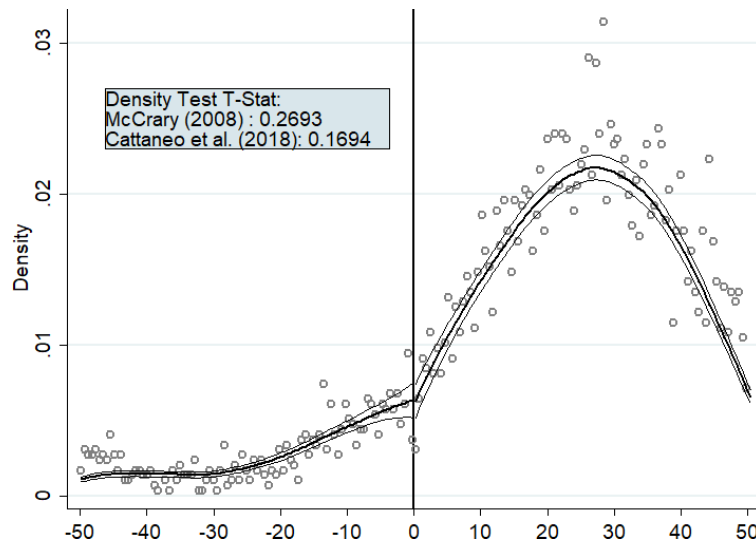
## Figures

Figure I: Evolution of the Share of Female Mayors from 1989 to 2014



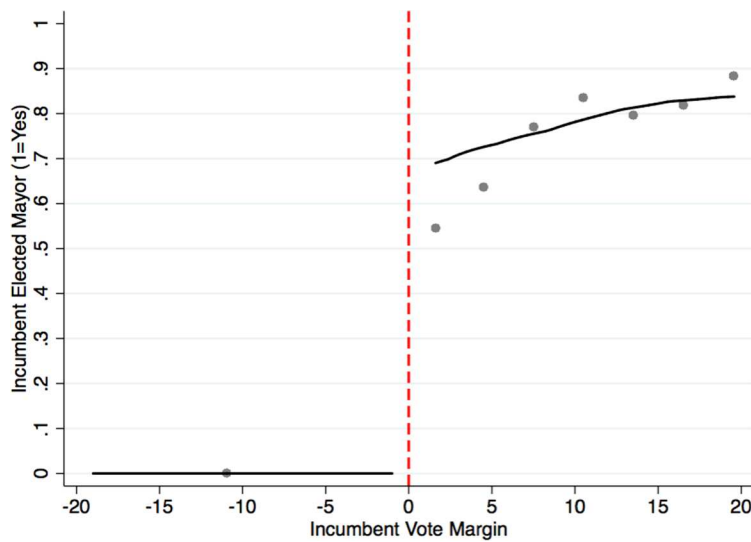
*Notes:* the figure displays the evolution of the share of female mayors for each municipal election. The data come from the 1989, 1995, 2001, 2008 and 2014 French municipal elections results in municipalities below 1,000 inhabitants.

Figure II: Validity Test - McCrary Manipulation Test



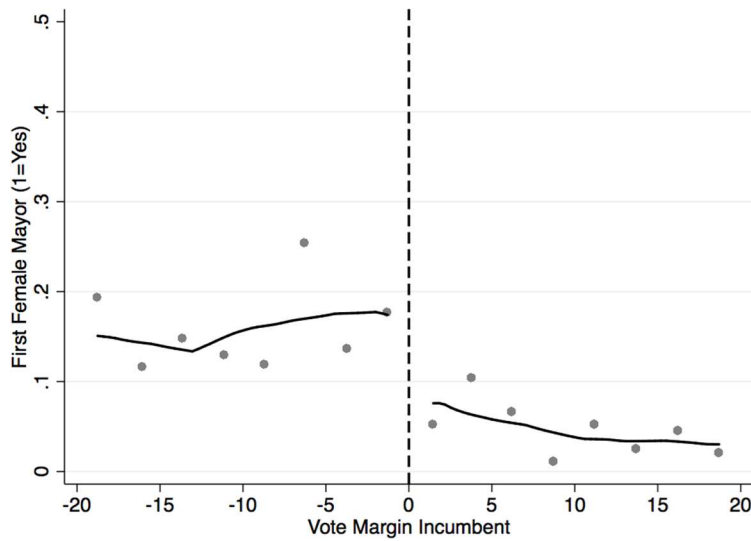
Notes: This figure shows that incumbents are not more or less likely to be closely reelected to the municipal council. It displays a plot to test whether there is a discontinuity in the margin of reelection at zero. The data come from the 2014 French municipal elections. The bin-size and bandwidth are of 0.68 and 16.203.

Figure III: The Advantage of Incumbent Mayors



Notes: This figure shows a RDD plot to analyze whether incumbent mayors have an advantage for being appointed mayor again depending on their narrow reelection in the municipal council. The data come from the 2014 French municipal elections. The y-axis represents the share of incumbents appointed mayor again. The x-axis represents the incumbent vote margin relative to the elimination threshold. On the right, the incumbent is reelected in the municipal council and eligible to be appointed mayor again. The solid line represents a lowess fit of the bin-averages.

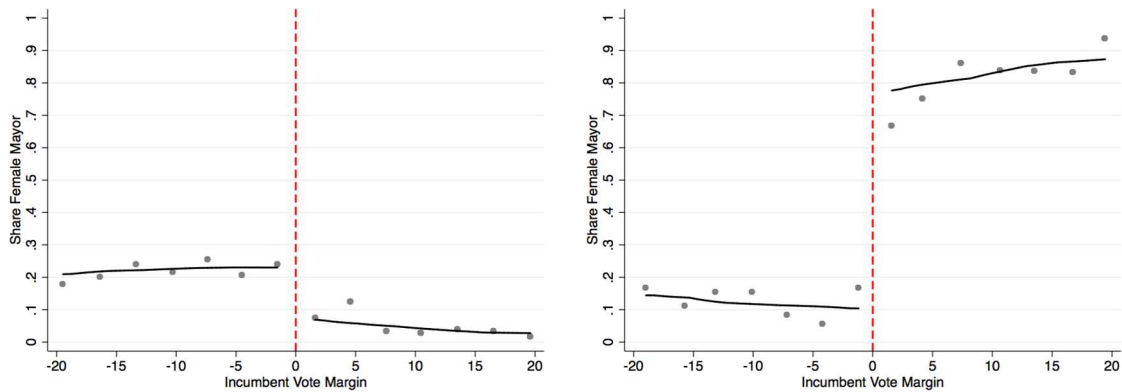
Figure IV: Consequences of Incumbency on the Stock of Places that Have Appointed a Female Mayor at least Once



Notes: this figure shows a RDD plot to analyze whether the eligibility of male incumbent mayors for reappointment reduces the number of places that have appointed a woman at least once. The data come from the 2014 French municipal elections. The y-axis represents the share of municipalities that elect a woman as mayor for the first time. The x-axis represents the incumbent vote margin relative to the elimination threshold. The solid line represents a loess fit of the bin-averages.

Figure V: Effect of Incumbency Depending on the Gender of the Incumbent

(a) Male Incumbents, outcome: Female Mayor (b) Female Incumbents, outcome: Female Mayor



Notes: this figure shows a RDD plot to analyze the probability for a woman to be appointed mayor depending on the gender and the eligibility of the incumbent mayor. The data come from the 2014 French municipal elections. The y-axis represents the share of female mayors. The x-axis represents the incumbent vote margin relative to the elimination threshold. The left-graph (a) is restricted to municipalities with male incumbent mayors and the graph on the right (b) to those with female incumbent mayors.

## Tables

Table I: Descriptive Statistics

	Mean (1)	S.D. (2)	Min (3)	Max (4)
<i>Panel A: Incumbent Mayor Level</i>				
Female (1=Yes)	0.16	0.36	0	1
Age	55.46	8.62	23	88
Rank Election 14	6.63	4.81	1	30
Vote Margin	24.81	26.71	- 100	100
Observations	5774			
<i>Panel B: Municipality Level</i>				
Female Mayor 89	0.05	0.22	0	1
Female Mayor 95	0.08	0.27	0	1
Female Mayor 01	0.13	0.33	0	1
Female Mayor 08	0.16	0.36	0	1
Share Female Councillors	0.34	0.12	0	0.82
Female Vote Share	0.31	0.13	0	0.8
$\Delta$ Female Vote Share (2014 - 2008)	0.03	0.09	-0.54	0.59
$\Delta$ Share Female Council (2014 - 2008)	0.04	0.12	-0.52	0.6
N Registered Voters	298.57	189.40	12	932
Abstention Rate	0.20	0.08	0	0.67
N Candidates Municipality	17.73	6.68	1	50
N Elected Municipality	11.70	2.42	7	15
Observations	5774			

*Notes:* the data come from the 2014 French municipal elections. Panel A refers to descriptive statistics on incumbent mayors and Panel B to municipalities. Columns 1 and 2 respectively display the mean and the standard deviation of each variable, columns 3 and 4 respectively display the minimum and maximum value for each variable.

Table II: Validity Test - Continuity Assumption

	<i>Local Linear Regression</i>		
	Discontinuity Estimate	Bandwidth Restriction	N Obs
	(1)	(2)	(3)
FemaleIncumbentMayor	-.058 (.045)	16.96	1477
ShareFemaleCouncil14	.007 (.015)	17.46	1526
FemaleVoteShare14	.016 (.015)	18.73	1652
VariationFemaleVoteShare	.007 (.013)	15.85	1350
VariationShareFemaleCouncil	.011 (.016)	16.1	1384
NTotalCandidates	.236 (.796)	18.42	1629
ShareFemaleCandidates	-.01 (.011)	18.93	1672
NRegisteredVoters	6.706 (20.503)	20.88	1898
AbstentionRate	.006 (.01)	14.29	1204
SizeCouncil	.337 (.294)	15.65	1339
IncumbentAge	-.257 (1.092)	14.67	1234
NTerm	.02 (.09)	18.52	1639

*Notes:* this table shows that potential confounders are continuous at the discontinuity threshold. the data come from the 2014 French municipal elections. Standard errors clustered at the municipality level are given in parentheses. Each line corresponds to one dependent variable. Column 1 displays the discontinuity estimate, column 2 the bandwidth restriction and column 3 the number of observations. Column 1 to 3 correspond to a local linear regression around the cutoff that allows for a break in the slope at the cutoff. The bandwidth is computed following the CCT approach.

Table III: Incumbent Advantage for Appointment at the Position of Mayor

<i>Dep. Variable: Incumbent is Appointed Mayor Again (I=Yes)</i>				
	(1)	(2)	(3)	(4)
	LLR	LLR	LLR	Poly
	CC	CCT/	IK	
	T	2		
IncumbentNotEligible	-0.52*** (0.05)	-0.42*** (0.08)	-0.56*** (0.05)	-0.76*** (0.02)
Bandwidth Restriction	12.67	6.33	14.29	None
Observations	1028	444	1204	5774

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . This table reports results analyzing whether the incumbent mayor has an advantage for being reappointed mayor again. The data come from the 2014 French municipal elections. Standard errors are given in parentheses. The dependent variable is a dummy that equals 1 if the municipal council appoints the incumbent mayor as mayor again. Columns 1, 2 and 3 correspond to a local linear regression around the cutoff using respectively the CCT, half the CCT and the IK bandwidth. Column 4 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2 and 3 further allow for a break in the slope of the running variable at the cutoff.



Table IV: Consequences of Incumbency on the Stock of Municipalities that have Appointed a Female Mayor at Least Once

<i>Dep. Variable:</i>	<i>First Female Mayor (I=Yes)</i>			
	(1) LLR CCT	(2) LLR CCT/2	(3) LLR IK	(4) Poly
IncumbentNotEligible	0.07** (0.03)	0.07* (0.04)	0.07*** (0.03)	0.08*** (0.02)
Control Mean	0.30	0.30	0.30	0.28
Scaled Effect	0.24	0.24	0.24	0.30
Bandwidth Restriction	23.15	11.58	36.03	None
Observations	2435	903	5652	5774

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . This table reports results analyzing whether the ineligibility of an incumbent for reappointment leads to a larger probability to appoint a female mayor for the first time. The data come from the 2014 French municipal elections. Standard errors clustered at the municipality level are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor for the first time since 1989. Columns 1, 2 and 3 correspond to a local linear regression around the cutoff using respectively the CCT, half the CCT and the IK bandwidth. Column 4 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2 and 3 further allow for a break in the slope of the running variable at the cutoff. The "Control Mean" line designates the share of municipalities that have ever appointed a female mayor since 1989 in the control group restricted to incumbent councillors.

Table V: Effect of Incumbency Depending on the Gender of the Incumbent

<i>Dep. Variable:</i>	<i>Female Mayor (I=Yes)</i>				
	(1) LLR CCT	(2) LLR CCT	(3) LLR CCT	(4) LLR IK	(5) Poly
IncumbentNotEligible	0.16*** (0.03)	-0.62*** (0.10)	0.18*** (0.03)	0.18*** (0.02)	0.19*** (0.02)
IncumbentNotEligible*FemaleIncumbent			-0.90*** (0.04)	-0.96*** (0.03)	-0.98*** (0.02)
Gender of the Incumbent	Male	Female	All	All	All
Bandwidth Restriction	22.53	18.18	22.13	32.90	None
Observations	1733	283	2040	5498	5774

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . This table reports results analyzing the probability to appoint a female mayor depending on the gender and the ineligibility of the incumbent for reappointment. The data come from the 2014 French municipal elections. Standard errors are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor. Columns 1, 2, 3 and 4 correspond to a local linear regression around the cutoff using respectively the CCT and the IK bandwidth. Column 3 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2, 3 and 4 further allow for a break in the slope of the running variable at the cutoff.

Table VI: Lower Share of Female Mayors After a Female Incumbent?

<i>Dep. Variable: Female Mayor (I=Yes)</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Female Incumbent Mayor	-0.107*** (0.037)	-0.106** (0.048)	-0.122* (0.062)	-0.112*** (0.036)	-0.110** (0.047)	-0.121** (0.060)
Controls	No	No	No	Yes	Yes	Yes
Bandwidth Restriction	None	[-22.13;0]	[-11.06;0]	None	[-22.13;0]	[-11.06;0]
Observations	798	446	287	798	446	287

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . This table reports results analyzing whether there is a lower share of female mayors after a female incumbent, as compared to a male incumbent. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with incumbents who were not reelected in the council. Standard errors are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor. All specifications control for the distance to the elimination threshold. Specifications in columns 4, 5 and 6 additionally control for the share of female councillors in the council and the total female vote share in 2014.

Table VII: Net Effect of Incumbency on the Appointment of Female Mayors

<i>Dep. Variable: Female Mayor (I=Yes)</i>				
	(1)	(2)	(3)	(4)
	LLR CCT	LLR CCT/ 2	LL R IK	Poly
IncumbentNotEligible	-0.008 (0.040)	-0.061 (0.059)	0.019 (0.029)	0.016 (0.023)
Bandwidth Restriction	22.13	11.06	32.90	None
Observations	2040	877	5498	5774

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . This table reports results analyzing whether the ineligibility of an incumbent for reappointment leads to a larger probability to appoint a female mayor. The data come from the 2014 French municipal elections. Standard errors are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor. Columns 1, 2 and 3 correspond to a local linear regression around the cutoff using respectively the CCT, half the CCT and the IK bandwidth. Column 4 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2 and 3 further allow for a break in the slope of the running variable at the cutoff.

Table VIII: Gender Gap to be Appointed Mayor Depending on the Gender of the Incumbent

<i>Dep. Variable: Appointed Mayor (1=Yes)</i>			
	(1)	(2)	(3)
Woman	-0.05*** (0.01)	-0.05*** (0.01)	-0.02 (0.03)
FemaleIncumbent	0.02** (0.01)	0.00 (0.01)	0.10*** (0.03)
FemaleIncumbent*Woman	-0.04*** (0.01)	-0.01 (0.01)	-0.18*** (0.05)
Sample Councillors	All	Inexperienced	Experienced
Bandwidth Restriction	[-22.13;0]	[-22.13;0]	[-22.13;0]
Observations	5379	4138	1241
Municipalities	446	445	379

Notes: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. This table reports results analyzing the gender gap to be appointed mayor at the councillor level depending on the gender of the incumbent and of the councillor. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with incumbents who were not reelected in the council. Standard errors clustered at the municipality level are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor.

Table IX: Is the Gender Gap Driven by Differences in Observable Characteristics?

<i>Dep. Variable: Predicted Probability Appointed Mayor (1=Yes)</i>			
	(1)	(2)	(3)
Woman	-0.024*** (0.002)	-0.012*** (0.002)	-0.003 (0.004)
FemaleIncumbent	-0.009** (0.004)	-0.004 (0.003)	0.006 (0.006)
FemaleIncumbent*Woman	0.010** (0.005)	0.011** (0.005)	-0.012 (0.010)
Sample Councillors	All	Inexperienced	Experienced
Bandwidth Restriction	[-22.13;0]	[-22.13;0]	[-22.13;0]
Observations	5338	4110	1228
Municipalities	445	444	379

Notes: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. This table reports results analyzing whether the gender gap in the probability to be appointed mayor can be explained by differences in observable characteristics. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with incumbents who were not reelected in the council. Standard errors clustered at the municipality level are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor.

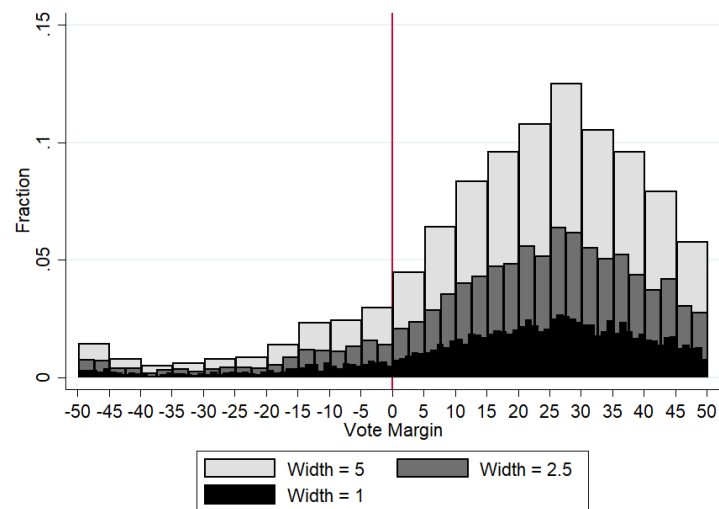
# Appendix

## A Validity Tests

### A.1 Internal Validity

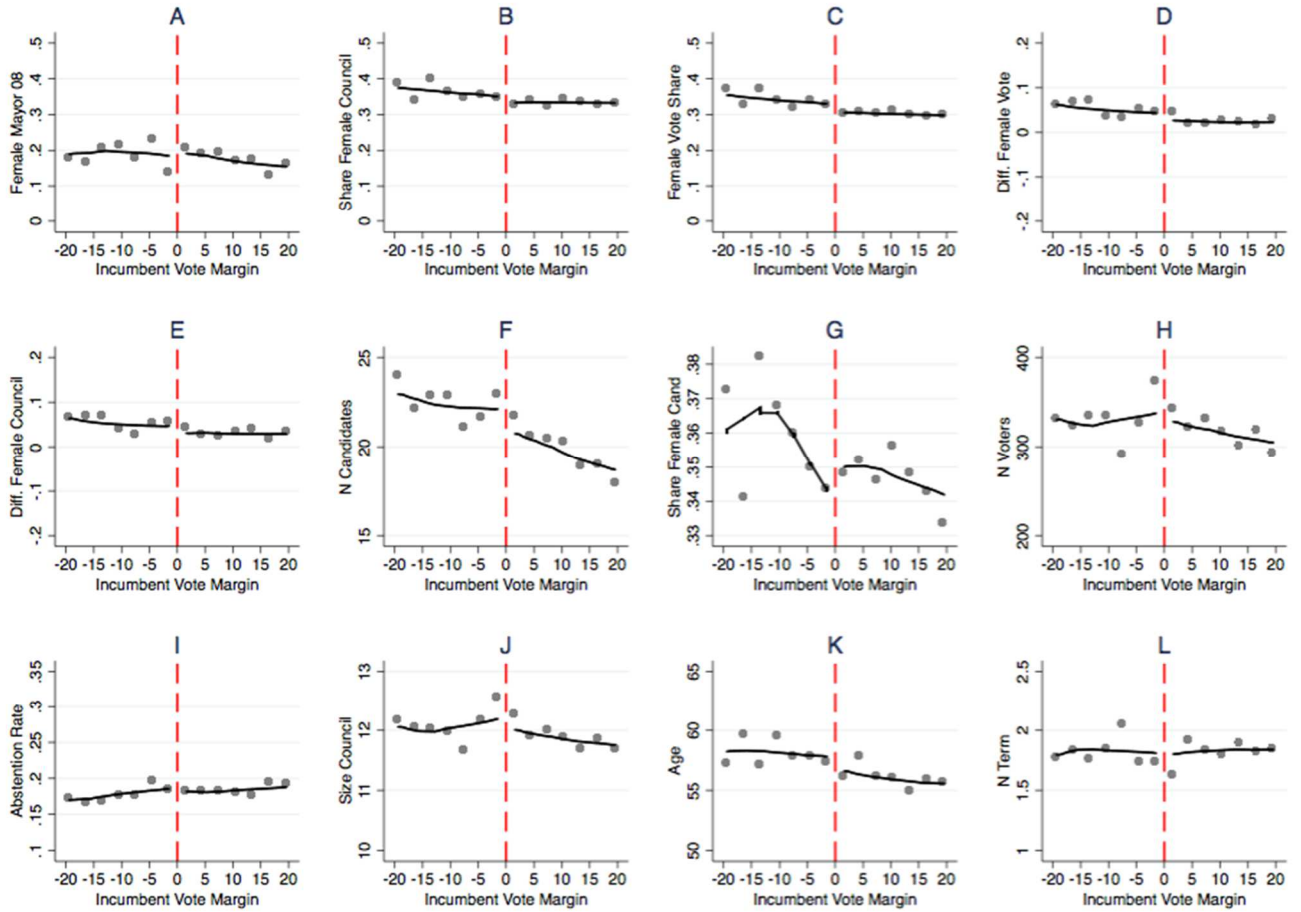
This section provides additional validity tests supporting the empirical strategy. Figure A1 first plots histograms representing the distribution of the running variable with different widths. They show no evidence of manipulation. Figure A2 depicts the behavior of each of the covariates tested in Table II for the continuity assumption around the threshold.

Figure A1: Histogram Distribution Running Variablen



*Notes:* The data come from the 2014 French municipal elections. The horizontal axis represents the incumbent vote margin relative to the elimination threshold.

Figure A2: Testing the Continuity Assumption



*Notes:* The data come from the 2014 French municipal elections. The black solid line corresponds to a lowess fit of the bin-averages. Dependent variables are for graph A: a dummy that equals 1 if the incumbent mayor is a woman; for graph B: the share of women in the municipal council in 2014; graph C: the total female vote share in 2014; graph D: the variation of the female vote share between 2014 and 2008; graph E: the variation of the share of women in the council between 2014 and 2008; graph F: the total number of candidates in 2014; graph G: the share of female candidates in 2014; graph H: the number of registered voters; graph I: the abstention rate at the 2014 election; graph J: the size of the municipal council; graph K: the age of the incumbent; graph L: the number of term done by the incumbent mayor.

Table A1: Validity Test - Continuity Assumption - Male Incumbents

<i>Local Linear Regression</i>			
	Discontinuity Estimate	Bandwidth Restriction	N Obs
	(1)	(2)	(3)
ShareFemaleCouncil14	.018 (.014)	23.25	2175
FemaleVoteShare14	.013 (.014)	22.84	2124
VariationFemaleVoteShare	.019 (.014)	16.08	1381
VariationShareFemaleCouncil	.019 (.018)	15.73	1345
NTotalCandidates	.602 (.92)	16.83	1468
ShareFemaleCandidates	0 (.013)	18.54	1631
NRegisteredVoters	15.369 (22.806)	20.62	1870
AbstentionRate	.007 (.011)	14.79	1247
SizeCouncil	.298 (.328)	14.89	1257
IncumbentAge	-.74 (1.179)	15.13	1283
NTerm	-.072 (.108)	16.36	1409

*Notes:* this table shows that potential confounders are continuous at the discontinuity threshold. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with male incumbents. Standard errors clustered at the municipality level are given in parentheses. Each line corresponds to one dependent variable. Column 1 displays the discontinuity estimate, column 2 the bandwidth restriction and column 3 the number of observations. Column 1 to 3 correspond to a local linear regression around the cutoff that allows for a break in the slope at the cutoff. The bandwidth is computed following the CCT approach.

Table A2: Validity Test - Continuity Assumption - Female Incumbents

	<i>Local Linear Regression</i>		
	Discontinuity Estimate (1)	Bandwidth Restriction (2)	N Obs (3)
ShareFemaleCouncil14	-.03 (.034)	14.74	1242
FemaleVoteShare14	-.042 (.034)	17.32	1519
VariationFemaleVoteShare	-.015 (.027)	20.21	1817
VariationShareFemaleCouncil	-.028 (.033)	19.58	1745
NTotalCandidates	-.525 (1.893)	17.54	1535
ShareFemaleCandidates	-.03 (.029)	13.55	1116
NRegisteredVoters	-26.707 (47.975)	20.72	1881
AbstentionRate	.015 (.019)	22.98	2141
SizeCouncil	-.515 (.624)	21.16	1931
IncumbentAge	2.89 (2.522)	15.62	1338
NTerm	.21 (.179)	18.49	1635

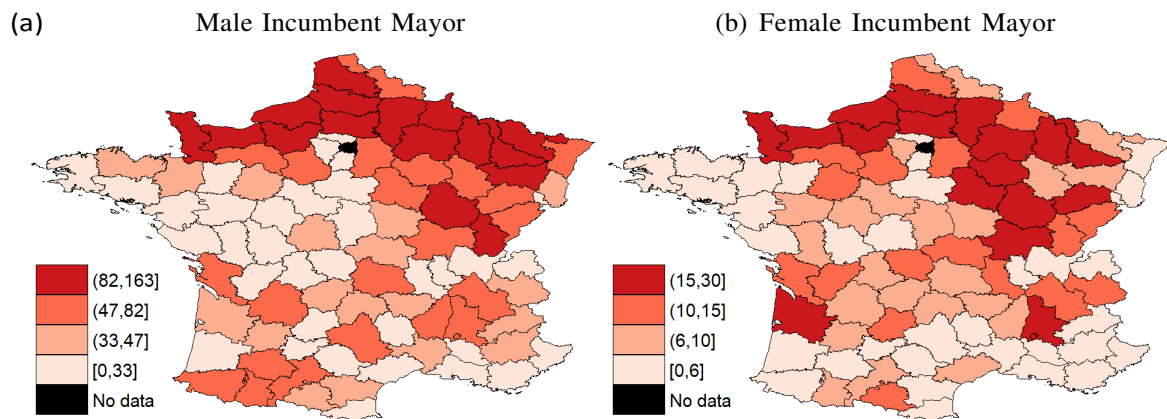
*Notes:* this table shows that potential confounders are continuous at the discontinuity threshold. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with female incumbents. Standard errors clustered at the municipality level are given in parentheses. Each line corresponds to one dependent variable. Column 1 displays the discontinuity estimate, column 2 the bandwidth restriction and column 3 the number of observations. Column 1 to 3 correspond to a local linear regression around the cutoff that allows for a break in the slope at the cutoff. The bandwidth is computed following the CCT approach.

## A.2 External Validity



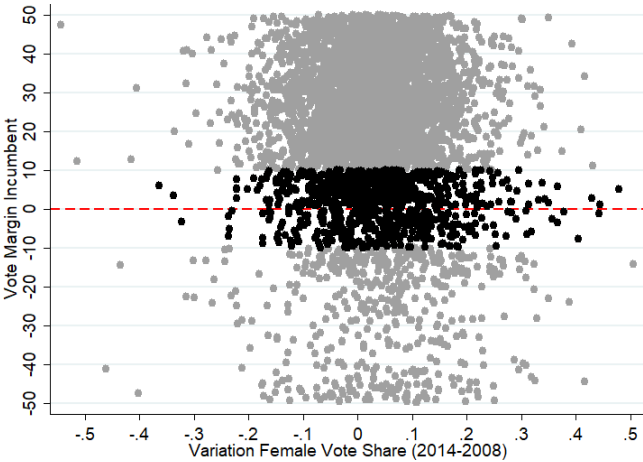
Figure A3 depicts the distribution of the observations on the French territory. Importantly, we see that they are scattered throughout the territory with a larger concentration in the north and east of France. Figure A4 shows the degree of heterogeneity for the variation of the total female vote share. We see that for municipalities in the close race sample, this variation is concentrated in the  $[-0.2; 0.2]$  interval. Table A3 displays descriptive statistics on close and safe races in municipality with competitive elections. The two types of municipalities do differ on budget and demographics indicators but not particularly with regards to indicators of women's involvement in politics.

Figure A3: Where Are the Close-Races?



Notes: The data come from the 2014 French municipal elections. Each class represents a quantile of the distribution of observations.

Figure A4: Variation Preferences for Women in Close Race Elections



*Notes:* the data come from the 2014 French municipal elections. The graph represents the variation of the total vote share of women on the horizontal axis between 2014 and 2008 and the incumbent vote margin on the vertical axis. The black dots are located in a 10 points interval around the elimination threshold.

Table A3: External Validity - Descriptive Statistics on Close and Safe Races

	Safe Race (1)	Close Race (2)	Difference (3)
Female Vote Share 14	0.309	0.311	-0.002 (0.003)
Female Mayor 14	0.188	0.169	0.020* (0.010)
Incumbent Female 08	0.162	0.156	0.006 (0.010)
Share Female Council 14	0.335	0.337	-0.003 (0.003)
Share Female Council 08	0.299	0.302	-0.003 (0.003)
Resources (Per Capita)	1434.293	1320.845	113.448*** (33.388)
Expenditures (Per Capita)	1212.769	1121.936	90.833*** (28.215)
Deficit (Per Capita)	220.805	198.576	22.229*** (8.256)
Population 14	315.371	389.724	-74.353*** (7.086)
Observations	1578	5774	7352

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The data come from the 2014 French municipal elections. Column 1 and 2 are respectively restricted to competitive municipalities where the incumbent is in a safe race (not elected on the last round) and where the incumbent is in a close race (sample used for the analysis). Column 3 displays the difference of (1)-(2). Standard errors are given in parentheses. Resources, expenditures and deficit are measured in euros.

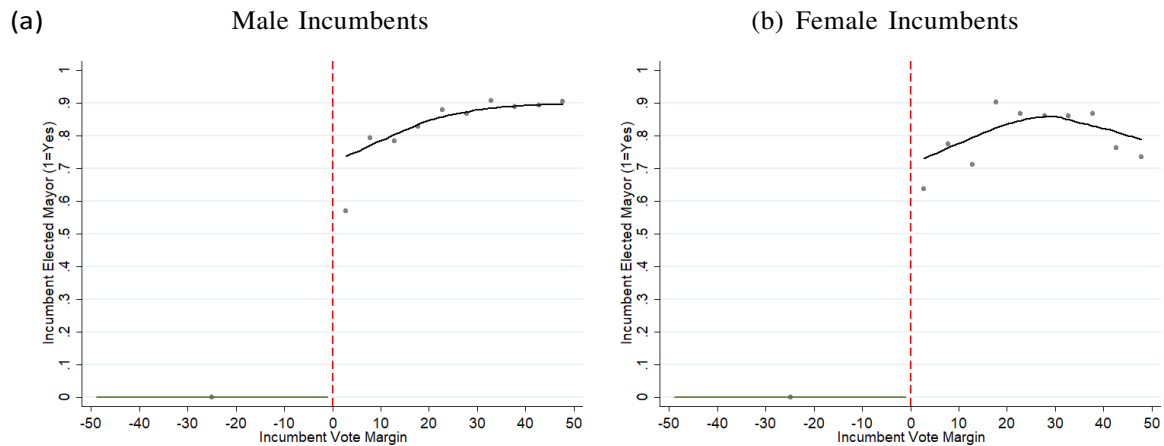
## B Additional Results

This section describes additional results and further robustness tests. First, I examine how the electoral advantage of incumbents depends on the incumbent's gender. Second, I test the sensitivity of the results to the size of the bandwidth. Third, I check whether female incumbents perform worse than male incumbents. Finally, I run a placebo test replicating the main results on the sample of incumbent councillors.

### B.1 Impact of Incumbency by Gender

Figure A5 depicts the discontinuity graph of the impact of incumbency on the probability to be appointed mayor depending on the gender of the incumbent. Visually, the two graphs look very similar suggesting that male and female incumbents enjoy a similar advantage. Table A4 verifies that the two jumps are not statistically different. The coefficient related to *IncumbentNotEligible\*Woman*, which measures the difference in the discontinuity, is not significant in the three specifications.

Figure A5: Does the Impact of Incumbency Depend on the Gender of the Incumbent?



*Notes:* the data come from the 2014 French municipal elections. The sample is respectively restricted to male incumbents and female incumbents in graph (a) and (b). The y-axis represents the share of incumbents reappointed mayor. The x-axis represents the incumbent vote margin relative to the elimination threshold. The solid line represents a lowess fit of the bin-averages. There are 10 bins on the right-side of the cutoff.

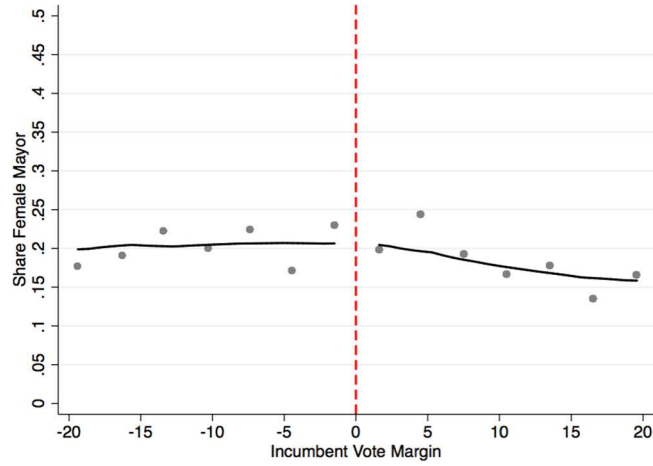
Table A4: Does the Impact of Incumbency Depend on the Gender of the Incumbent?

<i>Dep. Variable: Incumbent is Reappointed Mayor (I=Yes)</i>			
	(1) LLR CC T	(2) LLR IK	(3) Poly
IncumbentNotEligible	-0.45*** (0.06)	-0.55*** (0.05)	-0.75*** (0.02)
IncumbentNotEligible*FemaleIncumbent	-0.02 (0.07)	0.03 (0.06)	0.03 (0.03)
Bandwidth Restriction	10.89	14.29	None
Observations	796	1115	5774

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The data come from the 2014 French municipal elections. Standard errors clustered at the municipality level are given in parentheses. Columns 1 and 2 correspond to a local linear regression around the cutoff using respectively the CCT and the IK bandwidth. Column 3 corresponds to the specification that fits a second order polynomial. Specifications in columns 1 and 2 further allow for a break in the slope of the running variable at the cutoff.

## B.2 Net Effect of Incumbency on the Share of Female Mayors

Figure A6: Consequences of Incumbency on the Share of Female Mayors

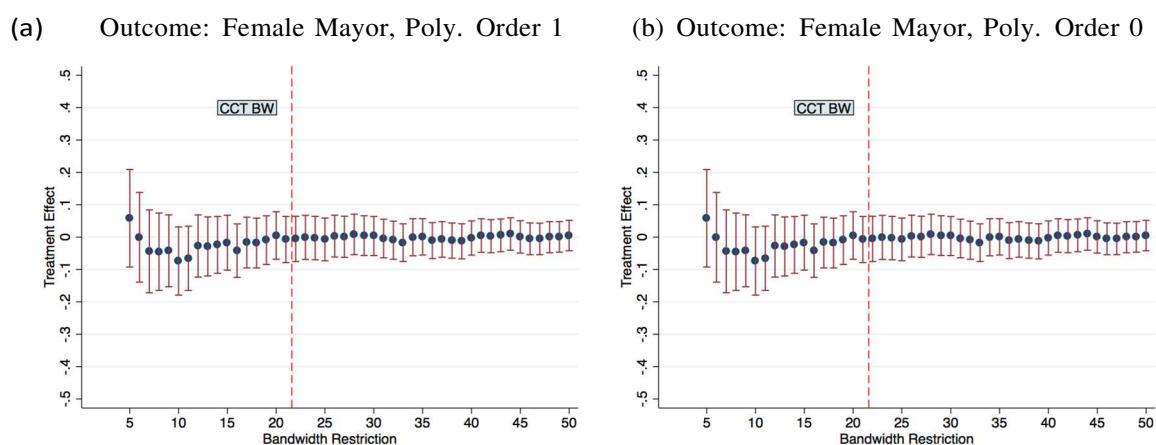


*Notes:* this figure shows a RDD plot to analyze whether there are more female mayors when incumbent mayors are not eligible for being appointed mayor. the data come from the 2014 French municipal elections. The y-axis represents the share of female mayors. The x-axis represents the incumbent vote margin relative to the elimination threshold. The solid line represents a lowess fit of the bin-averages.

### B.3 Alternative Bandwidths

This section tests the sensitivity of the results to different bandwidths. Figure A7 replicates the estimates of Table VII. Figures A8 and A9 replicate the estimates of Table V. Figure A10 replicates the estimates of Table VI. Figure A11 replicates the estimates of Table VIII. All bandwidths with positive integers from 5 to 50 are used on different specifications (polynomial of first and zero order). The results appear to be robust to smaller and larger bandwidth than the CCT bandwidth.

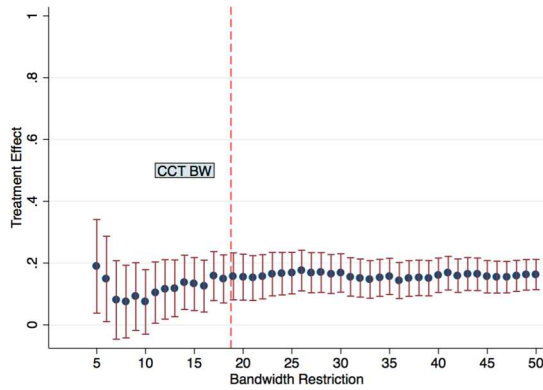
Figure A7: Alternative Bandwidths - All Incumbents



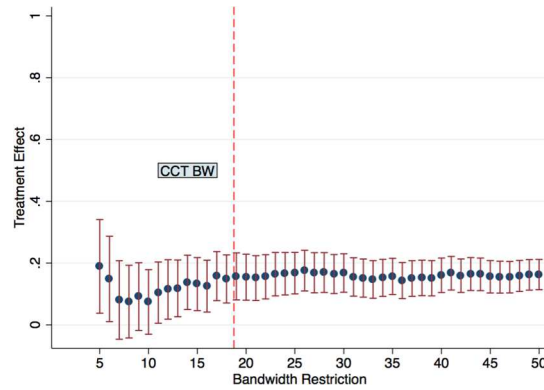
*Notes:* These figures test the robustness of the results in Table VII to alternative bandwidths. The data come from the 2014 French municipal elections. The x-axis represents the size of the bandwidth. The y-axis represents the probability that a woman is appointed mayor (1=Yes). The dots represent the coefficient associated to the variable *IncumbentNotEligible*. Confidence intervals are represented at the 95% level. The vertical red dashed line represents the CCT bandwidth.

Figure A8: Alternative Bandwidths - Male incumbents

(a) Outcome: Female Mayor, Poly. Order 1



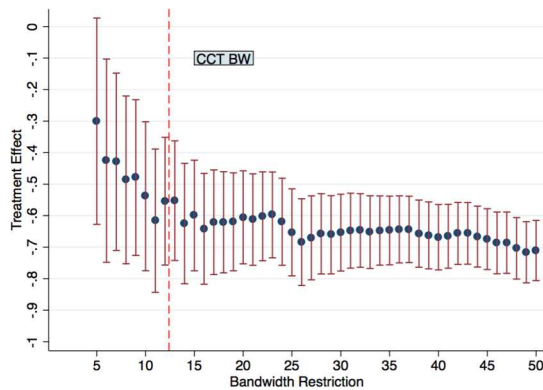
(b) Outcome: Female Mayor, Poly. Order 0



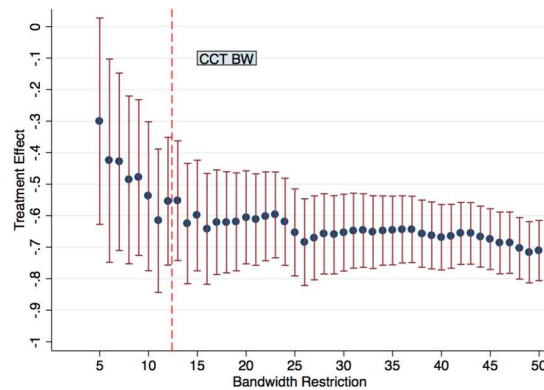
Notes: These figures test the robustness of the results in Table V to alternative bandwidths. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with male incumbents. The x-axis represents the size of the bandwidth. The y-axis represents the probability that a woman is appointed mayor (1=Yes). The dots represent the coefficient associated to the variable *IncumbentNotEligible*. Confidence intervals are represented at the 95% level. The vertical red dashed line represents the CCT bandwidth.

Figure A9: Alternative Bandwidths - Female Incumbents

(a) Outcome: Female Mayor, Poly. Order 1



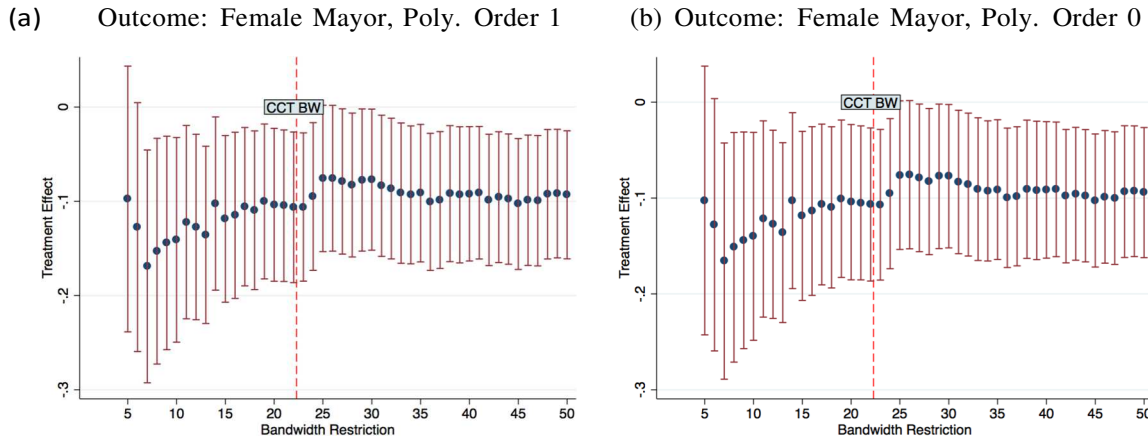
(b) Outcome: Female Mayor, Poly. Order 0



Notes: These figures test the robustness of the results in Table V to alternative bandwidths. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with female incumbents. The x-axis represents the size of the bandwidth. The y-axis represents the probability that a woman is appointed mayor (1=Yes). The dots represent the coefficient associated to the variable *IncumbentNotEligible*. Confidence intervals are represented at the 95% level. The vertical red dashed line represents the CCT bandwidth.

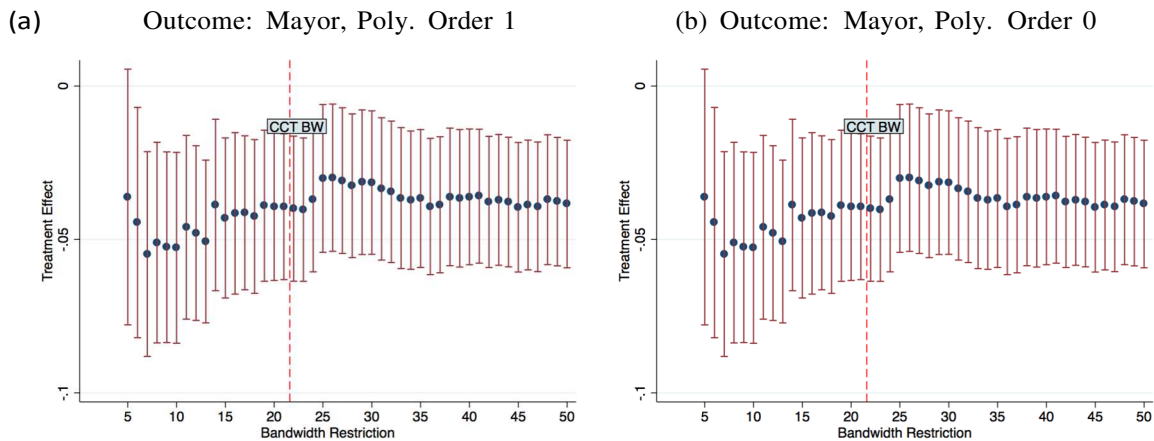


Figure A10: Alternative Bandwidths - Fewer Female Mayors After a Female Incumbent



Notes: These figures test the robustness of the results in Table VI to alternative bandwidths. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with incumbents who were not reelected in the council. The x-axis represents the size of the bandwidth. The y-axis represents the probability that a woman is appointed mayor (1=Yes). The dots represent the coefficient associated to the variable *FemaleIncumbent*. Confidence intervals are represented at the 95% level. The vertical red dashed line represents the CCT bandwidth.

Figure A11: Alternative Bandwidths - Gender Gap Appointed Mayor



Notes: These figures test the robustness of the results in Table VIII to alternative bandwidths. The data come from the 2014 French municipal elections. The sample is restricted to municipalities with female incumbents. The x-axis represents the size of the bandwidth. The y-axis represents the probability that a woman is appointed mayor (1=Yes). The dots represent the coefficient associated to the variable *FemaleIncumbent Woman*. Confidence intervals are represented at the 95% level. The vertical red dashed line represents the CCT bandwidth.

## B.4 Gender Gap in Incumbent's Performance

Table A5: Are Female Incumbent Mayors Less Performant?

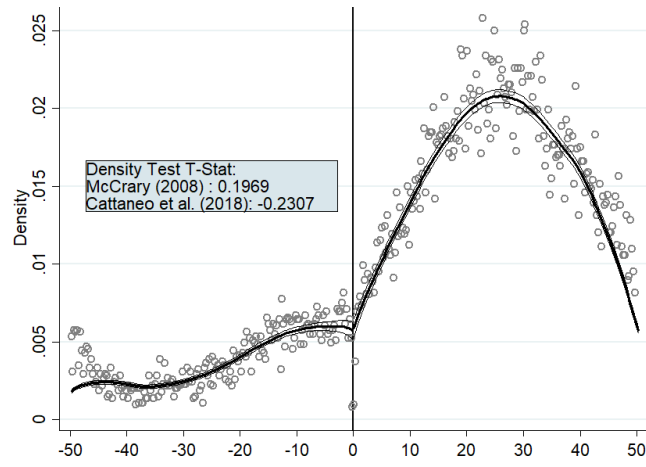
Dependent Variable	(1) Population Growth	(2) Expenditures	(3) Revenues	(4) Deficit
Female Incumbent Mayor	-0.001 (0.011)	-89.293 (105.224)	-91.772 (123.556)	-2.043 (27.061)
Bandwidth Restriction	None	None	None	None
Observations	448	448	448	448

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The data come from the 2014 French municipal elections. The sample is restricted to municipalities with incumbent mayors who failed to be reelected in the council. The outcome in column 1 corresponds to the population growth rate from 2009 until the end of 2013. Outcomes in columns 2 to 4 are measured in euros, per capita and averaged over the entire term excluding election years. All columns fit an OLS regression with Female Incumbent Mayor and the distance to the eligibility threshold as controls variables.

## B.5 Analysis on the Sample of Incumbent Councillors

This section replicates the main analysis on the sample of incumbent councillors. Their non reelection should not trigger similar results. I first provide evidence supporting the internal validity of the analysis on this sample. Second, I show that when they are not eligible, we do not find evidence of displacement effects.

Figure A12: Manipulation Test



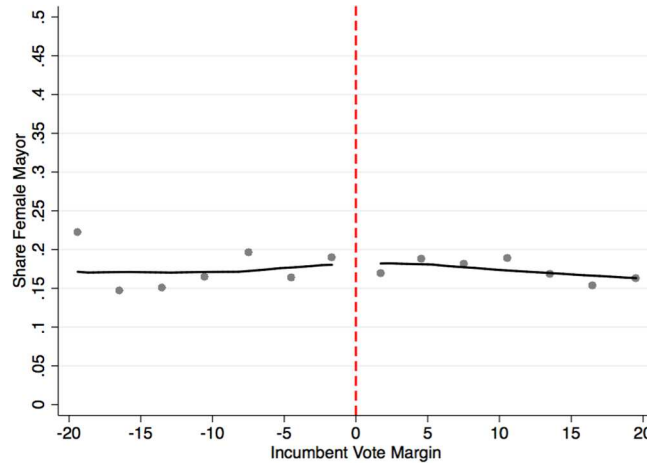
Notes: the data come from the 2014 French municipal elections. The bin-size and bandwidth are of 0.27 and 11.32.

Table A6: Balance Checks - Continuity Assumption

	<i>Local Linear Regression</i>		
	Discontinuity Estimate	Bandwidth Restriction	N Obs
	(1)	(2)	(3)
FemaleIncumbentMayor	-.011 (.021)	13.69	6643
ShareFemaleCouncil14	.007 (.007)	16.81	8672
FemaleVoteShare14	.007 (.007)	17.59	9146
VariationFemaleVoteShare	.006 (.005)	21.69	11880
VariationShareFemaleCouncil	.001 (.006)	20.15	10901
NTotalCandidates	.485 (.489)	11.49	5291
ShareFemaleCandidates	.001 (.005)	17.96	9340
AbstentionRate	.019** (.006)	11.43	5267
NRegisteredVoters	14.581 (12.527)	12.26	5763
SizeCouncil	.154 (.147)	11.81	5486
IncumbentAge	.448 (.51)	18.96	10028
NTerm	-.039 (.043)	16.02	8159

*Notes:* the data come from the 2014 French municipal elections. Standard errors clustered at the municipality level are given in parentheses. Each line corresponds to one dependent variable. Column 1 displays the discontinuity estimate, column 2 the bandwidth restriction and column 3 the number of observations. Column 1 to 3 correspond to a local linear regression around the cutoff that allows for a break in the slope at the cutoff. The bandwidth is computed following the CCT approach.

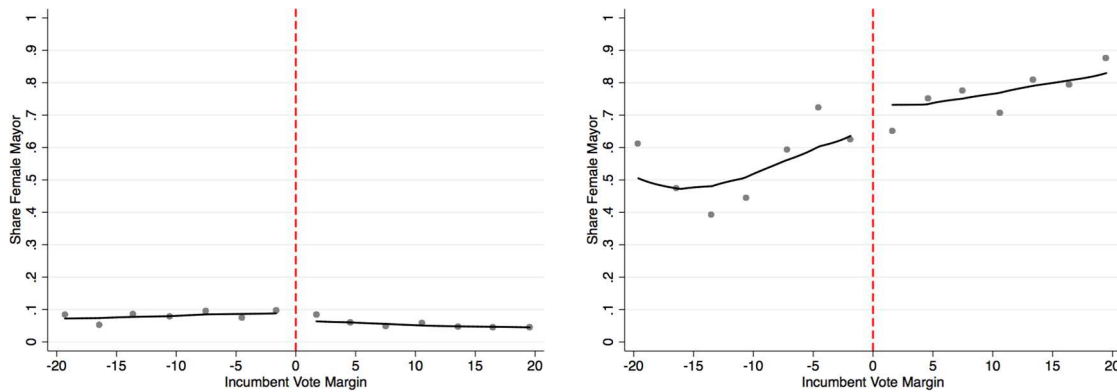
Figure A13: Average Impact of Incumbency - Placebo Test Incumbent Councillor Sample



Notes: the data come from the 2014 French municipal elections. The y-axis represents the share of female mayors. The x-axis represents the incumbent councillor vote margin relative to the elimination threshold. The solid line represents a lowess fit of the bin-averages. There are 10 bins on each side of the cutoff.

Figure A14: Displacement Effects - Placebo Test Incumbent Councillor Sample

(a) Male Incumbents, outcome: Female Mayor      (b) Female Incumbents, outcome: Female Mayor



Notes: the data come from the 2014 French municipal elections. The y-axis represents the share of female mayors. The x-axis represents the incumbent vote margin relative to the elimination threshold. The left-graph (a) is restricted to municipalities with male incumbent councillors and the graph on the right (b) to those with female incumbent councillors

Table A7: Placebo Test - Consequences of Incumbency at the Councillor Position on the Share of Female Mayors

<i>Dep. Variable: Female Mayor (1=Yes)</i>				
	(1)	(2)	(3)	(4)
	LLR	LLR	LLR	Poly
	CCT	CCT/2	IK	
IncumbentNotEligible	0.02 (0.02)	0.02 (0.03)	0.01 (0.01)	0.01 (0.01)
Bandwidth Restriction	11.91	5.96	44.05	None
Observations	3650	1615	16680	22055

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The data come from the 2014 French municipal elections. The running variable is defined with respect to incumbent councillors' vote share. The variable *IncumbentNotEligible* is equal to one when the incumbent councillor is not reelected in the council. Standard errors clustered at the municipality level are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor. Columns 1, 2 and 3 correspond to a local linear regression around the cutoff using respectively the CCT, half the CCT and the IK bandwidth. Column 4 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2 and 3 further allow for a break in the slope of the running variable at the cutoff.

Table A8: Placebo Test - Displacement Effects

<i>Dep. Variable: Female Mayor (1=Yes)</i>				
	(1)	(2)	(3)	(4)
	LLR	LLR	LLR	Poly
	CCT	CCT/2	IK	
Panel A: Male Incumbents				
IncumbentNotEligible	0.02	0.02	0.02*	0.02*
	(0.02)	(0.02)	(0.01)	(0.01)
Bandwidth Restriction	11.91	5.96	44.05	None
Observations	6486	2666	15641	20702
Panel A: Female Incumbents				
IncumbentNotEligible	0.06	-0.02	-0.16**	-0.17***
	(0.12)	(0.17)	(0.07)	(0.06)
Bandwidth Restriction	15.23	7.62	44.05	None
Observations	353	145	1039	1353

*Notes:* \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The data come from the 2014 French municipal elections. The sample is restricted to cities with male incumbent mayors in Panel A and female incumbent mayors in Panel B. The running variable is defined with respect to incumbent councillors' vote share. The variable *IncumbentNotEligible* is equal to one when the incumbent councillor is not reelected in the council. Standard errors clustered at the municipality level are given in parentheses. The dependent variable is a dummy that equals 1 if the municipality elects a female mayor. Columns 1, 2 and 3 correspond to a local linear regression around the cutoff using respectively the CCT, half the CCT and the IK bandwidth. Column 4 corresponds to the specification that fits a second order polynomial. Specifications in columns 1, 2 and 3 further allow for a break in the slope of the running variable at the cutoff.