

Gender Differences in Political Budget Cycles*

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Abstract

Men and women differ in political behaviour and leadership style. Does the gender of politicians affect the engagement in political budget cycles? We provide empirical evidence on gender differences in political budget cycles by exploiting mixed-gender races among mayoral candidates in Italian municipalities in the period 2002-2017. Using a Regression Discontinuity Design, we show that male mayors who are elected by a small margin against a female opponent are more likely to engage in strategic spending at pre-electoral and electoral years, as compared to female mayors. That is particularly true for highly visible policies that yield immediate benefits, such as roads construction and maintenance, transportation, green areas and waste disposal. We also find that, as elections approach, male incumbents raise deficit levels more than their female colleagues do.

Keywords: political budget cycle, public spending, local politicians, regression discontinuity.

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1 Introduction

The last decades witnessed an increase in female political representation in both state legislatures and city councils around the world¹. From gender quotas to UN Sustainable Development Goals, local and global institutions work to spur on the political empowerment of women, and the public debate is growingly casting light on the beneficial effects of gender-balanced political leadership.

An increasing presence of women can influence the policies implemented, the policy making process and the public opinion (O'Brien and Piscopo, 2019). A larger pool of women in legislative bodies dispels gendered myths and raises the perception of women as being qualified for political roles (O'Brien and Rickne, 2016), as well as encouraging active female participation (Wolbrecht and Campbell, 2007). Women drive this outcome by bringing their different attitudes, interests, priorities and set of values to politics, particularly on issues directly related to women's interests. Moreover, as they are on average more qualified than their male colleagues (Profeta and Woodhouse, 2018), higher female representation increases the quality of politicians by squeezing mediocre men out of the political competition (see for Italy Baltrunaite et al., 2014; for Sweden Besley et al., 2017). In the political selection process, stereotypes and voter bias (Le Barbanchon and Sauvagnat, 2019) can curb women's political ambition and increase their perception of not being qualified for public office (Fox and Lawless, 2010; 2011; 2014). After elections, distorted incentives can induce male and female officeholders to take different decisions on policy outputs, but also bring about different legislative

¹Despite this rising trend, women are still underrepresented and the worldwide gender gap in political empowerment is over 77% (WEF, 2018).

processes and leadership styles.²

While gender differences in public policy outputs of male and female politicians have been largely investigated (see section 2.1), little is known about their different ways of doing politics, such as the political strategies that officeholders implement. Different psychological traits, individual attitudes and the political environment itself can be conducive to a gender-different political style.

In this paper, we focus on a specific, well-known dimension of political strategies, which relates to the *timing* of public expenditure. Strategic spending of politicians at pre-electoral and electoral years come under the name of *political budget cycle*: just prior to an election, incumbents are found to engage in expansionary manoeuvres that boost the economy in the immediate and can improve chances of reelection, either of their own candidacy or of the candidates they support. Political budget cycles may help the politician to be reelected, but can generate adverse economic effects, which typically result in higher deficit levels (see section 2.2).

We empirically explore the potential impact gender has on the occurrence of political budget cycles by considering Italian municipalities within 5,000 residents from 2002 to 2017. In order to identify the causal effect of mayor's gender on spending levels, both current and capital, we consider mixed gender electoral close races and use a sharp Regression Discontinuity Design. Our first analysis disregards the electoral calendar, showing that both expenses and investment are seemingly neutral to mayor's gender. Nevertheless, when shifting attention to each single year of mayor's office, our analysis reveals the existence of a gender-

²Interviews to US congresswomen conducted by Dittmar et al.(2018) support the argument that women in politics matter in several ways, as they influence culture, priorities, processes, debates, and outcomes.

biased political budget cycle: male leaders who are elected by a small margin against a female candidate are more likely to engage in strategic spending at pre-electoral and electoral years, as compared to their female counterparts. That is particularly true for policies that are highly visible and salient to voters, namely roads construction and maintenance, transportation, waste disposal, parks and green areas. The results are consistent with the vast literature on political budget cycles (including evidence from Italian municipalities), as it highlights these spending items as the most subject to "election-time" economics. We also prove that, as electoral pressure gets stronger, male incumbents increase deficit levels more than female mayors, compromising public finances.

Our results are consistent with women being more fiscally prudent when economic policies can be detrimental to growth. This behavior of women may depend on their traits and attitudes or may be the consequence of the context they face, for example voters may dislike strategic expenditures by female politicians. In any case, as political cycles relate to adverse effects in terms of fiscal deterioration, our evidence adds a new argument to the potential beneficial effects of a gender-balanced political leadership. In addition, the paper contributes to fill the gap between the literature on women making policy and the one on political cycles, which have been extensively studied by both political scientists and public economists, but have never been linked before.

The rest of the paper is organized as follows. The next section provides theoretical background and identifies the innovative contribution of the paper at the conjunction between the literature on gender differences in public policy decisions and the one on political budget cycles. Section 3 describes the institutional setting, Section 4 explains the empirical strategy, Section 5 presents results and Section 6

concludes. Additional exercises are provided in the Appendix.

2 Women politicians, public policy and political cycles

According to the "politics of presence" theory (Phillips, 1995), female politicians bring different interests and values to politics, especially on issues directly related to women's interests: the slow erosion of male-dominated politics challenges traditional mechanisms (Krook and Childs, 2010) and introduces policies once disregarded and favoring gender equality (Lovenduski and Norris, 2003)³.

In addition, as women generally hold distinct preferences and can produce diverse types of groups and societies (Ranehill and Weber, 2017), they are also expected to take different policy choices. At the polls and within parties, women are typically more leftist than men (Edlund and Pande, 2002; Inglehart and Norris, 2000; Slegten and Heyndels, 2019)⁴, suggesting that female policymakers may prefer a larger size of public spending and larger shares of expenditures in health, social spending and education. Several papers have provided evidence in this direction, as shortly summarized in section 2.1⁵.

Other than different policy preferences, we also expect gender gaps to exist along other dimensions of politicians' behaviour, which define a particular way of doing politics and correspond to different political styles and/or strategies. Some

³Parties themselves are more prone to represent women's policy priorities as the share of women in the parliamentary party increases (Bertelli and 'O'Brien, 2019).

⁴Women's enfranchisement has been followed by a large increase in public spending (Lindert, 1994; Lott and Kenny, 1999; Aidt and Dallal, 2008.)

⁵For a review on the substantive effects of female representation on policies see Hessami and da Fonseca (2020)

evidence points in this direction: with respect to men, female politicians are more collaborative, inclusive and sensitive to others' needs (Franceschet et al., 2016; Barnes, 2016). They also have a lower rate of absenteeism, while being more cooperative and less conflictual (Bochel and Briggs, 2000; Childs, 2004; Epstein et al., 2005), as they tend to seek solutions rather than create disputes (Footitt, 2002). Furthermore, Norris (1996) found women MPs in Britain to be more honest and principled, and in Dollar et al. (2001) and Brollo and Troiano (2016) higher levels of female representation are associated to less corruption⁶.

The gender differences in political leadership may reflect different traits of male and female politicians. The political environment, where women face more obstacles in terms of stereotypes, cultural norms and voter bias (Le Barbanchon and Sauvagnat, 2019) can play a role in driving these differences⁷, which are also consistent with the distinct, well established psychological traits and attitudes of men and women. Indeed, women exhibit a more helping (Eagly and Crowley, 1986) and altruistic behavior (Andreoni and Vesterlund, 2001), and they are more likely to take socially oriented choices (Eckel and Grossman, 1998; Song et al., 2004). They also score higher on integrity tests (Ones and Viswesvaran, 1998) and take stronger stances on ethical conduct (Reiss and Mitra, 1998). Moreover, women have a longer-time horizon than men (Bjorklund and Kipp, 1996), are less competitive and more risk-averse (see survey by Croson and Gneezy, 2009), while showing also lower levels of 'social confidence', which measures subjects' willingness to face social scrutiny (Alan et al., 2019).

⁶Debski et al. (2018) argue that countries with higher shares of women in political offices experience lower corruption because of the same cultural traits that drive a more gender-equal representation.

⁷These obstacles can curb women's political ambition and increase their perception of not being qualified to be recruited and run for public office (Fox and Lawless, 2010; 2011; 2014).

When we analyze political strategies, a well known aspect relates to the specific *timing* of action. Incumbents have an incentive to strategically raise spending before elections in order to improve their chances of reappointment. The phenomenon, which comes under the name of 'political budget cycle' (PBC hereinafter), is backed up by an extensive literature across political science and political economy, both empirically and through formal models, as we briefly review in section 2.2. The literature also suggests that fiscal manipulation can be costly for the economy in long-run.

Does gender matter for PBC? This question has remained so far unexplored. As anticipated, a positive answer is expected. Given women's higher level of altruism, integrity and ethics, combined with lower levels of competition and social confidence, women are expected to weigh the common good more than men and thus to engage less in fiscal manipulations which may be costly for public finances. Women's behavior may also be their response to the expectations of voters or the general political context which associates women's leadership to a less strategic behavior.

Although being a fundamental part of politicians' identity, and one which may make the difference in political decisions and strategies, to the best of our knowledge, no piece of evidence is specifically provided on the impact gender has on PBC.⁸ As a consequence, the literature on women making policy and the one on political budget cycles have, perhaps surprisingly, so far remained separate. This paper contributes to bridge the two literatures with interesting results for both the debate on gender representation in politics and the one on political cycles.

⁸Brollo and Troiano (2016), in their analysis of the relationship between mayor's gender and the level of corruption across Brazilian municipalities, incidentally find male mayors to hire more temporary public employees at electoral times.

2.1 Women making policy

Political scientists have extensively analyzed how *descriptive* representation by gender can improve *substantive* representation, mostly in terms of effectively voicing 'women's interests' (Phillips, 1995; Mansbridge, 1999; Wangnerud, 2000)⁹. Female officeholders are particularly attentive to important topics that disproportionately affect women (Thomas, 1991 ; Swers, 2002; Pande, 2003; Childs, 2004)¹⁰ and are more likely to introduce or pass bills dealing with gendered perspectives (Haavio-Mannila, 1985; Thomas, 1991; Vega and Firestone, 1995; Swers, 1998), such as approval of abortion legislation (Berkman and O'Connor, 1993), childcare coverage (Bratton and Ray, 2002) and maternity and childcare leave policies (Kittilson, 2008). Moreover, they are more likely to vote for nuclear disarmament (Stanwick and Kleeman, 1983), aid toward developing countries (Hicks et al., 2016) and lead to a decrease in conflict behavior and defense spending (Koch and Fulton, 2011).

Recent contributions exploit the introduction of gender quotas to causally assess whether female representation affects gender-related policies (Franceschet and Piscopo, 2008; Franceschet et al., 2012; Kerevel and Atkeson, 2013; Barnes and Holman, forthcoming). Though not fully conclusive (Htun et al., 2013), these studies suggest how countries adopting quotas disburse a larger portion of their budgets to national health spending, offset by a relative decrease in military expenses (Clayton and Zetterberg, 2018). In addition, parties in countries with a quota law devote more attention to social justice issues in their manifestos than

⁹For a discussion of this and other approaches in the study of gender and politics see Waylen et al. (2013).

¹⁰Conversely, Heath et al. (2005) points to women being purposely sidelined on women's and social issues committees.

similar parties in countries without a quota (Weeks, 2019).

Research based on micro-data has cast further light on the causal effects the political presence of women has on implemented policies. In developing countries, female politicians are more likely to support 'pro-female' laws (Chattopadhyay and Duflo, 2004), children and family issues (Schwindt-Bayer, 2006; Bhalotra and Clots-Figueras, 2014) and education (Clots-Figueras, 2011). The increased female representation is found to have a direct impact on development¹¹, like reduced neonatal mortality (Bhalotra and Clots-Figueras, 2014). In the developed world, a higher number of female legislators translates into more spending for social policies and public health (Rehavi, 2007; Bolzendahl, 2011) and environmental protection (Funk and Gathmann (2015)).

At the sub-national level, the evidence is however less conclusive, with contrasting results even within the same country (Ferreira and Gyourko 2014; Holman, 2014). In Spain, mayor's gender seems not to exert any influence on budget allocation (Bagues and Campa, 2017) as opposed to Brazilian municipalities, for which female mayors are found to disburse more for education, health care and social assistance (Funk and Philips, 2019). In Italy, Gagliarducci and Paserman (2012) found no gender-difference on spending behavior, partly differently from Casarico et al. (2019).

This paper contributes to the literature by providing new empirical evidence on the causal impact women in office have on the size and allocation of public spending. Our identification strategy, based on mixed gender close races, allows to thoroughly assess the causality of gender on local public policies. More importantly, against the non-conclusive evidence on spending provided by the existing

¹¹See Duflo (2012) for a review.

studies on developed countries, our results will suggest that political budget cycles are a possible, appropriate way to reconcile the previous findings: when political cycles are considered, male and female politicians adopt diverse behaviors. Put differently, political strategies have an independent role from preferences and one in which the gender of politicians matters.

2.2 Political cycles

Political scientists and economists have largely studied political cycles both through formal models and empirically. In 1975, William Nordhaus pioneered the literature and introduced the concept of 'political business cycles', theorizing how governments raise inflation to lower unemployment just before elections, in order to improve their chances of reappointment. Over time, the literature shifted to examine fluctuations, renamed 'political budget cycles' (Rogoff and Sibert, 1988; Rogoff, 1990), in spending and taxes, variables that incumbents can more easily influence and strategically manipulate in the run-up to elections (Tufte, 1978).

Since the '70s, scholars have been paying close attention to the phenomenon of political cycles because of the adverse consequences they generated on social welfare: while political business cycles alleviated unemployment in the short run, they required ex-post austerity measures to slow down the consequent increase in the inflation rate. Political budget cycles are also inherently inefficient as they distort spending and revenues for electoral and political purposes, generating excessive pre-election budget deficits (Shi and Svensson, 2003). Brender and Drazen (2005) also claimed that manipulation of fiscal policies harms economy over time, as it does not allow consumption smoothing.

These deficits can even lower the probability of reelection as rational voters may punish incumbents who deteriorate the fiscal balance (Brender and Drazen, 2008). Results on electoral cycles and reelection prospects are indeed not conclusive (Klomp and de Haan, 2013): fiscal manipulation can be electorally rewarding (Aidt et al., 2011;), but can also fail in its opportunistic intent (Brender, 2003). Disentangling the direct impact of PBC on reelection prospects proved to be challenging, since spending decisions are endogenous and correlate, among others, with perceived probability of reappointment (Alesina et al., 2019).

Several empirical studies testify the existence of political budget cycles across the globe, both nationally and sub-nationally, with the most convincing evidence gathered at the local level (Alesina and Perotti, 1995; Akhmedov and Zhuravskaya, 2004; Drazen and Eslava, 2010)). In a comprehensive survey of the huge literature on PBCs, Dubois (2016) reports the main contributions to the empirical assessment of the phenomenon. These strands of literature conclude in favor of electoral cycles in the components most visible and/or salient to voters.

The case of Italian municipalities has attracted previous attention. For the period 1998-2006, Cioffi et al. (2012) disclose significant manipulation of expenses, while Alesina and Paradisi (2017) testify local PBCs also from the revenue side, showing how local governments chose lower tax rates as elections approach. Bonfatti and Forni (2016) find that the Domestic Stability Pact, a European agreement aimed at curbing local authorities' deficits constrain the PBC¹², reducing strategic spending by about two-thirds as compared to the municipalities not subject to it. Most importantly for the purpose of our findings, the results from this paper

¹²Pre-election strategies can be conditional on the institutional and political context, see De Haan and Klomp (2013).

are in line with Repetto (2018), which reports strong evidence of pre-electoral spending increases, namely for expenditure items which we found to be subject to gender-driven political budget cycles, like roads, parks and public housing.

This paper contributes to the empirical literature of political budget cycles by analyzing the case of Italian municipalities using a clear identification strategy. More importantly, following the concept that policymakers' identity matters for PBC¹³, it introduces gender as a fundamental dimension of politicians' identity and shows that gender significantly matters for opportunistic cycles, thus bridging the literature on PBCs to the one on women making policy.

3 Data and Institutional setting

There are 8,127 municipal administrations in Italy. Each of them is headed by a mayor supervising the executive committee (*Consiglio Comunale*) and the municipal council (*Giunta Comunale*) that, by majority rule, can either reject or support the policies proposed by the mayor. The council can thus constrain mayor's power, but the latter still holds substantial influence in the policy-making process. Italy has strong mayoral influence over budgetary decisions, substantially more than that of the council (Mouritzen and Svara, 2002).

The electoral system provides for direct election of the mayor every five years, and differs with population size. Timing of election schedule is exogenously pre-determined. When municipalities have less than 15,000 inhabitants, a single ballot system is adopted. The mayoral candidate who gets the relative majority is ap-

¹³Given their higher tendency toward government expansion, left-wing parties rely more on PBCs (Aidt et al., 2011; Benito et al., 2013). In addition, younger leaders strategically raise pre-electoral expenditures more than older ones, as they have a potentially longer political career ahead of them (Alesina et al., 2018).

pointed. Under this scheme, each candidate for the mayor position can be backed by one list only, with a substantial victory bonus: the list supporting the winner gets two thirds of the seats in municipal council, while the rest of the seats is assigned to the remaining lists according to a proportionality criterion. Municipalities with more than 15,000 residents instead adopt a double ballot system and the mayor is elected in the first round if he/she obtains the absolute majority of the votes. If that is not the case, the two most voted candidates of the first round compete in a second ballot¹⁴.

We restrict our analysis to municipalities whose population is within 5,000 residents in the period 2002-2017, as they are not subject to the *Domestic Stability Pact*¹⁵, a fiscal rule which constrains growth in spending and limits political budget cycles in Italian municipalities (Bonfatti and Forni, 2016). As additional exercises, we conducted our analysis also on municipalities subject to the fiscal rule, finding no remarkable results as expected.

In case of mayor resignation, mafia infiltration, or incapacity to approve the budget within the deadline, a special commissioner is appointed in place of the mayor. We drop these cases, as special commissioners have no political incentives to incur in pre-election strategic spending. Also, our analysis does not take into account incomplete mayoral terms missing one or more years of office.

We then shrink the whole dataset of Italian municipalities to the places where mixed gender elections occurred, obtaining a sample of 1,551 towns. When as-

¹⁴For a more detailed description see *Decreto del Presidente della Repubblica 16 maggio 1960, n. 570* and subsequent amendments.

¹⁵Since 2013, municipalities with 1,001 inhabitants and more shall comply to the Pact as well. Our sample also contains observations from province of Trento: until 2012, the Pact applies to municipalities whose population is above 3,000 inhabitants, afterwards it extends to municipalities with 1,001 inhabitants and more. We tackled these variations by checking balancedness in the variable DSP consistently with the year of introduction of the rule (see section 4.3).

sessing reelection probabilities, the sample encompasses the sole places where the incumbent runs for reappointment, further reducing the number to 728 towns.

It follows that our sample covers 15% of complete observations gathered for Italian municipalities. As from Table 1, our selected sample differs from the rest of Italian administrations in its main characteristics, which are consistent with our selection procedure.

Italian municipalities manage the registry of births and deaths, the registry of deeds, and decide the level and allocation of local expenditures: they are responsible for waste disposal, local transportation, social services, childcare and primary schooling, urban road maintenance and cleaning, water and sewer services, environmental monitoring and protection, planning and zoning. TableA.0 provides a more accurate description of the main spending items of Italian municipalities. Fiscal resources mainly come from taxes and tariffs, as well as from transfers from the central government. Room for manoeuvre is limited over revenues, while it is substantial for expenditure, which will therefore be the focus of our analysis.

We collect data on local spending of municipalities, together with budget balance levels and incumbents' reelection outcomes, from 2002 to 2017. We encompass both capital and current expenditure, at the aggregate level and disaggregated across different items. Capital expenses are long-term and usually encompass projects requiring substantial financing. Current expenditures, on the other hand, relate only to the current fiscal year and cover mandated services that a municipality has to provide its citizens with. Table A.0 reports the disaggregated items under scrutiny, together with a description of all the variables and the respective sources.

Data on municipal elections provide yearly information on mayors (gender,

place and year of birth, educational attainment, profession, appointment date) and on electoral races (name and gender of candidates, number of votes obtained). Among baseline covariates, we also include whether the list backing the mayor is 'civic' or party-affiliated (Gamalerio, 2020). If the list is not 'civic', a further level of specification is provided by the 'Left-Right' variable, capturing how the party places on the political spectrum¹⁶. We also gather information on a large number of observable municipal characteristics. Together with mayor's features, we use these data to test the validity of regression discontinuity design in section 4.2 and to control for possible confounding variables.

Table 2 provides summary statistics for our sample. Female leaders are significantly younger and more educated than their male colleagues, are also more likely to run for office backed by a civic list, and lead municipalities with a higher share of small children. Male mayors record a significantly higher level of current expenditures overall, while women in charge are found to spend more in current expenses in leisure and investment for administration and transportation.

4 Research design

4.1 Regression Discontinuity Design

In order to identify the causal effect of mayor's gender on local spending and fiscal deterioration, we implement a sharp regression discontinuity design with mixed gender closed mayor elections. The design exogenously produces a treatment and a control group: the treatment status, being a municipality led by a man, is a

¹⁶We elaborated the spectrum on ParlGov database. The variable takes values 1(left) - 2(center-left) - 3(center) - 4(center-right) - 5(right).

deterministic function of the margin of votes MV_{it} by which the male mayor won the elections in municipality i at year t . The margin of victory is defined as the share of votes obtained by the male candidate minus the share of votes obtained by the female opponent. As the mayor is elected in a single-round system, we select the two most voted candidates per race. Mayor's gender cleanly switches as MV_{it} passes the zero cutoff value. Formally, assignment to the treatment group is defined as $D_{it} = \mathbb{1}(MV_{it} > 0)$.

By defining $Y_{it}(1)$ as the potential outcome of municipality i at year t if it was led by a man, and by $Y_{it}(0)$ the potential outcome of that same municipality if led by a woman, the estimate of interest is given by the difference $Y_{it}(1) - Y_{it}(0)$. The underlying assumption is that municipalities in which a male candidate barely won are on average similar to those in which a woman barely won (*local randomization assumption*).¹⁷ By fitting regression line of the outcome on MV_{it} , any significant discontinuity at the threshold is to be regarded as a causal effect driven by mayor's gender.

Nevertheless, if the relationship between the outcome and the running variable is nonlinear, misspecifications of the functional form could mistake the non-linearity for a discontinuity. Following Gelman and Imbens (2019), we cope with the problem adopting a nonparametric approach¹⁸ based on local linear and quadratic polynomials, and using observations between $-h$ and $+h$, where $h > 0$ is a bandwidth determining the size of the neighborhood. As higher values of h

¹⁷Close elections are commonly exploited in RDD. The definition of "close" is also standard. See Lee et al. (2004), Lee (2008), Pettersson-Lidbom (2008), Galasso and Nannicini (2011), Gagliarducci and Paserman (2012), Vogl (2014) and Brollo and Troiano (2016).

¹⁸Gelman and Imbens (2019) dismisses parametric strategy, suggesting that estimates from global high-order polynomials are noisy, sensitive to the degree and have poor coverage of confidence intervals.

lower the variance of estimates, but negatively affect smoothing bias of the polynomial, a data-driven, MSE-optimal bandwidth (CCT; see Calonico et al., 2014) is adopted to balance the two forces and make the linear approximation reliable. Within this neighborhood, a triangular kernel function weighs observations (Cattaneo et al., 2019). Formally, the estimate of the treatment effect is obtained by fitting the following

$$Y_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 MV_{it} + \beta_3 D_{it} MV_{it} + \gamma_i + \delta_t + \nu_{it} \quad (1)$$

where γ_i and δ_t are vectors of municipality- and year-fixed effects, respectively, and error terms are clustered at the municipality level.

The dependent variables are given by the log of real capital and current expenditures per capita, both at the aggregate and at the disaggregate level. We always include Bonferroni corrections to account for the possibility of multiple-testing.

Observations are grouped by the timing of the electoral calendar and follow the mayor's term, resulting into five subsets, from the first (t) to the fifth ($t + 4$) year of office, in which the same incumbent is responsible for budget approval. Figure 1 reports the electoral timeline, specifying the main political and fiscal events that mark incumbents' years in office. The analysis is first carried out disregarding election timing, and then for each subsample: the political budget cycle is expected to occur at the very election year and right before it.

We also consider as dependent variable of equation 1 the deficit variation 'Δ budget balance', computed as the percentage variation in the log of the budget balance per capita from $t + 2$ to $t + 4$, capturing how fiscal scenario varies as political pressure gets stronger. The timing choice is not casual: as from our core

results, gender-driven political budget cycles are observed from the year before elections to the very electoral year. Positive values of budget balance refer to budget surplus, while negative values suggest deficit is occurring.

4.2 Validity of the RD design

Discontinuity in density The local randomization assumption underpinning RDD requires the running variable not to be manipulated by agents. In this respect, the staggered time of Italian local elections is a recurrently exogenous event. More formally, following McCrary (2008), the condition is verified by reporting the density of the margin of victory (see Figure 2). As no discontinuity is present at the threshold, possibility of manipulation of the running variable is ruled out.

Balance tests For the validity of RDD, in Table 3 we check whether the characteristics of treated and control municipalities are balanced around the cut-off under five different models.¹⁹ Balance tests reveal that women in office differ from men just because of their younger age.²⁰ This is less problematic than suspected, as younger Italian mayors are more likely to strategically increase spending before elections (Alesina et al., 2019). If any, male mayors' older age is thus expected to mitigate any positive effect they could exert on PBCs. Nevertheless, as this imbalance may raise concerns on the validity of the RD estimate, following Lee and Lemieux (2014) we restore identification of the RD analysis by linearly including

¹⁹For the sake of simplicity we only report balance test for observations associated to capital expenses. Yet, we also carried out balance tests for current expenses and which follow the electoral calendar. Since the panel is balanced over the 5 years, the resulting estimates mimic the results in Table 3.

²⁰Mayors' *Education*, which also seems discontinuous around the threshold, is sensitive to bandwidth choice and it is thus not a disturbance factor in our analysis.

Age in our regression (Calonico et al., 2019).

Sensitivity to the choice of bandwidth Bandwidth choice affects both estimates and standard errors, but if results strongly rely on a particular bandwidth, their credibility is threatened. Following Imbens and Lemieux (2008), we investigate the sensitivity of our estimates to such variation in neighborhoods. In the Appendix, we provide robustness check for each of the results that proved to be significantly discontinuous under both degrees of the polynomial fit when the CCT bandwidth is adopted.

5 Results

5.1 Political budget cycle

We estimate the effect of mayor's gender on spending levels, both at the aggregate level and disaggregated by spending items. When we first consider expenditures for all five years of mayor's office, Tables 4 and 5 show that both current and capital expenses are neutral to mayor's gender.

Nevertheless, when electoral timeline is accounted for, our results depict a scenario in which men and women differ in their spending behaviors, conditionally on electoral pressure. Table 6 shows how mayor's gender exerts a significant influence on current expenses as elections approach, both overall and across 'Administration' and 'Transportation' items. As further investigated in the Appendix (see Table A.1), the impact on aggregate current expenses and on 'Administration' is sensitive to the lowest choice of the bandwidth, while for 'Transportation', the effect is robust under all specifications. 'Transportation' encompasses road via-

bility and public transport and ,importantly, the discontinuity solely realizes one year before the elections and right at the election time, when male mayors spend on average 25% more for this item, as compared to women.

Gender-driven behaviours are not confined to current expenses but extend to capital items as well. Table 7 reveals gender-different choices for 'Environment'. Namely, male incumbents tend to disburse significantly more resources for this item, which groups parks, green areas and waste disposal, but they do so just one year before elections. At $t + 3$, municipalities headed by a man more than double their investment for 'Environment', as compared to administrations where a woman holds office.

Estimates for both current and capital spending remain significant under both linear and quadratic polynomial, and are robust to each of the different bandwidths implemented (Table A.1 and A.2). In the Appendix, we replicate our analysis for the subsample of incumbents running for reappointment²¹ obtaining similar findings. The resulting outcome mirrors our main findings, stressing the validity and the robustness of our coefficients. All results are robust to Bonferroni corrections for multiple-testing.

Our results suggest gender-biased electoral cycles: timing and allocation of revenues among different components jointly suggest that male politicians are more likely to engage in 'election-time' economics as compared to women. Consistently with the electoral cycle strategy (see section 2.2), opportunistic spending occurs for items that are highly visible, noticeable in the immediate and generate widespread electoral consensus. *Transportation* and *Environment* encompass

²¹Incumbents manipulate fiscal policies not only to improve their chances of reelection but also to support their favorite candidate. Yet, detecting candidacies backed by officeholders can be a quite daunting task.

transportation, maintenance and construction of road infrastructure, maintenance of green zones and landscape protection, waste disposal and management of the water service. By their very nature, these spending items enjoy high and immediate visibility, while generating widespread consensus in the electorate. As from Section 2.2, these expenditures are the same ones that Italian mayors manipulate the most for electoral purposes (see section 2.2).

Moreover, gender-driven differences realize at the very election year for current expenditures, while for capital spending they are limited to the year before elections. This difference is of utmost importance: in light of Rogoff (1990), male leaders have an incentive to bias consumption spending close to the electoral race, because the visibility of the policy move is highly immediate. They prefer instead to raise investment spending only before the election year, as the effects are observed by the electorate with one-period lag, just when they cast their vote.

5.2 Fiscal deterioration

Political budget cycles are typically financed by raising deficit levels before elections, eventually curbing expenditure and/or raising revenues afterwards. Ultimately, taxpayers bear the illusion of prosperity electoral cycles generate. In Table 8 we report the percentage variation of the budget balance from $t + 2$, the year before mayors start manipulating spending levels, to $t + 4$, the year of the electoral race. The fiscal balance starts deteriorating two years before elections, until the electoral competition, and it does so significantly more in municipalities with a male mayor. In particular, where a man holds office, budget balance lowers from $t + 2$ to $t + 4$, and it does so by around one percentage point more as com-

pared to municipalities headed by a woman. Put differently, when compared to female leaders, male guidance brings about a significant increase in deficit levels as elections get closer.

6 Conclusions

Using RDD estimates of mixed gender races for the election of Italian mayors, we causally show that male mayors are more likely to engage in political budget cycles as compared to their female counterparts. The cycle appears for spending items which are highly visible and salient to voters, mainly expenses for public transport and road viability, together with investment for green areas and waste disposal. Moreover, gender-biased PBCs are related to higher deficit levels. Our results provide evidence of a different style of political leadership by gender.

Our results raise a number of additional questions for future research. First, future investigation will assess whether gender-driven political cycles encompass larger municipalities, other levels of politics as well as other countries. Second, they will understand whether gender differences in political strategy also involve the revenue side. Third, our result opens new questions: are gender differences in PBCs reflecting specific traits of male and female politicians or a more general difference between men and women?

Political budget cycles can go at the detriment of people in the long term. Thus, our analysis provides a new causal argument that shows the desirability of a gender-balanced political representation.

References

- Toke Aidt and Bianca Dallal. Female voting power: the contribution of women's suffrage to the growth of social spending in Western Europe (1869–1960). *Public Choice*, 134(3):391–417, 2008.
- Toke Aidt, Francisco Veiga, and Linda Veiga. Election Results and Opportunistic Policies: A New Test of the Rational Political Business Cycle Model. *Public Choice*, 148:21–44, 2011.
- Akhmed Akhmedov and Ekaterina Zhuravskaya. Opportunistic Political Cycles: Test in a Young Democracy Setting. *Quarterly Journal of Economics*, page 38, 2004.
- Sule Alan, Seda Ertac, Elif Kubilay, and Gyongyi Loranth. Understanding Gender Differences in Leadership. *The Economic Journal*, 2019.
- Alberto Alesina and Matteo Paradisi. Political budget cycles: Evidence from Italian cities. *Economics & Politics*, 29(2):157–177, 2017.
- Alberto Alesina and Roberto Perotti. The political economy of budget deficits. Imf staff papers, IMF, 1995.
- Alberto Alesina, Traviss Cassidy, and Ugo Troiano. Old and Young Politicians. *Economica*, 86(344):689–727, 2019.
- James Andreoni and Lise Vesterlund. Which is the Fair Sex? Gender Differences in Altruism. *The Quarterly Journal of Economics*, 116(1):293–312, 2001.

- Manuel Bagues and Pamela Campa. Can Gender Quotas in Candidate Lists Empower Women? Evidence from a Regression Discontinuity Design. IZA Discussion Paper 10888, Institute of Labor Economics (IZA), 2017.
- Audinga Baltrunaite, Piera Bello, Alessandra Casarico, and Paola Profeta. Gender quotas and the quality of politicians. *Journal of Public Economics*, 118(C):62–74, 2014.
- Tiffany Barnes. *Gendering Legislative Behavior*. Cambridge University Press, 2016.
- Tiffany Barnes and Mirya Holman. Gender quotas, women’s representation, and legislative diversity. *Journal of Politics*, forthcoming.
- Bernardino Benito, Francisco Bastida, and Cristina Vicente. Creating Room for Manoeuvre: a Strategy to Generate Political Budget Cycles under Fiscal Rules. *Kyklos*, 66(4):467–496, 2013.
- Michael Barth Berkman and Robert O’Connor. Do women legislators matter?: Female legislators and state abortion policy. *American Politics Research*, 21(1):102–124, 1993.
- Anthony Bertelli and Diana O’Brien. Parties, Gender, and the Representation of Citizens’ Priorities. Wp, Bocconi University, 2019.
- Timothy Besley, Olle Folke, Persson Torsten, and Rickne Johanna. Gender quotas and the crisis of the mediocre man: Theory and evidence from sweden. *American Economic Review*, 107(8):2204–2242, 2017.

- Sonia Bhalotra and Irma Clots-Figueras. Health and the political agency of women. *AEJ: Economic Policy*, 6(2):164–197, 2014.
- David Bjorklund and Katherine Kipp. Parental investment theory and gender differences in the evolution of inhibition mechanisms. *Psychological Bulletin*, 120(2):163–188, 1996.
- Catherine Bochel and Jacqui Briggs. Do Women Make a Difference? *Politics*, 20(2):51–118, 2000.
- Catherine Bolzendahl. Beyond the Big Picture: Gender Influences on Disaggregated and Domain-Specific Measures of Social Spending, 1980–1999. *Politics and Gender*, 7(1):35–70, 2011.
- Andrea Bonfatti and Lorenzo Forni. Fiscal rules to tame the political budget cycle: Evidence from italian municipalities. *European Journal of Political Economy*, 60(C), 2019.
- Kathleen Bratton and Leonard Ray. Descriptive Representation, Policy Outcomes, and Municipal Day-Care Coverage in Norway. *American Journal of Political Science*, 46(2):428–437, 2002.
- Adi Brender. The effect of fiscal performance on local government election results in israel: 1989–1998. *Journal of Public Economics*, 87(9-10):2187–2205, 2003.
- Adi Brender and Allan Drazen. Political Budget Cycles in New versus Established Democracies. *Journal of Monetary Economics*, 52(7):1271–1295, 2005.

- Adi Brender and Allan Drazen. How do budget deficits and economic growth affect reelection prospects? evidence from a large panel of countries. *American Economic Review*, 98(5):2203–2220, 2008.
- Fernanda Brollo and Ugo Troiano. What happens when a woman wins an election? Evidence from close races in Brazil. *Journal of Development Economics*, 122(C):28–45, 2016.
- Sebastian Calonico, Matias Cattaneo, and Rocio Titiunik. Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs. *Econometrica*, 82(6):2295–2326, 2014.
- Sebastian Calonico, Matias Cattaneo, Max Farrell, and Rocio Titiunik. Regression Discontinuity Designs Using Covariates. *Review of Economics and Statistics*, 101(3):442–451, 2019.
- Alessandra Casarico, Salvatore Lattanzio, and Paola Profeta. Women, local public finance and fiscal adjustment. WP 133, Dondena Centre, Bocconi University, 2019.
- Matias Cattaneo, Michael Jansson, and Xinwei Ma. Simple Local Polynomial Density Estimators. *Journal of the American Statistical Association*, 0(0):1–7, 2019.
- Raghabendra Chattopadhyay and Esther Duflo. Women as Policy Makers: Evidence from a Randomized Policy Experiment in India. *Econometrica*, 72(5): 1409–1443, 2004.

- Sarah Childs. A Feminised Style of Politics? Women MPs in the House of Commons. *The British Journal of Politics and International Relations*, 6(1):3–19, 2004.
- Marika Cioffi, Giovanna Messina, and Pietro Tommasino. Parties, institutions and political budget cycles at the municipal level. Technical Report 885, Bank of Italy, 2012.
- Amanda Clayton and Pär Zetterberg. Quota Shocks: Electoral Gender Quotas and Government Spending Priorities Worldwide. *The Journal of Politics*, 80(3):916–932, 2018.
- Irma Clots-Figueras. Women in politics: Evidence from the Indian States. *Journal of Public Economics*, 95(7-8):664–690, 2011.
- Rachel Croson and Uri Gneezy. Gender Differences in Preferences. *Journal of Economic Literature*, 47(2):448–474, 2009.
- Jakob de Haan and Jeroen Klomp. Conditional political budget cycles: a review of recent evidence. *Public Choice*, 157(3):387–410, 2013.
- Julia Debski, Michael Jetter, Saskia Mösle, and David Stadelmann. Gender and corruption: The neglected role of culture. *European Journal of Political Economy*, 55:526–537, 2018.
- Sanbonmatsu Kira Dittmar, Kelly and Carroll Susan. *A Seat at the Table*. Oxford University Press, 2018.
- David Dollar, Raymond Fisman, and Roberta Gatti. Are women really the “fairer”

- sex? Corruption and women in government. *Journal of Economic Behavior & Organization*, 46(4):423–429, 2001.
- Allan Drazen and Marcela Eslava. Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics*, 92(1): 39–52, 2010.
- Eric Dubois. Political business cycles 40 years after Nordhaus. *Public Choice*, 166(1-2):235–259, 2016.
- Esther Duflo. Women empowerment and economic development. *Journal of Economic Literature*, 50(4):1051–1079, 2012.
- Alice Eagly and Maureen Crowley. Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100(3): 283–308, 1986.
- Catherine Eckel and Philip Grossman. Are Women Less Selfish Than Men?: Evidence From Dictator Experiments. *The Economic Journal*, 108(448):726–735, 1998.
- Lena Edlund and Rohini Pande. Why Have Women Become Left-Wing? The Political Gender Gap and the Decline in Marriage. *The Quarterly Journal of Economics*, 117(3):917–961, 2002.
- Lee Epstein, Daniel E. Ho, Gary King, and Jeffrey Segal. The supreme court during crisis: How war affects only non-war cases. *New York University Law Review*, 80(1), 2005.

- Fernando Ferreira and Joseph Gyourko. Does gender matter for political leadership? The case of U.S. mayors. *Journal of Public Economics*, 112(C):24–39, 2014.
- Hilary Footitt. *Women, Europe and the New Languages of Politics*. Bloomsbury Publishing, 2002.
- Richard Fox and Jennifer Lawless. If Only They'd Ask: Gender, Recruitment, and Political Ambition. *The Journal of Politics*, 72(2):310–326, 2010.
- Richard Fox and Jennifer Lawless. Gendered Perceptions and Political Candidacies: A Central Barrier to Women's Equality in Electoral Politics. *American Journal of Political Science*, 55(1):59–73, 2011.
- Richard Fox and Jennifer Lawless. Uncovering the Origins of the Gender Gap in Political Ambition. *American Political Science Review*, 108(3):499–519, 2014.
- Susan Franceschet and Jennifer Piscopo. Gender Quotas and Women's Substantive Representation: Lessons from Argentina. *Politics & Gender*, 4(3):393–425, 2008.
- Susan Franceschet, Mona Lena Krook, and Jennifer M. Piscopo, editors. *The Impact of Gender Quotas*. Oxford University Press, 2012.
- Kendall Funk and Andrew Philips. Representative Budgeting: Women Mayors and the Composition of Spending in Local Governments. *Political Research Quarterly*, 72(1):19–33, 2019.
- Patricia Funk and Christina Gathmann. Gender gaps in policy making: Evi-

- dence from direct democracy in Switzerland. *Economic Policy*, 30(81):141–181, 2015.
- Stefano Gagliarducci and Daniele Paserman. Gender Interactions within Hierarchies: Evidence from the Political Arena. *Review of Economic Studies*, 79(3): 1021–1052, 2012.
- Vincenzo Galasso and Tommaso Nannicini. Competing on Good Politicians. *American Political Science Review*, 105(1):79–99, 2011.
- Matteo Gamalerio. Do national political parties matter? evidence from italian municipalities. *European Journal of Political Economy*, 63, 2020.
- Andrew Gelman and Guido Imbens. Why High-Order Polynomials Should Not Be Used in Regression Discontinuity Designs. *Journal of Business & Economic Statistics*, 37(3):447–456, 2019.
- E. Haavio-Mannila, editor. *Unfinished Democracy: Women in Nordic Politics*. Pergamon Pr, Oxford ; New York, 1st edition edition, 1985.
- Roseanna Michelle Heath, Schwindt-Bayer, and Michelle Taylor-Robinson. Women on the sidelines: Women’s representation on committees in latin american legislatures. *American Journal of Political Science*, 49(2):420–436, 2005.
- Zohal Hessami and Mariana Lopes da Fonseca. Female political representation and substantive effects on policies: A literature review. CESifo WP 8155, 2020.
- Daniel Hicks, Joan Hamory Hicks, and Beatriz Maldonado. Women as policy makers and donors: Female legislators and foreign aid. *European Journal of Political Economy*, 41:46–60, 2016.

- Mirya Holman. Sex and the City: Female Leaders and Spending on Social Welfare Programs in U.s. Municipalities. *Journal of Urban Affairs*, 36(4):701–715, 2014.
- Mala Htun, Marina Lacalle, and Juan Pablo Micozzi. Does Women’s Presence Change Legislative Behavior? Evidence from Argentina, 1983–2007. *Journal of Politics in Latin America*, 5(1), 2013.
- Guido Imbens and Thomas Lemieux. Regression discontinuity designs: A guide to practice. *Journal of Econometrics*, 142(2):615–635, 2008.
- Ronald Inglehart and Pippa Norris. The developmental theory of the gender gap: Women’s and men’s voting behavior in global perspective. *International Political Science Review*, 21(4):441–463, 2000.
- Yann Kerevel and Lonna Rae Atkeson. Explaining the Marginalization of Women in Legislative Institutions. *The Journal of Politics*, 75(4):980–992, 2013.
- Miki Caul Kittilson. Representing women: The adoption of family leave in comparative perspective. *The Journal of Politics*, 70(2):323–334, 2008.
- Michael Koch and Sarah Fulton. In the defense of women: Gender, office holding, and national security policy in established democracies. *The Journal of Politics*, 73(1):1–16, 2011.
- Mona Lena Krook and Sarah Childs, editors. *Women, Gender and Politics*. Oxford University Press, 2010.
- Thomas Le Barbanchon and Julien Sauvagnat. Electoral competition, voter bias and women in politics. Discussion Paper 13238, CEPR, 2019.

- D. Lee and T. Lemieux. Regression discontinuity designs in social sciences. In *The SAGE handbook of regression analysis and causal inference*, chapter 14, pages 301–326. SAGE Publications Ltd, London, 2014.
- David Lee. Randomized experiments from non-random selection in U.S. House elections. *Journal of Econometrics*, 142(2):675–697, 2008.
- David Lee, Enrico Moretti, and Matthew Butler. Do Voters Affect or Elect Policies? Evidence from the U. S. House. *The Quarterly Journal of Economics*, 119(3):807–859, 2004.
- Peter Lindert. The Rise of Social Spending, 1880-1930. *Explorations in Economic History*, 31(1):1–37, 1994.
- John Lott and Lawrence Kenny. Did women’s suffrage change the size and scope of government? *Journal of Political Economy*, 107(6):1163–1198, 1999.
- Joni Lovenduski and Pippa Norris. Westminster Women: The Politics of Presence. *Political Studies*, 51(1):84–102, 2003.
- Jane Mansbridge. Should Blacks Represent Blacks and Women Represent Women? A Contingent "Yes". *The Journal of Politics*, 61(3):628–657, 1999.
- Justin McCrary. Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics*, 142(2):698–714, 2008.
- Poul Erik Mouritzen and James Svara. Leadership at the apex: Politicians and administrators in western local governments. *The University of Chicago Press*, 2002.

- William Nordhaus. The Political Business Cycle. *The Review of Economic Studies*, 42(2):169–190, 1975.
- P. Norris. Women Politicians: Transforming Westminster? *Parliamentary Affairs*, 49(1):89–102, 1996.
- Diana O’Brien and Jennifer Piscopo. The Impact of Women in Parliament. In Susan Franceschet, Mona Lena Krook, and Netina Tan, editors, *The Palgrave Handbook of Women’s Political Rights, Gender and Politics*, pages 53–72. Palgrave Macmillan UK, London, 2019.
- Diana O’Brien and Johanna Rickne. Gender quotas and women’s political leadership. *American Political Science Review*, 110(1):112–126, 2016.
- Deniz Ones and Chockalingam Viswesvaran. Gender, age, and race differences on overt integrity tests: Results across four large-scale job applicant datasets. *Journal of Applied Psychology*, 83(1):35–42, 1998.
- Rohini Pande. Can mandated political representation increase policy influence for disadvantaged minorities? theory and evidence from india. *The American Economic Review*, 93(4):1132–1151, 2003.
- Per Pettersson-Lidbom. Do Parties Matter for Economic Outcomes? A Regression-Discontinuity Approach. *Journal of the European Economic Association*, 6(5):1037–1056, 2008.
- Anne Phillips. *The Politics of Presence*. Oxford University Press, USA, 1995.
- Franceschet Susan Piscopo, Jennifer and Thomas Gwynn. Supermadres, mater-

- nal legacies and women's political participation in contemporary latin america. *Journal of Latin American Studies*, 48(1):1–32, 2016.
- Paola Profeta and Eleanor Woodhouse. Do electoral rules matter for female representation? Cesifo wp series 7101, 2018.
- E. Ranehill and R. Weber. Do gender preference gaps impact policy outcomes? 2017 Mimeo.
- M. Rehavi. Sex and Politics: Do Female Legislators Affect State Spending? Unpublished manuscript, University of Michigan, 2007.
- Michelle Reiss and Kaushik Mitra. The Effects of Individual Difference Factors on the Acceptability of Ethical and Unethical Workplace Behaviors. *Journal of Business Ethics*, 17(14):1581–1593, 1998.
- Luca Repetto. Political Budget Cycles with Informed Voters: Evidence from Italy. *The Economic Journal*, 128(616):3320–3353, 2018.
- Kenneth Rogoff. Equilibrium Political Budget Cycles. *American Economic Review*, 80:21–36, 1990.
- Kenneth Rogoff and Anne Sibert. Elections and Macroeconomic Policy Cycles. *Review of Economic Studies*, 55(181):1–16, 1988.
- Leslie Schwindt-Bayer. Still Supermadres? Gender and the Policy Priorities of Latin American Legislators. *American Journal of Political Science*, 50(3):570–585, 2006.
- Min Shi and Jakob Svensson. Political Budget Cycles: A Review of Recent Developments. *Nordic Journal of Political Economy*, 29:67–76, 2003.

- Caroline Slegten and Bruno Heyndels. Within-party sex gaps in expenditure preferences among Flemish local politicians. *Politics and Gender*, pages 1–24, 2019.
- Fei Song, Bram Cadsby, and Tristan Morris. Other-Regarding Behavior and Behavioral Forecasts: Females Versus Males as Individuals and as Group Representatives. *International Journal of Conflict Management*, 15(4):340–363, 2004.
- Kathy Stanwick and Katherine Kleeman. *Women Make a Difference: Report*. Center for the American Woman and Politics, 1983.
- Michele Swers. Are Women More Likely to Vote for Women’s Issue Bills than Their Male Colleagues? *Legislative Studies Quarterly*, 23(3):435–448, 1998.
- Michele Swers. *The Difference Women Make: The Policy Impact of Women in Congress*. University of Chicago Press, Chicago ; London, 1 edition edition, 2002.
- Sue Thomas. The impact of women on state legislative policies. *The Journal of Politics*, 53(4):958–976, 1991.
- Edward Tufte. *Political Control of the Economy*. Princeton University Press, 1978.
- Arturo Vega and Juanita Firestone. The Effects of Gender on Congressional Behavior and the Substantive Representation of Women. *Legislative Studies Quarterly*, 20(2):213–222, 1995.
- Tom Vogl. Race and the politics of close elections. *Journal of Public Economics*, 109:101–113, 2014.

Georgina Waylen, Karen Celis, Johanna Kantola, and S. Laurel Weldon, editors.

The Oxford Handbook of Gender and Politics. Oxford University Press, 2013.

Ana Catalano Weeks. Quotas and Party Priorities: Direct and Indirect Effects of Quota Laws. *Political Research Quarterly*, 72(4):849–862, 2019.

Lena Wängnerud. Testing the Politics of Presence: Women’s Representation in the Swedish Riksdag. *Scandinavian Political Studies*, 23(1):67–91, 2000.

Christina Wolbrecht and David Campbell. Leading by example: Female members of parliament as political role models. *American Journal of Political Science*, 51(4):921–939, 2007.

Figure 1: Electoral calendar

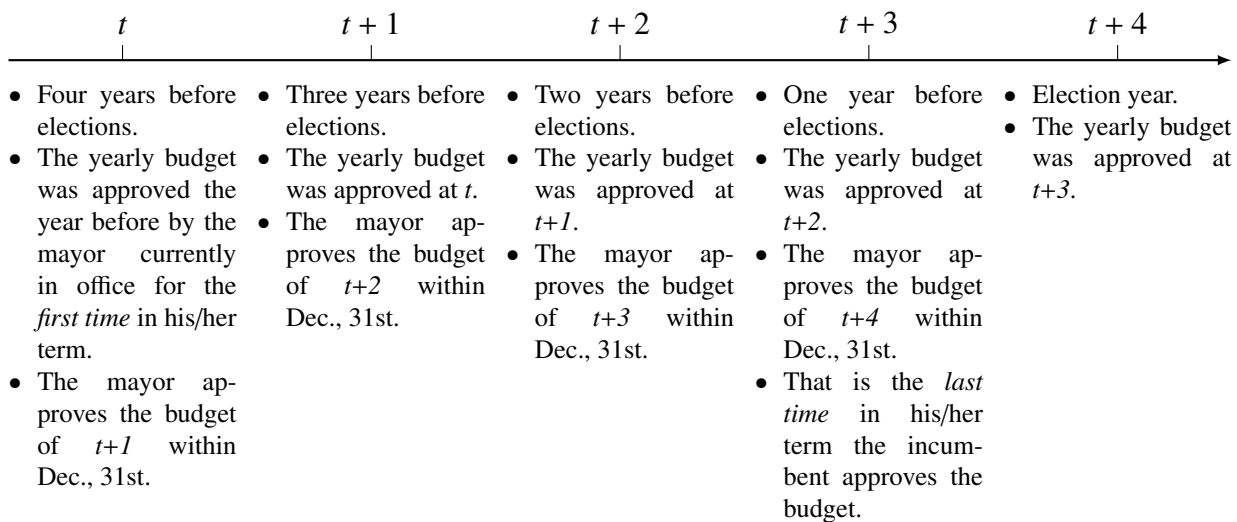
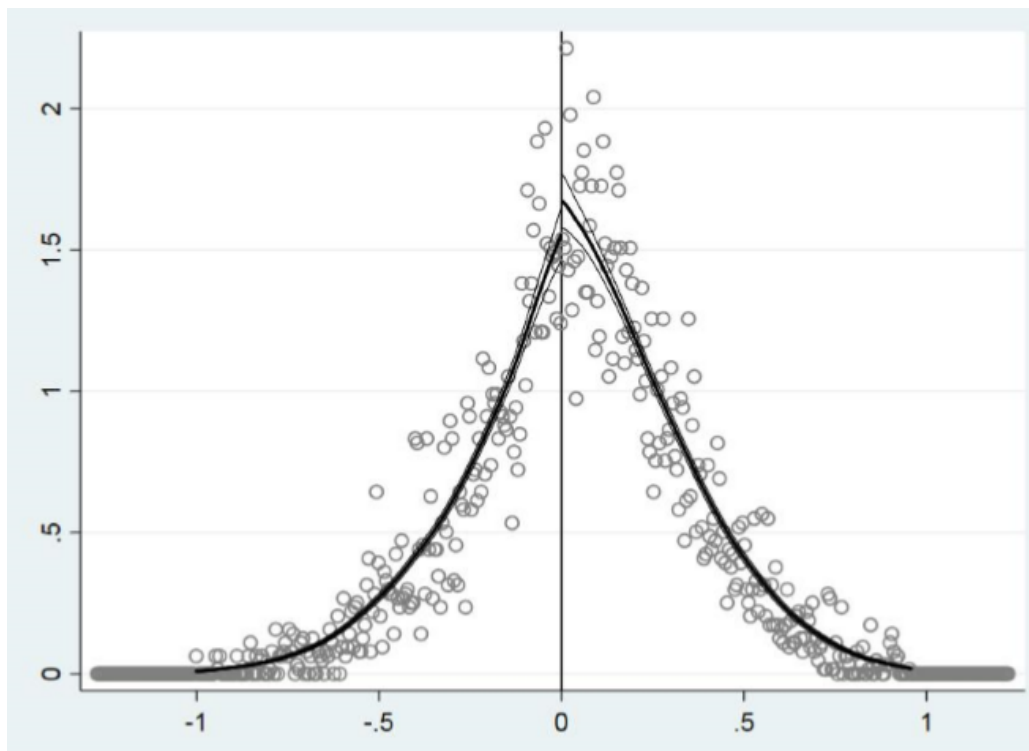


Figure 2: McCrary



Notes. Density function of MV. Optimal bin-width and bin-size as in McCrary (2008).

Table 1: Samples comparison

	All races			Mixed-gender races			<i>t</i>
	<i>Obs.</i>	<i>Mean</i>	<i>SD</i>	<i>Obs.</i>	<i>Mean</i>	<i>SD</i>	
North	62,179	0.529	0.499	9,632	0.600	0.490	***
Centre	62,179	0.137	0.344	9,632	0.124	0.330	***
South	62,179	0.334	0.472	9,632	0.275	0.447	***
Revenues	61,914	12.409	0.524	9,599	12.477	0.543	***
DSP	62,179	0.443	0.497	9,632	0.174	0.379	***
Population	62,179	7.960	1.335	9,632	7.233	0,863	***
Pop. % 0-2	62,179	0.026	0.007	9,632	0.024	0.008	***
Pop. % 3-14	62,179	0.108	0.022	9,632	0.102	0.023	***
Pop. % 15-64	62,179	0.653	0.039	9,632	0.646	0.044	***
Pop. % 65+	62,179	0.214	0.058	9,632	0.228	0.064	***
Age	62,178	52.261	9.841	9,632	51.340	10.260	***
Education	61,505	6.131	1.832	9,532	5.978	1.833	***
Civic list	62,179	0.565	0.496	9,632	0.740	0.439	***
Left-Right	13,975	2.943	1.090	1,310	3.000	1.173	*

Notes. The table presents observations, mean and standard deviation, comparing the whole sample of Italian municipalities to the subsample of mixed-gender races. Significance levels of t-test: ***p<0.01, **p<0.05, *p<0.1.

Table 2: Summary statistics

	Female mayors		Male mayors		<i>t</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	
MV	-0.191	0.212	0.183	0.246	***
Revenues	12.375	1.426	12.419	1.333	
DSP	0.164	0.371	0.172	0.378	
Population	7.242	0.879	7.228	0.855	
Pop. % 0-2	0.025	0.008	0.024	0.008	**
Pop. % 3-14	0.102	0.023	0.102	0.022	
Pop. % 15-64	0.646	0.046	0.645	0.043	
Pop. % 65+	0.228	0.066	0.229	0.063	
Age	49.440	9.840	52.404	10.335	***
Education	6.286	1.771	5.805	1.845	***
Civic list	0.762	0.426	0.728	0.445	***
Left-Right	2.883	1.119	2.952	1.145	
Δ budget balance	0.056	0.012	0.056	0.011	

Table 2: Summary statistics (continued)

	Current expenditures					Capital expenditures				
	Female mayors		Male mayors		<i>t</i>	Female		Male		<i>t</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	
Total	11.164	0.808	11.201	0.769	**	10.181	1.335	10.185	1.337	
Administration	10.279	0.813	10.299	0.748		6.918	2.873	6.735	2.987	***
Social policies	8.163	1.906	8.179	2.001		4.145	3.696	4.122	3.739	
Environment	8.740	2.483	8.713	2.639		7.777	2.798	7.667	2.943	
Education	8.568	1.212	8.553	1.164		4.201	3.892	4.228	3.940	
Transportation	8.893	0.592	8.893	0.647		7.095	3.627	6.856	3.745	***
Culture	5.833	2.562	5.824	2.669		5.794	2.567	5.894	2.581	*
Leisure	6.112	2.141	6.016	2.185	**	2.897	3.715	3.083	3.784	

Notes. The table presents mean and standard deviation by mayor's gender. Significance levels of t-test: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Balance test

	(1)	(2)	(3)	(4)	(5)
Revenues	0.037 (0.077)	0.050 (0.089)	0.034 (0.068)	0.022 (0.075)	-0.071 (0.086)
Population	0.033 (0.108)	0.070 (0.139)	0.044 (0.093)	0.058 (0.108)	0.077 (0.143)
Pop.% 0-2	-0.002 (0.001)	-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.001)	-0.001 (0.002)
Pop.% 3-14	-0.002 (0.003)	-0.002 (0.004)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.004)
Pop.% 15-64	-0.010 (0.007)	-0.013 (0.008)	-0.007 (0.006)	-0.012 (0.007)	-0.009 (0.009)
Pop.% 65+	0.013 (0.010)	0.017 (0.012)	0.010 (0.010)	0.016 (0.011)	0.012 (0.014)
Age	5.878*** (1.547)	6.294*** (1.897)	5.851*** (1.161)	5.477*** (1.405)	5.952*** (1.974)
Education	-0.559** (0.285)	-0.523 (0.341)	-0.620*** (0.214)	-0.399 (0.258)	-0.563 (0.358)
DSP	0.031 (0.028)	0.033 (0.033)	0.025 (0.020)	0.026 (0.024)	-0.005 (0.034)
Civic list	-0.076 (0.080)	-0.051 (0.087)	-0.064 (0.069)	-0.068 (0.082)	0.131 (0.111)
LR	0.938 (0.836)	0.748 (0.901)	0.737 (0.736)	0.894 (0.859)	-0.931 (1.145)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	7,836	7,836	7,836	7,836	7,836

Notes. The panel reports estimates from local regression discontinuities, with year- and municipality- fixed effects: (1) linear under CCT bandwidth; (2) quadratic under CCT; (3)-(5) linear under $h=0.3$, $h=0.2$ and $h=0.1$. Robust standard errors clustered at the municipality level: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4: Current expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total		Administration		Social policies		Environment	
Treatment	0.155	0.172*	0.145	0.151	-0.131	-0.060	0.225	0.242
	(0.095)	(0.101)	(0.096)	(0.102)	(0.171)	(0.218)	(0.220)	(0.241)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Observations	9,632	9,632	9,632	9,632	9,632	9,632	9,632	9,632

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Education		Transportation		Culture		Leisure	
Treatment	-0.163	-0.032	0.136	0.137	0.051	0.010	-0.035	-0.029
	(0.142)	(0.168)	(0.072)	(0.084)	(0.348)	(0.379)	(0.306)	(0.341)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Obs.	9,632	9,632	9,632	9,632	9,632	9,632	9,632	9,632

Notes. The panel presents estimates from local regression discontinuities under CCT bandwidth: (1), (3), (5), (7) linear; (2), (4), (6), (8) quadratic. Age added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table 5: Capital expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total		Administration		Social policies		Environment	
Treatment	-0.073 (0.130)	-0.172 (0.171)	-0.562 (0.288)	-0.675* (0.319)	-0.286 (0.305)	0.009 (0.415)	0.304 (0.237)	0.213 (0.333)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Observations	7,836	7,836	7,836	7,836	7,836	7,836	7,836	7,836

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Education		Transportation		Culture		Leisure	
Treatment	-0.309 (0.393)	-0.393 (0.469)	-0.061 (0.293)	-0.016 (0.335)	0.108 (0.290)	0.603 (0.421)	0.430 (0.301)	-0.182 (0.477)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Obs.	7,836	7,836	7,836	7,836	7,836	7,836	7,836	7,836

Notes. The panel presents estimates from local regression discontinuities under CCT bandwidth: (1), (3), (5), (7) linear; (2), (4), (6), (8) quadratic. Age added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table 6: Current expenditure, electoral calendar

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)					
	t			t+1			t+2			t+3			t+4		
Total	0.026 (0.079)	0.049 (0.098)	0.044 (0.076)	0.056 (0.089)	0.117 (0.083)	0.115 (0.086)	0.259* (0.144)	0.276* (0.154)	0.277* (0.160)	0.330* (0.188)					
Administration	0.033 (0.082)	0.034 (0.098)	0.045 (0.078)	0.054 (0.092)	0.115 (0.083)	0.101 (0.090)	0.239* (0.138)	0.231 (0.168)	0.271* (0.153)	0.310* (0.176)					
Social policies	-0.241* (0.132)	-0.201 (0.177)	-0.192 (0.138)	-0.176 (0.179)	-0.325 (0.225)	-0.446* (0.249)	0.247 (0.354)	0.346 (0.464)	-0.307 (0.223)	-0.024 (0.338)					
Environment	0.104 (0.098)	0.088 (0.115)	0.167* (0.091)	0.170 (0.105)	0.060 (0.218)	0.062 (0.256)	0.334 (0.376)	0.382 (0.460)	0.194 (0.414)	0.419 (0.519)					
Education	-0.235** (0.119)	-0.138 (0.146)	-0.245** (0.115)	-0.066 (0.151)	-0.212 (0.142)	-0.168 (0.167)	-0.166 (0.174)	-0.070 (0.238)	0.060 (0.177)	0.151 (0.213)					
Transportation	0.111* (0.065)	0.106 (0.079)	0.105 (0.065)	0.091 (0.081)	0.115* (0.067)	0.116 (0.081)	0.128* (0.069)	0.159** (0.079)	0.204*** (0.071)	0.220** (0.087)					
Culture	-0.214 (0.276)	0.254 (0.404)	-0.084 (0.302)	0.186 (0.413)	-0.086 (0.316)	0.059 (0.415)	-0.174 (0.333)	-0.016 (0.433)	0.420 (0.370)	0.338 (0.402)					
Leisure	0.112 (0.257)	0.225 (0.332)	0.110 (0.246)	0.130 (0.313)	0.153 (0.283)	0.235 (0.347)	-0.269 (0.276)	-0.296 (0.345)	-0.336 (0.300)	-0.378 (0.329)					
Polynomial Observations	Linear 1,924	Quadratic 1,924	Linear 1,924	Quadratic 1,924	Linear 1,924	Quadratic 1,924	Linear 1,924	Quadratic 1,924	Linear 1,924	Quadratic 1,924					

Table 7: Capital expenditure, electoral calendar

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	t			t+1		t+2		t+3		t+4
Total	0.031 (0.147)	0.084 (0.184)	-0.078 (0.152)	-0.175 (0.199)	-0.271 (0.178)	-0.418* (0.217)	0.211 (0.172)	0.094 (0.227)	-0.257 (0.228)	-0.387 (0.298)
Administration	-0.684 (0.450)	-0.755 (0.503)	-0.938* (0.412)	-1.301* (0.590)	-0.754 (0.439)	-0.788 (0.558)	-0.199 (0.470)	-0.251 (0.540)	-0.463 (0.481)	-0.324 (0.553)
Social policies	-0.042 (0.508)	0.193 (0.663)	-0.808* (0.484)	-0.197 (0.693)	-0.549 (0.506)	-0.707 (0.704)	0.327 (0.481)	1.089 (0.700)	-0.219 (0.410)	-0.270 (0.492)
Environment	-0.045 (0.365)	-0.180 (0.465)	-0.059 (0.390)	-0.128 (0.458)	0.127 (0.383)	0.085 (0.517)	0.915*** (0.297)	0.947*** (0.339)	0.478 (0.471)	0.509 (0.603)
Education	-0.014 (0.535)	-0.123 (0.629)	-0.195 (0.497)	-0.674 (0.736)	-0.108 (0.547)	-0.155 (0.682)	-0.575 (0.521)	-0.699 (0.641)	-0.130 (0.506)	-1.100 (0.746)
Transportation	0.247 (0.361)	-0.198 (0.533)	-0.007 (0.456)	0.029 (0.548)	0.061 (0.460)	0.150 (0.603)	0.217 (0.544)	0.327 (0.668)	-0.741 (0.538)	-0.709 (0.621)
Culture	0.167 (0.378)	0.765 (0.495)	0.182 (0.349)	0.824 (0.518)	0.038 (0.388)	0.408 (0.497)	0.092 (0.422)	0.015 (0.464)	0.274 (0.383)	0.775 (0.527)
Leisure	0.239 (0.681)	0.171 (0.771)	-0.299 (0.699)	-0.403 (0.806)	-0.268 (0.664)	-0.860 (0.858)	1.363*** (0.531)	0.750 (0.764)	0.506 (0.576)	0.107 (0.729)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Observations	1,566	1,566	1,566	1,566	1,566	1,566	1,566	1,566	1,566	1,566

Notes. The panel presents estimates from local regression discontinuities under CCT bandwidth: (1), (3), (5), (7), (9) linear; (2), (4), (6), (8), (10) quadratic. Age added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses. Bonferroni-corrected: *** $p < 0.01/3$, ** $p < 0.05/3$, * $p < 0.1/3$.

Table 8: Budget balance variation from $t + 2$ to $t + 4$

	(1)	(2)	(3)	(4)	(5)
Treatment	-0.004** (0.002)	-0.006** (0.002)	-0.004** (0.002)	-0.005*** (0.002)	-0.007** (0.002)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	1,924	1,924	1,924	1,924	1,924

Notes. The panel reports estimates from local regression discontinuities. The dependent variable is ' Δ budget balance'. (1) linear regression under CCT bandwidth; (2) quadratic under CCT; (3)-(5) linear under $h=0.3$, $h=0.2$ and $h=0.1$. *Age* added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/3$, ** $p < 0.05/3$, * $p < 0.1/3$.

7 Appendix

Table A.0: Variables description and sources

Variable	Definition and measure	Sample	Source
<i>Treatment</i>	Municipality with a male mayor	2002-2017	IMI
<i>Administration</i>	Log of expenditure per capita for governing bodies and local administrative services, including public employees (€, base year 2015)	2002-2017	Aida PA
<i>Culture</i>	Log of expenditure per capita for cultural activities and protection/promotion of cultural heritage (€, base year 2015)	2002-2017	Aida PA
<i>Education</i>	Log of expenditure per capita for education and school building (€, base year 2015)	2002-2017	Aida PA
<i>Environment</i>	Log of expenditure per capita for green areas and waste disposal (€, base year 2015)	2002-2017	Aida PA
<i>Leisure</i>	Log of expenditure per capita for leisure activities/facilities and youth policies (€, base year 2015)	2002-2017	Aida PA
<i>Security</i>	Log of expenditure per capita for local security and public order (€, base year 2015)	2002-2017	Aida PA
<i>Social policies</i>	Log of expenditure per capita for nurseries, families, elderly and people at risk of social exclusion (€, base year 2015)	2002-2017	Aida PA
<i>Transportation</i>	Log of expenditure per capita for local transportation and road construction and maintenance (€, base year 2015)	2002-2017	Aida PA
<i>Tourism</i>	Log of expenditure per capita for tourism and territory promotion (€, base year 2015)	2002-2017	Aida PA
<i>Reelected</i>	Equal to one if the mayor running for reappointment wins the electoral race	2002-2017	IMI
Δ budget balance	% variation of log of budget balance between $t + 2$ and $t + 4$ (€, base year 2015)	2002-2017	Aida PA

Notes. IMI: Italian Ministry of the Interior.

Table A.1: Current expenditure, electoral calendar. Robustness checks

	(1)	(2)	(3)	(4)	(5)
Total ($t + 3$)	0.259* (0.144)	0.276* (0.154)	0.262** (0.105)	0.288** (0.139)	0.170 (0.194)
Total ($t + 4$)	0.277* (0.160)	0.330* (0.188)	0.274** (0.117)	0.281* (0.147)	0.222 (0.197)
Administration ($t + 4$)	0.271* (0.153)	0.310* (0.176)	0.272** (0.112)	0.261* (0.140)	0.186 (0.188)
Transportation ($t + 3$)	0.128* (0.069)	0.159** (0.079)	0.132** (0.061)	0.165** (0.070)	0.239*** (0.089)
Transportation ($t + 4$)	0.204*** (0.071)	0.220** (0.087)	0.193*** (0.060)	0.252*** (0.069)	0.228** (0.090)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	1,924	1,924	1,924	1,924	1,924

Notes. The panel reports estimates from local regression discontinuities: (1) linear under CCT bandwidth; (2) quadratic under CCT; (3)-(5) linear under $h=0.3$, $h=0.2$ and $h=0.1$. *Age* added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/3$, ** $p < 0.05/3$, * $p < 0.1/3$.

Table A.2: Capital expenditure, electoral calendar. Robustness checks

	(1)	(2)	(3)	(4)	(5)
Environment ($t + 3$)	0.915*** (0.297)	0.947*** (0.339)	0.900*** (0.224)	0.838*** (0.272)	0.754** (0.374)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	1,566	1,566	1,566	1,566	1,566

Notes. The panel reports estimates from local regression discontinuities: (1) linear under CCT bandwidth; (2) quadratic under CCT; (3)-(5) linear under $h=0.3$, $h=0.2$ and $h=0.1$. Age added as covariate, together with year- and municipality-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table A.3: Balance test, mayors seeking re-election

	(1)	(2)	(3)	(4)	(5)
Revenues	0.697 (0.473)	0.625 (0.455)	-0.016 (0.248)	-0.148 (0.252)	0.368 (0.259)
Population	-0.085 (0.150)	-0.080 (0.151)	-0.076 (0.148)	-0.083 (0.149)	-0.085 (0.149)
Pop.% 0-2	-0.002 (0.001)	-0.000 (0.001)	-0.002 (0.001)	-0.002* (0.001)	-0.002 (0.001)
Pop.% 3-14	-0.005 (0.004)	-0.005 (0.004)	-0.005 (0.004)	-0.004 (0.004)	-0.006 (0.004)
Pop.% 15-64	-0.014* (0.009)	-0.016* (0.008)	-0.014 (0.009)	-0.016* (0.009)	-0.015* (0.009)
Pop.% 65+	0.017 (0.012)	0.018 (0.011)	0.019 (0.012)	0.019 (0.012)	0.020 (0.012)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	795	795	795	795	795

Table A.3: Balance test, mayors seeking re-election (continued)

	(1)	(2)	(3)	(4)	(5)
Age	2.958 (2.258)	2.954 (2.258)	2.958 (2.258)	2.958 (2.258)	2.958 (2.258)
Education	-0.915*** (0.337)	-0.915*** (0.337)	-0.915*** (0.337)	-0.915*** (0.337)	-0.915*** (0.337)
Civic list	-0.032 (0.071)	-0.032 (0.071)	-0.032 (0.071)	-0.032 (0.071)	-0.032 (0.071)
Left-Right	0.560 (0.704)	0.560 (0.704)	0.560 (0.704)	0.560 (0.704)	0.560 (0.704)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	795	795	795	795	795

Notes. The panel reports estimates from local regression discontinuities: (1) linear under CCT bandwidth; (2) quadratic under CCT; (3)-(5) linear under $h=0.3$, $h=0.2$ and $h=0.1$. Robust standard errors clustered at the municipality level in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.4: Current expenditure, mayors seeking re-election

	(1)	(2)		(3)	(4)		(5)	(6)		(7)	(8)		(9)	(10)	
	t			t+1			t+2			t+3			t+4		
Transportation	0.244** (0.111)	0.267** (0.135)	0.247** (0.096)	0.255** (0.122)	0.198** (0.090)	0.178 (0.126)	0.163* (0.094)	0.132 (0.124)	0.203** (0.093)	0.167 (0.124)					
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	
Observations	795	795	795	795	795	795	795	795	795	795	795	795	795	795	795

Notes. The panel presents estimates from local regression discontinuities under CCT optimal bandwidth. (1), (3), (5), (7), (9) linear regression; (2), (4), (6), (8), (10) quadratic fit. Mayor's *Education* added as covariate, together with year-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table A.5: Current expenditure, mayors seeking re-election. Robustness checks

	(1)	(2)	(3)	(4)	(5)
Transportation $t + 3$	0.244** (0.111)	0.267** (0.135)	0.223** (0.091)	0.269*** (0.103)	0.248* (0.130)
Transportation $t + 4$	0.247** (0.096)	0.255** (0.122)	0.245*** (0.082)	0.288*** (0.092)	0.211* (0.115)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	795	795	795	795	795

Notes. The panel reports estimates from local regression discontinuities. (1) linear regression under CCT optimal bandwidth; (2) quadratic regression using CCT; (3)-(5) linear regressions under $h=0.3$, $h=0.2$ and $h=0.1$, respectively. Mayor's *Education* added as covariate, together with year-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table A.6: Capital expenditure, mayors seeking re-election

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	t		t+1		t+2		t+3		t+4	
Environment	0.619 (0.500)	0.946 (0.741)	0.698 (0.491)	0.656 (0.568)	1.282*** (0.494)	1.504** (0.699)	1.096*** (0.412)	1.063** (0.444)	1.178 (0.765)	1.134 (0.885)
Polynomial	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Observations	675	675	675	675	675	675	675	675	675	675

Notes. The panel presents estimates from local regression discontinuities under CCT optimal bandwidth. (1), (3), (5), (7), (9) linear regression; (2), (4), (6), (8), (10) quadratic fit. Mayor's *Education* added as covariate, together with year-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.

Table A.7: Capital expenditure, mayors seeking re-election. Robustness checks

	(1)	(2)	(3)	(4)	(5)
Environment $t + 2$	1.282*** (0.494)	1.504** (0.699)	1.344*** (0.449)	1.538*** (0.523)	1.062 (0.705)
Environment $t + 3$	1.096*** (0.412)	1.063** (0.444)	0.996*** (0.318)	1.132*** (0.377)	0.813* (0.494)
Bandwidth	CCT	CCT	0.3	0.2	0.1
Polynomial	Linear	Quadratic	Linear	Linear	Linear
Observations	675	675	675	675	675

Notes. The panel reports estimates from local regression discontinuities. (1) linear regression under CCT optimal bandwidth; (2) quadratic regression using CCT; (3)-(5) linear regressions under $h=0.3$, $h=0.2$ and $h=0.1$, respectively. Mayor's *Education* added as covariate, together with year-fixed effects. Robust standard errors clustered at the municipality level in parentheses, Bonferroni-corrected: *** $p < 0.01/2$, ** $p < 0.05/2$, * $p < 0.1/2$.