Can Gender Quotas in Candidate Lists Empower Women? Evidence from a Regression Discontinuity Design*

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Abstract

We provide a comprehensive analysis of the short- and medium-term effects of gender quotas in candidate lists using evidence from local elections in Spain. In the context of a closed list system with proportional representation, quotas were introduced in 2007 in municipalities with more than 5,000 inhabitants, and were extended in 2011 to municipalities with more than 3,000 inhabitants. Using a Regression Discontinuity Design, we find that quotas increased the share of women in candidate lists by around 8 p.p. and among council members by 4 p.p. However, within three rounds of elections, we do not observe any significant variation in several proxies of politicians' quality, the probability that women reach powerful positions such as party leader or mayor, or the size and composition of public finances. Overall, our analysis suggests that quotas in candidate lists fail to remove the barriers that prevent women from playing an influential role in politics.

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1 Introduction

Despite the large and persistent increase in women's educational attainment and labor market participation observed during the last decades, women have failed to achieve equal representation with men in politics. To address the scarcity of women in politics, many countries, mostly in Europe and Latin America, have adopted quotas that regulate the gender composition of candidate lists.[1] For instance, 10 of the 28 member countries of the European Union have legislated candidate gender quotas that apply to all political parties and, in thirteen other country members, quotas have been adopted voluntarily by some of the main political parties (see Figure 1).

In spite of their popularity among policy-makers worldwide, the merits of quotas in candidate lists are still debated. Opponents of these quotas are often concerned about their effects on the meritocratic selection of politicians. Quotas may reduce the quality of politicians, at least in the short-term, if the under-representation of women in politics reflects the lack of qualified women willing to run for office. However, as pointed out by Bertrand (2018), it is more likely that a society improves the quality of its leaders when it enlarges the pool where those leaders are chosen from. Another common criticism of quotas in candidate lists is that they do not guarantee that women will reach powerful positions. Candidate quotas tend to target rank-and-file positions such as council members in local elections or members of parliaments in national ones. Even when quotas succeed at increasing the share of women in these bodies, the under-representation of women in higher ranks may persist. An additional controversial issue is the impact of quotas on policies. A large body of literature has documented gender differences in policy preferences, which would imply, according to citizen-candidate models, that more gender-balanced political bodies might ensure a better representation of women's preferences in policy decisions. According to the median voter theory, however, quotas can only influence policies if they affect the identity of voters (Downs, 1957). Quotas might also fail to align policies with women's preferences if they do not promote women to powerful positions or do not generate the "critical mass" of female politicians potentially needed to make a difference in policy (Dahlerup, 2006).

Whether quotas increase or decrease the quality of politicians, help women reach top political

[1] In addition to quotas in candidate lists, some countries, particularly in Africa and South-East Asia, have introduced *mandated representation*, whereby relevant seats in political institutions are reserved to women. For a complete overview of the different gender quota systems see Dahlerup (2007).

positions and align policies with women's preferences, is likely to depend on their design and on the response of the agents involved, namely parties, potential candidates and voters. In this paper, we provide a comprehensive analysis of the impact of gender quotas in candidate lists using the unique quasi-experimental evidence provided by their introduction in local elections in Spain. Within a proportional representation electoral system with closed lists, a quota requiring the presence of at least 40% of candidates of each gender on the ballot was first implemented in 2007 in municipalities with more than 5,000 inhabitants. In order to limit the systematic placement of the under-represented sex at the bottom of electoral lists, the quota also applies to each five-position bracket. The quota was extended in 2011 to municipalities with more than 3,000 inhabitants.

We examine the impact of quotas using information from three consecutive rounds of elections -2007, 2011 and 2015-. To estimate the causal impact of quotas, we use a regression discontinuity (RD) design that exploits the existence of a population threshold that determines in which municipalities the quota is implemented. As expected, we find that quotas increase the share of female candidates to around 46% which, due to indivisibilities, is the minimum share required.[2] This corresponds to a 8 p.p. (60% st. dev.) increase relative to slightly smaller municipalities where quotas were not implemented. The increase occurs in the first election when the quota is in place and it affects mainly candidates in the last two positions of each five-position bracket. We do not observe any further change in the following two elections.

Quotas also improve the presence of women in the local council, although this effect is more modest reflecting the worse positioning of women in the ballot. Specifically, the share of female council members increases by 4 p.p. (32% st. dev.) when quotas are first introduced, relative to a baseline of around 33 p.p.. There is no additional growth in the following two electoral cycles. Despite the increase in the share of female councilors, we do not observe, within three rounds of elections, any significant effect on several proxies of politicians' quality, on the presence of women in leadership positions, and on the composition of the local budget. Below we describe in more detail these results, which are also summarized in Figure 2a (short-term) and Figure 2b (medium-term).

We study the impact on the quality on politicians using two different sources of information.[3]

[2]Since the council size varies with population, in municipalities between 5,000 and 10,000 inhabitants the quota requires that at least 46.1% members of the list are women (6 out of the 13 members); in municipalities between 2,000 and 5,000 inhabitants, 45.5% should be women (5 out of the 11 candidates).

[3]As in Dal Bo and Finan (2018), we refer to politician quality as the set of features that voters tend to value regardless of ideology, such as politicians' competence and integrity.

First, we examine the educational attainment and experience of council members. In municipalities where the quota was implemented, council members have 0.05 fewer years of education and, according to the 95% confidence interval, it is possible to reject that quotas increase councilors' average educational attainment by more than 0.4 years (22% of a standard deviation) or that they decrease it by more than 0.6 years (28% st. dev.). We also observe a short-term decrease in the political experience of council members, but this effect fades away after one election. Second, we use information on voting behavior. Following Casas-Arce and Saiz (2015), we analyze the electoral performance of party lists that had relatively fewer women before quotas were introduced and, therefore, were affected to a larger extent by the quota (in what follows, *male-holdouts*). If voters value diversity in political organizations or they regard the new women as higher quality politicians than the men they displace, the electoral performance of male-holdouts should improve. Instead, point estimates are always negative, although not significantly different from zero, and it is possible to discard relatively small positive effects (1.2 p.p, 7% st. dev.). Our analysis of voting data also shows that there is no significant impact on turnout.

The probability that a woman is placed on the top of the list, a position which is typically reserved for the party leader, is also not affected significantly, although our estimates are not sufficiently precise to discard relatively large positive effects. The 95% C.I. is between -3 p.p. (6% st. dev.) and +8 p.p. (17% st. dev.) relative to a baseline of around 20 p.p.. Similarly, the evidence suggests that quotas did not increase the presence of women among mayors.

We do not find evidence of a change in policy due to the quota either. To study the impact of quotas on policy-making we use survey data on the policy preferences of a sample of 57,000 Spanish residents. Gender differences in preferences are statistically significant but generally modest. Overall women are slightly more worried about unemployment, pensions, education, the health system, drugs, youth problems, violence against women, *women's issues*, and social problems. Men are slightly more concerned about immigration, work conditions, politics, housing, agriculture, hunting and fishing, corruption, environmental degradation, the judiciary system and infrastructure. We use this information to classify public expenditures as *female*, *male*, or *neutral*. We do not find any statistically or economically significant changes in public expenditures, revenues, or budget composition. In municipalities affected by the quota the share of female expenditures is 1 p.p. higher, with a 95% confidence interval between -0.7 p.p. (8% st. dev.) and 3.2 p.p. (36% st. dev.).

Finally, we also investigate if the introduction of quotas has any impact on the economic situation of the municipality. We do not observe any significant changes in the overall unemployment rate or in income per capita. Likewise, female unemployment rate does not seem to change. The point estimate is equal to -0.16 p.p., with a 95% confidence interval between -0.48 (30% st. dev.) and 0.15 (10% st. dev.).

Our paper contributes to a growing literature on the impacts of electoral quotas in several ways. First, we provide, to the best of our knowledge, the first short and medium-term estimates of the effect of candidate gender quotas on policy outcomes in a Western democracy.[4] In a very influential paper, Chattopadhyay and Duflo (2004) have shown that in Indian villages the reservation of the most important seat of the local council to a woman leads to policies that are more aligned with the preferences of female voters. Instead, we do not find any significant impact of candidate quotas on policies in the context of Spanish local governments. There are at least two possible explanations why our findings contrast with those in Chattopadhyay and Duflo (2004). The most obvious one is that the context of a Western democracy is in various ways different from that of rural India. For instance, our survey information on the preference of Spanish voters shows that gender differences tend to be modest. Another relevant difference is the type of quota implemented. While in India the quota reserves the top position of some councils for women, in Spain the quota targets only rank-and-file positions and it failed to affect the identity of the local party leader or the mayor. Spanish parties and local councils are highly hierarchical institutions and it is possible that the female politicians attracted by quotas were unable to affect the political debate.

Second, we add to the literature on the impact of gender quotas on women's access to top political positions and the quality of politicians. Two previous studies have found that, in the context of Western democracies, quotas increase the probability that women reach leadership positions,

[4] A related literature studies the relationship between the gender of competitively elected policy-makers and policy outcomes, either relying for identification on observable characteristics (Svaleryd, 2009) or exploiting the close election of female politicians (Clots-Figueras, 2011, 2012; Brollo and Troiano, 2016; Ferreira and Gyourko, 2014; Hessami and Baskaran, 2019). Our study adds to this evidence by considering a specific treatment, i.e. the introduction of candidate gender quotas, which can potentially produce different effects than the competitive election of more women. On one hand, women elected through quotas may focus more on "women's priorities", since the quota primes their gender identity but, on the other hand, they may be less influential because they typically have lower experience and they may lack legitimacy in the eyes of party leaders.

above and beyond the quota mandate (De Paola et al., 2010; O'Brien and Rickne, 2016).[5,6] The scarce available evidence also suggests that quotas improve the quality of politicians. Using data from Italy and Sweden respectively, Baltrunaite et al. (2014) and Besley et al. (2017) conclude that quotas help to attract female candidates who are more qualified in terms of their educational and professional background than the male candidates that they replace. Instead, our null results, both in terms of the absence of a trickle-up effect and the lack of an improvement in the quality of politicians, suggest that the mechanisms through which quotas operate may depend on the extent of gender discrimination, voters' preferences, and the design of the electoral system in which quotas are embedded. For instance, in a context where party leaders have all the power, such as the Spanish one, a trickle-up effect is likely more improbable.

Third, our study also contributes to the literature on quotas from a methodological perspective. Previous studies have typically relied on a difference-in-differences approach, where the consistency of estimates depends on non-trivial assumptions about how the outcome variable would have evolved in the treatment group in the absence of the treatment.[7] Instead, we exploit a regression discontinuity design, which relies on milder assumptions. In the case of quotas in local elections in Spain, these two approaches lead to remarkably different conclusions. Using a regression discontinuity approach, we find that the introduction of quotas in 2007 did not have a significant impact on the electoral support obtained by male holdouts (i.e. parties that had fewer women in the previous election and, therefore, are expected to be affected to a larger extent by the quota). Our estimate is negative, but it is not statistically significant at conventional levels, and we can discard relatively small positive effects. Conversely, Casas-Arce and Saiz (2015), using the same dataset but a difference-in-differences specification that compares larger to smaller municipalities, conclude that quotas increased the electoral support for male holdouts by 6.6 percentage points (54% st. dev.). In a companion paper, we argue that the difference-in-differences strategy is not appropriate in

[5]De Paola et al. (2010) show that, in a context of open lists, Italian municipalities that were forced to adopt candidate gender quotas in 1993 have a higher share of female mayors, even after the quota is removed. O'Brien and Rickne (2016) analyze how the adoption of gender quotas in 1993 by the Swedish Social Democratic Party affects the probability that women reach a leadership position within the party at the local level. They find that the probability of having a female leader increased to a larger extent in those branches of the party that experienced larger increases in the election of female councillors when quotas were introduced.

[6]Some authors have exploited close-elections to study how the election of a female politician empowers other women to vote or run for office themselves (Broockman, 2014; Bhalotra et al., 2018).

[7]A notable exception is provided by a recent paper by Baltrunaite et al. (2019), which analyses the short-term impact of candidate quotas on the probability that women get elected using evidence from the introduction of quotas in 2013 in Italian local elections in municipalities with more than 5,000 inhabitants.

this context, as small municipalities do not provide a credible counterfactual for what would have happened in larger ones in the absence of the quota (Bagues and Campa, 2020).[8] In this paper, by leveraging a regression discontinuity design we are able to account for the potential relationship between population and electoral outcomes.[9]

Regression discontinuity designs typically require weaker assumptions than other non-experimental methods, but this comes at the expense of lower accuracy. We address this issue explicitly in Section 6.5, where we report for each of the outcomes that we study (i) power calculations and (ii) the post-study probability that there is an effect of a certain size given the observed evidence (Maniadis et al., 2014). These estimates may help readers to assess how much they should update their priors about the impact of quotas, taking into account their beliefs about the potential magnitude of the effect. For instance, let us consider the case of a reader who holds the prior belief that there is a 50% probability that quotas increase the share of female party leaders by 8 p.p. and a 50% probability that they have no effect. If this reader gives face value to our results, she should update her posterior belief that the quota has an effect of this size from 50% to around 10%. However, an observer who initially expected a smaller effect should adjust her priors to a lower extent. If her prior belief was that there is a 50% probability that quotas increase the share of female party leaders by 2 p.p., she should, based on our findings, adjust only slightly her beliefs to around 40%.

Our regression discontinuity design identifies the impact of quotas in relatively small municipalities, with population around 3,000 and 5,000 inhabitants. The 'locality' of the estimate has some advantages but it may also raise some potential concerns. On the one hand, this is a policy-relevant context. Small municipalities are often excluded from the implementation of gender quotas, despite the fact that they tend to exhibit relatively low levels of female empowerment, both in the labor market and in politics. For instance, similarly to the case of Spain, in Italy gender quotas are only implemented in municipalities with more than 5,000 inhabitants and in France in municipalities with more than 3,500 inhabitants. Our results are informative for policy-makers who might con-

[8] In Bagues and Campa (2020) we show that controlling for municipality population in Casas-Arce and Saiz (2015)'s main specification changes the sign of the estimated impact of the quota. We also conduct a series of placebo tests which cast doubts on the difference-in-differences specification used by the authors.

[9] The difference-in-differences specification used by Casas-Arce and Saiz (2015) is essentially equivalent to a regression discontinuity analysis with a rectangular kernel, a bandwidth of 5,000 inhabitants and a polynomial of order zero at each side of the threshold. Using a regression discontinuity approach, the optimal bandwidth is around 1,000-1,500 inhabitants and, most importantly, the estimation allows for the possibility that electoral behavior evolves differently in municipalities of different size at both sides of the threshold.

sider extending quotas to slightly smaller municipalities, suggesting that the extension could help to modestly increase the presence of women in the council but it would hardly have a relevant impact on other dimensions, at least within three electoral cycles. On the other hand, our analysis of small municipalities is unlikely to capture some effects of quotas that might materialize only in larger municipalities, such as the potential progression of female councilors to regional or national politics.

The structure of the paper is as follows. Section 2 provides a conceptual framework where we discuss how quotas may affect candidates, political parties, voters and policy-makers. In Section 3 we describe the institutional context, including the electoral system, the characteristics of the Spanish gender quota and the functioning of local governments. In Section 4 we present the data and in Section 5 we introduce the empirical strategy and examine potential threats to its validity. The results of the empirical analysis are reported in Section 6, and in Section 7 we summarize the main findings and discuss their interpretation.

2 Conceptual Framework

The impact of quotas might vary depending on the political system where they are embedded and the preferences and constraints of the different agents. Next we outline a conceptual framework for the quotas impact on the following five dimensions: (i) the composition of candidate lists, (ii) voting behavior, (iii) the composition of the council, (iv) women's access to leadership positions and, finally, (v) policies.

Candidate gender quotas tend to automatically increase the share of women in candidate lists, at least when the quota is binding and it is properly enforced. Quotas may also help to improve the quality of candidates. When the lack of female candidates is due to discrimination by party leaders, the introduction of quotas might force parties to replace male candidates with more skilled female ones (Besley et al., 2017). On the contrary, quotas may reduce the average quality of candidates, at least in the short-term, if the under-representation of women in politics reflects the lack of qualified women willing to run for office. In the short term quotas may also generate a mechanical decrease in candidates' political experience.

The impact on voters' behavior depends on voters' preferences and perceptions. Parties that

are forced by the quota to increase their share of female candidates may benefit electorally if voters value diversity or if they perceive that the skills of candidates have improved. However, voters may also perceive a deterioration in the quality of the list, if there are not enough qualified women willing to run. Importantly, some voters may also be prejudiced about female politicians; for instance, according to information from the World Value Survey, 19% of citizens in the US and 25% in the European Union consider that men make better political leaders than women do.[10] In these cases, the electoral performance of lists that are more affected by the gender quota would worsen. Finally, regardless of the perceived quality of rank-and-file candidates, quotas would not have any effect on voting behavior if voters were only concerned about the characteristics of party leaders and these were largely unaffected by the quota.

An important aim of candidate quotas is to increase the share of women who are elected to legislative positions. The extent to which this objective is fulfilled depends on the design of the quota, the electoral system, and voters' and parties' behavior. In closed-list systems, quotas are likely to improve women's representation as long as they are appropriately designed and parties cannot game them, for instance by placing women at the bottom of lists (Baltrunaite et al., 2019; Dahlerup and Freidenvall, 2013; Esteve-Volart and Bagues, 2012; Jones, 2008; Matland, 2006). Voters can also reduce or amplify the effect of the quota, depending on whether they systematically decrease or increase their support for lists that were relatively less feminized pre-quota (i.e. male holdouts) and that therefore have to increase their share of women more. In open-list systems, the impact of voters' behavior is likely to be larger. In this case, if women's under-representation was due to voters' bias, quotas are unlikely to lead to significant improvements in the gender balance of the targeted legislature. In addition to its impact on the quantity of female council members, the quota may affect other characteristics of elected legislators, such as their quality (if there is a change in the average quality of candidates).

Another important objective of quotas is to accelerate women's access to party leadership positions (Beaman et al., 2009; De Paola et al., 2010; O'Brien and Rickne, 2016). A trickle-up effect can arise through several channels. The introduction of a quota might contribute to the break down of

[10]The information is based on the 6th wave of the World Value Survey, which includes responses from nine EU countries: Cyprus, Estonia, Germany, Netherlands, Poland, Romania, Slovenia, Spain and Sweden. Unfortunately, the World Value Survey does not collect information on the share of people that consider that women make better political leaders.

existing negative stereotypes regarding female politicians, both among party leaders and voters. In addition, quotas might foster the creation of political networks that are friendlier to women, helping some of these women to climb the career ladder in parties (Gagliarducci and Paserman, 2012; Born et al., 2019).[11] Quotas can also spur a debate over women's under-representation, promoting parties' commitment to address the issue. These mechanisms might generate dynamics that, in the longer term, would lead to an increase in women's access to leadership positions. On the other hand, if the pool of potential female candidates is limited, quotas may potentially reduce the quality of female politicians, contributing to generate negative stereotypes about women in politics and creating a stigma effect that may hinder women's access to leadership positions. Moreover, even if the quality of female candidates improves, the persistence of "old boys networks" at the top of parties may prevent women from accessing leadership positions notwithstanding the presence of the quota.

Finally, if there are significant gender differences in preferences over the composition of public spending, quotas may help to achieve a better representation of women's preferences.[12] The magnitude of the effect is likely to depend on how much quotas change the composition of local councils.[13] According to citizen-candidate models, the impact would be larger if quotas help women to reach top positions (Osborne and Slivinski, 1996; Besley and Coate, 1997). But even if women stay at lower levels and remain a minority, they may still have an influential role. Pande (2003), Folke (2014) and Hessami and Baskaran (2019) show theoretically and empirically that an increase in the size of a minority in a legislature can result in policy change.[14] However, other authors have

[11] Using data from Italian municipalities, Gagliarducci and Paserman (2012) show that female mayors are more likely to be ousted by the municipal council than male mayors, especially when the municipal council is entirely male. Born et al. (2019) confirm in a laboratory experiment that the support for female leadership is larger in female-dominated groups.

[12] For instance, Funk and Gathmann (2015) show that among Swiss voters there are large gender gaps in preferences in the areas of health, environmental protection, defense spending and welfare policy. Ranehill and Weber (2017) also provide evidence from the lab that gender differences in economic preferences translate into substantial differences in voting behavior, although reduced with respect to the differences in individual preferences.

[13] Quotas might also affect the identity of the median voter and, as a result, the policies chosen by policy makers (Downs, 1957).

[14] Pande (2003) proposes a model of political competition where the influence of a legislator on policy is proportional to the proportion of legislators who share her policy preferences; she refers to Weingast (1979) for a "micro-foundation of such a universalistic legislative bargaining procedure." Folke (2014) shows that one additional seat in the municipal council gained by anti-immigration and green parties in Sweden affects council decisions on policies that are key for these parties; plausible mechanisms appear to be changes in bargaining power in the legislature or the emergence of alternative majorities on secondary issues. Hessami and Baskaran (2019) find that in Bavaria adding one more woman to the municipal council significantly accelerates public childcare provision, increases the probability that women councilors speak, and leads to more frequent discussions of childcare services during council meetings.

argued that women legislators can affect policy only if they reach a "critical mass" of representatives, both in legislatures as well as within parties. When a substantial minority is reached, female legislators can develop supportive alliances and affect the culture of the group providing "surrogate representation" for female voters (Dahlerup, 2006; Grey, 2006; Tremblay, 2006).

3 Institutional Context

3.1 Electoral system

In Spain, the members of municipal councils are elected every four years through a proportional representation system with closed lists. Voters express their preference for a given party by selecting the corresponding ballot, which includes as many candidates as the number of seats in the municipal council (Figure A1). The number of seats obtained by each party is determined according to the d'Hondt law and, within each party, the order in the list decides which candidates get elected. All elected candidates become members of the municipal council, which appoints the mayor. Only candidates placed on the top of their party list are eligible for this position.[15] There are no term-limits.

The closed-list system strengthens the power of party leaders. Primaries are rare and councilors' election depends more on their position on the ballot as assigned by the party leader than on their individual popularity among voters. The prominence of leaders carries to policy-making as well, where the mayor is in charge of the most important decisions deliberated at the municipal level. The primacy of the mayor in municipal politics is noted in Sweeting (2009), who analyzes formal and informal rules that regulate the decision-making process at the municipality level in Spain. As a local politician interviewed by Sweeting (2009) puts it, *'(m)unicipalities are presidential (...) the mayor has all the power'*.

In small municipalities, most council members are not professional politicians. For instance, in municipalities with more than 1,000 and less than 10,000 inhabitants, only around 50% of mayors and 3% of councilors are full-time employed by the town hall.[16]

[15] Law 7/1985 (*Ley Reguladora de las Bases de Regimen Local*).

[16] Source: Our own calculation based on data provided by the Ministry of Finance for year 2016.

3.2 Gender quotas

In March 2007, the Equality Act modified the Spanish electoral law and introduced the principle of gender balanced candidate lists.[17] According to the new regulation, at least 40% of candidates on electoral lists must be female and at least 40% must be male. This quota applies both to the entire party list and to every five positions within the list. For instance, in a ballot with 11 candidates there should be at least 5 women and 5 men, and the ballot should also include at least 2 men and 2 women within the first five positions of the list and within positions six to ten. Lists that do not satisfy these requirements cannot participate in the elections.

Quotas were implemented for the first time in the 2007 local elections in all municipalities with more than 5,000 inhabitants, as measured on January 1 of the previous year. In the 2011 elections the quota was extended to all municipalities with more than 3,000 inhabitants. This population cutoff was also applied in the 2015 elections. The Equality Act had large political and popular support. According to survey information, two out of three Spaniards were in favor of the introduction of gender parity in candidate lists.[18] The law received the support of all political groups in Parliament, with the exception of People's Party, which abstained.

The Equality Act does not justify explicitly why quotas are not applied in smaller municipalities, but the parliamentary discussions suggest that the choice of the population thresholds reflects the perception that the status of women in rural areas, where small municipalities concentrate, might be excessively weak.[19]

3.3 Local government

Spanish local governments manage 15% of public expenditure (6% of the Spanish GDP), amounting to approximately 1,100 euros per capita. Next we describe their functioning, with a particular focus on any institutional differences that may be linked to population thresholds. As we explain below,

[17] The Equality Act was published on the State Bulletin n. 71, on March 23 2007, and is available at `http://boe.es/buscar/doc.php?id=BOE-A-2007-6115`.

[18] The survey was conducted in September 2007 by the Spanish Centre for Sociological Research (CIS). See Research Study Number 2732, available at `http://www.cis.es/cis/opencm/EN/1_encuestas/estudios/ver.jsp?&estudio=7700`.

[19] For instance, one MP pointed out during the debate "...it is well known, and it has also been stated by the experts, that it is precisely in these municipalities where women struggle more not only to enter the candidate list but also to participate in associations, in politics, and so on." Source: DS. Congreso de los Diputados, Comisiones, 723, 12/12/2006

during the period of our study the 3,000 threshold is only considered for the implementation of the quota, but the 5,000 threshold is also relevant for other policies.[20]

All municipalities are responsible for lighting, graveyards, refuse collection, street cleaning, water supply, sewerage, access to population centers and paving.[21] Larger municipalities have additional obligations. Municipalities with more than 5,000 inhabitants must provide services such as public parks, public libraries and waste management and municipalities with more than 20,000 inhabitants must offer a number of social services. Beyond the above requirements, municipalities can decide whether or not to provide additional services. For instance, some small municipalities provide childcare services even if they are not formally required to do so.

Local governments levy several local taxes - property tax, business tax, vehicles tax, tax on buildings and tax on land value increase in urban areas - and they collect fees and user charges. Municipalities also receive transfers from the Central Government. These transfers, which constitute around 10% of total municipality-level revenues, are determined following a specific formula which gives a 75% weight to population and the remaining 25% is allocated based on fiscal effort. The formula is more generous for larger municipalities. The grant per inhabitant increases discontinuously at the cutoffs of 5,000, 20,000 and 50,000 inhabitants. In 2003 this formula gave a 15% larger weight to each inhabitant in municipalities with more than 5,000 inhabitants relative to municipalities below the cutoff, which translates into approximately 1.5% higher per capita budget.[22]

The size of the municipal council varies according to the number of inhabitants of the municipality. In municipalities with more than 251 and less than 1,001 inhabitants there are 7 council members; in municipalities that have between 1,001 and 2,000 inhabitants, 9 council members; in municipalities that have between 2,001 and 5,000 inhabitants, 11 council members; and in munic-

[20]To verify which policies take into account the 3,000 and the 5,000 thresholds we conducted an exhaustive web search in the Spanish State Bulletin (`http://www.boe.es`), which includes all the relevant legislation at the national level. An important exception is a law that was approved in 2014 that considers the 3,000 and the 5,000 population thresholds to determine the number of council members that can receive a monetary compensation for their work and the maximum salaries. ("Ley para la Racionalización y Sostenibilidad de la Administración Local"). This new regulation may have potentially affected candidacies in the 2015 election, depending on municipality size in January 2014. However, since our empirical analysis relies on the population count as measured in January 2006 and 2010, and due to population changes over time in the relevant group of municipalities, our treatment and control groups are fairly different from those that would result from basing the assignment into treatment on population count in 2014.

[21]The finances and competences of local governments are regulated by the Law 7/1985 *Reguladora de Bases de Régimen Local* and the Law 39/1988 *Reguladora de Haciendas Locales*.

[22]The 2004 reform of the local public finances slightly enlarged this gap from 15% to 17%.

ipalities that have between 5,001 and 10,000 inhabitants the council includes 13 members. The 5,000 threshold also determines the frequency of council meetings, the existence of a permanent governing board, and the number of signatures required for a citizens' initiative.[23]

4 Data

There are slightly more than 8,000 municipalities in Spain. We restrict our analysis to municipalities with more than 250 inhabitants and less than 10,000, which reduces the sample size to around 5,000 municipalities covering approximately 20% of the Spanish population.[24]

As shown in Table A1, our sample of small municipalities differs from larger municipalities in Spain in a number of dimensions. The population of the municipalities that are object of our study tends to be relatively older and less educated. In these municipalities, women represent a lower share of the population (47% compared to 51% in large municipalities), they are relatively more likely to be housekeepers or retired, and are less likely to be in formal employment, unemployed, or students. Small municipalities are also more subject to gender stereotypes than larger municipalities. For instance, according to survey information, in municipalities with less than 10,000 inhabitants, 31% of respondents agree with the statement "when jobs are scarce, men should have more right to a job than women," compared to 25% in large municipalities.[25] At the same time, inhabitants of small municipalities seem to be less concerned with discrimination. Only 37% of them think that gender discrimination is widespread, compared to 51% in large cities, and 37% considered that the Equality Law was not ambitious enough, compared to 45% in large cities.[26] Across all municipalities, the average educational attainment of women tends to be between six months and one year lower, a difference which is statistically significant.

As we describe below, our database includes information for the 2003, 2007, 2011 and 2015 electoral cycles on (i) the composition of candidate lists, (ii) electoral results, (iii) the characteristics of council members, (iv) the composition of the local budget and residents' preferences over

[23] Electoral Law, State Bulletin 147, June 20 1985.

[24] We exclude municipalities with less than 250 inhabitants because they have a different electoral system, and municipalities with more than 10,000 inhabitants because they might differ substantially from the small municipalities that were not affected by the gender quota.

[25] CIS, survey number 2732, question 14.

[26] CIS, survey number 3000, question 9 and survey number 2745, question 13a

policy issues, and (v) municipalities economic characteristics. Appendix B provides more detailed information about the data sources.

4.1 Candidate lists

The upper panel of Table 1 provides information on the characteristics of candidates. In the 2003 election, before quotas were introduced, on average there were three parties competing in each municipality and 29% of candidates were women. The share of women among candidates mirrors its share among party members. In 2001, the main three parties - People's Party, Socialist Party and United Left - included 33%, 28%, and 29% of women among their members.[27] The presence of women is lowest at the top of electoral lists (17%), a position that is occupied by party leaders.

Given that the quota imposes a 40% threshold every five positions, we also calculate the share of women in the first three of every five positions (i.e. position 1, 2, 3, 6, 7, 8, *upper positions* henceforth) and in the last two (i.e. positions 4, 5, 9, 10, *bottom positions* henceforth). In 2003, the average share of women in upper positions is equal to 28%, compared to 32% in the bottom positions.

Figure 3 (panels a. - d.) shows how the presence of women in candidate lists has evolved over time in municipalities of different size. Before the introduction of quotas ballots were slightly more feminized in larger municipalities. In municipalities with less than 3,000 inhabitants, the average share of female candidates is around 28%, compared to 32% in municipalities with more than 3,000 but less than 5,000 inhabitants, and 34% in municipalities with more than 5,000 inhabitants. The figure also shows that candidate lists have become more feminized over time and, not surprisingly, this trend accelerates when gender quotas are introduced. In the 2007 election, the presence of female candidates increases relatively faster in municipalities with more than 5,000 inhabitants and, in the 2011 election, in municipalities with more than 3,000 and less than 5,000 inhabitants.

With the exception of party leaders, most candidates have limited political experience. In the period of our study, 64% of party leaders had been on the ballot previously (not shown in table), compared to only 38% of candidates. The level of experience differs remarkably between women

[27] Source: The Institute of Women, based on the information provided by each party, available at `http://www.inmujer.gob.es/MujerCifras/PoderDecisiones/PartidosPoliticosSindicatos.htm`. This information is not shown in Table 1.

and men. Male candidates are 10 p.p. more likely to have some political experience.[28] We also observe gender differences in the likelihood that a candidate is in the ballot in the following election. The probability of re-running is equal to 40% for men and 35% for women, although the gap is smaller among candidates who were elected: the respective probabilities are 61% for men and 58% for women (information not shown in table).

To identify the presence of relatives of the party leader among candidates, we exploit the rich information provided by the Spanish naming system according to which people inherit both their paternal and their maternal surname.[29] We calculate the share of candidates who bear the same surname as the party leader. This measure identifies siblings, parents, children, and cousins, but it does not capture spouses or in-laws. It may also capture individuals who share their surname with the party leader but do not have a close kinship relationship.[30] According to our calculations, in the 2003 elections 5.5% of candidates bear the same surname as their party leader, and the figure is similar for male and female candidates. As a placebo, we also compute the share of candidates who bear the same surname as the leader of their main rival party in the municipality, who is unlikely to be a close relative. In this case, we find a 2.4% coincidence. Assuming that this figure provides a proxy for the probability of surname coincidence across people living in the same municipality who are not close relatives, it would imply that at least 3% of candidates have a close kinship relationship with the party leader.

4.2 Electoral results

We are interested in how the quota affects parties' electoral performance. Parties that were less feminized before the implementation of the quota have to make a larger change in the composition of their candidate lists. Voters may react positively or negatively to these changes. The reaction of voters is likely to depend also on how other parties in the constituency have been affected by the quota. We identify parties that are expected to be relatively more affected by the quota taking into account these two elements, namely their share of female candidates in the previous election

[28] To measure experience, we verify whether candidates' full name appears in the ballot in the previous election. Information for elections in 2003, 2007, 2011 and 2015 was provided by the Ministry of Interior in electronic format and its accuracy is expected to be high. In the case of the 1999 election, we digitized the data reported in the printed version of the state bulletin. This data is subject to a higher degree of measurement error.

[29] For instance, Pablo Ruiz Picasso was the son of Pablo Ruiz Blasco and María Picasso López.

[30] To minimize this problem, we exclude from our calculation the ten most common Spanish surnames, which are held by 19% of the population.

and the share of their main rival. We focus on the two most voted lists in each municipality in the election prior to the introduction of quotas. These two lists account, on average, for 89% of the votes. We define as *male-holdout* the party that is less feminized than its rival.[31] The pre-quota share of female candidates in male-holdouts is around 17%, compared to 38% in the competing list (information not shown in Table). In the pre-quota election, *male holdouts* attracted more votes than their competitors (45% vs. 43%; Table 1, panel B).

We have also collected information on turnout. Around 78% of the electorate participated in the 2003 local elections .

4.3 Local council

In 2003 approximately 25% of council members were women (Table 1, panel C). Female mayors were even rarer, only 13%. As shown in Figure 3 (panel e.), councils in larger municipalities tend to be more feminized and the presence of women in local councils has increased over time. The figure also shows that share of women on councils tends to grow relatively faster coinciding with the introduction of gender quotas.

Male councilors are substantially older than female ones -their average age is 44 years compared to 39 years for female councilors-, and have on average one year less of education. Men tend to have also more political experience: 52% of male councilors elected in 2007 were already members of the previous council, compared to only 38% of women.

4.4 Budget and voters' preferences

We collected data on municipalities' budget during the years 2004-2014. Municipalities spend around 1,100 euros per capita annually and they levy a similar amount in taxes (Table 2, panel A). The largest expenditure outlays are Housing and Urbanism, Infrastructure, General Administration, Culture, Community Welfare, and Social Security.[32] On average, municipalities' debt amounts to

[31] We exclude municipalities where both parties are expected to be equally affected by the quota, either because the share of female candidates was the same in the two lists before the quota was introduced or because both lists exceeded the 40% threshold of female candidates.

[32] The accounting procedure for municipal expenditures underwent a series of changes during the period studied. Until year 2009, municipalities provided budget information following the so-called *functional classification*. Since year 2010, municipalities disaggregate their expenditures using the *program classification*. The *functional classification* was approved by the Ministry of Finance on September 20 1989, and the *program classification* on December 3 2008. While the latter classification tends to be more detailed, the mapping between the two systems is not always unambiguous.

roughly one fourth of the overall budget. The degree of indebtedness grew during the financial crisis period and it has slightly decreased in recent years.

We are interested in analyzing how quotas affect the composition of public expenditure. To limit multiple-testing concerns, we classify public expenditure into three groups -*female*, *male* and *neutral expenditures*- using the information provided by a large-scale political survey. In this survey, which was conducted quarterly between 2001 and 2006 by the Spanish Center for Sociological Research, about 57,000 Spanish residents were asked to list the "*three problems that affect you the most*". In Table A2, columns 1 and 2, we report the share of women and men who list each problem. Items in the table are ordered from the 'most feminized' (i.e. those issues that appear to concern women more than men) to the 'least feminized'. The magnitude of these gender differences tends to be statistically significant but, in economic terms, they are relatively small, never larger than 2 p.p. Women worry significantly more than men about unemployment, pensions, education, the status of the health system, drugs, youth problems, violence against women, women's problems in general, and social issues. Men are significantly more concerned about housing, immigration, work conditions, politics, corruption, the status of infrastructure, environmental degradation, the judiciary system and agriculture, hunting and fishing. Men and women are equally likely to mention as a problem the quality of public services, racism and crime. The survey results are similar if we restrict our analysis to municipalities with less than 10,000 inhabitants, which constitutes the sample in our analysis (Table A2, columns 4-6).

We classify expenditure groups as *female* or *male* whenever they can be easily associated to issues that, according to the survey, concern one gender relatively more. We consider as neutral those expenditure groups that cannot be clearly classified as female or male based on the survey information. Figure 4 shows the distribution of expenditures and more detailed information is also available in tables A3 and A4. In the years 2004-2009, we categorize as female expenditures *Social security and protection*, *Education*, *Social promotion* and *Health*, while the male expenditures include *Housing and urbanism*, *Basic infrastructure and transport*, *Agricultural infrastructure*, and *Agriculture, hunting and fishing*. All remaining expenditure groups are classified as neutral. In the years 2010-2014, the group of female expenditures also includes two categories that, due to changes in the accounting regulation, were not disaggregated in previous years, *Employment services* and *Pensions*, while *Enviromental* expenditures are classified as male.

This taxonomy is broadly consistent with the findings of other studies conducted in Western Europe. For instance, using data from referenda in Switzerland, Funk and Gathmann (2015) show that women are more likely to support higher expenditure in Education, Health and Social Welfare, and they are relatively less favorable towards expenditure in Agriculture and Infrastructure. Nonetheless, unlike Spanish women, Swiss women are more concerned than men about the Environment.

To validate our taxonomy, we also examine whether there is any correlation between the share of *female* and *male* expenditure and the share of women in the municipal council. While this descriptive analysis cannot be interpreted causally, the observed pattern is consistent with the existence of gendered preferences in public expenditure. The share of *female expenditure* tends to be significantly larger in municipalities with more female councilors (Table A5). Conversely, the share of *male* expenditures decreases with the number of female councilors and when the mayor is a woman.

4.5 Economic indicators

We have also collected information on a number of economic indicators that are available at the municipal level. As shown in the lower panel of Table 2, in the beginning of the period that we study the share of women unemployed is twice as large as the share of men, but this gap disappears in later years. We also observe taxable income information for year 2013. On average income per capita is equal to roughly 20,000 euros.

5 Empirical strategy

To identify the causal impact of quotas, we compare municipalities slightly above and below the relevant population thresholds using a regression discontinuity design. In this section, we present this empirical strategy, discuss the potential threats to its validity, and explain how we address them. Overall, the analysis suggests that the 3,000 cutoff exhibits all the desired features for the implementation of a regression discontinuity (RD) design. No other policies were implemented based on this threshold in the relevant years and we do not observe any evidence of manipulation of the running variable. However, there are some potential threats to the validity of the RD

estimates obtained at the 5,000 cutoff. Municipalities with more than 5,000 inhabitants receive a slightly higher transfer from the central government (approximately 15 euros per capita, 1.5% of the budget) and there also exist some other minor differences in terms of the functioning of the local government. As we explain below, given that these differences are time-invariant, to minimize the possibility that our RD yields inconsistent estimates at this threshold, we consider in our main analysis the outcome variables in differences, following a so-called discontinuity-in-differences approach. Nevertheless, as reported in the appendix, results are very similar when we consider the outcome variables in levels.

5.1 Regression discontinuity design

The implementation of the quota is based on the official population count of the municipality on January of the pre-election year. Therefore, we analyze the impact of the introduction of quotas in 2007 leveraging variation provided by municipalities that in January 2006 had around 5,000 inhabitants; to study the quota extension in 2011, we focus on municipalities that in January 2010 had around 3,000 inhabitants. More precisely, we consider the following two equations:

$$Y_{i,2007+k} = \beta_0 + \beta_1 I[population_{i,2006} > 5000] + \beta_2 f(population_{i,2006}) + \varepsilon_{i,t+k} \tag{1a}$$

$$Y_{i,2011+k} = \gamma_0 + \gamma_1 I[population_{i,2010} > 3000] + \gamma_2 g(population_{i,2010}) + u_{i,t+k} \tag{1b}$$

where, depending on the nature of the outcome variable Y, i denotes a municipality or a party list, and $I[\cdot]$ is an identity function that takes value one if the municipality population is above the corresponding threshold. When $k = 0$, the specification provides information on the impact of quotas the first election after their introduction. To study the effect of quotas in the longer term, we consider three additional specifications. First, we estimate equation (1a) using information from the 2011 election ($k = 4$). In other words, we compare the situation in 2011 of municipalities that were just above and below the 5,000 cutoff in 2006. While the former group of municipalities has already been exposed to the quota during one term, in the latter group of municipalities the quota is being implemented for the first time. Second, we compare these two groups of municipalities again in 2015 ($k = 8$). In this case, municipalities that were just above the 5,000 cutoff in 2006 are exposed to the quota for the third time and, in municipalities below the cutoff, the quota is

being implemented for the second time. Third, we estimate equation (1b) using information from the 2015 election ($k = 4$). This analysis captures the impact of being exposed to the quota during two electoral cycles, relative to municipalities that have not been exposed to the quota.[33]

We estimate equations (1a) and (1b) using a local linear estimation within the mean squared error optimal bandwidth proposed by Calonico et al. (2014) (henceforth, CCT optimal bandwidth). We weight observations by proximity to the cutoff by using a triangular kernel and, following Calonico et al. (2014), we use robust inference methods. When regressions are run at the list level, we cluster standard errors by municipality. To increase accuracy, we also control for the lagged values of the outcome variable and the share of female candidates and council members before the quota was introduced.

5.1.1 Threats to validity

The above regression discontinuity design provides a consistent estimate of the impact of gender quotas under the assumption that there are no other relevant factors that experience a discrete change at the threshold. There are two potential threats to the validity of this strategy. First, there might exist other policies that rely on the same threshold as the quota (Eggers et al., 2018). Second, some municipalities might try to manipulate their population counts in order to avoid or to qualify for gender quotas or for other policies that rely on these population thresholds. Manipulation might affect the consistency of the RD estimates if the available 'technology of manipulation' is sufficiently precise. Next we discuss these two issues in detail.

Other policies As discussed in section 3, while the 3,000 population threshold is only relevant for the implementation of gender quotas during the period of our study, the 5,000 threshold was relevant for a number of regulations, some of which may be important in the context of our paper because they pertain to the municipal budget. These policies might have a direct impact on some of the outcome variables of interest. We study the empirical relevance of these regulations at the 5,000 threshold and we also verify that they have no impact at the 3,000 threshold.

On the revenue side, transfers from the federal government are assigned following a formula

[33]Throughout the analysis, we exclude 51 municipalities that move around the 3,000 threshold between 2011 and 2015, since by 2015 these municipalities have been exposed to the quota only in one electoral cycle. Our results are unchanged when these municipalities are also considered.

that changes discontinuously at the 5,000 threshold. As expected, visual inspection of the RD plots shows that federal per capita transfers do not exhibit any significant change at the 3,000 population cutoff whereas we do observe a significant discontinuity at the 5,000 cutoff (Figure C1). The magnitude of this discontinuity is similar in the pre-quota (2003-2006) and the after-quota (2007-2012) years. This finding is confirmed by the estimation of equations (1a) and (1b) using the mean squared error optimal bandwidth proposed by Calonico et al. (2014). While there is no significant difference at the 3,000 population cutoff, being above the 5,000 population cutoff raises federal transfers by around 15-20 euros per capita (Table A6, columns 1-4). These results are robust to the choice of the bandwidth (Figure F.1).

On the expenditure side, municipalities with more than 5,000 inhabitants are formally required to provide additional services such as public parks, public libraries and waste management. Nonetheless, research by Foremny et al. (2017) has shown that, in practice, municipalities below and above the 5,000 threshold are equally likely to provide these services, probably because upper-level governments fail to provide them to the smallest municipalities. We replicate their analysis, and we also extend it to the 3,000 threshold. Our results confirm that neither of these two population cutoffs play any significant role in terms of the composition of public expenditure (Table A7 and Figure C2)

Manipulation of population counts It is unlikely that gender quotas induced manipulation of population counts in the 2007 election. The quota requirement was passed in March 2007 and it was implemented based on the official population count as of January 2006. However, manipulation might be an issue for the extension of quotas in 2011 to municipalities with more than 3,000 inhabitants. In 2007 it was already known that the quota would be applied in 2011 based on the population count of January 2010, and some municipalities might have potentially tried to manipulate it.

Another potential source of manipulation is the existence of other policies that rely on the 5,000 threshold. Municipalities with population counts slightly below 5,000 might try to 'manipulate' their population numbers in order to benefit from higher federal grants. In fact, in line with this hypothesis, Foremny et al. (2017) show that during the period 1998-2005, there is an excess mass of municipalities above the 5,000 threshold and a density hole below the threshold, but this bunching

becomes less evident and non-significant in the period 2006-2011, following an improvement of the monitoring of population counts by the central government.

We replicate the analysis of Foremny et al. (2017), which considers the 5,000 threshold, and we also extend it to the 3,000 cutoff. We report the population histograms in Figure 5. As expected, municipalities appear sorted above the 5,000 threshold before 2006, but not in later periods. This pattern is confirmed both using the density test proposed by Cattaneo et al. (2019) and the McCrary test (McCrary, 2008). On the other hand, we do not observe any evidence of manipulation at the 3,000 threshold before the implementation of the quota or during the following years. Overall, the continuity of the density function at the 5,000 and the 3,000 cutoffs during the period 2007-2013 suggests that the implementation of the quota did not lead to manipulation of the population figure.

Lagged dependent variables Our analysis so far suggests that municipalities that were just above and below the 3,000 cutoff are expected to be similar in every dimension, except for the introduction of gender quotas in 2011. On the other hand, municipalities around the 5,000 threshold differ in a number of dimensions, most notably in terms of the amount of per capita transfers received from the central government. If any of these factors is somehow related to any of our outcome variables, it would affect the consistency of the RD estimates that rely on the 5,000 threshold.

To verify whether municipalities above and below these thresholds are comparable, we estimate equations (1a) and (1b) using data for the period 2003-2006, before quotas were introduced. We report these results in Table A8. Out of 22 outcome variables considered, we do not observe any significant discontinuity at the 3,000 threshold. Municipalities above and below the 5,000 threshold also tend to be comparable in most dimensions, but there are three significant differences.[34] Party leaders in municipalities with more than 5,000 inhabitants are less likely to be female, council members tend to be younger, and such municipalities tend to devote a lower share of their budget to expenditures that, based on survey data, we have classified as *female expenditures*.

[34]Given the large number of hypotheses being tested, we cannot statistically reject that the observed statistically significant differences in three of the 22 outcome variables reflect random sample variation.

5.2 Discontinuity-in-differences analysis

To minimize the possibility that the existence of (time-invariant) policy differences around the 5,000 threshold affects the consistency of the RD estimates, in our main analysis we consider the outcome variable in differences. More precisely, we estimate equations (1a) and (1b) using as dependent variable $\Delta_{2003}^{2007+k}Y_i$ and $\Delta_{2007}^{2011+k}Y_i$ respectively.

The discontinuity-in-differences approach provides consistent estimates under the assumption that there are no time-varying factors that differ at the threshold. The main difference at the 5,000 threshold is the variation in the amount of federal transfers received. To verify whether this difference has remained constant over time, we estimate equations (1a) and (1b) using as the dependent variable the increase in transfers per capita between the 2003-2006 term and the 2008-2010 term. As expected, we do not find any significant changes, neither at the 5,000 nor at the 3,000 threshold (see Table A6, columns 5 and 6, and Figure C1, Panel c).[35]

A possible threat to the validity of the discontinuity-in-differences approach at the 5,000 threshold would be the existence of shocks that have a different impact on municipalities depending on their (time-invariant) characteristics. For instance, the economic crisis might potentially have a different impact in municipalities that receive different amounts of transfers. While we cannot rule out the existence of such shocks, their relevance is likely to be limited given the small magnitude of the differences in transfers per capita between municipalities above and below the threshold (around 1.5% of the overall budget).

We also explore the possible existence of anticipation effects. If municipalities around the 3,000 inhabitants threshold were able to precisely anticipate in 2007 whether they would be affected in 2011 by the quota, some of these municipalities may have reacted to quotas already in 2007. The discontinuity-in-differences analysis would fail to capture this effect. To test this hypothesis, we compare changes in the outcome variables during the 2007 term in municipalities that in January 2010 were slightly above and below the 3,000 population threshold. We do not observe any significant differences between these two groups in any dimension: candidate characteristics, voters' behavior, composition of the local council, and local budgets (Table A9). This finding supports the

[35] As pointed out in section 3, the 2004 reform of the local public finances slightly increased the multiplier applied in municipalities with more than 5,000 inhabitants to each individual, from 1.15 to 1.17. The magnitude of this change, approximately 2 euros per capita, it is not sufficiently large to be detected in our analysis.

use of the population count in January 2010 as the running variable in equation (1b).

6 Results

We study the short- and medium-term impact of quotas in four dimensions: (i) the composition of candidate lists, (ii) voters' behavior, (iii) the composition of the local council and (iv) public policies.

We report three types of results for each outcome variable. First, we explore the effect of the quota through a battery of RD plots, where we display a second order polynomial of the outcome variable on population, fitted separately above and below the cutoff, as well as local means of the outcome variable for a number of population bins (see Figures C3-C7). A visual inspection of these plots is generally informative about the potential existence of a discontinuity in the corresponding variable. Second, in the main text, we discuss the estimates from a discontinuity-in-differences approach using a local linear estimation within the CCT optimal bandwidth. The bandwidth is generally around 1,000 inhabitants. Given that we tend to obtain very similar results for the 3,000 and the 5,000 thresholds, for the short-term analysis we also report the estimates from a pooled regression.[36] As we show in Tables A10 and A11, results are essentially unchanged when, instead of following a discontinuity-in-differences approach, we consider the outcome variables in levels. Finally, to verify that our results are not sensitive to the choice of bandwidth, we also provide estimates for a broad range of bandwidths in Appendix F.

6.1 Candidate lists

Number of party lists If quotas are difficult to satisfy, some parties may decide not to run. We analyze whether quotas affect the number of party lists that participate in the election. We do not observe any evidence suggesting that quotas led to the disappearance of any party lists. As shown in panel A of Table 3, there is no significant difference in the number of parties competing in municipalities just above and below the 5,000 population threshold in 2007 (see columns 1-3) or the 3,000 population threshold in 2011 (see columns 4-6). According to pooled regression estimates

[36] We cannot pool the medium-term estimates because the type of medium-term comparisons available differ by cutoff; specifically, the 5,000 cutoff allows comparing municipalities treated with quotas for a different number of elections, whereas at the 3,000 cutoff the comparison is between municipalities that implement the quota for two elections versus those never subject to the quota.

(columns 7-9), we can reject at the 95% significance level that the introduction of quotas decreased the number of parties by more than 0.22 (19% st. dev.) or increased it by more than 0.24 (21% st. dev.). We do not observe any impacts either in the following two elections (see Table 4, panel A).

Gender composition of the list The quota requires the presence of at least 40% of candidates of each gender in the list. In practice, due to indivisibilities, this implies that lists should include at least 46% of women (6 out of 13 candidates) in municipalities with more than 5,000 inhabitants and 45.5% (5 out 11 candidates) in municipalities with more than 3,000 and less than 5,000 inhabitants. Our analysis of the data shows that, in general, this requirement was reached but it was rarely surpassed.[37] In 2007, in municipalities with slightly more than 5,000 inhabitants, 46% of candidates are women. It represents a 9 p.p. increase (65% st. dev.) relative to municipalities with slightly less than 5,000 inhabitants (see Table 3, panel A). Similarly, in 2011 the share of female candidates in municipalities with slightly more than 3,000 inhabitants is equal to 47%, approximately a 8 p.p. increase (54% st. dev.) relative to municipalities with slightly less than 3,000 inhabitants. We also study the impact of quotas on the gender composition of candidate lists the second and third time that they are implemented. As shown in panel A of Table 4, quotas do not further increase the share of women in the ballot beyond their initial impact, perhaps reflecting that the female share achieved in the first election is already close to parity.

Further, we study how the quota affects the distribution of women within the ballot. The quota requires the presence of at least two women (and men) in every five-position bracket. Parties satisfy the quota mainly by increasing the presence of female candidates in the lower positions of each five-position bracket (e.g. positions 4-5 and 9-10 of the ballot), therefore the quota has a very modest impact on the upper positions (e.g. positions 1-3 and 5-7). The first time the quota is introduced, the share of women in the lower positions increases by 12 p.p. (38 % st. dev.), whereas the presence of women in the three upper positions increases by only 2 p.p. (11% st. dev.; see Table 3, panel A,

[37] Electoral lists that did not satisfy the requirements of the quota were not allowed to participate in the election, but we observe some exceptions. Among the non-compliers, many failed to fulfill the rank order condition in the very last positions. In lists with 13 candidates, for instance, some parties (roughly 20% of the sample) included two women within the top 5 positions and also within positions 6 to 10, but only one woman within positions 11 to 13. This implies that, in total, there are only 38.5% of women on the list, which is below the 40% requirement. One possible explanation why these cases were overlooked by the electoral authorities is that the violation of the quota was in all likelihood non-consequential, as candidates in positions 11-13 are virtually never elected. There is however also a very minor number of lists (24) that do not comply with the quota in the top positions; we do not have an explanation why the electoral authority allowed such lists to participate to the election. The lack of compliance has also been noted by Verge (2008).

columns 7-9). Most importantly, we do no find any further increases in the presence of women in the top positions of the ballot in the following two elections (Table 4, panel A). Overall, it appears that eight years after the quota was first introduced, there is no substantial improvement in the participation of women in candidate lists, above and beyond the mandated increase in the share of female candidates strictly legislated by the quota.

Party leaders As discussed in Section 2, the quota may potentially help to increase the probability that a woman becomes head of the party through different channels. The presence of a larger share of women in candidate lists may contribute to the creation of female-friendly political networks and to break down negative stereotypes regarding female politicians among voters and party leaders. These effects are likely to become stronger over time.

First, we examine the impact in the first election after the quota was introduced. Quotas do not have a statistically significant impact on the share of female party leaders, neither at the 5,000 nor at the 3,000 population threshold. The point estimate of the pooled regression is equal to 2 p.p. and, according to a 95% confidence interval, quotas may have increased the proportion of female leaders by up to 7.5 p.p. (17% st. dev.) or they might have decreased it by 2.8 p.p. (6% st. dev.), relative to a baseline of 20% (Table 3, top panel, columns 7-9). There is no impact on women leadership in the following elections either, at least within the two additional electoral cycles that we observe.

Experience By requiring parties to increase the share of women, quotas may mechanically lead to a short-term decrease in the political experience of candidates. We proxy candidates' political experience with their presence in the electoral list in the previous election. As expected, the quota initially decreases the share of experienced candidates. When quotas are first introduced, there is a 4 p.p. decrease (14% st. dev.) in the share of candidates that had participated in the previous election, relative to a baseline of around 40% of candidates with previous political experience. However, this effect fades away over time as the new candidates acquire experience.

Relatedly, we do not observe any impact of the quota on the probability that candidates re-run, either when the quota is first introduced, nor in its subsequent applications. Before the quota was introduced, women's probability of re-running was lower than men's and the quota does not appear

to affect this gender difference (result not shown and available upon request).

Kinship Party leaders may try to formally comply with gender quotas by including female relatives in the candidate list. We test this hypothesis using the information on candidates' surnames. Overall, we do not observe any evidence of an increase in nepotism. The share of candidates who bear the same surname as the party leader does not exhibit any discontinuities at the cutoffs, neither in the 2007 election nor in 2011 nor in 2015.

6.2 Voters' behavior

Turnout First, we examine whether quotas affect overall turnout. We do not observe any significant differences neither around the 5,000 population threshold in the 2007 elections nor around the 3,000 threshold in 2011 (Table 3, panel B). According to the pooled regression, the point estimate is equal to 0.3 p.p. and the quota may have increased turnout by up to 1.8 p.p. (24% st. dev.) or it may have decreased it by 1.2 p.p. (16% st. dev.), relative to a baseline level of around 75%. We do not observe any impact either in the following two elections (Table 4, panel B).

Given that the impact of quotas might be stronger in municipalities where political parties were relatively less feminized before the quota, we also perform the analysis for the subsample of municipalities where the share of female candidates in the pre-quota election was below the national median. We do not find any significant impact of quotas on turnout in this subsample of municipalities either.

Votes received by male-holdouts Following the taxonomy described in section 4, we study how quotas affect the share of votes received by party lists that were relatively less feminized prior to the introduction of the quota (*'male holdouts'*). As expected, party lists that were less feminized experience a larger increase in the share of female candidates when the quota is introduced. Based on the estimates from the pooled regression, the quota increased the share of female candidates in *male holdouts* by 4 p.p. more than in *gender-balanced* lists (Table 3, panel A). However, the quota has no significant impact on the share of votes received by male holdouts, and we can significantly reject relatively small positive effects (Table 3, panel B). The point estimate is equal to -4 p.p. and, according to the 95 C.I., the quota might have increased the electoral support for male holdouts

relative to their rival list by a maximum of 1.2 p.p.(7% st. dev.), or it might have decreased it by up to 9.6 p.p (52% st. dev.).

We do not observe any further impact of quotas on voting behavior in the following two elections either (Table 4, panel B). Male holdouts tend to obtain fewer votes than their rival above the 5,000 cutoff in 2011, and more votes in 2015 above the 5,000 as well as the 3,000 thresholds, but in none of these cases the difference is statistically significant at standard levels.

6.3 Local council

Share of women in the council So far our analysis shows that gender quotas lead to an immediate increase in the share of women in candidate lists, which is mostly driven by an increase in the presence of women in the bottom positions of each five-position bracket. This increase in the share of female candidates mandated by the quota does not seem to have a significant effect on voting behavior. Next we analyze the effect of the quota on the composition of local councils.

As shown in Table 3, panel C, quotas lead to a significant increase in the presence of women in the council although, due to their lower positioning in the ballot, the magnitude of this effect is attenuated with respect to the increase in the presence of women in the ballot. Specifically, quotas increase the share of female councilors by around 4 p.p (32% st. dev.), relative to a baseline of 33%. Taking into account that councils in the sample include around ten members, the quota leads to the presence of an additional female council member in every other municipality. We also explore the impact of quotas on the composition of the council after two and three elections. Similarly to our previous findings, we do not find any evidence suggesting that the quota had any additional impact in the medium term (Table 4, panel C).

Mayors Our analysis of the quota impact on mayors provides mixed results. The standard discontinuity-in-differences estimation, which is based on a bandwidth of around 1,000 inhabitants, seems to suggest that quotas have a positive impact on the probability of having a female mayor. The point estimate is equal to 10 p.p. (28% st. dev.), with a 95% confidence interval between 1 (3% st. dev.) and 20 p.p. (53% st. dev., Table 3, panel C). However, as shown in Figure A2, this effect is driven by a few observations just above and below the threshold. This figure displays local means of the share of female mayors for a number of population bins, and it shows that the share

of female mayors tends to be very similar in large and small municipalities, with the exception of a few municipalities around the threshold. This visual evidence is corroborated by the results of a 'donut-RD' analysis. When we exclude municipalities within a window of 500 inhabitants around the threshold, the point estimate is equal to -1 p.p. with a 95% confidence interval between -14 p.p. and 12 p.p. Furthermore, when we look at the following two elections, we do not find any significant differences in the share of female mayors above and below the threshold (Table 4, panel C). Based on our overall analysis, we conclude that there is not enough evidence to establish that quotas led to a significant increase in the share of female mayors.

Characteristics of council members By increasing the share of women in the council, quotas may potentially help to increase the educational attainment of council members and may reduce their average age. However, we do not observe any significant variation in the characteristics of councilors at either of the two thresholds (Table 3, panel C). According to the pooled sample estimates, the quota decreased the educational attainment of councilors by 0.05 years, and we can reject that quotas increase councilors' average educational attainment by more than 0.4 years (22% st. dev.) or they decrease it by more than 0.5 years (28% st. dev.). We do not observe any significant effects either on the age of municipal councilors. In this case we can reject any increases in the average age larger than 1.3 years (27% st. dev.) or a decrease of more than 1.2 years (25%).

By changing the gender composition of municipal councils, quotas can also affect other relevant characteristics of council members, such as their political experience. While the introduction of the quota caused a decline in the share of candidates with political experience, we do not observe any significant changes in the experience of candidates who are elected. On average, the share of councilors that were members of the previous council decreases by 1 p.p., against a baseline of 47 p.p, and we can reject a decrease larger than 5 p.p. (22% st. dev.) and an increase larger than 3 p.p. (12% st. dev.). We do not observe any additional effects on council members' educational attainment, age or experience in the following elections either (Table 4, panel C).

6.4 Local budget and economic indicators

Budget First, we analyze the impact of quotas on the size of local budgets during the first term after they were introduced (Table 3, panel D). We do not observe any significant differences in the

total amount of expenditures and revenues of municipalities neither at the 5,000 nor at the 3,000 threshold. On average, municipalities subject to the quota spend 5% more than slightly smaller municipalities and their revenues are 3% higher, but these differences are not statistically significant at standard levels. Additionally, we examine whether quotas lead to an increase in the amount of public expenditures allocated to groups of the budget that, according to the survey information presented in section 4.4, are expected to be more relevant for female voters. We do not observe any significant effects. The point estimate is equal to 1 p.p. and we can statistically reject at the 95% level that the share of *female expenditures* increased by more than 3.2 p.p. (36% st. dev.) or that it decreased by more than 0.7 p.p. (8% st. dev.). In the case of *male expenditures*, we can reject an increase larger than 2.2 p.p (19% s. dev) or a decrease below 2.7 p.p. (24%).[38]

While quotas do not seem to have an immediate impact on policies, the elected female councilors might over time acquire the necessary political capital and skills to affect the process of policy formation. We investigate this possibility by comparing total, "female" and "male" expenditures in municipalities around the 5,000 cutoff during the 2012-2014 term (Table 4, panel D). Again, we do not observe any significant differences in the budget composition of these two groups of municipalities.

Economic indicators Even if the larger presence of women in policy-making does not seem to affect the composition of the budget, it is still possible that there is a change in the way policies are implemented that has a positive impact on the economic situation of women. However, we do not find any statistically significant effects on female unemployment rate (Table A10, panel D). The point estimate of the pooled regression is equal to -0.16% and the 95% C.I. indicates that the quota may have decreased the number of unemployed women per 100 female inhabitants by up to 0.48 (30% st. dev.), or it may have increased it by 0.15 (10% st. dev.; Table 3, panel E). Further, we do not observe any significant effect on the unemployment rate of men. We reach the same conclusion when we look at additional medium-term effects, where we can also examine the quota impact on income per capita (Table A11, panel D).

[38]Estimates, available upon request, are also insignificant when we consider the amount of "neutral" expenditure, under the hypothesis that women may be effective at reducing the share of resources that go to "male only" items.

6.5 Power calculations and post-study probability

Overall, quotas do not seem to have any significant effects on the outcomes that we study, beyond a modest increase in the share of female councilors. A possible concern with this analysis is that it may sometimes lack statistical power to detect effects that are 'economically' relevant. In this section, we provide information on the statistical power of our empirical exercise for the main six outcome variables considering three plausible scenarios about the magnitude of the effect.[39]

In the case of the outcome variable *female councilors*, in the least conservative scenario we hypothesize that the magnitude of the increase is similar to the increase in the share of female candidates (8 p.p.); in an intermediate scenario we consider that the impact is half as large (4 p.p.) and, in the most conservative scenario, we consider a 2 p.p. effect. We consider similar scenarios for the *the share of female leaders* and the *share of votes received by male hold-outs* (e.g., effects of 2 p.p., 4 p.p. and 8 p.p.). For the *educational attainment of council members*, in the most conservative scenario we take into consideration a 10% of a standard deviation increase (around 0.2 years), in the intermediate case a 20% increase, and in the least conservative one a 30% increase. When we examine the budget devoted to *female groups of expenditure*, we contemplate a 1 p.p., a 2 p.p. and a 3 p.p. effect. Finally, in the case of *female unemployment* we consider effects of 0.1 p.p., 0.2 p.p. and 0.5 p.p.

Our study is generally underpowered in the most conservative scenario. The statistical power oscillates between 10% and 31%, depending on the outcome variable. For instance, if the impact of quotas on the share of female councilors was equal to 2 p.p., our empirical strategy would be able to detect it only with a 31% probability. Instead, the statistical power of the analysis would be high in the least conservative scenario. We should be able to detect a 8 p.p. increase in the share of female councilors with a 99% probability, a 8 p.p. increase in the share of female party leaders with 89% power, a 8 p.p. increase in the share of votes received by the male holdout with 83% power, an increase of the educational attainment of council members by 30% of a standard deviation with 84% power, a 3 p.p. increase in 'female' expenditure with 84% power, or a 0.5 p.p. decrease in female unemployment rate with 87% power.

In the spirit of Maniadis et al. (2014), we also calculate the *post-study probability* that there is

[39] We use for the calculation the *Stata* command *rdpower*. See details in Cattaneo et al. (2019).

an effect of a certain magnitude, taking into account the statistical significance of our estimates, the statistical power of the exercise, and allowing for different priors on the existence of these effects.[40] These *post-study probabilities* may help readers to have a better understanding of how our results should affect their beliefs about the impact of quotas. This analysis is reported in Figure A3. The figure illustrates how readers may want to form their posterior depending on their priors about the size of the effect and the probability assigned to each hypothesis. For instance, given a prior belief that, in this context, there is a 50% probability that quotas increase the share of female party leaders by 8 p.p., the observed evidence should decrease this belief from 50% to around 10%. However, an observer with a prior belief that at most there is a 50% probability that quotas increase the share of female party leaders by 2 p.p. should, based on our findings, only slightly adjust her beliefs to around 40%.

7 Conclusion

As noted in Besley et al. (2017), quota proponents emphasize mainly their capability to improve women's political representation, whereas their opponents are concerned about their impact on meritocratic selection. Our analysis of the introduction of quotas in local elections in Spain suggests that neither the hopes of quota supporters nor the fears of their opponents are warranted. The quota managed to increase the share of female candidates by 8 p.p. and the share of female councilors by 4 p.p. However, the quota failed to achieve, at least within three electoral cycles, some of the goals with which they are commonly associated, such as helping women to reach leadership positions or aligning policies more closely with the preferences of women. At the same time, we do not find any evidence of quotas decreasing significantly the quality of politicians, as measured by their educational attainment and the number of votes received by party lists that are most affected by quotas.

Our results are subject to several qualifications. First, we focus on a particular group, municipalities which are close to the population thresholds used to implement the quota. In this sense, our analysis provides information about the potential extension of quotas to a group of municipal-

[40] In the case of insignificant results, we calculate the probability that the finding reflects the inexistence of an effect of a certain magnitude, conditional on the lack of significant estimates. Similarly, in the case of significant results, we calculate the probability that the estimate captures the existence of a 'true' effect of a certain magnitude, conditional on observing a significant effect.

ities where female labor market participation is relatively low, the presence of women in politics is scarce, and their inhabitants tend to exhibit more traditional attitudes toward gender roles than in larger municipalities. Second, the time period considered in our analysis, three electoral cycles, may not be long enough to allow new candidates to reach top positions.[41] Further research is needed to address the potential existence of longer term effects. Third, the lack of effects may also reflect the relatively small magnitude of the quota-induced increase in the number of female council members, around 4 p.p. Quotas may potentially be more effective when their design (e.g. a zip quota) leads to larger increases in the presence of female legislators. Fourth, some of our estimates, for instance the analysis of the gender of mayors and party leaders, have limited statistical power. Nonetheless, as we discuss in detail in section 6.5, they may still help readers to update their beliefs about the impact of quotas. Fifth, it must be also noted that our analysis provides information on one of the multiple channels through which quotas may affect society: the composition of candidate lists in local elections. It does not capture other mechanisms that may operate at a more aggregate level, such as the symbolic value of quotas, the appearance of new political role models at the national level, or local female politicians' subsequent progression to regional or national politics. More research should be devoted to understand these channels. Finally, the impact of gender quotas is likely to depend on the context in which they are embedded including, among other things, the extent of gender discrimination, the socio-economic environment, and the design of the electoral system. Evidence from other settings would help to provide a more comprehensive understanding on the functioning of quotas as well as on the causes of women's underrepresentation in politics.

References

Bagues, M. and P. Campa (2020). Women and power: Unwilling, ineffective, or held back? Comment. *Journal of Political Economy 128*(5), 2010–2016.

Baltrunaite, A., P. Bello, A. Casarico, and P. Profeta (2014). Gender quotas and the quality of politicians. *Journal of Public Economics 118*, 62–74.

[41] During a quota discussion in the Norwegian Parliament it has been pointed out that "it takes three elections to implement a new quota rule", based on the expected time until a winnable seat becomes vacant because a male incumbent retires (reported by Dahlerup and Freidenvall (2013)).

Baltrunaite, A., A. Casarico, P. Profeta, and G. Savio (2019). Let the voters choose women. *Journal of Public Economics 180*, 104085.

Beaman, L., R. Chattopadhyay, E. Duflo, R. Pande, and P. Topalova (2009). Powerful women: female leadership and gender bias. *Quarterly Journal of Economics 124*(4), 1497–1540.

Bertrand, M. (2018). Coase lecture–the glass ceiling. *Economica 85*(338), 205–231.

Besley, T. and S. Coate (1997). An economic model of representative democracy. *The Quarterly Journal of Economics 112*(1), 85–114.

Besley, T. J., O. Folke, T. Persson, and J. Rickne (2017). Gender quotas and the crisis of the mediocre man: Theory and evidence from Sweden. *American Economic Review 107*(8), 2204–42.

Bhalotra, S., I. Clots-Figueras, and L. Iyer (2018). Pathbreakers? women's electoral success and future political participation. *The Economic Journal 128*(613), 1844–1878.

Born, A., E. Ranehill, and A. Sandberg (2019). A man's world? the impact of a male dominated environment on female leadership. University of Gothenburg WP.

Brollo, F. and U. Troiano (2016). What happens when a woman wins a close election? evidence from Brazil. *Journal of Development Economics 122*, 28–45.

Broockman, D. (2014). Do female politicians empower women to vote or run for office? a regression discontinuity approach. *Electoral Studies 34*, 190–204.

Calonico, S., M. D. Cattaneo, and R. Titiunik (2014). Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica 82*(6), 2295–2326.

Calonico, S., M. D. Cattaneo, and R. Titiunik (2015). Optimal data-driven regression discontinuity plots. *Journal of the American Statistical Association 110*(512), 1753–1769.

Casas-Arce, P. and A. Saiz (2015). Women and power: Unwilling, ineffective, or held back? *Journal of Political Economy 123*(3), 641–669.

Cattaneo, M., R. Titiunik, and G. Vazquez-Bare (2019). Power calculations for regression discontinuity designs. *The Stata Journal 19*(1), 210–245.

Cattaneo, M. D., M. Jansson, and X. Ma (2019). Simple local polynomial density estimators. *Journal of the American Statistical Association*, 1–7.

Chattopadhyay, R. and E. Duflo (2004). Women as policy makers: Evidence from a randomized policy experiment in India. *Econometrica 72*(5), 1409–1443.

Clayton, A. (2015). Women's political engagement under quota-mandated female representation: Evidence from a randomized policy experiment. *Comparative Political Studies 48*(3), 333–369.

Clots-Figueras, I. (2011). Women in politics: Evidence from the Indian States. *Journal of Public Economics 95*(7), 664–690.

Clots-Figueras, I. (2012). Are female leaders good for education? evidence from india. *American Economic Journal: Applied Economics 4*(1), 212–44.

Dahlerup, D. (2006). The story of the theory of critical mass. *Politics & Gender 2*(4), 511–522.

Dahlerup, D. (2007). Electoral gender quotas: Between equality of opportunity and equality of result. *Representation 43*(2), 73–92.

Dahlerup, D. and L. Freidenvall (2013). *Electoral Gender Quotas and their Implementation in Europe. Study for the European Parliament*. Brussels: European Parliament.

De Paola, M., V. Scoppa, and R. Lombardo (2010). Can gender quotas break down negative stereotypes? evidence from changes in electoral rules. *Journal of Public Economics 94*(5), 344–353.

Downs, A. (1957). An economic theory of political action in a democracy. *Journal of Political Economy 65*(2), 135–150.

Eggers, A. C., R. Freier, V. Grembi, and T. Nannicini (2018). Regression discontinuity designs based on population thresholds: Pitfalls and solutions. *American Journal of Political Science 62*(1), 210–229.

Esteve-Volart, B. and M. Bagues (2012). Are women pawns in the political game? evidence from elections to the Spanish senate. *Journal of Public Economics 96*(3), 387–399.

Ferreira, F. and J. Gyourko (2014). Does gender matter for political leadership? the case of US mayors. *Journal of Public Economics 112*, 24–39.

Folke, O. (2014). Shades of brown and green: party effects in proportional election systems. *Journal of the European Economic Association 12*(5), 1361–1395.

Foremny, D., J. Jofre-Monseny, and A. Solé-Ollé (2017). 'Hold that Ghost': Using notches to identify manipulation of population-based grants. *Journal of Public Economics 154*, 49–66.

Funk, P. and C. Gathmann (2015). Gender gaps in policy making: Evidence from direct democracy in Switzerland. *Economic Policy 30*(81), 141–181.

Gagliarducci, S. and M. D. Paserman (2012). Gender interactions within hierarchies: evidence from the political arena. *The Review of Economic Studies 79*(3), 1021–1052.

Grey, S. (2006). Numbers and beyond: The relevance of critical mass in gender research. *Politics & Gender 2*(4), 492–502.

Hessami, Z. and T. Baskaran (2019). Competitively elected women as policy makers. CESifo Working Paper.

Jones, M. P. (2008). Gender quotas, electoral laws, and the election of women: Evidence from the Latin American vanguard. *Comparative political studies 42*(1), 56–81.

Maniadis, Z., F. Tufano, and J. List (2014). One swallow doesn't make a summer: New evidence on anchoring effects. *American Economic Review 104*(1), 277–290.

Matland, R. (2006). Electoral quotas: frequency and effectiveness. In D. Dahlerup (Ed.), *Women, Quotas and Politics*, pp. 275–92. London: Routledge.

McCrary, J. (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics 142*(2), 698–714.

O'Brien, D. Z. and J. Rickne (2016). Gender quotas and women's political leadership. *American Political Science Review 110*, 112–126.

Osborne, M. J. and A. Slivinski (1996). A model of political competition with citizen-candidates. *The Quarterly Journal of Economics 111*(1), 65–96.

Pande, R. (2003). Can mandated political representation increase policy influence for disadvantaged minorities? theory and evidence from india. *American Economic Review 93*(4), 1132–1151.

Ranehill, E. and R. A. Weber (2017). Do gender preference gaps impact policy outcomes? University of Zurich, Department of Economics, Working Paper 271.

Svaleryd, H. (2009). Women's representation and public spending. *European Journal of Political Economy 25*(2), 186–198.

Sweeting, D. (2009). The institutions of strong local political leadership in Spain. *Environment and planning C: government and policy 27*(4), 698–712.

Tremblay, M. (2006). The substantive representation of women and pr: Some reflections on the role of surrogate representation and critical mass. *Politics & Gender 2*(4), 502–511.

Verge, T. (2008). Cuotas voluntarias y legales en España. La paridad a examen. *Revista Española de Investigaciones Sociológicas 123*, 123–150.

Weingast, B. R. (1979). A rational choice perspective on congressional norms. *American Journal of Political Science 23*(2), 245–262.

Tables

Table 1: Electoral data

Election year:	(1) 2003	(2) 2007	(3) 2011	(4) 2015
A. Candidate lists				
Number of parties	3.1	3.2	3.1	3.1
Lists with at least 40% of candidates of either gender	26%	43%	57%	62%
Share of women:				
all candidates	29%	35%	38%	40%
upper positions candidates	28%	33%	35%	38%
bottom positions candidates	32%	38%	42%	44%
party leaders	17%	19%	22%	25%
Experience:				
female candidates	-	32%	34%	35%
male candidates	-	46%	44%	43%
Same surname as leader:				
female candidates	5.5%	5.1%	4.9%	4.8%
male candidates	5.5%	5.2%	5.0%	4.7%
B. Voters' behavior				
Turnout	78%	76%	78%	75%
Vote share:				
male holdouts	45%	44%	46%	46%
gender-balanced lists	43%	43%	43%	45%
C. Local council				
Parties in the council	2.6	2.6	2.6	2.6
Share of women:				
among councilors	25%	29%	32%	35%
among mayors	13%	15%	17%	20%
Years of education:				
male councilors	10.7	11.1	11.4	11.7
female councilors	11.9	12.1	12.5	12.8
Age:				
male councilors	44	46	47	48
female councilors	39	41	43	44
Experience:				
male councilors	-	52%	50%	50%
female councilors	-	38%	39%	39%
Sample size				
Number of party lists	14,930	15,230	14,773	14,161
Number of municipalities	4,876	4,791	4,724	4,637

Note: Each cell provides information on the average value of a given variable for the corresponding term. Appendix B provides detailed information about the source of the variables.

Table 2: Local budget and economic indicators

Term:	(1) 2004-2006	(2) 2008-2010	(3) 2012-2014
A. Local budget			
Expenditures per capita	1115	1361	993
Revenues per capita	1186	1381	1099
Debt per capita		260	323
Female expenditures (1989 classif.)	14%	15%	
Male expenditures (1989 classif.)	26%	25%	
Female expenditures (2010 classif.)		17%	15%
Male expenditures (2010 classif.)		20%	15%
B. Economic indicators			
Female unemployment	4.5%	5.8%	8.3%
Male unemployment	2.7%	5.2%	8.3%
Net per capita income			15,771

Note: Each cell provides information on the average value of a given variable for the corresponding term. Expenditures, revenues, debt and income information is reported in constant 2013 euros. Female and male unemployment reflect the share of women and men who are registered as unemployed on January 1st of each year, relative to the total number of women and men in the municipality. Information on income is only available for year 2013 and for municipalities with more than 1,000 inhabitants (N=2,262). Appendix B provides detailed information about the source of the variables listed in the table.

Table 3: Short-term impact of quotas - Discontinuity-in-differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Threshold, period:	**5000, 2007-2003**			**3000, 2011-2007**			**Pooled thresholds**		
Outcome variables	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**
A. Candidate lists									
Number of parties	0.00	0.22	0.99	0.03	0.16	0.86	0.01	0.12	0.93
At least 40% candidates of either gender	0.45	0.05	0.00	0.41	0.04	0.00	0.45	0.03	0.00
Share of women:									
all candidates	0.09	0.01	0.00	0.08	0.01	0.00	0.08	0.01	0.00
upper positions	0.04	0.02	0.03	0.02	0.02	0.30	0.02	0.01	0.09
bottom positions	0.10	0.03	0.00	0.12	0.02	0.00	0.12	0.02	0.00
male-holdouts vs. gender-balanced lists	0.06	0.03	0.04	-0.02	0.03	0.46	0.04	0.02	0.03
party leaders	0.07	0.05	0.16	-0.01	0.04	0.82	0.02	0.03	0.37
Experience	-0.07	0.03	0.01	-0.02	0.02	0.28	-0.04	0.01	0.01
Same surname as leader	0.01	0.01	0.38	0.00	0.01	0.91	0.00	0.00	0.36
B. Voters' behavior									
Turnout:									
all municipalities	0.60	1.28	0.64	0.29	1.26	0.82	0.30	0.78	0.70
less feminized	0.19	2.65	0.94	1.98	2.20	0.37	2.62	1.60	0.10
Votes:									
male-holdouts vs. gender-balanced lists	-1.63	3.12	0.60	-3.13	4.74	0.51	-4.18	2.75	0.13
C. Local council									
Share of women:									
among councilors	0.06	0.02	0.00	0.03	0.02	0.05	0.04	0.01	0.00
among mayors	0.10	0.07	0.15	0.09	0.07	0.16	0.10	0.05	0.03
Education	0.20	0.32	0.54	-0.19	0.28	0.49	-0.05	0.22	0.82
Age	-1.27	0.83	0.13	0.77	0.89	0.39	0.06	0.63	0.93
Experience	-0.07	0.03	0.03	0.02	0.03	0.55	-0.01	0.02	0.55
D. Local budget									
Expenditure pc:									
all (in logs)	0.07	0.05	0.17	0.05	0.04	0.30	0.05	0.03	0.12
male expenditures	0.01	0.02	0.63	0.00	0.02	0.75	0.00	0.01	0.85
female expenditures	-0.01	0.02	0.53	0.02	0.01	0.09	0.01	0.01	0.21
Revenue pc (in logs)	0.05	0.05	0.32	0.03	0.04	0.42	0.03	0.03	0.22
E. Socio-economic characteristics									
Unemployment rate:									
female	-0.18	0.23	0.43	-0.08	0.25	0.74	-0.16	0.16	0.32
male	0.26	0.32	0.41	0.04	0.32	0.89	-0.08	0.18	0.64

Notes: The table reports the results from a series of discontinuity-in-differences analyses at the 5,000 inhabitants threshold (columns 1-3) and the 3,000 inhabitants threshold (columns 4-6), and pooling the two thresholds together (columns 7-9). Each row corresponds to a different outcome variable. Male holdouts and gender balanced lists, as well as less feminized municipalities, are identified based on information from the last pre-quota election. More detailed information on these regressions, including the bandwidth and the total number of observations is available in Appendix D.

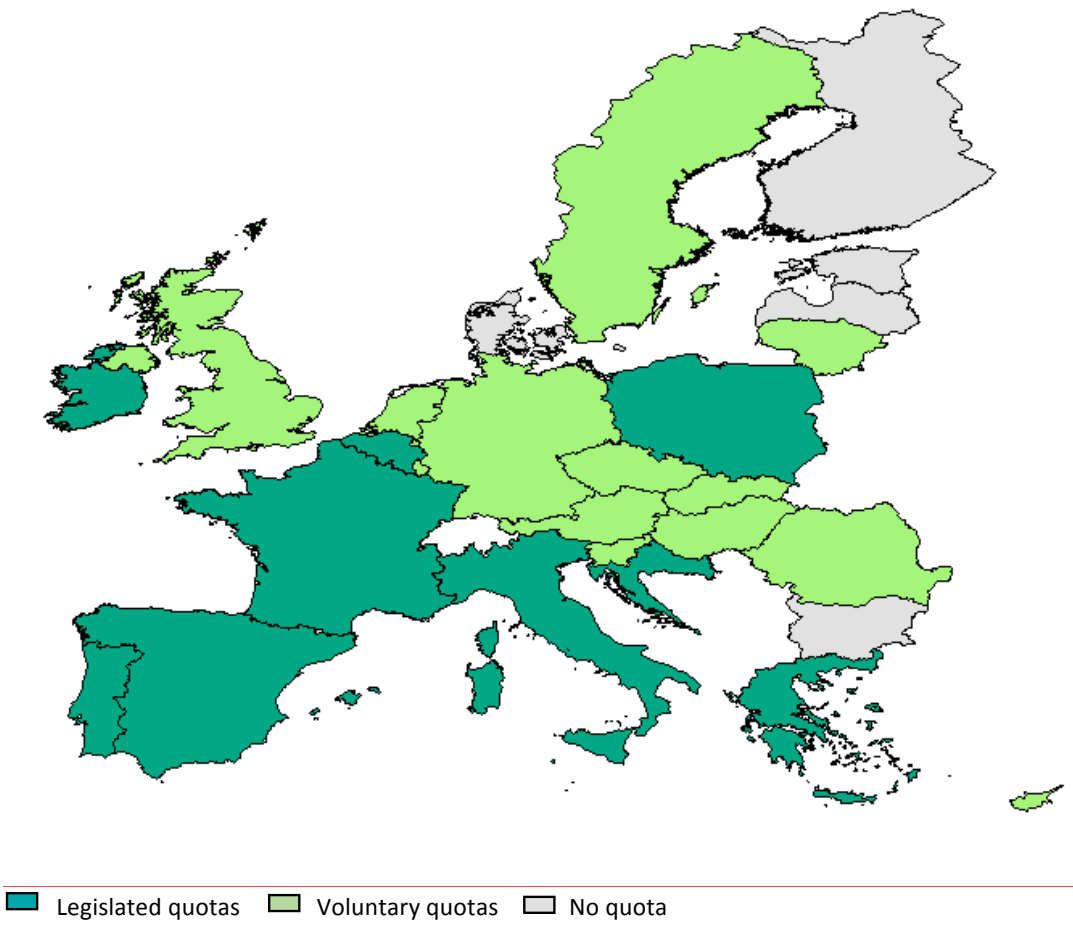
Table 4: Additional medium-term impact - Discontinuity-in-differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Threshold, period:	**5000, 2011-2003**			**5000, 2015-2003**			**3000, 2015-2011**		
Outcome variables	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**
A. Candidate lists									
Number of parties	0.15	0.42	0.73	-0.19	0.31	0.53	0.09	0.21	0.68
At least 40% candidates of either gender	0.00	0.04	0.97	-0.02	0.01	0.30	0.16	0.08	0.06
Share of women:									
all candidates	0.00	0.01	0.84	0.00	0.01	0.90	0.01	0.02	0.42
upper positions	0.00	0.03	0.91	0.02	0.02	0.30	0.00	0.03	0.92
bottom positions	0.03	0.04	0.49	-0.04	0.04	0.33	0.05	0.05	0.32
male-holdouts *vs.* gender-balanced lists	-0.02	0.02	0.28	-0.01	0.02	0.62	0.02	0.04	0.50
party leaders	0.01	0.08	0.84	0.04	0.08	0.62	-0.06	0.06	0.37
Experience	0.01	0.03	0.82	-0.04	0.04	0.24	0.01	0.03	0.74
Same surname as leader	0.01	0.01	0.46	-0.01	0.02	0.74	-0.02	0.01	0.09
B. Voters' behavior									
Turnout:									
all municipalities	1.96	1.54	0.20	0.65	1.46	0.65	1.24	0.97	0.20
less feminized	6.25	4.50	0.17	3.00	3.55	0.40	1.53	1.76	0.39
Votes:									
male-holdouts *vs.* gender-balanced lists	-3.76	6.01	0.53	2.98	9.37	0.75	4.85	4.77	0.31
C. Local council									
Share of women:									
among councilors	0.00	0.03	0.89	0.04	0.03	0.10	-0.02	0.02	0.47
among mayors	0.03	0.10	0.78	0.07	0.11	0.55	-0.02	0.10	0.80
Education	0.46	0.49	0.34	0.92	0.60	0.12	0.59	0.45	0.19
Age	1.07	1.37	0.44	-0.27	1.40	0.84	-1.71	1.32	0.20
Experience	0.02	0.04	0.59	-0.01	0.04	0.75	0.01	0.04	0.77
D. Local budget									
Expenditure pc:									
all (in logs)	0.01	0.07	0.85						
male expenditures	-0.01	0.02	0.69						
female expenditures	0.00	0.02	0.79						
Revenue pc (in logs)	-0.03	0.07	0.73						
E. Socio-economic characteristics									
Unemployment rate									
female	0.03	0.49	0.96						
male	0.54	0.65	0.40						
Net per capita income	-979.25	1047.20	0.35						

Notes: The table reports the results from a series of discontinuity-in-differences analyses at the 5,000 inhabitants threshold (columns 1-6) and the 3,000 inhabitants threshold (columns 7-9), and each row corresponds to a different outcome variable. In 2011, municipalities that were just above the 5,000 cutoff in 2006 have already been exposed to the quota during one term, whereas municipalities in the control group implement the quota for the first time. In 2015, the former group is exposed to the quota for the third time, whereas the latter group implements the quota for the second time. In 2015, municipalities that were just above the 3,000 cutoff in 2010 implement the quota for the second time, whereas municipalities in the control group have never implemented the quota. Male holdouts and gender balanced lists, as well as less feminized municipalities, are identified based on information from the last pre-quota election. The change in female and male expenditures is measured between the 2007 and the 2011 term. More detailed information on these regressions, including the bandwidth and the total number of observations is available in D.

Figures

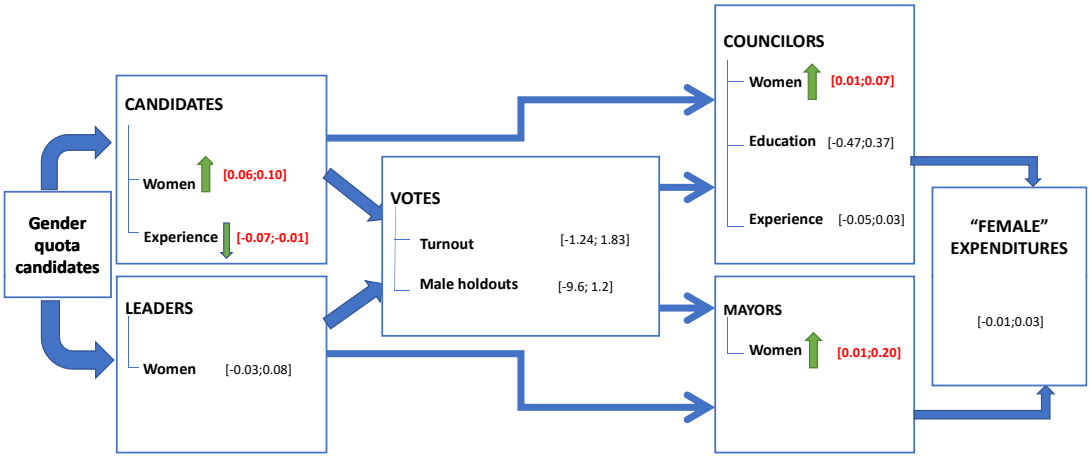
Figure 1: Gender Quotas in European Union countries



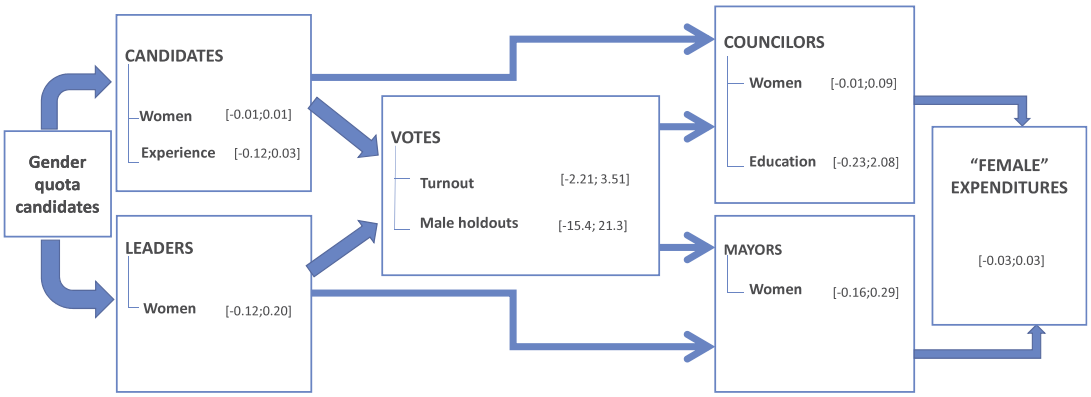
Note: This map provides information on the adoption of quotas in EU-28 countries. 'Voluntary quotas' refers to countries where at least one of the main parties has adopted internally gender quotas. Source: `www.quotaproject.org` (IDEA, Inter-Parliamentary Union and Stockholm University), consulted in September 2018.

Figure 2: Summary of main results

(a) Short-term effects

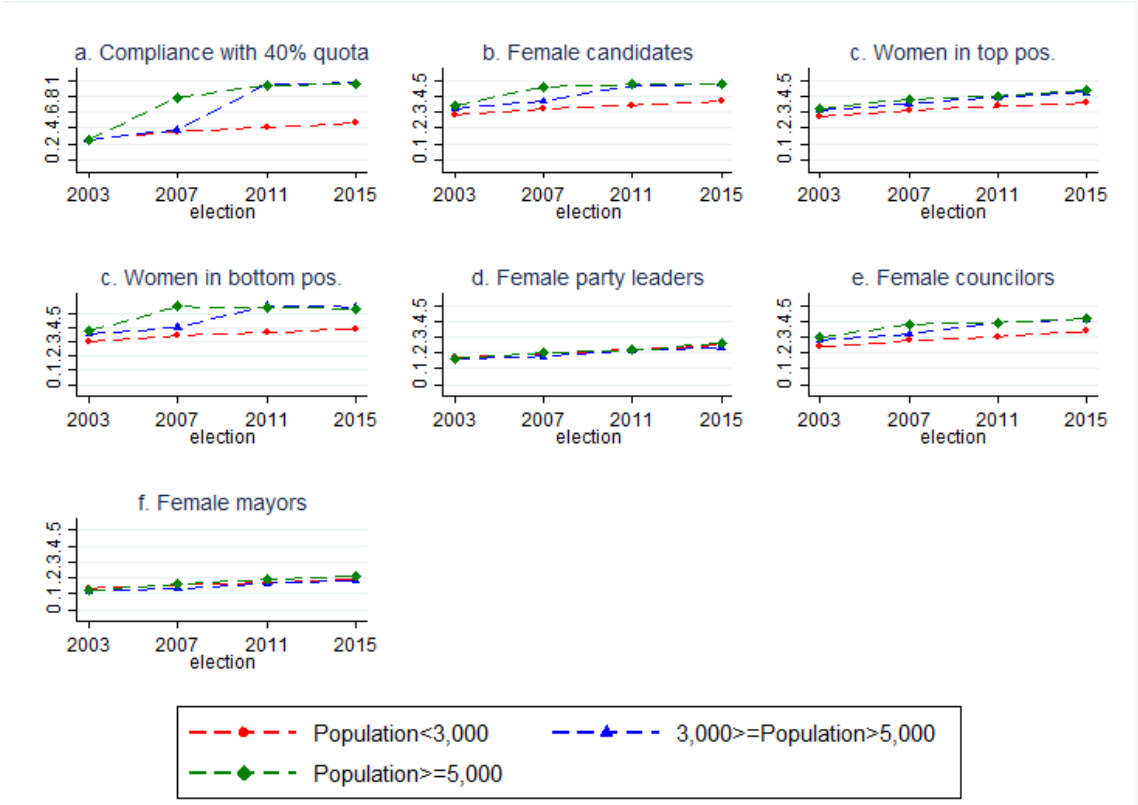


(b) Additional medium-term effects



Note: Panel A provides information on the short-term impact of quotas, based on the estimates reported in Table 3. Similarly, Panel B provides information on additional medium-term effects, based on the estimates in Table 4. Each box includes information on the 95% confidence interval for the corresponding estimate and green arrows indicate that the point estimate is statistically different from zero.

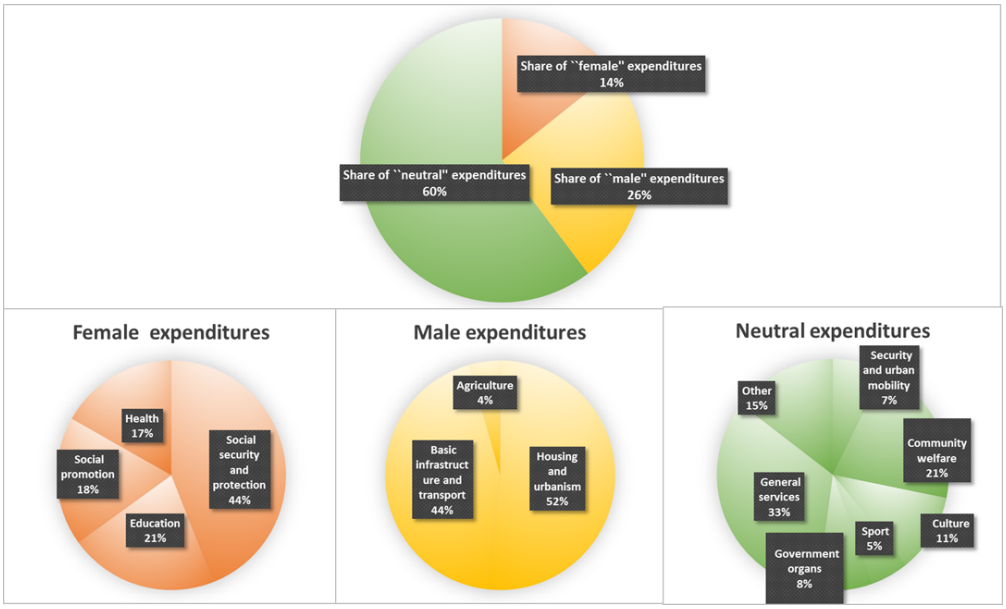
Figure 3: Female representation by size of the municipality, 2003-2015.



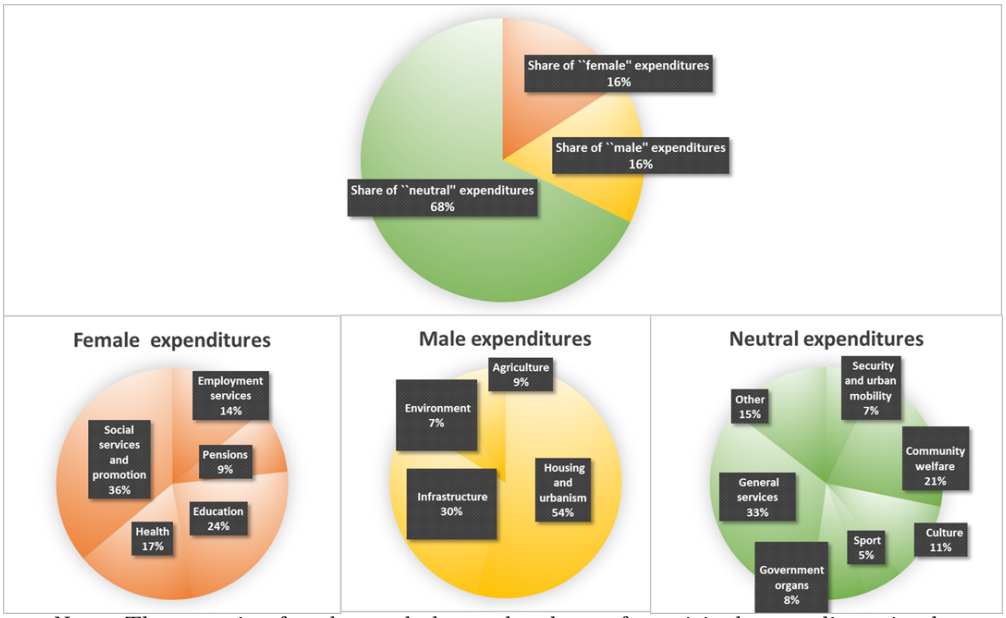
Note: The above figures show how the presence of women in local politics has evolved over time by population size of the municipality. *Compliance with 40% quota* is the share of lists with at least 40% of female candidates. *Women in top pos.* is the share of women in the first two of every five positions in electoral lists, whereas *Women in bottom pos.* is the share of women in the last three of every five positions. *Female party leaders* is the share of women who lead an electoral list.

Figure 4: Municipal expenditure

(a) Years 2004 - 2009



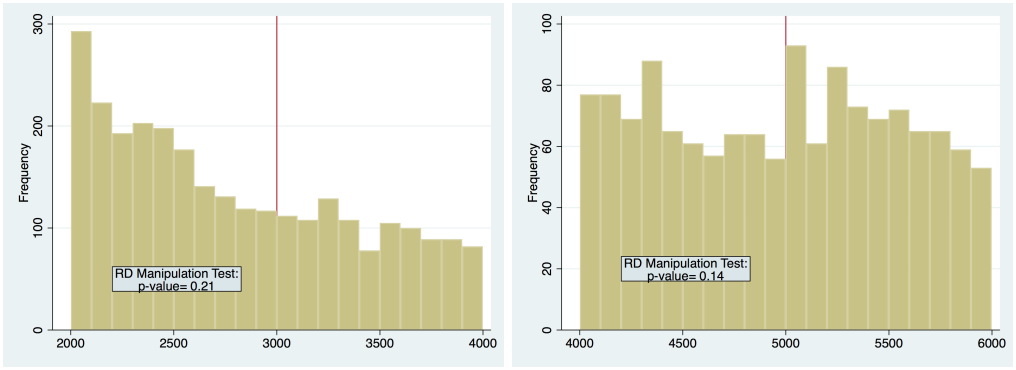
(b) Years 2010 - 2014



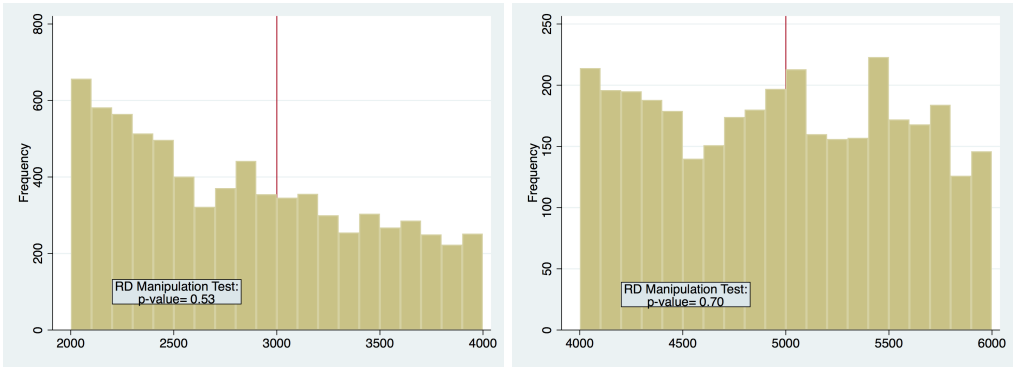
Note: The top pie of each panel shows the share of municipal expenditure in the following three categories: *female*, *male* and *neutral*. The lower part of each panel provides the breakdown of these categories by expenditure chapter. The classification of budget chapters changed in 2010 due to an accounting reform.

Figure 5: Histograms of population

(a) Years 2002-2005



(b) Years 2006-2015



Note: Histograms of population in bins of 100 individuals for municipalities with a population close to the 3,000 threshold (left-hand side) and municipalities with a population close to the 5,000 threshold (right-hand side). Each figure also reports the result from the density test proposed by Cattaneo et al. (2019) performed at the corresponding cutoff.

Appendices for online publication

A Additional Tables and Figures

In this appendix we present Tables and Figures that complement information provided in the paper, and display estimation results that we have discussed in the main text. Specifically, we report:

- Summary statistics for municipality-level demographics and policy preferences in the sample of small municipalities studied in this paper, in comparison with the entire sample of Spanish municipalities (Tables A1 and A2);

- Summary statistics for municipalities budget by chapter (Tables A3 and A4);

- OLS regression results showing that the share of women in the municipal council is positively correlated with *female expenditures* and negatively correlated with *male expenditures*, validating our categorization of budgetary items in "female" and "male" (Table A5);

- RD estimates at the 3,000 and 5,000 cutoff for federal transfers and for expenditures in areas over which large municipalities have formal competence; per capita transfers are higher just above the 5,000 cutoff (Tables A6 and A7);

- Coefficients, standard errors and p-values from RD estimates of the quota impacts and from Discontinuity in Differences estimates of the anticipation of the quota (Tables A8 - A11);

- Picture of a typical ballot in Spanish local elections, meant to illustrate how voters express their choice (Figure A1);

- RD graph for quota impact on share of female mayors in 2007 (Figure A2);

- Graphs representing post-study probabilities for given prior probabilities over different size effects for six quota impacts. (Figure A3)

Table A1: Characteristics of municipalities, by population size

	(1)	(2)	(3)
	$< 10{,}000$	10,001 - 100,000	$> 100{,}000$
Net per capita income (€)	15,761	18,227	20,547
Share of women	0.47	0.50	0.51
Employment status:			
Women			
Employed	0.34	0.38	0.41
Unemployed	0.10	0.13	0.11
Retired	0.23	0.19	0.20
Student	0.04	0.05	0.06
Housekeeper	0.30	0.25	0.22
Men			
Employed	0.60	0.63	0.59
Unemployed	0.07	0.10	0.10
Retired	0.29	0.22	0.24
Student	0.03	0.05	0.07
Housekeeper	0.00	0.00	0.00
Years of education:			
Women	7.4	8.4	9.5
Men	7.9	9.1	10.4
Age:			
Women	50.1	46.2	47.5
Men	48.2	44.0	44.8
Agreement with the statement:			
When jobs are scarce, men should have more right to a job than women	31	32	25
Discrimination based on gender is frequent in Spain	37	41	51
The Equality Law is not ambitious enough	37	41	45

Note: Each cell provides information on the average value of the corresponding variable in municipalities of respective size. Income information is provided by the Tax Authority and is only available in 2013. Share of women is from census data from 2006 to 2010. The source for the remaining variables is the Spanish Center for Sociological Research (CIS), years 2004-2010.

Table A2: Survey information - "List three problems that affect you the most" -

	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample			*Less than 10,000 inhabitants*		
	Women	**Men**	**Difference**	**Women**	**Men**	**Difference**
Unemployment	0.30	0.28	0.02***	0.28	0.25	0.03***
Pensions	0.08	0.06	0.02***	0.10	0.07	0.02***
Education	0.06	0.05	0.02***	0.05	0.03	0.02***
Health system	0.07	0.05	0.01***	0.07	0.06	0.01**
Drugs	0.04	0.03	0.01***	0.04	0.03	0.01***
Youth problems	0.02	0.01	0.01***	0.02	0.01	0.01***
Violence against women	0.01	0.01	0.01***	0.01	0.00	0.01***
Women's issues	0.01	0.00	0.01***	0.01	0.00	0.01***
Social problems	0.03	0.02	0.01***	0.02	0.02	0.01**
War	0.01	0.00	0.00***	0.01	0.00	0.00**
Crisis of values	0.02	0.01	0.00***	0.01	0.01	0.00*
Terrorism	0.12	0.12	-0.00	0.11	0.10	0.01
Public services	0.01	0.01	0.00	0.01	0.01	0.00
Racism	0.00	0.00	0.00	0.00	0.00	0.00
Crime	0.12	0.12	-0.00	0.09	0.09	-0.00
Agriculture, hunting, and fishing	0.01	0.01	-0.00***	0.02	0.03	-0.01***
Judiciary system	0.01	0.01	-0.00***	0.01	0.01	-0.00**
Environmental degradation	0.01	0.02	-0.00***	0.01	0.02	-0.01**
Economic problems	0.16	0.17	-0.01***	0.17	0.18	-0.01
Infrastructure	0.02	0.03	-0.01***	0.02	0.02	-0.00*
Corruption	0.01	0.01	-0.01***	0.01	0.02	-0.01***
Politics	0.02	0.03	-0.01***	0.01	0.03	-0.01***
Work conditions	0.05	0.06	-0.01***	0.03	0.05	-0.01***
Immigration	0.06	0.08	-0.01***	0.05	0.07	-0.02***
Housing	0.12	0.14	-0.02***	0.09	0.10	-0.01***

Note: The table shows the share of respondents, by gender, who listed the corresponding item as one of the problems that concerns them the most (columns 1,2, 4 and 5) in surveys from the Spanish Center for Sociological Research (CIS), conducted through the years 2004-2010. Columns 3 and 6 report the difference in mean responses between women and men, and the asterisks indicate the statistical significance level of the corresponding t-test for equality of means. We report the items in order from the most to the least "female" and we show information from the entire sample of surveyed municipalities (columns 1 to 3) as well as for municipalities of 10,000 inhabitants, which are the focus of this study.

Table A3: Descriptive information for local budget data, 2004-2009

	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Number municipalities	3533	3842	3812	3919	4014	4118
Total expenditures p.c. (in €)	**896**	**995**	**1134**	**1249**	**1283**	**1444**
Share of "female" expenditures	**0.131**	**0.140**	**0.135**	**0.139**	**0.153**	**0.157**
Social security and protection	0.065	0.057	0.063	0.062	0.066	0.063
Education	0.028	0.030	0.029	0.030	0.031	0.031
Social promotion	0.025	0.035	0.025	0.024	0.024	0.023
Health	0.012	0.018	0.017	0.023	0.031	0.040
Share of "male" expenditures	**0.256**	**0.233**	**0.273**	**0.264**	**0.231**	**0.267**
Housing and urbanism	0.133	0.122	0.148	0.139	0.118	0.131
Basic infrastructure and transport	0.114	0.101	0.115	0.116	0.096	0.125
Agriculture infrastructure	0.007	0.009	0.008	0.008	0.015	0.009
Agriculture, hunting and fishing	0.002	0.001	0.002	0.001	0.002	0.002
Share of "neutral" expenditures	**0.613**	**0.627**	**0.592**	**0.597**	**0.616**	**0.576**
General administration	0.226	0.216	0.213	0.201	0.208	0.189
Culture	0.117	0.112	0.098	0.116	0.112	0.102
Community welfare	0.076	0.111	0.105	0.120	0.142	0.150
Other community and social services	0.082	0.061	0.070	0.046	0.038	0.029
Public Debt	0.035	0.034	0.031	0.030	0.030	0.027
Government organs	0.019	0.027	0.021	0.029	0.031	0.031
Civic security and protection	0.015	0.015	0.015	0.016	0.016	0.014
Economic regulation	0.011	0.010	0.011	0.010	0.009	0.011
Transfers and public administration	0.017	0.017	0.016	0.015	0.016	0.013
Other expenditures	0.014	0.023	0.012	0.014	0.013	0.012

Note: The table provides information on the composition of the local budget in the period 2004-2009 based on the classification of expenditure described in section 4.4.

Table A4: Descriptive information for local budget data, 2010-2014

	2010	**2011**	**2012**	**2013**	**2014**
Number municipalities	4459	4614	4622	4063	3930
Total expenditures p.c. (in €)	**1345**	**1154**	**1014**	**966**	**1028**
Share of "female" expenditures	**0.173**	**0.182**	**0.162**	**0.148**	**0.130**
Employment services	0.026	0.024	0.015	0.024	0.024
Pensions	0.019	0.022	0.019	0.008	0.004
Education	0.036	0.038	0.044	0.040	0.031
Health	0.040	0.039	0.030	0.016	0.008
Social services and promotion	0.052	0.059	0.054	0.060	0.062
Share of "male" expenditures	**0.204**	**0.173**	**0.146**	**0.141**	**0.152**
Housing and urbanism	0.105	0.092	0.080	0.079	0.085
Infrastructure	0.066	0.048	0.040	0.042	0.047
Environment	0.013	0.011	0.010	0.013	0.014
Agriculture, Hunting and Fishing	0.020	0.022	0.015	0.008	0.006
Share of "neutral" expenditures	**0.623**	**0.645**	**0.692**	**0.711**	**0.718**
Public Debt	0.028	0.035	0.049	0.058	0.064
Security and urban mobility	0.061	0.067	0.053	0.039	0.025
Community welfare	0.120	0.115	0.145	0.156	0.176
Culture	0.082	0.072	0.066	0.072	0.076
Sport	0.047	0.037	0.034	0.031	0.030
Commerce, tourism, and small and medium enterprises	0.011	0.010	0.007	0.007	0.007
Government organs	0.064	0.076	0.068	0.034	0.023
General services	0.171	0.193	0.226	0.266	0.273
Financial and fiscal administration	0.010	0.011	0.014	0.014	0.016
Transfers to other public administrations	0.016	0.017	0.019	0.022	0.019
Other expenditures	0.014	0.011	0.012	0.012	0.010

Note: The table provides information on the composition of the local budget in the period 2010-2014 based on the classification of expenditure described in section 4.4.

Table A5: Female politicians and municipal expenditures

	Female expenditures		**Male expenditures**	
	(1)	(2)	(3)	(4)
Share Female Councilors	0.021***		-0.026***	
	(0.007)		(0.009)	
Female Mayor		0.000		-0.008**
		(0.003)		(0.003)
Observations	11,508	10,792	11,508	10,792
Adjusted R-squared	0.212	0.215	0.238	0.239

Notes: The table shows the main estimates from municipality-level regressions of *female* (columns 1 and 2) and *male* (columns 3 and 4) expenditures on the following two measures of women's representation in the municipal council: *Share Female Councilors* and *Female Mayor*. All the regressions include legislature fixed-effects and a control for *log* population and use data from three legislatures: 2003-2007, 2007-2011, and 2011-2015. Standard errors in parenthesis, clustered by municipality.*** p<0.01, ** p<0.05, * p<0.1

Table A6: Transfers from the central government

Dep. Variable:	**Yearly transfers**				**Δ Transfers**	
Period:	**2003-2006**		**2007-2012**		**2008-2010 vs. 2003-2006**	
	(1)	(2)	(3)	(4)	(5)	(6)
Threshold:	**3,000**	**5,000**	**3,000**	**5,000**	**3,000**	**5,000**
Quota	4.10	20.67***	3.18	17.23***	0.81	-0.18
	(7.62)	(7.14)	(7.03)	(6.07)	(3.45)	(2.68)
Bandwidth	662.5	1323	424.6	1696	516.7	1418
Obs left of c	1009	968	988	2284	156	245
Obs right of c	714	841	843	1598	140	206
Mean dep. var.	140.9	153.2	123.3	132.3	-27.25	-30.21

Notes: The table shows results of regression discontinuity analysis of federal transfers per capita at the 5,000 and 3,000 population cutoff. Each cell reports RD bias-corrected robust coefficients. Bandwidth is chosen according to the MSE-optimal bandwidth selector. Observations are weighted by distance to threshold with triangular kernel (see Calonico et al. (2014)). In columns (1) - (4) yearly data are used for years 2003 to 2012. In columns (5) and (6) we collapse yearly data in term-level averages and consider the variation from the pre-quota (2004-2006) to the after-quota (2008-2012) term. This is in line with the analysis of the impact of quota, where we study term-level variables and we exclude election years. Standard errors in parentheses, clustered by municipality in columns (1) to (4), robust in columns (5) to (6). *** p<0.01, ** p<0.05, * p<0.1.

Table A7: Competences of larger municipalities

Years:	**2003-2009**		**2010-2012**	
Threshold:	**3,000**	**5,000**	**3,000**	**5,000**
Quota	-33.29	-1.42	3.28	0.48
	(20.57)	(18.44)	(9.01)	(8.86)
Bandwidth	717.6	1246	617.9	1388
Obs left of c	2064	1641	1486	1664
Obs right of c	1425	1448	1122	1323
Mean dep. var.	180.4	183.1	35.92	53.48

Notes: The table reports a regression discontinuity analysis of expenditures in budget areas over which municipalities with more than 5,000 inhabitants have formal competence. The accounting procedure underwent a change in 2010, moving from the *functional* to the *program* classification. When the functional classification is used (2003-2009), we consider *Waste collection and street cleaning*, *Promotion and diffusion of culture* and *Physical education, sports and recreation*. When the program classification is used (2010-2012), we consider *Waste collection*, *Parks and Gardens* and *Library and Archives*. Each cell reports RD bias-corrected robust coefficients. Bandwidth is chosen according to the MSE-optimal bandwidth selector. Observations are weighted by distance to threshold with triangular kernel (see Calonico et al. (2014)).Standard errors clustered by municipality in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A8: Regression discontinuity design - Year 2003

Threshold:	(1)	(2)	(3)	(4)	(5)	(6)
		3000			**5000**	
	β	**St. error**	**P-value**	β	**St. error**	**P-value**
A. Candidate lists						
Number of parties	0.40	0.27	0.15	-0.03	0.25	0.90
Lists with at least 40% of candidates of either gender	0.03	0.05	0.57	-0.08	0.05	0.07
Share of women:						
all candidates	0.00	0.02	0.83	-0.01	0.02	0.43
in upper positions	0.00	0.03	0.93	0.00	0.02	0.88
in bottom positions	-0.03	0.04	0.41	-0.01	0.02	0.72
male-holdouts vs. gender-balanced lists	-0.06	0.02	0.01	0.00	0.02	0.83
party leaders	0.07	0.06	0.26	-0.08	0.04	0.05
Experience	0.05	0.03	0.10	0.03	0.03	0.33
Same surname as leader	-0.01	0.01	0.29	0.00	0.01	0.80
B. Voters' behavior						
Turnout:						
all municipalities	2.04	2.03	0.32	2.23	1.81	0.22
less feminized municipalities	5.16	4.02	0.20	1.76	3.94	0.66
Votes:						
male-holdouts vs. gender-balanced lists	-0.63	7.63	0.93	-0.69	6.06	0.91
C. Local council						
Share of women:						
among councilors	-0.04	0.03	0.20	0.00	0.02	0.96
among mayors	0.07	0.12	0.56	0.02	0.07	0.80
Education	0.09	0.55	0.87	-0.29	0.34	0.40
Age	0.89	1.14	0.43	-1.79	0.84	0.03
Experience	0.10	0.06	0.08	0.00	0.05	1.00
D. Local budget						
Expenditure p.c.:						
all (in logs)	-0.18	0.11	0.11	0.04	0.09	0.69
male expenditure	0.05	0.04	0.22	0.01	0.02	0.64
female expenditure	0.00	0.03	0.99	-0.06	0.03	0.04
Revenue p.c. (in logs)	-0.18	0.12	0.13	0.02	0.10	0.87
E. Economic indicators						
Unemployment rate						
female	0.61	0.64	0.34	-0.46	0.59	0.43
male	0.45	0.32	0.16	-0.03	0.28	0.92

Notes: The table reports the results from a series of regression discontinuity analyses at the 3,000 inhabitants threshold (columns 1-3) and the 5,000 inhabitants threshold (columns 4-6). Each row corresponds to a different outcome variable. Information on *Candidate lists*, *Voters' behavior*, and *Local council* corresponds to the 2003 elections. Information on *Local budget* is measured during the period 2004-2006, and *Economic indicators* are measured in 2006. The running variable *population* is measured in January 2002. More detailed information on these regressions, including the bandwidth and the total number of observations is available in tables E1, E3, E5, and E7.

Table A9: Anticipation effect - Discontinuity in Differences, 2007 - 2003

Threshold:	(1)	(2) 3000	(3)
	β	**St. error**	**P-value**
A. Candidate lists			
Number of parties	0.03	0.15	0.86
Lists with at least 40% of candidates of either gender	-0.03	0.05	0.60
Share of women:			
all candidates	-0.01	0.01	0.59
in upper positions	0.00	0.02	0.82
in bottom positions	0.00	0.03	0.90
party leaders	-0.02	0.05	0.73
male-holdouts vs. gender-balanced lists	-0.03	0.03	0.41
Experience	0.03	0.02	0.13
Same surname as leader	0.00	0.01	0.97
B. Electoral data			
Turnout:			
all municipalities	-0.69	1.04	0.51
less feminized municipalities	-2.11	1.77	0.23
Vote share (%):			
male-holdouts vs. gender-balanced lists	0.69	3.82	0.86
C. Local council			
Share of women:			
among councilors	0.01	0.02	0.72
among mayors	-0.01	0.07	0.94
Education	0.03	0.26	0.92
Age	0.09	0.71	0.90
Experience	-0.01	0.03	0.86
D. Local budget and economic indicators			
Expenditure p.c.:			
all (in logs)	0.00	0.05	1.00
share male	-0.02	0.03	0.46
share female	-0.02	0.03	0.45
Revenue p.c. (in logs)	-0.01	0.05	0.86
Unemployment rate			
female	-0.42	0.29	0.15
male	-0.10	0.31	0.76

Notes: The table reports the results from a series of discontinuity in differences analyses at the 3,000 inhabitants threshold, as measured in January 2010. Each row corresponds to a different outcome variable. Information on change in *Candidate lists*, *Voters' behavior*, and *Local council* corresponds to the 2007 elections. Information on changes in *Local budget* is measured during the period 2008-2010, and changes in *Economic indicators* are measured in 2010. More detailed information on these regressions, including the bandwidth and the total number of observations is available in Appendix Section D.

Table A10: Short term impact of quotas - Regression discontinuity design

Threshold, year:	(1)	(2)	(3)	(4)	(5)	(6)
	5000, 2007			3000, 2011		
	β	St. error	P-value	β	St. error	P-value
A. Candidate lists						
Number of parties	0.07	0.24	0.76	-0.01	0.19	0.98
At least 40% candidates of either gender	0.39	0.05	0.00	0.45	0.04	0.00
Share of women:						
all candidates	0.08	0.01	0.00	0.07	0.01	0.00
upper positions	0.03	0.02	0.10	0.02	0.02	0.21
bottom positions	0.11	0.03	0.00	0.13	0.02	0.00
male-holdouts *vs* gender-balanced lists	0.06	0.03	0.04	-0.03	0.03	0.36
party leaders	0.09	0.06	0.13	0.00	0.04	0.94
Experience	-0.06	0.03	0.04	0.02	0.02	0.30
Same surname as leader	0.01	0.01	0.51	0.00	0.01	0.94
B. Voters' behavior						
Turnout:						
all municipalities	1.27	1.97	0.52	-0.46	1.62	0.78
less feminized	2.19	3.35	0.51	1.60	2.45	0.51
Vote share (%):						
male-holdouts *vs* gender-balanced lists	0.98	6.31	0.88	1.38	5.83	0.81
C. Local council						
Share of women:						
among councilors	0.05	0.02	0.01	0.04	0.02	0.04
among mayors	0.06	0.07	0.41	-0.08	0.09	0.36
Education	0.44	0.40	0.28	-0.14	0.30	0.63
Age	-1.15	0.93	0.22	1.57	1.03	0.13
Experience	-0.09	0.03	0.01	0.02	0.03	0.58
D. Local budget and economic indicators						
Expenditure p.c.:						
all (in logs)	0.03	0.06	0.65	0.05	0.05	0.37
male expenditure	0.00	0.02	0.92	-0.01	0.02	0.70
female expenditure	0.01	0.02	0.62	0.01	0.02	0.44
Revenue p.c. (in logs)	0.03	0.06	0.62	0.04	0.05	0.47
Unemployment rate						
female	0.22	0.70	0.76	0.15	0.68	0.82
male	0.48	0.44	0.28	0.22	0.52	0.67
Net per capita income				347	689	0.61

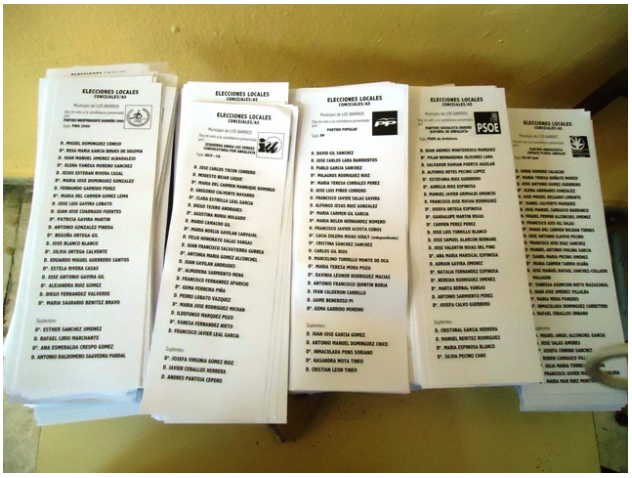
Notes: The table reports the results from a series of RD analyses at the 5,000 inhabitants threshold (columns 1-3) and the 3,000 inhabitants threshold (columns 4-6), and each row corresponds to a different outcome variable. In the analyses at the 5,000 (3,000) threshold, the running variable *population* is measured in January 2006 (2010). Male holdouts and gender balanced lists, as well as less feminized municipalities, are identified based on information from the last pre-quota election. More detailed information on these regressions, including the bandwidth and the total number of observations is available in Appendix Section E.

Table A11: Additional medium-term impact of quotas - Regression discontinuity design

Threshold, year:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	5000, 2011			5000, 2015			3000, 2015		
	β	St. error	P-value	β	St. error	P-value	β	St. error	P-value
A. Candidate lists									
Number of parties	0.24	0.48	0.62	-0.13	0.37	0.73	0.30	0.24	0.22
At least 40% of candidates of either gender	0.02	0.05	0.62	-0.03	0.02	0.11	0.30	0.24	0.22
Share of women:									
all candidates	0.00	0.00	0.67	0.00	0.01	0.71	0.07	0.01	0.00
upper positions	-0.02	0.03	0.50	0.01	0.02	0.73	0.02	0.02	0.21
bottom positions	0.06	0.03	0.09	0.00	0.03	0.97	0.11	0.03	0.00
male-holdouts *vs* gender-balanced lists	-0.01	0.02	0.54	-0.01	0.02	0.58	0.04	0.03	0.24
party leaders	0.04	0.06	0.50	0.05	0.06	0.40	0.01	0.05	0.81
Experience	0.03	0.03	0.46	-0.02	0.03	0.61	-0.02	0.03	0.55
Same surname as leader	0.00	0.01	0.77	-0.01	0.01	0.37	-0.01	0.01	0.19
B. Voters' behavior									
Turnout:									
all municipalities	2.56	1.76	0.15	1.07	1.70	0.53	-3.64	1.93	0.06
less feminized	5.82	5.72	0.31	2.50	4.23	0.56	-0.67	3.03	0.82
Vote share (%):									
male-holdouts *vs* gender-balanced lists	-2.89	8.82	0.74	3.94	10.06	0.70	-2.49	7.83	0.75
C. Local council									
Share of women:									
among councilors	-0.02	0.03	0.44	0.04	0.03	0.13	0.04	0.03	0.08
among mayors	0.02	0.11	0.85	0.07	0.11	0.53	0.05	0.08	0.54
Education	0.59	0.58	0.31	0.95	0.62	0.13	0.20	0.41	0.61
Age	1.67	1.42	0.24	-0.14	1.31	0.91	-0.08	1.40	0.95
Experience	0.07	0.04	0.10	-0.02	0.03	0.65	0.00	0.04	0.98
D. Local budget and economic indicators									
Expenditure p.c.:									
share male	0.00	0.02	0.91						
share female	0.00	0.02	0.97						
Revenue p.c. (in logs)	0.02	0.07	0.79						
Unemployment rate									
female	0.05	0.79	0.95						
male	0.65	0.74	0.38						
Net per capita income	-957	1046	0.36						

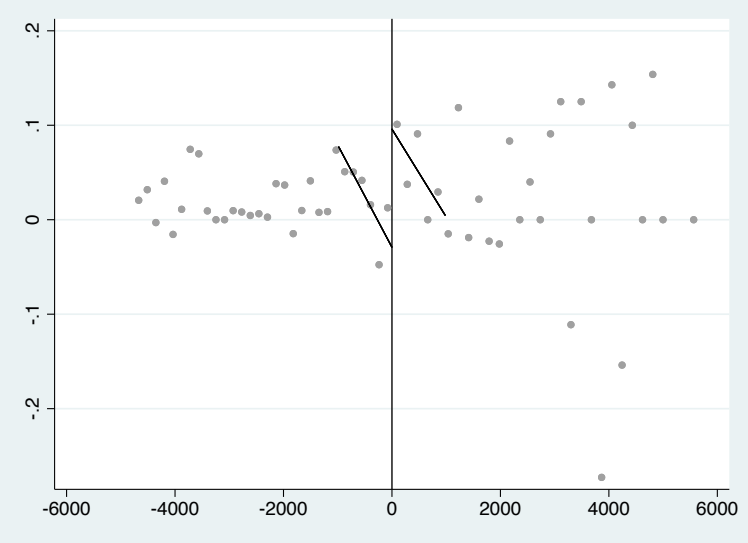
Notes: The table reports the results from a series of RD analyses at the 5,000 inhabitants threshold (columns 1-3) and the 3,000 inhabitants threshold (columns 4-9), and each row corresponds to a different outcome variable. In the analyses at the 5,000 (3,000) threshold, the running variable *population* is measured in January 2006 (2010). Male holdouts and gender balanced lists, as well as less feminized municipalities, are identified based on information from the last pre-quota election. More detailed information on these regressions, including the bandwidth and the total number of observations is available in E.

Figure A1: Ballots



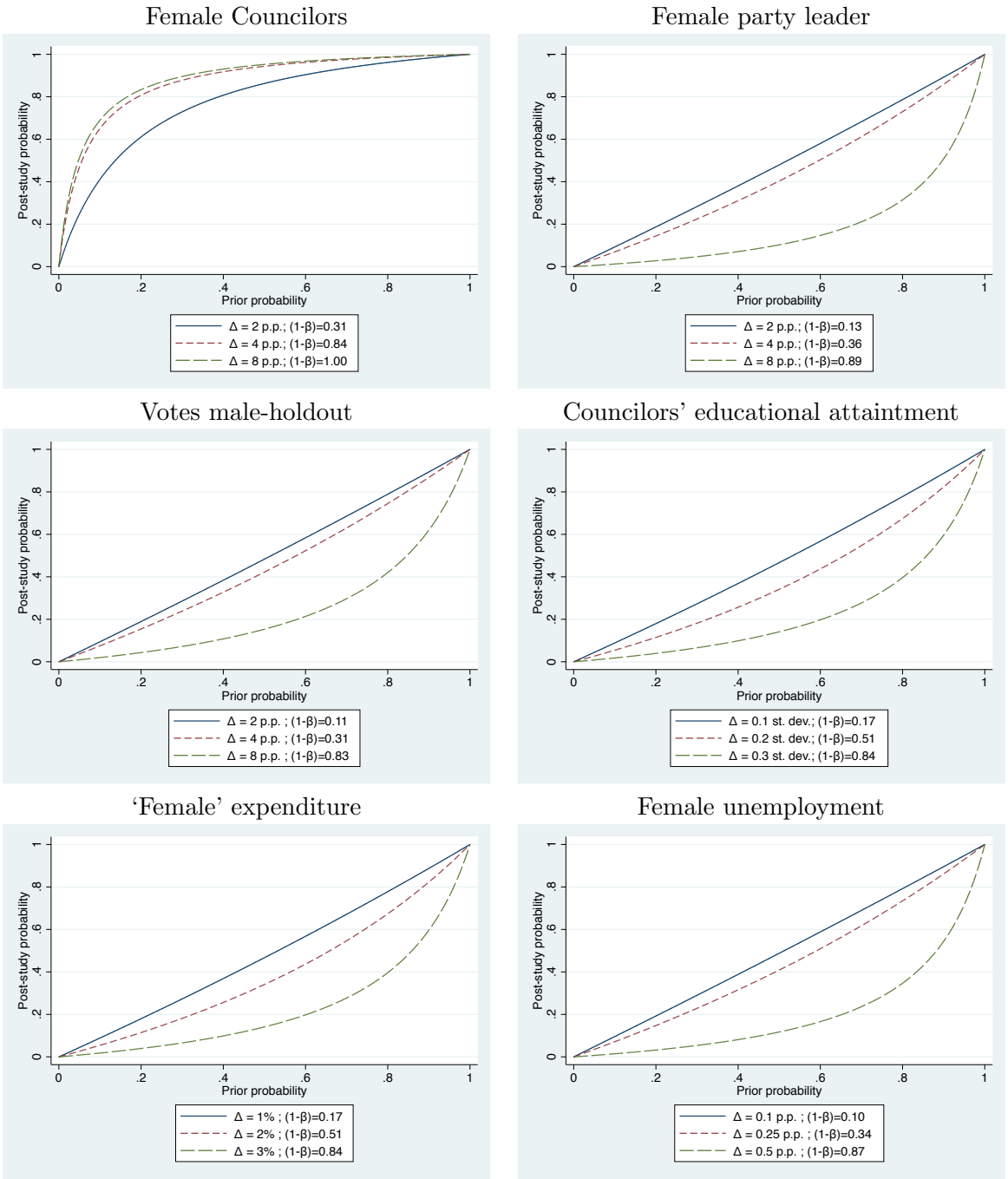
Note: Sample of electoral ballots in Spanish municipal elections.

Figure A2: Female Mayors



Note: The figure displays local means of the share of female mayors for a number of population bins, as well as a first order polynomial fitted separately above and below the cutoff within the optimal bandwidth (981 inhabitants).

Figure A3: Post-Study Probability estimates as a function of prior probability and the strength of the effect (Δ)



Note: The figure provides information on the *Post-Study Probability* that quotas affects a number of selected outcome variables, following the methodology proposed by Maniadis et al. (2014). The post-study probability (y-axis) depends on the statistical significance of the estimates, the potential strength of the effect (Δ), and the prior probability assigned to this effect (x-axis). We use for the calculation the significance levels reported in Table 3. We consider for each variable three possible values of Δ and we also report the corresponding statistical power $(1 - \beta)$.

B Data Appendix

In this appendix we provide information on the data sources and we describe the construction of the dataset used in the paper. Unless indicated otherwise, the information was retrieved in October 2016.

B.1 Electoral data

Data from local elections in 2003, 2007, 2011, and 2015 is available on the webpage of the Spanish Ministry of Interior (`http://www.infoelectoral.interior.es/min/`). This dataset includes information on candidates' full name, gender, position in the list, party affiliation, municipality, municipality's population on January 1^{st} of the previous year, the number of votes received by each party list, and the identity of candidates who were elected. The ministry also provides information on the identity of mayors elected by the local council (`https://ssweb.seap.minhap.es/portalEELL/`).

Candidates' gender is not reported in 2003; in this case we assign gender using information provided by the Spanish Statistical Office (INE) on the popularity of male and female first names. Using this information, we have also corrected a number of typos in the assignment of gender in the 2007 electoral data provided by the Ministry.

B.2 Councilors Characteristics

We obtained from the Spanish Ministry of Economy and Finance information on the age, occupation and education level of municipal councilors elected in 2003, 2007, 2011, and 2015. On average, 76% of the municipal councilors elected between 2003 and 2015 report their age during this period, and 70% report their education. The share of missing observations is higher in more recent elections. When possible, we impute the education level of municipal councilors by using their respective information in previous or subsequent terms; we track municipal councilors over different terms by using their gender, date of birth, and municipality. As a result, in our sample of municipalities we observe the education level (reported or imputed) of nearly 78% of the municipal councilors.

B.3 Political preferences

To learn about the preferences of men and women, we use the information provided by the survey known as the *Spanish Barometer* between January 2000 and December 2006. This survey is administered by the Centre for Sociological Research (CIS) every three months. We complement this information using the two electoral surveys that the CIS conducted before the 2000 and 2004 national elections. This information is available at `http://www.cis.es`.

B.4 Local budget

The Ministry of Economy and Finance provides information on budget size and composition since year 2003 (available at `http://serviciostelematicosext.minhap.gob.es/SGCAL/entidadeslocales/`). Before 2010 expenditures are grouped into *functional categories*. Since 2010, expenditures are classified according to the so-called *program classification*.

B.5 Economic indicators

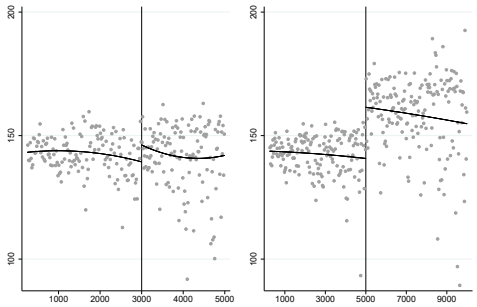
Information on population by gender at the municipal level is provided the Spanish Statistical Office (INE). This information is available at `http://www.ine.es`. The Ministry of Employment and Social Security provides information on the number of men and women who are registered as unemployed in each municipality (available at `http://datos.gob.es/catalogo/paro-registrado-municipios`). Finally, the Spanish Tax Agency provides income data disaggregated at the municipal level for year 2013. This data is available at `http://www.agenciatributaria.es/AEAT.internet/datosabiertos/catalogo/hacienda/Estadistica_de_los_declarantes_del_IRPF_por_municipios.shtml`.

C RD Plots

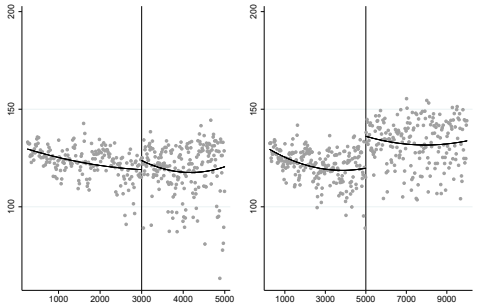
In this appendix we present RD plots that provide graphical evidence for the empirical analysis in the paper. We use the Stata command *rdplot* (see Calonico et al. (2015)).

Figure C1: Federal transfers per capita

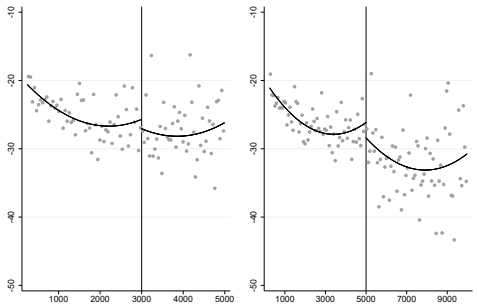
(a) Years 2003-2006



(b) Years 2007-2012



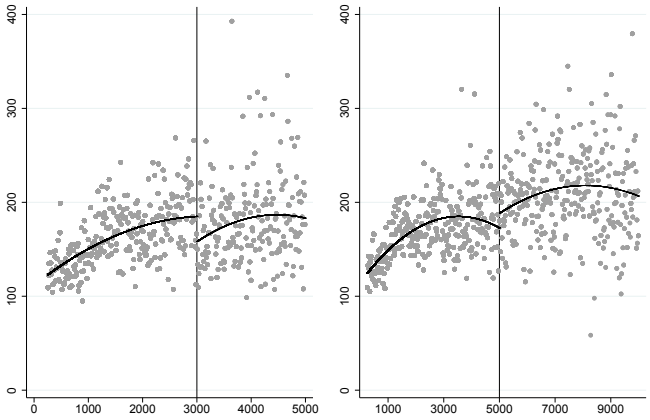
(c) Δ Years 2008-2010 vs 2003-2006



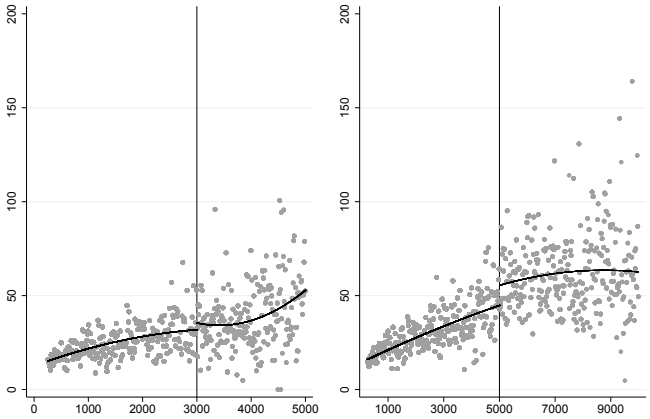
Note: The running variable is the population of the municipality in January of the previous year. The dependent variable is per capita transfers from the central government. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C2: Competences of larger municipalities

(a) 2003-2009



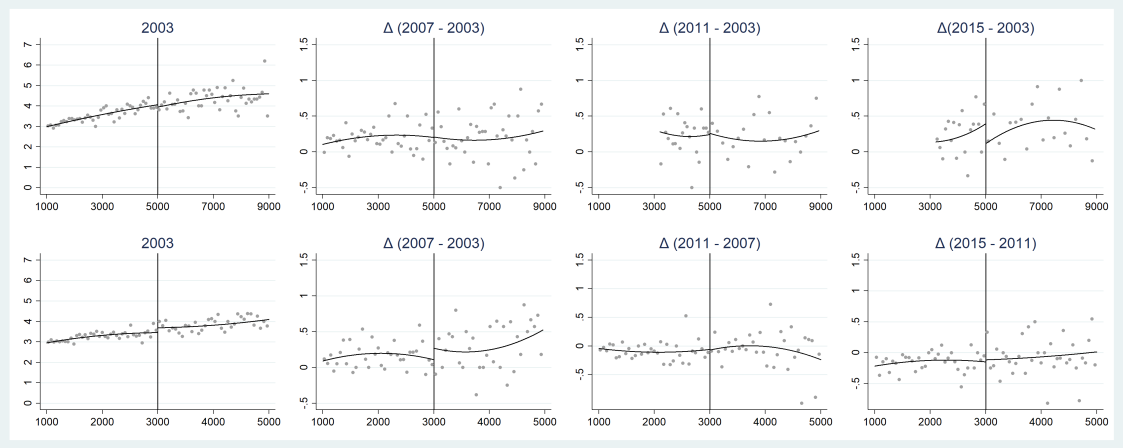
(b) 2010-2012



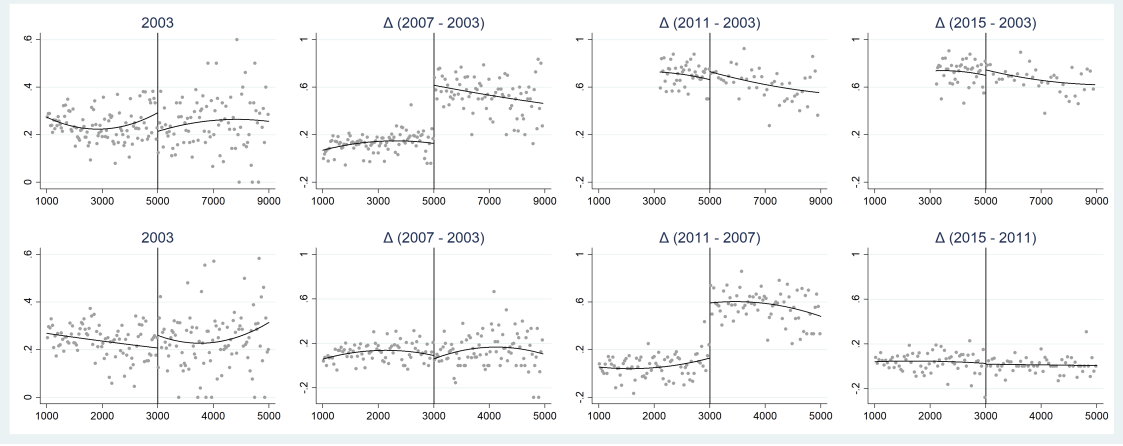
Note: The running variable is the population of the municipality in January of the previous year. The dependent variable is the amount of expenditures in areas over which municipalities with more than 5,000 inhabitants have formal competence. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C3: Female politicians

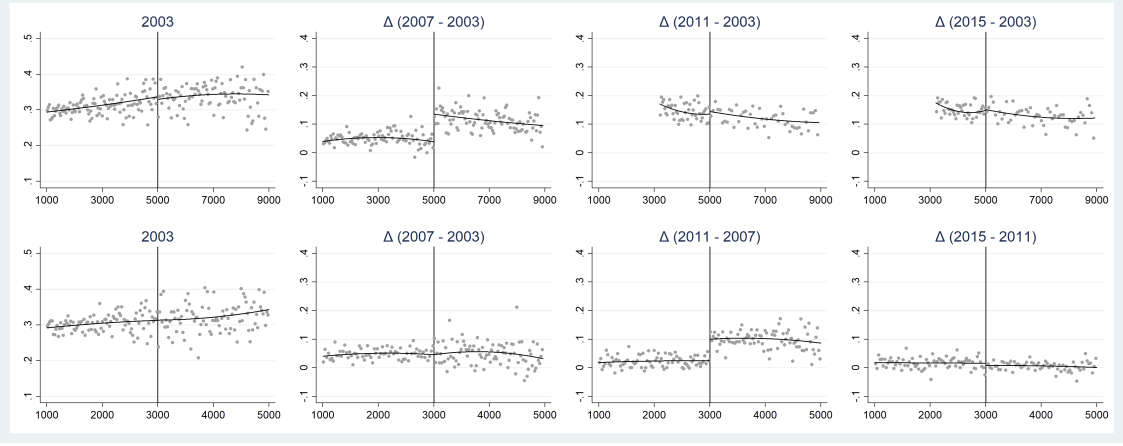
(a) Number of parties



(b) Lists with at least 40% of candidates of either gender



(c) Share of female candidates



(d) Share of women in upper positions

(e) Share of women in bottom positions

(f) Female party leaders

(g) Female councilors

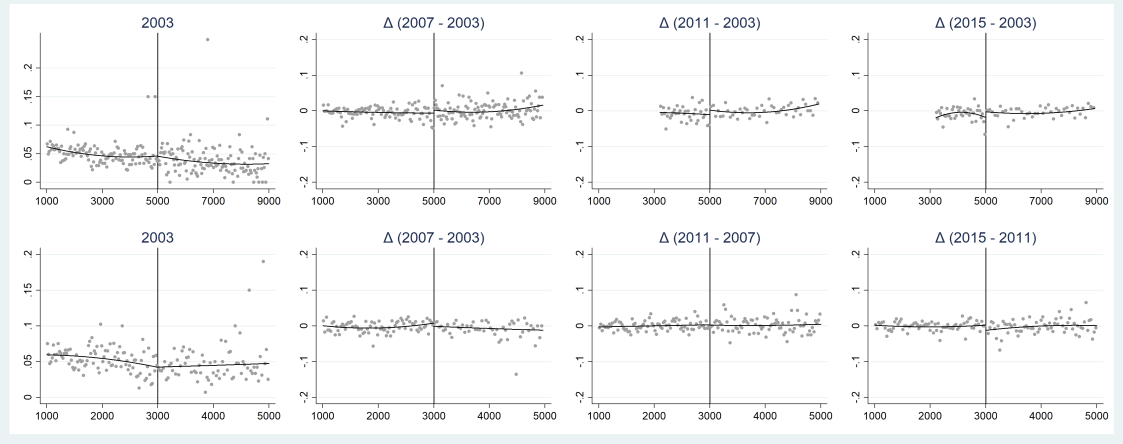
(h) Female mayors

Note: Each panel provides information about a given electoral outcome variable by municipality population. The upper row of each panel covers municipalities between 1,000 and 9,000 inhabitants (as measured on January 2006) and displays a vertical line at 5,000. The lower row covers municipalities with more than 1,000 and less than 5,000 inhabitants (as measured on January 2010) and displays a vertical line at 3,000. The first column of each panel provides information for the outcome variable in levels for year 2003. Columns 2, 3 and 4 display information for the outcome variable in differences for years 2007, 2011 and 2015 respectively. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C4: Characteristics of politicians

(a) Candidates' experience

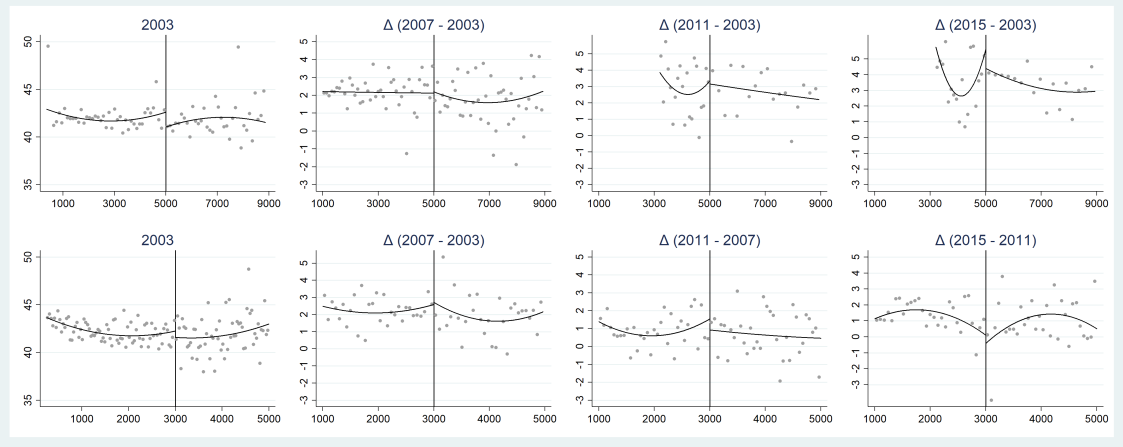
(b) Same surname as party leader



(c) Councilors' experience

(d) Councilors' education

(e) Councilors' age

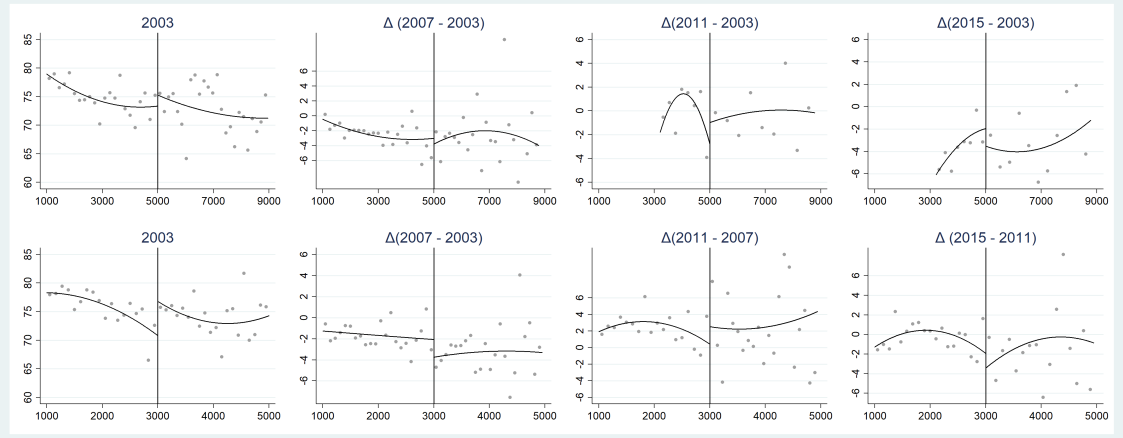


Note: Each panel provides information about characteristics of politicians, by municipality population. The upper row of each panel covers municipalities between 1,000 and 9,000 inhabitants (as measured on January 2006) and displays a vertical line at 5,000. The lower row covers municipalities with more than 1,000 and less than 5,000 inhabitants (as measured on January 2010) and displays a vertical line at 3,000. The first column of each panel provides information for the outcome variable in levels for year 2003. Columns 2, 3 and 4 display information for the outcome variable in differences for years 2007, 2011 and 2015 respectively. Dots are means, lines are fitted values from second-order polynomial regressions.Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C5: Turnout

(a) All municipalities

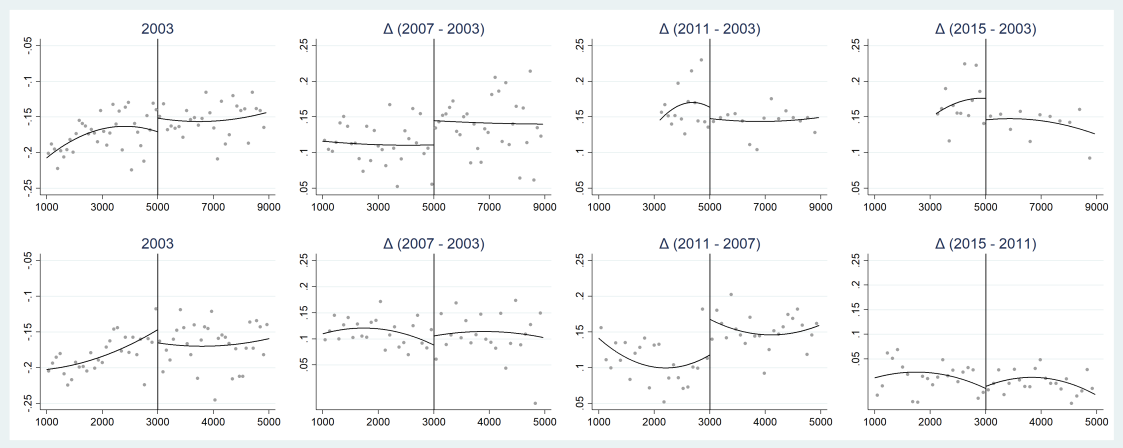
(b) Less feminized municipalities



Note: The upper panel provides information on turnout by population for all municipalities. The lower panel includes only municipalities where the overall share of female candidates was below the national median for the corresponding election. The upper row of each panel covers municipalities between 1,000 and 9,000 inhabitants (as measured on January 2006) and displays a vertical line at 5,000. The lower row covers municipalities with more than 1,000 and less than 5,000 inhabitants (as measured on January 2010) and displays a vertical line at 3,000. The first column of each panel provides information for the outcome variable in levels for year 2003. Columns 2, 3 and 4 display information for the outcome variable in differences for years 2007, 2011 and 2015 respectively. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C6: Male holdouts *vs* Gender-balanced lists

(a) Share of female candidates

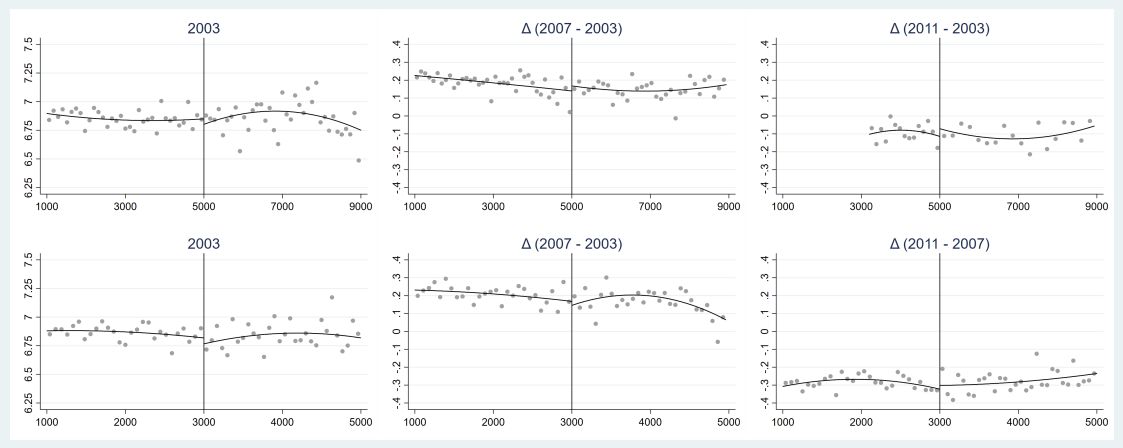


(b) Votes

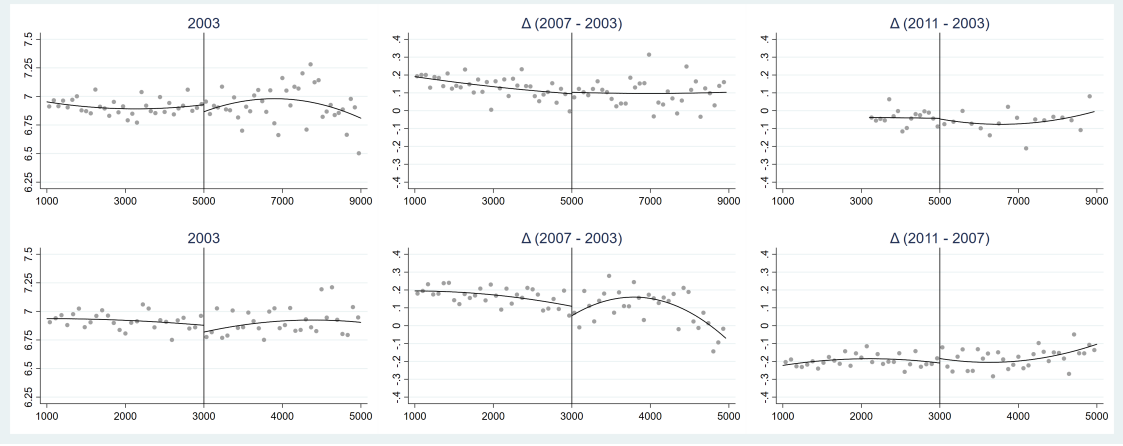
Note: The upper (lower) panel provides information on the difference in the share of female candidates (votes) between male holdout and gender-balanced lists, by population. The upper row of each panel covers municipalities between 1,000 and 9,000 inhabitants (as measured on January 2006) and displays a vertical line at 5,000. The lower row covers municipalities with more than 1,000 and less than 5,000 inhabitants (as measured on January 2010) and displays a vertical line at 3,000. The first column of each panel provides information for the outcome variable in levels for year 2003. Columns 2, 3 and 4 display information for the outcome variable in differences for years 2007, 2011 and 2015 respectively. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

Figure C7: Local budget and economic indicators

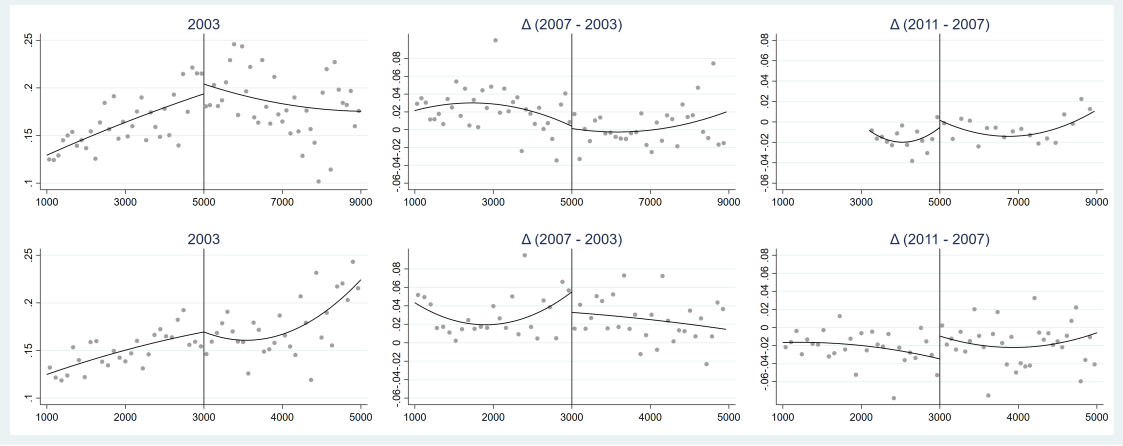
(a) Log expenditures per capita



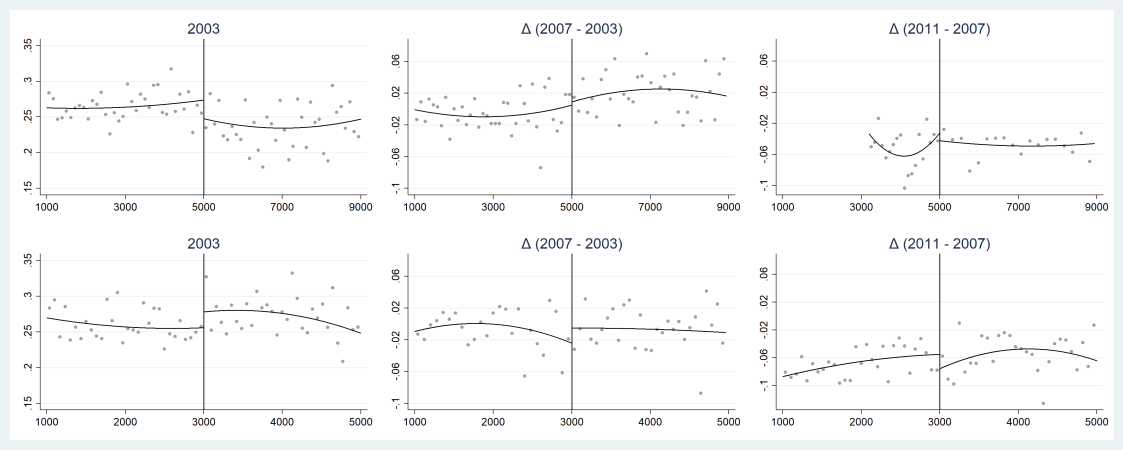
(b) Log revenues



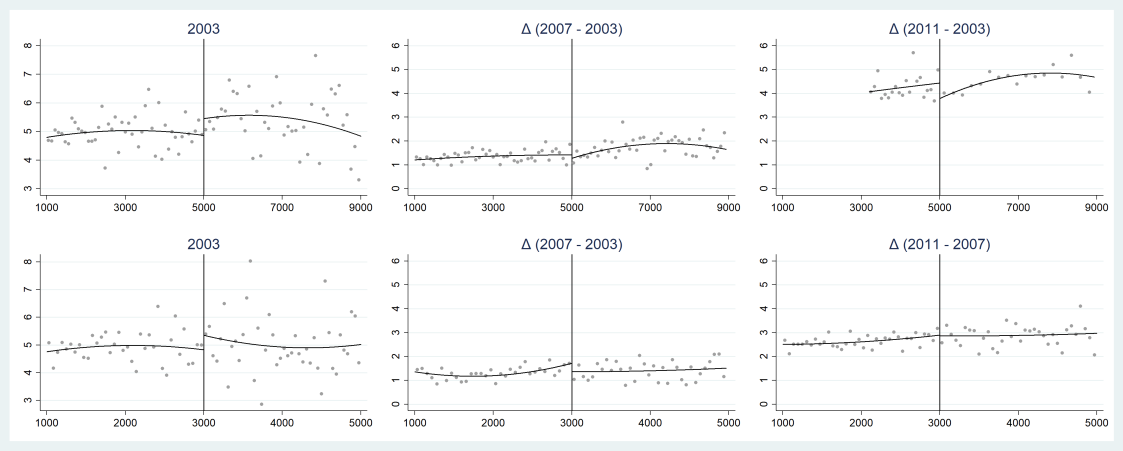
(c) Share of female expenditures



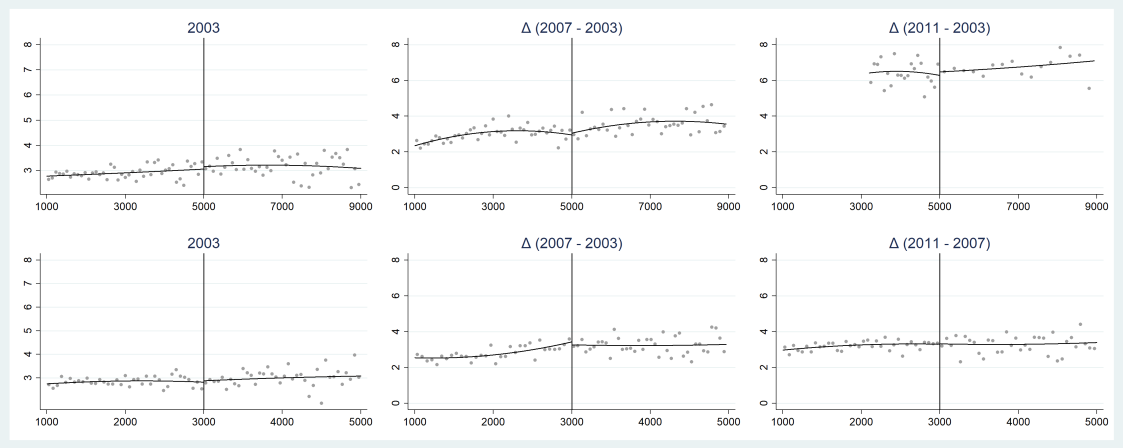
(d) Share of male expenditures



(e) Female unemployment rate



(f) Male unemployment rate



Note: Each panel provides information about municipal budget or economic indicators by population. The upper row of each panel covers municipalities between 1,000 and 9,000 inhabitants (as measured on January 2006) and displays a vertical line at 5,000. The lower row covers municipalities with more than 1,000 and less than 5,000 inhabitants (as measured on January 2010) and displays a vertical line at 3,000. The first column of each panel provides information for the outcome variable in levels for year 2003. Columns 2, 3 and 4 display information for the outcome variable in differences for years 2007, 2011 and 2015 respectively. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for details.

D Details RD Analysis - Outcome Variables in Differences

In this appendix we present more details on the Discontinuity-in-differences estimates summarized in Tables 3, 4 and A9. Specifically, we report, together with the coefficient and standard errors displayed in the summary tables, bandwidth, number of observations above and below the cutoff, and mean of the dependent variable.

Table D.1: Female Politicians - Discontinuity in differences - Anticipation and short term

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			ΔShare of women among:					
Dep. var.:	**ΔNumber of lists**	**ΔComplier**	**All candidates**	**Upper candidates**	**Bottom candidates**	**Party leaders**	**Councilors**	**Mayors**
Panel A. Threshold: 3000, Period: 2007-2003								
Quota	0.03	-0.03	-0.01	-0.00	0.00	-0.02	0.01	-0.01
	(0.15)	(0.05)	(0.01)	(0.02)	(0.03)	(0.05)	(0.02)	(0.07)
Bandwidth	947.8	991	1057	901	857.4	732.5	736.9	668
N below cutoff	478	1416	1540	1261	1178	950	333	254
N above cutoff	287	907	954	829	797	697	233	183
Mean dep. var.	0.144	0.118	0.051	0.043	0.062	0.013	0.046	0.016
Panel B. Threshold: 5000, Period: 2007-2003								
Quota	-0.00	0.45***	0.09***	0.04**	0.10***	0.07	0.06***	0.10
	(0.22)	(0.05)	(0.01)	(0.02)	(0.03)	(0.05)	(0.02)	(0.07)
Bandwidth	1573	1456	1375	1469	1288	1248	1729	2071
N below cutoff	333	933	869	938	815	778	384	450
N above cutoff	263	811	780	813	743	730	280	285
Mean dep. var.	0.231	0.154	0.0462	0.0490	0.0543	0.0167	0.0428	0.00889
Panel C. Threshold: 3000, Year: 2011-2007								
Quota	0.03	0.41***	0.08***	0.02	0.12***	-0.01	0.03*	0.09
	(0.16)	(0.04)	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.07)
Bandwidth	817.7	691.9	1188	1123	1212	1219	1015	1004
N below cutoff	392	879	1787	1665	1824	1840	522	440
N above cutoff	254	661	1081	1023	1096	1099	309	270
Mean dep. var.	-0.105	0.0887	0.0240	0.0301	0.0231	0.0484	0.0221	0.0455
Panel D. Threshold: Pooled								
Quota	0.01	0.45***	0.08***	0.02*	0.12***	0.02	0.04***	0.10**
	(0.12)	(0.03)	(0.01)	(0.01)	(0.02)	(0.03)	(0.01)	(0.05)
Bandwidth	1247	1281	915.8	1246	1242	1423	1096	1310
N below cutoff	917	2761	1848	2660	2650	3107	782	833
N above cutoff	583	1883	1445	1851	1851	2033	529	541
Mean dep. var.	-0.0153	0.100	0.029	0.033	0.031	0.041	0.0271	0.026

Notes: In columns (1), (7), and (8) the unit of observation is municipality, while in columns (2) to (6) the unit of observation is party list. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panel A the comparison is between municipalities subject to the quota for the first time in 2011 and municipalities that never had the quota. In Panels B and C the comparison is between municipalities subject the quota for the first time in 2007 and 2011 respectively, and municipalities that never had the quota. In Panel D the treatment and control municipalities from Panels B and C are respectively pooled together. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table D.2: Female Politicians - Discontinuity in differences - Additional medium-term impact

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			ΔShare of women among:					
Dep. var.:	**ΔNumber of lists**	**ΔComplier**	**All candidates**	**Upper candidates**	**Bottom candidates**	**Party leaders**	**Councilors**	**Mayors**
Panel A. Threshold: 5000, Period: 2011-2003								
Quota	0.15	-0.00	0.00	0.00	0.03	0.01	-0.00	0.03
	(0.42)	(0.04)	(0.01)	(0.03)	(0.04)	(0.08)	(0.03)	(0.10)
Bandwidth	947.6	920.9	944.2	895.5	870.8	930.6	781.4	1243
N below cutoff	179	511	541	498	482	524	141	224
N above cutoff	185	557	570	552	540	564	158	205
Mean dep. var.	0.218	0.946	0.141	0.399	0.551	0.225	0.101	0.183
Panel B. Threshold: 5000, Period: 2015-2003								
Quota	-0.19	-0.02	-0.00	0.02	-0.04	0.04	0.04	0.07
	(0.31)	(0.01)	(0.01)	(0.02)	(0.04)	(0.08)	(0.03)	(0.11)
Bandwidth	982.8	991.5	874.8	1048	935.3	1092	973.8	1379
N below cutoff	184	517	450	549	495	579	184	254
N above cutoff	191	554	499	576	524	589	189	226
Mean dep. var.	0.293	0.725	0.143	0.122	0.163	0.0518	0.131	0.0748
Panel C. Threshold: 3000, Period: 2015-2011								
Quota	0.09	0.16*	0.01	0.00	0.05	-0.06	-0.02	-0.02
	(0.21)	(0.08)	(0.02)	(0.03)	(0.05)	(0.06)	(0.02)	(0.10)
Bandwidth	879.2	563.2	529.4	962.4	572.1	860.7	762.6	790.2
N below cutoff	412	581	522	1186	595	1017	336	300
N above cutoff	236	415	385	721	419	635	204	178
Mean dep. var.	-0.119	0.033	0.017	0.024	0.008	0.048	0.037	0.033

Notes: In columns (1), (7), and (8) the unit of observation is municipality, while in columns (2) to (6) the unit of observation is party list. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panel A the comparison is between municipalities that have the quota for the second time in 2011 and municipalities that have it for the first time. In Panel B the comparison is between municipalities that have the quota for the third time in 2015 and municipalities that have it for the second time. In Panel C the comparison is between municipalities that have the quota for the second time in 2015 and municipalities that never had it. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table D.3: Characteristics of Politicians - Discontinuity in differences - Anticipation and Short term

Dep. var.:	(1)	(2)	(3)	(4)	(5)
	Candidates		Councilors		
	ΔExperience	ΔSurname as leader	ΔExperience	ΔEducation	ΔAge
	Panel A. Threshold: 3000, Period: 2007-2003				
Quota	0.03		-0.01	0.03	0.09
	(0.02)		(0.03)	(0.26)	(0.71)
Bandwidth	1152	888.3	975.4	986.9	913.2
N below cutoff	1439	1240	414	476	434
N above cutoff	860	825	250	284	264
Mean dep. var.	0.127	0.000	0.111	0.282	2.271
	Panel B. Threshold: 5000, Period: 2007-2003				
Quota	-0.07***	0.01	-0.07**	0.20	-1.27
	(0.03)	(0.01)	(0.03)	(0.32)	(0.83)
Bandwidth	1340	1957	1234	1685	1298
N below cutoff	681	1453	195	347	249
N above cutoff	659	1013	188	259	215
Mean dep. var.	0.391	-0.005	3.345	0.446	1.928
	Panel C. Threshold: 3000, Period: 2011-2007				
Quota	-0.02	0.00	0.02	-0.19	0.77
	(0.02)	(0.01)	(0.03)	(0.28)	(0.89)
Bandwidth	1312	959.6	1077	1006	794.4
N below cutoff	1991	1383	556	467	343
N above cutoff	1157	903	323	282	224
Mean dep. var.	0.002	0.002	0.007	0.377	0.982
	Panel D. Threshold: Pooled				
Quota	-0.04***	0.00	-0.01	-0.05	0.06
	(0.01)	(0.00)	(0.02)	(0.22)	(0.63)
Bandwidth	1393	1521	1695	1258	1119
N below cutoff	2841	3449	1349	852	743
N above cutoff	1878	2135	667	542	497
Mean y control	0.033	-0.001	0.032	0.374	1.232

Notes: In columns (1) and (2) the unit of observation is party list, while in columns (3) to (5) the unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)).In Panel A the comparison is between municipalities subject to the quota for the first time in 2011 and municipalities that never had the quota. In Panels B and C the comparison is between municipalities subject the quota for the first time in 2007 and 2011 respectively, and municipalities that never had the quota. In Panel D the treatment and control municipalities from Panels B and C are respectively pooled together. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *.

Table D.4: Characteristics of Politicians - Discontinuity in differences - Additional medium-term impact

Dep. var.:	(1)	(2)	(3)	(4)	(5)
	Candidates		Councilors		
	ΔExperience	ΔSurname as leader	ΔExperience	ΔEducation	ΔAge
	Panel A. Threshold: 5000, Year: 2011-2003				
Quota	0.01	0.01	0.02	0.46	1.07
	(0.03)	(0.01)	(0.04)	(0.49)	(1.37)
Bandwidth	1047	942.4	993.3	1023	1064
N below cutoff	476	527	153	180	188
N above cutoff	525	561	163	180	181
Mean dep. var.	0.074	-0.001	0.061	0.884	2.685
	Panel B. Threshold: 5000, Period: 2015-2003				
Quota	-0.04	0.00	-0.01	0.92	-0.27
	(0.04)	(0.01)	(0.04)	(0.60)	(1.40)
Bandwidth	1132	909.1	1169	909	977.2
N below cutoff	484	466	181	153	169
N above cutoff	516	510	182	160	169
Mean dep. var.	0.100	-0.008	0.095	1.377	3.231
	Panel C. Threshold: 3000, Period: 2015-2011				
Quota	0.01	-0.02*	0.01	0.59	-1.71
	(0.03)	(0.01)	(0.04)	(0.45)	(1.32)
Bandwidth	866.5	1100	1259	1012	842.1
N below cutoff	1016	1386	650	422	327
N above cutoff	640	803	327	241	193
Mean dep. var.	0.017	-0.003	-0.007	0.264	1.034

Notes: In columns (1) and (2) the unit of observation is party list, while in columns (3) to (5) the unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panel A the comparison is between municipalities that have the quota for the second time in 2011 and municipalities that have it for the first time. In Panel B the comparison is between municipalities that have the quota for the third time in 2015 and municipalities that have it for the second time. In Panel C the comparison is between municipalities that have the quota for the second time in 2015 and municipalities that never had it. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table D.5: Voting - Discontinuity in differences - Anticipation and short term

Dep. var.:	(1)	(2)	(3)	(4)
	Δ Turnout		**Δ Share female candidates**	**Δ Share of votes**
Sample:	**All**	**Less feminized**	**Male holdout *vs* gender-balanced list**	
	Panel A. Threshold: 3000, Period: 2007-2003			
Quota	-0.69	-2.11	-0.03	0.69
	(1.04)	(1.77)	(0.03)	(3.82)
Bandwidth	1019	1106	1016	757
N below cutoff	522	225	331	221
N above cutoff	308	110	212	164
Mean dep. var.	-2.103	-1.675	0.108	-0.254
	Panel B. Threshold: 5000, Period: 2007-2003			
Quota	0.60	0.19	0.06**	-1.63
	(1.28)	(2.65)	(0.03)	(3.12)
Bandwidth	1344	1983	1498	2051
N below cutoff	268	174	196	335
N above cutoff	236	82	175	215
Mean dep. var.	-3.143	-3.342	0.107	1.230
	Panel C. Threshold: 3000, Period: 2011-2007			
Quota	0.29	1.98	-0.02	-3.13
	(1.26)	(2.20)	(0.03)	(4.74)
Bandwidth	702.2	765.5	586.4	807.7
N below cutoff	317	163	149	224
N above cutoff	220	97	113	149
Mean dep. var.	1.406	1.844	0.106	3.763
	Panel D. Threshold: Pooled			
Quota	0.30	2.62	0.04**	-4.18
	(0.78)	(1.60)	(0.02)	(2.75)
Bandwidth	1433	1203	1398	1297
N below cutoff	1091	371	607	553
N above cutoff	646	199	405	390
Mean dep. var.	0.662	1.444	0.023	3.309

Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In column (2), the sample is further restricted to municipalities with share of female candidates below median in last election. In Panel A the comparison is between municipalities that have the quota for the first time in 2011 and those that do not have it. In Panels B and C the comparison is between municipalities that have the quota for the first time (respectively in 2007 and 2011) and those that never had it. In Panel D the treatment and control municipalities from Panels B and C are respectively pooled together. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

Table D.6: Voting - Discontinuity in differences - Additional medium-term impact

Dep. var.:	(1)	(2)	(3)	(4)
	Δ Turnout		**Δ Share female candidates**	**Δ Share of votes**
Sample:	**All**	**Less feminized**	**Male holdout *vs* gender-balanced list**	
	Panel A. Threshold: 5000, Period: 2011-2003			
Quota	1.96	6.25	-0.02	-3.76
	(1.54)	(4.50)	(0.02)	(6.01)
Bandwidth	1188	826.4	1106	1171
N below cutoff	228	44	125	134
N above cutoff	216	44	137	143
Mean dep. var.	-0.959	0.073	0.169	3.751
	Panel B. Threshold: 5000, Period: 2015-2003			
Quota	0.65	3.00	-0.01	2.98
	(1.46)	(3.55)	(0.02)	(9.37)
Bandwidth	1067	765.1	936.9	922.6
N below cutoff	202	41	94	91
N above cutoff	198	40	113	111
Mean dep. var.	-4.557	-2.593	0.179	1.251
	Panel C. Threshold: 3000, Period: 2015-2007			
Quota	1.24	1.53	0.02	4.85
	(0.97)	(1.76)	(0.04)	(4.77)
Bandwidth	817.7	828.9	708.8	1243
N below cutoff	373	169	164	330
N above cutoff	218	82	97	175
Mean dep. var.	-3.294	-2.612	0.009	-1.413

Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In column (2), the sample is further restricted to municipalities with share of female candidates below median in last election. In Panel A the comparison is between municipalities that have the quota for the second time in 2011 and municipalities that have it for the first time. In Panel B the comparison is between municipalities that have the quota for the third time in 2015 and municipalities that have it for the second time. In Panel C the comparison is between municipalities that have the quota for the second time in 2015 and municipalities that never had it. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

Table D.7: Local budget and economic indicators - Discontinuity in differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Expenditure	**Revenues**	**Expenditure (1989 classif.)**		**Expenditure (2010 classif.)**		**Unemployment rate**	
			Female	**Male**	**Female**	**Male**	**Female**	**Male**
Panel A. Threshold: 3000, period: 2010-2008 vs. 2006-2004								
Quota	0.00	-0.01	-0.02	-0.02			-0.42	-0.10
	(0.05)	(0.05)	(0.03)	(0.03)			(0.29)	(0.31)
Bandwidth	1074	782.2	861.9	633.8			769.7	1147
N below cutoff	409	268	301	210			355	601
N above cutoff	247	181	202	155			239	336
Mean dep. var.	0.197	0.144	0.0366	-0.0191			1.457	2.941
Panel B. Threshold: 5000, period: 2010-2008 vs. 2006-2004								
Quota	0.07	0.05	-0.01	0.01			-0.18	0.26
	(0.05)	(0.05)	(0.02)	(0.02)			(0.23)	(0.32)
Bandwidth	1344	1381	1282	2089			1613	1239
N below cutoff	213	223	205	397			337	245
N above cutoff	200	202	190	276			268	222
Mean dep. var.	0.167	7.029	0.187	0.263			1.396	3.147
Panel C. Threshold: 3000, period: 2014-2012 vs. 2010-2008								
Quota	0.05	0.03			0.02*	-0.00	-0.08	0.04
	(0.04)	(0.04)			(0.01)	(0.02)	(0.25)	(0.32)
Bandwidth	939.5	975.1			1293	831.6	1141	921.5
N below cutoff	366	390			570	327	600	461
N above cutoff	221	230			301	211	335	280
Mean dep. var.	-0.288	6.845			0.170	0.148	2.707	3.304
Panel D. Threshold: 5000, period: 2014-2012 vs. 2010-2008								
Quota	0.01	-0.03	-0.00	-0.01			0.03	0.54
	(0.07)	(0.07)	(0.02)	(0.02)			(0.49)	(0.65)
Bandwidth	941.4	859.1	1021	1012			743.1	861.6
N below cutoff	125	110	159	155			134	159
N above cutoff	136	128	163	162			153	170
Mean dep. var.	-0.099	-0.040	0.176	0.167			4.452	6.502

Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Expenditures and revenues measured in log and in per capita terms. All budget variables adjusted in real terms. In columns (3)-(6) expenditure is assigned into *Female* and *Male* categories following the classification described in Tables A3 and A4. Unemployment data are only available from 2006. In Panel A the comparison is between municipalities that have the quota in 2011 and municipalities that do not have it. In Panels B and C the comparison is between municipalities that have the quota for the first time (respectively in 2007 and 2011) and municipalities that never had it. In Panel D the comparison is between municipalities that have the quota for the second time in 2011 and municipalities that have it for the first time; the period is 2014-2012 vs. 2006-2004, in line with the parallel analysis for other outcomes, except for female and male expenditures where the change in classification makes the comparison between 2014-2012 and 2006-2004 not feasible; in this case, the comparison is between 2014-2012 and 2010. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

Table D.8: Local budget and economic indicators - Discontinuity in differences - Pooled threshold

	(1)	(2)	(3)	(4)	(5)	(6)
	Expenditures	**Revenues**	**Expenditures**		**Unemployment rate**	
			Female	**Male**	**Female**	**Male**
Quota	0.05	0.03	0.01	-0.00	-0.16	-0.08
	(0.03)	(0.03)	(0.01)	(0.01)	(0.16)	(0.18)
Bandwidth	1076	1162	1247	1266	1451	1939
N below cutoff	613	668	760	767	1103	1792
N above cutoff	416	442	486	489	651	787
Mean y control	-0.161	-0.109	-0.0155	-0.0462	2.325	3.164

Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Expenditures and revenues measured in log and in per capita terms. All budget variables adjusted in real terms. Expenditure is assigned into *Female* and *Male* categories following the classification described in Tables A3 and A4. The comparison is between municipalities that have the quota for the first time (in 2007 or 2011) and municipalities that never had the quota. We use the 1989 classification for the 5,000 threshold, and the 2010 classification for the 3,000 threshold. In columns (1) to (4) the period is thus 2009-2008 vs 2006-2004 for the 5,000 threshold, and 2014-2012 vs 2010 for the 3,000 threshold. In columns (5) and (6) period is 2010-2008 vs. 2006 for the 5,000 threshold and 2014-2012 vs. 2010-2008 for the 3,000 threshold. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

E Details RD Analysis - Outcome Variables in Levels

In this appendix we present more details on the RD estimates summarized in Tables A8, A10 and A11. Specifically, we report, together with the coefficient and standard errors displayed in the summary tables, bandwidth, number of observations above and below the cutoff, and mean of the dependent variable.

Table E1: Female Politicians - Regression Discontinuity - Years 2003 and 2007

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Share of women among:					
	Number of lists	**Compliers**	**All candidates**	**Upper candidates**	**Bottom candidates**	**Party leaders**	**Councilors**	**Mayors**
			Panel A. Threshold: 3000, Year: 2003					
Quota	0.40	0.03	-0.00	0.00	-0.03	0.07	-0.04	0.07
	(0.27)	(0.05)	(0.02)	(0.03)	(0.04)	(0.06)	(0.03)	(0.12)
Bandwidth	633.4	826.3	887.6	720.1	544.5	426	614.9	595.1
N below cutoff	272	1304	1433	1105	761	536	260	235
N above cutoff	191	891	938	795	644	530	185	178
Mean dep. var.	3.423	0.218	0.310	0.298	0.327	0.172	0.277	0.111
			Panel B. Threshold: 5000, Year: 2003					
Quota	-0.03	-0.08*	-0.01	-0.00	-0.01	-0.08**	-0.00	0.02
	(0.25)	(0.05)	(0.02)	(0.02)	(0.02)	(0.04)	(0.02)	(0.07)
Bandwidth	1436	1772	1776	1788	2003	1694	1665	1349
N below cutoff	298	1548	1548	1578	1831	1445	371	270
N above cutoff	248	1167	1167	1180	1290	1136	275	235
Mean dep. var.	3.900	0.249	0.325	0.309	0.353	0.163	0.286	0.118
			Panel C. Threshold: 3000, Year: 2007					
Quota	0.02	0.00	-0.01	-0.01	0.02	-0.01	0.01	-0.13
	(0.20)	(0.04)	(0.01)	(0.02)	(0.03)	(0.05)	(0.03)	(0.08)
Bandwidth	875.8	1303	899.8	916	883.1	827.5	870.9	618.1
N below cutoff	429	2461	1569	1611	1538	1411	425	246
N above cutoff	270	1419	1036	1047	1032	970	268	176
Mean dep. var.	3.553	0.361	0.356	0.341	0.382	0.180	0.325	0.130
			Panel D. Threshold: 5000, Year: 2007					
Quota	0.07	0.39***	0.08***	0.03*	0.11***	0.09	0.05***	0.06
	(0.24)	(0.05)	(0.01)	(0.02)	(0.03)	(0.06)	(0.02)	(0.07)
BW Loc. Poly. (h)	1754	1530	1500	1916	1183	1156	1709	2272
Obs left of c	388	1297	1251	1780	911	894	374	538
Obs right of c	283	1081	1071	1289	903	883	277	314
Mean y control	3.990	0.389	0.373	0.353	0.419	0.172	0.329	0.134

Note: In columns (1), (7), and (8) the unit of observation is municipality, while in columns (2) to (6) the unit of observation is party list. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panels A and B the estimates are from placebo regressions. In Panel C the comparison is between municipalities that have the quota in 2011 and municipalities that do not have it. In Panel D the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *.

Table E2: Female Politicians - Regression Discontinuity - Years 2011 and 2015

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Share of women among:					
	Number of lists	**Compliers**	**All candidates**	**Upper candidates**	**Bottom candidates**	**Party leaders**	**Councilors**	**Mayors**
			Panel A. Threshold: 3000, Year: 2011					
Quota	-0.01	0.45***	0.07***	0.02	0.13***	-0.00	0.04**	-0.08
	(0.19)	(0.04)	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.09)
BW Loc. Poly. (h)	1072	1020	1075	959.5	1195	916.5	1208	622.5
Obs left of c	563	1788	1917	1667	2173	1578	644	268
Obs right of c	325	1164	1225	1105	1321	1044	350	187
Mean y control	3.405	0.434	0.382	0.370	0.407	0.229	0.349	0.138
			Panel B. Threshold: 5000, Year: 2011					
Quota	0.24	0.02	0.00	-0.02	0.06*	0.04	-0.02	0.02
	(0.48)	(0.05)	(0.00)	(0.03)	(0.03)	(0.06)	(0.03)	(0.11)
BW Loc. Poly. (h)	1025	805.8	1398	866.1	804.1	986.3	734.7	1184
Obs left of c	194	600	1130	648	600	756	134	213
Obs right of c	195	681	1001	715	681	798	151	205
Mean y control	4.077	0.945	0.470	0.398	0.550	0.226	0.392	0.183
			Panel C. Threshold: 3000, Year: 2015					
Quota	0.30	0.48***	0.07***	0.02	0.11***	0.01	0.04*	0.05
	(0.24)	(0.04)	(0.01)	(0.02)	(0.03)	(0.05)	(0.03)	(0.08)
BW Loc. Poly. (h)	916.7	965.6	739.8	1315	754.6	1167	781.2	1090
Obs left of c	440	1560	1064	2287	1096	1964	349	540
Obs right of c	242	989	746	1280	756	1159	207	284
Mean y control	3.311	0.481	0.402	0.390	0.424	0.266	0.387	0.185
			Panel D. Threshold: 5000, Year: 2015					
Quota	-0.13	-0.03	-0.00	0.01	0.00	0.05	0.04	0.07
	(0.37)	(0.02)	(0.01)	(0.02)	(0.03)	(0.06)	(0.03)	(0.11)
BW Loc. Poly. (h)	1123	764.5	766	1374	1017	1163	961.4	1449
Obs left of c	216	573	573	1109	793	916	180	284
Obs right of c	207	646	646	999	820	896	186	242
Mean y control	4.093	0.958	0.476	0.428	0.539	0.225	0.420	0.183

Note: In columns (1), (7), and (8) the unit of observation is municipality, while in columns (2) to (6) the unit of observation is party list. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panel A the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. In Panel B the comparison is between municipalities that have the quota for the second time and municipalities that have the quota for the first time. In panel C the comparison is between municipalities that have the quota for the second time and municipalities that never had the quota. In Panel D the comparison is between municipalities that have the quota for the third time and municipalities that have the quota for the second time. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *.

Table E3: Characteristics of Politicians - Regression Discontinuity - Year 2003 and 2007

Dep. var.:	(1)	(2)	(3)	(4)	(5)
	Candidates		Councilors		
	Experience	Same surname as leader	Experience	Education	Age
	Panel A. Threshold: 3000, Year: 2003				
Quota	0.05	-0.01	0.10*	0.09	0.89
	(0.03)	(0.01)	(0.06)	(0.55)	(1.14)
Bandwidth	681.8	439	623.8	533.7	746.8
N below cutoff	874	552	226	207	325
N above cutoff	580	538	151	165	211
Mean dep. var.	0.311	0.0424	0.349	11.53	41.78
	Panel B. Threshold: 5000, Year: 2003				
Quota	0.03	-0.00	-0.00	-0.29	-1.79**
	(0.03)	(0.01)	(0.05)	(0.34)	(0.84)
Bandwidth	949.4	1669	1316	1446	1286
N below cutoff	623	1418	230	295	256
N above cutoff	591	1129	188	241	223
Mean dep. var.	0.296	0.0455	0.366	12.10	42.12
	Panel A. Threshold: 3000, Year: 2007				
Quota	0.06*	-0.00	-0.01	0.23	0.94
	(0.03)	(0.01)	(0.03)	(0.36)	(0.89)
Bandwidth	629.9	853.6	1105	877.7	874.6
N below cutoff	988	1471	569	411	411
N above cutoff	746	992	324	259	260
Mean dep. var.	0.400	0.046	0.455	11.77	43.71
	Panel B. Threshold: 5000, Year: 2007				
Quota	-0.06**	0.01	-0.09***	0.44	-1.16
	(0.03)	(0.01)	(0.03)	(0.40)	(0.95)
BW Loc. Poly. (h)	1212	1718	1141	1403	1258
Obs left of c	946	1510	222	274	243
Obs right of c	906	1178	210	228	212
Mean y control	0.389	0.0386	0.496	12.44	43.77

Note: In columns (1) and (2) the unit of observation is party list, while in columns (3) to (5) the unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panels A and B the estimates are from placebo regressions. In Panel C the comparison is between municipalities that have the quota in 2011 and municipalities that do not have it. In Panel D the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table E4: Characteristics of Politicians - Regression Discontinuity - Years 2011 and 2015

Dep. var.:	(1)	(2)	(3)	(4)	(5)
	Candidates		Councilors		
	Experience	Same surname as leader	Experience	Education	Age
	Panel A. Threshold: 3000, Year: 2011				
Quota	0.02	-0.00	0.02	-0.14	1.57
	(0.02)	(0.01)	(0.03)	(0.30)	(1.03)
BW Loc. Poly. (h)	912	811.5	1063	1362	968.8
Obs left of c	1548	1334	546	690	455
Obs right of c	1034	941	319	356	276
Mean y control	0.401	0.049	0.465	12.04	44.77
	Panel B. Threshold: 5000, Year: 2011				
Quota	0.03	-0.00	0.07	0.59	1.67
	(0.03)	(0.01)	(0.04)	(0.58)	(1.42)
BW Loc. Poly. (h)	1119	1148	1126	943.2	905.9
Obs left of c	876	900	219	171	160
Obs right of c	859	874	207	171	166
Mean y control	0.345	0.0369	0.421	12.89	44.75
	Panel C. Threshold: 3000, Year: 2015				
Quota	-0.02	-0.01	0.00	0.20	-0.08
	(0.03)	(0.01)	(0.04)	(0.41)	(1.40)
BW Loc. Poly. (h)	774.4	1009	1036	1219	843.8
Obs left of c	1123	1650	509	556	338
Obs right of c	771	1028	274	289	202
Mean y control	0.406	0.0469	0.454	12.31	45.64
	Panel D. Threshold: 5000, Year: 2015				
Quota	-0.02	-0.01	-0.02	0.95	-0.14
	(0.03)	(0.01)	(0.03)	(0.62)	(1.31)
BW Loc. Poly. (h)	1122	1316	1230	892.4	1055
Obs left of c	879	1056	241	155	189
Obs right of c	867	972	220	161	178
Mean y control	0.363	0.0391	0.452	13.31	45.40

Note: In columns (1) and (2) the unit of observation is party list, while in columns (3) to (5) the unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In Panel A the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. In Panel B the comparison is between municipalities that have the quota for the second time and municipalities that have the quota for the first time. In panel C the comparison is between municipalities that have the quota for the second time and municipalities that never had the quota. In Panel D the comparison is between municipalities that have the quota for the third time and municipalities that have the quota for the second time. Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *.

Table E5: Voting - Regression Discontinuity - Years 2003 and 2007

Dep. var.:	(1) Turnout	(2) Turnout	(3) Share of female candidates	(4) Share of votes
Sample:	**All**	**Less feminized**	**Male holdout *vs* gender-balanced list**	
		Panel A. Threshold: 3000, Year: 2003		
Quota	2.04	5.16	-0.06***	-0.63
	(2.03)	(4.02)	(0.02)	(7.63)
Bandwidth	624.2	757.7	476.8	699.6
N below cutoff	266	124	136	235
N above cutoff	188	78	123	165
Mean dep. var.	76.15	73.50	-0.165	0.086
		Panel B. Threshold: 5000, Year: 2003		
Quota	2.23	1.76	-0.00	-0.69
	(1.81)	(3.94)	(0.02)	(6.06)
Bandwidth	1203	1212	1088	1521
N below cutoff	246	71	161	234
N above cutoff	220	49	149	192
Mean dep. var.	73.84	72.72	-0.170	-0.312
		Panel C. Threshold: 3000, Year: 2007		
Quota	-1.09	-2.11	-0.03	-0.69
	(1.84)	(1.77)	(0.03)	(4.88)
Bandwidth	778.7	1106	1133	1015
N below cutoff	365	225	370	330
N above cutoff	242	110	230	212
Mean dep. var.	75.08	73.56	-0.056	1.059
		Panel D. Threshold: 5000, Year: 2007		
Quota	1.27	2.19	0.06**	0.98
	(1.97)	(3.35)	(0.03)	(6.31)
BW Loc. Poly. (h)	1369	1893	1789	1632
Obs left of c	271	151	260	225
Obs right of c	237	78	195	185
Mean y control	71.99	70.82	-0.056	0.466

Note: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In column (2), the sample is further restricted to municipalities with share of female candidates below median in the last election. In columns (3) and (4), we keep municipalities where the two lists with the largest share of votes in the pre-quota election re-run in the election under analysis. In Panels A, B the estimates are from placebo regressions. In Panel C the comparison is between municipalities that have the quota in 2011 and municipalities that do not have it. In Panel D the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

Table E6: Voting - Regression Discontinuity - Years 2011 and 2015

Dep. var.:	(1) Turnout	(2)	(3) Share of female candidates	(4) Share of votes
Sample:	All	Less feminized	Male holdout *vs* gender-balanced list	
		Panel A. Threshold: 3000, Year: 2011		
Quota	-0.46	1.60	-0.03	1.38
	(1.62)	(2.45)	(0.03)	(5.83)
BW Loc. Poly. (h)	765.6	794.8	572.8	806.4
Obs left of c	354	171	143	224
Obs right of c	239	99	110	148
Mean y control	76.55	75.02	-0.057	0.004
		Panel B. Threshold: 5000, Year: 2011		
Quota	2.56	5.82	-0.01	-2.89
	(1.76)	(5.72)	(0.02)	(8.82)
BW Loc. Poly. (h)	1288	845.5	1051	1091
Obs left of c	260	45	115	121
Obs right of c	225	44	132	135
Mean y control	74	73.85	-0.00596	3.845
		Panel C. Threshold: 3000, Year: 2015		
Quota	-3.64*	-0.67	0.04	-2.49
	(1.93)	(3.03)	(0.03)	(7.83)
BW Loc. Poly. (h)	737.3	868.6	882.3	756.5
Obs left of c	317	179	227	183
Obs right of c	199	88	127	105
Mean y control	73.59	72.95	-0.0548	-0.541
		Panel D. Threshold: 5000, Year: 2015		
Quota	1.07	2.50	-0.01	3.94
	(1.70)	(4.23)	(0.02)	(10.06)
BW Loc. Poly. (h)	1137	784.2	928.2	912
Obs left of c	218	41	92	90
Obs right of c	208	42	112	109
Mean y control	70.45	70.85	0.001	2.695

Note: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). In column (2), the sample is further restricted to municipalities with share of female candidates below median in last election. In columns (3) and (4), we keep municipalities where the two lists with the largest share of votes in the pre-quota election re-run in the election under analysis. In Panel A the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. In Panel B the comparison is between municipalities that have the quota for the second time and municipalities that have the quota for the first time. In panel C the comparison is between municipalities that have the quota for the second time and municipalities that never had the quota. In Panel D the comparison is between municipalities that have the quota for the third time and municipalities that have the quota for the second time. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

Table E7: Local budget and economic indicators - Regression Discontinuity - Years 2004-2006

	(1)	(2)	(3)	(4)	(5)	(6)
	Expenditure	**Revenues**	**Expenditure (1989 classif.)**		**Unemployment rate**	
			Female	**Male**	**Female**	**Male**
	Panel A. Threshold: 3000, period: 2004 - 2006					
Quota	-0.18	-0.18	-0.00	0.05	0.61	0.45
	(0.11)	(0.12)	(0.03)	(0.04)	(0.64)	(0.32)
BW Loc. Poly. (h)	649.5	626.2	565.8	585.4	555.7	435
N below cutoff	224	208	181	188	228	162
N above cutoff	159	155	147	149	177	143
Mean dep. var.	6.826	6.886	0.168	0.249	4.775	2.976
	Panel B. Threshold: 5000, period: 2004 - 2006					
Quota	0.04	0.02	-0.06**	0.01	-0.46	-0.03
	(0.09)	(0.10)	(0.03)	(0.02)	(0.59)	(0.28)
BW Loc. Poly. (h)	1318	1384	954.6	1296	819.9	1377
N below cutoff	215	230	140	210	163	291
N above cutoff	205	214	153	201	166	244
Mean dep. var.	6.840	6.909	0.188	0.270	4.886	3.011

Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Expenditures and revenues measured in log and in per capita terms. All budget variables adjusted in real terms. Expenditure is assigned into *Female* and *Male* categories following the classification described in Table A3. Unemployment is measured in 2006. The estimates are from placebo regressions.

Table E8: Budget and Economics indicators - Regression Discontinuity - Years 2008-2010 & 2012-2014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Expenditure	**Revenues**	**Expenditure (1989 classif.)**		**Expenditure (2010 classif.)**		**Unemployment rate**		**Net per capita Income**
			Female	**Male**	**Female**	**Male**	**Female**	**Male**	
			Panel A. Threshold: 3000, period: 2008 - 2010						
Quota	-0.03	-0.03	-0.01	-0.03	0.14	0.12	0.14	0.12	
	(0.06)	(0.06)	(0.02)	(0.03)	(0.55)	(0.37)	(0.55)	(0.37)	
BW Loc. Poly. (h)	945.7	868.7	870.3	670.2	983	1064	983	1064	
N below cutoff	417	372	373	264	503	554	503	554	
N above cutoff	251	235	235	186	300	322	300	322	
Mean dep. var.	7.054	7.072	0.195	0.248	6.314	5.802	6.314	5.802	
			Panel B. Threshold: 5000, period: 2008 - 2010						
Quota	0.03	0.03	0.01	-0.00	0.01	-0.01	0.22	0.48	
	(0.06)	(0.06)	(0.02)	(0.02)	(0.02)	(0.03)	(0.70)	(0.44)	
BW Loc. Poly. (h)	1896	2052	2385	2608	1743	1281	1097	1203	
N below cutoff	408	460	586	674	405	271	211	232	
N above cutoff	298	312	349	381	290	226	203	218	
Mean dep. var.	7.005	7.021	0.189	0.257	0.192	0.226	6.269	6.098	
			Panel C. Threshold: 3000, period: 2012 - 2014						
Quota	0.05	0.04			0.01	-0.01	0.15	0.22	347.56
	(0.05)	(0.05)			(0.02)	(0.02)	(0.68)	(0.52)	(689.19)
BW Loc. Poly. (h)	1040	1124			880.2	1010	1034	1212	832.5
Obs below cutoff	443	482			353	425	534	646	371
Obs above cutoff	256	270			224	253	310	351	238
Mean y control	6.749	6.857			0.174	0.144	9.031	9.095	15496
			Panel D. Threshold: 5000, period: 2012 - 2014						
Quota	0.03	0.02			0.00	0.00	0.05	0.65	-957.40
	(0.08)	(0.07)			(0.02)	(0.02)	(0.79)	(0.74)	(1,046.40)
BW Loc. Poly. (h)	1410	1679			1105	1521	1202	1205	1080
N below cutoff	238	299			178	273	231	236	191
N above cutoff	205	234			172	216	217	217	187
Mean dep. var.	6.728	6.825			0.179	0.165	9.236	9.493	16273

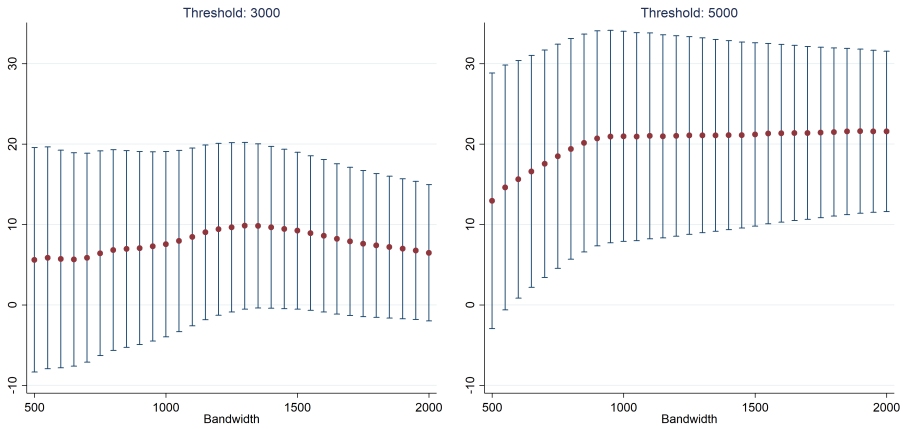
Notes: Unit of observation is municipality. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Expenditures and revenues measured in log and in per capita terms. All budget variables adjusted in real terms. Expenditure is assigned into *Female* and *Male* categories following the classification described in Tables A3 and A4. The dependent variable is the average outcome over the years indicated in the top of each panel, except in: a) Panels A and B, columns (3) and (4), where the average is measured over 2008 and 2009; and b) Panels A and B, columns (5) and (6), where the dep. variable is measured in 2010. In Panel A the comparison is between municipalities that have the quota in 2011 and municipalities that do not have it. In Panels B and C the comparison is between municipalities that have the quota for the first time and municipalities that do not have the quota. In Panel D the comparison is between municipalities that have the quota for the second time and municipalities that have the quota for the first time. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *.

F Multiple Bandwidths

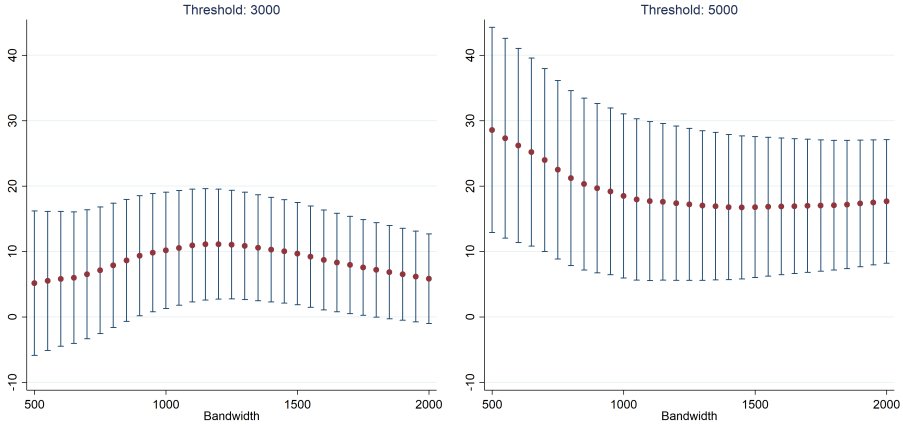
In this appendix we test the robustness to varying the estimation bandwidth for all the estimates presented in the main text of the paper. Specifically, we re-run each regression for bandwidths between 500 and 2,000 inhabitants, at 50 inhabitants intervals. We display in each graph the coefficient and the 95% confidence interval associated with the bandwidth shown on the X axis.

Figure F.1: Federal transfers - multiple bandwidths

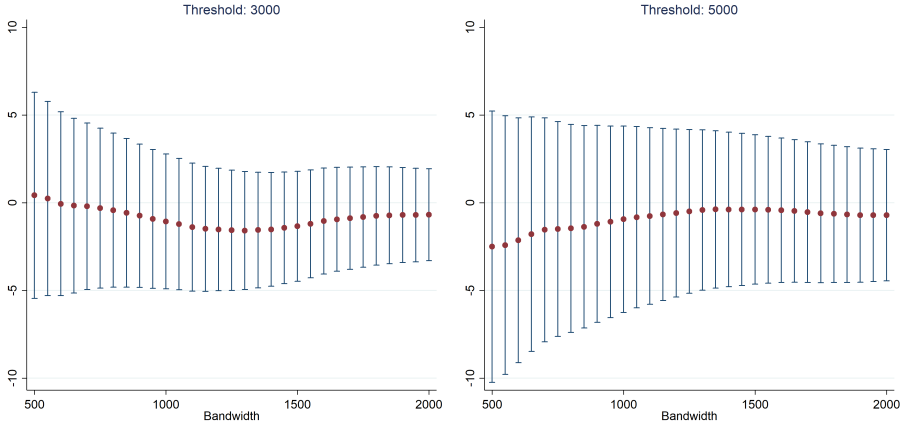
(a) Years 2003-2006



(b) Years 2007-2012



(c) Years 2007-2012 vs. 2003-2006

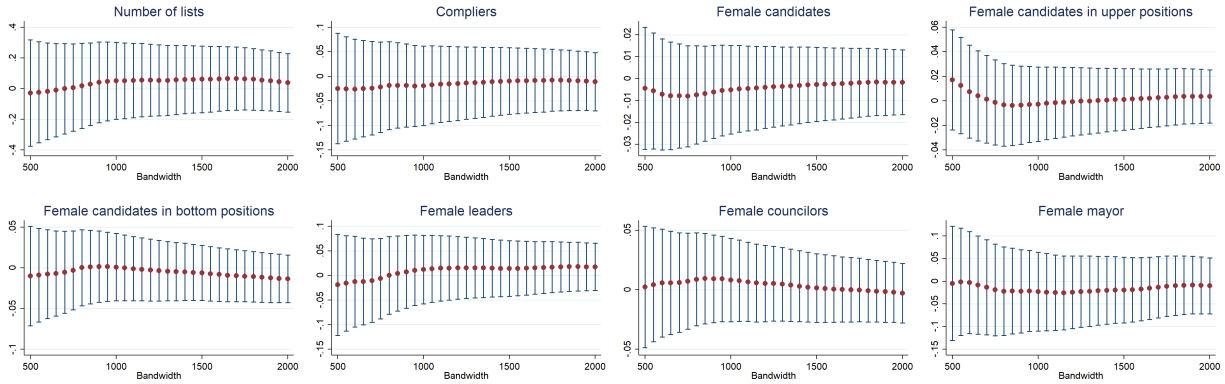


Note: The figures show coefficients (red dots) and 95% CI (blue lines) for Regression Discontinuity estimates of federal transfers per capita at the 3,000 and 5,000 threshold, considering different bandwidths as indicated on the x-axis. Each panel shows estimates from different time periods. Estimates in Panel (c) are based on a Discontinuity-in-differences specification.

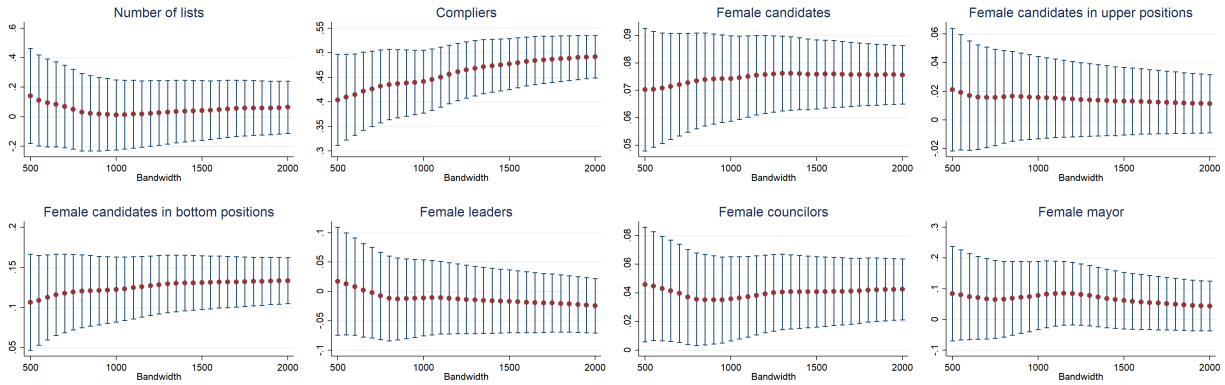
Figure F.2: Female politicians - Discontinuity in differences, multiple bandwidths

(a) Threshold: 3000, year: 2003

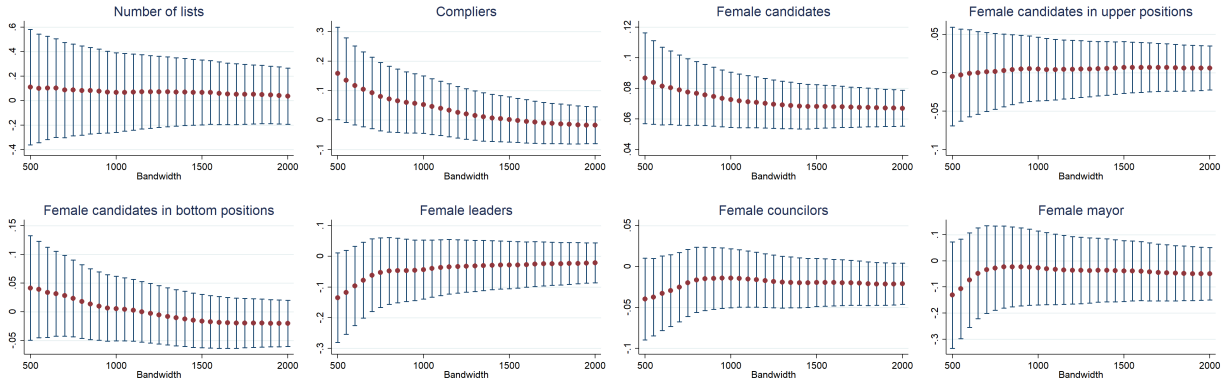
(b) Threshold: 3000, period: Δ(2007-2003)



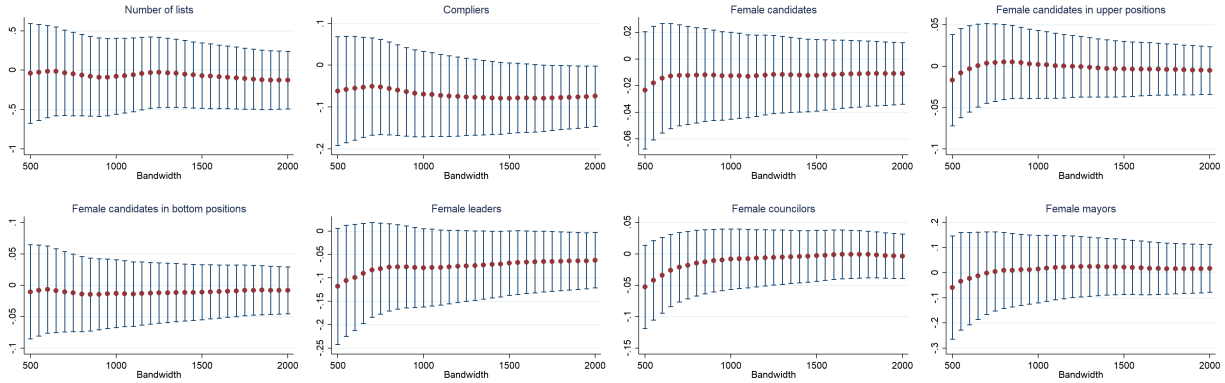
(c) Threshold: 3000, period: Δ(2011-2007)



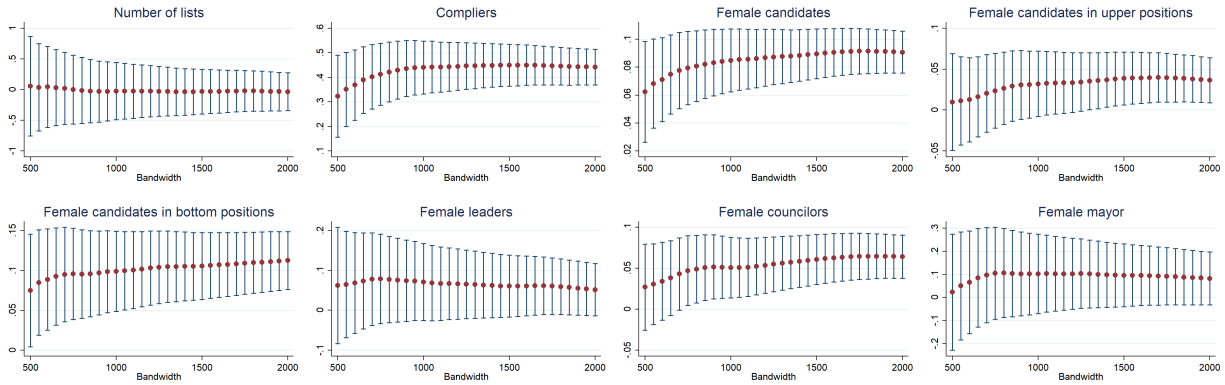
(d) Threshold: 3000, period: Δ(2015-2011)



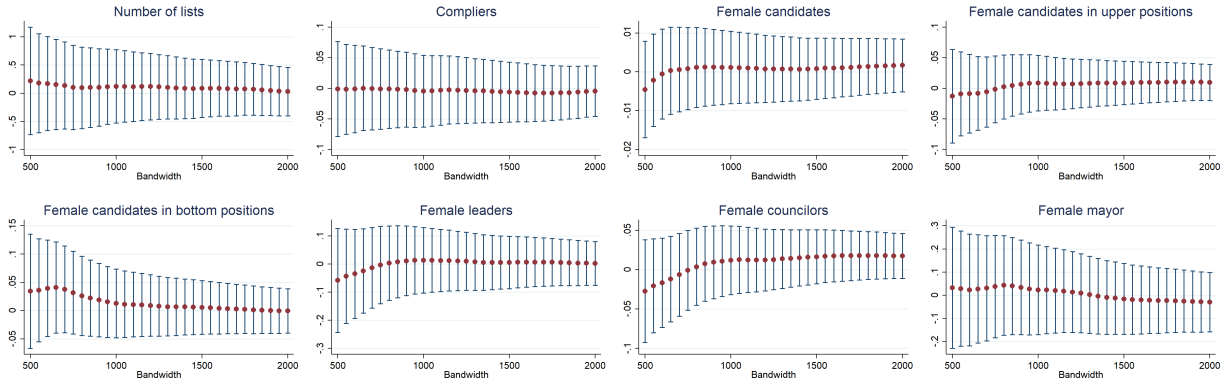
(e) Threshold: 5000, year: 2003



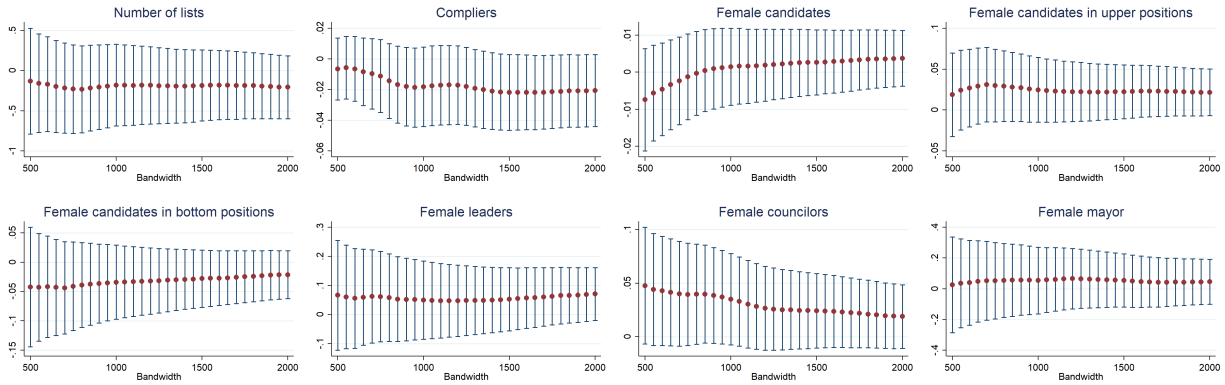
(f) Threshold: 5000, period: Δ(2007-2003)



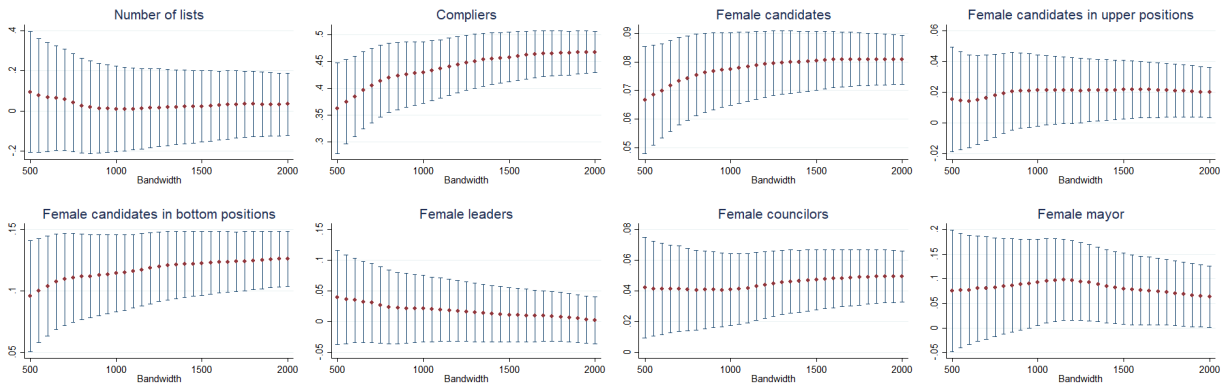
(g) Threshold: 5000, period: Δ(2011-2003)



(h) Threshold: 5000, period: Δ(2015-2003)



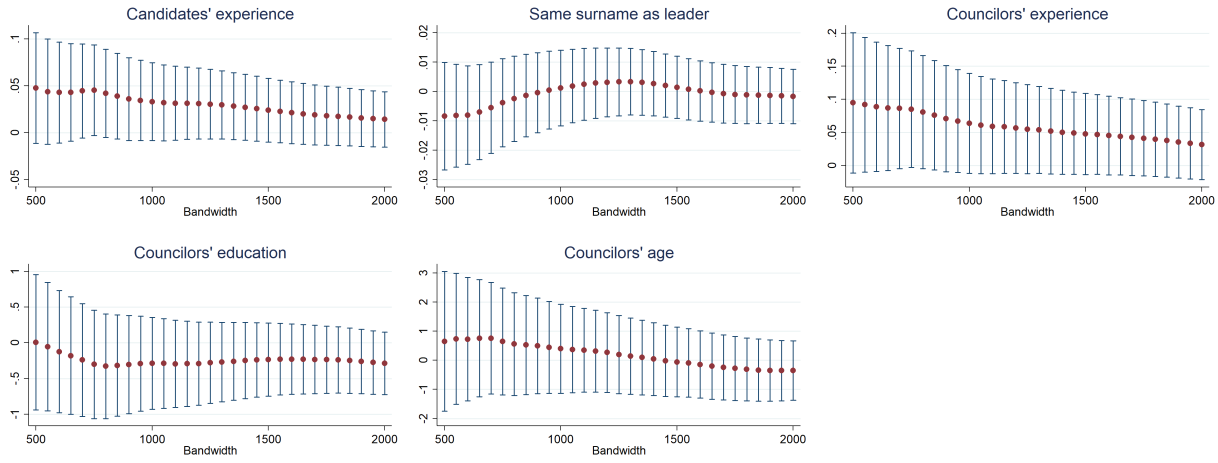
(i) Threshold: pooled, short-term discontinuity in differences



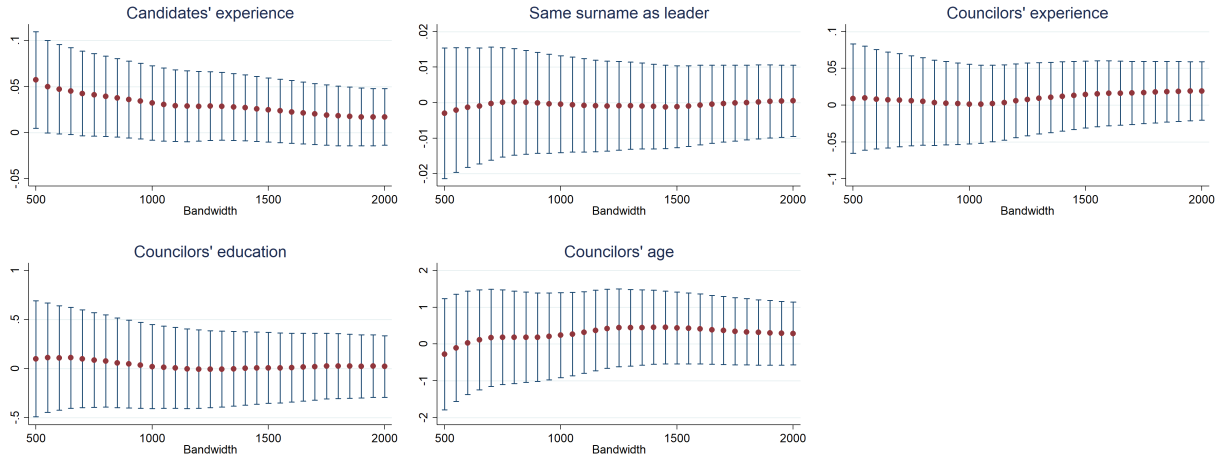
Note: The figures show coefficients (red dots) and 95% CI (blue lines) for Regression Discontinuity estimates of several outcomes, as indicated on top of each graph, at the 3,000 and 5,000 threshold, considering different bandwidths as indicated on the x-axis. Each panel shows estimates from different time periods. The estimates from 2003 consider the outcome in level, whereas the estimates in the other panels correspond to a version of the Discontinuity-in-differences Equations 1a and 1b.

Figure F.3: Characteristics of politicians - RD estimates, multiple bandwidths

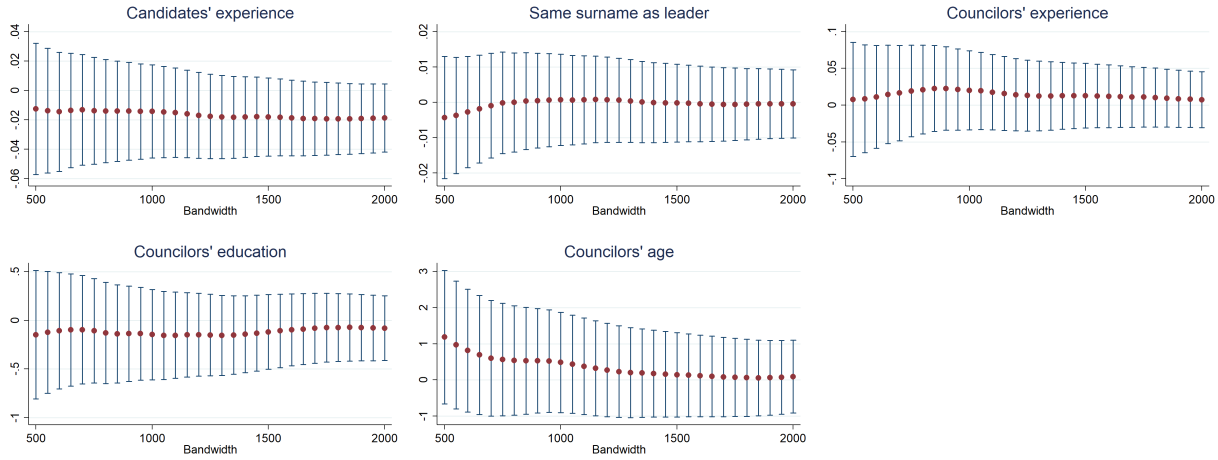
(a) Threshold: 3000, year: 2003



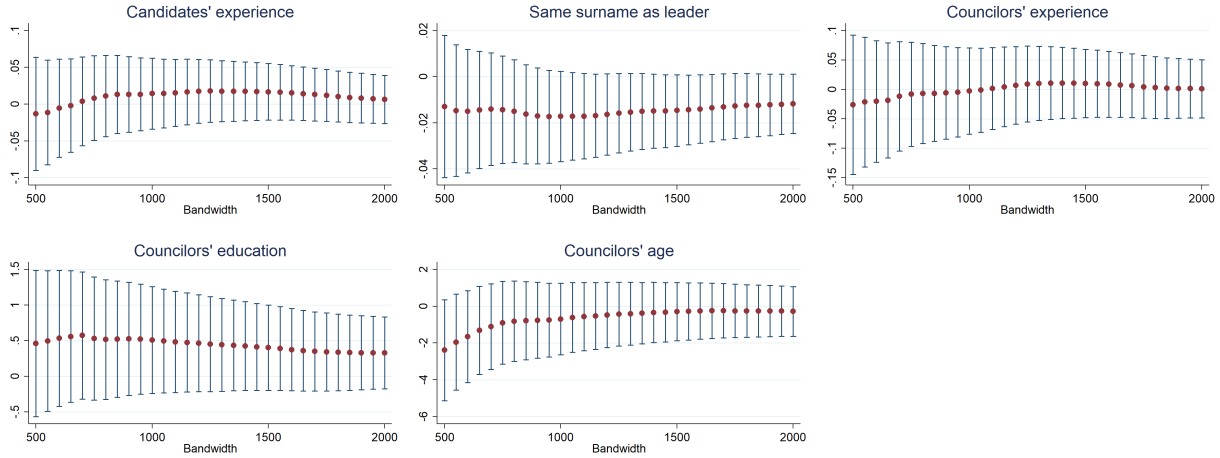
(b) Threshold: 3000, period: Δ(2007-2003)



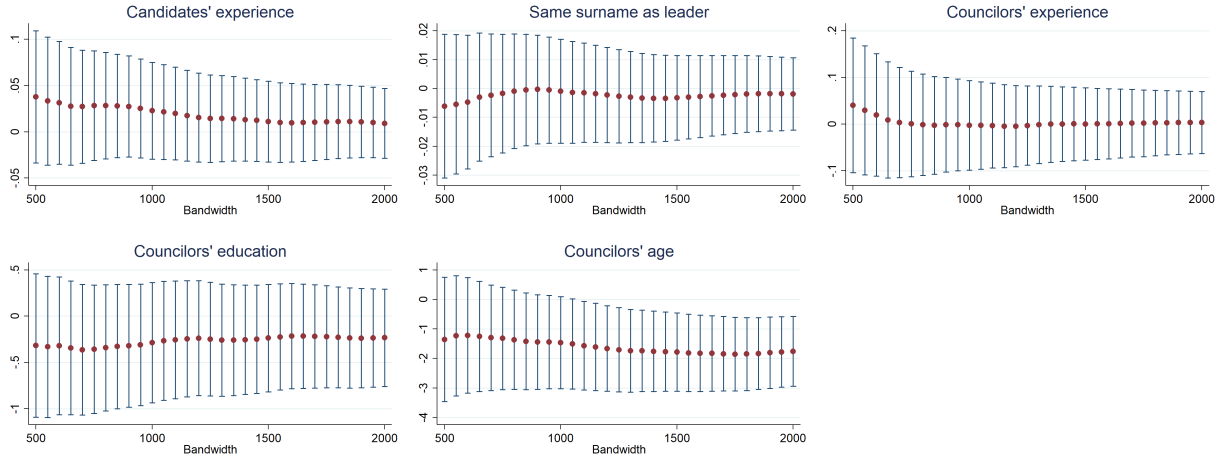
(c) Threshold: 3000, period: Δ(2011-2007)



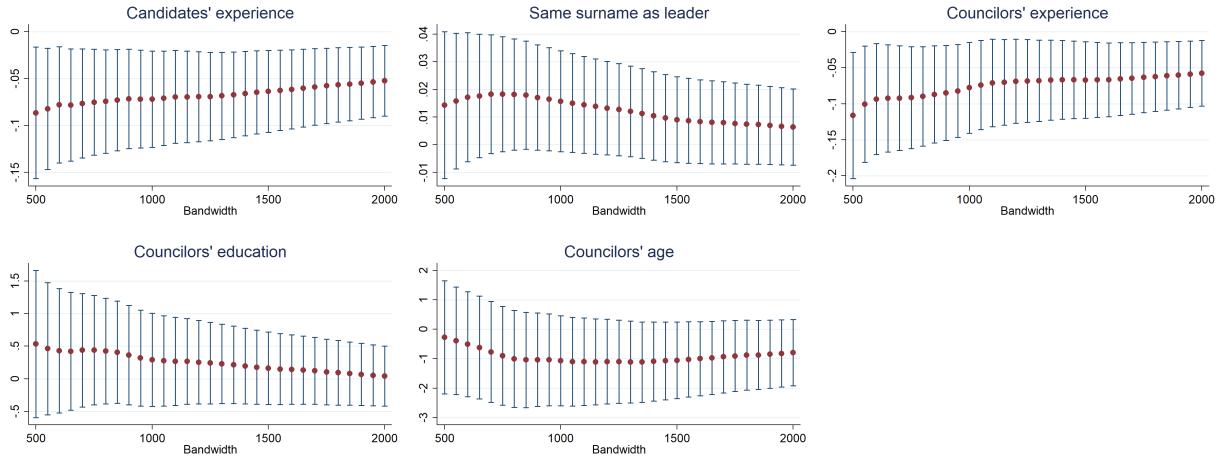
(d) Threshold: 3000, period: Δ(2015-2007)



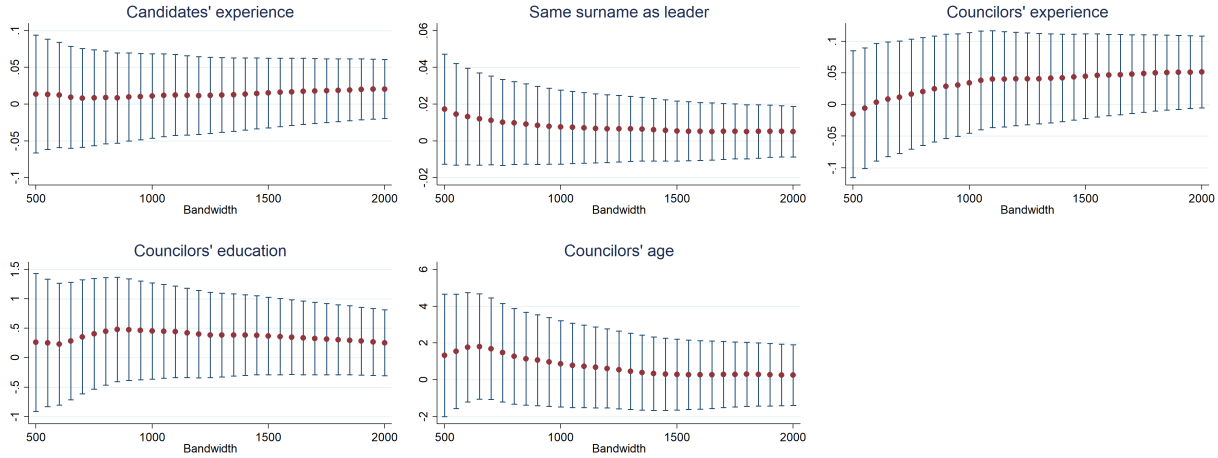
(e) Threshold: 5000, year: 2003



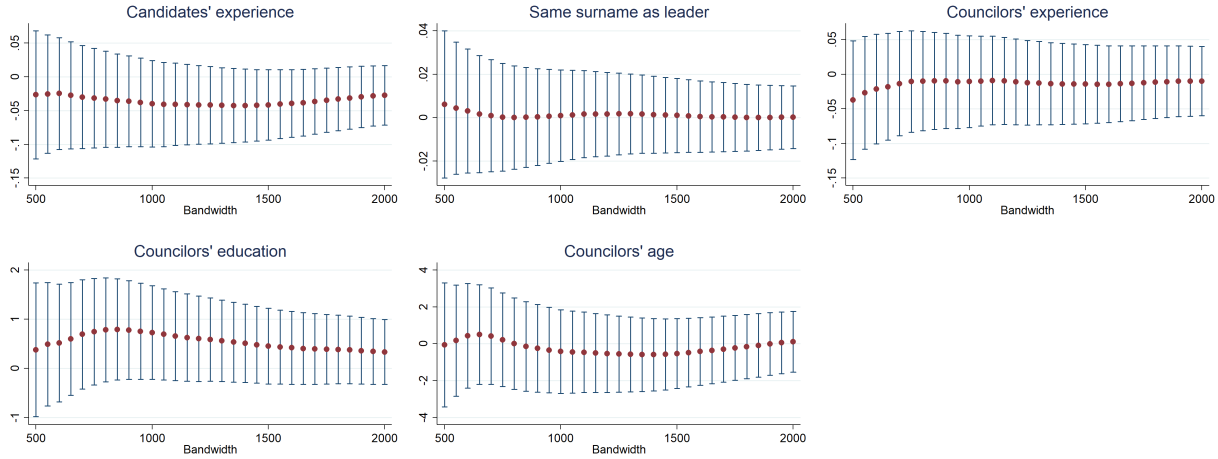
(f) Threshold: 5000, period: Δ(2007-2003)



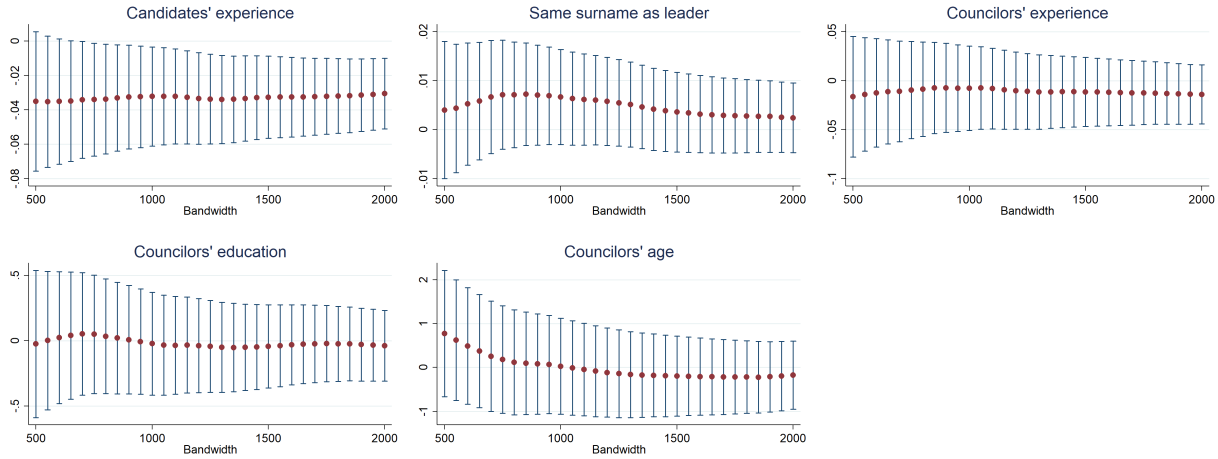
(g) Threshold: 5000, period: Δ(2011-2003)



(h) Threshold: 5000, period: Δ(2015-2003)



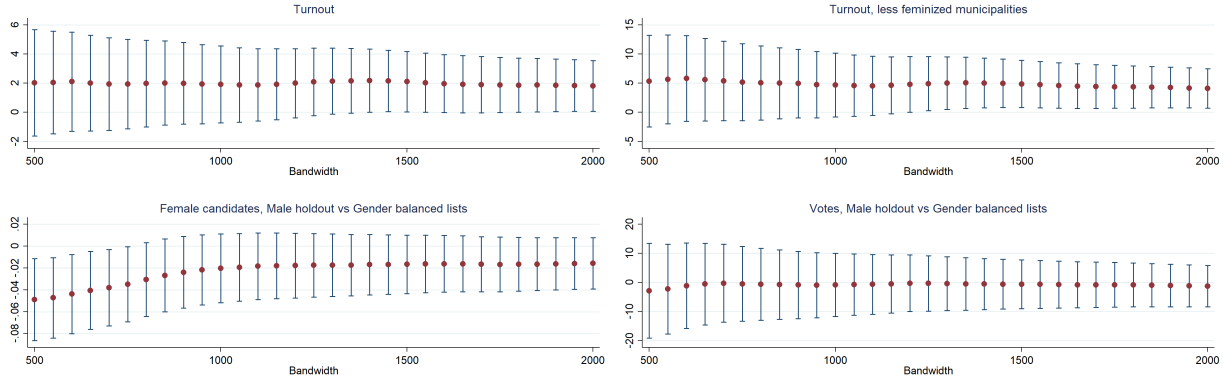
(i) Threshold: pooled, short-term discontinuity in differences



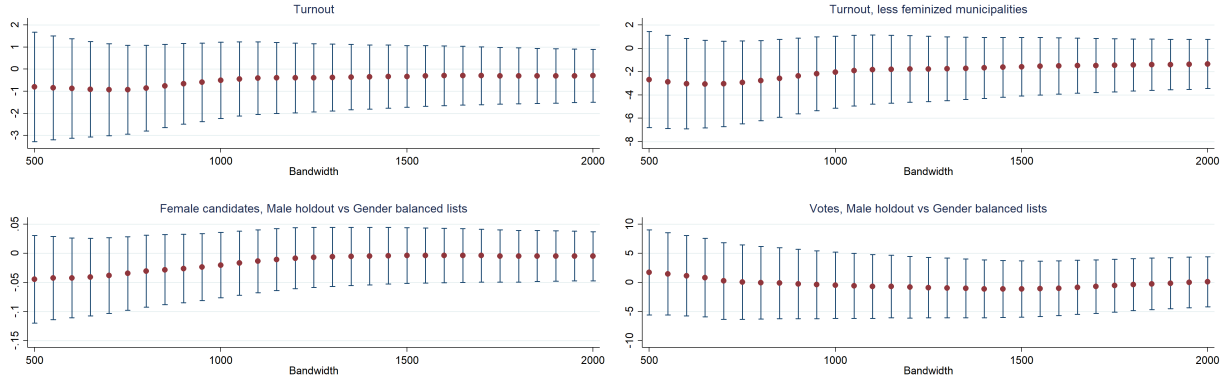
Note: The figures show coefficients (red dots) and 95% CI (blue lines) for Regression Discontinuity estimates of several outcomes, as indicated on top of each graph, at the 3,000 and 5,000 threshold, considering different bandwidths as indicated on the x-axis. Each panel shows estimates from different time periods. The estimates from 2003 consider the outcome in level, whereas the estimates in the other panels correspond to a version of the Discontinuity-in-differences Equations 1a and 1b.

Figure F.4: Voting behavior - Discontinuity in differences, multiple bandwidths

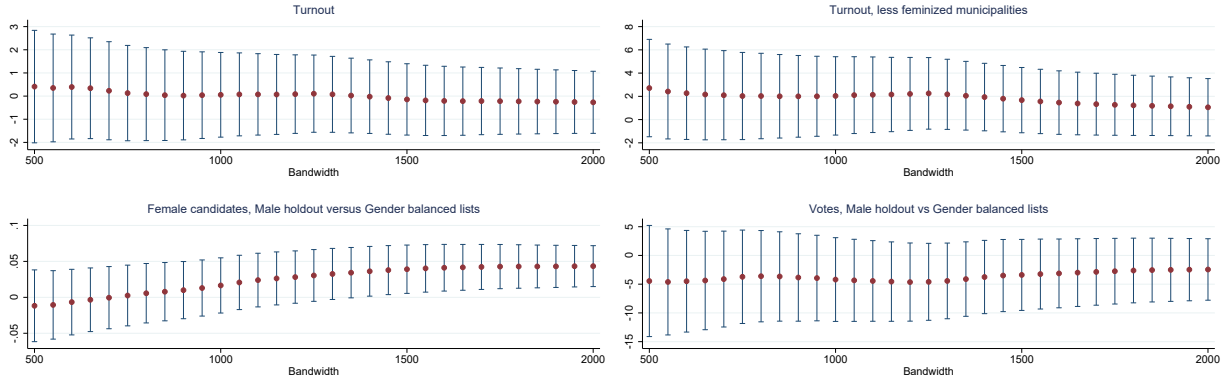
(a) Threshold: 3000, year: 2003



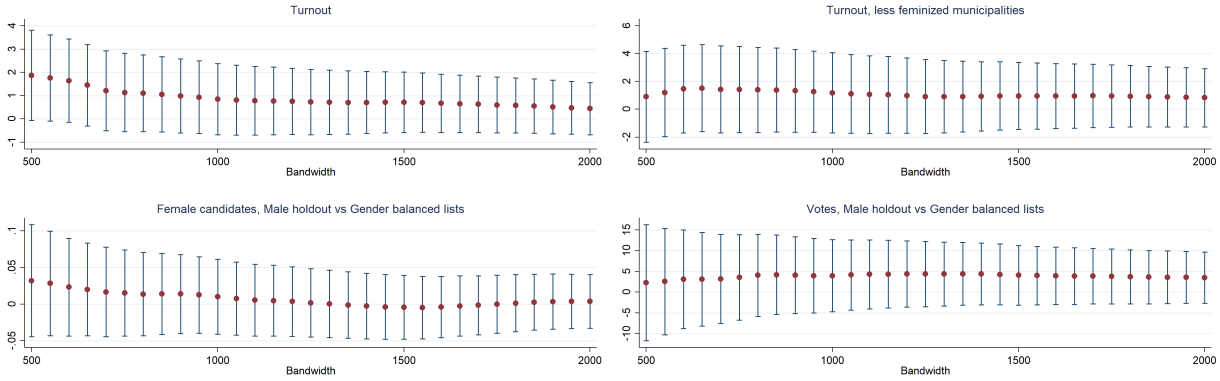
(b) Threshold: 3000, period: Δ(2007-2003)



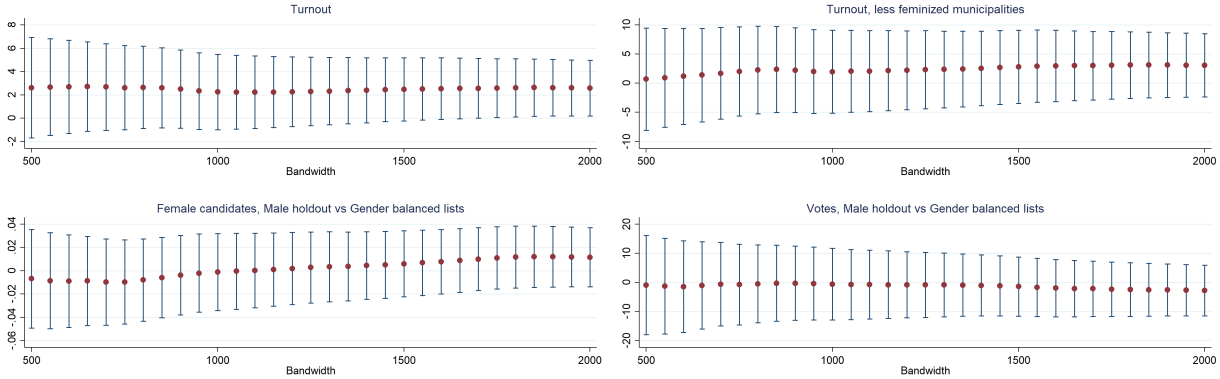
(c) Threshold: 3000, period: Δ(2011-2007)



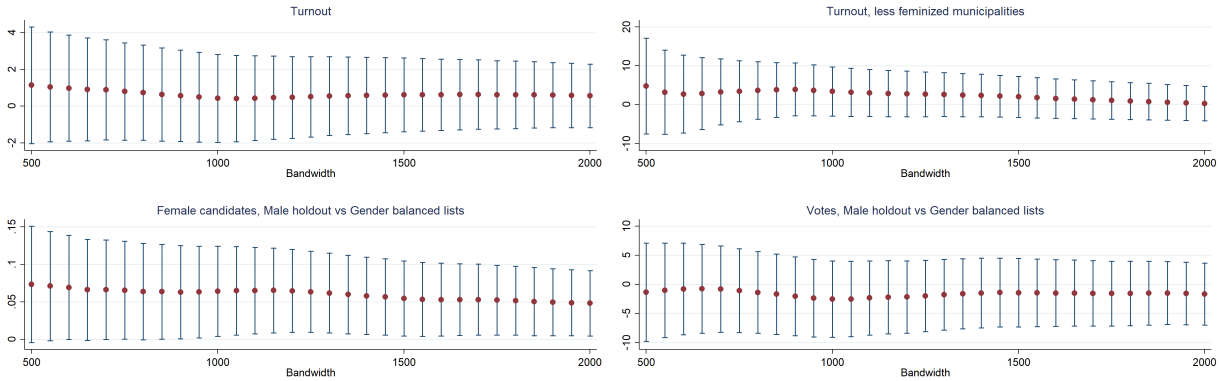
(d) Threshold: 3000, period: Δ(2015-2011)



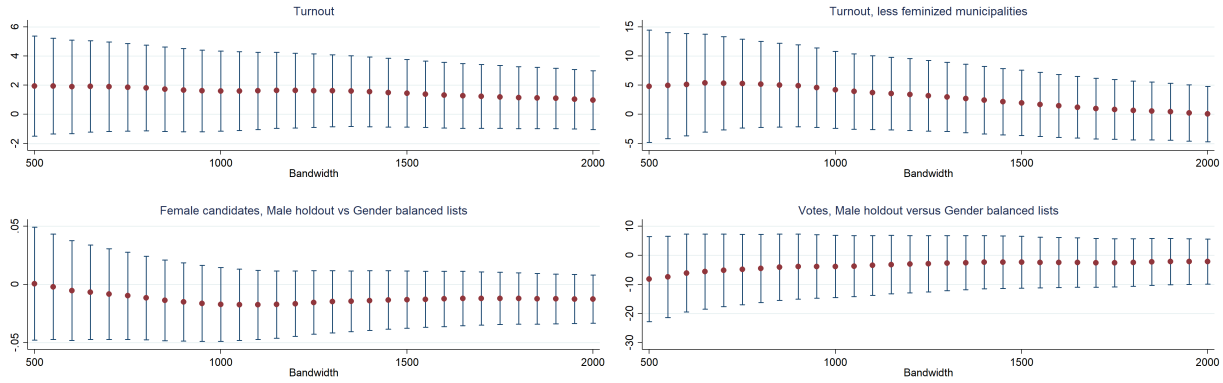
(e) Threshold: 5000, year: 2003



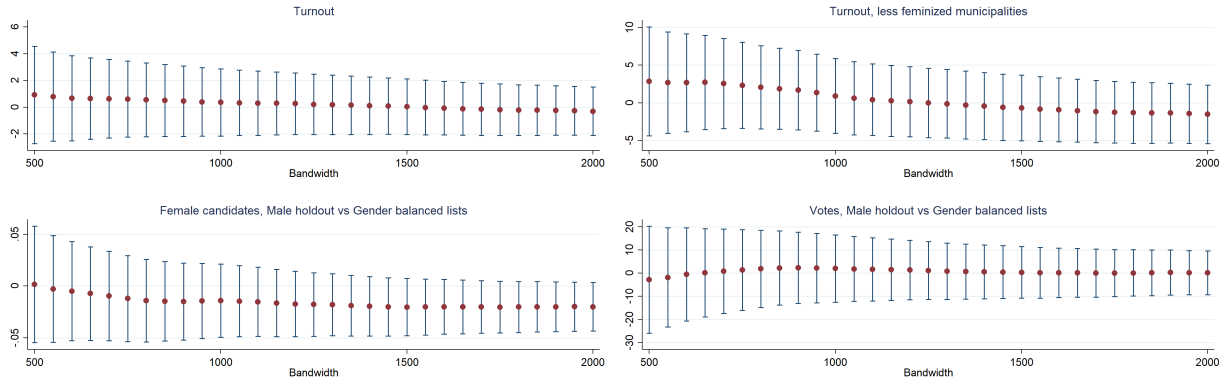
(f) Threshold: 5000, period: Δ(2007-2003)



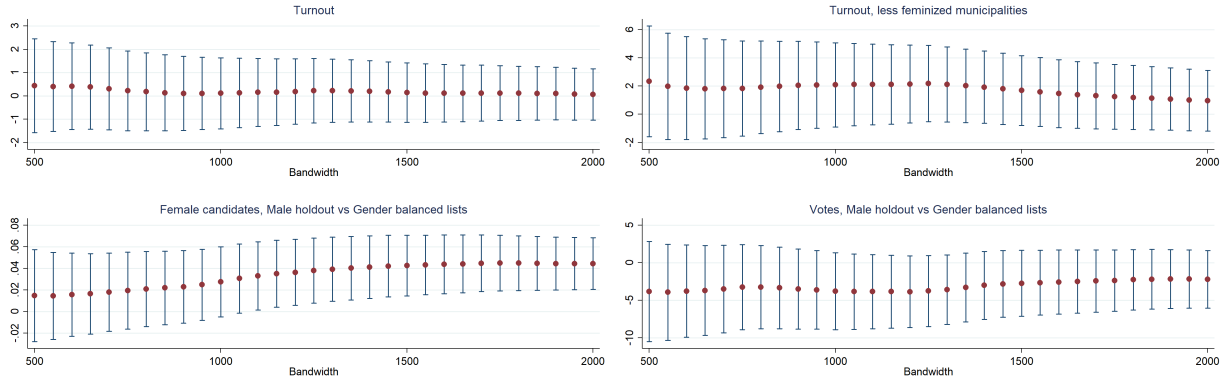
(g) Threshold: 5000, period: Δ(2011-2003)



(h) Threshold: 5000, period: Δ(2015-2003)



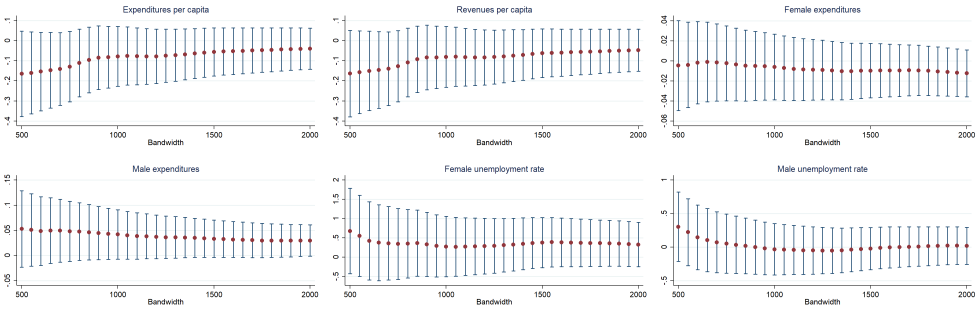
(i) Threshold: pooled, short-term discontinuity in differences



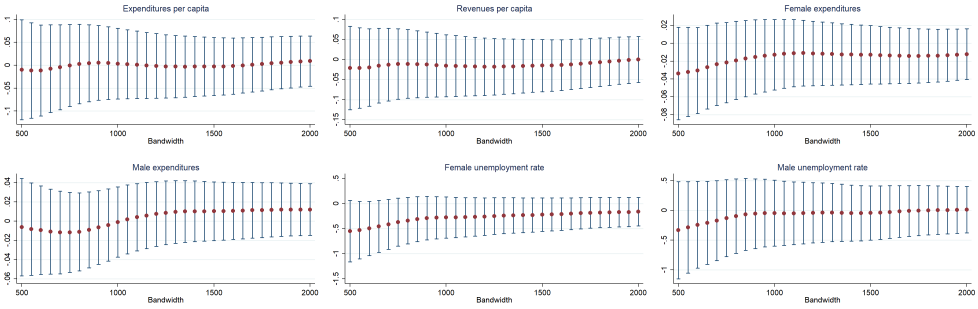
Note: The figures show coefficients (red dots) and 95% CI (blue lines) for Regression Discontinuity estimates of several outcomes, as indicated on top of each graph, at the 3,000 and 5,000 threshold, considering different bandwidths as indicated on the x-axis. Each panel shows estimates from different time periods. The estimates from 2003 consider the outcome in level, whereas the estimates in the other panels correspond to a version of the Discontinuity-in-differences Equations 1a and 1b.

Figure F.5: Budget - RD estimates, multiple bandwidths

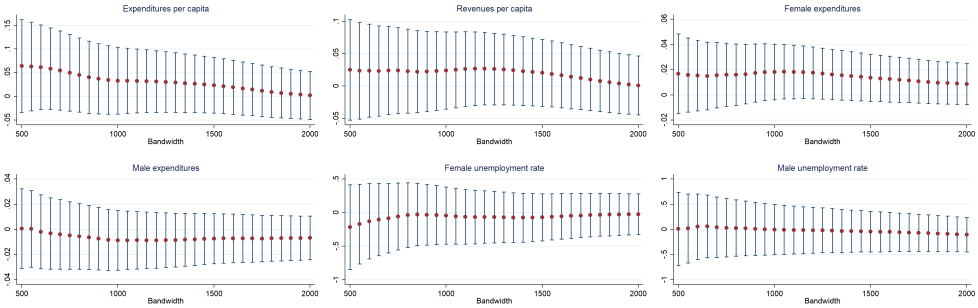
(a) Threshold: 3000, term: 2003



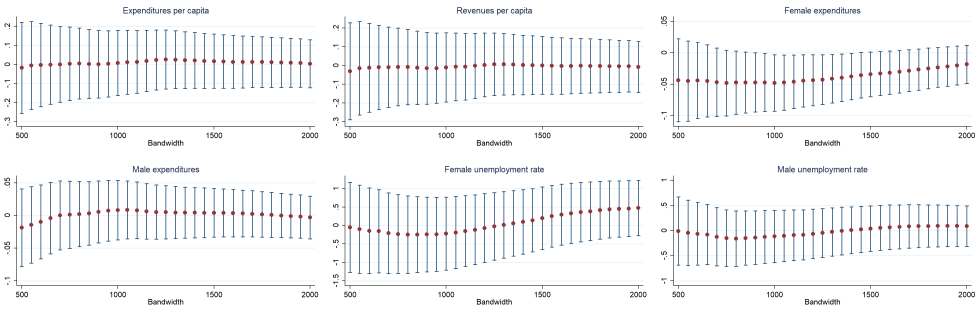
(b) Threshold: 3000, term: Δ(2007-2003)



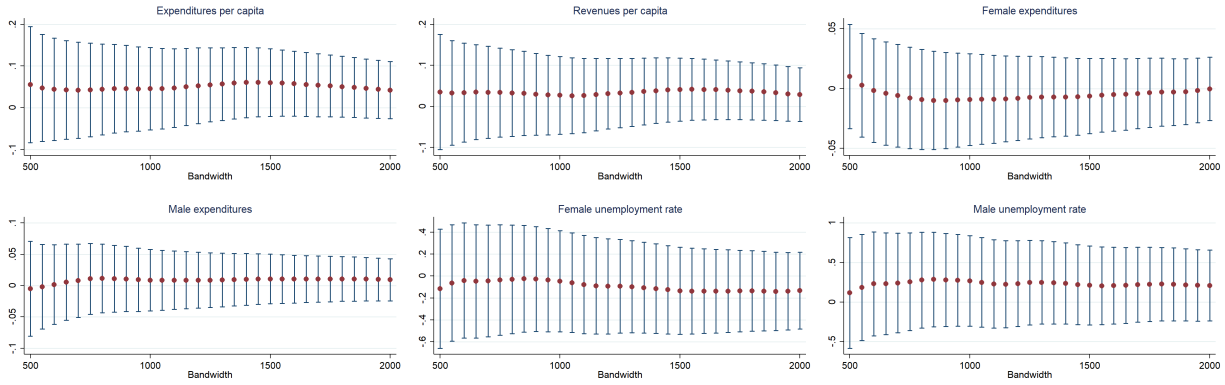
(c) Threshold: 3000, term: Δ(2011-2007)



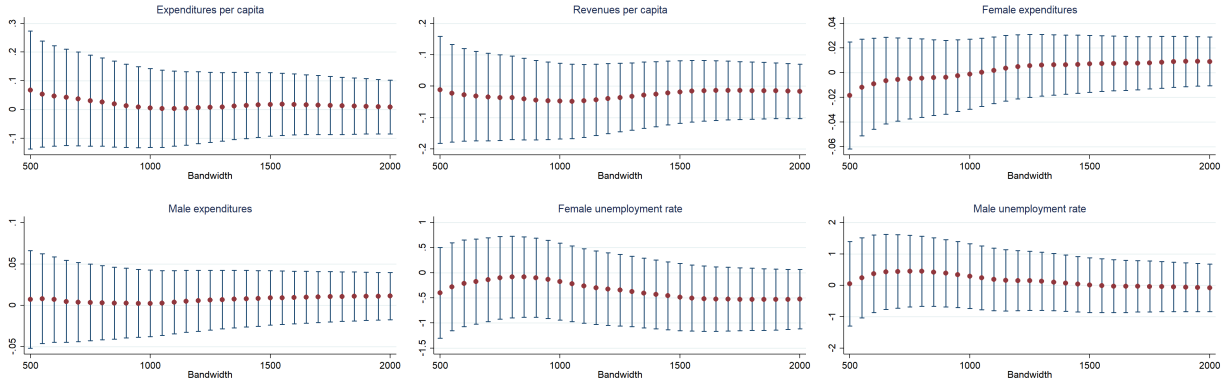
(d) Threshold: 5000, term: 2003



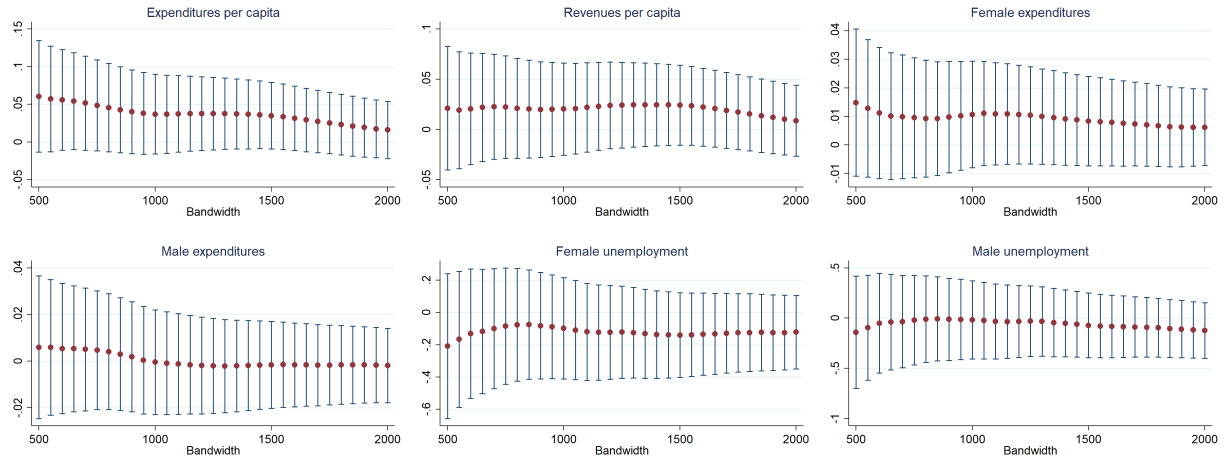
(e) Threshold: 5000, term: Δ(2007-2003)



(f) Threshold: 5000, term: Δ(2011-2003)



(g) Threshold: pooled, short-term discontinuity in differences



Note: The figures show coefficients (red dots) and 95% CI (blue lines) for Regression Discontinuity estimates of several outcomes, as indicated on top of each graph, at the 3,000 and 5,000 threshold, considering different bandwidths as indicated on the x-axis. Each panel shows estimates from different time periods. The estimates from 2003 consider the outcome in level, whereas the estimates in the other panels correspond to a version of the Discontinuity-in-differences Equations 1a and 1b.