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 voting behavior, the quality of politicians, 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 female education 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, in recent years more than 100 countries in the world have adopted some type of gender quota.[1] Some countries, particularly in Africa and South-East Asia, have introduced *mandated representation*, whereby relevant seats in political institutions are reserved to women. Other countries, mostly in Europe and Latin America, have adopted quotas that regulate the gender composition of candidate lists. For instance, 10 of the 28 member countries of the European Union have legislated gender quotas that apply to all political parties and, in thirteen other country members, gender quotas have been adopted voluntarily by some of the main political parties (see Figure 1).

Quotas tend to improve women's representation in political institutions when they are appropriately designed and parties cannot easily game them (Baltrunaite et al., 2016; Dahlerup and Freidenvall, 2013; Esteve-Volart and Bagues, 2012; Jones, 2008; Matland, 2006). Some authors have also pointed out that quotas may have some additional advantages. First, it has been argued that they may help to increase the quality of politicians (Casas-Arce and Saiz, 2015; Besley et al., 2017). If the general lack of female candidates is due to discrimination by party leaders, the introduction of quotas might induce parties to replace male candidates with more skilled female candidates. On the contrary, quotas may be counterproductive, at least in the short-term, if the underrepresentation of women in politics reflects the lack of qualified women willing to enter politics. The scarce available evidence suggests that the positive effect dominates. 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.[2] Furthermore, Casas-Arce and Saiz (2015) have pointed out that, if quotas affect the quality of candidates, they might also affect voting behavior. They test this hypothesis using evidence from the introduction of quotas in 2007

[1] A webpage created by International IDEA, Inter-Parliamentary Union and Stockholm University (2015) provides updated information on the adoption of quotas around the world. For a complete overview of the different gender quota systems see Dahlerup (2007).

[2] On the other hand, Chattopadhyay and Duflo (2004) find that, in the context of seat reservations in India, quota candidates are less educated.

in Spanish local elections in municipalities with more than 5,000 inhabitants. Party lists that had fewer female candidates in the previous election and, therefore, are expected to be more affected by quotas, tend to receive more votes in 2007 in larger municipalities. Casas-Arce and Saiz (2015) conclude that this pattern reflects the better quality of quota candidates, but this interpretation has been challenged by Bagues and Campa (2017), who argue that small municipalities do not provide a credible counterfactual for what would have happened in larger ones in the absence of the quota.[3]

Second, it has been argued that quotas may help to accelerate women's access to leadership positions. A trickle-up effect can arise through different channels. The introduction of a quota might contribute to the break down of existing negative stereotypes regarding female politicians, both among party leaders and voters. 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.[4] In addition, quotas might foster the creation of political networks that are friendlier to women, and female politicians who start their career through the quota might serve as mentors or role models for young women. Quotas can also spur a debate over women's under-representation, promoting parties' commitment to address the issue. These mechanisms might generate dynamics that, at least in the longer term, would lead to an increase in women's access to leadership positions. On the other hand, quotas can have unintended consequences and ultimately hinder female leadership. If the pool of potential female candidates is limited, the introduction of quotas may contribute to negative stereotypes about the quality of female politicians, generating a stigma effect. The few empirical studies that have analyzed this question tend to find that the net effect is positive and quotas lead to an increase in the probability that women reach

[3]Bagues and Campa (2017) provide a number of robustness tests and placebos suggesting that, in Spanish local elections, voting behavior does not evolve similarly in small and large municipalities, reflecting that the timing of political and social changes is related to municipality size.

[4]Unfortunately, the World Value Survey does not collect information on the share of people that consider that women make better political leaders.

leadership positions (Beaman et al., 2009; De Paola et al., 2010; O'Brien and Rickne, 2016).[5,6]

Third, quotas may allow a better representation of women's preferences in policy outcomes. According to citizen-candidate models, if men and women differ in their preferences about the composition of public spending, the gender of policy-markers may be relevant (Osborne and Slivinski, 1996; Besley and Coate, 1997).[7] Quotas might also affect the identity of the median voter and, as a result, the policies chosen by policy makers (Downs, 1957). The available empirical evidence on the impact of quotas on policy-making is limited to the context of mandated representation in India. Chattopadhyay and Duflo (2004) show 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.[8] However, little is known about the impact of candidate gender quotas on policies in the context of Western democracies.

In this paper, we provide a comprehensive analysis of the impact of legislated candidate quotas using the unique quasi-experimental evidence by local elections in Spain. Within a proportional representation electoral system with closed lists, a gender quota was first implemented in the 2007 elections in municipalities with more than 5,000 inhabitants and it was extended in 2011 to municipalities with more than 3,000 inhabitants. The quota prescribes the presence of at least 40% of candidates of each gender on the ballot. 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. Given that some of the mechanisms through which quotas can have effect may require

[5] Beaman et al. (2009) find that after two electoral cycles over which the most important seat in Indian villages was reserved to women male voters improved their perception of female leaders; this in turn led to more women being elected to this position, although it was no longer reserved in the third electoral cycle. 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 presence of female candidates when quotas were introduced. On the contrary, using data from a randomized policy experiment in Lesotho, Clayton (2015) finds that women living in districts reserved for only female community councilors are less politically engaged across several attitudinal dimensions than women living in unreserved districts.

[6] Other 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., 2016).

[7] Using evidence from Switzerland, Funk and Gathmann (2015) show that there are large gender gaps in preferences in the areas of health, environmental protection, defense spending and welfare policy. Ranehill and Weber (2017) provide evidence from the lab showing that gender differences in economic preferences translate into substantial differences in voting behavior.

[8] A related literature studies the relationship between the gender of policy-makers and policies, either relying on observable characteristics (Svaleryd, 2009) or exploiting the close election of female politicians (Clots-Figueras, 2011; Brollo and Troiano, 2016; Ferreira and Gyourko, 2014; Rehavi, 2007).

some time, we use information from four consecutive rounds of elections -2003, 2007, 2011 and 2015-.

To estimate the causal impact of quotas, we use a regression discontinuity design (RDD) that exploits the existence of a population threshold that determines in which municipalities the quota is implemented. Our analysis shows that the 3,000 inhabitants threshold exhibits all the desired features for the implementation of an RDD. No other policies were implemented based on this threshold and we do not observe any evidence of manipulation of the running variable. However, there are some (time-invariant) institutional differences at the 5,000 inhabitants threshold that might potentially threat the validity of standard RDD estimates. To address this issue, in our main analysis we consider outcome variables in differences. Nonetheless, results are similar at both thresholds and also when the outcome variable is considered in levels.

As expected, quotas increase the share of female candidates to around 46% which, due to indivisibilities, is the minimum share required.[9] This corresponds to a 8 p.p. increase relative to slightly smaller municipalities where quotas were not implemented. Most of this increase occurs in the last two positions of each five-position bracket. When we extend our analysis to later electoral cycles, we do not observe any additional effects neither on the share of female candidates nor on their position in the ballot. Due to the worse positioning of women in the ballot, the impact of quotas on the composition of the local council is more modest. The share of female council members increases by 4 p.p. This increase takes place the first election after quotas are introduced, and there are no further improvements in the following two elections.

Despite the increase in the share of female council members, the evidence suggests that quotas fail to achieve the three additional goals listed above: incrementing the presence of women in leadership positions, increasing the quality of politicians, and allowing a better representation of women's preferences in policy outcomes. The quota does not have a significant effect on the probability that a woman is placed on the top of the list, a position which is typically reserved for the party leader, although our estimates are not sufficiently precise to discard relatively large positive effects (the 95% C.I. is between -3 and +7 p.p. relative to a baseline of around 20%). Moreover, the quota does not improve significantly the quality of politicians, although it does not worsen

[9] In municipalities between 5,000 and 10,000 inhabitants, the quota requires that at least 6 out of the 13 members of the list are women (46.1%). In municipalities between 2,000 and 5,000 inhabitants, 5 out of the 11 candidates should be women (45.5%).

it either. We study this issue using two different sources of information. First, we examine the educational background 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 (21% of a standard deviation) or they decrease it by more than 0.6 years (26% of a standard deviation). We also use information on voting behavior to assess whether quotas help to attract candidates who are more popular among voters. Following Casas-Arce and Saiz (2015), we analyze the electoral performance in 2007 of party lists that had fewer women in the 2003 election and, therefore, are expected to be affected to a larger extent by a quota. We also extend this analysis to the 2011 and 2015 elections. By using a regression discontinuity analysis, we are able to estimate the impact of quotas taking into account that, as pointed out by Bagues and Campa (2017), voting behavior may evolve differently in large and small municipalities. Contrary to Casas-Arce and Saiz (2015) findings, our analysis suggests that quotas do not improve significantly the electoral performance of parties that were less feminized, neither in 2007, nor in the two subsequent elections. 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). Our analysis of voting data also shows that there was no significant impact on turnout.

We do not find evidence of a change in policy due to quotas 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. While the policy preferences of men and women are not substantially different, overall men are slightly more concerned about immigration, work conditions, politics, housing, agriculture, hunting and fishing, corruption, environmental degradation, the judiciary system and infrastructure. Women are more worried about unemployment, pensions, education, the health system, drugs, youth problems, violence against women, women's issues, and social problems. We use this information to classify public expenditure as "female", "male", or neutral. We do not find any statistically or economically significant changes in overall amount of public expenditures or revenues in the municipality. Quotas do not seem to affect either the 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. and 3.2 p.p. Finally, we also investigate if the introduction of quotas has any impact on the economic situation of the municipality. Again, we can reject any statistically or economically significant estimates. We do not observe any significant changes in the overall unemployment rate or in income per capita. Female unemployment rate does not seem to change either. The point estimate is equal to -0.16 p.p., with a 95% confidence interval between -0.48 and 0.15.

Our paper contributes to the literature in several ways. First, while previous studies typically focus on a particular dimension, we provide a comprehensive analysis of the behavior of the different agents affected by quotas: candidates, political parties, voters and policy-makers. We believe that this approach may help to provide a more balanced picture of the functioning of quotas and a better understanding of the mechanisms at work. By reporting results along a large set of predetermined dimensions, we avoid the potential risk that the focus of the analysis is driven by the significance of results in a particular dimension. Overall, our results suggest that the impact of quotas may be more modest than previously thought. At the same time, we do not find any support for the belief, held by some opponents of gender quotas, that quotas lead to a decrease in the quality of politicians. Second, we exploit a regression discontinuity design which relies on milder assumptions than the difference-in-differences strategy typically used in the literature.[10] In many of these studies, the interpretation of results depends on non-trivial assumptions about how the outcome variable would have evolved in the treatment group in the absence of the treatment.[11] Third, we provide evidence on the impact of quotas in a policy relevant context. Small municipalities are often excluded from the implementation of gender quotas, despite the fact that they tend to exhibit relatively lower levels of female empowerment, both in the labor market and in politics. For instance, in Italy and Spain gender quotas are only implemented in municipalities with more than 5,000 inhabitants and in France in municipalities with more than 3,500 inhabitants. Overall, our results suggest that an extension of quotas to slightly smaller municipalities may help to increase modestly the presence of women in the council but it is unlikely to have a relevant impact on others dimensions, at least

[10] A notable exception is provided by a recent paper by Baltrunaite et al. (2016), which analyzes 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.

[11] For instance, Besley et al. (2017) study how the 'quality' of candidates is affected by the introduction of quotas in the Swedish Social Democrat Party, using as a control group municipalities where the party did not have to increase (as much) the share of female candidates to satisfy the quota. Quotas do not seem to have a significant impact on candidates' 'quality' when parallel trends are assumed. However, quotas seem to increase 'quality' when a linear trends specification is considered. Without a better understanding of the 'data generation process', it is unclear which of these two specifications is more informative about the causal effect of quotas. Relatedly, Casas-Arce and Saiz (2015)'s study relies on the assumption that voting behavior evolves similarly in large and small municipalities, an assumption which is unlikely to hold (Bagues and Campa, 2017).

within three electoral cycles. Finally, 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, a context where previous findings based on mandated representation in India may have limited validity (Chattopadhyay and Duflo, 2004).

2 Institutional Context

2.1 Electoral system

The members of the municipal council 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 A.1). 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.[12] 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 prominence 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 are full-time employed by the townhall and, in a council with 9 members, only 0.3 of them are full-time employed and 1.4 are part-time employed.[13]

[12] Law 7/1985 (*Ley Reguladora de las Bases de Regimen Local*).
[13] Source: Our own calculation based on data provided by the Ministry of Finance for year 2016.

2.2 Gender quotas

In March 2007, the Equality Act modified the Spanish electoral law and introduced the principle of gender balanced candidate lists.[14] According to the new regulation, 40% of candidates on electoral lists must be female and 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.[15] 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 these thresholds reflects the perception that the status of women in rural areas might be excessively weak.[16]

2.3 Local government

Spanish local governments manage around 15% of public expenditure (6% of the Spanish GDP), 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, during the period of our study the 3,000 threshold is only relevant for the implementation of the

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

[15] 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.

[16] 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

quota, but the 5,000 threshold is also considered for other policies.[17]

All municipalities are responsible for lighting, graveyards, refuse collection, street cleaning, water supply, sewerage, access to population centers and paving.[18] 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 to approximately 1.5% higher per capita budget.[19]

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 municipalities 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.[20]

[17] 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. Instead, our empirical analysis relies on the population count as measured in January 2006 and 2010.

[18] 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*.

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

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

3 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.[21]

Table A1 provides some general information on the characteristics of these municipalities compared to larger municipalities in Spain. The municipalities object of our study are located in rural areas and their population 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 less likely to be in formal employment, unemployed, or students. Among the group of people who are more than 30 years old and less than 60 - the usual age for municipal councilors - the educational attainment of women tends to be slightly lower than men: 8.6 vs. 9.0 years of education respectively, a difference which is statistically significant.[22]

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.[23] 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.[24]

We describe our database below, which includes information on (i) the composition of candidates lists in the 2003, 2007, 2011 and 2015 elections, (ii) electoral results, (iii) the characteristics of council members, (iv) the composition of the local budget and residents' preferences over policy issues, and (v) municipalities socio-economic characteristics. Appendix B provides more detailed information about the data sources.

[21]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 small municipalities which were not affected by the gender quota.

[22]We collected this information, which is not tabulated, from survey data of about 14,000 Spanish residents interviewed quarterly by the Spanish Center for Sociological Research between 2004 and 2010.

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

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

3.1 Candidates

The upper panel of Table 1 provides information on the characteristics of candidates. On average, there are three parties competing in each municipality and, in the 2003 election, 29% of candidates were women. This figure mirrors the presence of women 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.[25] The presence of women is lowest at the top of the list (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.

As shown in Figure 2, ballots were already more feminized in larger municipalities before the introduction of quotas. In municipalities with less than 3,000 inhabitants, the average share of female candidate 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 coinciding with the introduction of gender quotas. 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 do not have political experience. In the period of our study, 64% of party leaders had been on the ballot previously, compared to only 38% of candidates. The level of experience also differs remarkably between women and men. Male candidates are 10 p.p. more likely to have some political experience.[26] Moreover, 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 gender difference

[25]Source: The Institute of Women, based on the information provided by each party, available at `http://www.inmujer.gob.es/MujerCifras/PoderDecisiones/PartidosPoliticosSindicatos.htm`

[26]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.

is smaller among candidates that were elected (61% for men and 58% for women).

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.[27] 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. On the other hand, it may also capture individuals who share their surname with the party leader but do not have a close kinship relationship.[28] 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 around 3% of candidates have a kinship relationship with the party leader. Given that the average list in the sample has around ten candidates, approximately every third list includes a close relative of the party leader.

3.2 Voting behavior

Around 78% of the electorate participated in the 2003 locals elections (Table 1, panel B). We are interested in the electoral performance of parties that had few female candidates before its implementation and, therefore, are expected to be more affected by quotas. 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 exclude municipalities where the share of female candidates was similar in both lists before the quota was introduced and, in the remaining municipalities, we classify party lists into two groups according to their degree of feminization. In the group of lists that were relatively less feminized before the quota (in what follows, the *male holdouts*), the average share of female candidates is around 17%, compared to 38% in the competing list. *Male holdouts* attracted more votes than their competitors in the pre-quota election (45% vs. 43%).

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

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

3.3 Local council

In 2003 approximately 25% of council members are women (Table 1, panel C). Female mayors are rarer, only 13% of mayors are women.

As shown in Figure 2, 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 when gender quotas are introduced.

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: 49% of male councilors elected in 2007 were already members of the previous council, compared to only 36% of women.

3.4 Budget

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, upper panel). The largest expenditure outlays are Housing and Urbanism, Infrastructure, General Administration, Culture, Community Welfare, and Social Security.[29] On average, municipalities' debt amounts to 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 use the information provided by a large-scale political survey to classify public expenditure into three groups: *female*, *male* and *neutral expenditures*. In this survey, which was conducted quarterly between 2001 and 2006 by the Spanish Center for Sociological Research, about 57,000 Spanish residents were are 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

[29]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.

tends to be statistically significant but, in economic terms, they are relatively small, always below 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 3 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, they also observe that, unlike Spanish women, Swiss women are more concerned than men about the Environment.

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. Interestingly, the share of *female expenditure* tends to be significantly larger in municipalities with more female councilors (Table A5). Conversely, the share of *male* expenditures is lower where there are more female councilors or the mayor is a woman. While this descriptive analysis cannot be interpreted causally, this pattern is consistent with the existence of gendered preferences in public expenditure.

3.5 Economic indicators

We have also collected information on a few 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.

4 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 an RDD. No other policies were implemented based on this threshold and we do not observe any evidence of manipulation of the running variable. However, there are some potential threats to the validity of the RDD 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 RDD 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 we show in the appendix, results are very similar when we consider the outcome variables in levels.

4.1 Regression discontinuity design

The implementation of the quota was based on the official population count of the municipality on January of the pre-election year. We study the impact of the introduction of quotas in 2007 using the information provided by municipalities that in January 2006 had around 5,000 inhabitants and, to study its 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 population is above the corresponding threshold. When $k = 0$, the specification provides information on the impact of quotas the first election after their introduction. Furthermore, 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.[30]

We report three type of results for each outcome variable (see Section 5 below). 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. These plots are intended to provide suggestive evidence about the existence of a discontinuity at the threshold. Second, we also report the point estimates and the standard errors obtained from the estimation of equations (1a) and (1b) using a local linear estimation within the mean squared error optimal

[30]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.

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. Finally, to explore the robustness of these estimates, we repeat the analysis using a broad range of bandwidths.

4.1.1 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 RDD estimates if the available 'technology of manipulation' is sufficiently precise. Next we discuss these two issues in detail.

Other policies As discussed in section 2, the 3,000 population threshold is only relevant for the implementation of gender quotas during the period of our study. However, 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 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 C.1). The magnitude of this discontinuity is similar in the pre-quota (2002-2006) 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) shows that, in practice, municipalities below and above the 5,000 threshold are equally likely to provide these services, perhaps because otherwise 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 analysis confirms that neither of these two population cutoffs play any significant role in terms of the composition of public expenditure (Table A7 and Figure C.2)

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, it 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, consistently 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 become 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 4. As expected, municipalities appear clearly sorted above the 5,000 threshold before 2006, but not in later periods. This pattern is confirmed using the density test proposed by Cattaneo et al. (2016). The McCrary-test provides similar results (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, that would affect the consistency of the RDD 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.[31] Municipalities with more than 5,000 inhabitants tend to devote a lower share of their budget to expenditures that, based on survey data, we have classified as *female expenditures*; party leaders are less likely to female, and council members tend to be younger. Next, we discuss how we deal with the potential existence of some relevant differences between municipalities above and below the 5,000 threshold.

4.2 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 RDD 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.

[31] Nonetheless, note that 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.

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 2003-2007 term and the 2007-2011 term. As expected, we do not find any significant changes, neither at the 5,000 or at the 3,000 threshold (see Table A6, columns 5 and 6, and Figure C.1).[32]

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 municipalities that in January 2010 were slightly above and below the 3,000 population threshold, in terms of their behavior in the 2007 election. We do not observe any significant differences between these two groups in any dimension: candidate characteristics, electoral results, composition of the local council, and local budgets (Table A9). This finding supports the use of the population count in January 2010 as the running variable in equation (1b).

5 Results

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

[32]As pointed out in section 2, the 2004 reform of the local public finances increased slightly 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.

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 generally obtain very similar results for the 3,000 and the 5,000 thresholds, we also report the estimates from a pooled regression. In addition to these estimates, we report RD plots for all outcome variables (see Figures C.3-C.7). A visual inspection of these plots is generally informative about the potential existence of a discontinuity in the corresponding variable. Furthermore, 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. Finally, 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.

5.1 Candidate lists

Number of party lists First, we analyze whether quotas affect the number of party lists that participate in the election. If quotas are difficult to satisfy, some parties may decide not to run. However, we do not observe any evidence suggesting that quotas led to the disappearance of any party lists. As shown in the upper panel 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 (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, upper panel).

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 female candidates (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 2,000 and less than 5,000 inhabitants. Our analysis of the data shows that, in general, this requirement was reached but it was rarely surpassed.[33] In 2007, in municipalities with slightly more than 5,000 inhabitants

[33] Approximately 10% of lists did not satisfy all the requirements of the quota. In most of these cases, candidate lists complied with the requirement of including two women (and men) within the top 5 positions and also within

46% of candidates are women. It represents a 9 p.p. increase relative to municipalities with slightly less than 5,000 inhabitants. 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 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 the upper panel 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.

We also 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) but it has a very modest impact on the upper positions (e.g. positions 1-3 and 5-7). The first time the quota was introduced, the share of women in the lower positions increases by 12 p.p., whereas the presence of women in the three upper positions increases by only 2 p.p. (see Table 3, top panel, 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 (see Table 4, top panel).

Party leaders While the Spanish Equality Law does not prescribe any quota for leadership positions at the party level, it 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

positions 6 to 10, but they did not include enough women in positions 11 to 13 to satisfy the quota requirement at the list level. The lack of compliance is also consistent with anecdotal evidence suggesting that some electoral authorities did not fully enforce the new regulation (Verge, 2008).

female leaders by up to 7.5 p.p. or they might have decreased it by 2.8 p.p., relative to a baseline of 20% (see Table 3, top panel, columns 7-9). There is no impact on women leadership in the following elections either, at least within the three electoral cycles that we observe. 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.

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 based on 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 3.7 p.p. decrease 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. The quota does no appear to affect this gender difference.

Kinship Party leaders may try to formally comply with gender quotas by including female relatives in the candidate list. 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.

5.2 Electoral results

Turnout Quotas affect the composition of candidate lists and, therefore, they might also influence voting behavior. 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 estimates of 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. (25% of a st. dev.) or it may have decreased it by 1.2 p.p. (17% of a st. dev.), relative to a baseline level of around 75%. We do not observe any impact of quotas on turnout in the following two elections.

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 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 3, 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'*), relative to the rival list. 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. 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. 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., or it might have decreased it by up to 9.6 p.p.

We do not observe any further impact of quotas on voting behavior in the following two elections either. 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.

5.3 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.

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 lower than the increase in the presence of women in the ballot. Namely, quotas increase the share of female councilors by around 4 p.p (st. error 1.4), relative to a baseline of 33% (Table 3, panel C). 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).

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 to 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 (21% st. dev.) or they decrease it by more than 0.6 years (26% 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 (25% st. dev.) or a decrease of more than 1.2 years (23%).

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. (st. error=2 p.p.), against a baseline of 47 p.p. We do not observe any additional effects on council members' educational attainment, age or experience in the following elections either (Table 4, panel C).

Mayors Our analysis provides mixed results. The *RD* standard 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., with a 95% confidence interval between 1 and 20 p.p. (Table 3, panel C). However, as shown in Figure A.2, 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, as well as a first order polynomial fitted separately above and below the cutoff within the optimal bandwidth (981 inhabitants). The figure 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. Incidentally, this case illustrates the potential limitations of the standard *RD* analysis and the need to complement it with additional robustness checks.

5.4 Local budget and economic indicators

Budget Quotas increase the share of women on councils by 4 p.p. If the gender of council members matters for policy decisions, quotas might ultimately impact policy outcomes.

First, we examine whether quotas lead to an increase in the amount of public expenditure allocated to different groups of the budget that, according to the survey information presented in section 3.4, are expected to be more relevant for male and female voters. We do not observe any significant effects. The point estimate is equal to +1.2 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. or that it decreased by more than 0.7 p.p. In the case of *male expenditures*, we can reject an increase larger than 2.2 p.p or a decrease below 2.7 p.p. We also examine the size of local budgets during the first term after quotas 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 effects are not statistically significant at standard levels.

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. 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 a up to 0.48, or it may have increased it by 0.15 (Table 3, panel E). We do not observe any effect either on the unemployment rate of men or on overall income per capita (Table A10, panel D). We reach the same conclusion when we look at mid-term effects (Table A11, panel D).

6 Power calculations and post-study probability

Overall, quotas do not seem to have any significant effects, beyond a modest increase in the share of female councilors. However, a possible concern with some of the above estimates is the potential lack of statistical power to detect effects that are 'economically' relevant. In this section, we provide information for the main six outcome variables on the statistical power of our empirical exercise considering three plausible scenarios about the magnitude of the effect.[34] 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

[34]We use for the calculation the *Stata* command *rdpower*. See details in Cattaneo et al. (2018).

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 would be generally underpowered in the most conservative scenarios. 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 can 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 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.[35] 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 on each outcome variable. This analysis is reported in Figure A.3. The figure illustrates how the magnitude of the adjustment should vary depending on researchers' 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 would decrease this belief from 50% to around 10%. However, an observer with a prior belief that there is a 50% probability that quotas increase the share of female party leaders by 2 p.p. should, based on our findings, adjust only slightly her beliefs to around 40%.

[35] 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.

7 Conclusion

We study the impact of gender quotas in candidate lists on the behavior of political parties, voters and policy-makers using data from local elections in Spain. Overall, our analysis suggests that quotas in candidate lists fail to remove the barriers that prevent women from playing an influential role in politics. 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, quotas fail to achieve, at least within three electoral cycles, some of the other 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, our results suggest that some of the fears about quotas may unfounded. We do not find any evidence of quotas decreasing 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. Our analysis provides information about the potential extension of quotas to a group of municipalities 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. Second, the time period considered in our analysis, three electoral cycles, may not be long enough to allow new candidates to reach top positions. 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 women in politics. 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, they may still help readers to update their beliefs about the impact of quotas.

It must be also noted that our analysis provides information about 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 appearance of new political role-models at the national level. More research should be devoted to understand these channels. Furthermore, given that the functioning of gender quotas is likely to depend, among other things, on the extent of gender discrimination, on the socio-economic environment, and on the design of the electoral system in which they are embedded, more extensive evidence is needed to understand the impact of quotas in different contexts, as well as the causes of women's underrepresentation in politics.

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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. Electoral results				
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%
Experience:				
male councilors	-	52%	50%	50%
female councilors	-	38%	39%	39%
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
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 on the source and content of each variable.

Table 2: Local budget and economic indicators

	(1)	(2)	(3)
Term:	2004-2006	2008-2010	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%
Average income			15,771

Note: Each cell provides information on the average value of a given variable for the corresponding term. In Panel A, under the column titled *2008-2010*, we report the 2008-2009 average (2010 value) of the corresponding variable when we use the 1989 (2010) classification. 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. This information is available from 2006 until 2014. Information on average income is only available for year 2013 and for municipalities with more than 1,000 inhabitants (N=2,262). Income, expenditure, revenue, and debt information is reported in constant 2013 euros. Appendix B provides detailed information about the source and content of each variable.

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**		
	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. Electoral results									
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	-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
Experience	-0.07	0.03	0.03	0.02	0.03	0.55	-0.01	0.02	0.55
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
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 chapters	0.01	0.02	0.63	0.00	0.02	0.75	0.00	0.01	0.85
female chapters	-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: This 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 about these regressions, including the bandwidth and the total number of observations is available in D

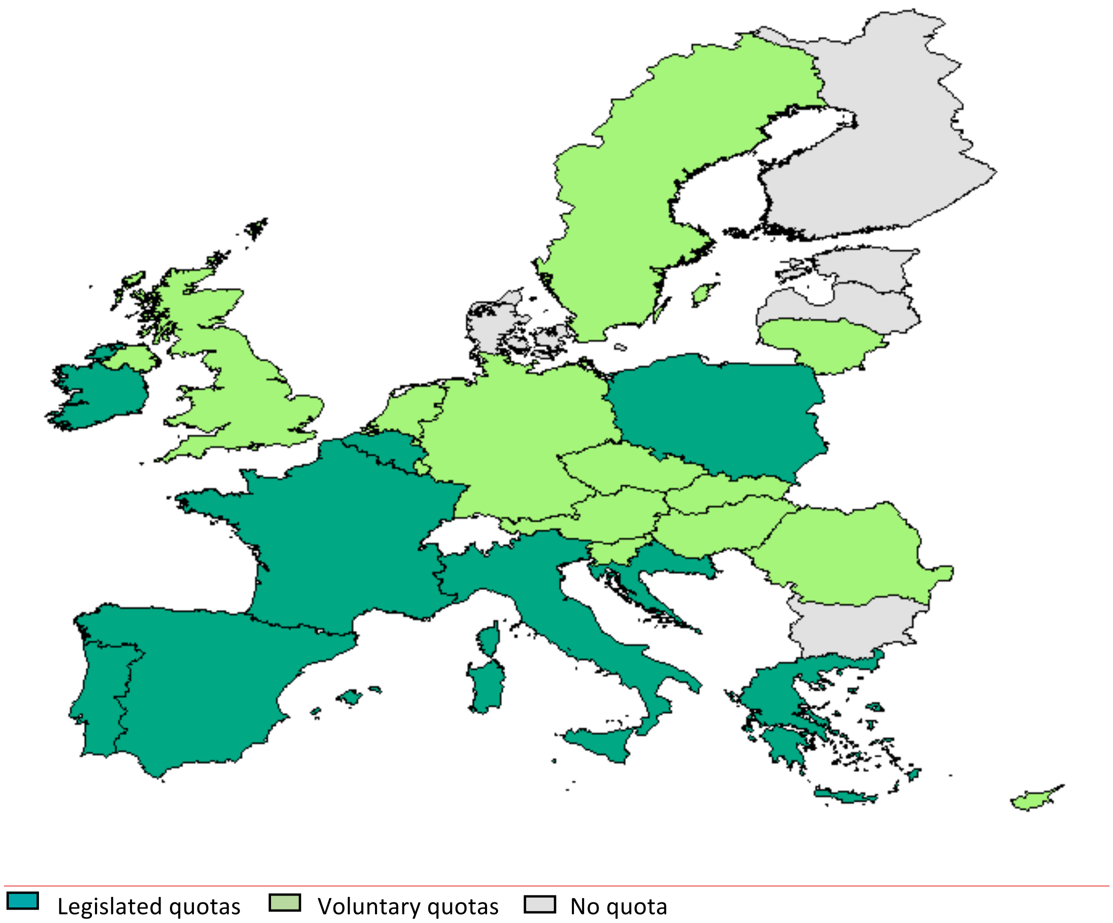
Table 4: Medium-term impact of quotas - Discontinuity-in-differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Threshold, period:	**5000, 2011-2003**			**5000, 2015-2003**			**3000, 2015-2011**		
	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. Electoral results									
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
Experience	0.02	0.04	0.59	-0.01	0.04	0.75	0.01	0.04	0.77
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
D. Local budget									
Expenditure pc:									
all	0.01	0.07	0.85						
male chapters	-0.01	0.02	0.69						
female chapters	0.00	0.02	0.79						
Revenue pc	-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: This 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. 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 expenditures in female and male chapters is measured between 2007 and 2011. More detailed information about these regressions, including the bandwidth and the total number of observations is available in D.

Figures

Figure 1: Gender Quotas in European Union countries



Source: www.quotaproject.org (IDEA, Inter-Parliamentary Union and Stockholm University)

Figure 2: Share of women, by type of position and size of the municipality

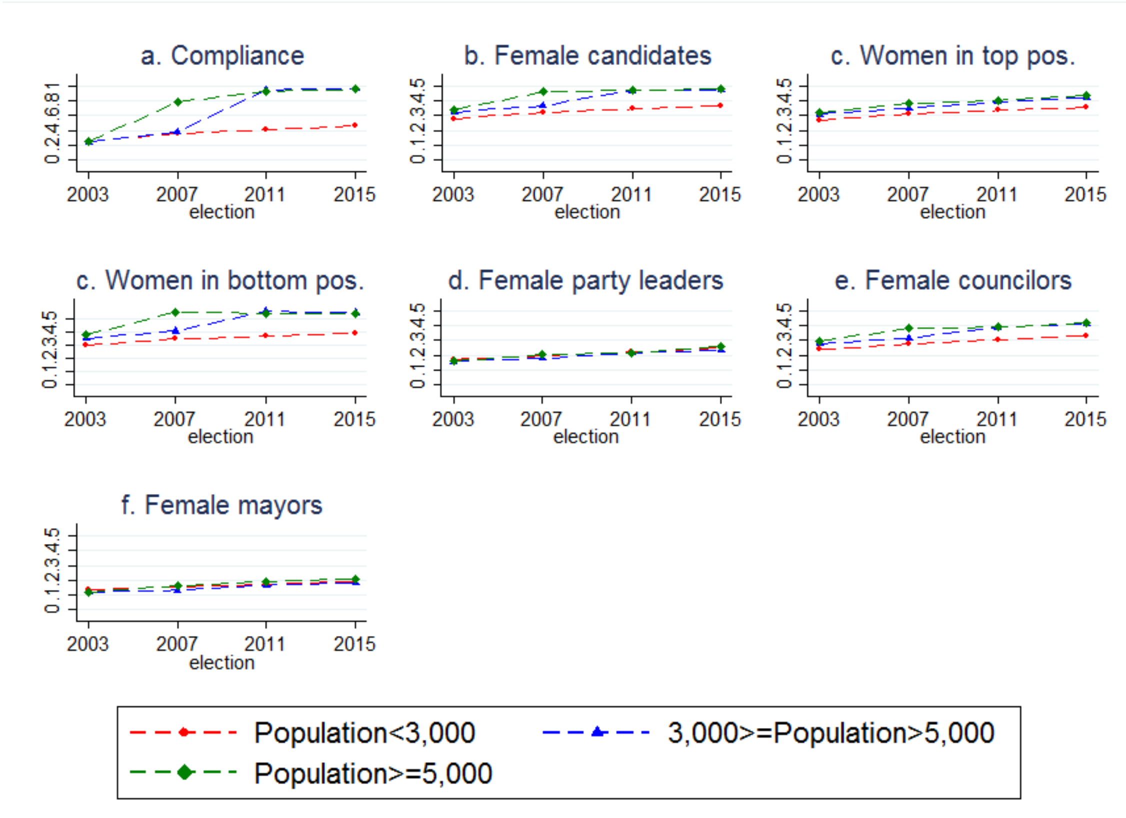
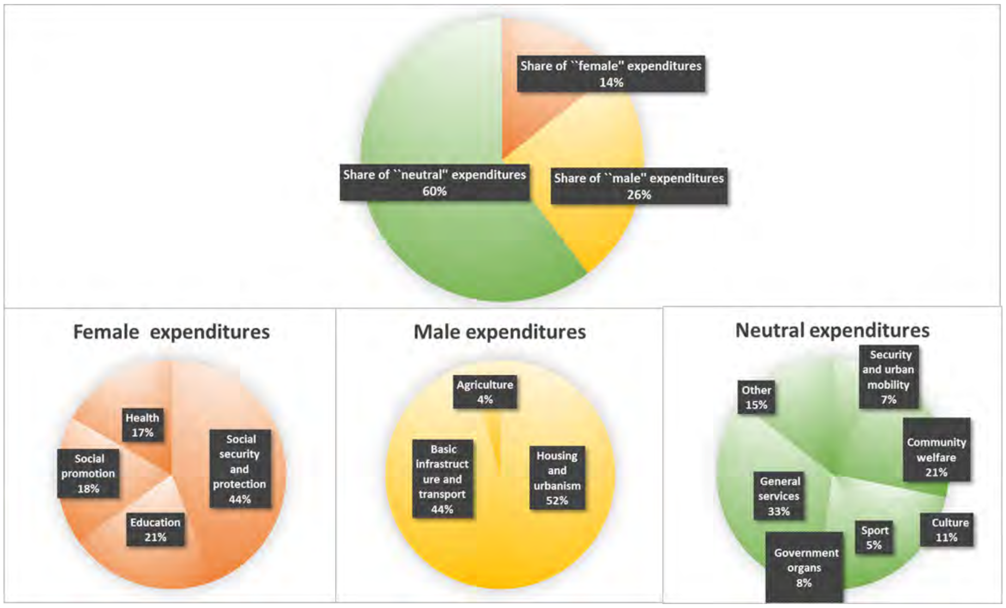


Figure 3: Municipal expenditure

(a) Years 2004 - 2009



(b) Years 2010 - 2014

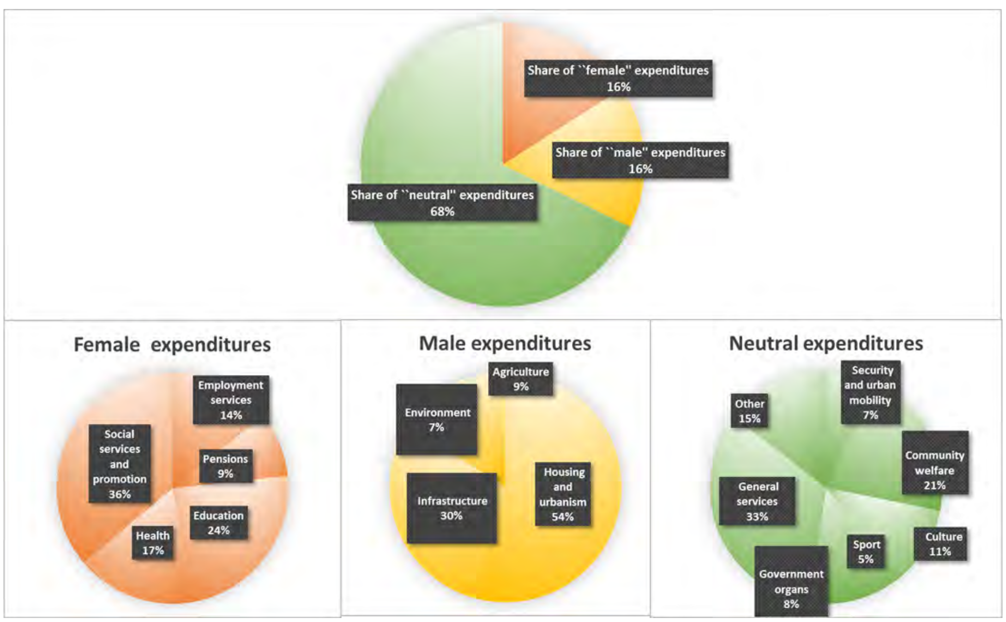
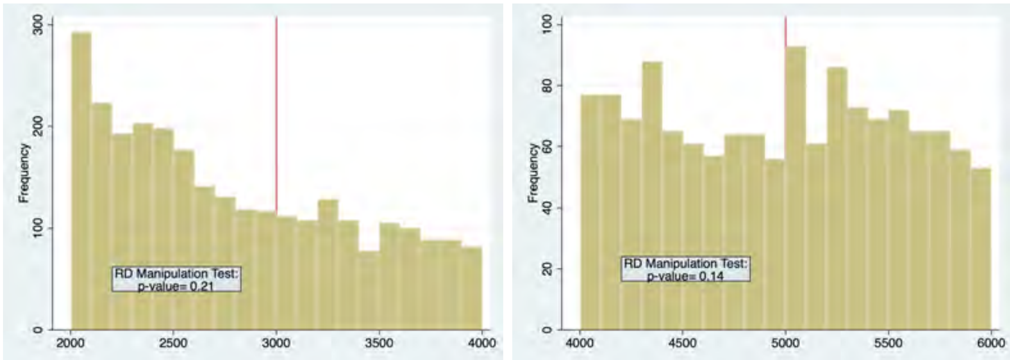
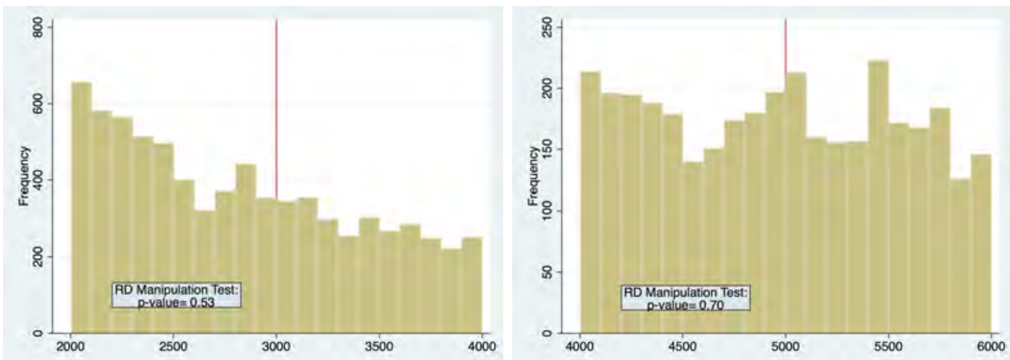


Figure 4: Histograms of population

(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. (2016) performed at the corresponding cutoff.

Appendices for online publication

A Additional Tables and Figures

Table A1: Characteristics of municipalities, by population size

	(1) < 10,000	(2) 10,001 - 100,000	(3) > 100,000
Average income (€)	18,508	21,960	25,142
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 corresponding size. Average income 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***

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

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

Table A5: Female politicians and municipal expenditures

	Female chapters		Male chapters	
	(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 dependent variable is the average share of expenditures in female and male chapters during the legislature. Data are from three legislatures: 2003-2007, 2007-2011, and 2011-2015. All the regressions include legislature fixed-effects and a control for *log population.*

Table A6: Transfers from the central government

Dep. Variable:	**Yearly transfers**				**Δ Transfers**	
Period:	**2002-2006**		**2007-2010**		**2010-2008 vs. 2006-2004**	
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: Each cell reports RDD bias-corrected robust coefficients. Bandwidth chosen according to the MSE-optimal bandwidth selector. Observations weighted by distance to threshold with triangular kernel (see Calonico et al. (2014)). In columns (1) - (4) yearly data are used for years 2002 to 2012. In columns (5) and (6) we collapse yearly data in term-level averages. *Before Quota* is 2004-2006 term, *After Quota* is 2008-2010. This is in line with the analysis of the impact of quota, where we study term-level variables. 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: Dependent variable is the amount of expenditures in areas over which municipalities with more than 5,000 inhabitants have formal competence. When the functional classification is used (2003-2009), we identify these areas to be *Waste collection and street cleaning*, *Promotion and diffusion of culture* and *Physical education, sports and recreation*. In years when the program classification is used, these areas are *Waste collection*, *Parks and Gardens* and *Library and Archives*. Standard errors clustered by municipality in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A8: Regression discontinuity design - Year 2003

	(1)	(2)	(3)	(4)	(5)	(6)
Threshold:		**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. Electoral results						
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: This 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*, *Electoral results*, 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 about these regressions, including the bandwidth and the total number of observations is available in tables E.1, E.3, E.5, and E.7.
*** p<0.01, ** p<0.05, * p<0.1

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

	(1)	(2)	(3)
Threshold:		**3000**	
	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: This 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*, *Electoral results*, 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 about these regressions, including the bandwidth and the total number of observations is available in D.

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

	(1)	(2)	(3)	(4)	(5)	(6)
Threshold, year:	**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. Electoral results						
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
Experience	-0.09	0.03	0.01	0.02	0.03	0.58
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
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: This 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 3,000 (5,000) threshold, the running variable *population* is measured in January 2010 (2006). 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 about these regressions, including the bandwidth and the total number of observations is available in E

Table A11: Medium term impact of quotas - Regression discontinuity design

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Threshold, year:	**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. Electoral results									
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
Experience	0.07	0.04	0.10	-0.02	0.03	0.65	0.00	0.04	0.98
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
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: This 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 3,000 (5,000) threshold, the running variable *population* is measured in January 2010 (2006). 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 about these regressions, including the bandwidth and the total number of observations is available in E

Figure A.1: Ballots

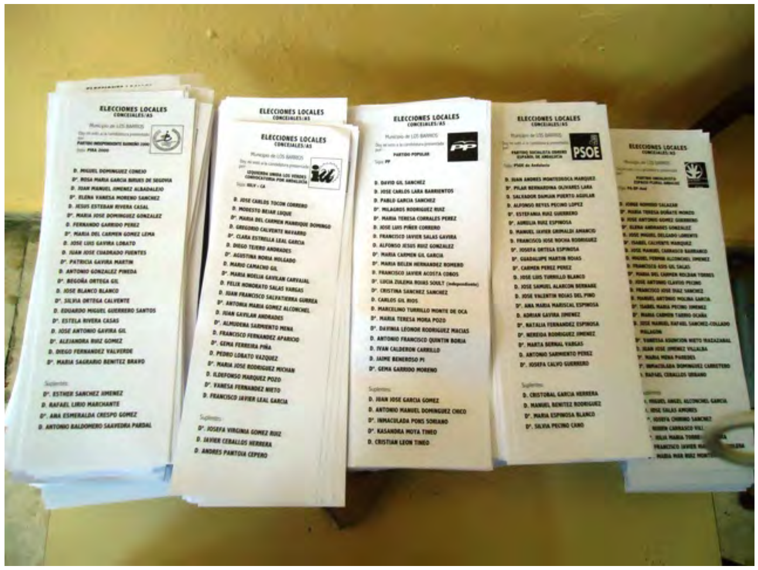


Figure A.2: Female Mayors

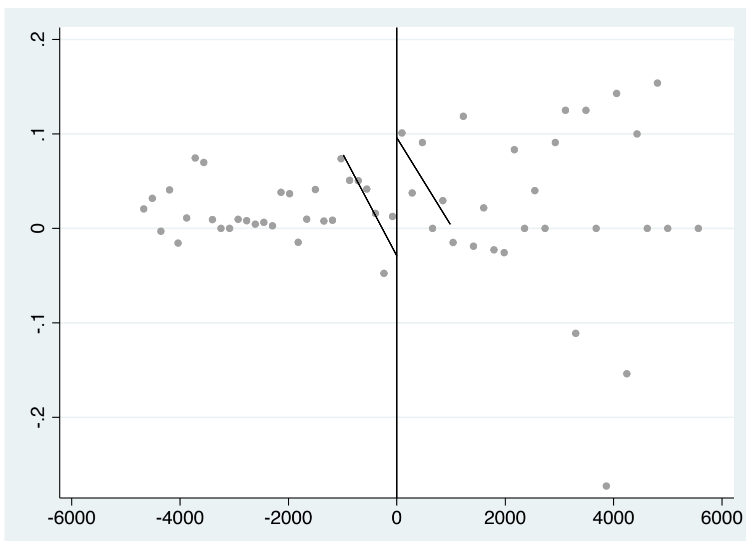
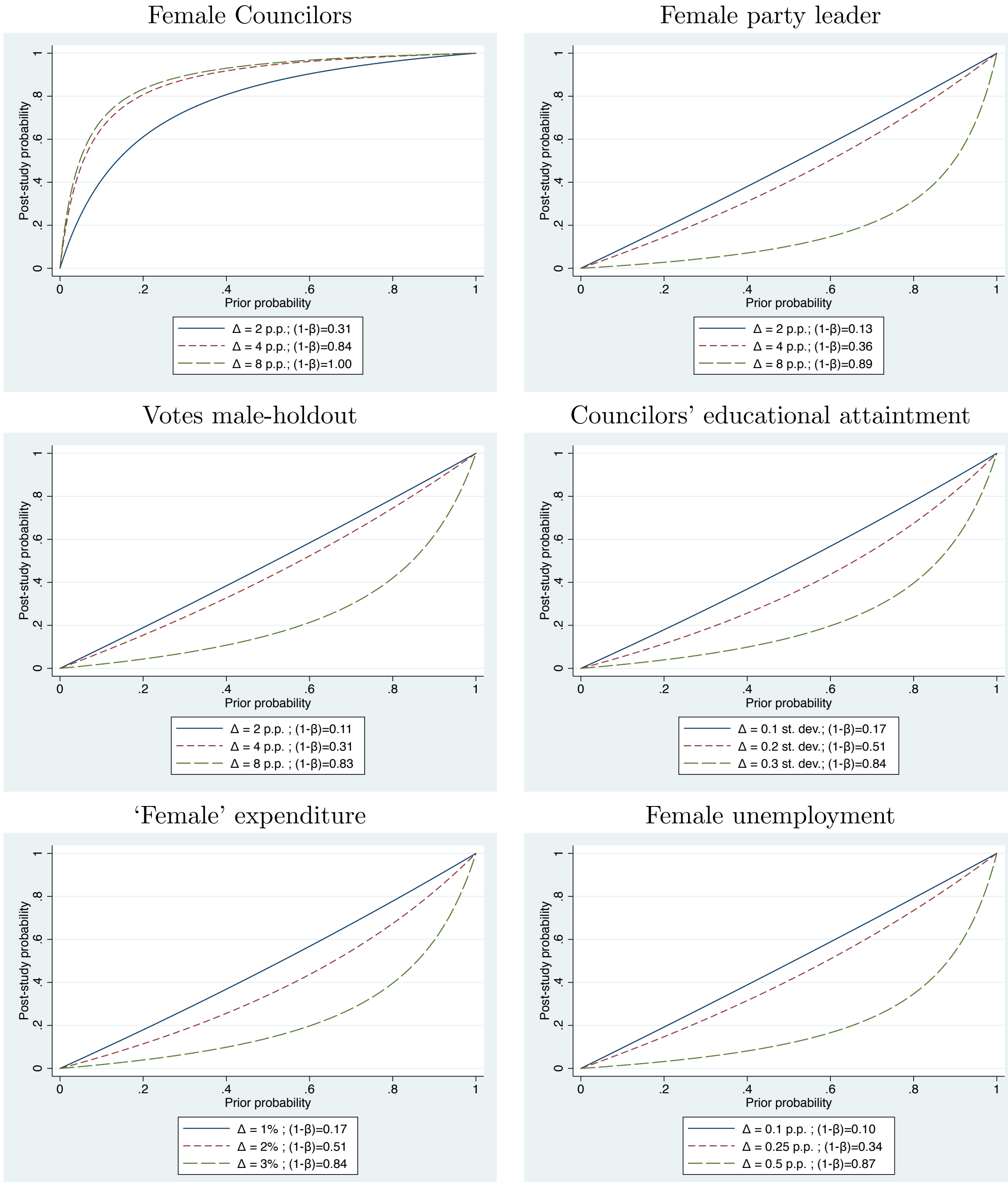


Figure A.3: Post-Study Probability estimates as a function of prior probability and the strength of the effect (Δ)



Note: The figure provides information on the *Post-Study Probabilities* that quotas affects several selected outcome variables, following the methodology proposed by Maniadis et al. (2014). The post-study probability (y-axis) depends on the statistical significance of 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 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

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*.

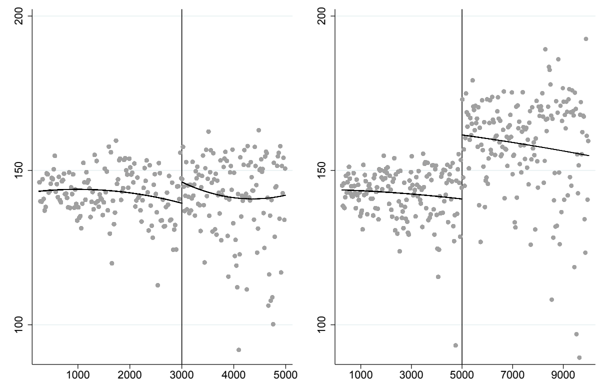
B.5 Economic indicators

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` (retrieved on October 1 2016).

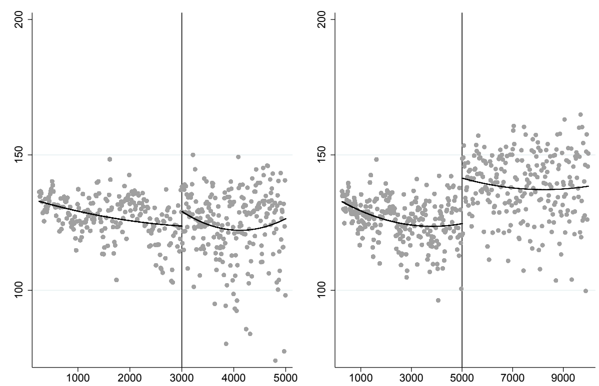
C RD Plots

Figure C.1: Federal transfers per capita

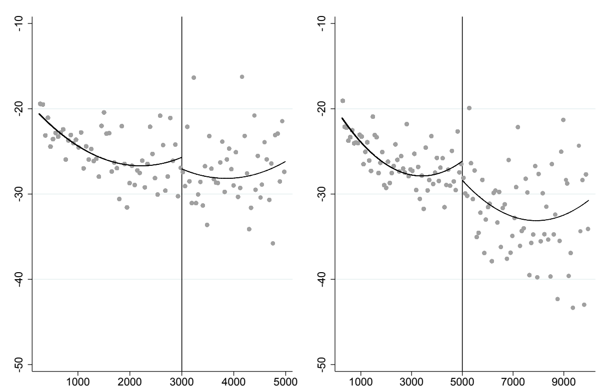
(a) Years 2002-2006



(b) Years 2007-2012



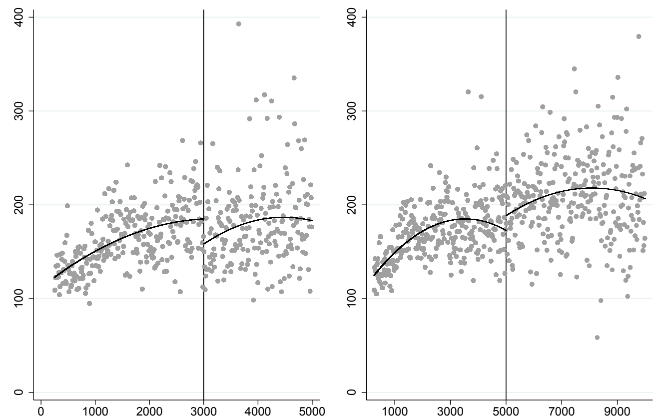
(c) Δ Years 2007-2012 vs 2002-2006



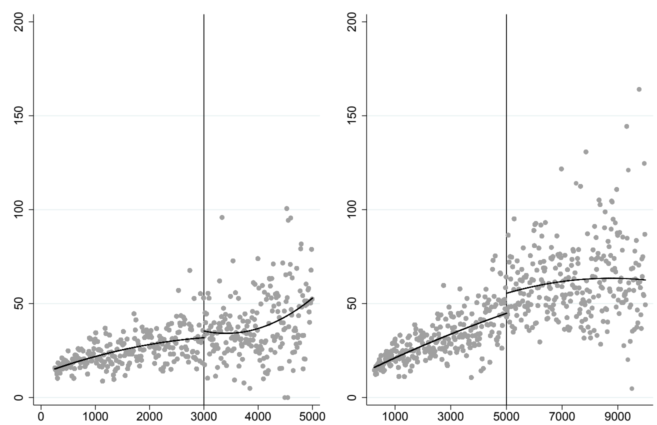
Note: The running variable is the population of the municipality in January of the previous year. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for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

Figure C.2: Competences of large municipalities

(a) Years 2003-2009



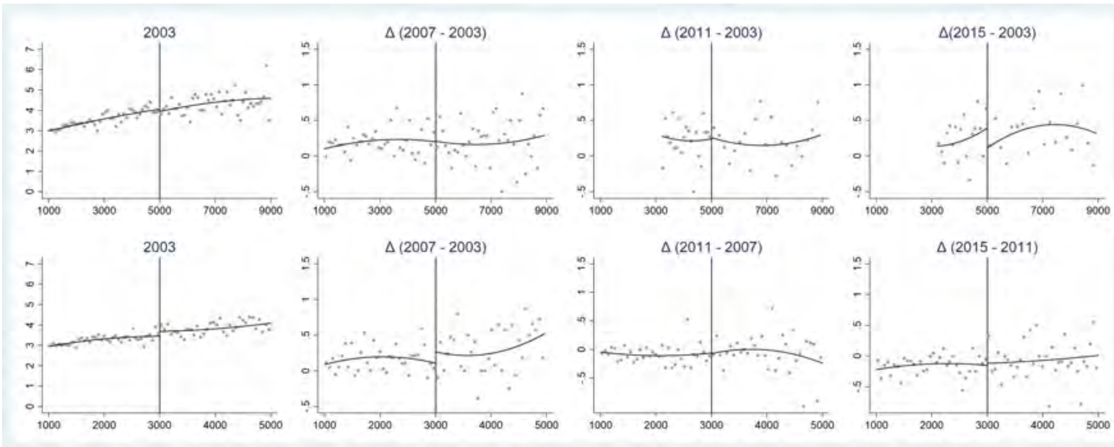
(b) Years 2010-2012



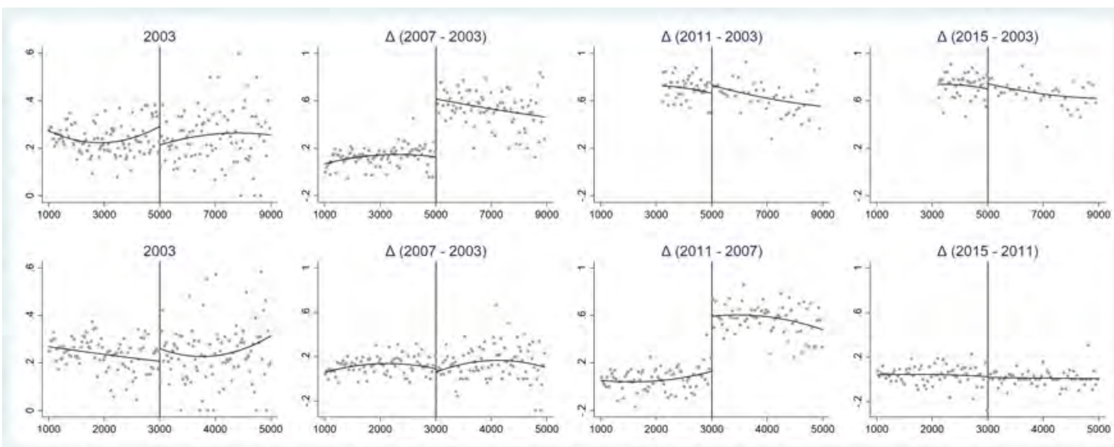
Note: The running variable is the population of the municipality in January of the previous year. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for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

Figure C.3: Female politicians

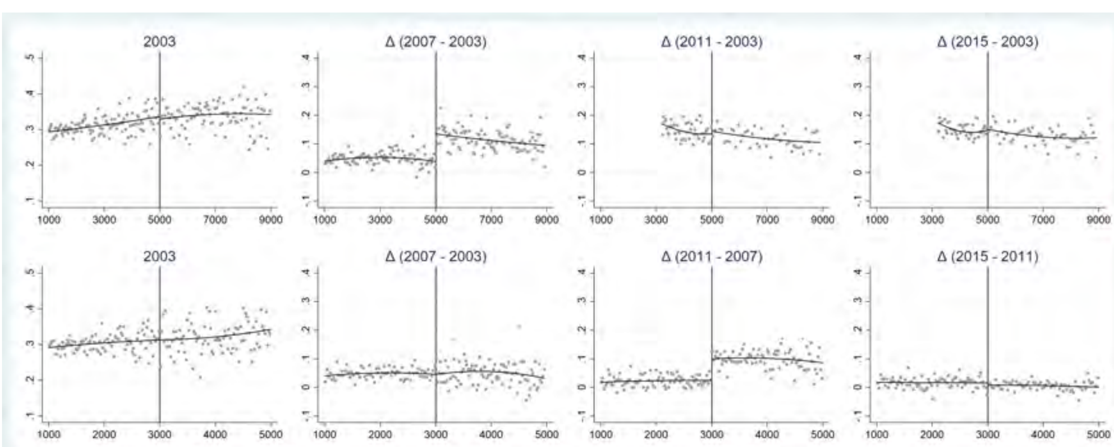
(a) Number of lists



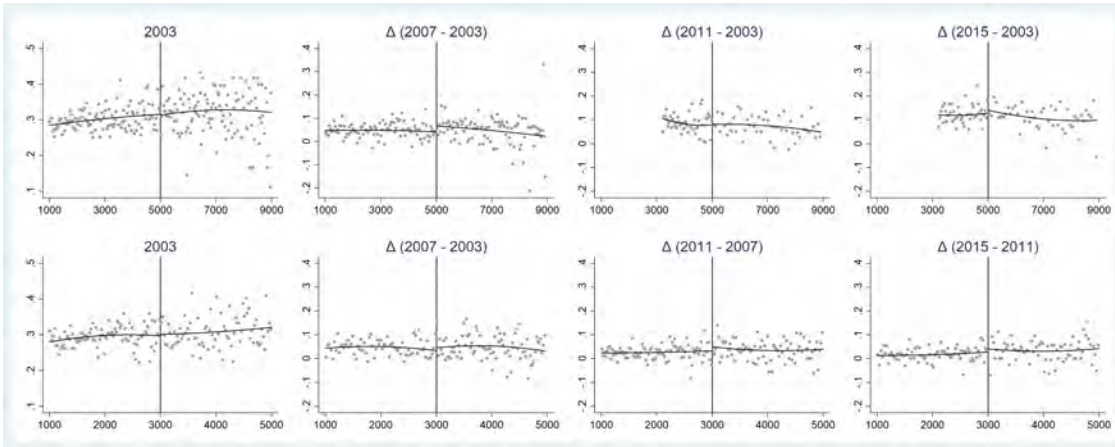
(b) Lists with at least 40% of candidates of either gender



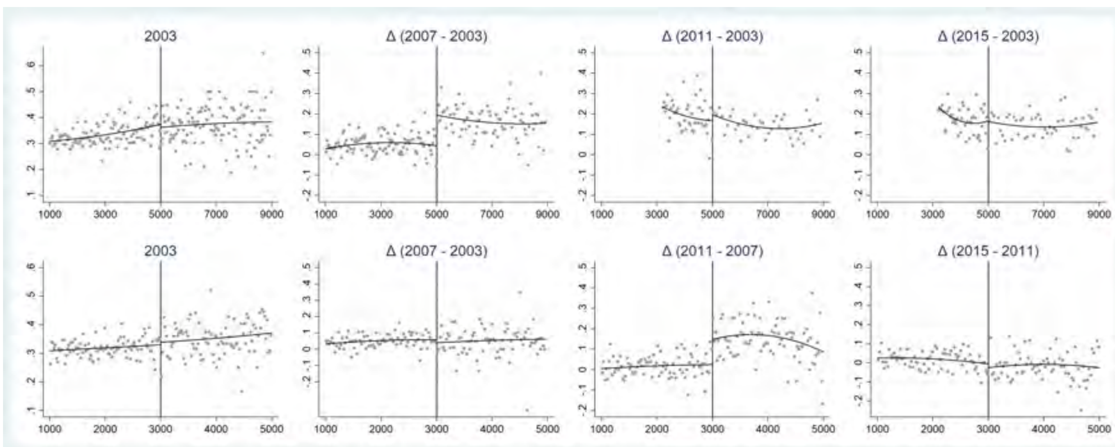
(c) Share of female candidates



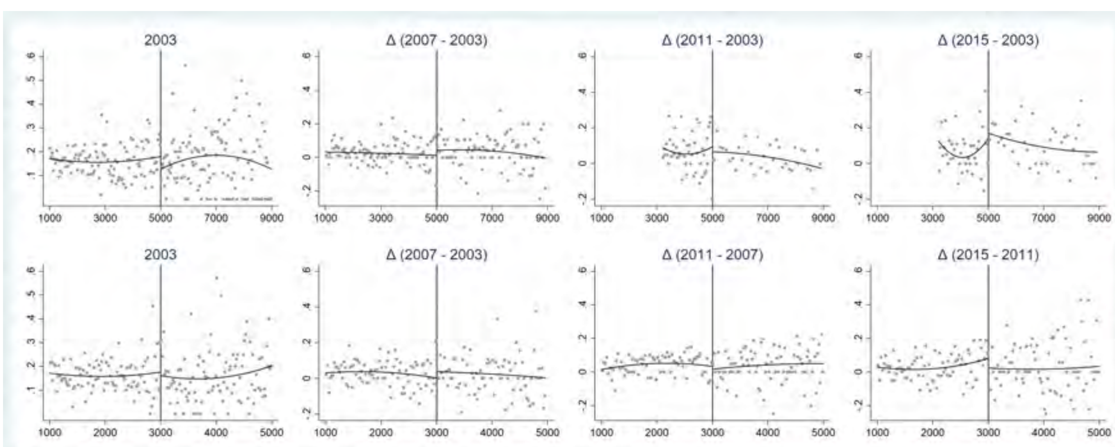
(d) Share of women in upper positions



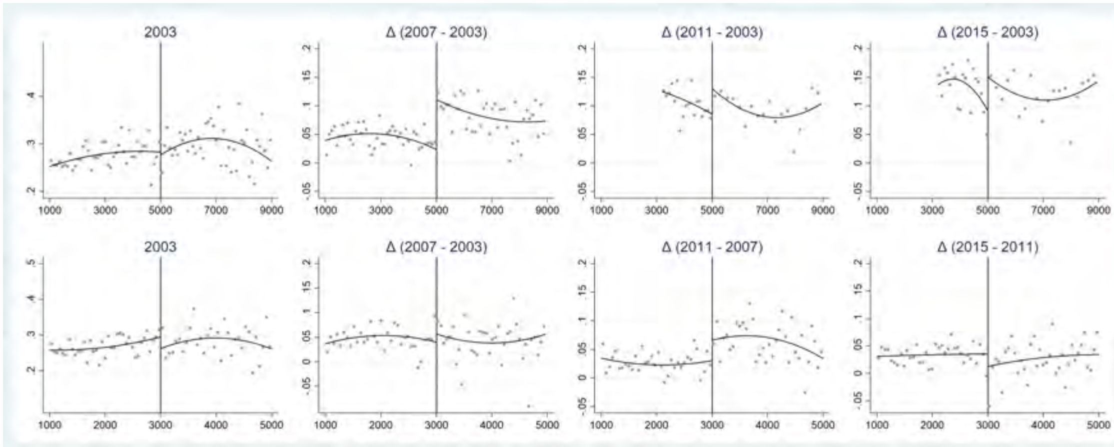
(e) Share of women in bottom positions



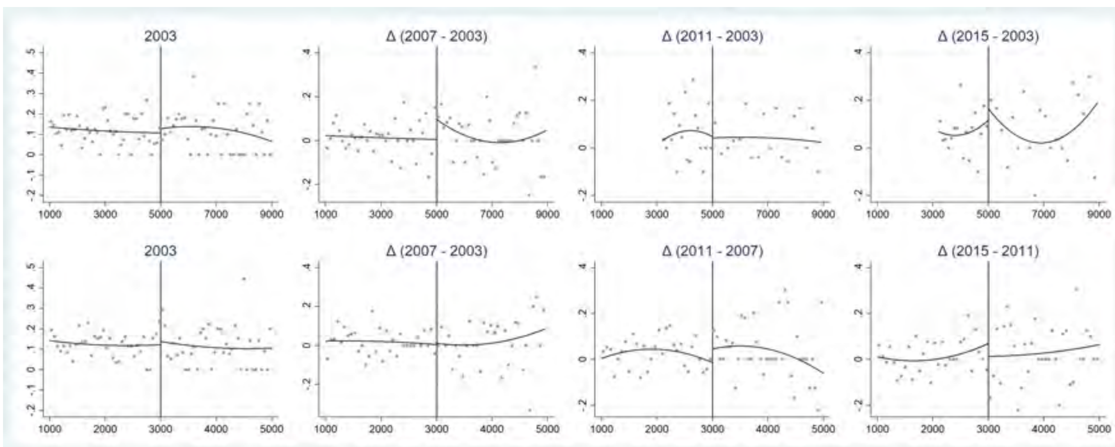
(f) Female party leaders



(g) Female councilors



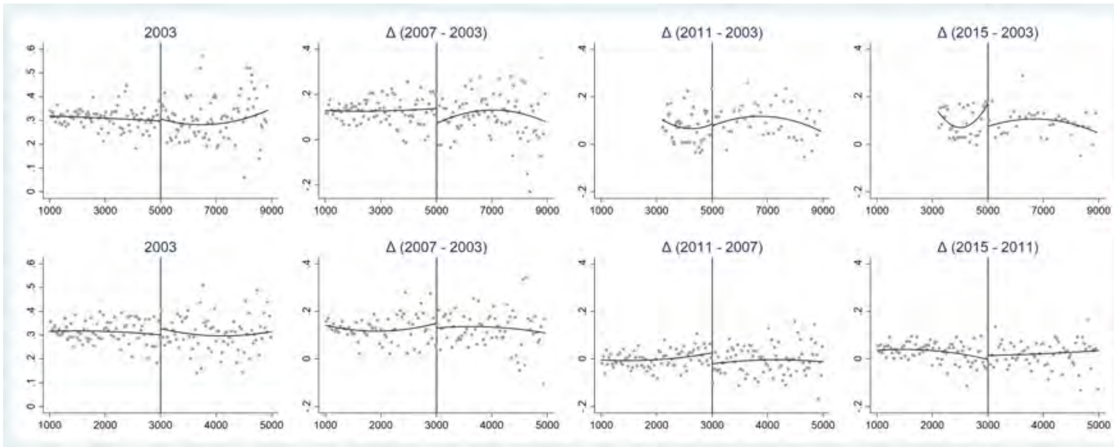
(h) Female mayors



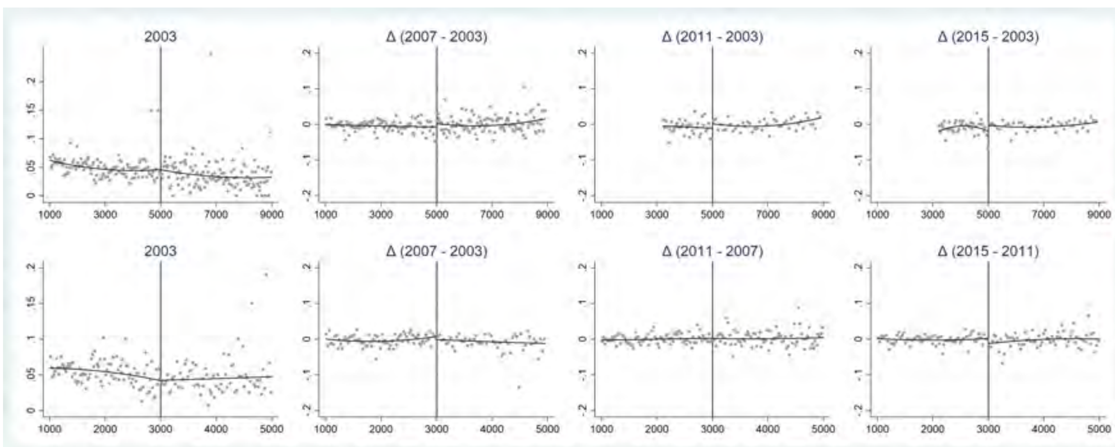
Note: These graphs provide information on the share of female politicians, by municipality population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended in 2011 to municipalities with more than 3,000 inhabitants, as measured in January 2010. In the upper row, the X-axis represents the municipality population on January 2006 (January 2002 for 2003). In the lower row, population is measured on January 2010 (January 2002 for 2003).

Figure C.4: Characteristics of politicians

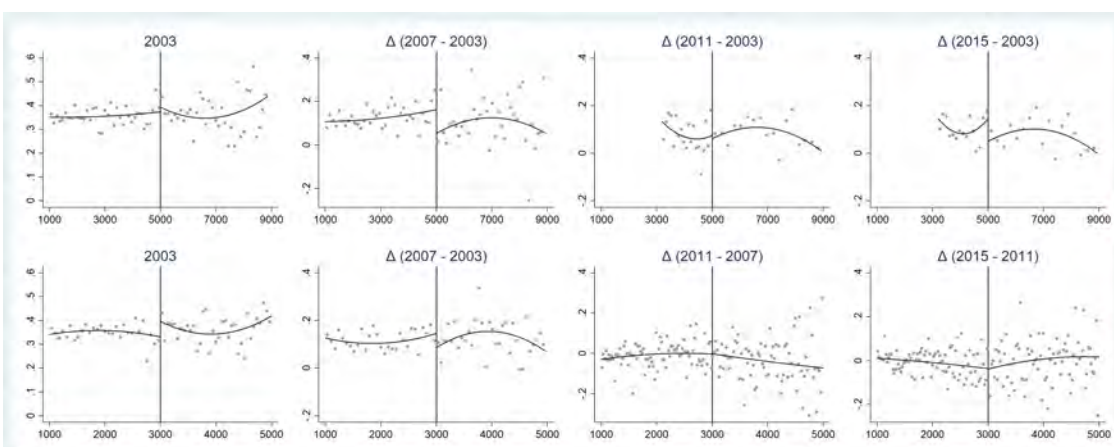
(a) Candidates' experience



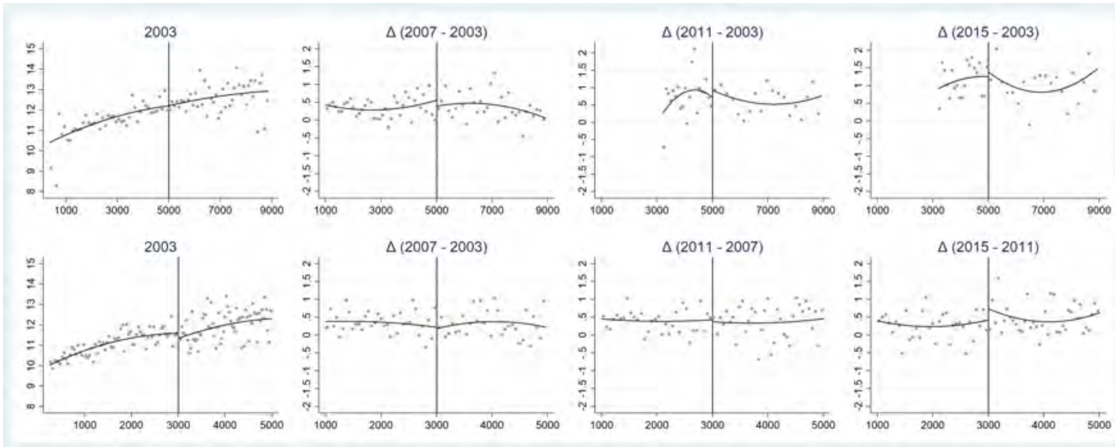
(b) Same surname as party leader



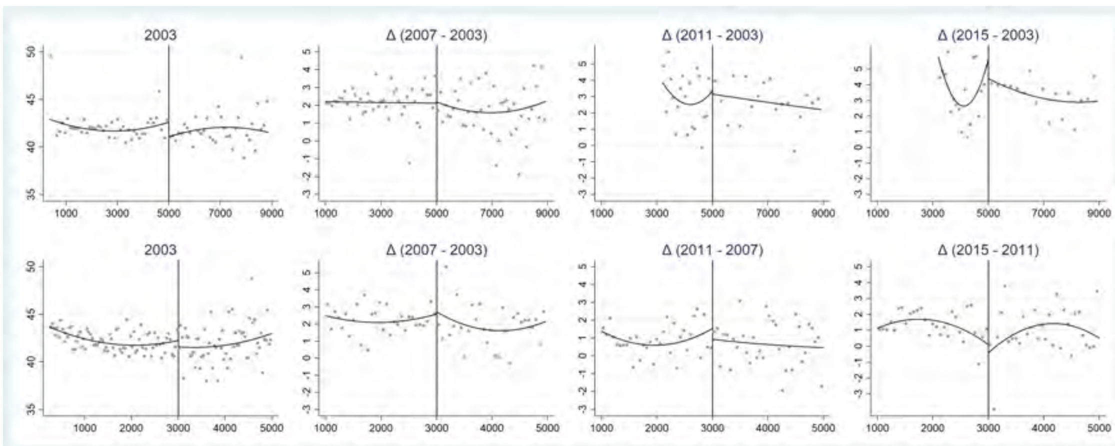
(c) Councilors' experience



(d) Councilors' education



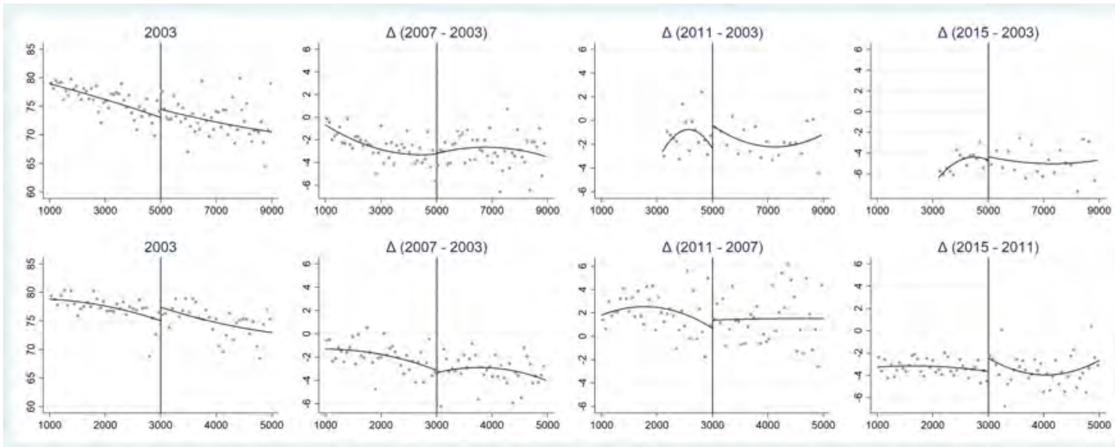
(e) Councilors' age



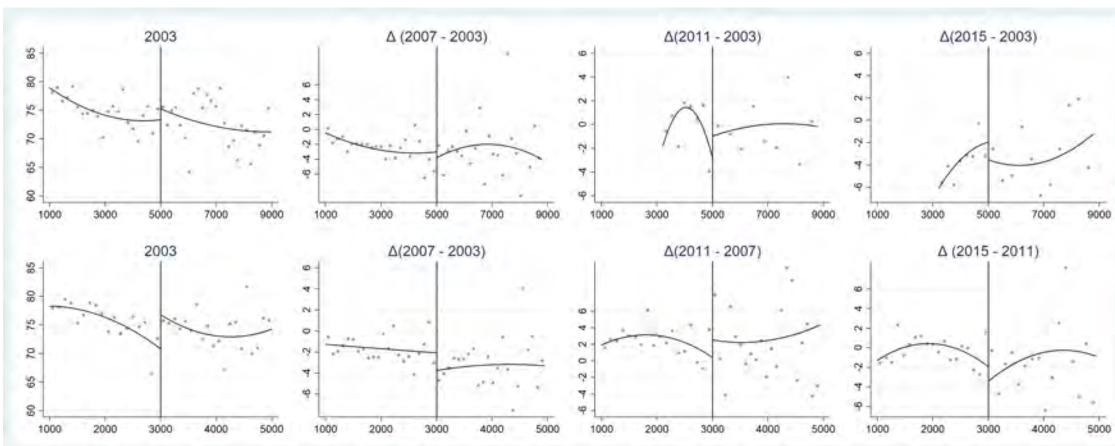
Note: These graphs provide information on the characteristics of politicians municipality population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended in 2011 to municipalities with more than 3,000 inhabitants, as measured in January 2010. In the upper row, the X-axis represents the municipality population on January 2006. In the lower row, population is measured on January 2010.

Figure C.5: Turnout

(a) All municipalities



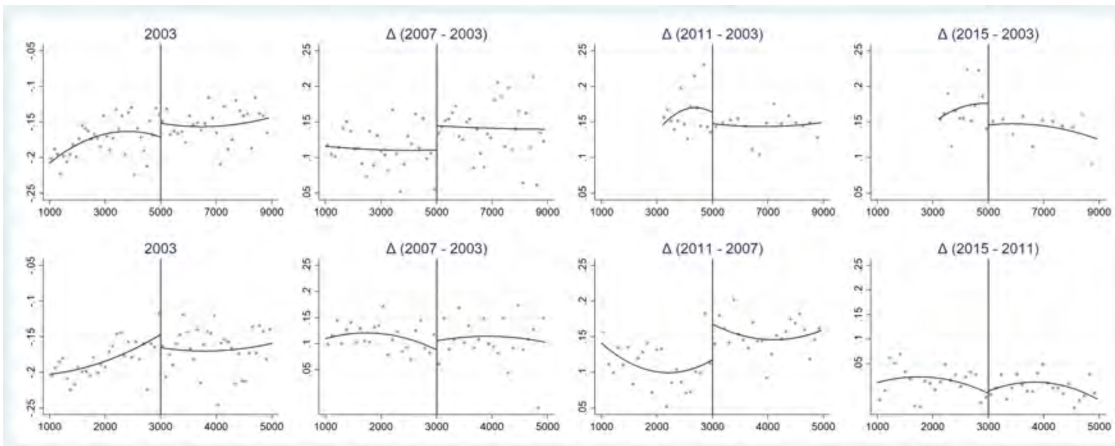
(b) Less feminized municipalities



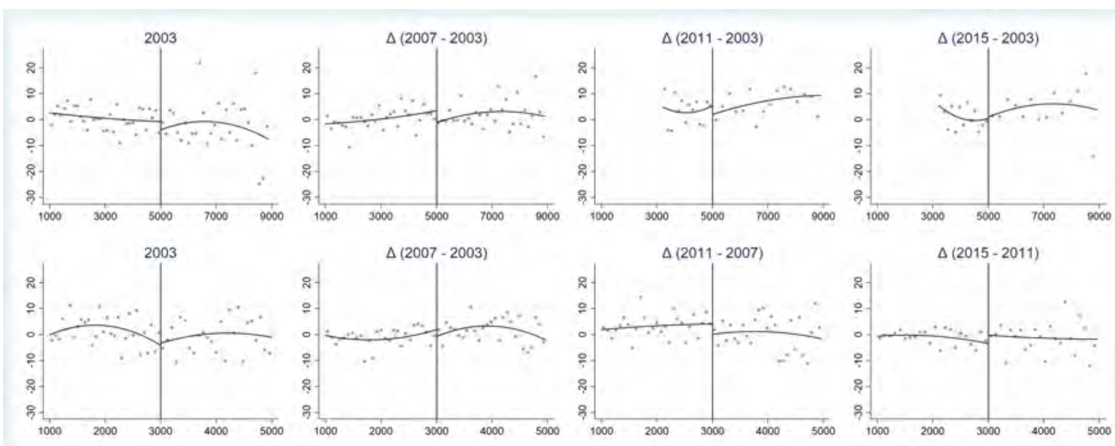
Note: These graphs provide information on turnout by population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended in 2011 to municipalities with more than 3,000 inhabitants, as measured in January 2010. In the upper row, the X-axis represents the municipality population on January 2006. In the lower row, population is measured on January 2010.

Figure C.6: Male holdouts *vs* Gender-balanced lists

(a) Share of female candidates



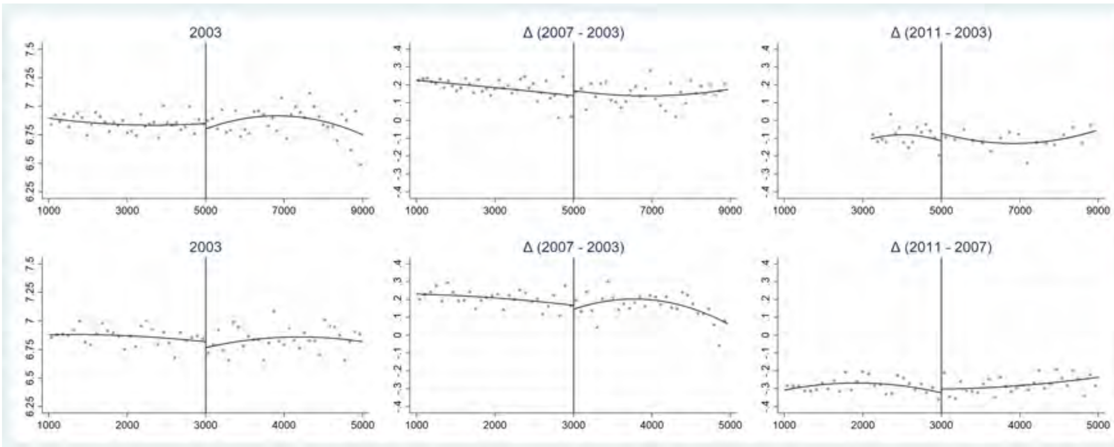
(b) Votes



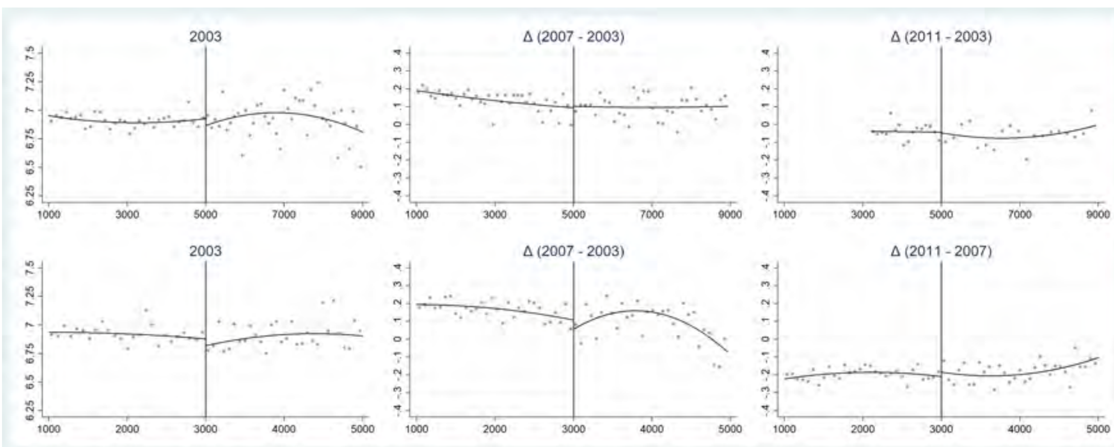
Note: These graphs provide information share of female candidates and votes in male holdout and gender-balanced lists by population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended in 2011 to municipalities with more than 3,000 inhabitants, as measured in January 2010. When we examine outcomes around the 3,000 threshold, the X-axis represents the municipality population on January 2010. When the 5,000 threshold is studied, population is measured on January 2006.

Figure C.7: Local budget and Economic indicators

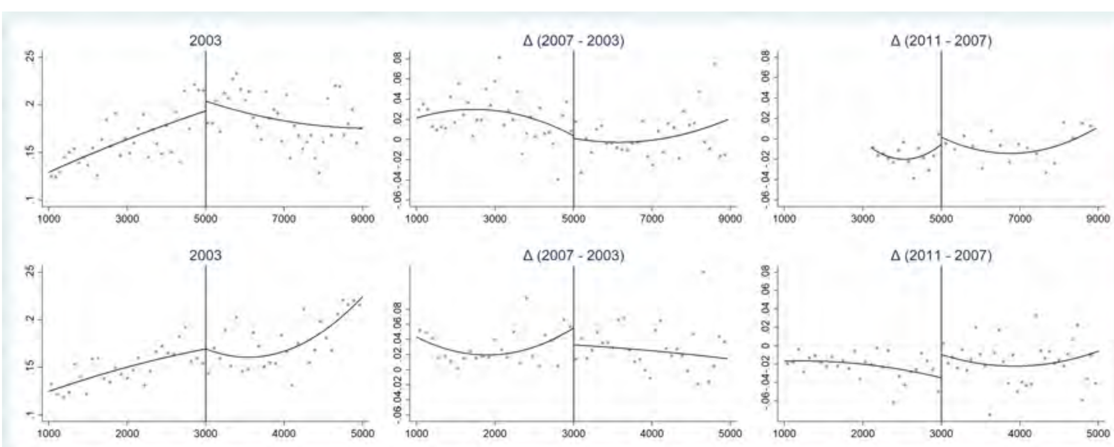
(a) Log expenditures per capita



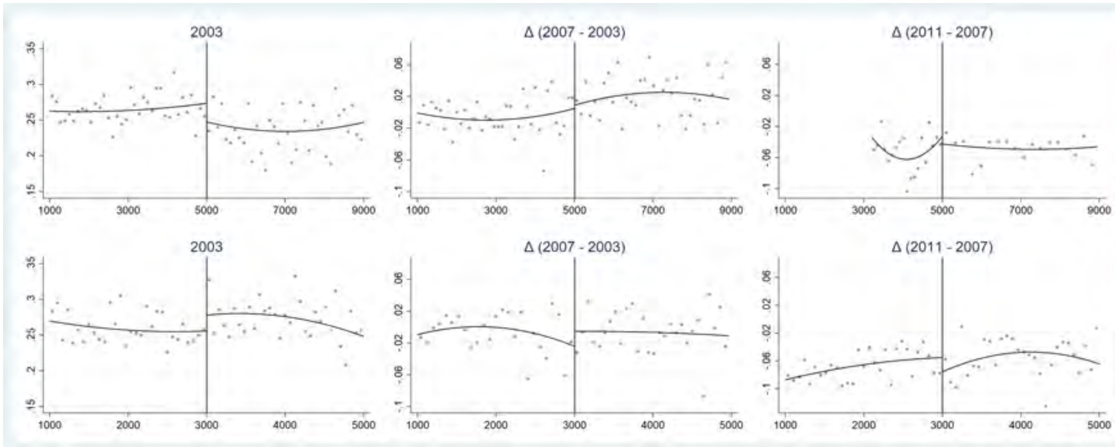
(b) Log revenues



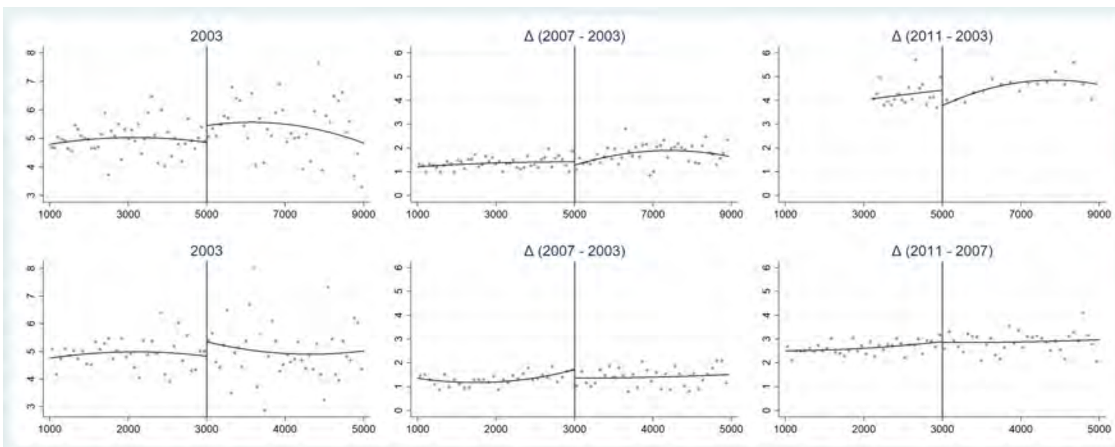
(c) Share of female expenditures



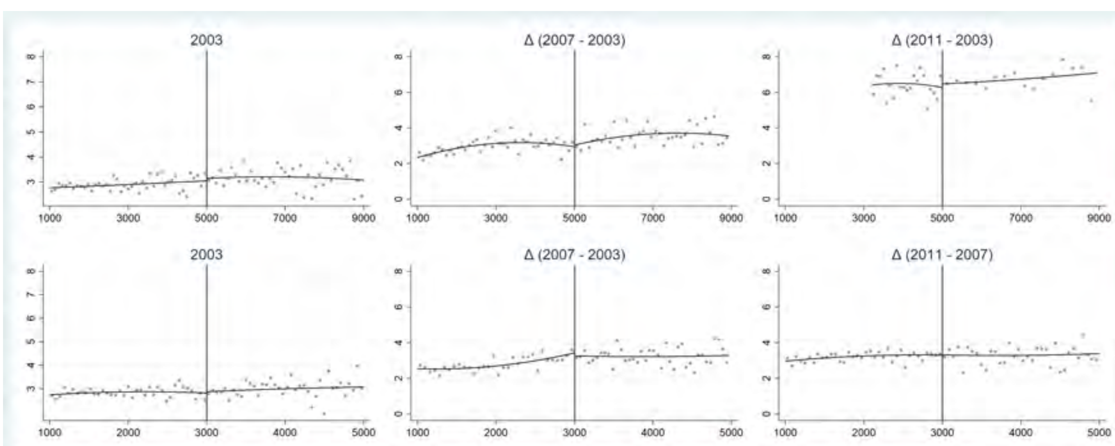
(d) Share of male expenditures



(e) Female unemployment rate



(f) Male unemployment rate



Note: These graphs provide information on the municipal budget and economic indicators by population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended in 2011 to municipalities with more than 3,000 inhabitants, as measured in January 2010. In the upper row, the X-axis represents the municipality population on January 2006. In the lower row, population is measured on January 2010.

D Details RD Analysis - Outcome Variables in Differences

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)). Initial sample is made of municipalities with more than 250 and less than 10,000 inhabitants in the relevant year. In Panels A and B, municipalities above and below the respective threshold are compared, and the sample is restricted below 5,000 inhabitants in Panel A. In Panel C, the comparison is between municipalities that will have the quota for the first time in 2011 and those that will not have it. In Panel D, the comparison is between municipalities that have the quota in 2007 for the first time and those that do not. 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 - Medium 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: 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)). Initial sample is made of municipalities with more than 250 and less than 10,000 inhabitants in the relevant year. In Panel A the comparison is between municipalities that have the quota for the second time in 2015 and municipalities that never had the quota. 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. Significance levels: 1% ***, 5% ** and 10% *

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

Dep. var.:	(1) Candidates ΔExperience	(2) ΔSurname as leader	(3) Councilors ΔExperience	(4) ΔEducation	(5) 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

Note: In column (1) the unit of observation is party list, while in columns (2) to (4) the unit of observation is municipality. Experience of candidates (councilors) is a dummy for being in a candidate list (municipal council) in previous elections. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). 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 - Medium term

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

Note: In column (1) the unit of observation is party list, while in columns (2) to (4) the unit of observation is municipality. Experience of candidates (councilors) is a dummy for being in a candidate list (municipal council) in previous elections. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). 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

	(1)	(2)	(3)	(4)
Dep. var.:	**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)). Samples as described in Table D.1. In column (2), sample is further restricted to municipalities with share of female candidates below median in last election. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

Table D.6: Voting - Discontinuity in differences - Medium term

	(1)	(2)	(3)	(4)
Dep. var.:	**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)). Samples as described in Table D.2. In column (2), sample is further restricted to municipalities with share of female candidates below median in last election. Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Expenditure		**Expenditure**		**Unemployment**	
	Expenditure	**Revenues**	**(1989 classif.)**		**(2010 classif.)**		**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 E. 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: 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. In columns (7) and (8) period is 2014-2012 vs. 2006. 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)). Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

Table D.8: 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: 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. We use the 1989 classification for the 5,000 threshold, and the 2010 classification for the 3,000 threshold. In columns (5) and (6) period is 2010-2008 vs. 2006 for the 5,000 threshold 2014-2012 vs. 2010-2008 for the 3,000 threshold. 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)). Heteroskedasticity-robust standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

E Details RD Analysis - Outcome Variables in Levels

Table E.1: 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)). Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table E.2: 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. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Standard errors in parenthesis. Significance levels: 1% ***, 5% ** and 10% *

Table E.3: 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. Experience of candidates (councilors) is a dummy for being in a candidate list (municipal council) in previous elections. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table E.4: Characteristics of Politicians - Regression Discontinuity - Years 2011 and 2015

	(1)	(2)	(3)	(4)	(5)
	Candidates		Councilors		
Dep. var.:	**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. Experience of candidates (councilors) is a dummy for being in a candidate list (municipal council) in previous elections. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector (see Calonico et al. (2014)). Standard errors in parenthesis, clustered by municipality for list-level regressions, heteroskedasticity-robust otherwise. Significance levels: 1% ***, 5% ** and 10% *

Table E.5: Voting - Regression Discontinuity - Years 2003 and 2007

	(1)	(2)	(3)	(4)
Dep. var.:	**Turnout**		**Share of female candidates**	**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. In column (2), from each of these samples we retain only municipalities where the pre-quota share of female candidates was below the median. 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. Bandwidth chosen with MSE-optimal bandwidth selector (see Calonico et al. (2014)). Standard errors in parenthesis. Robust p-value is for heteroskedasticity-consistent standard errors. Significance levels: 1% ***, 5% ** and 10% *

Table E.6: Voting - Regression Discontinuity - Years 2011 and 2015

	(1)	(2)		(3)	(4)
Dep. var.:	**Turnout**			**Share of female candidates**	**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. In column (2), from each of these samples we retain only municipalities where the pre-quota share of female candidates was below the median. 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. Robust p-value is for heteroskedasticity-consistent standard errors. Significance levels: 1% ***, 5% ** and 10% *

Table E.7: 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: All budget variables are measured in real terms. Total expenditures and revenues are in logs and per capita. Unemployment rate is measured in 2006. In columns (3)-(4) expenditure is assigned into *Female* and *Male* categories following the classification described in Tables A3 and A4. Each cell reports a bias-corrected robust coefficient. Bandwidth chosen according to the MSE-optimal bandwidth selector. Observations weighted by distance from threshold using a triangular kernel (see Calonico et al. (2014)). Heteroskedasticity-robust standard errors in parenthesis. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table E.8: Budget and Economics indicators - Regression Discontinuity - Years 2008-2010 & 2012-2014

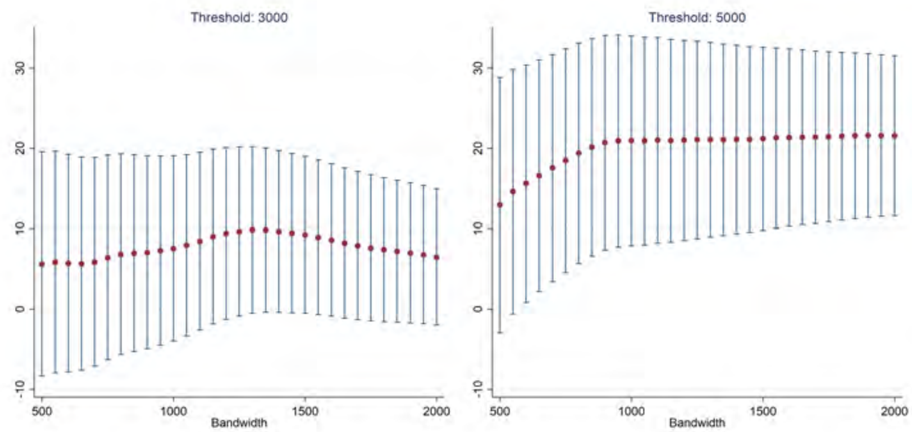
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Expenditure (1989 classif.)		**Expenditure (2010 classif.)**		**Unemployment rate**		**Net per capita Income**
	Expenditure	**Revenues**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	
				Panel A. Threshold: 3000, period: 2008 - 2010					
Quota	-0.03	-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: All budget variables are measured in logs and in per capita terms. In columns (3)-(6) expenditure is assigned into *Female* and *Male* categories following the classification described in Tables A3 and A4. Standard errors in parentheses. Initial sample over which the RD bandwidth is selected is made of municipalities between 250 and 10,000 inhabitants in Panel A1, municipalities between 250 and 5,000 inhabitants in Panel A2, and municipalities between 3,000 and 10,000 inhabitants in Panel B. Unit of observation is municipality. The dependent variable is the average outcome over the years indicated in the top of each panel, except in: a) Panel A1, columns (4) and (5), where the average is measured over 2008 and 2009; and b) Panel A1, columns (6) and (7), where the dep. Variable is measured in 2010. This is because of the change in the classification of expenditures in 2010. Bandwidth chosen with MSE-optimal bandwidth selector (see Calonico et al. (2014)). Standard errors in parenthesis. Robust p-value is for heteroskedasticity-consistent standard errors. Significance levels: 1% ***, 5% ** and 10% *

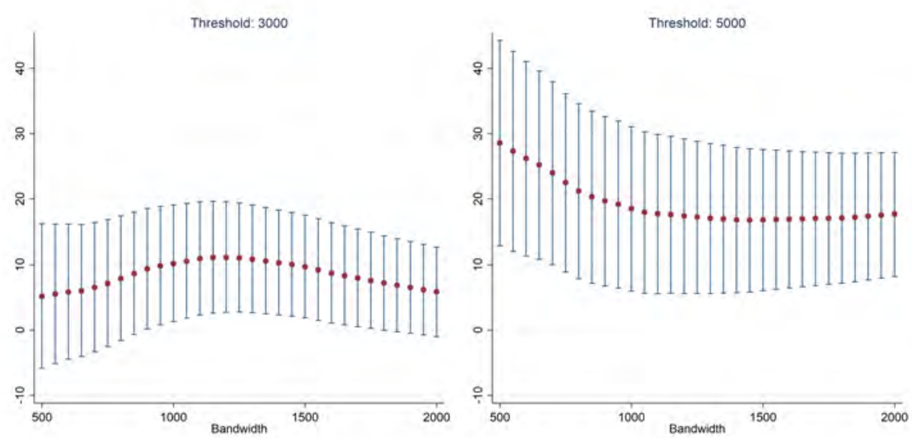
F Multiple Bandwidths

Figure F.1: Federal transfers - multiple bandwidths

(a) Years 2003-2006



(b) Years 2007-2012



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

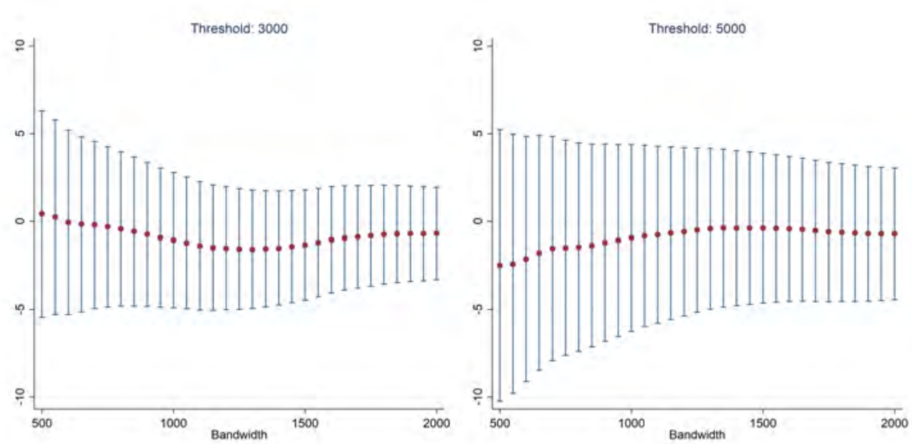
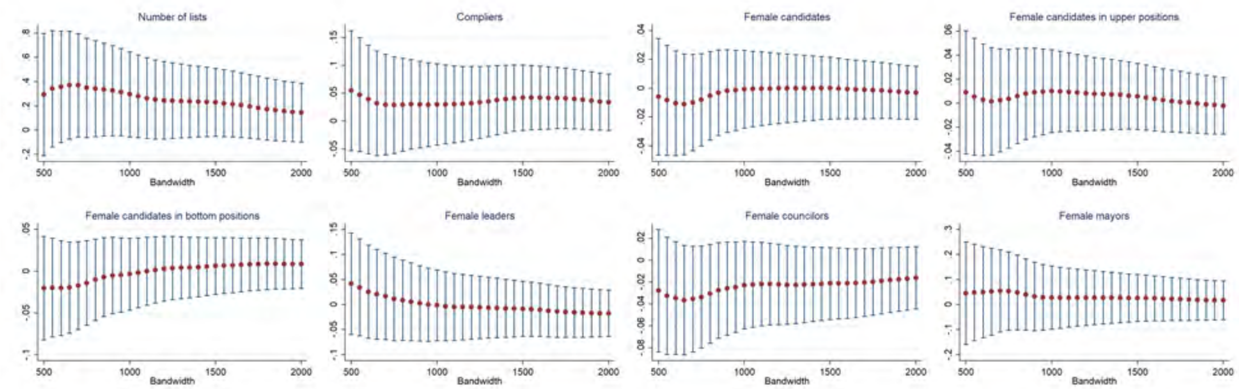
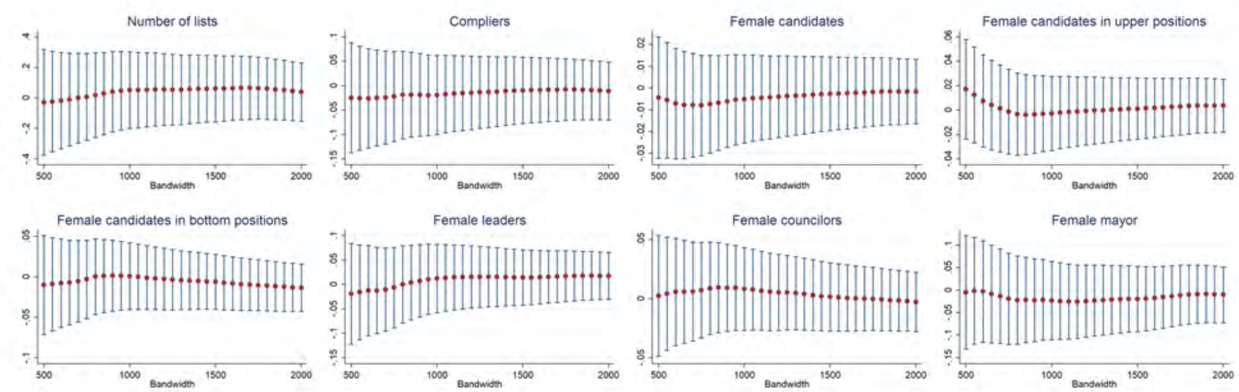


Figure F.2: Female politicians - Discontinuity in differences, multiple bandwidths

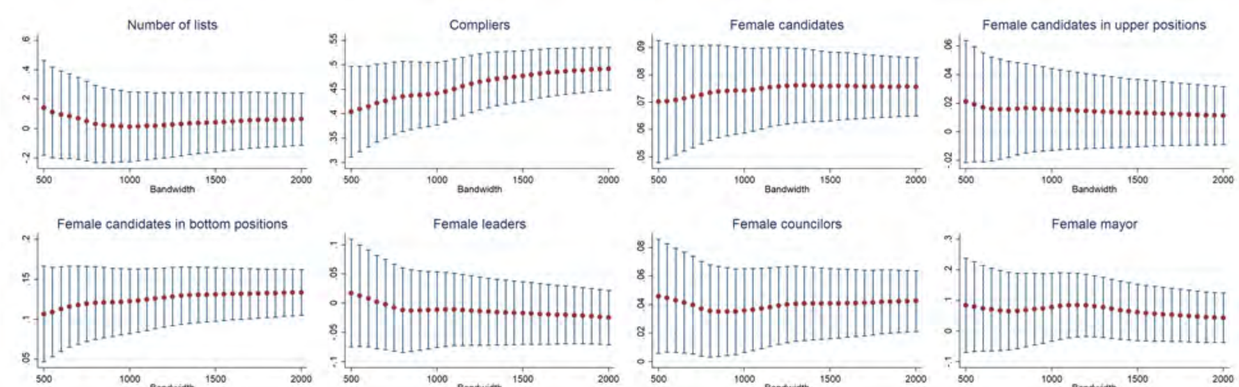
(a) Threshold: 3000, year: 2003



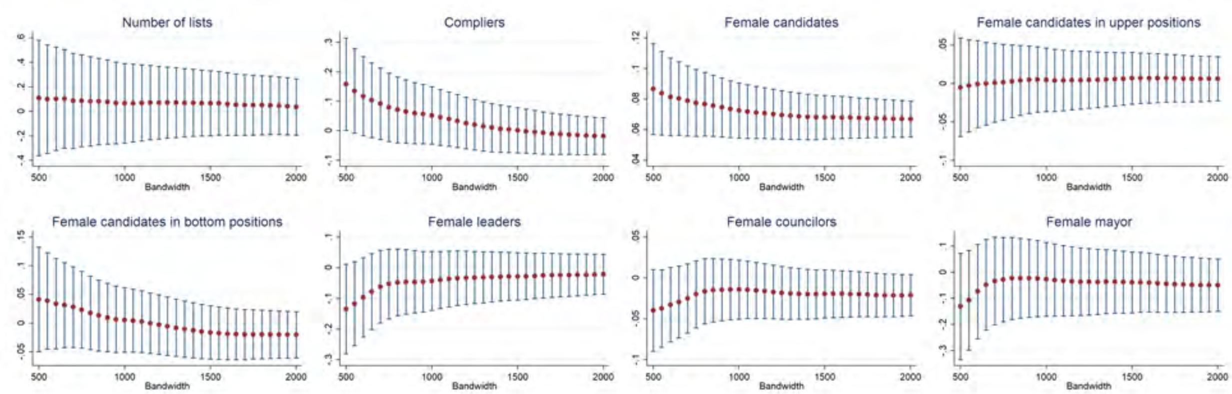
(b) Threshold: 3000, period: Δ(2007-2003)



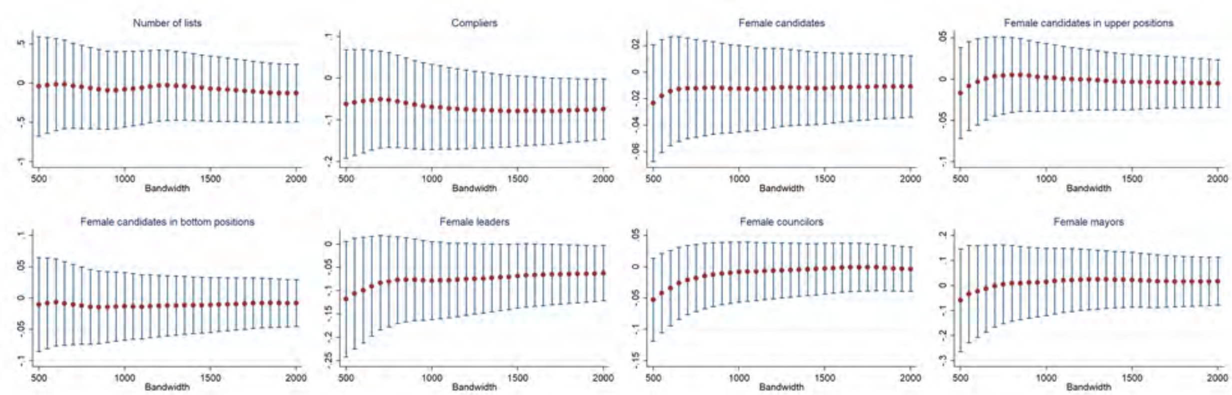
(c) Threshold: 3000, period: Δ(2011-2007)



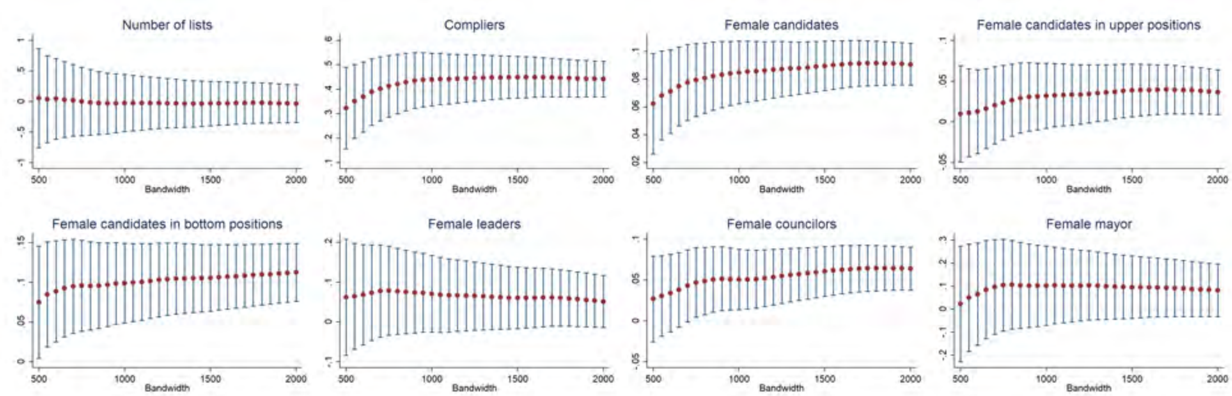
(d) Threshold: 3000, period: Δ(2015-2011)



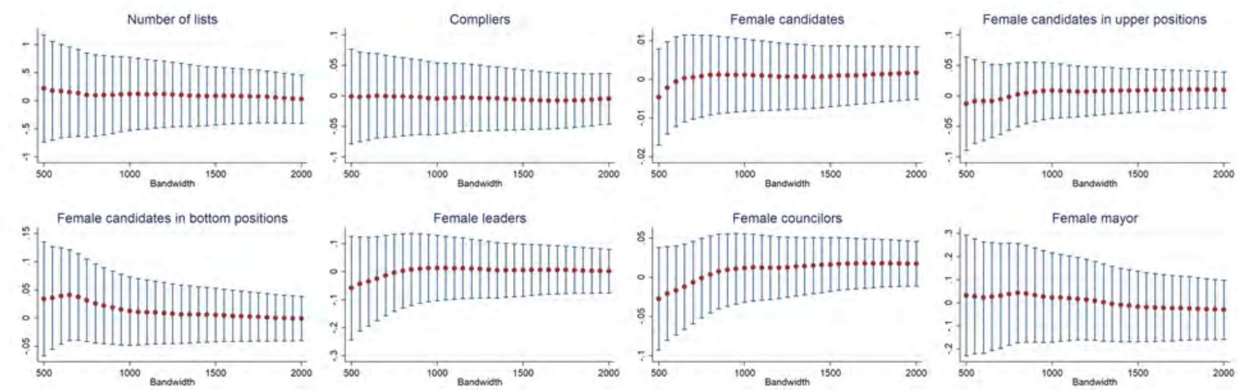
(e) Threshold: 5000, year: 2003



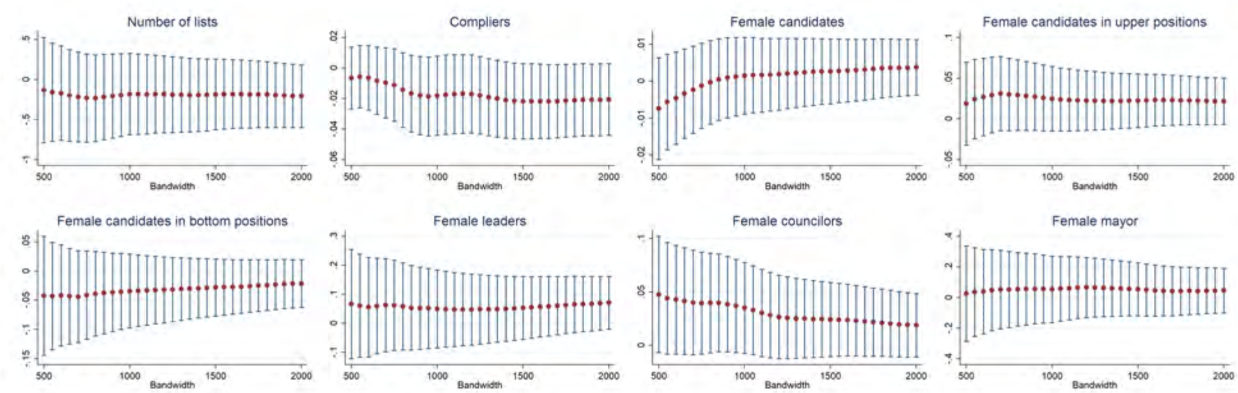
(f) Threshold: 5000, period: Δ(2007-2003)



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



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



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

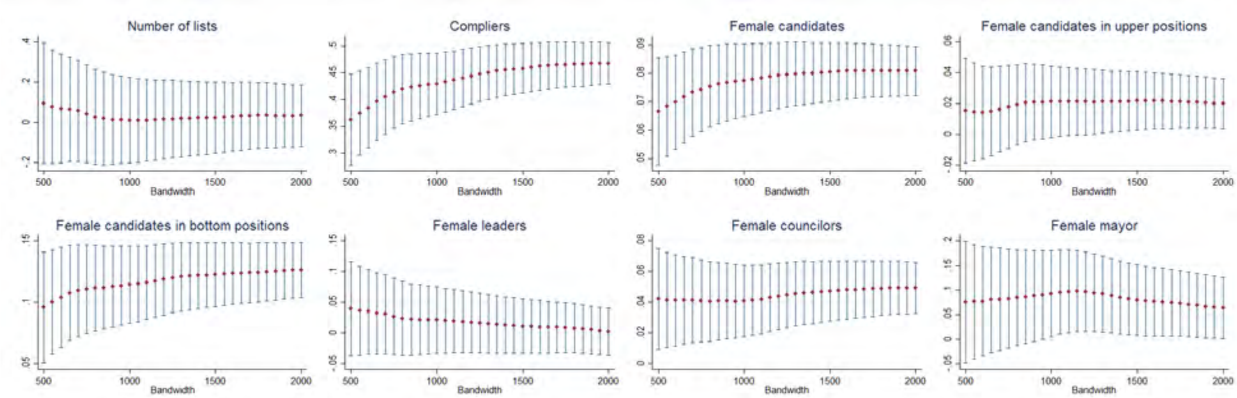
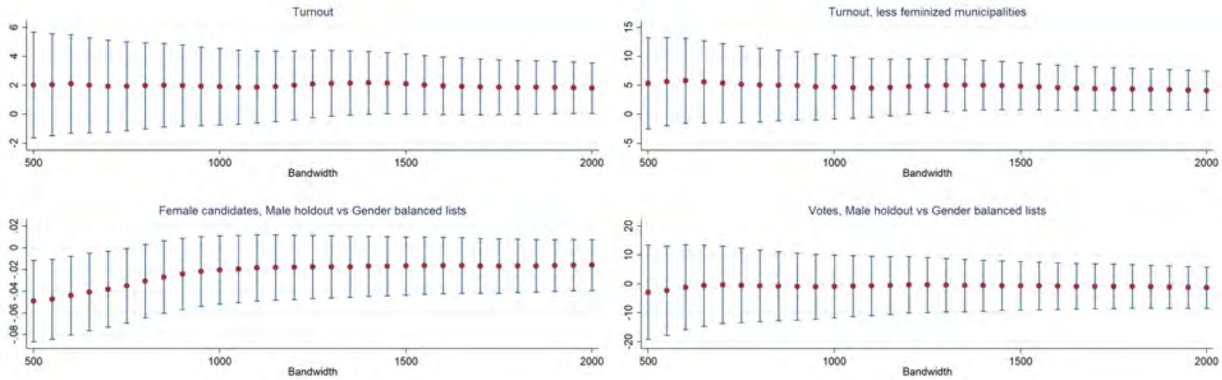
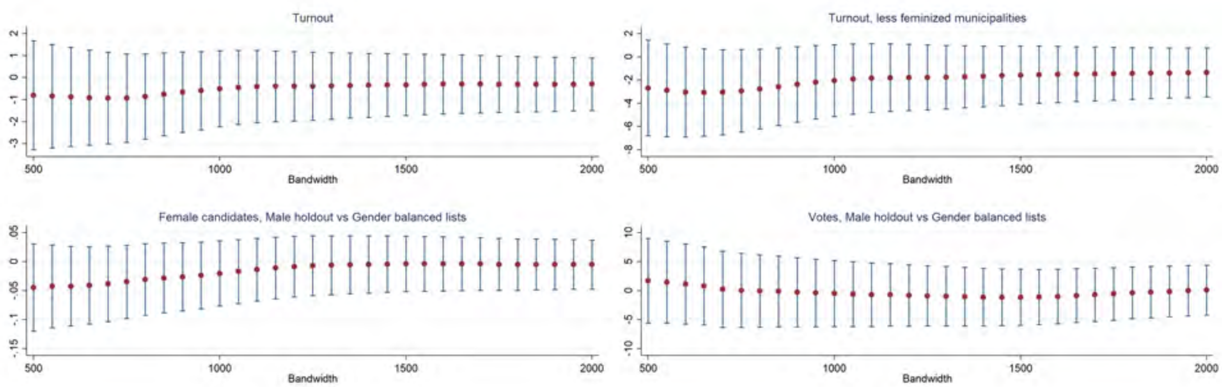


Figure F.3: Voting behavior - Discontinuity in differences, multiple bandwidths

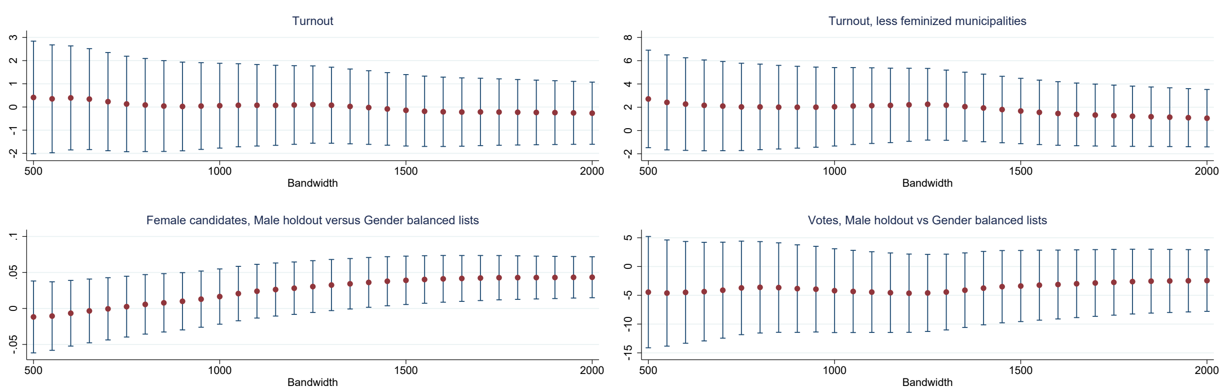
(a) Threshold: 3000, year: 2003



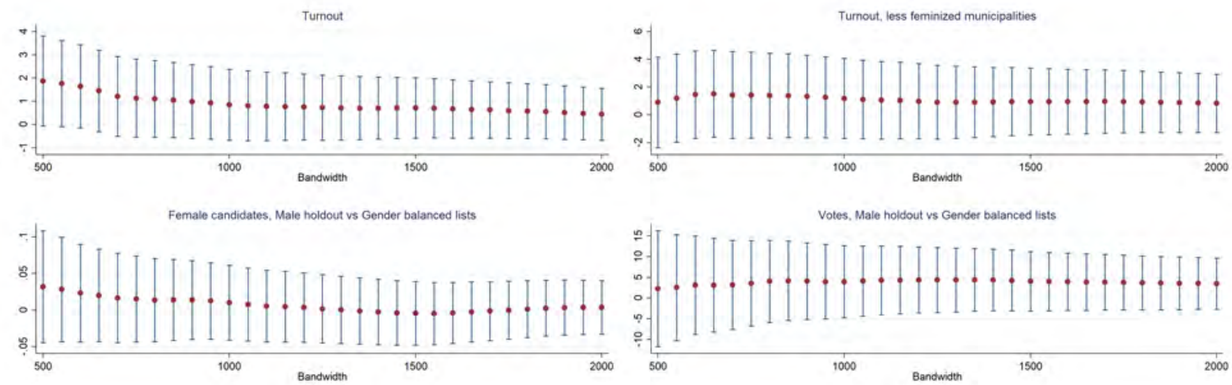
(b) Threshold: 3000, period: ∆(2007-2003)



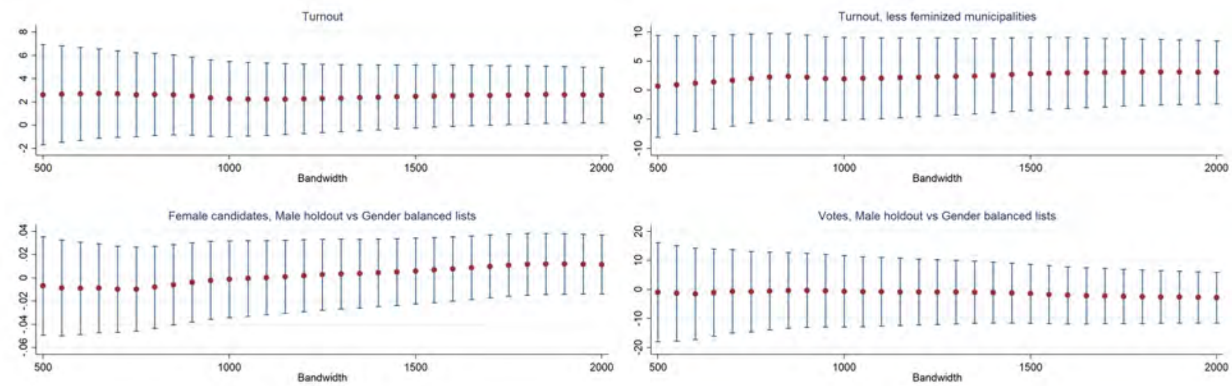
(c) Threshold: 3000, period: ∆(2011-2007)



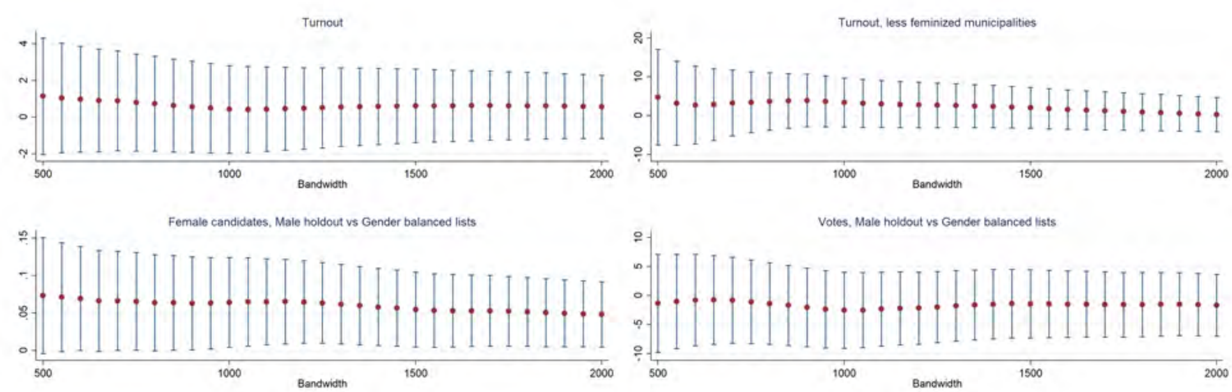
(d) Threshold: 3000, period: Δ(2015-2011)



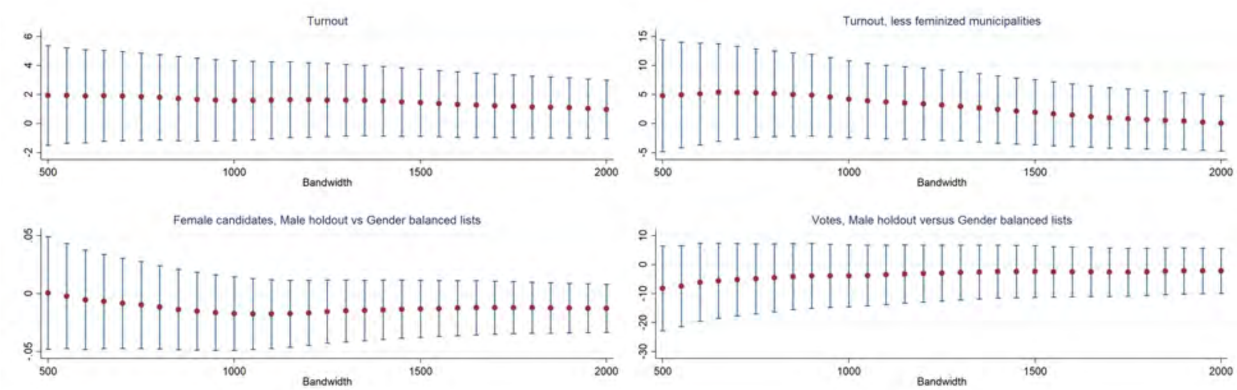
(e) Threshold: 5000, year: 2003



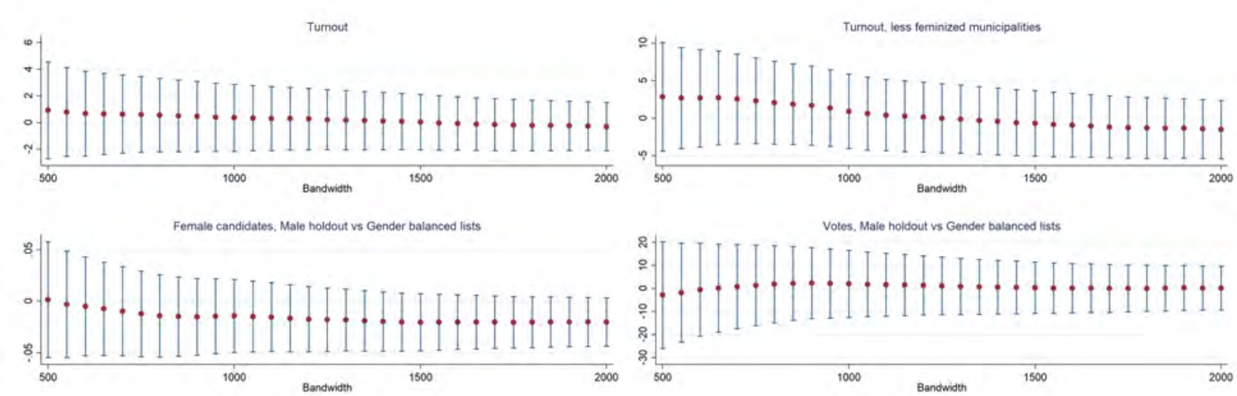
(f) Threshold: 5000, period: Δ(2007-2003)



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



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



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

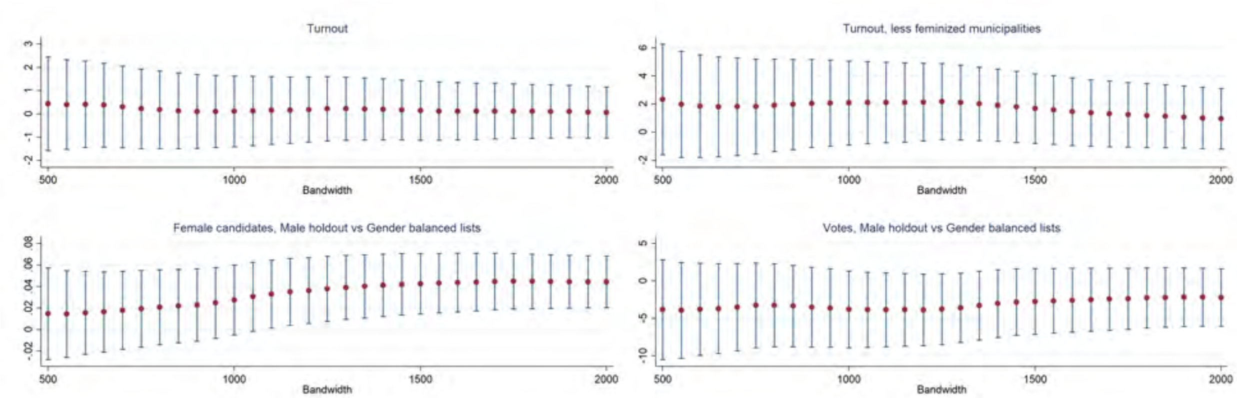
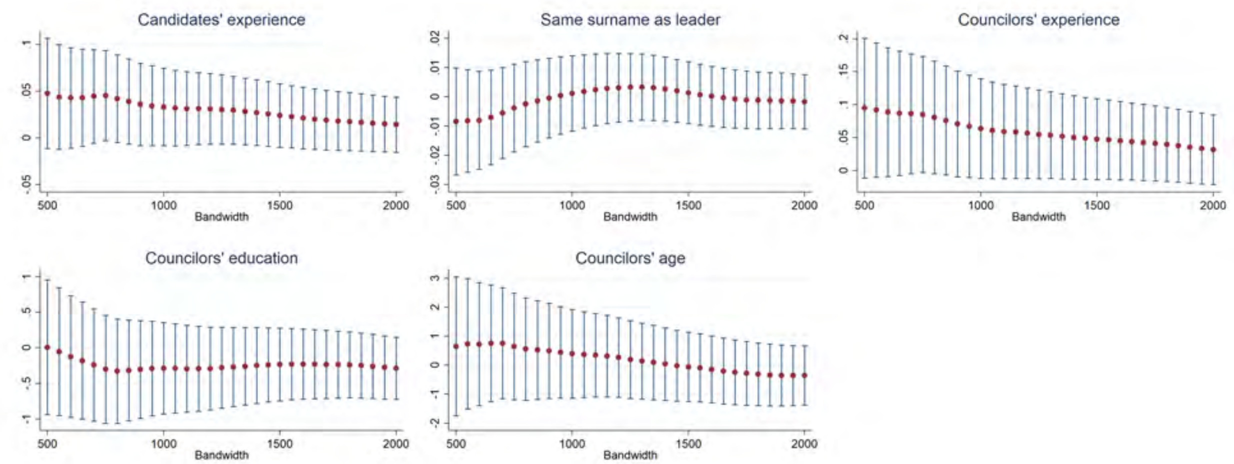
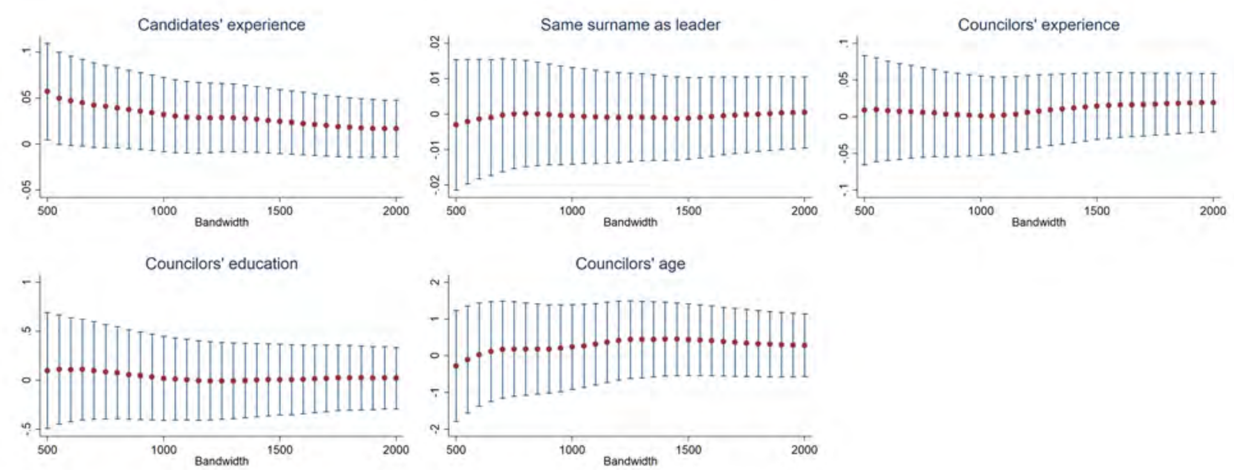


Figure F.4: Characteristics of politicians - RD estimates, multiple bandwidths

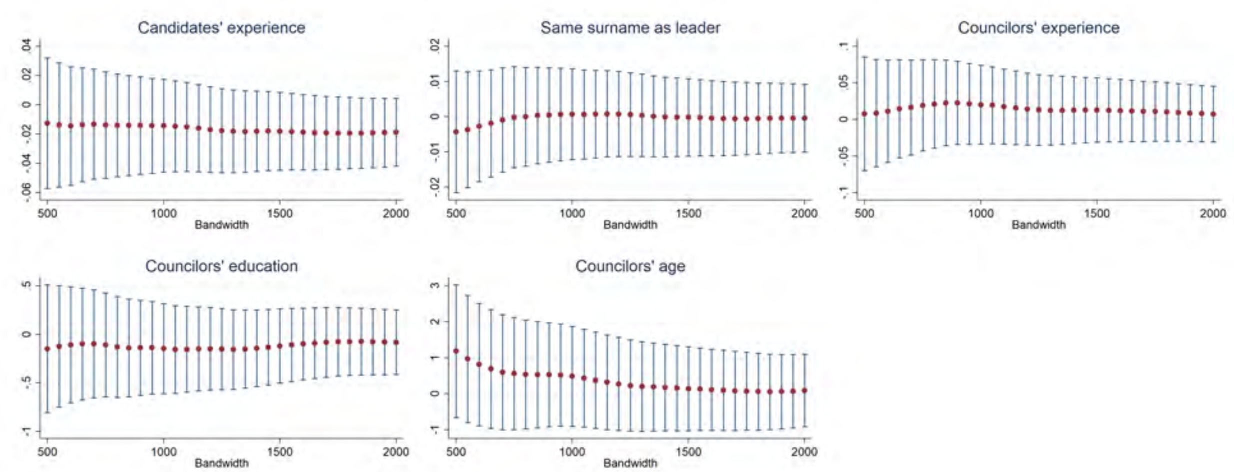
(a) Threshold: 3000, year: 2003



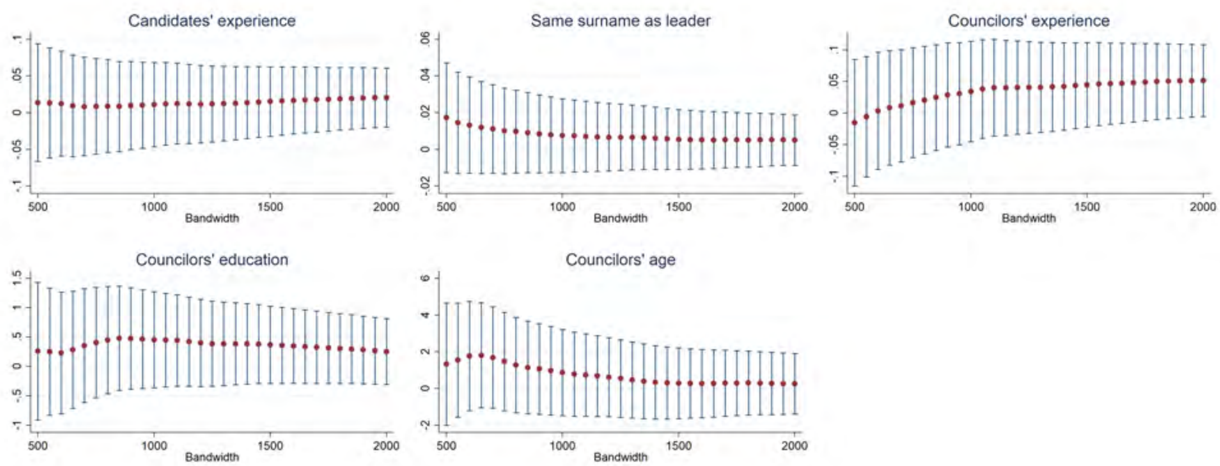
(b) Threshold: 3000, period: Δ(2007-2003)



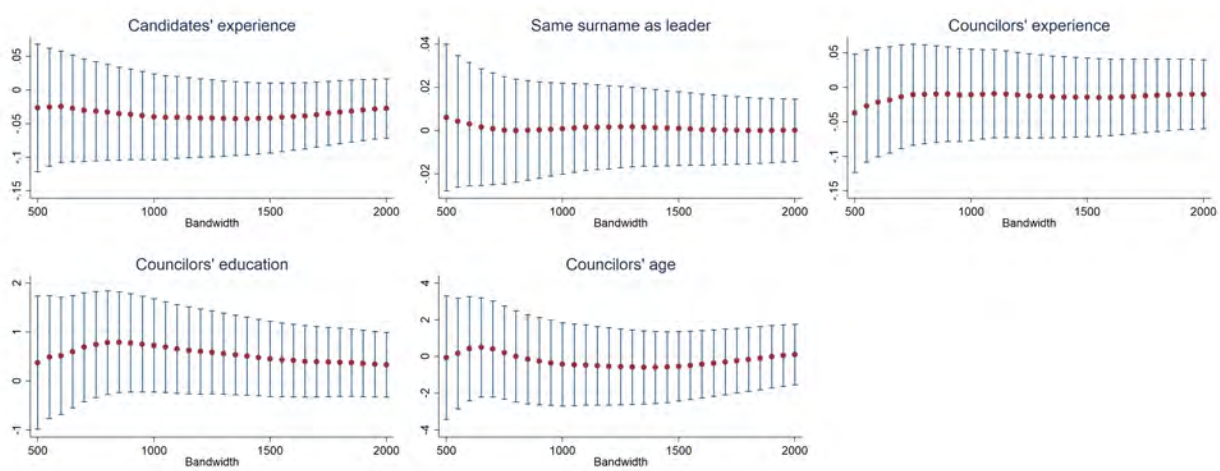
(c) Threshold: 3000, period: Δ(2011-2007)



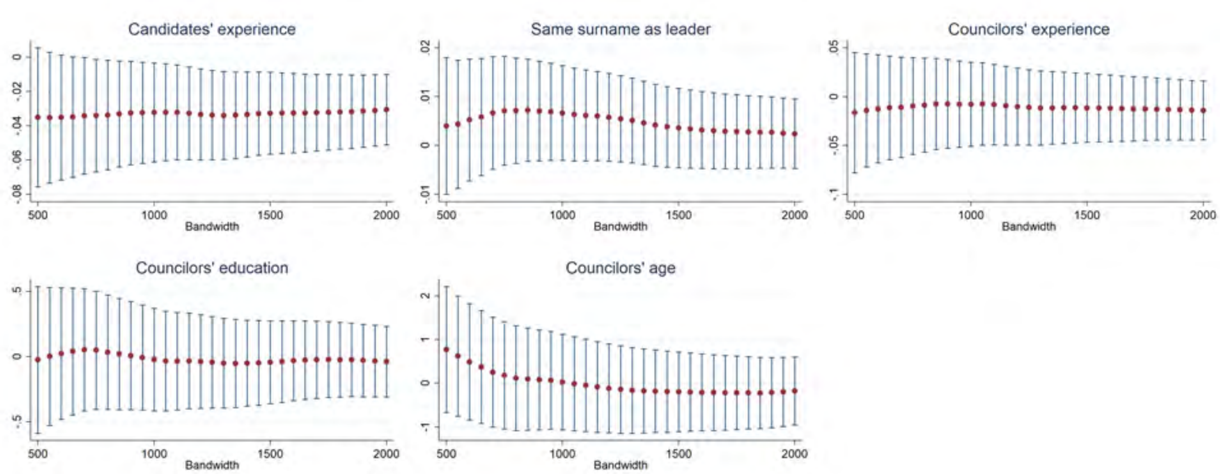
(g) Threshold: 5000, period: Δ(2011-2003)



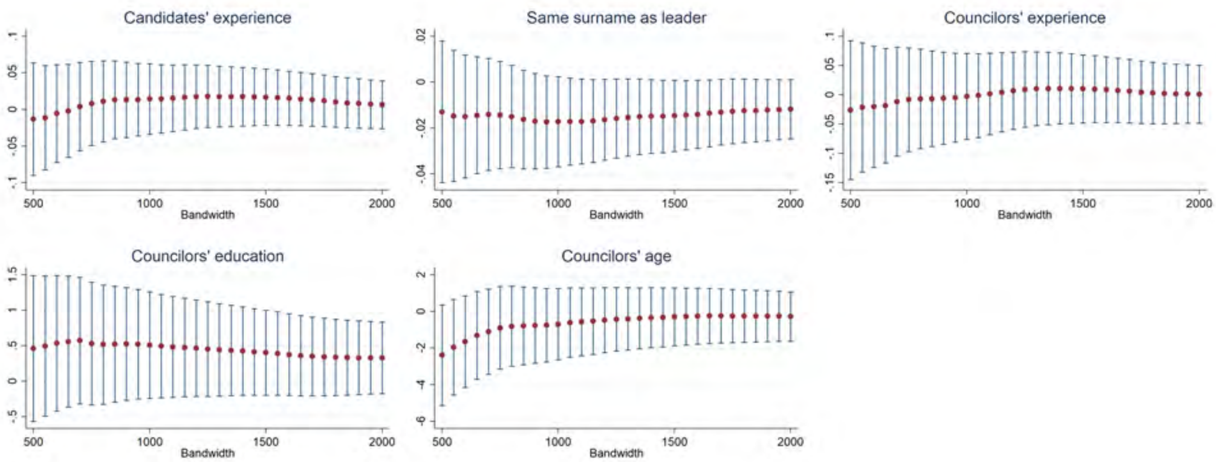
(h) Threshold: 5000, period: Δ(2015-2003)



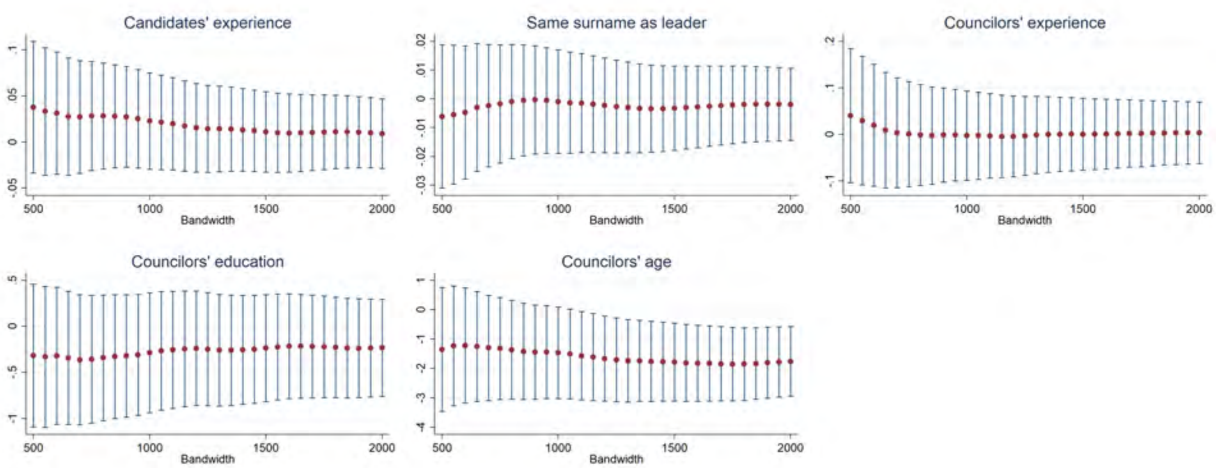
(i) Threshold: pooled, short-term discontinuity in differences



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



(e) Threshold: 5000, year: 2003



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

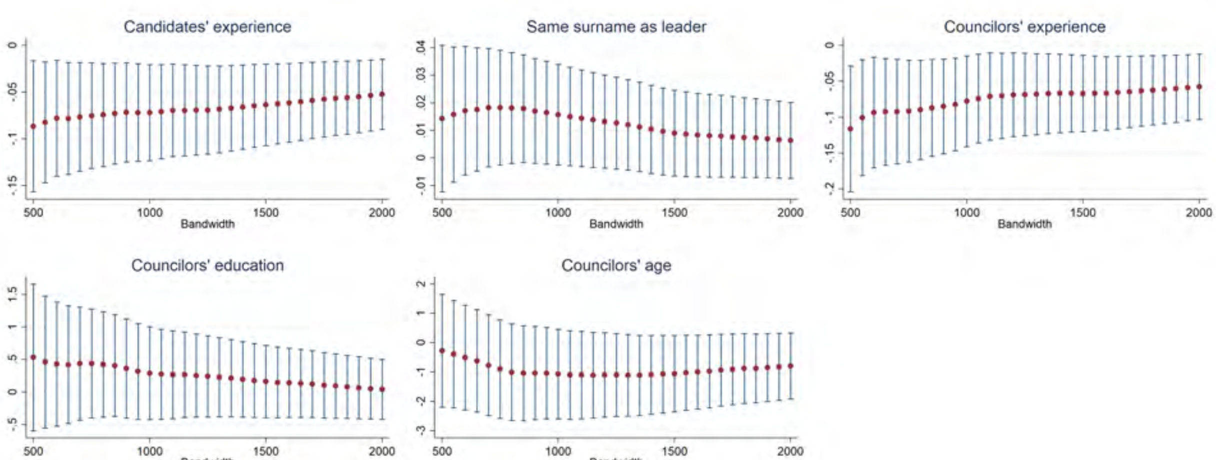
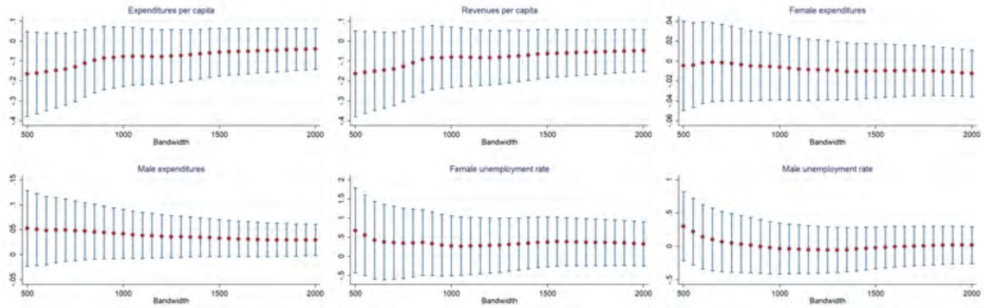
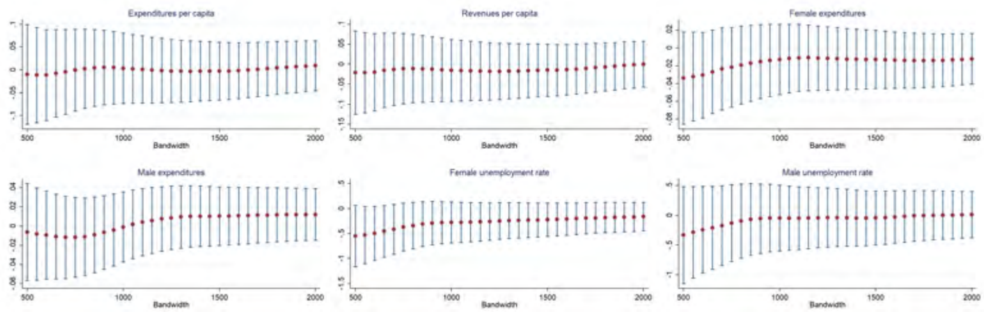


Figure F.5: Budget - RD estimates, multiple bandwidths

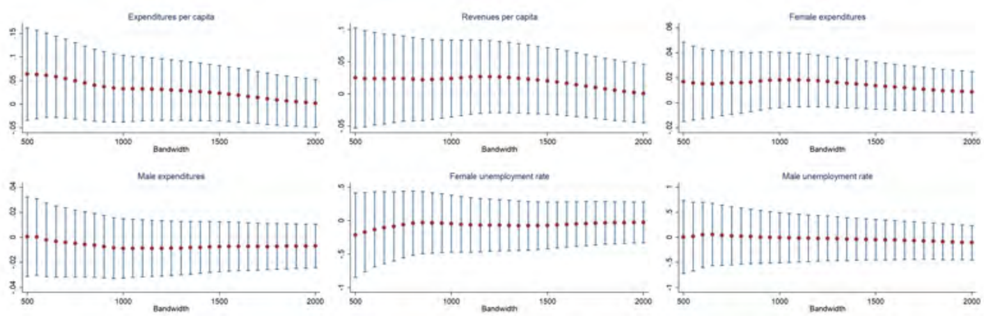
(a) Threshold: 3000, term: 2003



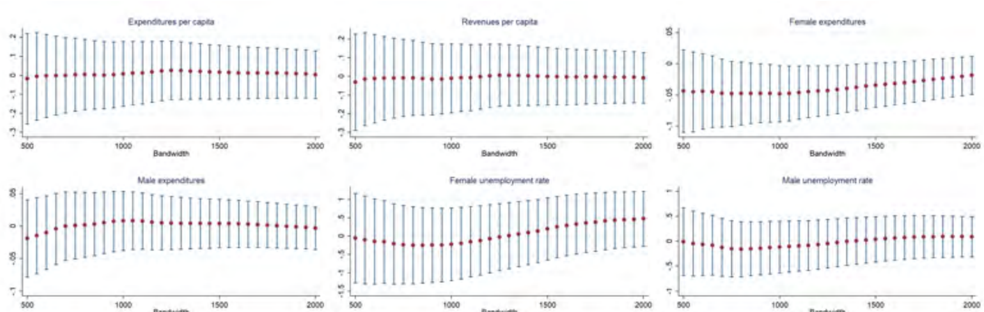
(b) Threshold: 3000, term: Δ(2007-2003)



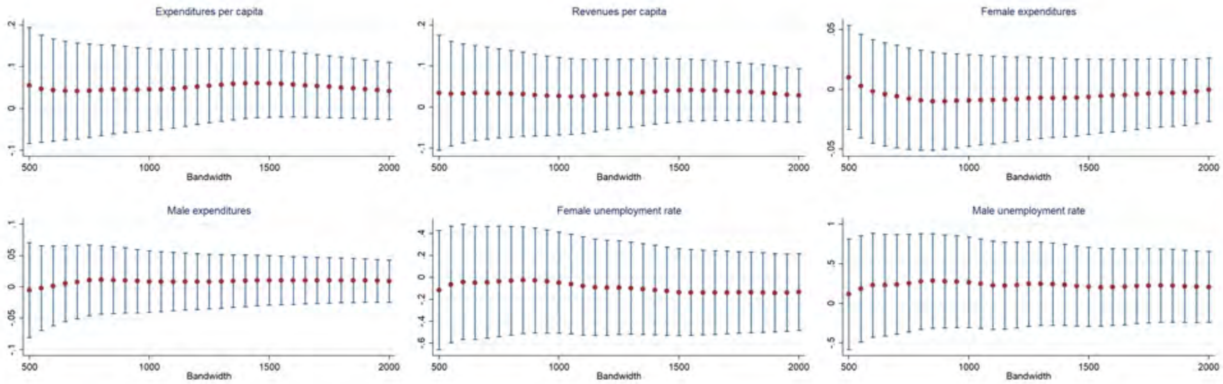
(c) Threshold: 3000, term: Δ(2011-2007)



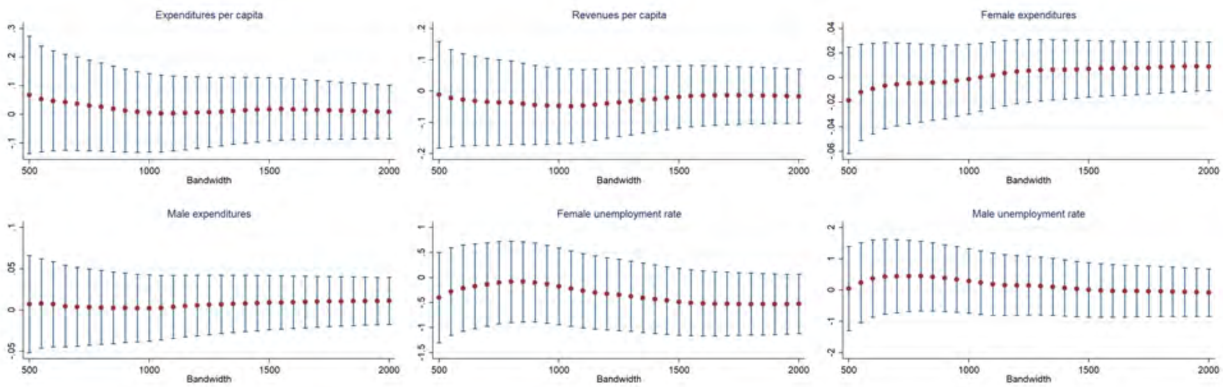
(d) Threshold: 5000, term: 2003



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



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



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