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ABSTRACT

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

We provide a comprehensive analysis of the short- and medium-term effects of gender quotas in candidate lists using evidence from Spain, where 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 raise the share of women among council members but they do not affect the quality of politicians, as measured by their education attainment and by the number of votes obtained. Moreover, within three rounds of elections, women fail to reach powerful positions such as party leader or mayor, and we do not observe any statistically or economically significant changes in the size and composition of public finances.

JEL Classification: D72, H72, J16

Keywords: gender quotas in candidate lists, regression discontinuity design

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1 Introduction

It is well known that, 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. The underrepresentation of women in politics may potentially reflect both demand and supply factors. Some voters may hold negative stereotypes about the ability of women as political leaders. 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.[1] There might be also a lack of qualified female candidates. Some women may shy away from politics or, when women enter politics, they may lack access to the networks, mentors and role models that are crucial to succeed.

To address the lack of women in politics, in recent years more than 100 countries in the world have adopted some type of gender quota.[2] 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, typically in the context of a closed list system. In this paper we study the impact of the latter type of quotas.

Quotas in candidate lists have several goals. First, they aim to improve women's representation in political institutions. According to the literature, this objective tends to be achieved when quotas 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). Second, quotas may help to increase the quality of politicians. 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. Consistent with this hypothesis, evidence from Italy and Sweden suggests that quotas attract female candidates who are more qualified in terms of their educational and professional background than the male candidates that they replace (Baltrunaite et al., 2014; Besley et al., 2017). Similarly, using data from Spain, Casas-Arce and Saiz (2015)

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

[2] 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).

argue that quotas induce parties to select candidates who are more popular among voters, although their findings have been challenged by Bagues and Campa (2017).[3] On the contrary, in the context of seat reservations in India, Chattopadhyay and Duflo (2004) find that quota candidates are less educated and less experienced.

Third, another goal of quotas is 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 negative stereotypes regarding female politicians, both among party leaders and voters. In addition, quotas might foster the creation of political networks that are friendlier to women, 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 long-term, would lead to an increase in women's access to leadership positions. On the other hand, quotas can potentially have unintended consequences. 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. Studies from India, Italy, and Sweden suggest that quotas increase the probability that women reach leadership positions (Beaman et al., 2009; De Paola et al., 2010; O'Brien and Rickne, 2016).[4]

Fourth, 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,

[3]Casas-Arce and Saiz (2015) use evidence from the introduction of quotas in 2007 in Spanish local elections in municipalities with more than 5,000 inhabitants. They show that parties that had fewer female candidates in the past and, therefore, are expected to be relatively more affected by quotas, tend to receive more votes in larger municipalities, a pattern that they attribute to the impact of the quota. This finding would suggest that the absence of female candidates in these lists was due to discrimination by party leaders and not to electoral concerns. However, Bagues and Campa (2017) argue that small municipalities do not provide a credible counterfactual for what would have happened in larger ones in the absence of quota. They provide a number of robustness tests, placebos, and estimates from a regression discontinuity design which indicate that the quota did not have a significant impact on voting behavior.

[4]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 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.

1996; Besley and Coate, 1997).[5] 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.[6] However, little is known about the impact of candidate gender quotas on policies in the context of Western democracies.

We study whether quotas manage to achieve these four objectives using the unique quasi-experimental evidence provided by the introduction of gender quotas in local elections in Spain. Within a proportional representation electoral system with closed lists, 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. This 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. We study the short and medium-term effects of quotas using 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

[5] 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.

[6] 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).

indivisibilities, is the minimum share required.[7] This corresponds to a 10 p.p. (26%) increase in municipalities above the 5,000 threshold and to a 8 p.p. (21%) increase in municipalities above the 3,000 threshold. Most of this increase occurs in the last two positions of each five-position bracket.

Out of the four goals described above - improving women's representation in political institutions, increasing the quality of politicians, incrementing the presence of women in leadership positions, and allowing a better representation of women's preferences in policy outcomes - quotas only succeed at the first one. In particular, quotas increase the share of women in the local council by 8 p.p. at the 5,000 threshold and by 3 p.p. at the 3,000 threshold, although this increase is not as large as the increase in the share of women on the ballot due to their worse positioning.

While quotas increased women's presence in candidate lists and the local council, they do not have any 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, or on the probability that women reach top positions at the council level, although these estimates are imprecise and we cannot reject relatively large effects. When we extend our analysis to later electoral cycles, we do not observe any additional effects neither on the share of female candidates and council members nor on the gender of party leaders and mayors.

Moreover, quotas do not affect significantly the quality of politicians. We study this issue using two different sources of information. First, we examine the educational background of council members. We do not observe any statistically significant increase in the educational attainment of councilors in municipalities affected by the quota. The point estimates are very close to zero: 0.00 at the 5,000 population threshold and -0.20 at the 3,000 population threshold. The upper bound of a 95% confidence interval suggests that, at most, quotas may increase councilors' educational attainment by 0.6 years at the 5,000 population threshold (34% of a standard deviation) and by 0.4 years at the 3,000 population threshold (25% 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) and Bagues and Campa (2017), we analyze how quotas affect the electoral performance of parties that had fewer female candidates prior to the quota and, therefore, are most affected by its introduction. We extend

[7] 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%).

their analysis, which only considers the 2007 Spanish local elections, just a couple of months after quotas were introduced, to the 2011 and the 2015 elections. According to our findings, quotas do not improve the electoral support received by 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. We can discard that quotas increased the share of votes received by parties that were less feminized by more than 5 p.p. at the 5,000 threshold and by more than 1 p.p. at the 3,000 threshold. 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 collect survey data about the policy preferences of a sample of 57,000 Spanish residents. Using this information, we classify public expenditure according to the preferences of male and female voters. 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. Based on this information, we classify the various types of municipal expenditures as "female", "male", or neutral. We do not observe any significant differences in the amount of expenditure assigned to these groups between municipalities that are affected by the quotas and municipalities where the quota has not been implemented. The point estimate is equal to -1 p.p. at the 5,000 threshold and we can statistically reject that the impact of quotas was larger than 3 p.p. At the 3,000 threshold the point estimate is 3 p.p., and we can reject increases of more than 6 p.p. Quotas do not affect either the overall amount of public expenditures or revenues in the municipality. Overall, our results suggest the quota managed to increased the presence of women in the council but, apparently, it failed to remove the barriers that prevent women from achieving political positions where they can influence policies.

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 short- and medium-term impact of quotas on the behavior of the different agents involved: candidates, political parties, voters and policy-makers. This approach might provide a better understanding of the mechanisms

at work. Furthermore, if the dynamics of the publication process favor studies with statistically significant results (Brodeur et al., 2016), studies that provide results along a large set of predetermined dimensions might deliver a more balanced picture of the functioning of policies. Second, we exploit a regression discontinuity design which relies on milder assumptions than the difference-in-differences strategy typically used in the literature.[8] This methodological difference explains, for instance, why our findings differ from Casas-Arce and Saiz (2015). Third, 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 the findings based on mandated representation in India may have limited validity (Chattopadhyay and Duflo, 2004). Finally, we provide evidence on the impact of quotas in a context of large policy relevance. Small municipalities are often excluded from the implementation of gender quotas, despite (or perhaps due to) the fact that these municipalities tend to exhibit relatively lower levels of female empowerment, both in the labor market and in politics. For instance, in Italy gender quotas are only implemented in municipalities with more than 5,000 inhabitants and in France in municipalities with more than 3,500 inhabitants. Our findings are informative about the impact of a potential extension of quotas to smaller municipalities.

2 Institutional Context

2.1 Local government

Spanish local governments manage around 15% of public expenditure (approximately 6% of the Spanish GDP). Next we describe their functioning, with a particular focus on any institutional differences that may be linked to population thresholds during the period of our analysis. As we explain below, during the period of our study the 3,000 threshold is only relevant for the implementation of the quota, but the 5,000 threshold is also considered for other policies.[9]

[8] A notable exception is provided 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.

[9] 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

All municipalities are responsible for lighting, graveyards, refuse collection, street cleaning, water supply, sewerage, access to population centers and paving.[10] 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 two measures of 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. For instance, 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.[11]

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 5,000 inhabitants there are 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.[12]

2014. Instead, our empirical analysis relies on the population count as measured in January 2006 and 2010.

[10]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*.

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

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

2.2 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 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 gets elected. All elected candidates become members of the municipal council, which elects the mayor. Only candidates placed on the top of their party list are eligible for this position.[13]

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 municipal policy-making as well, where the mayor is (in practice) in charge of the most important decisions deliberated at the municipal level.[14]

2.3 Gender quotas

In March 2007, the Equality Act modified the Spanish electoral law and introduced the principle of gender balanced candidate lists.[15] 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 be accepted by the local electoral authority to 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 does not justify explicitly why

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

[14] 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'*.

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

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] 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.[17] The law received the support of all political groups in Parliament, with the exception of People's Party, which abstained.

2.4 Small municipalities

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.[18] This covers approximately 20% of the Spanish population. 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, less educated and 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.[19] Inhabitants of small municipalities also 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.[20] In small municipalities women represent a lower share of the population, 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

[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 candidate lists but also to participate in associations, in politics, and so on." Source: DS. Congreso de los Diputados, Comisiones, 723, 12/12/2006

[17]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`.

[18]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.

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

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

- 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.[21]

3 Data

We collected information on the composition of candidate lists and on the electoral results in the 2003, 2007, 2011 and 2015 elections. Additionally, we use information on the characteristics of council members, the composition of the local budget, survey information regarding residents' preferences over policy issues, and socio-economic information about municipalities. We describe our database below. Appendix A provides more detailed information about the data sources.

3.1 Candidate lists

The upper panel of Table 1 provides information on candidate lists. In the 2003 election, before quotas were introduced, 29% of candidates were women. This figure mirrors the presence of women among party members in the main political parties.[22] Women account for 17% of candidates on top of the list, a position that is usually occupied by the party leaders.

Ballots are more feminized in larger municipalities (Figure 2). 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.

As shown in Table 1, columns 2-4, candidate lists have become more feminized over time and, not surprisingly, this trend accelerates when gender quotas are introduced. In the 2007 election, the presence of female candidates increases relatively faster in municipalities with more than 5,000 inhabitants and, in the 2011 election, in municipalities with more than 3,000 and less than 5,000 inhabitants.

[21] 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.

[22] In 2001, the main three parties - People's Party, Socialist Party and United Left - included 33%, 28%, and 29% of women among their members. Source: The Institute of Women, based on the information provided by each party, available at `http://www.inmujer.gob.es/MujerCifras/PoderDecisiones/PartidosPoliticosSindicatos.htm`

Due to data availability, we can only observe candidates' political experience starting in 2007. Approximately 64% of the party leaders had already been on the ballot in the previous election. The remaining candidates tend to have much less political experience: only 38% of candidates had been on the ballot previously. The level of experience also differs remarkably between women and men. 42% of male candidates have previous electoral experience, compared to 30% of women.

3.2 Voting behavior

In the average municipality, there are three different lists that compete for seats in the municipal council and around 75% of the electorate participates in locals elections (Table 1, panel B).

3.2.1 Male holdout lists

We are interested in the electoral performance of parties that were relatively less feminized before quotas were introduced and, therefore, are expected to be more affected by the introduction of quotas. We classify party lists in two groups according to their degree of feminization in previous elections. More precisely, we focus on the two most voted lists of each municipality in the election prior to the introduction of quotas, and we keep only those municipalities where these two lists totaled more than 80% of votes. We exclude municipalities where the two lists include the same share of female candidates in the previous election and municipalities where both lists have more than 40% of female candidates. In the less feminized list of the municipality, the *male holdout*, the average share of female candidates was around 17% in the 2003 election, compared to 38% in the relatively more feminized list, which we denominate the *gender balanced* list. In the 2003 elections, before quotas were introduced, we observe that male holdouts tend to attract more votes than their competitors (49% vs. 45%).

3.3 Local council

The gender composition of local councils reflects the composition of candidate lists. In 2003 approximately 25% of council members are women (Table 1, panel C). Female mayors are rarer, only 13% of mayors are women in 2003. Male councilors are substantially older than women (average age is 44 years for male and 39 years for female councilors), and have on average one year less of education.

Councils in larger municipalities tend to be more feminized and the presence of women in local councils has increased over time (Figure 2). The descriptive data also suggests that the share of women on councils tends to grow relatively faster when gender quotas are introduced.

Due to data availability, we only observe councilors' experience since 2007. Men tend to be more experienced: 49% of male councilors elected in 2007 were already members of the previous council, compared to only 36% of women.

3.4 Budget

We use 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.[23] 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 use survey information on individual preferences to classify public expenditure into three groups: *female*, *male* and *neutral expenditures*. To learn about the preferences of male and female voters, we analyze the responses of about 57,000 Spanish residents who participated between 2001 and 2006 in a political survey conducted quarterly by the Spanish Center for Sociological Research. Respondents 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 that appear to concern women more than men) to the "least feminized" (the opposite). The magnitude of these gender differences tends to be relatively small, always below 2 p.p., but it is in most cases statistically significant.

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, social issues, crisis of values and war. Men are significantly more concerned about immigration, work conditions, politics, housing, agriculture, hunting and fishing, corruption, economic

[23]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.

problems, environmental degradation, the judiciary system and the status of infrastructure. 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. 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* (Table A3). 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 (Table A4). Figure 3 shows the distribution of expenditures using both classifications. During the years 2004-2009, when the *functional classification* is in place, female expenditures account for approximately 14% of total expenditure and male expenditures for 26%. In the period 2010-2014, when the *program classification* is applied, female and male expenditures constitute around 16% of total expenditures each.

3.5 Economic indicators

We have also collected information on a few economic indicators that are available at the municipal level (Table 2, lower panel). In the average municipality the share of women unemployed in 2006 is twice as large as the share of men, but the gender gap disappears in later years. We also observe taxable income information at the municipality level for the year 2013. According to tax records, 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 above and below the relevant population thresholds using a regression discontinuity design. In this section, we present this empir-

ical 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. Moreover, we observe a significant discontinuity at the 5,000 threshold in two relevant outcome variables in the pre-quota period. As we explain below, to minimize the possibility that our RDD yields inconsistent estimates at this threshold, in our analysis we consider the outcome variables in differences, following what is sometimes known as a discontinuity-in-differences approach. Nevertheless, the results are generally similar when we consider the outcome variables in levels.

4.1 Regression discontinuity design

Let us consider the following specification:

$$Y_{i,t+k} = \beta_0 + \beta_1 \tau_{i,t} + \beta_2 f(population_{i,t-1}) + \varepsilon_{i,t+k} \quad (1)$$

where, depending on the nature of the outcome variable, i denotes a municipality or a party list, and t refers to the election year 2003, 2007, 2011, or 2015. The running variable $population_{i,t-1}$ is measured according to the official population count on January of the year before quotas were introduced and the dummy variable $\tau_{i,t}$ denotes treatment status. We assign municipalities to the treatment group if their population is above the corresponding threshold. When regressions are run at the list level, we cluster standard errors by municipality.

We consider several specifications of equation 1. To study the short-term effect of quotas, we exploit the information provided in the 2007 elections by municipalities that in January 2006 had around 5,000 inhabitants (t=2007, k=0), and in the 2011 elections by municipalities that in January 2010 had around 3,000 inhabitants (t=2011, k=0). To examine the effect of quotas in the longer term, we exploit three sources of information. First, using information from the 2011 election, we

compare municipalities just above and below the 5,000 cutoff (t=2007, k=4). 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 municipalities that, in the 2015 election, are just above the 5,000 cutoff, which are exposed to the quota for the third time, to those that are just below the 5,000 cutoff, where the quota is being implemented for the second time (t=2007, k=8). Third, we examine municipalities around the 3,000 cutoff in 2015 (t=2011, k=4). This analysis captures the additional impact of being exposed to the quota for a second term relative to municipalities that are not exposed to the quota.

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, if municipalities anticipate the population threshold that will be used for the adoption of gender quotas, some municipalities might try to manipulate their population counts in order to avoid (or to qualify for) this policy. Manipulation might affect the consistency of the RDD estimates if the available 'technology of manipulation' is sufficiently precise. Second, there might exist other policies that rely on the same threshold as the quota. In particular, as discussed in section 2, the 5,000 threshold was relevant for a number of regulations during this period, 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 or they might induce a manipulation of population figures (Eggers et al., 2017). Next we discuss these two issues in detail.

Other policies While the 3,000 population threshold is only relevant during the period of our study for the implementation of gender quotas, there are some institutional differences around the 5,000 population threshold. Specifically, on the revenue side, transfers from the federal government are assigned following a formula that changes discontinuously at the 5,000 threshold. 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. 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.

As expected, visual inspection of the RD plots shows that federal per capita transfers change discontinuously at the 5,000 population cutoff, both in the pre-quota (2002-2006) and the after-quota (2007-2012) years, whereas no significant jump can be detected at the 3,000 cutoff (Figure B.1). This finding is confirmed by the estimation of equation (1) using the mean squared error optimal bandwidth proposed by Calonico et al. (2014) . While being above the 5,000 population cutoff raises federal transfers by around 20 euros per capita, there is no significant difference at the 3,000 population cutoff (Table A5, columns 1-4). These results are robust to the choice of the bandwidth (Figure E.1).

However, while there are clear differences in revenues above and below the 5,000 threshold, there are no significant discontinuities on the expenditure side. As research by Foremny et al. (2015) shows, municipalities below and above the 5,000 threshold are equally likely to provide those additional services that are mandatory only for larger municipalities, perhaps because upper-level governments do not provide them to the smallest municipalities. We replicate their analysis, and we also extend it to the 3,000 threshold. As expected, our findings show that neither of these two population cutoffs play any role in terms of the composition of public expenditure (Table A6 and Figure B.2)

Manipulation of population counts It is unlikely that gender quotas induced manipulation of population counts in the 2007 election, given that 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. Municipalities knew in 2007 that the quota would be applied based on the population count of January 2010, and they 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. Consistent with this hypothesis, Foremny et al. (2015) 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, although 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 Foremny et al. (2015)'s analysis at the 5,000 threshold and we also extend it to the 3,000 cutoff. Figure 4 shows the population histograms and it reports the results of the density test proposed by Cattaneo et al. (2016) at the corresponding thresholds.[24] As expected, municipalities appear clearly sorted above the 5,000 threshold before 2006, but not in later periods. 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.

4.1.2 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 somehow has an impact on the outcome variables, that would affect the consistency of the RDD estimates.

To examine the reliability of the RDD, we estimate equation (1) using data for the period 2003-2006, before quotas were introduced. We report these results in Table A7. 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. 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.

4.2 Discontinuity-in-differences analysis

The above analysis suggests that the causal effect of gender quotas is identified at the 3,000 threshold but not necessarily at the 5,000 threshold. To minimize the possibility that the existence of (time-

[24]The McCrary-test provides similar results (McCrary, 2008).

invariant) policies that vary at the 5,000 threshold affects the consistency of the RDD estimates, we estimate equation (1) considering as the left-hand side variable the variation in the outcome variable between the pre-quota period and period t+k ($\Delta_{t-4}^{t+k}Y_i$), where k takes value zero in the short-term analysis and values 4 and 8 in the medium-term analysis.

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 equation (1) using as the dependent variable the increase in transfers per capita between the 2003-2007 term and the 2007-2011 term. We do not find any significant changes, neither at the 5,000 or at the 3,000 threshold (Table A5, columns 5 and 6, and Figure B.1).[25]

Another possible threat to the validity of the discontinuity-in-differences approach at the 5,000 threshold is the existence of shocks that have a different impact on municipalities depending on their (time-invariant) characteristics. For instance, the economic crisis might 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).

4.2.1 Anticipation effects

We explore the possibility that parties in municipalities with a population close to 3,000 inhabitants were able to precisely anticipate in 2007 whether they would be affected in the 2011 elections by the quota. 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 A8). Given these results, in what follows we study the extension in 2011 of quotas to municipalities with more than 3,000 inhabitants considering as the running variable the population count in January 2010.

[25] 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. Apparently the magnitude of this change, approximately 2 euros per capita, it is not sufficiently large to be detected in our analysis.

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. We follow a discontinuity-in-differences approach, considering the outcome variable in differences. Results are generally similar when we consider the outcome variable in levels (Tables A9 and A10).

We report for each outcome variable three types of results. 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, which are available in Appendix B, are intended to provide suggestive evidence about the existence of a discontinuity at the threshold. We also report the point estimates and the standard errors obtained from the estimation of equation (1) using a local linear estimation within the mean squared error optimal bandwidth proposed by Calonico et al. (2014) (henceforth, CCT optimal bandwidth). The bandwidth is generally around 1,000 inhabitants. We weight observations by proximity to the cutoff by using a triangular kernel and, following Calonico et al. (2014), we use robust inference methods. Finally, to explore the robustness of these estimates, we repeat the analysis using a broad range of bandwidths (see Appendix E).

5.1 Candidate lists

5.1.1 Short term

If quotas are difficult to satisfy, their introduction may affect parties decision to participate in the election. The upper panel of Table 3 provides information on the impact of quotas on the number of party lists that participate in the first election after quotas were introduced. Consistent with Casas-Arce and Saiz (2011) findings, we do not find any evidence suggesting that quotas led to the disappearance of any party lists. There is no significant difference in the number of parties competing in municipalities just above and below the 5,000 population threshold in 2007 or the 3,000 population threshold in 2011.

Next, we examine the gender composition of candidate lists. As expected, quotas significantly

raised the presence of women. The introduction of the quota in 2007 caused a 10 p.p. (27%) increase in the share of female candidates in municipalities with slightly more than 5,000 inhabitants (Table 3, upper panel). Similarly, in 2011 we also observe an 8 p.p. (21%) increase in the share of women in municipalities with slightly more than 3,000 inhabitants. Nonetheless, it must be noted that the degree of compliance with the quota was imperfect. The introduction of quotas in 2007 increased the probability that party lists include at least 40% of candidates of each gender by around 52 p.p., relative to a baseline of 39%, but approximately 10% of lists did not satisfy the quota. Likewise, when the quota was extended in 2011 to municipalities with more than 3,000 inhabitants, the probability of satisfying gender parity in the list increased by 44 p.p., but roughly 10% of party lists in these municipalities did not comply.[26]

Quotas may also affect the distribution of women within the ballot. Given that the quota requires the presence of at least two women (and men) in every five-position bracket, we examine separately the share of women in the top three positions of each bracket (positions 1-3 and 5-7) and in the bottom two positions (positions 4-5 and 9-10). We find that quotas tend to increase the presence of female candidates mainly in the lower positions of each five-position bracket. In 2007, in municipalities with more than 5,000 inhabitants the share of women in the lower positions increased by 14 p.p., whereas the presence of women in the three upper positions increased by only 4 p.p. (Table 3, upper panel). Similarly, when quotas were extended to municipalities above the 3,000 inhabitants threshold in 2011, it increased the presence of women in the lower positions by 10 p.p., compared to a 3 p.p. increase in the upper ones.

By requiring parties to increase the share of women, quotas may lead, at least in the short term, to a decrease in the political experience of candidates. We study the impact of the quota on candidates' political experience using as a proxy their presence in the electoral list in the previous election. Due to data availability, for the 2007 election we conduct this analysis using the outcome variable in levels (Table A9). The quota tends to decrease the share of experienced candidates. We observe at the 5,000 threshold a 6 p.p. (17%) decrease in the share of candidates that had participated in the previous election and 2 p.p. (5%) decrease at the 3,000 threshold, although the

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

latter estimate is not statistically different from zero.

While the Spanish Equality Law does not prescribe any quota for leadership positions at the party level, the presence of a larger share of women in candidate lists may help to increase the probability that a woman becomes head of the party. The empirical evidence on this issue is generally inconclusive. 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, although the estimation is not precise enough to discard 'economically' significant effects. Using a 95% confidence interval, at the 5,000 threshold quotas may have increased the proportion of female leaders by up to 16 p.p. or they might have decreased it by 5 p.p. At the 3,000 threshold we can discard that quotas increase the share of female leaders by more than 11 p.p., or that they decrease it by more than 9 p.p.

5.1.2 Medium term

We study the impact of quotas on 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, perhaps reflecting that the female share achieved in the first election, around 46%, is already close to parity. There is no additional impact on women leadership 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.

5.2 Electoral results

5.2.1 Short term

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 in turnout, neither around the 5,000 population threshold in the 2007 elections nor around the 3,000 threshold in 2011 (Table 3, panel B). Given that the impact of quotas might be stronger in municipalities where political parties were relatively less feminized, 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.

Furthermore, we use voting data to investigate how popular are quota candidates among voters. In particular, using the taxonomy introduced 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'*) and, therefore, are expected to be relatively more affected by the quota. First, we examine the electoral results in the 2007 election. This exercise is essentially similar to Bagues and Campa (2017)'s reanalysis of Casas-Arce and Saiz (2015)'s work.[27] The quota increased the share of female candidates in *male holdouts* by 15 p.p., compared to a 10 p.p. increase in *gender-balanced* lists, but it has no significant impact on the number of votes received by male holdouts. The point estimate is equal to -0.9 p.p. and, using a 95% confidence interval, we can reject that the quota might have increased the vote share of male holdouts by more than 5 p.p., or decreased it by more than 7 p.p. When we extend this analysis to the introduction of quotas in municipalities with more than 3,000 inhabitants in 2011, we observe again that male holdouts tend to receive fewer votes in quota municipalities (-5.7 p.p.), although this effect is not statistically significant. In this case the quota might have increased the electoral support for male holdouts by a maximum of 1 p.p. or it might have decreased it by up to 13 p.p.

5.2.2 Medium term

We do not observe any additional impact of quotas on voting behavior in the following two elections. Male holdouts tend to obtain fewer votes above the 5,000 cutoff in 2011 and 2015, as well as above the 3,000 cutoff in 2015, but in none of these cases is the difference statistically significant at standard levels.

[27] A minor difference with respect to the analysis in Casas-Arce and Saiz (2015) and Bagues and Campa (2017), which does not affect significantly results, is that here we consider only municipalities where both the male holdout and its rival list from the 2003 election re-run in 2007.

5.3 Local council

5.3.1 Short term

So far our analysis shows that gender quotas lead to an immediate increase in the share of women in candidate lists, but they do not seem to significantly affect the gender of the top candidate. Moreover, the increase in the share of female candidates mandated by the quota does not have generally 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 (Table 3, panel C). Namely, quotas increase the share of female councilors by 8 p.p. and 3 p.p. at the 5,000 cutoff and at the 3,000 cutoff, respectively.

As shown in Table 1, female councilors tend to be more educated and younger than male councilors. Therefore, 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). At the 5,000 threshold, the point estimate is 0.00 and we can reject that quotas increase (or decrease) councilors' average educational attainment by more than 0.6 years (34% of a standard deviation). At the 3,000 threshold, the estimate is slightly below zero, -0.20 years, and we can reject any positive effects larger than 0.4 years (25% of a standard deviation). We do not observe any significant effects either on the age of municipal councilors.

By changing the gender composition of municipal councils, quotas can also affect other relevant characteristics of council members, such as their political experience. The introduction of the quota in 2007 caused an 8 p.p. decline in the share of councilors that were members of the previous council, against a baseline of 47 p.p. The estimate from the 2011 election at the 3,000 threshold is not statistically different from zero.

The probability of having a female mayor increases by 11 p.p. in 2007 in municipalities with slightly more than 5,000 inhabitants, but the estimation is imprecise and we cannot reject the possibility that the quota increases the probability of a female mayor by up to 28 p.p., or that it decreases it by up to 6 p.p. The estimates using data from the 2011 election are also imprecise. In

2011, the probability of having a female mayor increases by 10 p.p. in municipalities with slightly more than 3,000 inhabitants, but we cannot statistically reject relatively large positive effects (up to 27 p.p.) or negative ones (up to 6 p.p.).

5.3.2 Medium term

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 an additional impact on the composition of the council in the medium term. As well, we do not observe any additional changes on the gender, the age and the educational attainment of council members, or on the access of women to the mayoral position (Table 4, panel C).

The comparison of second- to first-time implementers of quotas also shows that, while in the short term quotas decrease the average experience of council members, this effect tends to fade away over time.

5.4 Local budget and economic indicators

5.4.1 Short term

Quotas increase the share of women on councils. If the gender of council members matters for policy decisions, quotas might ultimately impact policy outcomes. First, we 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. During the period 2008-2010, municipalities with more than 5,000 inhabitants spend (collect) 70 (30) euros per capita more than slightly smaller municipalities, with a confidence interval that discards an increase larger than 190 (130) euros per capita, or a decrease larger that 50 (70) euros per capita.[28] We observe a very similar picture when we compare the budgets of municipalities above and below the 3,000 threshold during years 2012-2014.

We also 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

[28] We do not include the election year in our analysis because the elections generally are held in May.

section 3.4, are expected to be more relevant for male or female voters. Again, we do not observe any significant effects. At the 5,000 threshold the point estimate is equal to -1 p.p. and we can statistically reject at the 95% level that the share of *female expenditures* increased by more than 3 p.p. At the 3,000 threshold the point estimate is 3 p.p., and we can reject increases of up to 6 p.p.

Even if the larger presence of women in policy-making does not seem to affect the budget composition, 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. We investigate the impact of the quota on female and male unemployment rate, but we do not find any statistically significant effect in either dimension. At the 5,000 threshold, the quota may have decreased the number of unemployed women per 100 female inhabitants by a up to 0.72, or it may have increased it by 0.22. The figures are very similar at the 3,000 threshold. Finally, we also examine the impact of quotas on income per capita, which is available at the municipality level for year 2013. Again, we do not observe any significant effect (Table A9, panel D).

5.4.2 Medium term

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). In the 2011 elections that opened the term, municipalities above the cutoff were on their second round of implementation of gender quotas, whereas those below were on their first round. We fail to reject the null of no difference in policy between these two groups. We reach the same conclusion when we look at economic indicators (Table A10, panel D).

6 Conclusion

Gender quotas in candidate lists have been introduced in tens of countries and they are being considered in many others. We study how quotas affect the behavior of candidates, political parties, voters and policy-makers using data from local elections in Spain. Consistent with previous studies, we find that quotas increase the number of women who get elected. However, in contrast with most

previous studies, the evidence suggests that quotas fail to achieve, at least within three electoral cycles, several other goals with which they are commonly associated: increasing the quality of politicians, helping women to reach leadership positions, and aligning policies more closely with the preferences of women.

In particular, we do not find any evidence indicating that quota candidates are more qualified or that they help to attract more votes. Moreover, quotas do not have any significant impact on the probability that women gain access to the party leadership or to mayoral positions, although our estimates are not sufficiently precise to discard relatively large positive effects. Our study also provides the first evidence on the impact of candidate quotas on policy-making in the context of a Western country. According to our findings, while male and female voters exhibit (slightly) different policy preferences, the additional presence of women in the council induced by the quotas does not produce any significant changes in policy-making or in economic conditions.

Our paper differs from the previous literature in several aspects. While most previous studies use a difference-in-differences strategy, we exploit an RD design which is likely to rely on milder identifying assumptions. Another important difference is that our study focuses on small municipalities. In these municipalities 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. Our results suggest that quotas are not effective in overcoming the barriers to women empowerment precisely in those municipalities where the role of women in society tends to be weakest and where a larger involvement of women in policy-making might be, arguably, most desirable.

Our analysis provides information about the impact of quotas through its effect on the composition of candidate lists in local elections, but it does not capture 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:				
all candidates		38%	40%	40%
female candidates		30%	34%	35%
male candidates		42%	43%	43%
B. Electoral results				
Turnout	78%	76%	78%	75%
Vote share:				
male holdouts	49%	48%	49%	48%
gender-balanced lists	45%	46%	45%	47%
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:				
all councilors		45%	46 %	46%
male councilors		49%	50%	50%
female councilors		36%	39%	39%
Years of education:				
all councilors	11	11.3	11.7	12
male councilors	10.7	11.1	11.4	11.7
female councilors	11.9	12.1	12.5	12.8
Age:				
all councilors	42	45	46	47
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 A provides detailed information on the source and content of each variable.

Table 2: Local budget and economic indicators

Term:	(1) 2004-2006	(2) 2008-2010	(3) 2012-2014
A. Local budget			
Expenditures per capita	1115	1361	993
Revenues per capita	1186	1381	1099
Debt per capita		260	323
Female expenditures (1989 classif.)	14%	15%	
Male expenditures (1989 classif.)	26%	25%	
Female expenditures (2010 classif.)		17%	15%
Male expenditures (2010 classif.)		20%	15%
B. Economic indicators			
Female unemployment	4.5%	5.8%	8.3%
Male unemployment	2.7%	5.2%	8.3%
Average income			18,506

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=2,257). Income, expenditure, revenue, and debt information is reported in constant 2013 euros. Appendix A provides detailed information about the source and content of each variable.

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

Threshold, period:	(1)	(2)	(3)	(4)	(5)	(6)
	5000, 2007-2003			3000, 2011-2007		
	β	St. error	P-value	β	St. error	P-value
A. Candidate lists						
Number of parties	0.00	0.24	0.99	0.01	0.17	0.95
At least 40% candidates of either gender	0.52	0.06	0.00	0.44	0.06	0.00
Share of women:						
all candidates	0.10	0.02	0.00	0.08	0.01	0.00
upper positions	0.04	0.02	0.09	0.03	0.02	0.16
bottom positions	0.14	0.03	0.00	0.10	0.04	0.01
party leaders	0.06	0.05	0.27	0.01	0.05	0.87
Experience				-0.02	0.03	0.38
B. Electoral results						
Turnout:						
all municipalities	0.00	0.01	0.81	0.01	0.02	0.63
less feminized	0.00	0.03	0.89	0.02	0.03	0.54
Vote share (%):						
male holdouts	-0.86	3.08	0.78	-5.69	3.64	0.12
gender-balanced list	-2.94	3.34	0.38	-2.63	5.04	0.60
C. Local council						
Share of women:						
among councilors	0.08	0.02	0.00	0.03	0.02	0.26
among mayors	0.11	0.09	0.19	0.10	0.08	0.21
Experience				0.02	0.04	0.54
Education	0.00	0.33	0.99	-0.20	0.32	0.52
Age	-1.32	1.03	0.20	0.62	0.97	0.52
D. Local budget and economic indicators						
Expenditure p.c.:						
all (in logs)	0.07	0.06	0.22	0.05	0.04	0.29
share male	0.00	0.02	0.94	0.00	0.02	0.95
share female	-0.01	0.02	0.47	0.03	0.02	0.10
Revenue p.c. (in logs)	0.03	0.05	0.59	0.03	0.04	0.48
Unemployment rate						
female	-0.25	0.24	0.30	-0.04	0.27	0.87
male	0.15	0.32	0.65	0.09	0.33	0.79

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 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 Appendix C

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

Threshold, period:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	5000, 2011-2003			**5000, 2015-2003**			**3000, 2015-2007**		
	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**	β	**St. error**	**P-val.**
A. Candidate lists									
Number of parties	0.11	0.41	0.79	-0.25	0.31	0.42	-0.23	0.26	0.36
At least 40% candidates of either gender	0.11	0.08	0.16	0.09	0.07	0.17	0.42	0.09	0.00
Share of women:									
all candidates	0.01	0.02	0.50	0.01	0.02	0.70	0.08	0.02	0.00
upper positions	0.00	0.03	0.91	0.00	0.03	0.99	0.03	0.03	0.37
bottom positions	0.06	0.05	0.23	0.02	0.06	0.69	0.12	0.05	0.01
party leaders	-0.04	0.09	0.68	-0.01	0.10	0.91	-0.05	0.09	0.60
Experience							0.02	0.03	0.57
B. Electoral results									
Turnout:									
all municipalities	0.02	0.02	0.30	0.01	0.02	0.77	0.00	0.02	0.79
less feminized	0.04	0.05	0.39	0.01	0.04	0.84	-0.01	0.04	0.78
Vote share (%):									
male holdouts	-2.90	5.05	0.57	-1.90	11.02	0.86	-5.68	5.48	0.30
gender-balanced list	-1.97	9.05	0.83	0.19	8.62	0.98	-2.47	6.12	0.69
C. Local council									
Share of women:									
among councilors	0.04	0.04	0.32	0.08	0.04	0.05	0.02	0.04	0.63
among mayors	0.05	0.12	0.68	0.07	0.15	0.62	0.06	0.15	0.68
Experience							-0.01	0.05	0.78
Education	0.25	0.49	0.61	0.51	0.63	0.42	-0.11	0.50	0.82
Age	0.78	1.63	0.63	-1.14	2.02	0.57	-1.92	1.72	0.27
D. Local budget and economic indicators									
Expenditure p.c.:									
all (in logs)	0.00	0.08	0.99						
share male	0.00	0.03	0.98						
share female	0.00	0.02	0.96						
Revenue p.c. (in logs)	-0.05	0.07	0.45						
Unemployment rate									
female	-0.13	0.50	0.80						
male	0.49	0.68	0.47						

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 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 Appendix C.

Figures

Figure 1: Ballots

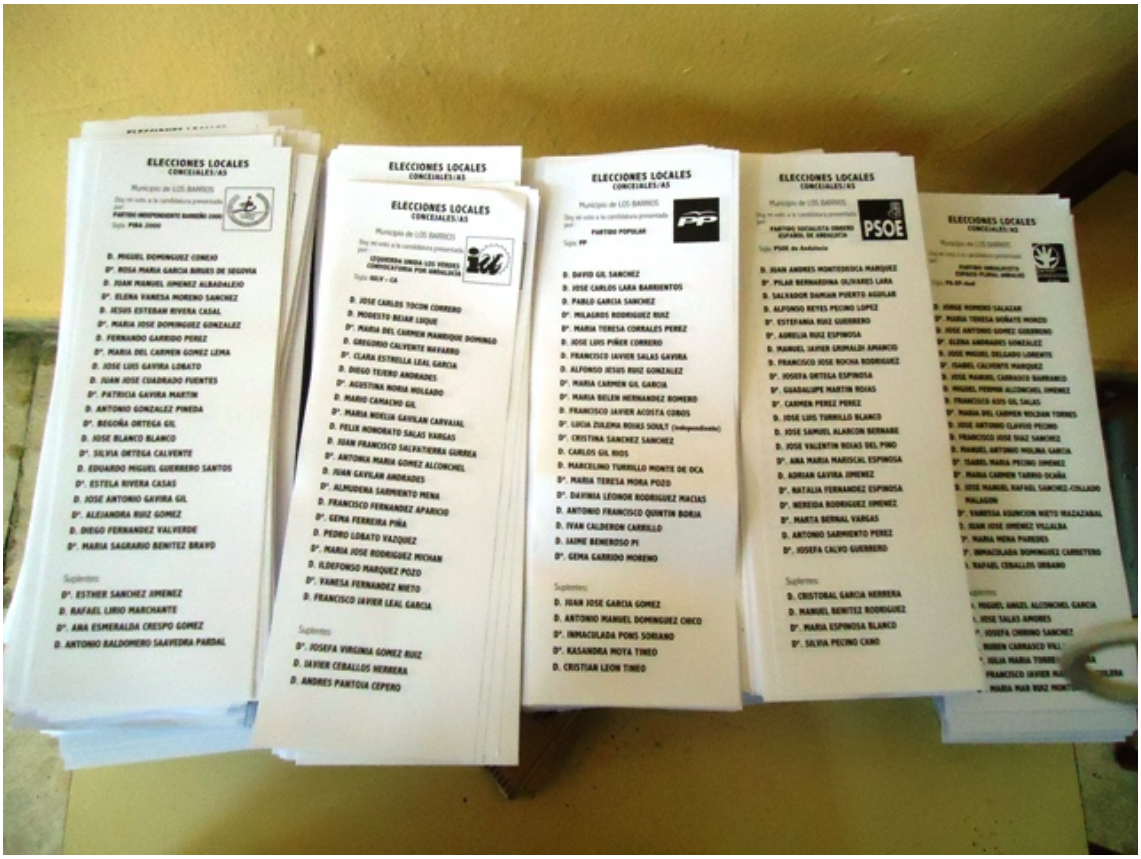


Figure 2: Share of women, by type of position and size of the municipality

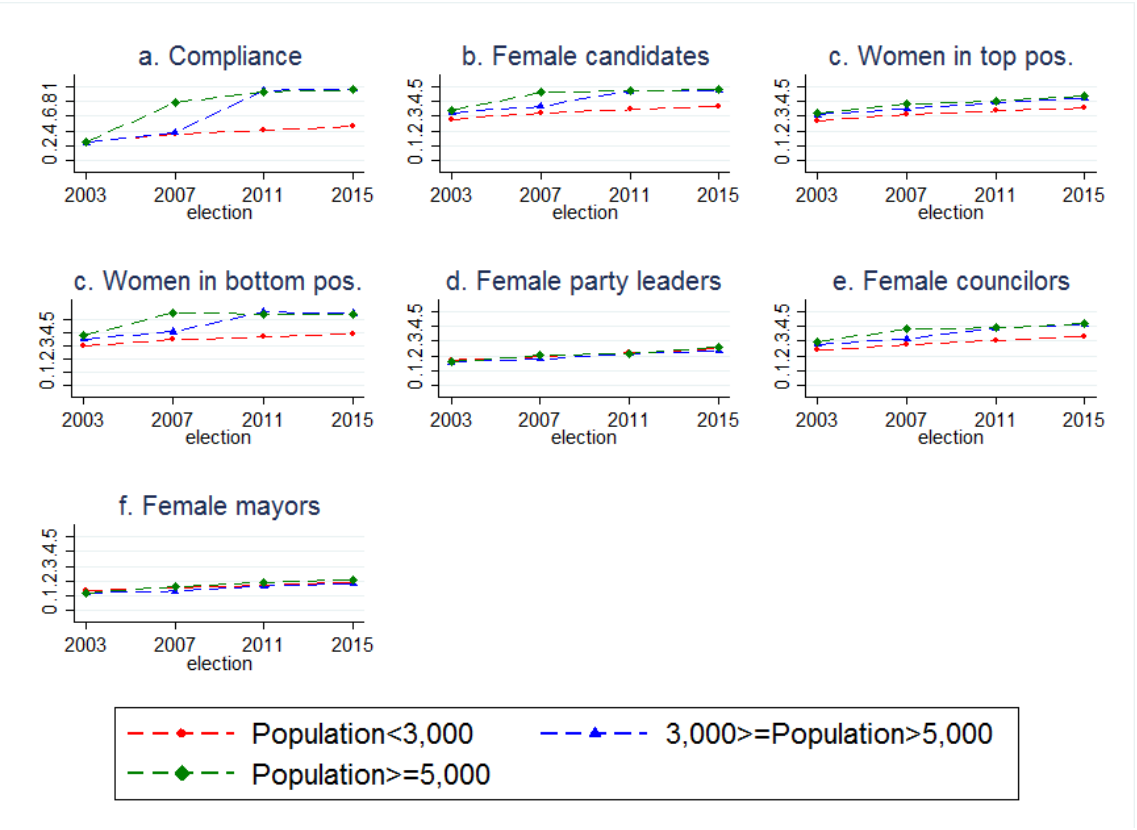
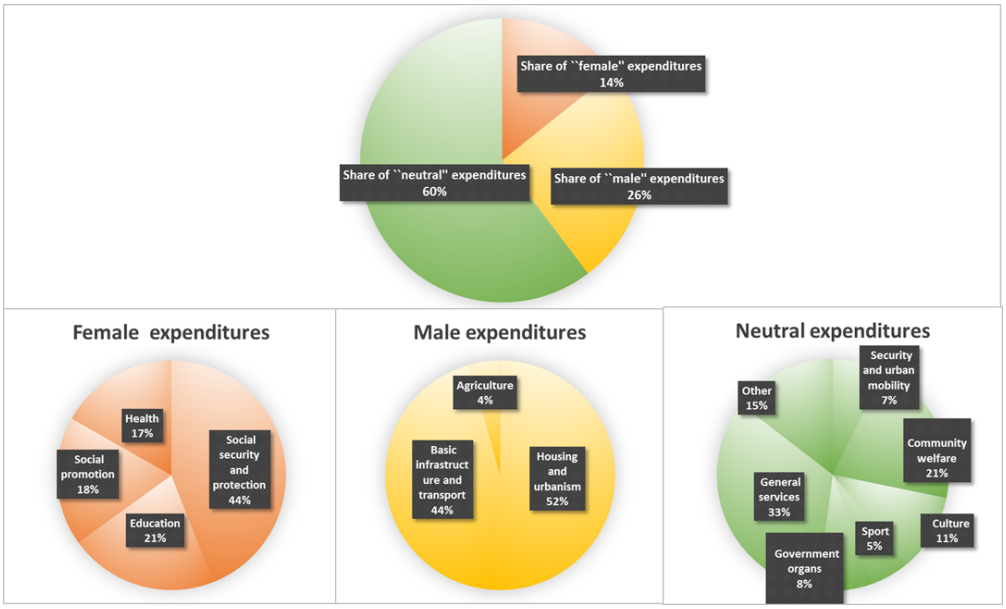


Figure 3: Municipal expenditure

(a) Years 2004 - 2009



(b) Years 2010 - 2014

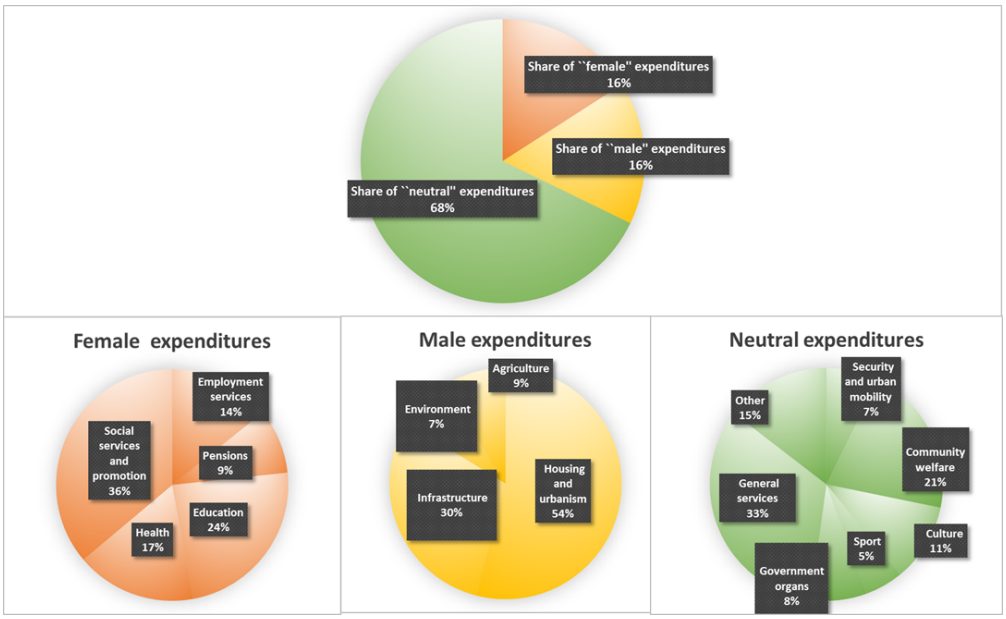
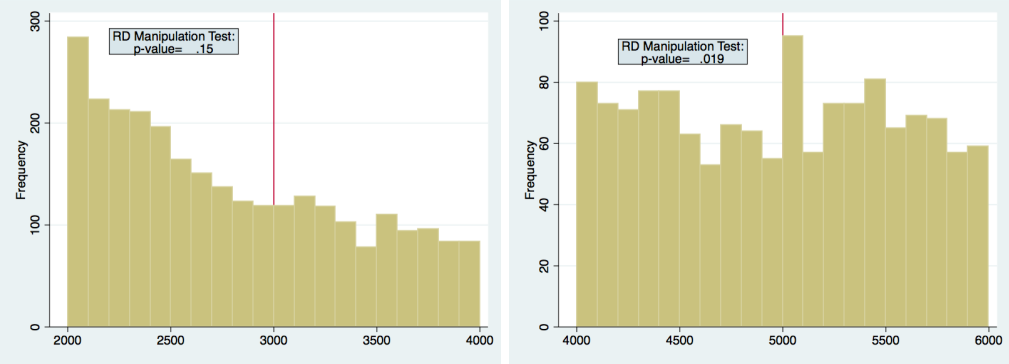
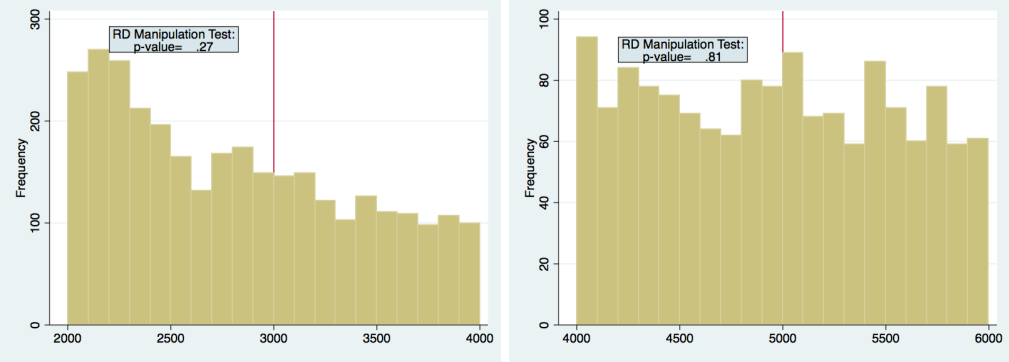


Figure 4: Histograms of population

(a) Years 2003-2006



(b) Years 2007-2010



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. A p-value larger than 0.05 indicates that it cannot be rejected at the 5% significancy level that the density is continuous at the cutoff.

For Online Publication

A Data appendix

A.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.

A.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.

A.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`.

A.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*.

A.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).

Appendix Tables

Table A1: Characteristics of municipalities, by population size

	(1)	(2)	(3)
	$< 10{,}000$	10,001 - 100,000	$> 100{,}000$
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: 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 A6: 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 A7: Regression discontinuity design - Year 2003

Threshold:	(1)	(2)	(3)	(4)	(5)	(6)
		3000			5000	
	β	St. error	P-value	β	St. error	P-value
A. Candidate lists						
Number of parties	0.38	0.28	0.17	-0.02	0.25	0.90
Lists with at least 40% of candidates of either gender	0.03	0.05	0.57	-0.09	0.05	0.08
Share of women:						
all candidates	0.00	0.02	0.83	-0.01	0.02	0.43
in upper positions	0.00	0.03	0.87	0.00	0.02	0.86
in bottom positions	-0.03	0.04	0.43	-0.01	0.02	0.68
in male holdout lists	-0.05	0.04	0.17	-0.01	0.03	0.64
in gender-balanced lists	-0.03	0.04	0.47	-0.02	0.03	0.44
party leaders	0.07	0.06	0.26	-0.08	0.04	0.05
B. Electoral results						
Turnout:						
all municipalities	0.02	0.02	0.32	0.02	0.02	0.21
less feminized municipalities	0.05	0.04	0.20	0.02	0.04	0.66
Vote share (%):						
male holdout lists	2.42	4.85	0.62	-3.04	3.71	0.41
gender-balanced lists	-1.58	5.48	0.77	5.04	3.87	0.19
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	0.55	0.02	0.07	0.80
Education	0.09	0.55	0.87	-0.29	0.34	0.40
Age	0.83	1.14	0.47	-1.78	0.84	0.03
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 D.1, D.3, D.5, and D.7.
*** p<0.01, ** p<0.05, * p<0.1

Table A8: Anticipation effect - Year 2007

Threshold:	(1)	(2)	(3)
		3000	
	β	St. error	P-value
A. Candidate lists			
Number of parties	0.05	0.16	0.76
Lists with at least 40% of candidates of either gender	-0.02	0.05	0.73
Share of women:			
all candidates	-0.01	0.02	0.70
in upper positions	-0.01	0.03	0.74
in bottom positions	0.01	0.03	0.83
in male holdout lists	-0.03	0.03	0.33
in gender-balanced lists	0.04	0.03	0.19
party leaders	0.02	0.05	0.67
B. Electoral data			
Turnout:			
all municipalities	-0.01	0.01	0.51
less feminized municipalities	-0.02	0.02	0.32
Vote share (%):			
male holdouts	0.05	3.30	0.99
gender-balanced lists	3.57	3.11	0.25
C. Local council			
Share of women:			
among councilors	0.01	0.03	0.84
among mayors	0.05	0.07	0.45
Education	-0.12	0.30	0.70
Age	-0.42	0.78	0.59
D. Local budget and economic indicators			
Expenditure p.c.:			
all (in logs)	-0.01	0.05	0.81
share male	-0.01	0.03	0.84
share female	-0.02	0.03	0.36
Revenue p.c. (in logs)	-0.01	0.06	0.82
Unemployment rate			
female	-0.44	0.29	0.13
male	-0.13	0.36	0.72

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

Table A9: Short term impact of quotas - Regression discontinuity design

Threshold, year:	(1)	(2) 5000, 2007	(3)	(4)	(5) 3000, 2011	(6)
	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 *Share of women:*	0.39	0.05	0.00	0.45	0.04	0.00
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
party leaders	0.09	0.06	0.13	0.00	0.04	0.94
Experience	-0.06	0.03	0.03	0.02	0.02	0.30
B. Electoral results						
Turnout:						
all municipalities	0.01	0.02	0.52	0.00	0.02	0.78
less feminized	0.02	0.03	0.49	0.02	0.02	0.51
Vote share (%):						
male holdouts	-1.23	4.22	0.77	1.08	4.42	0.81
gender-balanced list	-2.99	4.15	0.47	-9.85	4.55	0.03
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	-0.08	0.03	0.01	0.02	0.03	0.51
Education	0.44	0.40	0.28	-0.14	0.30	0.63
Age	-1.15	0.93	0.22			
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 Appendix D

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

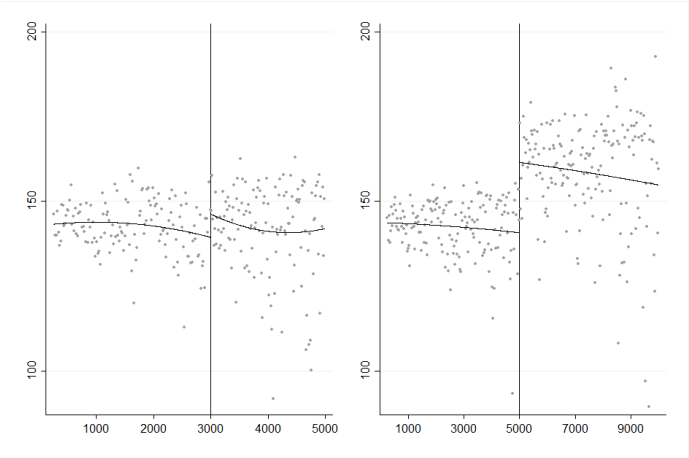
Threshold, year:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	5000, 2011			3000, 2015			5000, 2015		
	β	St. error	P-value	β	St. error	P-value	β	St. error	P-value
A. Candidate lists									
Number of parties	0.24	0.48	0.62	0.30	0.24	0.22	-0.13	0.37	0.73
At least 40% of candidates of either gender	0.02	0.05	0.62	0.48	0.04	0.00	-0.03	0.02	0.11
Share of women:									
all candidates	0.00	0.00	0.67	0.07	0.01	0.00	0.00	0.01	0.71
upper positions	-0.02	0.03	0.50	0.02	0.02	1.25	0.01	0.02	0.73
bottom positions	0.06	0.03	0.09	0.11	0.03	3.61	0.00	0.03	0.97
party leaders	0.04	0.06	0.50	0.01	0.05	0.81	0.05	0.06	0.40
Experience	0.02	0.03	0.49	-0.01	0.03	0.58	-0.01	0.03	0.69
B. Electoral results									
Turnout:									
all municipalities	0.03	0.02	0.15	-0.04	0.02	0.06	0.01	0.02	0.53
less feminized	0.06	0.06	0.31	-0.01	0.03	0.82	0.03	0.04	0.56
Vote share (%):									
male holdouts	-1.72	7.43	0.82	1.24	5.01	0.80	-2.05	7.77	0.79
gender-balanced list	-5.79	7.08	0.41	-13.51	6.70	0.04	-2.22	8.67	0.80
C. Local council									
Share of women:									
among councilors	-0.02	0.03	0.44	0.04	0.03	0.08	0.04	0.03	0.13
among mayors	0.07	0.12	0.56	0.05	0.08	0.54	0.07	0.11	0.53
Experience	0.07	0.04	0.11	0.00	0.04	0.95	-0.02	0.03	0.59
Education	0.59	0.58	0.31	0.20	0.41	0.61	0.95	0.62	0.13
Age				-0.08	1.40	0.95	-0.14	1.31	0.91
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 Appendix D

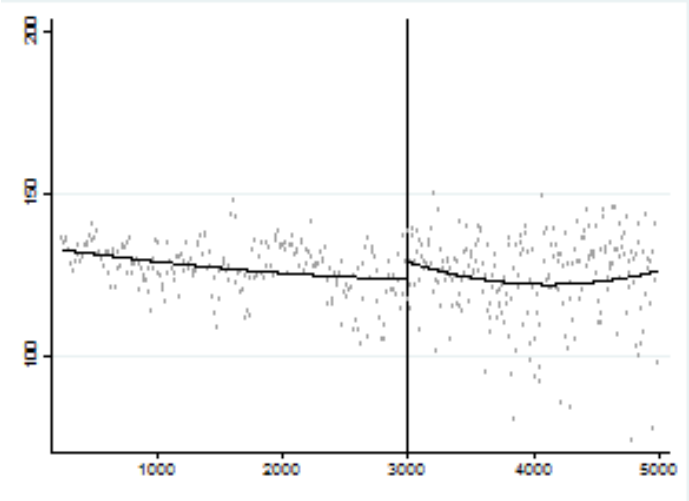
Appendix B RD Plots

Figure B.1: Federal transfers per capita

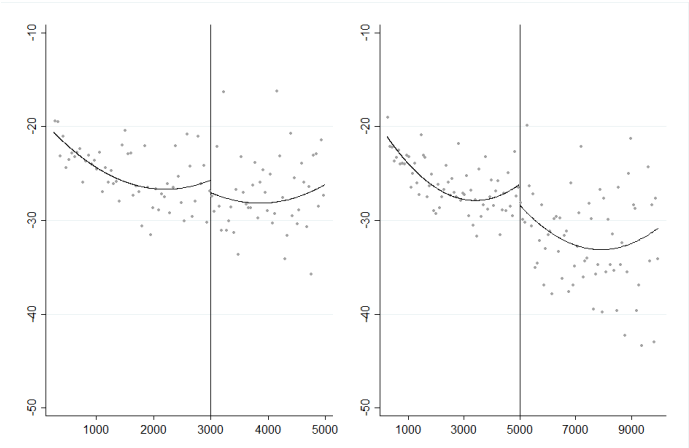
(a) Years 2002-2006



(b) Years 2007-2012



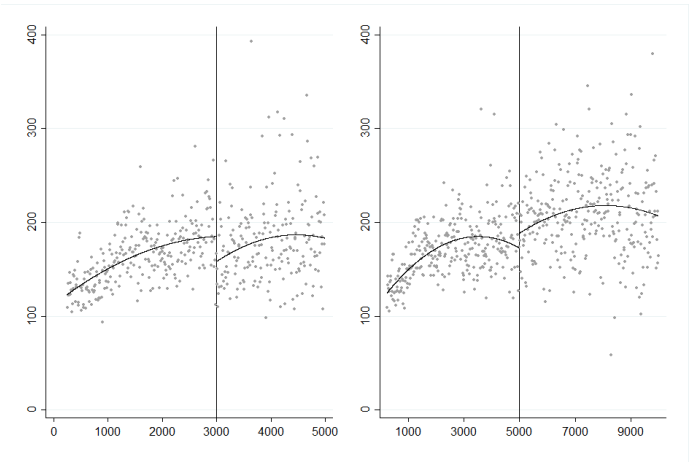
(c) Δ Years 2007-2012 vs 2002-2006



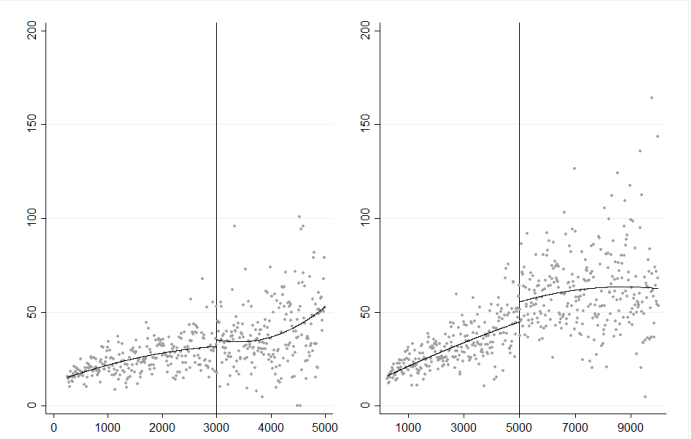
Note: The running variable is the population of the municipality in January of the previous year. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for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

Figure B.2: Competences of large municipalities

(a) Years 2003-2009



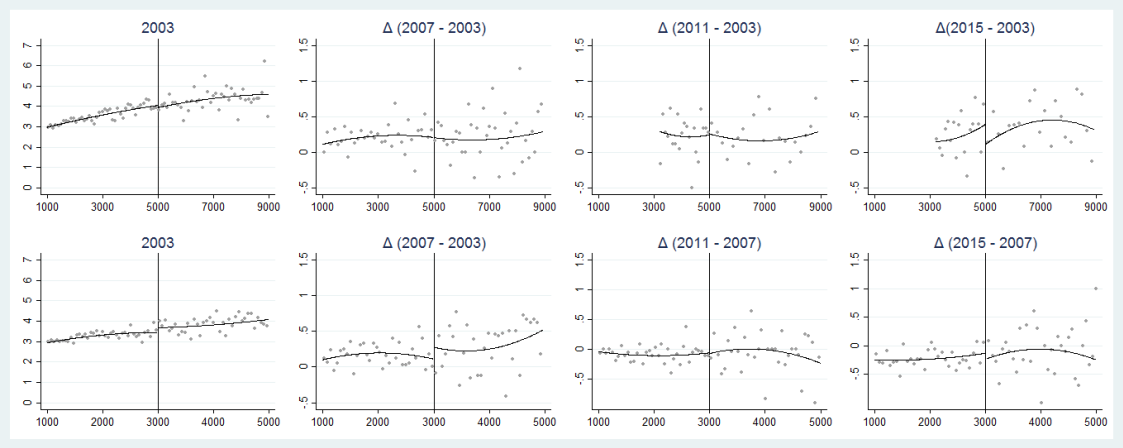
(b) Years 2010-2012



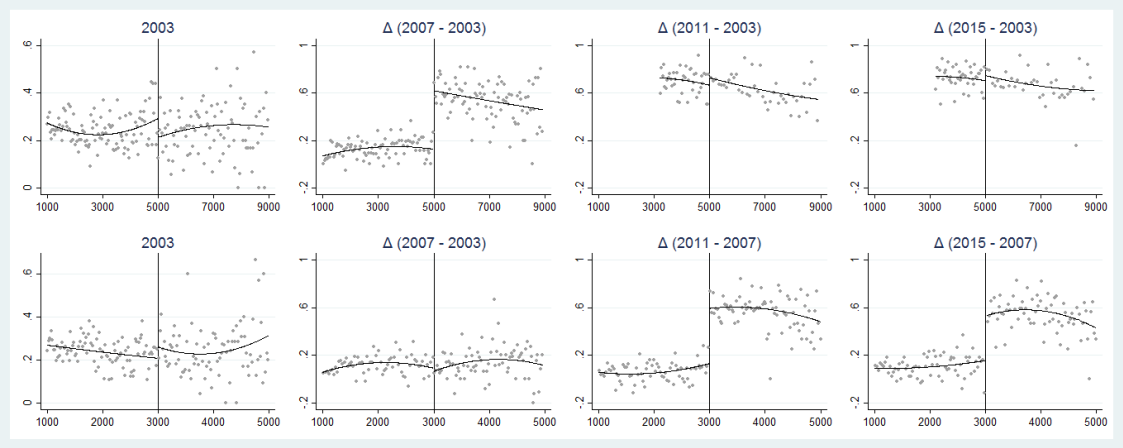
Note: The running variable is the population of the municipality in January of the previous year. Dots are means, lines are fitted values from second-order polynomial regressions. Bandwidths used to construct polynomial fit are chosen to span the full support of the data. See Calonico et al. (2015) for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

Figure B.3: Female politicians

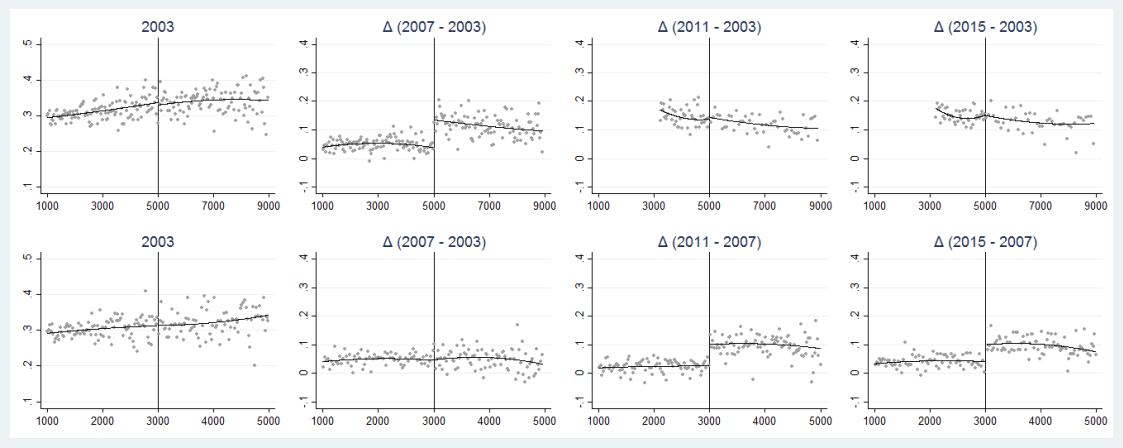
(a) Number of lists



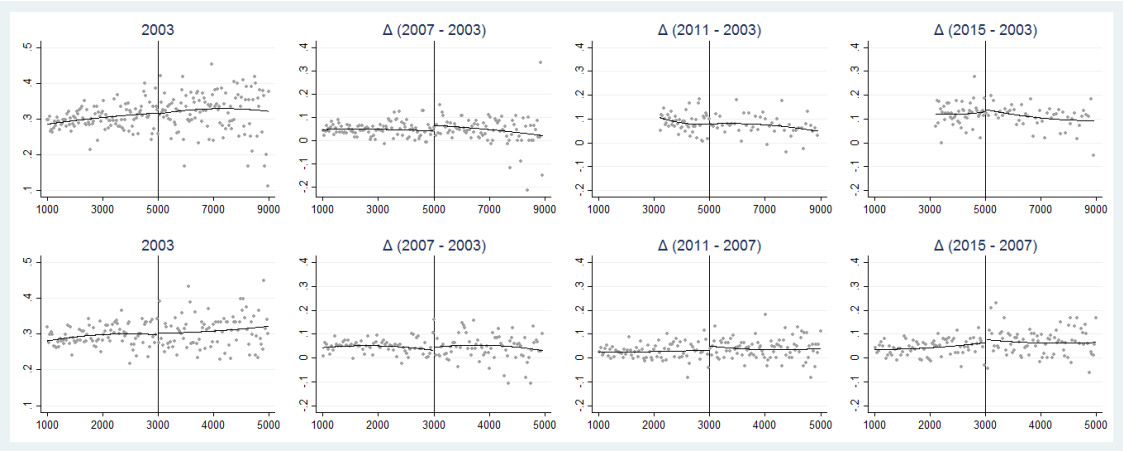
(b) Lists with at least 40% of candidates of either gender



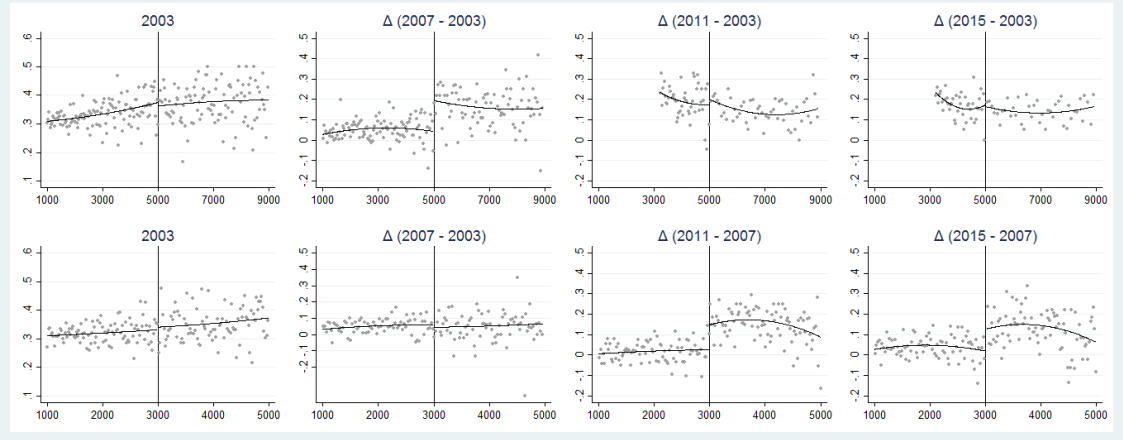
(c) Share of female candidates



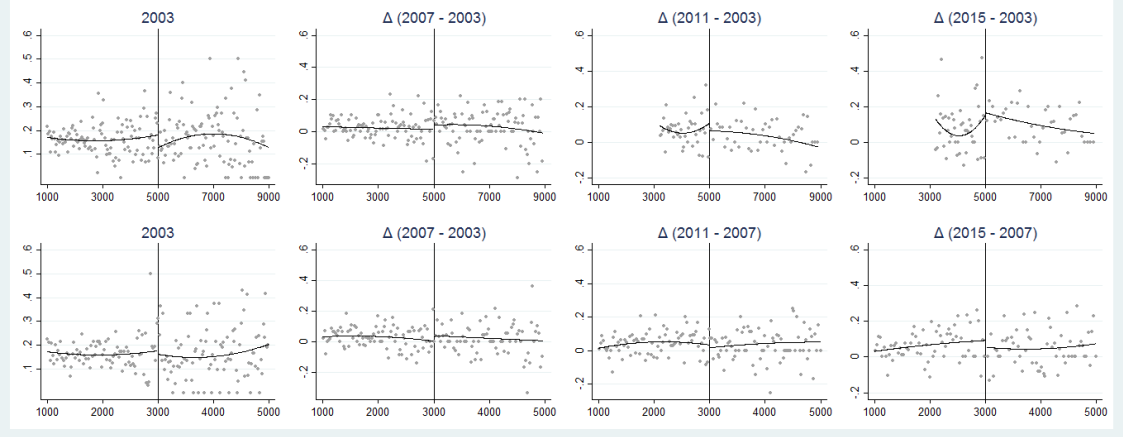
(d) Share of women in upper positions



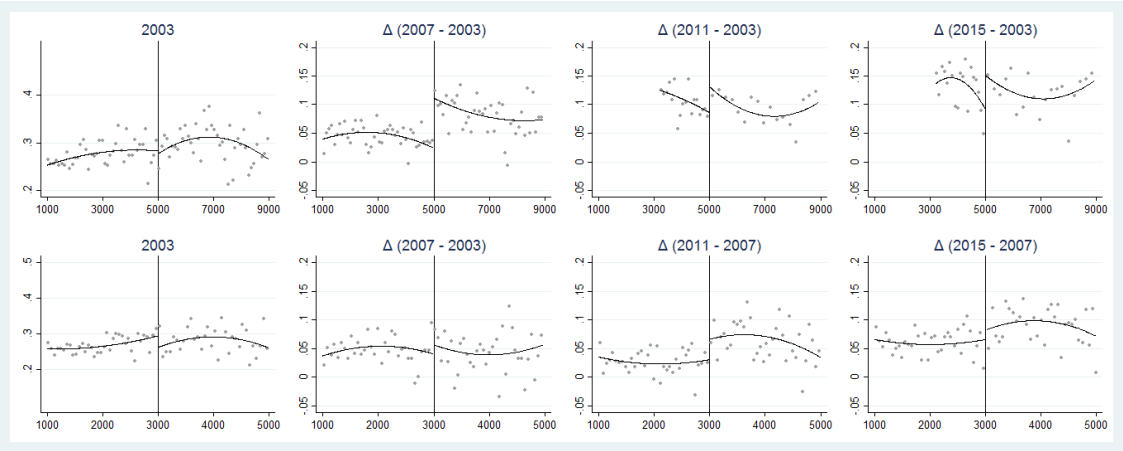
(e) Share of women in bottom positions



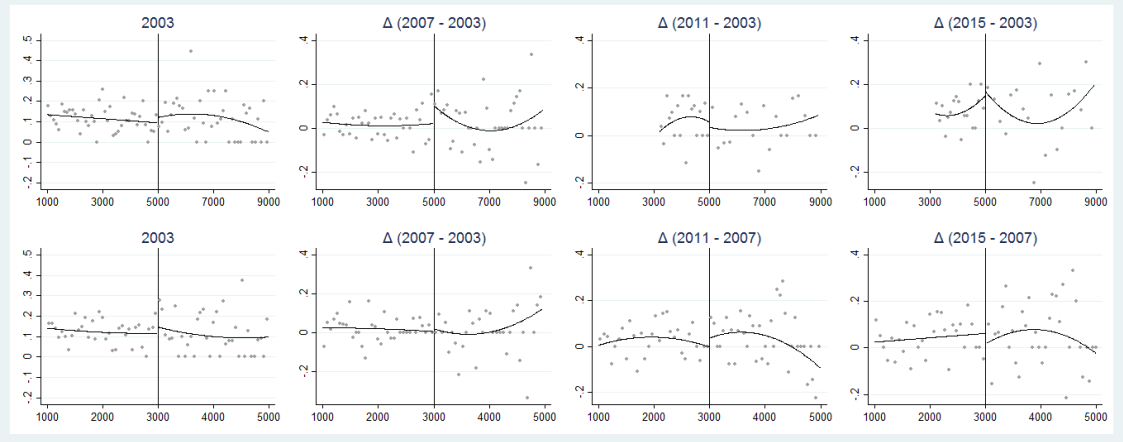
(f) Female party leaders



(g) Female councilors



(h) Female mayors



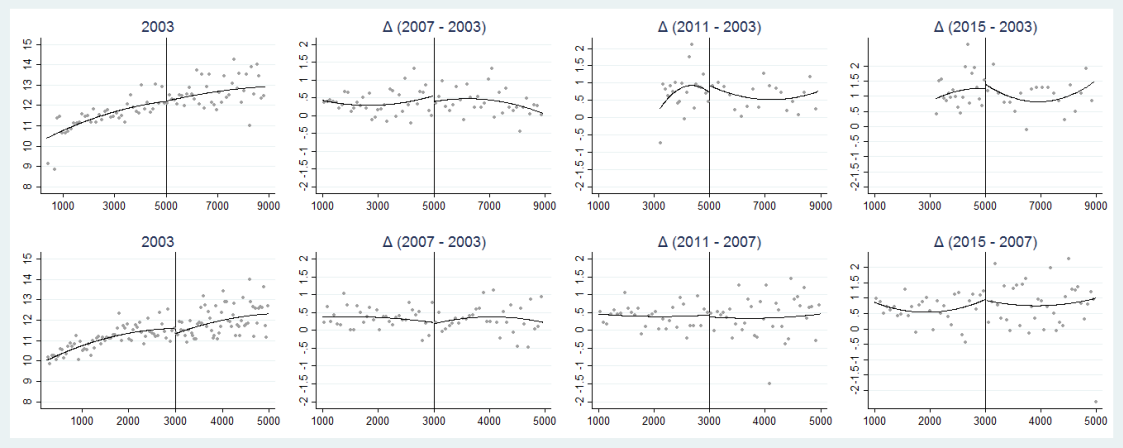
Note: These graphs provide information on the share of female politicians, by municipality population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 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 B.4: Characteristics of politicians

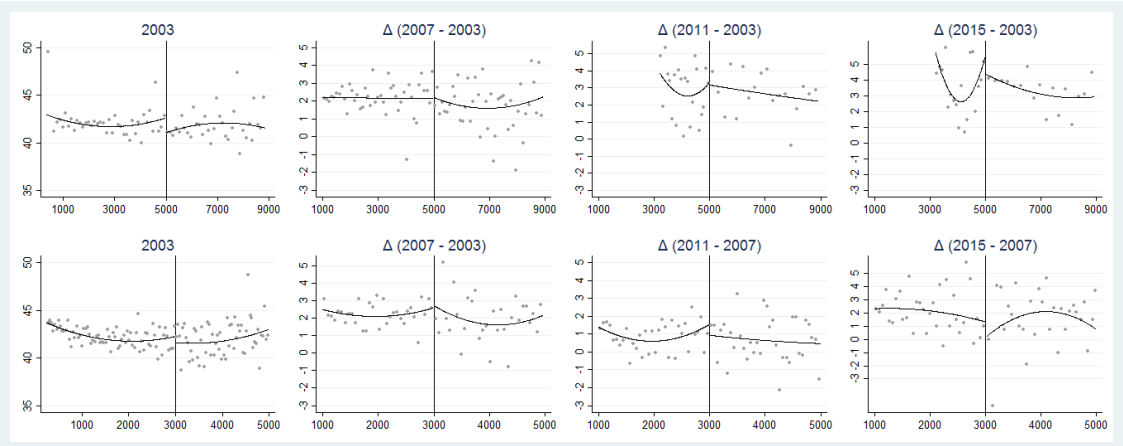
(a) Candidates' experience

(b) Councilors' experience

(c) Councilors' education



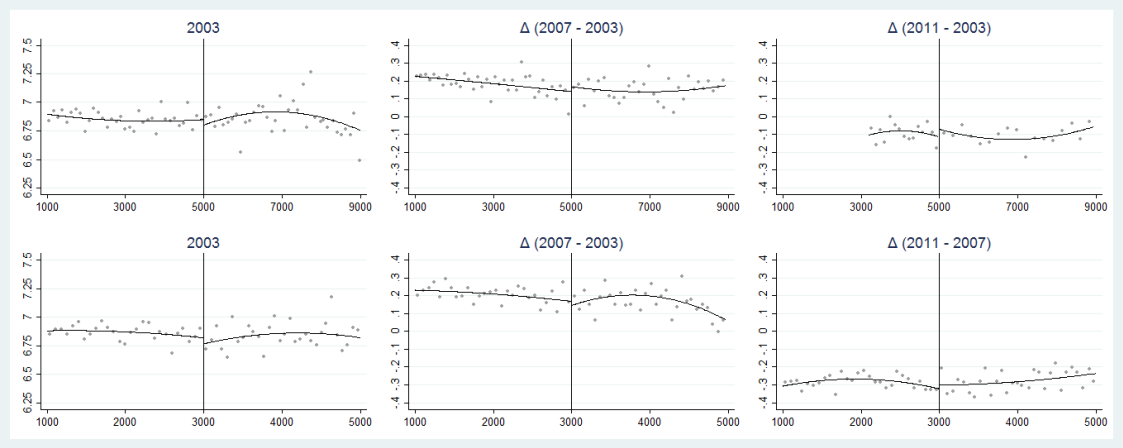
(d) Councilors' age



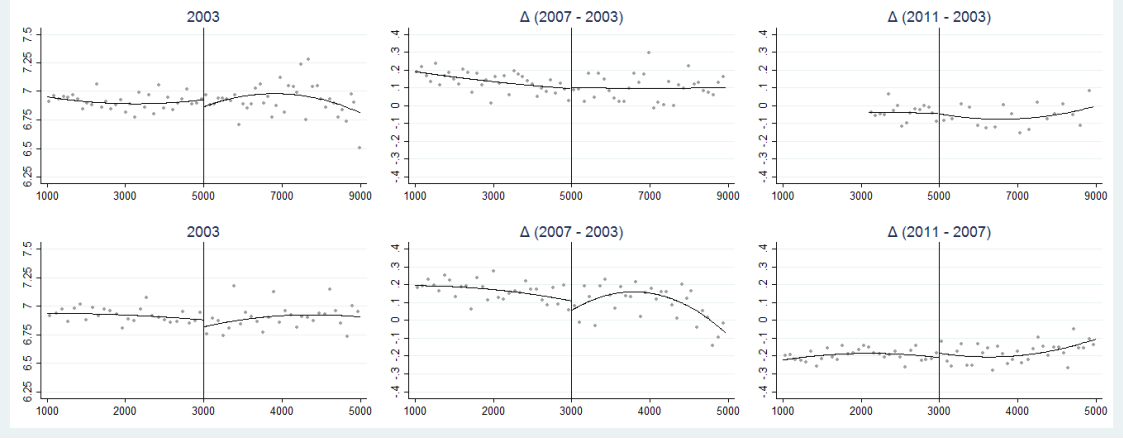
Note: These graphs provide information on the characteristics of politicians municipality population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 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 B.5: Local budget

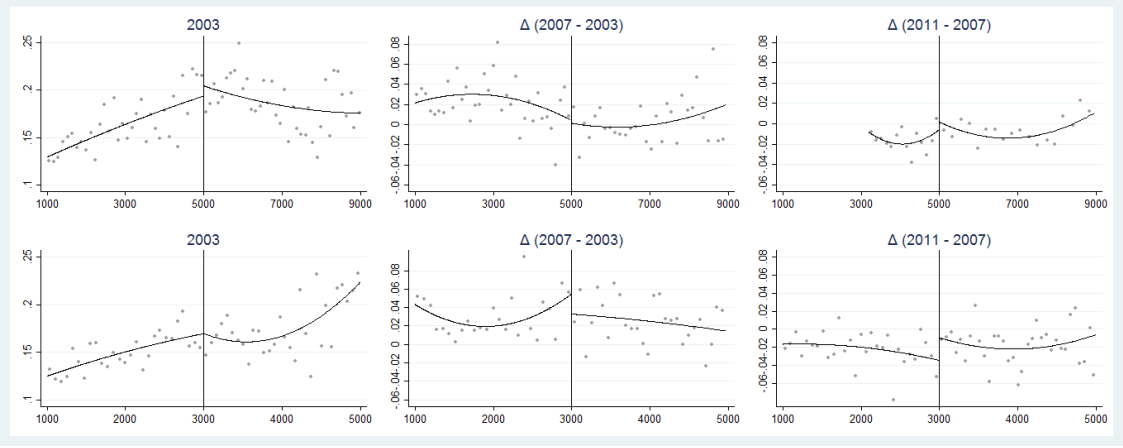
(a) Log expenditures per capita



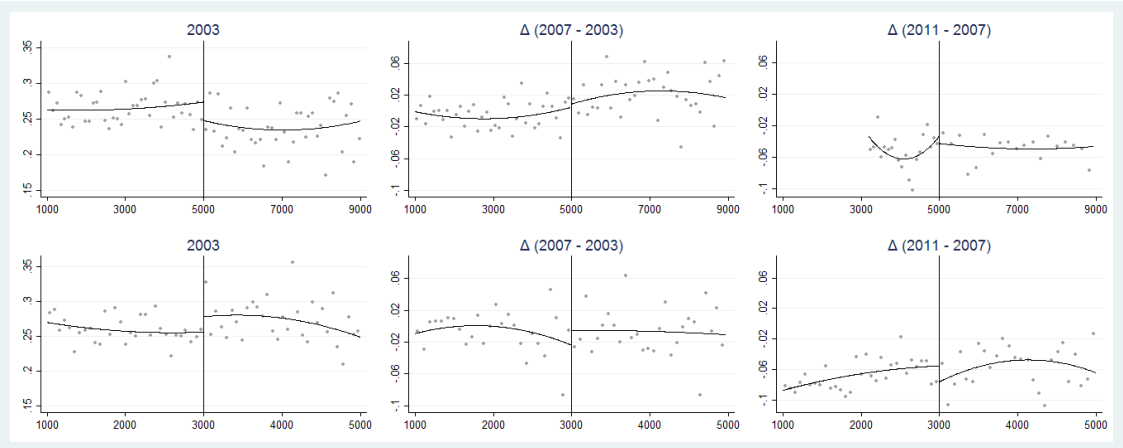
(b) Log revenues



(c) Share of female expenditures



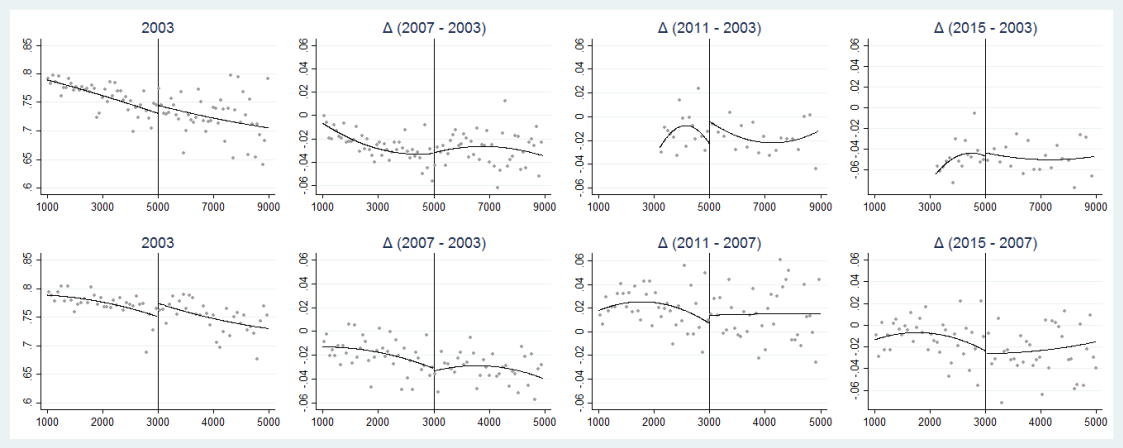
(d) Share of male expenditures



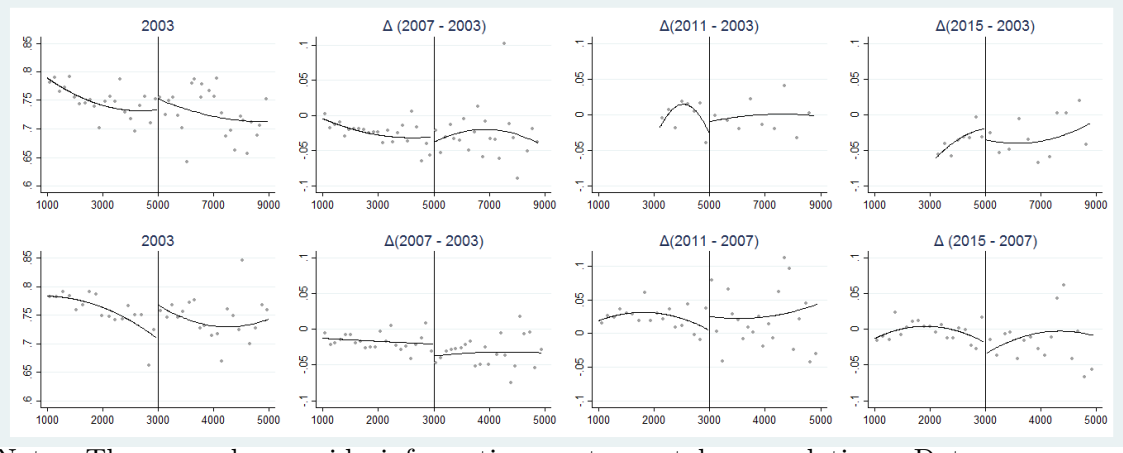
Note: These graphs provide information on the municipal budget by population. Dots are means, lines are fitted values from second-order polynomial regressions. Gender quotas were implemented in the 2007 elections in municipalities which had more than 5,000 inhabitants in January 2006. Quotas were extended 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 B.6: 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 B.7: Share of female candidates and votes by type of list, 2003

(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 B.8: Share of female candidates and votes by type of list, Δ(2007-2003)

(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 B.9: Share of female candidates and votes by type of list, Δ(2011-2007)

(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. The X-axis represents the municipality population on January 2010.

Figure B.10: Share of female candidates and votes by type of list, Δ(2015-2007)

(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. The X-axis represents the municipality population on January 2010.

Figure B.11: Share of female candidates and votes by type of list, Δ (2015 - 2003)

(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. The X-axis represents the municipality population on January 2006.

Appendix C Detailed information on the Discontinuity-in-Differences analysis

Table C.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	0.05	-0.02	-0.01	-0.01	0.01	0.02	0.01	0.05
	(0.16)	(0.05)	(0.02)	(0.03)	(0.03)	(0.05)	(0.03)	(0.07)
Bandwidth	1003	915.9	866.5	794	1030	793.5	687.7	665.5
N below cutoff	514	1284	1194	1059	1475	1058	304	246
N above cutoff	305	833	801	726	928	726	215	181
Mean dep. var.	0.148	0.119	0.0492	0.0394	0.0608	0.0217	0.0428	0.0163
Panel B. Threshold: 5000, Period: 2007-2003								
Quota	-0.00	0.52***	0.10***	0.04*	0.14***	0.06	0.08***	0.11
	(0.24)	(0.06)	(0.02)	(0.02)	(0.03)	(0.05)	(0.02)	(0.09)
Bandwidth	1580	1520	1533	1516	1873	1496	1815	1581
N below cutoff	333	999	1012	991	1335	974	405	287
N above cutoff	263	830	836	828	976	825	291	233
Mean dep. var.	0.234	0.155	0.0496	0.0479	0.0546	0.0236	0.0428	0.0209
Panel C. Threshold: 3000, Year: 2011-2007								
Quota	0.01	0.44***	0.08***	0.03	0.10***	0.01	0.03	0.10
	(0.17)	(0.06)	(0.01)	(0.02)	(0.04)	(0.05)	(0.02)	(0.08)
Bandwidth	830.3	877.9	1044	849.7	916.4	856.8	878.5	716.7
N below cutoff	401	1232	1538	1186	1308	1189	431	275
N above cutoff	257	842	968	817	862	821	271	194
Mean dep. var.	-0.110	0.0714	0.0248	0.0320	0.0170	0.0555	0.0226	0.0145

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 C.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	0.11	0.11	0.01	0.00	0.06	-0.04	0.04	0.05
	(0.41)	(0.08)	(0.02)	(0.03)	(0.05)	(0.09)	(0.04)	(0.12)
Bandwidth	919.7	874.1	1069	1066	1044	917.3	972	1073
N below cutoff	169	483	610	607	591	505	185	178
N above cutoff	178	537	618	618	615	553	189	172
Mean dep. var.	0.213	0.698	0.141	0.082	0.185	0.073	0.105	0.073
Panel B. Threshold: 5000, Period: 2015-2003								
Quota	-0.25	0.09	0.01	-0.00	0.02	-0.01	0.08*	0.07
	(0.31)	(0.07)	(0.02)	(0.03)	(0.06)	(0.10)	(0.04)	(0.15)
Bandwidth	922.5	1077	975.8	1051	928.4	1053	971.6	1164
N below cutoff	170	566	509	543	474	547	184	199
N above cutoff	179	571	539	569	517	569	188	197
Mean dep. var.	0.294	0.723	0.144	0.122	0.159	0.0603	0.131	0.0955
Panel C. Threshold: 3000, Period: 2015-2007								
Quota	-0.23	0.42***	0.08***	0.03	0.12**	-0.05	0.02	0.06
	(0.26)	(0.09)	(0.02)	(0.03)	(0.05)	(0.09)	(0.04)	(0.15)
Bandwidth	834.4	754.4	683.2	885.1	720.9	704.4	698.8	747.4
N below cutoff	386	881	756	1112	828	798	293	283
N above cutoff	222	588	519	694	557	547	181	181
Mean dep. var.	-0.215	0.132	0.043	0.057	0.041	0.097	0.064	0.046

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

Dep. var.:	(1) Candidates	(2)	(3) Councilors	(4)
	ΔExperience	ΔExperience	ΔEducation	ΔAge
Panel A. Threshold: 3000, Period: 2007-2003				
Quota			-0.12	-0.46
			(0.30)	(0.79)
Bandwidth			1004	774.3
N below cutoff			486	343
N above cutoff			291	228
Mean dep. var.			0.295	2.282
Panel B. Threshold: 5000, Period: 2007-2003				
Quota			-0.00	-1.32
			(0.33)	(1.03)
Bandwidth			1926	1321
N below cutoff			431	252
N above cutoff			286	216
Mean dep. var.			0.378	1.922
Panel C. Threshold: 3000, Period: 2011-2007				
Quota	-0.02	0.02	-0.20	0.62
	(0.03)	(0.04)	(0.32)	(0.97)
Bandwidth	828.4	1015	969.8	669
N below cutoff	1175	519	446	274
N above cutoff	826	307	273	195
Mean dep. var.	0.0402	0.0315	0.357	0.966

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 C.4: Characteristics of Politicians - Discontinuity in differences - Medium term

Dep. var.:	(1) Candidates	(2)	(3) Councilors	(4)
	ΔExperience	ΔExperience	ΔEducation	ΔAge
Panel A. Threshold: 5000, Year: 2011-2003				
Quota			0.25	0.78
			(0.49)	(1.63)
Bandwidth			1181	1102
N below cutoff			212	198
N above cutoff			196	186
Mean dep. var.			0.807	2.757
Panel B. Threshold: 5000, Period: 2015-2003				
Quota			0.51	-1.14
			(0.63)	(2.02)
Bandwidth			1134	1009
N below cutoff			199	174
N above cutoff			185	172
Mean dep. var.			1.20	3.31
Panel C. Threshold: 3000, Period: 2015-2007				
Quota	0.02	-0.01	-0.11	-1.92
	(0.03)	(0.05)	(0.50)	(1.72)
Bandwidth	1093	980.7	1087	747.3
N below cutoff	1488	482	471	277
N above cutoff	872	262	258	180
Mean dep. var.	0.033	0.021	0.64	1.87

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

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.:	**Δ Turnout**		**Δ Share of female candidates**		**Δ Share of votes**	
Sample:	**All**	**Less feminized**	**Male holdouts**	**Rival**	**Male holdouts**	**Rival**
			Panel A. Threshold: 3000, Period: 2007-2003			
Quota	-0.01	-0.02	-0.03	0.04	0.05	3.57
	(0.01)	(0.02)	(0.03)	(0.03)	(3.30)	(3.11)
BW Loc. Poly. (h)	1019	1188	820.8	944.1	913.9	687.3
N below cutoff	521	244	176	214	206	140
N above cutoff	308	117	114	126	121	95
Mean dep. var.	-0.021	-0.017	0.110	0.003	-3.080	-2.565
			Panel B. Threshold: 5000, Period: 2007-2003			
Quota	0.00	0.00	0.15***	0.10***	-0.86	-2.94
	(0.01)	(0.03)	(0.04)	(0.03)	(3.08)	(3.34)
BW Loc. Poly. (h)	1335	2158	1457	1746	1860	1727
N below cutoff	266	194	111	150	169	149
N above cutoff	233	83	97	109	114	109
Mean dep. var.	-0.031	-0.031	0.112	0.015	-1.910	-3.425
			Panel C. Threshold: 3000, Period: 2011-2007			
Quota	0.01	0.02	0.06**	0.06	-5.69	-2.63
	(0.02)	(0.03)	(0.03)	(0.04)	(3.64)	(5.04)
BW Loc. Poly. (h)	689.2	736.4	1066	652.7	748.2	607.5
N below cutoff	307	154	221	110	133	100
N above cutoff	215	95	132	86	96	77
Mean dep. var.	0.014	0.014	0.082	-0.010	0.405	-2.541

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 C.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 C.6: Voting - Discontinuity in differences - Medium term

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var.:	**Δ Turnout**		**Δ Share of female candidates**		**Δ Share of votes**	
Sample:	**All**	**Less feminized**	**Male holdouts**	**Rival**	**Male holdouts**	**Rival**
Panel A. Threshold: 5000, Period: 2011-2003						
Quota	0.02	0.04	0.08*	0.05	-2.90	-1.97
	(0.02)	(0.05)	(0.05)	(0.06)	(5.05)	(9.05)
BW Loc. Poly. (h)	1177	951.2	592.8	856.2	1222	784.6
N below cutoff	228	57	36	49	85	45
N above cutoff	215	47	51	69	86	64
Mean dep. var.	-0.010	0.002	0.218	0.052	-3.521	-5.427
Panel B. Threshold: 5000, Period: 2015-2003						
Quota	0.01	0.01	0.05	0.03	-1.90	0.19
	(0.02)	(0.04)	(0.06)	(0.05)	(11.02)	(8.62)
BW Loc. Poly. (h)	1076	873.2	785.9	927.9	884.7	1155
N below cutoff	205	47	45	54	51	74
N above cutoff	198	44	61	66	65	80
Mean y control	-0.011	0.710	0.227	0.058	-7.783	-6.376
Panel C. Threshold: 3000, Period: 2015-2007						
Quota	-0.00	-0.01	0.16***	0.07	-5.68	-2.47
	(0.02)	(0.04)	(0.05)	(0.04)	(5.48)	(6.12)
BW Loc. Poly. (h)	662.4	715.9	674.2	747.7	762.1	859.3
Obs left of c	278	139	104	122	128	153
Obs right of c	175	71	57	67	68	76
Mean y control	-0.018	-0.009	0.116	0.013	-1.382	-5.230

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 C.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 C.7: Budget and economic indicators - Discontinuity in differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Expenditure	**Revenues**	**Expenditure (1989 classif.)**		**Expenditure (2010 classif.)**		**Unemployment rate**	
			Female	**Male**	**Female**	**Male**	**Female**	**Male**
			Panel A. Threshold: 3000, period: 2010-2008 vs. 2006-2004					
Quota	-0.01	-0.01	-0.02	-0.01			-0.44	-0.13
	(0.05)	(0.06)	(0.03)	(0.03)			(0.29)	(0.36)
BW Loc. Poly. (h)	1308	817.3	826.1	767			789.7	930.1
N below cutoff	518	286	291	262			372	466
N above cutoff	286	193	195	180			242	283
Mean dep. var.	0.191	0.153	0.0377	-0.0156			1.475	3.032
			Panel B. Threshold: 5000, period: 2010-2008 vs. 2006-2004					
Quota	0.07	0.03	-0.01	0.00			-0.25	0.15
	(0.06)	(0.05)	(0.02)	(0.02)			(0.24)	(0.32)
BW Loc. Poly. (h)	1502	1502	1309	1876			1503	1319
N below cutoff	255	255	211	341			315	265
N above cutoff	217	217	195	259			254	230
Mean dep. var.	0.167	0.118	0.009	-0.005			1.367	3.133
			Panel C. Threshold: 3000, period: 2014-2012 vs. 2010-2008					
Quota	0.05	0.03			0.03	-0.00	-0.04	0.09
	(0.04)	(0.04)			(0.02)	(0.02)	(0.27)	(0.33)
BW Loc. Poly. (h)	998.6	864.1			1032	692.2	1179	932
N below cutoff	397	323			434	244	626	468
N above cutoff	233	206			254	177	344	282
Mean dep. var.	-0.283	-0.199			-0.024	-0.059	2.711	3.305
			Panel D. Threshold: 5000, period: 2014-2012 vs. 2010-2008					
Quota	-0.00	-0.05			-0.00	-0.00	-0.13	0.49
	(0.08)	(0.07)			(0.02)	(0.03)	(0.50)	(0.68)
BW Loc. Poly. (h)	1054	1189			1112	918.3	793.8	948.2
N below cutoff	142	162			177	138	146	179
N above cutoff	148	164			173	152	162	185
Mean dep. var.	-0.093	-0.043			-0.015	-0.058	4.474	6.472

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% *

Appendix D Detailed information on the RD analysis

Table D.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: 2015					
Bandwidth	629.1	826.3	888	738	542.7	426	616.9	575.9
N below cutoff	271	1304	1433	1125	751	536	260	220
N above cutoff	191	891	938	797	640	530	186	176
Mean dep. var.	3.421	0.218	0.310	0.299	0.327	0.172	0.277	0.109
			Panel B. Threshold: 5000, Year: 2003					
Quota	-0.02	-0.09*	-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)
BW Loc. Poly.	1419	1688	1774	1724	1979	1694	1672	1400
N below cutoff	297	1445	1548	1495	1813	1445	373	273
N above cutoff	248	1136	1167	1150	1280	1136	275	233
Mean dep. var.	3.899	0.247	0.325	0.310	0.354	0.163	0.286	0.109
			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	0.326	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)
Bandwidth	1754	1530	1500	1916	1183	1156	1709	2272
N below cutoff	388	1297	1251	1780	911	894	374	538
N above cutoff	283	1081	1071	1289	903	883	277	314
Mean dep. var.	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 D.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: 2015								
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)
Bandwidth	1072	1020	1075	959.5	1195	916.5	1208	654.1
N below cutoff	563	1788	1917	1667	2173	1578	644	275
N above cutoff	325	1164	1225	1105	1321	1044	350	189
Mean dep. var.	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	0.07
	(0.48)	(0.05)	(0.00)	(0.03)	(0.03)	(0.06)	(0.03)	(0.12)
Bandwidth	1025	805.8	1398	866.1	804.1	986.3	734.7	1009
N below cutoff	194	600	1130	648	600	756	134	171
N above cutoff	195	681	1001	715	681	798	151	176
Mean dep. var.	4.077	0.945	0.470	0.398	0.550	0.226	0.392	0.199
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)
Bandwidth	916.7	965.6	739.8	1315	754.6	1167	781.2	1090
N below cutoff	440	1560	1064	2287	1096	1964	349	540
N above cutoff	242	989	746	1280	756	1159	207	284
Mean dep. var.	-0.118	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)
Bandwidth	1123	764.5	766	1374	1017	1163	961.4	1449
N below cutoff	216	573	573	1109	793	916	180	284
N above cutoff	207	646	646	999	820	896	186	242
Mean dep. var.	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 D.3: Characteristics of Politicians - Regression Discontinuity - Year 2003 and 2007

	(1)	(2)	(3)	(4)
	Candidates	**Councilors**		
	Experience	**Experience**	**Education**	**Age**
		Panel A. Threshold: 3000, Year: 2003		
Quota			0.09	0.89
			(0.55)	(1.14)
Bandwidth			533.7	746.8
N below cutoff			207	325
N above cutoff			165	211
Mean dep. var.			11.53	41.78
		Panel A. Threshold: 5000, Year: 2003		
Quota			-0.29	-1.79**
			(0.34)	(0.84)
Bandwidth			1446	1286
N below cutoff			295	256
N above cutoff			241	223
Mean dep. var.			12.10	42.12
		Panel A. Threshold: 3000, Year: 2007		
Quota	0.03	-0.00	0.23	0.94
	(0.03)	(0.03)	(0.36)	(0.89)
Bandwidth	735.5	1138	877.7	874.6
N below cutoff	1188	597	411	411
N above cutoff	877	334	259	260
Mean dep. var.	0.375	0.438	11.77	43.71
		Panel B. Threshold: 5000, Year: 2007		
Quota	-0.06**	-0.08***	0.44	-1.16
	(0.03)	(0.03)	(0.40)	(0.95)
Bandwidth	1076	1267	1403	1258
N below cutoff	834	251	274	243
N above cutoff	826	222	228	212
Mean dep. var.	0.363	0.469	12.44	43.77
		Panel C. Threshold: 3000, Year: 2011		
Quota	0.02	0.02	-0.14	1.57
	(0.02)	(0.03)	(0.30)	(1.03)
Bandwidth	780.4	1018	1362	968.8
N below cutoff	1264	520	690	455
N above cutoff	907	307	356	276
Mean dep. var.	0.399	0.465	12.04	44.77

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 - Regression Discontinuity - Years 2011 and 2015

	(1)	(2)	(3)	(4)
	Candidates	**Councilors**		
	Experience	**Experience**	**Education**	**Age**
	Panel C. Threshold: 3000, Year: 2011			
Quota	0.02	0.02	-0.14	1.57
	(0.02)	(0.03)	(0.30)	(1.03)
Bandwidth	780.4	1018	1362	968.8
N below cutoff	1264	520	690	455
N above cutoff	907	307	356	276
Mean dep. var.	0.399	0.465	12.04	44.77
	Panel D. Threshold: 5000, Year: 2011			
Quota	0.02	0.07	0.59	1.67
	(0.03)	(0.04)	(0.58)	(1.42)
Bandwidth	1087	1131	943.2	905.9
N below cutoff	844	219	171	160
N above cutoff	832	207	171	166
Mean dep. var.	0.346	0.410	12.89	44.75
	Panel E. Threshold: 3000, Year: 2015			
Quota	-0.01	0.00	0.20	-0.08
	(0.03)	(0.04)	(0.41)	(1.40)
Bandwidth	783.8	1036	1219	843.8
N below cutoff	1159	514	556	338
N above cutoff	776	274	289	202
Mean dep. var.	0.403	0.452	12.31	45.64
	Panel F. Threshold: 5000, Year: 2015			
Quota	-0.01	-0.02	0.95	-0.14
	(0.03)	(0.03)	(0.62)	(1.31)
Bandwidth	1141	1326	892.4	1055
N below cutoff	891	262	155	189
N above cutoff	878	231	161	178
Mean dep. var.	0.361	0.449	13.31	45.40

Note: In column (1) the unit of observation is party list, while in columns (4) 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 D.5: Voting - Regression Discontinuity - Years 2003 and 2007

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Turnout		Share of female candidates		Share of votes	
Sample:	All	Less feminized	Male holdouts	Gender balanced	Male holdouts	Gender balanced
			Panel A. Threshold: 3000, Year: 2003			
Quota	0.02	0.05	-0.05	-0.03	2.42	-1.58
	(0.02)	(0.04)	(0.04)	(0.04)	(4.85)	(5.48)
BW Loc. Poly. (h)	625.6	757.7	767	780.7	897.2	720.8
N below cutoff	266	124	167	171	210	155
N above cutoff	189	78	107	109	122	103
Mean dep. var.	0.761	0.735	0.234	0.398	45.16	45.97
			Panel B. Threshold: 5000, Year: 2003			
Quota	0.02	0.02	-0.01	-0.02	-3.04	5.04
	(0.02)	(0.04)	(0.03)	(0.03)	(3.71)	(3.87)
BW Loc. Poly. (h)	1218	1212	1850	1757	2172	2284
N below cutoff	248	71	190	170	233	256
N above cutoff	221	49	114	110	123	125
Mean dep. var.	0.737	0.727	0.231	0.388	44.58	44.81
			Panel C. Threshold: 3000, Year: 2007			
Quota	-0.01	-0.00	-0.05	0.03	0.76	2.26
	(0.02)	(0.03)	(0.04)	(0.03)	(3.72)	(4.08)
BW Loc. Poly. (h)	778.7	823.6	758.8	882.9	818.2	807.4
N below cutoff	365	148	158	198	175	173
N above cutoff	242	94	105	119	114	112
Mean dep. var.	0.751	0.729	0.342	0.391	44.13	41.73
			Panel D. Threshold: 5000, Year: 2007			
Quota	0.01	0.02	0.10***	0.06**	-1.23	-2.99
	(0.02)	(0.03)	(0.03)	(0.03)	(4.22)	(4.15)
BW Loc. Poly. (h)	1369	1841	1486	2174	2092	1709
N below cutoff	271	141	115	223	210	146
N above cutoff	237	77	98	123	121	108
Mean dep. var.	0.720	0.711	0.358	0.353	42.06	42.19

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) to (6), we keep municipalities where the two lists with the largest share of votes in the pre-quota election re-run in the election under analysis. In columns (3) and (5) the dependent variable is measured for the male holdout among these two lists, which is the list with the relatively lowest share of women; in columns (4) and (6) it is measured for the rival lists. 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 D.6: Voting - Regression Discontinuity - Years 2011 and 2015

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Turnout		Share of female candidates		Share of votes	
Sample:	All	Less feminized	Male holdouts	Gender balanced	Male holdouts	Gender balanced
			Panel A. Threshold: 3000, Year: 2011			
Quota	-0.00	0.02	0.04	0.09***	1.08	-9.85**
	(0.02)	(0.02)	(0.03)	(0.03)	(4.42)	(4.55)
BW Loc. Poly. (h)	765.6	794.8	622.7	614.4	805.1	606
N below cutoff	354	171	107	103	151	100
N above cutoff	239	99	82	78	99	77
Mean dep. var.	0.766	0.750	0.364	0.414	42.91	45.93
			Panel B. Threshold: 5000, Year: 2011			
Quota	0.03	0.06	-0.01	0.01	-1.72	-5.79
	(0.02)	(0.06)	(0.02)	(0.01)	(7.43)	(7.08)
BW Loc. Poly. (h)	1288	845.5	854.6	647.3	783.5	889.4
N below cutoff	260	45	49	39	45	52
N above cutoff	225	44	69	56	64	69
Mean dep. var.	0.740	0.739	0.471	0.472	43.33	35.37
			Panel C. Threshold: 3000, Year: 2015			
Quota	-0.04*	-0.01	0.15***	0.09***	1.24	-13.51**
	(0.02)	(0.03)	(0.04)	(0.03)	(5.01)	(6.70)
BW Loc. Poly. (h)	737.3	868.6	544.5	598.3	813.5	771.8
N below cutoff	317	179	79	91	139	131
N above cutoff	199	88	46	51	71	69
Mean dep. var.	0.736	0.729	0.376	0.435	41.38	41.81
			Panel D. Threshold: 5000, Year: 2015			
Quota	0.01	0.03	-0.02	0.01	-2.05	-2.21
	(0.02)	(0.04)	(0.03)	(0.02)	(7.77)	(8.67)
BW Loc. Poly. (h)	1137	784.2	770.9	886.9	1015	750.7
N below cutoff	218	41	44	51	60	43
N above cutoff	208	42	58	65	74	57
Mean dep. var.	0.705	0.708	0.478	0.477	37.09	35.20

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) to (6), we keep municipalities where the two lists with the largest share of votes in the pre-quota election re-run in the election under analysis. In columns (3) and (5) the dependent variable is measured for the male holdout among these two lists, which is the list with the relatively lowest share of women; in columns (4) and (6) it is measured for the rival lists. 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 D.7: Budget and Economic Indicators - Regression Discontinuity - Years 2004-2006

	(1)	(2)	(3)	(4)	(5)	(6)
			Expenditure		**Unemployment rate**	
	Expenditure	**Revenues**	**(1989 classif.)**			
			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 D.8: Budget and Economics indicators - Regression Discontinuity - Years 2008-2010 & 2012-2014

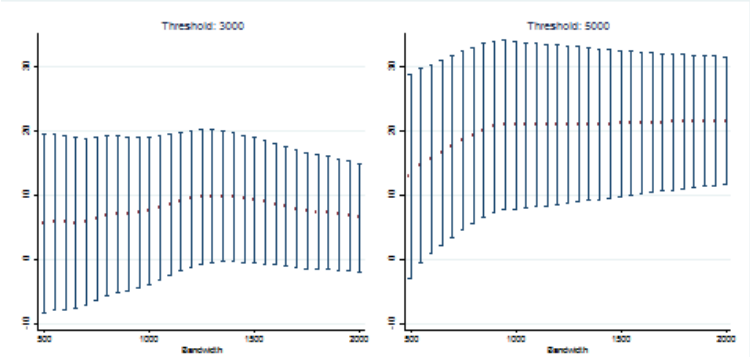
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Expenditure	**Revenues**	**Expenditure (1989 classif.)**		**Expenditure (2010 classif.)**		**Unemployment rate**		**Net per capita Income**
			Female	**Male**	**Female**	**Male**	**Female**	**Male**	
			Panel A. Threshold: 3000, period: 2008 - 2010						
Quota	-0.03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

Notes: 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% *

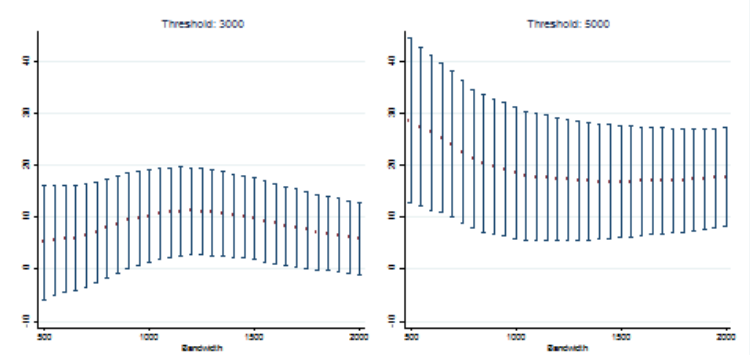
Appendix E Multiple Bandwidths

Figure E.1: Federal transfers - multiple bandwidths

(a) Years 2003-2006



(b) Years 2007-2012



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

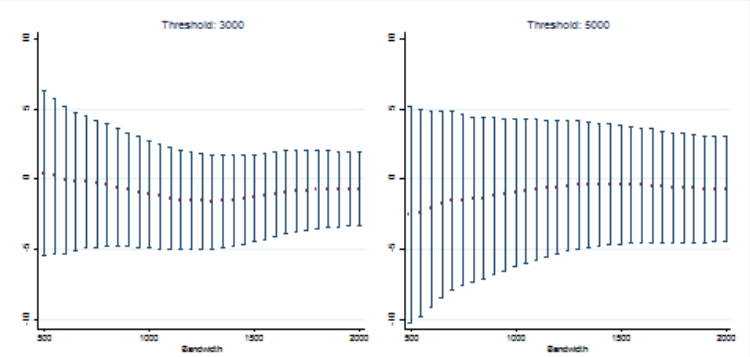
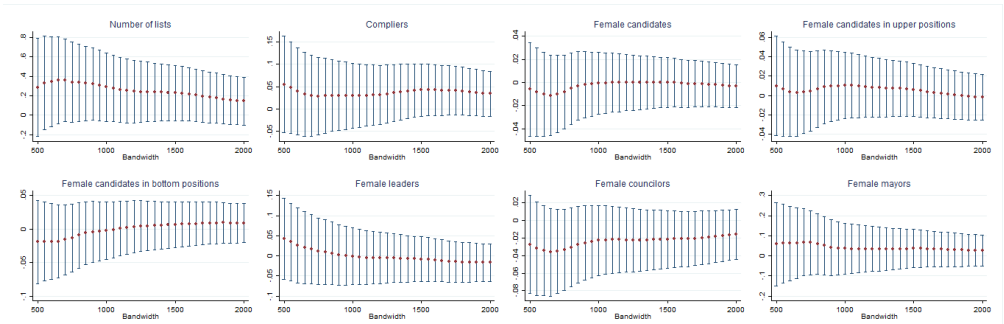
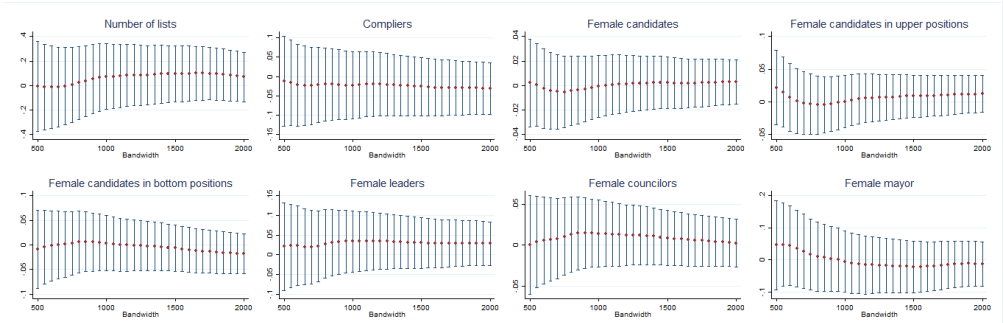


Figure E.2: Female politicians - RD estimates, multiple bandwidths

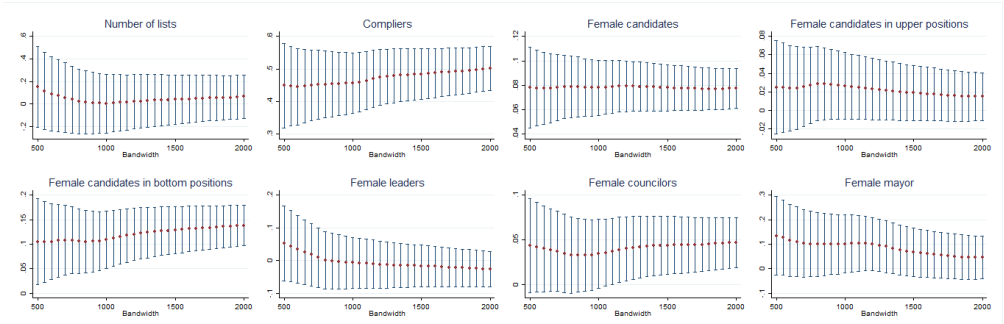
(a) Threshold: 3000, year: 2003



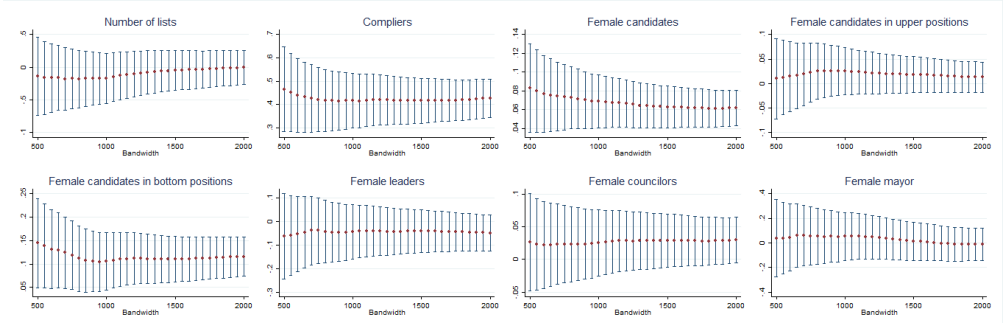
(b) Threshold: 3000, period: Δ(2007-2003)



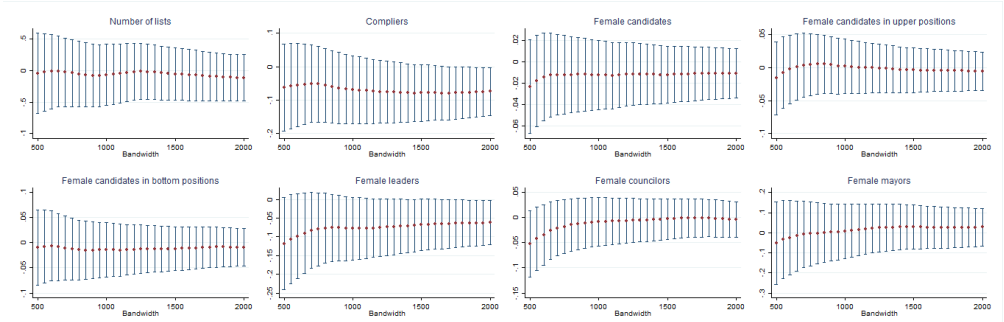
(c) Threshold: 3000, period: Δ(2011-2007)



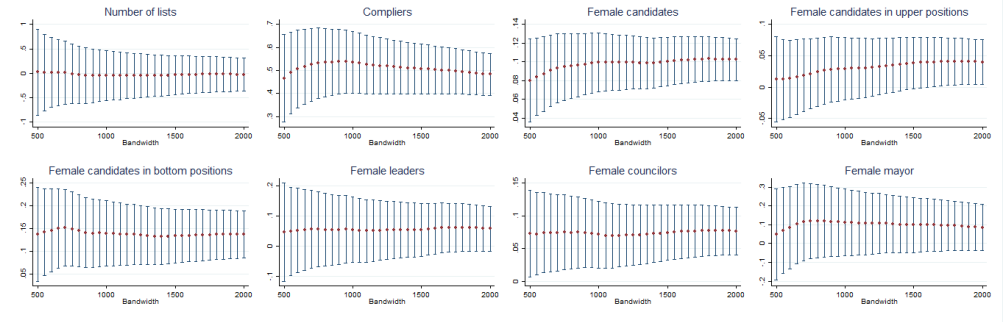
(d) Threshold: 3000, period: Δ(2015-2007)



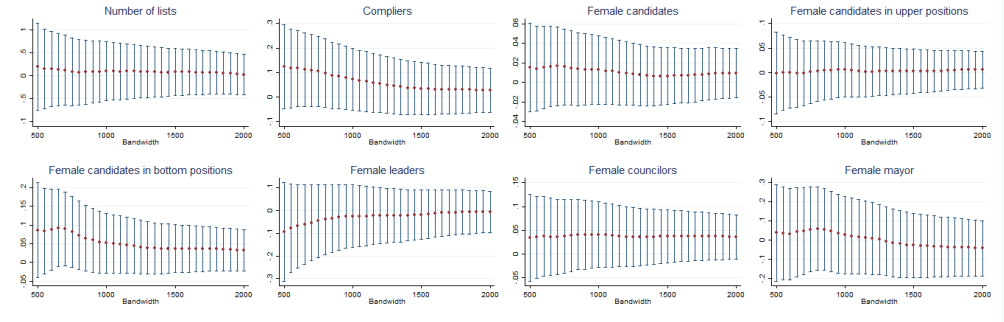
(e) Threshold: 5000, year: 2003



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



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



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

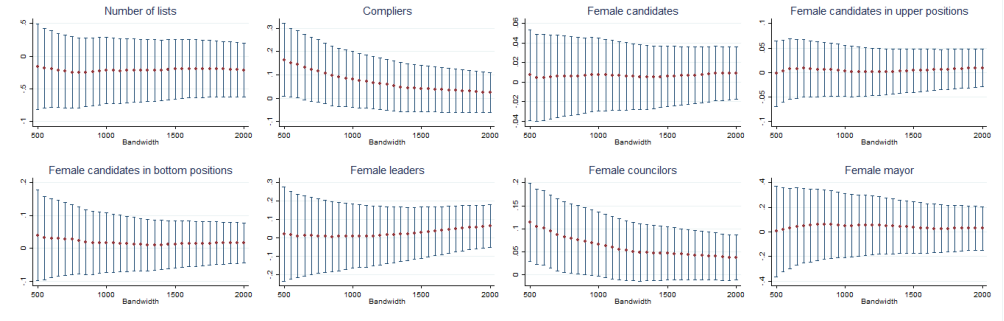
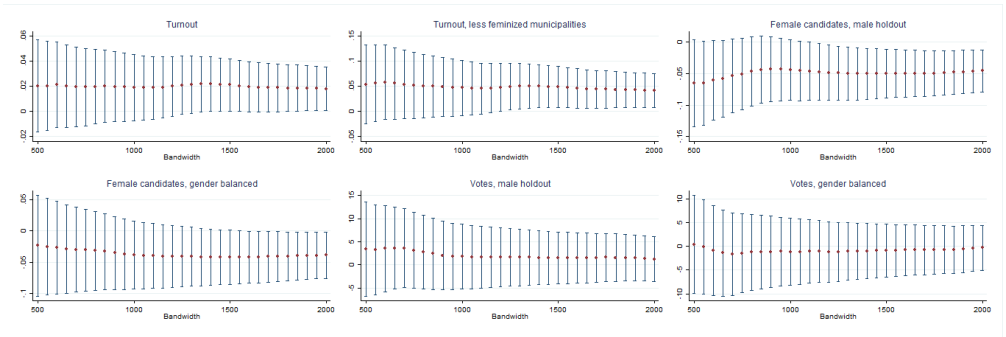
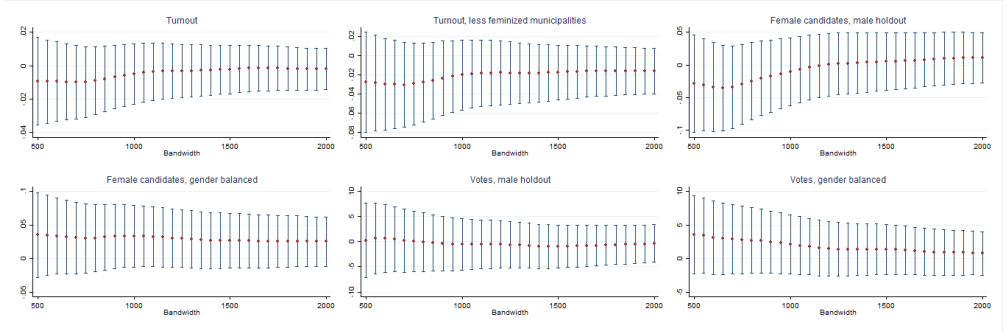


Figure E.3: Voting behavior - Discontinuity in differences, multiple bandwidths

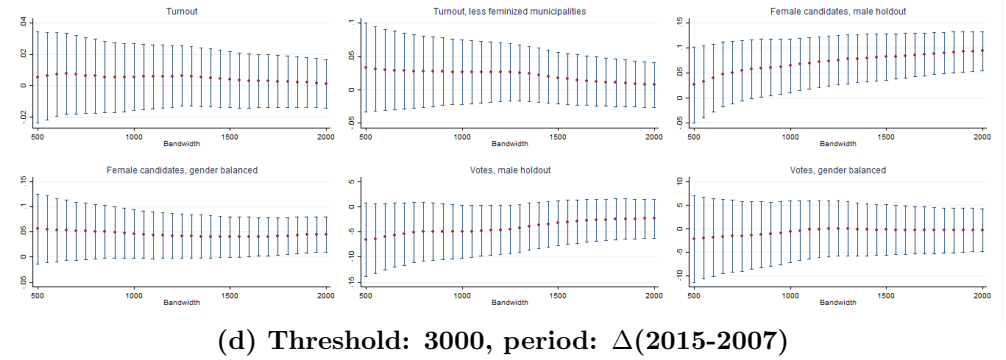
(a) Threshold: 3000, year: 2003



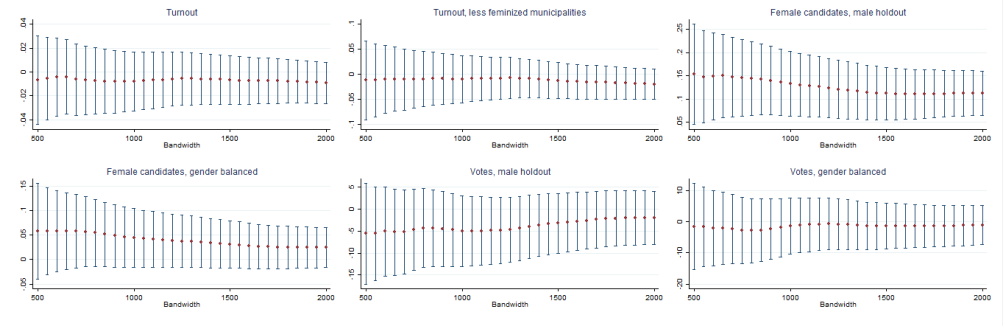
(b) Threshold: 3000, period: Δ(2007-2003)



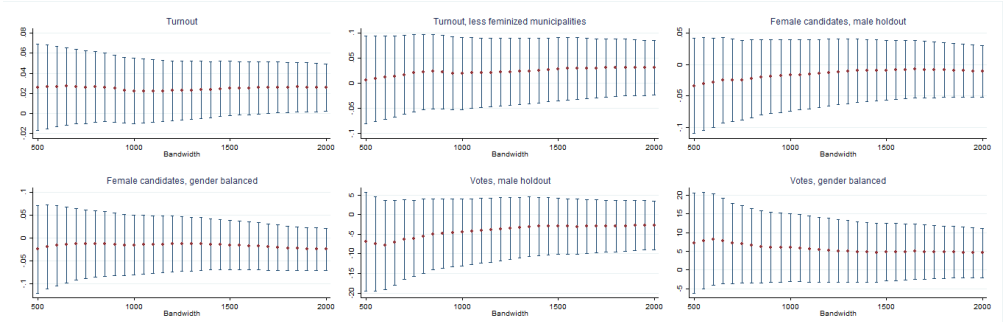
(c) Threshold: 3000, period: Δ(2011-2007)



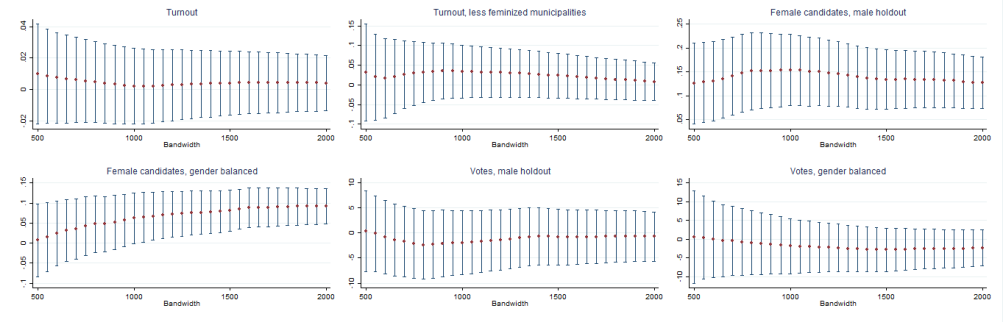
(d) Threshold: 3000, period: Δ(2015-2007)



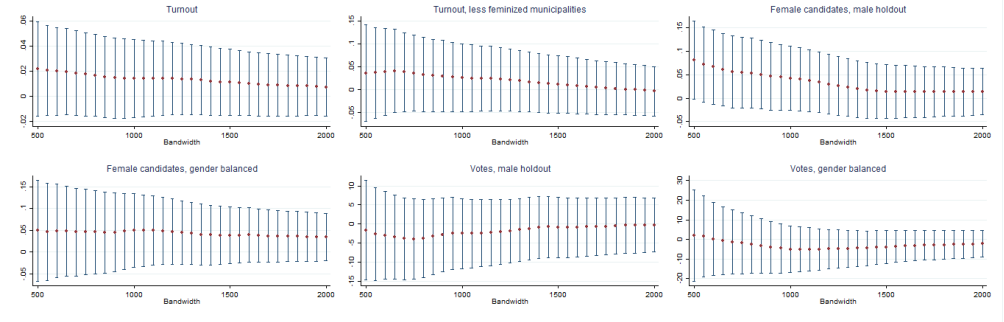
(e) Threshold: 5000, year: 2003



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



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



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

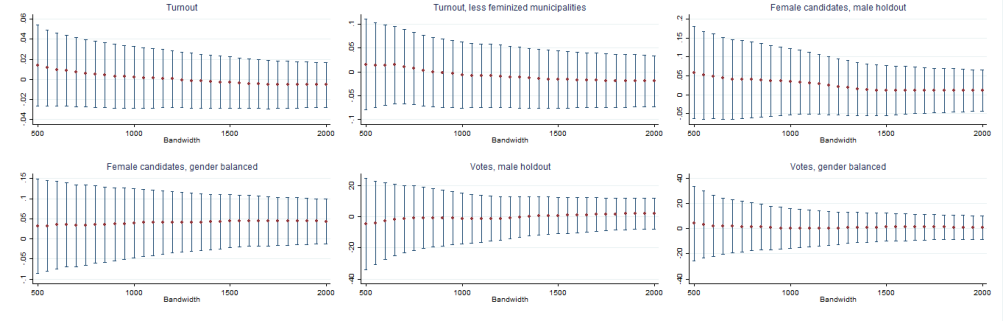
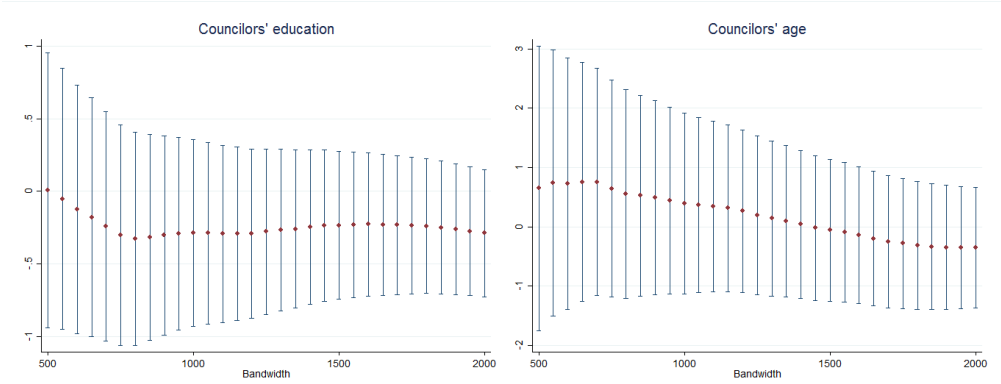
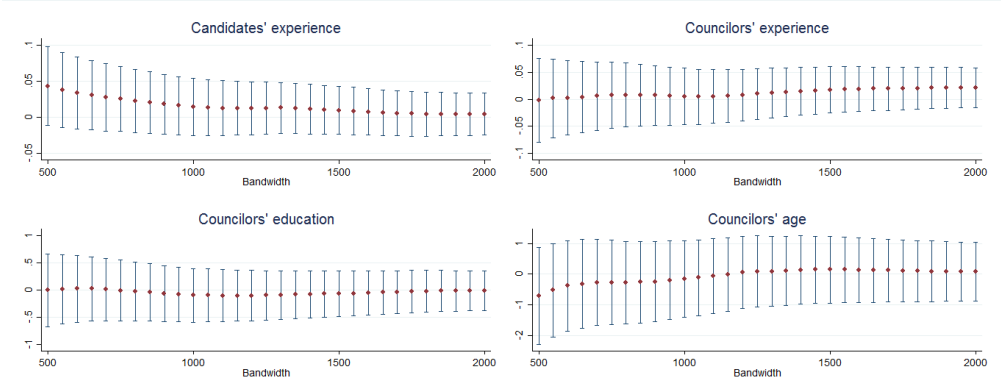


Figure E.4: Characteristics of politicians - RD estimates, multiple bandwidths

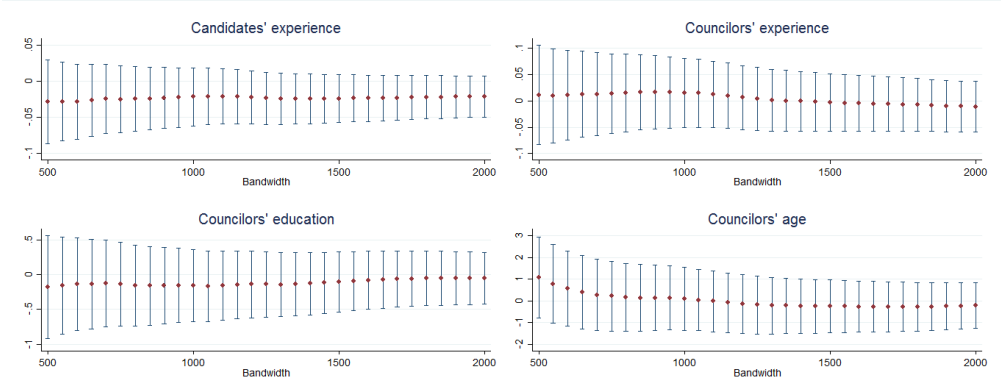
(a) Threshold: 3000, year: 2003



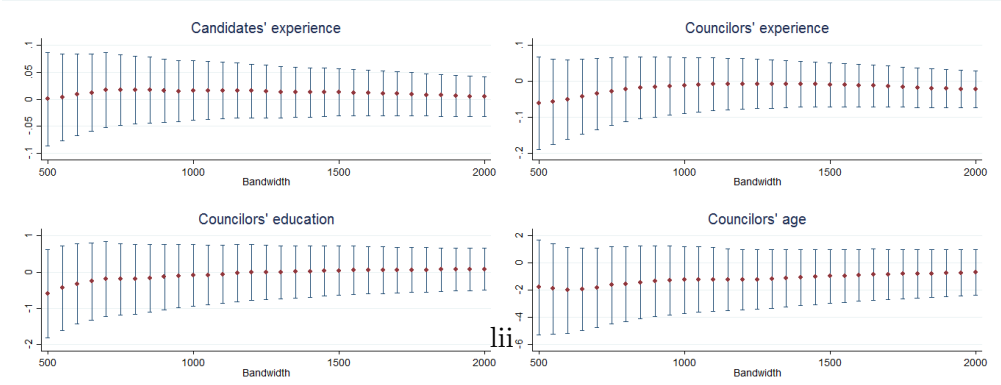
(b) Threshold: 3000, period: Δ(2007-2003)



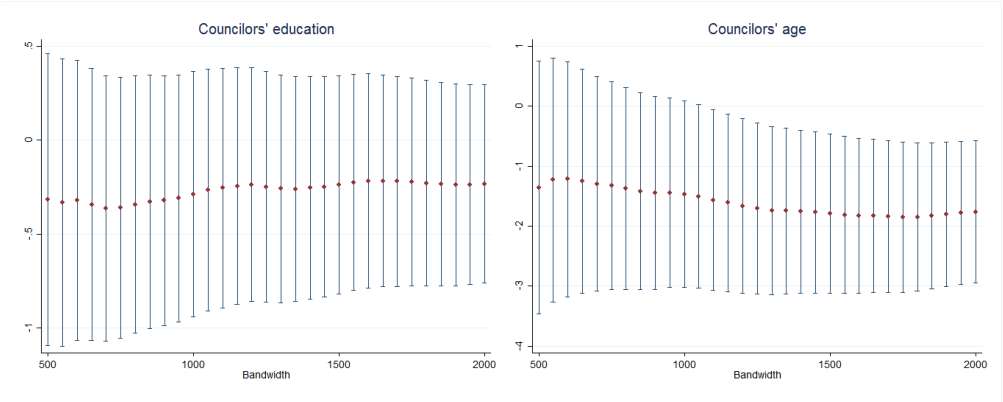
(c) Threshold: 3000, period: Δ(2011-2007)



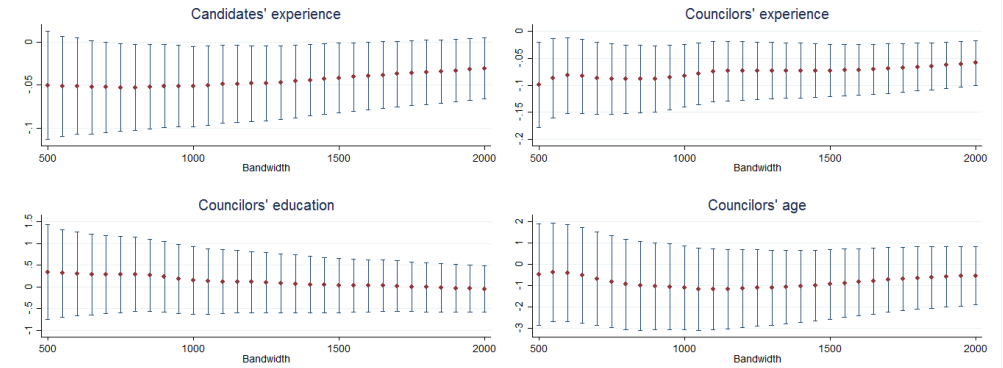
(d) Threshold: 3000, period: Δ(2015-2007)



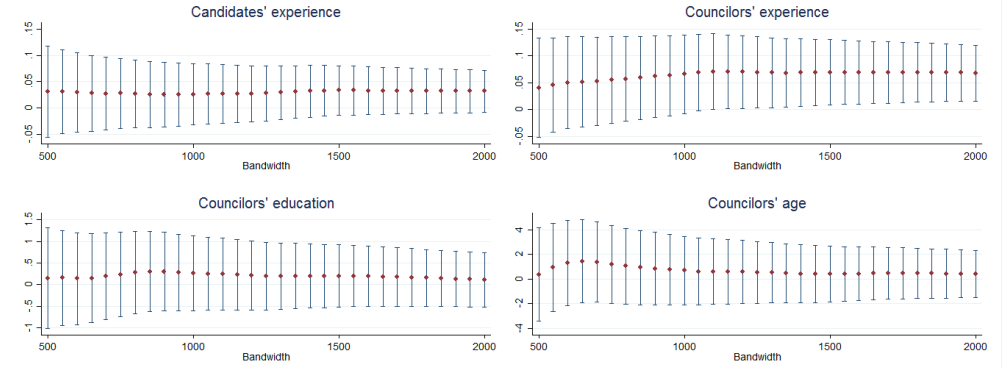
(e) Threshold: 5000, year: 2003



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



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



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

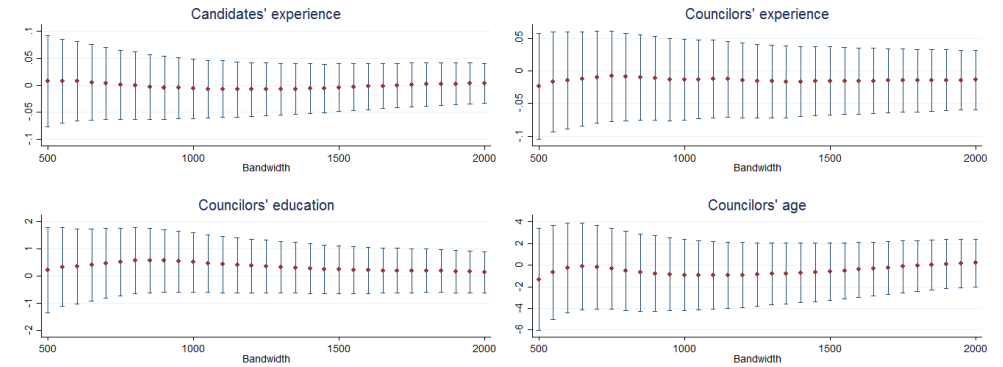
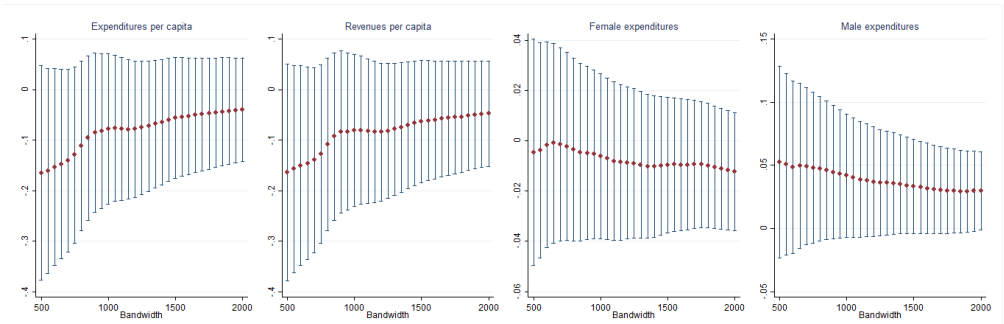
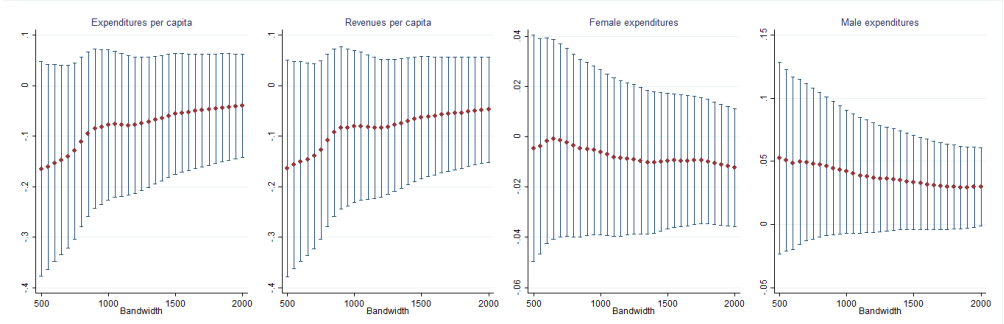


Figure E.5: Budget - RD estimates, multiple bandwidths

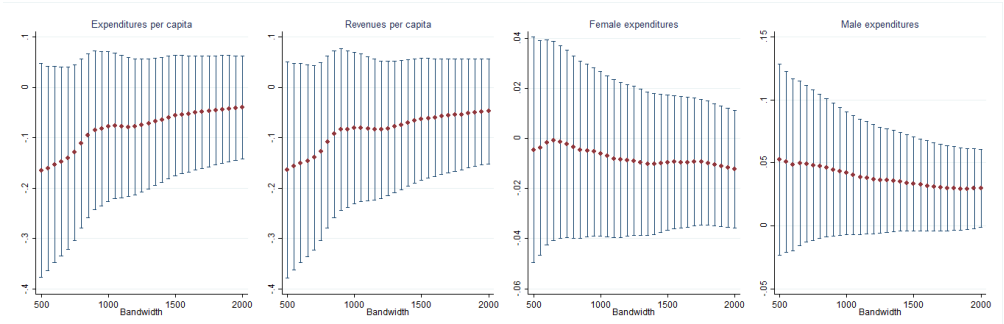
(a) Threshold: 3000, term: 2003



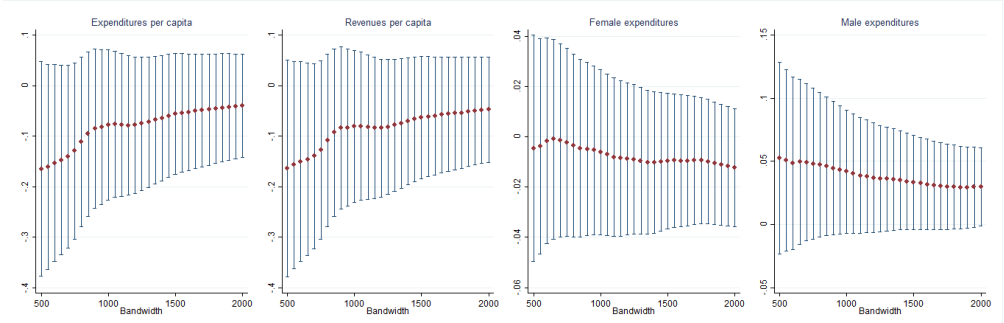
(b) Threshold: 3000, term: Δ(2007-2003)



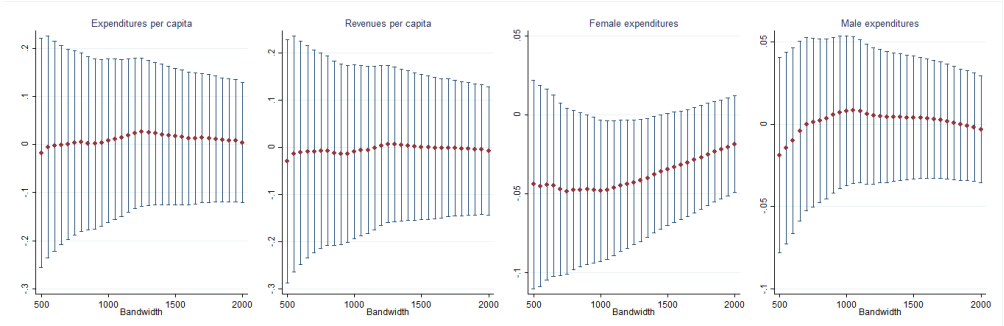
(c) Threshold: 3000, term: Δ(2011-2007)



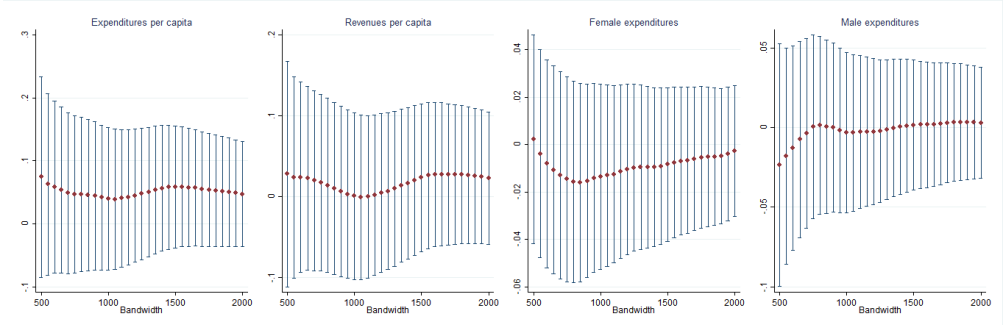
(d) Threshold: 3000, term: Δ(2011-2007)



(e) Threshold: 5000, term: 2003



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



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