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**CAN GENDER QUOTAS BREAK DOWN NEGATIVE STEREOTYPES?  
EVIDENCE FROM CHANGES IN ELECTORAL RULES**

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# Can Gender Quotas Break Down Negative Stereotypes? Evidence from Changes in Electoral Rules<sup>\*</sup>

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*Abstract: In this paper we analyse the effect of gender quotas on women involvement in political activity using a rich data set providing information on all Italian local administrators elected from 1985 to 2007. Gender quotas were introduced in Italy by law in 1993 and were in force until 1995. Because of the short period covered by the reform, some municipalities never voted under the gender quota regime. This allows us to individuate a treatment and a control group and to estimate the effects of gender quotas using a difference-in-differences estimation strategy. Our estimates show that women representation in politics after the reform has increased significantly more in municipalities that were interested by the reform compared to municipalities that were not affected. This result holds true also if we exclude from our analysis elections taking place during the period in which the reform was in force. Moreover, the higher women representation in “Gender Quota Municipalities” is not related to the advantages that women elected during the reform have obtained from incumbency and does not seem to be driven by different temporal trends among Southern and Northern regions. These findings suggest that affirmative actions are useful to break down stereotypes against women.*

*JEL classification: D72, D78; J71 ; J16*

*Keywords: Affirmative Actions; Gender Quotas; Discrimination; Stereotypes; Politicians; Natural Experiment.*

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## **1. Introduction**

In nearly all countries – both in developed and less developed areas – women are still underrepresented in national parliaments and in other representative institutions. On average, in 2006 less than 17% of parliament seats were assigned to women<sup>1</sup> and the gender imbalance appears to narrow very slowly over time (see UNICEF, 2007).

These figures seem to be the result of a number of factors that continue to hamper the involvement of women in politics. On the one hand, women may be less inclined to participate in politics due to weak preferences for this type of career, leading them to devote less resources to the pursuit of political professions, or because of higher entry costs, in part related to the strength of incumbency, which makes it easier for elected officials (prevalingly males for historical reasons) to be re-elected in successive contests. On the other hand, women may face cultural barriers that hinder them to participate in politics, since this violates traditional gender roles. In addition, male dominated parties may oppose female candidacies, both because of the fear of losing “rent-positions”, typically reserved to men and because female candidates may be thought as less able to attract voters. In fact, voters may dislike female participation in politics, as in many cultures there is still a strong division of sex roles, or voters may believe that women are less competent as policy-makers.

In order to enhance women participation in policymaking, many countries have introduced norms reserving political positions to them (*political reservations* or *gender quotas*). As reported by Duflo (2005), quotas for women in parliaments in 2001 were in force in more than 30 countries. Institutional changes are considered a useful tool to increase women participation in politics, since cultural and social norms that seem to have hindered their political empowerment tend to evolve very slowly.

The rationale for increasing women representation is that women legislators tend to raise distinctive issues and priorities in the public agenda and give particular attention to women’s interests (Pande, 2003; Chattopadhyay and Duflo, 2004; Chen, 2009). As a consequence, correcting the imbalances in political representation helps to correct the imbalance in other spheres as well (Sen, 1999).

Yet another argument for increasing women participation to politics is the belief that they are less corrupt than man. Several studies have shown a correlation between significant rates of women in government and lowered levels of corruption at both national (Dollar, Fisman and Gatti, 1999) and local levels (Kudva, 2001).

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<sup>1</sup> Even though in some countries women have reached almost equal representation (e.g., 47.3% of elected representatives in the Swedish parliament in 2006), in most countries women are still far behind: 17.3% in the 2006 Italian Parliamentary elections; 18.5% in the 2007 French Parliamentary elections; 19.9% in the 2005 United Kingdom elections and 31.8% in the 2005 German elections (IDEA at <http://www.quotaproject.org>).

An interesting issue is whether affirmative actions (such as gender quotas) are able to break down negative stereotypes about the capabilities of women in politics. If the low representation of women in politics is, at least partially, due to statistical discrimination, then political reservations allowing women to demonstrate their skills, may induce the electorate to vote for them in future elections. In addition, exposure to female politicians may change cultural attitudes on appropriate roles for women. The idea is that the exposure to counterstereotypic individuals could reduce automatic biases (Dasgupta and Asgari, 2004).

However, it is often difficult to analyse empirically the effects of gender quotas, since it is hard to disentangle the effects of the intervention from other confounding factors related to temporal trends. In addition, when reservations become a permanent institutional feature it is hard to distinguish the effects directly related to the application of these rules from the impact that they may produce to eliminate prejudices and then to change cultural attitudes on sex roles and electorate perceptions about women's capabilities in politics.

In this paper, we are able to overcome both these problems thanks to a natural experiment produced by the introduction in Italy, for a short period of time, of statutory quotas establishing a minimum number of candidacies by gender.

Gender quotas, reserving a percentage of candidacies to women in the party lists contesting elections for Municipal Councils, were introduced in Italy in 1993 and repealed in 1995 by the Constitutional Court. Given the short time span this law was in force, and the scheduling of electoral races, not all the Italian municipalities have ever voted under the system of legal gender quotas. In fact, only municipalities that had an electoral race in the period going from April 1993 to September 1995 were affected by the reform. As a consequence, thanks to casual factors that led municipalities to vote or not in the reform period, we are able to identify a "treatment" and a "control" group. By comparing women representation in politics in the two groups of municipalities we disentangle the effects due to the introduction of quotas from temporal trends related to other factors. In addition, by exploiting the temporary adoption of gender quotas, we can test whether their effects persist over time also once they are abolished: this analysis allows us to verify if the institutional change has produced permanent effects on the electorate attitudes toward women and on the propensity of political parties to include more women among their candidates.

To analyse these aspects, we use a rich administrative data set providing information on gender, age, education and occupation of all members of about 8,000 Italian Municipal Councils elected from 1985 to 2007. Moreover, we have information on the Mayors and on the components of the Executive Committees heading municipal governments.

We use a difference-in-differences estimator to compare the changes in women representation rates (measured as the percentage of females in the Municipal Council or in the Executive Committee Council) for municipalities interested by the 1993 reform with those which

were never affected. From our estimates it emerges that there was a common sharp increase of female political involvement after 1993 in the treatment and the control group, but female representation has increased significantly more in those municipalities interested by the reform.

By excluding from our sample the outcomes of elections taking place in the period 1993-1995, we show that the effects of gender quotas have continued also after the reform was abolished, supporting the idea that affirmative actions may play an important role in overcoming negative stereotypes. In addition, it does not seem that the effects are declining over time.

To check the robustness of our results we estimate our model on a different sample, which includes among the treatment group only those municipalities that are neighbouring on at least one of those included in the control group. Our main results remain substantially unchanged. In addition, in order to show that our findings are not driven by different temporal trends among Southern and Northern regions, we interact our variables of interest with a dummy variable South. Once again, municipalities interested by the reform show a higher female representation independently from their geographical location.

We also investigate whether the observed greater participation of women in politics is due to the presence in the political arena of those women elected under quotas or whether other women have been elected subsequently. The advantages of incumbency and the opportunity to gain personal credibility might favour the persistence in politics of those women elected during the gender quota regime, without implying that electors have changed their beliefs on the political capabilities of women as a group. Our estimates show that in those municipalities affected by the gender quotas a larger number of new female candidates is elected compared to municipalities never voting under gender quotas.

The paper is organized as follows. Section 2 discusses the related literature. In section 3, the Italian institutional framework and the data are presented. In section 4 we present difference-in-differences estimate results. In section 5 we offer a set of robustness checks. Section 6 concludes.

## ***2. Related Literature***

Despite the diffused agreement that gender inequalities have not been eradicated, there is less agreement on the extent to which those inequalities can be reduced by policy interventions. This issue has received recently renewed attention in the study of stereotypes.

Gender and minorities problems have been first analysed, in economic theory, in relation to the functioning of the labor market. The empirical literature on discrimination, following the contribution of Becker (1957), has mainly focused on disparities in earnings between males and females.

Affirmative actions, such as quotas, requiring active steps toward disadvantaged groups, are often been implemented to eliminate gender differences. Quotas' advocates point out that preferential policies tend to break down negative views about minority workers by allowing them to demonstrate their capabilities (Coate and Loury, 1993).

Similar arguments are used when discussing the efficacy of affirmative actions in politics: women participation in politics should help at overcoming negative stereotypes among voters and parties that oppose the presence of women in politics.

Gender quotas systems can be classified in two main categories: (1) the reservation of seats system, ensuring that a given number of women will be elected; (2) the reservation of candidates system, ensuring a given minimum number of female candidates. These systems can be mandated by the constitution or by electoral laws or be adopted by parties on a voluntary basis.

An extended literature on public opinion formation suggests that low voter awareness on specific issues can cause stereotypes to play an important role in shaping voter preferences (Beaman *et al.* , 2008). Social norms which associate leadership activities with men – causing voters to favour and elect male candidates – are widely discussed and considered as a reason that explains why the entry of women into politics may be hampered by group stereotypes (Akerlof and Kranton, 2000).

Some studies in psychology indicate that gender inequalities may be eliminated by the provision of information able to disconfirm stereotypes (Geis, 1993). In this vein, the introduction of quotas within electoral legislation, by exposing to a female leader, can improve the precision of voters' information about the expected effectiveness of future female leaders and therefore reduce discrimination.

Previous works on gender quotas have focused primarily on their effectiveness in replacing some male office-holders with female ones and have tried to explain variations in quotas effectiveness by pointing to factors like institutional context, policy design and political will (Matland, 2006). A number of works shows that quotas are more effective in proportional representation electoral systems (Jones and Navia 1999; Schmidt and Saunders 2004), while others analyse how the effectiveness of gender quotas is shaped by socioeconomic factors (Norris, 2006). Bhavnani (2009), using data from Mumbai, finds that reservations largely work by introducing in politics a group of female candidates who are able to run for and win elections even after reservations lapse, and by allowing parties to learn that women can win elections.

An emerging economic literature on women in politics is mostly concerned with identifying gender differences in the way local fiscal policy is conducted and on the provision of public goods. A number of studies have found that women tend to be more liberal than men and more likely to support and promote women's issues. Chattopadhyay and Duflo (2004a) analyse the consequences in terms of policy outcomes of the reservations for women of head positions

in Village Councils introduced in some Indian states in 1993. One third of these Village Council has been randomly reserved for a woman leader. The authors exploit the random variation in mandated exposure to female leaders across villages to compare the type of public goods provided in reserved and unreserved Village Councils and show that reservation affects policy decisions in ways that seem to better reflect women's preferences<sup>2</sup>. These results are consistent with those emerging from studies analyzing the effects of reservations for other disadvantaged groups. For example, Pande (2003) shows that in India reservations for some disadvantages groups have led to an increase in transfers targeted to members of these groups. Similar results emerge from Besley *et al.* (2004, 2007), Bardhan, Mookherjee and Torrado (2005) and from Chattopadhyay and Duflo (2004b).

Another interesting field of research, strictly related to our paper, is concerned with the effects that gender quotas produce on anti-female prejudices. While a number of works shows that discrimination against women is pervasive, very little work has been devoted to analyse the effect that affirmative actions produce on this type of bias. From a theoretical point of view, the effects can be either positive or negative. On the one hand, exposure to female politicians may contribute to change citizens attitudes on appropriate roles for women. In addition, when anti-female prejudices are based on the idea that women are poor policy makers, being exposed to a greater female involvement in politics may help voters to upgrade these beliefs. On the other hand, gender quotas may result in even stronger bias against women, since female politicians are perceived as violating appropriate gender roles (Rudman and Fairchild, 2004). In fact, gender stereotypes do not merely describe how women and men are but also prescribe how they should be, expectancy violations can then result in social or economic sanctions for counter-stereotypical behavior.

One of the few researches that has tried to examine this issue from an empirical point of view is due to Beaman *et al.* (2008). These authors, exploiting the natural experiment in Indian villages with reservations of head positions to women, compare villager attitudes towards hypothetical, and actual, women leaders across councils which have been reserved for women once, twice or never. Random allocation of reservations implies that a difference in voters attitudes across reserved and unreserved villages captures the causal effect of having seen a woman as policy-maker. The authors find that the exposure to a female leader weakens stereotypes about gender roles and eliminates the negative bias in how female leaders' effectiveness is perceived among male villagers, although it does not alter the villagers' preferences for male leaders.

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<sup>2</sup> According to some authors reservations may result in token appointments in which women are appointed by elites and are poorly educated and aged. However, Ban and Rao (2007) and Chattopadhyay and Duflo (2004a) do not find evidence in favor of this hypothesis.

Starting from the idea that affirmative actions may play an important role in changing cultural attitudes, we try to contribute to this literature analysing the impact that the introduction of gender quotas in Italy has produced on female involvement in local governments

### **3. The Italian Institutional Framework and the Data**

In Italy municipal administrations are responsible of a number of public services, such as the management of public utilities (local roads, water, sewage, garbage collection) and the provision of public housing and transportation, nursery schools, assistance to elderly people.

The Municipal Council (*Consiglio Comunale*) is endowed with legislative powers, while the executive authority is assigned to a Mayor (*Sindaco*) heading an Executive Committee (*Giunta Comunale*). Given that municipal governments are responsible for a number of very important services, having a strong impact on the daily life of citizens, voters are generally strongly interested in their composition and performance.

The Law no. 81 of 25 march 1993 brought in some important changes in the Italian electoral system. It has introduced the direct election of the mayor, with some differences according on the size of the city.<sup>3</sup> More importantly for the scope of our paper, this law has established for the election of Municipal Councils that neither sex could represent more than two thirds of all candidates of one party electoral list.<sup>4</sup> For the election of the municipal councils in municipalities with up to fifteen thousand inhabitants, the maximum quota for either sex was defined at three quarters. Differently from quota systems based on reservation of seats, the reservation on candidacies introduced in Italy by this law ensured a given minimum number of female candidates, but did not ensure that a minimum number of them is elected.

On 12 September 1995 (Sentence no. 422), the Constitutional Court repealed the reservation quotas declaring unconstitutional the norms establishing that neither sex could constitute more than two thirds of candidates. According to the Court Sentence, the fundamental right of equal access to elective offices, as established by Art. 3 and Art. 51 of the Constitution, cannot be subjected to special treatment on the basis of sex. As a consequence of this sentence, only the elections taking place during the period April 1993 - September 1995 were affected by the gender quota reform. More precisely, 7,716 municipalities voted during the reform period ("treatment" group), while 389 municipalities never voted under this regime ("control" group).<sup>5</sup>

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<sup>3</sup> If the population size is smaller than 15,000 inhabitants, elections are held with a single ballot, while if the population is above 15,000 inhabitants, elections are held with a double ballot. Mayors are subject to a two-terms limits.

<sup>4</sup> These procedures were established also for Provincial Councils and for the Chamber of Deputies. In February 1995 (Law no. 43) the same rule were applied to the election of Regional Councils.

<sup>5</sup> Once legal gender quotas were repealed, some political parties have adopted, on a voluntary basis, rules defining a certain percentage of women as candidates.

The municipalities in the control group are geographically distributed as follows: 179 municipalities are located in the Center-North and 210 in the South.

To examine the effects produced by the reform we use an administrative data set containing information on gender, age, education and occupation of all the members of Italian Municipal Councils elected from 1985 to 2007. The data contains information on about 8,100 municipalities which on average voted 5 times in our sample.<sup>6</sup> The seats in Municipal Councils and in the Executive Committees depend on the population size: seats in Municipal Councils range from 12 to 60 (the median number is 15), while seats in Executive Committees range from 4 to 16 (the median is 5).

We also have information at municipality level about the size of the resident population. In addition, we use the 1991 and 2001 Italian Census of Population to obtain data on the number of employed individuals and the educational attainment of the population at the municipal level.

The average population size of Italian municipalities is of 7,018. Only 8% of municipalities has a population greater than 15,000 inhabitants. The population's years of education are on average 6.93 and the ratio between the number of employed individuals and the total number of inhabitants is of 24.5%.

In Table 1 are reported (respectively for municipalities affected and not affected by the reform), the average representation of women as members of Municipal Councils, of Executive Committees and as Mayors, for the period before, during and after the gender quotas regime. Before 1993, Municipal Councils were dominated by men, with only 6.2% and 7.6% of female members, respectively in the control and in the treated group. Even lower was the female representation in Executive Committees and for Mayors. For instance, only 3% of mayors were women; this percentage is higher, 4.6%, for municipalities not affected by the reform and lower, 2.9%, for those affected. In general, female politicians are more educated than males: on average female members of Municipal Councils have 7.11 years of education compared to an average number of 6.86 years for males.

In the period during which gender quotas were in force, approximately 1993-1995, it is possible to observe a considerable increase in women representation: the share of female seats in Municipal Councils has increased from 7.6% to 18.3% in the municipalities interested by the reform. A similar increase can also be observed as regards Mayors and female members of Executive Committees. Despite the increase in women representation during this period female politicians have continued to be characterized by higher levels of education compared to men.

Descriptive statistics show that female involvement in politics continues to maintain at about the same levels reached during the reform period also in years 1996-2007, that is, once the

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<sup>6</sup> The individual-level data were provided by the Statistical Office of the Italian Ministry of Internal Affairs, <http://amministratori.interno.it/AmmIndex6.htm>.

reform was abolished. However, female political involvement seems to be significantly higher in those municipalities that have been interested by the reform.

It is worthwhile to notice that in spite of this positive trend, female representation in Italian municipalities is still very low, also in municipalities affected by the reform.

**Table 1. Female representation in Italian municipal governments.**

Percentage of Females in	Gender Quota Municipalities			Non Gender Quota Municipalities	
	1985-1992	1993-1995	1996-2007	1985-1992	1996-2007
Municipal Council	0.076 (0.073)	0.184 (0.099)	0.162 (0.129)	0.062 (0.075)	0.136 (0.113)
Executive Committee Council	0.064 (0.105)	0.130 (0.174)	0.143 (0.173)	0.055 (0.102)	0.120 (0.158)
Mayor	0.029 (0.169)	0.063 (0.243)	0.083 (0.275)	0.045 (0.208)	0.071 (0.257)

Notes: standard errors are in parentheses. For “Non gender quota municipalities” no elections took place during the period 1993-1995.

The increase in women representation observed during the period in which gender quotas were in force seems to support the claim that in Italy voters are not characterized by a strong anti-female bias (Bonomi, Brosio and Di Tommaso, 2006). In fact, the increase in women candidacies has been followed by an increase in the elected women, pointing to a limited “supply” problem. The introduction of gender quotas may have helped at overcoming the opposition of male-dominated parties to female candidacies or the female reticence in taking part into political activity by changing what is perceived as an appropriate role for women.

Nevertheless, the observed raise in women participation could be simply related to changes in cultural attitudes occurring over time that would have taken place even in absence of any intervention. In the next section we attempt to identify the causal effect of gender quotas on women representation carrying out an econometric analysis.

#### ***4. Gender Quotas and Female Political Representation: An Econometric Analysis***

In order to analyse the effects of gender quotas on women involvement in politics, we exploit the Law no. 81 introduced in Italy in 1993 and abolished in 1995, which reserved a percentage of women candidates in party lists for the election of members of Municipal Councils.

We run municipal-level regressions and use a difference-in-differences estimator to compare the changes in women participation rates in politics before 1993 and after 1995, considering as treatment group those municipalities in which a local election took place in the period in which the gender quota reform was in force (“Gender quota municipalities”), whereas

we insert in the control group those municipalities that did not vote during that period (“Non-gender quota municipalities”). Our key identification assumption is that in the absence of the policy intervention the differences in female political involvement between treatment and control group would have been the same over time.

In order to take into account the fact that “non gender quota municipalities” might differ from those included in the treatment group we control for provincial dummies and for a number of municipal characteristics. In addition, we also experiment including municipal fixed effects.

We estimate several specifications of the following model:

$$F_{it} = \beta_0 + \beta_1 QuotaMunicipality + \beta_2 Post1993 + \beta_3 (Post1993 * QuotaMunicipality) + \beta_4 X_{it} + \mu_r + \varepsilon_{it}$$

where  $F_{it}$  is a variable measuring the percentage of women in Municipal Council  $i$  at election year  $t$ ,  $QuotaMunicipality$  is a dummy variable for municipalities affected by gender quotas,  $Post1993$  is a dummy taking value 1 for elections taking place after the reform was introduced (from March 1993 to December 2007);  $Post1993 * QuotaMunicipality$  is the interaction term, whose coefficient measures the treatment effect of our interest,  $X_{it}$  is a vector of municipal characteristics, such as the population size, the average years of education and the fraction of employed population,  $\mu_r$  is a vector of provincial dummies, and  $\varepsilon_{it}$  is an error term.

Results of our OLS estimates are reported in Table 2. In all specifications, standard errors are clustered at municipal level and are robust to heteroskedacity.

In column (1), the dependent variable is represented by the percentage of women elected in the Municipal Council and the sample used includes also elections taking place in the period 1993-1995 during which the reform was in force.

From our estimates it emerges that before 1993 there were no relevant differences in female representation between municipalities belonging to the treatment and the control group: the dummy variable  $QuotaMunicipality$  is not statistically significant. This is consistent with the assumption that the inclusion in the two groups was due exclusively to casual factors that lead municipalities to vote or not during the reform period. Results show, in addition, an increase of about 8.1 percentage points in female political involvement after 1993 in municipalities not interested by gender quotas. On the other hand, the coefficient on the interaction term is positive and highly statistically significant ( $p$ -value=0.000) implying that the fraction of women elected as members of Municipal Councils in municipalities interested by the reform increased of 2 percentage points more than in municipalities not affected by the reform.

The uncovered effect of the gender quotas might be due mainly to the impact that the reform had in the years in which it was implemented. This direct effect has been detected in a number of studies showing that statutory gender quotas have produced a rise in women participation in politics in many of the countries that have introduced them (see Norris, 2006).

A perhaps more interesting and less investigated question is whether the greater political involvement of females can be expected to continue without gender quotas becoming a permanent institutional factor. Since in 1995 the gender quota reform was abolished, we can analyze this issue by focusing on subsequent elections and excluding from our sample elections taking place in the period 1993-1995. As it is possible to see in column 2 of Table 2, considering as dependent variable the percentage of females in the Municipal Council, the interaction term has still a positive and highly significant coefficient, implying that even once the reform was abolished those municipalities affected by the reform continue to show a higher female political representation. The proportion of women in politics increased by 7 percentage points after 1995, but it increased by 1.4 points more in municipalities affected by the reform (statistically significant at the 1 percent level). This effect is only slightly smaller compared to that estimated in column (1).

In Column (3) we analyze the effect of the gender quotas on the fraction of women being members of the Executive Committee. Again, also when excluding from our sample elections taking place in the period 1993-1995, “Gender quota municipalities” show a significant higher female representation.

In column (4) we consider as dependent variable the probability of observing a female mayor. Also in this case we observe a positive and long lasting effect of gender quotas on female involvement in politics. Our estimation results show that the gender quota reform increases the probability of electing a female mayor by 3.1 percentage points.

In all the specifications in Table 2, we control for municipal population size and its square, education and employment levels. From columns (2), (3) and (4), it emerges that population size increases women representation in politics (starting from municipalities with a population higher than 1,053); municipalities characterized by a higher level of education tend to elect more female politicians; the employment level does not seem to play a particularly relevant role in defining women representation in politics. Coefficients on provincial dummies (not reported) show that women representation in politics is particularly low in Southern Italian Provinces.

In columns (5), (6) and (7) we report estimates results when we undertake an alternative estimation strategy, which controls for municipal fixed effects. Again, we find that the interaction term of our interest is positive and statistically significant in all specifications and the effect is very close to that estimated in the previous specifications. The proportion of women elected in Municipal Councils and Executive Committees increased, respectively, by 1.5 and 1.7 percentage points, while the probability of electing a female mayor increased by 3.1 percentage points.

**Table 2. Difference-in-differences estimates of the influence of gender quota on women participation in politics**

	Percentage of females in						
	Municipal Council (1)	Municipal Council (2)	Executive Committee (3)	Mayor (4)	Municipal Council (5)	Executive Committee (6)	Mayor (7)
Post Gender Quota Law	0.081*** (0.005)	0.070*** (0.005)	0.061*** (0.007)	0.022* (0.012)	0.063*** (0.004)	0.056*** (0.006)	0.019* (0.012)
Quota Municipality	-0.003 (0.003)	-0.004 (0.003)	-0.007 (0.004)	-0.030*** (0.009)			
(Quota Municipality)*(Post Quota)	0.020*** (0.005)	0.014*** (0.005)	0.014** (0.007)	0.031** (0.012)	0.015*** (0.004)	0.017*** (0.006)	0.031*** (0.011)
Population	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.001 (0.001)	-0.001 (0.001)	-0.003 (0.002)
Population Squared	0.000*** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Employment/Population	-0.008 (0.006)	-0.015** (0.007)	-0.002 (0.009)	-0.011 (0.015)	-0.043*** (0.014)	-0.038* (0.020)	0.021 (0.032)
Education	0.001 (0.001)	0.005*** (0.001)	0.006*** (0.001)	0.003 (0.002)	0.010*** (0.001)	0.008*** (0.002)	0.004 (0.002)
Provincial Fixed Effects	YES	YES	YES	YES	NO	NO	NO
Municipal Fixed Effects	NO	NO	NO	NO	YES	YES	YES
Sample	1993-1995 Included	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded
Observations	39358	31988	31985	31961	31988	31985	31961
R-squared	0.221	0.217	0.106	0.024	0.229	0.106	0.018
Number of Municipalities					8080	8080	8080

Notes: Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

Even if we have no reason to think of selection problems driving our results, fixed effect estimates ensure us that the effect of gender quotas on female representation is not due to municipal unobservable characteristics that, for some reasons, are related both to the inclusion in the treatment group and to a greater female involvement in political activity. Moreover, our results showing that female involvement in politics has maintained at relatively higher levels even after the gender quotas were repealed suggest that reservations policies help to overcome stereotypes against women that hinder their involvement in the political sphere.

## 5. Robustness Checks

In this section we undertake a set of robustness checks of our findings. First of all, to control for other factors that might confound the impact of the gender quota reform, we focus on more homogeneous treatment and control groups by comparing the municipalities included in the control group with only their neighbouring municipalities. In addition, we estimate our model with some interaction terms in order to verify if our findings are not driven by different temporal trends among Southern and Northern municipalities. Thirdly, to neutralize possible advantages due to incumbency, we exclude from our sample all the members of Municipal

Councils elected during the gender quota period. Finally, we use individual level data to analyse the probability of electing a woman in local governments.

## 5.1. Treatment and Control Groups among Neighbouring Municipalities

In this section, instead of considering in the treatment group all the municipalities interested by the reform, we restrict our attention to the municipalities that are neighbouring on, at least, one of those municipalities included in the control group. By this way we select 1,714 treated municipalities, ending up with a final sample including 2,103 local governments<sup>7</sup>. We carry out the main specifications of our model on this sample. In Table 3 we report results for the fraction of women in the Municipal Councils (columns 1 and 4), in the Executive Committees (columns 2 and 5) and female Mayors (columns 3 and 6). Our main results remain substantially unchanged both when we control for provincial and for municipal fixed effects. The impact of the gender quotas is slightly smaller compared to that estimated considering the full sample of treated municipalities<sup>8</sup>.

**Table 3. Difference-in-differences estimates among neighbouring municipalities**

	Percentage of females in					
	Municipal Council (1)	Executive Committee (2)	Mayor (3)	Municipal Council (4)	Executive Committee (5)	Mayor (6)
Post Gender Quota Law	0.073*** (0.005)	0.062*** (0.007)	0.014 (0.013)	0.068*** (0.005)	0.060*** (0.007)	0.017 (0.013)
Quota Municipality	-0.003 (0.003)	-0.007 (0.005)	-0.034*** (0.009)			
(Quota Municipality)*(Post Quota)	0.009* (0.005)	0.013* (0.007)	0.029** (0.013)	0.012** (0.005)	0.017** (0.007)	0.029** (0.012)
Provincial Fixed Effects	YES	YES	YES	NO	NO	NO
Municipal Fixed Effects	NO	NO	NO	YES	YES	YES
Sample	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded
Observations	8635	8634	8629	8635	8634	8629
R-squared	0.241	0.138	0.044	0.215	0.105	0.018
Number of Municipalities				2103	2103	2103

Notes: In all regressions we include controls for municipal population, population squared, education and employment. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

Furthermore, since it is well known that the South of Italy is characterized by a low level of economic and social development compared to the North, which may lead to a different

<sup>7</sup> Data on neighboring municipalities are from Wikipedia:

[http://it.wikipedia.org/wiki/Progetto:Amministrazioni/Comuni\\_italiani/Comuni\\_limitrofi](http://it.wikipedia.org/wiki/Progetto:Amministrazioni/Comuni_italiani/Comuni_limitrofi)

<sup>8</sup> We have also experimented keeping in the treatment group only those municipalities that are located in the same Labour Local System (*Sistema Locale del Lavoro*) of at least one of those municipalities included in the control group. Our results remain substantially unchanged.

temporal trend in women representation, we undertake an additional robustness check in order to show that our results are not driven by different trends in female political involvement among geographical regions. We interact our three variables of interest (*Post Gender Quota Law*, *Quota Municipality*,  $(\text{Quota Municipality}) * (\text{Post Quota})$ ) with a dummy variable *South* taking value 1 for municipalities located in Southern regions and zero otherwise.

In Table 4 we replicate the main specifications presented in Table 3. It emerges that after 1995 the female representation in Municipal Councils and Executive Committees increased less in the South (6.3 instead of 8.4, see column 1). On the other hand, Center-Northern municipalities interested by the gender quota reform show a higher female representation in politics with respect to the control group. In this respect, Southern municipalities are not statistically significant different from those located in the North. In fact, the coefficient on the interaction  $(\text{Quota Municipality}) * (\text{Post Quota}) * \text{South}$  does not appear statistically significant, implying that the reform has increased female participation in politics both in Northern and Southern municipalities.

These results hold true both when we control for provincial and for municipal fixed effects (columns 3, 4 and 5).

**Table 4. Difference-in-differences estimates among neighbouring municipalities with interaction North-South**

	Percentage of females in					
	Municipal Council (1)	Executive Committee (2)	Mayor (3)	Municipal Council (4)	Executive Committee (5)	Mayor (6)
Post Gender Quota Law	0.084*** (0.007)	0.074*** (0.010)	0.019 (0.020)	0.078*** (0.007)	0.072*** (0.010)	0.025 (0.020)
(Post Gender Quota Law)*South	-0.021** (0.008)	-0.022* (0.012)	-0.009 (0.022)	-0.019** (0.008)	-0.023* (0.012)	-0.015 (0.023)
Quota Municipality	0.000 (0.005)	-0.004 (0.006)	-0.047*** (0.015)			
(Quota Municipality)*South	-0.003 (0.006)	-0.002 (0.008)	0.030* (0.017)			
(Quota Municipality)*(Post Quota)	0.012* (0.008)	0.018* (0.011)	0.042** (0.021)	0.014** (0.007)	0.019* (0.011)	0.037* (0.021)
(Quota Municipality)*(Post Quota)*South	-0.009 (0.010)	-0.015 (0.013)	-0.029 (0.024)	-0.008 (0.010)	-0.010 (0.014)	-0.020 (0.025)
Provincial Fixed Effects	YES	YES	YES	NO	NO	NO
Municipal Fixed Effects	NO	NO	NO	YES	YES	YES
Sample	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded
Observations	8635	8634	8629	8635	8634	8629
R-squared	0.245	0.142	0.045	0.220	0.109	0.020
Number of Municipalities				2103	2103	2103

Notes: In all regression we include controls for municipal population, population squared, education and employment. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

## 5.2. Placebo Regressions

We use data for periods prior the reform (1985-1992) to estimate a number of placebo regressions. We try to estimate if an effect on female participation took place in treated

municipalities in 1990, a year in which no reform was introduced. We choose the 1990 both because most of the municipalities voted in this year and because it is close to the period in which the reform was effectively implemented.

As shown in Table 5, the coefficient on the interaction term (Quota Municipality)\*(1990-1992) is not statistically significant.<sup>9</sup> This reassures us that female political involvement in treated and control group has a common trend, which only changes once the reform was introduced.

**Table 5. Placebo Regressions**

	Percentage of females in					
	Municipal Council (1)	Executive Committee (2)	Mayor (3)	Municipal Council (4)	Executive Committee (5)	Mayor (6)
1990-1992	0.016*** (0.005)	0.024*** (0.007)	0.030** (0.014)	0.021*** (0.006)	0.027*** (0.009)	0.031* (0.018)
Quota Municipality	0.002 (0.004)	0.003 (0.005)	-0.006 (0.010)			
(Quota Municipality)*(1990-1992)	0.002 (0.005)	-0.008 (0.007)	-0.033* (0.020)	0.002 (0.006)	-0.006 (0.009)	-0.028 (0.019)
Provincial Fixed Effects	YES	YES	YES	NO	NO	NO
Municipal Fixed Effects	NO	NO	NO	YES	YES	YES
Sample	1993-2007 Excluded	1993-2007 Excluded	1993-2007 Excluded	1993-2007 Excluded	1993-2007 Excluded	1993-2007 Excluded
Observations	12868	12865	12840	12868	12865	12840
R-squared	0.201	0.097	0.027	0.106	0.037	0.003
Number of Municipalities				7830	7829	7816

Notes: In all regressions we include controls for municipal population, population squared, education and employment. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

### 5. 3. Do Gender Quota Help to Eliminate Negative Stereotypes or Give Elected Women Incumbency Advantages?

According to our findings the beneficial effects of gender quotas on women representation in politics have continued over time without reservations becoming a fixture of the institutional system.

A possible explanation is that affirmative action policies play a positive role in changing cultural attitudes hindering women participation in politics.

However, the observed greater participation of women in politics could be due, in principle, to the presence in the political arena of those women elected under the gender quota regime, which would have continued their political career thanks to an incumbency advantage.

<sup>9</sup> The dummy variable 1990-1992 takes value one for elections taking place in years 1990, 1991 and 1992 and zero otherwise.

In this sub-section, to examine this issue we exclude from our sample all the members of Councils elected during the gender quota period. Therefore, the women elected under the quota regime who were re-elected after the reform was abolished, are not included in our analysis. By focusing on new entrants we aim to analyse whether gender quotas have helped to modify negative stereotypes against women, neutralizing the effect due to the advantages deriving from incumbency.

As it is possible to see from columns (1) and (2) in Table 6 for, respectively, the fraction of women in the Municipal Councils and in the Executive Committees, the interaction term has a positive and highly significant coefficient even once we exclude from our sample the 1993-1995's incumbents, implying that in those municipalities that were interested by gender quotas a larger number of women is elected among entrants after the repeal of the reservation system.

As shown in columns (3) and (4) of Table 6 the same results hold true once we control for municipal fixed effects<sup>10</sup>.

**Table 6. Difference-in-differences estimates of the influence of gender-quota on negative stereotypes against women**

	Percentage of females					
	Municipal Council (1)	Executive Committee (2)	Municipal Council (3)	Executive Committee (4)	Municipal Council (5)	Executive Committee (6)
Post Gender Quota Law	0.071*** (0.005)	0.063*** (0.007)	0.063*** (0.005)	0.054*** (0.007)		
Quota Municipality	-0.001 (0.003)	-0.005 (0.004)			-0.012*** (0.004)	-0.015*** (0.005)
(Quota Municipality)*(Post Quota)	0.031*** (0.005)	0.039*** (0.007)	0.033*** (0.004)	0.043*** (0.007)		
Years 1996-2000					0.055*** (0.006)	0.040*** (0.008)
Years 2001-2007					0.061*** (0.006)	0.058*** (0.008)
(Years 1996-2000)*(Quota Municipality)					0.028*** (0.006)	0.026*** (0.008)
(Years 2001-2007)*(Quota Municipality)					0.023*** (0.006)	0.022*** (0.008)
Provincial Fixed Effects	YES	YES	YES	NO	YES	YES
Municipal Fixed Effects	NO	NO	NO	YES	NO	NO
Sample	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded
Observations	31485	29808	31485	29808	31990	31987
R-squared	0.234	0.095	0.234	0.092	0.234	0.120
Number of Municipalities			8080	8075		

Notes: In all regressions we include controls for municipal population, population squared, education and employment. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

Even if gender quotas seem to have produced relevant changes in women representation in politics, these effects may tend to disappear over time. To analyse this aspect, in columns (5) and (6) we have estimated two specifications of our model in which we include two dummy

<sup>10</sup> The same results hold true also when we use the sample of neighboring municipalities.

variables respectively for the period 1996-2000, immediately after the reform was abolished, and for the period 2001-2007, and we interact these two dummies with *Quota Municipality*.<sup>11</sup> Results show that in both periods municipalities interested by gender quotas have a larger female political representation. Even if the coefficient on the interaction with the period 1996-2000 is slightly higher compared to the 2001-2007 coefficient, we are not able to reject the null hypothesis of equality of the two coefficients ( $p$ -value=0.39 and  $p$ -value=0.70 for coefficients, respectively, in columns (5) and (6)).

## 5.4. Estimates on Individual-Level Data

We turn now to examine the robustness of our results when, instead of using data aggregated at municipal level, we use individual-level data on members of all the Italian Municipal Councils elected in years 1985-2007. We use as dependent variable the dummy *Female*, estimating several specifications of a Linear Probability Model including municipal fixed effects.<sup>12</sup>

Results are presented in Table 7. Columns (1) and (2) report results for members, respectively, of Municipal Councils and Executive Committees. Our main findings are confirmed using individual data: the probability of electing a woman as member of Municipal Council or Executive Committee turns out to be significantly higher (by 1.2-1.3 percentage points) in the period after the repeal of gender quotas in the municipalities affected by the reform.

**Table 7. Difference-in-differences estimates of the influence of gender quota on women participation in politics – individual data**

	Probability of electing a woman in			
	Municipal Council (1)	Executive Committee (2)	Municipal Council (3)	Executive Committee (4)
Post Gender Quota Law	0.064*** (0.004)	0.062*** (0.006)	0.063*** (0.004)	0.059*** (0.006)
(Quota Municipality)*(Post Quota)	0.012*** (0.004)	0.013** (0.006)	0.022*** (0.004)	0.033*** (0.006)
Municipal Fixed Effects	YES	YES	YES	YES
Sample	1993-1995 Excluded	1993-1995 Excluded	1993-1995 Excluded; Candidates elected in 1993-1995 excluded	1993-1995 Excluded; Candidates elected in 1993-1995 excluded
Observations	510,218	167,033	400,361	116,433
Number of Municipalities	8084	8083	8084	8078
R-squared	0.018	0.018	0.021	0.025

Notes: In all regressions we include controls for municipal population, population squared, education and employment. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at municipal level, are reported in brackets. The symbols \*\*\*, \*\*, \* indicate that coefficients are statistically significant, respectively, at 1, 5, and 10 percent level.

In Columns (3) and (4) we analyze the effect of gender quota on the probability of electing a woman among non-incumbents in the period after the repeal of the reservation system. Once we

<sup>11</sup> We cannot use year dummies since in many years only a small number of municipalities voted.

<sup>12</sup> Since estimates shown in the previous sections for Mayors are based on individual level data, we do not replicate them in Table 7.

exclude from our sample women elected under the gender quota regime, we still find a greater female involvement in politics in “gender quota municipalities”.

## **6. Concluding Remarks**

The number of women actively involved in politics is very small in most countries and is growing quite slowly over time. In Italy, women representation in national and local political institutions has always been below the level reached by most of the European countries.

In recent years a large number of countries has introduced gender quotas in electoral rules aimed at overcoming barriers – such as the existence of male-dominated political parties that oppose the presence of female candidates in their lists or the existence of an anti-female bias among voters – that hinder the entrance of women in the political arena.

However, little is known about the effective impact that these policies produce on women participation and success in politics and, in particular, on whether gender quotas help at eliminating anti-female bias among parties and voters. The main difficulty in the empirical analysis lies in disentangling the effects of the intervention from other confounding factors related to temporal trends.

In this paper we are able to overcome this problem and to identify gender quota effects thanks to a natural experiment due to the introduction in Italy in 1993 of a law defining statutory gender quotas for elections of Municipal and Provincial Councils and for the Chamber of Deputies. More precisely, we focus on quotas requiring a minimum number of female candidates in party lists for Municipal elections. Since in 1995 the Constitutional Court outlawed the gender quota clauses, not all the Italian municipalities have ever voted under the system defining legal gender quotas, allowing us to define a treatment and a control group. By using a difference-in-differences estimation strategy, we show that female political representation has increased significantly more in those municipalities interested by the reform compared to those which were never affected.

In addition, since the adoption of statutory gender quotas in Italy was only temporary we are able to analyze whether their effects persist over time. The estimates show that even once gender quotas have been abolished, the municipalities affected by the reform continue to show a higher female political representation.

These findings are robust to different definitions of the treatment group and are not driven by different temporal trends in women involvement in Southern and Northern Italian municipalities.

The claim that gender quotas help at eliminating negative stereotypes is also supported by the fact that gender quotas seem to have favored the election of a larger number of women among entrants after the repeal of the reservation system. In fact, the observed greater

participation of women in politics does not seem to be related to the presence in the political arena of those women elected under the gender quotas, but to a higher propensity of parties to candidate women and to a higher propensity of voters to support them.

Our findings are in line with those emerging in Beaman *et al.* (2008) showing that the exposure to female leaders weakens negative stereotypes on women. Unfortunately, we are not able to identify what type of discrimination has been overcome thanks to the gender quotas. It could be that quotas have helped at overcoming traditional gender roles and encouraged women to propose their candidacies, or that political parties, once uncovered women success among voters, have become more prone to include them in their lists. In fact, according to our findings Italian voters do not seem to be characterized by a strong anti-female bias, since to the increase in women candidacies, observed during the gender quotas regime, has followed an immediate increase in the number of elected women.

A better understanding of the role played by different types of stereotypes in hampering female participation in politics and how they may be changed through affirmative actions is crucial to design appropriate policy interventions and it is a task left for future research.

It is also worthwhile to notice that our results pertain to the success of women in municipal-level elections and may not hold true for national elections. On the other hand, it is as well factual that the career of many politicians starts at local level.

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