UNIVERSITÀ DELLA CALABRIA

Dipartimento di Economia e Statistica
Ponte Pietro Bucci, Cubo 0/C
87036 Arcavacata di Rende (Cosenza)
Italy
http://www.ecostat.unical.it/

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Maria De Paola
Dipartimento di Economia e Statistica
Università della Calabria
Ponte Pietro Bucci, Cubo 1/C
Tel.: +39 0984 492459
Fax: +39 0984 492421
e-mail: m.depaola@unical.it

Vincenzo Scoppa
Dipartimento di Economia e Statistica
Università della Calabria
Ponte Pietro Bucci, Cubo 1/C
Tel.: +39 0984 492464
Fax: +39 0984 492421
e-mail: v.scoppa@unical.it

Marco Alberto De Benedetto
Dipartimento di Economia e Statistica
Università della Calabria
Ponte Pietro Bucci, Cubo 0/C
Tel.: +39 0984 492417
Fax: +39 0984 492421
e-mail: ma.debenedetto@unical.it

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The Impact of Gender Quotas on Electoral Participation: Evidence from Italian Municipalities

Maria De Paola, Vincenzo Scoppa, Marco Alberto De Benedetto*

Department of Economics and Statistics, University of Calabria

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We analyze the effect of gender quotas on electoral participation by using a rich dataset of Italian municipal elections. Gender quotas were in force in Italy from 1993 until 1995. Because of the short period covered by the reform, some municipalities never voted using gender quota. This allows us to identify a treatment and a control group and to estimate the effects of gender quotas by using a difference-in-differences estimation strategy. Notwithstanding electoral turnout shows a decreasing trend, we find that turnout has decreased significantly less in municipalities affected by the reform, suggesting that gender quotas have produced an increase in electoral participation. The effect on electoral turnout is driven by an increase in valid ballots, although we find also an increase in blank ballots. The effect is smaller in the Southern part of the country, typically characterized by more traditional gender roles. We also find that female electors react more than males probably because they expect female policy-makers to give particular attention to women's interests.

JEL classification: D72, D78; J71; J16

Keywords: Gender Quotas; Political Participation; Electoral Turnout ; Natural Experiment; Gender Discrimination.

1. Introduction

The use of electoral gender quotas to increase the number of women in political bodies is diffuse in many countries. Nevertheless quotas remain controversial. Various arguments have been proposed in favor and against the introduction of quotas as a tool to increase women political empowerment. Those supporting the quota system argue that it represents a powerful method for reaching gender balance in political institutions as they compensate for different type of barriers that prevent women to effectively participate in the political arena. In addition, female legislators may have different political preferences and give particular attention to women's interests with the result of correcting a number of imbalances in different social and economic spheres (Pande, 2003; Chattopadhyay and Duflo, 2004; Chen, 2009). On the other hand, those opposing quotas argue that this instrument is against the

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E-mail addresses: m.depaola@unical.it, v.scoppa@unical.it, madebenedetto@unical.it

principle of equal opportunity since women are given an advantage over men. Moreover, quotas may lead to negative effects on the quality of politicians as women are typically less experienced than men. Others argue that reservations, by restricting the pool of candidates, may undermine democracy as voters have less opportunity to freely choose their representatives. By changing the candidates' pool, gender quota may also change the size and the composition of voting population.

The existing literature on the effects of gender quotas has mainly investigated their effects on political choices and on gender stereotypes. Beaman *et al*. (2009), exploiting random assignment of head positions for women across village councils in West Bengal, show that prior exposure to a female leader weakens stereotypes about gender roles and eliminates the negative bias in how female leaders' effectiveness is perceived by male villagers, although it does not alter the villagers' preferences for male leaders.

In terms of participation of female candidates, Bhavnani (2009), using a natural experiment strategy and data for India, shows that in non-reserved areas the level of female participation as candidates without the quota policy is extremely low. When only female leaders are allowed in a district as a consequence of the gender quotas, the participation of women as candidates increases substantially. De Paola et al. (2010), relying on the temporary adoption of gender quotas in Italy, find that the introduction of gender quotas has increased female representation and that these effects have continued after the reform was abolished, supporting the idea that affirmative actions may play an important role in overcoming negative stereotypes. Baltrunaite et al. (2012), also relying on the Italian experience, show that the increase in female representation is not associated with a negative effect on the quality of politicians, indeed they find an increase in the average education level of elected politicians. A positive effect of gender quotas on the percentage of female candidates and councilors has been found by Campa (2011) also for Spain, by Schmidt and Saunders (2004) for municipal elections in Peru and by Jones (1998) for provincial legislatures in Argentina.

Other works investigate the effects of gender quotas in terms of policies followed by elected representatives reaching mixed results. While a number of papers considering the Indian experience show that female legislators favor policies supporting female needs (Chattopadhyay and Duflo, 2004a; Clots-Figueras, 2011; Rehavi 2007; Funk and Gathmann, 2008), other works focusing on European countries do not find any statistically significant effect (Campa, 2011; Rigon and Tanzi, 2011).

In contrast, little is known on how gender quotas affect turnout and voters' behavior. As elections consist in selecting the people who will make decisions that are relevant for the whole community, a high political participation is crucial to reach democratic outcomes. Gender quotas may produce unintended consequences and induce some groups of the population to increase participation or to reduce it. As shown by a number of works an increase in the participation of disadvantaged groups leads to an increase in welfare and public good provision (Husted and Kenny, 1997; Lizzeri

and Persico, 2004). Similarly, an increase in female turnout may lead to more female oriented public policies.

From a theoretical point of view, gender reservations could affect turnout through a number of channels which would lead to different effects. Firstly, voters may obtain utility from voting for candidates of their same gender (Childs, 2004; Kudva, 2003) and having more female candidates may increase the number of female electors who decide to cast their vote. Secondly, voters may consider a candidate gender as a proxy for information on her quality or policy preferences. Female politicians may be perceived as less experienced (Kolinsky, 1991; Murray 2008; Franceschet and Piscopo 2009) or as less corrupted than males (Swamy et al., 2001) with contrasting effects on turnout. Ambiguous effects on turnout would emerge also if female policy-makers are supposed to give particular attention to women's interests as female and male electors may respond differently to this type of expectation.

The empirical literature investigating the effects of gender quotas on electoral participation is scant. Casas-Arce and Saiz (2011), using a Regression Discontinuity Design which exploits the Spanish electoral rules, do not find any statistically significant effect of female candidates neither on turnout nor on blank and invalid ballots. Contrasting effects are shown instead by a few empirical investigations considering the effects of reservations for other disadvantaged groups. Kurosaki and Mori (2011) show a positive correlation between the probability of minority citizens voting and being in a constituency reserved for minorities, but they cannot directly identify the causal impact of reservations on voting. On the other hand, Natraj (2011), relying on the Indian context, finds a causal negative effect: turnout falls by 9% has a consequence of restricting candidate identity to minorities.

In this paper we try to shed some more light on the effects of gender quotas on electoral participation exploiting the temporary adoption of gender quotas in candidate lists in Italy. Gender quotas, reserving a percentage of the candidacies in the party lists for Municipal Council elections for female candidates, were introduced in Italy in 1993 and repealed in 1995 by the Constitutional Court. Given the short time this law was in force, and the staggered scheduling of local electoral races, not all Italian municipalities voted under the gender quotas system. In fact, only municipalities that had an election in the period between April 1993 and 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 and to apply a Difference-in-Differences estimation technique to identify the effects of gender quotas on electoral participation. We compare the changes in turnout rates (measured as the number of effective voters on the number of electors) across the two groups of municipalities before and after the reform was enforced.

From our estimates, it emerges that there was a common sharp reduction in turnout in the treatment and the control group after 1993, but turnout decreased significantly less in those municipalities directly affected by the reform.

To better understand the response of electors to the exogenous increase in female candidates we have looked separately to valid and invalid-blank ballots. Invalid and blank ballots can be thought of as protest votes: voters may use them to express their discontent with the political process. As a consequence, an increase in turnout driven by this type of ballots has to be interpreted differently from an increase driven by valid votes. From our analysis it emerges that the increase in turnout is the result of an increase in both valid and blank ballots. Even if the increase in blank ballots can be related to the existence of a voter bias against female politicians, there is also evidence that having more female candidates increases the number of voters who cast a valid vote and then contribute with their behavior at shaping the electoral outcome.

The positive effect of gender quotas on political participation turns out to be stronger in the Northern part of Italy, while a smaller effect emerges in Southern regions where women are more likely to be relegated to traditional roles.

Exploiting data on turnout available separately by gender, we are also able to investigate whether males and females react differently to gender quotas. We find that female electors react more than males, supporting the idea that they obtain utility from voting for candidates of their same gender, probably because they expect female policy-makers to give particular attention to women's interests.

To check the robustness of our results and, in particular, to use more similar entities in treatment and control groups, we apply our model to a different sample, which only includes in the treatment group the municipalities that neighbor on at least one of the municipalities included in the control group. Our main results remain substantially unchanged.

The paper is organized as follows. In section 2, the Italian institutional framework and the data are presented. In section 3, we present our difference-in-differences strategy and estimation results. In section 4, we discuss geographical differences in electors' responses to gender quota. In section 5, we investigate separately female and male responses to the introduction of gender quotas. Section 6 presents some robustness checks. Section 7 concludes.

2. The Italian Institutional Framework and the Data

Italy is characterized by a quite high electoral turnout compared to many European countries and to US. In municipal elections the average turnout in the period 1993-2011 has been 78.8%.[1]

Since in Italy municipal administrations are responsible for a number of very relevant functions such as the management of public utilities (local roads, water, sewage, garbage collection) and the provision of some services having a strong impact on the daily life of citizens (transportation,

[1] A similar figure has been recorded for recent Parliamentary Elections (78%).

nursery schools, public housing, etc.), voters are generally strongly interested in the choice of the mayor and in the composition of the Municipal Council.

The system currently regulating Italian municipal elections has been introduced in 1993 (Law no. 81 of March 25, 1993). This law introduced the direct election of the mayor, with some differences according to the size of the city.[2] More importantly for our analysis, this law also established that neither sex could represent more than two thirds of a party's list of candidates for a Municipal Council election.[3] In municipalities with up to fifteen thousand inhabitants, the maximum quota for either sex was set at three quarters. The reservation of candidacies introduced in Italy by this law ensured a given minimum number of female candidates, but, unlike quota systems based on reservation of seats, did not ensure that a minimum number of females would be elected.

On September 12, 1995 (Sentence no. 422), the Constitutional Court repealed the reservation quotas declaring that norms establishing that neither sex could constitute more than two thirds of candidates were unconstitutional. 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 subject to special treatment on the basis of sex. As a consequence of this sentence, only the elections which took place between April 1993 and September 1995 were affected by the gender quota reform, allowing us to define a treatment and a control group.

Municipal elections in Italy are held every 5 years[4] and Municipal governments cannot choose the election schedule. In certain circumstances, the legislature may not survive until the end of its legislative term, e.g. because of a mayor's early resignation.[5] In these cases, elections are held before the natural schedule, and, as a consequence, all subsequent elections will be held at different times with respect to other municipalities that have completed regularly the legislative term. In this framework, treatment status (voting under the gender quota system) was arguably exogenous, since municipalities were not able to decide upon the scheduling of their elections in relation to the gender quota system.

[2] Seats in the Municipal Council are allocated using an individual-ballot system and plurality rules. This system was introduced in 1993, replacing a party ballot system. For cities with a population of fewer than 15,000 inhabitants, elections are held with single ballot and the winning candidate is awarded a majority premium of at least two-thirds of the seats in the Council; for municipalities with a population above 15,000, elections are held using a dual ballot (where the second is held only if none of the candidates obtains an absolute majority of votes in the first ballot), and the winning candidate is awarded a majority premium of at least 60 percent of the seats in the Council.

[3] These procedures were also established for Provincial Councils and for the Chamber of Deputies. In February 1995 (Law no. 43), the same rules were applied to the election of Regional Councils.

[4] With the exception of the years between 1993 and 1999, when the electoral mandate had a duration of 4 years.

[5] In greater detail, early termination of the legislature may occur for one of the following reasons: the resignation of the mayor, the resignation of the majority of the council or a vote of no-confidence in the council, the death of the mayor, ex-post incompatibilities or the mayor being charged with a crime. In these cases it is not possible to constitute a new governing coalition and anticipated elections are called.

Municipalities have a registry of eligible voters, which is revised whenever there is an election and all citizens aged 18 or more on the election date are automatically registered to vote. Elections usually last two consecutive days (Sunday and Monday). Voting takes place in polling stations organized by the local authorities. Elections are organized according to a traditional paper ballot system.

To examine the effects produced by the reform we use administrative data on political participation starting from 1985. For each municipal election we have information on the number of valid, invalid and blank ballots, the number of people eligible to vote. In a traditional paper-ballot system, as that used in Italy, the election officers register valid votes (those where the voter's preference is clearly stated), blank ballots (those where there is no sign) and decide on ballots in which the voter's choice does not emerge clearly (for example, when the secrecy is undermined due to any sign different from a simple cross or when a cross does not uniquely identify the voter's preference).

To better understand the effects of gender quotas we look separately at the three different categories of ballots casted by electors. Even if blank and invalid ballots generally represent a small share of total ballots, they are typically used to express discontent and it is worthwhile to understand whether a variation in turnout is related to changes in valid votes or in changes blank/invalid votes.

Due to staggered election dates, we cannot compare voting behaviors for the treatment and the control groups in the same year. We compare electoral outcomes at elections taking place immediately before the introduction of gender quotas with electoral outcomes at elections following the gender quota reform. More precisely, for the treatment group ("*Gender Quota*") we compare turnout (plus valid, blank and invalid votes) at elections taking place immediately before the introduction of gender quotas (a large number of municipalities voted in 1990) with outcomes at elections taking place in the period March 1993-September 1995 (the period in which gender quotas were in force). For the control group we compare outcomes at elections taking place immediately before the gender quota reform (typically elections in years 1990-1992) with electoral outcomes of elections held during the period October 1995-September 1999 (for each municipality we only take into account the first election taking place after September 1995).

For electoral outcomes before 2001, there are no readily usable data.[6] The data on electoral turnout, valid, blank and invalid votes were kindly provided by the Italian Ministry of Internal Affairs. For observations before the year 1990, we obtained the data by examining the volume "Elezioni comunali del 12 maggio 1985" distributed by the Italian Ministry of Internal Affairs in hard copy.

[6] Starting from 2001, data on electoral outcomes are available at the following website: http://elezionistorico.interno.it/ (Archivio Storico delle Elezioni).

We have information for the first electoral round on the number of valid, invalid and blank ballots, the number of people eligible to vote. Unfortunately, the data present a number of missing and are incomplete for some municipalities.

In addition, we use the 1981, 1991 and 2001 Italian Census of Population to obtain data at the municipal level on the population size, the number of employed individuals, the educational attainment of the population and the percentage of people over the age of 65.

For the period before the reform, we observe the electoral outcomes of 6,793 municipalities among those that voted during the reform period ("Gender Quotas"), while we observe the electoral outcomes of 274 municipalities among those that never voted under this regime (the control group). On the other hand, after the introduction of the reform we observe the electoral outcomes of 7,251 treated municipalities (which voted in the period March 1993-September 1995) and of 259 control municipalities (voting in the period October 1995 until September 1999).

We define *Turnout* as the ratio between the number of effective voters and the number of eligible voters. *Blanks*, *Invalid* and *Valid* ballots are defined respectively as the ratio between the number of blank, invalid and valid ballots and the number of eligible voters.

We also observe for most of the municipalities the number of electors and of voters separately for males and females. In this way we are able to distinguish between *Turnout (Males)*, the ratio between male voters and male electors; and *Turnout (Females)*, the ratio between female voters and female electors. Unfortunately, for a number of elections (in particular for the years 1996-1999) there was no separate account of electors and voters between males and females and as a consequence our sample is reduced.

In Table 1 we report some descriptive statistics. The average turnout is 85.6% (86.4% for males and 84.8% for female), the percentage of valid ballots is 80.3%, blank ballots are 2.9%, while invalid ballots are 2.4%. The average population size is 6,958. The average years of education in the population are 6.8, the ratio between the number of employed individuals and the total number of inhabitants is about 35% and the share of population aged more than 65 is 18%. About 28.7% of municipalities are located in the South and Islands.[7]

[7] Southern regions are Abruzzo, Molise, Campania, Apulia, Basilicata, Calabria, Sicily and Sardinia.

Table 1. Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max	Observations
Turnout	0.856	0.082	0.472	0.989	14577
Perc. Valid	0.803	0.085	0.327	0.969	14383
Perc. Blanks	0.029	0.024	0	0.169	14362
Perc. Invalid	0.024	0.015	0	0.108	14352
Turnout Females	0.848	0.079	0.471	.987	13520
Turnout Males	0.864	0.085	0.470	.989	13488
Population	6958.380	44099.580	31	2840259	14437
Education	6.825	0.678	3.863	11.214	14437
Employment	0.354	0.076	0.112	0.611	14437
Percentage Pop>=65	0.184	0.065	0.038	0.619	14437
South	0.287	0.453	0	1	14441

Notes: Data from the Italian Ministry of Internal Affairs and from the 1981, 1991 and 2001 Italian Census (ISTAT).

In Table 2, we compare – for municipalities affected and not affected by the reform – the turnout rate, the percentage of blank, invalid and valid ballots, for the periods before and after the gender quotas reform. In the period before the reform the turnout rate was 88.4% and 85.9%, respectively in treated and control municipalities. The percentage of blank and invalid ballots was respectively 3.1% and 2.3% in treated municipalities and 2.3% and 2.0% in control municipalities. The percentage of valid ballots was 83% and 81.7%, respectively, in treated and control municipalities. After the gender quota reform it is possible to observe a considerable reduction in the turnout rate, in the percentage of blank ballots and of valid ballots both in treated and control municipalities. In contrast, invalid ballots have increased in all the municipalities. More importantly, turnout and the percentage of valid votes appear to decrease much more in municipalities not experimenting the gender quota system.

Table 2. A comparison of electoral participation between municipalities, before and after the gender quota reform

Variables	Gender Quota Municipalities		Non Gender Quota Municipalities	
	Pre-Reform	1993-1995	Pre-Reform	1995-1999
Turnout	0.884	0.833	0.859	0.780
	(0.001)	(0.001)	(0.006)	(0.006)
Perc. Blanks	0.031	0.028	0.023	0.014
	(0.000)	(0.000)	(0.001)	(0.001)
Perc. Invalid	0.023	0.025	0.020	0.021
	(0.000)	(0.000)	(0.001)	(0.001)
Perc. Valid	0.830	0.779	0.817	0.743
	(0.001)	(0.001)	(0.006)	(0.006)

Notes: standard errors are in parentheses.

3. Gender Quotas and Electoral Participation: A Difference-in-Differences Approach

To investigate the effects of gender quotas on turnout and voters' behavior, following the approach adopted by De Paola *et al.* (2010), we use a difference-in-differences estimation strategy, exploiting the reform which has introduced gender quotas in Italy: we consider as a treatment group the municipalities where a local election took place in the period in which the gender quota reform was in force ("*Gender Quota*"), whereas we insert in the control group those municipalities that did not vote during that period ("*Non-Gender Quota*").

Our key identification assumption is that, without the policy intervention, the differences in electoral participation between treatment and control groups would have remained constant over time.

In order to take into account the fact that the electoral outcomes for "Non gender quota municipalities" might diverge and evolve differently from those of municipalities included in the treatment group, we control for a number of municipal characteristics and for provincial dummies. We estimate several specifications of the following model:

$$Y_{it} = \beta_1(Gender\ Quota) + \beta_2(Post\ Quota) + \beta_3(PostQuota * Gender\ Quota) + \beta_4 X_{it} + \mu_p + \lambda_t + \varepsilon_{it} \quad [1]$$

where Y_{it} is the dependent variable measuring, according to the specifications, the *Turnout* rate, the percentage of *Blanks*, *Invalid* and *Valid* votes in municipality *i* in election year *t*; *Gender Quota* is a dummy variable for municipalities affected by gender quotas; *Post Quota* is a dummy which takes the value of 1 for elections taking place after the reform was introduced (from March 1993 to December 1999 in our dataset); *Post Quota*Gender Quota* is the interaction term, whose coefficient β_3 measures the treatment effect of our interest, i.e. the difference in the temporal variations of electoral outcomes between the municipalities voting and not voting under the gender quota system; X_{it} is a vector of municipal characteristics, such as population size, average years of education and fraction of the employed population, fraction of elderly people, μ_p is a vector of provincial dummies, λ_t is a vector of year dummies and ε_{it} is an error term.

As in Baltrunaite *et al.* (2012), we focus on the short term effects of the reform looking at the electoral outcomes of elections held right before and right after the period in which gender quotas were in force. To limit the risk of including in our analysis confounding factors, we have decided to compare the turnout at elections taking place immediately before the introduction of gender quotas (mostly in 1990), for municipalities in the treatment and control group, with the turnout at elections

taking place in the period March 1993-September 1995 and the period October 1995 - September 1999 (for control group municipalities we consider the first election taking place after September 1995).

In Table 3 we report results of OLS estimates of equation (1) without controls. In all specifications, standard errors are robust to heteroskedasticity and are allowed for clustering at the municipal level.

In column (1) the dependent variable is represented by the percentage of effective voters on eligible electors (*Turnout*). We find – without controlling for municipal characteristics – that before the reform gender quota municipalities present a turnout higher of 2.5 percentage points. Importantly, in municipalities not affected by gender quotas after 1993, turnout has decreased of 7.9 percentage points. On the other hand, the coefficient on the interaction term is positive and highly statistically significant (*p*-value=0.00): the difference in turnout between treatment and control municipalities increased by 2.7 percentage points after the reform. As a matter of fact, turnout decreased less (by 5.2 percentage points) in gender quota municipalities in contrast to the decrease of 7.9 points in control group municipalities.

When we consider separately the different type of ballots cast by voters, we find a positive effect of the exogenous increase in female candidates on blank ballots (column 2), while we do not find any statistically significant effect on invalid ballots (column 3). The magnitude of the estimated effects of gender quotas is not high: blank ballots in the period following the reform have decreased by 0.8 percentage points in control municipalities, while a smaller reduction emerges in treated municipalities (0.2 percentage points).

All in all, the percentage of valid votes has been positively affected by the reform, showing an increase of 2.2 percentage points in treated municipalities with respect to the control group municipalities. The positive impact on valid votes emerging from our analysis suggests that having more female candidates produces an increase in voters' political participation.

This result is also supported by the null effect found on invalid votes which might be thought as protest votes. Less clear-cut is the interpretation for the effects of gender quotas on blank ballots, the increase recorded in treated municipalities may be due either to voters' intention to express discontent with the political system or as a natural result related to the higher share of population deciding to cast their vote in these municipalities compared to control municipalities.

Table 3. Difference-in-differences estimates of the impact of the gender quota on voters' behavior without controls

	(1) Turnout	(2) Blanks	(3) Invalid	(4) Valid
(Gender Quota)*(Post Quota)	0.027***	0.006***	0.001	0.022***
	(0.006)	(0.002)	(0.001)	(0.006)
Gender Quota	0.025***	0.008***	0.003***	0.013**
	(0.006)	(0.001)	(0.001)	(0.006)

Post Quota	-0.079***	-0.008***	0.001	-0.073***
	(0.006)	(0.002)	(0.001)	(0.006)
Constant	0.859***	0.023***	0.020***	0.817***
	(0.006)	(0.001)	(0.001)	(0.006)
Observations	14577	14362	14357	14383
Adjusted R-squared	0.111	0.011	0.007	0.097

Notes: The dependent variable is indicated on the top of each column. OLS estimates. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

In Table 4 we estimate the same specifications of Table 3, but we add controls for some municipal characteristics, provincial fixed effects and electoral year dummies. In previous specifications without controls we have found that there are relevant differences in turnout, blank, invalid and valid ballots between municipalities belonging to the treatment and the control groups before 1993: the dummy variable *Gender Quota* is positive and statistically significant. However, as shown in Table 4, these differences become statistically insignificant when we control for municipal population size, educational attainment, employment rate, the fraction of elderly population and province fixed effects. This is consistent with the assumption that – conditional on municipal characteristics – the inclusion in the treatment or in the control group was due exclusively to random factors that led municipalities to vote or not during the reform period.

The inclusion of province fixed effects and controls for municipal characteristics do not change our main results. The magnitude of the effects is also very similar to that emerging without these controls. We find that the reduction in the turnout rate has been smaller in gender quota municipalities after 1993. The difference in turnout between treated and control municipalities increased by 3.1 percentage points after the reform.

The increase in turnout has been reflected in part by an increase of blank ballots (+1.1 percentage points). However, the number of valid votes increased in treated municipalities by 1.8 percentage points with respect to control municipalities, as an effect of the gender quota reform.

Table 4. The impact of the gender quota on electoral behavior: Controlling for municipal characteristics and province fixed effect

	(1) Turnout	(2) Blanks	(3) Invalid	(4) Valid
(Gender Quota)*(Post Quota)	0.031***	0.011***	0.000	0.018*
	(0.009)	(0.003)	(0.002)	(0.011)
Gender Quota	0.003	0.003***	0.001	-0.001
	(0.004)	(0.001)	(0.001)	(0.005)
Post Quota	-0.082***	-0.013***	0.006***	-0.074***
	(0.009)	(0.003)	(0.002)	(0.011)
Population	-0.000***	-0.000	0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Education	0.003**	-0.003***	0.001***	0.006***
	(0.001)	(0.000)	(0.000)	(0.001)
Employment	0.156***	0.022***	-0.011**	0.141***

	(0.024)	(0.007)	(0.005)	(0.026)
Percentage Elderly	-0.330***	-0.000	-0.021***	-0.316***
	(0.019)	(0.005)	(0.004)	(0.022)
Province Fixed Effects	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	14437	14224	14219	14245
Adjusted R-squared	0.576	0.216	0.125	0.426

Notes: The dependent variable is indicated on the top of each column. OLS estimates. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

4. Geographical Differences in Electors' Responses

In this section we investigate whether the effect of gender quotas on electors' behavior differs across geographical areas characterized by different attitudes toward women. As shown by a number of studies (Alesina *et al.*, 2008), in the South of Italy women are more likely to be relegated to traditional social roles and female candidates have a higher probability of being perceived as violating traditional gender roles. As a consequence, we may expect that electors living in the South suffer more of anti-female prejudices and in response of an increase in female candidates in the electoral competition may decide of not casting their vote or to express discontent.

At the aim of investigating this issue, we interact the three variables of interest *Post Quota*, *Gender Quota*, (*Gender Quota*)*(*Post Quota*)) with a dummy variable *South* which takes the value of one for municipalities located in Southern regions and zero otherwise.

In Table 5, we replicate the main specifications presented in Table 4. It emerges that in the period following the gender quotas reform, turnout has decreased less in the South (7.2 percentage points as opposed to 9.3 percentage points in the Center-North, see column 1). More importantly, Center-Northern municipalities directly affected by the gender quota reform have increased turnout by 4.3 percentage points (significant at the 1 percent level) with respect to control group municipalities in the same area, whereas Southern municipalities increased their turnout with respect to control group only by 2.1 percentage points (2.1=4.3-2.2). In fact, the coefficient on the interaction (*Gender Quota*)*(*Post Quota*)*(*South*) is statistically significant at the 5 percent level, implying that the reform has led to a smaller response of Southern "Gender Quotas" municipalities compared to municipalities located in the North.

On the other hand, in treated municipalities in the Center-North both blank and invalid ballots increased significantly more (columns 2 and 3, Table 5), while we find smaller effects on blank and invalid ballots for Southern treated municipalities.

All in all, we show that (column 4) valid votes increased of 2.3 percentage points in Northern municipalities (significant at the 10 percent level), while in treated municipalities located in the South valid votes increased only by 1.1 (=2.3-1.2) and this coefficient is not statistically significant.

These results hold true also if we do not control for provincial fixed effects and for municipal characteristics (results not reported).

In sum, the exogenous increase in female candidates, deriving from the gender quota reform, has produced a stronger effect on turnout in Center-Northern regions characterized by less traditional attitudes toward women. In these regions having more female candidates produced an increase in both turnout and valid votes, while in regions characterized by more traditional gender roles valid votes have been almost not affected.

Table 5. The impact of the gender quota on voters' behavior: heterogeneous effects across geographical areas

	(1) Turnout	(2) Blanks	(3) Invalid	(4) Valid
(Gender Quota)*(Post Quota)	0.043***	0.019***	0.004*	0.023*
	(0.010)	(0.003)	(0.002)	(0.013)
Gender Quota	0.004	0.002	-0.001	0.003
	(0.004)	(0.002)	(0.001)	(0.005)
Post Quota	-0.093***	-0.026***	0.001	-0.068***
	(0.011)	(0.003)	(0.002)	(0.013)
(Gender Quota)*(South)	-0.001	-0.000	0.001	-0.004
	(0.008)	(0.002)	(0.002)	(0.009)
(Gender Quota)*(Post Quota)*(South)	-0.022**	-0.007***	-0.005**	-0.012
	(0.010)	(0.003)	(0.002)	(0.012)
(Post Quota)*(South)	0.021**	0.018***	0.008***	-0.005
	(0.010)	(0.003)	(0.002)	(0.012)
Municipal Characteristics	YES	YES	YES	YES
Province Fixed Effects	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	14437	14224	14219	14245
Adjusted R-squared	0.576	0.226	0.128	0.427

Notes: The dependent variable is indicated on the top of each column. OLS estimates. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

5. Heterogeneous Responses of Male and Female Electors

An important issue, not investigated by the literature evaluating the gender quota effects, is whether male and female electors react differently to the introduction of gender quotas. It could be that both genders react positively to a larger presence of female candidates, or it could be that males react negatively and females react positively, or even the other way around.

Thanks to the richness of our dataset, we have the possibility to investigate, at least to some extent, this aspect. In fact, for most of the observations (although not for all) official statistics report for each election the number of electors, separately for males and females, and the number of voters, again distinguishing between males and females. In this way we are able to build two variables: *Turnout (Males)*, as the ratio between male voters and male electors; and *Turnout (Females)* as the

ratio between female voters and female electors. Unfortunately, for a number of elections (in particular for the years 1996-1999) there was no separate account of electors and voters between males and females and therefore we lose about one thousand observations.[8]

From descriptive statistics (Table 1), it is possible to note that the turnout of males is slightly higher (86.4%) than the turnout of females (84.8%).

We follow the same strategy adopted in Section 3 (eq. [1]), using, in turn, as dependent variable *Turnout Males* and *Turnout Females*. Estimates are reported in Table 6. In odd-numbered columns we report regressions using *Turnout Males* as dependent variable while in even-numbered columns the dependent variable is *Turnout Females*.

Table 6. Heterogeneous Responses of Male and Female Electors

	(1) Turnout Males	(2) Turnout Females	(3) Turnout Males	(4) Turnout Females	(5) Turnout Males	(6) Turnout Females
(Gender Quota) *(Post Quota)	0.020	0.037***	0.030***	0.038***	0.027***	0.036***
	(0.013)	(0.012)	(0.010)	(0.009)	(0.010)	(0.009)
Gender Quota	0.035***	0.021***	0.004	-0.002	0.005	-0.001
	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)
Post Quota	-0.066***	-0.093***	-0.069***	-0.088***	-0.067***	-0.086***
	(0.013)	(0.012)	(0.010)	(0.009)	(0.010)	(0.009)
Municipal Characteristics	NO	NO	NO	NO	YES	YES
Province Fixed Effects	NO	NO	YES	YES	YES	YES
Year Dummies	NO	NO	NO	NO	YES	YES
Observations	13488	13520	13472	13502	13469	13499
Adjusted R-squared	0.077	0.125	0.530	0.479	0.578	0.554

Notes: The dependent variable is indicated on the top of each column. OLS estimates. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

Results show that both males and females react positively to the introduction of gender quotas (see the coefficient on the interaction term *Gender Quota*Post Quota*). Interestingly, the reactions of females are always stronger than those of males. For example, in column (3), in which we control for province fixed effects and municipal characteristics, males increased their turnout by about 3.0 percentage points, while the increase is 3.8 percentage points for females (both coefficients are significant at the 1 percent level). Controlling for municipal characteristics and year dummies, we find that females in treated municipalities increased their electoral participation by 3.6 percentage points (column 6), whereas males increased their participation by 2.7 percentage points (column 5).

These findings show that females appreciate particularly the introduction of gender quotas, probably because they expect female representatives to lend special attention to women needs and preferences.

[8] Obviously, since the voting box is unique for males and females and the vote is secret, we cannot distinguish blank, invalid and valid ballots according to gender.

6. Robustness Check: Comparing Only Neighboring Municipalities

In this section, to check the robustness of our results we focus on more homogeneous treatment and control groups by comparing the municipalities included in the control group with only their treated neighboring municipalities.

As explained above, treated municipalities are a large majority and by simply comparing all the treated with control municipalities we run the risk of comparing very different units. To avoid this problem, we restrict our attention to those municipalities that neighbor on at least one of the municipalities included in the control group.[9] In this way, for the period immediately before the reform we observe 1,458 treated municipalities and 233 control municipalities, while for the period following the reform we observe the electoral outcomes of 1,672 treated municipalities and of 185 control municipalities.

We carry out the main specifications of our model on this restricted, and presumably more homogenous, sample. In Table 7, in which we control for province fixed effects and municipal characteristics, we present results regarding the *Turnout* rate (column 1) and the percentage of *Blanks*, *Invalid* and *Valid* ballots (respectively columns 2, 3 and 4). Our main results remain substantially unchanged: the impact of the gender quotas is significant and the size of the effect is slightly larger compared to the effects estimated when considering the full sample of treated municipalities. It emerges that, following the gender quota reform, *Turnout* increases by 3.1 percentage points (statistically significant at the 1 percent level) in treated municipalities with respect to control group, while valid votes increase by 2.2 percentage points (significant at the 5 percent level). Therefore, we are reassured that the results obtained with the full sample were not driven by comparing groups of municipalities that are too heterogeneous.

Table 7. Difference-in-differences estimates on a sample of neighboring municipalities

	(1) Turnout	(2) Blanks	(3) Invalid	(4) Valid
(Gender Quota)*(Post Quota)	0.031***	0.010***	0.001	0.022**
	(0.010)	(0.003)	(0.002)	(0.012)
Gender Quota	0.005	0.001	0.001	0.002
	(0.005)	(0.001)	(0.001)	(0.005)
Post Quota	-0.087***	-0.012***	0.004*	-0.077***
	(0.011)	(0.003)	(0.002)	(0.013)
Population		-0.000	-0.000	-0.000***
		(0.000)	(0.000)	(0.000)
Education		-0.002**	0.002***	0.005*
		(0.001)	(0.000)	(0.003)

[9] Data on neighboring municipalities are taken from Wikipedia at the following website: http://it.wikipedia.org/wiki/Progetto:Amministrazioni/Comuni_italiani/Comuni_limitrofi

Employment		0.010	-0.007	0.042
		(0.011)	(0.008)	(0.045)
Perc. Elderly		-0.000	-0.013*	-0.498***
		(0.009)	(0.007)	(0.035)
Province Fixed Effects	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	3548	3497	3488	3504
Adjusted R-squared	0.530	0.236	0.152	0.484

Notes: The dependent variable is indicated on the top of each column. OLS estimates. Standard errors, corrected for heteroskedasticity and adjusted for potential clustering at the municipal level, are reported in parenthesis. The symbols ***, **, * indicate that coefficients are statistically significant, respectively, at the 1, 5, and 10 percent level.

7. Concluding Remarks

Recent years have witnessed some gains in women's access to elected office. This trend has occurred across all major regions of the world, leading to an increases in the percentage of women in political arena in different countries. One of the main reasons for these shifts has been the adoption of gender quota policies aimed at increasing the proportion of female candidates to political office and at reducing the discrimination rooted in the social norm that leadership is a masculine activity.

Whereas there is a large literature on the effect of gender quotas on gender stereotypes and female representation in politics as well as on policy choices, little is known on how gender quotas affect voters' participation and behavior.

Focusing on electoral participation is an important issue as voter abstention is becoming a common phenomenon in many countries with negative effects on the legitimacy of the electoral process. Gender quotas may induce some groups of the population to increase participation or to reduce it with relevant consequences on the selection of decision makers and on the policies that they will implement.

In order to fill the gap in the literature, in this paper we examine the effects of gender quotas on turnout, valid ballots as well as blank and invalid ballots, by using a rich dataset that provides detailed information on Italian municipal elections. The temporary adoption of gender quotas in Italy allows us to identify a treatment and a control group and to implement a differences-in-differences strategy. Thus, we compare our outcome variables before and after the introduction of the gender quotas between treatment (municipalities that vote under gender quotas regime) and control group.

Turnout shows a declining temporal trend. However, we find that turnout has decreased significantly less for municipalities directly affected by the gender quotas reform and this effect is lead by an increase in valid ballots. In particular, the coefficient attached to our interaction term is positive and statistically significant, suggesting that having more female candidates produces an increase in voters' political participation. Our results diverge from those found by Natraj (2011) for India and by Casas-Arce and Saiz (2011) for Spanish elections.

The effect of gender quotas on our outcome variables tend to be the same (the coefficient of the interaction term is stable, positive and statistically significant) when we add further control variables at a municipal level such as population size, percentage of elderly people and employment rate, ensuring us that treatment assignment is random. Similar results are also obtained when we look at more homogeneous treatment and control groups, focusing on treated municipalities that neighbor on at least one of the municipalities included in the control group.

Moreover, we show that Northern municipalities record stronger responses in the turnout rate, blank and in the percentage of valid votes compared to Southern ones, probably because in the South of Italy women are more likely to be relegated to traditional social roles and female candidates have a higher probability of being perceived as violating traditional gender roles.

Furthermore, thanks to the richness of our dataset, we investigate whether male and female voters react differently to the introduction of gender quotas. We find that although both male and female electors react positively to the introduction of gender quotas, the reactions of females have always been stronger than those of males. This finding is probably due to the fact that female representatives are expected to lend special attention to women' needs and preferences. Another potential explanation is that female voters positively react to gender quotas because they may obtain utility from voting for candidates of their same gender (Childs, 2004; Kudva, 2003).

Our results suggest that gender quotas, in addition to the effects on female representation in politics and on anti-female stereotypes, may improve female condition also by inducing more female electors to vote and leading in this way to more female oriented public policies.

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