Gender quotas in Italy.
A random utility model of voting behaviour

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Abstract

The share of elected positions held by women in democratic countries is still very small. To increase this share many countries have introduced gender quotas in their electoral rules. In Italy gender quotas, requiring a minimum number of women in electoral lists, have been introduced for elections at different levels of government.

This type of quotas does not ensure in an open list electoral system that women will get more votes. This effect will depend on the extent to which there is an anti-female bias among voters. To test the presence of an anti-female bias in voting behaviour we set up a random utility model for voting behaviour. The model is then tested on the elections for regional councils in 1995 and 2000.

The results show that a higher share of women in party lists leads to an increase in the probability that voters will choose a female candidate. Other important factors influencing voters' behaviour are the length of the party list and the position of the party in terms of liberal values. The more the party is liberal in terms of these values, the higher the probability that a woman will be voted.

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1. **Introduction**

Discrimination against women in democratic politics has a long history. Most countries extended universal suffrage to women only decades after it was given to men. Although women were granted the right to be elected at the same time they were granted the right to elect, *de facto* the share of elected positions held by women is still very small, if not marginal even in fully fledged democratic systems (Dahlerup, 2002; Matland, 2002, and the web site of *International Idea*). Considering both upper and lower houses, women, currently, occupy around 21 per cent of seats in the Americas, 19 per cent in Europe, 16 per cent in Africa and the same percentage in Asia (Inter-Parliamentary Union, 2006). Small numbers of elected women correspond, generally, to small numbers of women candidates.

To increase the share of elected women many countries, including Italy, have in recent times introduced gender quotas in their electoral rules. These quotas can have different origins. They can be mandated by law (constitutional, or ordinary), or be introduced through discretionary decisions by political parties (see Caul, 2001, for a cross-national analysis of the adoption of candidate gender quotas by political parties).

Although there is a huge literature on where, when and how quota systems were introduced and there are many descriptive studies of the electoral fortunes of women in legislative bodies around the world, analytical studies on the impact of quotas are still very few. One of these very few is the analysis referred to the German Laender by Davidson-Schmich (2003). Here, gender quotas were introduced voluntary by political parties. Not every party had quotas and, in many cases, quotas were not filled, although quotas have significantly increased women representation in Laender legislatures. Lack of full success is explained in the paper by the socio-political characteristics of the electorate of distinct Laender (agrarian

ones electing less women) and their voting systems. The paper confirms that proportional representation provides a more propitious ground for the success of gender quotas.[2]

One of the most articulated analyses of the impact of the introduction of gender quotas is provided by Maniquet *et al.* (2005). The paper shows how the adoption of gender quotas in electoral lists, in the case of France the "Parity Law" of 2001, can be fully rationalized on the basis of the self-interest of male incumbent politicians. Their paper also explains that the existence of a gender bias among voters is sufficient to convince the incumbents to advocate for equal gender representation in party lists, because it raises the incumbents chances of being re-elected. The paper reveals the existence of a gender bias among French voters for the 2002 election of the National Assembly. The Authors suggest an intriguing hypothesis in their conclusion: *"countries where voters gender bias exists have fewer women than men because of a "demand" bias, and are more likely to endogenously generate affirmative action laws; on the other hand, countries like the U.S. where no voters demand bias exists, and where therefore the shortage of women in politics is a "supply" issue, are unlikely to have the necessary conditions for the approval of a parity law".* (Maniquet *et al.,* 2005, pg 31).

Most of the analytical literature on gender and elections is focussed on the issue of gender bias (Milyo and Schosberg, 2000, Dolan, 2004). This literature is relevant to the impact of gender quotas, although is not directly related to them. A common approach to testing the existence of a gender bias is to verify the impact of an increase in the number of women candidates on their electoral fortunes. For example, Welch *et al.* (1985) analyse legislative elections in six American states during the period 1970 to 1980. Their basic finding is that when there are more

[2] Appendix A provides a discussion of the interaction between quotas and electoral systems.

female candidates for open seats – open seats means that there is no incumbent – then, proportionally, more women will be elected. This shows that, according to the authors, no electoral gender bias is operating in those states. However, since male incumbents predominate, female candidates are in general disadvantaged (as are, also, male candidates running in the same circumstances). Black and Erickson (2003) in their study of Canadian parliamentary elections show similar results: women do no fare worse than men with comparable characteristics. However, female candidates have on average better characteristics – such as better school, or professional record - than men, meaning that barriers to access to lists are still operating, and that their removal may require having higher qualifications.

Our paper analyses the impact of gender quotas on voter behaviour in Italian regional elections[3]. More precisely, we explore the impact of gender quotas on the probability of getting voted by gender and not on the probability of getting elected. This is because the impact of quotas on the number of elected women does not derive simply from voters' choices but it is also mediated by the electoral system[4]. Within the framework of the spatial theory of voting, we use a random utility model for voter behaviour, that allows to estimate the probability that voters will chose a female candidate. The model allows simulating the changes in probability of voting a woman respect to a number of variables, such as the introduction of gender quotas, the length of the list, the position of the party in terms of liberal values. The results show that a higher share of women in party lists leads to a significant increase in the probability that voters will choose a female candidate. This implies

[3] Appendix B illustrates the Italian history regarding the introduction of gender quotas.

[4] In the Italian case, for example, there is a majority premium for the party coalition that gets a plurality of votes. The number of female candidates elected becomes also dependent on the distribution by gender of winning candidates of the winning coalition.

that voters would be willing to vote for women, i.e. there is not a perfect gender bias against women. Our paper therefore supports the suggestive explanation that Maniquet *et al.* (2005) put forward.

Respect to the previous literature, our paper introduces two novelties. First, while random utility models were used before to estimate voter behaviour (Falmagne and Regenwetter, 1996, Dow and Endersby, 2004 Thurner and Eymann, 2000), it is the first time that such a model is used with the specific aim to test the efficiency of quotas systems and the operation of a gender bias. Secondly, respect to other papers that test gender bias among voters (Maniquet *et al.* 2005, Davidson-Schmich, 2003, Milyo and Schosberg, 2000, Dolan, 2004) we assume a spatial theory of voting behaviour and we empirically test the theory on Italian voters with reference to the 1995 and 2000 regional election.

2. The decision-making process of voters

The formal theory of voting models the choices of electors as the result of a sequenced multi-stage decision-making process (see Davis, *et al*., 1970; Riker and Ordeshook, 1970; Macdonald, *et al*., 1998). With reference to an open list proportional representation system, where voters have to select a party and a candidate on the list proposed by the same party, such as that used in Italian elections, one could assume that voters start by choosing the party and then the candidate(s). Alternatively, voters could start by selecting the candidate(s) and then the party. In both cases, the first choice constrains the second. When the party is selected first, then only the candidates proposed by that party may be chosen. On the other hand, when voters start by choosing the candidate(s), the party is automatically chosen.

Voting sequences can be illustrated by means of decisions trees. In figure 1, voters start by choosing their preferred political party and, then, select preferred candidate(s) among those fielded by their preferred party.

Figure 1 and 2 approximately here

In figure 2, the reverse path is presented and the decision tree is shortened: voters start by choosing their preferred candidate across all the lists presented by political parties. In this case, once they have chosen a candidate, the party is automatically selected.

In a setting - such the Italian one until recently, at least, where voters' choices are strongly influenced by sentiments of loyalty to parties, the sequence that goes from parties to candidates appears to be more likely. The model we build and we check in the next section is based on that assumption. As a consequence, the model is not intended to explain the choice between parties, but only the choice between candidates once the party has been chosen.

Electors' choices can be represented by a traditional spatial/directional model, in the expanded version developed by Davis *et al.,* (1970), whereby voters consider not only policy issues, but also other criteria, such as personal characteristics of the candidates (as suggested, among others, by Stokes, 1963, Macdonald *et al*., 1998).

According to the spatial model, each voter selects a candidate as to minimize the loss deriving from the *distance* between his/her own preferred position and the positions taken by each distinct candidate.

Let's introduce some notation.

i is an index for the voter ($i= 1,2,3,\ldots\ldots,I$);

c is an index for candidate ($c=1,2,3....,C$); m an index for dimension ($m=1,2,3...,M$); y_{im} is the position of voter i on dimension m; γ_{cm} is the position of candidate c on dimension m

A typical loss function for voter i choosing candidate c is:

$$U_{ic}(Y_i) = \sum_{m=1}^{M} b_{im} \left| y_{im} - \gamma_{cm} \right| \qquad (1)$$

where Y_i is a $m \times 1$ vector of dimension for voter i and b_{im} are the weights given by the voter to each dimension. The voter chooses a candidate c minimising her/his loss function (1).

Clearly, dimensions non-associated with issues should play in the choice of candidates a bigger role than in the choice of parties. This applies especially to personal characteristics, such as gender, age, incumbency, and position on the list.

Minimisation of (1) holds the optimal choice of candidate for voter i.

Reference to utility loss functions allows us to analyze the impact of gender quotas on parties and on voters' choices. Quotas influence the choice of candidates by reducing the loss of voters that:

a) have a pro-female gender inclination and,

b) are attracted by the personal characteristics of female candidates and their position taken on various issues by these candidates (provided these positions are closer to voters' preferences than those taken by male candidates).

Subject to a) and b), quotas increase the chances of the protected gender to be elected. Or, in other terms, quotas will increase the probabilities that voters will choose a female candidate. In terms of the utility loss functions, quotas will reduce the utility

loss in (1). Moreover, the larger the quotas, the higher the probabilities that the number of votes to female candidates will increase[5].

3. The Voter Model

In order to estimate in a complete form the model discussed above, we would need information about: a) the position of voters on different dimensions and, b) position of candidates on the same issues and on their personal characteristics. A model of this type has been estimated on German data by Thurner and Eymann (2000). Unfortunately, we don't have all the data allowing the estimation of such a model. Our data-set includes only the personal characteristics of the candidates and the share of votes. Since we don't observe the personal characteristics of the voters and their positions on different dimensions (the y_{in}), we use as personal characteristics of the voter the information that is already specified before the voter chooses the candidate, i.e. the characteristics of the chosen party. As mentioned before we assume that quotas do not influence the choice of the party, but the choice of candidates.

We assume that the voter is rational in the sense that she votes to maximize her perceived utility. However, there are errors in this maximization because of imperfect perceptions and optimization, as well as the errors made by the analyst to measure exactly all the relevant variables. We follow McFadden (1974) and we assume a random utility model for the voter, in the context of an election process.

Suppose that the voter faces a maximum number of alternative types of candidates equal C. We call C the universal choice set and define J to be the

[5] This, however, will not necessarily translate in a higher number of elected female candidates because of likely dispersion of votes.

number of elements in it. Each voter has some subset C_i of C as his or her choice set.

We can then define an underlying latent variable U_{ic}^{*}, which denotes the utility of voter *i* associated with choice *c*. Note that the choice set for each voter can be different. For example, the individual may vote for a certain party list where there are only 2 types of candidates.

The observed U_{ic} are defined as

$$\begin{aligned} &U_{ic} = 1 \text{ if } U_{ic}^{*} = Max(U_{i1}^{*}, U_{i2}^{*}, U_{i3}^{*}, ...U_{iC}^{*}) \\ &U_{ic} = 0 \text{ otherwise} \end{aligned} \tag{2}$$

More specifically, the utility that the i^{th} voter will make the choice *c* is given by

$$U_{ic}^{*} = V_{ic}(W_{ic}, Z_i) + \varepsilon_{ic} \tag{3}$$

Where V_{ic} is the deterministic part of the utility function, W_{ic} is the vector of values of the attributes of the c^{th} choice as perceived by the i^{th} individual, and Z_i are individual-specific variables (voter-specific variables). ε_{ic} is a residual that captures the unobserved variations in the attributes of the choices, the errors in the perception of the individual, and what the analyst cannot observe.

The deterministic part of the utility function, $V_{ic}(W_{ic}, Z_i)$, is specified as the following linear function:

$$V_{ic} = \beta W_{ic} + \alpha_c Z_i \tag{4}$$

where Z_i is a *p x 1* vector of individual-specific variables and W_{ic} is $q \times 1$ vector of values of the attributes of the c^{th} choice as perceived by the i^{th} individual. α_c is a $1 \times p$ vector of parameters; β is a *1 x q* vector of parameters. Note that the number of β's does not depend on the number of choices, while the number of α_c's is equal to J-*1*.

Given that each individual has a feasible choice set denoted C $_{i,}$ we define $J_i \leq J$ to be the number of feasible choices for individual i. Then, the probability that voter *i* makes choice *c* is given by:

$$P_{ic} = \Pr(U_{ic} \geq U_{ik}, \forall k \in C_i) \tag{5}$$

Using the definition of utility given above and the multinomial logit model we obtain the following:

$$P_{ic} = \Pr ob(U_{ic} = 1) = \frac{e^{\beta W_{ic} + \alpha_c Z_i}}{\sum_{J \in C_i} e^{\beta W_{ij} + \alpha_j Z_i}} \tag{6}$$

This framework will allow to estimate the probability that voter *i* will choose candidate of type *c* and with the estimated parameters, α_c's and β's, it is possible to simulate how the probability of voting candidate of type *c* changes when the independent variables change. Similar models have been estimated by McFadden (1974).

4. The data

This paper utilizes a data-set containing: a) the votes given to each candidate in the 1995 and 2000 election of four Italian regional councils[6]; b) information on the characteristics of these candidates, and c) information on the parties that fielded those candidates. Elections to regional councils are best suited for applied analysis on voter behavior concerning gender choices. This is because the number of electoral districts and of seats assigned in regional councils is much higher than for the national parliament. The number of female candidates in the two years is reported in Table 1. The percentage of female candidates largely decreased in all the four regions. Puglia is the region that registered the higher variation.

[6] The selection of the 4 regions out of 20 is due to data availability and resources' constraints. The four regions are: Piemonte (North), Toscana and Lazio (Centre), Puglia (South).

[Table 1 approximately here]

Data was either taken from the web site of the Italian Ministry of Home Affairs (Ministero degli Interni), or was directly made available by the Central Office for Electoral Services (Direzione Centrale Servizi Elettorali) of the same Ministry. The total number of candidates is equal to 5,239 corresponding to all the candidates participating to the proportional share of the election in the four regions for 1995 and 2000.[7] The total number of voters is equal to 6,237,678 and it corresponds to the total number of valid votes in the above mentioned elections.

The data-set includes the following variables: region, electoral district, year of election, gender of the candidate, age of the candidate, position of the candidate in the list, share of votes obtained by the candidate, being an incumbent, percentage of women on the list, dimension of the district, party position on liberal policies. Tables C.1, C.2, C.3 in Appendix C provide a description of these variables and report some descriptive statistics. In particular, Table C.3 reports the descriptive statistics of the data set used for the econometric estimation.

The variable incumbent[8] is equal to 1 if the candidate had a seat in the regional, provincial, or city council in the year before the election. There is a broad literature on incumbency advantage and more in particular on the effect of this factor on women's electoral chances (see, for example, Schwindt-Bayer 2005). One of the constraints on women electoral success is the lack of visibility.

The variable related to the party position on liberal policies is taken from an expert survey, carried out by Benoit and Laver (2005), aimed to assign party

[7] The regional electoral systems have some features of a FPTP system and a proportional system (for a detailed explanation of the electoral system see Appendix B).

[8] This variable has been constructed using the database referred to elected local officials (Anagrafe degli Amministratori degli Enti Locali) of the Ministry of Home Affairs.

positions on a range of policy dimensions in 47 countries. Different dimensions were available among which we chose the dimension they labelled "Social". This dimension is defined according to the weight given by parties to liberal policies on matters such as abortion, homosexuality and euthanasia. This variable is used to differentiate between parties on the basis of their position in the political space. The idea here is that anti-female bias should be lower in voters who favour political parties with a ideologically platform that gives a huge weight to liberal/progressive policies. This is supported by the literature that studies the influence of party characteristics on the likelihood that a voter chooses a woman (Caul 1998, 2001).

5. Model Specification

We apply the voter model specified in Section 3 to the data set described in Section 4. In order to estimate the parameter vectors β and α_c in equation (4), some hypothesis are introduced.

We assume that each voter chooses the party first and then she chooses the candidate. This assumption is necessary in our empirical specification because our data set does not contain personal voters characteristics. All the individuals voting for the same candidate (therefore for the same party, in the same electoral district and in the same elections) have identical characteristics. Therefore, we assume that the variables that are already specified at the moment in which the voter chooses the candidate, are personal characteristics of the voter, i.e. the individual specific characteristics Z_i in equation (4). In the estimated specification, the variables included in the vector Z_i are the following: number of candidates in the list (a proxy of the district size); position of the party in terms of liberal policies; percentage of women in the list. Therefore, referring to equation (4), p=3.

The variables which are alternative specific (i.e. candidate specific) are the following: gender of the candidate; his/her position in the list (top half or bottom half); previous political position (incumbent or not); age.

We use the discrete variables, gender, position and incumbency, to define 8 types of candidates among which the voter can choose.

So we define *c=1,2,……..8.* and we have the following types of candidates:

1. Man, top half of the list, incumbent;
2. Man, top half of the list, non-incumbent;
3. Man, bottom half of the list, incumbent;
4. Man bottom half of the list, non-incumbent;
5. Woman, top half of the list incumbent;
6. Woman, top half of the list, non-incumbent;
7. Woman, bottom half of the list, incumbent;
8. Woman bottom half of the list, non-incumbent.

We are interested in estimating the probability that a voter will choose a candidate of type *c*, where *c=1,2,3,4,5,6,7,8* so that to maximize his/her utility in equation (3).

We use age and age squared as the alternative-specific variables in W_{ic} vector of equation (4). Therefore referring to equation (4), q=2.

Age is observed only for the candidate that has been voted (one of the *c*). Nevertheless, to estimate probability in (5) we need W_{ic} for the non-chosen candidates. Therefore we chose to assign to the non-chosen *c*-type candidate for each list of each electoral district, the average age of the *c*-type candidates in the list.

6. Results and micro-simulations

We have estimated the random utility model in order to be able to predict the probability of voter *i* to choose *c*-type candidate: table 2 reports the estimated coefficients and their standard errors; all the variables are significantly different from 0 at a 5 per cent confidence interval. The base category is non-incumbent women in the bottom half of the list (c=8).

[Table 2 approximately here]

We note that the estimated age and age squared coefficients imply a convex function and therefore an increasing positive effect of age on the probability of being voted. This effect implies an age premium on the probability of being voted which is in line with the stylized fact that Italian politicians are older than in other European countries.

The parameters of the list length variable (see Table 2), which is a proxy for district size, show a negative effect on the probability of voting an incumbent (men or women). These results imply that non incumbent candidate have higher probabilities to be voted in larger districts.

The coefficients for the party position in terms of liberal policies (see Table 2) show that an increase in this variable (i.e. the more the party is conservative) reduces the chance that voters will choose a woman; the coefficients are in fact negative for the probability of choosing a female candidate with the exception of incumbent women situated in the lower half of the list. Considering our model specification where the choice of the party is a voter characteristics, the more conservative the voters are, the less likely they are to vote for a woman.

Another important parameter is the coefficient of the percentage of women in the list. An increase in the percentage of women in the list decreases all the

probabilities respect to the base category. In particular, this negative effect is higher in absolute value for men and incumbent women.

In table 3, we report the average of the individual predicted probabilities applying the estimated coefficients to equation (6). For each individual in our sample, we calculate the probability of voting a candidate of type c where c=1,2…..8. For those individuals who chose a party where the number of choices in the choice set C_i was less than 8, predicted probabilities are missing for the missing choices in the choice set C. Therefore, as reported in column 1, the number of non missing observations changes according to the different types of candidates. The most numerous group are men, bottom of the list non-incumbent, followed by men top of the list non-incumbent. The least numerous group are women bottom of the list incumbent.

(Table 3 and 4 approximately here)

In table 3 column 2, we report the average over the individual probabilities for each of the 8 probabilities. Because these averages have different number of valid observations due the missing, the average probabilities do not sum to 1[9]. The highest average probability of voting a men is top of the list incumbent (39%); the second is top of the list non-incumbent (30,7%), followed by bottom non-incumbent (26,8) and bottom incumbent (18,1).

For female candidates, all the probabilities are much lower but they follow the same internal ranking: top of the list incumbent 12,1 per cent; top of the list non-incumbent 7,7 per cent; bottom of the list non-incumbent 6,9 per cent; bottom of the list incumbent 6 per cent.

[9] For each individual, estimated probabilities in equation 6 do obviously sum to 1.

In column 4 of table 3, we report the average predicted probabilities setting the choice set equal to 8 for all the individuals in the sample and then using equation 6 again. In this case, the individual predicted probability of voting a c-type candidate who is missing in the party list will not be equal to missing, but it is simulated imputing the age equal to the average age for c-type candidate in the data set. These average probabilities sum to 1 because for each c type of candidate, the average is taken over the same number of non-missing observations (reported in column 3). Here, we notice that the average probabilities are all lower, as expected, and male candidates have still a much higher probability.

In column 5 (table 3), we report a simulation of the introduction of gender quotas. We simulate the impact of a 50 per cent quota of women for each list. We run this simulation on the data set where each individual has a choice over 8 types of candidates. In addition, we set the variable "percentage of women in the list" to be equal to 0,5. The intuition behind this simulation is that it is not possible to introduce gender quotas in all the party lists without introducing in each list the possibility of voting a woman. The micro-simulation consists of applying the estimated parameters to equation (6), and calculating for each voter the estimated probability after the change. Table 3 reports the average simulated probability of voting for each *c*-type candidate. This simulation of gender quota should be compared with column 4 (table 3). In fact, they are both calculated on the data sets which impute the same number of choices to all individuals.

Ceteris paribus, the probabilities of a female candidate of being voted increase if a 50% quota is applied. The increases are bigger for non-incumbent female candidates and bottom of the list female candidates. For example, the probability that a voter will choose a non incumbent, bottom half of the list woman increases

from 3,2 to 7,5 per cent. One possible explanation for the large increase in the probability that the voter chooses a non-incumbent woman is that non-incumbent candidates would have not been included in the list if the quota were not increased and therefore they could not be voted for.

In table 4 we report the average probability of voting for a female and male candidates. These probabilities have been calculated summing up for each individual the probability of voting a candidate c=1,2,3,4 for the probability of voting a man; and c=5,6,7,8 for the probability of voting a woman. In this case the number of observations is equal to 6,237,678 (the number of voters) for both the probabilities of voting female and male candidates. In our sample, the average predicted probability of voting a man is 88 per cent and it is 12,0 for voting a woman. The introduction of gender quota implies that the probability of voting a man decrease to 64 per cent and of voting a woman increase to 36 per cent.

These results imply that there is not a perfect bias against female candidates. To the contrary, an increase in the percentage of women candidates leads to an increase in the probability that voters choose a woman.[10] Nevertheless, our simulations also show that even with 50 per cent gender quotas, the probability that

[10] The estimated parameters describe the correlations in our data. Our simulations are based on the assumption that these parameters only reflect a causal connection between votes for women and number of women on the list. In reality they probably also reflect a common factor influencing both (in some districts or regions there could be a bias against women that affects both the number of women in the list and the way in which voters vote). Hopefully, any common factor is controlled for by the inclusion of the other variables, particularly of those variables defining the party in each district (length of the party list). In addition, in half the samples the number of women on the list can be considered exogenous due to the presence of quotas in 1995.

a voter votes for a woman is much lower than that for men.[11] In particular, if we define a voter gender gap as the difference between the probability of voting a man and of voting a woman (*ceteris paribus* in terms of all the other variables in our specification), the voter gender gap decreases from approximately 76 per cent (column 1 table 4) to 28 per cent (column 3 table 4), after the introduction of 50% quota.

6. Conclusions

Traditionally, but not unusually, Italy has a small number of female elected politicians. To increase this number, quotas, based on a minimum share of candidacies reserved to either gender, have been introduced for elections at all levels of government. In general, the introduction of quotas has brought an increase in the share of elected women, which remains tiny.

The paper has explored, with the help of a voter random utility maximization model, the impact of quotas on voter choices. More precisely, the model has been tested with reference to the election of regional councils in 1995 and 2000.

The results confirm that a higher share of women in party lists increases the probabilities that voters will choose a woman, therefore there is not a perfect gender bias against female candidates. If voters had a perfect gender bias against women, the probability of voting a woman would not have changed. With a 50 per cent quota, the probability of voting a female candidate, *ceteris paribus*, increases from

[11] We have also estimated a model which includes among the independent variables, the female labour force participation rate at a provincial level. The simulation with the estimated parameters shows that, *ceteris paribus*, the higher the female participation rate, the higher the probability that a voter chooses a woman.

12 to 36 per cent. Defining voter gender gap as the difference between the probability of voting a man and of voting a woman, the voter gender gap decreases from approximately 76 per cent to 28 per cent, after the introduction of 50% quota.

Finally, the chances of women of being voted are higher in those political parties that give more weight in their electoral platforms to typical liberal values.

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Figure 1. Choice of Party

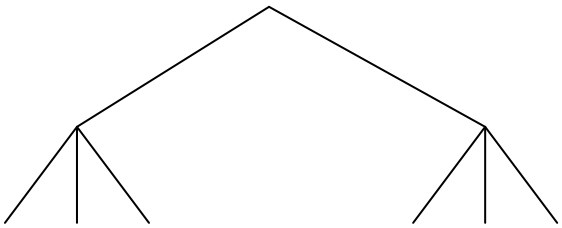
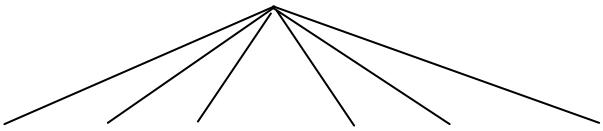


Figure 2. Choice of candidate



Tab. 1 Percentage of women candidate in our sample

Regions	**1995**	**2000**
Piedmont	36.97%	23.73%
Tuscany	36.27%	23.57%
Lazio	35.37%	17.96%
Puglia	34.95%	13.94%
Total	35,9%	19,4%

Table 2. Estimates of the conditional multinomial logit

	Incumbent top man	Non-incumbent top man	Incumbent bottom man	Non-incumbent bottom man	Incumbent top woman	Non-incumbent top women	Incumbent bottom woman
Constant	3.48	2.97	3.13	2.65	3.83	0.61	1.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.04)
Liberal Policies	0.04	0.02	0.00	0.03	-0.01	-0.01	0.07
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Length of the List	-0.02	-0.01	-0.02	0.00	-0.08	0.00	-0.05
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
% women in the list	-4.91	-3.78	-4.54	-4.52	-3.98	-0.80	-1.84
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.07)
Age	-20.64	-20.64	20.64	-20.64	20.64	-20.64	20.64
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Age squared	21,29	21,29	21,29	21,29	21,29	21,29	21,29
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Number of obs =	6,237,678*						
LR chi2(30) =	2,258,672.32						
Prob > chi2 =	0.000						
Pseudo R2 =	0.127						

Numbers in parenthesis reports the standard errors.

The base category is non-incumbent woman in the bottom half of the list

* The number of observation is equal to the number of voters. Each voter faces a group of alternatives that is given by the different types of j available in the voted list.

Table 3. Average of the estimated probabilities % over 6,237,678 voters.

	(1) Number observations excluding missing	(2) Predicted Probabilities %	(3) Number observations with C_i =8 for each i	(4) Predicted with C_i =8 for each i	(5) Predicted 50% quota C_i =8 for each i
Man top of the list incumbent	4,630,496	39.1	6,237,678	26.7	20.1
Man top of the list non-incumbent	5,225,851	30.7	6,237,678	18.8	19.2
Man bottom of the list incumbent	3,042,959	18.1	6,237,678	12.9	10.7
Man bottom of the list non-incumbent	5,664,426	26.8	6,237,678	16.7	14.0
Women top of the list incumbent	1,011,493	12.1	6,237,678	13.2	12.9
Women top of the list non-incumbent	3,807,493	7.7	6,237,678	4.20	8.30
Women bottom of the list incumbent	577,414	6.0	6,237,678	4.40	7.31
Women bottom of the list non-incumbent	4,259,849	6.9	6,237,678	3.20	7.51

Table 4. Average of the estimated probabilities: men and women (%).

	(1) Number observations excluding missing	(2) Predicted Probabilities %)	(3) Number observations with C_i =8 for each i	(4) Predicted with C=8 for each i	(5) Predicted 50% quota C=8 for each i
Men	6,237,678	88.0	6,237,678	75.0	64.0
Women	6,237,678	12.0	6,237,678	25.0	36.0

Appendix A. Quotas and electoral systems

Quotas of candidacies vary in their effectiveness in different electoral systems. For the sake of brevity, we restrict our discussion to a typical majoritarian system - namely, the first past the post system (FPTP) and a pure proportional system of representation (PR).

In FPTP, once women are inserted on the list, they have higher chances to be elected than in a PR system. This is because voter choices are more restricted. Voters with a pro-female gender bias, who happen to a have a male candidate in their electoral district, have to change party if they want to express their bias. In a PR system voters with a pro-female bias do not need to change party to express it. They have just to select female candidates. However, in PR systems the chances of women being elected could be imperilled by an increased dispersion of votes brought up by the wider choice of female candidates. In other words, quotas can ensure increases in the number of votes to women, but cannot necessarily increase the chances of women to be elected. Dispersion is expected to increase with the increase in the size of districts, while by definition it does not take place in single candidate districts; that is, in FPTP systems.[12]

Both electoral systems are not immune to strategic behaviour of political parties. In a FPTP system parties can dilute, or even eliminate, the impact of quotas by presenting women in districts where their chances of winning are low, and by reserving strong districts (where the chances are high) to male candidates.

[12] A very rich literature on the interaction between electoral systems and gender quotas can be found with reference to the experience of some Southern American countries. Quotas were extensively introduced in Argentina, Costa Rica, Chile, Peru with different electoral systems. See for example Jones 1996, 1998, 2004, Jones and Navia 1999, Schmidt and Kyle 2004.

In PR systems, the party leadership can assign female candidates to the lowest part of the list, thus decreasing jointly their visibility and their chances of being elected. To fight this latter impediment to the electoral fortunes of women, some national regulations impose also the order of candidates of distinct genders on election lists (closed list).

Appendix B. Gender quotas in Italy

Italy has a very short and scattered experience with gender quotas. Quotas have been used once (1994) for the Lower House in the national parliament; once (1999) for the European parliament; once (1995) for municipal and provincial elections, and twice (1995 and 2005) for regional elections (but only in a few regions in 2005).

Quota systems for the election of municipal and provincial councils and for the Lower House mandated that a single gender could not be assigned with more than 75 percent of candidacies. However, for the Lower House the quota applied only to the 25 per cent of the seats that were assigned according to the proportional representation system. In other words, quotas could only ensure to women a maximum share of one sixteenth of total seats (25 per cent out of 25 per cent). The share of candidacies reserved to women in regional councils was slightly higher amounting to 30 per cent.[13]

In 1995 the Constitutional Court declared quotas *as unconstitutional*, stating that "According to the Court, the fundamental right of equal access to elective offices, as established by Articles 3 and 51 of the Constitution, cannot be subjected to special

[13] The law 277 of August 4, 1993 concerning the election of the Lower House stated that for the share of seats reserved to the proportional system (25%) each list must be formed by candidates of both sexes listed in alternative order. The law of February 23, 1995 for the election of regional councils stated that no list could field more than two thirds of same sex candidates.

treatment on the basis of sex». (Guadagnini, 1998, page 99). The decision of the Constitutional Court mandated the introduction of constitutional amendments to allow the insertion of gender quotas for elections.

In the year 2003, a constitutional reform included two separate provisions related to gender equality in political representation. The first provision refers to the European and the national parliament and to the municipal and provincial councils. Article 51 states that "citizens of one or the other sex are eligible for public office and for elective positions under equal conditions, according to the rules established by law. To this end, the Republic adopts specific measures in order to promote equal chances for men and women".

The second provision refers to Regions, which have autonomous powers concerning the election of their councils. Article 117 states that "Regional laws have to remove all obstacles which prevent the full equality of men and women in social, cultural, and economic life, and promote equal access for men and women to elective offices".

A quota of 30 per cent of seats was thereafter introduced for the European election of 1999.[14] Furthermore, refunds of electoral expenses for those parties that had not complied with this obligation were reduced. Finally, parties could not present electoral lists with more than one candidate if both genders were not represented.

The constitutional reform induced a number of regions to introduce quotas (Lazio, Puglia, Tuscany, Abruzzo, Calabria and Valle d'Aosta) for the election of 2005.

[14] Article 3 of Law 90 of April 8, 2004 on equal opportunities.

The percentage of women in the Italian Parliament is very low. Italy is only 59th in the international ranking of countries according to the number of seats in the national parliament assigned in 2006 election to women (Inter-Parliamentary Union).

As reported in table B1, quotas seems to have had an appreciable impact, since the share of seats assigned to women in 1994, when the quota system was working, was higher than that in the following elections, when no quotas applied.

A similar pattern shows up in the elections to the European Parliament (see table B2). The percentage of women elected increased from 11,5% in 1999 to 19,2% in the year 2004 when quotas were introduced.

Regional councils are not an exception, as can be seen in table B3. In this case we observe three electoral rounds with quotas introduced in the first and partly in the third. Quotas again seem to impact on the electoral fortunes of women.

Table B 1**. Share of seats in the Italian Parliament assigned to women, 1994 -2006**.

Year	Upper House	Lower House
1994	8.6%	**15.1%** **
1996	8%	11,1%
2001	8.1%	11.5%
2006	13.7%	17.3

** with gender quotas.
Source: for 1994 Guadagnini (2003); for 1996/2001 Women in national parliaments – www.ipu.org

Table B 2**. Share of seats assigned to women in the elections for the European Parliament, 1999 and 2004**

	1999	1999	2004	2004
	Europe	Italy (without quotas)	Europe	Italy (with quotas)
Total seats	626	87	732	78
Seats won by women	195	10	221	15
%	31.1%	11.50%	30.19%	19.23%

Source: Italy: Presidenza del consiglio dei ministri – Ministero Pari opportunità - www.pariopportunita.gov.it

Table B 3. **Share of seats assigned to women in regional elections. 1995, 2000 and 2005**

Regions	**1995**	**2000**	**2005**
Abruzzo	**10.00%***	2.33%	**17.07%***
Basilicata	**6.67%***	10.00%	10.71%
Calabria	**9.52%***	2.33%	4.08%
Campania	**6.67%***	5.00%	10.17%
Emilia-Romagna	**18.00%***	14.00%	10.20%
Lazio	**17.46%***	12.24%	**17.91%***
Liguria	**15.56%***	7.50%	10.26%
Lombardia	**14.44%***	11.25%	15.19%
Marche	**12.50%***	12.50%	15.38%
Molise	**13.33%***	3.33%	
Piedmont	**16.67%***	11.67%	16.13%
Puglia	**12.70%***	0.00%	**2.86%***
Tuscany	**16.00%***	12.00%	**24.62%***
Umbria	**16.67%***	13.33%	13.79%
Veneto	**7.81%***	15.00%	10.17%
Total	13.80%	9.85%	12.93%

*** election with quotas**

Source: for 1995 and 2000 Presidenza del consiglio dei ministri, Ministero Pari opportunità . www.pariopportunita.gov.it; for 2005 Ministero degli interni – Anagrafe Amministrazioni Locali, 2005 Toscana e Puglia siti collegio regionale.

Appendix C. Description of the sample

Table. C 1**. Description of the variables**

Variables	Description
Region	Piemonte, Toscana, Lazio, Puglia
Year of election	1995, 2000
Gender of the candidate	0 if male, 1 if female
Age of the candidate	Year of election minus date of birth divided by 100
Position of the candidate in the list	Rank of the candidates in the list: =1 if in the top half; =2 if in the bottom half.
Votes	Number of votes obtained by the candidate.
Incumbent	=0 if non incumbent; = 1 if incumbent. Incumbent is a candidate having a seat in the regional, provincial or city council (only major cities) in the year before the elections.
Percentage of women candidates in the list	Women candidates in the list on the total number of candidates in the list (%).
Dimension of the district	Number of candidates in one list.
Party position on liberal policies	Index reporting the position in favor of liberal policies (abortion, homosexuality and euthanasia). Ranks from 1 to 20. 1 favor, 20 against. Source: K. Benoit and M. Laver, 2005, Expert Survey.

Table C 2**. Descriptive statistics of the candidates**

	Obs	Mean	St. Dev.	Min	Max
Gender of the candidate	5,239	0.262	0.43	0	1
Age of the candidate	5,239	0.45	0.11	0.18	0.86
Position of the candidate	5,239	1.61	0.48	1	2
Votes	5,239	1,190.62	2,383.27	0	28,652
Incumbent	5,239	0.107	0.30	0	1
Dimension of the electoral district	5,239	16.29	12.28	1	35
Percentage of women in the list	5,239	0.262	0.15	0	1
Party position on liberal policies	5,239	9.81	5.96	2.02	18.51

Table C 3**. Descriptive statistics of votes (*)**

	Obs	Mean	St. Dev.	Min	Max
Gender of the candidate	6,237,678	0.119	0.324	0	1
Age of the candidate	6,237,678	0.459	0.087	0.179	0.861
Position of the candidate	6,237,678	1.385	0.486	1	2
Incumbent	6,237,678	0.404	0.491	0	1
Dimension of the electoral district	6,237,678	15.318	12.065	1	35
Percentage of women in the list	6,237,678	0.235	0.147	0	1
Party position on liberal policies	6,237,678	11.484	5.171	2.02	18.51

(*) This is the data used for the econometric model. These statistics have been calculated on the same data set of table C 2, using the number of votes as weights for each variable.