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# HOW ITALIAN ELECTORS REACT TO GENDER QUOTAS? A RANDOM UTILITY MODEL OF VOTING BEHAVIOUR

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# How Italian electors react to gender quotas?
# 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 a significant increase in the probability that voters will choose a female candidate. This implies that voters are willing to vote more for women (there is not a perfect gender bias against women). Other important factors influencing voters' behaviour are the length of the party list (the longer the party list, and thus the greater the size of electoral districts, the lower the probability of voting for an incumbent candidate) 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.

Keywords: random utility models, voting behaviour, affirmative actions.
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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 introduced for 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 in the Americas, 19 per cent of seats 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).

We can distinguish between quotas systems based on reservation of seats in legislative assemblies and systems based on reservation of candidacies. Reservation of candidacies has been used in Italy and is the mildest form of affirmative electoral action. It ensures a given minimum number of candidacies by gender, but it does not ensure that this minimum number will be elected. The voters will decide the distribution by gender. The rationale for quotas of candidacies is that there is no anti-female bias among voters. Rather, the electoral fortunes of women would be constrained by the limited range of choice given to voters.

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. Most of the analytical literature is focussed on the issue of gender bias in voters (Milyo and Schosberg, 2000, Dolan, 2004). 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 female candidates for open seats – open seats means that there is no incumbent – then, proportionally, more women will be elected. This shows that 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 there, and that their removal may require having higher qualifications.

The analysis of Davidson-Schmich (2003) is referred to the German Laender. 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's 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. In general, proportional representation provides a more propitious ground for the success of gender quotas.[2]

One of the most articulated analysis of the impact of the introduction of gender quotas is provided by Maniquet *et al.* (2005). Their paper shows how the adoption of gender quotas in electoral lists, like the 2001 "Parity Law" in France, can be fully rationalized on the basis of the self-interest of male incumbent politicians. Their paper shows 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. They also found empirically a gender bias among French voters for the 2002 election of the National Assembly. They 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)

Our paper shows how Italy should be included in the second group of countries. It analyses the impact of gender quotas on voters behaviour in Italian regional elections. Within the framework of the spatial theory of voting, we use a random utility model for voters behaviour, that allows to estimate the probability that voters will chose a female candidate. The model allows to simulate 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

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

to a significant increase in the probability that voters will choose a female candidate. This implies that voters would be willing to vote for women, i.e. there is not a perfect gender bias against women. Moreover, many attempts to introduce quotas at a national level were boycotted.[3] During the 2006 revision of the electoral law, for instance, gender quotas were proposed by the Ministry of Equal Opportunity and they were rejected by most parties. Our paper therefore supports the suggestive explanation that Maniquet *et al.* (2005) put forward. Countries where female discrimination is also a supply side story (i.e. it comes from parties) are unlikely to introduce parity laws.

There is also a growing literature that goes beyond gender quotas, observing the impact on policies of an increased number of female elected politicians. This literature shows why does it matter to have more female politicians. Chattopadhyay and Duflo (2004), Duflo and Topalova (2004) and Duflo *et al.* (2005) present interesting evidence on how the presence of female officials, ensured by reservation of seats on Indian local councils, increased the local budget share oriented to alleviate women work-burden.

Respect to the previous literature, our paper introduces two novelties. First, while random utility models were used before to estimate voters 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 presence 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 during the 1995 and 2000 regional elections.

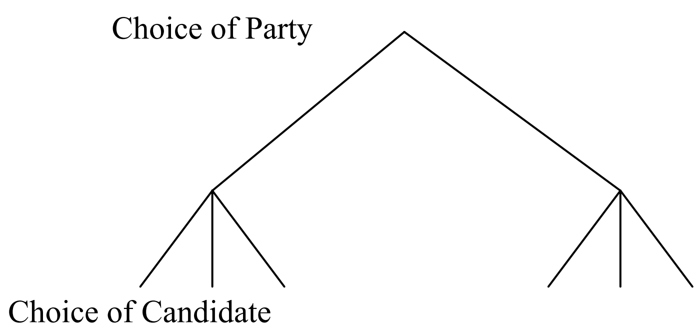
[3] Appendix B illustrates the Italian history regarding the introduction of gender quotas.

## 2. The decision-making process of voters

The formal theory of voting represents the choices of electors as the result of a sequenced multi-stage decision-making process (Davis *et al.*, 1970; Riker and Ordeshook, 1968; 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 can be chosen. On the other hand, when voters start by choosing the candidate(s), the party is automatically chosen. Finally, having chosen the party and the candidate(s), or the reverse, citizens decide whether to vote, or to abstain.

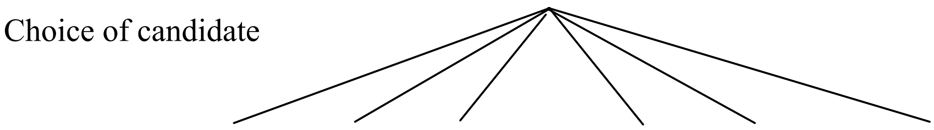
Voting sequences can be illustrated by means of decisions trees. In figure 1 voters start by choosing their preferred political party and, then, select preferred candidate(s) among those fielded by their preferred party.

**Figure 1**



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.

**Figure 2**




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 party identification and loyalty, incumbency and other 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 party as to maximize his/her own utility minimizing the *distance* between his/her own preferred position, $x_i$, on each of the dimensions taken into consideration and the positions taken by each distinct party, $\phi_j$.

Let's introduce some notation.

$i$ is an index for the voter ($i= 1,2,3,\dots\dots,I$); $j$ is an index for the party ($j=1,2,3,\dots,J$); $n$ is an index for the dimension ($n=1,2,3\dots\dots\dots N$); $\phi_{jn}$ is the position of party $j$ on dimension $n$; $x_{in}$ is the position of voter $i$ on dimension $n$. Then, the utility of voter $i$ in choosing party $j$ is the following:

$$U_{ij}(X_i) = -\sum_{n=1}^{N} a_{in} \left| x_{in} - \phi_{jn} \right| \qquad (1)$$

where $a_{in}$ are the weights assigned by the voter to each distinct dimension and $X_i$ is a $n \times 1$ vector of dimension for voter *i*. The voter will select the party *j* with a set *N* of positions, $\phi_{jn}$ , that maximize her/his utility.

To make an example, the first dimension could be the identification with the party, which can be based on personal beliefs and/or family tradition (each voter has a preferred party and classifies all remaining parties according to his/her personal evaluation, which is independent of specific issues/policies). The second dimension could be the incumbency factor: some voters prefer to select a party that is already in power, because, we can assume, they know the reliability of its promises. The third dimension might be a specific policy, such as the length of the hunting season. The fourth one could be the expenditure for homes for the elderly, and so on.

The same procedure is used for the selection of the candidate. Here, again voters ponder the distance, for each of the dimensions they consider, between their one and that shown by the candidate.

Let's introduce some further notation: *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*; $\gamma_{cm}$ is the position of candidate *c* on dimension *m.*

A typical utility function for voter *i* choosing candidate *c* is:

$$U_{ic}(Y_i) = -\sum_{m=1}^{M} b_{im} \left| y_{im} - \gamma_{cm} \right| \qquad (2)$$

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 dimensions. The voter chooses a candidate *c* maximizing her/his utility function (2).

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.

The aggregate utility function for parties and candidates is:

$$U_{icj}(X_i, Y_i) = -\sum_{n=1}^{N} a_{in} \left| x_{in} - \phi_{jn} \right| \; - \; \sum_{m=1}^{M} b_{im} \left| y_{im} - \gamma_{cm} \right| \qquad (3)$$

Maximization of (3) holds the optimal choice of party and candidate for voter *i*.

Finally, the decision to vote or to abstain will be based on cost-benefit analysis. Voters compare their expected benefits from voting and the costs associated with it. If the former exceed the latter, it is reasonable for them to vote. The decision-making process is customarily presented as follows:

$$R = p\,B - C + D \qquad (4)$$

where:

$R$ is the net reward from voting;

$p$ is the probability that by voting the elector will bring about the benefit;

$B$ is the benefit, more precisely the increase in utility that the voter obtains from the success of his/her most preferred combination of party and candidate over his/her less preferred one. In our symbols, $B = U^{max}{}_{ijc} - U^{min}{}_{ijc}$ where superscript *max* indicates the most preferred combination and the superscript *min* the less preferred one.

$C$ is the cost of voting. It includes such distinct components as the time spent by voters for collecting information. The time and effort spent to go to the polling station, and so on.

$D$ stands for benefits not related to the results of the electoral context. For example, it could describe the satisfaction voters have from complying with their civic obligation of voting, or from showing their allegiance to the democratic system.

Unfortunately, data available refers to the choices made by voters; that is, by persons who have already decided not to abstain. However, consideration of the voting/abstention choice allows us to explain why parties may oppose the introduction of gender quotas.

Reference to utility functions allows us to analyze the impact of gender quotas on parties and on voters' choices. If the sequence is: first party then candidate(s), by definition the introduction of quotas cannot influence the selection of the party. This may explain why quotas have a small appeal to parties with a male dominated party leadership.[4] Quotas influence the choice of candidates by increasing the utility 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 functions, quotas do not alter (1), while they increase the utility in (2).

When we assume that voters start by choosing candidates, the fielding of female candidates and thus quotas make a bigger difference, both for parties and for voters. Starting with parties, if a) and b) conditions are satisfied, the probabilities of a distinct party to be voted are directly correlated with the number of female candidates it fields. This is, again, because the utility of voters – equation (2) - is likely to increase when the number of female candidates increases. Political parties should thus be more inclined – than with the first hypothesis on voting sequence – to accept gender quotas and to increase the number of female candidates.

[4] However, quotas reduce abstention by reducing the loss of those voters that have a pro-female inclination and value the personal characteristics of female candidates and their position on the list more than those of male candidates. Thus, distinct parties can get an increase in their number of votes not because voters shift from other parties to them, but because they benefit from smaller abstention.

Coming back to voters' preferred sequence, in a setting (such the Italian one until recently, at least) where voters' choices are strongly influenced by sentiments of loyalty to parties, or, also and more likely, where the increase in utility brought upon by the choice of party - equation (1) - is larger than that brought about by the choice of candidates - equation (2) –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 this assumption.

## 3. The Econometric Model

In order to estimate the model discussed above, we would ideally need data that combines information about the voters, the expressed votes, and the candidates. A model of this type has been estimated on German data by Thurner and Eymann (2000). Unfortunately our data does not allow the estimation of such a model. Our data-set includes only the personal characteristics of the candidates and the share of votes. We don't observe the personal characteristics of the voters and their positions on different dimensions (neither the $x_{in}$ nor the $y_{im}$). When we observe his/her choice, we assume that the voter has already maximized his/her utility (1) and therefore we investigate only how voter maximizes equation (2). In other words, the model explains the voter's choice of candidate of type *c*, given the choice of the party. Moreover, 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. Our hypothesis is, therefore, that quotas do not influence the choice of the party.

We assume that the voter is rational in the sense that he/she votes to maximize his/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.

In this kind of setting, McFadden (1974), following Thurstone (1927), assumed that utility is a random function. 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 number of choices (candidates) equal to *C,* where we define *c =1, 2, 3, ……., C.* We can define an underlying latent variable $U_{ic}^*$, which denotes the utility of voter *i* associated with choice *c.*

The observed $U_{ic}$ are defined as

$$\begin{aligned} &U_{ic} = 1 \text{ if } \mathrm{U}_{ic}^* = Max(U_{i1}^*, U_{i2}^*, U_{i3}^*, .........U_{iC}^*) \\ &U_{ic} = 0 \text{ otherwise} \end{aligned} \tag{5}$$

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

$$U_{ic}^* = V_{ic}\ (\mathrm{W_{ic}}, \mathrm{Z_i}) + \varepsilon_{\mathrm{ic}} \tag{6}$$

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). $\varepsilon_{\mathrm{ic}}$ 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.

If the residuals are independently and identically distributed with the type I extreme value distribution, whose cumulative distribution function is

$$F(\varepsilon_c < \varepsilon) = \exp(-e^{-\varepsilon}) \tag{7}$$

It has been demonstrated (Maddala, 1983) that the probability of individual *i* to make choice *c* is given by the following:

$$P_{ic} = \Pr ob(U_{ic} = 1) = \frac{e^{V_{ic}}}{\sum_{k=1}^{C} e^{V_{ki}}} \tag{8}$$

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

$$V_{ic} = \beta W_{ic} + \alpha_c Z_i \qquad (9)$$

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

Then, the probability that voter *i* makes choice *c* is the following:

$$P_{ic} = \Pr ob(U_{ic} = 1) = \frac{e^{\beta W_{ic} + \alpha_c Z_i}}{\sum_{k=1}^{C} e^{\beta W_{ik} + \alpha_k Z_i}} \qquad (10)$$

This framework will allow to estimate the probability that voter *i* will choose candidate of type *c* and with the estimated parameters, $\alpha_c$'s and $\beta$'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).

If we take into account the gender of the candidate, his/her position in the list (top or bottom) and the previous political position (incumbent or not), we can assume that the voter can choose among eight types of candidates.

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

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

The variables used in the deterministic part of the utility function are defined as follows. The individual specific variables (i.e.. the variables that are already specified at the moment in which the voter chooses the candidate and they define the personal characteristics of the voter) are: 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.

The alternative-specific variables are the attributes of the $c^{th}$ choice, i.e. they change with the choice of candidate of type $c^{th}$. In our model, they are age of the candidate and age squared. Because age is observed only for the candidate that has been voted (one of the *c*), the age for the other available but not chosen candidates is calculated taking the average for each *c-type* candidate in the list.

**4. The data**

This paper utilizes a data-set reporting: a) the votes given to distinct candidates in the 1995 and 2000 election of four Italian regional councils[5]; 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.

[Table 1 approximately here]

[5] Selection of 4 regions out of 20 is dictated by resources' constraints. Three of these regions re-elected their councils in 2005 on the basis of an electoral law re-introducing gender quotas (Tuscany, Puglia and Lazio). The fourth region (Piedmont) is used as a baseline, since it did not re-introduce gender quotas in 2005.

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.[6]

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, and C.2 in Appendix C provide a description of the these variables and report some descriptive statistics.

The variable incumbent[7] 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 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

[6] 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).

[7] 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.

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. Results**

Table 2 reports the estimated coefficients and their standard errors; all the variables are significantly different from 0 at a 5% confidence interval. Table 3 reports the observed and predicted values of the probability that voter *i* makes choice *c* as given by equation (10). We observe that the predicted probabilities are very close to the observed ones.

[Table 2, 3 approximately here]

In order to comment the estimated parameters, we simulate an increase in the percentage of women in each list. We simulate the application of a quota of 35%, 45%, and 55% of women for each list. The micro-simulation consists of applying the estimated parameters to equation (10), and calculating for each voter the estimated probability after the change. Table 4 reports the average simulated probability of voting for candidate of type *c*. *Ceteris paribus,* the probabilities of a female candidate of being voted increase if the number of women in the list increases. This implies that, given a constant length of the list, the votes are re-distributed to female candidates.

[Table 4 approximately here]

These increases are the largest for non-incumbent women and they increase with the size of the quotas. For example, the probability that a voter will choose a non incumbent bottom of list female candidate will increase by 60% with 55% quotas. This probability will increase by 59,5% for women non incumbent top of the list. 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.

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.[8] Nevertheless, our simulations also show that even with 55% gender quotas, the probability that a voter votes for a woman is lower than that for men.[9]

Table 5 reports simulated increases in the length of each list, and thus of the size of electoral districts.[10] The simulations show that an increase in the length of the list increases the probabilities for non-incumbents to be voted (the effect is larger for non-incumbent women than for non-incumbent men) and decreases the probability of incumbent to be voted (the effect is larger for incumbent women respect to incumbent men). This result confirms the presence of a dispersion effect: the shorter the list, the more the votes concentrate on incumbent candidates.

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[8] 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.

[9] 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.

[10] Electoral districts do not have the same size in Italy. More populated regions have larger districts. It has also to be noted that small parties frequently do not fill all the positions on their list. That is, they field less candidates that they could.

[Table 5 approximately here]

Table 6 reports simulated decreases in the index reporting the position of parties in favor of liberal policies. The index ranks from 1 to 20, where 1 indicates that the party is very much in favor of liberal policies (abortion, homosexuality and euthanasia) and 20 that the party is against them. We observe that the probabilities of voters to vote a female candidate increase with the party becoming more liberal.

[Table 6 approximately here]

**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 substantially the probabilities that voters will choose a woman. These results imply that 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. These results are consistent with our initial claim that the electoral outcomes of female candidates in Italy are mostly constrained by the supply side.

Secondly, the length of lists is a factor that reduces the probability that voters will vote for an incumbent candidate, with a larger effect if the candidate is a female incumbent, thus confirming the importance of the dispersion effect.

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. Our paper shows that there is scope for affirmative political actions in Italy in so far as the gender bias of Italian voters is not perfect.

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**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**

| | Man top of the list incumbent | Man top of the list non-incumbent | Man bottom of the list incumbent | Man bottom of the list incumbent | Women top of the list incumbent | Women top of the list non-incumbent | Women bottom of the list incumbent | Women bottom of the list non-incumbent |
|---|---|---|---|---|---|---|---|---|
| Constant | 3.43 | 2.77 | 3.24 | 2.81 | 4.79 | 0.57 | 1.01 | 0.00 |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.01) | (0.04) | (0.00) |
| Liberal Policies | 0.03 | 0.01 | 0.00 | 0.02 | -0.08 | -0.02 | 0.07 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Length of the List | -0.02 | -0.01 | -0.03 | 0.00 | -0.09 | 0.01 | -0.06 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| % women in the list | -4.63 | -3.59 | -4.57 | -4.56 | -3.76 | -0.83 | -1.90 | 0.00 |
| | (0.02) | (0.02) | (0.02) | (0.02) | (0.04) | (0.03) | (0.07) | (0.00) |
| Age | -23.08 | -23.08 | -23.08 | -23.08 | -23.08 | -23.08 | -23.08 | -23.08 |
| | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Age squared | 24.08 | 24.08 | 24.08 | 24.08 | 24.08 | 24.08 | 24.08 | 24.08 |
| | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) |
| Number of obs = | 27,641,206(*) | | | | | | | |
| LR chi2(30) = | 2,258,672.32 | | | | | | | |
| Prob > chi2 = | 0.000 | | | | | | | |
| Pseudo R2 = | 0.127 | | | | | | | |

Numbers in parenthesis reports the standard errors.

(*) Thousands. The unit of analysis is the voter. Each voter faces a group of alternatives that is given by the different types of J available in the list voted. The number of observations is given by the number of votes multiplied by the sum of J alternative among which each voter can choose and by the number of candidates.

**Table 3. Observed and predicted probabilities of voting each type of candidate**

| | Number of candidates for each type | Predicted | Observed |
|---|---|---|---|
| Man top of the list incumbent | 191 | 42.09% | 41.96% |
| Man top of the list non-incumbent | 451 | 37.75% | 41.62% |
| Man bottom of the list incumbent | 178 | 39.56% | 41.98% |
| Man bottom of the list non-incumbent | 679 | 45.38% | 41.42% |
| Women top of the list incumbent | 28 | 29.57% | 27.62% |
| Women top of the list non-incumbent | 220 | 12.38% | 14.24% |
| Women bottom of the list incumbent | 29 | 27.16% | 24.97% |
| Women bottom of the list non-incumbent | 472 | 14.71% | 15.23% |
| Men | 1499 | 41.97% | 41.62% |
| Women | 749 | 15.06% | 15.78% |

**Table 4. Average of the estimated probabilities before and after an increase in the % of women in each list.**

| | Predicted Probabilities % | Simulation of a 35% quota (35% quotas – predicted) | Simulation of a 45% quota (45% quotas – 35% quotas) | Simulation of a 55% quota (55% quotas – 45% quotas) | Simulation of a 55% quota (% increase respect to predicted prob.) |
|---|---|---|---|---|---|
| Man top of the list incumbent | 42.1 | 40.9 (-1.2) | 38.2 (-2.6) | 35.2 (-3.1) | - 14,5 |
| Man top of the list non-incumbent | 37.7 | 39.9 (2.2) | 39.9 (-0.0) | 39.3 (-.6) | + 4,2 |
| Man bottom of the list incumbent | 39.6 | 40.6 (1.0) | 38.3 (-2.3) | 35.6 (-2.7) | -10,1 |
| Man bottom of the list non-incumbent | 45.4 | 45.3 (-0.1) | 42.0 (-3.2) | 38.5 (-3.5) | -15,2 |
| Women top of the list incumbent | 29.6 | 30.1 (+0.5) | 30.3 (+0.2) | 30.3 (+0.0) | + 2,3 |
| Women top of the list non-incumbent | 12.4 | 12.6 (+0.2) | 16.0 (+3.4) | 19.8 (+3.8) | + 59,6 |
| Women bottom of the list incumbent | 27.2 | 24.3 (-2.9) | 28.3 (+4.0) | 32.5 (+4.2) | + 19,5 |
| Women bottom of the list non-incumbent | 14.7 | 13.0 (-1.8) | 17.7 (+4.8) | 23.6 (+5.9) | + 60,5 |
| Men | 42.0 | 42.6 (+0.6) | 40.5 (- 2.1) | 38.0 (-2.5) | - 9,5 |
| Women | 15.1 | 13.9(-1.2) | 18.1 (+4.2) | 23.1 (+5.0) | + 53,0 |

**Table 5. Average of the estimated probabilities before and after an increase in the length of the list in the districts.**

| | Predicted | 20% increase | 40% increase | 60% increase |
|---|---|---|---|---|
| Man top of the list incumbent | 42.09% | 41.51% | 40.93% | 40.34% |
| Man top of the list non-incumbent | 37.75% | 37.81% | 37.86% | 37.90% |
| Man bottom of the list incumbent | 39.56% | 39.10% | 38.64% | 38.20% |
| Man bottom of the list non-incumbent | 45.38% | 45.57% | 45.76% | 45.94% |
| Women top of the list incumbent | 29.57% | 27.09% | 25.04% | 23.31% |
| Women top of the list non-incumbent | 12.38% | 12.68% | 12.99% | 13.31% |
| Women bottom of the list incumbent | 27.16% | 26.68% | 26.22% | 25.79% |
| Women bottom of the list non-incumbent | 14.71% | 14.81% | 14.91% | 15.01% |
| Men | 41.97% | 41.95% | 41.92% | 41.89% |
| Women | 15.06% | 15.10% | 15.16% | 15.24% |

**Table 6. Average of the estimated probabilities before and after a decrease in the position of the party on liberal policies (a decrease indicates that parties become more liberal).**

| | Predicted | 20% decrease | 40% decrease | 60% decrease |
|---|---|---|---|---|
| Man top of the list incumbent | 42.09% | 41.45% | 40.79% | 40.11% |
| Man top of the list non-incumbent | 37.75% | 37.90% | 38.03% | 38.13% |
| Man bottom of the list incumbent | 39.56% | 40.35% | 41.14% | 41.92% |
| Man bottom of the list non-incumbent | 45.38% | 44.77% | 44.16% | 43.53% |
| Women top of the list incumbent | 29.57% | 33.12% | 36.86% | 40.70% |
| Women top of the list non-incumbent | 12.38% | 13.02% | 13.71% | 14.44% |
| Women bottom of the list incumbent | 27.16% | 25.15% | 23.19% | 21.31% |
| Women bottom of the list non-incumbent | 14.71% | 15.02% | 15.33% | 15.65% |
| Men | 41.97% | 41.75% | 41.52% | 41.28% |
| Women | 15.06% | 15.50% | 15.96% | 16.45% |

## 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.[11]

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.

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

[11] 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.

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.[12]

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 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

[12] 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.

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.[13] 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.

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.

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

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 -2001**.

| 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 | Piedmont, Tuscany, 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 |
| Position of the candidate in the list | Rank of the candidates in the list: =1 if in the first half; =2 if in the second half. |
| Votes | Number of votes obtained by the candidate. |
| Incumbent | =0 if non incumbent; = 1 if incumbent.<br>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).<br>Ranks from 1 to 20. 1 favor, 20 agaist.<br>Source: K. Benoit and M. Laver, 2005, Expert Survey. |

Table C 2**. Descriptive statistics for each candidate**

| | Obs | Mean | St. Dev. | Min | Max |
|---|---|---|---|---|---|
| Gender of the candidate | 5239 | 0.262 | 0.43980 | 0 | 1 |
| Age of the candidate | 5239 | 45 | 0.11094 | 18 | 86 |
| Position of the candidate | 5239 | 1.61 | 0.48751 | 1 | 2 |
| Votes | 5239 | 1190.62 | 2383.27 | 0 | 28652 |
| Incumbent | 5239 | 0.107 | 0.30924 | 0 | 1 |
| Dimension of the electoral district | 5239 | 16.29 | 12.2880 | 1 | 35 |
| Percentage of women in the list | 5239 | 0.262 | 0.15149 | 0 | 1 |
| Party position on liberal policies | 5239 | 9.81 | 5.96227 | 2.021 | 18.515 |