# Are women in supervisory positions more discriminated against? A multinomial approach

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## Abstract

In this paper we apply a two stage approach in order to investigate the existence of a stronger sex discrimination the higher the job position, separating the Italian labor market among supervisors and non supervisors. In the first stage we implement a multinomial logit which ought to be regarded as an instrumental tool useful to account for a selection bias for both men and women in non supervisory and supervisory positions. Then we single out the components of the gender wage gap for males and females and for both the considered positions, by using the Blinder-Oaxaca decomposition. We find that the raw wage gap between men and women is higher for supervising individuals (23%) than for not supervisors (18%). The pay gap widens when controlling for many personal and labor market variables, regardless of the job done. The discrimination against women is equal to 57 and 75% of the total gender wage gap respectively for the non supervisory and the supervisory jobs. When we control for participation through a selectivity bias, in the non supervisory case, both males and females evidence positive and highly significant selection, while in the supervisory one, only for women a negative and significant selection bias is found. Once the selection terms are accounted for, amongst non supervisors both the wage gap and the discriminatory component rise, while amongst supervisors they considerably decrease and become not significant. The stronger negative process of selection amongst Italian female managers can thus lead to regard that segment of the labor market as unfair.

**Keywords**: gender wage gap, discrimination, sample selection, Italy, Oaxaca/Blinder decomposition

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## 1. Introduction

It is well known that equality between men and women is a worldwide priority in the current economic policy, particularly for the European Commission (EC), which has many time stressed its relevance as being a fundamental right and a common principle of the European Union. Nevertheless, it is also still evident that, despite women's higher education than men's and their increasing participation in the labor market, they are still largely underrepresented in the high hierarchical positions and suffer from a significant pay gap particularly at a supervisory level (EC 2003, 2009). As a matter of fact, the EC pointed out that across European countries "*The gender pay gap also varied with personal and job characteristics as well as across sectors and occupations. It was found to be particularly high among those employed with supervisory job status (17%). Men were both more concentrated in higher paid sectors and occupations and more likely to hold supervisory responsibilities within these sectors and occupations*". (EC 2003, p. 10).

The discrimination against women in managerial positions is actually a clear stylized fact at a global level. Comparing international companies, the CWDI (Corporate Women Directors International) Report for 2007 revealed that only 11.2% of all board seats in the Fortune Global 200 companies are held by women. For what concerns the 75 U.S. companies in the Fortune Global 200, 17.6% of all board directors are women. European companies in the Fortune Global 200 have lower percentages of female directors compared to the U.S. In the United Kingdom 13.9% of board directors are females. The Netherlands has a 10.2% of female directors, followed by Germany with 10.9%, Switzerland with 9.5%, France with 7.6%, and Italy with 2.9%. Furthermore, and more specifically for the European Union, the proportion of female directors of top quoted company boards is 3% across the EU, while one in ten company board members is a woman. There are no female governors at the national Central Banks in the EU, while they represent only 16% of the highest decision-making bodies of these institutions (EC 2009).

Nevertheless, although the European Job Strategy also encourages national economic policies to increase the presence of women, particularly at the decision-making level, the empirical literature does not seem to take sufficiently into account the discrimination against them in higher-ranking positions when focusing on the general gender wage gap. More specifically, despite the gender pay gap has become a widespread research topic in the empirical economic literature[1], only a few studies directly consider the managerial positions

[1]The general gender pay gap has been exploited both in surveys concerning single countries and in comparative studies. As to the former strand of empirical literature, Chzhen and Mumford (2009) for Britain,

or duties of formal responsibility for supervising a group.

A key point in a such a string of research, is to control for a selectivity bias affecting the sample selection for two main reasons: firstly, when general women's wages are examined, the possibility that unobservable factors influence selection into the sample usually remains a serious obstacle[2]. Secondly, when the gender pay gap for women in a supervisory position is examined and compared with that of non supervisor women, the selection term becomes much more relevant in terms of unbiased estimates. This fact occurs for a couple of other reasons. First, if we are interested in examining women's behavior in a particular working condition *x*, the most appropriate potential outcome is even threefold - working in *x*, not working in *x*, not working at all - so that we have to compute two selection terms (Rodgers 2004). Second, when that particular working condition *x* is the supervisory position, where women are traditionally underrepresented, the Inverse of the Mill's Ratio (IMR) is expected to be particularly significant.

Among these papers, Holst and Busch (2009) demonstrate that in Germany, after taking into account a twofold selection effect for a leadership position, only one third of the gender wage differential could be explained. Watson (2009) studies the gender pay gap among managers in Australia over the period from 2001 to 2007 by also controlling for a threefold selection bias in the labor market participation as a manager or non manager. He finds that female managers earn about 25 per cent less than their male counterparts and somewhere between 70 and 90 per cent of this wage gap cannot be explained. However, while these papers show a significant discrimination against women in leadership positions, there is no study comparing gender wage gaps while at the same time analyzing the discrimination against women, in both leadership and non leadership positions.

As to Italy, several analysis on the general gender pay gap have been conducted using different datasets and procedures. For example, Flabbi (2001), through a database supplied by the Bank of Italy, estimates a wage gap of almost 19% on average, where 5% of which is due to differences in characteristics and 13.7% to differences in rewards. Rustichelli (2005) evaluates a gender gap between women and men's daily wages equal to 39% on average,

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Albrecht et al. (2001) for Sweden, Pouliakis and Livanos (2008) for Greece, are only some recent examples. As to the latter strand Arulampalam et al. (2004) and Nicodemo (2009) are able to compare respectively ten and five European Countries.

[2] Dolton and Makepeace (1986) and Bloom and Killingsworth (1982), among others, have demonstrated that the selection bias is particularly pertinent to general studies of women's wages, given the labour force participation decisions entailed.

26.9% of which is attributed to differences in rewards. At the institutional level, the National Committee for equality and fairness in opportunities (*Comitato nazionale parità e pari opportunità*, 2001), also estimated a gender gap of around 19 percentage points after controlling for several characteristics. Furthermore, just recently, Picchio and Mussida (2010) propose a semiparametric estimator of densities in the presence of covariates which embodies sample selection for the Italian labor market. Interestingly, they find that, when a control for sample selection is made, the gender wage gap significantly increases at the top of the wage distribution, where it jumps from 17.3% to 24.5%. However, although in this country the empirical literature on the general gender wage gap is somewhat extensive, the comparison between hierarchical positions after controlling for a possible sample selection bias is almost completely ignored.

Thus, trying to fill this gap of the empirical literature, this paper analyzes the gender pay gap in both non supervisory and supervisory positions for the Italian labor market. A crucial point in our analysis is to control for the selectivity bias which may probably affect women, mainly in the access to the top positions, as showed in the reasoning above here and by the recent empirical literature. In doing so, we choose to adopt a two step procedure. In the first step, we correct for a threefold selectivity bias through a multinomial logit. This selectivity may affect the participation to the labor market and the working level as non supervisory or supervisory for both males and females. In the second step we estimate the wage equation by taking into account the eventual significant selectivity terms. This method makes us able to verify the unadjusted and the (multiple-selection) adjusted gender wage gap between supervisory and non supervisory jobs. Furthermore, we can verify whether or not the discrimination against women is higher among managerial positions compared to the non managerial through the Blinder-Oaxaca (B-O) decomposition.

In particular three questions are relevant here: 1) Are gender wage gap and discrimination against women higher among supervisory positions than among non supervisory? 2) Is there any selectivity bias for both men and women for participating to the labor market and working as supervisors or non supervisors? 3) Therefore, is a two stages approach more precise, as well as more suitable, than a single OLS in order to give us an unbiased answer to the first two questions?

In this paper we try to shed some light on these issues by using the last European dataset of the Community Statistics on Income and Living Conditions survey (EU-SILC), whose last wave, for which the reference year is 2007, is available since march 2009. To the best of our knowledge, this dataset has never been used yet in studying the analysis of the gender wage

gap between supervisory and non supervisory positions.

This paper is organized as follows. In section two we quickly describe the econometric methodology adopted. Section three deals with the data used. Section four presents the results obtained in the first multinomial logit stage, in the second stage of adjusted OLS and the B-O decomposition. In the last section we sum up the main findings and conclude with a possible explanation.

## 2. Econometric specification

Usually selection models are implemented within a dichotomous framework. In this article, following Watson (2009), we choose instead to build a threefold potential outcome: not working, working or working as a supervisor. To achieve this, we divide our dependent variable into three categories, in order to get the following probabilities, as in (1) and (2):

$$\Pr\left(Y_{ij}=0\right)=\frac{1}{1+\exp\left(\beta_1 Z_{ij}\right)+\exp\left(\beta_2 Z_{ij}\right)}+\varepsilon_{ij} \tag{1}$$

$$\Pr\left(Y_{ij}=k\right)=\frac{\exp\left(\beta_k Z_{ij}\right)}{1+\exp\left(\beta_1 Z_{ij}\right)+\exp\left(\beta_2 Z_{ij}\right)}+\varepsilon_{ij} \tag{2}$$

where $\varepsilon \sim N(0,1)$, $k$=1,2 and $j$=males, females. In the equation (1) $P\left(Y_{ij}=0\right)$ stands for the probability of being in the base category (not working), while in the equation (2) $P\left(Y_{ij}=1\right)$ is the probability of being in the middle category (i.e. of working in a non supervisory position) and $P\left(Y_{ij}=2\right)$ is the probability of being in the highest position (i.e. of working as a manager/supervisor). Z is a matrix containing the independent (personal) categorical variables on which the choice is based: age, level of education attained, consensual union, health, household type (linked to the number of persons and dependent children living in a family) and citizenship. They are discussed in more detail below.

Indeed our multinomial logit is an instrumental tool (a first stage), necessary to compute the Inverse of the Mills' ratios (IMRs) for working and working as a manager both for men and women: these terms allow us to account for a possible selection bias and are to be plugged in a second stage regression so that one is able to a) get unbiased OLS estimates as in

Heckman (1979) or Bourguignon et al. (2007)[3] and b) see whether the differential between men and women's gross hourly wage is affected after accounting for these selectivity terms. The latter question is answered to by means of a B-O decomposition carried out both for non managers and managers, following the approach of Jann (2008).

In the second stage separate OLS equations for males and females are fitted for the two categories of non supervisors and supervisors. It means that four regressions taking the following form are computed:

$$\ln W_{ijk} = \alpha_{jk} X_{ijk} + (\sigma_{jk}\rho_{jk})\frac{\phi[H_{jk}(\beta_{jk} Z_{ijk})]}{\Phi[H_{jk}(\beta_{jk} Z_{ijk})]} = \alpha_{jk} X_{ijk} + c_{jk}\lambda_{ijk} + \zeta_{ijk} \quad (3)$$

where

$$\zeta_{ijk} \sim N(0,\sigma_{jk}),$$
$$corr(\varepsilon_{ijk}, \zeta_{ijk}) = \rho_{jk}$$

and where j=males, females and k=1,2; $\rho_j$ is the correlation between the error term in the selection equation and the one in the equation for wage j; $\sigma_j$ is the standard deviation of the error term in the equation for wage j. $\phi$[.] is the standard normal density and $\Phi$[.] the cumulative distribution function. The suffix k has been added with respect to the equation (2) in order to take into account the diversity of coefficients by category other than sex. The dependent variable of the equation (3) is *lnW* which represents the logarithm of the gross hourly wage; X is a matrix containing all the regressors, while $\lambda$ is the IMR computed in the first stage. The possible correlation between the two error terms $\varepsilon$ and $\zeta$ would mean that a selection effect is present. If it is positive, more able people are likely to enter the labor market and get higher wages. More precisely, those who select or are selected for the labor market - be they managers or non managers - obtain a larger remuneration than a random drawing from the population of men and women with a comparable set of characteristics would get. This is a situation where the rules of labor market can be considered "fair" (i.e. more able people jump in and get more wage). On the contrary, if the selection effect is negative, the less able people are likely to go into the labor market and get higher wages. Put it in another way, those who select or are selected for the labor market get lower wages than the rest of the population of men and women with a comparable set of characteristics drawn

[3]Bourguignon et al. (2007) implement the selmlog STATA command to solve the selection bias problem in a multinomial logit framework.

randomly. This situation can be defined as “unfair”: market rules are not the only one governing the decision to get a job or to reach a bargain while other things matter.

Finally, the gender wage gap with and without significant selection terms are computed for non managers and managers and split up into endowment, coefficients and interaction effects singled out using the classic threefold B-O decomposition (Blinder 1973, Oaxaca 1973):

$$G = \left[E\left(X_M - X_F\right)\right]' \alpha_F + E\left(X_F\right)'\left(\alpha_M - \alpha_F\right) + \left[E\left(X_M\right) - E\left(X_B\right)\right]'\left(\alpha_M - \alpha_F\right) \qquad (4)$$

where the suffixes M and F indicate males and females, the gender wage gap is the G on the left-hand side while the first term on the right-hand side represents the effect of endowments, the second term is the effect of coefficients and the third term quantifies how much counts the interaction due to differences in endowments and coefficients and existing at the same time for males and females. The first two components are the most relevant. More specifically, the first term measures the group differences in the predictors weighted by the coefficients of women i.e. the expected change of women’s mean wage if they had the same predictor levels as men; it constitutes the “explained” part of the gender wage gap. The second term measures the difference in coefficients weighted by women’s predictor levels, i.e. the expected change of women’s mean outcome if they had the same coefficients as men. In the literature on the wage gap, this component is generally referred to as the “discrimination component”, so in the rest of the paper it will be made reference to a discrimination effect.

Of course, the decomposition in (4) can be formulated from the viewpoint of the other group, that of men. In mathematical form, this specification can be written as the following:

$$G = \left[E\left(X_M - X_F\right)\right]' \alpha_M + E\left(X_M\right)'\left(\alpha_M - \alpha_F\right) + \left[E\left(X_M\right) - E\left(X_B\right)\right]'\left(\alpha_M - \alpha_F\right) \qquad (5)$$

This formula means that the group differences can be also weighted by the coefficients of men $\alpha_M$ to determine the endowment effect. In other words, the first component can reversely measure the expected change in males’ log hourly gross mean income if they had females’ predictor levels. Similarly, the second term of the right-hand side can also measure the expected change in males’ log hourly gross mean income if they had the same coefficients as those of women.

## 3. Data

We used the latest (2007) version, available since march 2009, of the EU-SILC database the new homogenized panel survey that has replaced ECHP. EU-SILC has both a personal (p) and a household (h) file, from where we needed to pick up data. This necessity obliged us to merge these two sources, inserting the code of the household type in the former database for Italian individuals. Secondly, we tightened our analysis to people aged between 25 and 65 years. After doing so, 29,575 people remained.

The first stage dependent variable has three categories – not working, working and working in a managerial position: EU-SILC identifies the latter working condition with a supervisory role where supervisory responsibility includes formal responsibility for coordinating a group of other employees (other than apprentices), whom they supervise directly, sometimes doing some of the work they monitor. It implies that the supervisor or foreman takes charge of the work, directs the work and sees whether it is properly done. The regressors are divided in the following way: (i) *Age* with 4 categories: the base category is the 25-35 years of age class, the second is the 36-45, the third 46-55, the last is the 56-65 years of age. (ii) Level of education attained (*ISCED*), whose original 5 categories have been merged into 3 new ones. The first (the base) is for pre-primary, primary and lower secondary school; the second for upper secondary and post-secondary non tertiary education; the last only includes people with at least tertiary education. (iii) Consensual union *(union)* with 3 categories: single individuals or engaged but not living together (the base category), union without legal basis, union with legal basis. (iv) *Health* – 5 categories: very good health (the base category), good health, fair, bad, very bad. (v) Household type (*H.t.*) with 9 categories: a) one person household (the base category); b) 2 adults with no dependent children where both adults are under 65 years of age; c) 2 adults with no dependent children where at least one adult is more than 65; d) other household without dependent children; e) single parent household with one or more dependent children; f) 2 adults with one dependent children; g) 2 adults and 2 dependent children; h) 2 adults with 3 or more dependent children; i) other households with dependent children. (vi) Citizenship (*Cit*) – 3 categories: citizenship of the same country as that of residence (the base category), of any other EU country and of any other country.

The dependent variable has many missing values so the two multinomial logit were regressed only on 8,323 men and 6,815 women. Moreover, the multinomial logit regressions were (analytically) weighted by the EU-SILC individual weights. The summary statistics of these variables are shown in table 1. In particular, it can be noted that women are more

educated than men. In fact their mean is larger, than that of men (0.90 vs. 0.70). Further, men are slightly more likely to get legally married than women even though the most likely condition is to be in a common-law marriage: in fact their mean is 1.24 vs. 1.18 of females. As for health, women are slightly more in a good condition than men: indeed, their means are respectively 2.11 vs. 2.08, where the reader has to remind that the situation named "good condition" is the second category.

In the second stage – apart from the significant IMRs obtained in the first stage - we chose to take the following variables on which the logarithm of the gross hourly wage (hlw) has been regressed: (i) The level of education attained (*ISCED*) as in the first stage. (ii) A continuous variable indicating the years of work experience *(exp).* (iii) A part-time dummy (*part),* equal to 0 for individuals working full time and 1 if they work on a part-time contract. (iv) Consensual union (*union*) as in the first stage. (v) Citizenship (*Cit*) as in the first stage. (vi) A categorical variable regarding a possible limitation of activity because of health problems (*Health*) whose categories are: strongly limited (base category), limited, not limited[4]. (vii) The size of the unit (*Size*) where a worker is employed, split into 3 categories (11-19, 20-49, and 50+ employees) other than the base (up to 10 employees). Furthermore, 12 dummies for occupations and 30 dummies for sectors are also included.

On account of the missing values encountered in so many regressors, the second stage has been carried out considering 1,027 female supervisors, 2,125 male supervisors, 4,626 female non supervisors and 4,914 male non supervisors.

The summary statistics for the OLS models are reported in tables 2. It can be observed that the pay gender gap (in terms of logarithm of the gross hourly wage) is higher at the supervisory positions. Both men and women in managerial duties enjoy a higher wage compared to the non managerial positions. Women are more educated than men especially in the non supervisory positions, while men have more work experience. Women are also more likely than men to do a part-time duty. Men are more likely than women to get legally married, especially when they are employed in supervisory positions (in this case the mean is equal to 1.42). Again, women have a little more of limitations due to health conditions than men, especially when employed in a supervisory position. Finally male supervisors work in bigger firms compared to women, with means equal respectively to 1.92 and 1.79, while in the non

[4] The health variable used in the first stage has not been taken as it resulted non significant. That is the reason why another more significant variable regarding health was chosen. On the contrary, The latter resulted non significant in the first stage.

supervisory positions the same means are 1.55 and 1.46. Thus, the difference between the unit size computed by sex is greater for supervisors than for non supervisors.

Figure 1 plots the kernel estimates of the wage density for both sexes and for non supervisory and supervisory positions respectively. As for the non supervisors, it can be noted that the top of the *hlw* density for males is reached at a higher wage than that of women. The density is also more concentrated around the same peak compared to that of the other sex. For what concerns the supervisory positions, it comes to light that male supervisors have a higher wage than that of female supervisors but differently from the former case, there is no higher concentration around that peak, i.e. the variance of *hlw* for male supervisors is not very different from that of the other sex.

## 4. Empirical results

### 4.1 Multinomial logit equation

Table 3 gives estimates of the parameters in the multinomial logit model of employment choice for males and females[5]. As expected, the relative risk ratio (RRR) of working in non supervisory or supervisory positions with respect to not working at all increases with age both for men and women: in the former case, it is the highest for the 36-45 class (almost 73% more likely than not working), while for the latter it the highest in the oldest class (more than 340%). In the case of supervisory positions of men, the relative risk ratio is once again the highest for the 36-45 class (in that class working is more than twice likely than not working) while for women it is more than 7 times likely than not working in the oldest class.

As for education, the conclusion of high school or the attainment of a non tertiary diploma makes the probability of working in a non supervisory position almost 28% more likely than not working in the case of males and 124% in the case of women. The RRRs are very much higher in the case of supervisory positions both for males and females. On the other hand, males are 29% less likely to work in a non supervisory position if they get a university degree. In the case of women this is not true: they continue to be more likely to work (7% more than not working) if they achieve a degree. In the case of supervisory positions, men are more likely to get jobs of this kind when they have a degree (346% more likely than not working), while women are more likely to get one when they achieve a high-school diploma or a lower educational title (405% more likely than not working).

[5] As we built categorical variables, the coefficients are to be interpreted as differences from the base category.

Unions - regardless if they are within or without a legal basis – make getting a job more likely. For women, the difference between the two RRRs (without or with a legal basis) is higher in the case of a non supervisory position.

As expected, bad health negatively affects the ability of doing a job with RRRs lower than 1 both for men and women. The same is true for households other than those composed by one person, even though the 5% significance is not always verified. In particular, for a classical family of two adults and two children the four RRRs are lower than one, but the first of them (relative to men in a non supervisory position) has a P-value of 0.392. Finally citizenships other than that of the country of residence strongly and negatively affect the probability of working and working in supervisory positions with respect to that of not working, even though this results is not significant for supervisory females born outside the European Union.

### 4.2 Wage equations: non supervisors and supervisors

The coefficients in the wage equations for both sexes and for non supervisory and supervisory are listed in Tables 4 and 5, respectively. As for the non supervisory sample, from table 4 it is evident that the intermediate level of education (ISCED 3&4) has a stronger and significant effect on the (log gross hourly) wage of females rather than that of males, regardless of performing or not an IMRs adjustment, while the opposite is found for the highest level (ISCED 5). In fact, for the latter level, the unadjusted coefficients for men is equal to 0.199 while that of women is 0.183. For the same level of education, the adjusted coefficients are respectively 0.149 and 0.137 respectively for men and women. The IMRs adjustment has the expected effect of reducing all of those coefficients. Of course, experience has a positive and significant influence for both sexes, while part-time work has a negative one, which is stronger for men employed in non managerial duties than for women covering the same kind of professions. A union without legal basis (i.e. common-law marriages) is found to be non significant, while the legal basis has a negative and significant effect compared with the base category (i.e. being single) for men only. The EU citizenship is found to have a negative and rather significant influence only for women just like the other citizenships different from those of the EU. The negative effect on the gross hourly salary is monotone and deeper for non EU national women, especially in the unadjusted specification (-13.2% vs. -9.4% for the EU national women), while the loss between EU and other citizenships is only about 0.3% (-12.1% vs. -12.4%) in the adjusted one. Overall, this result constitutes an incontrovertible evidence that non national women earn lower wages than

national. As for disability, the fact of being only partially limited compared to the situation of being strongly limited (i.e. the base category) is significant (with the expected positive sign) for males: the significance is verified at 10% for females, even though it increases once the IMRs adjustment is accounted for. Being not limited at all is of course significant for both sexes: anyway its effect is stronger on women's wages. The size of the enterprise is monotonically, positively and significantly correlated to the wage. The effect for women is stronger than that for men. For example in the 11-19 employees class the hourly wage increases 6.5% and 8% respectively for men and women regardless of the IMRs adjustment: in the 20-49 employees class hourly wage increases a little more than 7% for men and 9% for women with respect to the base category and likewise regardless of the IMRs adjustment like in the former class. The same holds for the >50 employees class: the increase for men's hourly wage is 11.6% while that of women is 15.6% both with and without IMRs adjustment. As for the lambda, it is positive and significant for both sexes, even though its effect is clearly stronger for women than for men (0.683 vs. 0.349).

For what concerns the supervisory positions (table 5), a medium-high level of education (ISCED 3 & 4) increases the hourly wage of 12.1 and 15.1% respectively for men and women in the unadjusted specification and of 9 and 13% in the IMRs adjusted: in both cases the increase is computed with respect to the base category ISCED 0-2. A university degree has, as expected, a stronger effect. Its strength is particularly huge for men in the non adjusted specification where the increase in the hourly wage with respect to the base category is 34.4%. As usual, experience has a positive effect for both sexes. The effect of being part-time is always negative with respect to the full-time works, while a common-law marriage is only negatively and slightly significant (at a 10% confidence level) for men. A legal basis union is negatively and strongly significant for men only, as in the former case. The fact of being a EU national born in a country different from that of residence has a quite relevant effect, as it diminishes the hourly wage of more than 25% for men in the two specifications with respect to being a national. On the other hand, having a non EU nationality is found to be non significant. As for health, a partial limitation in corporal activities is a significant category compared to the base category (i.e. a disability bringing about total limitation) for women but not for men in both the specifications. The effect of being completely healthy becomes significant (and positive) for men too. The coefficients of the enterprise size are not always significant, as it can be seen for the 11-19 employees class relatively to males. For women instead, the gross hourly wage increases of almost 9 percentage points in both the specifications compared to the base category. The size effect keeps on being stronger for

women than for men at the other two classes. More precisely, in the 20-49 employees class the gross hourly wage increases of almost 11% in the case of females and 7.4% in that of males. Those coefficients do not change when an IMRs adjustment is implemented. The same holds for the largest class (>50 employees) where the effect on the salary of men is an increase of 12.6% and that for women is 18.5% in the unadjusted case and 18.7% in the adjusted. The coefficient of lambda in found negative and significant only in the case of females (-0.384).

### 4.3 Blinder-Oaxaca decomposition

In the table 6 the results of the B-O decomposition, as it has been described in section 2, are reported, while the figure 2 graphically summarizes the key findings. As for the non supervisory sample, the raw geometric mean of men's wage is 10.8 while that of women is equal to 8.9. These two figures amount to a raw difference of 17.7% computed through the ratio between their difference and the men's average wage. In the unadjusted specification, the geometric mean of men's wage is 10.1 and that of women is 8.1. So their difference widens to 19.8%. The endowments come to 1.047. This figure reflects the mean increase in women's wage if they had the same characteristics as men (i.e. an increase of 4.7%). The difference in endowments account for about 21% of the wage gap. The coefficient's term quantifies the change in women's wages when applying the men's coefficients to the women's characteristics. It amounts to 1.135 (i.e. an increase of 13.5% of the women's wage) and explains 57.2% of the wage gap. The last term is that of the interaction which measures the simultaneous effect of differences in endowments and coefficients. It amounts to 1.05 (i.e. an increase of 5% of the women's wage) and accounts for 21.9% of the total wage gap. As for the educational variables, if women had the same middle educational level as men (ISCED 3&4) they would earn 1.1% less. If they had the same highest educational level as the other sex (ISCED 5) they would earn 1.7% less. Finally, if women had the same experience as men, they would earn 4.1% more. In the IMRs adjusted specification, the geometric mean of men's wage is 8.8, that of women is 6.3 and their difference (computed through their ratio like before) is 28.2%. The endowments amount to 1.054, thus, if women had the same characteristics as men, they would earn 5.4% more. The difference in endowments account for almost 16% of the wage gap. The coefficient's term amounts to 1.257: it means that the women's wage would increase of 25.7 percentage points, by applying the men's coefficients to the women's characteristics and helps to explain 69% of the gap. The interaction term

amounts to 1.05 as in the unadjusted specification and accounts for 15.1% of the total wage gap. As for the educational variables, if women had the same middle educational level as men they would earn 1.1% less. The same happens for the highest educational level. On the other hand, if women had the same experience as men, they would earn 4.2% more.

In the right part of the table 6, the results for supervisors are displayed. The raw geometric mean of hourly wages is 15.9 for men and 12.2 for women. Thus, the raw gap (computed as a ratio between the difference of men and women's wage and that of men at the denominator just like before) is higher than in the former non supervisory case, reaching 23.5 percentage points in favor of men. In the unadjusted specification, the hourly wage decreases respectively to 14.7 and 11.2 while the gap remains equal to the former at 23.5 percentage points. Only the coefficients' term is statistically significant: it explains 75.2% of the gap. It also tells us that if the coefficients of men would be applied to women's characteristics, the hourly salary of the latter would increase by more than 22%. As for the endowments, if women had the same level of highest education as men, they would earn 1.9% less than what they actually get, with a loss of almost 32 percentage points of the total unadjusted gap, while if they had the same work experience as men, they would earn 5.3% more.

Turning to the IMRs adjusted specification, the wage gap is now considerably reduced to 15.7%, almost 8 points percentage less than the unadjusted model, and is found to be not significant. This result is rather straightforward as the only significant IMR is that of women. Of course, neither the endowments' and coefficients' terms are statistically significant, nor is the interaction.

## 5. Discussion and conclusions

The OECD (2002) points out that "in all countries women appear to be underrepresented in jobs with great supervisory role" (p.95). In this paper, by confirming this evidence for Italy, we demonstrate that, at a supervisory level, women suffer from a higher wage gap with respect to those in a non supervisory position. This evidence can be explained at least partly by personal endowments, even after considering many control variables.

Our results are obtained using the last wave of the EU-SILC dataset, available since march 2009. We chose to adopt a two step procedure. In the first step, in order to account for a possible selection bias for both men and women, we estimated a multinomial logit model where the potential outcome is threefold: working as a supervisor, working as a non supervisor, or not working at all. In the second step we estimated the gender wage gap, considering the IMRs for both men and women in the regressors. Finally we estimated the

discrimination against female employees for supervisory and non supervisory positions through the B-O decomposition.

The main findings of this paper are the following:

1. The raw gender wage gap is higher among supervisors (23.5%), than among non supervisors (17.7%);
2. When controlling for many personal and labor market variables the difference tightens: in particular, the (selection-bias) unadjusted gender wage gap among non supervisory jobs increases to 19.8% while the gap among supervisors remains the same;
3. In the unadjusted specification, the higher gender wage gap among supervisors also implies a higher discrimination against females: 75.2% versus 57.2% among non supervisors.
4. When controlling for the participation to the labor market to be affected by a selectivity bias through a multinomial logit model, it comes to light that: a) among non supervisory positions, both males and females evidence positive and highly significant selection bias: further, the coefficient for females is much greater and almost twice that for males; b) among supervisory positions, only for females a significant and negative selectivity bias is highlighted;
5. As a consequence, if the selection bias would be accounted for a) among non supervisors the gender wage gap would widen to 28.2% and the discrimination would increase to 69%; b) among supervisors, both the gender wage gap and the discrimination would considerably decrease and become not significant.
6. Looking at the endowments in education and work experience, within both the unadjusted and the adjusted specifications and for both supervisors and non supervisors, if women had the same ISCED level and work experience as men, they would have respectively lower and higher wages.

Focusing on the Italian managerial labor market, some relevant results emerging from the paper need a more detailed discussion. In particular, women at a supervisory level suffer from a higher gender wage gap and discrimination than the non supervisors. Further, if a selectivity bias would be accounted for, it is significant and positive for both men and women employed in non supervisory positions, while it becomes negative and significant only for women having supervisory tasks. This result means that, at the upper level of jobs, the less able women are likely to enter the labor market and get higher wages. Putting it in another way, those who are selected for the labor market get lower wages than a random drawing

from the same population of women with a comparable set of characteristics would get. That result also allows us to regard the supervisory labor market of women as “unfair”, i.e. where market rules are not the only one governing the decision to get a career advancement or to reach a bargain, while other things matter. As a confirm, when accounting for the selectivity bias at the supervisory level for males and females, the B-O decomposition shows that the gender wage gap and the discrimination could be clearly reduced and made not significant.

We put forward two possible and arguably not alternative explanations for the “unfairness” in the Italian managerial labor market of women, as it results from the paper. First of all, it is well known that in Italy the percentage of children under 3 years of age who are in childcare is quite low, compared to that of Nordic countries such as Sweden and Denmark, or also to other Mediterranean countries (Del Boca and Locatelli 2008, Nicodemo 2009). Therefore, as also partially argued by Picchio and Mussida (2010), the lack of a structured framework of childcare may have relevant implication for the women’s participation to the labor market even at a supervisory level, as it may induce women to prefer household management rather than job tasks. Anyway, it is reasonable to argue that the absence of childcare may also display its effect not only at high hierarchical levels but even at the lower, hence other forces should be called to explain such evidence.

In particular, idiosyncratic, sociological and cultural reasons may have a major role in leading to such results for the high hierarchical levels, because the supervisory positions are traditionally considered as a men’s prerogative (OECD 2002). In this framework, stereotypes may be much likely to constitute the most significant barriers to women’s career advancement and appointment to managerial positions, thus generating a gender-segregated labor market. Indeed, many studies have shown that a “good manager” is described as being masculine (Gregory 1990).

Consequently, persisting higher gender gaps at the supervisory level, as they are pointed out in this paper, confirm the importance of eliminating economic and cultural barriers to women’s full participation and carriers in the labor market. In this context, both policies aimed at reconciling work and family and at fighting gender stereotypes may have a direct impact on employment, earnings, and positions of women in the labor market, and may be able to reduce discriminations against them, particularly when employed with higher responsibility tasks.

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# Tables and figures

**Tab. 1. Summary statistics for sample in multinomial logit model**

| | Males | | | | | Females | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** |
| Age | 41.67 | 9.61 | 25 | 65 | 8392 | 40.81 | 9.29 | 25 | 65 | 6887 |
| ISCED | 0.70 | 0.71 | 0 | 2 | 8392 | 0.90 | 0.72 | 0 | 2 | 6887 |
| Union | 1.24 | 0.94 | 0 | 2 | 8392 | 1.18 | 0.96 | 0 | 2 | 6887 |
| Health | 2.08 | 0.68 | 1 | 5 | 8323 | 2.11 | 0.67 | 1 | 5 | 6815 |
| H.t. | 8.95 | 2.53 | 5 | 13 | 8392 | 8.83 | 2.46 | 5 | 13 | 6887 |
| Cit. | 2.07 | 0.27 | 1 | 3 | 8392 | 2.05 | 0.26 | 1 | 3 | 6887 |

Source: elaboration from EU-SILC 2007, available since March 2009.
Observations are weighted by EU-SILC personal cross-sectional weights.
Population: All adult respondents.

**Tab. 2 Summary statistics for sample in final models**

**Non supervisory**

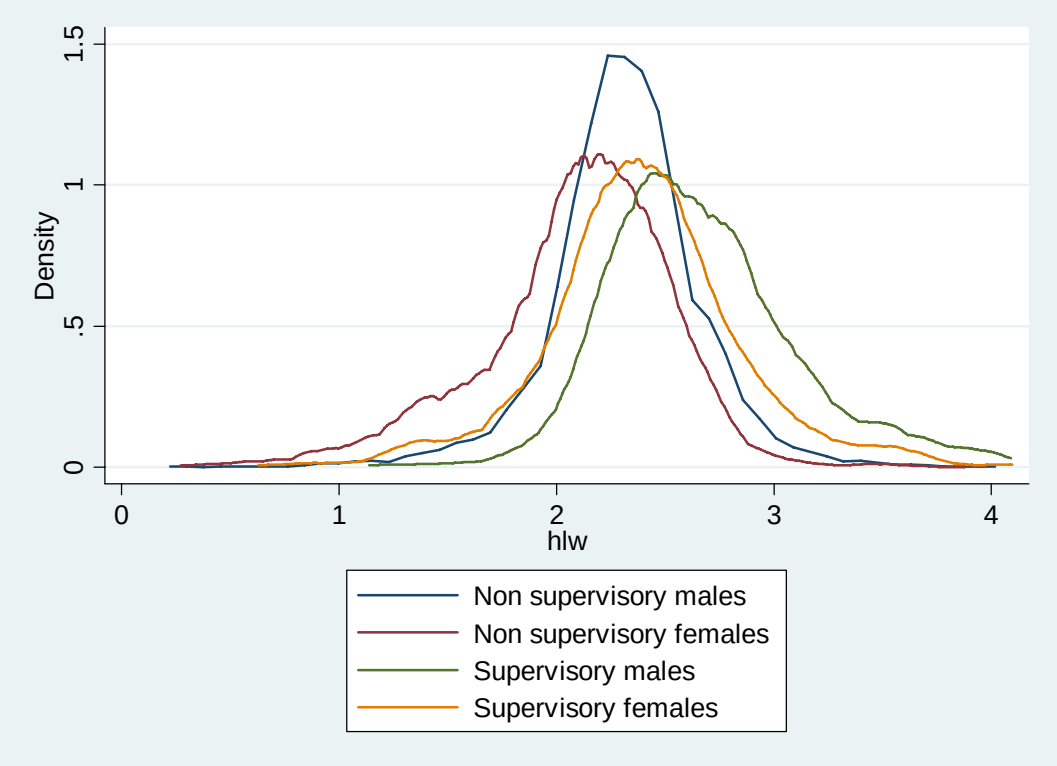
| | Males | | | | | Females | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** |
| Hlw | 2.30 | 0.35 | 0.27 | 3.97 | 5377 | 2.09 | 0.44 | 0.27 | 3.97 | 4962 |
| ISCED | 0.58 | 0.67 | 0 | 2 | 5811 | 0.85 | 0.71 | 0 | 2 | 5453 |
| Exp | 17.69 | 10.58 | 1 | 50 | 5811 | 15.26 | 9.38 | 1 | 48 | 5453 |
| Part | 0.05 | 0.22 | 0 | 1 | 5365 | 0.24 | 0.43 | 0 | 1 | 4969 |
| Union | 1.20 | 0.95 | 0 | 2 | 5811 | 1.19 | 0.95 | 0 | 2 | 5453 |
| Cit. | 2.09 | 0.30 | 1 | 3 | 5811 | 2.06 | 0.28 | 1 | 3 | 5453 |
| Limit | 2.86 | 0.41 | 1 | 3 | 5683 | 2.85 | 0.41 | 1 | 3 | 5335 |
| Unit size | 1.55 | 1.27 | 0 | 3 | 5031 | 1.46 | 1.27 | 0 | 3 | 4735 |

**Supervisory**

| | Males | | | | | Females | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** | **Mean** | **S. D.** | **Min** | **Max** | **Obs.** |
| Hlw | 2.68 | 0.44 | 1.14 | 4.09 | 2252 | 2.41 | 0.46 | 0.63 | 4.09 | 1071 |
| ISCED | 1.02 | 0.72 | 0 | 2 | 2307 | 1.18 | 0.69 | 0 | 2 | 1127 |
| Exp | 19.32 | 10.00 | 1 | 50 | 2307 | 17.25 | 9.55 | 1 | 45 | 1127 |
| Part | 0.01 | 0.11 | 0 | 1 | 2252 | 0.14 | 0.35 | 0 | 1 | 1069 |
| Union | 1.42 | 0.88 | 0 | 2 | 2307 | 1.22 | 0.94 | 0 | 2 | 1127 |
| Cit. | 2.01 | 0.14 | 1 | 3 | 2307 | 2.01 | 0.13 | 1 | 3 | 1127 |
| Limit | 2.88 | 0.39 | 1 | 3 | 2274 | 2.82 | 0.42 | 1 | 3 | 1107 |
| Unit size | 1.92 | 1.22 | 0 | 3 | 2157 | 1.79 | 1.25 | 0 | 3 | 1050 |

Source: elaboration from EU-SILC 2007, available since March 2009.
Observations are weighted by EU-SILC personal cross-sectional weights.
Population: Adult respondents working in not supervisory and supervisory positions.

**Fig. 1. Kernel density distributions**



**Tab. 3. Multinomial Logit Equations of Employment Choice by Males and Females**

| | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | Non supervisory | | Supervisory | | Non supervisory | | Supervisory | |
| | RRR | P>\|z\| | RRR | P>\|z\| | RRR | P>\|z\| | RRR | P>\|z\| |
| Age 36-45 | 1.728 | *0.004* | 2.089 | *0.000* | 3.747 | *0.000* | 4.463 | *0.000* |
| Age 46-55 | 1.393 | *0.126* | 1.953 | *0.003* | 3.565 | *0.000* | 4.586 | *0.000* |
| Age 56-65 | 1.295 | *0.392* | 1.383 | *0.300* | 4.433 | *0.001* | 7.379 | *0.000* |
| ISCED 3 & 4 | 1.277 | *0.106* | 3.570 | *0.000* | 2.241 | *0.000* | 5.051 | *0.000* |
| ISCED 5 | 0.715 | *0.085* | 4.460 | *0.000* | 1.069 | *0.684* | 4.189 | *0.000* |
| Union without legal basis | 3.625 | *0.004* | 9.153 | *0.000* | 2.795 | *0.002* | 6.307 | *0.000* |
| Union with legal basis | 3.668 | *0.000* | 9.028 | *0.000* | 4.689 | *0.000* | 6.656 | *0.000* |
| Good health | 1.248 | *0.210* | 1.409 | *0.065* | 1.148 | *0.407* | 1.716 | *0.005* |
| Fair health | 0.692 | *0.098* | 0.653 | *0.071* | 1.264 | *0.341* | 2.086 | *0.007* |
| Bad health | 0.451 | *0.016* | 0.511 | *0.062* | 0.272 | *0.000* | 0.342 | *0.003* |
| Very bad health | 0.420 | *0.185* | 0.163 | *0.036* | 0.429 | *0.395* | 0.842 | *0.877* |
| 2 adults, no dep. child., both adults under 65 years | 0.446 | *0.020* | 0.275 | *0.000* | 0.431 | *0.018* | 0.276 | *0.001* |
| 2 ad., no dep. child., at least one adult 65 years or more | 0.421 | *0.030* | 0.221 | *0.000* | 0.376 | *0.043* | 0.209 | *0.003* |
| Other households without dep. child. | 0.298 | *0.000* | 0.165 | *0.000* | 0.331 | *0.000* | 0.125 | *0.000* |
| Single parent hous., one or more dep. child. | 1.17E+08 | *0.000* | 1.19E+08 | *0.000* | 0.407 | *0.023* | 0.288 | *0.003* |
| 2 adults, one dependent child | 0.243 | *0.000* | 0.117 | *0.000* | 0.175 | *0.000* | 0.081 | *0.000* |
| 2 adults, two dependent children | 0.675 | *0.392* | 0.393 | *0.047* | 0.124 | *0.000* | 0.053 | *0.000* |
| 2 adults, three or more dep. child. | 0.251 | *0.007* | 0.108 | *0.000* | 0.120 | *0.000* | 0.037 | *0.000* |
| Other households with dep. child. | 0.214 | *0.000* | 0.089 | *0.000* | 0.187 | *0.000* | 0.066 | *0.000* |
| Italian citizenship | 2.13E-08 | *0.000* | 3.23E-08 | *0.000* | 1.655 | *0.369* | 6.812 | *0.011* |
| Other citizenship | 5.97E-08 | *0.000* | 1.24E-08 | *0.000* | 1.512 | *0.493* | 1.032 | *0.969* |
| LR chi2(42) | 1310.95 | | | | 741.79 | | | |
| Prob > chi2 | 0.000 | | | | 0.000 | | | |
| Pseudo R2 | 0.112 | | | | 0.090 | | | |
| Number of obs | 8,323 | | | | 6,815 | | | |

Notes: Odds ratios, also known as relative risk ratios (RRR), are reported.
- Outcome variable: working as a manager; or working otherwise; or not working at all. Base (reference) category: not working at all. P values in italics.
- Omitted categories are: Aged 25 to 35; ISCED 0-2; Single; Very good health; One person household; Any European union country (EU25) except Italian.
- Source: elaboration from EU-SILC 2007, available since March 2009.
- Observations are weighted by EU-SILC personal cross-sectional weights.

**Tab. 4. OLS results: non supervisory**

| | Unadjusted | | | | Adjusted | | | |
|---|---|---|---|---|---|---|---|---|
| | Males | | Females | | Males | | Females | |
| | Coef. | P>\|t\| | Coef. | P>\|t\| | Coef. | P>\|t\| | Coef. | P>\|t\| |
| ISCED 3 & 4 | 0.083 | *0.000* | 0.117 | *0.000* | 0.058 | *0.000* | 0.102 | *0.000* |
| ISCED 5 | 0.199 | *0.000* | 0.183 | *0.000* | 0.149 | *0.000* | 0.137 | *0.000* |
| Exp | 0.019 | *0.000* | 0.017 | *0.000* | 0.019 | *0.000* | 0.017 | *0.000* |
| Exp_2 | 0.000 | *0.000* | 0.000 | *0.000* | 0.000 | *0.000* | 0.000 | *0.000* |
| Part | -0.456 | *0.000* | -0.402 | *0.000* | -0.457 | *0.000* | -0.401 | *0.000* |
| Union without legal basis | -0.006 | *0.740* | 0.027 | *0.193* | -0.008 | *0.673* | 0.000 | *0.998* |
| Union with legal basis | -0.067 | *0.000* | -0.007 | *0.482* | -0.057 | *0.000* | -0.014 | *0.147* |
| Italian citizenship | 0.019 | *0.775* | -0.094 | *0.039* | 0.001 | *0.986* | -0.121 | *0.008* |
| Other citizenship | -0.047 | *0.482* | -0.132 | *0.006* | -0.033 | *0.617* | -0.124 | *0.009* |
| Limited | 0.081 | *0.005* | 0.060 | *0.092* | 0.078 | *0.007* | 0.068 | *0.058* |
| Not limited | 0.107 | *0.000* | 0.090 | *0.007* | 0.103 | *0.000* | 0.099 | *0.003* |
| Size 11-19 | 0.065 | *0.000* | 0.080 | *0.000* | 0.065 | *0.000* | 0.081 | *0.000* |
| Size 20-49 | 0.071 | *0.000* | 0.091 | *0.000* | 0.072 | *0.000* | 0.090 | *0.000* |
| Size > 50 | 0.116 | *0.000* | 0.156 | *0.000* | 0.116 | *0.000* | 0.156 | *0.000* |
| Lambda | | | | | 0.349 | *0.002* | 0.683 | *0.000* |
| Cons | 2.108 | *0.000* | 1.587 | *0.000* | 2.008 | *0.000* | 1.368 | *0.000* |
| N. Obs | 4914 | | 4626 | | 4914 | | 4626 | |
| Prob > F | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| R-squared | 0.400 | | 0.538 | | 0.401 | | 0.540 | |
| Adj R-squared | 0.393 | | 0.533 | | 0.395 | | 0.535 | |
| Root MSE | 0.270 | | 0.299 | | 0.270 | | 0.299 | |

Note. 12 dummies for occupations and 30 dummies for sectors included, but not reported.
- Omitted categories are: ISCED 0-2; full-time; Single; Any European union country (EU25) except Italian; Strongly limited in activities because of health problems; local unit size 1-10.
- Source: elaboration from EU-SILC 2007, available since March 2009.
- Observations are weighted by EU-SILC personal cross-sectional weights.

**Tab. 5. OLS results: Supervisory**

| | Unadjusted | | | | Adjusted | | | |
|---|---|---|---|---|---|---|---|---|
| | Males | | Females | | Males | | Females | |
| | Coef. | P>\|t\| | Coef. | P>\|t\| | Coef. | P>\|t\| | Coef. | P>\|t\| |
| ISCED 3 & 4 | 0.121 | *0.000* | 0.151 | *0.000* | 0.090 | *0.002* | 0.130 | *0.000* |
| ISCED 5 | 0.344 | *0.000* | 0.222 | *0.000* | 0.285 | *0.000* | 0.179 | *0.000* |
| Exp | 0.024 | *0.000* | 0.025 | *0.000* | 0.023 | *0.000* | 0.024 | *0.000* |
| Exp_2 | 0.000 | *0.000* | 0.000 | *0.000* | 0.000 | *0.000* | 0.000 | *0.001* |
| Part | -0.258 | *0.000* | -0.462 | *0.000* | -0.257 | *0.000* | -0.459 | *0.000* |
| Union without legal basis | -0.055 | *0.094* | 0.018 | *0.639* | -0.060 | *0.071* | -0.003 | *0.947* |
| Union with legal basis | -0.100 | *0.000* | 0.018 | *0.392* | -0.082 | *0.000* | 0.017 | *0.439* |
| Italian citizenship | -0.252 | *0.020* | -0.130 | *0.415* | -0.254 | *0.019* | -0.163 | *0.311* |
| Other citizenship | -0.118 | *0.378* | -0.003 | *0.989* | -0.075 | *0.583* | 0.007 | *0.968* |
| Limited | 0.091 | *0.119* | 0.181 | *0.038* | 0.096 | *0.103* | 0.178 | *0.041* |
| Not limited | 0.104 | *0.050* | 0.176 | *0.037* | 0.106 | *0.046* | 0.178 | *0.035* |
| Size 11-19 | 0.032 | *0.205* | 0.087 | *0.010* | 0.031 | *0.219* | 0.088 | *0.009* |
| Size 20-49 | 0.074 | *0.003* | 0.109 | *0.001* | 0.074 | *0.003* | 0.109 | *0.001* |
| Size > 50 | 0.126 | *0.000* | 0.185 | *0.000* | 0.126 | *0.000* | 0.187 | *0.000* |
| Lambda | | | | | -0.269 | *0.122* | -0.384 | *0.060* |
| Cons | 2.108 | *0.000* | 2.002 | *0.000* | 2.306 | *0.000* | 2.318 | *0.000* |
| N. Obs | 2125 | | 1027 | | 2125 | | 1027 | |
| Prob > F | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| R-squared | 0.445 | | 0.582 | | 0.445 | | 0.584 | |
| Adj R-squared | 0.431 | | 0.560 | | 0.431 | | 0.561 | |
| Root MSE | 0.331 | | 0.305 | | 0.331 | | 0.305 | |

Note. See table X

**Tab. 6. Blinder-Oaxaca decomposition. Raw, unadjusted and adjusted by IMRs wage gap. Supervisory and not supervisory positions**

| | Not Supervisory | | | Supervisory | | |
|---|---|---|---|---|---|---|
| | **exp(b)** | **P>\|z\|** | **%** | **exp(b)** | **P>\|z\|** | **%** |
| | | | **Raw** | | | |
| Males | 10.767 | | | 15.918 | | |
| Females | 8.858 | | | 12.176 | | |
| Difference | 1.909 | *0.000* | 17.7% | 3.742 | *0.000* | 23.5% |
| | | | **Unadjusted** | | | |
| Males | 10.097 | *0.000* | | 14.652 | *0.000* | |
| Females | 8.093 | *0.000* | | 11.205 | *0.000* | |
| Difference: | 2.004 | *0.000* | 19.8% | 3.446 | *0.000* | 23.5% |
| Endowments | 1.047 | *0.000* | 20.9% | 1.062 | *0.148* | 22.5% |
| Coefficients | 1.135 | *0.000* | 57.2% | 1.223 | *0.000* | 75.2% |
| Interaction | 1.050 | *0.000* | 21.9% | 1.006 | *0.881* | 2.3% |
| Endowments of which | | | | | | |
| ISCED 3 & 4 | 0.989 | *0.000* | -24.3% | 0.998 | *0.585* | -2.6% |
| ISCED 5 | 0.983 | *0.000* | -36.8% | 0.981 | *0.000* | -31.9% |
| Exp | 1.041 | *0.000* | 87.1% | 1.053 | *0.000* | 84.9% |
| | | | **Adjusted** | | | |
| Males | 8.783 | *0.000* | | 17.128 | *0.000* | |
| Females | 6.304 | *0.000* | | 14.447 | *0.000* | |
| Difference: | 2.479 | *0.000* | 28.2% | 2.681 | *0.315* | 15.7% |
| Endowments | 1.054 | *0.000* | 15.9% | 1.066 | *0.122* | 37.7% |
| Coefficients | 1.257 | *0.002* | 69.0% | 1.106 | *0.551* | 59.0% |
| Interaction | 1.051 | *0.000* | 15.1% | 1.006 | *0.894* | 3.3% |
| Endowments of which | | | | | | |
| ISCED 3 & 4 | 0.990 | *0.000* | -18.5% | 0.999 | *0.586* | -2.1% |
| ISCED 5 | 0.987 | *0.000* | -24.1% | 0.985 | *0.002* | -24.2% |
| Exp | 1.042 | *0.000* | 77.8% | 1.051 | *0.000* | 76.8% |
| N. Obs. | 9540 | | | 3152 | | |
| Males | 4914 | | | 2125 | | |
| Females | 4626 | | | 1027 | | |

Coefficients are obtained throught "Oaxaca eform": the "Oaxaca" coefficients can be obtained by taking the ln
Relative percentages for endowments, coefficients, interaction, ISCED 3 & 4, ISCED 5 and exp refer to coefficients in "Oaxaca".
Gender wage gap is calcultated as (hourly male wage - hourly female wage)/ hourly male wage

**Fig. 2a. Gender wage gap for not supervisory positions: unadjusted and adjusted**

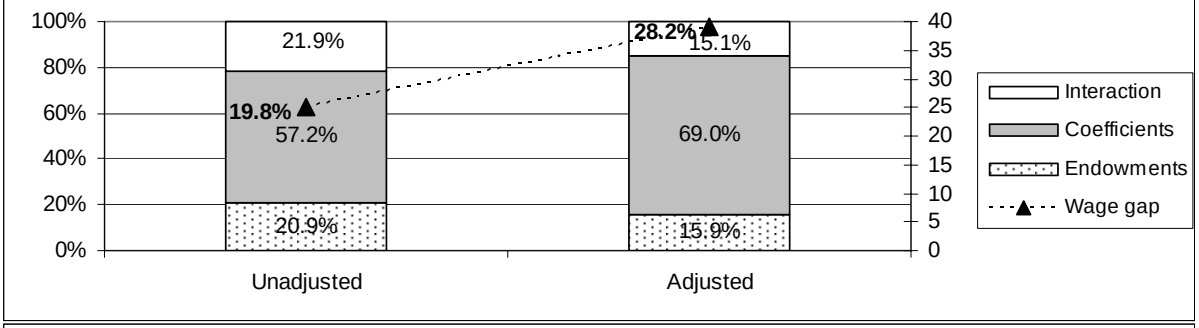
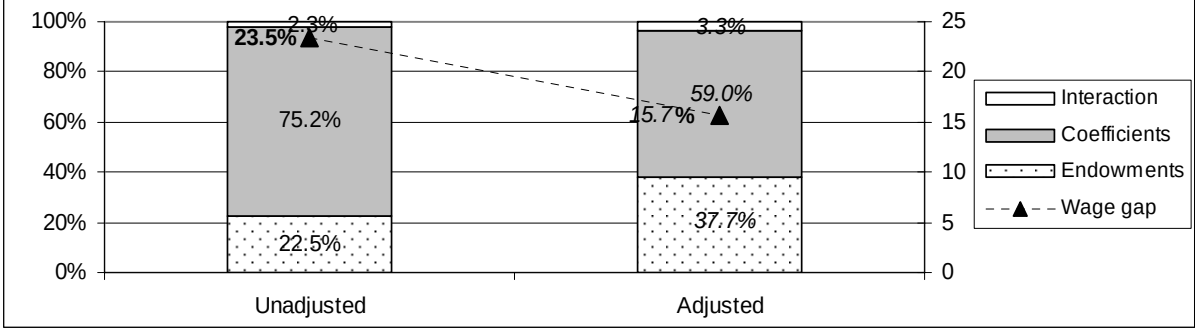



**Fig. 2b. Gender wage gap for supervisory positions: unadjusted and adjusted**




Note. Un-significant values in italics.