Gender Pay Gap and Typically Female Jobs(*)

Differenziale salariale di genere e lavori tipicamente femminili

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1. Gender wage discrimination and selectivity process

The Oaxaca decomposition procedure (Oaxaca, 1973) decomposes the observed wage gap between two different components by the expression:

\[ \log w_M - \log w_F = (\bar{X}'_M - \bar{X}'_F)\beta_M + \bar{X}'_F(\beta_M - \beta_F) \]

where \( w \) is the hourly wage, \( X \) are vectors of explanatory variables and \( \beta \) are vectors of estimated coefficients obtained by separated OLS regressions for males (index \( M \)) and females (index \( F \)); the bar over a variable indicates its average value over the sample. The first term shows the part of the wage gap that can be ascribed to average differences in individual characteristics between both groups. The second component accounts for the part that can be attributed to differences in the valuation of the characteristics between the groups and can be interpreted as an approximation of wage discrimination. This decomposition method doesn’t account for possible biases arising from two basic individuals’ decisions: the decision to work and the choice of occupation. The first one could create a problem of sample selection bias, whereas the second one could generate an endogeneity bias. In modeling the decision whether or not to work we account for the possibility that individuals with a paid job may be a non-random subsample of the individuals in the original sample. As the origin of the selection could be related to earnings, one needs to explicitly consider this process in the estimation of the wage equation. Moreover, it is important to control for the endogeneity of occupation as there are reasons to believe that unobserved individual characteristics may not only influence the worker’s decision about which job to take, but they may also affect earnings. Part of the wage gap is due to the crowding of females in particular occupations, and we have to consider that this segregation is, at least in part, fruit of individuals’ decisions: women and men could have different preferences regarding job characteristics, with males generally placing greater emphasis on earnings in respect of females that tend more often to reconcile job time with family commitments; individuals self-select into different occupations and this self-selection may affect their earnings. To account for the selectivity process we employ, for females, a bivariate selectivity model (Sorensen, 1989) that consists of two simultaneous equations, one for the binary choice to work or not, and another for the binary outcome, “Typically female job”\textsuperscript{1} (\( T=1 \)) or “Other job” (\( T=0 \)), through a bivariate probit with selection. The vector of parameters’ estimates are

\textsuperscript{(*)} The data used for the analysis are the ones of the survey “Differenziali salariali di genere”, Isfol, 2007.

\textsuperscript{1} A predominately female occupation is defined as any category, obtained by interaction of 13 ISCO and 27 ATECO categories, where the female share is at least 58\% by the use of Labour Force Survey (ISTAT). The percentage is obtained by the total female share (about 39\%) multiplied for 1.5.
then used to construct a selection bias control factor, \( \lambda \), equivalent to the Inverse Mill’s ratio, to account for the selection bias (Heckman, 1979) and an Instrumental Variable estimate (the predicted value of being employed in a typically female job, \( T^* \)) to account for the endogeneity of type of job. Finally, these selection variables are included in the female wage equation, to be estimated using OLS. Assuming that non-casual selection in occupation regards only women (Addabbo and Favaro, 2007), for the subgroup of males only the Instrumental Variable estimate accounting for endogeneity of type of job is calculated by a single probit model. Expression (1) becomes:

\[
\log \bar{w}_F - \log \bar{w}_M = (\bar{X}'_M - \bar{X}'_F)\beta_M + \bar{X}'_F(\beta_M - \beta_F) - \theta_F \lambda_F
\]

where in \( X \) the variable \( T \) has been replaced by \( T^* \), and the third term accounts for the selection bias in occupation. In Table 1 are reported the results obtained by the Oaxaca Decomposition accounting and not accounting for the selectivity process.

**Table 1:** Pay gap (%) accounting or not accounting for selection and endogeneity bias

<table>
<thead>
<tr>
<th></th>
<th>Hourly pay gap</th>
<th>Due to characteristics</th>
<th>Due to discrimination</th>
<th>Due to selection in occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not accounting</td>
<td>8.75</td>
<td>-6.66</td>
<td>15.41</td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>8.75</td>
<td>-2.06</td>
<td>11.43</td>
<td>-0.62</td>
</tr>
</tbody>
</table>

2. Conclusions

The existence of significant gender pay gap, observed in our data in 8.8%, is a recurrent result of labour market studies, and it is partly due to the female segregation in particular occupations, with women crowded in “women’s works”. Ones that we account for the fact that this segregation is, at least in part, due to individuals’ choices, due to the fact that women and men could have different preferences regarding job attributes, and that women can also choose between participation or not in the labour market, we observe a significant decrease in the discrimination component, defined as the hourly pay gap due to differences in factor remuneration between males and females, from 15.4% to 11.4%, and this result is almost totally due to the endogeneity of the type of occupation.

References


