Decomposing Gender Wage Gaps across the Distribution in Europe: Including Allowance for Sample Selection Adjustment


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Outline

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  6) Log wage gap between full-time men’s wages and the wages that women would earn if they had men’s characteristics and women’s (selection adjusted) returns

• Findings
Research aims

• Investigate the gender wage gaps in log hourly earnings across the distribution amongst full-time employees in a sample of European countries, with and without allowance for possible selection by women into full-time work.

• Evaluate the extent to which the gender wage gaps are due to the differences in characteristics and the extent to which they are due to the differences in returns to these characteristics.

• Compare the patterns and determinants of the gender wage gaps across different EU member states, using harmonised data.
Data

• EU-SILC 2006 Cross-Sectional

Sample
  – UK, Germany, Finland, Hungary
    • Large enough sample size, valid observations on variables of interest, different ‘welfare regimes’
  – Individuals aged 25-55
  – All women and full-time working men
  – Excluding:
    • Self-employed
    • Those in full-time education
    • Those working more than 75 hours a week
    • Those earning less than €1/hour or more than €400/hour (gross)
    • Those with missing observations on key variables
  – % of female employees working part-time (1-29 hrs/week):
    • UK: 38%
    • Germany: 48%
    • Finland: 7%
    • Hungary: 4%
Variables

- **Wage regressions**
  - Log hourly gross wage:
    - (gross monthly earnings for employees*12/52)/number of hours usually worked per week in main job: UK, HU
    - (gross employee cash or near cash income/52)/number of hours usually worked per week in main job: DE, FI
  - Highest ISCED level attained
  - Years of potential work experience (quadratic): year of the personal interview minus year when highest level of education was attained
  - Marital status
  - Born outside the EU-25
  - Occupation (8 ISCO categories)
  - Economic activity (11 NACE categories)
  - Managerial position
  - Size of workplace (11 employees or more)
  - Permanent contract

- **Sample selection estimation (women)**
  - Age
  - Years of potential experience (quadratic)
  - Highest ISCED level attained
  - Marital status
  - Number of children under 16 in the household
  - Born outside the EU-25
  - General health status
Methodology

• Quantile regression (Koenker & Bassett, 1978)
  \[ w_{im} = x_{im}'\beta_{\theta m} + u_{\theta im} \quad \text{with} \quad \text{Quant}_\theta(w_{im} \mid x_{im}) = x_{im}'\beta_{\theta m} \quad i=(1,\ldots,n) \quad (1) \]
  \[ w_{if} = x_{if}'\beta_{\theta f} + u_{\theta if} \quad \text{with} \quad \text{Quant}_\theta(w_{if} \mid x_{if}) = x_{if}'\beta_{\theta f} \quad i=(1,\ldots,n) \quad (2) \]

• Wage gap decomposition (Machado & Mata, 2005)
  – Portion of the gap due to the differences in characteristics and the portion due to the differences in returns

• Simulating selection-corrected distribution of women’s wages to correct for sample selection into full-time work by women (Albrecht et al, 2007)
  \[ w_{iff} = x_{iff}'\beta_{\theta ff} + h_\theta(z_{iff}'\gamma) + u_{\theta iff} \quad \text{with} \quad \text{Quant}_\theta(w_{iff} \mid z_{iff}=x_{iff}) = x_{iff}'\beta_{\theta ff} + h_\theta(z_{iff}'\gamma) \quad (3) \]
Raw gender wage gaps for full-time employees

<table>
<thead>
<tr>
<th>Males (%)</th>
<th>Mean</th>
<th>10th Percentile</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
<th>90th Percentile</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>58.67</td>
<td>0.19 (0.02)</td>
<td>0.15 (0.03)</td>
<td>0.19 (0.03)</td>
<td>0.18 (0.03)</td>
<td>0.28 (0.03)</td>
<td>3,698</td>
</tr>
<tr>
<td>Germany</td>
<td>67.65</td>
<td>0.17 (0.01)</td>
<td>0.15 (0.03)</td>
<td>0.14 (0.02)</td>
<td>0.15 (0.02)</td>
<td>0.19 (0.02)</td>
<td>5,915</td>
</tr>
<tr>
<td>Finland</td>
<td>52.03</td>
<td>0.21 (0.01)</td>
<td>0.25 (0.04)</td>
<td>0.18 (0.01)</td>
<td>0.26 (0.02)</td>
<td>0.29 (0.02)</td>
<td>5,731</td>
</tr>
<tr>
<td>Hungary</td>
<td>50.22</td>
<td>0.11 (0.02)</td>
<td>0.00 (0.00)</td>
<td>0.11 (0.03)</td>
<td>0.13 (0.04)</td>
<td>0.19 (0.04)</td>
<td>4,472</td>
</tr>
</tbody>
</table>

Source: EU-SILC Cross-Sectional 2006. Personal cross-sectional weights used
Differences in wage distributions: UK

Full time employees

All employees
Differences in wage distributions: Germany

Full time employees

All employees
Differences in wage distributions: Finland

Full time employees

All employees
Differences in wage distributions: Hungary

Full time employees

All employees
Unadjusted wage gap across distribution: UK

Graph showing the log wage gap across quantiles.
Unadjusted wage gap across distribution: Germany

![Graph showing unadjusted wage gap across distribution in Germany.]
Unadjusted wage gap across distribution: Finland
Unadjusted wage gap across distribution: Hungary
1) Log wage gap between full-time men and women with male characteristics: UK
1) Log wage gap between full-time men and women with male characteristics: Germany
1) Log wage gap between full-time men and women with male characteristics: Finland
1) Log wage gap between full-time men and women with male characteristics: Hungary
2) Log wage gap between full time men and full time women paid like men: UK
2) Log wage gap between full time men and full time women paid like men: Germany
2) Log wage gap between full time men and full time women paid like men: Finland
2) Log wage gap between full time men and full time women paid like men: Hungary
3) Log wage gap between full-time women before and after allowing for sample selection: UK
3) Log wage gap between full-time women before and after allowing for sample selection: Germany
3) Log wage gap between full-time women before and after allowing for sample selection: Finland
3) Log wage gap between full-time women before and after allowing for sample selection: Hungary
4) Log wage gap between full-time men and full-time women corrected for sample selection: UK
4) Log wage gap between full-time men and full-time women corrected for sample selection: Germany
4) Log wage gap between full-time men and full-time women corrected for sample selection: Finland
4) Log wage gap between full-time men and full-time women corrected for sample selection: Hungary
5) Sample selection based on observed and unobserved characteristics: UK

Observed

Unobserved
5) Sample selection based on observed and unobserved characteristics: Germany

Observed

Unobserved
5) Sample selection based on observed and unobserved characteristics: Finland

Observed

Unobserved
5) Sample selection based on observed and unobserved characteristics: Hungary
6) Log wage gap between full-time men’s wages and the wages that women would earn if they had men’s characteristics and women’s (selection adjusted) returns: UK
6) Log wage gap between full-time men’s wages and the wages that women would earn if they had men’s characteristics and women’s (selection adjusted) returns: Germany
6) Log wage gap between full-time men’s wages and the wages that women would earn if they had men’s characteristics and women’s (selection adjusted) returns: Finland
6) Log wage gap between full-time men’s wages and the wages that women would earn if they had men’s characteristics and women’s (selection adjusted) returns: Hungary
Findings

• **UK**
  – Lower earning women have characteristics that compensate them for some of the gender differences in returns, while it is the reverse for higher earning women.
  – If women had the same returns to their characteristics as men, wage gaps would all but disappear.
  – There is evidence of negative sample selection by women at the lower end of the distribution and positive selection at the top end.
  – Gender wage gaps would be somewhat lower at the bottom of the distribution (than currently observed) and larger at the top of the distribution IF all women worked full-time

• **Germany**
  – Lower earning women have characteristics that compensate them for some of the gender differences in returns, while it is the reverse for higher earning women.
  – If women had the same returns to their characteristics as men, wage gaps would disappear for all but the highest earners (80th percentile and above).
  – There is evidence of negative sample selection by women, particularly at the bottom of the distribution.
  – Gender wage gaps would be lower at the bottom of the distribution (than currently observed) IF all women worked full-time.

• **Finland**
  – Gender wage gaps would be lower across the entire distribution if women had the same characteristics as men.
  – If women had the same returns to their characteristics as men, wage gaps would disappear for those in the lower half of the distribution and become lower than currently observed for the rest.
  – There is some evidence of negative sample selection by women in the lowest three deciles of the distribution, i.e. women who work full-time have worse characteristics than women overall.
  – Gender wage gaps would be lower at the bottom half of the distribution IF all women worked full-time.

• **Hungary**
  – Women in the lower half of the distribution have characteristics that compensate them for some of the gender differences in returns.
  – If women had the same returns to their characteristics as men, wage gaps would disappear at the lower and upper ends of the distribution and become negative (in women’s favour) in the middle of the distribution.
  – There is evidence of negative sample selection by women between the 30th and 40th quantiles and positive selection from the 80th quantile onwards.
  – Gender wage gaps would be lower at the bottom of the distribution and higher at the very top of the distribution IF all women worked full-time.
Works cited


Thank you.