GENDER PAY GAP. EXPLORING EVIDENCE FROM RECENT GRADUATES

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Abstract

Using data of Employment Graduates Survey from Quality Agency of the University System of Catalonia (AQU) (surveys, 2008, 2011 and 2014), the purpose of this paper is to provide an empirical evidence of the existence of gender pay gap in the starting salaries of recent graduates. We find that women's wages are lower compared to men's in this starting period. Our results also reveal a gender pay gap between feminized and masculine fields of study and, consequently, that could be suggested that wages are negatively related to the percentage of female in each field of study. Furthermore, the gender gap exists even if it is analyzed homogeneous group of high skilled workers (analysis by field of study). Our findings also evidence that the less favorable wage rate of feminized fields persists in the three surveys analyzed.

Keywords: Gender pay gap, higher education, university graduates, fields of study.

1 INTRODUCTION

Over recent decades, the expansion in tertiary education has been significant (see [1], [2], [3]). On average across OECD countries, 35% of 25-64 year-olds are tertiary educated in front 42% of 25-34 year-olds. Furthermore, some additional trends have been observed:

a) Women have increased their labor force participation as well as their educational investments. In 2014, an average of 57% of first-time graduates from tertiary education are women in OECD countries were women ([4], [3]).

b) The increase in women’s employment rates and women’s educational rates do not translate into equality for employment status.

c) Gender wage gap is an important social and economic problem in modern economies. Over the last decades, legislations have been enacted to limitate discrimination against women. Nevertheless, even today women earn less than men.

Focusing on that aspects, many scholars point to education remain sex segregated by fields of study, women are underrepresented in science, math and engineering and overrepresented in health, education and humanities. These results are partially explained by gender differences in young people’s attitudes and aspirations and it is often their linked with structural gender imbalance in the labour market (e.g. [5], [6], [7], [3]). For example, the Programme for International Student Assessment (PISA) of IECD showed that 15-year-old girls have higher expectations for their careers than boys but, on average, fewer than 5% of girls of that age wanted to do a career in engineering (see [3]). According on this view, academic disciplines of study could be considered a sex segregation system. Earning advantages are associated, for example, with the studies of engineering, science, computing, math, business and law. On average, workers who studied in these fields earn about 10% higher than the average of tertiary educated earners. Earning workers with education in health and welfare are close to the average earnings while earnings of graduated in education or humanities are about 15% lower than the average earning. The differences in employment rates share the same pattern [3].

The aim of this paper is to study the relationship between gender and wage level of university graduates. We also introduce the relative importance of the field of study, the assigned salary in relation to the associated skills to each field and to the proportion of women.

The paper is organized as follows. The next section reviews literature on pay gap, gender and higher education. Section 3 describes the methodology and the data used in the study. In section 4, we describe empirical results. Finally, some discussion is presented for debate.

2 EDUCATION, LABOR MARKET AND GENDER VALUATIVE DISCRIMINATION. SOME OBSERVATIONS

Some studies can be found that explore gender inequalities at the transition from higher education to labour market (see [3]). Some of them, closed that Human Capital theory, suggest that inequalities are result of an origin-specific assessment of benefits and costs associated with the education options as well as probabilities to enter to favourable labour market positions and to get economic success. This is, these rational choice models of educational inequality hypothesize that individuals are forward-looking decisionmakers who engage in a cost-benefit calculus when take their educational options ([8], [9]).

According to this point of view, a significative part of gaps could be explained by different individual endowments (e.g. [10], [11], [12], [13], [14], [15]). The studies argue the women rationally anticipate future employment interruptions (due to maternity and to attend their family) and that led them a disadvantage in the accumulation of specific human capital. As a consequence, they sort themselves into market segments which require less specific skills and, therefore, less investment in human capital. Consequently, have less expected returns (wages) ([16], [17], [18], [19], [20], [14], [21]).

Thus, the theory offers a rational analysis to explain he link between sex composition and labour conditions and, as a result, assumes neither direct nor valuative forms of discrimination. Its legitimacy, less politically and socially contested, is based on the self-expression preferences and the conception of education as a strictly economic investment. Nevertheless, this theoretical arguments are not gender-free, perceptions of young boys and girls are primarily shaped by gender-role socialization, that is, they do not consider the enduring cultural force of gender-essentialist ideology in promoting gender-differentiated aspirations (female and male labeled options) and the consequent pressures associated with women curricular choice process.

Others researches considerer the choice of occupation is not gender neutral since it is derived from the cultural gendered roles sorting, strongly embebed from men’s socialization patterns [4]. Educational and occupational positions are perceived to be intrinsically masculine or feminine and these beliefs result in gender-differentiated dispositions and expectations.

From this perspective, it has been suggested some theories, both derived of a self-selection process occupational.

One of them, the Crowding hypothesis, suggests that women preferences are restricted to limited number of occupation and, therefore, there is an oversupply of labor in these economic sectors with negative effects over salaries [22]. A different argument is made in the Devaluation hypothesis, which claims that pay gap is due to a cultural devaluation of women’s work ([23], [24], [25]).

In summary, these theories, closer to a sociological approach, widely relied the importance of gender role socialization mechanisms [26], the wages differentiation is consequence of a complex process that let to internalize and enact the socially constructed gender roles. That would lead women to choose feminized fields closer, for example, to care works, health, education and cultural fields. This hypothesis relates educational stratification with the self-choice cultural process and preferences.

Many studies also show that feminized and masculinized fields of study differ in terms of reputation and labour market outcomes such as income, employment rates and social status, more favourable to men ([27], [28]). In that sense, the association between field of studies and sex composition could be interpreted as a horizontal segregation process, which places women in a more devaluation socioeconomic situation than men ([5], [6], [29]).
From this point of view is rejected the economic analysis of Human Capital theory and it is introduced
the social resources influence, such a cultural capital. The negative association between female
occupations and labour conditions is linked with the traditional gender roles where women assume
responsibility for childcare and Housework conditioning their educational and professional investment
and, therefore, their promotion prospects. In other words, values socialized and internalized at the
individual level lead to sex segregation across fields of study and professional occupations and “may
imply construction and expression of gendered selves” [6, p. 930].

3 DATA AND METHOD

Empirical analysis has been based on databases from the four AQU Catalonia Surveys on Graduate
Labour Market Outcomes carried in 2004, 2008 and 2011. A population of more of 25,000 graduates
has been analyzed, resulting in a female share about 62 percent. Table 1 summarizes these figures.

<table>
<thead>
<tr>
<th>COHORT</th>
<th>SURVEY-PUBLICATION</th>
<th>POPULATION</th>
<th>SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-2005</td>
<td>2008</td>
<td>24169</td>
<td>8868</td>
</tr>
<tr>
<td>2007-2008</td>
<td>2011</td>
<td>28616</td>
<td>10183</td>
</tr>
<tr>
<td>2010-2011</td>
<td>2014</td>
<td>31279</td>
<td>10902</td>
</tr>
</tbody>
</table>


The survey contains questions regarding the graduates’ socio-demographic factors (gender, ages),
their fields of study, the transition from university to labor market (waiting period till labor market entry,
application forms) and their current employment situation (age, working time, job specification,
industry).

The data set for this study focuses the information on homogeneous groups (Catalonia University
Graduates) of entrant into Catalonia labor market. Nevertheless, men and women differ highly
regarding their occupational preferences and, as result, in their field of study. For this reason, we
discompose the data by fields of study to try to eliminate gender disparity in the choice. Then we
compare the wages earned by women with those comparable with men, in general and by each field.

The field of study has been defined according to the classification of AQU, which establishes seven
different areas of degree studies: Arts and Humanities, Philology, Education, Social Science, Natural
Science, Heath, and Technical degrees.

Statistical analyses give us three types of degrees: masculinized, feminized and mixed. The allocation
for each category has been made by a contrast ratio of a single queue. Whether or not the sampling
rate for each sub-area is superior to the overall proportion (59.1% of women versus 40.9% of men) is
tested, so if the value of the Z statistic is greater than the value in the tables, 95% is interpreted as the
proportion of women which is greater than the population proportion; so the margin of error is 5%,
which determines the feminized degrees. Otherwise it will be classified as a masculinized degree. In
terms of the mixed category, we have assigned degrees or areas similar to the general proportion.

This has led to the following types:

- Feminized degrees. This includes related degree of Philology, Arts and Humanities, Education
  and Health.
- Masculinized degrees: This includes qualifications assigned to the areas of natural science and
  Technical degrees.
- Mixed degrees: This includes qualifications related to the areas of social science.

Descriptive techniques are used to examine gender wage gap among graduates and fields of study.
Contingency tables have been constructed in order to examine this differential.
4 RESULTS

Figure 1 and Table 2 show different features in gender differences. As Figure 1 shows, differences in average wages between men and women increased between 2008 and 2014, despite the fact that average wages fell during the period, especially during the period when the economic crisis was deeper: 2011 to 2014. Indeed, taking as a reference the average total salary, while female average salaries fell from 90.17% of average total salary in 2008 to 90.37% in 2014, male average salaries risen from 109.65% in 2008 to 115.23% in 2014. Thus, salary average differences among sexes, that is, gender salary gap, risen from 15.48 points in 2008 to 24.88 points in 2014.

![Figure 1. Salaries from 2008 to 2014.](image)

Source: Own elaboration based on AQU - Catalonia 2008, 2011 and 2014 surveys.

Furthermore, gender differences are related to the degree fields of studies, as Table 2 shows. Indeed, salary differences appear among every degree, having technical degrees higher salaries and humanities lower ones. Besides, there are gender salary differences among sexes in every type of degrees, too. Male salaries are in every case higher than female ones. The maximum salary gap is between male technical graduates, with average salary of 1966.27 euros, and women humanities graduates, with an average salary of 1065.76 euros. The salary difference in these cases amounts to 60.65%.

**Table 2.** Salary by fields of study and sex, 2014.

<table>
<thead>
<tr>
<th>FIELDS OF STUDY</th>
<th>AVERAGE</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1065.75</td>
<td>519.39</td>
<td>320</td>
</tr>
<tr>
<td>Men</td>
<td>1138.55</td>
<td>572.24</td>
<td>206</td>
</tr>
<tr>
<td>Total</td>
<td>1094.26</td>
<td>541.34</td>
<td>526</td>
</tr>
<tr>
<td>Philology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1165.17</td>
<td>524.81</td>
<td>307</td>
</tr>
<tr>
<td>Men</td>
<td>1288.65</td>
<td>650.08</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>1187.83</td>
<td>551.06</td>
<td>376</td>
</tr>
<tr>
<td>Social Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman</td>
<td>1495.56</td>
<td>686.13</td>
<td>1475</td>
</tr>
<tr>
<td>Men</td>
<td>1749.57</td>
<td>840.28</td>
<td>881</td>
</tr>
<tr>
<td>Total</td>
<td>1590.55</td>
<td>757.37</td>
<td>2356</td>
</tr>
<tr>
<td>Field of Study</td>
<td>Women</td>
<td>Men</td>
<td>Total</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1159,9</td>
<td>579,3</td>
<td>2329</td>
</tr>
<tr>
<td>Men</td>
<td>1315,5</td>
<td>589,8</td>
<td>585</td>
</tr>
<tr>
<td>Total</td>
<td>1191,1</td>
<td>507,1</td>
<td>2914</td>
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<tr>
<td>Natural Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>1354,7</td>
<td>630,3</td>
<td>558</td>
</tr>
<tr>
<td>Men</td>
<td>1435,1</td>
<td>647,0</td>
<td>351</td>
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<tr>
<td>Total</td>
<td>1385,8</td>
<td>637,2</td>
<td>909</td>
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<tr>
<td>Health</td>
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<tr>
<td>Women</td>
<td>1478,2</td>
<td>683,9</td>
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<td>Men</td>
<td>1640,2</td>
<td>878,2</td>
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<tr>
<td>Total</td>
<td>1514,1</td>
<td>734,2</td>
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<tr>
<td>Technical degrees</td>
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<tr>
<td>Women</td>
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<td>760,5</td>
<td>566</td>
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<tr>
<td>Men</td>
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<td>808,0</td>
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<tr>
<td>Total</td>
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<td>Total</td>
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<td></td>
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<tr>
<td>Women</td>
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<tr>
<td>Men</td>
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<td>Total</td>
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</tr>
</tbody>
</table>

Source: Own elaboration based on AQU- Catalonia 2014 survey.

5 CONCLUSIONS

Using data set of AQU Catalonia surveys graduates; we have studied the gender differences in wages of entry graduates into the labour market. We find that women’s salaries are lower than men’s salaries. Our results also reveal a gender gap in earnings for homogeneous groups. Wages are negatively related to the percentage of female in the field of study. The gender differential, on average, range from 6.3% to 15.8% depending of the field of study (see Table 2). Furthermore, the gender gap exists if we analyzed different surveys (2008, 2011, and 2014). We also find evidences that the less favorable wage rate of feminized fields persists in the three surveys analyzed.

These results are consistent with the existing in empirical literature. Some explanations of this gender gap might be the reflection of the outcome of discriminatory social processes in relation of gender. The concentration of women in the lower earnings range is not independent of the fields of study choice, in great average, by women and that could be the result of a complex social process about the women labour preferences and the themselves choice processes, strongly conditioned of gender role socialization mechanism.

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REFERENCES


