

# On the unexplained causes of the gender gap in the labour market

Gender gap in  
the labour  
market

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## Abstract

**Purpose** – This paper investigates the causes of the gender gap in the labour market that cannot be explained by classical human capital theory.

**Design/methodology/approach** – To this end, the authors integrate the Gender Gap in the Labour Market Index (GGLMI), a composite index developed in previous research, with further information on some social aspects that could affect the female work commitment, directly or indirectly. In particular, the authors want to verify if family care and home duties, still strongly unbalanced against women, and the welfare system play a significant role in the gender gap.

**Findings** – Results highlight a very complex scenario, characterized by the persistence of gender inequalities everywhere, even if at different degrees, with very strong imbalances in the time spent at work in response to the family commitments.

**Research limitations/implications** – The actual determinants of gender disparities in the labour market are very difficult to identify because of the lack of adequate data and the difficulties in measuring some factors determining female behaviour. The additional information used in this research can only partially accomplish this task.

**Originality/value** – However, for the first time, this paper uses information on different aspects and causes of the gender gap, including proxies of mainly unobservable aspects, in order to achieve at least partial measurement of this phenomenon.

**Keywords** Gender gap, Inequality, Labour market

**Paper type** Research paper

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## 1. Introduction

Gender is a primary marker of social and economic stratification and, consequently, of exclusion. Promoting gender equality is a priority challenge for politicians, sociologists and economists, because it impacts significantly and positively on individuals' well-being and on the economic growth of each country (International Monetary Fund, 2013). In the sphere of the labour market, economists have identified gender equality as “smart economics”, and the European Union (EU) assigns it a central role in all activities, recognizing that achieving the goal of 75% of 20–64-year-olds being employed by 2020 depends crucially on bringing more women into the workforce (Bettio *et al.*, 2013). Indeed, in European countries, the levels of female participation in the labour market are still far from the Lisbon target of women's employment rates at 60% for 2010. Even for working women, the disparities in terms of segregation, in wages and in career progression are evident and tend to increase over their working lives and in correspondence with childbirth (Tyrowicz *et al.*, 2015; Bronson and Thoursie, 2017).

In recent years, increasing awareness of the importance of reducing the gender gap in the labour market has stimulated several studies to identify its determinants (Becker, 1985; Miller, 1987; Farrell, 2004; European Commission, 2011; Thomson, 2012). As regards the gender wage gap, in particular, many of these studies tried to explain it starting from the observable personal



characteristics of female and male employees, according to human capital theory (Mincer, 1962; Becker, 1985). However, usually, human capital characteristics allow understanding of only a small part of the gender wage gap. The remaining unexplained part is due to factors not easy to observe, mainly linked to socio-cultural factors related to consolidated gender stereotypes, which affect the behaviour of economic agents in the labour market and the valorization reserved for female work. For this reason, it is often identified as a discriminatory component. Recently, the explained part of the gender wage gap decreased almost everywhere, because more and more women accessed the labour market and higher education (Blau and Kahn, 2007, 2016). Conversely, its unexplained part increased (Razzu, 2014), and, surprisingly, it happened especially in countries with a smaller gender wage gap (Quintano *et al.*, 2013; Boll *et al.*, 2016).

In a previous study, the authors analysed the gender gap in the labour market of 26 European countries (Castellano and Rocca 2014), using indicators measuring the outcomes reached by employees in education, labour market participation and quality of their work. These indicators have been synthesized in a composite indicator, the Gender Gap in the Labour Market Index (GGLMI), the first index exclusively designed for the labour market. The results highlighted the existence of very complex scenarios, but the variables used in its construction were only partially able to capture the causes. The authors' main research question is whether other factors related to family commitments – and the corresponding choices taken by women in order to reconcile work and family needs – and to welfare measures play a crucial role in determining outcomes in the labour market. Therefore, in this paper, the authors increase their previous index's informative content, including factors measuring at least indirectly some of the unobservable aspects that they assume mainly contribute to the different outcomes. The new index is called the Economic and Social Gender Gap in the Labour Market Index (ESGGLMI). For the first time, evaluation and comparison of the gender gap in the labour markets of EU countries is based on a wide spectrum of information, which includes data estimating some unobservable factors. Furthermore, in order to verify the assumption that this additional information is strictly connected to the unexplained share of the gender gap, the relationship between it and the unexplained share of the gender wage gap will be empirically verified.

This work contributes to the existing line of studies on the determinants of the gender gap still not adequately investigated, suggesting more appropriate actions in order to remove inequalities due only to gender. The remainder of this paper is as follows. In Section 2, a brief overview of literature is provided; Section 3 describes the framework of gender inequality in European labour markets. Section 4 shows the data and methodology used for analysis; Section 5 introduces the results and Section 6 concludes.

## 2. A brief literature review

In literature, there are many examples of investigation on the causes of the gender gap in the labour market (Castellano and Rocca, 2019; Meara *et al.*, 2020). Most of them distinguish between observable and unobservable causes (Razzu, 2014). Mainly, the observable causes refer to levels of female participation in the labour market, gender segregation and personal human capital characteristics. The interaction among these causes produce different effects; for example, for the UK, Keane *et al.* (2017) found evidence of an increase in gender segregation in response to the increase in female activity. The remaining causes of gender inequality are difficult to measure and, for this reason, are often identified as discrimination, even if not all of them are due to discrimination. Among them, part-time work, caring responsibilities, low valuation of women's work and some structural and institutional factors are the most significant. It is important to analyse part-time work's qualitative aspects, because, even if it allows women to reconcile work and family life better, it is often associated with poor wages and benefits, asocial or excessively flexible hours, low job tenure, absence of training and few prospects for promotion (Smeaton *et al.*, 2014). Caring responsibilities are still strongly unequal,

to women's disadvantage, with strong repercussions on the gender gap; anyway, their quantification for inclusion in the analysis is very difficult (Kahn *et al.*, 2014). As for the valuation of women's work, some pioneer studies in the UK have demonstrated that the definition of low-skill jobs is based on stereotypical views rather than on the actual skills required and that women's work is undervalued in comparison to men's work (Chicha, 2006). Finally, among the structural and institutional factors affecting the gender gap, there are flexible working practices, transparency in pay, training and career development, equality proofed pay systems and the minimum wage. Indeed, the array of prices for labour and the monetary returns for skills influence the concentration of women in sectors and professions (Gnesi *et al.*, 2016), while the wage floor or minimum wage tends to reduce the pay gap, because the female wage distribution lies below the male one (Blau and Kahn, 2016).

### 3. The analysis of the conceptual framework

The analysis involves the 27 EU countries in 2010 (with the exclusion of Bulgaria, Malta and Romania), with Norway and Iceland. These countries share some social and economic characteristics required to define the so-called "euro area", but they were very different in the past in the social, economic and cultural spheres, and many differences persist. Recently, their efforts have been addressed, firstly, to joining the EU (the so-called Copenhagen criteria) and, secondly, to getting through the financial and economic crisis. Analysing the labour market and wages from a gender perspective, three different types of labour markets emerge (European Commission, 2009): (1) labour markets with low female employment rates, including Italy, Greece, Poland and Hungary. With the exception of Greece, they show small gender wage gaps, probably because the few working women adapt to a male labour market organization, (2) strongly segregated labour markets of Cyprus, Estonia the Slovak Republic and Finland, where the concentration of women in the less well-remunerated jobs produces a high gender wage gap and (3) labour markets with high shares of women working part-time: comprising Denmark, the United Kingdom, the Netherlands, Austria, Germany and Sweden. In these countries, the lower remuneration and career prospects associated with part-time positions are the main determinants of the high levels of the gender wage gap, but these disadvantages are balanced by very high female participation rates. Anxo *et al.* (2006) reached similar results analysing European countries according to the integration of women in the labour market over the course of their lives, while Axelrad *et al.* (2018) highlighted the different dynamics concerning, in general, younger and older workers (30–44 and 45–59 years, respectively). Since the 80s, the "universal breadwinner" model of Scandinavian countries (in particular of Sweden) has been addressed as a successful way to combine high taxes and lavish welfare systems with fast growth and low unemployment. Also, from a gender perspective, high rates of female participation have proven compatible with high fertility rates (Eitheim and Kuhnle, 2000; Esping-Andersen, 2002; Alestalo *et al.*, 2010). In contrast, Mediterranean countries have the lowest rates of both female participation and fertility (Ferrera, 1996). They share high levels of unemployment and very rigid labour markets and welfare systems unable to support female work adequately (Cipollone *et al.*, 2014). However, among Mediterranean countries, only Italy – together with the Eastern countries of Bulgaria, Estonia and Latvia – also highlights high levels of discouraged workers, without significant gender differences (Eurostat online database). For an adequate analysis of labour market participation, discouraged and involuntary part-time workers have to be considered too, because they determine the potential labour force (Axelrad *et al.*, 2018). This information helps identify the actual exceeding labour offer. Looking at the different age classes, the lower female activity rates for the older one (55–64 years) explain why, for this age class, the unemployment rates are higher for men than for women, almost everywhere (Eurostat online database). In the last years, European countries have been affected very

differently by the global financial and economic crisis, and their responses to it were very different. While for some of them the economic growth did not stop – such as Germany and Poland – others experienced a sharp break – such as Greece. However, the crisis hit the male-dominated economic sectors more severely, decreasing, on the one hand, the gap, but, on the other hand, women in unstable jobs acted as a labour force buffer, easier to dismiss, therefore increasing the gap (Castellano and Rocca, 2016).

## 4. Data and methodology

### 4.1 Data

Data come from different sources. Besides the Eurostat online database (<http://ec.europa.eu/eurostat/data/database/>) and the OECD Gender Data Portal (<http://www.oecd.org/gender/data/>), some indicators have been obtained through ad hoc elaborations on the EU-SILC micro-data, currently the main European source of comparable statistics on living conditions at household and individual levels. The reference is only to employees aged 25–64 and to the year 2010, because for this year, an ad hoc module on the intra-household share of resources was provided.

### 4.2 Methodology for constructing composite indicators

In order to analyse gender disparities in the European labour market with respect to its different and sometimes controversial aspects, the authors used the composite indicator methodology. It is very useful to synthesize into a single index many indicators measuring different aspects of a complex phenomenon. Constructing a synthetic index requires the variables to be combined through a hierarchical structure, firstly into pillars, that are the manifold dimensions defining the complex phenomenon, and secondly into the composite index (OECD, 2008):

$$CI = f[T(x_1), T(x_2), \dots, T(x_c), \dots, T(x_M)] \quad C = 1, \dots, M$$

where  $x_C$  is the  $C_{th}$  vector of simple, observed indicators belonging to the pillar  $C$ ,  $T$  is the transformation function for each pillar and  $f$  is the aggregating function of pillars into the composite indicator.

Briefly, the steps for constructing the composite indicator are (1) developing the theoretical framework, (2) selecting variables, (3) imputing missing data, (4) multivariate analysis, (5) normalizing data, (6) weighting and aggregation, (7) robustness and sensitivity analysis (for major details, Castellano and Rocca, 2014, 2015, 2016 and OECD, 2008; Saisana *et al.*, 2011; Paruolo *et al.*, 2013).

In each step, various alternatives can be chosen. As these choices can affect the results, they have to be clarified, and more than one choice has to be pursued in order to verify their impact and test the robustness of the results.

**4.2.1 The choice of indicators.** The analysis of the factors driving the gender gap in the labour market led to the identification of 5 pillars, for a total of 29 indicators. Table 1 shows the list and some basilar descriptive statistics. In order to compare the female condition in the labour market with the male one, many indicators have been calculated as ratios between female and male values.

The first pillar measures the gap in participation in the labour market and in the conditions in terms of contractual treatment. The second is finalized to quantify the levels of gender segregation into the labour market, that is, the different distribution of men and women across the economic sectors (horizontal segregation) and occupations (vertical segregation). Besides the presence of women at the top of some prestigious professions and as inventors, the levels of horizontal and vertical gender segregation are measured by the size-standardized index of dissimilarity of Gibbs (1965) which favours comparison across countries:

Pillars/indicators	Source	Mean	Std	Min	Max
<i>Pillar 1: Labour market participation and conditions</i>					
1.1 Female unemployment rate/male unemployment rate	(1)	0.99	0.27	0.54	1.63
1.2 Female harmonized unemployment rate/male harmonized unemployment rate, age class 15–24	(1)	0.93	0.17	0.63	1.50
1.3 Female activity rate/male activity rate	(1)	0.86	0.07	0.70	0.95
1.4 Part-time as % of total employed (females/males)	(1)	3.16	1.66	1.38	9.00
1.5 Involuntary part-time as % of total part-time (females/males)	(1)	1.08	0.26	0.62	1.74
1.6 Temporary employees as % of total employees (females/males)	(1)	1.12	0.28	0.52	1.50
1.7 NEETs, age class 15–29 (females/males)	(2)	1.19	0.29	0.67	2.12
<i>Pillar 2: Labour market integration</i>					
2.1 Women in the highest decision-making positions (%)	(1)	13.38	8.44	3.00	38.00
2.2 Women as national parliament members (%)	(1)	26.24	10.90	9.10	46.40
2.3 Size standardized horizontal segregation index (Gibbs, 1965)	(3)	0.35	0.08	0.23	0.51
2.4 Size standardized vertical segregation index (Gibbs, 1965)	(3)	0.72	0.10	0.54	0.90
2.5 % Women inventors	(2)	13.51	4.42	5.90	22.70
<i>Pillar 3: Employment return and discrimination</i>					
3.1 Regression coefficients for experience in a Mincerian regression model (females/males)	(3)	1.13	0.65	0.43	2.90
3.2 Regression coefficients for education in a Mincerian regression model (females/males)	(3)	0.96	0.38	0.51	2.05
3.3 Difference between male and female mean income divided by the male mean income (in logs)	(3)	0.08	0.05	0.01	0.19
3.4 Discrimination part of the wage gap based on the Oaxaca-Blinder decomposition	(3)	1.45	0.67	0.37	2.69
3.5 $dr_0$ inequality index	(3)	0.79	0.18	0.31	0.98
3.6 $dr_2$ inequality index	(3)	0.08	0.05	0.01	0.19
3.7 Years in education (females/males, on average)	(3)	1.05	0.04	0.98	1.17
3.8 Graduated employees, % (females/males)	(3)	1.34	0.29	0.79	1.93
3.9 <i>Earning gender gap in self-employment</i>	(2)	33.89	11.92	11.40	61.60
<i>Pillar 4: Family responsibilities</i>					
4.1 Difference between the employment rates for women with and without children	(4)	11.52	8.59	–2.00	31.60
4.2 Unpaid working time (females/males)	(4)	2.62	0.86	1.17	5.11
4.3 Decision power in the couple: (% “more women” – % “more men”)/mean percentage of “more women” and “more men”	(5)	0.03	0.09	–0.13	0.24
4.4 Proportion of couples in which women contribute economically less than 40%, (% of couples with men main provider + proportion of men sole provider)	(6)	55.20	6.53	43.00	68.00
4.5 Difference between the percentages of women and men who reduced their time at work for children	(6)	23.43	14.88	–0.41	53.07
<i>Pillar 5: Welfare measures related to female work</i>					
5.1 Formal childcare by age group	(4)	76.59	27.72	35.40	141.6
5.2 Length of paid maternal leave in weeks/length of paid paternal leave in weeks	(2)	11.13	15.38	–14.90	50.00
5.3 Neutrality of tax-benefit systems	(7)	–16.15	18.24	–67.60	6.00
<b>Note(s):</b> (1) Eurostat on line database; (2) OECD gender database, <a href="http://www.oecd.org/gender">www.oecd.org/gender</a> ; (3) ad hoc elaborations on EU-SILC data; (4) European Commission, <a href="http://ec.europa.eu/equalpay">http://ec.europa.eu/equalpay</a> ; (5) ad hoc elaboration on the EU SILC special issue data; (6) European Commission (2014); (7) OECD employment database; <sup>(*)</sup> in italics are the indicators not included in the previous GGLMI					

**Table 1.** Pillars and indicators of the ESGGLMI and descriptive statistics<sup>(\*)</sup>. The elaborations on EU-SILC data involve  $N = 267,492$  (weighted) employees aged 25–64 years in 28 European countries (48.7% of men and 51.3% of women)

$$S = \sum_{i=1}^J \left| \left[ \frac{(M_j/T_j)}{\sum_{j=1}^J (M_j/T_j)} \right] - \left[ \frac{(F_j/T_j)}{\sum_{j=1}^J (F_j/T_j)} \right] \right| \frac{1}{2}$$

where  $M_i$  and  $F_i$  are, respectively, the number of males and females working in the  $j^{\text{th}}$  economic sector/professional qualifications and  $T_j = M_j + F_j$ .

The third pillar includes nine indicators which, ideally, can be grouped into 3 subdomains: (1) gender gap in remuneration for employees and self-employees (indicators from 3.1 to 3.3 and 3.9), (2) unexplained components of this gap (indicators from 3.4 to 3.6) and (3) gaps in education (indicators 3.7–3.8). The gap in remuneration for employees is calculated on the basis of extensions of Mincerian regression models estimated separately for men and women (where the logarithm of the hourly gross wage is regressed on job experience, squared experience, child presence, civil status, sets of dummy variables for professional qualifications and the economic activity sectors, health status, supervisor position, degree of urbanization of the residence area, mean number of working hours per week, education level, type of contract and firm size). The gap in the remuneration of experience/education is calculated as the ratio between the regression coefficients of the corresponding covariates. The second subdomain quantifies the share of the wage gap not explicable by personal human capital and job characteristics. Indicator 3.4 is the unexplained share of the gender wage gap based on the [Oaxaca \(1973\)](#) and [Blinder \(1973\)](#) decomposition ([Heckman et al., 2003](#)), which uses the mentioned extensions of Mincerian regression models and splits the gender wage gap into the part due to personal characteristics (expressed by the mean values of the covariates) and the part due to the remuneration of these personal characteristics (regression coefficients). The other two indicators are discrimination indices, normally used in poverty analysis ([Foster et al., 1984](#)), which compare the estimated wages earned by female employees ( $y_{Fi}$ ) with the corresponding theoretical wages obtained under the hypothesis that female characteristics were remunerated to the level of male rewards ( $r_{Fi}$ ):

$$dr_{\alpha}(v_{Fi}) = \left( \frac{1}{n} \right) \sum_{i=1}^{k^*} (v_{Fi})^{\alpha} \text{ where } \left[ v_{Fi} = \left( \frac{r_{Fi} - y_{Fi}}{r_{Fi}} \right) \right], \quad \alpha = 0, 2$$

A higher  $\alpha$ -value attributes a greater weight to the most discriminated against female employees and  $k^*$  stands for the number of female employees discriminated against (for which  $r_{Fi} > y_{Fi}$ ). Therefore, when  $\alpha = 0$ , the index measures the share of discriminated against female employees, and, when  $\alpha = 2$ , the severity of discrimination. The fourth pillar measures the different behaviours of female and male employees in reconciling work and family needs, in the time spent in unpaid work, the gap in their economic contribution to the family income and the decision power of women in a couple. Finally, the fifth pillar includes some aspects of welfare policies affecting women's behaviour at work. They concern the availability of child care services, considering the number of weekly hours provided ("30 h or less" and "more than 30 h") and the segment of children involved ("under 3 years old" and "from 3 years old until compulsory school age") [1]. The second indicator measures the gap in the length of paid parental leave, which has strong beneficial effects for children and should increase the likelihood that a woman will return to her job after childbirth ([Waldfoegel et al., 1999](#)). However, the gap between the leave accorded to mothers and fathers penalizes women, because prolonged leave from work produces a loss in work experience and skill accumulation and makes employers more likely to prefer male employees ([Gupta et al., 2006](#); [Thévenon and Solaz, 2013](#)) [2]. Finally, the third indicator considers the influence of the tax system on the second earner in a couple, which affects the female propensity to work. It is

calculated as the difference in net transfers to government between single-earner and equal dual-earner couple households with the same gross household earnings, as a proportion (percent) of net transfers to government for single-earner couples [3]. While individual taxation incentivizes dual-earner family models, a family-based taxation system can produce adverse incentives for female partners to participate in the paid labour market, especially in countries with progressive tax rates.

*4.2.2 Our methodological choices.* Data treatment and normalization are essential steps in order to allow their synthesis into the pillars. Indicators have been normalized through rescaling and corrected for the different directions, so that higher values mean better for all of them:

$$y_{ij} = \frac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)} \times \text{direction} + 0.5 \times (1 - \text{direction})$$

The synthesis of the indicators into the pillars has been obtained through principal component analysis, retaining all the significant components with eigenvalues higher than one and explaining more than 10% of the total variability (OECD, 2008). Each pillar is calculated as a mean of the factor scores for the significant dimensions ( $I_{qc}$ ), weighted by their share of explained variance, recalibrated so that the sum is one ( $w_{qc}$ ).

$T(X_C) = \sum_{q=1}^Q w_{qc} I_{qc}$  with  $\sum_{q=1}^Q w_{qc} = 1$  and  $0 \leq w_{qc} \leq 1$ , for all  $q = 1, \dots, Q$  and  $C = 1, \dots, M$ , where  $Q$  is the number of the significant components within the pillar  $C$  [4].

Finally, for the synthesis of the pillars into the composite indicator, in order to test the robustness of the results, alternative methods of aggregation were applied:

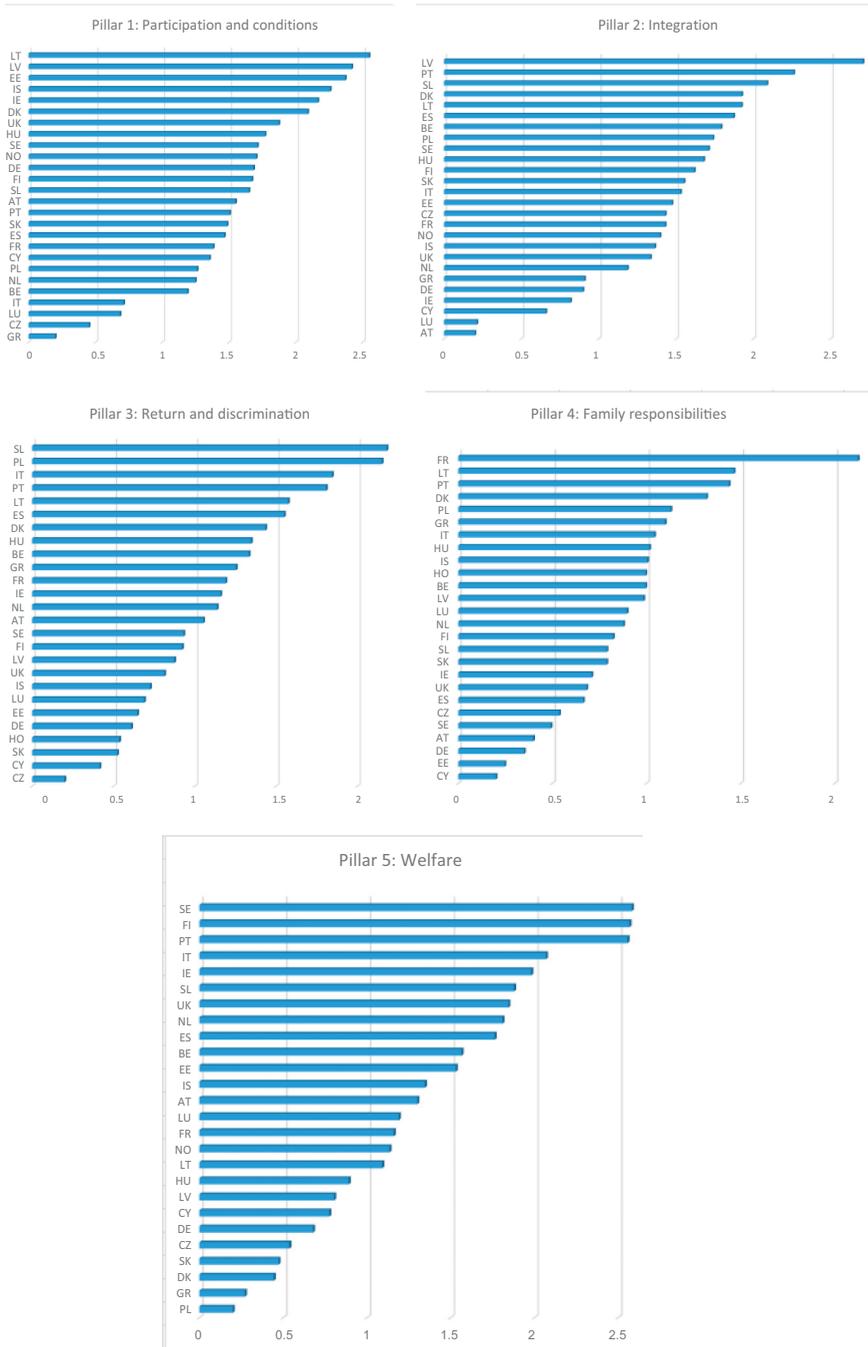
- (1) Arithmetic mean,
- (2) Geometric mean,
- (3) Wroclaw taxonomic approach,
- (4) Borda's rule, based on the frequency matrix,
- (5) The Condorcet approach, using the outranking matrix (OECD, 2008).

The final robust rank for each country was then calculated through the median value of the different ranks (Castellano and Rocca 2015). The stability of the results has been assessed by computing the confidence intervals for the median values, through bootstrap procedures (Efron and Tibshirani, 1993). Finally, the correlations between the pillars and the correlations between indicators of pillars 4 and 5 and indicator 3.4, measuring the share of the unexplained gender wage gap, will allow our assumptions to be confirmed.

## 5. Results

### 5.1 The country rankings for the pillars

Before analysing the composite indicator results, it is important to analyse the country ranks for each pillar (Figure 1). Few countries show similar rankings across the pillars. Cyprus is at the bottom of the classification for all of them, while Germany, the Czech Republic, Luxembourg and Greece are for most of them. A more in-depth analysis highlights that these results depend on very different situations. Indeed, it is not possible to focus solely on gender gaps without accounting for levels of achievement. While Cyprus and Greece show a critical economic scenario, Germany and Luxembourg offer good economic conditions for both female and male employees, but with a more pronounced gap favouring men. Italy, Portugal, Slovenia, Latvia, Lithuania and Belgium highlight overall good conditions for women in comparison to men, but, in most cases, in a framework of bad general conditions.



**Figure 1.**  
Country ranks for the  
pillars of the composite  
indicator

*5.1.1 Labour market participation and conditions.* European countries show great heterogeneity for employee participation and conditions in the labour market. Unemployment rates for women range from 18.3% in Spain to 2.2% in Norway, and for men from 20.7% in Latvia to 3% in Norway. For young people (aged 15–24), it is 40% for Greek women, for Lithuanian men and for all Spanish employees. Mediterranean countries and the Czech Republic show also the highest percentages of NEETs (young people Not in Education, Employment or Training), including both unemployed and inactive/discouraged. The female participation rates are less than 60% in the Mediterranean countries of Italy and Greece and in the Eastern countries of Hungary and Poland [5] while the percentages of female part-time workers range from 76.5% in the Netherlands to 8% in Hungary. It could seem paradoxical that the Netherlands shows also, after Slovenia, the lowest percentage of female involuntary part-time work, in contra-position to the Mediterranean countries of Italy, Portugal and Spain, where this share is higher than 60%. The distribution of involuntary part-time work for male employees is very similar. Work vulnerability, measured by the percentage of temporary employees, reaches its maximum in the Iberian countries and in Poland (more than 20%), its minimum in the Eastern countries of Lithuania, Slovakia and Estonia (less than 6%), while the highest disparity between the genders is found in Cyprus, where the share of temporary contracts is 20.7% for women and only 7% for men.

Overall, countries reaching the best performance for this pillar are Lithuania, Latvia and Estonia, which have recently transited from planned to market-oriented economies, preserving high female participation rates; Iceland – which directly used gender equality as a key factor to counter the crisis and as an opportunity to drive radical changes in the welfare state – Ireland and Denmark. At the bottom of the rankings, there are the Mediterranean countries of Greece and Italy – with the lowest female participation, the highest female unemployment and a very rigid labour market – the Czech Republic and Luxemburg, where the gap in the unemployment and part-time rates is strongly unbalanced against women.

*5.1.2 Labour market integration.* The lowest levels of segregation are found in the Eastern European countries of Latvia, Slovenia and Lithuania. They, together with the Nordic countries, also show the highest percentages of women in decision-making positions (38 for Norway, 29 for Finland, 22 for Latvia). Portugal shares with Latvia and Spain the highest shares of women's science and engineering patents (around 20%), and with Lithuania and Cyprus, the lowest levels of horizontal segregation. The Central European countries of Austria, Luxembourg and Germany and the Balkan countries of Greece and Cyprus are ranked at the bottom. In these countries, gender segregation is already relevant when choosing the field of study (European Commission, 2012). In particular, Austria highlights the maximum level of horizontal segregation and the lowest share of female inventors (only 7%). Similarly, the shares of women in decision-making positions in Greece, Cyprus, Estonia and Luxembourg are less than 5%. The proportion of parliamentary seats occupied by women ranges from 46% to 39% in the Nordic countries of Sweden, Iceland and Norway, while in Hungary, Greece and Cyprus it is around 15%.

*5.1.3 Employment return and discrimination.* The Eastern European countries of Slovenia, Poland and Lithuania and the Mediterranean countries of Italy and Portugal occupy the top of this pillar. In particular, Slovenia shows optimal results for all indicators, with the exception of the unexplained share of the gender wage gap and the remuneration of education, while Italy and Portugal excel for the highest gap in favour of women in education, a small gender wage gap but a high incidence of its unexplained component. In many countries, the unexplained part of the gender wage gap is higher than its explained part because female employees show higher human capital characteristics in most of the Eastern and Mediterranean countries. The gender wage gap is very high in many Eastern countries,

even if the unexplained component is not so high, while the gender gap in self-employed earnings is greater than 50% in Poland and in the Mediterranean countries of Portugal and Italy. The differences in the gender pay gaps for employees and the self-employed are probably due to the differing importance that collective bargaining assumes in these countries (Elvira and Saporta, 2001). It has a high coverage in Mediterranean countries, while in Eastern European countries, there is a limited practice to extend collective agreements. The smallest gaps for both employees and self-employed are reached in the Northern countries of Iceland, Denmark and Sweden. The incidence of the unexplained share of the gender wage gap on the total gap is very large in Slovenia, Poland, Denmark and Lithuania, and to a less extent in Italy and Hungary. Cyprus and the Czech Republic show the highest shares of female employees discriminated against and the highest levels of severity of discrimination (indicators 3.5 and 3.6).

Finally, great differences across countries arise in relation to education: the mean number of years of education ranges from 15.72 of Lithuanian women to the 9.04 of Portuguese men. Further, in Ireland, Finland and Lithuania, almost one in two women graduated, while in the Czech Republic and in the Netherlands, the proportion is less than 19%. The scenario for men is very similar, even if they are generally less educated than women.

*5.1.4 Family responsibilities.* The fourth pillar includes indicators measuring the extent to which family responsibilities affect female participation in the labour market. Again, a woman's choice to invest less in her professional career, choosing lower-paying industries and lower-paying careers within those industries, and privileging family care could be a proxy of the influence of consolidated gender stereotypes (Blau and Kahn, 2007). France, Lithuania and Portugal, followed by Denmark and Poland, are at the top of the ranking for this pillar, even if they rarely excel for all the indicators, in contraposition to Cyprus, which shows the largest gap in unpaid working time and decision power in the couple.

While in Slovenia, Portugal, Norway and Iceland motherhood appears widely compatible with paid work, in the Czech Republic, Hungary and Slovakia the female employment rate decreases by about 30% after childbirth. Apparently, the policies in force to favour the reconciliation of motherhood and work strongly affected this indicator [6]. Indeed, Slovenia, Norway and Iceland provide a wide coverage of services for childcare, while the Portuguese model of working women contemplates the return to full-time work after childbirth (Social Issue Research Centre, 2012) because women tend to have children later and have smaller families.

The gap in unpaid working time (calculated only on who is in paid employment) is at the maximum in the Netherlands, where many women work part-time, and in the Mediterranean countries (with the exception of France), where, instead, part-time work is not so widespread. These latter countries still lack adequate family and labour policies to support dual-earners' families (Blossfeld and Drobnic, 2001). Although the Netherlands, Germany and the United Kingdom show significant percentages of men who reduced their time at work for children (around 10%), for women, the same percentage reaches 62 in Germany, 48 in the Netherlands and 46 in Cyprus.

Indicator 4.3, which is only indirectly related to labour market outcomes [7], highlights that the decision power in a couple is mainly accorded to men in Greece, Cyprus and Denmark, while women predominate in general financial decisions in the other Northern countries and in most Eastern countries [8]. Finally, the economic contribution of women in the couple is less than 40% in more than 60% of cases in Austria, Germany, the Czech Republic, Italy and the Netherlands, while in Denmark, Slovenia, Lithuania and Finland the incidence is less than 48%. In Italy, this is surely due to the lowest female activity rates, and in the Netherlands to the highest share of female part-time work. Instead, Austria shows a male-oriented labour market, even though, in recent years, policies aimed at stimulating a dual-

earner family model have been introduced (Bielenski *et al.*, 2002; European Commission, 2014), and the same is expected by Germany (Lewis *et al.*, 2008).

5.1.5 *Welfare measures related to female work.* In the Nordic countries (especially Sweden and Finland), in Italy and in Portugal, the tax system incentivizes female work, while, at the bottom of classification for this pillar, there are Poland and Greece, penalized by the scarce availability of childcare services, and Denmark. Childcare availability does not guarantee high levels of female labour force participation, but the lack of or a limited formal childcare can negatively influence female career development (OECD, 2012; Janta, 2014). The supply of formal childcare arrangements is very diversified across countries both in relation to their availability and in the forms in which they are provided. Services provided for more than 30 h per week are very limited, especially for children aged less than 3 years. They reach a coverage of 43% in the Netherlands and 31% in the United Kingdom, but for more than half of the countries analysed, the coverage is less than the 10%. In the Czech Republic, Ireland, Cyprus and Slovakia, legislation does not provide paid leaves for fathers, while Belgium, Iceland, Italy and Norway show an optimal balancing. Even in Luxembourg, the length of paid leave for fathers is higher than the maternal leave.

5.2 *The final country rankings: the ESGGLMI*

Analysing the ESGGLMI results, countries where women experience the worst conditions in the labour market in comparison to men are Cyprus, the Czech Republic, Germany and Luxembourg, while Portugal, followed by Lithuania, Slovenia and Denmark occupy the top of the composite indicator rank (Figure 2). The other Nordic countries are only in the middle of the rankings. These results contrast the traditional scenario highlighted in literature concerning the excellence of the Scandinavian model. Indeed, even though Finland and Sweden are at the top for the welfare pillar, within the first five positions of the composite indicator are, besides Denmark, the Mediterranean countries of Portugal and Italy, and Lithuania and Slovenia. Surprisingly, the best family context, measured by the fourth pillar, concerns France, Lithuania, Portugal and Denmark. Other Mediterranean and Eastern countries – Greece, Italy, Poland and Hungary – reach good positions in this ranking too. These results, rather than reflecting the levels of achievement, measure the conditions of women in comparison with men; therefore, relative good conditions for women do not necessarily denote absolute good conditions for them. Further, the indicators

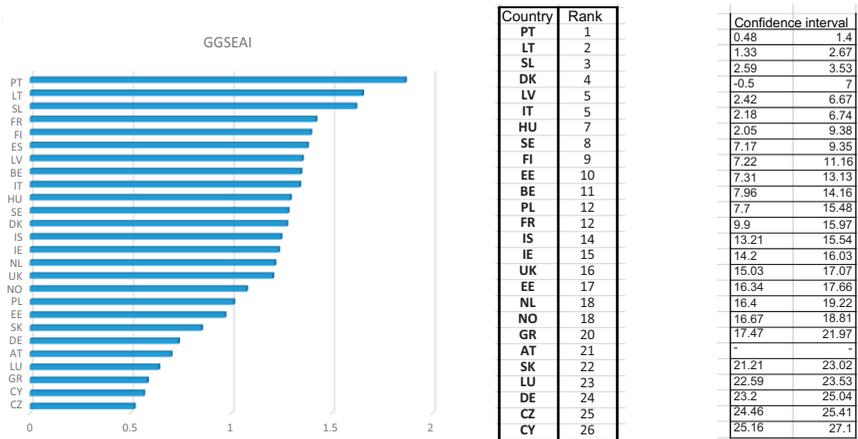


Figure 2. Country ranks in terms of ESGGLMI. Median values of country ranks according to the different aggregation techniques and confidence interval for median values through bootstrap (2,500 simulations)

analysed represent very different aspects of the labour market, and a country could be in an optimal condition for some indicators but in a bad condition for others.

Portugal and Italy show the largest educational gap in favour of women, but also the lowest levels of highly educated employees. Portugal is surpassed only by Denmark for the significant female economic contribution to the family budget, and only by Slovenia for the lowest reduction in the female employment rates after motherhood. Finally, Italy shows low levels of vertical segregation, but Italian women are strongly penalized in comparison to men for the large gap in the unemployment rates, the lowest female participation rates and, consequently, the low share of women contributing more than 40% of household income. Denmark – despite the large imbalance in the length of paid maternal and paternal leave and a taxation system disheartening a household's second earner – shows good performance for all the other pillars, with high female participation in the labour market and good levels of reconciliation of work and family needs.

The confidence intervals calculated around the median rank highlight the stability of the aggregation methods (Figure 2). Only Poland, Denmark, Hungary and Belgium show a disparity across the rankings, due to the variability in the ranking positions across the pillars.

The correlations between the pillars (Table 2) are in most cases significant and positive, denoting that the different aspects of the gender gap in the labour market are concordant to each other. In particular, the positive correlation between pillar 1 and pillar 3 rankings calculated in a cross-country perspective suggests, contrarily to the cited findings of Keane *et al.* (2017), that integration is higher in countries with a massive presence of women in the labour market. Pillar 2 is also significantly related to pillars 3 and 4. In general, countries with low gender segregation and more women inventors also have small gender wage gaps, and small gender gaps in education or a gender gap in education in favour of women.

Finally, the correlations between indicators 3.4, 3.5 and 3.6 – measuring the magnitude of the unexplained part of the gender wage gap – and the indicators in pillars 4 and 5 stimulate some reflections (Table 3). Indicator 4.2, measuring the gap in unpaid working time, is positively correlated with all the discriminatory indicators, denoting that countries where women are less well remunerated than male employees, regardless of their personal characteristics, are those where unpaid working time is strongly unbalanced against women.

	Pillar 1	Pillar 2	Pillar 3	Pillar 4	Pillar 5
Pillar 1	1	0.3685*	-0.0100	-0.0084	0.1691
Pillar 2		1	0.4282**	0.3829*	0.1461
Pillar 3			1	0.4708**	0.2100
Pillar 4				1	-0.0688
Pillar 5					1

**Table 2.**  
Correlation matrix for the pillars

**Note(s):** \*\*significant at 0.01; \*significant at 0.05 (one tail)

**Table 3.**  
Correlation coefficients between the indicators measuring the magnitude of the unexplained share of the gender wage gap and the indicators included in pillars 4 and 5

	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3
3.4	-0.1987	0.0129	-0.0369	-0.3538	-0.4116	0.2929	-0.1217	0.1185
3.5	0.4834	0.2188	-0.178	0.3599	-0.1239	-0.3273	0.1505	0.1042
3.6	-0.0066	0.1604	-0.182	0.0771	0.1819	-0.1203	-0.2187	0.2671

## 6. Conclusions

Encouraging female participation in the labour market and removing the obstacles to women's career advancements could increase the well-being of the society on the whole and the productivity of the European economy. Nowadays, the European socio-cultural framework and legislation are oriented to promote gender equality in the labour market, but gender gaps still persist in many forms and with different degrees. In order to reduce inequalities, a more prominent role for men in caring for children and other domestic responsibilities should be encouraged (Thomson, 2012), because women still bear most of the burden of unpaid work and childcare and, consequently, tend to work shorter hours. Furthermore, they generally work in sectors and occupations where jobs are compatible with their family responsibilities. Consequently, women are more likely to work part-time, be employed in low-paid jobs and renounce career advancements. The results reached in this research – where some factors related to welfare policies and the socio-familiar context have been added to the traditional aspects related to the labour market (participation, work conditions, remuneration and education) – strictly confirm these assumptions. Strong gender imbalances in participation in the labour market, in the time spent at work and in the reduction of engagement in response to childbirth still persist everywhere. In most countries, women are more educated than men, contributing to the decrease of the explained part of the gender wage gap. Nevertheless, its unexplained part is still high. Portugal occupies the top of the composite indicator rank; in this country, female participation in the labour market and employment rates are greater than the EU-average. In Portugal, where the “male-breadwinner model” is turning into the “short leave modified male breadwinner”, the “early return to full-time work model” prevails, which supports the work/family balance during the child's first year of life. The highest percentage of female inventors and the substantial equality in the familiar management highlighted by the fourth pillar confirm these facts. Lithuania, Slovenia and Latvia also assume an optimal position in the ESGGLMI rankings. In these small countries, the larger gap in education in favour of women and the lower gender segregation, favoured by the low levels of part-time work, stimulates the high participation of women in the labour market. On the contrary, in other Eastern European countries, such as the Czech Republic, Hungary, Slovakia and Estonia, for many years characterized by high female participation rates due to a socialist labour market organization, a turn to traditional values towards the family, motherhood and housework can be observed (Chorvat, 2007). It clearly emerges from the indicator 4.1, with very large differences in the employment rates of women without and with children. Further, while the Northern countries highlight the best model of flexibility and conciliation (indicator 1.4 and pillar 4), the richer central European countries of Luxembourg, Germany and Austria, even though they share overall good conditions for all employees in the labour market, show higher gender differentials favouring men (pillar 1). The analysis highlights that, on average, the unexplained share of the gender wage gap is larger in countries where unpaid working time is still strongly unequal, penalizing women. The heavier burden borne by women in home and child care probably also encourages discriminatory behaviours in employers against women.

In conclusion, even if any generalization is inappropriate, gender inequalities still persist almost everywhere, in different degrees, favoured by the perpetuation of gender stereotypes deeply influencing women in their professional choices. Gender equality will be difficult to achieve, since men and women will continue to attribute different importance to their professional careers and to spend unequal time in unpaid work. Therefore, promoting more gender-equal earnings means mainly encouraging an equal contribution to unpaid work, contradicting gender-role norms. This is primarily a cultural issue, and governments should contribute to this goal with more gender-sensitive policies, favouring equal working conditions. Besides increasing childcare services, an equal share of parental leaves and

policies orienting women towards scientific studies and more remunerated professions should be promoted. Further, it means also more work flexibility should be promoted, which should not increase precariousness or be realized exclusively through part-time contracts. It should involve job contracts more oriented to flexibility, more easily achievable with the recent dematerialization of many job tasks. This is extremely important, considering the recent demographic changes in the population, societal structures, household composition and lifestyles, which increase the number of one-person households and the recent trends of the labour markets, characterized by the decline in lifelong open-ended employment contracts and the reforms in the social protection system. They all concur to increase gender inequalities and the risks of poverty.

### Notes

1. Indicator 5.1 is constructed as the sum of the percentages of children in formal childcare by age, weighted one when the service is provided for more than 30 weekly hours and 0.3 otherwise.
2. [Ruhm \(1998\)](#) finds that maternity leave legislation has increased the female employment rate in nine European countries, but he also highlights an offsetting effect on observed wages for longer job-protected paid leave.
3. The references for the calculation are households with two adults and two children aged 4 and 6 and gross household earnings equal to 133% of average earnings. Negative values for this indicator denote an incentive for dual-earner family models because the net transfers to government of equal dual-earner couples are lower than the net transfers for single-earner couples equal earnings.
4. This method has the advantage of considering the correlation among the indicators included into the same pillar, easily obtaining new uncorrelated variables, and a reliable system of weights for the components in relation to their relevance, but it allows for full compensability among the variables.
5. The values for the single indicators are not reported for the sake of brevity, but are available on request from the authors.
6. Indeed, the 2011 European Quality of Life Survey highlights that as many as 80% of inactive young mothers would like to work if they could freely choose their working hours. Therefore, it is reasonable to assume that women who want to leave their work after motherhood are a rarity.
7. A specific question of the EU-SILC survey asked respondents who is more likely to take important decisions. The indicator considers only female and male employees living with a partner and is calculated as a difference in the share of women and men who responded “more me”.
8. More in-depth analyses have shown that the decision-making process in couples depends on many factors, such as, despite the relative income, the education level and the type of decisions ([Mader and Schneebaum, 2013](#)). Indeed, usually women predominate in everyday purchases and in spending for children, and men in the larger financial decisions.

### References

- Alestalo, M., Hort, S.E.O. and Kuhnle, S. (2010), “The nordic model: conditions, origins, outcomes, lessons”, in Kuhnle, S., Yinzhang, C., Kettunen, P. and Pedersen, K. (Eds), *The Nordic Welfare State – A Basic Reader*, Fudan University Press, Shanghai.
- Anxo, D., Fagan, C., Cebrian, I. and Moreno, G. (2006), “Patterns of labor market integration in Europe – a life course perspective on time policies”, *Socio-Economic Review*, Vol. 5 No. 2, pp. 233-260.
- Axelrad, H., Malul, M. and Luski, I. (2018), “Unemployment among younger and older individuals: does conventional data about unemployment tell us the whole story?”, *Journal for Labour Market Research*, Vol. 52 No. 1, pp. 1-12.
- Becker, S.G. (1985), “Human capital, effort and the sexual division, labor”, *Journal of Labor Economics*, Vol. 3 No. 5, pp. 33-58.

- 
- Bettio, F., Plantenga, J. and Smith, M. (2013), *Gender and the European Labor Market*, Routledge Studies in the European Economy, Abingdon.
- Bielenski, H., Bosch, G. and Wagner, A. (2002), "Working time preferences in 16 European Countries", European Foundation for the Improvement of Living and Working Conditions Report, Luxembourg.
- Blau, F.D. and Kahn, M. (2007), "The gender pay gap: have women gone as far as they can?", *Academy of Management Perspective*, Vol. 21, pp. 7-23.
- Blau, F.D. and Kahn, L.M. (2016), "The gender wage gap: extent, trends, and explanations", IZA Discussion Paper Series, No. 9656.
- Blinder, A.S. (1973), "Wage discrimination: reduced form and structural estimations", *Journal of Human Resource*, No. 8, pp. 436-55.
- Blossfeld, H.P. and Drobnic, S. (Eds) (2001), *Careers of Couples in Contemporary Societies: From Male-Breadwinner to Dual-Earner Families*, Oxford University Press, Oxford.
- Boll, C., Leppin, J., Rossen, A. and Wolf, A. (2016), *Magnitude and Impact Factors of the Gender Pay Gap*, EU Countries, European Commission, Luxembourg.
- Bronson, M.A. and Thoursie, P.S. (2017), "The lifecycle wage growth of men and women: explaining gender differences in wage trajectories", Working Paper, September.
- Castellano, R. and Rocca, A. (2014), "Gender gap and labor market participation: a composite indicator for the ranking of European countries", *International Journal of Manpower*, Vol. 35 No. 3, pp. 345-367.
- Castellano, R. and Rocca, A. (2015), "Assessing the gender gap labor market index: volatility of results and reliability", *International Journal of Social Economics*. Vol. 42 No. 8, pp. 749-772.
- Castellano, R. and Rocca, A. (2016), *The Dynamic of Gender Gap in European Labor Market in the Years of Economic Crisis*, Quality&Quantity, Springer, Berlin.
- Castellano, R. and Rocca, A. (2019), "Analyzing the gender gap in European labour markets at the nuts -1 level", *Cogent Social Science*, Vol. 5, p. 1, doi: [10.1080/23311886.2019.1595294](https://doi.org/10.1080/23311886.2019.1595294).
- Chicha, M.T. (2006), "A comparative analysis of promoting pay equity: models and impacts", Working Paper, 46, ILO, Geneva.
- Chorvat, I. (2007), "Family and women in central and Eastern Europe: the significance of traditional roles after socialism", in Sanghera, B., Amsler, S. and Yarkova, T. (Eds), *Theorising Social Change in Post-Soviet Countries*, Critical Approaches, Peter Lang Ed.
- Cipollone, A., Patacchini, E. and Vallanti, G. (2014), "Female labour market participation in Europe: novel evidence on trends and shaping factors", *IZA Journal of European Labor Studies*, No. 3, p. 18.
- Efron, B. and Tibshirani, R.J. (1993), *An Introduction to the Bootstrap*, Chapman & Hall/CRC, New York.
- Eitheim, P. and Kuhnle, S. (2000), "Nordic welfare states in the 1990s: institutional stability, signs of divergence", in Stein, K. (Ed.), *Survival of the European Welfare State*, Routledge, London and New York, pp. 39-57.
- Elvira, M.M. and Saporta, I. (2001), "How does collective bargaining affect the gender pay gap", *Work and Occupation*, Vol. 28 No. 4, pp. 469-490.
- Esping-Andersen, G. (2002), *Why We Need a New Welfare State*, Oxford University Press, Oxford.
- European Commission (2009), "Gender segregation in the labor market Root causes, implications and policy responses in the EU", in Bettio, F. and Verashchagina, A. (Eds), *Expert Group on Gender and Employment, March*.
- European Commission (2011), *Closing the Gender Pay Gap*, Luxembourg Publication Office of the European Union, Luxembourg.

- European Commission (2012), "Countries Profiles, the current situation of equality in European Countries", available at: <http://ec.europa.eu/justice/gender-equality>.
- European Commission (2014), *Emerging Trends in Earnings Structures of Couples in Europe*, Short Statistical Report, Contract ref. no. JUST/2011/GEND/PR/1081/A4, April, Rand Corporation, Santa Monica, California and Cambridge.
- Farrell, W. (2004), *Why Men Earn More*, Amacom books, Kindle Edition, New York.
- Ferrera, M. (1996), "The "southern model of welfare in social Europe", *Journal of European Social Policy*, Vol. 6 No. 1, pp. 17-37.
- Foster, J., Greer, J. and Thorbecke, E. (1984), "A class of decomposable poverty measures", *Econometrica*, Vol. 52 No. 3, pp. 761-766.
- Gibbs, J.P., (1965), "Occupational differentiation of negroes and whites in the United States", *Social Forces*, Vol. 44 No. 2, pp. 159-165.
- Gnesi, C., De Santis, S. and Cardinaleschi, S. (2016), "The gender pay gap in Italy: some evidence on the role of decentralized collective bargaining", *Esudios de Economia Aplicada*, Vol. 34 No. 1, pp. 109-132.
- Gupta, D.N., Oaxaca, R. and Smith, N. (2006), "Swimming upstream, floating downstream: comparing women's relative wage progress in the United States and Denmark", *Industrial and Labor Relations*, Vol. 59 No. 2, pp. 243-266.
- Heckman, J.J., Lochner, L.J. and Todd, P.E. (2003), *Fifty Years of Mincer Earnings Regressions, 1973-2000*, National Bureau of Economic Research, IZA Discussion Paper, Bonn, No. 775.
- International Monetary Fund (2013), *Women, Work, and the Economy: Macroeconomic Gains from Gender Equity*, SDN, Washington, DC.
- Janta, B. (2014), *Caring for Children in Europe. RR-554-DG Employment*, Rand Corporation, Santa Monica, California and Cambridge.
- Kahn, J., García-Manglano, J. and Bianchi, S. (2014), "The motherhood penalty at midlife: long-term effects of children on women's careers", *Journal of Marriage and Family*, Vol. 76 No. 1, pp. 56-72.
- Keane, C., Russell, H. and Smyth, E. (2017), "Female participation increases and gender segregation", ESRI Working Paper, No. 564, The Economic and Social Research Institute (ESRI), Dublin.
- Mader, K. and Schneebaum, A. (2013), "The gendered nature of intra-household decision making in and across Europe", *25th Annual EAEPE Conference*, Paris.
- Meara, K., Pastore, F. and Webste, A. (2020), "The gender pay gap in the USA: a matching study", *Journal of Population Economics*, Vol. 33 No. 1, pp. 271-305.
- Miller, P. (1987), "The wage effect of the occupational segregation of women in Britain", *The Economic Journal*, Vol. 97, pp. 885-896.
- Mincer, J. (1962), "Labor force participation of married women: a study of labor supply", in Lewis, H.G., *Aspects of Labor Economics*, Princeton University Press, Princeton, pp. 63-105.
- Lewis, J., Campbell, M. and Huerta, C. (2008), "Patterns of paid and unpaid work in Western Europe: gender, commodification, preferences and the implications for policy", *Journal of European Social Policy*, Vol. 18 No. 1, pp. 21-37.
- Oaxaca, R.L. (1973), "Male-female wage differential in urban labor markets", *International Economic Review*, Vol. 14 No. 3, pp. 693-709.
- OECD (2008), *Handbook on Constructing Composite Indicators. Methodology and User Guide*, OECD Publishing, Paris.
- OECD (2012), *Closing the Gender Gap. Act Now*, OECD Publishing, Paris.
- Paruolo, P., Saltelli, A. and Saisana, A. (2013), "Ratings and rankings: voodoo or science?", *Journal of the Royal Statistical Society*, Vol. 176 No. 3, pp. 609-634.
- Quintano, C., Castellano, R. and Rocca, A. (2013), "A cross-country analysis of gender pay gap and segregation", *Italian Journal of Applied Statistics*, Vol. 23 No. 2, pp. 157-183.

- 
- Razzu, G. (Ed.) (2014), *Gender Inequality in the Labour Market in the UK*, Oxford University Press, Oxford.
- Ruhm, C. (1998), "The economic consequences of parental leave mandates: lessons from Europe", *Quarterly Journal of Economics*, Vol. 113 No. 1, pp. 285-317.
- Saisana, M., d'Hombres, B. and Saltelli, A. (2011), "Rickety numbers: volatility of university rankings and policy implications", *Research Policy*, Vol. 40, pp. 165-177.
- Smeaton, D., Ray, K. and Knight, G. (2014), *Costs and Benefits to Business of Adopting Work Life Balance Working Practices: A Literature Review*, Department for Business Innovation & Skills, Policy Studies Institute, London.
- Social Issue Research Centre (2012), *The changing face of motherhood in Western Europe: Cross-cultural perspectives*, The Social Issue Research Centre Commissioned by P&G, Oxford.
- Thévenon, O. and Solaz, A. (2013), "Labor market effects of parental leave policies in OECD countries", OECD Social, Employment and Migration Working Papers, N. 141, OECD Publishing, doi: [10.1787/5k8xb6hw1wjf-en](https://doi.org/10.1787/5k8xb6hw1wjf-en).
- Thomson, V. (2012), "How much of the remaining gender pay gap is the result of discrimination, and how much is due to individual choices?", *International Journal of Urban Labor and Leisure*, Vol. 7 No. 2, pp. 1-32.
- Tyrowicz, J., Van Der Velde, L. and Van Staveren, I. (2015), "Differences in the estimates of gender wage gap over the life cycle", Working Papers, n. 29, University of Warsaw, Warsaw.
- Waldfogel, J., Higuchi, Y. and Abe, M. (1999), "Family leave policies and women's retention after childbirth: evidence from the United States, Britain, and Japan", *Journal of Population Economics*, Vol. 12, pp. 523-545.

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