

# The Gender Wage Gap

## in Developed Countries



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# Introduction

- To provide an overview of the gender wage gap
- To examine the extent to which wages by gender are converging
- To summarize the research on the causes of the wage gap and its evolution



# International trends in gender wage gap and employment

Data are from the OECD database over the period of 1970 - 2015

## Methodology

- The selection of transition countries: Sweden, Japan, the U.S., the U.K., Finland, and Australia (1970s available - the rest are available since 1980s)
- Hourly wages as a productivity-related pay
- Pay differentials were found through the median gender gap in full-time equivalent hourly wages in percentage terms
- Only use  $\geq 15$  years-old females to evaluate the trends in female labor supply (remark: this may understate)





Table 1: Median Gender Gap in Per Cent, by Country, 1975-2010

| Country         | 1975 | 1985 | 1995              | 2000              | 2010             |
|-----------------|------|------|-------------------|-------------------|------------------|
| Australia       | 21.6 | 19.6 | 14.5              | 17.2              | 14.0             |
| Austria         | .    | .    | .                 | 23.1              | 19.2             |
| Belgium         | .    | .    | .                 | 13.6              | 7.0              |
| Canada          | .    | .    | .                 | 23.9              | 19.0             |
| Chile           | .    | .    | .                 | .                 | 9.1 <sup>a</sup> |
| Czech Republic  | .    | .    | 18.3 <sup>b</sup> | 16.9 <sup>c</sup> | 15.8             |
| Denmark         | .    | .    | .                 | .                 | 8.9              |
| Estonia         | .    | .    | .                 | 24.0 <sup>d</sup> | 26.6             |
| Finland         | .    | .    | 22.4              | 20.4              | 18.9             |
| France          | .    | .    | 14.6              | 14.6              | 14.1             |
| Germany         | .    | .    | 20.0              | 20.5              | 16.8             |
| Greece          | .    | .    | .                 | .                 | 12.2             |
| Hungary         | .    | .    | 15.8              | 14.1              | 6.4              |
| Iceland         | .    | .    | .                 | .                 | 14.3             |
| Ireland         | .    | .    | .                 | 19.7              | 12.8             |
| Israel          | .    | .    | .                 | .                 | 20.7             |
| Italy           | .    | .    | 14.6              | 8.5               | 9.9              |
| Japan           | 42.4 | 41.7 | 37.1              | 33.9              | 28.7             |
| Latvia          | .    | .    | .                 | .                 | 13.3             |
| Lithuania       | .    | .    | .                 | .                 | 7.0              |
| Luxembourg      | .    | .    | .                 | .                 | 5.0              |
| Mexico          | .    | .    | .                 | .                 | 11.6             |
| Netherlands     | .    | .    | .                 | .                 | 18.6             |
| New Zealand     | .    | .    | 13.7              | 7.2               | 7.0              |
| Norway          | .    | .    | .                 | 10.2              | 8.1              |
| Poland          | .    | .    | 20.1 <sup>c</sup> | 14.3              | 7.2              |
| Portugal        | .    | .    | .                 | .                 | 13.5             |
| Slovak Republic | .    | .    | .                 | 20.3              | 14.9             |
| Slovenia        | .    | .    | .                 | .                 | 11.6             |
| Spain           | .    | .    | .                 | .                 | 6.6              |
| Sweden          | 18.3 | 16.7 | 18.8              | 15.5              | 14.3             |
| Switzerland     | .    | .    | .                 | 23.8              | 20.1             |
| Turkey          | .    | .    | .                 | .                 | 20.1             |
| United Kingdom  | 39.9 | 35.1 | 28.2              | 26.3              | 19.2             |
| United States   | 37.6 | 33.0 | 24.6              | 23.1              | 18.8             |

Note: Entries are the median gender wage gap in full-time equivalent hourly wages. Data are downloaded from OECD data base

## THE GENDER PAY GAP

Estimated rate of convergence:

$$(\overline{w^M} - \overline{w^F}) / \overline{w^M} = \alpha + \delta Trend + u$$

The median gender wage gap

### Findings:

- A decrease of 0.5 percentage points in the median wage gap per year
- when country fixed effects are included, the average rate of convergence = -0.39
- Overall no increase in the gender wage gap across time

# The gender pay gap (cont.)

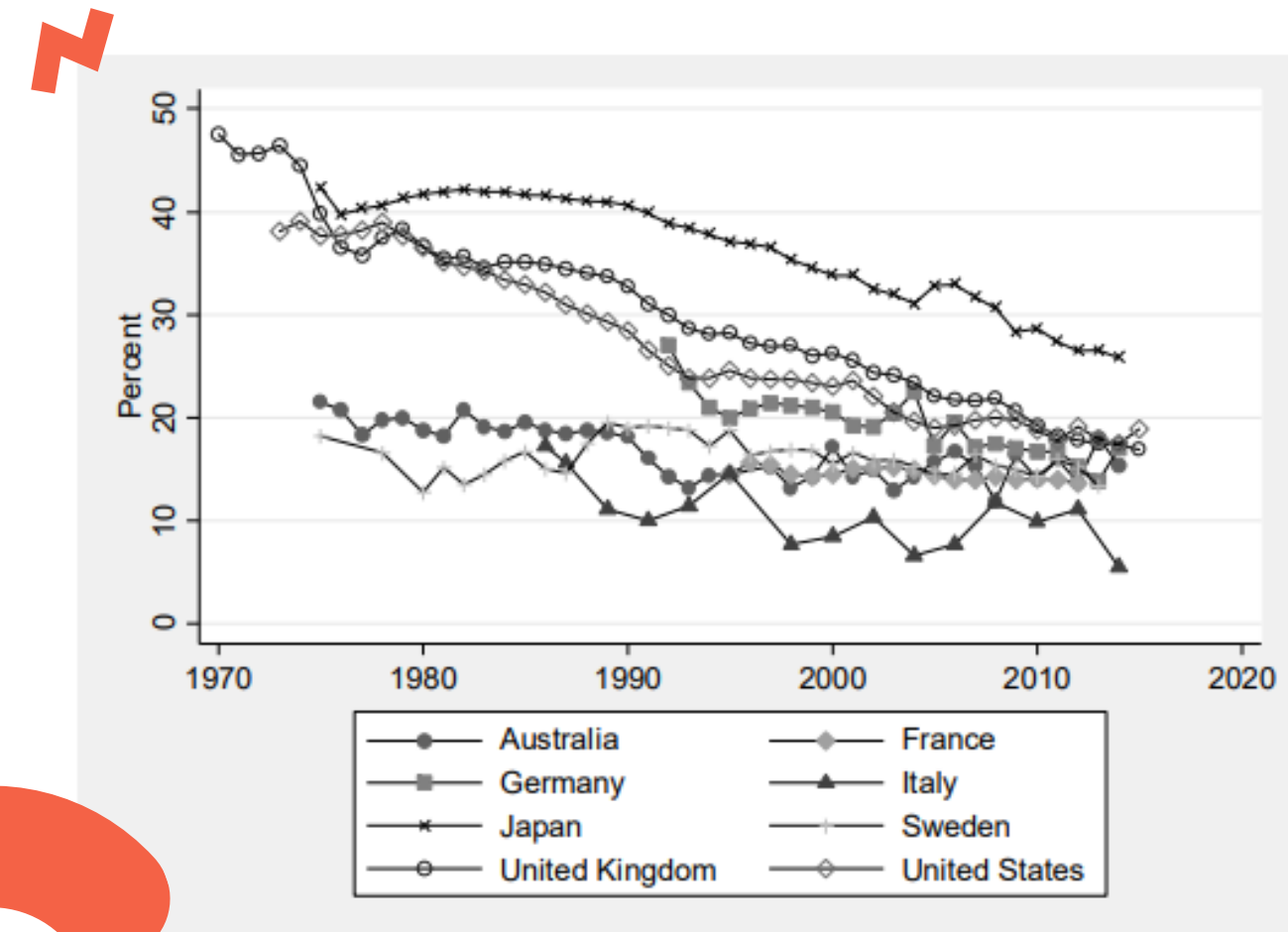
In the 1970s:

- Large gender wage gap (40–50%): U.K., U.S., Japan, and Germany (post-unification)
- Smaller gender wage gap (20%): Australia, Italy, France, and Sweden

## Findings:

- Estimated convergence of the selected =  $-0.47$
- The rate of convergence of the **large** gender wage gap countries =  $-0.58$ ; the remaining =  $-0.14$
- Considerable heterogeneity in the rate of convergence
- the overall rate is mainly contributed by the large gender wage gap countries

Figure 1: The median gender wage gap in per cent, selected OECD countries with long time series



Note: Data are downloaded from OECD data base. Employment rates are based on the definitions of the respective country labour force surveys.

# Trends in employment rates

The 1970s is the beginning of the entrance of women into the labor market drastically.

## Findings:

- Panel A: Men generally work and employment rates have remained high in the OECD countries
- Panel B: A strong and gradual increase in women's employment rates
- There is a considerable cross-region heterogeneity

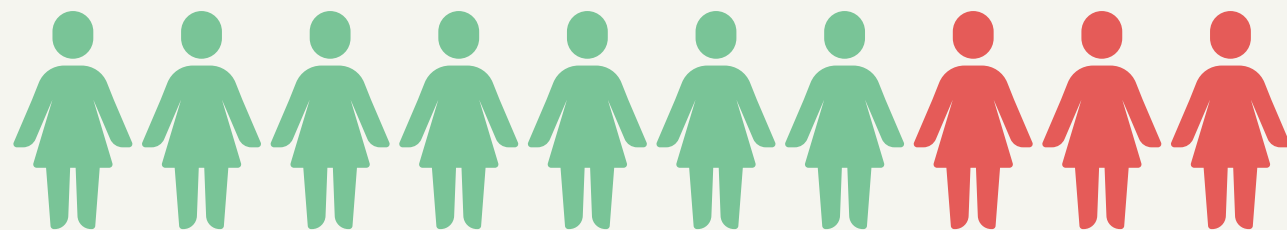
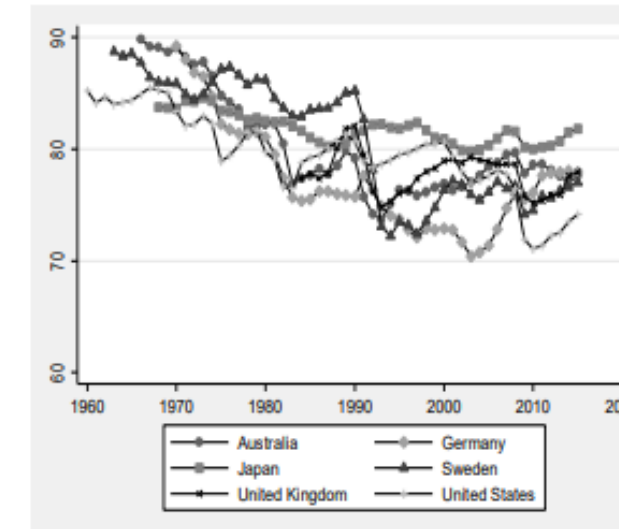
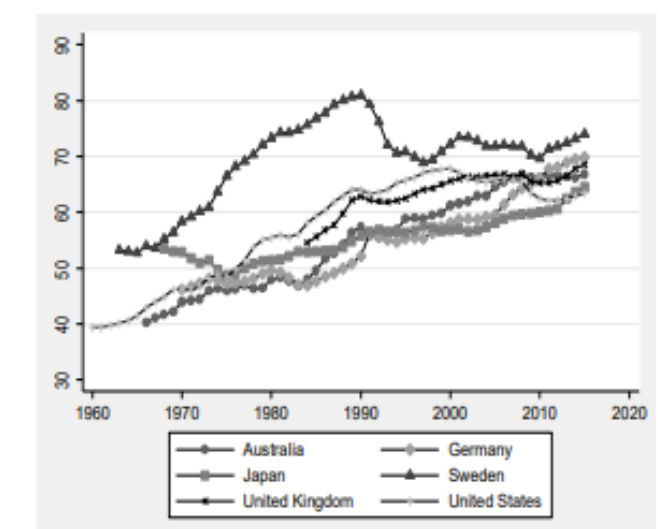


Figure 2: Employment rates in selected countries, by gender

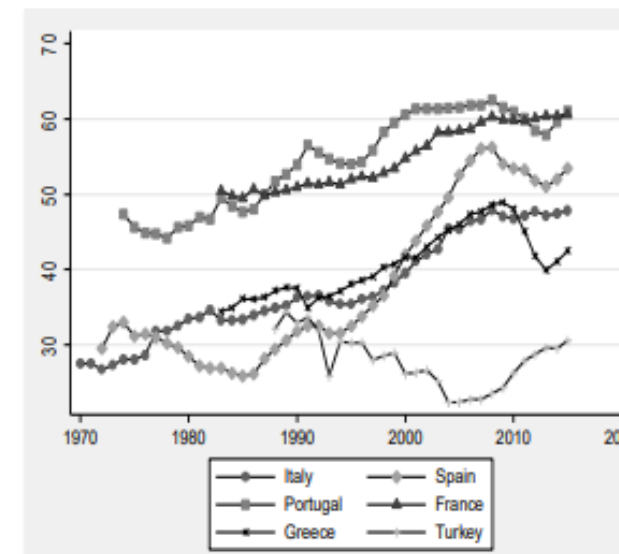
Panel A: Selected OECD countries, men



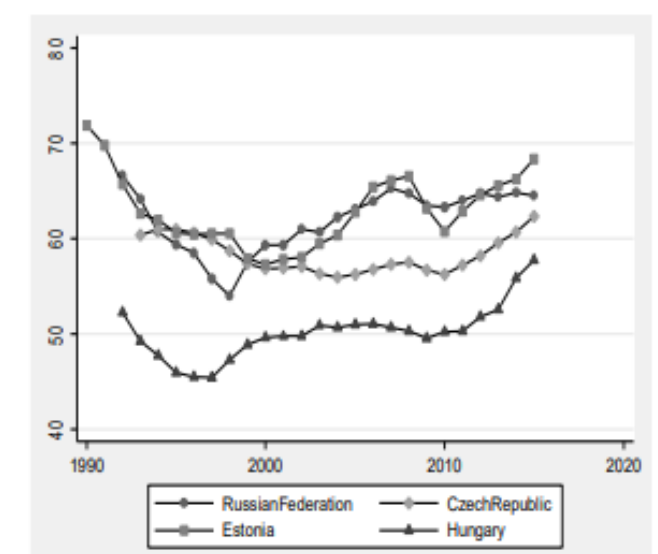
Panel B: Selected OECD countries, women



Panel C: Mediterranean countries, women



Panel D: Transition countries, women



Note: Data are extracted from the OECD database. Employment rates are measured among the resident population aged 15 years and over living in private households or collective households. The specific details of the definitions of employment rates within each country are based on the respective country labour force surveys.

# 3.1 The Oaxaca-Blinder Decomposition (cont.)

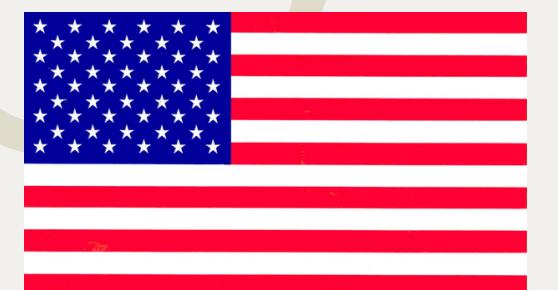
## Challenges

1. Points To the estimation of return on each factor and the omit trip of some variables.
2. Claims that some variables are difficult to accurately measure and obtain in a model, such as a year of experience.
3. Identifies the overstated explanation of some variables, such as education system, and occupational outcome.



To achieve the empirical literature, we have to reduce an error term. For instance, using public record tax registry data instead of measuring work experience.

The United State of America  
The different of educational  
system and year of work  
experiences has a large result in  
the raw wage gap.





## 3.1 The Oaxaca-Blinder Decomposition

The Oaxaca-Blinder Decomposition is a method that **explains the difference of hourly wage between gender, men and women**, and this difference is dependent variable while human capital acquisition is independent variable. Addition, this method includes error term that identified uncorrelated variable with independent variable.

$$\underbrace{(\overline{\ln W}_M - \overline{\ln W}_F)}_{\text{raw wage gap}} = \underbrace{(\bar{X}_M - \bar{X}_F)\beta_M}_{\text{explained part}} + \underbrace{\bar{X}_F(\beta_M - \beta_F)}_{\text{unexplained part}}$$

**Explained part (independent variable)**

-How much of wage gap between gender -> quantitative explanation

**Unexplained part (dependent variable)**

- education, experienced year -> qualitative explanation



# The decomposition of changes in gender wage gap

## Juhn-Murphy-Pierce (JMP) decomposition

*The JMP decomposition showed that the reduction in the gender wage gap was caused by changes in gender-specific characteristics that exceeded the influence of the wage structure.*

### First component

The influence of the change in observed disparities in human capital endowments between men and women.

### Third component

Reflects changes in the magnitude of the unobservable variables.

### Second component

Examines the impact of shifting male pricing on the characteristics of the observed labor market.

### Forth component

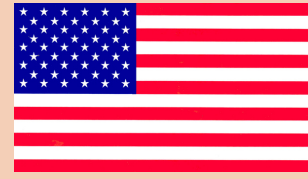
Assesses the impact of a change in inequality on the change in the male-female wage gap.



## 4. Selection and women labor force participation

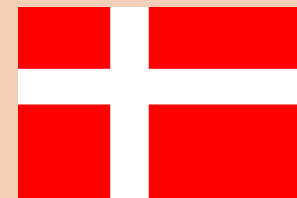


- Men continuously work through out their lives while women always work until they are married or have a child.
- We additionally know the employment rate by each country because it also influences the gender wage gap. Even in Italy the gender wage gap is lower than in UK and USA, its employment rate are also low.

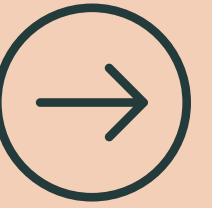


In USA, by 1970, the years of work **experience and education** of female labors were likely to be **lower significant and much less selective**. So it points that the unexplained part in Ob decomposition model decreased.

Blau and Kahn identified that positive selection decreases the gender wage gap. They try to overstate relative women's wage. As a result, the gender wage gap is larger due to less selective in women's participation.



In Denmark, reduction of women's wage and time in labor force after motherhood gain more employer's attention even it boosts a larger wage gap. Due to the research in Germany during 1980s to 1990s, **non-random selection**, the women who return to work after childbirth are likely to a huge loss.



# Human Capital and the Gender Wage Gap



**(BLAU AND KAHN, 2016)**

The relative increase in the human capital of women over time also contributes to the observed convergence in the wages of males and females, with the relative **increase in work experience contributing more than the increase in education.**

**(MANNING AND PETRONGOLO, 2008)**

Studies for the U.K. suggest different hourly pay in full- and part-time jobs for women and that a main part of the pay differential can be explained by **differences in individual characteristics.**

**(Kunze, 2015)**

Part-time job is likely to have a **negative effect** towards future progression on the career ladder in line.

# Human Capital and the Gender Wage Gap (cont.)

## The prediction of a wage advantage:

Assumption: women have a comparative advantage outside the labor market and expect to spend fewer years in the labor market than men.

- Women enter the labor force with low investment in on-job-training and higher initial wage
- Men enter with higher training content but lower initial wage - employees bear the partial cost of training at the start of the career
- Jobs provide steeper wage profiles
- The gender wage gap still arises over time

Confirmed by: Polachek (1981) and Gorlich et al. (2008)





# Human Capital and the Gender Wage Gap (cont.)

## The prediction of a wage advantage:

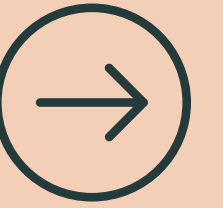
### Wages are higher for men:

- in jobs with more on-the-job training – stronger labor force attachment
- Prevent job shopping

Confirmed by: Kuhn (1993), Barron et al. (1993 and 2010), Bertrand et al. (2010), and Manning and Swaffield (2008)

However, they agree that, regardless the gender, **wages at first entry into the labor market are similar.** Differences mainly evolve through the early career





# Human Capital and the Gender Wage Gap (cont.)



## Gender wage gap detected

- **10% at first entry** among the white collars in Finland
- Apprenticeship training in Germany pays men **10-20% more at entry**
- Male STEM graduates in the U.S. earned **31% higher** wages after a year of graduation
- The earning differences in MBAs in the financial and corporate sector in the U.S. between men and women is **11%** with almost **50%** increases after 9 years and up to more than **80%** with 10 or more years in.

Confirmed by: Napari (2009), Fitzenberger and Kunze (2005), Buffington et al. (2016), and Bertrand et al. (2010)

# Human Capital and the Gender Wage Gap (cont.)

## Entry Wage:

- The pre-labor market factors are important determinants of entry wage differences
- Entry wage is often used for wage increases negotiation

## Child Birth:

- Women with children are paid LESS than those without children, a.k.a. family gap
- Postponement of childbirth leads to a rise in wages
- In 1999, Sweden had a significant and negative wage effect on the father. - where is recently common in European countries
- The gender gap among parent couples in hourly wages increased by 10% points from before childbirth until 10 years after





# Labour demand factors

## 6.1 Discriminatory behavior and firms

### Becker, 1971

Women face **taste-based** workplace discrimination

- Low enough short-run equilibrium wage rates to **compensate for the employer's distaste**
- The discriminatory wage difference will tend to be eliminated in long-run equilibrium with free entry and exit.
  - Discriminating firms will face higher wages for equally-skilled workers and, hence, have lower profits.
    - Not supported by empirical evidence

### Black and Strahan, 2001; Weichselbaumer and Winter-Ebmer, 2005; Weber and Zulehner, 2014)

Taste-based discrimination is **less evident** in environments that are **more competitive**





# Labour demand factors

## 6.1 Discriminatory behavior and firms



**1968-1997**

**Gayle and Golan, 2012**

Statistical data suggested that **taste-based discrimination can be ruled out** in the decline of the gender wage gap in that period of time.

**Flabbi, 2010**

There is the presence of taste for discrimination and there is **a significant proportion of discriminatory employers**

- **Does not explain** the trend in gender wage gap
- **Non-random selection** may play an important role instead

**Phelps, 1972; Aigner and Cain, 1977**

When there is asymmetric information such that **employers are uncertain regarding worker productivity or quit probability**, profit-maximizing employers may **discriminate against women** based on actual or perceived average group differences



# Labour demand factors

## 6.1 Discriminatory behavior and firms

### Discrimination at the recruitment stage against women

- Especially against **women with children**
- Especially in **high-status and male-dominated professions**



### Petit, 2007

Finds evidence of discrimination against **young women aged 25 years in high-skilled administration and commercial jobs.**

### Correll et al., 2007

**Mothers were perceived less favorably** than non-mothers but no differences between fathers and non-fathers were found.





# Labour demand factors

## 6.2 Gender differences in job search and job mobility

Women may search longer for a new job and receive lower wages **because:**



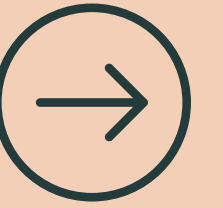
### Differences in productivity

- Women remain **unemployed longer even if equally productive** as men. (Bowlus and Eckstein, 2002)

### Differences in employer discrimination

- The effect is ambiguous. (Black, 1995)

- Both productivity differences between men and women as well as the composition of prejudiced and unprejudiced employers. (Bowlus and Eckstein, 2002)
- Differential behavior by women in their prime childbearing years and fertility decisions also have a significant impact on labor market mobility (Kunze and Troske, 2015)



# Labour demand factors

## 6.2 Gender differences in job search and job mobility

- Firms **differ in their wage policies**. (Meng, 2004)
  - The gender wage gap is smaller in firms exposed to strong market competition, which have less firm-level wage bargaining.
  - There thus appears to be a strong interaction with the centralization of the wage bargaining system.
- The role of **frictional labor markets** and the **rents** that accrue at the firm level is highlighted. (Manning, 2011)
- A relatively large proportion of **women among managers** tends to **narrow the gender wage gap within the firm**. (Cardoso and Winter-Ebmer, 2010; Hensvik, 2014)

- Women may be **less likely to bargain over their wages** or they **receive poorer wage offers** from employers.

Women are  
sorted into **less  
well-paid jobs**



# Occupational Segregation

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- The disparity may be due to real impediments to employment or differences in gender preferences for various job types.
- Following is a policy idea to encourage women to enter traditionally male-dominated.
- In contrast, Goldin (2014) emphasizes that within-occupation salary differences in the US actually account for a greater share of the gender wage gap than differences in wages between occupations.
- Having children is another significant element that has a detrimental impact on women's performance.
- The gains of reducing the gender wage gap through any increases in education and other human capital qualities are partially countered by the overwork effect.
- This study warns us that the gender wage gap may widen in the future if performance-related compensation is anticipated to become more significant in certain professions or in society at large.



# Concluding Remarks

Gender differences in human capital have become less significant as women's investments in human capital more closely match those of males.

- But the differences in wages remain quite large.
- Parental status and within-occupation differences matter more than any between-occupation differences.

## Factors related to the workplace

- Both firm and occupation characteristics are driving gender wage differences

The quantitative impact of specific explanatory factors also seems to **vary considerably across countries and time**.  
→ need for (replication) studies.



# Thank You

# Q & A

