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Gender pay gaps within companies

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Thomas Breda
Paul Dutronc-Postel
Joyce Sultan Parraud
Maxime Tô

Although they have narrowed, gender pay inequalities remain significant : in 2018, women on average have salaries that are 25% lower than men. The size of this gap, however, varies from 5% to 25% depending on how it is measured.
The use of different inequality indicators is necessary : Each has its own logic and the comparison of different measures offers useful keys to understanding for the design of relevant public policies. We show here that a substantial part of inequality is explained by segregation between firms, with women on average working in firms offering lower wages. To eliminate gender pay inequalities, it is therefore not sufficient to impose equal pay on firms ; other policies will be needed.
To synthesize these different measures of gender pay gaps, the IPP has launched a new online tool that allows users to make their own methodological choices and to visualize in a few clicks the evolution of pay gaps over time according to different modalities and in different groups of employees and companies.

www.ipp.eu

Exploring inequalities : `https://inegalites-femmes-hommes.ipp.eu`

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Measuring inequalities at work between women and men

The availability of **quantitative indicators** is essential to understand gender inequalities in the labor market and to support public debate and the design of effective public policies on equal pay. As is often the case with social phenomena, inequalities between women and men in the labor market have a long history and are very complex, and the indicators that measure them reflect this.

Moreover, it is not always easy to make sense of the various measures put forward. For example, according to INSEE (Georges-Kot, 2020), in 2017 French women earned **16.8% less than their male colleagues for the same amount of work**. The OECD offers another indicator : Again in 2017, **the median salary of women was 11.5% lower than that of men**. *The Economist* (1er août 2017), meanwhile, argues that in 2017 in France women earned **"only" 2.7% less than men at the same hierarchical level, in the same company, and same roles**. Finally, economist Rachel Silvera has popularized the idea that women earn a quarter less than men (Silvera, 2014). **What is the actual wage gap between women and men ? What number should we use ? And why are the proposed gaps sometimes so different ?**

In an attempt to clarify the situation, **this policy brief reviews the different ways of measuring gender pay inequalities**. Using administrative data on the pay of all private-sector employees since 1995, it also produces updated results and discusses the effect of different explanatory factors, focusing in particular on the **relative contribution of intra- and inter-firm inequalities to total inequalities**. We invite our interested readers to use the IPP's online tool (see here) to examine for themselves in more detail how women's labor force participation and wage inequality have changed since 1967.

Different measures of inequality and how they have changed over the past 25 years

Since 1995, the DADS database (*Déclarations Annuelles de Données Sociales*) has made it possible to observe all jobs in the private sector each year, as well as the number of days worked, hours worked, and associated pay (see Box 1). These data therefore allow us to produce accurate measures of gender pay inequalities among all individuals who have worked at least one hour during the year. They do not, however, capture the full range of wage gaps, since women and men who received no income are not included in the data.[1] We also choose to neutralize from the outset the inequalities that would result from different average contract lengths between women and men. To do this, we link the wages received for each job to the duration of the contract in the year in order to construct a daily income. The latter may, however, correspond to different daily workloads, depending on whether or not individuals are part-time.

"For each day that includes at least one hour of work, women earned on average 24% less than men in 2018"

It appears that for each day with at least one hour of work, women earned on average 24% less than men in 2018 (Figure 1). So here we find the famous "missing quarter" for women. This wage difference amounted to 32% in 1995 and has therefore also been reduced by a quarter in 23 years. It can be explained by a volume effect (when they work, women work fewer hours than men) and by a price effect (for each hour worked, women earn less). The volume effect can simply be neutralized by considering earnings per hour worked. When hourly wage inequalities are then examined, the average gender gaps drop from 24% to 15% in 2018. **Differences in working hours thus contribute about 40% to gross differences in earnings per day worked.** This contribution has not changed since 1995, with hourly wage gaps also narrowing by a quarter (from 20% to 15%) since that year.

"When looking at hourly wage inequality, average gender gaps drop from 24% to 15% in 2018"

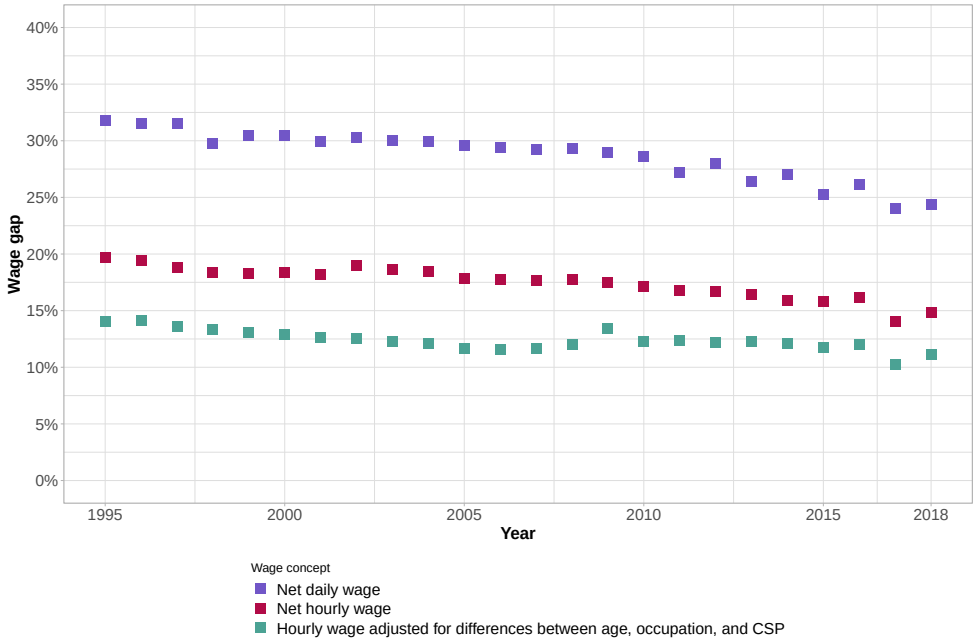
Once working time is taken into account, one can try to explain the hourly wage gaps between women and men by differences in productive characteristics observable in the data : Women might have lower hourly wages on average because they have fewer degrees or less work experience. These explanations no longer hold : **Women in the labor market today are on average more highly educated than their male counterparts** (Bozio, Dormont et García-Peñalosa, 2014) ; differences in age or work experience also remain generally limited and only marginally explain the 15% hourly wage gap observed in 2018 (according to our own estimates).[2]

Once the productive characteristics of employees are

1. For this, it is possible to use data from income tax returns. These highlight gaps that are on average higher and increase with age, from 20% at age 25 to 31% at age 65 in 2014 (Garbinti, Goupille-Lebret et Piketty, 2018).

2. Gender wage gaps, on the other hand, increase very sharply with age, from 6% (in favor of men) among employees under 30, to 10% among 30-39 year olds, 15% among 40-49 year olds, and 22% among employees aged 50 or older in 2018 (see also Chamkhi, 2015).

Figure 1 – Total wage gaps



Notes : Gender wage gap, for each year between 1995 and 2018. The wage gap is calculated as the difference between men's and women's wages, relative to men's. Three wage concepts are used : net daily wage (total annual net wage, divided by the number of days worked) ; net hourly wage (total annual net wage, divided by the number of hours paid) ; and net hourly wage adjusted for differences between age, occupation, and socio-professional categories.
Interpretation : In 2018, women earned, for all salaried positions combined, an average hourly wage that was 15% lower than that of men.
Sources : DADS 1995-2018, authors' calculations.

ruled out, the factor most frequently put forward to try to explain wage inequalities is occupational segregation, i.e. the fact that women and men do not, on average, work in the same occupations, with women tending to be under-represented in the highest-paying occupations (see, for example, Chamkhi et Toutlemonde, 2015 or Bozio, Dormont et García-Peñalosa, 2014). In practice, however, **this segregation between occupations only accounts for a fairly limited share of total wage inequality** : When neutralized (in conjunction with age effects, see Box 1 for the method), the average hourly wage gap between women and men falls by only 4 percentage points in 2018, from 15% to 11% (Figure 1). Interestingly, it is mostly the segregation between France's major occupational groups (executives, intermediate professions, junior employees, laborers) that generates gender-based wage inequality in 2018. Indeed, once the effects of this segregation are neutralized, consideration of occupational differences at a more granular level within each occupational group does very little to reduce the average wage gap between women and men.

"The wage gap between women and men drops from 15% to 11% when the effect of the occupation is neutralized"

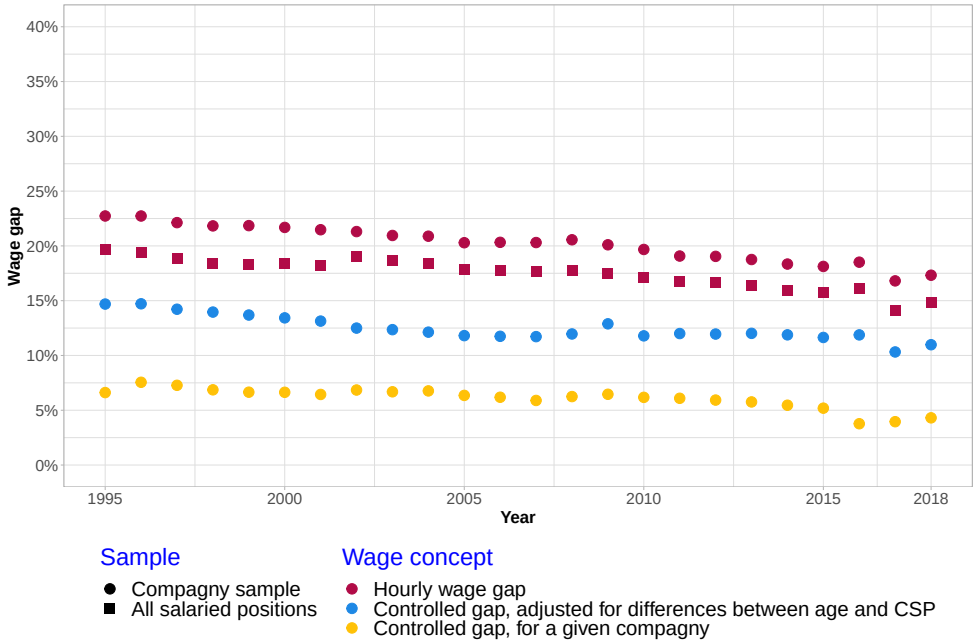
At the level of occupational groups, women are strongly over-represented among junior employees and strongly under-represented among laborers, who are on average better paid. **Although they are on average better educated than men, women are also under-represented among executive workers** (and over-represented in the intermediate professions). In detail, it is these differences that "explain" why the gender pay gap drops from 15% to 11% when the effect of occupation is neutralized.

Interpreting and using different measures of inequality

The residual hourly wage gap, which is not explained by variables characterizing the skill level of employees or the nature of their jobs, is often considered to be the result of wage discrimination, i.e. wage differences between women and men doing work of exactly equal value. This is possible, of course, but there is no way to say for sure. In the absence of a very precise measurement of working conditions and the exact content of work (which statistical data can hardly provide), it is unfortunately not possible to be very certain, as we shall see in the second part of this policy brief.

Conversely, it is also not possible to suggest that all of the observable factors (age, occupational segregation, working hours, etc.) that allow us to account for part of the wage inequalities would somehow make these inequalities justifiable or unproblematic. To understand this,

Figure 2 – Wage gaps at the company level



Notes : The graph represents, for two different samples and for each year between 1995 and 2018, different concepts of the wage gap between women and men. The wage gap is calculated in the same way as before (see Figure 1). The sampling of companies is detailed in Box 1 ; these are the salaried positions in companies for which it is possible to calculate a wage gap. The difference between the two series in red is due to the difference in samples. The controlled gap for a given company corresponds to the average hourly wage gap between women and men, adjusted for the effects of age, occupation, and socio-professional categories, within each company. The average is scaled by the size of each firm (in terms of hours paid).
Interpretation : In 2018, women earned an average hourly wage of 17.4% less than men in the "company sample".
Sources : DADS 1995-2018, authors' calculations.

take the example of the under-representation of women among executive workers or even among senior managers. This could well be the result of discrimination in promotion. While there is no evidence to suggest that such discriminatory behavior explains a significant proportion of occupational segregation, it cannot be ruled out *a priori* either.

This discussion illustrates the distinction between inequality and discrimination, and shows that it is not possible *a priori* to directly link measures of wage inequality, whether or not they are controlled for structural effects (differences in age, occupation, etc.), to discriminatory behavior or its absence. As a result, **there is no measure of gender wage gaps that, from a normative point of view, would be more justified than another**. In particular, there is no reason to consider that wage gaps for a given age and occupation provide a better representation of gender-based wage inequalities.

The different measures are, however, useful for gaining a better understanding of all the factors that generate inequalities and for designing effective public policies to limit them. We know, for example, that the differences in working hours that contribute strongly to pay inequalities are linked to the gendered division of domestic tasks and child rearing, which in turn affect participation in the labor market. It is also known that occupational segregation is partly explained by the fact that girls are oriented towards fields of study that are, on average, less valued (Breda et al., 2019), or in any case, that lead to less well-paid occupations (for the same number of years of study). Thus, if domestic work or career choices are better balanced between the sexes, it should be possible to significantly reduce the gender pay gap. Alternatively, or in the shorter term, it is also possible to directly influence the labor market, by upgrading female-dominated occupations and facilitating work-life balance. In addition, such policies could also reduce the residual wage gap of 11%. Indeed, this residual gap could be partly linked to differences between women and men in working conditions or mobility between companies, which themselves can be explained by the greater need for women to be able to reconcile work and personal life (see Le Barbanchon, Rathelot et Roulet, 2021 ; Coudin, Maillard et Tô, 2018).

The role of firms

The data we use allow us to observe the employer of each worker, and thus to study in detail how wages and gender-based wage inequalities vary from one firm to another, and to what extent segregation between firms, rather than between occupations, contributes to the total wage gap. For this purpose, we exclude firms with less than five employees or with only one woman or one man, as the notion of a gender wage gap has little meaning for

them. This exclusion tends to increase the average hourly wage gap between women and men (Figure 2, the two red curves), which is lower among those working in very small firms. However, once the age and occupation effects (blue curve) are neutralized, we find a similar "unexplained" gap (of about 11%) in the sample of firms with five or more employees and at least two people of each sex.

When average wage differences between firms are also neutralized, the resulting wage gap is slightly less than 5% in 2018. This residual gap can be understood as the average wage gap between women and men of the same age, working in the same company and the same occupation. It has steadily decreased since 1995, when it was about 7%. Above all, whatever the year considered, the additional consideration of wage differences between firms more than halves the wage gap obtained when only age and occupation effects are taken into account. This is an important and less well-known result : **Segregation between different firms explains a substantial part of the wage gap between women and men**, with men working on average in firms offering higher wages for the same job.

The importance of segregation between firms in explaining gender pay gaps confirms, first, that the 11% gap obtained by taking into account differences in age and occupation alone cannot be interpreted as wage discrimination on the part of firms, since wage discrimination only has meaning within a given firm. The small gap obtained for a given firm, occupation and age has implications in terms of public policy. It means that reducing gender inequality within firms at a given age and job level through specific public policies (for example, by requiring transparency on wage gaps) can only reduce the total wage gap by 5 percentage points or less. [3]

"Reducing gender inequality within firms at a given age and job level can only reduce the total wage gap by up to 5 percentage points"

The professional equality index introduced in France in September 2018 falls into this category. This index is largely based on a calculation of wage gaps within the company for a given occupation and age (see Breda et al., 2020). The idea is that firms that score too low will face financial penalties. However, in the calculation of the equality index, wage gaps of less than 5% are considered tolerable and allow firms to obtain the maximum score of 40 points out of 40 on the wage gap criterion. As the reader can verify directly with our online tool, less than 40% of companies have wage gaps greater than 5%. **This suggests that the equality index should have relatively limited effects on the total gender wage gap**, since it focuses on only a small part of this gap (the hourly wage gap for a given firm, occupation and age) and is only really burdensome for a minority of firms. [4] However, such a regulation has the merit of making pay inequalities more visible and making companies more generally aware of the issues related to career inequalities between women and men.

Conclusion

There are different ways of understanding and measuring gender pay inequalities and this policy brief attempts to provide a brief description of them. One central finding emerges : Regardless of how they are measured, these inequalities have been decreasing since the early 1990s. However, they remain significant in 2018, with the gender wage gap varying from 5% to 25% depending on the indicator used. Trying to summarize these inequalities using only one of these possible indicators inevitably masks the depth and complexity of the issues at stake. The different measures and their comparison are indeed necessary to describe the inequalities and understand their origin. In particular, they show that a significant part of inequality is due to the fact that men are more likely to work in companies with high salaries. Thus, in the fight against gender inequalities in the workplace, public policies that only target the wage gap within companies, although useful, will remain insufficient. Policies that address the root causes of gendered differences in working hours, professional mobility, occupation, and demand for flexible working hours are also needed.

Authors

Thomas Breda is head of IPP's Labor Program and a CNRS researcher at Paris School of Economics.
Paul Dutronc-Postel is an economist at IPP.
Joyce Sultan Parraud is an economist at IPP.
Maxime Tô is an economist at IPP.

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3. This therefore only takes into account the "direct" impact of such policies, i.e. the effect they can have through the reduction of wage gaps within firms. It is possible that such policies may also have other effects, such as on differences in the representation of women and men between different firms, in which case the reduction in the total wage gap may be greater.

4. The equality index also includes a criterion on the proportion of women among the 10 highest earners in the company. As a result, it could encourage some companies to recruit more women, particularly in management positions, thus limiting the wage gaps linked to segregation between companies.

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Box 1 : Methodology and data used

The results presented in this policy brief are based on the use of administrative declarations of social data (DADS), for the years 1995 to 2018. These data list all the jobs in French companies. A job is defined as all the periods of work performed by an individual within a company (we aggregate jobs at the company level).

Definition of the sample. We restrict jobs to the private sector, itself a concept that varies over time. We reconstruct here the private sector as defined in INSEE's work in 2018, i.e., the ancillary and non-ancillary positions of regular or subsidized employment, excluding agriculture, households as domestic employers and as producers, international organizations, and excluding civil servants (FPE, FPT, and FPH, as well as other employers close to the civil service, public establishments or of public interest, etc.).

Social class and age of individuals. We use the INSEE categorization of professions and socio-professional categories. Age and gender are also included in the data.

Perimeter and size of companies. We consider the SIREN number as the scope of a company. The size of a company is obtained from the number of jobs in the year. We include all employees declared as such by their employer, including when they are seconded to another company (temporary workers are therefore assigned to their temporary employment agency).

Company sample. To calculate wage gaps at company level, we restrict the sample to companies with at least five employees during the year, of which at least two are men and two are women. We also calculate, within each company, wage gaps by socio-professional category (CSP) and age group. As these categories are even smaller, the wage gap may be incalculable for some of them. We restrict the sample of firms to those for which the controlled wage gap for age and socio-professional categories can be calculated on at least 50% of the hours paid in the firm. For Figure 2, the "All employees" gaps already presented in Figure 1 are recalculated, but only for the jobs included in this "Company sample" ; otherwise, the differences between the curves could be explained by the fact that the employees and the companies concerned are not the same.

Income and hours worked. DADS uses as a concept of salary "all sums received by the employee under his or her employment contract, including mandatory and optional profit-sharing." It covers wages, *including overtime and additional hours*, bonuses, employee savings, compensation (sickness, furlough, dismissal), taxable benefits in kind (housing, car, etc.) and various other payments.

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