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Résumé : La réduction des écarts de salaires entre les hommes et les femmes est depuis maintenant deux décennies au point mort. Le fait que les unes et les autres se distinguent en matière de caractéristiques non cognitives constitue une des raisons qui pourrait expliquer qu'il en soit ainsi. Dans ce travail, à partir de l'enquête *Génération 1998 à 10 ans* réalisée par le Céreq, le rôle que les préférences en termes de carrière *versus* famille, l'attitude face au risque ou le rapport à son avenir professionnel peuvent avoir sur les écarts de salaires est examiné. Comme ces facteurs non cognitifs sont susceptibles d'influencer les salaires mais aussi les choix professionnels, la décomposition des écarts de salaires proposée par Brown, Moon et Zoloth (1980) est mise en œuvre. Celle-ci permet de tenir compte de ce mécanisme indirect par lequel les variables non cognitives peuvent déterminer les salaires, mais aussi du caractère potentiellement discriminatoire de la ségrégation occupationnelle. Si les différences de caractéristiques non cognitives comptent, 6,3 % de l'écart de salaires total, soit près de deux fois plus que l'expérience, 60 % restent inexpliqués par les caractéristiques retenues.

Mots-clefs : écarts de salaires hommes femmes, décomposition salariale Brown-Moon et Zoloth, facteurs non-cognitifs, ségrégation professionnelle.

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Summary: Differences between men and women in non-cognitive skills could be the reason why the gender gap closing didn't improve since the middle of the nineties. To investigate this issue in the case of France we used the "Génération 1998 à 10 ans" database conducted by the Céreq. This survey provides information on gender preferences differences in terms of career versus family, risk attitudes or the vision individuals have of their professional futures. As these non-cognitive factors are likely to influence wages but also occupational choices, the decomposition of wage differentials proposed by Brown, Moon and Zoloth (1980) is implemented. This makes it possible to consider this indirect mechanism by which non-cognitive variables can determine wages, but also the potentially discriminatory nature of occupational segregation. We find that differences in non-cognitive skills matter, 6.3% of the total gender wage gap, that is almost twice as experience, but a large part, 60% of the gap, remains unexplained by the characteristics considered in this work.

Keywords: gender wage gap, Brown-Moon and Zoloth wage decomposition, non-cognitive factors, occupational segregation.

JEL classification : J16, J24, J31, J38, J71

Despite what Goldin (2006) has called the "silent revolution" – the period when women increased their investment in education and in the labour market – they still get paid less than men. In the latest *Handbook of Labor Economics* survey on gender issues, Bertrand (2010) considers that differences in non-cognitive characteristics between men and women should be analysed to understand this differential better. Such non-cognitive skills do not refer to individuals' knowledge and know-how but to psychological and socio-psychological factors. Laboratory experiments demonstrate that attitudes to risk, competition and the capacity to negotiate differ between men and women.[2] Several psychology studies have also identified differences in personality traits or in the preferences of men and women. According to Bertrand, the impact such non-cognitive factors may have in the labour market remains to be tested by research outside the laboratory. Our study takes this perspective. It focuses on the role non-cognitive factors may have in explaining the gender wage gap in France: it follows work by Filer (1983), Mueller & Plug (2006), Fortin (2008), Grove *et al*. (2011), Cobb-Clark & Tan (2011) and Nyhus & Pons (2012).

Most of these studies (apart from Cobb-Clark & Tan (2011)) have looked at the direct impact of non-cognitive variables on the gender wage gap, namely on individuals' productivity. Using Oaxaca-Blinder decomposition, they have been able to measure the contribution of non-cognitive variables to this gap. However, these non-cognitive

[2] See Bertrand (2010) and Eswaran (2014) for a summary of this research.

variables are also likely to determine occupational choices[3] by individuals, as well as recruitment choices by employers (Chantreuil & Epiphane, 2013). Accordingly, they could to some extent explain the occupational segregation observed between men and women in the labour market. This is indeed the conclusion of research conducted by Filer (1986), Ham et al. (2009), Falter & Wendelspiess Chávez Juárez (2012) and John & Thomsen (2012): alongside more conventional variables (level of education, work experience), non-cognitive variables are a source of heterogeneity between individuals. In order to take into account both this indirect mechanism by which non-cognitive variables may influence wages, and the potentially discriminatory nature of occupational segregation, we adopt the decomposition method proposed by Brown, Moon and Zoloth (1980). This method allows the gender wage gap to be broken down into an inter-occupation component (linked to differences in the distribution of men's and women's jobs across occupations) and into an intra-occupation component (linked to the wage differentials within occupations). Both of these components are then each decomposed into differentials due to differences in characteristics between men and women which are explained, and into differentials which are unexplained.

By using this method, our work is close to that of Cobb-Clark & Tan (2011). Nevertheless, apart from the fact that our study looks at a different country and at different non-cognitive variables, it also differs in the way it takes the influence of non-cognitive factors into account. While Cobb-Clark & Tan (2011) evaluate this influence by comparing estimations with and without non-cognitive variables, we propose assessing the contribution of these variables to the gender wage gap by using a detailed decomposition. As will be shown below (in Section 2), this requires taking some technical precautions, especially as far as the decomposition of the unexplained wage gap is concerned. But this makes it possible to obtain a precise evaluation of the shares which go to these factors. Such detailed decomposition also allows the causes of the unexplained components of the gender wage gap to be better identified.

This study is the first to examine how differences in non-cognitive characteristics between men and women influence the gender wage gap in France. It is the first examination, as data for these characteristics are sparse in France compared to countries like Australia, Germany, the Netherlands, the United Kingdom and the United States. In particular, no surveys exist which provide information about individual personality traits that are part of the Big Five, [4] or of the locus of control[5] used in most of the studies mentioned above. The survey used here, "Generation 1998 at 10 years"

[3] The word "choice" is used here in a way which does not exclude the fact that choices are constrained, even concerning preferences.

[4] The personality traits measured by the Big Five are: openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McRae, 1992).

[5] The locus of control measures the original perception an individual has of what is happening to him/her (Rotter, 1966). People who think that what happens to them is due to their behavior, their efforts or their competences have an internal locus of control. In contrast, individuals who have the feeling that fate or factors escape their control and are the cause of what happens to them have an external locus of control.

conducted by the CEREQ[6], relies on subjective questions that make it possible to have an idea of the role played by preferences concerning work versus family, attitudes to risks or to a person's professional future on the gender wage gap between young men and women.

After reviewing the literature in Section 1, we set out the methodology in Section 2 and present the data in Section 3. The results of the overall and detailed decompositions, as well as the influence exerted by non-cognitive factors on the choice of occupations and wages are presented in Section 4. This section ends with a discussion of the results obtained. Are these results robust when occupational self-selection is taken into account? To what extent do the differences in the characteristics between men and women, which are considered to be justified, notably their working time, stem from constraints faced in the labour market? Lastly, how do these results compare with other available estimates of the gender wage gap in France?

1- Literature Review

Analysis of non-traditional factors which may explain observed behaviour in the labour market has now been quite important for the last 10 to 15 years. Previously, research examined the influence of education, work experience and cognitive capacities on individual job decisions and pay. Today, research is looking more into the role of non-cognitive skills: personality traits (mainly), but also preferences and social norms. Such factors have long been viewed by psychologists and sociologists as key determinants in agents' decisions. Henceforth, they have also been integrated into the "tool box" used by economists. For sociologists, the idea that gender roles assigned to men and women shape their preferences and personality traits, which in turn influence their occupational choices and professional aspirations, is not new. In economics, studies on the contribution of non-cognitive variables to wage differentials are recent. We examine here the results obtained by Filer (1983), Mueller & Plug (2006), Fortin (2008), Grove *et al.* (2011), Cobb-Clark & Tan (2011) and Nyhus & Pons (2012). These studies differ in the fields they cover (samples), the non-cognitive variables used, the method of decomposition adopted and the results obtained (Table 1).

[6] Centre d'études et de recherche sur les qualifications (French Center for Research on Qualifications).

Table 1: Literature Review on the Influence of Non-Cognitive Variables

	Filer (1983)	**Mueller & Plug (2006)**	**Fortin (2008)**	**Grove, Hussay & Jetter (2011)**	**Cobb-Clark & Tan (2011)**	**Nyhus & Pons (2012)**
Sample	Non-representative sample (South-East US, rather educated) US, 1972 N=3,544	Wisconsin1992, secondary school leavers in 1957 N=5,025	US 1986 About 30 years old N=6,522	MBA Candidates US, 1998 (more than 35 h) N=933	Australia 2001-06 Representative sample N=5,397	Netherlands 2005 16-64 years old N=622
Wage	Monthly	Hourly	Hourly	Annual	Hourly	Hourly
Non-cognitive variables (NCV)	Personality traits + preferences	Big five	Self-esteem + locus of control + preferences	Personality traits + preferences	Big Five + locus of control	Big five + locus of control + preference for the future
Time of measuring NCVs	At the time of the survey	At the time of the survey	At the end of secondary school	8 years after entering the labour market	Assumption of no variance in personality traits among adults	After entry into the labour market with control for age
Norm	Men	Pooled	Pooled	Men	Men	Pooled
Intra-occupational					**96.6%**	
Explained					21.7%	
Unexplained					74.9%	
Inter-occupational					**3.4%**	
Explained					-0.4%	
Unexplained					3.8%	
Total gender wage gap (in logs * 100)	Wage differential $237.4	58.7	22.9	15.5	14.3	24.6
Total explained	**37%**	**68.7%**	**24.8%**	**60%**	**21.3%**	**37%**
of which NCV	3% preferences 6% personality and cognitive	7.3%	8.4%	17.4%	Negative and very weak	11.5%
Statistical significant share	Non-determined	Non-determined	7.5% (preference for money/work and external locus)	8.2% (non-financial attributes and usefulness to society)	Non-determined	Non-determined
Total unexplained	63%	31.3%	75.2%	40%	78.7%	63%
of which NCV	-16% preferences +26% personality and cognitive	-4.5%	13.0%	Non-determined	Non-determined	0.38%
Statistical significant share	Non-determined	Non-determined	Non-determined	Non-determined	Non-determined	Non-determined

In terms of coverage, samples are either representative but sometimes age-focused (adults about 30 years old) or aimed at particular groups (MBA students, a region, etc.). Or they are non-representative or very small. The data are American, Australian and Dutch. The decompositions refer to hourly, monthly and annual wage differentials.

The non-cognitive characteristics used are mostly relative to personality traits, usually measured by the Big Five, the locus of control or a self-esteem scale.[7] However, Filer (1983) and Grove et al. (2011) use other measures. The Guilford-Zimmerman's temperament survey[8] enabled Filer to gauge ten personality traits, while Grove et al. assess fifteen non-cognitive competences.[9]

In four studies, variables relating to individual preferences are used alongside these personality traits. Filer (1983) takes into account the way individuals evaluate eleven fields which are as diverse as job satisfaction, security, power, job prestige, social prestige, income, family life, religious activity, leisure and the contribution of work to society. Grove et al. (2011) evaluate the impact on wages of differences in preferences assigned by individuals (ranked from 1 to 4 in level of importance) to their career, their family, their health and their friends (preferences at work/outside work) and to preferences linked to job characteristics (their non-financial attributes and their usefulness to society). Fortin (2008) uses two composite variables associated with preferences, on top of two composite variables relative to personality traits (self-esteem and locus of control). These include the value given to money and work on the one hand (1 if important, else 0), and the importance assigned to what is useful to society and family on the other hand (1 if important, else 0). Lastly, Nyhus & Pons (2012) concentrate on evaluating the importance which individuals give to the immediate and future consequences their decisions may have on their wages.

In all of these studies (with the exception of Fortin (2008) and Grove et al. (2011)), measurement of non-cognitive variables is carried out after entry into the labour market. It is sometimes emphasized that problems of inverse causality and endogeneity may lead to biases in the results. This is because non-cognitive variables risk reflecting individuals' situation in the labour market and not their real preferences or personality traits.

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[7] The Rosenberg Self-Esteem Scale (1965) is an evaluation of the personal worth which an individual may have about him or herself. It is based on ten propositions about what interviewees declare they are more or less agree with, such as: "I feel that I have a number of good qualities", or "I certainly feel useless at times". Possible answers are: "strongly agree", "agree", "disagree", "strongly disagree".

[8] The Guilford-Zimmerman test is a questionnaire on personality developed in the United States and is used in job recruitment. It includes 300 questions with "yes", "no" and "don't know" answers, and allows major binary personality traits to be assessed, such as sociability (extraversion vs. introversion), or emotional stability (stable vs. unstable) (Guilford et al., 1976).

[9] A sense of initiative, ethical standards, communication capacities, the ability to work with different types of people, practical intelligence, organizational capacity, physical attractiveness, assurance, ability to take advantage of change, the ability to delegate, the ability to adapt theory to practical situations, understanding work in different cultures, a good intuition, the capacity of motivating others, and working in teams.

Except in the case of Cobb-Clark & Tan (2011), the Oaxaca-Blinder method is implemented. Moreover, the detailed decompositions, when provided, do not always come with the statistical significance of the different components. In particular, it should be noted that the statistical significance of the unexplained components is never given.

In most of the studies reviewed (4 out of 6), the unexplained gender wage gap component is important, ranging from 63% (Filer, Nyhus & Pons) to more than three-quarters of the total gap (Fortin; Cobb-Clark & Tan). The contribution of non-cognitive characteristics is very limited and negative in the Cobb-Clark & Tan study.[10] It is positive, running from 3% to 9% in the Filer study;[11] 7.3% for Mueller & Plug; 8.4% for Fortin; 11.5% for Nyhus & Pons; and rises to 17.4% for Grove et al. Only two studies give the statistical significance of the different components of the explained gap, namely the studies by Fortin and Grove et al. In the former, the contribution of non-cognitive variables is reduced from 8.4% to 7.4%, whereas in the latter it is cut from 17.4% to 8.2% (the only statistically significant differences in the non-cognitive characteristics are the employment characteristics in Grove et al., and the evaluation of money/work as well as the external locus of control in Fortin). Finally, the influence of non-cognitive characteristics ranges *at best* from something which is negative or weak to 8.2%

The contribution of the differences in the returns to these variables to the gender wage gap is not always given.[12] But, when provided, it ranges from: -16% to -10% in the study by Filer; to -4.5% in the work by Mueller & Plug; while being very low for Nyhus & Pons at only 0.5%; but rising to 13% in Fortin. It should be recalled that the statistical significance of this component is never provided. Nevertheless, some works specify that most of the differences in returns between men and women are not statistically significant. This is the case of Nyhus & Pons, who find that only the negative external locus of control return is different between men and women, to the benefit of the latter. Filer finds that relational capacities are rewarded differently between men and women (to the benefit of men). Lastly, Mueller & Plug only find a significant differential in the returns to the personality trait of "being agreeable", which actually benefits "disagreeable" men.

2- Methodology

Following a quick presentation of the decomposition methodology used to analyse the gender wage gap, we develop our methodological contribution with respect to existing research, and especially with reference to Cobb-Clark & Tan (2011).

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[10] In this study, the contribution of non-cognitive variables is not quantified but assessed using a comparison of a model which excludes them, and a model which takes them into account. The contribution of the explained component falls slightly (from 22.8% to 21.3%), when non-cognitive variables are taken into account. The authors conclude that this supplement corresponds to a very small and negative influence of non-cognitive variables, with an advantage to women.

[11] The percentage figure is made up of 3% for variables which relate to preferences, and 6% that concern personality traits and cognitive variables. As the latter are not isolated, it is not possible to indicate what the overall contribution of non-cognitive variables alone is.

[12] Grove et al. (2011) and Cobb-Clark & Tan (2011) do not give any indication of the contribution in the returns to non-cognitive variables to wage differentials between men and women.

The decomposition of the gender wage gap put forward by Brown, Moon & Zoloth (1980) has several advantages. It allows the gendered occupational segregation observed in the labour market to be considered as a result of individual preferences but also of discriminatory behaviour. It makes it possible to assess the direct effect through which non-cognitive variables may influence wage gap, through their impact on individuals' productivity; but also their influence on occupational choices by individuals and hiring decisions by employers and consequently their effect on occupational segregation. This decomposition takes the following form:

$$(1)\overline{lnW}^m - \overline{lnW}^f = \underbrace{\sum_j p_j^f \, \hat{\beta}_j^m \left(\bar{X}_j^m - \bar{X}_j^f\right)}_{\text{Explained component}} + \underbrace{\sum_j p_j^f \, \bar{X}_j^f \left(\hat{\beta}_j^m - \hat{\beta}_j^f\right)}_{\text{Unexplained component}} +$$

$$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}_{\textbf{Intra-occupational wage differential}}$$

$$\underbrace{\sum_j \overline{lnW}_j^m \left(p_j^m - \hat{p}_j^f\right)}_{\text{Explained component}} + \underbrace{\sum_j \overline{lnW}_j^m \left(\hat{p}_j^f - p_j^f\right)}_{\text{Unexplained component}}$$

$$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}_{\textbf{Inter-occupational wage differential}}$$

$\overline{lnW}^m$ and $\overline{lnW}^f$ are the averages of the logarithm of men's and women's wages, and $\overline{lnW}_j^m$ is the average of the logarithm of men's wages in occupation j.

The first element on the right-hand side represents the intra-occupational wage gap, which is explained by the differences, on average, of the characteristics of men, $\bar{X}_j^m$, and women, $\bar{X}_j^f$. The second measures the unexplained part which stems from differences in returns to the characteristics of women, $\hat{\beta}_j^f$, and men, $\hat{\beta}_j^m$. Similarly, the inter-occupational wage differential can be decomposed into two factors. The first represents the explained part, that is the difference between the occupational distribution observed for men, p_j^m, and the counterfactual distribution for women, $\hat{p}_j^f$, i.e. the distribution which would prevail if women benefited from the same access to different occupations as men, given their characteristics. The last component of the wage gap measures the difference between the counterfactual distribution of women and their observed distribution, p_j^f, and evaluates the unexplained part of the inter-occupational wage differential; the one due to the fact that men and women do not have the same access to different occupations.

To carry out this decomposition, returns to the characteristics of men and women must be estimated, as must the counterfactual distribution of women in the different occupations.

Wage equations by occupation for men and women take the following standard form:

$$(2)\ lnW_j^m = \beta_j^m X_j^m + \varepsilon_j^m, j = 1,2,\dots,J$$

$$(3)\ lnW_j^f = \beta_j^f X_j^f + \varepsilon_j^f, j = 1,2,\dots,J$$

Concerning occupational choices, they are assumed to be determined by the interaction of supply-side factors (preferences and competences of individuals for a job, subject to family constraints) and demand-side factors (decisions by employers to hire an individual, according to his/her productive characteristics). The reduced form which summarises these interactions is as follows:

$$(4)\ P(y = j \mid X^o) = p_{ij} = \frac{exp(\gamma_j X_i^o)}{1 + \sum_{j=1}^{k-1} exp(\gamma_j X_i^o)}$$

Where p_{ij} represents the probability that an individual i is employed in occupation j determined by the variables X^o.

This modelling of occupational choices using a multinomial logit is conducted for men, in order to evaluate the counterfactual situation for women, in terms of the occupational distribution of jobs (the $\hat{p}_j^f$).

The variables determining the wage equations (the Xs) and the choice of occupation equation (the $X^o s$) are set out in Table 2, and are presented in more detail in the following section on the data.

Table 2: Determinants of Occupations and Wages by Occupation

	Occupation	**Wages**
Experience#: number of months in employment between 1998 and 2008		
Age#		
Education: • highest level of diploma (4) • entering late into middle-school • speciality (academic, training tracks in services, industrial training) • interaction between the diploma and educational speciality		
Professional characteristics: • supervisory duties (0, 1, 2 à 5, 6+ employees) • sectors of employment (4) • job status (private or public sector) and job contract (permanent/others) • company size (<10, 10-49, 50-499, 500+ employees) • company localization (Great Paris or other) • atypical hours included in wages		
Working hours: • Full time or part time job (80%, 60%, 50%, <50%)		
Family characteristics: • husband • children (at least 1)		
Non-cognitive characteristics in 2001: • Career preferences (priority during the last 3 years: pursue a career/find a stable job/manage work-life balance) • optimism related to professional future (rather optimistic/ rather worried/don't know) • risk attitude (Do you think that you may be self-employed or set up your own company one day?: yes/maybe in my plans for the future/no/don't know).		

The shaded areas indicate if the variable is retained in the equation.

Centered on mean value

Education variables (level of diploma and speciality), family characteristics and non-cognitive factors determine occupational choices, as much as wages do. For the latter, the modelling is completed with work experience, professional characteristics and working time. For the choice of occupation, age and the interaction between the diploma and educational speciality are added.

Detailed decomposition

Previous research that has already conducted such decomposition (for example, Meng & Meurs, 2001; Reilly, 1991; and Cobb-Clark & Tan) has been limited to measuring the four overall parts of the decomposition, namely the inter- and intra-occupational differentials and their explained and unexplained components. But the assessment of the characteristics (the explained shares) or of the returns to these characteristics (unexplained shares) which contribute to these different components of the gender wage gap provides essential information in guiding policy. Such information allows factors to be identified for which public policy can intervene in order to reduce wage differentials. Moreover, this information also allows the size of the contribution of the non-cognitive variables to these differentials to be evaluated. This is the main aim of our study.

Several reasons may explain why these detailed breakdowns have not been carried out. First, with the overall BMZ decomposition, which distinguishes the intra-occupational and the inter-occupational wage differentials, it is possible to establish if wage inequalities are the result of differences for similar jobs (*unequal pay for equal work*) or of differences in accessing jobs (*unequal work despite equal qualifications*).

Next, when qualitative variables are included among the factors determining wage differential, the results of the estimations, which are carried out by choosing a reference modality for these variables, cannot be used as such to detail the unexplained parts. This is because they are dependent on reference modalities used in the estimations (Oaxaca & Ransom, 1999).[13] Therefore, to obtain decompositions which do not change with respect to reference modalities, Yun (2005) proposed to transform the estimated coefficients by expressing them as deviation to the mean and by adding the coefficient of the reference modality as follows.

Let there be an equation with L continuous variables and M qualitative variables, in which the m^{th} has K_m modalities and hence K_{m-1} dichotomous variables in the estimated equation:

$$(5)\ lnW = a + \sum_{l=1}^{L} X_l * \beta_l + \sum_{m=1}^{M} \sum_{k_m=2}^{K_m} D_{mk_m} * \beta_{mk_m} + \varepsilon$$

[13]Meurs & Ponthieux (2006), for example, indicate that "it is not possible, in contrast to detail the 'unexplained share' in the same way. Indeed, the estimation of the differential of returns per subset of characteristics is dependent on the choice of the reference modality for the dichotomous variables".

Based on this estimation, the transformed model may be written as:

$$(6)\ lnW = a' + \sum_{l=1}^{L} X_l * \beta_l + \sum_{m=1}^{M} \sum_{k_m=1}^{K_m} D_{mk_m} * \beta'_{mk_m} + \varepsilon$$

$$\text{with: } a' = a + \sum_{m=1}^{M} \bar{\beta}_m,$$

$$\beta'_{mk_m} = \beta_{mk_m} - \bar{\beta}_m$$

$$\overline{\beta}_m = \sum_{k_m=2}^{K_m} \beta_{mk_m} \Big/ K_m$$

And the decomposition of the unexplained share of the intra-occupational differential (ESIOI), for example, for occupation j:

$$(7)\ ESIOI = a^m + \sum_{m=1}^{M} \bar{\beta}_m^m - a^f - \sum_{m=1}^{M} \bar{\beta}_m^f + \sum_{l=1}^{L} \bar{X}_l^f * \left(\beta_l^m - \beta_l^f\right) + \sum_{m=1}^{M} \sum_{k_m=1}^{K_m} \overline{D}_{mk_m}^f * \left(\beta_{mk_m}^m - \beta_{mk_m}^f - \bar{\beta}_m^m + \bar{\beta}_m^f\right)$$

It should be noted that this problem of identification arises in a similar way, when the decomposition of the wage gap implemented is the one proposed by Oaxaca-Blinder.

There is another difficulty, linked to the use of non-linear modelling to estimate occupational choices. To overcome this difficulty and to obtain a detailed decomposition of inter-occupational wage differentials, a linear estimation of occupational choices is carried out. This also enables the influence of non-cognitive variables on the overall wage differentials between men and women to be assessed accordingly.

In this case, the equation $P(y = j \mid X^o) = p_{ij} = \frac{exp(\gamma_j X_i^o)}{1+\sum_{j=1}^{k-1} exp(\gamma_j X_i^o)}$ is replaced by

$$(y = j \mid X^o) = p_{ij} = \gamma_j X_i^o, \qquad j = 1,2, \dots, J$$

As we shall see below, this linear estimation only changes the distribution across the explained and unexplained components of the inter-occupational wage differential at the margins. This weak difference stems from limited differences in the estimation of the marginal effects used to calculate the counterfactual distribution of jobs by occupation for women, according to the type of modelling used. As Cameron & Trivedi (2005) or Wooldridge (2002) have emphasised, the linear model of probability may have the drawback of providing individual probabilities that are predicted to be negative or superior to 1. But it does allow for a direct estimation of the average marginal effects, the γ_j, on the probability that $y = j$ when X varies, which is very close to that obtained by non-linear modelling. This is especially so when most of the explanatory variables are discrete, as is the case here.

The detailed decomposition is thus obtained as follows:

$$(8)\ \overline{lnW}^m - \overline{lnW}^f = \sum_j p_j^f\ \hat{\beta}_j^{m\prime}\left(\bar{X}_j^m - \bar{X}_j^f\right) + \sum_j p_j^f\ \bar{X}_j^f\left(\hat{\beta}_j'^m - \hat{\beta}_j'^f\right) + \sum_j \overline{lnW}_j^m\ \hat{\gamma}_j^{m\prime}\left(\bar{X}^{om} - \bar{X}^{of}\right) + \sum_j \overline{lnW}_j^m\ \bar{X}^{of}\left(\hat{\gamma}_j'^m - \hat{\gamma}_j'^f\right)$$

3- Presentation of the data

The *Génération 98* survey used here was conducted by the CEREQ. It includes subjective questions which allow assessment of: i) preferences concerning career versus family commitments, ii) the way people see their future working life, and iii) the attitude to risk.

The survey aimed to analyse the first years of working life for a cohort of young men and women leaving initial education at the same time, whatever their age, their level of education or their initial speciality. "Education leavers" or "beginners" are therefore a category which is different from "young people" who enter the labour market at different moments and in different economic situations. The *Génération 98* survey follows young people who left the educational system in 1998, and who were interviewed in 2001, 2003, 2005, and 2008. 10 years of working life were thus covered. The weightings used in the survey are consistently based on the generation which left the education system in 1998.

The *Génération 1998 à dix ans* (i.e., after ten years), in other words in 2008, is used here for all variables, with the exception of non-cognitive variables. As will be shown below, the latter are taken from the first set of interviews of the *Génération 1998*, conducted in 2001. The analysis concerns persons working in 2008, excluding self-employed craft workers and retailers",[14] who replied to the question relating to their working time (full-time versus part-time).[15] It thus covers 9,422 individuals: 4,625 men and 4,797 women. As the actual number of hours worked is not available as a variable in the survey, monthly wages (including bonuses and a possible 13th month annual bonus) are modelled and the information about working time categories is used as a control variable.

The two variables modelled – employment and wages – are presented in Table 3 by occupation, whereas the explanatory variables (the level of education, experience, family and professional characteristics, working time) are given for the overall level (Table 4), in order to present the differences observed between men and women.[16] Only non-cognitive variables are presented below by occupation (Graph 1).

Individual, family and professional characteristics

Table 3 shows that women and men are distributed differently across the 10 job categories retained.[17] Women are significantly more numerous in intermediate health,

[14]The sample includes 443 craft workers and retailers, of which 80% are on their own account.
[15]Accordingly, 125 persons have been excluded.
[16]Individual, family and professional characteristics by occupation are presented in Annex 1.
[17] A detailed classification with 10 occupational posts is used here drawing on the INSEE (French Institute of Statistics and Economics Studies) classification. Care was taken to ensure that there

care and social services, and as clerical workers. Men are more numerous as engineers, technicians, foremen, and above all as labourers. The differences in distribution are particularly marked for clerical workers and labourers. Thus, the segregation between women's and men's jobs is far clearer among less-educated persons (Méron et al. 2006 and Brinbaum & Trancart, 2015). Apart from the level of diploma, the speciality of education (Table 4) surely contributes to the gendered segregation between clerical workers on the one hand and labourers on the other: women mainly enter service sector tracks (65%), whereas men chose industrial tracks more (57%).[18]

Ten years after leaving education, the monthly wages of young men are on average 0.24 log points – in other words 26.9% – higher than the wages of young women.[19] Wage differentials (in %) among men and women are very high, between 25% and 45% at the bottom end of the wage range (clerical workers or labourers); in contrast, at the other end of the wage range, differentials are only important for professionals and managers in business (24.8%). Gender wage gaps are statistically significant but weak for engineers and intermediate professions (from 7.3% to 15.9%), and they are not significant for managers in public services.

were sufficient employees in each category (2% in the distribution by gender). The "unskilled clerical worker" category was constructed using the grid formulated by Chardon (2001).

[18] The educational specialties were re-coded using the INSEE's NSF classification of specialties. Codes 100 to 136 cover general specialties, 200 to 255 industrial specialties and 300 to 346 service sector specialties.

[19] For young women, this corresponds to wages that are 21.2% lower than for men, a little less than what is observed for all wage-earners in France (i.e., 24%).

Table 3: Distributions of Jobs and Wages by Occupation

	Distribution of Jobs in %			Mean-Log-Wage			Wage Gap: M/W in %
	Men (M)	Women (W)	Dif M-W	Men	Women	Gap M-W	
Professionals and managers in business (31.37 : PROF)	5.3	4.1	1.2**	8.05	7.81	0.25***	24.8***
Public sector managers(33. 34.35: MAN_PUB)	5.3	7.4	-2.1***	7.65	7.54	0.12***	3.1
Engineers (38: ENG)	9.0	2.2	6.8***	7.96	7.84	0.12***	18.6**
Intermediate occupations in public services (42, 45, 44: INT_PUB)	2.1	5.3	-3.2***	7.38	7.33	0.05	7.3*
Intermediate occupations in health, care and social services (43; INT_SOC)	3.3	14.6	-11.3***	7.43	7.29	0.14***	15.9***
Other intermediate/ technicians, foreman (46, 47, 48 : OTH_INT)	21.4	15.7	5.8**	7.52	7.38	0.14***	11.8**
Unskilled clerical workers (UNS_CLERC)	4.1	13.7	-9.6***	7.18	6.91	0.27***	28.7***
Skilled clerical workers (SK_CLERC)	9.5	28.2	-18.7***	7.36	7.14	0.22***	24.7***
Skilled labourers (62, 63, 64, 65 : SK_LABR)	26.0	3.9	22.2***	7.34	7.08	0.26***	25.6***
Unskilled labourers (67, 68, 69 : UNS_LABR)	13.8	5.0	8.9***	7.29	6.92	0.37***	44.8***
Total	100	100		7.48	7.24	0.24***	26.9***

The characters in parenthesis are abbreviations and codes of the INSEE classification.
$p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$
Source: authors' calculations based on the CEREQ survey, *Génération 98 à 10 ans*.

The characteristics which are taken into account to explain differentials in the distribution of jobs and wages by occupation are summarised in Table 4, at the overall level. They indicate that women are on average a little older than men (6 months), but that their experience in the labour market is shorter (by a little less than 4 months). Experience is measured here from the month-by-month description of a professional calendar of all positions that were occupied from the date of leaving the education system to the date of the survey. This makes it possible to have information about individuals' real experience and not just potential experience, as is often the case. It therefore takes into account the various interruptions in periods of employment. These are due, for example, to national service (for the men of the *Génération 98*) and to domestic tasks of women. While women's work experience is shorter than men's, their level of education is higher. Women are more educated than men: 40% of men have at best a CAP/BEP (a vocational lower secondary certificate taken at about the age of 16), whereas only 26% women have this qualification alone. Nearly a quarter of women have a diploma equivalent to at least three years of higher education (essentially a Bachelor's degree), compared to only 19% of men. Moreover, a quarter of men were behind at school, on entering middle-school, compared to only 18% of women.

Table 4: Individual, Family and Professional Characteristics

	Men (M)	Female (F)	Dif M-F
Age	31.3	31.8	-0.50***
Experience (in months)	111.4	107.6	3.8***
Education:			
Diploma			
No diploma or vocational lower secondary education (CAP/BEP)	40.0	26.0	14***
Upper secondary diploma (BAC) (A-Level equiv.)	22.8	25.9	-3.1***
Low-level tertiary education (BAC+2 years)	18.3	23.7	-5.4***
High-level tertiary education or Bachelor's degree	18.9	24.4	-5.5***
Speciality of education			
Academic	15.3	24.8	-9.5***
Production or industrial tracks	57.0	10.1	46.9***
Service sector tracks	27.7	65.1	-37.4***
Entering late into middle-school	25.2	17.8	7.4***
Residence (inner Paris and its suburbs)	18.6	17.5	1.1
Working hours:			
Full time	96.9	72.5	24.4***
Part-time (50%)	0.9	4.8	-3.9***
Part-time (<50%)	0.4	1.8	-1.4***
Part-time (80%)	1.4	18	-16.6***
Part-time (60%)	0.4	2.9	-2.5***
Family characteristics:			
Husband	65.6	74.2	-8.6***
Children	46.9	63.8	-16.9***
Professional characteristics:			
Job sectors			
Industrial	31.2	9.8	21.4***
Administration, education, health, social	19.5	49.0	-29.5***
Others services	33.8	29.6	4.2***
Missing or Agriculture[20]	15.5	11.6	3.9***
Atypical hours	13.3	11.7	1.6*
Job in public sector	20.4	36.9	-16.5***
Permanent contract	88.7	85.6	3.1***
Supervisory duties			
0 employee	64.7	78.9	-14.2***
1 employee	6.9	4.2	2.7***
2-5 employees	15.4	9.6	5.8***
6 employees or higher	13.0	7.2	5 .8***
Firm size			

[20] Mainly missing values (90%).

< 10 employees	17.3	17.8	-0.5
10-49 employees	21.8	16.0	5.8***
50-499 employees	26.7	19.3	7.4***
500 employees or higher	13.1	7.4	5.7***
Missing #	21.1	39.5	-18.4***

The number of missing values is more important among women and it is essentially due to public sector jobs which are more often held by women.
$p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$
Source: authors' calculations, based on CEREQ, *Génération 98 à 10 ans*.

While they have been in employment for less time than men, women stand out compared to men above all in the time they dedicate to their professional activities. 97% of men work full-time, compared to only 72% of women (18% of women hold jobs equivalent to 80% of full-time work). The differences in work experience and working hours in the labour market may be linked to differences in family situations. Indeed, 10 years after leaving the educational system, women are more likely to be living in couples than men, and nearly 2/3 of women have at least one child, compared to less than half of men.

In terms of professional characteristics, we find the same segregation observed above, with men working more in industrial sectors, and women being strongly concentrated in services; above all administration, education, health and social services (nearly 50% of women were working in these areas, and more than two-thirds were working in the public sector). Not surprisingly, women hold public sector jobs more often than men (37% compared to 20%), and are a little less likely to have jobs with atypical working hours. Women are less likely to have permanent contracts. Above all however, women are less likely to hold managerial positions with supervisory duties (a fifth of all women, compared to a third of men). Women are also less numerous in large companies.

Non-cognitive characteristics

As we recalled in the introduction of this article, no databases exist in France which include information about the most commonly used non-cognitive characteristics found in international studies, such as the Big Five or the locus of control. The database used here may nevertheless allow for an initial examination of the role certain non-cognitive factors play in employment decisions and on wages. These concern the preferences which individuals declare having concerning their careers, their taste for risk and their optimistic nature. The answers given in the 2001 survey were used to this end, in order to limit risks of endogeneity.

A first question concerning career preferences asked interviewees: "Has your priority over the last three years mainly been to: 1) find a stable job, 2) pursue a career, 3) to manage your work-life balance?" A dichotomous variable was constructed using the "pursue a career" answer. This preference expressed by individuals -surely marked by gendered stereotypes or social norms, so that women felt the need to be more involved in their family lives and men in their working lives- could lead to the choice of certain occupations rather than others, as well as possibly leading to wage gains by encouraging persons investing more in their work to better negotiate job or wage changes in order to reach their objectives (Fortin, 2008; Grove et al., 2011).

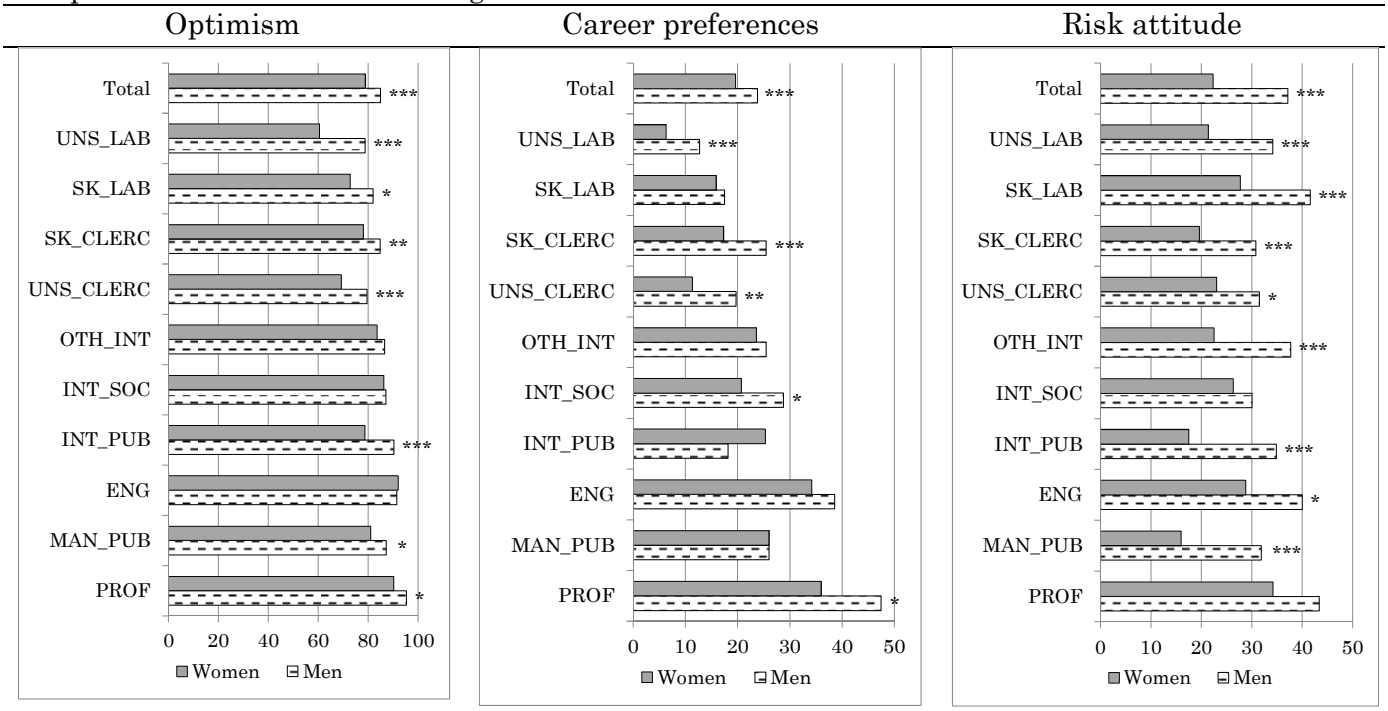
A second question relating to the vision individuals have of their professional futures was retained. A dichotomous variable was constructed, based on the replies to the question: "How do you see your professional future? 1) rather worried, 2) rather optimistic, 3) don't know". The variable retained the "rather optimistic" reply versus the two others. This variable could capture a personality trait relating to self-confidence, and confidence about the interviewee's capacities in the future. Studies tend to show that persons who develop attitudes which are dominated by anxiety, or who are concerned about the future tend to have lower wages (Mueller & Plug, 2006; Grove et al., 2011).

Lastly, another dichotomous variable was constructed using a third question: "Do you think that you may be self-employed or set up your own company one day? 1) yes, in my plans for the future, 2) yes, maybe, 3) no, 4) don't know". Here, replies indicating "yes, in my plans for the future" and "yes, maybe" were grouped together, as were the two other replies. This variable could reflect interviewees' attitudes to risk. Several studies have indeed shown a negative relationship between the probability of being independent (or self-employed) and risk aversion (Cramer et al., 2002; Ekelund et al., 2005). Attitudes to risk may orient persons' professional choices: persons who are most risk-adverse take jobs in which the variance of income is low (Bonin et al., 2007), or tend to work rather in the public sector than in the private sector (Jung, 2013). This attitude may also lead to lower pay, given the compensation differential associated with lower risk-taking (Bertrand, 2010).

In 2001 – three years after leaving education – the distributions of these three variables showed significant differences between men and women, in line with the results of other studies. Women are, on average, significantly less optimistic, are less likely to express a willingness to pursue a career and more risk-adverse than men (Graph 1).[21]

[21] For optimism, the average gap is 6.1 points between men (85%) and women (78.9%). For the desire to pursue a career the gap is 4.2 points (men 23.8%, women 19.6%). For risk taking, the differential is 14.9% (men 37.2%, women 22.3%).

Graph 1: Distributions of Non-Cognitive Characteristics in 2001



* $p< 0.10$, ** $p< 0.05$, *** $p< 0.01$.
Source: authors' calculations, based on CEREQ, *Génération 98 à 10 ans*.

Differentials between men and women are important by occupation. Concerning the question of optimism about one's professional future, all differentials are statistically significant but there are exceptions for engineers, intermediate professions in health, care and social services and other intermediate professions (especially technicians). Concerning career preferences, the differentials between men and women are statistically significant for unskilled labourers, clerical workers, intermediate occupations in health, care and social services and for professionals and managers in business.

All differentials concerning attitudes to risk are statistically significant, except for intermediate occupations in health, care and social services, as well as for professionals and managers in business.

Although the non-cognitive variables used here were measured seven years prior to the period analysed, they are nevertheless based on data collected once persons had already entered the labour market (in 1998). As a result, the variables may reflect the interviewees' situation in the labour market, and not their "real" preferences. Hence the results of our analysis in terms of wage differentials between men and women risk being contaminated by their situation in the labour market, if the latter influences men and women differently. To check it, by using logistic models, we have estimated the influence of the number of months spent in unemployment between 1998 and 2001 on

the non-cognitive characteristics (controlling for diploma),[22] to test whether the impact is statistically different between men and women.

Table 5: Non-Cognitive Characteristics and Unemployment

Average marginal effects	Optimism	Career	Risk
Months in unemployment from 1998 to 2001 (number)	-0.0056***	-0.0067***	-0.00041
	(0.00059)	(0.011)	(0.00086)
Sex (ref: men)	-0.0605***	-0.043***	-0.137***
	(0.0105)	(0.0108)	(0.0122)
Interaction Sex * Months in unemployment	0.00079	0.0025	-0.0014
	(0.00079)	(0.,00226)	(0.0016)

Standard errors in parenthesis; * $p< 0.10$, ** $p< 0.05$, *** $p< 0.01$.

Table 5 presents the marginal effects of unemployment, sex and the interaction of these two variables. It shows that people's optimism and preference for pursuing a career are affected by unemployment. Other things being equal, the more individuals have experienced unemployment, the less they state they are optimistic about their professional futures, and the less they are prone to favour their careers. Moreover, in accordance with the results of descriptive statistics, women are less optimistic, they express a desire to pursue a career less frequently, and are also more risk-adverse than men. But above all, we clearly observed that the interaction between gender and the number of months spent in unemployment is not statistically significant for each of the non-cognitive variables studied. If unemployment does indeed have an impact on responses given by interviewees concerning their vision of their professional future or their desire to favour their careers, this impact is not different for men and women.

4- Results and discussion

The decomposition of the gender wage gap used here allows us to distinguish to what extent differentials stem from differences explained by differences in the characteristics of men and women, and to what extent they are unexplained either because of differences in the returns to the characteristics of men and women, or because they remain unexplained. This decomposition also makes it possible to assess the impact of occupational segregation (the fact that men and women do not carry out the same profession) on the wage gap (the inter-occupational wage differential). The results are first shown at the overall level, and then in greater detail, in order to identify the factors which lead to the overall differentials. This section ends with a discussion of three issues: i) the robustness of the results once possible occupational self-selection is taken into account; ii) whether working time, which is a factor that explains an important part of the gender wage gap, is involuntary or voluntary; and iii) the reasons for which our results are different to those recently available for wage differentials between men and women in France.

[22] The marginal effects of this control variable are not included in Table 5.

Overall decompositions

Table 6 gives the results of the BMZ decomposition for estimates with (column 1) and without (column 2) non-cognitive variables, as well as estimates for the Oaxaca-Blinder decomposition (column 3).

Table 6: Decomposition of the gender wage gap

	Excluding non-cognitive variables (1)		**Including non-cognitive variables (2)**		**Oaxaca-Blinder (3)**	
	Wage gap	% of total gap	Wage gap	% of total gap	Wage gap	% of total gap
Intra-occupations	**19.3*** **	**79.3**	**19.3*** **	**79.1**		
Explained $\sum_j p_j^f \hat{\beta}_j^m (\bar{X}_j^m - \bar{X}_j^f)$	10.7***	43.8	11.3***	46.3		
Unexplained $\sum_j p_j^f \bar{X}_j^f (\hat{\beta}_j^{'m} - \hat{\beta}_j^{'f})$	8.6***	35.5	8.0***	32.8		
Inter-occupations	**5.0*** **	**20.7**	**5.1*** **	**20.9**		
Explained $\sum_j \overline{lnW}_j^m (p_j^m - \hat{p}_j^f)$	-3.3***	-13.7	-2.0***	-8.2		
Unexplained $\sum_j \overline{lnW}_j^m (\hat{p}_j^f - p_j^f)$	8.3***	34.4	7.1***	29.1		
Total wage gap	**24.4**	**100**	**24.4**	**100**	**24.4**	**100**
Total explained	7.3***	30.1	9.3***	38.1	14.7***	60
Total unexplained	17.0***	69.9	15.1***	61.9	9.7***	40

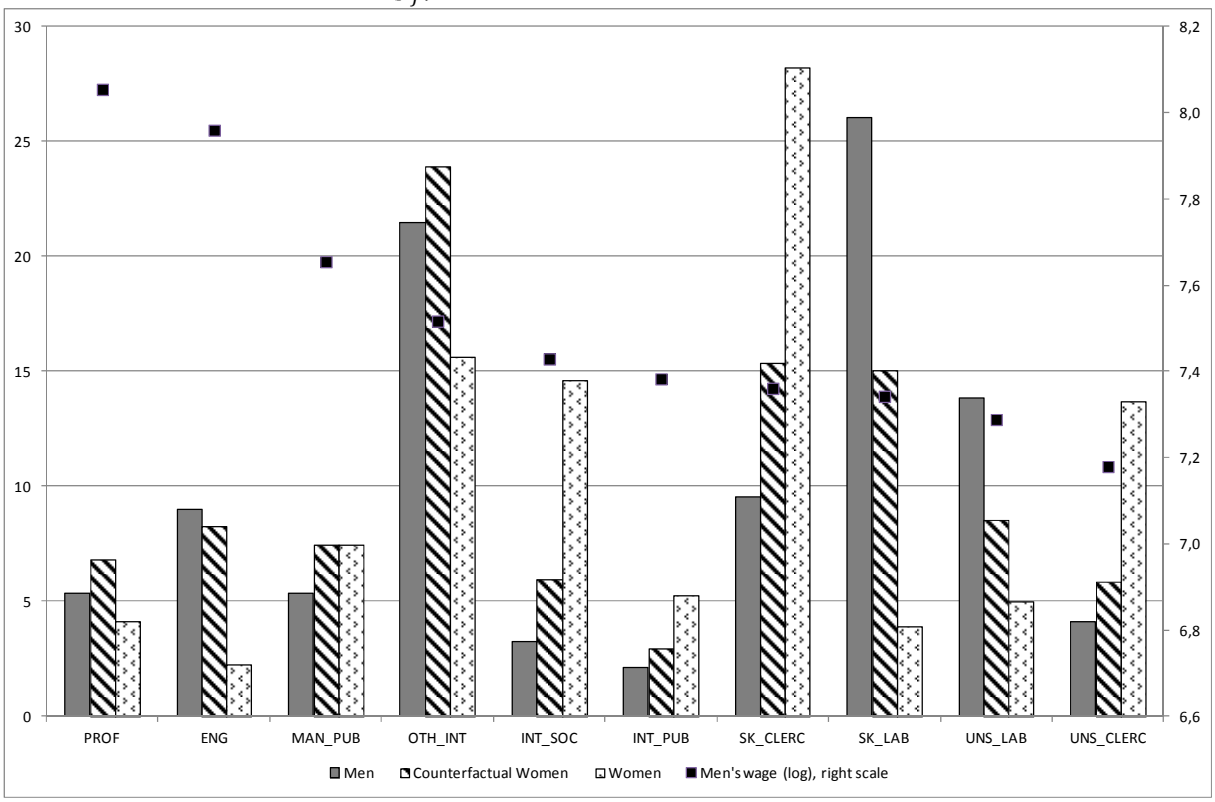
Wage gap is multiplied by 100 in order to facilitate reading of the table.
*p< 0.10, **p< 0.05, ***p< 0.01 are obtained using 200 replications of the sample by bootstrap for columns 1 and 2.

The comparison of the second and third columns shows that taking into account gendered segregation on the labour market in the decomposition of the gender wage gap (the BMZ decomposition with non-cognitive variables in column 2) leads to a reduction in the explained component, as expected. The latter represents 60% of the total gender wage gap when the distribution between women and men across occupations is considered as an individual choice (the OB decomposition in column 3). It only represents about 40% when the decomposition considers that these distributions also reflect possible discriminatory behaviour by employers. In contrast, the introduction of non-cognitive characteristics makes it possible to reduce the unexplained component. This component changes from 70% without non-cognitive variables (column 1, the last line) to 62% (column 2, the last line) by reducing the unexplained intra-occupational differential but also the unexplained inter-occupational differential. This result legitimates the use of a decomposition which takes into account the indirect effect of non-cognitive variables on occupations.

Regarding the distribution between the intra- and inter-occupational components (column 2), nearly 80% of the gender wage gap is due to differences in wages between men and women within the same occupations. 46% of the differential stems from differences in the characteristics between men and women, while 33% of the gap is

unexplained. Wage differences following from differences linked to gendered segregation in the labour market (i.e. the fact that men and women do not work in the same occupation) only account for 20% of the wage gap.[23] But this figure is the sum of an explained negative component (-8.2%) and of an unexplained component which runs to nearly 30%. This first negative component means that women's characteristics should lead them to hold, on average, jobs in better paid professions than men, provided they have the same access to different occupations as men do. From this point of view, Graph 2 provides information about the distribution which should be observed if women were to have the same possibilities as men in accessing the different occupations. The Graph shows three distributions: the distribution observed for men and women and the counterfactual distribution for women. The different occupations are classified by the decreasing average wage of men.

Graph 2: Observed Distributions of Jobs by Occupations (p_j^m and p_j^f) and Women Counterfactual Distribution ($\hat{p}_j^f$)



Source: authors' calculations based on the CEREQ, *Génération 98 à 10 ans* survey.

Numerous occupations should be more important for women employees than they actually are. Only occupations as "engineers" and above all as "labourers" are "legitimately" male professions, in the sense that they have a greater weight in the distribution of men's jobs than in the distribution of women's jobs (or rather that they should have in women's distribution) due to the fact that men have characteristics that led them more to these occupations than women. But, in jobs where men are legitimately

[23] This weakness in the inter-occupational component is even more marked in the study by Cobb-Clark & Tan (2001), presented in Table 1. It is also found, in a similar proportion, in the work of Meng & Meurs (2001), who examined the gender wage gap in France in 1992.

most strongly represented (among labourers), wages are actually lower on average, the gender wage gap should favour women if they have the same access to different professions as men, given their characteristics. The Graph also shows that the women's counterfactual distribution is very different from their actual distribution. There should be more women in jobs as professionals and managers in business, as engineers, as managers in public services and as labourers, or as employees in intermediate professions other than in health, care and social services or in public services. At the same time, according to the counterfactual, women should be far less numerous as skilled and unskilled clerical workers and in intermediate professions linked to health, care and social services or in the public sector. Overall, there is no explanation for wage differentials linked to occupational segregation. These differentials are due either to other factors than those taken into account here, or to discrimination women face in accessing different occupations.

Detailed decompositions

The results of the detailed decompositions of intra- and inter-occupational wage differentials make it possible to identify the characteristics lying at the origin of the overall differentials analysed so far.[24] From this point of view, the first columns in Table 7 indicate that more than one third of the overall wage gap stems from greater women's part-time jobs, while 13.5% is due to the greater endowment of professional characteristics for men. Among the latter, the fact that men hold more managerial positions than women justifies their higher pay. Their longer work experience also explains 3.5% of the wage differential observed in their favour. In contrast, women's levels of education and the fact that they are more likely than men to be living in couples and to have children have the opposite impact: were women to obtain a return to these characteristics similar to men, then they would have higher wages.

[24]The detailed decompositions were carried out by applying the Oaxaca STATA programme, developed by Jann (2008), for each occupation. The average contributions of each variable were subsequently obtained by weighting the different contributions by occupation by the distribution of women's jobs by occupation for the intra-occupational component and the distribution of men's wages by occupation for the inter-occupational component.

Table 7: Detailed Gender Wage Gap Decomposition[25]

	Intra-occupations $\sum_j p_j^f \hat{\beta}_j^m\left(\bar{X}_j^m - \bar{X}_j^f\right) + \sum_j p_j^f \bar{X}_j^f\left(\hat{\beta}_j'^m - \hat{\beta}_j'^f\right)$				**Inter-occupations#** $\sum_j \overline{lnW_j}^m \hat{\gamma}_j'^m\left(\bar{X}^{om} - \bar{X}^{of}\right) + \sum_j \overline{lnW_j}^m \bar{X}^{of}\left(\hat{\gamma}_j'^m - \hat{\gamma}_j'^f\right)$			
	Explained	% of total gap	Un-explained	% of total gap	Explained	% of total gap	Un-explained	% of total gap
Experience/Age	0.8**	3.5	-0.3	-1.4	-0.01	0.0	-0.08	-0.4
Education	-1.5***	-6.0	-2.6	-10.7	} -3.0***	-12.5	-0.2	-0.5
Speciality	0.5	2.0	0.1	0.3				
Prof. Char.	3.3***	13.5	-2.5	-10.4				
Working hours	8.2***	33.8	0.7	2.8				
Residence Paris and suburbs	0.1	0.3	1.0	3.9	0.07	0.3	-0.4	-1.8
Family Char.	-1.0***	-3.9	2.1***	8.8	-0.3	-1.1	0.5***	2.2
Optimism	0.4**	1.9	-0.5	-1.8	0.1**	0.5	-0.2	-0.8
Career	0.3*	1.4	-0.4	-1.6	0.3***	1.1	-0.6*	-2.5
Risk	0.0	0.1	-0.7	-2.9	0.3***	1.3	0.0	0.1
Constant			11.1	45.8			8.4***	34.7
Total explained/ unexplained	**11.3*** **	**46.5**	**8.0*** **	**32.8**	**-2.5*** **	**-10.4 %**	**7.6*** **	**31.1%**
Total intra/inter	**19.3*** ** 79.3%				**5.0*** ** 20.7%			
Gender wage gap	**24.4**							

The differentials in the logs of wages are multiplied by 100 in order to facilitate reading the table.

The detailed breakdown of the inter-occupational wage differential is based on the linear modelling of the occupational choices, whereas the overall decomposition (Table 6) is based on non-linear modelling (a multinomial logit). As set out in Section 2, this change leads to differentials in the respective contribution of the explained and unexplained components which are quite modest: -2.0/7.1 (for non-linear modelling) versus -2.5/7.6 (for linear modelling).

*p< 0.10, **p< 0.05, ***p< 0.01 are obtained using 200 replications of the sample by bootstrap.

The detailed decomposition of the unexplained intra-occupational wage gap (columns 3 and 4) shows that on the one hand the main share of this gap is linked to differences in the constants estimated for men and for women, and on the other hand, that men's and women's returns are not statistically significantly different, apart from their family characteristics. This is the same conclusion as Filer (1983) and Nyhus & Pons (2012): most of the returns to characteristics explaining wages are statistically similar for men and women.

Columns 5 and 6 show that women's level of education justifies that they should be in better paid jobs than they actually are. This is especially due to the fact that far fewer women have no diploma or have only a CAP/BEP with an industrial specialisation. Regarding the unexplained component of the inter-occupational wage differential (the two last columns), most marginal effects is not statistically different between men and

[25]The detailed Oaxaca-Blinder decomposition is given in in Annex 4.

women. As a result, most of the differential comes from differences between the estimated constants.

Thus, most of what is often qualified as discrimination is not due to the fact that factors which explain wages or occupational choices have higher returns for men (with the exception of family characteristics). Instead, it follows from differences in considering men and women which fall outside these factors.

In terms of non-cognitive variables (Table 7, the shaded lines), it can be observed that optimism and career preference account for 3.3% of the total wage gap, almost as much as experience. This result is due to the fact that returns to these factors for men are positive in most occupations (Table 8) and that a higher proportion of men are optimistic and concerned about their careers. On the other hand, different behaviour with respect to risk does not influence the wage gap: men are much more likely to take risks than women, but as the returns to this characteristic are positive or negative depending on the occupation, the overall impact of risk is null.

Table 8: Effects of Non-Cognitive Variables on Wages

	Women			Men		
	Optimism	Career	Risk	Optimism	Career	Risk
Professionals and managers in business	0.267**	0.105	-0.109	0.181**	0.087	-0.005
Managers in public services.	0.072*	-0.057	-0.009	-0.07	0.023	0.012
Engineers	0.133**	0.08	0.091	0.047	0.076**	0.017
Intermediate occupations in public services	0.077**	0.047*	-0.016	0.272***	-0.111**	-0.068
Intermediate occupations in health, care and social services	0.125***	0.079*	-0.008	0.073	0.106*	-0.082
Other intermediate	0.058**	0.053*	-0.039	0.057**	0	0.004
Unskilled clerical workers	0.018	-0.056	-0.043	0.017	0.001	0.137***
Skilled clerical workers.	0.076***	0	-0.036	0.090**	0.057**	-0.028
Skilled labourers	0.044	-0.04	0.143*	0.046**	0.003	0.023
Unskilled labourers	0.083	0.141*	-0.08	0.037	0	0.025

*p< 0.10, **p< 0.05, ***p< 0.01

Alongside these direct effects of non-cognitive characteristics on wages, these characteristics also have an impact on occupational choices. The three characteristics examined here lead men to opt more for higher-paid jobs than women, which in turn accounts for 2.9% of the gender wage gap. This is due to the greater endowment of men

with these factors (see Graph 1, Section 3), coupled with the fact they increase the probability of holding a relatively well-paid job (as shown in Table 9).[26]

Table 9: Marginal Effects of Non-Cognitive Variables on Occupational Choices #

	Women			Men		
	Optimism	Career	Risk	Optimism	Career	Risk
Professionals and managers in business	0.015**	0.029***	0.030***	0.020***	0.048***	0.014*
Managers in public services	-0.008	0.017	-0.019**	-0.003	-0.005	-0.0014
Engineers	0.007*	0.011	0.005	0.006	0.046***	0.013
Intermediate occupations in public services	-0.010	0.013	-0.008	0.006	-0.011**	0.000
Intermediate occupations in health, care and social services	0.040***	0.000	0.032*	-0.001	0.005	-0.007
Other intermediate	0.021	0.021	0.005	0.003	0.001	0.009
Unskilled clerical workers	-0.034*	-0.040***	-0.002	-0.008	-0.003	-0.014*
Skilled clerical workers.	0.001	-0.026	-0.046**	0.004	0.009	-0.034***
Skilled labourers	0.001	0.001	0.009	-0.000	-0.037**	0.039***
Unskilled labourers	-0.034**	-0.025***	-0.008	-0.027	-0.052***	-0.020*
Weighted sum ##	0.027	0.046	0.023	0.020	0.064	0.023

The marginal effects reported in this table are those from linear estimations which have been used to calculate the detailed decomposition of the inter-occupational wage differentials. Annex 5 gives the marginal effects obtained using a multinomial logistic estimation, which can be seen to be very close. ## Weighted sum by male wage, per occupation.
*p< 0.05, **p< 0.01, ***p< 0.001

Overall, the non-cognitive characteristics explain 6% of the gender wage gap. This is more than for the traditional variables of human capital, experience and education, and all the more so given that the educational endowment of women should lead them to have higher wages. The size of this contribution is similar to contributions found in other studies: for those examined here (see Section 1), non-cognitive factors explain at most 8.2% of the wage gaps. Taking into account non-cognitive factors allows the unexplained component to be reduced, by making visible those characteristics which are usually unobservable. Within this unexplained component, only the preference for careers provides men with a significant advantage with respect to women, by giving men more access to well-paid jobs.[27] However, the unexplained component remains strong: it represents 60% of the gender wage gap.

[26] It should be recalled here that the explained contribution of a variable to the inter-occupational wage gap is equal to the product of the endowment differential between men and women in this variable, multiplied by the sum of the marginal effects of this variable on the occupational choices of men, weighted by men's wages per occupation. For non-cognitive variables, the weighted sum of the marginal effects is positive.

[27] The contribution of this variable to the inter-occupational wages differentials is negative and significant (Table 8). This is equal to $\sum_j \overline{lnW_j^m}\left(\hat{\gamma}_{jcarrier}^m - \hat{\gamma}_{jcarrier}^f\right)(\bar{X}_{carrier}^f - 0{,}5)$, given the correction carried out, so that the decomposition is unchanged compared to the reference category. In other words, it is the product of the sum (weighted by the average male wage) of the gender gap in the marginal effects per occupation of the career variable multiplied by the

Accounting for occupational selection

So far, the choice of occupations and the wage equations have been assumed to be independent. However, if unobserved characteristics, which affect the choice of occupations, also have an influence on wages, then the estimations of wages risk being affected by selection bias.

To adjust for this, a two-stage Heckman correction adapted to the multinomial case has been proposed by Lee (1983). This correction consists of calculating, from estimations of occupational choices, an inverse Mills ratio of a particular kind, and of introducing it as an explanatory variable in the wage equations. The latter then take the following form:

$$(9)\ lnW_j^m = \beta_j^m X_j^m - \sigma_j^m \rho_j^m \frac{\phi\left(J\left(\hat{\gamma}_j^m X_i^{om}\right)\right)}{F\left(\hat{\gamma}_j^m X_i^{om}\right)} + \mu_j^m = \beta_j^m X_j^m - \theta_j^m \lambda_j^m + \mu_j^m$$

$$(10)\ lnW_j^f = \beta_j^f X_j^f - \sigma_j^f \rho_j^f \frac{\phi\left(J\left(\hat{\gamma}_j^f X_i^{of}\right)\right)}{F\left(\hat{\gamma}_j^f X_i^{of}\right)} + \mu_j^f = \beta_j^f X_j^f - \theta_j^f \lambda_j^f + \mu_j^f$$

With $J = \Phi^{-1}F, \phi$ and Φ stands for the standard normal density and standard normal distribution functions, and $F\left(\hat{\gamma}_j X_i'\right)$ stands for the distribution function estimated in the first stage. σ_j is the standard deviation of the error term of the wage equation, and ρ_j is the correlation between the error terms of the wage and of the occupation choice equations. It should be noted that the correction term has a similar form to that proposed by Heckman (1979) in the binary case, with $\hat{\gamma}_j X_i'$ being replaced by $J\left(\hat{\gamma}_j X_i'\right)$, where $J(.)$ is a strictly increasing transformation function which makes it possible to shift from a non-normal distribution to a normal distribution.

The implementation of this approach necessitates having an exclusion variable, in order to ensure identification beyond the non-linearity of the multinomial logistic modelling: a variable that determines occupational choices but not wages, or rather wages only via the indirect effect it has on occupational choices. Normally, the socio-professional category (SPC) of the father is used for this. In France, however, there is a particularly strong link between educational choices and social origin (Ichou & Vallet, 2012; Thélot & Vallet, 2000; Baudelot & Establet, 2009). This means that the variable of the father's SPC is not significant in determining occupational choice, once educational choices have been taken into account. In contrast, crossing educational diploma and speciality may clearly be a factor determining occupational choices: people holding the same level of diploma but with different specialties will chose different professions. Similarly, the level of diploma affects occupational choice within the same specialty. In contrast, once

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proportion of women above the 50% threshold who want to pursue a career. Thus, the contribution of the inter-occupational wage gap of a binary variable will be negative, either because the sum weighted by the average male wage of the gaps between men and women of the marginal effects by occupations of this variable is also negative, or because the proportion of women who possess this characteristic is less than 50%.

occupational choices have been made, it is the level of diploma obtained which is likely to affect wages by occupation, and not the interaction with the specialty.

Such accounting for a possible occupational selection will affect the decomposition of the wage gap. Neuman & Oaxaca (2004) put forward different breakdowns according to the judgement made relating to the discriminatory nature or not of the selection terms. We have decided to remain neutral about this question here.

The differential in wages may therefore be broken down as follows:

$$(11)\quad \overline{lnW}^m - \overline{lnW}^f = \underbrace{\sum_j p_j^f\, \hat{\beta}_{j,s}^{m\prime}\left(\bar{X}_j^m - \bar{X}_j^f\right) + \sum_j p_j^f\, \bar{X}_j^f\left(\hat{\beta}_{j,s}^{m\prime} - \hat{\beta}_{j,s}^{f\prime}\right)}_{\textbf{Intra-occupational wage differential}} +$$

$$\underbrace{\sum_j \overline{lnW}_{j,s}^m\, \hat{\gamma}_j^{m\prime}\left(\bar{X}^{om} - \bar{X}^{of}\right) + \sum_j \overline{lnW}_{j,s}^m\, \bar{X}^{of}\left(\hat{\gamma}_j^{m\prime} - \hat{\gamma}_j^{f\prime}\right)}_{\textbf{Inter-occupational wage differential}} +$$

$$\underbrace{\sum_j p_j^m\, \hat{\theta}_j^m \bar{\lambda}_j^m - p_j^f\, \hat{\theta}_j^f \bar{\lambda}_j^f}_{\textbf{Selection differential}}$$

Before presenting the results of this breakdown, the coefficient (for each occupation) of the inverse Mills ratio for women and for men is shown in Table 10.

Table 10: Significance of the Inverse Mills Ratio

	Women	Men
Professionals and managers in business	0.341	0.299
Managers in public services.	-0.226***	-0.409***
Engineers	0.257	-0.103
Intermediate occupations in public services	-0.158	0.217
Intermediate occupations in health, care and social services	-0.181***	-0.054
Other intermediate	0.009	0.054
Unskilled clerical workers	-0.130	-0.068
Skilled clerical workers.	-0.004	0.016
Skilled labourers	0.547**	-0.018
Unskilled labourers	0.646**	0.042

$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

It shows that selection is statistically significant for women in four occupations, compared to only one for men. These occupations include public sector management for men and women, and intermediate professions in health, care and social services, as well as labourers' jobs for women. Individuals in these jobs have unobservable characteristics which affect both their choice of occupation and their wages.

Overall, the contribution of selection to the wage gap is higher for women than for men (negative contribution), but it is not significant (Table 11). Consequently, the results

obtained so far (without selection) are not modified. The core of the gender wage gap is due to differences in how men and women are treated within the different occupations.

Table 11: Decomposition of the Gender Wage Gap With and Without Accounting for Occupational Self-Selection

	With selection		**Without selection**	
	Wage gap	% of the total gap	Wage gap	% of the total gap
Intra-occupations	**25.1****	**102.8**	**19.3*****	**79.1**
Explained $\sum_j p_j^f \hat{\beta}_j^m (\bar{X}_j^m - \bar{X}_j^f)$	11.7***	48.0	11.3***	46.3
Non-explained $\sum_j p_j^f \bar{X}_j^f (\hat{\beta}_j^{'m} - \hat{\beta}_j^{'f})$	13.4	54.9	8.0***	32.8
Inter-occupations	**4.2**	**17.4**	**5.1*****	**20.9**
Explained $\sum_j \overline{lnW}_j^m (p_j^m - \hat{p}_j^f)$	-1.9	-7.9	-2.0***	-8.2
Non-explained $\sum_j \overline{lnW}_j^m (\hat{p}_j^f - p_j^f)$	6.2	25.3	7.1***	29.1
Selection $\sum_j p_j^m \hat{\varphi}_j^m \bar{\lambda}_j^m - p_j^f \hat{\varphi}_j^f \bar{\lambda}_j^f$	**-4.9**	**-20.3**	---	---
Total wage gap	**24.4**	**100**	**24.4**	**100**
Total explained	9.8***	40.1	9.3***	38.1
Total unexplained	19.5**	80.2	15.1***	61.9

The differentials in the logs of wages are multiplied by 100 in order to facilitate interpretation of the table.
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$ are obtained using 200 replications of the sample by bootstrap.

Involuntary and voluntary part-time work

The weakness of decomposition approaches lies in the difficulty of separating individual choices and discriminatory behaviour. This is especially so as the latter may manifest itself at different times (before or after entering the labour market). Moreover, such discrimination may be integrated into prior choices. As the most important factor explaining intra-occupational wage differentials is working time, it is therefore important to discuss its voluntary nature, which is assumed implicitly when it is taken as an explained element of the gender wage gap.

The *Génération* survey provides information which contributes to this discussion. Employees hired part-time were questioned about their wishes to work full-time, when they were recruited. They were asked about their wishes when being recruited and not in 2008.[28] Therefore, all persons who were recruited full-time but who were actually working part-time in 2008 did not answer this question (57% of women working part-

[28] The question asked was: "When you were recruited, would you have liked to work full-time?" Interviewees who answered "yes" are considered to have been obliged to work part-time, and persons answering "no" are considered to have chosen to work part-time.

time in 2008).[29] Similarly, persons recruited part-time, who did answer the question, may have been working full-time in 2008. Thus, it has only been possible here to use the answers of persons who were recruited part-time and who were still working part-time in 2008. Table 12 shows the distribution of women working part-time in 2008, according to the time worked when recruited and whether or not they chose or were obliged to work part-time: 57% of women working part-time in 2008 were recruited full-time; 20% were obliged to accept part-time work when recruited but actually wanted to work more; 15% chose to work part-time because they would not have wanted to work more, and 8% did not answer the question about how much time they wanted to work when they were recruited.

Table 12: Distribution of women working part-time in 2008

	%
Full-time when hired, part-time in 2008	57
Involuntary part-time when hired	20
Voluntary part-time when hired	15
Missing value for involuntary or voluntary	8
Part-time in 2008	100

Source: authors' calculations based on CEREQ, *Génération 98 à 10 ans*.

To assess the voluntary nature or otherwise of moving from full-time work to part-time work (57% of women working part-time in 2008), two assumptions were formulated. They lead to a lower and an upper estimation of the degree to which part-time work is involuntary. In the first case, we assume that all women without children who moved to part-time work were obliged to do so. In 2008, this concerned 5% of women who were recruited full-time but who were actually working part-time (18% had only one child and 77% had at least two children). Based on this assumption, 25% of women were obliged to work part-time.[30] The second assumption draws on the work of Pailhé & Solaz (2006), which shows that after a first child women modify the hours they work, whereas after a second child they are more likely to reduce their working time. Thus, if it is assumed that all women with less than two children are obliged to move from full-time work to part-time work, then the overall rate of involuntary part-time work is 36%.[31] This range of 25% to 36% is close to the estimates given by Pak (2013). She found that in 2011 31% of French women working part time would have wanted to work more. It therefore seems likely that our decomposition, which already suggests that an important part of the gender wage gap is unexplained, is actually an underestimation. In the same way as taking into account possible discriminatory behaviour in the observed distributions of jobs for women by occupation reduces the explained component of the wage gap (see

[29] In 2008, 15.3% of persons declared they were working part-time, of which 89.5% were women.
[30] 20% + 5%*57%=23% but 25% relative to the total number of respondents.
[31] 20%+23%*57%=33% but 36% relative to the total number of respondents.

Table 6), accounting for the involuntary nature of part-time work should also reduce this explained share.

Comparisons with other results for France

Recent estimates of the gender wage gap in France by Meurs & Ponthieux (2006) and Bozio et al. (2014) differ from the one presented here, for several reasons. The first relates to the decomposition method chosen. Using an Oaxaca-Blinder decomposition, these two studies consider that the choice of occupations is "exogenous", or to put it differently they do not view occupational segregation as potentially discriminatory. As a result, the explained gender wage gap in 2002 was 76.2% for Meurs & Ponthieux (2006), and 71.6% in 2012 for Bozio et al. (2014). Both of these figures are far higher than the ones we found (38.1%). Indeed, as we have seen above, using this decomposition method with our data does in fact lead to a far higher explained component (60.3%). The second reason comes from the populations concerned: our study concerns young people, ten years after they had left the education system in 1998. These other studies look at all employees (excluding apprentices and interns), who work at least 10 hours per week, based on the INSEE employment surveys. Thus, the population examined here is younger than those of the two other estimations. Accordingly, when comparing our results with the two studies using the same decomposition methodology (Table 13), it becomes clear that working time and professional characteristics are the two principle sources of the explained gender wage gap in these studies, as well as in ours. But the size of the differentials is smaller in our estimation.

Table 13: Comparison of Results in France: Oaxaca-Blinder Decomposition of the Monthly Gender Wage Gap#

In %	Meurs & Ponthieux (2006) 2002	Bensidoun & Trancart (2015) 2008	Bozio et al. (2014) 2012
Explained gap	**76.2**	**60.3**	**71.6**
Experience	0.4	4.9	1.1
Education	-6.0	-8.7	-4.1
Speciality	---	3.1	---
Professional characteristics	33.7	25.8	30.2
Working time	48	36.1	44.3
Family characteristics	---	-3.4	---
Non-cognitive characteristics	---	2.4	---
Unexplained gap	**27.4**	**39.7**	**25.6**
Selection gap	-2.4	----	2.8
Total	100	100	100
Mean log-wage gap	**0.252**	**0.244**	**0.281**

The variables used in Bozio et al. (2014) and Meurs & Ponthieux (2006) are identical but different to ours. Experience is real in our study, but only potential in theirs. Professional characteristics, SPC categories and employment categories overlap, apart from for managerial jobs (supervisory duties), and company size which is only included in our study. Working time includes a proportion of hours in all three studies (full-time, category of part-time), and the number of hours per week only in 2002 and 2012. Selection related to women's participation in the labour market was not retained in our study as it was not significant. The participation rate of women in our sample was indeed high (84%), due to their relatively young age.

Regarding working time, the contribution was higher in 2002 and 2012 (48% and 44.3%, compared to 36.1% in our study) because apart from differences in the proportion of hours worked, these studies take into account differences in the number of hours worked per week. Professional characteristics account for between 30% (Bozio et al., 2014) and 34% of the gender wage gap (Meurs & Ponthieux, 2006), compared to 26% in our study. Our finding is weaker due to age differences in the populations concerned. As the persons in our sample are younger, differences in the structure of their jobs are less marked than for the entire population. The more negative contribution of education in our study is also due to age differences of populations, and reflects the heavy investment of young women in education. As for differentials in the contribution of experience, they undoubtedly reflect differences in measuring this variable: real experience in our work compared to potential experience in other studies.

Overall, differences in assessing the size of the explained component in the gender wage gap are essentially due to the decomposition methods used, the accounting for variations in hours worked between men and women, and differences in the populations concerned. In contrast, the same characteristics are found to contribute most to the explained wage gap, namely the differences in time worked and the differences in the professional characteristics between men and women.

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Differences in non-cognitive characteristics between men and women are one of the reasons put forward to explain the fact that the catch-up in women's wages with men's has been stagnating over the last two decades. On the basis of American, Australian and Dutch data, it seems that in most cases different personality traits or preferences are partly responsible for the gender wage gap. For France, no survey exists which provides information about individual personality traits and preferences in as much detail as in other countries. Nevertheless, the data used here do make it possible to draw some lessons which we hope will generate enough interest for future surveys to include questions relating to these matters.

A first lesson: the fact that women's wages are 21.2% less than men's, ten years after leaving the education system, stems 20% from the fact that women and men are employed in different jobs, and 80% from the fact that women earn less than men when in identical jobs. While 40% of the gender wage gap may be due to differences in characteristics, fully 60% remained unexplained. Accordingly, women's wages should only be 8.1% less than men's, if differences in characteristics were the only thing that mattered.

A second lesson: differences in non-cognitive characteristics – optimism, preference for having a career and taste for risk – matter: they account for 6.3% of the total wage gap, or twice as much as experience. Their influence is (directly) exerted as much on wages as on the choice of occupations. Indeed, on occupational choices, only non-cognitive differences play a statistically significant role in explaining why men opt more for better-paid jobs than women.

While these characteristics allow the unexplained component of the gender wage gap to be reduced, the latter remains important, notably as the inter-occupational wage gap has no overall justification[32]. This differs to intra-occupational wage differentials, for which differences in time worked, as well as differences in professional and non-cognitive characteristics between men and women partly justify their wage gap.

Turning to the unexplained components of the gender wage gap, only returns to family characteristics are statistically significant, to the detriment of women. This means that the main part of unexplained differentials does not manifest itself through the particular channels identified in this analysis (the explanatory variables retained in determining wages and occupation choices). Thus, unexplained differentials are not due to the fact that men exploit their characteristics better than women (their diplomas, their experience, their professional or non-cognitive characteristics). Instead, the differentials are due to unexplained causes which result in men being granted greater pay than women.

If we leave aside the discrimination women may experience, then differences in non-cognitive characteristics between men and women are probably linked to the different gendered roles assigned to individuals. The same holds for differences in the most important characteristics that justify wage differentials between men and women, namely the time dedicated to labour market activities and the taking of management responsibilities. From this point of view, Akerlof & Kranton (2000) have pointed out that people's identity, and their wish to conform to existing social norms in the group they belong to, may guide their economic decision-making via the resulting utility.[33] Apart from discrimination, which is important in our results, but needs to be viewed cautiously, as ever in this kind of exercise, our work suggests that measures which could modify mentalities are needed. However, in view of the reactions to the experiment conducted in France in early 2014, aimed at deconstructing gendered prejudices and educating children at school in the equality of women and men, it may be feared that gender stereotypes still have some life left in them.

[32] The fact that the contribution of education (diploma and area of speciality) to the explained inter-occupation wage gap is negative and significant outweighs the positive contribution of non-cognitive characteristics. As a result, the inter-occupation wage gap is negative overall.

[33] Or: disutility that may follow from non-conformist behaviour relative to norms of the group to which an individual belongs.

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Annex 1: Individual Characteristics by Profession, Family Status or Occupation

Men	Professionals and managers in business	Public sector managers	Engineers	Intermediate professions in public services	Intermediate professions in health, care and social services	Other intermediate	Unskilled clerical workers	Skilled clerical workers	Skilled labourers	Unskilled labourers
Age	33.8	34.7	33.8	33.0	33.9	31.4	30.3	31.2	29.7	29.6
Experience (in months)	117.0	111.4	113.5	110.2	110.2	112.3	104.0	109.2	112.57	108.9
Education:										
Diploma										
No diploma or vocational lower secondary education	3.6	6.2	4.9	12.7	11.8	21.0	67.1	35.0	69	71.9
Upper secondary diploma	7.9	8.2	7.8	22.5	30.7	25.4	17.9	37.4	26.3	22.3
Low-level tertiary education	17.0	13.4	19.7	20.7	49.5	40.1	11.4	19.8	4.2	5.7
High-level tertiary education	71.5	72.1	67.6	44.2	8.0	13.5	3.6	7.8	0.4	0.2
Speciality of education										
Academic	24.1	40.0	16.6	25.2	19.1	14.0	12.6	21.7	9.3	8.7
Production or industrial tracks	22.1	16.1	55.5	27.2	14.4	56.2	48.7	37.9	78.1	78.7
Service sector tracks	53.8	43.9	27.9	47.5	66.6	29.8	38.7	40.4	12.6	12.7
Entering late into middle-school	4.2	3.1	8.6	14.6	11.0	20.0	26.3	19.5	38.7	43.8
Greater Paris (inner Paris and its suburbs)	40.4	19.4	39.1	19.1	18.7	19.8	14.0	20.7	10.9	9.1
Working time:										
Full time	97.5	95.8	99	93.3	91.1	97.8	91.9	95.6	97.8	97.3
Part-time (50%)	0.1	0.8	0.0	0	4.9	0.3	2.4	0.8	0.9	1.4
Part-time (<50%)	0.0	0.3	0.0	2.9	0.4	0.3	1.6	1.3	0.1	0.2
Part-time (80%)	2.4	1.8	1.0	2.8	3.0	1.5	1.9	1.7	0.9	0.6

Part-time (60%)	0.0	1.3	0.0	1.0	0.5	0.1	2.2	0.5	0.2	0.5
Family characteristics :										
Husband	83.4	69.4	76.3	68.2	72.8	68.4	51.5	60.5	63.0	56.4
Children	67.6	49.9	57.6	47.0	52.9	47.6	38.0	44.6	42.5	40.8
Professional characteristics:										
Job sectors										
Industrial	8.8	2.6	35.7	2.4	4.8	30.5	3.9	7.3	47.8	52.9
Administration, education, health, social	60.1	13.1	43.7	13.9	8.1	44.8	49.8	35.7	28.3	21.3
Other services	7.7	80.1	1.9	78.2	75.9	9.4	38.7	49.4	6	4.8
Missing or Agriculture[34]	23.4	4.1	18.8	5.5	11.1	15.3	7.5	7.7	17.9	21.0
Atypical hours	2.5	3.8	3.0	1.6	21.4	10.7	18.6	18.4	18	17.9
Job in public sector	2.9	78.5	4.0	62.1	39.6	13.8	34.7	53.0	10.4	7.2
Permanent contract	87.8	84.3	97.9	87.5	76.6	93.7	80.3	89.8	87.8	83.7
Supervisory duties										
0 employee	34.1	66.2	45.4	74.2	72.2	61.2	74.8	70.5	70.3	73.5
1 employee	9.4	2.8	7.9	7.4	5.9	5.4	3.0	6.2	8.6	7.5
2-5 employees	21.2	12.0	19.4	12.1	14.1	17.5	12.1	13.2	14.9	13.0
6 employees or above	35.3	18.9	27.3	6.3	7.8	15.8	10.1	10.1	6.2	6.1
Firm size										
< 10 employees	21.4	6.2	10.6	9.4	23.5	16.4	20.3	10.6	22.2	19.8
10-49 employees	18.1	5.8	18.8	7.4	16.7	23.8	13.8	15.8	28.9	24.7
50-499 employees	35.1	7.8	35.9	14.5	12.8	30.1	20.4	18.1	25.5	34.7
500 employees or above	21.1	3.5	29.1	5.8	5.4	13.8	11.5	7.8	11.4	12.5
Missing #	4.2	76.7	5.6	62.8	41.6	15.9	34.0	47.6	12.1	8.3

[34] 90% of missing-values.

Women	Professionals and managers in business	Public sector managers	Engineers	Intermediate professions in public services	Intermediate professions in health, care and social services	Other intermediate	Unskilled clerical workers	Skilled clerical workers	Skilled labourers	Unskilled. labourers
Age	33.8	34.8	33.8	33.7	32.5	32.1	29.8	31.2	29.6	29.7
Experience (in months)	116.6	113.6	117.9	111.3	107.9	113.5	96.4	108.7	96.4	96.0
Education :										
Diploma										
No diploma or vocational lower secondary education	3.5	2.4	0.0	4.0	9.6	9.7	60.5	31.9	60.2	60.2
Upper secondary diploma	4.8	5.1	2.5	9.6	26.8	22.7	30.9	36.8	29.0	33.1
Low-level tertiary education	15.3	12.1	17.0	10.8	53.4	36.9	5.3	22.1	9.1	6.6
High-level tertiary education	76.3	80.4	80.4	75.6	10.2	30.7	3.3	9.2	1.7	0.0
Speciality of education										
Academic	31.1	34.0	24.0	38.5	19.9	29.2	19.9	21.2	25.1	24.9
Production or industrial tracks	9.1	6.1	47.9	5.8	7.4	11.3	12.2	5.7	22.2	18.5
Service sector tracks	59.8	59.9	28.1	55.7	72.7	59.5	67.9	73.0	52.7	56.6
Entering late into middle-school	4.4	3.8	1.8	4.9	9.6	9.8	34.2	22.3	40.8	31.4
Greater Paris (inner Paris and its suburbs)	37.1	23.5	35.8	17.0	13.9	23.7	9.5	16.6	13.5	7.0
Working hours:										
Full time	82.6	75.1	80.5	72.9	61.4	80.5	62.0	73.7	82.4	78.2
Part-time (50%)	1.5	3.7	0.0	6.3	6.3	1.6	11.2	3.7	5.3	3.7
Part-time (<50%)	0.0	1.1	0.0	3.9	2.2	0.4	3.1	1.3	0.8	7.0
Part-time (80%)	13.6	17.1	19.5	14.6	26.6	16.1	19.0	18.2	8.7	8.8
Part-time (60%)	2.3	2.9	0.0	2.3	3.6	1.4	4.7	3.1	2.8	2.4
Family characteristics:										
Husband	76.7	73.6	84.4	77.3	77.7	76.4	71.0	74.8	65.3	59.6

Children	59.9	64.2	69.3	71.8	68.8	56.6	64.2	66.7	54.6	53.5
Professional characteristics :										
Job sectors										
Industrial	7.5	1.7	28.8	0.0	0.5	20.9	4.2	7.0	31.4	32.5
Administration, education, health, social	50.1	14.3	46.4	4.2	6.6	45.1	38.0	34.4	28.8	24.3
Others services	23.8	79.5	5.1	93.2	86.3	23.2	44.0	49.8	8.7	9.6
Missing or Agriculture[35]	18.6	4.5	19.8	2.5	6.6	10.9	13.9	8.9	31.1	33.6
Atypical hours	1.8	1.4	2.1	1.1	27.4	4.5	11.5	14.4	16.6	9.5
Job in public sector	16.0	76.4	7.8	77.5	53.5	24.5	26.9	37.1	8.2	5.3
Permanent contratt	83.4	85.3	96.8	90.2	85.2	93.8	75.4	90.1	76.8	63.6
Supervisory duties										
0 employee	48.7	71.2	57.3	83.3	75.5	74.7	83.7	86.9	83.6	82.5
1 employee	7.5	4.7	5.3	2.8	2.6	4.5	5.9	3.8	2.2	4.9
2-5 employees	22.9	12.2	21.7	4.7	10.8	11.9	7.1	6.6	8.3	9.5
6 employees or above	20.8	11.9	15.8	9.2	11.1	8.9	3.3	2.8	5.9	3.1
Firm size										
< 10 employees	26.9	7.1	4.7	9.7	14.3	19.8	23.2	20.7	13.2	17.4
10-49 employees	12.5	10.3	17.7	6.0	10.6	18.1	18.0	18.2	31.4	17.1
50-499 employees	29.1	5.9	35.6	5.1	13.2	23.5	20.9	17.4	34.1	37.5
500 employees or above	17.8	3.0	33.5	0.9	3.0	15.3	3.4	5.7	6.6	11.0
Missing #	13.7	73.8	8.5	78.3	58.9	23.3	34.5	38.1	14.8	17.1

[35] 90% of missing-values.

Men-Women difference	Professionals and managers in business	Public sector managers	Engineers	Intermediate in public services	Intermediate in health, care and social services	Other intermediate	Unskilled clerical workers	Skilled clerical workers	Skilled labourers	Unskilled labourers
Age	0.0	-0.1	0.0	-0.7	1.4***	-0.7***	0.5**	0	0.1	-0.1
Experience (in months)	0.5	-2.2	-4.4***	-1.1	2.3	-1.2	7.6***	0.5	16.1***	12.9***
Education:										
Diploma										
No diploma or vocational lower secondary education	0.1	3.8	4.9***	8.7**	2.2	11.3***	6.6	3.1	8.8*	11.7**
Upper secondary diploma	3.1	3.1	5.3***	12.9***	3.9	2.7	-13**	0.6	-2.7	-10.8**
Low-level tertiary education	1.7	1.3	2.7	9.9**	-3.9	3.2	6.1*	-2.3	-4.9	-0.9
High-level tertiary education	-4.8	-8.3	-12.8***	-31.4***	-2.2	-17.2***	0.3	-1.4	-1.3*	0.2
Speciality of education										
Academic	-7.0	6.0	-7.4	-13.3**	-0.8	-15.2***	-7.3*	0.5	-15.8***	-16.2***
Production or industrial tracks	13.0**	10.0***	7.6	21.4***	7.0*	44.9***	36.5***	32.2***	55.9***	60.2***
Service sector tracks	-6.0	-16.0***	-0.2	-8.2	-6.1	-29.7***	-29.2***	-32.6***	-40.1***	-43.9***
Entering late into middle-school	-0.2	-0.7	6.8***	9.7**	1.4	10.2***	-7.9*	-2.8	-2.1	12.4***
Greater Paris (inner Paris and its suburbs)	3.3	-4.1	3.3	2.1	4.8	-3.9	4.5	4.1	-2.6	2.1
Working hours:										
Full time	14.9***	20.7***	18.5 ***	20.4***	29.7***	17.3***	29.9***	21.9***	15.4***	19.1***
Part-time (50%)	-1.4*	-2.9	0	-6.3***	-1.4	-1.3***	-8.8***	-2.9***	-4.4**	-2.3
Part-time (<50%)	0.0	-0.8	0.0	-1.0	-1.8	-0.1	-1.5	0.0	-0.7	-6.8***
Part-time (80%)	-11.2***	-15.3***	-18.5***	-11.8***	-23.6***	-14.6***	-17.1***	-16.5***	-7.8***	-8.2***
Part-time (60%)	-2.3*	-1.6	0.0	-1.3	-3.1**	-1.3**	-2.5	-2.6***	-2.6	-1.9*

Family characteristics:										
Husband	6.7	-4.2	-8.1*	-9.1	-4.9	-8***	-19.5***	-14.3***	-2.3	-3.2
Children	7.7	-14.3***	-11.7**	-24.8***	-15.9***	-9***	-26.2***	-22.1***	-12.1**	-12.7**
Professional characteristics:										
Job sectors										
Industrial										
Administration, education, health, social	1.3	0.9	6.9	2.4	4.3**	9.6***	-0.3	0.3	16.4***	20.4***
Other services	10.0	-1.2	-2.7	9.7**	1.5	-0.3	11.8**	1.3	-0.5	-3.0
Missing or Agriculture[36]	-16.1***	0.6	-3.2	-15***	-10.4**	-13.8***	-5.3	-0.4	-2.7	-4.8
Atypical hours	4.8	-0.4	-1.0	3.0	4.5	4.4**	-6.4	-1.2	-13.2**	-12.6***
Job in public sector	0.7	2.4*	0.9	0.5	-6.0	6.2***	7.1*	4.0	1.4	8.4***
Permanent contract	-13.1***	2.1	-3.8	-15.4**	-13.9**	-10.7***	7.8	15.9***	2.2	1.9
Supervisory duties	4.4	-1.0	1.1	-2.7	-8.6**	-0.1	4.9	-0.3	11**	20.1***
0 employee										
1 employee	-14.6**	-5.0	-11.9**	-9.1*	-3.3	-13.5***	-8.9**	-16.4***	-13.3***	-9.0**
2-5 employees	1.9	-1.9	2.6	4.6	3.3	0.9	-2.9*	2.4	6.4***	2.6
6 employees or above	-1.7	-0.2	-2.3	7.4**	3.3	5.6***	5	6.6***	6.6**	3.5
Firm size	14.5***	7.0***	11.5**	-2.9	-3.3	6.9***	6.8**	7.3***	0.3	3*
< 10 employees	-5.5	-0.9	5.9**	-0.3	9.2**	-3.4	-2.9	-10.1***	9**	2.4
10-49 employees	5.6	-4.5*	1.1	1.4	6.1*	5.7**	-4.2	-2.4	-2.5	7.6**
50-499 employees	6.0	1.9	0.3	9.4**	-0.4	6.6***	-0.5	0.7	-8.6	-2.8
500 employees or above	3.3	0.5	-4.4	4.9*	2.4	-1.5	8.1***	2.1	4.8**	1.5
Missing #	-9.5***	2.9	-2.9	-15.5***	-17.3***	-7.4**	-0.5	9.5**	-2.7	-8.8**

*p< 0.10, **p< 0.05, ***p< 0.01

[36] 90% of missing-values.

Annex 2: Probability of Being Employed in Occupation j

Men, ref: Unskilled clerical workers	PROF	MAN_PUB	ENG	INT_PUB	INT_SOC	OTH_INT	UNSK_CL	SK_LAB	UNS_LAB
Age	0.11*	0.25***	0.13**	0.15***	0.38***	-0.00	0.11**	-0.04	-0.07
	(0.06)	(0.07)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)
Education									
DIP*SPE (Ref : BAC+2 Services)									
No Dip. &CAP/BEP Academic	0.00	0.00	-0.08	0.00	0.00	-0.66	-0.49	2.54***	2.32***
	(.)	(.)	(0.84)	(.)	(.)	(0.63)	(0.74)	(0.64)	(0.70)
No Dip. &CAP/BEP Industry	-1.11**	0.00	-1.49***	-0.42	-1.85***	-0.73***	-0.07	3.21***	2.96***
	(0.53)	(.)	(0.47)	(0.62)	(0.52)	(0.28)	(0.33)	(0.37)	(0.48)
No Dip. &CAP/BEP Services	0.00	0.00	-1.47*	-0.84	-1.11*	-0.85*	0.32	1.99***	1.91***
	(.)	(.)	(0.61)	(0.70)	(0.57)	(0.33)	(0.37)	(0.41)	(0.54)
BAC Academic	0.72	1.28	-0.12	1.43**	0.29	0.15	1.29***	2.54***	1.52**
	(0.63)	(0.83)	(0.66)	(0.65)	(0.52)	(0.48)	(0.46)	(0.51)	(0.67)
BAC Industry	-0.19	0.70	0.66	0.60	-0.32	0.89**	0.86**	3.72***	3.50***
	(0.63)	(0.70)	(0.48)	(0.60)	(0.55)	(0.36)	(0.39)	(0.44)	(0.54)
BAC Services	0.41	0.66	-0.67	0.70	0.38	0.48	1.11***	2.39***	1.96***
	(0.64)	(0.74)	(0.67)	(0.66)	(0.45)	(0.43)	(0.43)	(0.49)	(0.60)
BAC+2 Academic	1.49**	1.20*	0.99	0.41	-1.35*	0.64	0.64	0.00	1.98**
	(0.67)	(0.72)	(0.62)	(0.93)	(0.76)	(0.48)	(0.51)	(.)	(0.84)
BAC+2 Industry	1.34**	2.52***	2.38***	1.92***	-0.32	2.69***	1.08**	3.17***	3.27***
	(0.61)	(0.69)	(0.54)	(0.68)	(0.63)	(0.48)	(0.51)	(0.56)	(0.64)
High level tertiary Academic	2.61***	3.12***	2.05***	1.80***	-1.39***	1.02***	0.00	0.00	0.00
	(0.44)	(0.43)	(0.38)	(0.58)	(0.49)	(0.32)	(.)	(.)	(.)
High level tertiary Industry	4.88***	4.03***	5.68***	2.47***	0.00	2.45***	0.00	3.12***	0.00
	(0.63)	(0.66)	(0.55)	(0.87)	(.)	(0.55)	(.)	(0.72)	(.)
High level tertiary Services	3.50***	3.49***	2.66***	2.76***	-1.76***	1.37***	0.15	0.00	0.00
	(0.57)	(0.56)	(0.53)	(0.62)	(0.65)	(0.50)	(0.53)	(.)	(.)
Entering late into middle-school	-0.79**	-1.13**	-0.09	0.21	-0.47	0.17	-0.18	0.34	0.55**
	(0.40)	(0.44)	(0.31)	(0.40)	(0.38)	(0.25)	(0.27)	(0.23)	(0.24)
Greater Paris	1.50***	0.33	1.46***	0.38	0.25	0.52*	0.54*	-0.22	-0.44
	(0.35)	(0.35)	(0.31)	(0.40)	(0.38)	(0.29)	(0.31)	(0.30)	(0.33)
Family characteristics									
Husband	1.26***	0.82**	1.08***	0.73**	0.75**	0.61**	0.25	0.51**	0.18
	(0.34)	(0.39)	(0.30)	(0.36)	(0.33)	(0.25)	(0.27)	(0.24)	(0.26)
Children	0.12	-0.65*	-0.17	-0.44	-0.38	-0.13	0.04	-0.02	0.11
	(0.32)	(0.36)	(0.29)	(0.34)	(0.32)	(0.25)	(0.27)	(0.24)	(0.26)
Non- cognitive characteristics									
Optimism	1.26***	0.44	0.55	0.71	0.25	0.27	0.29	0.14	-0.01
	(0.44)	(0.37)	(0.38)	(0.43)	(0.38)	(0.28)	(0.30)	(0.27)	(0.27)
Career	1.51***	0.62*	1.23***	-0.01	0.61*	0.34	0.32	-0.15	-0.49*
	(0.32)	(0.35)	(0.30)	(0.37)	(0.33)	(0.27)	(0.29)	(0.27)	(0.29)
Risk	0.78***	0.40	0.67***	0.41	0.13	0.43*	-0.04	0.49**	0.20
	(0.32)	(0.35)	(0.30)	(0.37)	(0.33)	(0.27)	(0.29)	(0.27)	(0.29)
Constant	-4.00***	-2.17***	-2.25***	-2.44***	-0.50	0.48	0.05	-1.63***	-1.74**
	(0.54)	(0.54)	(0.47)	(0.62)	(0.42)	(0.35)	(0.38)	(0.41)	(0.53)

Women, ref: Unskilled clerical workers	PROF	MAN_PUB	ENG	INT_PUB	INT_SOC	OTH_INT	UNSK_CL	SK_LAB	UNS_LAB
Age	0.25***	0.37***	0.28***	0.22***	0.35***	0.13***	0.21***	0.05	0.10
	(0.06)	(0.04)	(0.05)	(0.06)	(0.04)	(0.04)	(0.04)	(0.07)	(0.07)
Education									
DIP*SPE (Ref : BAC+2 Services)									
No Dip. &CAP/BEP Academic	0.00	0.00	0.00	1.21	-1.76**	-2.96***	-0.95*	2.27**	2.33***
	(.)	(.)	(.)	(0.73)	(0.63)	(0.77)	(0.43)	(0.80)	(0.59)
No Dip. &CAP/BEP Industry	0.00	0.00	0.00	0.00	-2.42***	-1.99**	-1.30**	1.85**	1.66**
	(.)	(.)	(.)	(.)	(0.68)	(0.61)	(0.42)	(0.72)	(0.53)
No Dip. &CAP/BEP Services	-1.81***	0.00	0.00	-1.33**	-2.35***	-2.30***	-0.43**	1.11*	1.21***
	(0.64)	(.)	(.)	(0.67)	(0.26)	(0.26)	(0.21)	(0.67)	(0.46)
BAC Academic	-0.98	-0.04	0.00	0.77	-1.18***	-1.27***	-0.42	0.62	0.81
	(0.63)	(0.57)	(.)	(0.55)	(0.39)	(0.39)	(0.37)	(0.76)	(0.74)
BAC Industry	0.00	0.98	0.00	0.00	-0.92*	-0.86**	-0.30	2.14***	2.18***
	(.)	(0.66)	(.)	(.)	(0.55)	(0.42)	(0.40)	(0.75)	(0.61)
BAC Services	-1.34**	-1.31**	0.00	0.05	-1.42***	-1.22***	-0.07	1.40**	1.32***
	(0.59)	(0.59)	(.)	(0.47)	(0.22)	(0.23)	(0.20)	(0.66)	(0.44)
BAC+2 Academic	1.17*	1.15**	0.00	2.16***	-1.36***	0.21	0.16	1.83**	1.31*
	(0.69)	(0.59)	(.)	(0.58)	(0.48)	(0.42)	(0.40)	(0.91)	(0.77)
BAC+2 Industry	0.00	2.23**	4.01***	2.87***	0.28	1.36**	0.03	3.48***	0.00
	(.)	(0.75)	(0.75)	(0.78)	(0.60)	(0.56)	(0.60)	(0.95)	(.)
High level tertiary Academic	2.76***	3.20***	3.69***	3.75***	-1.06**	1.20***	0.28	1.34	0.00
	(0.49)	(0.49)	(0.54)	(0.50)	(0.42)	(0.39)	(0.39)	(0.82)	(.)
High level tertiary Industry	4.46***	3.94***	6.98***	4.37***	-0.01	1.84***	0.00	0.00	0.00
	(0.70)	(0.70)	(0.67)	(0.73)	(0.82)	(0.62)	(.)	(.)	(.)
High level tertiary Services	3.07***	3.53***	3.01***	4.08***	-1.43***	0.76*	-0.25	0.00	0.00
	(0.52)	(0.51)	(0.58)	(0.53)	(0.46)	(0.43)	(0.46)	(.)	(.)
Entering late into middle-school	-1.09**	-1.23***	-1.81**	-0.86**	-0.88***	-0.66***	-0.33**	0.13	-0.42*
	(0.45)	(0.43)	(0.79)	(0.41)	(0.22)	(0.22)	(0.16)	(0.26)	(0.22)
Greater Paris	1.73***	1.09***	1.88***	0.72**	0.70***	1.27***	0.74***	0.32	-0.47
	(0.31)	(0.29)	(0.34)	(0.31)	(0.27)	(0.25)	(0.24)	(0.39)	(0.45)
Family characteristics									
Husband	0.95***	0.50*	1.23***	0.39	0.38*	0.74***	0.22	0.01	-0.34
	(0.30)	(0.26)	(0.39)	(0.31)	(0.21)	(0.20)	(0.17)	(0.32)	(0.25)
Children	-1.04***	-0.77***	-0.73**	-0.26	-0.38*	-0.99***	-0.23	-0.23	-0.16
	(0.26)	(0.24)	(0.32)	(0.28)	(0.20)	(0.19)	(0.16)	(0.29)	(0.25)
Non-cognitive characteristics	(0.35)	(0.28)	(0.43)	(0.25)	(0.20)	(0.19)	(0.16)	(0.27)	(0.23)
Optimism	1.17***	0.44	1.32***	0.31	0.78***	0.59***	0.33**	0.29	-0.31
	(0.35)	(0.28)	(0.43)	(0.25)	(0.20)	(0.19)	(0.16)	(0.27)	(0.23)
Career	1.54***	1.18***	1.47***	1.12***	0.62***	0.81***	0.43**	0.45	-0.52
	(0.27)	(0.26)	(0.32)	(0.26)	(0.21)	(0.21)	(0.19)	(0.34)	(0.37)
Risk	0.81***	-0.19	0.47	-0.07	0.29	0.15	-0.13	0.21	-0.18
	(0.27)	(0.24)	(0.31)	(0.26)	(0.19)	(0.18)	(0.16)	(0.27)	(0.26)
Constant	-3.41***	-2.24***	-5.56***	-2.77***	0.69***	0.49	0.96***	-2.81***	-1.37**
	(0.52)	(0.46)	(0.53)	(0.44)	(0.26)	(0.26)	(0.23)	(0.65)	(0.45)

Standard errors in brackets: $^{*}p<0.10$, $^{**}p<0.05$, $^{***}p<0.01$

Annex 3: Wage Equations by Occupation

Men	PROF	MAN_PUB	ENG	INT_PUB	INT_SOC	OTH_INT	UNSK_CL	SK_CL	SK_LAB	UNS_LAB
Experience	0.006*	-0.000	0.005***	0.004***	0.004**	0.004***	0.005***	-0.000	0.003***	0.003***
	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Education										
Diploma (ref: BAC)										
No Dip & CAP-BEP	-0.347**	0.106	0.040	-0.168**	-0.092	0.047	-0.136**	-0.047	-0.017	-0.023
	(0.157)	(0.125)	(0.090)	(0.079)	(0.076)	(0.037)	(0.063)	(0.031)	(0.020)	(0.026)
BAC+2	-0.071	0.009	0.089*	0.016	0.147**	0.083***	-0.057	0.051	0.069**	0.037
	(0.134)	(0.128)	(0.049)	(0.086)	(0.057)	(0.026)	(0.075)	(0.034)	(0.034)	(0.073)
High-level tertiary	0.247*	0.247**	0.309***	0.185**	0.140	0.148***	0.308	0.123**	0.158***	-0.085
	(0.129)	(0.096)	(0.051)	(0.090)	(0.086)	(0.050)	(0.209)	(0.053)	(0.058)	(0.062)
Late entry into middle-school	-0.110	0.029	-0.085*	0.039	0.054	-0.078**	-0.038	-0.023	-0.031	-0.040
	(0.088)	(0.131)	(0.050)	(0.063)	(0.058)	(0.031)	(0.047)	(0.029)	(0.020)	(0.025)
Speciality (ref: Services)										
Academic	-0.069	0.027	0.008	0.047	-0.041	-0.022	0.042	-0.049*	0.025	-0.041
	(0.073)	(0.036)	(0.052)	(0.060)	(0.057)	(0.041)	(0.080)	(0.028)	(0.030)	(0.061)
Industry	-0.030	0.121*	0.018	0.042	-0.117*	-0.035	0.109**	0.011	0.059**	-0.025
	(0.061)	(0.072)	(0.046)	(0.070)	(0.068)	(0.028)	(0.047)	(0.038)	(0.023)	(0.058)
Professional Char.										
Supervisory duties (ref: 0 employees)										
1 emp	0.175*	0.141*	0.077	0.169**	0.120	0.014	-0.019	0.044	0.014	-0.015
	(0.096)	(0.073)	(0.068)	(0.067)	(0.149)	(0.045)	(0.141)	(0.038)	(0.032)	(0.059)
2-5 emp.	0.201***	0.077	-0.027	0.053	0.116*	0.066**	0.072	0.058**	0.104***	0.053
	(0.069)	(0.056)	(0.040)	(0.062)	(0.070)	(0.028)	(0.056)	(0.029)	(0.033)	(0.039)
6 emp and above	0.273***	0.264***	0.044	0.074	0.008	0.145***	0.217***	0.121***	0.173***	0.147***
	(0.067)	(0.058)	(0.053)	(0.095)	(0.061)	(0.032)	(0.073)	(0.042)	(0.043)	(0.054)
Sector (ref: Services)										
Industry	-0.035	0.257**	0.033	-0.008	0.083	0.052*	-0.032	0.023	0.059***	0.025
	(0.062)	(0.117)	(0.052)	(0.101)	(0.090)	(0.027)	(0.067)	(0.057)	(0.022)	(0.031)
Admin, educ, health, social	0.276**	0.076	-0.152	0.023	0.045	-0.056	-0.283***	-0.040	-0.193***	-0.072
	(0.140)	(0.081)	(0.139)	(0.133)	(0.075)	(0.040)	(0.105)	(0.053)	(0.041)	(0.096)
Agri and miss.	0.022	-0.070	0.009	0.024	-0.038	0.026	-0.221**	0.066	0.013	0.029
	(0.063)	(0.145)	(0.042)	(0.120)	(0.087)	(0.037)	(0.111)	(0.054)	(0.022)	(0.039)
Firm size (ref: < 10 emp.)										
10-49 emp.	-0.096	-0.248	0.102	0.089	-0.106	0.055	0.010	0.016	0.053*	0.001
	(0.096)	(0.202)	(0.064)	(0.092)	(0.074)	(0.038)	(0.088)	(0.050)	(0.029)	(0.032)
50-499 emp	-0.158*	-0.184	0.086*	0.207*	-0.109	0.092**	0.000	0.061	0.057**	0.018
	(0.089)	(0.145)	(0.050)	(0.110)	(0.074)	(0.038)	(0.081)	(0.040)	(0.025)	(0.033)

500 emp. and above	-0.084	-0.053	0.150**	0.459***	-0.007	0.119***	0.042	0.144***	0.118***	0.069*
	(0.087)	(0.161)	(0.068)	(0.166)	(0.082)	(0.042)	(0.112)	(0.052)	(0.030)	(0.041)
Missing	-0.091	-0.155	0.294*	0.293*	-0.096	0.010	-0.011	0.078	0.143**	0.046
	(0.142)	(0.154)	(0.178)	(0.149)	(0.103)	(0.071)	(0.107)	(0.062)	(0.061)	(0.064)
Atypical hours	-0.071	0.190	0.145**	0.107	0.085	0.036	0.060	-0.002	0.061***	0.151***
	(0.103)	(0.137)	(0.067)	(0.145)	(0.061)	(0.026)	(0.048)	(0.037)	(0.022)	(0.049)
Job in public sector	-0.067	-0.026	-0.059	-0.205*	-0.061	-0.013	0.225**	0.015	0.014	0.025
	(0.127)	(0.071)	(0.108)	(0.119)	(0.093)	(0.042)	(0.102)	(0.044)	(0.050)	(0.064)
Permanent contract	0.091	0.123*	0.201**	0.248**	-0.112	-0.011	-0.012	0.136***	0.040	0.033
	(0.119)	(0.069)	(0.087)	(0.104)	(0.072)	(0.067)	(0.061)	(0.048)	(0.026)	(0.034)
Working hours (ref : Full-time)										
Part-time (50%)	-1.014***	-0.272	0.000	0.000	-0.460***	-0.596***	-0.233*	-0.357**	-0.501***	-0.534***
	(0.241)	(0.282)	(.)	(.)	(0.088)	(0.085)	(0.140)	(0.139)	(0.081)	(0.096)
Part-time (<50%)	0.000	-1.295***	0.000	-0.395	-1.583***	-0.391	-0.532	-0.650	-0.586**	-0.421***
	(.)	(0.100)	(.)	(0.280)	(0.130)	(0.283)	(0.536)	(0.427)	(0.278)	(0.125)
Part-time (80%)	-0.375***	-0.310***	-0.296***	0.006	0.028	-0.319***	-0.425**	-0.559**	-0.291***	-0.579***
	(0.085)	(0.106)	(0.089)	(0.195)	(0.117)	(0.058)	(0.171)	(0.218)	(0.094)	(0.088)
Part-time (60%)	0.000	-0.088	0.000	-0.328	-0.806***	-0.161	-0.098	-0.925***	-0.483***	-0.286***
	(.)	(0.439)	(.)	(0.253)	(0.153)	(0.234)	(0.212)	(0.333)	(0.164)	(0.053)
Greater Paris (inner Paris and its suburbs)	0.110*	0.152**	0.091**	0.038	0.068	0.147***	0.014	0.122***	0.070**	-0.009
	(0.056)	(0.060)	(0.042)	(0.060)	(0.049)	(0.029)	(0.058)	(0.044)	(0.029)	(0.046)
Family Charact.										
Husband	0.088	-0.045	0.111	0.113*	0.136*	-0.006	0.086	-0.002	0.038	-0.009
	(0.077)	(0.054)	(0.076)	(0.067)	(0.080)	(0.030)	(0.055)	(0.048)	(0.026)	(0.036)
Children	0.035	0.107**	-0.041	0.058	0.033	0.083***	-0.068	0.072	-0.005	0.072**
	(0.070)	(0.053)	(0.069)	(0.067)	(0.074)	(0.030)	(0.058)	(0.045)	(0.026)	(0.031)
Non cognitive Charact.										
Optimism	0.181**	-0.070	0.047	0.272***	0.073	0.057**	0.017	0.090**	0.046**	0.037
	(0.071)	(0.071)	(0.064)	(0.096)	(0.059)	(0.026)	(0.057)	(0.036)	(0.022)	(0.025)
Career	0.087	0.023	0.076**	-0.111**	0.106*	-0.000	0.001	0.057**	0.003	0.000
	(0.056)	(0.054)	(0.033)	(0.055)	(0.058)	(0.027)	(0.065)	(0.026)	(0.020)	(0.039)
Risk	-0.005	0.012	0.017	-0.068	-0.082	0.004	0.137***	-0.028	0.023	0.025
	(0.059)	(0.051)	(0.036)	(0.047)	(0.062)	(0.022)	(0.048)	(0.026)	(0.022)	(0.029)
Constant	7.381***	7.380***	7.202***	6.607***	7.311***	7.273***	7.207***	7.054***	7.084***	7.192***
	(0.184)	(0.210)	(0.136)	(0.178)	(0.127)	(0.089)	(0.113)	(0.065)	(0.060)	(0.067)
Observations	250	292	444	115	244	1030	167	434	1193	628
R^2	0.38	0.37	0.29	0.67	0.55	0.27	0.52	0.37	0.27	0.27

Standard errors in brackets, $^{*}p<0.10$, $^{**}p<0.05$, $^{***}p<0.01$

Women	PROF	MAN_PUB	ENG	INT_PUB	INT_SOC	OTH_INT	UNSK_CL	SK_CL	SK_LAB	UNS_LAB
Experience	0.003	0.003***	0.006*	0.000	0.003***	0.002***	0.001*	0.002***	0.007***	0.001
	(0.003)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Education										
Diploma (ref : BAC)										
No Dip & CAP-BEP	-0.149	-0.433**	0.000	0.161	-0.184***	-0.103**	-0.052*	-0.047***	0.006	-0.092
	(0.295)	(0.179)	(.)	(0.137)	(0.058)	(0.041)	(0.029)	(0.018)	(0.052)	(0.059)
BAC+2	-0.039	-0.075	0.004	0.212**	0.098**	0.087***	-0.003	0.054***	0.206**	0.103
	(0.287)	(0.086)	(0.116)	(0.082)	(0.040)	(0.028)	(0.046)	(0.018)	(0.096)	(0.114)
High-level tertiary	0.070	0.183**	0.367***	0.192***	0.024	0.174***	0.058	0.096***	0.381***	0.000
	(0.290)	(0.083)	(0.117)	(0.060)	(0.045)	(0.032)	(0.120)	(0.031)	(0.113)	(.)
Late entry middle-school	-0.037	-0.047	0.078	-0.114	-0.160***	-0.059	-0.045	-0.042**	-0.093	-0.006
	(0.103)	(0.083)	(0.129)	(0.074)	(0.049)	(0.041)	(0.031)	(0.019)	(0.059)	(0.056)
Speciality (ref : Services)										
Academic	-0.030	-0.051	-0.089	-0.014	0.016	-0.024	-0.103*	-0.034*	-0.055	-0.114
	(0.068)	(0.040)	(0.080)	(0.027)	(0.031)	(0.024)	(0.055)	(0.018)	(0.073)	(0.098)
Industry	0.066	0.018	-0.012	-0.112***	0.011	0.069	0.022	0.008	-0.020	0.022
	(0.133)	(0.053)	(0.075)	(0.038)	(0.060)	(0.045)	(0.045)	(0.027)	(0.059)	(0.071)
Professional Charact.										
Supervisory duties (ref: 0 employees)										
1 emp	0.076	0.270***	-0.064	0.134	0.024	0.031	-0.032	0.105**	0.306*	-0.130
	(0.096)	(0.081)	(0.085)	(0.092)	(0.052)	(0.055)	(0.050)	(0.051)	(0.182)	(0.123)
2-5 emp.	0.105	0.201***	0.215***	0.140*	-0.001	0.031	0.042	0.116***	0.214***	0.194**
	(0.091)	(0.044)	(0.059)	(0.077)	(0.028)	(0.029)	(0.077)	(0.034)	(0.072)	(0.088)
6 emp and above	0.010	0.233***	0.152**	0.125***	0.060*	0.029	0.039	0.122***	0.199	0.181
	(0.070)	(0.059)	(0.064)	(0.044)	(0.032)	(0.032)	(0.047)	(0.045)	(0.134)	(0.194)
Sector (ref: Services)										
Industry	0.098	0.387***	0.047		0.049	0.035	0.065	0.029	-0.113*	0.168***
	(0.081)	(0.099)	(0.061)		(0.148)	(0.032)	(0.082)	(0.035)	(0.067)	(0.053)
Admin, educ, health, social	0.091	-0.036	-0.120	-0.089	0.249***	-0.110***	-0.039	0.018	-0.206***	0.029
	(0.101)	(0.050)	(0.117)	(0.117)	(0.083)	(0.038)	(0.061)	(0.020)	(0.071)	(0.153)
Agri and miss.	0.093	0.098	0.114**	-0.234	0.210**	-0.027	-0.108	0.013	-0.089	0.112
	(0.082)	(0.126)	(0.056)	(0.172)	(0.087)	(0.032)	(0.069)	(0.026)	(0.075)	(0.068)
Size (ref: < 10 emp.)										
10-49 emp	-0.023	0.006	0.239	0.122	-0.132*	0.062*	0.153***	0.065**	0.204**	-0.116
	(0.103)	(0.082)	(0.166)	(0.091)	(0.067)	(0.037)	(0.055)	(0.026)	(0.091)	(0.081)
50-499 emp.	0.031	0.023	0.386**	0.002	-0.199***	0.022	0.084	0.082***	0.073	-0.010
	(0.088)	(0.085)	(0.161)	(0.074)	(0.060)	(0.037)	(0.056)	(0.025)	(0.089)	(0.076)
500 emp. and above	0.044	0.113	0.436***	-0.105	-0.005	0.092**	0.132*	0.156***	0.296***	0.059
	(0.089)	(0.109)	(0.164)	(0.095)	(0.084)	(0.043)	(0.076)	(0.033)	(0.107)	(0.071)

Missing	-0.094	-0.025	0.530***	0.049	-0.134*	0.038	0.240***	0.069**	0.277***	-0.125
	(0.152)	(0.083)	(0.186)	(0.051)	(0.078)	(0.046)	(0.075)	(0.028)	(0.098)	(0.106)
Atypical hours	-0.269**	0.512***	-0.235**	0.047	0.066***	0.156**	-0.008	0.084***	0.027	0.023
	(0.117)	(0.095)	(0.117)	(0.070)	(0.025)	(0.075)	(0.038)	(0.021)	(0.061)	(0.077)
Job in public sector	0.036	0.118*	0.009	0.013	0.017	0.015	-0.076	-0.006	-0.064	0.159
	(0.127)	(0.060)	(0.105)	(0.044)	(0.039)	(0.043)	(0.055)	(0.021)	(0.079)	(0.177)
Permanent contract	-0.158	0.181***	0.518**	0.251***	0.073*	0.069	0.169***	0.051**	0.084	0.095
	(0.136)	(0.052)	(0.249)	(0.063)	(0.044)	(0.046)	(0.043)	(0.023)	(0.066)	(0.062)
Working hours (ref : Full-time)										
Part-time (50%)	-0.509***	-0.660***	0.000	-0.524***	-0.518***	-0.709***	-0.503***	-0.511***	-0.147	-0.228**
	(0.192)	(0.133)	(.)	(0.071)	(0.097)	(0.093)	(0.060)	(0.051)	(0.140)	(0.101)
Part-time (<50%)	0.000	-1.248***	0.000	-0.330*	-0.937***	-1.153***	-0.689***	-0.426***	0.404***	-0.862***
	(.)	(0.327)	(.)	(0.192)	(0.254)	(0.238)	(0.153)	(0.123)	(0.123)	(0.163)
Part-time (80%)	-0.205*	-0.180***	-0.070	-0.273***	-0.139***	-0.181***	-0.264***	-0.197***	-0.303***	-0.304***
	(0.123)	(0.041)	(0.063)	(0.040)	(0.025)	(0.029)	(0.041)	(0.020)	(0.074)	(0.083)
Part-time (60%)	-0.482***	-0.303***	0.000	-0.345***	-0.312***	-0.480***	-0.448***	-0.565***	-0.112	-0.289**
	(0.172)	(0.072)	(.)	(0.054)	(0.074)	(0.080)	(0.070)	(0.052)	(0.121)	(0.137)
	0.002	0.105**	0.151***	0.032	0.149***	0.146***	0.121***	0.150***	0.092*	-0.110
Greater Paris (inner Paris and its suburbs)	(0.064)	(0.053)	(0.049)	(0.029)	(0.048)	(0.029)	(0.045)	(0.023)	(0.055)	(0.146)
Family Charact.	-0.117	-0.065	0.027	0.009	-0.054	0.009	0.008	0.011	-0.134*	-0.153***
Husband	(0.100)	(0.076)	(0.094)	(0.038)	(0.048)	(0.033)	(0.044)	(0.018)	(0.078)	(0.057)
	0.093	0.009	-0.081	0.027	0.016	-0.009	-0.061*	-0.009	0.064	-0.028
Children	(0.078)	(0.078)	(0.087)	(0.039)	(0.035)	(0.026)	(0.036)	(0.017)	(0.070)	(0.048)
Non cognitive Charact.	0.267**	0.072*	0.133**	0.077**	0.125***	0.058**	0.018	0.076***	0.044	0.083
Optimism	(0.110)	(0.039)	(0.055)	(0.030)	(0.027)	(0.025)	(0.034)	(0.019)	(0.051)	(0.057)
	0.105	-0.057	0.080	0.047*	0.079**	0.053*	-0.056	-0.000	-0.040	0.141*
Career	(0.069)	(0.037)	(0.051)	(0.028)	(0.031)	(0.032)	(0.051)	(0.019)	(0.058)	(0.072)
	-0.109	-0.009	0.091	-0.016	-0.008	-0.039	-0.043	-0.036	0.143**	-0.080
Risk	(0.079)	(0.041)	(0.069)	(0.043)	(0.026)	(0.026)	(0.036)	(0.022)	(0.060)	(0.064)
Constant	7.638***	7.180***	6.372***	6.946***	7.054***	7.160***	6.954***	7.011***	7.043***	7.041***
	(0.357)	(0.120)	(0.278)	(0.142)	(0.089)	(0.059)	(0.073)	(0.042)	(0.146)	(0.098)
Observations	192	375	109	260	1054	679	496	1143	136	181
R^2	0.27	0.55	0.61	0.61	0.57	0.38	0.46	0.48	0.67	0.57

Standard errors in brackets $^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.05$

Annex 4: Detailed Oaxaca-Blinder Decomposition

Wage gap	0.244***			
	(0.0115)			
	Explained	%	**Unexplained**	%
Experience	0.0120***	4.9	-0.000978	0.004
	(0.00233)		(0.00110)	
Education	-0.0219***	-8.7	-0.00328	0.01
	(0.00346)		(0.00671)	
Speciality	0.00752	3.1	0.00143	0.006
	(0.00602)		(0.00625)	
Occupation (PCS)	0.0212***	8.7	0.00646	2.6
	(0.00758)		(0.00770)	
Professional charact.	0.0415***	17.1	-0.0237	-9.7
	(0.00553)		(0.0201)	
Working time	0.0882***	36.1	-0.0354	0.001
	(0.0105)		(0.0475)	
Greater Paris (inner Paris and its suburbs)	0.00103	0.004	0.00878	3.6
	(0.00107)		(0.00748)	
Family charact.	-0.00839***	-3.4	0.0193***	7.9
	(0.00196)		(0.00442)	
Non-cognitive charact.	0.00595**	2.4	-0.00892	-3.7
	(0.00200)		(0.00939)	
Constant			0.133*	54.5
			(0.0605)	
Total	**0.147*** **	**60.3**	**0.0965*** **	**39.7**
	(0.0147)		(0.0144)	

Standard errors in brackets: $^{*}p<0.10$, $^{**}p<0.05$, $^{***}p<0.01$

Annex 5: Average Marginal Effects of Non-Cognitive Variables on the Choice of Occupation (multinomial logistic modeling)

	Women			Men		
	Optimism	Career	Risk	Optimism	Career	Risk
Professionals and managers in business	0.018**	0.026***	0.032***	0.027***	0.042***	0.015*
Managers in public services.	-0.009	0.019*	-0.020**	-0.001	-0.003	-0.004
Engineers	0.010**	0.009*	0.006	0.004	0.043***	0.013
Intermediate occupations in public services	-0.012	0.012	-0.008	0.006	-0.009**	0.000
Intermediate occupations in health, care and social services	0.042***	0.004	0.030*	-0.002	0.007	-0.005
Other intermediate	0.017	0.021	0.008	-0.004	0.006	0.010
Unskilled clerical workers	-0.032**	-0.044***	-0.002	-0.007	-0.003	-0.014*
Skilled clerical work.	-0.006	-0.019	-0.045**	0.003	0.009	-0.034***
Skilled labourers	0.002	0.003	0.008	-0.003	-0.0354**	0.038**
Unskilled labourers	-0.029**	-0.031***	-0.009	-0.023	-0.056***	-0.019*

$^{*}p<0.10$, $^{**}p<0.05$, $^{***}p<0.01$