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Are there Pecuniary Compensations for Working Conditions in the UK?

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Rosa M. Fernández[*] and Christophe J. Nordman[ϒ ƒ]

Abstract

This paper explores the nature of inter-industry wage differentials that are not explained by personal characteristics. We document the presence and persistence of a significant contribution of industry affiliation to wage dispersion in the UK. Competing theoretical explanations for this finding call for an empirical investigation to ascertain whether or not competitive forces are at work. We find significant differences across industries in the wages earned by otherwise identical workers. Our study complements findings obtained using panel data techniques where the impact of working conditions and job attributes is removed along with the individual effects. We instead control for a much wider array of firm characteristics, working conditions, job attributes and sources of individual heterogeneity, accounting separately for the contribution of each in explaining wage dispersion across industries. We find that these firm, job and individual characteristics explain part of the inter-industry wage differentials, as much as 35% in 1997 and 26% in 2001. However the unexplained wage dispersion remains substantial and it is larger and less well explained by our variables in 2001 than 1997. A possible explanation is that wage setting reflects non-competitive behaviour but it is also possible that changing working conditions not accounted for contribute to the unexplained remaining dispersion, casting doubt on human capital theories of wage determination.

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1. Introduction

The persistence of wage differentials for individuals with identical productive characteristics is a well known stylised fact in the labour market. Wage differentials that are not compensated by observed individual characteristics have been found on numerous occasions by empirical studies[1]. Furthermore it is well documented that workers with comparable measured characteristics can earn very different wages depending on their industry or their firm. Many models attempt to give a theoretical interpretation to these inter-industry or inter-firm wage differentials. Traditional models, within the competitive framework, emphasise the existence of compensating payments due to non-pecuniary job attributes, such as working conditions or differences in the stability of jobs across industries[2]. The idea of equalizing or compensating wage differentials was first introduced by Adam Smith (1776, Book I, Chap. X, part I) where he had already identified five counter-balancing circumstances to explain why it is not the wage that is equated across jobs in a competitive market ("perfect liberty"), but the "whole of the advantages and disadvantages" of a job:

> "The five following are the principal circumstances which, so far as I have been able to observe, make up for a small pecuniary gain in some employments, and counter-balance a great one in others: first, the agreeableness or disagreeableness of the employments themselves; second, the easiness and cheapness, or the difficulty and expense of learning them; third, the constancy or inconstancy of employment in them; fourth, the small or great trust which must be reposed in those who exercise them; and fifthly, the probability or improbability of success in them."

Other models stress non-competitive mechanisms of wage determination. Non-competitive theories argue that inter-industry wage differentials reflect non-compensating wage differences such as differences in workers' bargaining strength from one industry to another or the effect of employer's wish to pay workers at a higher rate than the one that would prevail over a competitive market (efficiency wage theories)[3]. Other recent hypotheses stress informational asymmetries that increase search friction and cross-firm differences in factor productivity (Burdett and Mortensen, 1998; Pissarides, 2000; Mortensen, 2003).

However, the lack of appropriate data containing information both on employers and employees has long been an impediment to the understanding of the various forces at work

[1] See Krueger and Summers (1988), Abowd, Kramarz and Margolis (1999) and Goux and Maurin (1999).
[2] See Brown (1980); Rosen (1986); Murphy and Topel (1987).
[3] See Katz (1986) for a review of efficiency wage theories and Lindbeck and Snower (1989) for a review of the insider-outsider models.

in the wage determination process. In this paper, we use new data to gain a better understanding of the existence and persistence of inter-industry wage differentials in the UK. In his recent book, Mortensen (2003) suggests that what he calls wage dispersion, i.e. the 70% of the wage variation that remains unexplained by standard worker characteristics, may be the consequence of correlations between unobserved worker ability and differences in job attributes, the size and the industry affiliation of the employing firms. Carruth, Collier and Dickerson (1999) and Benito (2000) show for British data that after controlling for observed characteristics of workers, much of the remaining variation in wages can be explained by significant unobserved differences across workers, perhaps reflecting innate ability or other personal qualities not captured by observed data. They conclude that wages are determined principally by both observed and unobserved individual characteristics – as human capital theory presupposes – rather than by non-competitive factors. Nevertheless, studies that remove individual heterogeneity through fixed-effects techniques also purge from the data time-invariant job traits that may be contributing to the explanatory power of individual heterogeneity.

In this study, we cannot control for unobservables but we benefit from having a wide range of job attributes and activities that allow us to investigate further the nature of inter-industry wage differentials in the UK. Indeed, our survey[4] contains a series of detailed questions about what the job of respondents comprises. Examples of these include performing repeated tasks, using automated equipment, belonging to quality circles, having an exhausting job, working under a great deal of tension and with tight deadlines, having health at risk or being allowed to make decisions affecting the job, etc. We have the additional advantage of a series of proximates for "generic skills" (broadly defined across industries) as an innovative way to control for the unobserved heterogeneity component in wage compensation. Indeed, one section of the questionnaire focused on 36 activities designed to cover the tasks carried out in a wide range of jobs – reflecting therefore the type of skills used at work, such as manual dexterity, dealing with people, calculating, reading or writing, analysing complex problems, working out the causes of faults, making speeches or presentations or planning the activities of others. Following Dickerson and Green (2002) and Muller and Nordman (2004), we take advantage of this information using a preliminary factor analysis in order to extract the most influential factors of these

[4] The data are drawn from the 1997 and 2001 Skills Surveys which are two large-scale cross-sectional representative surveys of individuals aged between 20 and 60 in Britain in paid work at the time of interview. The first of these was funded by the British Economic and Social Research Council and the second by the British Department of Education and Skills.

individual characteristics and to introduce them into the wage regressions. We are therefore able to control for workers' human capital features that are usually not accounted for in empirical studies.

In the absence of detailed information about job attributes, the literature has been concerned with the effects of firm-level elements that may be determining wage differentials, as theories of efficiency wages suggest. Data for studying inter-firm wage differentials properly are, however, scarce. The traditional analyses, for lack of data matching individuals to their firm, could only imperfectly control for the effects of the employer on earnings. It is only at the beginning of the 1990s that data linking the characteristics of the employers to those of the employees appeared (Abowd and Kramarz, 1999). Our data derives from two comparable cross-sections of employees and therefore we cannot purge firm effects from the individual wage differentials using standard firm fixed effects techniques. Nevertheless, our data allow us to identify firm-level characteristics so as to remove, albeit not completely, the impact of firms' wage policy on the wage differentials. In particular, our survey provides details of worker involvement systems and other organisational characteristics as well as technological features such as computerization. In fact, part of the existing inter-industry wage differentials may be due to technological differences across firms not captured by observable individual characteristics.

In this paper, we refine the analysis of wage differentials by assessing the role of specific skills, job attributes and firms' organisational and technological features in explaining wage differentials among similar employees across industries. The data used in this study allow us to identify the existence of wage compensations among workers of different industries due to attributes of their job, their working conditions and other productivity factors. This type of analysis is usually not feasible with traditional data (supply side) that do not combine the characteristics of the workers with those of their jobs. We might therefore verify that inter-industry wage differentials of British workers could persist even after controlling for further individual skills, working conditions, job attributes and firms' organisational and technological features. If inter-industry wage differentials are not substantially reduced after using these controls, we can conclude that wage compensations due to non-pecuniary job attributes, such as working conditions, cannot totally explain these differentials (Krueger and Summers, 1988). This would give some support to non-competitive theories of wage determination that stress the presence of firm effects on earnings.

The remainder of the paper is organised as follows. In the next section we describe our model and the technique we use to estimate inter-industry wage differentials. We proceed with a description of the data with a special focus on the innovative variables. Section 4 presents the results of our estimations and Section 5 concludes.

2. Estimating Inter-Industry Wage Differentials

Models of inter-industry wage differentials aim at understanding why similar workers are paid differently depending on the industry in which they work. Several explanations for the existence of these differentials have been proposed in the literature. Competitive theories of wage setting behaviour imply that wages are equal to the value of the marginal product of workers. If workers are homogeneous in their personal traits and if there is perfect mobility across jobs then wage differences across industries should be temporary as comparable workers move across industries so as to wash existing wage premiums away. Thus under homogeneity of firms and workers, wage differentials are at odds with competitive theories of worker compensation. In practice, it is possible that individuals or firms are not completely homogeneous or that workers are not completely mobile across jobs due to informational asymmetries and therefore wage differentials may persist across industries even in a close to competitive labour market[5]. Alternative explanations of wage dispersion within and across firms or industries include some element of non-perfect competition. The presence of some specific skills needed to perform jobs in a firm or industry implies that those workers who possess these skills are more valuable to that industry but not to others, thus explaining wage differences across otherwise similar workers in different industries (Acemoglu and Pischke, 1999; Weinberg, 2001). Other non-competitive theories of wage determination stress the role played by labour market institutions and regulations such as the incidence and power of unions or the existence of minimum wage laws in preventing labour market clearing (Nickell and Layard, 1999). A popular explanation for persistent inter-industry wage differentials arises from theories of efficiency wages whereby wage levels have an impact on productivity (and hence profits).

[5] Mortensen (2003) presents some examples where this is the case.

In the presence of competing explanations, the question of whether competitive forces are at work in wage setting behaviour remains an empirical one. The persistence of wage differentials for otherwise comparable workers across industries casts doubt on competitive theories of worker compensation. On the other hand, if those differentials can be attributed exclusively to unmeasured characteristics of individuals then human capital theories obtain some support. It has to be noted, however, that it is empirically cumbersome to disentangle personal traits from job attributes as normally we observe a particular job-person match. As with previous studies, we will not be able to provide a definitive account of all the causes of inter-industry wage differentials. We are nevertheless in a position to assess the relative contribution of job characteristics over and above the usual personal and firm specific effects.

To this end, we will first establish the presence and persistence of wage differentials across industries classified at the 1 and 2-Digit level of the 1992 UK's Standard Industrial Classification. We start by estimating the simple relationship

$$w_{ik} = \alpha + \beta X_i + \varphi_k + \varepsilon_{ik} \quad , \qquad (1)$$

where $i=1...N$ and $k=1...K$ denote individual and industry respectively. Equation (1) expresses the log of hourly wages as a function of personal characteristics (X_i) and a set of industry dummies (φ_k), while ε represents a normally distributed error independent across individuals and industries[6]. Studies of inter-industry wage differentials typically estimate the coefficients on industry dummies to proceed with attempting to account for these differentials using person or firm characteristics.

When panel data is available, individual effects can be removed from this relationship by differencing across individuals. Alternatively, if panel matched worker-firm data were available, then both worker and firm effects can be purged away. Therefore, wages can be regarded as being determined by a more sophisticated model allowing for pure individual (α_i) and firm (Φ_j, with $j=1...J$ indicating the firm employing the worker) effects as well as wage shifters associated with observable characteristics of the worker (X_{it}) and the firm employing the worker (F_{it}):

[6] We acknowledge that this basic model is quite restrictive but it follows the standard practice and it can be regarded as the reduced form of a more sophisticated structural model that cannot be estimated for lack of data. See Abowd and Kramarz (1999).

$$w_{ijt} = \alpha_i + \beta X_{it} + \phi_j + \delta F_{jt} + u_{ijt} \quad . \qquad (2)$$

If this was the underlying process, any estimation of inter-industry wage differentials that does not fully account for individual and firm characteristics is subject to omitted variable bias (Abowd and Kramarz, 1999). Furthermore, since all firms are classified as belonging to one industry only, industry effects are completely nested within the time invariant firm effects in model (2).

In the absence of a time dimension in our data, we cannot purge time invariant effects but we address the omitted variable bias by including a wide range of controls in our estimations. In particular, we will be able to distinguish the impact of attributes and demands specific to the job on inter-industry wage differentials. It is possible for a worker to be paid differently from comparable ones in the same firm (or elsewhere) who hold jobs with different requirements. Of course, the previous literature controls for some job attributes, notably broad occupational categories and, depending on data availability, part/full time status, shift work and occasionally the presence of managerial duties associated with the post (Carruth et al., 1999). Many of these obtain some significant impact on wages suggesting the existence of some job effects, additional to the conventional individual and firm (or industry) ones. Since a person is normally attached to a single job, however, the impact of job characteristics will be purged in fixed effects estimations[7]. As job effects cannot be distinguished from those corresponding to the person doing the job, attaching all the explanatory power of fixed effects to personal ability alone neglects the implicit contribution of job effects to explaining inter-industry wage differentials.

We estimate various versions of the model described by equation (1). We start by examining how much of the wage dispersion personal characteristics (X_i) explain, accounting for industry effects by the use of dummies (φ_k). We then include groups of other wage shifters in a step-wise fashion. On the second step, we add firm characteristics (F_j) such as size, or the presence of appraisal and worker consultation schemes. A third step includes details of tasks associated with the particular job (Z_{ij}) like managerial duties or the use of a computer. The last step includes a set of innovative indices of broad categories of skills obtained from factorising a wider array of questions about activities performed at work. As we will argue later, we think these generic skills indices may be

[7] Unless the worker changes job at the same time as firm/industry in which case one will not be able to distinguish the job effect from that of firm/industry.

good proximates for unobserved heterogeneity ($\hat{a}_i$). Our complete specification expresses the log hourly wages of person i at firm j as a function of personal, firm and job characteristics and a set of k industry effects:

$$w_{ijk} = \beta X_i + \varphi_k + \gamma F_j + Z_{ij} + \hat{a}_i + \varepsilon_{ijk} \quad . \tag{3}$$

As well as examining how each additional block of effects impact on inter-industry wage differentials, we are interested in establishing the extent and persistence of those wage differentials over time. We follow the standard literature, notably Krueger and Summers (1988), by looking at the deviations of the estimated industry effects from their employment-weighted mean. We use the results obtained by Haisken-DeNew and Schmidt (1997) in order to calculate industry effects for all industries and the exact standard errors of the industry deviations from the employment weighted mean. We first run Ordinary Least Squares (OLS) on the various specifications leading to (3) excluding the last industry category and then proceed with calculating deviations from an employment-weighted average of coefficients. This procedure is equivalent to running Restricted Least Squares on (3) with a full set of industry dummies under the restriction that the weighted sum of estimated coefficients be zero (Greene and Seaks, 1991; Haisken-DeNew and Schmidt, 1997)

$$\sum_{f=1}^{K} s_f d_f = 0 \quad , \tag{4}$$

where s_f stands for the industry's employment weight (share) and d_f is the estimated coefficient, which, it should be borne in mind, are deviations from the weighted mean or what we call re-normalized coefficients. Using this technique obviates the need to approximate the standard errors of the re-normalized coefficients with those of the raw differentials, as in Krueger and Summers (1988), and the subsequent approximation of ignoring sampling error when calculating the wage dispersion metric across industries[8].

As explained earlier and elsewhere, for a diagnosis of the size and persistence of inter-industry wage differentials, we use a summary metric of the overall variation of wages across industries. Following Haisken-DeNew and Schmidt (1997), we use the square root

[8] When calculating the standard errors of the estimated coefficients, Krueger and Summers (1988, p. 267) ignore the covariances of the sampling error ($\hat{\beta}_i = \beta_i + \varepsilon_i$), admitting that this might underestimate the true standard error but arguing that in their experiments the size of the correction was not large. The findings of Haisken-DeNew and Schmidt (1997), however, suggest that the correction may be substantial.

of the weighted average of squared deviations of individual coefficients from their weighted mean, with weights reflecting the employment contribution of each industry to the total. The same authors also show that because of (4) the effect of covariances in this weighted standard deviation of wage differentials is identically zero and therefore no approximation is made by not considering them. Thus, given our estimation strategy, our metric of dispersion is correctly specified as

$$WSD = \sqrt{\sum_{f=1}^{K} s_f (d_f - \sum_{f=1}^{K} s_f d_f)^2} \quad , \qquad (5)$$

where *WSD* stands for Weighted Standard Deviation.

This dispersion metric summarises the variance of the re-normalised coefficients illustrating the second moment of the distribution of inter-industry wage differentials. In every step, leading up to (3) we calculate the re-normalised wage differentials as deviations from the employment weighted mean and this dispersion metric. The former obtains log percentage wage differences across industries that may change as we include additional explanatory variables. Likewise overall dispersion across industries may be larger or smaller as wage shifters other than industries are considered.

3. The Data

We use two comparable cross-sectional surveys of the working population in Britain available for the years 1997 and 2001 (Felstead et al., 2002). These Skills Surveys have a strong focus on activities performed at work. As a result of the job analysis orientation of the questionnaire, there is a rich amount of information about the requirements of the particular job over and above the standard information about the post holder as well as information about the organisation where the person works. All questions used in this analysis were asked in identical ways in both years and therefore the results are directly comparable. Although both samples are representative of the working population in Britain in the respective year, respondents are not followed from one survey to the other. We can thus assess the existence and persistence of inter-industry wage differentials controlling for a wide variety of personal, job and firm characteristics, but not remove individual effects using standard panel techniques.

In addition to person, and firm characteristics commonly controlled for in previous studies, we include a wider range of job characteristics that we believe are self explanatory. We present short descriptions of all of our variables in Table A in the appendix. The variables we call "generic skills indexes" require additional explanation. One section in both Skills Surveys contained specific questions about the activities performed at work. There were around 36 questions asking how important activities ranging from "reading documents" to "using of physical strength" or "planning one's own or others' activities" were for the job. Although one could use all of these individually some of them are highly correlated with one another, reducing degrees of freedom without adding much explanatory power. For example, if one person reports it being important to write long documents it is possible, or indeed likely, that writing memos would also be important. Thus it seems reasonable to try to bundle these specific activities into a smaller number of broad actions required within a particular job. In doing this, we follow Dickerson and Green (2002) who apply factor analysis to the available 35[9] activities to come up with some 10 well-defined bundles that we call "generic skills indexes". Table B in the Appendix reports which of the initial 35 activities goes into each generic skill category.

The questionnaire was administered to a representative sample of the working population in Britain, excluding the unemployed and inactive and restricted to the population aged 16 to 65. The resulting sample reflects accurately the composition of the labour force in the UK[10]. In addition to the limitations imposed by the selection of the sample for this survey, we are going to restrict our analysis to employees only who, after removing individuals who have missing data, represent over 90% of the 1997 sample and 98% of the 2001 sample[11]. We do this to make the remaining sample as homogeneous as possible since the self-employed are likely to be concentrated in certain sectors, have lower number of employees and possibly be subject to different wage-setting rules than employees.

We are aware that these restrictions may be generating some degree of bias due to sample selection. Meanwhile, it is possible that part of what could be interpreted as firm or industry effects in the estimates is in fact a consequence of the worker selection by firms

[9] The question number 36 referred to the use of computers which we include separately to control for technological traits.
[10] See the technical appendix in Felstead et al. (2002) for a detailed account of possible sample selection.
[11] Before cleaning, the self-employed represented roughly 10% of the sample in each year.

and vice versa. For example, very productive firms and workers may cluster together for reasons other than those considered here. In this paper, because of data limitations[12], we do not deal with this difficulty and we assume that selectivity and sub-sampling effects can be neglected. Whenever possible we will compare our findings with existing studies as a test for the validity of the findings, where divergence is wide, it is possible that sample selection may be biasing the results.

4. Results

For the two years 1997 and 2001, we estimate five specifications of the suggested wage equation In order to illustrate the impact of industry affiliation on wages, we start with a somewhat simpler specification containing conventional personal and job characteristics only, corresponding to X_i in Equation (3). Subsequent specifications build on one another departing from this initial model. In the second step, we include industry affiliation (φ_k in Equation (3)); we start with the 1-digit Standard Industrial Classification of 1992 mainly for comparison with other studies of the UK, notably Benito (2000), and proceed with repeating the analysis for the 2-digit classification afterwards. In a third step, we add to the previous specification some firm characteristics (F_j) and, subsequently, a set of job attributes (Z_{ij}). Finally, we include the individual heterogeneity controls as indicated by the generic factors ($\hat{a}_i$). Table A1 in the appendix displays details of the variables corresponding to each block.

In every step, we account for how much of the variation in wages do these variables explain and we keep track of the joint significance of industry affiliations with an F-test presented in the last row of the wage regressions tables. To analyse inter-industry wage differentials, we calculate the corresponding deviations from the employment-weighted mean and subsequently the summary dispersion measure as the standard deviation of the re-normalised coefficients in Equation (5). For each year, we can therefore establish the extent of inter-industry wage dispersion and, by comparing the results in the two available years we can also say something about the persistence of this dispersion. Furthermore, by including each set of explanatory variables in a stepwise fashion, we will be able to ascertain how much of the wage dispersion is due to previously not observed

[12] Notably the lack of good identifying variables for performing the standard correction techniques in the presence of possible sample selection.

firm, job and personal characteristics. In each step we calculate the overall wage dispersion and report changes due to each block of explanatory variables.

4.1. Wage Differentials at the 1-Digit SIC

Tables 1 and 2 display the coefficients for all explanatory variables considered in each specification for 1997 and 2001 respectively. Since we report the re-normalised coefficients in Tables 1A and 2A we omit here the coefficients for industry affiliation[13]. In the last row of Tables 1 and 2, however, our diagnose F-test of joint insignificance of industry affiliation is widely rejected for all specifications for all years. We do not intend to dwell on the results of column (1) consistent with Mincerian type of wage regressions. Female, ethnic minorities, part-timers and certain low skilled occupations are associated with lower wages while higher qualifications, experience, tenure and training increase worker compensation. More interesting to our analysis is the change in the overall explanatory power of our model by including industry affiliation in column 2 of each year. The goodness of fit of our model increases when the 16 jointly significant 1-Digit industrial affiliations are included, whilst keeping all other coefficients and their impact virtually unchanged. Industry affiliation, therefore, explains a part of wage differentials that personal characteristics do not in both years.

Turning on to the distribution of wage differentials over time, we consider the deviations from the employment weighted mean in column 2 of Tables 1A and 2A for 1997 and 2001 respectively. There is substantial variation in wages arising from industry affiliation and it seems that wage dispersion across industries is not decreasing over time. Leaving aside the primary sector affiliations with few and fluctuating observations over the years[14], workers in the highest paid sector in 1997, Finance, earned some 17%[15] above the employment weighted average. At the other end of the spectrum, workers in the lowest paid sector in 1997, Hotels and Catering, earned some 12% below the average. The same figures for 2001 are some 15% above the average for Finance and 13% below the average for Hotels and Catering. The ranking of industries changed slightly from one year to another as it appears that, in 2001, Electricity, Water and Gas services pay better than any other sector. More interesting for the purposes of our paper is the fact that

[13] The tables corresponding to these are available from the authors.
[14] Agriculture, fishing and mining categories contain very few observations compared to the other affiliations and, given the magnitude, changes in sign and significance of their coefficients, it is likely that some outliers have been sampled in one or the other year.
[15] Note that given our log specification the actual impact is 100*(*exp*(coefficient) -1).

overall wage dispersion as indicated by the Weighted Standard Deviation of the re-normalised coefficients is higher in 2001. In order to confirm this finding we carried out a Chow test for the equality of the industry dummies when estimating a pooled cross-section across the years 1997 and 2001 suggesting that the differentials in 2001 are significantly different to those estimated for 1997[16]. In line with previous studies (Carruth et al., 1999; Benito, 2000), we therefore conclude that inter-industry wage differentials are not only substantial and relevant for wage determination but also they are persistent over time, a finding that casts doubt on competitive theories of wage determination.

In the subsequent specifications in Tables 1 and 2, we include additional sets of explanatory variables to see if these impact significantly on the role played by industry affiliation on wage determination. Should wage differentials and wage dispersion reduce substantially as firm and job attributes are included, competitive wage mechanisms obtain some support, otherwise non-competitive forces are more likely to be at work. As before, the impact and significance of personal characteristics remains unchanged and, therefore, we concentrate on the new variables added in each step. We start by including firm characteristics (specification 3). The positive effect of firm size on wages is a well established stylized fact in the literature (Oi and Idson, 1999). Less well established are the effects of worker involvement schemes such as the presence of appraisal systems and worker consultation, both of these are sizeable and significantly positive. One of the innovative findings is the presence of a gendered wage premium whereby jobs which are mainly done by male workers pay significantly better and jobs mainly done by women pay significantly worse. These two variables are obtained from the question "At your workplace, is your type of job done by…" Each of our gendered job includes responses of mostly or all men or women. Due to the originality of the question, no other study to our knowledge has been able to control for this factor. Studies of the gender wage gap support the presence of lower wages associated with being female (Altonji and Blank, 1999), our finding goes beyond this to suggest a lower wage for those working with women. However, if there is a wage gender gap then it seems plausible that those jobs mainly done by women are also worse paid than if the same job was done by men. It is also worth noting that these premiums and penalties remain after including industry affiliation, job characteristics and heterogeneity controls. Although the gendered job

[16] We performed a pooled regression introducing interaction terms between the year dummy and each of the industry dummies. The test of the significance of the interaction terms produces an F-statistic of F(15, 5361) = 42.16, with p-value = 0.00, therefore rejecting at the 1% level the hypothesis of equality of the industry effects across the two years.

wage premium drops from 16% in 1997 (10% higher for male and 6% lower for female jobs) to 14% in 2001 (8% higher for male and 6% lower for female), this result is strikingly robust in all specifications considered.

In column 4, we include various characteristics of the job and working conditions. For reasons of space, we are not providing an extensive discussion of each variable but we conjecture that the premium associated to long learning times may be reflecting job complexity[17] while compensations for managerial and supervisory duties may be rewarding responsibility at work. Since it is generally acknowledged that there is a matching of individuals with high ability to positions with higher job complexity (Barron, Berger and Black, 1999), introducing these variables may be viewed as another way to temper the effects of unobserved individual heterogeneity. Moreover, adding innovative working condition variables, such as dummies indicating whether workers perform repeated tasks, use computerised equipment, belong to quality circles, whether they work very hard, have an exhausting job or put a lot of effort beyond what is required, allows us to further investigate the existence of compensating payments due to non-pecuniary job attributes. In particular, the theory of equalizing wage differentials argues that differences in job agreeableness (or disagreeableness) across industries may explain why wages differ for otherwise equally productive workers (Brown, 1980; Murphy and Topel, 1987).

Somewhat unsurprisingly, repeated tasks do not carry a wage premium but using a computer does. Managerial tools such as quality circles were irrelevant in 1997 (Table 1) but have a significant positive remuneration by 2001 (Table 2). The results concerning other working conditions are a bit disappointing since only having to put a lot of effort beyond what is required appears to have a consistent and robust negative compensation. In an attempt to verify whether this result is driven by our model specification, we add further controls for working conditions available for the year 2001 only: dummies for using automated equipment, for working under a great deal of tension, for working all the time at high speed, and all the time with tight deadlines, for having health at risk and for being allowed to make decisions affecting the job. Specifications 6 and 7 of Table 2 display the results of this experiment. The correlation between the effects of working conditions and our individual heterogeneity controls (generic indexes) manifests the difficulty of separating them. We can compare the interaction of these variables using the

[17] After controlling for various individual characteristics, that it took at least 6 months to learn to do the job well may be closer to being a job characteristic than a job-holder's.

results obtained when the narrower set of job attributes are considered in specifications 4 and 6 with those in specifications 5 and 7 respectively, where the additional job attributes have been thrown in. The inclusion of generic skills in specifications 6 and 7 renders a few previously relevant working conditions insignificant. The only exception, the use of automated equipment, is obviously capturing some computer use as the wage premium for the latter reduces to a half when the automated equipment dummy is included. Hence, these estimates suggest that our working condition controls, in particular those related to the (dis)agreeableness of jobs or the existence of jobs at risk, do not clearly reduce wage dispersion among similar workers across different industries. This is an important result as many studies have suggested the existence of such compensation schemes, without providing compelling empirical evidence.

Turning our attention to generic skills controls, physical and customer handling skills present a time consistent and significant wage penalty. However, in 1997, numeric skills carried a negative compensation[18] while problem solving was at a premium. By 2001, the effect of these two skills washed away but now planning skills are at a premium while literacy skills are at a penalty. These latter results are obtained even under the wider control for job traits in specification 7. We conjecture that some of these results give some support to human capital theories of wage determination, since strength and stamina and customer services may be regarded as not very knowledge intensive, justifying the wage penalty. On the other hand, the negative rewards to more traditional generic skills such as numeracy and literacy cast doubt on that same argument. The former, however, are robust over time and across specifications so it is possible that the surprising penalties to numeracy and literacy may be due to these skills being more important in traditionally more vocational and less market driven sectors such as Education or Public Administration where wages may not be as responsive to incentives as elsewhere.

More central to our analysis is what happens with inter-industry wage differentials and overall wage dispersion as we include additional blocks of wage shifters. The last row of Tables 1 and 2 shows that the industry dummies are jointly significant for all specifications, thereby explaining by themselves a part of the variation in wages that other observables do not. In Tables 1A and 2A we present the re-normalised coefficients

[18] This perhaps surprising result was also found by Dickerson and Green (2002). They attach it to the correlation between numeric skills and computer use.

as deviations from the employment weighted mean and the correctly calculated standard errors for these re-normalised coefficients. Once again we will neglect the first three industry categories corresponding to the primary sector due to the small number of observations in each cell. Of the remaining affiliations, we observe that the magnitude of premiums and penalties move slightly as we control for additional firm, job and personal characteristics. However, the overall picture is definitely not affected by these changes, the highest and lowest paid industries remain Finance and Hotels and Catering respectively, the latter followed closely by Wholesale especially when individual heterogeneity controls are included. In 1997, the gap between Finance and Hotels and Catering goes from around 30%[19] when only personal characteristics are included to 20% in specification 5, therefore remaining substantial after removing the various firm, job and personal effects[20].

The summary metric for overall wage dispersion is displayed in the last row for all models. Bear in mind that, for 2001, we considered additional job controls so that for this year we have two additional specifications. Still, our summary metric of wage variance is higher in 2001 than in 1997 suggesting that wage dispersion is not only sizeable but that it is not falling over time. Having established the persistence of wage differentials in this way, the relevance of our explanatory variables becomes more evident as we consider the change in wage dispersion from specification 2, with personal characteristics only, to specification 5 with all. In 1997, the additional firm, job and individual heterogeneity controls make the overall inter-industry wage dispersion fall by 35%. The comparable figure for 2001 is 26%, slightly smaller, maybe suggesting that other features of the working environment or the worker may be more important now than they were before. We conclude from this that the answer to the question of which type of skill or job trait is at premium is undoubtedly time dependent.

4.2. Wage Differentials at the 2-Digit SIC

In order to confirm our picture of the existence and persistence of inter-industry wage differentials we discuss the results when a finer industry classification is employed[21]. The results concerning other explanatory variables remain virtually unchanged and are

[19] That is 17% above the average for Finance plus 13% below for Hotels in 1997.
[20] The corresponding figures for 2001 are 28% and 20% respectively.
[21] To avoid outliers, we exclude branch categories with one or two employees in any one year. That leaves aside branches 5 (fishing), 14 (other mining and quarrying), 16 (tobacco manufacture), 19 (leather manufacture) and 37 (recycling).

reported in Tables 3 and 4, directly comparable to Tables 1 and 2. The last row in these tables contains the F-test for joint significance of the 2-digit wage differentials, widely rejecting the null of not-significance and lending support to the argument that industry affiliation explains part of the wage compensation that all the other observables do not.

Tables 3A and 4A display the re-normalised coefficients as deviations from the employment weighted mean and the corresponding standard errors. Although several of the industries do not appear to be paying different from the employment weighted average, the picture of wage distribution we obtain is clearer. Unsurprisingly, wage dispersion is larger when a finer classification of industries is considered as the last row of these tables show. Also, some industrial affiliations change dramatically from one year to another, for example, wood manufacturing (20) pays significantly higher than the average in 1997 and significantly lower in 2001. Finance, Computer Services and Publishing are consistent with high wage, paying some 20% or even more above the average. At the other end of the spectrum, Hotels and Catering, Motor Vehicles (wholesale and retail) and Rental of Machinery with wage penalties of around 15%. Our summary metric of overall wage dispersion is higher for all specifications in 2001 than in 1997 confirming that inter-industry wage differentials are not only sizeable but also persistent. Including additional controls for firm characteristics, job attributes and personal quality reduces overall wage dispersion across industries by almost 30% in 1997 (percentage change between specifications 2 and 5) and by some 19% in 2001. The inclusion of further job characteristics in specifications 6 and 7 does not dramatically reduce the dispersion of wage differentials.

5. Conclusion

In this paper, we refine the analysis of inter-industry wage differentials by assessing the role of specific skills, job attributes and firms' organisational features in explaining wage differentials across similar employees in different industries. Job analysis questions in an employee survey representative of the working population in Britain allow us to provide new tests for the existence of pecuniary compensations among workers due to their working conditions. With these data, we are not only able to control for firm specific effects on wage differentials (firm size, trade union, workforce composition and organisation) but also for innovative workers' human capital features while taking advantage of a series of proximates for "generic skills". This latter information, rarely

available in labour force surveys, can be exploited as a way to control for the unobserved heterogeneity component in wage compensation.

Our results show that industry affiliation explains part of the wage differentials that remain after removing the effect of personal characteristics. In line with previous studies applied to the UK (Carruth et al., 1999; Benito, 2000), we provide evidence that inter-industry wage differentials are not only substantial and relevant for wage determination but that they are also persistent over time. This finding lends some support to non-competitive theories of wage differentials whereby factors other than personal characteristics play a role in wage determination mechanisms. In order to assess the relevance of non-competitive forces we include additional sets of explanatory variables so as to ascertain whether these impact significantly on the role played by industry affiliation on wage determination. Additional controls for working conditions in our earnings equations, capturing differences in job agreeableness (or disagreeableness), allows us to further investigate the existence of compensating payments due to non-pecuniary job attributes.

We consider job complexity and responsibilities, organisational features in the workplace, worker consultation schemes and risk factors associated with the job. Our estimates suggest that controlling for these working conditions, in particular those related to how disagreeable the job is, does not substantially reduce wage dispersion among similar workers across different industries. This is an important result as many studies have suggested the existence of such wage compression effects without providing compelling empirical evidence. In addition, we observe that the magnitude of premiums and penalties of the industry effects move slightly as we control for additional firm, job and personal characteristics, but not enough to significantly change the overall picture. Another of the innovative findings of this paper is the presence of a gendered wage premium whereby jobs which are mainly done by male workers pay significantly better and jobs mainly done by women pay significantly worse. Studies of gender decompositions of wages document a negative premium from being female but none to our knowledge finds a robust negative premium from working in female environments. We conjecture that penalties associated with being female may explain the working with females one.

Having established the persistence of wage differentials in this way, we find that, in 1997, the additional firm, job and individual heterogeneity controls make the overall 1-

Digit SIC inter-industry wage dispersion fall by 35%. The comparable figure for 2001 is 26%, maybe suggesting that other features of the working environment or the worker may be more important in recent years than they were before. As a robustness check of our results, we also discuss estimates when a finer industry classification is employed (2-Digit SIC). Unsurprisingly, wage dispersion is larger when a finer classification of industries is considered. Moreover our summary measure of dispersion is always higher in 2001 than in 1997 confirming that wage dispersion is not only sizeable but also persistent. The inclusion of further individual, job and firm characteristics does not dramatically reduce the dispersion of wage differentials either, as overall wage dispersion reduces by almost 30% in 1997 and by some 19% in 2001.

A shortcoming of our analysis is that we have been unable to totally get rid of the firm and individual heterogeneity components. To do so, panel data and larger sub-samples of workers in each firm are needed. We have also been constrained by data insufficiencies regarding measures of cross-firm differences in factor productivity that would be useful for testing new hypotheses of the existence of wage dispersion among similar workers due to informational asymmetries in the job search process (Burdett and Mortensen, 1998; Pissarides, 2000; Mortensen, 2003). While there is a vast literature which evidences the relevance of inter-industry wage differentials, better understanding the origins and causes of this important stylised fact remains therefore an important issue for future empirical research.

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Table A1. Descriptive Statistics

		1997 (N=1907)		2001 (N=3523)	
	Workers', firms' and job characteristics	Mean	Std. Dev.	Mean	Std. Dev.
	Log hourly wage	1.842	0.488	2.056	0.516
X_i	Female	0.497	0.500	0.502	0.500
	Married	0.590	0.492	0.559	0.497
	Ethnic minorities	0.041	0.199	0.053	0.224
	Dependant Children	0.428	0.495	0.433	0.496
	Level 1 qualifications	0.084	0.278	0.096	0.294
	Level 2 qualifications	0.312	0.463	0.228	0.420
	Level 3 qualifications	0.164	0.370	0.218	0.413
	At least level 4 qualifications	0.252	0.434	0.318	0.466
	Months of experience	13.783	1 0.567	15.071	1 0.918
	Years of tenure	7.582	7.879	7.446	8.026
	Trained for the present job	0.594	0.491	0.560	0.496
	Part time job	0.225	0.418	0.224	0.417
	Worker member of trade union	0.350	0.477	0.337	0.473
	SOC: managers	0.109	0.312	0.127	0.333
	SOC: professionals	0.119	0.324	0.129	0.335
	SOC: associate professionals	0.106	0.308	0.149	0.356
	SOC: administrative, secretarial	0.164	0.371	0.155	0.362
	SOC: skilled trades	0.103	0.304	0.093	0.291
	SOC: personal services	0.062	0.241	0.069	0.254
	SOC: operatives	0.113	0.316	0.093	0.290
	SOC: elementary occupations	0.130	0.337	0.115	0.320
	London	0.113	0.316	0.093	0.291
	South	0.186	0.390	0.239	0.427
	East	0.115	0.319	0.093	0.291
	North	0.283	0.451	0.269	0.443
	Wales	0.065	0.247	0.052	0.223
	Scotland	0.098	0.297	0.114	0.318
F_j	Trade union present at work	0.530	0.499	0.535	0.499
	Worker doing shift work	0.255	0.436	0.242	0.428
	Size of workplace	1.992	1.347	1.657	1.380
	Formal appraisal at workplace	0.581	0.493	0.626	0.484
	Workers can express views about organisation	0.656	0.475	0.652	0.476
	Same job mostly done by men	0.387	0.487	0.384	0.486
	Same job mostly done by women	0.332	0.471	0.355	0.479
Z_{ij}	Took half a year to learn to do the job well	0.485	0.500	0.504	0.500
	Managerial duties	0.163	0.369	0.167	0.373
	Supervisory duties	0.231	0.422	0.250	0.433
	Job comprises repeated task	0.445	0.497	0.476	0.499
	Use computer at work	0.713	0.453	0.796	0.403
	Worker in a quality circle	0.315	0.465	0.373	0.484
	Strongly agree with "my job requires that I work very hard"	0.381	0.486	0.376	0.484
	Worker always comes home exhausted after work	0.201	0.401	0.175	0.380
	Worker puts a lot of effort beyond what is required	0.702	0.457	0.701	0.458
	Strongly agree with "I work under a great deal of tension"			0.219	0.413
	Job allows worker to make decisions affecting the job			0.242	0.428
	All the time working to tight deadlines			0.422	0.494
	Use computerised or automated equipment			0.726	0.446
	All the time working at high speed			0.267	0.443
	Health at risk because of work			0.323	0.468
$\hat{a}_i$	Generic factor: literacy	-0.029	1.441	0.089	1.440
	Generic factor: physical strength	-0.068	0.896	-0.018	0.887
	Generic factor: numeric	-0.045	1.216	0.029	1.186
	Generic factor: manual	-0.043	0.870	0.009	0.838
	Generic factor: other	0.019	0.743	-0.003	0.756
	Generic factor: planning	-0.101	1.411	0.028	1.369
	Generic factor: selling	-0.052	1.331	0.029	1.290
	Generic factor: team working	-0.004	1.304	0.113	1.261
	Generic factor: problem solving	-0.057	1.346	0.051	1.333
	Generic factor: precision	-0.028	1.261	0.058	1.210

Table A2. Generic Skills Factors

Generic skills indexes	Sign of the correlation*	Question: "In your job, how important is it…?"
Customer handling	+	counselling, advising or caring for customers
	+	dealing with people
	+	selling a product or service
Manual activities	-	use hands or fingers
	-	know how to use tools or machinery
	-	knowledge of products and services
Literacy	+	reading long documents
	+	reading written info
	+	reading short documents
	+	writing material
	+	write long documents
	+	write short documents
Numeracy	-	adding, subtracting, multiplying
	-	calculate percentages and fractions
	-	calculations using advanced procedures
Planning	-	planning others' activities
	-	thinking ahead
	-	organise your time
	-	planning own activities
Precision	+	noticing mistakes
	+	ensure there are no errors
	+	pay attention to detail
Problem solving	-	working out the cause of problems
	-	spotting problems or faults
	-	thinking of solutions
	-	analysing complex problems
Physical	+	physical stamina
	+	physical strength
Team work	+	listen carefully to colleagues
	+	working with a team of people
	+	knowledge of how the organisation works
Other	+	persuading or influencing others
	+	specialist knowledge or understanding
	-	making speeches or presentations
	-	instructing training or teaching

*: indicates the direction of correlation with the generic skills index.
Factors 3 (Numeracy), 4 (Manual), 6 (Planning) and 9 (Problem Solving) are multiplied by -1 for the estimations so that the interpretation of coefficients corresponds with higher values mean more important the skill is.

Table 1. Wage Equations with Firm Characteristics, Job Characteristics, Generic Skills Factors and Industry Effects (1-Digit SIC) for 1997

Dependent variable: Log hourly wage

	(1)	(2)	(3)	(4)	(5)
Female	-0.107***	-0.104***	-0.043**	-0.037*	-0.039*
	(0.019)	(0.019)	(0.022)	(0.021)	(0.021)
Married	0.022	0.017	0.018	0.016	0.018
	(0.017)	(0.017)	(0.016)	(0.016)	(0.016)
Minorities	-0.055	-0.048	-0.035	-0.022	-0.017
	(0.041)	(0.040)	(0.039)	(0.039)	(0.039)
Children	0.046***	0.047***	0.042**	0.038**	0.038**
	(0.017)	(0.017)	(0.017)	(0.016)	(0.016)
Level 1 Qualifications	0.062**	0.058**	0.057**	0.049*	0.049*
	(0.029)	(0.029)	(0.028)	(0.027)	(0.027)
Level 2 Qualifications	0.105***	0.093***	0.086***	0.063***	0.062***
	(0.021)	(0.021)	(0.021)	(0.020)	(0.020)
Level 3 Qualifications	0.208***	0.187***	0.174***	0.139***	0.139***
	(0.027)	(0.027)	(0.027)	(0.026)	(0.026)
Level 4+ Qualifications	0.377***	0.361***	0.336***	0.285***	0.274***
	(0.029)	(0.030)	(0.029)	(0.028)	(0.028)
Experience (years)	0.007***	0.007***	0.008***	0.008***	0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tenure (years)	0.021***	0.021***	0.019***	0.016***	0.016***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Tenure squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trained for job	0.064***	0.062***	0.041**	0.014	0.021
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Part-time job	-0.117***	-0.090***	-0.063***	-0.040*	-0.036*
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Trade union member	0.087***	0.085***	0.061***	0.057***	0.059***
	(0.017)	(0.018)	(0.020)	(0.020)	(0.020)
Manager	0.396***	0.375***	0.357***	0.285***	0.288***
	(0.037)	(0.037)	(0.036)	(0.039)	(0.039)
Professional	0.351***	0.337***	0.308***	0.271***	0.281***
	(0.039)	(0.040)	(0.040)	(0.040)	(0.041)
Associate Professional	0.301***	0.262***	0.235***	0.205***	0.207***
	(0.035)	(0.036)	(0.036)	(0.036)	(0.036)
Clerical, Admin	0.155***	0.126***	0.129***	0.103***	0.089***
	(0.027)	(0.029)	(0.028)	(0.028)	(0.028)
Skilled Trades	0.130***	0.114***	0.098***	0.096***	0.122***
	(0.035)	(0.036)	(0.037)	(0.037)	(0.038)
Personal Services	-0.080**	-0.083*	-0.066	-0.050	-0.030
	(0.037)	(0.043)	(0.043)	(0.042)	(0.043)
Operative	0.031	-0.015	-0.029	0.006	0.018
	(0.033)	(0.037)	(0.037)	(0.036)	(0.036)
Elementary	-0.054*	-0.073**	-0.076**	-0.042	-0.036
	(0.030)	(0.033)	(0.032)	(0.032)	(0.032)
5 Regional Dummies	yes	yes	yes	yes	yes
Trade union @ work	_	_	0.025	0.031	0.030
			(0.020)	(0.020)	(0.020)
Shift work	_	_	-0.012	-0.006	0.011
			(0.017)	(0.017)	(0.017)
Firm size	_	_	0.024***	0.022***	0.019***
			(0.006)	(0.006)	(0.006)
Appraisal (yes)	_	_	0.062***	0.046***	0.041**
			(0.017)	(0.017)	(0.017)
Consultation (yes)	_	_	0.046***	0.033**	0.035**
			(0.017)	(0.017)	(0.017)
Male environment	_	_	0.098***	0.101***	0.115***
			(0.023)	(0.022)	(0.022)

Female environment	_	_	-0.060***	-0.053***	-0.053***
			(0.020)	(0.019)	(0.019)
Long job learning	_	_	_	0.077***	0.076***
				(0.017)	(0.017)
Managerial duties	_	_	_	0.075***	0.063**
				(0.027)	(0.026)
Supervisory duties	_	_	_	0.030	0.024
				(0.020)	(0.020)
Repeated task	_	_	_	-0.034**	-0.029**
				(0.014)	(0.014)
Use computer (yes)	_	_	_	0.115***	0.117***
				(0.019)	(0.019)
Quality circle (yes)	_	_	_	0.009	0.015
				(0.015)	(0.015)
Work hard	_	_	_	0.022	0.026
				(0.016)	(0.016)
Exhausting job	_	_	_	-0.037**	-0.023
				(0.018)	(0.018)
Work effort	_	_	_	-0.053***	-0.050***
				(0.015)	(0.015)
Literacy	_	_	_	_	0.004
					(0.014)
Physical	_	_	_	_	-0.042***
					(0.015)
Numeracy	_	_	_	_	-0.028***
					(0.011)
Manual	_	_	_	_	-0.027
					(0.017)
Other	_	_	_	_	-0.005
					(0.011)
Planning	_	_	_	_	0.017
					(0.013)
Customer handling	_	_	_	_	-0.046***
					(0.015)
Team working	_	_	_	_	0.015
					(0.015)
Problem solving	_	_	_	_	0.023*
					(0.014)
Precision	_	_	_	_	0.002
					(0.014)
Constant	1.265***	1.146***	1.092***	1.151***	1.111***
	(0.041)	(0.116)	(0.114)	(0.118)	(0.130)
Observations	1900	1900	1900	1900	1898
R-squared	0.58	0.60	0.62	0.64	0.65
F-Test for industry dummies		5.943	4.511	4.690	3.325

Robust standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The five regional dummies are London, South, East, North, Wales and Scotland.
F-test rejects the null of joint insignificance of industry coefficients for all specifications.

Table 2. Wage Equations with Firm Characteristics, Job Characteristics, Generic Skills Factors and Industry Effects (1-Digit SIC) for 2001

Dependent variable: Log hourly wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.135***	-0.112***	-0.059***	-0.047***	-0.054***	-0.046***	-0.052***
	(0.015)	(0.015)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)
Married	0.052***	0.051***	0.047***	0.039***	0.038***	0.038***	0.037***
	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Minorities	-0.099***	-0.090***	-0.078***	-0.057**	-0.044	-0.054**	-0.042
	(0.029)	(0.028)	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)
Children	0.042***	0.047***	0.046***	0.047***	0.049***	0.045***	0.048***
	(0.014)	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)
Level 1 Qualifications	0.017	0.027	0.026	0.023	0.029	0.024	0.030
	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)	(0.020)
Level 2 Qualifications	0.063***	0.062***	0.054***	0.046***	0.048***	0.046***	0.048***
	(0.018)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Level 3 Qualifications	0.146***	0.144***	0.134***	0.112***	0.112***	0.109***	0.110***
	(0.020)	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)
Level 4+ Qualifications	0.312***	0.314***	0.292***	0.252***	0.239***	0.250***	0.237***
	(0.025)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Experience (years)	0.009***	0.009***	0.010***	0.009***	0.009***	0.009***	0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tenure (years)	0.014***	0.015***	0.014***	0.012***	0.012***	0.011***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Tenure squared	-0.000**	-0.000***	-0.000**	-0.000**	-0.000**	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trained for job	0.057***	0.056***	0.047***	0.033**	0.038***	0.031**	0.035***
	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Part-time job	-0.091***	-0.066***	-0.031*	-0.016	-0.014	-0.014	-0.012
	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Trade union member	0.022	0.032**	0.009	0.006	0.017	0.007	0.018
	(0.013)	(0.013)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)
Manager	0.550***	0.499***	0.473***	0.386***	0.349***	0.374***	0.338***
	(0.032)	(0.032)	(0.031)	(0.033)	(0.032)	(0.033)	(0.032)
Professional	0.513***	0.472***	0.439***	0.385***	0.350***	0.384***	0.350***
	(0.035)	(0.038)	(0.037)	(0.036)	(0.036)	(0.037)	(0.036)
Associate Professional	0.358***	0.305***	0.279***	0.237***	0.209***	0.238***	0.211***
	(0.027)	(0.030)	(0.030)	(0.030)	(0.029)	(0.030)	(0.030)
Clerical, Admin	0.194***	0.123***	0.120***	0.111***	0.069**	0.108***	0.068**
	(0.022)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Skilled Trades	0.181***	0.127***	0.109***	0.107***	0.106***	0.117***	0.115***
	(0.027)	(0.030)	(0.030)	(0.030)	(0.031)	(0.031)	(0.031)
Personal Services	0.015	-0.002	0.007	0.016	0.006	0.029	0.018
	(0.024)	(0.030)	(0.030)	(0.030)	(0.030)	(0.031)	(0.030)
Operative	0.050*	-0.022	-0.037	-0.004	-0.018	0.003	-0.014
	(0.025)	(0.028)	(0.028)	(0.028)	(0.029)	(0.028)	(0.029)
Elementary	-0.053**	-0.076***	-0.080***	-0.040	-0.055**	-0.031	-0.048*
	(0.022)	(0.025)	(0.024)	(0.025)	(0.025)	(0.025)	(0.026)
5 Regional Dummies	yes	yes	yes	yes	yes	yes	yes
Trade union @ work	–	–	0.024	0.028*	0.025	0.031*	0.028*
			(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Shift work	_	_	-0.031**	-0.031**	-0.013	-0.032**	-0.016
			(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Firm size	_	_	0.035***	0.033***	0.029***	0.032***	0.028***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Appraisal (yes)	_	_	0.041***	0.030**	0.029**	0.026*	0.025*
			(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Consultation (yes)	_	_	0.058***	0.041***	0.044***	0.040***	0.044***
			(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Male environment	_	_	0.075***	0.070***	0.081***	0.069***	0.080***

			(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Female environment	_	_	-0.064***	-0.053***	-0.050***	-0.052***	-0.048***
			(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Long job learning	_	_	_	0.078***	0.077***	0.077***	0.076***
				(0.014)	(0.014)	(0.013)	(0.014)
Managerial duties	_	_	_	0.104***	0.097***	0.100***	0.093***
				(0.024)	(0.023)	(0.024)	(0.024)
Supervisory duties	_	_	_	0.023	0.024*	0.016	0.018
				(0.014)	(0.014)	(0.014)	(0.014)
Repeated task	_	_	_	-0.070***	-0.059***	-0.067***	-0.058***
				(0.012)	(0.012)	(0.012)	(0.012)
Use computer (yes)	_	_	_	0.076***	0.084***	0.044**	0.055***
				(0.016)	(0.015)	(0.017)	(0.017)
Quality circle (yes)	_	_	_	0.032**	0.036***	0.029**	0.032**
				(0.014)	(0.014)	(0.014)	(0.014)
Work hard	_	_	_	-0.003	0.004	-0.002	0.003
				(0.013)	(0.013)	(0.014)	(0.014)
Exhausting job	_	_	_	-0.004	0.012	0.007	0.018
				(0.016)	(0.016)	(0.016)	(0.016)
Work effort	_	_	_	-0.024*	-0.016	-0.027**	-0.020
				(0.013)	(0.013)	(0.013)	(0.013)
Work under tension	_	_	_	_	_	-0.008	-0.009
						(0.016)	(0.016)
Decide on work	_	_	_	_	_	0.030*	0.027
						(0.017)	(0.017)
Have deadlines	_	_	_	_	_	0.019	0.024*
						(0.013)	(0.013)
Automated equipment	_	_	_	_	_	0.055***	0.052***
						(0.016)	(0.016)
Work @ speed	_	_	_	_	_	-0.028*	-0.023
						(0.015)	(0.015)
Health @ risk	_	_	_	_	_	-0.016	-0.002
						(0.013)	(0.013)
Literacy	_	_	_	_	-0.022*	_	-0.022*
					(0.011)		(0.012)
Physical	_	_	_	_	-0.048***	_	-0.046***
					(0.013)		(0.013)
Numeric	_	_	_	_	-0.006	_	-0.007
					(0.009)		(0.009)
Manual	_	_	_	_	-0.009	_	-0.013
					(0.015)		(0.015)
Other	_	_	_	_	-0.015	_	-0.015
					(0.010)		(0.010)
Planning	_	_	_	_	0.034***	_	0.032***
					(0.010)		(0.010)
Customer handling	_	_	_	_	-0.046***	_	-0.047***
					(0.013)		(0.013)
Team working	_	_	_	_	0.023	_	0.023
					(0.015)		(0.015)
Problem solving	_	_	_	_	-0.003	_	-0.003
					(0.012)		(0.012)
Precision	_	_	_	_	0.008	_	0.009
					(0.012)		(0.013)
Constant	1.505***	1.547***	1.535***	1.521***	1.540***	1.513***	1.529***
	(0.033)	(0.091)	(0.099)	(0.116)	(0.131)	(0.118)	(0.130)
Observations	3521	3521	3521	3521	3521	3506	3506
R-squared	0.52	0.54	0.56	0.58	0.59	0.58	0.59
F- Test for industry dummies		1 0.154	8.036	8.699	6.396	8.707	6.482

Robust standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels. The five regional dummies are London, South, East, North, Wales and Scotland.
F-test rejects the null of joint insignificance of industry coefficients for all specifications.

Table 3. Wage Equations with Firm Characteristics, Job Characteristics, Generic Skills Factors and Industry Effects (2-Digit SIC) for 1997

Dependent variable: Log hourly wage

	(1)	(2)	(3)	(4)	(5)
Female	-0.103***	-0.091***	-0.039*	-0.034	-0.036*
	(0.019)	(0.019)	(0.022)	(0.021)	(0.021)
Married	0.024	0.023	0.022	0.020	0.020
	(0.017)	(0.017)	(0.016)	(0.016)	(0.016)
Minorities	-0.057	-0.050	-0.042	-0.029	-0.025
	(0.041)	(0.040)	(0.039)	(0.040)	(0.040)
Children	0.047***	0.040**	0.038**	0.034**	0.034**
	(0.017)	(0.017)	(0.017)	(0.016)	(0.016)
Level 1 Qualifications	0.069**	0.051*	0.048*	0.040	0.041
	(0.029)	(0.029)	(0.028)	(0.028)	(0.027)
Level 2 Qualifications	0.106***	0.091***	0.084***	0.064***	0.065***
	(0.021)	(0.021)	(0.020)	(0.020)	(0.020)
Level 3 Qualifications	0.207***	0.183***	0.172***	0.142***	0.144***
	(0.027)	(0.027)	(0.026)	(0.026)	(0.026)
Level 4+ Qualifications	0.374***	0.346***	0.324***	0.278***	0.270***
	(0.029)	(0.030)	(0.029)	(0.029)	(0.028)
Experience (years)	0.007***	0.008***	0.008***	0.008***	0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tenure (years)	0.021***	0.021***	0.019***	0.016***	0.016***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
Tenure squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trained for job	0.062***	0.058***	0.038**	0.011	0.018
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Part-time job	-0.122***	-0.083***	-0.056**	-0.036*	-0.035
	(0.022)	(0.022)	(0.022)	(0.021)	(0.021)
Trade union member	0.086***	0.086***	0.062***	0.057***	0.059***
	(0.017)	(0.018)	(0.020)	(0.020)	(0.019)
Manager	0.397***	0.373***	0.353***	0.280***	0.285***
	(0.037)	(0.036)	(0.036)	(0.039)	(0.038)
Professional	0.357***	0.343***	0.311***	0.274***	0.286***
	(0.039)	(0.041)	(0.041)	(0.041)	(0.041)
Associate Professional	0.303***	0.247***	0.222***	0.193***	0.198***
	(0.035)	(0.037)	(0.037)	(0.036)	(0.036)
Clerical, Admin	0.153***	0.114***	0.112***	0.088***	0.081***
	(0.027)	(0.029)	(0.029)	(0.028)	(0.028)
Skilled Trades	0.131***	0.124***	0.111***	0.108***	0.129***
	(0.034)	(0.038)	(0.038)	(0.037)	(0.039)
Personal Services	-0.083**	-0.082*	-0.068	-0.054	-0.031
	(0.037)	(0.042)	(0.042)	(0.041)	(0.041)
Operative	0.030	0.016	-0.003	0.021	0.029
	(0.033)	(0.037)	(0.037)	(0.036)	(0.037)
Elementary	-0.060**	-0.085**	-0.089***	-0.058*	-0.051
	(0.030)	(0.033)	(0.033)	(0.033)	(0.033)
5 Regional Dummies	yes	yes	yes	yes	yes
Trade union @ work	_	_	0.023	0.029	0.030
			(0.021)	(0.020)	(0.020)
Shift work	_	_	-0.016	-0.010	0.004
			(0.017)	(0.017)	(0.017)
Firm size	_	_	0.024***	0.023***	0.019***
			(0.006)	(0.006)	(0.006)
Appraisal (yes)	_	_	0.059***	0.046***	0.039**
			(0.017)	(0.018)	(0.017)
Consultation (yes)	_	_	0.051***	0.039**	0.040**
			(0.017)	(0.017)	(0.017)
Male environment	_	_	0.085***	0.089***	0.106***
			(0.024)	(0.023)	(0.023)
Female environment	_	_	-0.060***	-0.053***	-0.053***

			(0.019)	(0.019)	(0.019)
Long job learning	_	_	_	0.075***	0.073***
				(0.017)	(0.017)
Managerial duties	_	_	_	0.078***	0.067***
				(0.026)	(0.026)
Supervisory duties	_	_	_	0.029	0.023
				(0.020)	(0.020)
Repeated task	_	_	_	-0.031**	-0.026*
				(0.014)	(0.014)
Use computer (yes)	_	_	_	0.102***	0.107***
				(0.019)	(0.019)
Quality circle (yes)	_	_	_	0.009	0.014
				(0.015)	(0.015)
Work hard	_	_	_	0.023	0.028*
				(0.016)	(0.016)
Exhausting job	_	_	_	-0.035**	-0.023
				(0.018)	(0.017)
Work effort	_	_	_	-0.053***	-0.049***
				(0.015)	(0.015)
Literacy	_	_	_	_	0.005
					(0.014)
Physical	_	_	_	_	-0.041***
					(0.015)
Numeracy	_	_	_	_	-0.032***
					(0.011)
Manual	_	_	_	_	-0.022
					(0.017)
Other	_	_	_	_	-0.009
					(0.011)
Planning	_	_	_	_	0.013
					(0.013)
Customer handling	_	_	_	_	-0.041***
					(0.015)
Team working	_	_	_	_	0.013
					(0.015)
Problem solving	_	_	_	_	0.022
					(0.014)
Precision	_	_	_	_	0.003
					(0.014)
Constant	1.266***	1.473***	1.322***	1.348***	1.364***
	(0.041)	(0.071)	(0.051)	(0.065)	(0.086)
Observations	1907	1896	1896	1896	1894
R-squared	0.58	0.62	0.64	0.65	0.66
F-Test Branches		3.714	3.144	2.962	2.472

Robust standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The five regional dummies are London, South, East, North, Wales and Scotland.
F-test rejects the null of joint insignificance of branches coefficients for all specifications.

Table 4. Wage Equations with Firm Characteristics, Job Characteristics, Generic Skills Factors and Industry Effects (2-Digit SIC) for 2001

Dependent variable: Log hourly wage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.136***	-0.102***	-0.054***	-0.041**	-0.048***	-0.040**	-0.047***
	(0.015)	(0.015)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Married	0.052***	0.054***	0.050***	0.042***	0.040***	0.040***	0.039***
	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Minorities	-0.098***	-0.082***	-0.069**	-0.049*	-0.037	-0.046*	-0.034
	(0.029)	(0.028)	(0.027)	(0.026)	(0.026)	(0.026)	(0.026)
Children	0.042***	0.048***	0.047***	0.047***	0.050***	0.045***	0.048***
	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Level 1 Qualifications	0.017	0.023	0.021	0.020	0.024	0.020	0.025
	(0.021)	(0.021)	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)
Level 2 Qualifications	0.059***	0.060***	0.052***	0.044***	0.046***	0.044***	0.046***
	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Level 3 Qualifications	0.145***	0.134***	0.124***	0.103***	0.104***	0.101***	0.102***
	(0.020)	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)
Level 4+ Qualifications	0.310***	0.295***	0.275***	0.236***	0.227***	0.236***	0.226***
	(0.025)	(0.024)	(0.023)	(0.023)	(0.023)	(0.024)	(0.023)
Experience (years)	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Experience squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tenure (years)	0.014***	0.015***	0.014***	0.012***	0.012***	0.011***	0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Tenure squared	-0.000***	-0.000***	-0.000***	-0.000**	-0.000**	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trained for job	0.057***	0.053***	0.044***	0.031**	0.036***	0.029**	0.034**
	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Part-time job	-0.089***	-0.057***	-0.025	-0.009	-0.008	-0.007	-0.007
	(0.017)	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)
Trade union member	0.023*	0.035***	0.012	0.008	0.017	0.010	0.019
	(0.013)	(0.013)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)
Manager	0.549***	0.475***	0.449***	0.359***	0.330***	0.345***	0.317***
	(0.031)	(0.032)	(0.031)	(0.033)	(0.033)	(0.033)	(0.032)
Professional	0.512***	0.429***	0.399***	0.346***	0.321***	0.344***	0.320***
	(0.035)	(0.038)	(0.037)	(0.036)	(0.036)	(0.036)	(0.036)
Associate Professional	0.356***	0.262***	0.237***	0.196***	0.177***	0.196***	0.177***
	(0.027)	(0.030)	(0.030)	(0.029)	(0.029)	(0.030)	(0.029)
Clerical, Admin	0.196***	0.081***	0.078***	0.069***	0.039	0.065**	0.037
	(0.022)	(0.027)	(0.026)	(0.026)	(0.026)	(0.026)	(0.027)
Skilled Trades	0.180***	0.104***	0.087***	0.085***	0.089***	0.093***	0.096***
	(0.027)	(0.030)	(0.030)	(0.029)	(0.030)	(0.030)	(0.030)
Personal Services	0.015	-0.051*	-0.043	-0.033	-0.036	-0.024	-0.027
	(0.024)	(0.029)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Operative	0.054**	-0.045	-0.064**	-0.032	-0.038	-0.027	-0.035
	(0.025)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.030)
Elementary	-0.052**	-0.118***	-0.122***	-0.083***	-0.091***	-0.077***	-0.086***
	(0.022)	(0.025)	(0.025)	(0.025)	(0.026)	(0.026)	(0.026)
5 Regional Dummies	yes	yes	yes	yes	yes	yes	yes
Trade union @ work	_	_	0.031*	0.034**	0.030*	0.037**	0.033**
			(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Shift work	_	_	-0.031**	-0.031**	-0.015	-0.031**	-0.017
			(0.014)	(0.013)	(0.013)	(0.013)	(0.013)
Firm size	_	_	0.032***	0.030***	0.027***	0.029***	0.026***
			(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Appraisal (yes)	_	_	0.040***	0.030**	0.029**	0.028*	0.025*
			(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Consultation (yes)	_	_	0.058***	0.040***	0.043***	0.038***	0.042***
			(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Male environment	_	_	0.074***	0.069***	0.078***	0.069***	0.078***
			(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Female environment	_	_	-0.055***	-0.046***	-0.043***	-0.044***	-0.042***

			(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Long job learning	_	_	_	0.074***	0.074***	0.073***	0.073***
				(0.014)	(0.014)	(0.013)	(0.014)
Managerial duties	_	_	_	0.110***	0.103***	0.105***	0.099***
				(0.024)	(0.023)	(0.024)	(0.024)
Supervisory duties	_	_	_	0.024*	0.026*	0.017	0.019
				(0.014)	(0.014)	(0.014)	(0.014)
Repeated task	_	_	_	-0.068***	-0.059***	-0.066***	-0.058***
				(0.012)	(0.012)	(0.012)	(0.012)
Use computer (yes)	_	_	_	0.074***	0.084***	0.048***	0.058***
				(0.015)	(0.015)	(0.017)	(0.017)
Quality circle (yes)	_	_	_	0.035***	0.038***	0.032**	0.034**
				(0.014)	(0.013)	(0.014)	(0.013)
Work hard	_	_	_	-0.005	0.001	-0.004	0.000
				(0.013)	(0.013)	(0.014)	(0.014)
Exhausting job	_	_	_	-0.002	0.012	0.008	0.019
				(0.016)	(0.016)	(0.016)	(0.016)
Work effort	_	_	_	-0.024*	-0.017	-0.027**	-0.021*
				(0.013)	(0.013)	(0.013)	(0.013)
Work under tension	_	_	_	_	_	-0.008	-0.009
						(0.016)	(0.016)
Decide on work	_	_	_	_	_	0.034**	0.031*
						(0.016)	(0.017)
Have deadlines	_	_	_	_	_	0.017	0.022*
						(0.013)	(0.013)
Automated equipment	_	_	_	_	_	0.048***	0.046***
						(0.016)	(0.016)
Work @ speed	_	_	_	_	_	-0.025*	-0.020
						(0.015)	(0.015)
Health @ risk	_	_	_	_	_	-0.016	-0.004
						(0.013)	(0.013)
Literacy	_	_	_	_	-0.020*	_	-0.020*
					(0.011)		(0.011)
Physical	_	_	_	_	-0.041***	_	-0.040***
					(0.013)		(0.013)
Numeracy	_	_	_	_	-0.009	_	-0.009
					(0.009)		(0.009)
Manual	_	_	_	_	-0.010	_	-0.013
					(0.015)		(0.015)
Other	_	_	_	_	-0.014	_	-0.014
					(0.010)		(0.010)
Planning	_	_	_	_	0.031***	_	0.029***
					(0.010)		(0.010)
Customer handling	_	_	_	_	-0.038***	_	-0.040***
					(0.013)		(0.013)
Team working	_	_	_	_	0.020	_	0.020
					(0.015)		(0.015)
Problem solving	_	_	_	_	-0.003	_	-0.003
					(0.012)		(0.012)
Precision	_	_	_	_	0.007	_	0.008
					(0.012)		(0.012)
Constant	1.503***	1.382***	1.218***	1.162***	1.141***	1.548***	1.553***
	(0.033)	(0.292)	(0.259)	(0.216)	(0.227)	(0.122)	(0.131)
Observations	3528	3511	3511	3511	3511	3496	3496
R-squared	0.52	0.56	0.58	0.60	0.60	0.60	0.61
F-Test Branches		6.305	5.335	5.599	4.580	5.637	4.638

Robust standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The five regional dummies are London, South, East, North, Wales and Scotland.
F-test rejects the null of joint insignificance of branches coefficients for all specifications.

Table 1A. Employment Weighted Inter-Industry Wage Differentials (1-Digit SIC) in 1997

	Specification (2)	Specification (3)	Specification (4)	Specification (5)
Constant	0.044	0.025	-0.039	-0.023
	(0.044)	(0.047)	(0.048)	(0.048)
Agriculture	-0.059	-0.012	-0.030	-0.012
	(0.088)	(0.090)	(0.095)	(0.094)
Fishing	0.617***	0.630***	0.640***	0.620***
	(0.038)	(0.045)	(0.052)	(0.057)
Mining	0.215*	0.181	0.224**	0.223**
	(0.112)	(0.119)	(0.112)	(0.109)
Manufacturing	0.037**	0.019	0.015	0.014
	(0.015)	(0.016)	(0.015)	(0.016)
Electricity/Water/Gas	0.151	0.109	0.111	0.082
	(0.094)	(0.090)	(0.084)	(0.079)
Construction	0.018	0.009	-0.003	0.009
	(0.044)	(0.045)	(0.044)	(0.044)
Wholesale	-0.084***	-0.087***	-0.091***	-0.066***
	(0.020)	(0.020)	(0.020)	(0.020)
Hotels/Catering	-0.134***	-0.093**	-0.083**	-0.064*
	(0.037)	(0.037)	(0.036)	(0.036)
Transport	0.008	-0.012	-0.012	-0.016
	(0.027)	(0.027)	(0.026)	(0.025)
Finance	0.161***	0.135***	0.144***	0.133***
	(0.042)	(0.041)	(0.039)	(0.040)
Real Estate	0.084***	0.094***	0.086***	0.066***
	(0.025)	(0.024)	(0.024)	(0.024)
Public Administration	0.020	0.004	0.010	-0.002
	(0.021)	(0.021)	(0.020)	(0.020)
Education	-0.034	-0.011	-0.016	-0.021
	(0.028)	(0.029)	(0.028)	(0.028)
Health	-0.028	-0.007	0.003	-0.000
	(0.022)	(0.022)	(0.022)	(0.023)
Other Community	-0.122**	-0.083*	-0.077*	-0.068
	(0.047)	(0.046)	(0.044)	(0.043)
Private Households (omitted)	-0.148	-0.068	0.002	-0.016
	(0.105)	(0.103)	(0.108)	(0.121)
Weighted Standard Deviation	**0.0660**	**0.0542**	**0.0546**	**0.0429**

Standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The coefficients of specifications 2, 3, 4 and 5 stem from the corresponding regressions of Table 1.

Table 2A. Employment Weighted Inter-Industry Wage Differentials (1-Digit SIC) in 2001

	Specification (2)	Specification (3)	Specification (4)	Specification (5)	Specification (6)	Specification (7)
Constant	-0.138***	-0.210***	-0.198***	-0.233***	-0.206***	-0.238***
	(0.037)	(0.041)	(0.042)	(0.042)	(0.043)	(0.042)
Agriculture	-0.194***	-0.188***	-0.186***	-0.182***	-0.197***	-0.191***
	(0.064)	(0.060)	(0.060)	(0.061)	(0.063)	(0.064)
Fishing	-0.062*	-0.055	-0.043	-0.079*	-0.053	-0.079*
	(0.033)	(0.036)	(0.039)	(0.042)	(0.039)	(0.043)
Mining	0.151	0.117	0.078	0.084	0.072	0.080
	(0.092)	(0.089)	(0.084)	(0.082)	(0.084)	(0.082)
Manufacturing	0.068***	0.044***	0.047***	0.034**	0.044***	0.032**
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.015)
Electricity/Water/Gas	0.151**	0.050	0.030	0.013	0.021	0.007
	(0.066)	(0.066)	(0.064)	(0.065)	(0.063)	(0.063)
Construction	0.035	0.042*	0.044*	0.047*	0.050**	0.052**
	(0.025)	(0.025)	(0.025)	(0.024)	(0.025)	(0.025)
Wholesale	-0.100***	-0.097***	-0.100***	-0.081***	-0.101***	-0.082***
	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Hotels/Catering	-0.139***	-0.108***	-0.103***	-0.093***	-0.101***	-0.090***
	(0.034)	(0.033)	(0.033)	(0.032)	(0.033)	(0.032)
Transport	0.024	0.016	0.017	0.009	0.014	0.006
	(0.022)	(0.021)	(0.021)	(0.020)	(0.021)	(0.020)
Finance	0.139***	0.113***	0.127***	0.113***	0.126***	0.113***
	(0.035)	(0.034)	(0.033)	(0.033)	(0.033)	(0.033)
Real Estate	0.108***	0.112***	0.112***	0.097***	0.109***	0.095***
	(0.021)	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)
Public Administration	-0.009	-0.035**	-0.033*	-0.037**	-0.032*	-0.038**
	(0.017)	(0.018)	(0.018)	(0.017)	(0.018)	(0.018)
Education	-0.051**	-0.036*	-0.046**	-0.042**	-0.045**	-0.042**
	(0.020)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)
Health	-0.053***	-0.019	-0.019	-0.005	-0.012	0.002
	(0.015)	(0.016)	(0.015)	(0.016)	(0.016)	(0.016)
Other Community	-0.077*	-0.058	-0.052	-0.046	-0.054	-0.048
	(0.042)	(0.040)	(0.040)	(0.041)	(0.040)	(0.041)
Private Households (omitted)	0.026	0.152*	0.153	0.180	0.160	0.186
	(0.082)	(0.090)	(0.109)	(0.125)	(0.112)	(0.125)
Weighted Standard Deviation	**0.0770**	**0.0656**	**0.0678**	**0.0571**	**0.0670**	**0.0569**

Standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The coefficients of specifications 2 to 7 stem from the corresponding regressions of Table 2.

Table 3A. Employment Weighted Inter-Industry Wage Differentials (2-Digit SIC) in 1997

		Specification (2)	Specification (3)	Specification (4)	Specification (5)
Agriculture, hunting and related	***1***	-0.062	-0.014	-0.032	-0.015
		(0.091)	(0.092)	(0.097)	(0.095)
Mining of coal and lignite. Peat	***10***	0.177	0.158	0.178**	0.186**
		(0.147)	(0.144)	(0.091)	(0.089)
Extract crude petroleum, natural gas	**11**	0.250	0.210	0.261	0.249
		(0.166)	(0.180)	(0.185)	(0.179)
Manufacture: food products	***15***	-0.050	-0.073**	-0.073*	-0.069*
		(0.039)	(0.036)	(0.038)	(0.039)
Manufacture: textiles	***17***	-0.024	-0.019	-0.014	-0.013
		(0.062)	(0.067)	(0.072)	(0.076)
Manufacture: wearing apparels and fur	***18***	-0.242***	-0.169**	-0.123	-0.140**
		(0.077)	(0.073)	(0.079)	(0.070)
Manufacture: wood	**20**	0.175***	0.148***	0.181***	0.224***
		(0.064)	(0.036)	(0.052)	(0.077)
Manufacture: pulp and paper	***21***	0.159	0.153	0.131	0.100
		(0.109)	(0.107)	(0.101)	(0.105)
Publishing, printing and recording	***22***	0.207***	0.204***	0.194***	0.188***
		(0.058)	(0.061)	(0.054)	(0.052)
Manufacture: coke	***23***	0.007	-0.049	-0.039	-0.047
		(0.079)	(0.073)	(0.058)	(0.067)
Manufacture: chemicals	**24**	0.163***	0.115**	0.109**	0.087*
		(0.048)	(0.050)	(0.050)	(0.050)
Manufacture: rubber and plastic	***25***	-0.000	-0.026	-0.011	0.005
		(0.066)	(0.064)	(0.066)	(0.065)
Manufacture: non-metallic minerals	**26**	-0.063	-0.079	-0.050	-0.063
		(0.056)	(0.056)	(0.062)	(0.069)
Manufacture: basic metals	***27***	0.049	0.057	0.060	0.064
		(0.065)	(0.060)	(0.057)	(0.062)
Manufacture: fabricated metals	**28**	0.038	0.042	0.030	0.020
		(0.043)	(0.039)	(0.036)	(0.039)
Manufacture: machinery not elsewhere	***29***	0.034	0.001	-0.014	-0.004
		(0.034)	(0.034)	(0.034)	(0.034)
Manufacture: office machines, computers	**30**	0.144**	0.108	0.062	0.076
		(0.068)	(0.068)	(0.059)	(0.067)
Manufacture: electrical machinery	***31***	-0.007	-0.022	-0.028	-0.041
		(0.040)	(0.040)	(0.037)	(0.037)
Manufacture: communications	***32***	0.027	-0.004	0.001	0.009
		(0.053)	(0.050)	(0.047)	(0.049)
Manufacture: medical and precision	**33**	0.102***	0.109	0.085	0.123
		(0.039)	(0.071)	(0.084)	(0.090)
Manufacture: motor vehicles	***34***	0.126*	0.103*	0.099*	0.106**
		(0.065)	(0.061)	(0.054)	(0.054)
Manufacture: other transport equipment	**35**	0.052	0.007	0.014	-0.001
		(0.084)	(0.086)	(0.085)	(0.085)
Manufacture: furniture not elsewhere	***36***	-0.118*	-0.129**	-0.113**	-0.095*
		(0.065)	(0.056)	(0.053)	(0.053)
Electricity, Gas, Hot Water supply	**40**	0.130	0.079	0.107	0.094
		(0.081)	(0.084)	(0.071)	(0.066)
Water: collection, purification...	***41***	0.199	0.166	0.125	0.074
		(0.210)	(0.195)	(0.192)	(0.179)
Construction	***45***	0.019	0.011	-0.002	0.010
		(0.045)	(0.045)	(0.045)	(0.045)
Sale: motor vehicles and fuel	**50**	-0.139**	-0.155**	-0.194***	-0.189***
		(0.062)	(0.061)	(0.060)	(0.059)
Wholesale and commission, not motor	**51**	-0.003	0.008	0.003	0.005
		(0.042)	(0.044)	(0.043)	(0.042)
Retail trade not motor	***52***	-0.109***	-0.115***	-0.112***	-0.075***
		(0.025)	(0.025)	(0.024)	(0.025)
Hotels and Restaurants	***55***	-0.134***	-0.095**	-0.086**	-0.065*
		(0.038)	(0.038)	(0.037)	(0.036)

Land transport, pipelines	***60***	-0.067	-0.073	-0.051	-0.048
		(0.046)	(0.044)	(0.042)	(0.041)
Water transport	***61***	0.003	-0.006	0.013	0.027
		(0.063)	(0.073)	(0.088)	(0.086)
Air transport	***62***	-0.061	-0.083	-0.119	-0.120
		(0.095)	(0.095)	(0.104)	(0.102)
Auxiliary transport, travel agencies	**63**	0.188**	0.189**	0.153*	0.135*
		(0.091)	(0.087)	(0.079)	(0.077)
Post and telecoms	***64***	0.013	-0.021	-0.020	-0.034
		(0.037)	(0.035)	(0.036)	(0.035)
Financial (excluding insurance, pension)	***65***	0.143***	0.122**	0.131***	0.125***
		(0.049)	(0.048)	(0.046)	(0.046)
Insurance and Pension funding	***66***	0.136	0.104	0.118	0.095
		(0.114)	(0.108)	(0.102)	(0.107)
Auxiliary financial intermediation	**67**	0.362***	0.310***	0.306***	0.294***
		(0.099)	(0.110)	(0.105)	(0.108)
Real estate	**70**	0.115*	0.148**	0.120**	0.073
		(0.060)	(0.058)	(0.059)	(0.057)
Rent: machinery, no operator	**71**	-0.380**	-0.378**	-0.353**	-0.369**
		(0.162)	(0.167)	(0.175)	(0.172)
Computer and related	**72**	0.241***	0.196***	0.187***	0.172***
		(0.072)	(0.067)	(0.064)	(0.063)
Research and development	**73**	0.111	0.080	0.060	0.043
		(0.092)	(0.092)	(0.104)	(0.105)
Other business activities	**74**	0.071**	0.092***	0.086***	0.068**
		(0.031)	(0.030)	(0.029)	(0.029)
Public admin and defence	**75**	0.029	0.012	0.017	0.005
		(0.021)	(0.021)	(0.020)	(0.020)
Education	**80**	-0.034	-0.015	-0.019	-0.025
		(0.029)	(0.029)	(0.029)	(0.028)
Health and social work	**85**	-0.027	-0.007	0.001	-0.002
		(0.022)	(0.022)	(0.022)	(0.023)
Sewage and refuse disposal	**90**	0.047	0.040	0.069	0.052
		(0.102)	(0.108)	(0.110)	(0.117)
Membership not elsewhere	**91**	0.085	0.113	0.110	0.110
		(0.115)	(0.113)	(0.102)	(0.095)
Recreational, cultural, sport	92	-0.122**	-0.085*	-0.089*	-0.076
		(0.054)	(0.051)	(0.051)	(0.050)
Other service activities	**93**	-0.389**	-0.326**	-0.287*	-0.287*
		(0.155)	(0.149)	(0.149)	(0.146)
Private households	***95***	-0.156	-0.076	-0.012	-0.030
		(0.106)	(0.105)	(0.110)	(0.123)
Weighted Standard Deviation		**0.0881**	**0.0768**	**0.0726**	**0.0620**

Standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The coefficients of specifications 2, 3, 4 and 5 stem from the corresponding regressions of Table 3.

Table 4A. Employment Weighted Inter-Industry Wage Differentials (2-Digit SIC) in 2001

		Specification (2)	Specification (3)	Specification (4)	Specification (5)	Specification (6)	Specification (7)
Agriculture, hunting	***1***	-0.192***	-0.184***	-0.182***	-0.179***	-0.190***	-0.185***
		(0.064)	(0.061)	(0.061)	(0.062)	(0.063)	(0.064)
Mining: coal, lignite. Peat	***10***	0.177**	0.101	0.070	0.065	0.067	0.065
		(0.084)	(0.081)	(0.067)	(0.080)	(0.064)	(0.078)
Extract crude, gas	**11**	0.233	0.211	0.169	0.178	0.172	0.179
		(0.154)	(0.154)	(0.145)	(0.137)	(0.141)	(0.135)
Manufacture: food	***15***	-0.014	-0.034	-0.025	-0.027	-0.024	-0.026
		(0.035)	(0.034)	(0.033)	(0.033)	(0.033)	(0.033)
Manufacture: textiles	***17***	0.019	0.012	0.039	0.010	0.048	0.016
		(0.070)	(0.063)	(0.059)	(0.063)	(0.058)	(0.063)
Manufacture: wearing, fur	***18***	-0.135	-0.101	-0.075	-0.092	-0.068	-0.089
		(0.112)	(0.104)	(0.107)	(0.112)	(0.104)	(0.110)
Manufacture: wood	**20**	-0.071	-0.092*	-0.108**	-0.104**	-0.102**	-0.101**
		(0.059)	(0.055)	(0.050)	(0.051)	(0.050)	(0.051)
Manufacture: pulp and paper	***21***	0.081	0.051	0.049	0.038	0.035	0.026
		(0.088)	(0.089)	(0.082)	(0.088)	(0.085)	(0.090)
Publishing, printing, recording	***22***	0.170***	0.173***	0.168***	0.141***	0.168***	0.141***
		(0.042)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
Manufacture: coke	***23***	0.299**	0.201*	0.217*	0.219*	0.216*	0.220*
		(0.135)	(0.117)	(0.120)	(0.129)	(0.121)	(0.130)
Manufacture: chemicals	**24**	0.337***	0.288***	0.287***	0.269***	0.286***	0.270***
		(0.077)	(0.075)	(0.074)	(0.074)	(0.075)	(0.074)
Manufacture: rubber, plastic	***25***	0.011	-0.013	-0.018	-0.020	-0.040	-0.042
		(0.066)	(0.065)	(0.063)	(0.063)	(0.057)	(0.058)
Manufacture: minerals	**26**	0.099*	0.074	0.093*	0.074	0.090	0.072
		(0.060)	(0.058)	(0.054)	(0.055)	(0.055)	(0.056)
Manufacture: basic metals	***27***	0.174**	0.152*	0.150*	0.134	0.140	0.126
		(0.086)	(0.088)	(0.087)	(0.087)	(0.087)	(0.086)
Manufacture: metals	**28**	0.063*	0.060*	0.060*	0.055*	0.058*	0.051
		(0.033)	(0.033)	(0.033)	(0.033)	(0.034)	(0.033)
Manufacture: machinery other	***29***	-0.020	-0.031	-0.026	-0.019	-0.023	-0.015
		(0.035)	(0.035)	(0.034)	(0.035)	(0.034)	(0.035)
Manufacture: office, computers	**30**	0.058	0.051	0.051	0.031	0.051	0.032
		(0.104)	(0.113)	(0.109)	(0.105)	(0.108)	(0.105)
Manufacture: electric machine	***31***	0.009	-0.012	-0.019	-0.030	-0.027	-0.037
		(0.047)	(0.047)	(0.048)	(0.051)	(0.046)	(0.050)
Manufacture: communications	***32***	0.018	-0.031	-0.050	-0.072	-0.051	-0.072
		(0.060)	(0.064)	(0.065)	(0.067)	(0.066)	(0.066)
Manufacture: medic, precision	**33**	0.018	0.017	0.010	0.002	0.025	0.013
		(0.056)	(0.056)	(0.053)	(0.055)	(0.055)	(0.058)
Manufacture: motor vehicles	***34***	0.051	0.016	0.044	0.030	0.040	0.028
		(0.053)	(0.048)	(0.047)	(0.047)	(0.047)	(0.047)
Manufacture: other transport	**35**	0.074*	0.017	0.012	0.009	0.009	0.006
		(0.043)	(0.046)	(0.043)	(0.040)	(0.041)	(0.039)
Manufacture: furniture other	***36***	-0.060	-0.054	-0.037	-0.042	-0.030	-0.036
		(0.057)	(0.054)	(0.056)	(0.058)	(0.057)	(0.060)
Electricity, Gas, Hot Water	**40**	0.196**	0.085	0.054	0.030	0.046	0.023
		(0.078)	(0.081)	(0.078)	(0.078)	(0.076)	(0.077)
Water: collection, purification	***41***	0.011	-0.027	-0.019	-0.011	-0.056	-0.035
		(0.068)	(0.075)	(0.082)	(0.084)	(0.090)	(0.094)
Construction	***45***	0.033	0.041	0.043*	0.046*	0.050**	0.052**
		(0.025)	(0.026)	(0.025)	(0.025)	(0.025)	(0.025)
Sale: motor vehicles and fuel	**50**	-0.143***	-0.136***	-0.146***	-0.134***	-0.145***	-0.132***
		(0.043)	(0.041)	(0.042)	(0.040)	(0.041)	(0.040)
Wholesale and commission	**51**	0.049	0.051	0.051	0.052	0.056*	0.058*
		(0.033)	(0.033)	(0.033)	(0.032)	(0.033)	(0.032)
Retail trade not motor	***52***	-0.184***	-0.181***	-0.183***	-0.157***	-0.185***	-0.157***
		(0.022)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Hotels and Restaurants	***55***	-0.148***	-0.116***	-0.112***	-0.102***	-0.109***	-0.098***
		(0.034)	(0.033)	(0.033)	(0.032)	(0.033)	(0.033)

Land transport, pipelines	***60***	-0.025	-0.011	-0.013	-0.019	-0.016	-0.023
		(0.039)	(0.038)	(0.038)	(0.039)	(0.038)	(0.039)
Water transport	***61***	-0.173	-0.201	-0.241	-0.250	-0.254	-0.262
		(0.290)	(0.256)	(0.211)	(0.223)	(0.206)	(0.215)
Air transport	***62***	0.287***	0.216***	0.250***	0.202***	0.303***	0.251***
		(0.056)	(0.080)	(0.066)	(0.059)	(0.053)	(0.045)
Auxiliary transport	**63**	0.097**	0.098**	0.092**	0.072	0.086*	0.066
		(0.047)	(0.046)	(0.045)	(0.044)	(0.045)	(0.044)
Post and Telecomms	***64***	-0.007	-0.030	-0.019	-0.017	-0.015	-0.013
		(0.032)	(0.030)	(0.029)	(0.028)	(0.029)	(0.028)
Financial (not insurance)	***65***	0.114**	0.095**	0.109**	0.098**	0.109**	0.098**
		(0.047)	(0.045)	(0.045)	(0.044)	(0.044)	(0.044)
Insurance and Pension funding	***66***	0.233**	0.204**	0.210**	0.194*	0.209**	0.194*
		(0.102)	(0.103)	(0.100)	(0.103)	(0.101)	(0.104)
Auxiliary financial	**67**	0.161***	0.127**	0.142**	0.132**	0.141**	0.132**
		(0.062)	(0.059)	(0.058)	(0.057)	(0.058)	(0.057)
Real estate	**70**	0.067	0.092	0.090*	0.077	0.092*	0.078
		(0.061)	(0.059)	(0.054)	(0.053)	(0.054)	(0.053)
Rent: machinery, no operator	**71**	-0.133**	-0.123**	-0.107**	-0.104**	-0.100*	-0.095**
		(0.064)	(0.061)	(0.054)	(0.049)	(0.052)	(0.048)
Computer and related	**72**	0.247***	0.240***	0.240***	0.213***	0.229***	0.204***
		(0.067)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)
Research and development	**73**	0.172***	0.129**	0.118*	0.102	0.112*	0.098
		(0.065)	(0.064)	(0.063)	(0.065)	(0.063)	(0.064)
Other business activities	**74**	0.095***	0.104***	0.103***	0.091***	0.103***	0.091***
		(0.027)	(0.026)	(0.026)	(0.025)	(0.026)	(0.025)
Public admin and defence	**75**	0.003	-0.024	-0.022	-0.026	-0.027	-0.034*
		(0.018)	(0.019)	(0.019)	(0.019)	(0.017)	(0.017)
Education	**80**	-0.041**	-0.030	-0.040**	-0.038**	-0.041**	-0.039**
		(0.020)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)
Health and social work	**85**	-0.047***	-0.017	-0.018	-0.006	-0.013	-0.002
		(0.015)	(0.016)	(0.015)	(0.015)	(0.015)	(0.016)
Sewage and refuse disposal	**90**	-0.028	-0.028	0.020	0.031	0.024	0.031
		(0.070)	(0.072)	(0.068)	(0.068)	(0.067)	(0.068)
Membership not elsewhere	**91**	-0.321**	-0.278**	-0.283**	-0.302**	-0.289**	-0.308**
		(0.139)	(0.132)	(0.131)	(0.132)	(0.132)	(0.133)
Recreational, cultural, sport	92	0.074	0.075	0.072	0.080	0.068	0.076
		(0.059)	(0.058)	(0.058)	(0.058)	(0.058)	(0.058)
Other service activities	**93**	-0.239***	-0.188***	-0.178***	-0.167***	-0.176***	-0.165***
		(0.046)	(0.043)	(0.037)	(0.040)	(0.038)	(0.041)
Private households	***95***	0.024	0.149	0.150	0.169	0.154	0.174
		(0.087)	(0.096)	(0.114)	(0.126)	(0.116)	(0.126)
Weighted Standard Deviation		**0.1041**	**0.0932**	**0.0948**	**0.0843**	**0.0947**	**0.0844**

Standard errors are in parentheses. ***, ** and * mean respectively significant at the 1%, 5% and 10% levels.
The coefficients of specifications 2 to 7 stem from the corresponding regressions of Table 4.