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Lousy Pay with Lousy Conditions: The Role of Occupational Desegregation in Explaining the UK Gender Pay and Work Intensity Gaps.

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Abstract

The UK gender pay gap has fallen by around 7 % during the 2000s. This is partly due to occupational desegregation, but largely due to a closing of the within-occupational gender pay gap. The paper finds that men are more likely than women to be employed in jobs that require working to tight deadlines. These jobs are associated with higher pay and the gender difference arises entirely as a consequence of such occupations being over-represented in male dominated industrial sectors. However, the paper also finds evidence of lower pay and higher work intensity (in terms of working at high speed) for women vis-à-vis men employed within the same occupations. These differences are not significant upon labour market entry but emerge subsequently over the life cycle, most likely as a result of family-related responsibilities but also as a consequence of unexplained factors that could include gender discrimination.

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1. Introduction and Background Information

Research has shown that, in many countries like the US and the UK, the quality of jobs has declined, with women often reporting higher levels of work intensity than men.[1] There is also evidence that the UK gender pay gap has fallen, where this has mainly been attributed to increases in the educational attainment and labour market participation of women.[2] More recent evidence also shows that women have caught up with men in terms of their average educational qualifications. Lindley and Machin (2012) report parity between the proportion of UK male and female graduates in 2011 which might suggest that the fall in the gender pay gap is slowing down or that it might stop altogether. Nevertheless, there are other aspects of human capital that differ between men and women and which are persistent. For example, Machin and Puhani (2003) document gender differences in subject of degree. These explain a significant portion of the gender pay gap amongst UK university graduates. There is also evidence that the occupational choices of men and women differ. Manning and Swaffield (2008) show that women were still more likely to enter into clerical and secretarial jobs, as well as personal and protective service occupations, and less likely to enter into craft and elementary occupations, relative to men in 1991, and these initial occupational differences explained a significant proportion of the gender pay gap. So the gender pay gap might persist as a consequence of women continuing to choose subjects and occupations that lead them into more traditionally female roles.

In terms of gender differences over the life course, Manning and Swaffield (2008) also showed that the wages of women grow significantly more slowly to those of men, even after accounting for differences in human capital, occupations and career breaks from childrearing. The differential growth is partially accounted for by differences in the subsequent acquisition of human capital and labour market experience, as well as job shopping and differences in the psychological determinants of wages, but a large proportion still remains unexplained. Purcell et al. (2006) found significantly different gender pay gaps for different graduate occupations. In public sector professions (eg teachers) and in some private sector professions (eg engineering), there was very little evidence of a gender pay gap both immediately after graduation and seven years later, but in other private sector professions (eg lawyers and

[1] See Green (2006); Gallie et al. (2004) and Gorman and Kmec (2007).
[2] See Harkness (1996)

solicitors) women displayed significantly lower average earnings compared to their male peers, despite receiving similar starting salaries. These women also reported being less optimistic about promotion and reported lower job quality and satisfaction. Overall, the literature suggests that within-occupational gender differences might persist, even after conditioning on differences in human capital and occupational choices. Such unexplainable differences have traditionally been attributed to discrimination, which can arise purely as a statistical artefact based on asymmetric information amongst employers on the future childbearing plans of women, see Phelps (1972).

The closest paper to this paper is that by Goldin (2014), although her study focuses on the US labour market. She finds increasing wage returns to working long hours which she suggests accounts for the remaining gender pay differential. Goldin (2014) also shows that working long hours is disproportionately rewarded in the highest paid professions and especially those in the financial and legal sectors. Therefore, as long as women continue to take time out of the labour market or are unable to work in occupations that involve long hours, we might expect some persistence in occupational segregation and consequently the between-occupational gender pay gap will remain.

Of course, there may also be important gender differences in other non-pay aspects of work intensity which have changed over time. Differences in the occupational distributions of men and women could account for any differences in their work intensity, but if female wages grow more slowly than those of men within occupations, then perhaps women are compensated by having lower work intensity, on average. Contrariwise, work intensity might be relatively higher for women as a consequence of women having less flexibility in the labour market based on monopsony explanations, see Manning (2005). Research by Gorman and Kmec (2007) supports this hypothesis since they show that in 1997 and 2001 US and UK women reported higher levels of working very hard vis-à-vis their male counterparts. Moreover, the gender differences they observed could not be completely accounted for by differences in job characteristics, family commitments or individual characteristics, and consequently the authors attribute the residual to imposition of stricter employment standards on women than for men. If these low quality jobs are also low paid, we might expect the

gender work intensity differential to fall over time in the same way as the gender pay differential has fallen.

The main aim of this paper is to document gender differences in different aspects of work intensity, before investigating how each of these relate to the recent closing of gender pay gap. The paper extends the ideas in Purcell et al. (2006) and Goldin (2014) by looking within occupations, as well as extending their ideas to a variety of work intensity measures. The next section starts by documenting the evolution of gender differences in earnings and work intensity over time, whilst section 3 investigates the role of potential underlying drivers of pay and work intensity gaps, such as differences in educational attainment, skill use and occupations. Section 4 estimates the financial returns to different aspects of work intensity, whilst in section 5 we look for potential explanations of between-occupational gender differences in working to tight deadlines. In section 6, we track within-occupational changes in gender gaps in pay, working very hard and working at high speed over time. The final section concludes.

2. Gender Differences in Pay, Work Intensity and Human Capital.

In order to document gender differences in pay and work intensity over time, data are drawn from the Skills Employment Survey (SES), formerly known as the UK Skills Survey, for workers aged 20-60. The SES contain seven cross sectional surveys spanning 1987 to 2012. Hourly earnings are used rather than weekly earnings since these are closer than to those found in the Quarterly Labour Force Survey (QLFS) which is a nationally representative dataset.[3] These are deflated to 1997 prices using the RPI. Pooling the 1997, 2001, 2006 and 2012 SES provides data on 8523 men and 8497 women overall, but this falls to 6484 and 4181 workers respectively when we restrict the sample to full time workers with earnings information.[4] The samples for the work intensity equations contain both full time and part time workers since the aim is to document gender differences in the quality of all jobs. The

[3] For example the average hourly pay of men (women) in 2012 was 14.32 (12.46) compared to the 2012 QLFS of 15.87 (12.79). For weekly earnings these were 620.63 (582.44) from the 2012 Skills Survey and 650.16 (485.48) from the 2012 QLFS.

[4] The data contains about 11 % of workers that class themselves as self-employed. Sample weights are used throughout the analysis to ensure that the sample is nationally representative according to the standard socio economic categories as checked by comparison with the QLFS.

wage sample is restricted to full time workers in order to provide female counterfactual wages (or prices of jobs) that are comparable to those of men.

To measure gender differences in work intensity five self-reported variables are used. The first is a binary measure capturing whether the respondent regularly works longer than 48 hours per week. The second two variables capture general work intensity based on working very hard and working under a great deal of tension. These are binary variables that equal one for those who strongly agree that their job requires they work very hard and one for those who agree or strongly agree that their jobs requires they work under a great deal of tension.[5] The final two capture the requirement to work at high speed or to tight deadlines. Again these are binary variables equal to one for those who reported working under these conditions more than three quarters of the time.[6] To capture task discretion we use a task discretion index.[7]

Table A1 in the appendix shows the overlap between the various work intensity measures. Overall this table suggests that the work intensity measures are capturing different aspects of job quality. Working to tight deadlines and working at high speed quite similar to each other. However, 78 % of workers who reported working at high speed also reported working to tight deadlines, whilst only 56 % of workers reporting working to tight deadlines also reported working at high speed. Around a quarter of full time workers reporting high work intensity (from working very hard, at high speed, to tight deadlines or under a great deal of tension) also reported working long hours.

Table 1 shows average gross hourly pay, as well as the proportion of all workers reporting high work intensity (low job quality) and task discretion by gender over time. We start in

[5] The unweighted distribution for working hard (under a great deal of tension) is; strongly agree: 42.46 (20.90), agree: 48.28 (37.70), disagree: 8.73(35.65) and strongly disagree: 0.54 (5.74) percent.

[6] The unweighted distribution for working at high speed (to tight deadlines) is; all of the time: 9.84 (20.57), almost all the of time: 16.41 (22.41), 3/4 of the time: 12.32 (10.44), 1/2 of the time: 20.94 (15.13), 1/4 of the time: 16.13 (11.69), almost never: 17.14 (12.35) and never: 7.22 (7.41) percent.

[7] The task discretion index is the mean score for four discretion variables which take values between 0 and 3, with 3 indicating the highest level of discretion enjoyed. These are (1) how much influence do you personally have on how hard you work; (2) how much influence do you personally have on deciding what tasks you are to do; (3) how much influence do you personally have on deciding how you are to do the task; (4) how much influence do you personally have deciding the quality standards to which you work.

1997, though some of the job quality variables were only collected from 2001 onwards. The first row shows that the mean real gross hourly pay for men was £9.17 in 2012 compared to £8.24 for women, where this differential is statistically significant at the 5 % level. Table 1 also shows that the average change over the period for men was only 97 pence, whilst for women it was £1.36, though these changes were not statistically different for men and women.

Generally, more men report working long hours, though this has fallen over time. However, more women than men reported working very hard, which supports the findings of Gorman and Kmec (2007) who find the same for 2001,[8] although this differential has not changed over time. Women tend to report lower levels of task discretion than men, where the gender differential is statistically insignificant in 2012. Overall, the mean of the task discretion index has fallen over time, though more so for men relative to women. The gender differential for working under a great deal of tension is also not statistically significant after 2001.

Working at high speed and to tight deadlines are both facets of working very hard, yet more women reported working at high speed (42.51 % compared to 37.29 for men in 2012) and less said they are working to tight deadlines (60.52 for men compared to 54.12 for women in 2012). This suggests fundamental gender differences exist within the work intensity measures which are not captured in Gorman and Kmec (2007). In terms of changes over time, the proportion of women reporting that their job requires them to work very hard and work to tight deadlines has increased over time, but the final column shows that only the increase in working to tight deadlines is significantly different to those for men.

The gender differences in pay and work intensity observed so far could be a consequence of gender differences in qualifications and skills. Consequently, Table 2 compares the highest qualifications and skill use of men and women. Qualifications are measured using highest National Vocational Qualification (NVQ), where level 4/5 contains graduates. The skill use variables are derived from a whole range of questions asking respondents how important

[8] Gorman and Kmec (2007) found 37.26 % of men and 40.88 % of women strongly agreed that their job required they worked very hard in 2001.

various tasks are in their job. These are combined using factor analysis in Green (2012) to provide a number of skill-use variables, but only Numeracy, Literacy, Problem Solving and Professional Communication are used in this paper since these capture gender differences in the non-routine tasks thought to be complementary to technical change, see Lindley (2012).[9] Again following Green (2012) computer use complexity is also included to look for differences in technological skills.[10]

Overall Table 2 shows that the education levels of men and women have increased over time to the extent that the gender gap in the proportion of graduates has completely closed. Across the rest of the educational distribution, the proportion of NVQ level 2 workers is higher for women, whilst the proportion of women with NVQ level 1 or less is lower than for men. Men are doing worse in terms of there being slightly more of them at the bottom of the educational distribution but no more of them at the top. Table A3 in the appendix uses the QLFS over a similar time period to show a relative increase in both the proportion of graduates (2.60 percent) and postgraduates (1.56 percent) for women vis-à-vis men, with a relative decline in women with no qualifications (-5.56 percent). This supports the findings of Lindley and Machin (2012).

In terms of skills used in the job, the lower panel of Table 2 shows that men report higher levels of numeracy, problem solving and computer use complexity, with the gaps remaining fairly constant over time. Women have higher levels of literacy (but only since 2012). There is no statistical difference in the percentage of men and women who report having professional communication skills in 2012. Therefore, despite the worsening position of men in terms of their relative educational attainment, men still reported using higher levels of

[9] The task questions are based on the question `how important is each task in performing your job?' The potential answers are 1 "Not at all important" 2 "Not very important" 3 "Fairly important" 4 "Very important" 5 "Essential". Green (2012) uses 32 job tasks to generate 8 specific measures of tasks by averaging the scores of the component tasks. Table A2 in the Appendix provides detailed descriptions of these task measures used in this paper.

[10] Computer use complexity consists of four categories: `none' `simple', `moderate' and `complex' use. Individuals are asked which of these four measures best describes the use of computers or computerised equipment in their jobs. Simple computer use consists of straightforward use (eg printing out an invoice in a shop) whereas moderate computer use is for example word processing/spreadsheets or email. Complex computer use involves analysis or design, statistical analysis and programming.

numeracy, problem solving and computer use complexity in their jobs in 2012. This suggests that there is still a significant difference in the jobs that men and women do.

Table 3 presents the one digit occupational distribution of employment by gender using both the SES (1997 and 2012) and the QLFS (1997 and 2010).[11] Overall both datasets show that the occupational distributions of men and women consistenty differ. Men are more likely than women to be Managers and Senior Officials or employed in Skilled Trades or Process, Plant and Machine jobs. Women are more likely than men to be in Adminstrative & Secretarial, Personal Services and Sales & Customer Service jobs. However more of the gender differences in the changes over time that are displayed in the final column are statistically significant in the QLFS relative to the SES. Of course this is a consequence of more reliable sample sizes and consequently we use the QLFS later on in the paper when we calculate occupational level employment shifts and within-occupation wage changes.

Overall Panel (b) in Table 3 shows clear evidence of female occupational desegregtion. But note that the proprtion of women in Elementary occupations has fallen by 1.9 percent, whilst it has inreased only for men by 0.57 percent. Also the proprtion of women in Professional occupations has increased by 3.7 percent, compared to a smaller increase of 1.8 % for men. Research by Goos and Manning (2007) found that UK job growth between 1979 and 1999 mainly occurred in low paid service sector jobs and for high paid Managers and Professionals. A similar pattern of job growth appears here, although gender differences are also apparent since it is only men that have increased their employment shares in Elementary occupations.

3. Explaining Gender Differences in Pay and Work Intensity.

[11] We are constrained to use the QLFS 1997 to 2010 because of changes in the standard occupational codes. We were only able to provide a consistent time series by concording definitions up to 2010. Any attempt to concord beyond 2010 would significantly reduce the number of occupations we could analyse later on in the paper.

To understand the drivers of the statistically significant gender differentials observed in Table 1 we estimate the following equation using Ordinary Least Squares (OLS)

$$Y_{it} = \alpha + \beta G_{it} + \mathbf{X}_{it}\Gamma + \varepsilon_{it} \quad (1)$$

where Y_{it} captures log hourly wages, working long hours, working very hard, working at high speed and working to tight deadlines, for worker i at time t. Hence we estimate equation (1) five times using these five dependent variables. G_{it} is a dichotomous variable which takes the value of 1 if the respondent is female and zero otherwise. We start with the raw gender differentials and sequentially add extra controls to the **X** vector. These include the potential drivers discussed in Tables 2 and 3, as well as the respondent's age in years. We start by controlling for age and highest educational qualifications, we then additionally include skill use intensity and finally we add controls for 71 three digit occupations.

The first three dependent variables in Table 4 are observed between 1997 and 2012, whilst the bottom two are observed only between 2001 and 2012. The first and second columns in Table 4 show that female pay was 0.075 log points (7.8 percent) lower than male pay on average in 2012 compared to 0.165 log points (17.9 percent) lower in 1997. This implies a fall of 9 % which is statistically significant. The proportion of men working longer hours was also higher than that for women but the gap has closed slightly since 1997. For work intensity, the proportion of women reporting working very hard and at high speed was 8 and 5 % higher respectively, than that for men in 2012. The proportion of women reporting working to tight deadlines was 6 % lower than men in 2012.

In the third and fourth columns in Table 4 we can see that controlling for age and highest qualification makes little difference to most of the raw gender differentials we observe, with hourly pay in 2012 being the exception. Controlling for highest NVQ increases the gender pay differential in 2012 from 0.075 to 0.107. This suggests that gender differences in age and qualifications were working in favour of men rather than women, although the differential falls to 0.072 once we condition on occupation in the final column.

Additionally controlling for skill use (in Column 6) reduces the 2012 conditional gender differential for hourly pay, working long hours and working to tight deadlines. These are all outcomes where the gender differential is negative (since women earn less than men and also report lower levels of working long hours and working to tight deadlines). In contrast, controlling for skill use increases the 2012 gender differential for working very hard and working at high speed (where women report higher levels than men).

The eighth column shows that the within-occupation gender pay differential is 0.072 log points.[12] Therefore the between-occupation is 0.031 log points (3 percent).[13] This implies that around 30 % of the most recently measured conditional gender pay differential (0.031 of the 0.103 in 2012) can be accounted for by differences in occupations. Around half of the 2012 working long hours gender differential is between occupations (since additionally controlling for occupations implies this falls from -0.095 to -0.045), whilst all of the working to tight deadlines gender differential is between occupations. Conversely the gender differential for working at high speed remains largely unchanged, even after controlling for occupations. When women report higher levels of working at high speed vis-à-vis men, this differential exists within occupations. Contrariwise, when more men report higher levels of working to tight deadlines vis-à-vis women, this is mainly a consequence of differences in their occupational distributions.[14] The `working very hard' gender differential also remains significant after conditioning on occupations. In terms of changes over time, only the gender pay gap has closed over the period. Gender differences in working long hours, working very hard and working at high speed appear entrenched, since they have remained fairly similar over time. Additionally controlling for one digit sector makes very little difference to these results.[15]

4. Financial Returns to Work Intensity.

[12] Additionally controlling for one digit industry makes little differences to this estimates (standard errors) which were -0.133 (0.026) in 1997 and -0.076 (0.026) in 2012.
[13] Since 0.103 – 0.072 = 0.031 log points.
[14] Controlling for one digit industry makes little differences to these estimates (standard errors) which were 0.087 (0.024) in 1997 and 0.106 (0.032) in 2012 for working at high speed, whilst they were 0.001 (0.024) in 1997 and 0.033 (0.031) in 2012 for working to tight deadlines.
[15] Additionally controlling for one digit sector provides 2012 gender differentials (standard errors) of -0.076 (0.026) for pay, -0.044(0.024) for long hours, 0.086(0.030) for working hard, 0.106 (0.032) for working at high speed and 0.033(0.031) for working to tight deadlines.

Given that women report higher levels of working very hard and at high speed, whilst they report lower levels for working long hours and to tight deadlines, one might want to compare the financial returns associated with these alternative measures of work intensity. We therefore estimate the following Mincerian wage equation by OLS, separately for men and women;

$$Y_{it} = \alpha + \beta_1 LH_{it} + \beta_2 VH_{it} + \beta_3 HS_{it} + \beta_4 TD_{it} + \mathbf{X}_{it}\Gamma + \varepsilon_{it} \quad (2)$$

where Y_{it} is the real log hourly wage of worker *i* at time *t* and LH_{it} is a binary variable that equals one for workers who report regularly working over 48 hours per week and zero otherwise. VH_{it} is a binary variable that equals one for workers who strongly agree that their job requires they work very hard. Similarly, HS_{it} and TD_{it} are binary variables that equal one if worker *i* at time *t* reports that their job requires them to work at high speed or to tight deadlines more than three quarters of the time. ε_{it} is the error term. Controls for age, highest qualifications, skill use and three digit occupation are sequentially included in the vector **X**. Equation (2) is estimated separately by gender, but also by year.

Overall, Table 5 shows that, contrary to Goldin's (2014) findings for the US, working long hours does not incur the highest pay reward in the UK, although Goldin measures long hours continuously whereas we measure it as working over 48 hours per week. It is `working to tight deadlines' that provides the highest average pay premium, even after conditioning on human capital and skills. Moreover, this wage return is both entrenched over time and the same for men and women, at about 10 % after conditioning on occupational differences in 2012. Notice also that the 2012 between-occupational pay differential for working to tight deadlines is 0.057 log points (0.149-0.092) for women, where it is zero for men (0.097-0.096), again supporting the findings in Table 4. In short, Table 5 shows that differences in the occupational distributions of men and women account for women being less likely to work to tight deadlines, and that it is working to tight deadlines (rather than long hours) that provide the largest labour market rewards.

The results from the first part of the paper suggest that different facets of work intensity capture different aspects of job quality. Working to tight deadlines is compensated by higher pay and gender differences are between occupations, whereas working very hard and at high speed are associated with lower pay, and gender differences are largely within occupations. Also, women are significantly less likely to be employed in Managerial roles, than men. Therefore in the next section we will look for potential explanations of between-occupational gender differences in working to tight deadlines.

5. Explaining Between-Occupational Gender Differences in Working to Tight Deadlines.

Table A4 in the Appendix shows the top and bottom quintile jobs when we rank three digit occupations by their mean `Working to Tight Deadlines' using the 2001, 2006 and 2012 SES. The occupations that demonstrate the highest values for working to tight deadlines are largely managerial and professional, but not exclusively. Contrariwise in Table A5 we rank occupations by the median weekly wage over a similar period using the QLFS. The highest paid occupations are now clearly all managerial and professional. The occupations with the lowest percentages of workers reporting working to tight deadlines are mainly elementary jobs, which are also largely the lowest paid. `Food preparation trades' is a special case because it is both the eleventh lowest paid occupation and the eleventh highest in terms of working to tight deadlines. The Spearman Rank correlation coefficient [P-Value] between mean working to tight deadlines and median wages is 0.644 [0.000], which is suggestive of significantly positively correlated occupational rankings.[16]

We now match our 2001, 2006 and 2012 SES data for our 71 consistently defined occupations by year to the same in the QLFS. As well as providing nationally representative data and being much larger than the SES, the QLFS also provides more detailed information on human capital. This allows us to generate separate employment shares for university graduates (with a first degree only) and postgraduates, as well employment shares for 13 first degree subjects. We estimate the following equation by OLS:

[16] This compares with Spearman Rank correlation coefficients [P-Values] for correlations with median wages of -0.034 [0.777] for working at high speed, 0.248 [0.038] for working very hard and 0.613 [0.0000] for hours of work.

$$TD_{jt} = \alpha + \beta_1 FS_{jt} + \mathbf{X}_{jt}\Gamma + \gamma_t + \varepsilon_{it} \quad (3)$$

where TD is the mean of the log of the working to tight deadlines (as presented in Table A4), whilst FS is the female employment share for occupation *j* at time *t*. $\mathbf{X}_{jt}$ is a vector of human capital and socio-economic characteristics by occupation that are likely to explain gender differences in working to tight deadlines. Equation (3) is built up sequentially to evaluate the effect of controlling for additional occupational characteristics on the female employment share's coefficient.

Of course, one further advantage of estimating occupation level equations is that we can instrument the occupational female share in 2001, 2006 and 2010 using a shift share instrument based on the 1994 female employment share.[17] The rationale for this instrument is as follows. If during the sample period, women are more likely to work in professions that were previously female intensive, then the occupational level female employment share in 1994 will be correlated with that in 2001, 2006 and 2010. This would require some degree of persistence in gender occupational segregation. For the instrument to be valid we must also assume that the female employment share in 1994 is not correlated with occupational level working to tight deadlines during the sample period, over and above its correlation with the 2001, 2006 and 2010 female employment shares. This idea is based on the supply-push instrument typically used to analyse the effect of immigration on regional level wages, see Altonji and Card (1991).

The results for equation (3) are presented in Table 6. The first column confirms our worker level evidence presented earlier using the SES. We find that the female occupational employment share is negatively correlated with working to tight deadlines, but also that the share of working to tight deadlines has increased over time. The second column reports the IV estimates. The F-statistic measuring the predictive power of the instrument in the first

[17] This is the 1994 share of women in each occupation multiplied by the change in the annual female share or $\left[\frac{FE_{jt=1994}}{E_{jt=1994}}\right]$ x $\left[\Delta\frac{FE_t}{E_t}\right]$, where FE_{jt} is female employment and E_{jt} is total employment in occupation *j* in year *t*.

stage is 790.11, which is statistically significant at the 1 % level. The IV estimate is very similar to the OLS estimate suggesting a small endogeneity bias. Nevertheless, we continue to present the IV estimates over the next three columns. The third column controls for occupational differences in human capital and family characteristics. As expected the parameter on the female share falls from -0.234 to -0.186. The largest driver of occupational levels of working to tight deadlines is the mean number of children amongst the workers in that occupation. So the having a large proportion of workers with children is negatively correlated with levels of working to tight deadlines, whilst having a large proportion that are married is positively correlated. Not surprisingly, having a higher share of university graduates (though not postgraduates) is positively correlated with higher levels of working to tight deadlines.

The fourth column in Table 6 replaces the occupational employment share of university graduates with the employment shares by subject of university degree. The parameter on the female share becomes even more negative (-0.199) suggesting that within degree subjects the female share of working to tight deadlines actually becomes even lower (the between-subjects gender parameter is 0.013). So differences in the first degree subjects of men and women help to close the gender gap in working to tight deadlines. That is, women are over-represented in the degree subjects that are the most correlated with high working to tight deadline jobs. These are Medical Related, Physical/Environmental Science, Law, Arts/Humanities, Education and Combined degrees.

The final column additionally controls for one digit sectoral shares and these completely account for the statistical significance of the female share variable. This is consistent with a story of gender sectoral segregation. Occupations that report higher levels of working to tight deadlines are over-represented in sectors where managerial and professional women are under-represented. For example, the Education sector (-0.402) has a lower share of occupations that report working to tight deadlines (although the Education graduate share is larger at 2.439), whereas Manufacturing (0.416), Construction (0.318) and Finance (0.323) all have a higher share of these occupations. This suggest that women are under-represented in sectors that have more of these high pressured occupations, even after conditioning on differences in the distribution of their degree subjects. The final column also shows that

within sectors, graduates of Medical Related degrees (which are mainly nurses), Law degrees, Arts/Humanities degrees, Education degrees and Combined degrees are also more likely to be employed in the occupations that report higher levels of working to tight deadlines.

6. Explaining the fall in the Within-Occupational Gender Pay Gap over the Life Cycle.

Table 4 showed that 70 % of the gender pay differential remained after conditioning on occupations in 2012. Moreover, when women report higher work intensity than men (through the requirement to work very hard or at high speed), this gender difference is largely accounted for by within occupation differences. We therefore look at how pay and work intensity gaps evolve over the life cycle. Manning and Swaffield (2008) used panel data to explain changes in the gender pay gap in early career. They found no evidence of a gender pay gap at the point of labour market entry and thus attribute the overall gap to be a consequence of differential growth (this is around 25 % after 10 years). Purcell et al. (2006) found the same result for some graduates, after 7 years in the labour market. We therefore look for similar earnings and work intensity patterns across different age cohorts.

Figure 1 plots the conditional gender pay gap by age using the 1997/8 and 2010/11 QLFS for a sample of full time workers age 20 to 60. The gender pay gap is conditional on highest qualification, job tenure and three digit occupation. The data in Figure 1 are smoothed using a moving average filter and overall show differential growth which is much flatter after around age 35 for the more recent data. The unsmoothed conditional gender pay differential (standard error) across all workers is -0.162 (0.004) in 1997 and -0.119 (0.006) in 2010 which are slightly larger than those found using the Skills Survey.[18] In 1997 the unsmoothed conditional gender pay differential (standard error) for workers age 20 (born in 1977) is statistically insignificant at -0.055 (0.034). It remains so until age 23 when the differential (standard error) becomes statistically significant at -0.063 (0.019). In 2010 the unsmoothed conditional gender pay differential (standard error) for workers age 20 (born in 1990) is positive but also statistically insignificant at 0.15 (0.085) and becomes negative and

[18] Conditioning on highest qualifications and three digit occupation (but not job tenure or skill use) provides a gender pay differential (standard error) of -0.149 (0.026) and -0.079 (0.027) using the 1997 and 2012 skills surveys.

statistically significant at age 27 when it is -0.073 (0.032). Clearly this supports the existing empirical evidence. However, we have shown that the differential has fallen over time. In 2010/11 the gap stopped growing after age 35, whereas in 1997/98 it continued to grow for workers aged over 35. This could be a consequence of changes in any of the drivers discussed by Manning and Swaffield (2008), including increases in female post-compulsory human capital acquisition, less job shopping and/or a fall in gender discrimination.[19]

In Figure 2 we pool the 1997-2012 SES to plot the conditional gender differential for working very hard and working at high speed by age. Again the parameter estimates are smoothed using a moving average filter. The unsmoothed differentials (standard errors) across the full sample are 0.080 (0.012) and 0.073 (0.011) respectively. The prima-facie evidence from Figure 2 indicates that the gender work intensity gap is fairly similar, regardless of whether working very hard or working at high speed are used, with some evidence of long term differential growth. However the unsmoothed gender gap (standard error) at age 20 is 0.199 (0.080) for working very hard which is statistically significant, whereas the gender gap (standard error) for working at high speed is 0.081 (0.071) which does not become statistically significant until age 33 when it is 0.171 (0.071). Akin to the gender pay gap, there is no gender differential at the point of labour market entry for working at high speed. This is not the case for working very hard, which is consistently higher for women relative to men across all ages (although these are not exactly the same women observed over time since this is an unbalanced pseudo-panel). Again the differential growth in both pay and work intensity (as measured by working at high speed) is within occupations and thus suggests disadvantage and potentially discrimination at the worker or firm level.[20]

7. Concluding Comments.

[19] In the absence of panel data that would provide sufficient sample sizes, we cannot further investigate the potential drivers of this differential wage growth here.

[20] Of course this unexplained element of the gender pay differential also contains other unobservable characteristic differences between men and women, including any systematic differences in the interpretation of the work intensity questions. For example, women might report higher levels of work intensity, on average, if they are tired as a consequence of greater domestic responsibilities. Experimental and field research supports this idea, since Meijman et al. (1986) find that individuals report greater required effort at the end of long work shifts relative to the beginning.

Our analyses suggest that the relative economic circumstances of UK working women has improved between 1997 and 2012. The average gender pay gap fell from 14.8 % in 1997 to 7.5 % in 2012, after conditioning on changes in age, highest qualifications, skill use and occupations.[21] Women report higher levels of working very hard and working to high speed, but lower levels of working to tight deadlines vis-à-vis men. But it is clear that these work intensity measures capture completely different facets of job quality. Working to tight deadlines displays a compensated wage differential (even after conditioning on occupations) for both men and women, whilst working at high speed involves a pay penalty (though only for women).

When women report higher levels of working very hard and working at high speed these differences are mostly within occupations but they are also fairly entrenched over time. Given that working at high speed involves a pay penalty (even after controlling for differences in education, industries and occupations), this is indicative of poorer job quality for women which can arise from the existence of monopsony in labour markets, see Manning (2005). Hence women are more likely (than men) to be employed within the same occupations and still be relatively lower paid, as well as being required to work at high speed, as a consequence of immobility that arises from lower flexibility (from family commitments and child rearing) and employer discrimination.

When women report lower levels of working to tight deadlines the difference is largely between occupations. On average, the highest paid `lovely' jobs are also high pressured in that workers in these jobs also report the highest levels of working to tight deadlines. Of course there are likely to be special cases, like for example food preparation which is both low paid and involves working to tight deadlines, although variations around any mean are always to be expected. Women are less likely to be employed in these high pressured jobs because they are associated with a lower share of workers with children, but these characteristics, alongside differences in degree subjects, cannot fully account for female under-representation in these jobs. It is only when we condition on the sectoral distribution of these occupations that we can understand why women are less likely to work in jobs that

[21] This is calculated from $e^{0.138} - 1 = 0.148$ for 1997 and $e^{0.072} - 1 = 0.075$ for 2012 from Table 4.

require working to tight deadlines, most notably by the over-representation of these jobs in Manufacturing, Construction and Finance.

Finally, the paper finds differential growth for wages and work intensity (measured by working at high speed) for men and women within occupations, which suggests that unexplained poorer job quality for women emerges over the lifecycle. Again this is indicative of monopsonistic labour markets, whereby women employed in the same occupations as men are still relatively lower paid and experience poorer job quality, as a consequence of their lower mobility, which arise as a consequence of age-dependent family ties. So women are still over-represented in the lousy jobs and the disadvantage remains largely unexplained. This disadvantage is likely to occur as a consequence of demand side factors that include employer discrimination, although the situation has improved substantially during the 2000s.

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Figure 1: The Conditional Gender Log Hourly Pay Differential by Age, 1997 and 2010.

Notes: Using the QLFS 1997/8 and 2010/11 for full time workers age between 20 and 60. Job tenure is measured using four dummies: one year, 2-5 years, 5-10 years and over 10 years employment with current employer. The default is less than one year.

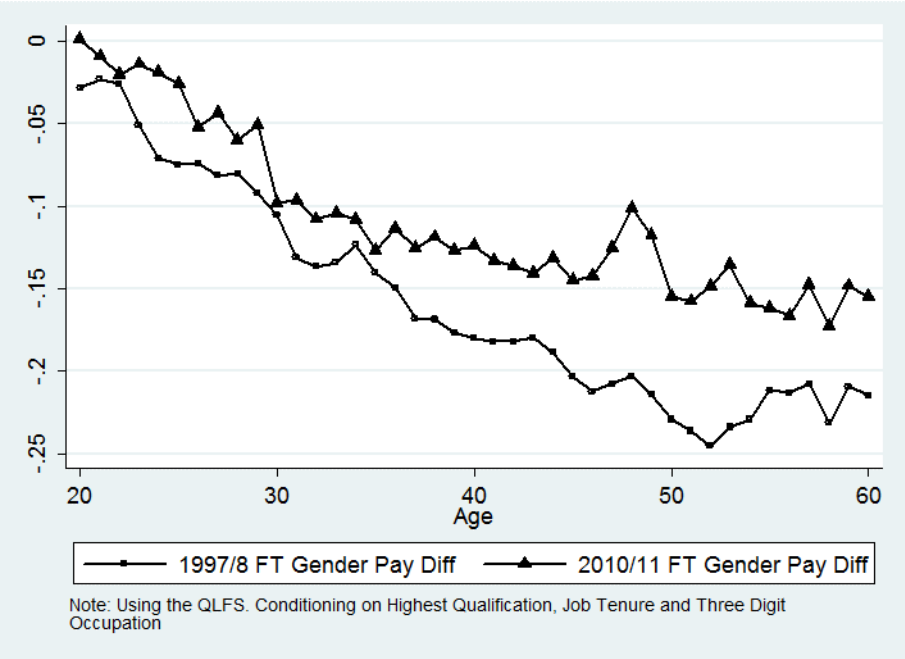
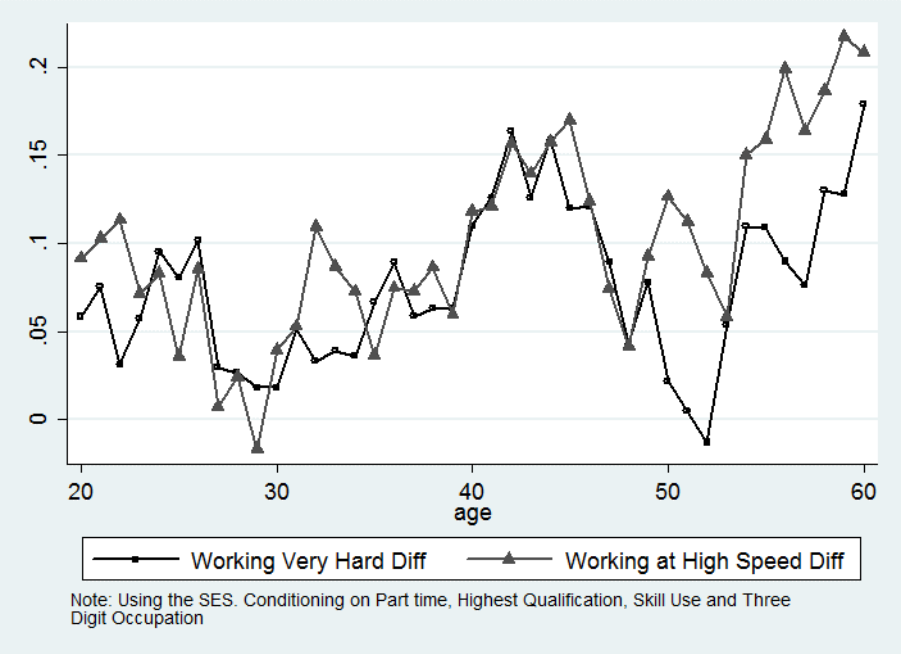


Figure 2: The Conditional Gender Differential for Job Requires Working Very Hard and at High Speed by Age, 1997-2012.



Notes: Using the SES1997-2012 for workers age between 20 and 60.

Table1: Earnings and Work Intensity Measures by Gender.

	Men					Women					Difference in Difference
	1997	**2001**	**2006**	**2012**	**2012-1997**	**1997**	**2001**	**2006**	**2012**	**2012-1997**	
Mean Full Time Gross Hourly Pay in £[A]	8.21	10.02	10.51	9.17	0.967* (0.316)	6.88[$]	7.71[$]	8.80[$]	8.24[$]	1.359* (0.315)	0.391 (0.446)
Percentage Working Long Hours (Over 48 Hours per Week)[B]	32.71	30.40	23.41	22.13	-10.574* (2.073)	12.95[$]	11.73[$]	10.99[$]	11.51[$]	-1.438 (2.165)	9.136* (2.998)
Percentage Who Strongly Agree that Job Requires Working Very Hard	38.58	37.04	39.21	41.52	2.939 (2.203)	43.03[$]	41.17[$]	45.24[$]	49.55[$]	6.516* (2.279)	3.578 (3.170)
Percentage Almost All the Time: Job Requires Working at High Speed	-	35.38	34.72	37.29	1.914 (1.998)	-	41.98[$]	41.03[$]	42.51[$]	0.524 (1.989)	-1.390 (2.820)
Percentage Almost All the Time: Job Requires Working to Tight Deadlines	-	57.71	57.80	60.52	2.811 (2.011)	-	46.07[$]	50.72[$]	54.12[$]	8.044* (1.996)	5.233** (2.833)
Percentage Who Agree that Work Under a Great Deal of Tension	-	59.99	59.20	60.17	0.184 (2.011)	-	56.75[$$]	57.94	56.78	0.027 (1.994)	-0.157 (2.833)
Mean Task Discretion Index	2.34	2.26	2.27	2.22	-0.111* (0.029)	2.29	2.21[$]	2.21[$]	2.27	-0.018 (0.302)	0.093* (0.042)
N	1274	2187	3699	1363		1149	2052	3711	1585		

Notes: Using the SES for workers age 20-60. **A** sample sizes for full time workers with earnings are 1073, 1878, 2551, 982 for men and 610, 1110, 1671, 790 for Women. **B** sample sizes for full time workers are 1191, 2033, 3415, 1173 for men and 650, 1206, 2225, 889 for Women. All estimates are weighted using person weights. Standard errors are in parentheses. Where [$] ([$$]) denotes statistically significant from men at the 5 (10) % level, whilst * (**) denotes statistically significant at the 5 (10) % level for changes over time and differences in changes over time. The difference-in-difference column is column 5 subtracted from column 10.

Table 2: Mean Qualifications and Skill Use by Gender.

	Men					Women					Difference in Difference
	1997	**2001**	**2006**	**2012**	**2012-1997**	**1997**	**2001**	**2006**	**2012**	**2012-1997**	
Highest Qualification Level :											
NVQ Level 4/5	28.43	33.99	36.88	42.32	13.89*	24.37$	31.09	38.01	44.00	19.63*	5.74**
					(2.17)					(2.13)	(3.04)
NVQ Level 3	20.59	27.18	26.07	24.14	3.54**	15.00$	18.95$	20.98$	20.57$	5.56*	2.02
					(1.87)					(1.75)	(1.26)
NVQ Level 2	25.43	16.88	15.65	16.24	-9.19*	32.91$	26.91$	23.33$	22.09$	-10.82*	-1.63
					(1.80)					(1.99)	(2.69)
NVQ Level 1	8.59	9.88	10.48	11.20	2.61**	8.13	8.91	8.91$$	8.01$	-0.12	-2.74
					(1.40)					(1.32)	(1.92)
No Qualifications	16.96	12.06	10.92	6.11	-10.85*	19.59	14.15$	8.77$	5.34	-14.25*	-3.40**
					(1.38)					(1.41)	(1.98)
	100%	100%	100%	100%		100%	100%	100%	100%		
Skill Use:											
Numeracy	1.98	2.13	2.10	2.16	0.172*	1.58$	1.68$	1.74$	1.79$	0.207*	0.035
					(0.059)					(0.059)	(0.083)
Literacy	2.41	2.54	2.59	2.53	0.118*	2.36	2.48	2.64	2.67$	0.310*	0.193*
					(0.051)					(0.055)	(0.075)
Problem Solving	2.87	2.96	2.97	2.91	0.045	2.57$	2.63$	2.71$	2.64$	0.063	0.018
					(0.045)					(0.048)	(0.066)
Professional Communication	2.12	2.19	2.26	2.30	0.186*	1.99$	2.11$	2.28	2.30	0.305*	0.119**
					(0.043)					(0.045)	(0.062)
Computer Use Complexity	1.39	1.63	1.73	1.85	0.448*	1.23$	1.43$	1.59$	1.69$	0.462*	0.014
					(0.056)					(0.047)	(0.073)
N	1274	2187	3699	1363		1149	2052	3711	1585		

Notes: Using the SES for workers age 20-60. All estimates are weighted using person weights. Standard errors are in parentheses. Where $ ($$) denotes statistically significant from men at the 5 (10) % level, whilst * (**) denotes statistically significant at the 5 (10) % level for changes over time and differences in changes over time.

Table 3: Gender Differences in the Occupational Distribution of Workers.

a) SES 1997-2012

One Digit SOC:	**Men**			**Women**			**Diff-in-Diff**
	1997	**2012**	**Change**	**1997**	**2012**	**Change**	
Managers and Senior Officials	17.06	19.79	2.731 (1.758)	9.68$	12.58$	2.903** (1.580)	0.173 (2.363)
Professional Occupations	13.61	13.14	-0.462 (1.549)	10.50$	13.45	2.951* (1.481)	3.413 (2.143)
Associate Prof and Technical	12.08	16.04	3.956* (1.564)	11.56	18.91$$	7.346* (1.598)	3.390 (2.235)
Adminstrative and Secretarial	7.79	4.85	-2.933* (1.112)	20.65$	14.79$	-5.863* (1.703)	-2.929 (2.034)
Skilled Trades	21.45	18.55	-2.895 (1.771)	2.81$	2.30$	-0.508 (0.655)	2.387 (1.887)
Personal Service Occupations	1.77	2.25	0.485 (0.569)	10.46$	14.45$	3.989* (1.382)	3.505* (1.505)
Sales & Customer Service	3.38	3.87	0.489 (0.978)	14.01$	9.99$	-4.103* (1.498)	-4.502* (1.789)
Process, Plant and Machine	14.26	11.13	-3.123* (1.430)	4.49$	2.01$	-2.482* (0.853)	0.641 (1.665)
Elementary Occupations	8.62	10.37	1.754 (1.420)	15.84$	11.52	-4.323* (1.618)	-6.077* (2.153)
N	1274	1363		1149	1585		

b) QLFS 1997-2010

One Digit SOC:	**Men**			**Women**			**Diff-in-Diff**
	1997	**2010**	**Change**	**1997**	**2010**	**Change**	
Managers & Senior Officials	19.56	19.34	-0.226 (0.179)	11.09$	12.27$	1.186* (0.151)	1.412* (0.234)
Professional Occupations	13.38	15.19	1.8083* (0.161)	10.36$	14.07$	3.711* (0.155)	1.903* (0.224)
Associate Prof and Technical	11.87	14.32	2.448* (0.157)	12.03	17.02$	4.984* (0.167)	2.536* (0.229)
Adminstrative & Secretarial	4.86	4.55	-0.304* (0.098)	26.16$	18.37$	-7.791* (0.193)	-7.487* (0.216)
Skilled Trades	20.83	18.12	-2.714* (0.178)	2.51$	1.78$	-0.729* (0.067)	1.986* (0.190)
Personal Service Occupations	1.75	2.62	0.874* (0.068)	12.41$	15.85$	3.440* (0.165)	2.566* (0.178)
Sales & Customer Service	2.95	4.32	1.374* (0.091)	9.46$	9.10$	-0.358* (0.138)	1.733* (0.165)
Process, Plant & Machine	14.65	10.82	-3.810* (0.148)	4.24$	1.70$	-2.547* (0.076)	1.283* (0.166)
Elementary Occupations	10.14	10.71	0.571* (0.141)	11.74$	9.85$	-1.894* (0.145)	-2.465* (0.202)
N	121639	86290		108103	83563		

Notes: Using the SES and QLFS for workers age 20-60. All estimates are weighted using person weights. Where $ ($$) denotes statistically significant from men at the 5 % level. Standard errors are in parentheses where * (**) denotes statistically significant at the 5(10) % level. This is using the SOC 2000 definition of occupations.

Table 4: Gender Differentials for Earnings and Work Intensity, 1997/2001 and 2012.

	Raw Differential		Controlling for Age and HNVQ		Controlling for Age, HNVQ and Skill Use		Controlling for Age, HNVQ, Skill Use and Three Digit Occupation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1997	2012	1997	2012	1997	2012	1997	2012	2012-1997
Full Time Log Gross Hourly Pay	-0.165*	-0.075*	-0.157*	-0.107*	-0.174*	-0.103*	-0.138*	-0.072*	0.066**
	(0.027)	(0. 029)	(0.023)	(0.026)	(0.021)	(0.025)	(0.025)	(0.026)	(0.036)
Working Long Hours	-0.198*	-0.106*	-0.190*	-0.108*	-0.187*	-0.095*	-0.145*	-0.045*	0.100*
	(0.022)	(0.021)	(0.021)	(0.020)	(0.012)	(0.021)	(0.025)	(0.025)	(0.035)
Working Very Hard	0.045*	0.080*	0.051*	0.078*	0.060**	0.083*	0.071*	0.052*	-0.019
	(0.022)	(0.023)	(0.022)	(0.023)	(0.022)	(0.023)	(0.027)	(0.026)	(0.037)
	2001	2012	2001	2012	2001	2012	2001	2012	2012-2001
Working at High Speed	0.066*	0.052*	0.066*	0.059*	0.087*	0.075*	0.068*	0.071*	0.003
	(0.017)	(0.023)	(0.017)	(0.022)	(0.017)	(0.024)	(0.021)	(0.028)	(0.035)
Working to Tight Deadlines	-0.116*	-0.064*	-0.112*	-0.065*	-0.076*	-0.045**	-0.023	0.013	0.035
	(0.017)	(0.023)	(0.017)	(0.023)	(0.017)	(0.023)	(0.021)	(0.027)	(0.033)

Notes: Using the SES for workers age 20-60. All estimates are weighted using person weights. Standard errors in parentheses, where *(**) denotes statistically significant from men at the 5 (10) % level. Conditioning on eight age dummies, four HNVQ dummies, three skill use variables (numeracy, literacy, Professional Communication and problem solving), computer use complexity and three digit occupation.

Table 5: Financial Returns to Work Intensity by Gender, 2001 and 2012.

	(a) Men							(b) Women						
	Raw Differentials		Controlling for Age, HNVQ and Skill Use		Controlling for Age, HNVQ, Skill Use and Three Digit Occupation			Raw Differentials		Controlling for Age, HNVQ and Skill Use		Controlling for Age, HNVQ, Skill Use and Three Digit Occupation		
Working:	2001	2012	2001	2012	2001	2012	2012-2001	2001	2012	2001	2012	2001	2012	2012-2001
Long Hours	0.018	0.099**	-0.045	-0.053	-0.089*	0.054	0.143*	0.139*	0.049	-0.041	-0.057	-0.077	-0.148**	-0.070
	(0.035)	(0.056)	(0.030)	(0.043)	(0.032)	(0.043)	(0.053)	(0.059)	(0.092)	(0.054)	(0.084)	(0.056)	(0.085)	(0.101)
Very Hard	0.060**	0.071**	0.018	-0.004	0.010	-0.016	-0.026	0.069*	-0.002	0.028	-0.049	0.006	-0.039	-0.045
	(0.032)	(0.042)	(0.028)	(0.035)	(0.027)	(0.033)	(0.042)	(0.031)	(0.039)	(0.025)	(0.033)	(0.025)	(0.034)	(0.042)
High Speed	-0.142*	-0.111*	-0.073*	-0.035	-0.056**	-0.042	0.014	-0.013	-0.168*	0.018	-0.110*	0.048**	-0.054	-0.102*
	(0.036)	(0.046)	(0.032)	(0.037)	(0.031)	(0.034)	(0.045)	(0.032)	(0.044)	(0.029)	(0.040)	(0.027)	(0.036)	(0.045)
To Tight	0.122*	0.173*	0.052**	0.096*	0.032	0.097*	0.065	0.103*	0.238*	0.036	0.149*	0.022	0.092*	0.070
Deadlines	(0.032)	(0.042)	(0.028)	(0.034)	(0.027)	(0.036)	(0.044)	(0.031)	(0.042)	(0.029)	(0.038)	(0.029)	(0.035)	(0.029)
Intercept	2.036*	1.925*	1.106*	0.991*	2.379*	1.065*	--	1.816*	1.904*	1.075*	1.057*	1.911*	1.547*	-
	(0.023)	(0.037)	(0.062)	(0.089)	(0.445)	(0.119)		(0.026)	(0.034)	(0.069)	(0.084)	(0.158)	(0.133)	
N	1842	972	1842	972	1842	972		1110	776	1110	776	1110	776	

Notes: Using the SES for workers age 20-60. All estimates are weighted using person weights. Standard errors in parentheses, where *(**) denotes statistically significant from men at the 5 (10) % level. The dependant variable is real log hourly pay. Conditioning on eight age dummies, four HNVQ dummies, three skill use variables (numeracy, literacy, Professional Communication and problem solving), computer use complexity and three digit occupation.

Table 6: Occupational Level Equations for the Share of Workers Working to Tight Deadlines.

N = 213	OLS	IV	Additionally Controlling for Human Capital and Personal Characteristics	Additionally Controlling for Degree Subject Employment Shares	Additionally Controlling for Sector Employment Shares
Female Share	-0.235*(0.044)	-0.234*(0.049)	-0.186*(0.044)	-0.199*(0.048)	-0.028 (0.068)
2006	0.040 (0.029)	0.039(0.029)	0.059*(0.026)	0.088*(0.030)	0.074*(0.026)
2010	0.073*(0.029)	0.073*(0.029)	0.106*(0.030)	0.145*(0.037)	0.128*(0.033)
Mean Age			-0.017*(0.007)	-0.020*(0.007)	-0.008 (0.007)
Mean Children			-1.204*(0.251)	-1.278*(0.272)	-0.753*(0.248)
Married Share			1.058 *(0.269)	1.145*(0.297)	0.897*(0.259)
PG Share			-0.244**(0.127)	-0.905*(0.352)	-0.782*(0.320)
UG Share			0.563*(0.113)	-	-
Subject Shares:					
Medical				0.426 (0.422)	0.207 (0.381)
Medical related				0.649*(0.428)	0.815**(0.460)
Biological Sc				-0.490 (0.989)	1.103 (0.874)
Physical/Env				1.926*(0.956)	0.430 (0.844)
Maths/Comp				0.049 (0.428)	0.302 (0.393)
Engineering				0.375 (0.385)	0.477 (0.363)
Law				0.605*(0.206)	0.520*(0.183)
Economics				1.749 (2.935)	3.644 (2.954)
Business/Man				0.298 (0.669)	-0.536 (0.632)
Other Social Sc				0.721 (0.467)	0.616 (0.492)
Art/Humanities				0.383**(0.209)	0.416*(0.183)
Education				0.863**(0.491)	2.439*(0.497)
Combined				2.872*(1.187)	3.238*(1.043)
Sector Shares:					
Manufacturing					0.416*(0.073)
Utilities					-0.634 (0.791)
Construction					0.318*(0.082)
Finance					0.323**(0.168)
Education					-0.402*(0.137)
Health					0.022 (0.114)
Other Services					0.243*(0.069)
Constant	1.487*(0.027)	1.487*(0.029)	1.908*(0.172)	1.999*(0.208)	1.202*(0.212)
F Statistic		790.115	689.408	553.245	323.817
[P-Value] for the First Stage		[0.000]	[0.000]	[0.000]	[0.000]

Notes: For 71 consistently defined three digit occupations. Data are collapsed at the occupation-year level and weighted using person weights. The dependent variable is the log of working to tight deadlines based on the responses to the 2001, 2006 and 2012 SES question ` How often work involves working to tight deadlines‘. This is coded: (7) all the time (6) almost all the time (5) around three quarters of the time (4) around half of the time (3) a quarter of the time (2) almost never (1) never. The explanatory variables are taken from the Quarterly Labour Force Survey, 2001, 2006 and 2010. The PG share refers to the postgradudate share, whilst the UG share is the share of university graduates (ie those who only have a first degree).

Appendix

Table A1: Percentage that Overlap in for Work Intensity Measures.

	Working Long Hours	Working Very Hard	Working at High Speed	Working to Tight Deadlines	Working Under Tension[a]
Working Long Hours	-	28.48[b]	24.23[c]	23.09[d]	23.47[e]
Working Very Hard	60.22	-	58.28	52.13	54.37
Working at High Speed	38.89	45.30	-	56.35	49.04
Working to Tight Deadlines	53.65	56.20	78.16	-	63.87
Working Under Tension[a]	60.07	64.33	74.65	70.10	-
N	2689	7221	5613	7785	8544

Notes: **a:** this variable measures working under a great deal of tension. The numbers in the main table are column percentages. Working long hours is estimated for a sample of full time workers. Consequently, the sample sizes for the first column refer to 2689 full time workers that also report working long hours. For the second to fourth columns, the first row refers only to full time workers. Whilst the subsequent rows contain all workers. The sample sizes in the first row are therefore smaller. These are for samples of (b) 5670, (c) 4269, (d) 6231 and (e) 6863. For example, there are 5670 full time workers that report working very hard and 28.48 % of these also reported working long hours. However, there are 7221 employed workers that reported working very hard and 45.30 % of these also reported working at high speed.

Table A2: The Composition of the specific task measures from the UK Skills Surveys.

Task	Variables and description from the UK Skills Surveys
Literacy:	Reading written information, eg forms, notices or signs
	Reading short documents eg letters or memos
	Reading long documents eg long reports, manuals, etc
	Writing material such as forms, notices or signs
	Writing short documents, eg letters or memos
	Writing long documents with correct spelling/grammar
Numeracy:	Adding, subtracting, multiplying or dividing numbers
	Calculations using decimals, percentages or fractions.
	More advanced mathematical or statistical procedures
Professional Communication:	Instructing, training or teaching people
	Persuading or influencing others
	Making speeches or presentations
	Planning the activities of others
	Listening carefully to colleagues
Problem Solving:	Spotting problems or faults
	Working out the cause of problems or faults
	Thinking of solutions to problems
	Analysing complex problems in depth
Computer Use Complexity:	Importance of computer use and complexity of computer use:
	Not at all=0
	Straightforward use =1
	Moderate use =2
	Complex use =3
	Advanced use =4

Notes: Based on the factor analysis conducted in Green (2012).

Table A3: QLFS Mean Qualifications by Gender.

	Men			Women			Difference in the Difference
	1997	**2010**	**1997-2010**	**1997**	**2010**	**1997-2010**	
Highest Qualification:							
Postgraduates	4.42	8.97	4.546*	3.45$	9.56$	6.101*	1.556*
			(0.119)			(0.120)	(0.169)
University Graduates	11.02	17.63	6.610*	9.79$	19.01$	9.214*	2.603*
			(0.166)			(0.169)	(0.237)
Intermediate 1	13.42	12.44	-0.977*	17.17$	15.20$	-1.974*	-0.996*
			(0.153)			(0.172)	(0.231)
Intermediate 2	60.40	54.78	-5.625*	54.13$	50.91$	-3.225*	2.400*
			(0.226)			(0.235)	(0.326)
No Qualifications	10.74	6.18	-4.554*	15.45$	5.33$	-10.117*	-5.563*
			(0.122)			(0.135)	(0.182)
Total Percent	100.00	100.00		100.00	100.00		
N	121639	86290		108103	83563		

Notes: Using the QLFS for workers age 20-60. All estimates are weighted using person weights. Where $ ($$) denotes statistically significant from men within each year at the 5 (10) % level, whilst * (**) denotes statistically significant at the 5 (10) % level for changes over time and differences in changes over time.

Table A4: Low and High Mean Working to Tight Deadlines Occupations 2001,2006 and 2012

Top Quintile (High Pressure Jobs)			Bottom Quintile (Low Pressure Jobs)		
SOC Code	Mean		SOC Code	Mean	
343	5.913	Media associate professionals	924	2.961	Elementary security occupations
542	5.846	Printing trades	612	3.259	Childcare and rel personal services
241	5.471	Legal professionals	923	3.296	Elementary cleaning
112	5.439	Production managers	711	3.600	Sales assistants/retail cashiers
243	5.377	Architects, planners/surveyors	611	3.628	Healthcare and rel personal service
621	5.319	Leisure and travel service	911	3.635	Elementary agricultural
521	5.190	Metal forming, welding & related	245	3.828	Librarians and related professionals
351	5.189	Transport Associate professionals	511	3.918	Agricultural trades
242	5.169	Business and statistical professionals	613	4.053	Animal care services
113	5.164	Functional managers	912	4.107	Elementary construction occs
543	5.130	Food preparation trades	922	4.163	Elementary personal services
814	5.105	Construction operators	322	4.228	Therapists
921	5.098	Elementary admin occupations	712	4.235	Sales related occupations
			823	4.240	Mobile machine drivers and operatives
			621	4.280	Leisure and travel service occupations

Notes: Using the 2001, 2006 and 2012 SES for 71 consistently defined three digit occupations. The question is ` How often work involves working to tight deadlines‘. This is coded: (7) all the time (6) almost all the time (5) around three quarters of the time (4) around half of the time (3) a quarter of the time (2) almost never (1) never.

Table A5: Low and High Median Log Weekly Wage Occupations 2001,2006 and 2010

Top Quintile (Highest Pay)			Bottom Quintile (Lowest Pay)		
SOC Code	Median Log Wage		SOC Code	Median Log Wage	
221	6.692	Health professionals	922	4.640	Elementary personal services
113	6.562	Functional managers	923	4.729	Elementary cleaning
351	6.560	Transport associate professionals	711	4.759	Sales assistants and retail cashiers
241	6.109	Legal professionals	622	4.886	Hairdressers and related
111/2	6.136	Corporate/Production managers	925	4.953	Elementary sales
242	6.481	Business and stat professionals	612	5.119	Childcare and rel personal services
213	6.445	ICT professionals	613	5.344	Animal care services
243	6.394	Architects, planners/surveyors	611	5.389	Healthcare and rel personal services
117	6.377	Protective service officers	623/9	5.407	Housekeeping/Personal Services
212	6.358	Engineering professionals	924	5.424	Elementary security occupations
231	6.307	Teaching professionals	543	5.432	Food preparation trades
331	6.284	Protective service occupations	344	5.011	Sports and fitness occupations
211	6.275	Science professionals	421	5.491	Secretarial and related occupations
			414/5	5.511	Admin occupations (coms & general)

Notes: Using the 2001, 2006 and 2010 QLFS for 71 consistently defined three digit occupations.