Prevalence of Long Hours and Women's Job Choices: Evidence across Countries and within the U.S.*

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Abstract

This paper examines the relationship between the prevalence of overwork (as proxied for by the share of men working 50 or more hours per week) and women's labor force participation and occupational choice. Using country-level variation across education-groups, and over time, we find a negative relationship between the prevalence of overwork and the LFP rates of young married women, with the effects being much smaller for single women and older married women. Using a panel of occupations across countries and within the US, we find that the prevalence of overwork in an occupation significantly lowers the share of married women working in that occupation, particularly those with young children. These findings are robust to controlling for the occupational distribution of groups with fewer childcare responsibilities such as males and single women. Long hours of work appear to have a much more limited effect on the occupational distribution of other groups such as single women, childless women, older females, and males, suggesting that the key channel through which the prevalence of overwork affects occupational choice is by reducing the desirability of the work environment for women with family responsibilities.

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1 Introduction

Despite large gains in the economic status of women over the past few decades, gender gaps in earnings, labor force participation and career advancement continue to persist in many developed countries (Blau 2012, Blau and Kahn, 2006). As women close the gap in human capital investments, gender differences in occupation and industry are emerging as increasingly important determinants of the gender pay gap. Blau and Kahn (2016) document that in 2010, occupational differences account for about a third of the gender wage gap and is, by far, the largest observed component of the gender wage gap. There is an increasing focus, both in the popular press and in the recent academic discourse on the role of occupational characteristics such as workplace flexibility and workplace "culture" in reducing persistent gender gaps in earnings, advancement opportunities, and job choice, particularly among highly-skilled women.

Long hours of work and inflexible working conditions have been cited as important drivers for the lack of women and persistent earnings gaps in STEM industries (Fouad et al, 2012, Snyder, 2014) and the corporate sector (Goldin and Katz, 2011, Goldin, 2014). Women typically face a larger cost of providing longer hours in the labor market. Even when employed full-time, women continue to shoulder a disproportionate burden of household responsibilities (Bianchi et al., 2000, Stone, 2007). For example, calculations from the Multinational Time-Use Survey (MTUS) reveal that, across nine developed countries, women who work full-time spend about one to two hours more each day on household production as compared to male full-time workers.[1] These constraints may be even more binding for skilled women – although college-educated women spend more time in the labor market, they spend increasingly more time with their children relative to their less educated counterparts (Guryan, Hurst, and Kearney, 2008). These patterns suggest that unless workplaces adapt to the demands on flexibility imposed by the family, women (and men) simply cannot "have it all."

This view suggests that the key factors holding women back in the labor market may not be their lack of ability or ambition, but structural factors in the organization of jobs that necessitate a trade-off between career advancement and family responsibilities. For example, in a recent study of medical residents the U.S., Wasserman (2015) shows that long work hours required by high-paying medical specialties acts as a barrier to entry for women due to the apparent trade-off between career and family investments during residency. Differences in workplace flexibility across jobs could potentially explain the persistence of job segregation and the underrepresentation of women in high-paying and more prestigious jobs, which are typically associated with longer work hours and inflexible work schedules. This might also explain why the gender gap at the top of the skill distribution continues to remain remarkably persistent across Western industrialized countries

[1] Refer to Appendix Table 1.

(Blau and Kahn, 2016. Arulampalam et al., 2007), despite the inroads that women have made in reversing the gender gap in education and entering professional and skilled occupations.

Looking across countries, there are large differences in the share of workers putting in long hours across the Western industrialized countries (Mocan and Pogorelova, 2015). For example, as shown in Figure 1, more than 25% of full-time college-educated male workers report working more than 50 hours a week in the United States, United Kingdom, France, and Germany, while the corresponding share is less than 15% in the Nordic countries, Switzerland, and the Netherlands. Focusing on the U.S. experience, Kuhn and Lozano (2008) has documented a large increase in the share of men working long hours over the past three decades, particularly among the college-educated. This increase in the demand for long hours puts further pressure on career-family trade-offs and might offer a partial explanation as to why labor force participation and wage gaps in the US and the UK appear to have stagnated and fallen behind many Western European countries (Blau and Kahn, 2013).[2] Interestingly, the observed slow-down in female labor force participation rates appears to be quite pronounced even for skilled women in both countries – based on our calculations, the U.S. and the UK actually experienced a decline in the LFP of college-educated married women of about two percentage points between 1996 and 2010.[3]

In this paper, we systematically explore the relationship between the prevalence of overwork and women's labor force participation and occupational choice. In labor markets where working long hours is the "norm," women may anticipate difficulties in managing career and family, which could lead them to opt-out of the labor market and specialize in home production. Similarly, women may respond to greater time demands in an occupation by switching to more family-friendly occupations or by exiting the labor force.

In the first part of the paper, we utilize cross-country variation in the prevalence of overwork to examine whether work environments that expect long hours of work deter women from participating in the labor market or from entering or remaining in those jobs. Specifically, we use microdata from 17 industrialized countries from 1992 to 2010, to construct a series of cross-country panels. Using a cross-section of countries in 2010, we begin by providing suggestive cross-country evidence that the share of men working 50 or more hours a week (prevalence of overwork) in a country is negatively correlated with the gap in labor force participation rates between married and single women, particularly for the highly skilled. This correlation is robust to controlling for potential confounding factors such as cross-country differences in maternity leave policies, tax regimes, the right to part-time work, gender attitudes, and average male and female wages.

Next, we show that the negative effects of the prevalence of overwork on female labor force partic-

[2] Blau and Kahn (2013) documents that between 1990 and 2010, the U.S and the UK fell by eleven and six positions, respectively, in terms of female labor force participation in a ranking of 22 developed countries.

[3] The average change in LFP among college-educated married women across the sample of 17 developed countries in our sample was an increase of about two percentage points.

ipation continue to hold when we utilize fixed effects models that exploit variation within country and education groups over time. This empirical set-up allows us to control flexibly for country characteristics that may be changing over time. We find that female LFP is lower in education groups within countries that experience larger increases in the share of males working 50 or more hours per week. Given that we do not have a source of clearly exogenous variation in the prevalence of overwork, our approach to causality is somewhat more indirect. We study the labor force participation of different groups of women, defined by their age and marital status, to examine whether women with more responsibilities at home are more negatively affected by the prevalence of overwork in the workplace. Consistent with our hypothesis, we find that the negative effect of long hours on female labor force participation is largest for ever-married women between the ages 23 to 42[4] – the group of women who are most likely to have young children residing at home. The effects for the sample of single women and older women (age 43 to 62) are generally weak and not statistically significant. An alternative interpretation of the observed relationship between the prevalence of overwork and the reduction in female labor supply is that with assortative mating, women exposed to higher prevalence of overwork may have husbands who are exposed to similar shocks and put in longer hours at work. This could potentially reduce women's labor supply through an income channel or lead to an increase in women's household responsibilities. To address this potential concern, we estimate a series of individual-level regressions on the sample of married women, controlling explicitly for husband's labor supply behavior and demographics. Reassuringly, the results remain unchanged.

To examine the relationship between the prevalence of overwork and occupational choice, we explore variation at the country–occupation–year level, separately by skill level. To ensure that we have sufficient observations to compute the relevant statistics for each unit of observation, occupations are aggregated into broader categories. The main outcome is the occupational distribution of a given demographic group, measured as the share of of a given population that is working in a particular occupation group. This outcome variable captures individuals within a country and demographic group who have switched occupations as well as those who have exited the labor force. We consider demographic groups defined on the basis of gender and marital status – which serve as proxies for the cost of providing long hours of work. We relate the female occupational distribution to the share of males working 50 or more hours in each occupation, controlling for the full set of country, occupation, and year fixed effects, as well as all the relevant two-way interactions. To address the possibility that country-occupation-specific demand shocks are correlated with the prevalence of overwork and may exert an independent effect on the occupational choice of females, we control for the occupational distribution of other subgroups (males and single females) of the same age range who are likely to be less sensitive to increases in the demand for overtime work. We also present "placebo" tests showing that the prevalence of overwork appears to have effects mainly on the

[4]This particular age-grouping is chosen because of the way that age is reported in the EU-LFS (five-year groups).

occupational distribution of women with the most household responsibilities. We find that a one-standard deviation increase in the prevalence of overwork reduces the share of ever-married females working in that occupation by about 0.5 percent (or 0.06 standard deviations). These results are robust to including controls for the occupational distribution of males and single females of the same age range. We find little effect of the prevalence of overwork on the occupational choice of single women and non-college educated women (in both cases controlling for the occupational distribution of men) and a much smaller effect for males.

In the second part of the paper, we replicate our cross-country analysis using data from the United States. The U.S. is an interesting case to study given that it has one of the highest rates of overwork relative to the other Western countries in our sample and has experienced a secular increase in the prevalence of overwork between 1980 and 2010, particularly among the highly-skilled (Kuhn and Lozano, 2008).[5] Furthermore, the U.S. data has more detailed occupational classifications (more than 200 occupations) and demographic information (e.g. presence of children), and permits a longer time-period (1980 to 2010) for analysis. Finally, focusing on a single country allows us to show that the results derived from the cross-country approach is not driven by unobserved shocks across countries and occupations. Using an occupation-year panel and specifications similar to that of the cross-country approach, we find that the prevalence of overwork in an occupation significantly affects skilled women's job choices, particularly those of married women with young children. Similar to the cross-country approach, we show that the results are robust to controls for the occupational distribution of similar groups of workers with fewer family responsibilities such as males, single women, and married women without children. Moreover, we find little evidence that the prevalence of overwork is related to the occupational choice of women without children, single women, older women with children, and males. These results reinforce the idea that the observed patterns are driven largely by highly-educated women opting out of certain occupations because long work hours are especially costly when they have children. The magnitude of our estimates suggest that a one standard deviation increase in the share of males working long hours is associated with a 1.8 percentage points (0.2 of a standard deviation) decrease in the share of young married mothers working in that occupation. The larger effects obtained using the US data is likely to be due to the fact that we examine more detailed occupations, are able to identify a population with arguably the largest effects (young married women with children), and analyze a longer time span.

This paper complements the recent literature that explores the relationship between the returns to working long hours and the gender pay gap. Goldin (2014) documents that occupations vary in terms of how they reward long hours of work and occupations characterized by a higher degree

[5] A number of papers tried to explain the greater hours worked by Americans. These papers have focused on differences in wage inequality (Bell and Freeman, 2001), tax rates on labor and consumption (Prescott, 2004), regulations and labor unions (Alesina, Glaeser, and Sacerdote, 2006), and leisure preferences (Blanchard, 2006, Mocan and Pogorelova, 2015). Fewer papers have looked at trends in the prevalence of long work hours in the U.S. – a notable exception is Kuhn and Lozano (2008).

of convexity in the relationship between earnings and weekly hours are also those with the largest gender wage gaps. Cha and Weeden (2014) document that rising returns to overwork, coupled with the gender gap in the propensity to work overtime, worked to slow the convergence of the gender wage gap between 1979-2009. Cortes and Pan (2016) find that supply-side shocks induced by low-skill immigration enable women to put in longer hours of work, allowing them to exploit these nonlinear returns, which in turn helps to close the gender wage gap. This paper focuses on a different dimension of flexibility – the prevalence of overwork – and examines its effects on the labor force participation and occupational distribution of females.

Although it is widely accepted that women, particularly those with young children, place a higher value on non-market time and have greater demand for workplace flexibility and shorter work hours, the empirical literature on the relationship between long work hours, participation decisions, and occupational choice is more limited. Recent literature suggests that women on average have a higher willingness to pay for jobs with greater work flexibility (e.g. lower hours, availability of part-time option) (Wiswall and Zafar, 2016),[6] and that women react to motherhood by reducing hours worked (Herr, 2015, Bertrand, Katz and Goldin, 2013) and seeking family-friendly employment (Pertold-Gebicka, Pertold, and Gupta, 2016). A smaller number of papers have examined how workplace time requirements affect women's decisions to participate in the labor market and occupational choice. Herr and Wolfram (2012) document that among Harvard graduates, women in flexible jobs – defined as the capacity to cut one's hours – are five to six percentage points more likely to remain working after having children. Using longitudinal data from the SIPP, Cha (2013) shows that mothers are more likely to exit male-dominated occupations when they work 50 hours or more per week, but the same effect is not observed for men or childless women. Wasserman (2015) focuses on the decisions of female medical residents and shows that a reduction in weekly residency hours of medical specialties induced women to enter those specialties. Our empirical question is similar to Wasserman (2015), with a broader focus on the effects of the prevalence of long work hours on the extensive margin of participation, as well as on the occupational choices of high-skilled women more generally.

Our findings are consistent with the idea that the key channel through which the prevalence of overwork affects female labor force participation and occupational choice is by reducing the desirability of the work environment for women with family responsibilities. This may provide an alternative explanation for the leveling off female labor force participation in countries such as the US and the UK that have seen particularly large increases in the share of overwork over time. Furthermore, our findings suggest that occupational segregation and the paucity of women in certain sectors (e.g the corporate and technology sectors) can be attributed, in part, to differences across occupations in the demand for long work hours and inflexible working conditions.

[6] Lim (2015) estimates a life-cycle model of married women's fertility and employment decisions and finds that mothers with preschool-aged children value self-employment more than mothers without preschool-aged children.

The rest of the paper is organized as follows. Section 2 presents the data, econometric specifications and results using the cross-country data. Section 3 discusses the data and presents the analysis using US data. Section 4 concludes.

2 Evidence from Cross-country Variation

2.1 Data and Descriptive Statistics

The cross-country panels are constructed using microdata from the US and 16 of the largest Western European countries. These countries include the United Kingdom, Italy, France, Germany, Spain, Belgium, Austria, Sweden, Finland, Denmark, Norway, Switzerland, Portugal, Greece, Ireland, and the Netherlands. The US data is from the 1992 to 2010 Current Population Survey. The data for the European countries are from the European Union Labor Force Survey (EU-LFS) which covers all 28 member states and Iceland, Norway, and Switzerland.[7] For the purpose of our analysis, we restrict the sample to 16 of the largest and most developed countries.[8] The EU-LFS spans a long time period, beginning in 1983, and includes basic worker characteristics such as education, age, gender, occupation, and hours worked.[9] We restrict our analysis to the 1992 to 2010 data as the education variable is only available beginning in 1992. We further restrict the sample to individuals aged 23 to 62 (the EU-LFS codes age in five-year intervals). This age range is chosen to include individuals who are likely to have completed their education as well as individuals who have not retired from the labor market.

As discussed by Goldin (2014), workplace flexibility is a multi-dimensional concept that encompasses the number of hours to be worked, particular hours worked, as well as other factors such as the mode and frequency of interactions with clients and colleagues. For our analysis, we use the prevalence of overwork as a proxy for workplace flexibility for ease of measurement and interpretation. While our focus on the prevalence of overwork is admittedly narrow, using information from other indicators of workplace flexibility available for a subset of the European countries in the EU-LFS, we find that our measure is highly correlated with the share of men who report working non-regular hours (defined as those who report working either nights and/or weekends). For example, in the UK, more than half of male college-educated workers report sometimes working on weekends and nights compared to less than a third in the Scandinavian countries. The cross-country correlation between our measure of the prevalence of overwork and the share of men

[7] The EU-LFS is a harmonized data set. The Labour Force Surveys are conducted by the national statistical institutes across Europe and are centrally processed by Eurostat. The national statistical institutes are responsible for selecting the sample, preparing the questionnaires, and conducting the direct interviews among households.

[8] We exclude Luxembourg, Iceland, Malta, Cyprus, and all the Eastern European countries.

[9] A limitation of the survey is that it does not include income measures.

working non-regular hours is about 0.7 and 0.6 for college and non-college workers, respectively. The cross-occupation correlation between the two measures, net of country fixed effects, is also positive and highly statistically significant.[10] In addition, using time-use surveys from the US, we find that our measure is highly correlated with other indicators of workplace flexibility such as the probability of working on weekends and non-standard hours (e.g. early in the morning or late at night on weekdays).[11] We do not use these alternative measures of workplace flexibility in the main analysis largely due to sample size considerations – the data for non-regular work is only available for a subset of the country-years in the EU-LFS and the ATUS is considerably smaller than the US Census and is a lot less suited for analysis at the occupation level.

We define overwork as working 50 hours or more a week,[12] and construct the dummy based on the variable *number of hours per week usually worked* available in all datasets. We also focus on male workers when constructing the share of workers who report working overtime in the relevant unit of analysis (e.g. country*education*year or country*occupation*year) as factors determining the ability and willingness to work long hours are likely to differ significantly by gender. Appendix Table 1 presents descriptive statistics of the prevalence of overwork by country and education level over time. As observed in the table, there is large variation in the share of males working 50 or more hours a week across countries, education groups, and over time. For the majority of countries, in 2010, college-educated workers were more likely to work long hours as compared to non-college educated workers. In countries such as the US, Germany, France, Austria and Belgium, the prevalence gap was more than 10 percentage points in favor of college-educated workers (see Figure 1).

The two main dependent variables are female labor force participation rates and the occupational distribution of females of a given demographic group. Female labor force participation is constructed based on the reported working status – individuals are coded as in the labor force if they are currently employed or unemployed and not in the labor force if they are inactive.[13] To characterize the occupational distribution of females of a given demographic group, we compute the share of females in a demographic group working in a given occupation in each country and year. For our analysis, we will consider the occupational distributions of different demographic groups such as ever-married females of different age ranges, males, single females, etc. Notice that a decline in the share of individuals of a given population working in a particular occupation incorporates individuals who have switched occupations as well as those who have exited the labor force.

[10] The coefficient on the prevalence of overwork in a regression of the share of men working non-regular hours on the prevalence of overwork and country fixed effects is 0.54 ($p < 0.001$).

[11] In results available on request, we pool together the 2003 to 2012 American Time Use Surveys (ATUS) and find large and statistically significant cross-occupation correlations between the share of males working long hours and the probabilities of working on the weekends or during non-regular times.

[12] We follow Kuhn and Lozano (2008) and Cha and Weeden (2014) in choosing 50 hours per week as the threshold for overwork.

[13] We drop individuals who are undergoing compulsory military service.

2.2 Prevalence of Overwork and Female Labor Force Participation

We begin by providing some graphical evidence of a systematic correlation between the prevalence of overwork in a country and the gap in labor force participation rates between married and single women in that country. Specifically, Figure 2 graphs the relationship between the share of full-time males working 50+ hours per week in each country and the difference in female labor force participation rates between married and single women separately by women with and without a college degree in 2010. Figure 2 shows that countries with higher prevalence of overwork are also those where married women tend to be less likely to participate in the labor market relative to single women. This relationship appears to be stronger for college-educated women relative to non-college educated women. Nonetheless, these results are only suggestive – countries are likely to differ on many dimensions and it is possible that some of these factors may confound the observed relationship depicted in Figure 2.

To sharpen the correlations observed in Figure 2, Table 1 presents the regression version of the figure where we control for additional country-level variables that the literature suggests are likely to be correlated with the prevalence of overwork in a country and female labor force participation decisions. Each row of Table 1 reports the estimates separately for the sample of college and non-college educated females. Column (1) reports the coefficient estimates of the univariate regression of the gap in labor force participation between ever-married and single women on the share of males working 50+ hours per week. The coefficient is negative for both samples of women, but is statistically significant only for college-educated women (top row). Columns (2) and (3) include controls for the weeks of paid parental leave and the right to part-time work[14] – Blau and Kahn (2013) finds that female labor force participation tends to be higher in countries where maternity leave policies and the right to part-time work are more generous. The addition of these controls do not affect the magnitude and significance of the baseline correlation for college-educated women appreciably. Column (4) shows that the observed relationship for college-educated women is robust to controlling for cross-country differences in tax rates.[15] Mocan and Pogorelova (2015) suggest that taxes may influence the labor supply decisions of males and females and may account for cross-country differences in labor supply.

To address potential reverse causality issues that low labor force participation rates among women, due perhaps to conservative social norms or low wage rates, may lead to a greater demand for male workers, in Columns (5) and (6), we control for a measure of the degree of gender conservativeness in a country[16] and average wages of men and women in the relevant education groups. While the

[14] The number of weeks of paid maternity leave and a dummy for the right to part-time work are from Blau and Kahn (2013).

[15] The tax rate refers to the average personal income tax and social security contribution rates on gross labour income, and comes from the OECD.

[16] The sexism index is the share of the population that agrees with the statement "When job are scarce, men have

addition of both these controls reduce the magnitude of the baseline coefficient for the college-sample by about 25% to 15%, respectively, the estimate remains negative and statistically significant at the 5% level.[17] The magnitude of the coefficient estimates imply that a one standard deviation increase in the prevalence of overwork (approximately 0.09) reduces the gap in labor force participation rates between married and single women in a country by 2.2 percentage points, which corresponds to about 45% of the cross-country standard deviation of LFP gaps. The final three columns of Table 1 show that the observed negative correlation also holds in the earlier time-periods in 1995, 2000, and 2005.

Overall, these cross-country correlations provide some suggestive evidence of a negative relationship between the prevalence of overwork and female labor force participation, particularly for skilled women. Yet, given that these regressions only include 17 observations and countries could differ in unobserved ways that are not captured by our controls variables there is a need to exercise caution in attaching a causal interpretation to these results.

To provide a more causal interpretation of our results, we turn to the country–education–year panel. As shown in Appendix Table 1, there is considerable variation in the prevalence of overwork across countries, education groups and over time. Specifically, we estimate the following regression:

$$Female\_LFP_{cet} = \alpha + \beta * share\_male\_overwork_{cet} + \pi_c + \pi_t + \pi_e + \pi_{ct} + \pi_{ce} + \pi_{te} + \epsilon_{cet} \quad (1)$$

where c refers to the country, e refers to the education level (college or non college) and t refers to each year from 1992 to 2010. $Female\_LFP_{cet}$ is the labor force participation rate for females in country c, education group e, in year t. The $share\_male\_overwork_{cet}$ is our measure of the prevalence of overwork i.e. the share of full-time males working 50 or more hours per week in country c, education group e, in year t. π_c, π_e and, π_t are fixed effects for country, education group, and year, respectively. We also include all the relevant two-way fixed effects – namely, country*time (π_{ct}), country*education-group (π_{ce}), and education-group*time (π_{te}). We cluster standard errors at the country level. The addition of these fixed effects allows us to account for time-invariant and time-varying country-level characteristics that similarly affect the labor force participation of college and non-college educated women. We can also include controls for education*year shocks, which can account for universal changes that differentially affect high vs. low skilled women over time (e.g. changes in the returns to education). Therefore, identification is obtained from variation *within* country-education-groups over time.

Given that we do not have a source of clearly exogenous variation in our key independent variable – the share of males working overtime, our approach to establishing causality is indirect. While we are able to include a rich set of fixed effects in equation (1), the concern that estimates of β may

more right to a job than women" and is constructed using data from the World Values Survey.

[17] We do not include all the controls simultaneously due to the small number of observations in these regressions.

capture unobservable shocks at the country–education–year level that are correlated with both the prevalence of overwork and female labor force participation rates across countries and skill groups still remain. To address these concerns, we examine the labor force participation rates of different groups of women, defined by their age and marital status. In particular, we would expect that since women with more responsibilities at home face higher costs of providing long hours of work, they are more likely to respond to increasing workplace demands on their time by choosing to "opt-out."

Since we are not able to identify whether children are present in the household in the EU-LFS, we use marital status and age as proxies for family responsibilities.[18] We assume that ever-married women between the ages of 23 to 42 are more likely to have young children residing at home, and consequently, place a higher value on their nonmarket time. In contrast, we anticipate that single women and older married women between the ages of 43 to 62 are likely to have fewer household responsibilities.

Table 2 presents the coefficient estimates of equation (1). Each column corresponds to a separate regression the examines the effect of the prevalence of overwork on the labor force participation rates of different subgroups of women as defined by their age range (all, age 23 to 42, and age 43 to 62) and marital status (all, ever-married, single). All regressions control for fixed effects at the country, education, and year level, as well as all the relevant two-way interactions. The baseline estimate in Column (1) for the the full sample of women is negative and statistically significant at the 1% level. The magnitude of the coefficient implies that a 10 percentage point increase in the share of males working overtime reduces female LFP rates by about 4.8 percentage points. The point estimate is similar in size and statistically significant in Column (2) when we consider the effects of the prevalence of overwork on the LFP rates of ever-married females. In contrast, the point estimate for single women is about half that of ever-married women and is only marginally significant at the 10% level (Column (4)). Column (3) shows that the coefficient on the share of males working 50+ hours per week falls slightly, but remains statistically significant for the subgroup of ever-married women, even after controlling for the LFP rates of single women. These results indicate that the negative relationship between the prevalence of overwork and female LFP appears to be driven largely by married women.

Columns (5) to (8) and Columns (9) to (12) follow the same structure as the first four columns, for younger women between the ages of 23 to 42 and older women between the ages of 43 to 62, respectively. Consistent with the idea that women with the greatest time demands are most likely to be affected by increases in the prevalence of overwork, we find that the negative effects are largest for ever-married females between the ages of 23 to 42 (Columns (6) and (7)). In contrast, the estimated effects are substantially smaller and non-significant for older women between the ages of 43 to 62 and single women. The fact that we obtain results that are significantly larger for

[18] Detailed household information in only available for most countries starting in the early 2000s.

younger ever-married women relative to the other subgroups of women provides some assurance that the observed relationship between the prevalence of overwork and female labor force participation rates is unlikely to be entirely driven by unobserved demand shocks. In order for unobserved demand shocks to explain our results, it has to be the case that it is correlated with the prevalence of working long hours and *only* affects the labor force participation rates of young ever-married females, but not that of older ever-married women, or single women. The estimate from our preferred specification for ever-married women aged 23 to 42 implies that a one standard deviation increase in the prevalence of overwork (about 0.07) reduces female labor force participation by about 3.5 percentage points (approx. 30% of the standard deviation of female LFP across countries).

One concern with interpreting these estimates as the causal effect of the prevalence of overwork on female labor force participation stems from potentially confounding effects through spousal behavior. In the presence of assortative mating, women exposed to a higher share of overwork may have husbands who are exposed to similar shocks and work longer hours – therefore, the negative effects on female LFP that we observe could stem from income effects arising from husband's higher wages or the re-allocation of household responsibilities as husbands put in longer hours at work.

To address this concern, we estimate a series of individual-level regressions of female labor force participation on the prevalence of overwork (defined at the country–education–year level), controlling for the labor supply behavior of the husbands. The sample is limited to married women age 23 to 62 with available spouse information.[19] We also control for all the fixed effects included in equation (1). The individual-level controls that we add to this model include the age and education of the women and her spouse, as well as a quadratic in husband's hours worked.[20] Ideally, we would have also liked to include controls for husband's wages; unfortunately, income variables are not available in the EU-LFS. The results of this empirical exercise are shown in Table 3. The standard errors of the estimates are clustered at the country-level. We find that the effect of the prevalence of overwork on female labor force participation continues to be negative and statistically significant, even after controlling for the labor supply and demographic characteristics of husbands as well as the wife's own characteristics. The estimated coefficient on the prevalence of overwork in the individual-level regressions is quite similar to the estimates obtained from the cross-country regressions reported in Table 2, suggesting that the observed effects of overwork on female labor force participations is unlikely to be driven by changes in women's time allocation induced by an increase in husband's work hours.

[19] In this analysis, we had to drop Sweden, Norway and Switzerland, as the data on spousal characteristics and labor supply was not available.

[20] We find similar results, both quantitatively and qualitatively, if we model husband's labor supply as a dummy for working 50+ hours per week.

2.3 Prevalence of Overwork and Occupational Choice

Having established a link between the prevalence of overwork and women's willingness to participate in the labor market, a natural next step is to examine the effects of the prevalence of overwork on the occupational choice margin. Specifically, we examine whether occupations that expect long hours of work deter women from entering or remaining in those jobs. For this empirical exercise, we utilize variation at the occupation–country–year level and a fixed effects approach to examine the relationship between changes in the prevalence of overwork within occupations and countries over time and changes in the female occupational distribution.

To ensure sufficient observations to construct the country–occupation–year panel, we need to group the occupations available in the EU-LFS into broader occupation groups. Since the occupational distribution and sample sizes of college and non-college educated workers are quite different, we use slightly different groupings for the two samples. In constructing the broad occupation groups, there is a trade-off between allowing for more detailed occupations and ensuring a reasonable sample size for each cell. Our main occupational classification is based on the college-educated sample where we classify workers into 20 occupation groups (see Table 4 for the list of occupation groups). When the same grouping was applied to the non-college sample, it resulted in some occupations groups that were too broad.[21] Therefore, we adjusted the occupational groupings for the non-college sample to include 25 occupation groups. Note, however, that the results are qualitatively similar when we re-estimate the specifications for the non-college sample using the same occupational grouping as that for the college sample. Appendix Table 3 presents the classification scheme used to construct the occupation groups for each education group.

For this analysis, the main outcome of interest is the share of the population of interest – for example, ever-married women, males, single women – working in a given occupation in each country and year. Notice that a change in the share of the population working in a particular occupation incorporates individuals in the population of interest who have switched occupations as well as those who exited the labor force.

Table 4 focuses on the college-educated sample and summarizes the mean and standard deviation (across countries) of the share of males working 50+ hours per week in each of the 20 occupations, the average share of married women working in each occupation, and the average share of males working in each occupation in 1995 and 2010. We observe large variation in the prevalence of overwork across occupations and within occupations across countries. More than 30% of full-time males in occupations such as managers, health professionals, and legal professionals report working overtime in 1995 and 2010. In contrast, in occupations such as public administration and office

[21] For example the category "Precision production, operators, craft and repair occs." accounted for almost a third of low-skilled workers in some demographic groups.

clerks, the prevalence of overwork is less than 10%. Not surprisingly, the occupational distribution of women and men are quite different – relative to females, a greater share of males are employed as managers, natural/life science professionals, and engineers. Married females tend to concentrate in occupations such as educators and associate professionals (excluding business). As expected, married females are also more likely to be out of the labor force. Importantly, for our purpose, there appears to be significant variation in the prevalence of overwork and the occupational distribution of women within occupations and over time.

To estimate the relationship between changes in the prevalence of overwork and the female occupational distribution, we estimate the following regression:

$$\frac{female\_gr_{ict}}{female\_gr_{ct}} = \alpha + \beta * share\_male\_overwork_{ict} + \gamma * \frac{control\_gr_{ict}}{control\_gr_{ct}} + \pi_i + \pi_c + \pi_t + \pi_{it} + \pi_{ct} + \pi_{ic} + \epsilon_{ict} \quad (2)$$

where i refers to an occupation, c refers to country, and t refers to the year (1992 to 2010). $female\_gr$ refers to the female demographic group of interest; for example, college-educated women age 23 to 62 that are ever-married. $control\_gr$ refers to another demographic group with the same education level and in the same age range as the outcome variable, but comprise individuals who face arguably lower costs of providing long work hours (e.g. males or single women). Similar to the previous exercise, we include occupation (π_i), country (π_c), and year (π_t), and the full set of relevant two-way interactions. To adjust for the fact that occupations can vary considerably in terms of size, we weight all the regressions using regression weights that are constructed based on the total number of individuals in the occupation, normalized to an average of one for each country and year. Standard errors are clustered at the country level.

Table 5 presents the estimates of equation (2) for college-educated females (Panel A) and non-college educated females (Panel B). For all the regressions, the sample is restricted to individuals between the ages of 23 to 62. The first three columns of each panel focus on the share of ever-married women employed in an occupation, the next two columns focus on the same outcome for single women, and the last column focuses on men. Column (1) reports the baseline estimate of β for ever-married women with a college degree. The coefficient is significantly negative, indicating that as the share of males working overtime in an occupation increases, the employment share of married college-educated women in that occupation declines. To address concerns that our estimates of β may capture occupation-country-specific demand shocks that are correlated with the prevalence of overwork and the occupational distribution of married females, in Columns (2) and (3), we include controls for the occupational distribution of other subgroups (males and single females) of the same age range and education level who are likely to be less sensitive to increases in the demand for overtime work. While the magnitude of the estimated coefficient falls by about a third, it remains economically and statistically significant.

To the extent that the control subgroups face similar demand shocks as our demographic group of interest (married females), these results provide some assurance that our estimates are not simply picking up unobserved demand shocks, but indeed reflect the lower willingness of married women with young children to remain in occupations with a higher prevalence of overwork due to their higher costs of providing long hours of work. Additionally, the fact that the results continue to hold after controlling for the occupational distribution of single women suggests that the prevalence of overwork in an occupation is not merely proxying for other skills valued by the occupation for which there might be gender differences, such as competitiveness and risk-taking. The magnitude of the estimates implies that a one standard deviation increase in the share of males working 50+ hours in an occupation leads to a 0.5 percentage point (0.06 standard deviations) decline in the share of ever-married college-educated females working in that occupation.

To further illustrate that the effects of the prevalence of overwork on the occupational choice of college-educated married women is likely to be driven by the higher value that they place on non-market time, in Columns (4) and (5), we estimate a series of "placebo" regressions where we examine the effects of male overwork on the occupational distribution of single women. The coefficients on the prevalence of overwork are not statistically significant, and the magnitude of the point estimates are much smaller, particularly after controlling for the occupational distribution of males (Column (5)). Finally, in Column (6), we show that the prevalence of overwork appears to have a small, marginally significant, negative effect on the occupational choice of males. Nonetheless, the point estimate for males (Column (6)) is about half the size as the estimated baseline effects for ever-married females (Column (1)) and similar to the estimated baseline effects for single women (Column (5)).

As observed in Panel B, we do not find any evidence of a systematic relationship between the prevalence of overwork and the occupational choice of non-college educated women. The estimated coefficients are generally non-significant and occasionally of the wrong sign. One possible explanation for this finding is that higher skilled women may have greater job mobility and may be able to afford to exit the labor market or switch to more flexible but lower paying occupations. This result is also consistent with the findings of Flabbi and Moro (2012) who estimate a search model and document that women with a college degree value work-hours flexibility more than women with a high school degree.

Finally, as shown in Appendix Table 4, we obtain qualitatively similar results that are larger in magnitude when we repeat the analysis using data in five-year intervals from 1992, 1997, 2002, 2007, and 2010. The estimated effects are more than twice as large (0.13 of a standard deviation) when moving from annual changes to five-year changes, indicating that longer-run effects are larger than short-run effects. This is perhaps not surprising as workers have more flexibility to switch occupations in the longer-run – moreover, in the longer-run, potential entrants to the labor market

also have more scope to choose their human capital investments in response to changes in job characteristics.

3 Evidence from Variation within the United States

In this section, we re-examine the empirical relationship between the prevalence of overwork at the occupation-level and women's occupational choice using U.S. data. The U.S. is an interesting case study for a number of reasons – first, as documented using the cross-country data, relative to other developed Western European countries, the U.S. stands out in terms of the prevalence of overwork; second, in recent decades, the U.S. has experienced an increase in the share of workers who work overtime, particularly among college-educated workers.

Figure 3 depicts the trends in the share of men working 50+ hours per week by education and decade in the U.S. A few notable features of the data stand out – first, in 1940, less-educated workers (e.g. high-school dropouts) were more likely to report working overtime than their more-educated counterparts. Over the next 40 years, the incidence of overwork decreased for all education groups. The decline was significantly larger among workers with less than a college degree, such that by 1980, college-educated males were between 5 to 10 percentage points more likely to report working overtime relative to non-college educated males. Beginning in 1980, the trends reversed, and the prevalence of overwork increased steadily for all education groups from 1980 to 2000, before declining somewhat during the recessionary period between 2000 to 2010. The observed increase was particularly pronounced for college-educated workers – by 2010, approximately 35% and 28% of college-plus and workers with some college reported working overtime, as compared to 24% and 20% for high-school graduates high-school dropouts, respectively. In a similar vein, Aguiar and Hurst (2007) document growing inequality in leisure – post-1985, less-educated adults experienced significantly larger gains in leisure relative to those with a college education or more.

Alongside these trends, an increasing number of studies based on the U.S. have cited long hours of work and inflexible working conditions as important drivers for the lack of women in STEM industries (Fouad et al., 2012, Snyder, 2014) and the corporate sector (Goldin and Katz, 2011, Goldin, 2014). Similarly, the technology industry has a reputation for being unfriendly to mothers[22] – Jeff Bezos, CEO of Amazon, wrote in a letter to shareholders "When I interview people I tell them, 'You can work long, hard, or smart, but at Amazon.com you can't choose two out of the three.'" (Kantor and Streifeld, 2015).

Another key advantage of focusing on the U.S. experience is the quality of data – using the large samples available in the US Census and ACS, we are able to focus on more detailed occupational

[22] Grant (2015)

classifications and more well-defined demographic groups over a longer period of time to more carefully establish the relationship between the prevalence of overwork and female occupational choice.[23] Apart from providing additional verification of the cross-country analysis, the results from this exercise will also allow us to speak directly to the role of a culture of long work hours in perpetuating occupational segregation in the US.

3.1 Data and Descriptive Statistics

We use data from the 1980, 1990, and 2000 Census, and the three-year 2012 American Community Survey (ACS). [24]The sample is limited to native-born individuals between the ages of 23 to 62 and the unit of observation is an occupation in a given decade. Our analysis focuses on 226 occupations that are consistently defined over the sample time period.[25] Similar to the cross-country analysis, we define overwork as working 50+ hours a week and construct the prevalence of long work hours in an occupation as the share of overwork among males age 23 to 62.[26]

3.2 Prevalence of Overwork and Occupational Choice

(a) *Cross-sectional Graphical Evidence*

Before turning to the formal empirical analysis, we begin by presenting some descriptive evidence using cross-occupation data from 1980 to 2010 that illustrates the relationship between the occupation distribution of highly skilled females and the fraction of males working long hours in that occupation. As shown in Figure 4, there is a clear negative association between the gender gap (female-male) in employment share and the prevalence of overwork in an occupation in each decade. Occupations with a higher share of males working 50+ hours a week have a lower fraction of females employed in that occupation, relative to males. Table 6 reports the regression coefficients corresponding to the bivariate correlations shown in Figure 4 for the full sample of occupations in each period as well as excluding the two outlier occupations with the largest employment share of females relative to males (primary school teachers and nurses). In all the specifications, the relationship between the prevalence of overwork and the female-male difference in employment shares at the occupational level is negative and statistically significant.

(b) *Evidence from Panel Data*

[23]Note also that a very detailed occupational classification reduces concerns related to assortative matching.
[24]In the text, tables and figures, we refer to the data from the 2012 ACS as corresponding to the 2010 time period.
[25]The list of occupations is presented in Appendix Table 5.
[26]The descriptive statistics for the U.S. cross-occupation panel are reported in Appendix Table 6.

Next, we re-examine the relationship between the prevalence of overwork and female occupational choice using panel data at the occupation-decade level from the US. A major advantage of the US Census data is the availability of finer occupational classifications and higher quality demographic information. As such, we will be able to more carefully establish the relationship between the prevalence of overwork and female occupational choice, focusing on differential changes over time in the incidence of overwork across narrowly-defined occupations and the differential response of well-defined subgroups of women who face varying costs of overtime work.

We estimate specifications similar to equation (2) using the U.S. panel of occupations from 1980 to 2010. In addition to including occupation and decade fixed effects, we will also include controls that vary at the occupation*time level that might affect the occupational distribution of female such as average log female and male wages as well as the standard deviation of log female and male wages in the occupation. All the regressions are weighted by the total number of individuals in the occupation (as defined by the outcome variable) in 1980 and standard errors are clustered at the occupation level.[27]

For this analysis, we focus on the college-educated given the earlier results from the cross-country approach and the fact that the increase in the prevalence of overwork has been particularly large for this group. In Appendix Table 7, we re-estimate all the specifications for the sample of non-college educated workers and, similar to the cross-country analysis, we do not find any evidence of a systematic relationship between the prevalence of overwork and the occupational distribution of non-college educated females.

Table 7 presents the estimates for college-educated females. Columns (1) to (5) focus on the occupational distribution of married women age 23 to 42 with at least one child, which is presumably the group with the highest cost of providing long hours. Column (1) reports estimates controlling only for occupation and year fixed effects. The coefficient is negative, albeit somewhat imprecisely estimated (p-value=0.11). Column (2) includes additional controls for the average and standard deviation of log female and males wages. The magnitude of the coefficient remains similar, and is now statistically significant. Overall, these results are consistent with the cross-country analysis and suggests that increases in the share of males working overtime in an occupation reduces the employment share of college-educated females with young children. In Columns (3), (4) and (5), we include controls for the occupational distribution for males, single females, and married females without children of the same age range. The coefficient estimates are essentially unchanged. While this exercise is similar in spirit to that in the cross-country analysis, we are able to utilize finer demographic groups. In particular, the ability to distinguish married women into those with or without children allows us to better capture the relevant confounding shocks. Overall, these results

[27] All results are robust to using the total number of individuals in the occupation for the corresponding year. We prefer to use 1980 as the baseline, as changes over time partially reflect the phenomenon we are studying.

suggest that the estimated effects are likely to reflect the differential costs that married women with young children face, rather than unobserved demand shocks.

In Columns (6) to (9) we estimate a series of "placebo" regressions where we examine the effects of male overwork on the occupational distribution of groups of women with limited childcare responsibilities. The groups we consider include married women age 23 to 42 with no children (Column (6)), single women age 23 to 42 (Column (7)), married women age 43 to 62 with children (Column (8)), and males age 23 to 42 (Column (9)). In each of these specifications, we control for the occupational distribution of males of the same age range as well as the average and standard deviation of log wages of female and males. The coefficients on the prevalence of overwork are much smaller in magnitude, and are not statistically significant for all of these subgroups. These results indicate that married women with young children are the most responsive to changes in the demand for overwork.

The magnitude of our preferred estimate in Column (3) indicates that a one standard deviation increase in the share of males working 50+ hours in an occupation (about 10 percentage points) leads to a 1.4 to 1.8 percentage points (0.16 to 0.2 of a standard deviation) decline in the share of young married females with children working in that occupation.[28] The magnitudes of these estimates are somewhat larger than that obtained from the cross-country approach, although not unreasonably so. There are at least three reasons that might explain the larger effects observed in the US analysis – first, we use narrower demographic groups and focus on the group that is most likely to have the largest response (young married women with children); second, there is likely to be a greater degree of occupational mobility across the detailed occupational categories available in the US data; third, the US analysis is based on ten-year changes, hence these estimates capture long-term effects, which are likely to be larger than the short (annual) and medium-term (five-year) effects estimated using the cross-country data.

4 Conclusion

The recent literature and public debate has suggested that institutional factors such as inflexible job characteristics – long hours, inflexible schedules, and working condition – continue to hinder women's progress in the labor market (Goldin, 2014, Fouad, 2012, Slaughter, 2015). In this paper, we empirically examine how one particular aspect of workplace flexibility – the share of males working 50 or more hours per week – affects women's decisions to participate in the labor market and occupational choice.

[28] The mean of the dependent variable (share of married females with children age 23-42 working in occupation i) is 0.08 with a standard deviation of 0.09. Therefore, a one standard deviation increase in the share of males working 50+ hours is associated with a $10 * (-0.18) = 1.8$ percentage points (or $1.8/9 = 0.20$ standard deviation) increase in the employment share of married females age 23-42 with children.

Using variation across countries, education-groups, and time, we show that an increase in the prevalence of overwork in a labor market is associated with a lower share of prime-age married women participating in the labor market. Next, using a cross-country panel of occupations over time as well as a panel of occupations within the US, we document a negative relationship between the prevalence of overwork in an occupation and the share of highly-skilled married women in these occupations. In the absence of a clear source of exogenous variation in the prevalence of overwork, our approach to addressing causality is indirect. We compare the estimated effects across different subgroups of the population with different costs of providing long hours of work, and show that the effects are particularly pronounced for the subgroups with highest costs of providing long hours of work. Furthermore, in some specifications, we are able to directly account for possible confounding effects by controlling for the labor force participation rates of single women, or the occupational distributions of single women, males, older women, and married women without children. These empirical tests allow us to rule out concerns about unobserved demand shocks that affect these groups similarly. Overall, the fact that we obtain qualitatively similar results using different sources of variation across different specifications suggest that the prevalence of overwork is likely to be impacting women's labor market decisions due to the additional costs imposed on their (already) scarce time.

The large cross-country differences in the levels and trends in overwork suggests that that cross-country differences in workplace flexibility may account for part of the slow-down in female labor force participation rates in countries such as the United States and the United Kingdom. Moreover, as women close the gap in education and human capital investments, occupational differences such as the inflexible work hours and workplace conditions are likely to emerge as increasingly important determinants of gender differences in occupational choice and earnings (Blau and Kahn, 2016). As more women seek to effectively combine career and family goals, policies to enhance workplace flexibility are likely to go a long way in reducing occupational segregation and reducing gender disparities in the labor market.

One limitation of our study is that we are unable to shed light on why some occupations have a higher prevalence of overwork than others and why the demand for overwork has increased differentially across occupations and countries. We suspect that proximate factors include changes in compensation schemes, technological change, and globalization. Our study highlights the need for a better understanding of the determinants of the demand for overwork and workplace inflexibility to facilitate the design of policies to address their negative effects on female labor market outcomes.

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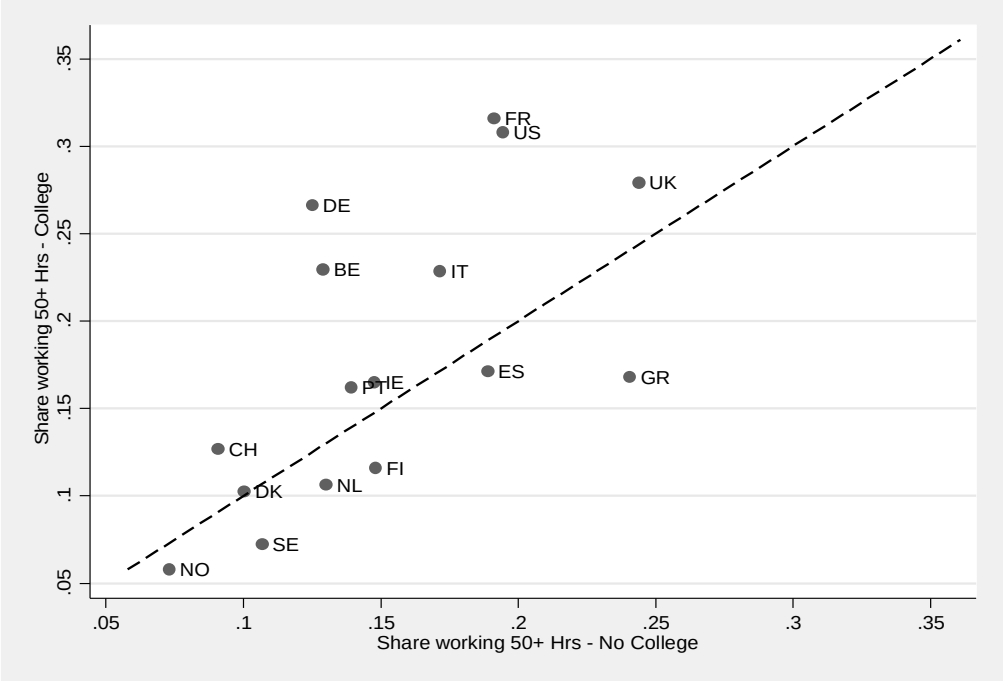
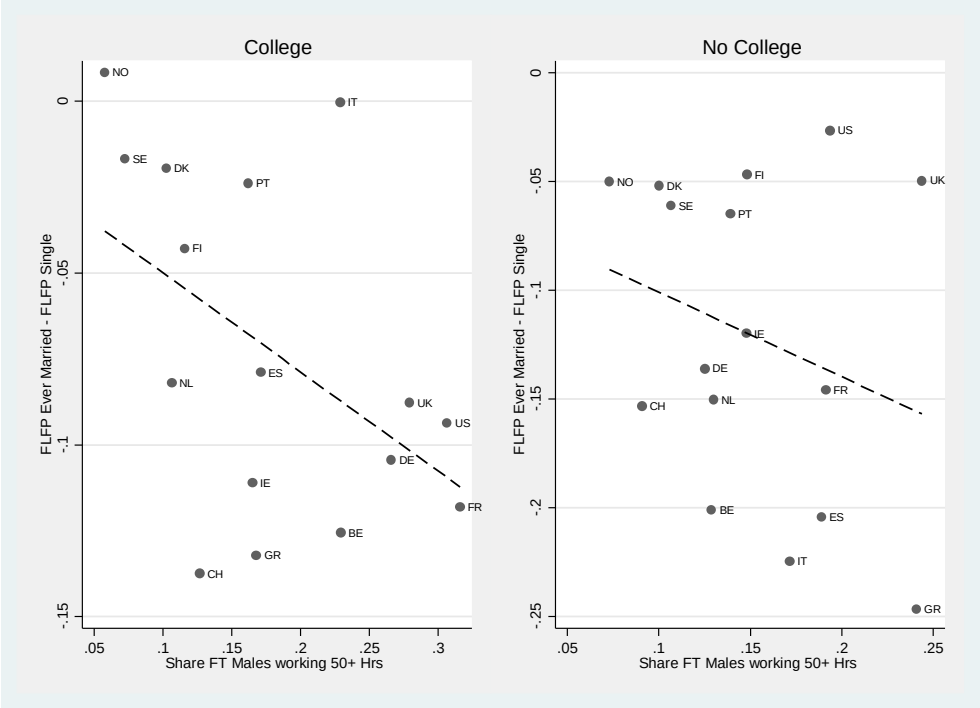
Figure 1. Share of FT Males Working 50+ hrs. per week, by Education in 2010



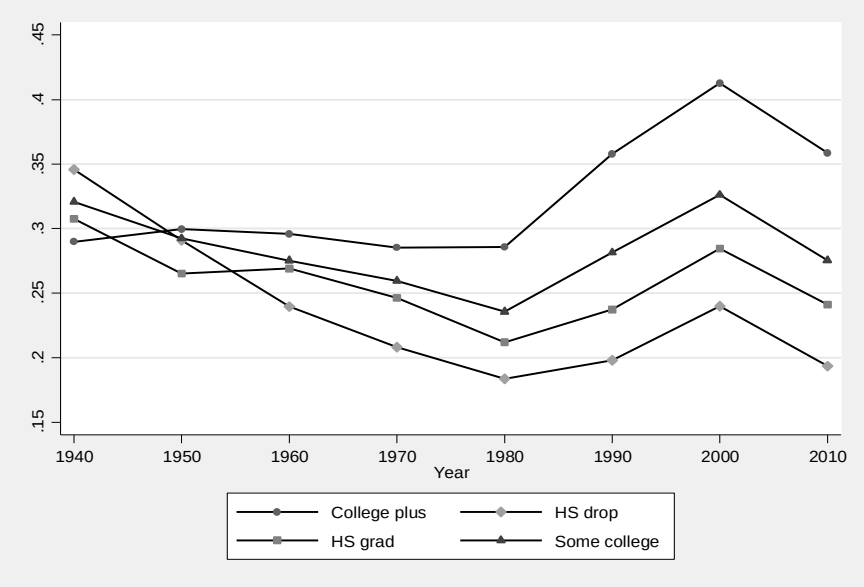
Source: EU-LFS and US CPS.

Figure 2. Correlation Between Overwork and Female LFP Gap (Ever Married-Single) in 2010



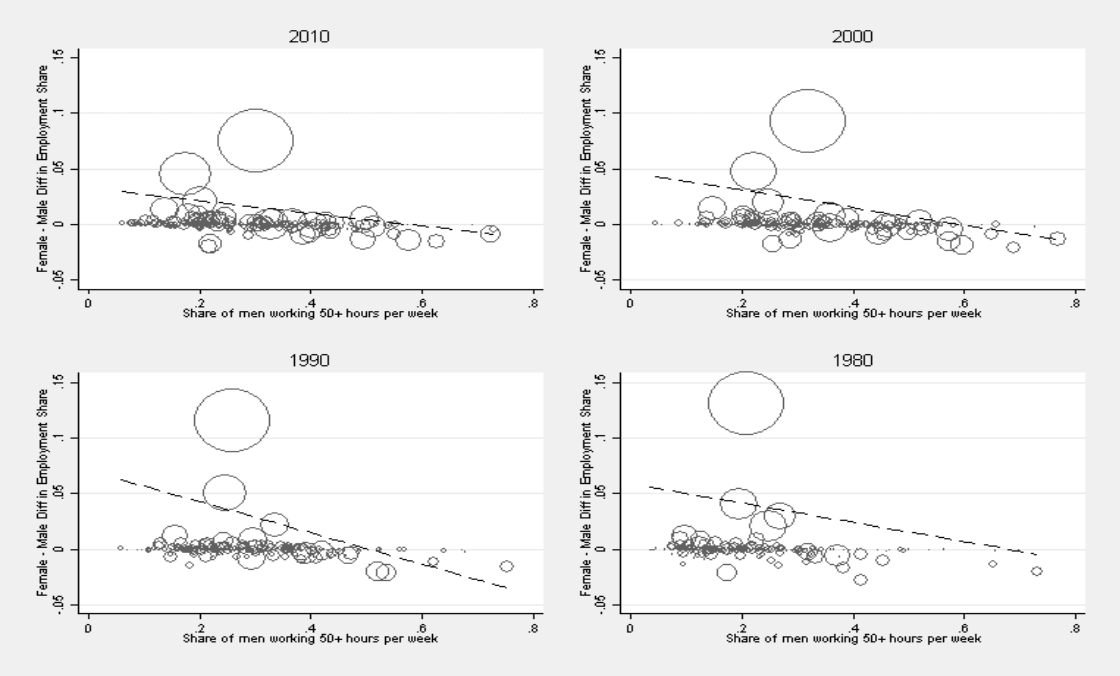
Source: EU-LFS and US CPS.

Figure 3. Share of males working 50+ hours per week by education and year



Notes: The data is from the 1940 to 2000 Census and the 2010-2012 ACS. The sample is restricted to native-born individuals age 25 to 54 with at least a college degree who report working full-time (35 hours or more) in a given week.

Figure 4. Cross-occupation relationship between the prevalence of overwork and the gender gap in employment share



Notes: The data is from the 1980 to 2000 Census and the 2010-2012 ACS. The sample is restricted to native-born individuals age 23 to 62 with at least a college degree who report working full-time (35 hours or more) in a given week. The figures include 226 consistently defined occupations and is weighted by the number of females in each occupation.

Table 1. Cross-country correlation between Prevalence of Overwork and LFP of Married Women

	Outcome: FLFP Gap (Married-Single)								
	Indep. var: % FT Males working 50+ hrs per week								
Sample:	2010						2005	2000	1995
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
College	-0.269***	-0.280***	-0.256***	-0.200**	-0.313***	-0.229**	-0.166*	-0.349	-0.299*
	[0.086]	[0.091]	[0.074]	[0.087]	[0.087]	[0.087]	[0.088]	[0.202]	[0.154]
Non College	-0.418	-0.376	-0.191	0.053	-0.370	-0.187	-0.204	0.182	-0.029
	[0.387]	[0.412]	[0.309]	[0.280]	[0.385]	[0.413]	[0.563]	[0.535]	[0.496]
Controls	None	Weeks of Paid Parental Leave	Right to Part-time Work	Sexism Index	Tax Rates	Wages	None	None	None
No. Obs	17	17	17	17	17	17	17	17	14

Notes: The outcome variable is the difference in labor force participation rates between married and single women aged 23-62. The main explanatory variable is the share of full-time males working more than 50 hours per week. The data to construct both variables come from the EU-LFS and the US-CPS. The number of weeks of paid maternity leave and a dummy for the right to part-time work are from Blau and Kahn (2013). The tax rate refers to the average personal income tax and social security contribution rates on gross labour income, and comes from the OECD. The sexism index is the share of the population that agrees with the statement "When job are scarce, men have more right to a job than women" and is constructed using World Value Survey data. Wages refer to the log of the annual wages of full-time workers aged 25-54 of the relevant education group, and are constructed separately for men and women. The source is Bertrand et. al (2016). Robust Standard Errors in brackets. ***significant at the 1% level, **5%, *10%.

Table 2. Panel estimates of the relationship between prevalence of working long hours and female labor force participation

	Dep. Var: Female LFP											
	All				Age 23-42				Age 43-62			
	All	Ever Married		Single	All	Ever Married		Single	All	Ever Married		Single
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share of Males working 50+ hours	-0.479***	-0.461***	-0.390**	-0.231*	-0.522***	-0.577***	-0.534***	-0.142	-0.201	-0.182	-0.154	-0.215
	[0.139]	[0.134]	[0.138]	[0.114]	[0.167]	[0.174]	[0.181]	[0.123]	[0.158]	[0.166]	[0.162]	[0.146]
Female LFP Single			0.309***									
			[0.077]									
Female LFP Single 23-42							0.298**					
							[0.114]					
Female LFP Single 43-62											0.128*	
											[0.068]	
Country FE	X	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Education FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Edu FE	X	X	X	X	X	X	X	X	X	X	X	X
Year x Edu FE	X	X	X	X	X	X	X	X	X	X	X	X
Observations	630	630	630	630	630	630	630	630	630	630	630	630

Notes: The data is from the 1992 to 2010 EU-LFS and the 1992 to 2010 CPS. The sample is restricted to individuals between the ages 23-62. The unit of observation is a country-education-year. The regressions include non-missing data from 17 countries, 2 education groups (college-educated and non-college educated) and 19 years. The total number of observations is slightly less than 17*2*19 as data are not available for some countries in some years. Standard errors clustered at the country level are reported in brackets. ***significant at the 1% level, **5%, *10%.

Table 3. Micro-data estimates of the relationship between prevalence of working long hours and female labor force participation, including controls for spouse's labor supply and demographic characteristics

	Dep. Var: Female LFP								
	All			Age 23-42			Age 43-62		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share of Males working 50+ hours	-0.442**	-0.446**	-0.421*	-0.622**	-0.623**	-0.625**	-0.058	-0.069	-0.129
	[0.178]	[0.181]	[0.207]	[0.212]	[0.218]	[0.219]	[0.167]	[0.173]	[0.197]
Female LFP Single	0.255**	0.253**	0.189*						
	[0.088]	[0.090]	[0.105]						
Female LFP Single 23-42				0.204	0.196	0.193			
				[0.134]	[0.140]	[0.138]			
Female LFP Single 43-62							0.183**	0.188**	0.157**
							[0.069]	[0.069]	[0.067]
Controls:									
Spouse's hours of work and its square		X	X		X	X		X	X
Demographic characteristics			X			X			X
Country FE	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X
Education FE	X	X	X	X	X	X	X	X	X
Country x Year FE	X	X	X	X	X	X	X	X	X
Country x Edu FE	X	X	X	X	X	X	X	X	X
Year x Edu FE	X	X	X	X	X	X	X	X	X
Number of Observations	5,518,242	5,518,242	5,518,242	3,310,654	3,310,654	3,310,654	2,207,588	2,207,588	2,207,588
Number of Countries	14	14	14	14	14	14	14	14	14

Notes: The data is from the 1992 to 2010 EU-LFS and the 1992 to 2010 CPS. We drop Sweden, Norway, and Switzerland as there was no information on partner's characteristics in these countries. The sample is restricted to married individuals between the ages 23 to 62 with non-missing information on their partners. The unit of observation is at the individual level. The demographic controls include education level, age and age-squared for the woman and her husband. Standard errors clustered at the country level are reported in brackets. ***significant at the 1% level, **5%, *10%.

Table 4. Descriptive Statistics of Overwork and Occupation Distribution for the Highly Skilled (Cross-country Data)

	1995						2010					
	Share Overwork FT Males		Share of ever married women working in occ		Share of males working in occ		Share Overwork FT Males		Share of ever married women working in occ		Share of males working in occ	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Managers	0.382	0.117	0.057	0.030	0.165	0.050	0.336	0.140	0.071	0.031	0.144	0.048
Natural and Life Sciences, Math and Computing Professionals	0.144	0.073	0.012	0.008	0.037	0.013	0.113	0.069	0.015	0.005	0.061	0.021
Architects and Engineers	0.223	0.079	0.010	0.005	0.094	0.022	0.182	0.105	0.015	0.006	0.081	0.024
Health Professionals	0.375	0.183	0.090	0.047	0.067	0.029	0.324	0.196	0.069	0.031	0.045	0.018
Educators	0.166	0.125	0.249	0.090	0.134	0.042	0.129	0.114	0.163	0.055	0.090	0.028
Business Professionals (Accountants, HR, etc)	0.259	0.197	0.015	0.011	0.028	0.014	0.249	0.153	0.029	0.014	0.042	0.018
Legal Professionals	0.392	0.160	0.013	0.008	0.028	0.015	0.367	0.159	0.016	0.008	0.020	0.009
Social Scientists	0.174	0.123	0.020	0.008	0.015	0.012	0.132	0.097	0.030	0.015	0.017	0.009
Writers and Artists	0.341	0.094	0.011	0.005	0.017	0.006	0.230	0.094	0.016	0.005	0.021	0.006
Public Administration Professionals	0.062	0.064	0.009	0.006	0.014	0.010	0.067	0.101	0.013	0.009	0.016	0.013
Associate professionals ex. Business	0.149	0.063	0.121	0.114	0.073	0.038	0.106	0.059	0.142	0.095	0.090	0.042
Business and Finance Associate Professionals	0.301	0.083	0.013	0.009	0.034	0.020	0.207	0.113	0.026	0.011	0.047	0.018
Administrative Associate Professionals	0.127	0.091	0.026	0.018	0.020	0.010	0.093	0.080	0.033	0.020	0.025	0.012
Religious/social workers	0.453	0.213	0.009	0.008	0.010	0.006	0.225	0.153	0.013	0.010	0.008	0.003
Office clerks	0.070	0.053	0.066	0.027	0.036	0.024	0.063	0.057	0.062	0.028	0.033	0.017
Cashiers, tellers, client information clerks	0.136	0.227	0.010	0.006	0.007	0.005	0.042	0.056	0.011	0.006	0.006	0.004
Service Workers (restaurants, housholds, personal care)	0.183	0.132	0.019	0.012	0.017	0.009	0.122	0.091	0.038	0.019	0.024	0.012
Market salespersons	0.252	0.177	0.010	0.005	0.008	0.006	0.165	0.103	0.013	0.005	0.011	0.005
Precisions production, operators, craft and repair occupations	0.235	0.082	0.011	0.005	0.072	0.052	0.223	0.084	0.012	0.005	0.079	0.044
Laborers/elementary occupations	0.154	0.134	0.008	0.003	0.010	0.006	0.075	0.074	0.013	0.005	0.013	0.006
Not in LF or in Military			0.220		0.114				0.202		0.127	

Notes: The data is from the 1995 and 2010 EU-LFS and the 1995 and 2010 CPS. The unit of observation is a country-occupation-year. The table reports the mean and standard deviation across countries of the share of full-time males working overtime, the share of ever-married women working in an occupation, and the share of males working in an occupation, separately by occupation in 1995 and 2010. The sample is restricted to individuals aged 23-62 with a college degree.

Table 5. Panel estimates of the relationship between prevalence of working long hours and occupational choice by Education

	Dep. Var: Share of Demographic Group working in Occupation group i											
	A. College						B. Non College					
	Women Ever Married			Women Single		Men	Women Ever Married			Women Single		Men
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share of Males working 50+ hours	-0.033**	-0.021*	-0.021**	-0.017	-0.007	-0.015*	0.019	-0.015	0.010	0.017	-0.018	0.083*
	[0.015]	[0.011]	[0.007]	[0.017]	[0.014]	[0.009]	[0.021]	[0.011]	[0.012]	[0.016]	[0.011]	[0.047]
Share Males Same Age		0.793***			0.650***			0.417***			0.419***	
		[0.114]			[0.093]			[0.109]			[0.075]	
Share Single Females Same Age			0.720***						0.579***			
			[0.091]						[0.069]			
Country FE	X	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Occupation Group FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Occ FE	X	X	X	X	X	X	X	X	X	X	X	X
Year x Occ FE	X	X	X	X	X	X	X	X	X	X	X	X
Observations	5,600	5,600	5,600	5,600	5,600	5,600	7,173	7,173	7,173	7,173	7,173	7,173

Notes: The data is from the 1992 to 2010 EU-LFS and the 1992 to 2010 CPS. The sample is restricted to individuals between the ages 23-62. The unit of observation is a country-occupation-year. For the college sample, the regressions include non-missing data from 17 countries, 20 occupations, and 19 years. For the non-college sample, the regressions include non-missing data from 17 countries, 25 occupations, and 19 years. The number of observations for the college and non-college sample are less than 17*20*19 and 17*25*19, respectively, as data are not available for some countries in some years. We weight all the regressions using regression weights that are constructed based on the total number of individuals in the occupation, normalized to an averaged of one for each country and year. Standard errors clustered at the country level are reported in brackets. ***significant at the 1% level, **5%, *10%.

Table 6. Relationship between the prevalence of overwork and gender differences in occupational distribution by decade

	Female - Male Difference in Employment Share							
	2010	2000	1990	1980	2010	2000	1990	1980
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of males working 50+ hours	-0.057***	-0.079***	-0.140**	-0.086	-0.030***	-0.035***	-0.037***	-0.028**
	[0.017]	[0.024]	[0.067]	[0.054]	[0.007]	[0.007]	[0.009]	[0.012]
Excluded occs.	none	none	none	none	Pri Sch Teachers & Nurses			
Observations	226	226	226	226	224	224	224	224
R-squared	0.063	0.078	0.092	0.020	0.277	0.364	0.265	0.066

Notes: The data is from the 1980 to 2000 US Census and the 2012 3-year aggregate ACS. The unit of observation is an occupation. The outcome is the female - male difference in the share of college-educated individuals age 23 to 62 employed full-time in each occupation. The independent variable is the share of males age 23 to 62 who reported working 50 or more hours per week in each occupation. The first four columns include all 226 consistently defined occupations. Columns (5) to (8) exclude primary school teachers and registered nurses. All regressions are weighted by the number of college-educated females age 23 to 62 in each occupation. Robust standard errors are reported in brackets.***significant at the 1% level, **5%, *10%.

Table 7. Relationship between the prevalence of working long hours and occupational choices of college educated women

	Dep. Var: Share of College Educated working in occupation *i*								
	Married Females age 23-42							Married Females age 43-62	Males age 23-42
	With Children					No Children	Single	With Children	Both
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share of males age 23 to 62 working 50+ hours	-0.226	-0.195**	-0.181*	-0.138*	-0.175**	0.005	-0.017	-0.054	-0.000
	[0.144]	[0.093]	[0.096]	[0.070]	[0.088]	[0.024]	[0.032]	[0.068]	[0.010]
Share of individuals of the same age working in occupation *i:*									
Males			1.311***			2.206***	1.543***	4.264***	
			[0.304]			[0.791]	[0.527]	[0.659]	
Single Females				0.973***					
				[0.119]					
Married females without children					0.692***				
					[0.117]				
deviation of log male and female wages		X	X	X	X	X	X	X	X
Occupation FE	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X
Observations	904	904	904	904	904	904	904	904	904
R-squared	0.954	0.966	0.968	0.976	0.972	0.981	0.971	0.987	0.923

Notes: The data is from the 1980 to 2000 US Census and the 2012 3-year aggregate ACS. The unit of observation is an occupation by year. The regressions include 226 occupations and four decades. The average and standard deviation of log female and male wages are computed for full-time workers age 23 to 62. The regressions are weighted by the number of workers (as defined by the outcome) in the occupation in 1980. Standard errors clustered at the occupation level are reported in brackets. ***significant at the 1% level, **5%, *10%.

Appendix Table 1. Trends in the Prevalence of Overwork of FT Males by Country and Education Level

	2010		2005		2000		1995	
	College	No College	College	No College	College	No College	College	No College
Austria	0.36	0.21	0.42	0.24	0.21	0.11	0.20	0.12
Belgium	0.23	0.13	0.24	0.13	0.24	0.12	0.21	0.12
Denmark	0.10	0.10	0.17	0.17	0.21	0.17	0.20	0.16
Finland	0.12	0.15	0.13	0.16	0.16	0.18	0.12	0.14
France	0.32	0.19	0.34	0.18	0.27	0.13	0.33	0.15
Germany	0.27	0.13	0.26	0.13	0.25	0.13	0.22	0.11
Greece	0.17	0.24	0.19	0.26	0.17	0.27	0.19	0.28
Ireland	0.16	0.15	0.20	0.18	0.23	0.24	0.31	0.33
Italy	0.23	0.17	0.26	0.18	0.23	0.16	0.21	0.14
Netherlands	0.11	0.13	0.10	0.12	0.13	0.12		
Norway	0.06	0.07	0.06	0.09	0.06	0.11		
Portugal	0.16	0.14	0.18	0.15	0.13	0.16	0.26	0.23
Spain	0.17	0.19	0.18	0.20	0.14	0.19	0.11	0.17
Sweden	0.07	0.11	0.09	0.12	0.10	0.12	0.12	0.12
Switzerland	0.13	0.09	0.13	0.10	0.21	0.11		
United Kingdom	0.28	0.24	0.29	0.27	0.32	0.30	0.36	0.33
United States	0.31	0.19	0.34	0.23	0.38	0.25	0.38	0.26

Notes: The data is from the 1992 to 2010 EU-LFS and the US CPS for selected years. The big jump in overwork in Austria between 2000 and 2005 is surprising, and probably does not reflect a real trend as numbers from the OECD Better Life Index Dataset do not match this high level of overwork. Note, however, that all of our cross-country results are robust to excluding Austria from the sample.

Appendix Table 2. Average Differences in Daily Minutes Devoted to Household Production between Female and Male FT Workers, by day of the week

	A. Weekdays					
	College			Non College		
	Average Female-Male Difference in:					
Country	Children care	Household Work	Total Hhld Production	Children care	Household Work	Total Hhld Production
Denmark	33	54	87	29	40	70
France	26	95	121	23	122	144
Germany	5	61	67	8	63	71
Italy	10	109	119	9	152	161
Netherlands	34	47	81	26	89	115
Norway	72	53	125	53	48	101
Spain	33	94	127	11	135	147
UK	33	69	101	5	56	61
US	27	41	68	14	59	72
	B. Weekends					
	College			Non College		
	Average Female-Male Difference in:					
Country	Children care	Household Work	Total Hhld Production	Children care	Household Work	Total Hhld Production
Denmark	33	0	33	20	33	53
France	28	80	108	12	139	151
Germany	-13	77	64	-1	73	72
Italy	24	169	193	2	191	193
Netherlands	9	63	71	-15	76	60
Norway	55	-11	44	15	53	68
Spain	19	93	112	-1	132	131
UK	8	45	53	6	76	82
US	9	60	69	6	74	80

Notes: The data is from the 1998-2009 Multi-National Time-Use Survey (MTUS). The sample is restricted to workers working at least 35 hours a week, aged 25-64, who reported living with their partner and having children.

Appendix Table 3: Occupational Classification for the Country-Occupation-Year Panel by Education

Occupation in the EU-LFS		Broad Occupation Group	
ISCO-88	Name	College	Non-College
110	Legislators and senior officials, nos	Legislators and Managers	Legislators and Managers
111	Legislators	Legislators and Managers	Legislators and Managers
114	Senior officials of special-interest organisations	Legislators and Managers	Legislators and Managers
120	Corporate managers, nos	Legislators and Managers	Legislators and Managers
121	Directors and chief executives	Legislators and Managers	Legislators and Managers
122	Production and operations managers	Legislators and Managers	Legislators and Managers
123	Other specialist managers	Legislators and Managers	Legislators and Managers
130	Managers of small enterprises, nos	Legislators and Managers	Legislators and Managers
131	Managers of small enterprises	Legislators and Managers	Legislators and Managers
211	Physicists, chemists and related profss.	Natural and Life Sciences, Math and Computing profss.	Natural and Life Sciences, Math and Computing profss.
212	Mathematicians, statisticians and related profss.	Natural and Life Sciences, Math and Computing profss.	Natural and Life Sciences, Math and Computing profss.
213	Computing profss.	Natural and Life Sciences, Math and Computing profss.	Natural and Life Sciences, Math and Computing profss.
214	Architects, engineers and related profss.	Architects and engineers	Architects and engineers
221	Life science profss.	Natural and Life Sciences, Math and Computing profss.	Natural and Life Sciences, Math and Computing profss.
222	Health profss. (except nursing)	Health profss.	Health profss.
223	Nursing and midwifery profss.	Health profss.	Health profss.
231	College, university and higher education teaching profss	Educators	Educators
232	Secondary education teaching profss.	Educators	Educators
233	Primary and pre-primary education teaching profss.	Educators	Educators
234	Special education teaching profss.	Educators	Educators
235	Other teaching profss.	Educators	Educators
241	Business profss.	Business profss. (Accountants, HR, etc)	Business profss. (Accountants, HR, etc)
242	Legal profss.	Legal profss.	Legal profss.
243	Archivists, librarians and related information profss.	Educators	Educators
244	Social science and related profss.	Social Scientists	Social Scientists
245	Writers and creative or performing artists	Writers and Artists	Writers and Artists
246	Religious profss.	Religious/social workers	Religious/social workers
247	Public service administrative profss.	Public Administration profss.	Public Administration profss.
311	Physical and engineering science technicians	Associate profss. excluding Business	Associate profss. excluding Business
312	Computer associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
313	Optical and electronic equipment operators	Associate profss. excluding Business	Associate profss. excluding Business
314	Ship and aircraft controllers and technicians	Associate profss. excluding Business	Associate profss. excluding Business
315	Safety and quality inspectors	Associate profss. excluding Business	Associate profss. excluding Business
321	Life science technicians and related associate professiona	Associate profss. excluding Business	Associate profss. excluding Business
322	Health associate profss. (except nursing)	Associate profss. excluding Business	Associate profss. excluding Business
323	Nursing and midwifery associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
331	Primary education teaching associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
332	Pre-primary education teaching associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
333	Special education teaching associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
334	Other teaching associate profss.	Associate profss. excluding Business	Associate profss. excluding Business
341	Finance and sales associate profss.	Business and Finance Associate profss.	Business and Finance Associate profss.

Appendix Table 3: Occupational Classification for the Country-Occupation-Year Panel by Education (continuation)

Occupation in the EU-LFS		Broad Occupation Group	
ISCO-88	Name	College	Non-College
342	Business services agents and trade brokers	Business and Finance Associate profss.	Business and Finance Associate profss.
343	Administrative associate profss.	Administrative Associate profss.	Administrative Associate profss.
344	Customs, tax and related government associate profss	Administrative Associate profss.	Administrative Associate profss.
345	Police inspectors and detectives	Administrative Associate profss.	Administrative Associate profss.
346	Social work associate profss.	Religious/social workers	Religious/social workers
347	Artistic, entertainment and sports associate profss.	Writers and Artists	Writers and Artists
348	Religious associate profss.	Religious/social workers	Religious/social workers
411	Secretaries and keyboard-operating clerks	Office clerks	Office clerks
412	Numerical clerks	Office clerks	Office clerks
413	Material-recording and transport clerks	Office clerks	Office clerks
414	Library, mail and related clerks	Office clerks	Office clerks
419	Other office clerks	Office clerks	Office clerks
421	Cashiers, tellers and related clerks	Cashiers, tellers, client information clerks	Cashiers, tellers, client information clerks
422	Client information clerks	Cashiers, tellers, client information clerks	Cashiers, tellers, client information clerks
511	Travel attendants and related workers	Service Workers (restaurants, housholds, personal care)	Housekeeping and restaurant services workers
512	Housekeeping and restaurant services workers	Service Workers (restaurants, housholds, personal care)	Housekeeping and restaurant services workers
513	Personal care and related workers	Service Workers (restaurants, housholds, personal care)	Personal care and related workers
514	Other personal services workers	Service Workers (restaurants, housholds, personal care)	Other personal services workers - including protective ss
516	Protective services workers	Service Workers (restaurants, housholds, personal care)	Other personal services workers - including protective ss
521	Fashion and other models	Writers and Artists	Writers and Artists
522	Shop, stall and market salespersons and demonstrators	Market salespersons	Market salespersons
611	Market gardeners and crop growers	Precisions production, operators, craft and repair occs.	Skilled agricultural and fishery workers
612	Animal producers and related workers	Precisions production, operators, craft and repair occs.	Skilled agricultural and fishery workers
613	Crop and animal producers	Precisions production, operators, craft and repair occs.	Skilled agricultural and fishery workers
614	Forestry and related workers	Precisions production, operators, craft and repair occs.	Skilled agricultural and fishery workers
615	Fishery workers, hunters and trappers	Precisions production, operators, craft and repair occs.	Skilled agricultural and fishery workers
710	Extraction and building trades workers, nos	Precisions production, operators, craft and repair occs.	Extraction and building trades workers
711	Miners, shotfirers, stone cutters and carvers	Precisions production, operators, craft and repair occs.	Extraction and building trades workers
712	Building frame and related trades workers	Precisions production, operators, craft and repair occs.	Extraction and building trades workers
713	Building finishers and related trades workers	Precisions production, operators, craft and repair occs.	Extraction and building trades workers
714	Painters, building structure cleaners and related trades workers	Precisions production, operators, craft and repair occs.	Extraction and building trades workers
721	, and related trades workers	Precisions production, operators, craft and repair occs.	Metal, machinery and related trades workers
722	Blacksmiths, tool-makers and related trades workers	Precisions production, operators, craft and repair occs.	Metal, machinery and related trades workers
723	Machinery mechanics and fitters	Precisions production, operators, craft and repair occs.	Metal, machinery and related trades workers
724	Electrical and electronic equipment mechanics and fitters	Precisions production, operators, craft and repair occs.	Metal, machinery and related trades workers
730	Precision, handicraft, printing and related trades workers, nos	Precisions production, operators, craft and repair occs.	Precision, handicraft, craft printing and relate
731	Precision workers in metal and related materials	Precisions production, operators, craft and repair occs.	Precision, handicraft, craft printing and relate
732	Potters, glass-makers and related trades workers	Precisions production, operators, craft and repair occs.	Precision, handicraft, craft printing and relate
733	Handicraft workers in wood, textile, leather and related materials	Precisions production, operators, craft and repair occs.	Precision, handicraft, craft printing and relate

Appendix Table 3: Occupational Classification for the Country-Occupation-Year Panel by Education (continuation)

Occupation in the EU-LFS		Broad Occupation Group	
ISCO-88	Name	College	Non-College
734	Craft printing and related trades workers	Precisions production, operators, craft and repair occs.	Precision, handicraft, craft printing and relate
740	Other craft and related trades workers, nos	Precisions production, operators, craft and repair occs.	Other craft and related trades workers
741	Food processing and related trades workers	Precisions production, operators, craft and repair occs.	Other craft and related trades workers
742	Wood treaters, cabinet-makers and related trades workers	Precisions production, operators, craft and repair occs.	Other craft and related trades workers
743	Textile, garment and related trades workers	Precisions production, operators, craft and repair occs.	Other craft and related trades workers
744	Pelt, leather and shoemaking trades workers	Precisions production, operators, craft and repair occs.	Other craft and related trades workers
810	Stationary plant and related operators, nos	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
811	Mining and mineral-processing-plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
812	Metal-processing plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
813	Glass, ceramics and related plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
814	Wood-processing- and papermaking-plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
815	Chemical-processing-plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
816	Power-production and related plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
817	Industrial robot operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
820	Machine operators and assemblers, nos	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
821	Metal- and mineral-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
822	Chemical-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
823	Rubber- and plastic-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
824	Wood-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
825	Printing-, binding- and paper-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
826	Textile-, fur- and leather-products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
827	Food and related products machine operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
828	Assemblers	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
829	Other machine operators not elsewhere classified	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
830	Drivers and mobile plant operators, nos	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
831	Locomotive engine drivers and related workers	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
832	Motor vehicle drivers	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
833	Agricultural and other mobile plant operators	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
834	Ships' deck crews and related workers	Precisions production, operators, craft and repair occs.	Plant and Machine Operators
910	Sales and services elementary occs., nos	Laborers/elementary occs.	Laborers/elementary occs.
911	Street vendors and related workers	Laborers/elementary occs.	Laborers/elementary occs.
912	Shoe cleaning and other street services elementary occs	Laborers/elementary occs.	Laborers/elementary occs.
913	Domestic and related helpers, cleaners and launderers	Laborers/elementary occs.	Laborers/elementary occs.
914	Building caretakers, window and related cleaners	Laborers/elementary occs.	Laborers/elementary occs.
915	Messengers, porters, doorkeepers and related workers	Laborers/elementary occs.	Laborers/elementary occs.
916	Garbage collectors and related labourers	Laborers/elementary occs.	Laborers/elementary occs.
921	Agricultural, fishery and related labourers	Laborers/elementary occs.	Laborers/elementary occs.
930	Labourers in mining, cons., manufacturing and transport, nos	Laborers/elementary occs.	Laborers/elementary occs.
931	Mining and construction labourers	Laborers/elementary occs.	Laborers/elementary occs.
932	Manufacturing labourers	Laborers/elementary occs.	Laborers/elementary occs.
933	Transport labourers and freight handlers	Laborers/elementary occs.	Laborers/elementary occs.

Appendix Table 4. Panel estimates of the medium-run relationship between prevalence of working long hours and occupational choice by education

	Dep. Var: Share of Demographic Group working in Occupation group i											
	A. College						B. Non College					
	Women Ever Married			Women Single		Men	Women Ever Married			Women Single		Men
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share of Males working 50+ hours	-0.072**	-0.047***	-0.034*	-0.050*	-0.030	-0.026	0.024	-0.015	0.002	0.036*	-0.005	0.097*
	[0.031]	[0.016]	[0.019]	[0.024]	[0.018]	[0.016]	[0.023]	[0.015]	[0.014]	[0.018]	[0.016]	[0.051]
Share Males Same Ag		0.943***			0.762***			0.405***			0.420***	
		[0.172]			[0.124]			[0.126]			[0.087]	
Share Single Females Same Age			0.763***						0.630***			
			[0.075]						[0.069]			
Years Included:	5-year intervals: 1992, 1997, 2002, 2007, 2010											
Country FE	X	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Occupation Group FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Year FE	X	X	X	X	X	X	X	X	X	X	X	X
Country x Occ FE	X	X	X	X	X	X	X	X	X	X	X	X
Year x Occ FE	X	X	X	X	X	X	X	X	X	X	X	X
Observations	1,460	1,460	1,460	1,460	1,460	1,460	1,859	1,859	1,859	1,859	1,859	1,859

Notes: The data is from the 1992, 1997, 2002, 2007 and 2010 EU-LFS and CPS. The sample is restricted to individuals between the ages 23-62. The unit of observation is a country-occupation-year. For the college sample, the regressions include non-missing data from 17 countries, 20 occupations, and 5 years. For the non-college sample, the regressions include non-missing data from 17 countries, 25 occupations, and 5 years. The number of observations for the college and non-college sample are less than 17*20*5 and 17*25*5, respectively, as data are not available for some countries in some years. We weight all the regressions using regression weights that are constructed based on the total number of individuals in the occupation, normalized to an averaged of one for each country and year. Standard errors clustered at the country level are reported in brackets. ***significant at the 1% level, **5%, *10%.

Appendix Table 5. List of Occupations Included in US Analysis for College Graduates

occ1990dd	Occupation Name	occ1990dd	Occupation Name
4	Chief executives, public administrators, and legislators	158	Special education teachers
7	Financial managers	163	Vocational and educational counselors
8	Human resources and labor relations managers	164	Librarians
13	Managers and specialists in marketing, advert., PR	165	Archivists and curators
14	Managers in education and related fields	166	Economists, market and survey researchers
15	Managers of medicine and health occupations	167	Psychologists
18	Managers of properties and real estate	173	Urban and regional planners
19	Funeral directors	174	Social workers
23	Accountants and auditors	176	Clergy and religious workers
24	Insurance underwriters	177	Welfare service workers
25	Other financial specialists	178	Lawyers and judges
26	Management analysts	183	Writers and authors
27	Personnel, HR, training, and labor rel. specialists	184	Technical writers
28	Purchasing agents and buyers of farm products	185	Designers
29	Buyers, wholesale and retail trade	186	Musicians and composers
34	Business and promotion agents	187	Actors, directors, and producers
35	Construction inspectors	188	Painters, sculptors, craft-artists, and print-makers
36	Inspectors and compliance officers, outside	189	Photographers
37	Management support occupations	194	Art/entertainment performers and related occs
43	Architects	195	Editors and reporters
44	Aerospace engineers	198	Announcers
45	Metallurgical and materials engineers	199	Athletes, sports instructors, and officials
47	Petroleum, mining, and geological engineers	203	Clinical laboratory technologies and technicians
48	Chemical engineers	203	Clinical laboratory technologies and technicians"
53	Civil engineers	206	Radiologic technologists and technicians
55	Electrical engineers	207	Licensed practical nurses
56	Industrial engineers	214	Engineering technicians
57	Mechanical engineers	217	Drafters
64	Computer systems analysts and computer scientists	218	Surveryors, cartographers, mapping scientists/techs
65	Operations and systems researchers and analysts	223	Biological technicians
66	Actuaries	224	Chemical technicians
68	Mathematicians and statisticians	225	Other science technicians
69	Physicists and astronomists	226	Airplane pilots and navigators
73	Chemists	227	Air traffic controllers
74	Atmospheric and space scientists	228	Broadcast equipment operators
75	Geologists	229	Computer software developers
77	Agricultural and food scientists	234	Legal assistants and paralegals
78	Biological scientists	243	Sales supervisors and proprietors
79	Foresters and conservation scientists	253	Insurance sales occupations
83	Medical scientists	254	Real estate sales occupations
84	Physicians	255	Financial service sales occupations
85	Dentists	256	Advertising and related sales jobs
86	Veterinarians	258	Sales engineers
87	Optometrists	275	Retail salespersons and sales clerks
89	Other health and therapy occupations	276	Cashiers
96	Pharmacists	277	Door-to-door sales, street sales, and news vendors
97	Dieticians and nutritionists	303	Office supervisors
98	Respiratory therapists	308	Computer and peripheral equipment operators
98	Respiratory therapists	313	Secretaries and stenographers
99	Occupational therapists	315	Typists
103	Physical therapists	316	Interviewers, enumerators, and surveyors
104	Speech therapists	317	Hotel clerks
106	Physicians' assistants	318	Transportation ticket and reservation agents
154	Subject instructors, college	319	Receptionists and other information clerks
155	Kindergarten and earlier school teachers	326	Correspondence and order clerks
156	Primary school teachers	328	Human resources clerks, excl payroll and timekeeping
157	Secondary school teachers	329	Library assistants

Appendix Table 5. List of Occupations Included in US Analysis for College Graduates (continuation)

occ1990dd	Occupation Name
335	File clerks
336	Records clerks
337	Bookkeepers and accounting and auditing clerks
338	Payroll and timekeeping clerks
344	Billing clerks and related financial records processing
348	Telephone operators
354	Postal clerks, exluding mail carriers
355	Mail carriers for postal service
356	Mail clerks, outside of post office
357	Messengers
359	Dispatchers
364	Shipping and receiving clerks
365	Stock and inventory clerks
366	Meter readers
368	Weighers, measurers, and checkers
373	Material recording, sched., prod., plan., expediting cl.
375	Insurance adjusters, examiners, and investigators
376	Customer service reps, invest., adjusters, excl. insur.
377	Eligibility clerks for government prog., social welfare
378	Bill and account collectors
379	General office clerks
383	Bank tellers
385	Data entry keyers
386	Statistical clerks
387	Teacher's aides
405	Housekeepers, maids, butlers, and cleaners
408	Laundry and dry cleaning workers
415	Supervisors of guards
417	Fire fighting, fire prevention, and fire inspection occs
418	Police and detectives, public service
423	Sheriffs, bailiffs, correctional institution officers
426	Guards and police, except public service
433	Supervisors of food preparation and service
434	Bartenders
435	Waiters and waitresses
436	Cooks
444	Miscellanious food preparation and service workers
447	Health and Nursing Aids
448	Supervisors of cleaning and building service
450	Superv. of landscaping, lawn service, groundskeeping
451	Gardeners and groundskeepers
453	Janitors
455	Pest control occupations
457	Barbers
458	Hairdressers and cosmetologists
459	Recreation facility attendants
461	Guides
464	Baggage porters, bellhops and concierges
466	Recreation and fitness workers
468	Child care workers
471	Public transportation attendants and inspectors
472	Animal caretakers, except farm
475	Farm managers
479	Farm workers, incl. nursery farming
496	Timber, logging, and forestry workers
503	Supervisors of mechanics and repairers
505	Automobile mechanics and repairers
508	Aircraft mechanics
516	Heavy equipement and farm equipment mechanics
518	Industrial machinery repairers
523	Repairers of industrial electrical equipment
525	Repairers of data processing equipment
526	Repairers of household appliances and power tools
527	Telecom and line installers and repairers
534	Heating, air conditioning, and refrigeration mechanics
535	Precision makers, repairers, and smiths
558	Supervisors of construction work
563	Masons, tilers, and carpet installers
567	Carpenters
575	Electricians
579	Painters, construction and maintenance
585	Plumbers, pipe fitters, and steamfitters
593	Insulation workers
628	Production supervisors or foremen
634	Tool and die makers and die setters
637	Machinists
653	Other metal and plastic workers
657	Cabinetmakers and bench carpeters
675	Hand molders and shapers, except jewelers
677	Optical goods workers
678	Dental Laboratory and medical applicance technicians
686	Butchers and meat cutters
687	Bakers
694	Water and sewage treatment plant operators
695	Power Plants Operators
696	Plant and system operators, stationary engineers
699	Other plant and system operators
706	Punching and stamping press operatives
733	Other woodworking machine operators
736	Typesetters and compositors
754	Packers, fillers, and wrappers
756	Mixing and blending machine operators
757	Separating, filterin, and clarifying machine operators
774	Photographic process workers
783	Welders, solderers, and metal cutters
785	Assemblers of electrical equipment
789	Painting and decoration occupations
799	Production checkers, graders, and sorters in
803	Supervisors of motor vehicle transportation
804	Truck, delivery, and tractor drivers
808	Bus drivers
809	Taxi cab drivers and chauffeurs
823	Railroad conductors and yardmasters
824	Locomotive operators: engineers and firemen
829	Ship crews and marine engineers
844	Operating engineers of construction equipment
848	Crane, derrick, winch, hoist, longshore operators
859	Stevedores and misc. material moving occupations
869	Construction Laborers
875	Garbage and recyclable material collectors
885	Garage and service station related occupations
887	Vehicle washers and equipment cleaners
888	Packers and packagers by hand

Appendix Table 6. Descriptive Statistics US Cross-Occupation Sample

	1980	1990	2000	2010
Share of Males Working 50+ hrs a week	0.222	0.282	0.319	0.292
	(0.085)	(0.083)	(0.104)	(0.101)
Share of Females - Share of Males	0.051	0.046	0.038	0.031
	(0.060)	(0.053)	(0.043)	(0.035)
Share of Married Females With Children Aged 23-42	0.025	0.024	0.016	0.021
	(0.022)	(0.022)	(0.013)	(0.019)
Log(Wage Males)	2.554	2.694	2.692	2.709
	(0.155)	(0.172)	(0.187)	(0.221)
Std. Log(Wage Males)	0.438	0.479	0.505	0.490
	(0.068)	(0.083)	(0.085)	(0.097)
Log(Wage Females)	2.350	2.528	2.576	2.597
	(0.171)	(0.193)	(0.177)	(0.202)
Std. Log(Wage females)	0.389	0.425	0.451	0.446
	(0.051)	(0.060)	(0.068)	(0.073)
No. of Occupations	226	226	226	226

Notes: Data comes from the 1980-2000 Census and 2012 3-year ACS. The data is at the occupation level. The summary statistics refer to college educated workers aged 23-62. Observations weighted by cell size.

Appendix Table 7. Relationship between the Prevalence of Working Long Hours and Occupational Choices of Non-College Educated Women

	Dep. Var: Share of Non-College Educated working in occupation *i*								
	Married Females age 23-42							Married Females age 43-62	Males age 23-42
	With Children					No Children	Single	With Children	Both
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share of males working 50+ hours	0.012	0.005	0.014	0.017	0.012	-0.005	-0.013	0.025	-0.025**
	[0.017]	[0.018]	[0.021]	[0.015]	[0.011]	[0.025]	[0.028]	[0.016]	[0.012]
Share of individuals of the same age working in occupation *i:*									
Males			0.557			0.688	1.125**	0.669**	
			[0.417]			[0.449]	[0.563]	[0.325]	
Single Females				0.410***					
				[0.103]					
Married females without children					0.732***				
					[0.113]				
Average and standard deviation of log male and female wages		X	X	X	X	X	X	X	X
Occupation FE	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X
Observations	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156
R-squared	0.962	0.969	0.971	0.984	0.993	0.949	0.904	0.974	0.969

Notes: The data is from the 1980 to 2000 US Census and the 2012 3-year aggregate ACS. The unit of observation is an occupation by year. The regressions include 289 occupations and four decades. Note that the number of occupations (and observations) is larger than that of Table 7 due to fewer occupations dropped because of small cell size. The average and standard deviation of log female and male wages are computed for full-time workers age 23 to 62. The regressions are weighted by the number of workers (as defined by the outcome) in the occupation in 1980. Standard errors clustered at the occupation level are reported in brackets. ***significant at the 1% level, **5%, *10%.