# Understanding the Prevalence and Returns to Working Long Hours and the Gender Pay Gap : Evidence Across Countries[1]

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August 2015

## Abstract

This paper studies the effects of the prevalence and high returns to working long hours on female labor market outcomes, particularly for highly educated women. Our empirical strategy uses cross-country data from 18 developed countries and exploits time-series and cross-industry variation. Our results suggest that an increase in the prevalence of overwork in an industry (defined as working 50+ hours a week) reduces the share of married educated women aged 23 to 42 working in that industry, even after controlling for the industry distribution of single women of the same age. Consistent with Goldin (2014) and Cha and Weeden (2014), we find that industries with high returns to working long hours have wider gender pay gaps, but only in countries where overwork is prevalent. Our findings suggest that the relationship between measured returns to overwork and gender pay gaps is at least partially driven by the higher cost to women of providing long hours and is not driven exclusively by gender differences in other skills that are also valued in those industries.

[1] Research support from the US Department of Labor is gratefully acknowledged. We would like to thank comments from Avar Consulting and the DOL Chief Evaluation Office. Steven Rogers provided excellent research assistance. This report was prepared for the U.S. Department of Labor (DOL), Chief Evaluation Office. The views expressed are those of the authors and should not be attributed to DOL, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. Government.

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# 1 Introduction

Gender differences in earnings have remained remarkably persistent in the United States and many developed countries despite delines in labor market discrimination and the progress that women have made in reversing the gender gap in education (Blau 2012, Blau and Kahn 2006). In her 2014 AEA presidential address, Claudia Goldin argued that the persistence of the gender pay gap, particularly among highly skilled women, is largely driven by the fact that, in many occupations, jobs are organized in a way that individuals are disproportionately rewarded for putting in long hours on the job. Using a US cross-section of occupations, Goldin (2014) documents that occupations characterized by higher returns to overwork are also those with the largest gender gap in earnings. Cha and Weeden (2014) also report a strong time-series correlation between the gender gap in earnings and the level and returns to overwork in the US.

As illustration of the persistence of the gender pay gap and of the potential link between the prevalence and returns to working long hours and the evolution of the gender differences in earnings, Figure 1 presents the trends in these variables by education level. Panel A shows that the the rate of convergence of the gender pay gap has been quite different across education levels in the US. The gender pay gap appears to have converged much less for college graduates over time, relative to their less-skilled counterparts. At the same time, the returns and incidence of working long hours for males appears to have increased for all education groups, with college-educated workers experiencing the largest increases over time (Figure 1 Panels B and C).

In this paper, we use cross-country variation—both cross-sectionally and over time—to advance this emergent literature in a few important directions. First, we attempt to address a significant causality concern with the existing papers. Goldin (2014) and Cha and Weeden (2014) do not address the issue that occupations that disproportionately reward individuals who work long hours are likely to differ on other important dimensions that may also be correlated with the gender pay gap. For example, occupations where the incidence of overtime are common, such as financial managers and lawyers, are also characterized as being highly competitive. Recent research suggests that women tend to " opt-out" of competition and males tend to outperform females in competitive settings.[4] We exploit large cross-country differences in the prevalence of working long hours, which are likely to be exogenous to characteristics at the industry and occupation level. The intuition is the following: there is significant cross-country variation in the incidence of overwork— in the US and the UK, for example, the share of workers putting in more than 50 hours a week is about six times the share in some Nordic countries where less than three percent of workers work long hours. If the relationship between the measured returns to overwork and the gender gap is causal, we should observe smaller differences in gender pay gaps across industries and occupations in countries where fewer workers work overtime, under the assumption that the gender differences in attributes (e.g. preferences toward competition) and how much they are valued by different jobs are similar across countries.

[4] For examples, see Gneezy, Niederle, and Rustichini, 2003; Ors, Palomino and Peyrache, 2012; Flory, Leibbrant and List, 2014.

Second, we explore the effects of the prevalence of working long hours on female labor force participation decisions and industry choice. A work environment in which many males work long hours might hinder the ability, or the desire of women, particularly those with the highest cost of providing long hours, to stay in the labor force or to work in a particular industry or occupation. This effect might be operative even if the returns to working long hours are not particularly high (and thus overwork prevalence has little or even a positive effect on the gender wage gap).[5][6]

Finally, the cross-country dimension in our analysis allows us to assess the contribution of cross-country differences in the prevalence and returns to overwork in explaining the large differences in the size of the gender pay gap and industry choice across countries. This could be helpful in designing policies to promote gender equality in the workplace. Moreover, by examining the experiences of other developed countries, we can potentially learn more about the determinants of the striking trends in the incidence of overwork and the returns to overwork in the US and their their role in explaining the persistent gender wage gap, particularly among the highly educated. For example, if the trends and levels are common to all countries, this would suggest that the underlying causes are likely to be universal—for example, resulting from technological innovation and globalization. On the other hand, if the trends and levels differ substantially across countries, this would indicate a stronger role for country-specific factors, such as differences in organizational structure, inequality, and institutions.

This paper uses micro data for 18 industrialized countries, including the US.[7] The US data are drawn from the Census, the American Community Survey, and the CPS. For Europe, we use the EU-Labor Force Survey (EU-LFS) and the European Union Statistics on Income and Living Conditions (EU-SILC). Our period of analysis spans the early 1980s to 2011 or 2013, depending on the availability of the outcome variable of interest.

Our empirical exercises yield several interesting results. First, compared to other industrialized countries, with the exception of the UK, the US has a much higher share of workers working 50 hours or more per week. It is not clear what drives this difference, as it does not appear to be related to cross-country differences in the returns to working long hours. In fact, the returns to working long hours in the US are not unusually high as compared to other countries. Second, within countries, skill groups that have experienced a larger increase in the prevalence of overwork have also experienced a relatively larger drop in the labor force participation of women. Similarly, within countries, an increase in the share of males working long hours within an industry is associated with a reduction in the share of married women of childbearing age choosing to work in that industry. Third, our econometric exercise exploiting country*industry variation suggests that the higher cost of women of providing long hours in an environment where many men do, has a causal effect on the gender pay gap, particularly in industries where the returns to working long hours are very high, such as finance and

[5] More precisely, if the return to working long hours—defined as the elasticity of annual earnings to usual hours worked per week—is less than one, a larger share of men working long weeks leads to a narrowing of the gender gap in hourly wage.

[6] A good example in this respect is South Korea. Although, by our own calculations, the returns to working long hours are extremely low, very few women participate in the labor force as they are not willing/cannot supply the long hours expected in corporate jobs. See for example http://thediplomat.com/2014/08/south-koreas-failure-to-support-working-women/

[7] The countries in our sample include the United States, Austria, Belgium, Switzerland, Luxembourg, Germany, France, Ireland, Netherlands, United Kingdom, Italy, Greece, Spain, Portugal, Denmark, Finland, Norway, and Sweden.

professional services. Both the effects on industry distribution and gender wage gaps are concentrated among women with a tertiary education. Finally, we find that the relative ranking of industries with respect to the returns to overwork does not appear to vary much across countries, suggesting that industry-variation in the value of working long hours depends to an important extent on intrinsic characteristics of the industry that are common across countries. At the same time, our comparison of public vs. private sector industries suggest that country-specific institutions and environment may also play a role. Overall, these results suggest that the prevalence of overwork has important effects on industry choice and the size of gender pay gaps.

The rest of the paper is organized as follows. In Section 2, we discuss the data sources and the construction of the key variables in our analysis. Section 3 presents the graphical and econometric analysis using cross-country variation over time from the EU-LFS data. Section 4 presents the analysis of gender wage gaps using cross-country data from the EU-SILC. Section 5 concludes and discusses avenues for future work.

# 2 Data and Variable Construction

## 2.1 Cross-Country Data

We use microdata for the US and 17 of the largest Western European countries (see Appendix Table A1 for the list of countries). The US data are drawn from the 1980 to 2000 Censuses and the 2012 American Community Survey (ACS) three-year aggregate (2010-2012). We complement the Census with the 1983 to 2011 CPS. Our data for other countries are from two main databases both produced by Eurostat (the statistical office of the European Union). The first dataset is the European Union Labor Force Survey (EU-LFS) which covers all 28 member states and Iceland, Norway, and Switzerland. For the purposes of our analysis, we restrict our sample to 17 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. However, it has two main drawbacks: (1) the education variable is only available starting in 1992 and (2) the survey does not include income measures.

To obtain measures of the gender pay gap, we turn to the European Union Statistics on income and Living Conditions (EU-SILC). The main constraint when using this dataset is that it is only available starting in the mid-2000s. Therefore, we are only able to exploit cross-country and cross-industry variation when examining the gender pay gaps and the returns to working long hours using this dataset.

For the cross-sectional sample (EU-SILC), we restrict the sample to individuals age 25 to 64. The EU-LFS codes age in five-year intervals—therefore, for that dataset, we restrict the sample to individuals age 23 to 62. The 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. The sample sizes by country and dataset are reported in Appendix Table A1 (EU-LFS) and Table 3 (EU-SILC).

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

## 2.2 Construction of Key Variables

In this subsection we describe the construction of our key variables of interest: the prevalence of overwork, the returns to working long hours, and the gender pay gap.

*a. Prevalence of Overwork*

We define overwork as working 50 hours or more a week,[9] and construct the overwork dummy based on the variable "*number of hours per week usually worked*" available in all the datasets.[10] For most of our analysis, we restrict the sample to full-time workers, defined as those working at least 35 hours per week. We typically focus on measures of overwork for males to avoid complicated issues that arise from gender differences in the ability or willingness to work long hours. In some specifications, we construct the gender gap in overwork, which is defined as the share of females reporting overwork minus the share of males reporting overwork.

*b. Returns to Working Long Hours*

To estimate the returns to working long hours in each country $c$, and education level $e$, we follow the procedure outlined in Goldin (2014) and use data from EU-SILC and the 2012 ACS three-year aggregate. Specifically, we restrict the sample to full-time male workers and estimate the following regression, separately for each country for one cross-sectional time period (2009-2011).[11]

$$\ln(yearly\_earnings)_{ie} = \alpha + \sum_{e} \beta_e * I(edu_{ie} = 1) * \ln(hours\_week)_{ie} + \pi_e + X_{ie}^{'}\delta + \varepsilon_{ie}, \qquad (1)$$

where $yearly\_earnings_{ie}$ is the gross annual nominal wage and salary income of individual $i$ of education $e$, and $hours\_week_{ie}$ refers to the usual hours worked per week by that individual. $\pi_e$ represents education fixed effects and $X_{ie}$ is a vector of demographic characteristics, more specifically a quartic in age.[12] By controlling for $X_i$, we are factoring out differences in the returns to overwork due to demographic composition. Our education classification is based on the highest *completed* degree: college degree or no college degree.[13] Given that we run equation (1) separately by country, there is no need to convert yearly earnings to a common currency. For our industry level analysis, we use a similar specification with industry indicator variables instead of a college dummy.

Our measure of the returns to working long hours is $\beta_e$, which indicates the elasticity of yearly earnings to usual hours worked per week. $\beta_e > 1$ implies that yearly earnings increase more than proportionally for a given change in weekly hours worked, suggesting a convex relationship between earnings and working long hours. Conversely, $\beta_e < 1$ implies that

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

[10] The variable *number of hours per week usually worked* is supposed to include work in the market, and not at home. Because of lack of information on the exact date that surveys were run for some countries, we cannot control for seasonal effects. Note, however, that we concentrate on workers (most of them not in the agricultural sectors) and drop the self-employed.

[11] As discussed above, due to data limitations, we can only estimate this equation for one cross-sectional time period.

[12] Goldin (2014) includes as additional controls the number of weeks worked per year. Unfortunately, this information is not available in the Eurostat datasets – to address the concern that those working long hours are also more likely to work more months or weeks, we restrict the sample to those who reported working full-time for at least for one year, who are not currently students, and who hold not more than one job.

[13] College degree includes associate degrees. We use the Eurostat definition of tertiary education, which includes ISCED levels 5 and 6.

a given increase in hours worked is associated with a less than proportional change in yearly earnings. Therefore, education groups and countries with a higher $\beta$ are characterized by higher returns to working longer hours. We estimate the returns using only full-time male workers to avoid the complex selection issues that are likely to affect the annual wages and hours worked of female workers and workers who choose to work part-time.

It is worth pointing out that there are several important caveats when interpreting $\beta$ as a measure of the returns to working long hours in an education group or an industry. First, our procedure measures the contemporaneous returns among individuals who work different numbers of hours each week. In some occupations such as law and finance, workers are expected to work long hours at lower wages at the beginning of their career before they can advance to management positions that have significantly higher wages in the future. For these occupations, our measure of the contemporaneous return is likely to underestimate the long-run return of working long hours. For example, a recent paper by Gicheva (2013) shows that among a sample of GMAT takers, working more hours, conditional on having worked at least 47 hours, is associated with a significant increase in annual wage growth and the possibility of promotion.[14]

Second, top-coding of income might affect a share of our observations and introduce measurement error. We do not expect this to be a significant problem, as the income top-code for European countries is one million euros, and, for the US, the income top-code is the mean of individuals earning above the 99.5th percentile of income within each state. Note that because the share of top earners is likely to vary by industry, we expect to underestimate the returns for industries with a large share of workers with incomes at the very top of the distribution. Finally, measurement error in weekly hours worked is also likely to lead to a downward bias in the estimated elasticities. Overall, these limitations inherent in our measure imply that $\beta$ is likely to underestimate the true returns to working long hours.

A more subtle but important issue is that of causality. The finding that people who work more hours earn proportionally higher income does not necessarily imply that if a randomly chosen person works 1 percent more hours, her annual income will increase by $\beta$ percent. Leisure preferences and other skills might be strategic complements. For example, in Gicheva's (2013) promotion model with learning-by-doing, learning-by doing depends on the ability level. In other words, more able people are the ones who benefit the most from working more hours. Working long hours might also be correlated with ambition and other non-cognitive skills — for example, in Landers et al. (1986) study of lawyers, billable hours were used as a signal for ambition for success and willingness to pursue the interests of clients aggressively. Our empirical strategy will test if the relationship between working long hours and annual income is at least partially causal. Note that we are the first paper to tackle this issue, both Goldin (2014) and Cha and Weeden (2014) do not address the issue of causality.

*c. Gender Gap in Earnings*

To construct the gender gap by education level (or industry), we estimate the following equation for each country:

[14] Interestingly, she does not find a similar relationship among employees working fewer than 47 hours.

$$\ln(yearly\_earnings)_{ie} = \alpha + \sum_{e}^{'} \lambda_e * I(edu_{ie} = 1) * female_{ie} + \beta * \ln(hours\_week)_{ie}$$
$$+ \pi_e + X_{ie}^{'} \delta + \varepsilon_{ie} \quad (2)$$

The controls used in this equation are identical to that in equation (1). The coefficient $\lambda_e$ is our estimate of the gender earnings gap for education level $e$. As before, we restrict the sample to full-time workers. Note that in this specification, we restrict the elasticity of earnings to working hours to be the same for both genders.

# 3 Results using Cross-country Variation over Time

We begin by presenting descriptive trends in overwork and labor force participation separately by country. As discussed in the introduction and shown in Figure 1, the share of males working long hours has increased a lot in the US in the last three decades for all education groups, particularly college graduates. Are these trends a US phenomenon? Do we observe similar levels and trends in overwork in other industrialized countries? Figure 2, which shows trends by country from the early 1980s to 2011, provides some answers. First, the only other country with recent levels of overwork close to that of the US is the United Kingdom, where about 25 percent of males work 50 hours or more. The Nordic countries, by contrast, have the lowest levels of overwork, hovering around 10 percent. Similarly low levels of overwork are observed in the smaller Western European countries including Belgium, Switzerland, and Luxembourg — the exception is Austria, for which the data suggests a huge jump in 2003.[15] Using cross-sectional data, in the next subsection, we will be able to test if this cross-country variation in overwork is correlated with differences in the returns to working long hours.

Second, most countries do not share the same increasing trend in overwork observed for the US from the 1980s till about 2000.[16] When we look at the change over three decades (1980 to 2010), 12 out of the 18 countries experienced a decrease in the share of males working long hours. This decline is observed even for countries with very low levels of overwork in the 1980s such as Denmark and Norway. This observation suggests that the factors that are driving more Americans – in particularly the highly-skilled – to work longer weeks today as compared to 30 years ago, are not universal.

Figure 3 shows the trends in the gender gap in working 50+ hours by country. The gender gap in overtime is largest in the US and Western Europe and smallest in the Nordic countries—countries with the highest male prevalence of overwork tend to have the largest gender gaps as well. On average, women are about 5 to 10 percentage points less likely to work overtime as compared to males. The overtime gap has been quite stable in most countries, with the exception of the US and Ireland the gap appears to have declined starting in the mid-1990s.

Next, we examine the relationship between the prevalence of overwork and labor market outcomes for women. Due to the lack of time-series data on income across countries,

[15] We could not find a mistake in our code or a change in the survey that will explain this unlikely jump. We will contact Eurostat for information.

[16] Note that the decline observed for the US starting in 2007 is likely caused by the great recession and thus probably temporary.

we are unable to construct measures of the returns to working long hours or the gender pay gap. Nevertheless, we expect that the returns and prevalence of working long hours could affect female labor force participation decisions and industry choice. For example, if women perceive that the only way to succeed in a particular job is to work long hours, they may decide to drop out of the labor force or choose hours-friendly industries when they have children. It is worth noting that even if the returns to working long hours are not particularly high, a larger share of males working long hours is likely to signal a workplace culture where working long hours is expected.

Figure 4 reproduces Figure 2 but with female labor force participation as the outcome. As documented in the literature (e.g. Blau and Kahn, 2013), female labor force participation has remained relatively constant in the US over the past few decades, whereas it has continued to increase in most other regions – with the exception of the Nordic countries, where LFP rates among women were already at high levels in the late 1990s. These trends imply that the US has lost its position as one of the countries with the highest female LFP rates in recent years.

Another characteristic of the US trends presented in Figure 1, is that increases in the prevalence and returns to overwork have been significantly larger for the college educated population. In Figures 5 and 6 we examine the trends in the difference in outcomes between college and non-college workers. Note that these time-series begin only in 1992, as education level was not reported in the earlier EU-LFS.[17] With the exception of most Nordic countries, Greece, and Italy, college educated workers are more likely to put in long hours. The college gap in the share working greater than 50+ hours per week in the US is large, but not very different from France, Germany, and Belgium.

Figure 6 shows the college gap in female labor force participation over time for countries in our sample. Perhaps not surprisingly, college educated females have higher LFP rates as compared to their less-educated counterparts. The college gap in LFP rates for the US levels are lower than that for most countries, but similar in size to countries in Western Europe and Scandinavia. Unlike many other countries, the college gap in female LFP is not declining, and appears to have widened over the past decade.

To formally test the relationship between changes in the prevalence of overwork and female labor force participation, we estimate the following two specifications:

$$Female\_LFP_{ct} = \alpha + \delta_1 * share\_male\_overwork_{ct} + \pi_c + \pi_t + e_{ct} \quad (3)$$

and

$$Female\_LFP_{cet} = \alpha + \delta_2 * share\_male\_overwork_{cet} + \pi_c + \pi_t + \pi_e + \pi_{ct} + \pi_{ce} + \pi_{te} + e_{cet} \quad (4)$$

where $c$ refers to a country, $e$ refers to the education level (college or non college) and $t$ refers to each sample year. The coefficient $\delta_1$ is indicative of a correlation and cannot be interpreted causally. However, by exploiting variation across countries, education groups and time, we can arguably come closer to a causal effect by estimating equation (4). In this specification, we are able to control for unobservable differences across countries and time as well as country-specific factors that vary over time, education-specific shocks, and time-invariant characteristics of an education group at the country level. In some specification,

[17] The time trend for the US is pretty flat, the largest relative changes occurred in the 1970s and the 1980s, as suggested by Figure 1.

we also consider the gender gap in overwork instead of the prevalence of overtime among male workers.

To further address concerns that the estimate of $\delta_2$ may pick up unobservable shocks that are correlated with both the share of males working overtime and female LFP rates across countries and skill groups, we also study the labor force participation of different groups of women, defined by their age and marital status. We examine whether women with more responsibilities at home are more negatively affected by the prevalence of overwork in the workplace. In the absence of data on the presence of children in the household, we use marital status and age as proxies – in particular, we assume that married women age 23 to 42 are more likely to have young children at home, and consequently, are likely to face higher costs of supplying long hours in the labor market.

We present the estimates of equations (3) and (4) in Table 1. The standard errors of the estimates are clustered at the country level. Across the specifications, the coefficients of interest are in the expected direction, although they are mostly not statistically significant. The two exceptions are the coefficients on the share of males working 50+ hours using variation at the country*year*education level (Panel B) for the sample of all women and for the sample of ever-married women aged 23 to 42. Since childcare responsibilities are likely to be highest for married women age 23 to 42, these are the groups for which we would have expected to observe the largest effects. The fact that the coefficient estimates for single women and older married women (aged 43+) are much smaller and not statistically significant suggests that the effects of the prevalence of overwork is likely to be affecting female LFP decisions by deterring women with higher household responsibilities from entering the labor market. The magnitude of the coefficient for ever-married women aged 23 to 42 suggests that a 10 percentage point increase in the share of males working long hours (corresponding to the difference in the prevalence of overwork between the US and France, for example), decreases female labor force participation by 5 percentage points. The average LFP for this group is 78 percent, so the magnitude of this change is quite large, but not unreasonably so.

One concern with our interpretation of the estimate as representing the causal effect of overwork on female labor force decisions is that, with assortative matching, the results might also be explained by income effects. Women's time use decisions could be affected by the higher income resulting from the larger number of hours worked by husbands. Alternatively, as husbands are required to work longer hours, more household responsibilities might be borne by their wives, resulting in a decrease in wives' market labor supply.

To partially address these alternative explanations, we exploit additional variation at the industry level. Arguably, at the industry level, assortative matching is less likely to be an issue. Since we are only able to observe the industry for women who are working, we use a different, but related, outcome to capture differences across countries, and over time, in women's choice of industries. In particular, our main dependent variable is the share of females in a given demographic group who are working in a given industry at time $t$ (i.e. the industry distribution of females of a particular demographic group).[18] More specifically, we estimate the following fixed effects regression:

[18] See Appendix Table A2 for the descriptive statistics of this variable by industry, gender, age group, marital status, and education.

$$\frac{Females_{ict}}{Females_{ct}} = \alpha + \gamma * Share\_male\_overwork_{ict} + \pi_c + \pi_t + \pi_i + \pi_{ct} + \pi_{ci} + \pi_{ti} + e_{cit}$$

where $i$ stands for industry, $c$ for country, and $t$ for year. As in Table 1, we vary the sample of women for which we construct the outcome variable. Note that the main explanatory variable ($Share\_male\_overwork_{ict}$) is meant to proxy for a culture of overwork in a particular industry; hence, it is constructed for the male sample and does not vary by age or marital status.

Although we include the full set of fixed effects, including the full-set of relevant two-way interactions, one might still be concerned that the share of males working long hours in a particular industry $i$ in country $c$ at time $t$ might be correlated with demand shocks to the industry. To ameliorate concerns that our estimates capture industry*country specific demand shocks, in some specifications, we are able to control for the industry composition of single women (especially when we examine the industry composition of married women). Moreover, we anticipate the college educated women could react differently to increases in the industry prevalence of overwork as they are likely to have greater job mobility and can afford to exit the labor market. As such, we also present specifications where we split the sample by education level. In all the regressions, we cluster standard errors at the country level and weight each unit of observation by the cell size.

The results from this exercise are presented in Table 2. While we do not find any effects on the prevalence of overwork on the industry distribution of women in general, we find significantly negative effects for the sample of ever-married college-educated women age 23 to 42. Given that this group of women is most likely to have young children and are also least constrained in terms of job mobility, it is not surprising that they appear most responsive to changes in the demand for overwork. This result is robust to controlling for the share of single females of the same age range working in the industry, suggesting that our estimates are unlikely to be driven entirely by unobserved gender-specific demand shocks that may be correlated with the prevalence of overwork and female industry choice.[19] We find no effect on singles or on older married women – groups of the population with a lower cost of providing long hours compared to married women ages 23 to 42.[20] The magnitude of the effect implies that a 10 percentage point increase in the share of males working more than 50 hours per week reduces the share of young married women working in that industry by about half a percentage point. The average industry share across all countries, years, and industries is about 8 percent. Note that the relative magnitude of this effect is similar to that found on labor force participation using variation at the country*year*education level.

In sum, the results in this section suggest that the prevalence of overwork has a negative effect on the extensive margin female labor supply and female industry choice. In the next section, we will provide evidence on the relationship between the prevalence and returns to overwork, and the gender wage gap.

[19] A similarly statistically significant result with the same sign, but of a smaller magnitude is found in unweighted regressions.

[20] Similarly, we do not find effects for singles or older married women for the full sample of women or for the sample restricted to non-college educated women. These results are available upon request.

# 4 Cross-country Analysis of Gender Wage Gaps

While the EU-LFS data used in the previous section allowed us to examine changes in the prevalence of overwork and labor force participation decisions and industry choice across countries and over time, due to the lack of income measures, we are not able to use this dataset to examine gender pay gaps or measures of the returns to working long hours. Therefore, we turn to a second data source, the EU-SILC to address important questions such as (1) the effect of overwork on the gender pay gap and (2) why is overwork so widespread in the US? Is it because of very high returns to working long hours, or other country-specific factors?

A key limitation of the EU-SILC is that it is only available starting in the early 2000s, therefore the analysis using wage data will not include a time dimension. In what follows, we will conduct empirical exercises exploiting variation across countries, as well as variation at the country*education and country*industry levels.

## 4.1 Variation across Countries

Table 3 presents the descriptive statistics for our key variables at the country level.[21] Cross-sectional data from the EU-SILC confirms that the US is a clear outlier in the share of full-time male workers working very long hours. As expected, it also has the largest gender gap in overwork, with women about 15 percentage points less likely to work 50 or more hours a week. Estimates of the returns to working long hours, measured as the elasticity of annual earnings to weekly hours worked, suggest significant variation across countries, with elasticities as low as 0.12 in Italy and as high as 1.49 in Switzerland. The returns to working long hours are high in the US (close to 1), but not too different from the returns in many other countries.[22] The gender pay gap in the US is 20 percentage points—considerably larger than the average gap in European countries, but similar to the gaps in Scandinavian countries.

Figure 7 presents simple scatter plots for the variables of interest. We do not find a strong relationship between the returns to overwork and the gender gap across countries. Trying to shed some light on the determinants of the prevalence in overwork, panel B suggests that higher returns might play a role—there is a positive and statistically significant cross-country correlation between the returns to working long hours and the share of full-time males working 50+ hours. It is worth noting that the US is well above the regression line—a high $\beta$ is not enough to explain why the prevalence of overwork in the US is so much larger than that in other industrialized countries.[23]

## 4.2 Variation at the Country and Education Level

While the cross-country comparisons are suggestive, it is hard to draw any causal

[21] Note that there are large discrepancies in the prevalence of overwork for some countries between the EU-LFS and SILC, in particular for Switzerland and Greece. We were not able to find any obvious explanation, and will follow-up with Eurostat to address this issue. For now, we present specifications in which we drop these problematic observations.

[22] The relative ranking of the US in terms of estimated elasticities is robust to controlling for industry composition in the regressions used to estimate the returns. It is also robust to estimating country specific returns, not in separate regressions, but in one interacting log of weekly hours with country dummies, and controlling for demographic and industry compositions.

[23] See Appendix Table A3 for the corresponding regression table.

inference from the observed correlations given that countries differ on many important dimensions. For example, country-specific differences in labor laws and labor market institutions may confound the relationship between the returns to overwork, the prevalence of overwork, and gender pay gaps. In an attempt to glean some causal inference, we use differences across education groups within countries as an additional source of variation. Our unit of analysis is therefore at the country*education level. Figure 7 shows a scatterplot of the education gap in the returns to long hours ( $\beta_{college} - \beta_{no\_college}$ ) on the difference in the gender pay gap between college and non-college workers. In most countries, college-educated workers enjoy higher returns to working long hours, with the exception of Portugal. As observed in Figure 1, although the returns have been growing much faster for the highly educated in the US, they started from such low levels that there is little difference between the two education groups today. With respect to differences in the size of the gender pay gap for college vs. non-college workers, for about half the countries, the gender gap is wider for the college educated, as it is in the US today. For the other countries, the gender pay gap is larger for less educated workers, suggesting that the reversal observed in the US in Figure 1 has not occurred in many countries. The regression line suggests a strong negative relationship between the education gap in the size of the gender pay gap and the education gap in the returns to working long hours – the countries where the highly skilled tend to be well-rewarded for long hours are also the countries where the gender gap for the college-educated is the widest relative to the non-college educated. This result supports the cross-occupation evidence presented in Goldin (2014) and Cortes and Pan (2015).

To test this observed relationship more formally, we estimate the following regression:[24]

$$Gender\_gap\_pay_{ce} = \alpha + \phi * Return\_long\_hours_{ce} + X'_{ce}\delta + \pi_c + \pi_e + \varepsilon_{ce} \quad (5)$$

where $c$ refers to the country and $e$ refers to the education group (college vs. non-college). Similar to the earlier specifications, the standard errors are clustered at the country level to account for serial correlation within countries across education groups. We also present estimates from unweighted regressions as well as regressions that weight each observation by the inverse of the standard error of the estimated gender pay gap (1/standard error of $\lambda_e$ from equation (2)).[25] $X_{ce}$ is a vector of covariates that includes the share of males working long hours and the gender gap in overwork.

Table 4 presents the estimates from equation (5). All the estimates of $\phi$ are negative and the majority of them are statistically significant at conventional levels. The estimate from our preferred specification (Column (4)) implies that a one standard deviation increase in the elasticity of annual income to weekly hours worked widens the gender gap by about 4 percentage points. The magnitude this estimate is a little larger but within the confidence interval of the coefficient estimated using cross-occupation variation in the US (Cortes and Pan, 2015).

The coefficient on the share of males working very long hours is negative as expected,

[24] A similar regression equation, but with overwork prevalence as the outcome variable, is also presented in Table 4.

[25] See Angrist and Pischke (2008) for a discussion of weighted vs. unweighted estimations.

but is not statistically significant. The results from the regressions confirm what was observed in the scatterplots—using variation at the country*education level, there is little evidence that larger returns to overwork are correlated with higher prevalence of males working very long hours. This result is in line with Kuhn and Lozano (2008), who show that industries or occupations that experienced the largest increases in the long-hours premium did not experience the largest increase in the incidence of long work hours in the US. Previewing the next section, we also find similar results when we exploit variation at the industry level.

## 4.3 Variation at the Country and Industry Level

In this section, we exploit differences across industries as another source of variation in labor market outcomes. As discussed by Cha and Weeden (2014) and Goldin (2014), certain occupations and industries are characterized by higher prevalence and returns to overwork. In particular, both studies identify professional occupations (e.g. managers, lawyers, and financial occupations) as being characterized by very long work weeks and high returns to working the extra hour. Here, we focus on 11 industry groups, based on the NACE classification used by Eurostat.[26]

To estimate the key outcomes by industry and country, we follow a similar procedure used to construct the variables at the country*education level, but instead, we replace the education categories with industry categories. Table 5 presents the basic descriptive statistics. As observed, data for Europe confirms what had been found in the US studies: the financial sector typically has the highest returns to working long hours, with a mean $\beta$ that is well above 1. In 7 of the 18 countries, the estimate of the returns to working long hours for the financial industry is the highest among all the industry groups and for another 9 countries it is among the top three. The financial sector is also the sector with the largest average gender gap in earnings.[27] The return to working long hours is also very high for professional services and the health care sector, confirming our previous result that returns to long hours tend to be higher for the college educated. The returns are particularly low in the transportation industry, which is also characterized by a relatively low gender gap and few women.

The financial sector also has a large share of males working long hours (18%) and is ranked second just after the hotels and restaurants sector. Public administration is by far the industry with the lowest prevalence of overwork—in 15 out of the 20 countries, it is among the bottom two industries in terms of the share of males working overtime. This is consistent with the view that public employees tend to have a better work life balance as compared to most workers in the private sector. Public administration is also characterized by a relatively narrow gender pay gap and a fairly large share of female employees.

Despite some commonalities in industry ranking across countries, there is significant variation in the levels of the returns to working long hours across countries within industries. Figure 8 presents histograms of the distribution of the returns across countries for each industry group (the arrow indicates the average return across countries). A couple of observations are worth mentioning—first, there is large variation in the returns in some

[26] See Appendix Table A4 for details on how the industries are aggregated to form the 11 industry groups.

[27] The share of females in the industry is high at 44 percent, but this is likely to be due to an over-representation of women in clerical positions, such as bank tellers.

industries (public administration, education, professional services and others). This is in contrast to the finance and manufacturing industries, where the cross-country variation in returns is much smaller. The large variation in the public administration and education sectors is particularly interesting—the variation in professional services and others is likely driven by compositional differences.[28] Public administration, for example, is the industry with the second highest returns in Portugal (after the finance industry), whereas in the US, Greece and Switzerland, it is among the bottom two. Similarly, the education sector is among the top three industries in terms of the returns to overwork in Greece, Italy and the Netherlands, but is among the bottom three in the US, UK, Sweden, Luxembourg, and Belgium. This suggests that country-specific factors regarding the structure of public sector industries matter a lot for how workers are rewarded.

In order to measure common patterns across countries at the industry level in the returns to working long hours and the contrast between private and public sector industries, in Table 6 we present the correlation of the returns by industry between the US and each of the European countries in our sample. The average correlation when all industries are included is high at 0.59. Correlations are much weaker when the US is compared to countries in Southern Europe (arguably the region with labor market institutions that are least similar to that of the US). The relatively high correlation of industry level returns between the US and most European countries suggests, perhaps not surprisingly, that there are important intrinsic characteristics of how an industry works that determine the returns to working long hours. Finally, when we exclude the three industries with highest government participation (health, education, and public administration), the average correlation increases to 0.66.

Turning to the relationship between gender gaps and the returns to working long hours, we begin by presenting simple correlations by country (see Figure 9). Given that in all countries, women are less likely to work long hours as compared to males, we expect a negative relationship between the gender pay gap (defined as female - males wages) and the returns to working long hours. This negative relationship has been shown for the US for a sample of occupations both by Goldin (2014) and by Cortes and Pan (2015). Using industry as our unit of analysis and a highly aggregated classification (11 industries), we observe a similar result for the US. The slope of the regression line is negative and significant. We find similar results for the UK, the other country with an unusually large share of males working long hours, and for Italy, Ireland and France. This negative relation, however, is not observed in all countries—the relationship appears to be relatively flat in Belgium, Switzerland, Greece, Spain, Luxembourg, and the Netherlands, and positive and significant in Norway.

A possible explanation for the lack of a strong negative relationship in most countries could be country-level differences in the prevalence of overwork. Even if returns are very high in an industry, if very few males work overtime, or if the gender gap in working hours is very small, the returns to working long hours are unlikely to have an effect on the gender pay gap. To test this hypothesis, we use the following specification:

$$Gender\_pay\_gap_{ci} = \alpha + \phi * Return\_long\_hours_{ci} * Share\_male\_overwork_{ci} + X'_{ci}\delta + \pi_c + \pi_i + \varepsilon_{ci} \quad (6)$$

[28] See Table A4. Both sectors are composed of a variety of very different smaller industries.

We are interested in the coefficient of the interaction term, which tells us how the effect of the return to working long hours on the gender pay gap depends on the prevalence of overwork. The vector of controls, $X_{ci}$, includes the direct effects of the two variables of the interaction. If our hypothesis is true, we expect the coefficient on the interaction term to be negative - that is, an increase in the overwork share leads to an increase in the gender pay gap ($Gender\_pay\_gap_{ci}$ becomes more negative), particularly for industries with a high return to working long hours. In some specifications, we replace the share of males working 50 hours or more with the gender gap in overwork.[29] For these specifications, the intuition is similar, and we expect the coefficient on the interaction term to have a positive sign.

To provide more causal evidence of the link between gender wage gaps and the interaction of the prevalence and returns to overwork, we present specifications in which we instrument the interaction term in equation (6) with the following variable:

$$Return\_long\_hours_{usa,i} * Share\_male\_overwork_{c,-i} \quad (7)$$

The first term is the returns to long hours for industry $i$, calculated using US data. This variable captures intrinsic characteristics of the industry that reward working long hours (see Goldin, 2014) and are independent of country-specific factors that might affect the gender gap in the industry. The second term is the country-level share of males working 50+ hours (or the gender gap in overwork), omitting the relevant industry. This component is meant to capture country-level characteristics that influence the prevalence of overwork in a particular country (for example, labor laws and institutions) that are unrelated to industry-specific factors (in particular, how worker characteristics such as competitiveness and risk-taking are valued). The direct effects of these two terms are absorbed by the industry and country fixed effects included in equation (6).

The intuition of this econometric exercise is the following. If the constructed returns are really measuring the causal effect of working the extra hour on salary – and not of other unobservable characteristics of industries with high returns (such as high levels of competitiveness and risk-taking) – then the effect of high returns to overwork in an industry on its gender pay gap should be much larger in countries where overwork is much more prevalent and close to zero where very few people work long hours. If the effect does not depend on the extent of the prevalence of overwork, this will suggest that the returns to overwork are likely to be capturing returns to other characteristics of people that tend to work long hours (see section 2.2.2 for a discussion).

Table 7 presents the OLS, IV, and reduced form estimates of equation (6). For the IV and reduced-form specifications, we use (7) as an instrument for the interaction term. Standard errors are clustered at the country level and all regressions are weighted by the inverse of the standard error of the dependent variable.[30] The baseline coefficient estimate of the interaction

[29] The correlation between the share of males working long hours and the gender gap in overwork is very high at -0.77.

[30] Clustering at the industry level instead does not affect the significance level of the coefficients. For this specification, we prefer weighted estimation given the large variation in the size and importance of the industries. Unlike countries and education levels, industries are somewhat arbitrarily defined and aggregated into broader categories.

between the returns to working long hours $\beta$ and the gender gap in overwork is positive and statistically significant for the full sample of women, indicating that a widening of the gender gap in overwork is associated with an increase in the gender pay gap in industries with higher returns to working long hours relative to industries with lower returns. The IV estimates reported in Column (2) are statistically significant and of a similar magnitude as the OLS estimates. The magnitude of the estimates implies that a widening of the gender gap in overwork of one standard deviation (about 3 percentage points) increases the gender gap in industry with the highest returns by about 1 percentage point relative to the industry with the lowest returns[31] (a difference in $\beta$ of about 1). Columns (5) and (8) report the estimates using the level of overwork in the male population instead of the gender gap in overwork in constructing the interaction term. The results are similar—a decrease of a one standard deviation in the share of males working long hours reduces the gender gap in the top industry relative to the bottom industry by 1 percentage point.

The final six columns report the IV and reduced form results separately for college-educated (Columns (9) to (11)) and non-college educated workers (Columns (12) to (14)). Interestingly, and consistent with the findings in Cha and Weeden (2014) and Cortes and Pan (2015), the effect is largely driven by workers with at least a tertiary education.[32] These results are also consistent with our earlier findings in Section 3 where we showed that the prevalence of overwork affected the labor force participation decisions and industry choice of educated women but had little effect on lower skilled women.

Appendix Table A6 presents several robustness tests. First, to address potentially large measurement errors in the key variables for some countries as suggested by large discrepancies between the EU-LFS and the EU-SILC, we present specifications in which we drop those countries where the difference between the surveys in the calculated share of males working more than 50 hours is more than 6 percentage points (namely Austria, Greece, Italy and Switzerland) (see columns (3) and (4)). We also present a specification that uses tercile dummies instead of a continuous measure of the prevalence of overwork—arguably, there is less measurement error in the ranking of countries than in the precise measure of the elasticity (column (5)). Finally, to show that our results do not depend on the arbitrary choice of the US as the baseline for our measure of industry-specific returns to overwork, we present specifications in which we construct the returns to overwork for an industry in a given country, using data for all countries, but excluding the contribution of that particular country. in other words, we use $Return\_long\_hours_{i,-c}$ (columns (6) and (7)).

The results omitting countries with potentially serious measurement errors are similar to our baseline estimates in Table 7. Column (5) suggests that the effect on an industry's gender gap of a high elasticity of earnings to weekly hours worked is more negative in countries with high prevalence of overwork, relative to countries with the lowest share of males working long hours. The magnitude of the coefficient suggests that the gender gap in an industry with the highest returns relative to the industry with the lowest returns (a difference in $\beta$ of about 1) is 3.4 percentage points wider in the top tercile of countries (namely the US, the UK, Portugal,

[31] This is about 0.2 of a standard deviation of average gender pay gaps by industry.

[32] Results for the reduced form using the interaction with the prevalence of overwork are robust to running a non-weighted regression and to running non-weighted regression omitting the US.

France, and Austria) relative to all other countries. We do not find a significant difference between countries in the middle and bottom terciles. Finally, using the alternative measure of the returns to working long hours does not significantly change the magnitudes of the coefficients, but increases the standard errors – the coefficient on the interaction with the gender gap in overwork (column (6)) is now only marginally significant, and coefficient on the interaction using the prevalence of overwork has a p-value of 0.124 (Column (7)).

To summarize, our results in this section suggest that (1) the return to working long hours has a causal effect on the gender pay gap and is unlikely to be merely proxying for returns to other unobserved skills, and (2) a norm of long working hours harms the relative position of women in the labor market, particularly in industries, such as finance, where the willingness to work long hours is highly valued

Finally, we can use country*industry variation to study the relationship between the prevalence and returns to overwork controlling for industry and country fixed effects (see Table 8). Mirroring the results from the previous subsection and that of Kuhn and Lozano (2008), we do not find any evidence that higher returns are a potential driver of the prevalence of overwork, In fact, all of our estimated coefficients, although small in magnitude, are negative and statistically significant. The magnitude of the coefficients are similar to those we estimated using country*education variation.

# 5 Conclusion

Our cross-country study on the relationship between the prevalence and the returns to working long hours and labor market outcomes for women has several implications for our understanding of the sources of the gender gap in the US. First, the combination of a large share of workers working long hours with high returns to doing so, negatively affects the relative position of women in the US labor market, particularly the high-skilled, in terms of labor force participation, industry choice, and earnings. Although the US is not an outlier among other developed countries in how long hours are compensated, it is a country with a very high prevalence of overwork. Unfortunately, our study does not shed light on why workers in some countries and industries are much more likely to work very long hours—somewhat surprisingly, we find no evidence of a positive correlation between the prevalence and returns to working long hours.

Our analysis at the industry level shows that the returns to working long hours are very high in the financial and professional services industries in most countries, providing a plausible explanation as to why gender gaps in those industries continue to be so persistent. Interestingly we find that the cross-country correlation in the relative rank of industries based on their returns to overwork is very high for private sector industries, but weaker for industries with higher government involvement, such as health, education, and public administration. These findings suggest that at least some of the cross-industry variation in the returns to working long hours is determined by institutional, country-specific factors.

Our study highlights the need for a better understanding of the determinants of both the prevalence and the returns to working very long hours in order to design policies that address their negative effects on female labor market outcomes. We hope to tackle this important question in future work.

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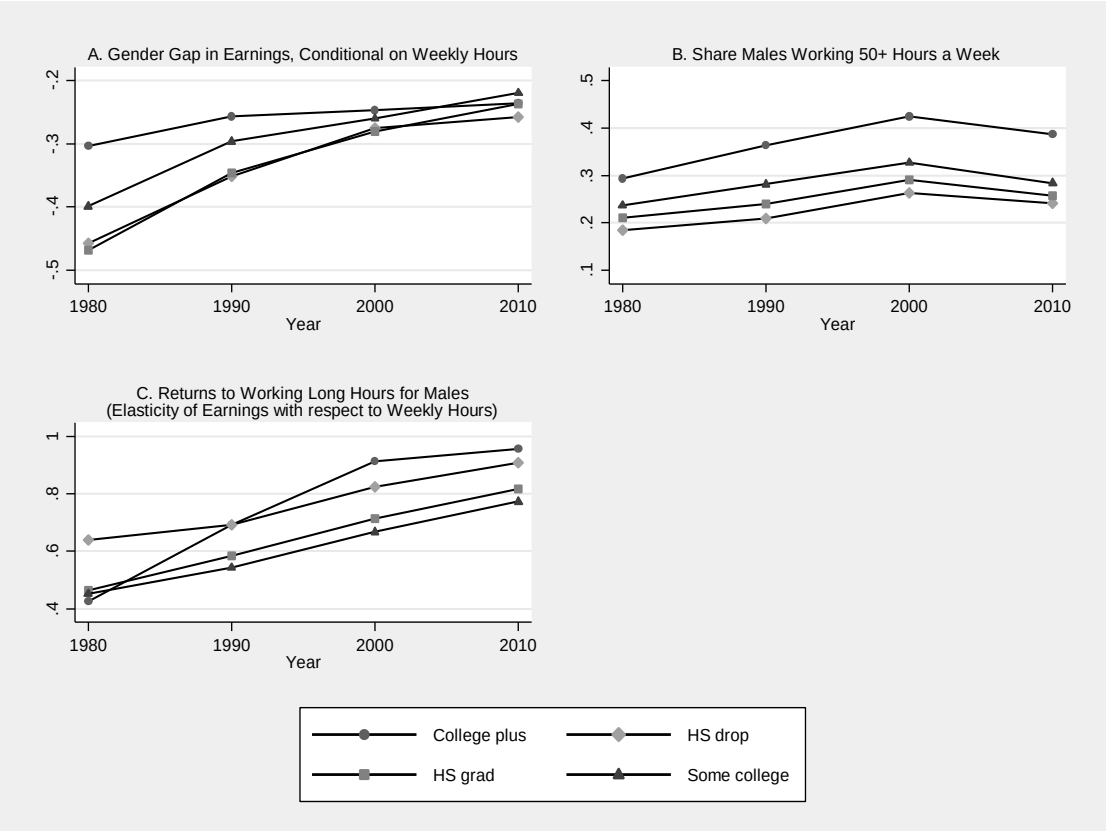
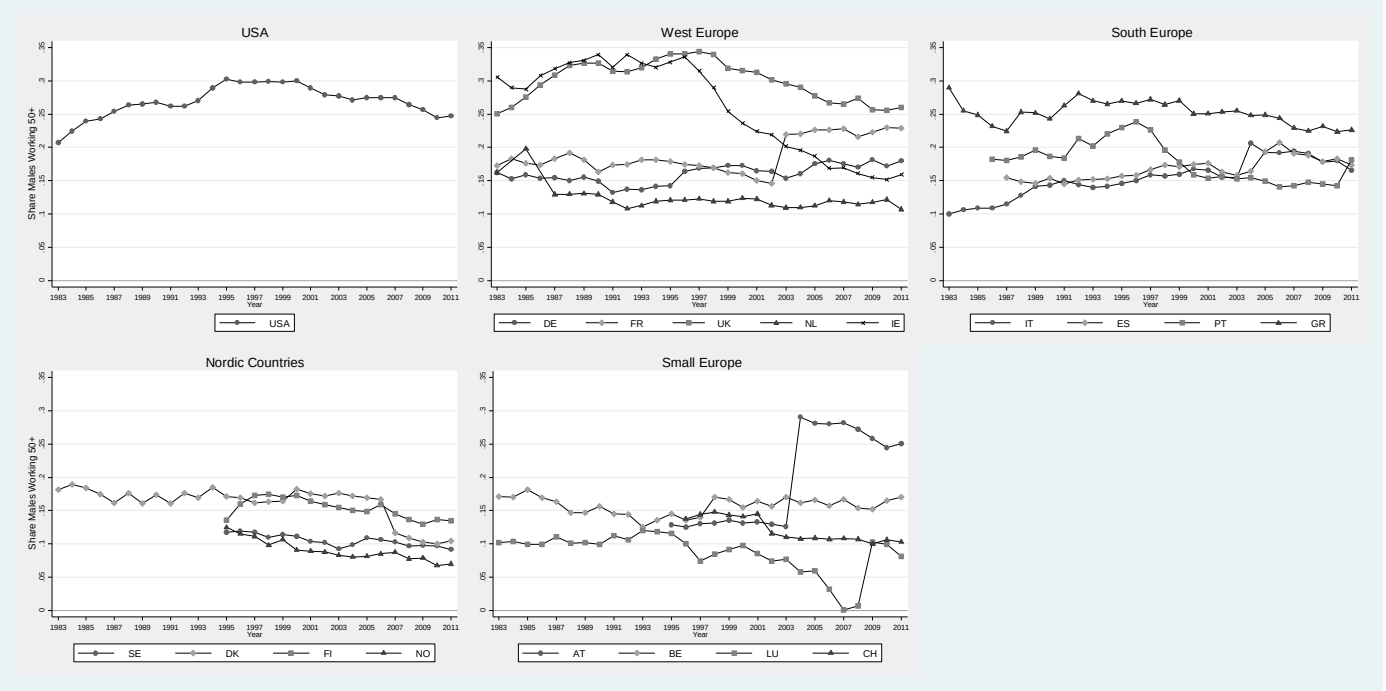
**Figure 1. US Trends in Labor Outcomes, by Education Level**



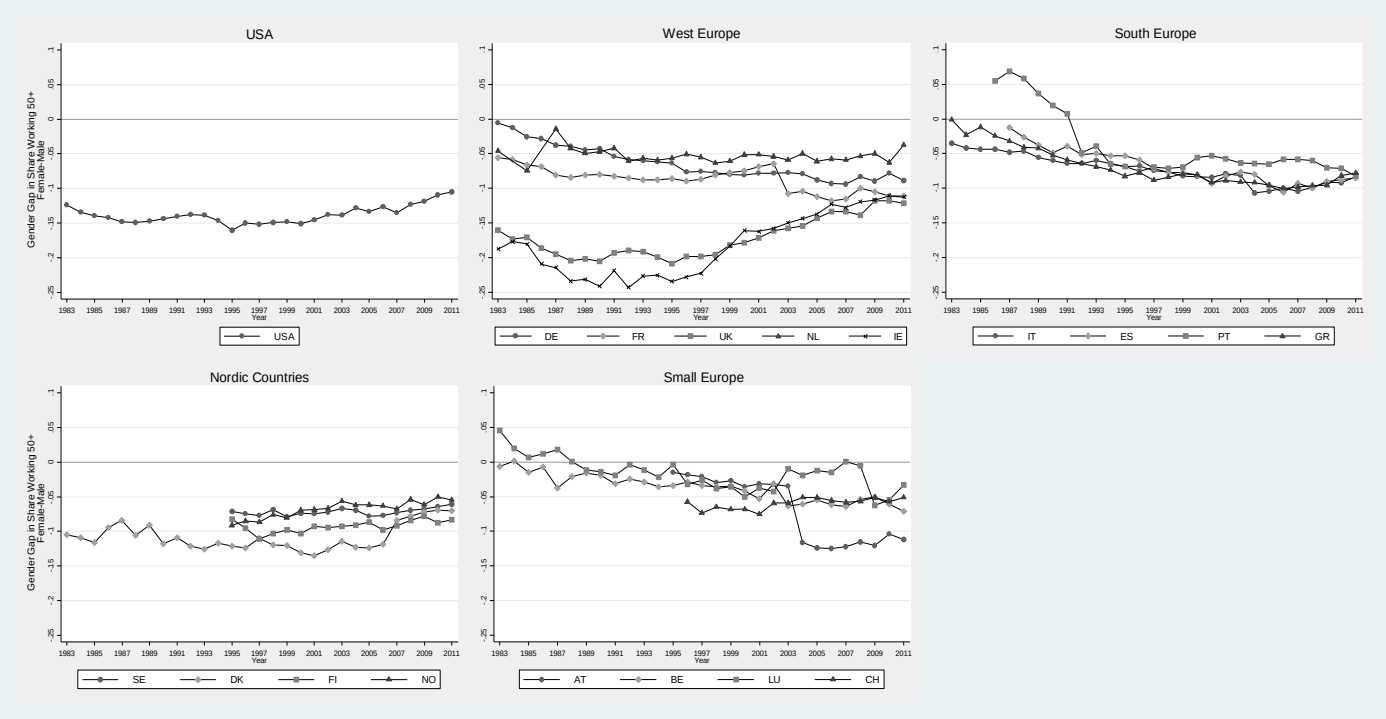

Source: 1980-2000 Census and 2010 ACS

**Figure 2. Trends in the Share of Males Working 50+ hours**



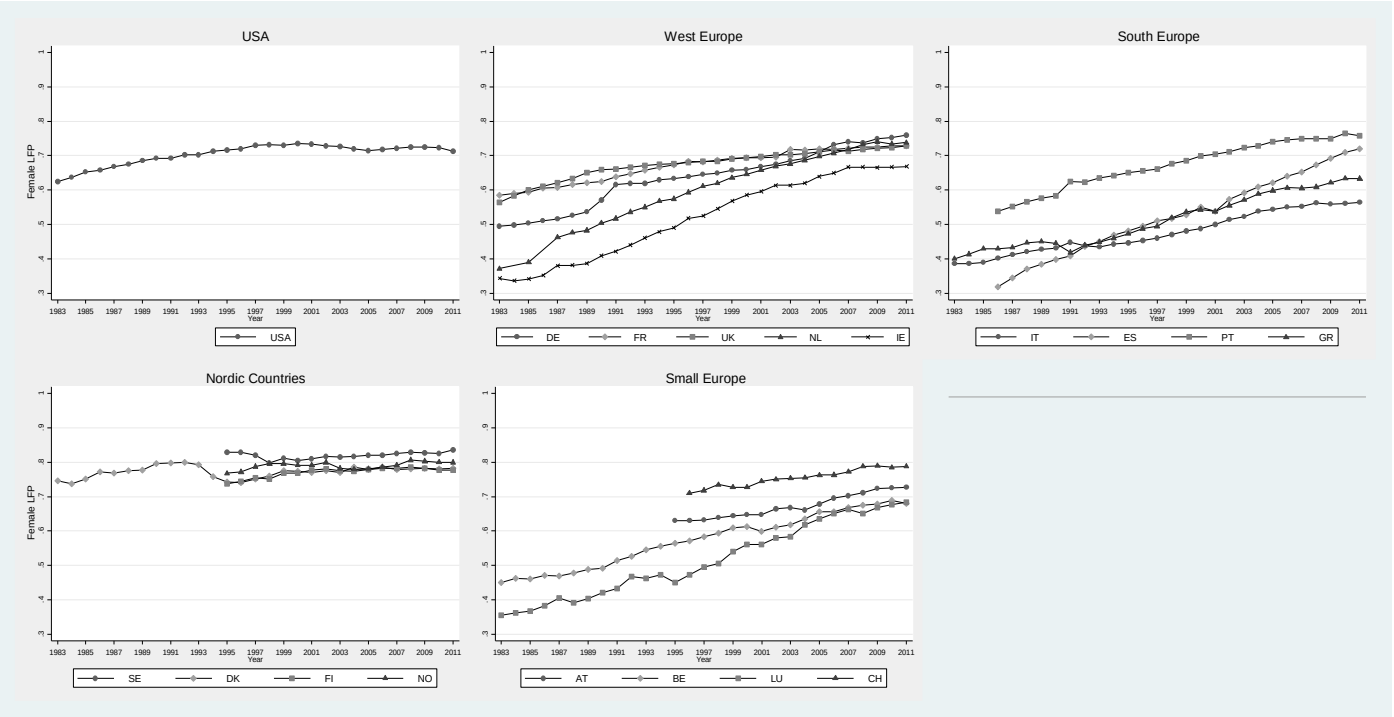

Source: EU-LFS and US CPS

**Figure 3. Trends in the Gender Gap in Working 50+ hours**



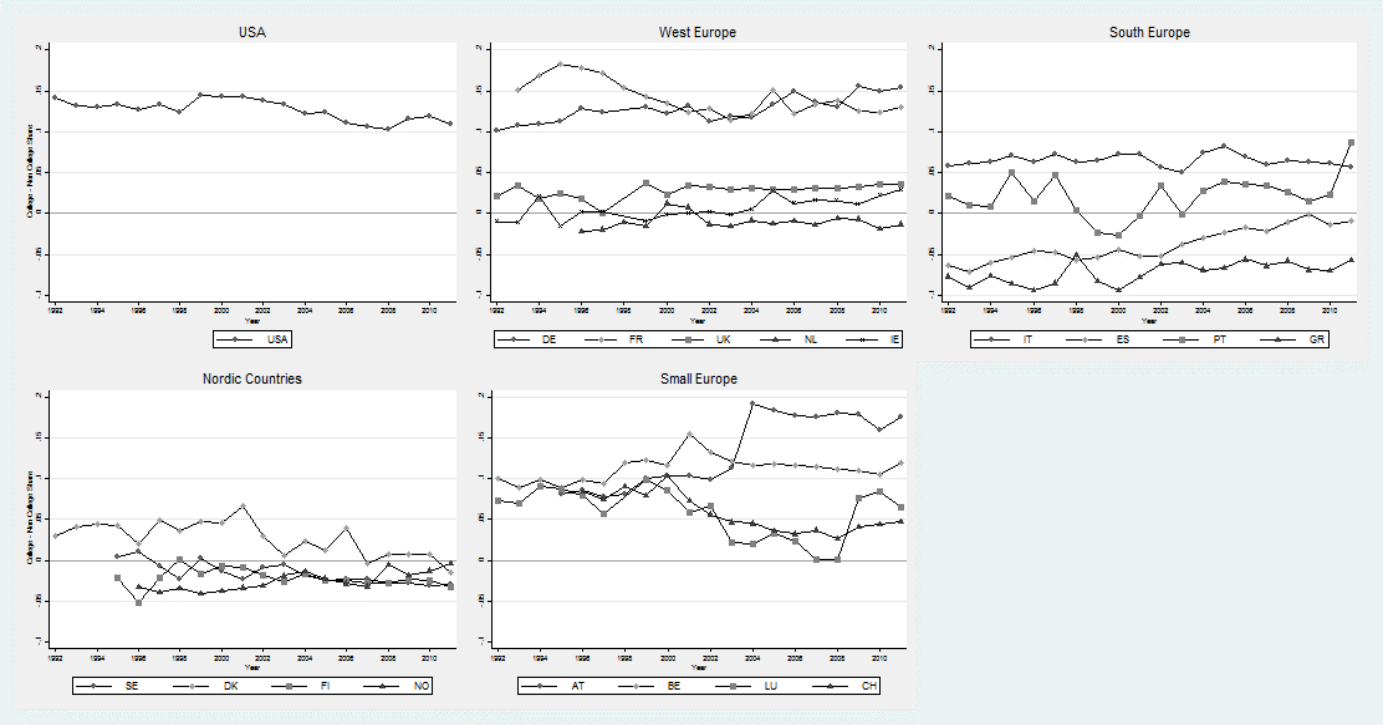

Source: EU-LFS and US CPS

**Figure 4. Trends in the Labor Force Participation of Women**



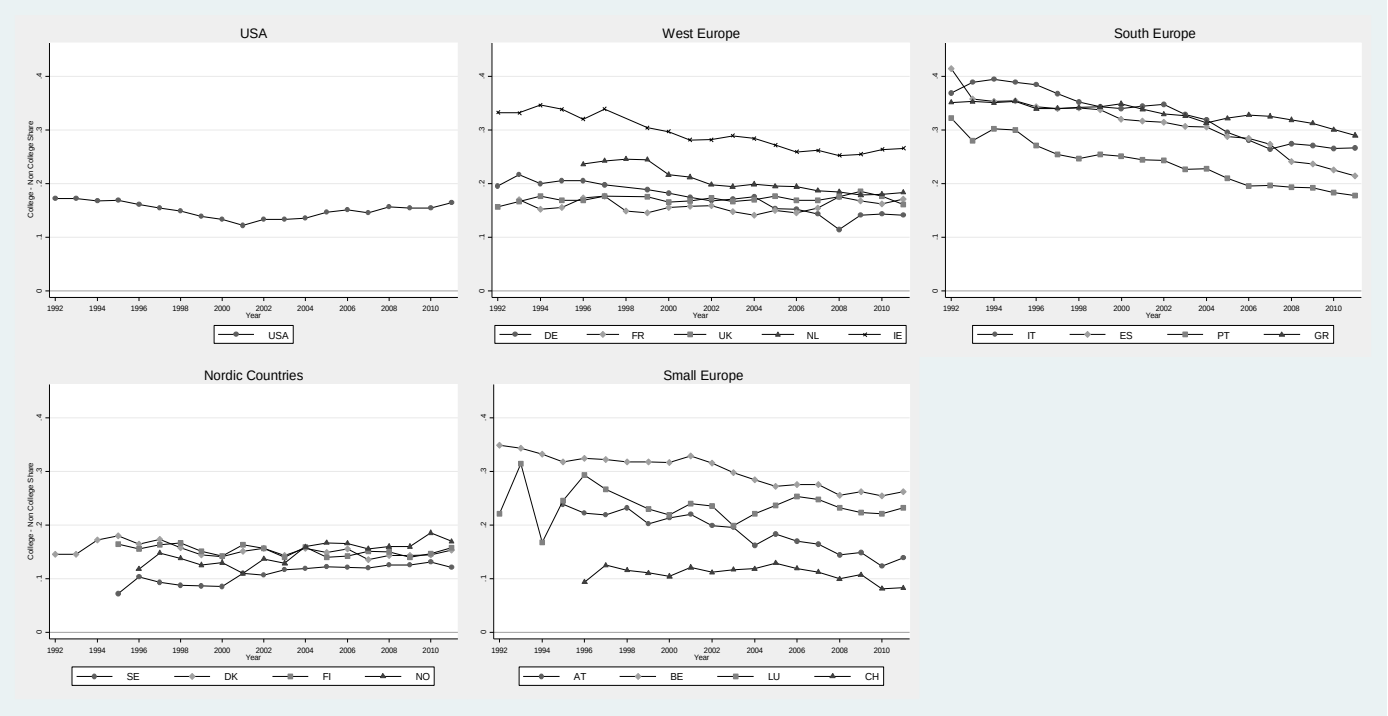

Source: EU-LFS and US CPS

**Figure 5. Trends in the Difference in Overwork between College and Non College**



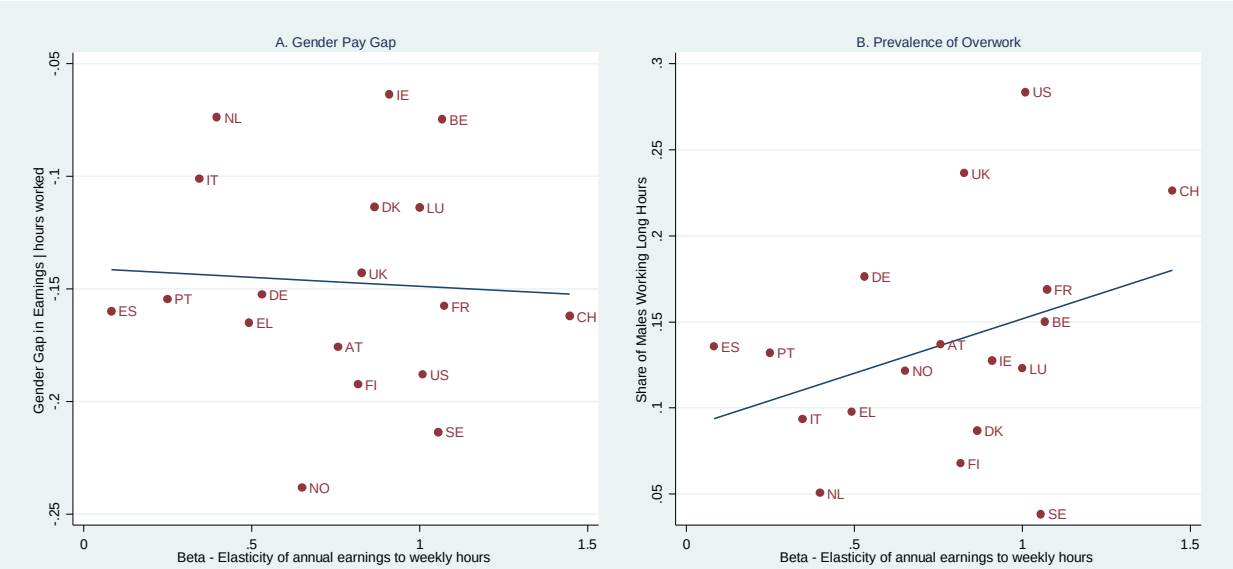

Source: EU-LFS and US CPS

**Figure 6. Trends in the Difference in Female LFP between College and Non College**



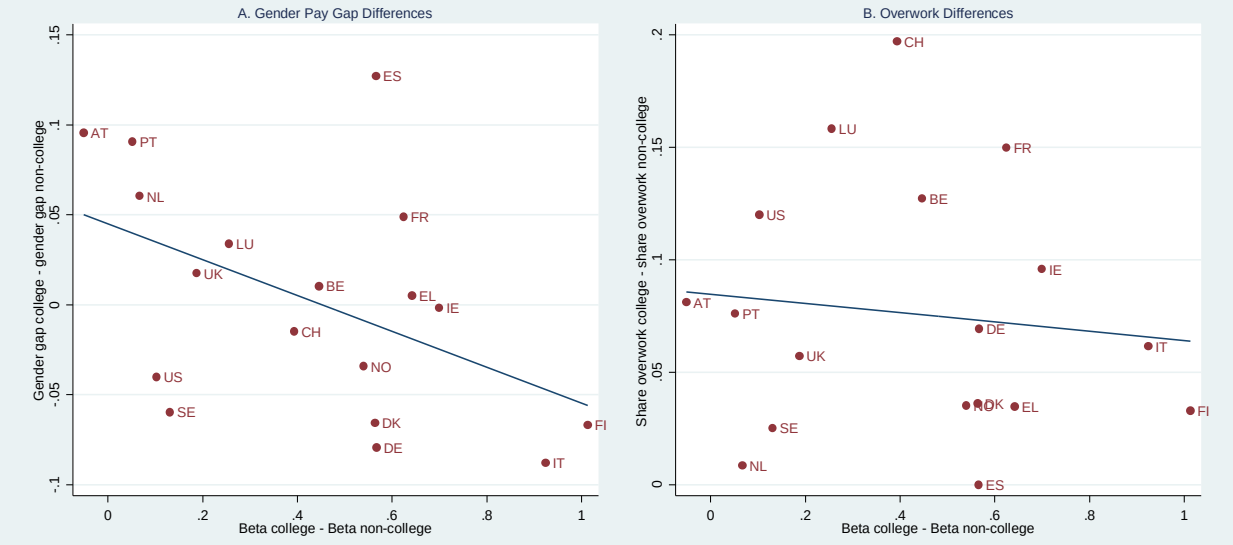

Source: EU-LFS and US CPS

**Figure 7. Cross-country Correlations between Returns to Overwork, the Gender Pay Gap, and the Prevalence of Long Hours**



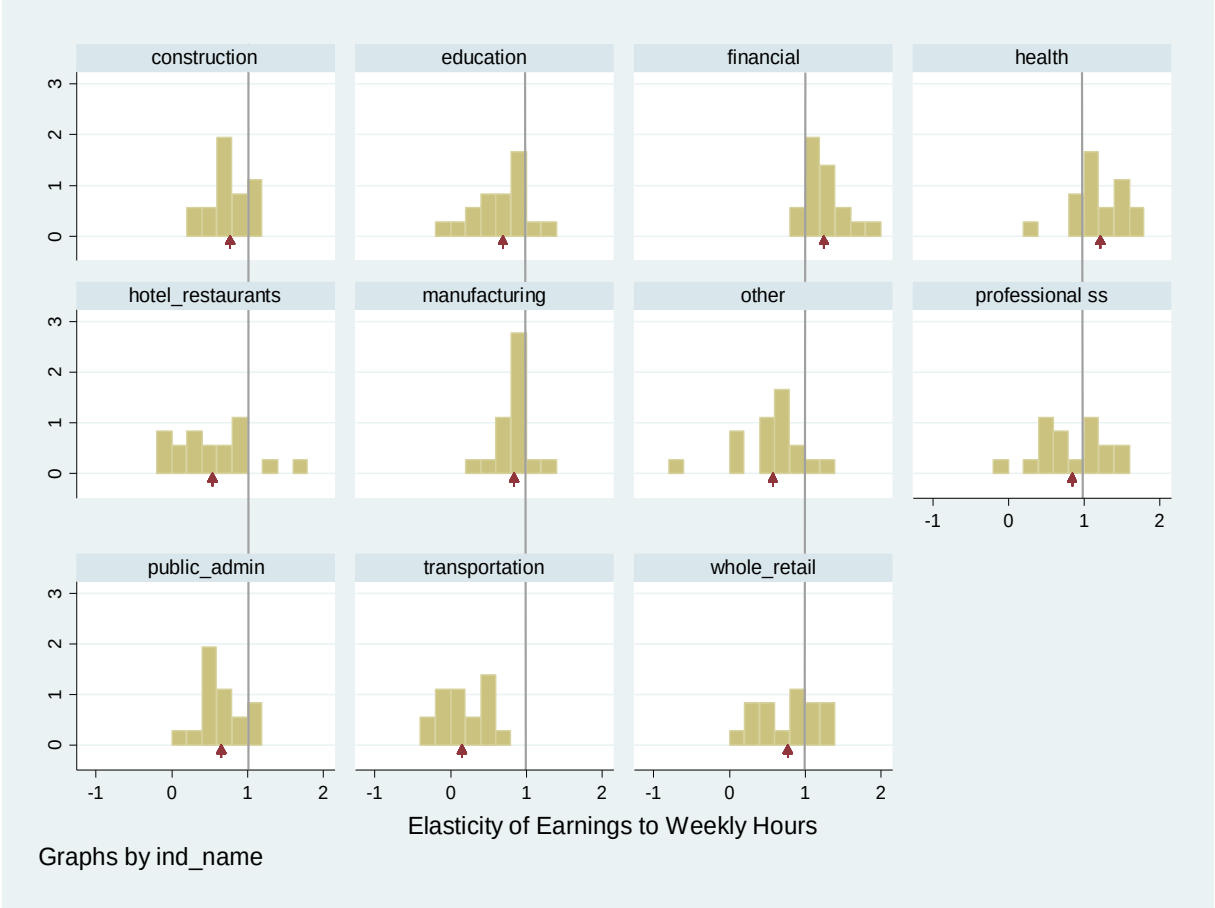

Source: ACS and SILC

**Figure 8. Cross-country Correlations between Education Gaps in the Returns to Overwork, the Gender Pay Gap and the Prevalence of Long Hours**




Source: ACS and SILC

**Figure 9. Histograms of the Returns to Working Long Hours by Industry - Cross-country Data**




Source: Authors' calculations from US-ACS and EU-SILC data.

**Figure 10. Cross-industry Relationship between the Gender Pay Gap and Returns to Working Long Hours by Country**


Source: Authors' calculations from US-ACS and EU-SILC data.

**Table 1. Time-series relationship between prevalence of working long hours and female labor force participation**

| | Dep. Var: Female LFP | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Variation at: | | | | | | | |
| | A. Country x Year | | | | | B. Country x Year x Education | | |
| | All | Ever Married 23 -42 | Single 23 -42 | Ever Married 43+ | All | Ever Married 23 -42 | Single 23 -42 | Ever Married 43+ |
| Share of Males working 50+ hours | -0.200 | -0.293 | 0.040 | -0.150 | -0.403** | -0.490** | -0.116 | -0.107 |
| | [0.202] | [0.234] | [0.099] | [0.258] | [0.196] | [0.241] | [0.161] | [0.236] |
| Country FE | X | X | X | X | X | X | X | X |
| Year FE | X | X | X | X | X | X | X | X |
| Education FE | | | | | X | X | X | X |
| Country x Year FE | | | | | X | X | X | X |
| Country x Edu FE | | | | | X | X | X | X |
| Year x Edu FE | | | | | X | X | X | X |
| Time Period | 1983-2011 | | | | 1994-2011 | | | |
| Mean of Dependent Variable | 0.63 | 0.70 | 0.84 | 0.50 | 0.74 | 0.78 | 0.86 | 0.64 |
| Observations | 452 | 452 | 452 | 452 | 668 | 668 | 668 | 668 |
| R-squared | 0.925 | 0.889 | 0.799 | 0.952 | 0.994 | 0.988 | 0.973 | 0.992 |

Cluster standard errors at the country level in brackets. Education is coded as college and non-college. Sample restricted to people aged 23-62.

*** p<0.01, ** p<0.05, * p<0.1

**Table 2. Time-series relationship between prevalence of working long hours and industry choices of women**

| | Dep. Var: Share of Females working in Industry *i* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | | Non-College | | College Educated | | | | | |
| | Ever Married 23 -42 | | Ever Married 23 -42 | | Ever Married 23 -42 | | Single 23 -42 | | Ever Married 43+ | |
| Share of Males in Industry *i* working 50+ hours | 0.015 | 0.009 | 0.018 | 0.006 | -0.052** | -0.044*** | -0.012 | | -0.012 | 0.009 |
| | [0.015] | [0.017] | [0.020] | [0.017] | [0.021] | [0.010] | [0.025] | | [0.027] | [0.020] |
| Share of Single Females 23-42 working in Industry *i* | | 0.636*** | | 0.565*** | | 0.719*** | | | | |
| | | [0.117] | | [0.077] | | [0.100] | | | | |
| Share of Single Females 43+ working in Industry *i* | | | | | | | | | | 0.264*** |
| | | | | | | | | | | [0.045] |
| Country FE | X | X | X | X | X | X | X | | X | X |
| Year FE | X | X | X | X | X | X | X | | X | X |
| Industry 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 Industry FE | X | X | X | X | X | X | X | | X | X |
| Year x Industry FE | X | X | X | X | X | X | X | | X | X |
| Observations | 3,729 | 3,729 | 3,729 | 3,729 | 3,615 | 3,615 | 3,615 | | 3,615 | 3,615 |
| R-squared | 0.972 | 0.985 | 0.972 | 0.984 | 0.965 | 0.982 | 0.946 | | 0.986 | 0.989 |

Cluster standard errors at the country level in brackets. Regressions are weighted by the number of observations in each industry x year x country cell.

*** p<0.01, ** p<0.05, * p<0.1

**Table 3. Cross-sectional data descriptive statistics by country (circa 2012)**

| | Overwork | | | Gender Gaps | | | |
|---|---|---|---|---|---|---|---|
| Country | Beta Males [a] | Share in Males [b] | | Wage [c] | Overwork [d] | | No. Obs. |
| US | 1.04 | 0.28 | | -0.20 | -0.13 | | 2398042 |
| Avg. Europe | 0.77 | 0.13 | | -0.14 | -0.06 | | 17375 |
| | *Small Europe* | | | | | | |
| Austria | 0.84 | 0.14 | | -0.18 | -0.08 | | 13143 |
| Belgium | 1.06 | 0.15 | | -0.08 | -0.07 | | 13336 |
| Switzerland | 1.49 | 0.23 | | -0.16 | -0.10 | | 13967 |
| Luxembourg | 1.05 | 0.12 | | -0.11 | -0.02 | | 15783 |
| | *West Europe* | | | | | | |
| Germany | 0.55 | 0.18 | | -0.15 | -0.09 | | 30654 |
| France | 1.08 | 0.17 | | -0.16 | -0.08 | | 29574 |
| Ireland | 0.97 | 0.13 | | -0.06 | -0.07 | | 7452 |
| Netherlands | 0.26 | 0.04 | | -0.04 | -0.03 | | 9695 |
| UK | 0.86 | 0.23 | | -0.15 | -0.10 | | 18267 |
| | *South Europe* | | | | | | |
| Greece | 0.54 | 0.10 | | -0.17 | -0.05 | | 10793 |
| Spain | 0.39 | 0.09 | | -0.10 | -0.04 | | 41246 |
| Italy | 0.12 | 0.13 | | -0.17 | -0.07 | | 31680 |
| Portugal | 0.28 | 0.13 | | -0.16 | -0.06 | | 15497 |
| | *Nordic Countries* | | | | | | |
| Denmark | 1.01 | 0.09 | | -0.07 | -0.06 | | 8544 |
| Finland | 0.85 | 0.07 | | -0.20 | -0.04 | | 17793 |
| Norway | 0.72 | 0.14 | | -0.23 | -0.09 | | 7620 |
| Sweden | 1.01 | 0.04 | | -0.20 | -0.01 | | 10336 |

Source: US-ACS and EU-SILC (2008-2013)

[a] Elasticity of annual earnings to usual hours worked per week

[b] Share of males working 50+ hours per week, percent

[c] Defined as Wage Female - Wage Male, percent

[d] Defined as Overwork Female - Overwork Male, percent

**Table 4. Relationship between gender gaps and returns to overwork: Country x education group variation**

| | Gender Pay Gap \|hours | | | | | | | % of Males working 50+hrs | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | | (7) | (8) |
| | | | | | | | | | |
| Elasticity of Earnings to Weekly Hours | -0.099* | -0.038 | -0.100* | -0.051 | -0.115* | -0.061 | | -0.021 | -0.058 |
| | [0.056] | [0.070] | [0.058] | [0.069] | [0.056] | [0.066] | | [0.045] | [0.042] |
| Share of Males working 50+ hrs | | | -0.039 | -0.224 | | | | | |
| | | | [0.407] | [0.495] | | | | | |
| Gender Gap in Working 50+ hrs | | | | | -0.568 | -0.748 | | | |
| | | | | | [0.452] | [0.617] | | | |
| | | | | | | | | | |
| Country FE | X | X | X | X | X | X | | X | X |
| Edu Level FE | X | X | X | X | X | X | | X | X |
| | | | | | | | | | |
| Weights | None | 1/Std error | None | 1/Std error | None | 1/Std error | | None | 1/Std error |
| | | | | | | | | | |
| Observations | 36 | 36 | 36 | 36 | 36 | 36 | | 36 | 36 |
| R-squared | 0.765 | 0.715 | 0.766 | 0.725 | 0.786 | 0.746 | | 0.893 | 0.948 |

Robust standard errors clustered at the country level in brackets. The sample includes 18 countries and 2 education groups: college and non-college.
*** p<0.01, ** p<0.05, * p<0.1

**Table 5. Descriptive statistics at the industry level**

| | Beta | | | Gender Pay Gap | | | Share Males Overwork | | | Gender Gap Overwork | | | Industry Share | | | Share of females | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Industry* | Mean | Std. dev | | Mean | Std. dev | | Mean | Std. dev | | Mean | Std. dev | | Mean | Std. dev | | Mean | Std. dev |
| Financial | 1.25 | 0.27 | | -0.24 | 0.08 | | 0.18 | 0.09 | | -0.10 | 0.06 | | 0.05 | 0.02 | | 0.44 | 0.11 |
| Health Care | 1.22 | 0.36 | | -0.14 | 0.07 | | 0.11 | 0.07 | | -0.06 | 0.04 | | 0.11 | 0.03 | | 0.71 | 0.11 |
| Professionals | 0.84 | 0.45 | | -0.17 | 0.07 | | 0.17 | 0.08 | | -0.08 | 0.04 | | 0.09 | 0.02 | | 0.41 | 0.09 |
| Manufacturing | 0.84 | 0.20 | | -0.21 | 0.06 | | 0.11 | 0.06 | | -0.05 | 0.04 | | 0.20 | 0.04 | | 0.22 | 0.07 |
| Construction | 0.77 | 0.26 | | -0.08 | 0.09 | | 0.13 | 0.06 | | -0.06 | 0.06 | | 0.07 | 0.02 | | 0.08 | 0.03 |
| Whole sale / Retail | 0.77 | 0.37 | | -0.18 | 0.05 | | 0.15 | 0.07 | | -0.09 | 0.05 | | 0.12 | 0.02 | | 0.36 | 0.07 |
| Education | 0.69 | 0.35 | | -0.13 | 0.05 | | 0.14 | 0.09 | | -0.04 | 0.04 | | 0.08 | 0.02 | | 0.61 | 0.09 |
| Public Administration | 0.65 | 0.27 | | -0.13 | 0.06 | | 0.09 | 0.06 | | -0.05 | 0.04 | | 0.11 | 0.03 | | 0.39 | 0.10 |
| Other | 0.57 | 0.44 | | -0.24 | 0.12 | | 0.15 | 0.07 | | -0.07 | 0.05 | | 0.08 | 0.01 | | 0.37 | 0.11 |
| Hotels and Restaurants | 0.54 | 0.51 | | -0.13 | 0.13 | | 0.19 | 0.11 | | -0.08 | 0.08 | | 0.03 | 0.02 | | 0.46 | 0.11 |
| Transportation | 0.15 | 0.33 | | -0.12 | 0.09 | | 0.18 | 0.07 | | -0.11 | 0.06 | | 0.06 | 0.01 | | 0.17 | 0.05 |

Sources: Authors' calculations using US ACS and EU-SILC

The table reports the average across the 18 countries.

**Table 6. Correlation of industry level returns to overwork between the US and European Countries**

| | All Industries | | Excludes public sector |
|---|---|---|---|
| | *West Europe* | | |
| Germany | 0.69 | | 0.66 |
| France | 0.59 | | 0.57 |
| Ireland | 0.84 | | 0.86 |
| Netherlands | 0.48 | | 0.62 |
| UK | 0.68 | | 0.76 |
| | *South Europe* | | |
| Greece | 0.27 | | 0.41 |
| Spain | 0.70 | | 0.79 |
| Italy | 0.44 | | 0.54 |
| Portugal | 0.10 | | 0.52 |
| | *Nordic Countries* | | |
| Denmark | 0.66 | | 0.70 |
| Finland | 0.72 | | 0.85 |
| Norway | 0.54 | | 0.64 |
| Sweden | 0.61 | | 0.51 |
| | *Small Europe* | | |
| Austria | 0.71 | | 0.78 |
| Belgium | 0.48 | | 0.56 |
| Switzerland | 0.85 | | 0.86 |
| Luxembourg | 0.71 | | 0.66 |
| | | | |
| Average | 0.59 | | 0.66 |

**Table 7. Relationship between gender pay gaps and the returns to overwork: country x industry variation**

| | Gender Pay Gap \|hours | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. All | | | | | | | | | B. College | | | | C. Non-college | | |
| | | | Reduced Form | | | | Reduced Form | | | | Reduced Form | | | | Reduced Form | |
| | OLS | IV | OLS | OLS | | OLS | IV | OLS | OLS | IV | OLS | OLS | | IV | OLS | OLS |
| | (1) | (2) | (3) | (4) | | (5) | (6) | (7) | (8) | (9) | (10) | (11) | | (12) | (13) | (14) |
| | | | | | | | | | | | | | | | | |
| $Beta_{ic}$ x Gender Gap $Overwork_{ic}$ | 0.564*** | 0.491** | | | | | | | | | | | | | | |
| | [0.146] | [0.187] | | | | | | | | | | | | | | |
| $Beta_{i\_US}$ x Gender Gap $Overwork_{c,-i}$ | | | 0.500*** | 0.461** | | | | | | | | | | | | |
| | | | [0.169] | [0.168] | | | | | | | | | | | | |
| $Beta_{ic}$ x Share Males $Overwork_{ic}$ | | | | | | -0.113 | -0.253** | | | -0.388** | | | | 0.006 | | |
| | | | | | | [0.094] | [0.093] | | | [0.166] | | | | [0.156] | | |
| $Beta_{i\_US}$ x Share Males $Overwork_{c,-i}$ | | | | | | | | -0.238** | -0.232** | | -0.414** | -0.358* | | | 0.027 | 0.006 |
| | | | | | | | | [0.083] | [0.086] | | [0.182] | [0.170] | | | [0.163] | [0.159] |
| $Beta_{ic}$ | 0.038 | 0.032 | | -0.005 | | 0.005 | 0.026 | | -0.009 | 0.028 | | -0.041* | | 0.004 | | 0.004 |
| | [0.024] | [0.028] | | [0.021] | | [0.024] | [0.029] | | [0.021] | [0.033] | | [0.021] | | [0.019] | | [0.015] |
| Gender Gap $Overwork_{ic}$ | -0.454** | -0.405* | | -0.053 | | | | | | | | | | | | |
| | [0.185] | [0.203] | | [0.180] | | | | | | | | | | | | |
| Share Males $Overwork_{ic}$ | | | | | | -0.024 | 0.062 | | -0.098 | 0.093 | | -0.207 | | -0.023 | | -0.020 |

| | Gender Pay Gap \|hours | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A. All | | | | | | | | | B. College | | | | C. Non-college | | |
| | | | Reduced Form | | | | | Reduced Form | | | Reduced Form | | | | Reduced Form | |
| | OLS | IV | OLS | OLS | | OLS | IV | OLS | OLS | | IV | OLS | OLS | | IV | OLS | OLS |
| | (1) | (2) | (3) | (4) | | (5) | (6) | (7) | (8) | | (9) | (10) | (11) | | (12) | (13) | (14) |
| | | | | | | [0.159] | [0.155] | | [0.144] | | [0.173] | | [0.181] | | [0.128] | | [0.113] |
| Country FE | X | X | X | X | | X | X | X | X | | X | X | X | | X | X | X |
| Industry FE | X | X | X | X | | X | X | X | X | | X | X | X | | X | X | X |
| Observations | 198 | 198 | 198 | 198 | | 198 | 198 | 198 | 198 | | 198 | 198 | 198 | | 198 | 198 | 198 |
| R-squared | 0.659 | 0.659 | 0.643 | 0.644 | | 0.642 | 0.639 | 0.643 | 0.645 | | 0.517 | 0.453 | 0.474 | | 0.631 | 0.631 | 0.631 |

Clustered standard errors at the country level in brackets. All regressions are weighted by the inverse of the standard error of the estimate of gender pay gap.

*** p<0.01, ** p<0.05, * p<0.1

**Table 8. Correlation between the prevalence and returns to overwork: country x industry variation**

| | Share of males working 50+ hours | | | | | | |
|---|---|---|---|---|---|---|---|
| | A. All | | | B. College | | C. Non-college | |
| | (1) | (2) | | (3) | (4) | (5) | (6) |
| $Beta_{ic}$ | -0.020** | -0.022** | | -0.012 | -0.032* | -0.011 | -0.012** |
| | [0.008] | [0.009] | | [0.010] | [0.018] | [0.008] | [0.005] |
| | | | | | | | |
| Country FE | X | X | | X | X | X | X |
| Industry FE | X | X | | X | X | X | X |
| | | | | | | | |
| Weighted | Cell size | None | | Cell size | None | Cell size | None |
| | | | | | | | |
| Observations | 198 | 198 | | 198 | 198 | 198 | 198 |
| R-squared | 0.953 | 0.795 | | 0.950 | 0.749 | 0.949 | 0.783 |

Clustered standard errors at the country level in brackets.

*** p<0.01, ** p<0.05, * p<0.1

**Table A1. Time-series data characteristics**

| Country Name | Code | N. of Obs. | First year | Last Year | Region | Data Source |
|---|---|---|---|---|---|---|
| United States | US | 2997359 | 1983 | 2011 | USA | CPS |
| Germany | DE | 4472117 | 1983 | 2011 | West Europe | EU-LFS |
| France | FR | 3761400 | 1983 | 2011 | West Europe | EU-LFS |
| Ireland | IE | 2229198 | 1983 | 2011 | West Europe | EU-LFS |
| Netherlands | NL | 1796776 | 1983 | 2011 | West Europe | EU-LFS |
| UK | UK | 2429925 | 1983 | 2011 | West Europe | EU-LFS |
| Denmark | DK | 802682 | 1983 | 2011 | Nordic Countries | EU-LFS |
| Finland | FI | 420459 | 1995 | 2011 | Nordic Countries | EU-LFS |
| Norway | NO | 339891 | 1995 | 2011 | Nordic Countries | EU-LFS |
| Sweden | SE | 1544183 | 1995 | 2011 | Nordic Countries | EU-LFS |
| Austria | AT | 1165168 | 1995 | 2011 | Small Central/West Europe | EU-LFS |
| Belgium | BE | 1306968 | 1983 | 2011 | Small Central/West Europe | EU-LFS |
| Switzerland | CH | 457897 | 1996 | 2011 | Small Central/West Europe | EU-LFS |
| Luxembourg | LU | 433830 | 1983 | 2011 | Small Central/West Europe | EU-LFS |
| Spain | ES | 2875032 | 1986 | 2011 | South Europe | EU-LFS |
| Greece | GR | 2845613 | 1983 | 2011 | South Europe | EU-LFS |
| Italy | IT | 6109569 | 1983 | 2011 | South Europe | EU-LFS |
| Portugal | PT | 1348073 | 1986 | 2011 | South Europe | EU-LFS |

**Table A2. Descriptive statistics on industry distribution by gender, age group, marital status, and education**
**(EU-LFS Time-series data)**

| | A. College Sample | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Females | | | | Males | | | |
| | Age 23-42 | | Age 43-64 | | Age 23-42 | | Age 43-64 | |
| | Single | Ever Married | Single | Ever Married | Single | Ever Married | Single | Ever Married |
| *Industry* | | | | | | | | |
| Construction | 0.009 | 0.008 | 0.004 | 0.004 | 0.041 | 0.052 | 0.027 | 0.038 |
| Education | 0.189 | 0.224 | 0.291 | 0.283 | 0.105 | 0.119 | 0.178 | 0.160 |
| Financial | 0.046 | 0.038 | 0.020 | 0.017 | 0.058 | 0.065 | 0.032 | 0.041 |
| Health Care | 0.191 | 0.218 | 0.211 | 0.200 | 0.066 | 0.092 | 0.079 | 0.094 |
| Hotels and Restaurants | 0.017 | 0.013 | 0.007 | 0.008 | 0.017 | 0.013 | 0.010 | 0.008 |
| Manufacturing | 0.066 | 0.054 | 0.033 | 0.029 | 0.149 | 0.179 | 0.094 | 0.134 |
| Other | 0.061 | 0.044 | 0.062 | 0.043 | 0.064 | 0.054 | 0.106 | 0.048 |
| Professionals | 0.116 | 0.081 | 0.058 | 0.047 | 0.170 | 0.157 | 0.117 | 0.126 |
| Public Administration | 0.069 | 0.068 | 0.082 | 0.060 | 0.073 | 0.095 | 0.097 | 0.098 |
| Transportation | 0.024 | 0.017 | 0.013 | 0.009 | 0.039 | 0.042 | 0.029 | 0.034 |
| Whole sale / Retail | 0.067 | 0.058 | 0.034 | 0.039 | 0.083 | 0.091 | 0.052 | 0.065 |
| No Industry reported (not in LF) | 0.157 | 0.189 | 0.197 | 0.272 | 0.147 | 0.055 | 0.191 | 0.166 |
| Share Ever Married | 0.719 | | 0.911 | | 0.674 | | 0.917 | |
| | B. Non-College Sample | | | | | | | |
| | Females | | | | Males | | | |
| | Age 23-42 | | Age 43-64 | | Age 23-42 | | Age 43-64 | |
| | Single | Ever Married | Single | Ever Married | Single | Ever Married | Single | Ever Married |
| *Industry* | | | | | | | | |
| Construction | 0.010 | 0.011 | 0.007 | 0.008 | 0.124 | 0.163 | 0.077 | 0.105 |
| Education | 0.037 | 0.037 | 0.040 | 0.036 | 0.014 | 0.013 | 0.015 | 0.016 |
| Financial | 0.036 | 0.027 | 0.025 | 0.018 | 0.022 | 0.025 | 0.015 | 0.021 |
| Health Care | 0.133 | 0.130 | 0.126 | 0.102 | 0.028 | 0.023 | 0.026 | 0.020 |
| Hotels and Restaurants | 0.051 | 0.042 | 0.027 | 0.026 | 0.041 | 0.036 | 0.022 | 0.020 |
| Manufacturing | 0.099 | 0.091 | 0.074 | 0.058 | 0.199 | 0.245 | 0.147 | 0.188 |
| Other | 0.064 | 0.054 | 0.061 | 0.041 | 0.040 | 0.034 | 0.036 | 0.031 |
| Professionals | 0.065 | 0.054 | 0.041 | 0.036 | 0.058 | 0.054 | 0.037 | 0.041 |
| Public Administration | 0.048 | 0.042 | 0.053 | 0.037 | 0.051 | 0.069 | 0.047 | 0.056 |
| Transportation | 0.035 | 0.024 | 0.023 | 0.016 | 0.075 | 0.094 | 0.059 | 0.078 |
| Whole sale / Retail | 0.139 | 0.116 | 0.074 | 0.077 | 0.136 | 0.148 | 0.076 | 0.104 |
| No Industry reported/not in LF | 0.292 | 0.380 | 0.458 | 0.553 | 0.224 | 0.110 | 0.451 | 0.329 |
| Share Ever Married | 0.740 | | 0.924 | | 0.655 | | 0.900 | |

**Table A3. OLS Cross-country relationship between the gender pay gap, the prevalence of overwork and the returns to working long hours**

| | Gender Pay Gap \|hours | | | % of Males working 50+ hrs | |
|---|---|---|---|---|---|
| | (1) | (2) | | (3) | (4) |
| | | | | | |
| Elasticity of Earnings to Weekly Hours | -0.013 | -0.039 | | 0.068* | 0.137** |
| | [0.034] | [0.035] | | [0.034] | [0.059] |
| Constant | -0.133*** | -0.127*** | | 0.083*** | 0.065* |
| | [0.031] | [0.027] | | [0.025] | [0.032] |
| | | | | | |
| Weights | None | 1 / Std. error | | None | 1 / Std. error |
| Observations | 18 | 18 | | 18 | 18 |
| R-squared | 0.007 | 0.066 | | 0.144 | 0.268 |

**Table A4. Industry group definitions**

| Industry | | NACE Rev. 2 Section |
|---|---|---|
| Financial | | SECTION K — FINANCIAL AND INSURANCE ACTIVITIES |
| Health Care | | SECTION Q — HUMAN HEALTH AND SOCIAL WORK ACTIVITIES |
| Professionals | | SECTION L — REAL ESTATE ACTIVITIES |
| | | SECTION M — PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES |
| | | SECTION N — ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES |
| Construction | | SECTION F — CONSTRUCTION |
| Whole sale / Retail | | SECTION G — WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES |
| Education | | SECTION P — EDUCATION |
| Public Administration | | SECTION O — PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY |
| Manufacturing | | SECTION B — MINING AND QUARRYING |
| | | SECTION C — MANUFACTURING |
| | | SECTION D — ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY |
| | | SECTION E — WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION |
| Other | | SECTION J — INFORMATION AND COMMUNICATION |
| | | SECTION R — ARTS, ENTERTAINMENT AND RECREATION |
| | | SECTION S — OTHER SERVICE ACTIVITIES |
| | | SECTION T — ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFFERENTIATED GOODS- AND |
| | | SERVICES-PRODUCING ACTIVITIES OF HOUSEHOLDS FOR OWN USE |
| | | SECTION U — ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES |
| Hotels and Restaurants | | SECTION I — ACCOMMODATION AND FOOD SERVICE ACTIVITIES |
| Transportation | | SECTION H — TRANSPORTATION AND STORAGE |

Note: Most of the aggregations were already incorporated into the EUROSTAT coding of the industry variable. Our only change was to add Section J (Information and Communication) to Other, as this industry has too few observations to accurately calculate returns to overwork and gender gaps. We dropped the agriculture and fishing sector from our analysis.

**Table A5. Descriptive statistics at the industry level by education sample**

| | A. College Sample | | | | | | B. Non College Sample | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Beta | | Gender Pay Gap | | Share Males Overwork | | Beta | | Gender Pay Gap | | Share Males Overwork | |
| *Industry* | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev | Mean | Std. dev |
| Financial | 1.47 | 0.38 | -0.22 | 0.10 | 0.21 | 0.11 | 0.94 | 0.33 | -0.25 | 0.10 | 0.12 | 0.07 |
| Health Care | 1.28 | 0.37 | -0.15 | 0.08 | 0.16 | 0.10 | 0.82 | 0.75 | -0.10 | 0.09 | 0.06 | 0.05 |
| Professionals SS | 0.93 | 0.55 | -0.17 | 0.09 | 0.21 | 0.10 | 0.64 | 0.54 | -0.16 | 0.09 | 0.12 | 0.07 |
| Manufacturing | 1.07 | 0.40 | -0.16 | 0.08 | 0.19 | 0.10 | 0.62 | 0.27 | -0.23 | 0.06 | 0.09 | 0.06 |
| Construction | 0.94 | 0.31 | -0.12 | 0.17 | 0.22 | 0.12 | 0.75 | 0.33 | -0.07 | 0.12 | 0.12 | 0.06 |
| Whole sale / Retail | 0.83 | 0.46 | -0.17 | 0.10 | 0.22 | 0.12 | 0.76 | 0.43 | -0.18 | 0.05 | 0.14 | 0.07 |
| Education | 0.72 | 0.35 | -0.11 | 0.06 | 0.17 | 0.11 | 0.22 | 0.88 | -0.13 | 0.09 | 0.05 | 0.04 |
| Public Administration | 0.68 | 0.29 | -0.09 | 0.07 | 0.12 | 0.07 | 0.61 | 0.40 | -0.15 | 0.07 | 0.07 | 0.06 |
| Other | 0.64 | 0.57 | -0.19 | 0.12 | 0.20 | 0.10 | 0.62 | 0.67 | -0.28 | 0.13 | 0.11 | 0.06 |
| Hotels and Restaurants | 0.93 | 0.90 | -0.15 | 0.23 | 0.25 | 0.18 | 0.56 | 0.56 | -0.12 | 0.15 | 0.18 | 0.10 |
| Transportation | 0.64 | 0.64 | -0.20 | 0.16 | 0.21 | 0.09 | 0.06 | 0.31 | -0.08 | 0.09 | 0.18 | 0.07 |

Sources: Authors' calculations using US ACS and EU-SILC

The table reports the average across the 18 countries.

**Table A6. Robustness checks on the relationship between gender gaps and returns to overwork: country x industry variation, OLS Reduced Form**

| | Gender Pay Gap \|hours | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | | (3) | (4) | | (5) | (6) | (7) |
| | Baseline | | | Excludes IT, GR, AT, CH | | | By Terciles | Alternative Beta | |
| | | | | | | | | | |
| $Beta_{i\_US}$ x Gender Gap $Overwork_{c,-i}$ | 0.500*** | | | 0.517** | | | | | |
| | [0.169] | | | [0.191] | | | | | |
| $Beta_{i\_US}$ x Share Males $Overwork_{c,-i}$ | | -0.238** | | | -0.240** | | | | |
| | | [0.083] | | | [0.089] | | | | |
| $Beta_{i\_US}$ x Top Tercile $Overwork_{c}$ | | | | | | | -0.037* | | |
| | | | | | | | [0.020] | | |
| $Beta_{i\_US}$ x Mid Tercile $Overwork_{c}$ | | | | | | | 0.008 | | |
| | | | | | | | [0.025] | | |
| $Beta_{ic}$ x Gender Gap $Overwork_{ic}$ | | | | | | | | 0.449* | |
| | | | | | | | | [0.218] | |
| $Beta_{ic}$ x Share Males $Overwork_{ic}$ | | | | | | | | | -0.197 |
| | | | | | | | | | [0.122] |
| Country FE | | | | X | X | | X | X | X |
| Industry FE | | | | X | X | | X | X | X |
| | | | | | | | | | |
| Observations | 198 | 198 | | 154 | 154 | | 198 | 198 | 198 |
| R-squared | 0.643 | 0.643 | | 0.674 | 0.674 | | 0.643 | 0.644 | 0.643 |

Clustered standard errors at the country level in brackets. All regressions are weighted by the inverse of the standard error of the estimate of gender pay gap. See text for how the alternative Beta is defined.

*** p<0.01, ** p<0.05, * p<0.1