Overwork and the Slow Convergence in the Gender Gap in Wages

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Abstract

Over the last thirty years, men and women's hourly wages continued to converge, but at ever-slower rates. Using CPS data from 1979 to 2009, we document that this slowdown in wage convergence is due, in part, to the concomitant trend toward longer work hours. When coupled with a growing wage premium for overwork (i.e., 50 hours or more per week) and a persistent gender gap in overwork, the trend toward long work hours all but offset the wage-equalizing effects of educational convergence. The overwork effect on the gender gap in wages is especially prominent in the "greedy occupations" in professions and management, where the proportion of overworkers is the highest and the gender gap in work hours the largest. These results show how ostensibly gender-neutral changes in the social organization of work can perpetuate old forms of gender inequality.

After declining rapidly in the 1970s and 1980s, the gender gap in wages narrowed slightly in the 1990s and then stabilized through at least the 2000s (e.g., Blau and Kahn 2006). This stalled convergence caught many social scientists off guard. Based on data from the post-war period, Smith and Ward (1984: pp. 73-75) projected that in the latter two decades of the 20th century, women's wages would accelerate relative to men's, driven primarily by women's rapid gains in work experience, and the gender gap in wages would decline by a "conservative" estimate of 28%. Using data from the mid-1990s, Shannon and Kidd (2003) estimated that wages would continue to converge, albeit slowly, between 1995 and 2040, due to women's rapidly accelerating educational attainment and rising returns to education. Not all scholars were as sanguine, but even as wage convergence began to slow in the mid-1990s, debates were framed around whether women were "destined for equality" (Jackson 1998; see also Blau, Brinton, and Grusky 2006), not whether they were destined for perpetual wage inequality.

The stalled convergence in the gender gap in wages is especially puzzling in light of ongoing social, demographic, and economic changes that had an equalizing effect on wages: the convergence and, for recent birth cohorts, reversal of the gender gap in college degree attainment; the decline and delay in women's fertility, the equalization in men's and women's attitudes about paid labor, the convergence in labor force experience, the decline of manufacturing and high-paying jobs in traditionally male sectors, the weakening of male-dominated unions, and so on (e.g., Blau and Kahn 2007; Buchman and DiPrete 2006; Goldin, Katz, and Kuziemko 2006). Why, then, did wages stall?

The social scientific literature offers several plausible explanations. Gender and family scholars point to the "stalled revolution" in the domestic division of labor (see, e.g., Hochschild and Machung 2003; Bianchi, Robinson, and Milkie 2006; Geist and Cohen 2011). Institutional and legal scholars note that the career impact of the gendered division of household labor is

exacerbated by the ongoing lack of institutional and organizational support for workers in dual-earner couples or who have primary caregiving responsibilities (e.g., Williams 2003). Social psychologists point to persistent and deeply embedded cultural beliefs about men and women's competences that limit the supply of and demand for women in high-paying and stereotypically male occupations (e.g., Ridgeway 1997). Organizational scholars note that the adoption of effective anti-discrimination, diversity, and "family friendly" personnel policies has been slow and uneven (e.g., Dobbin, Kim, and Kalev 2011; Kelly 2010; Hirsh 2009); moreover, even ostensibly meritocratic performance review systems may be polluted by unconscious biases (e.g., Castilla 2008; Castilla and Bernard 2010). Students of labor markets note that men and women continue to be segregated across occupations (e.g., Charles and Grusky 2004), industries (e.g., Weeden and Sørenson 2004), jobs (e.g., Petersen and Morgan 1995), and work contracts (e.g., Kalleberg 2001; Kalleberg, Reskin, and Hudson 2000).

We extend this body of research by focusing on the recent trend toward long work hours and its implications for the gender wage gap. Although prior research has done much to explain the gender gap in wages and offer clues into its persistence, in our view, social scientists have not gone far enough in incorporating insights on changes in the social organization of work and family into formal models of trends in the gender gap in wages. Drawing on sociological research on labor market inequalities, we claim that the diffusion of long work hours, while nominally a gender-neutral change in the institution of work, exacerbated the gender gap in wages and partially offset the wage-equalizing effects of convergence in men and women's education, experience, and other forms of human capital.

We will test our claim with an analysis of Current Population Survey (CPS) wage data from the United States from 1979 to 2009, coupled with supplementary analyses of Survey of Income and Program Participation (SIPP) data. Our analysis features both a careful description

of trends and a formal wage decomposition, which allows us to tease apart the effects of changes in the wages associated with overwork from changes in the gender composition of overworkers. We first offer this analysis for the labor market as a whole, then focus on professional and managerial occupations where we anticipate the overwork effect to be concentrated. We conclude with a discussion of the promise and the limitations of our analysis for understanding why convergence in the gender gap in earnings has slowed or even stalled.

Overwork and the Gender Gap in Wages

As is by now well known, the last forty years saw a substantial increase in the average number of work hours of Americans (e.g., Schor 1993). This trend emerged not only because fewer women worked part time, but also because work hours among full-time workers increased, especially in the 1990s and early 2000s. By 2007, 13% of workers—17% of men and 7% of women—usually worked 50 hours or more per week, the conventional cut-off point for "overwork." Although it is less widely appreciated, overwork began to decline in the mid-2000s, even before the 2008 recession (authors' calculations). Even so, overwork remains a far more widespread feature of American work life today than it was throughout the late 20th century.

The trend toward overwork has, we argue, both a behavioral and a normative component: it is not only that more people work long hours, but that long work hours are increasingly expected and valued by employers and employees alike. Whereas the "ideal worker" in past eras may have been one whose constant devotion to work meant a 40-hour work week with very little vacation time, in the 24/7 economy the "ideal worker" is a worker who can be available to clients and supervisors at any hour of the day or week (Williams 2000; see also Presser 2005). Employees themselves are complicit, believing overwork to be not only a signal of devotion but a source of status, both at work and outside of it (Jacobs and Gerson 2004).

Long work hours, and the associated normative valuation of it, are especially likely in professional and high-level managerial occupations, or what Coser (1974:4) long ago described as "greedy" occupations, which "seek exclusive and undivided loyalty" from its members (also Epstein et al 1999; Jacobs and Gerson 2004; Maume and Bellas 2001). In these occupations, overwork becomes part of the occupational culture. It serves not only as a sign of productivity, but as a visible proxy for workers' commitment and competence: workers who put in more "face time" are assumed to be better at their jobs, and are rewarded with better work assignments and more frequent promotions (Biggart and O'Brien 2010; Blair-Loy 2003; Epstein et al. 1999; Perlow 2001; Sharone 2004; Landers, Rebitzer, and Taylor 1996). Conversely, workers who do not put in long hours violate occupational norms, with all the social and career penalties that this implies (Coser 1974; Epstein et al. 1999).

Overwork remains a gender-differentiated phenomenon as well. In 2000, 19% of men worked 50 hours or more per week, compared with 7% of women (authors' calculations). Most explanations for women's underrepresentation among overworkers point to their greater familial obligations (Bianchi et al. 2006; Clarkberg and Moen 2001; Epstein et al. 1999; Gornick 1999; Hochschild and Machung 2003 [1989]; Jacobs and Gerson 2004), which preclude women's entry into occupations that require long work hours and slow their advancement once in them (Epstein et al. 1999; Hochschild and Machung 2003 [1989]; Stone 2007; Williams 2000). Because workplace cultures reward workers who overwork, women are more likely to be evaluated poorly, less likely to receive the plum assignments that facilitate promotion and wage growth (e.g., Epstein et al 1999, Roth 2006), and more likely to leave these positions than men (Cha 2010). Expectations about work hours conflict with expectations about women's primary caregiving role, creating near orthogonality between the image of an "ideal worker" and the image of an "ideal mother" (e.g., Acker 1990; Hays 1996; Blair-Loy 2003; Hochschild and

Machung 2003[1989]; Kelly et al. 2010; Stone 2007).

Much evidence, then, points to a growing role of overwork in affecting career outcomes, especially in "greedy" professional and managerial occupations, and to gender differences in the propensity to overwork. To our knowledge, however, there have been no prior empirical efforts to tie trends in overwork to trends in the gender gap in wages, a gap we fill in this article.

Overwork Price and Composition Change Effects

In investigating the relationship between overwork and the gender wage gap trends, we seek to identify the proximate sources of any overwork effects on trends in the gender gap in wages. In particular, we examine the magnitude and valence of two structural components of the overwork effect: changes in the relative proportions of men and women who overwork (the composition effect), and changes in the wage returns to overwork relative to full-time and part-time employment (the price effect). These components may both have affected the gender gap in wages over the period of our study, but are nonetheless analytically and empirically distinct.

The valence of the composition effect – that is, whether it expands or contracts the gender gap in wages – depends on whether (a) the gender gap in overwork is expanding or contracting, and (b) overworkers earn more or less per hour than otherwise comparable full-time and part-time workers. An expansion of the gender gap in work hours will contract the gender gap in hourly wages if the price of overwork is negative (i.e., overworkers are simply putting in more hours than comparable full-time workers for the same salary level). Conversely, an expansion of the gender gap in work hours will exacerbate the gender gap in wages if long work hours are associated with higher hourly wages than are earned by otherwise equivalent full-time workers. Changes in the composition of overwork can, of course, expand or contract the gender gap in wages even if the wage returns to overwork remain constant.

The valence of the price effect on the gender gap in earnings depends on (a) whether prices for overwork relative to full-time work are increasing or decreasing, and (b) the direction of the gender gap in overwork. If, as noted above, men are more likely to overwork than women, an expansion in the hourly wage returns to overwork relative to full-time work will likewise expand the gender gap in wages, even without a concomitant change in the gender gap in overwork. Conversely, if the relative wage returns to overwork declined over time, men's greater representation among overworkers will result in a convergence in the gender gap in wages.

As the preceding discussion implies, the wage returns to overwork and their trend over time are critical determinants of the overall impact of overwork on the gender gap in wages. To our knowledge, only one prior empirical study has systematically examined trends in the wages associated with overwork; it found rising wage premia to overwork, but its data ended in the early 2000s (Kuhn and Lozano 2008). While direct evidence is relatively sparse, the extant theoretical and empirical literatures on rising wage inequality offer good reason to expect that the wage returns for overwork have continued to rise. First, the occupations in which overwork is most prevalent are precisely those that have experienced the greatest wage growth in the past 35 years (see, e.g., Weeden et al 2007). As such, the wage returns to overwork may have increased simply because a growing proportion of overworkers are found in high paying occupations.

Even within occupations, however, the literature on wage inequality offers ample reasons to anticipate rising wage returns for overwork. Most obviously, growing demand for skilled labor may have created additional incentives for the most productive workers to put in long hours. Alternatively, workers who put in long hours may obtain more firm-specific capital or experience greater increases in productivity (e.g., from new technologies) relative to full-time workers. The latter argument points to productivity differentials between overworkers and their full-time counterparts, but it is also possible that wages for overworkers rose faster than

productivity, especially as discrete promotion systems (e.g., partnerships in law firms, tenure systems in academe) or relative evaluation systems (in which workers are compared against each other) diffused (see, e.g., Landers et al 1996). Both changes have taken place in the context of deindustrialization, globalization, and the emergence of shareholder value systems that, as some scholars argue, pressured employers to stratify their workforces into a set of core employees who work full-time (or longer) hours for relatively high pay and a set of contingent workers who work part-time, under subcontracts, or in temporary positions, typically for lower pay (e.g., DiPrete et al. 2002; Fligstein and Shin 2004; Kalleberg, Reskin, and Hudson 2000; Tilly 1996; Kalleberg 2001).

For our purposes, the critical issue is not *why* relative returns to overwork have increased, but merely whether they have increased, and how this increase affected trends in the gender wage gap. A wage premium for overwork means that any increase in the gender gap in overwork will, all else being equal, exacerbate the gender gap in wages, and convergence in overwork will attenuate the gender gap in wages, both through the composition change effect. Similarly, in the absence of a wholesale reversal in the gender gap in overwork, rising wages for overwork will, all else being equal, widen the gender wage gap through the price change effect.

Data, Methods, and Variables

Our analytic goal, then, is to estimate the relationship between the trend in overwork and the trend in the gender gap in hourly wages, both for the entire labor market and for professional and managerial occupations. We rely on (1) a graphical presentations of trends in the gender gap in wages, the gender gap in work hours, and the net returns to work hours (overwork, full-time work, and part-time work); and (2) formal wage decompositions, developed by Juhn, Murphy, and Pierce (1991; hereafter "JMP" decomposition; also see Blau and Kahn 2006), which allow

us to quantify composition change and price change effects.

Data

Our primary data are the Merged Outgoing Rotation Groups of the CPS (MORG; Bureau of Labor Statistics / NBER, years vary). The graphical presentation of trends uses all available MORG surveys from 1979 to 2009. The JMP decomposition relies on the 1979, 1989, 1999 and 2007 surveys; we chose 2007, rather than 2009, as the end point in order to estimate effects under similar macroeconomic conditions. In a supplementary analysis, we also deploy SIPP data from 1996 and 2004 and compare it to CPS data from these years.

Our analytic sample is limited to noninstitutionalized civilian workers aged 18 to 64. Following conventional practice, we exclude workers whose wages fall below $1/hour or above $100/hour in 1979 US dollars (Angrist and Krueger, 1999; Card and Dinardo, 2002; Mishel, Bernstein, and Schmitt, 2001). We also exclude self-employed workers, whose earnings information is unavailable in the MORG data. The final CPS sample sizes are 4,983,248 for the graphical trend analyses and 627,763 for the JMP decompositions. All analyses of CPS data use the BLS-provided sampling weights.

Decomposition Method

Although our descriptive analysis relies on methods that will be familiar to most readers, the same may not be true for JMP decompositions. This method begins with a wage equation for men, and assumes that prices for male workers with the observed human capital characteristics will, in the absence of discrimination, prevail for women as well.[1] The JMP model takes the form:

[1] We also estimated JMP models using wage equations based on (a) price effects for women, and (b) price effects for pooled data. These analyses (available from the first author) yielded estimates of our core variables that do not differ substantively from those presented here.

$$y_{it} = x_{it}b_t + \sigma_t\theta_t, \quad (1)$$

where y_{it} is the log of wages for individual *i* in year *t;* x is a row vector of independent variables; b is a column vector of regression coefficients; σ is the residual standard deviation of men's wages for that year, which measures the male residual wage inequality; and θ is a standardized residual with mean zero and variance 1 for each year. The difference in the gender wage gap between two time points, denoted by 0 and 1, can be decomposed into four components (see Blau and Kahn 2006; Juhn et al. 1991):

$$\text{Observed x effect} = (\Delta x_1 - \Delta x_0)b_1 \quad (2)$$

$$\text{Observed price effect} = \Delta x_o(b_1 - b_0) \quad (3)$$

$$\text{Unobserved quantity effect} = (\Delta\theta_1 - \Delta\theta_0)\sigma_1 \quad (4)$$

$$\text{Unobserved price effect} = \Delta\theta_0(\sigma_1 - \sigma_0) \quad (5).$$

In these equations, Δ denotes the average male-female difference in the variable it precedes. Equations (4) and (5) estimate the contribution of price and quantity changes in unobserved variables on the changes in the wage gap. The unobserved quantity effect measures the contribution of changing gender gaps in the relative positions (i.e., percentile rankings) in the men's residual wage distribution. The unobserved price effect measures the changes in the gender gap in wages due to changes in men's residual wage distribution, under the assumption that women's percentile rankings in the male residual wage distribution remained constant.

We are primarily interested in the estimates from equations (2) and (3). The observed x effect (the quantity or composition effect; see Equation 2) is the portion of the variance explained by changes in the gender gap in the quantity of each observed predictor of wages x

(e.g., overwork, education). The observed price effect indicates changes in the gender wage gap due to the changes in the price of each predictor x. The estimated effects from these equations allow us to evaluate the extent to which shifts in the gender gap in work hours or the price associated with overwork lessened or exacerbated the gender gap in wages. These estimates are adjusted for the effects of other wage covariates in x, which we describe below.

Variables

The dependent variable in our analyses is hourly wages. Wages are logged in the regression and decomposition analysis but unlogged in the descriptive analysis, to aid in interpretability. Wages are adjusted for inflation using the Bureau of Economic Analysis' Personal Consumption Expenditures Deflator and expressed in 2004 dollars, and those that are top-coded in the CPS to preserve confidentiality are multiplied by 1.4 (see, e.g., Card and DiNardo 2002). We present results from hourly wage data calculated from edited earnings data, but we also estimated models using unedited earnings data and found substantively identical results for the coefficients of interest.[2]

[Table 1]

Work hours are measured with a set of dummy variables that adopt standard cut points in the work-family and labor economic literature: less than 35 hours (part-time), 35 hours or more but less than 50 hours (full-time), and 50 hours or more (overwork).[3] In our regression analyses,

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[2] The imputation method the BLS uses in the edited series to assign earnings to missing data can bias downward the estimated effects of variables (e.g., detailed occupation) that are excluded from the imputation equations or "hot deck" cell definitions. This "match bias" is likely increasing over time as the percentage of cases with missing earnings grows (e.g., Hirsch and Schumacher 2004, Heckman and LaFontaine 2004). Given our goal is not to estimate detailed occupation effects, we use edited earnings.

[3] Among overworkers, men work an average of 55.8 hours per week (sd=8.4) and women an average of 54.8 hours per week (sd=8.1); moreover, more men appear in the right tail of the distribution than women. Sensitivity checks using alternative specifications of overwork, work hours, and wages generated substantively similar results (available from the first author on request).

we further differentiate part-time for economic reasons (i.e., "could not find full-time work"), part-time for non-economic reasons, and part-time for unspecified or missing reasons.[4] Our other covariates include gender, race, age, age squared, education (5 categories), marital status (married or unmarried; not used in the decomposition analysis), potential years of work experience (i.e., age – years of schooling – 6), experience squared, region, metropolitan residence, and whether the job is in the public sector. Table 1 presents the means and standard deviations of these variables for the survey years used in the JMP decomposition, and Table A1 presents them for the full sample.

Some of the wage equations fit to data for the entire labor market include measures of detailed occupation (e.g., lawyer, carpenter). Because consistent occupation codes are not available in the MORG series, we use occupation codes that are indigenous to each survey. This yields 421 occupation "effects" in 1979, 502 in 1989, 496 in 1999, and 500 in 2007. The JMP decomposition requires that identical variables are fit in each year's model, a problem that we bypass with a two-step analysis: we first regress logged wages on the full set of indigenous occupation dummy variables, and we then apply the JMP decomposition to the residuals, with all other control variables fit in x.[5] The resulting estimates of the price and composition overwork effects can be understood as the average effects that obtain within occupations, given that all between-occupation differences in wages are purged from the data.

We also present estimates from models applied to data that are restricted to each of two major occupation groups, professionals and managers. To obtain indicators of professional or managerial occupations that are consistent across MORG surveys, we "backcode" using gender-

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[4] The BLS does not ask workers who work more than 35 hours per week to give reasons for their hours.

[5] One could also backcode detailed occupations in the 1983-2007 data into the 1970 Census Occupational Classification codes. Given our goal is simply to adjust the estimated overwork effect for cross-occupational differences in pay, not to identify particular occupation effects, the two-step analysis is preferable.

specific weights to translate 2000, 1990, and 1980 COC codes to a set of 1970 COC codes (see Weeden 2004; also 2005a, b). Although aggregating detailed occupations into professions and managers does not capture the full extent of occupational heterogeneity in work hours or wages (see, e.g., Weeden et al 2007; Peterson and Morgan 1995), it allows us to identify differences in the overwork effect across regions of the labor market where "greedy occupations" are most likely to be found.[6]

Our estimates of the overwork effect are adjusted for the standard human capital and occupational "controls" that one typically sees in contemporary wage equations. We recognize, however, that our models do not include three sets of known correlates of wages: marital and parental status, experience and job tenure, and union status. We exclude marital and parental status because, as noted above, the JMP models assume that the price effects of the observed covariates are the same across groups. This assumption does not hold for either marital or parental status (see, e.g., Korenman and Neumark 1991; Budig and England 2001; Correll et al. 2007; Waldfogel 1997). Including one or both of these variables may underestimate their price effects on the widening gender wage gap.[7] We instead allow their effects to be captured by the unexplained terms (equations 4 and 5).

Measures of work experience, job tenure, and union membership are also absent from our core JMP models because of shortcomings of the CPS data. The CPS data lack measures of work experience and job tenure altogether, and union status is available only in the later years of the series. Because the omission of these covariates may bias the estimated overwork coefficients, we provide a supplementary analysis of SIPP data, which contain the requisite measures. We cannot rely exclusively on the SIPP, because of the limited time span in which reliably

[6] In theory we could examine trends at the detailed occupation level, but in practice many detailed occupations contain too few cases in a given year or cluster of years to generate robust estimates. A future project will examine the characteristics of occupations associated with trends in the gender gap in wages.
[7] Parental status is also not consistently available in the MORG surveys.

comparable data are available.

Results

We begin with an overview of gross trends in the gender gap in wages, the gender gap in work hours, and net wage returns to overwork. These analyses set the stage for the subsequent JMP decomposition results and the analysis of overwork's effect on trend in the gender gap in wages in professional and managerial occupations.

Trends in Wages, Overwork, and Its Returns

Figure 1 reiterates the slow convergence in men and women's wages in the 1990s and early 2000s observed in other research (Blau and Kahn 2006), and shows the stagnation first evident in the early 2000s continued throughout the decade. Indeed, in the first fifteen years of our data, from 1979 to 1995, the ratio of women's wages as a proportion of men's increased from 0.65 to 0.78, a change of 20%. Over the next fifteen years, the gender wage ratio rose only 0.03 points (to 0.81), a change of just 3.8%.

[Figure 1]

Figure 2 shows the trend of the proportion of men and women who worked at least 50 hours per week and, for comparison, those who worked full time. The key result is that although the proportion of overworking men and women increased, the gender gap in overwork remained nearly constant. In 1979, 15% of men and 3% of women worked 50 hours or more per week (see Figure 2a). By the late 1990s, these percentages peaked at 19% of men and 7% of women. The trend in overwork reversed for men in the 2000s and stagnated for women, generating a slight decline in the gender gap in overwork. However, with the exception of this "recession" effect, the gender gap in the proportion of overworkers has remained largely stable over the past 30

years, in stark contrast to the narrowing gender gap in full-time work (see Figure 2b).[8] This result is consistent with prior research showing that "stalled revolution" in the gender gap in domestic labor is especially consequential for women's ability to enter jobs where overwork is part of the workplace culture (e.g., Hochschild and Machung 1989; Stone 2007). It also suggests that compositional changes in the gender gap in overwork did not contribute to the decline in the (unadjusted) gender gap in wages, a result that we examine further in our JMP decomposition.

[Figure 2]

Figure 3 presents trends in the wage premium or penalty, by gender, associated with overwork. Not surprisingly, Figure 3a shows that the trend in the gender gap in wages among full-time workers mirrors that of all workers. The wages of full-time men decreased in real dollar terms until the mid-1990s, increased from the late 1990s to the early 2000s, and remain constant thereafter. The wages of full-time women, by contrast, increased monotonically and at roughly the same pace over the entire period.

[Figure 3]

Overworkers' hourly wages show a dramatic increase over the 30 years of our data (see Figure 3b). The wages of overworking men increased rapidly between the mid-1990s and the 2000s, remained steady until 2007, and rose again in 2008 and 2009. The wages of overworking women also increased, but more steadily. The striking result of Figure 3b, though, is not the gender gap in the wages of overworkers, but wage growth of overworkers of both genders.

Figure 4 assesses whether rising returns to overwork is driven by compositional shifts in the pool of overworkers. If, for example, overwork became increasingly concentrated among college-educated workers, we might anticipate that the apparent increase in the returns to

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[8] The gender gap in part-time work also decreased over this period, although less sharply than the gender gap in full-time work.

overwork will disappear once we adjust for rising returns to a college degree. The estimates in Figure 4, which map trend in *net* hourly wage returns to overwork relative to full-time workers, are based on a regression of (logged) wages on the full complement of control variables (see Table A1). The effects of overwork are statistically significant ($p < .05$) in all years except 1994 to 1996 for men, and 1995, 1996, and 1998 for women. [9]

[Figure 4]

Figure 4 reveals three important findings. First, rising wage returns to overwork are not simply a function of compositional shifts in measured human capital attributes: we see a similar trend in Figure 4 as in Figure 3. Second, and also as in Figure 3, the wage returns to overwork do not differ appreciably by gender. Third, and for our purposes most critically, the net wage returns to overwork reversed sign, from negative to positive, over the period of our data. The magnitude of this shift is substantial: the wage penalty for overwork in 1979 was 14% for men and 16% for women; by 1989, it had decreased by a third; by the mid-1990s, it had become a wage *premium*; and by 1999, overworking men earned 4% more and overworking women earned 2% more than their full-time counterparts. The returns to overwork continuously increase afterward, such that by 2009, the wage premium for overwork had increased to 6% for both men and women.

This increase in overwork wage premium is as consequential as it is dramatic. When coupled with a persistent gender gap in overwork, it implies that the effect of overwork on the gender gap in wages has reversed: before 1999, overwork had a net suppressing effect on the gender gap in hourly wages, whereas after 1999, it had a net exacerbating effect. This result is even more striking if one assumes that as the norm of overwork diffuses, workers are, if anything, more likely to over-report their work hours. All else equal, this should *underestimate* the increase in the wage premium for overwork, given that employers do not typically pay for hours that

[9] We note that 1994 and 1995 are years in which the CPS data may be suspect (see, e.g., Lemieux 2006).

employees report on surveys but do not work.

The preceding results offer initial evidence that the trend toward long work hours is implicated in the stagnation of the gender gap in earnings. The effect of overwork does not seem to be generated by a growing gender gap in overwork or by gender-specific prices for overwork, but by rising returns to overwork. In the JMP decomposition that follows, we estimate the magnitude of these compositional and price change effects and compare them to composition and price change effects of other known and oft-studied covariates of wages.

Decomposition of the Overwork Effect

Table 2 shows the decomposition of changes in the gender gap in wages between 1979 and 2007. The results in the first column are based on a regression of log hourly wages on the work hour variables, workers' age, age squared, race, education, potential years of work experience, potential experience squared, region, and sector. The coefficients in the second column also adjust for detailed occupation effects using the two-stage analysis described in the methods section.

[Table 2]

The results of the first model estimates that the gender wage gap decreased by 0.21 log points, or about 19%, between 1979 and 2007 (see "change in differentials," Table 2). Both composition and price effects for overwork support our main contention, namely that the trend toward overwork exacerbated the gender wage gap and partially offset the wage-equalizing effect of other, more often studied social changes in men and women's human capital. Model 1 also shows that although both the net composition and price factor of overwork contributed to widening the gap (i.e., both effects are positive), the price effect had a much stronger impact on the gender gap in wages than the quantity effect (see also Figures 2, 3, and 4). More specifically,

the increased price for overwork widened the wage gap by 0.02 log points, or 9.5% (0.02/0.21) of the total change in the gender gap. By contrast, shifts in the gender gap in overwork increased the gender gap in wages by .002 log points, or 1% (0.002/0.21) of the total change.

How do the estimated effects of overwork compare to other known factors affecting trends in the gender gap in wages? Recognizing that it is always perilous to enter variables in a horse race, Table 2 nonetheless suggests that overwork has a greater effect in widening the gender gap in wages than other observed price and composition factors except potential experience (see below). Notably, rising returns to education equalized the gender gap in wages by an estimated -0.014 log points, or 6.6% of the total change. (As we will show below, some of this education effect is capturing experience and job tenure effects.) For all the attention lavished on rising returns to college and the reversal of the gender gap in college completion, the education price effect is exceeded by the overwork price effect. Whereas the convergence of the gender gap in education compressed the gender gap in wages, the persistent gender gap in overwork exacerbated it as the wage returns to overwork increased. This increase was sufficient to offset the wage-equalizing effects of education.

Without downplaying the importance of the overwork effect, it also bears noting that most of the changes in the gender wage gap between 1979 and 2007 were due to the improvement in women's *unobserved* labor market qualifications (see "Unobserved quantities" in Model 1). Unobserved price effects, by contrast, would have widened the gender gap in wages in the absence of compositional shifts. In both cases, the unobserved effects are greater in magnitude than the observed effects. As we alluded to above, we think it likely that a large component of these unobserved price and quantity effects are a function of changing patterns of gender segregation across high- and low-paying occupations, and of occupation-specific trends in the wage gap. If overwork is unevenly distributed across occupations with occupation-specific

wage profiles, it is also possible that the estimated overwork effects from Model 1 are simply picking up occupational segregation effects.

To assess this possibility, Model 2 of Table 2 presents estimates from a JMP decomposition model fit to data residualized on detailed occupations. These analyses will provide a lower-bound estimate of the "true" net overwork effect, because residualizing on occupations purges the data of between-occupation differences in overwork and its associated wage trend effects. The results show, firstly, that the "change in differentials" (i.e., the trend in the gender gap in wages) decreases to zero when we purge out between-occupation effects. This is consistent with prior research that shows the importance of occupational segregation on the gender gap in earnings (e.g., Blau et al. 2009). The composition effect of overwork remains as minimal in Model 2 as in Model 1, and the price effect remains positive. The magnitude of the overwork effect, however, decreases to 0.011 log points, compared to 0.020 log points in Model 1; or, put differently, just over half of the overwork effect observed in Model 1 can be attributed to rising prices for overwork within occupations, and just under half is attributable to the between occupation effects of differences in pay and the prevalence of overwork. The unobserved quantity and price effects in the purged data is also substantially smaller in magnitude and reversed in valence, suggesting that their large values in the unpurged model are the result of gender segregation.

We recognize that the results in Table 2 cover the entire span of the CPS data, and hence are not ideally suited for teasing out whether overwork helps explained the stagnation in the gender gap in wages that began in the 1990s (see Figure 1). To address this timing question, we apply the decomposition models (without residualizing on occupations) to changes across three time periods: 1979 to 1989, 1989 to 1999, and 1999 to 2007.

This more fine-grained analysis, which is presented in Table 3, reveals that the pace of

convergence in men and women's wages has slowed over the three time periods (see also Figure 1). The gender gap in wages narrowed by about 11% between 1979 and 1989, 6% between 1989 and 1999, and 4% between 1999 and 2007. The price factor of overwork exacerbated the gender gap in wages across all three periods, but it was stronger in the two earlier periods (0.011 log points for both periods) than between 1999 and 2007 (less than 0.001 log points). As a proportion of the total change, the magnitude of the overwork price effect was about 10% between 1979 and 1989, 18% between 1989 and 1999, and 1% between 1999 and 2007. The upshot is that changing prices for overwork gives us some, but not complete, leverage on the question of why the gender wage gap stagnated in the 2000s.

[Table 3]

If overwork had a significant but modest effect on the gender gap in wages in the 2000s, what else can account for the stagnation in the gender gap in wages in this period? The JMP decomposition estimates in Table 3 offer initial clues, although not terribly satisfying ones: the greatest effects on the gender gap were changes in the quantities of unobserved attributes in the 1990s and 2000s, and changes in the prices of unobserved attributes in the 2000s. As above, additional analyses (not shown) indicate that much of the unobserved quantity effects are absorbed by detailed occupations or correlates of detailed occupations: in models fit to data from which occupation effects have been purged, the estimated unobserved quantity effects decline by roughly 60% relative to the models fit to the unadjusted data between the 1990s and 2000s (results available from the first author). The price change effect of overwork remains positive in the purged data, but is reduced to roughly 60% (1980s and 2000s) to 70% (1990s) of its size in the unpurged data. Put differently, between 30% to 40% of the overwork effect observed in Table 3 cannot be attributed to occupational heterogeneity in overwork and wages. It is possible that the price and composition effects of overwork differ by occupation, an "interaction effect"

that we explore in the occupation-specific analyses below.

Omitted Variables and the Robustness of the Overwork Effect

Before we turn to the occupation-specific analyses, we think it useful to tease out further the source of the unobserved price and quantity effects observed in the CPS data, and in the process assess the robustness of the observed overwork effects on wage gap trends. As we noted in the "Data" section, these robustness checks rely on the SIPP data, which unlike the CPS data contain systematic information on unionization, actual work experience, and job tenure.

It is plausible that the unobserved quantity and price changes we observed in the CPS data are tied to declining union density and ability to negotiate favorable work contracts (e.g., Western and Rosenfeld 2011; Wallace, Leicht, and Raffalovich 1999). It also had a demonstrated and gender-specific effect on wage inequality: Western and Rosenfeld (2011) estimate that up to 50% of the decline in men's wages can be attributed to the shrinking union wage premium, but very little of shifts in women's wages (see also Card 2001; Card et al 2004). Critically, the decline of unionization may affect the observed estimates of the compositional and price change effects of overwork. If, for example, deunionization allowed employers greater flexibility in assigning work hours, it might increase the prevalence of overwork in labor market positions that no longer benefit from as substantial of a union wage premium.

Our supplementary analysis of the SIPP data shows that the decline in unionization and the union wage premium shrank the gender gap in earnings, but had no impact on the estimated overwork effect (see Table A2). More specifically, declining composition effects of union membership diminished the gender wage gap by 0.003 log points, or about 10% of the total, between 1996 and 2004. Perhaps because of the low rates of union during the period of the SIPP

data, changes in the price of union membership have little effect on the gender gap in wages.[10] More importantly for our purposes, the overwork price effect in the SIPP analysis is comparable in sign and magnitude to the estimated price effect in the CPS data from the same years. Evidently, the overwork effect observed in the CPS data is rarely affected by our forced omission of union membership.

The SIPP data also allow us to examine whether the omission of job tenure and actual work experience from the CPS analyses affect either the observed overwork effect or the size of the unobserved price and quantity changes. The SIPP data confirm that the potential work experience measure in the CPS does not accurately capture the price and composition effects of work experience on the gender gap in wages. Indeed, the SIPP data show that rising prices for work experience widened the gender wage gap, by 0.005 log points or 18% of the total change, between 1996 and 2004, whereas CPS estimates from the same period suggest that rising prices for potential work experience narrowed the wage gap by -0.004 log points, or 14 % of the total. The composition effect of experiences also reverses valence, from positive in CPS (0.009 log points) to negative in SIPP (-0.006 log points). The SIPP data also show that declining gender gaps in job tenure helped to compress the wage gap. The omission of these measures in the CPS also appears to lead to an overestimation of the price effect, and an underestimation of the composition effect of education, presumably because education is associated with omitted job tenure and actual work experience in the CPS model.

Critically, however, this misspecification of the underlying model in the CPS data does not lead to biased results in the estimated overwork effect (Table A2). Neither data set show a composition effect of overwork, and the price effect of overwork in the SIPP data is, if anything,

[10] We also checked the union effect using the available CPS data (1983 and 2007), which yields the substantially same conclusion.

slightly greater (0.005) than in CPS data for the same years (0.004). Thus, the forced omission of union membership, work experience, and job tenure from the CPS analysis, while unfortunate, does not fundamentally affect our conclusions about overwork and its impact on trends in the gender gap in wages.

Overwork in the Professions and Managerial Occupations

Our final analysis assesses overwork as a potential source of cross-occupational differences in the gender gap in wages. In particular, we ask whether the overwork effect is more pronounced in professional and managerial occupations than it is across the labor market as a whole. As we argued above, it is in these occupations in which the logic of "greedy occupations" is the strongest and the gender gap in overwork the most pronounced.

As in our analysis of the entire labor market, we begin with descriptive results and then present the results of a JMP decomposition. The descriptive results show, firstly, that trends in the gender wage gap vary across occupation groups (compare Figure 5a and 5b; also Figure 1), a finding that has not been sufficiently appreciated in prior wage gap research. For example, whereas the gender gap in wages in managerial occupations (Figure 5b) declined sharply in the 1980s and more slowly thereafter, the gender gap in wages in professional occupations (Figure 5a) shrank through the mid-1990s, but stagnated or even grew thereafter.

[Figure 5]

If convergence in the gender gap in wages in professions and managerial occupations was slower than in the labor market as a whole, the takeoff in overwork in these two major occupation groups was more pronounced. In 1979, 18% of men and 8% of women professionals overworked, already a substantial percentage, but by the late 1990s, these percentages had increased to 25% and 12%, respectively (Figure 6a). Managers likewise experienced a growth in

overwork, with the percentage of men who overwork increasing from 31% in 1979 to 39% in 1999, and the percentage of women increasing from 10% to 16% (Figure 6b). The two occupation groups diverge, however, in the 2000s: in this period, the percentage of overworking professionals stayed roughly constant or decreased only slightly, whereas the percentage of overworking managers declined precipitously. However, with the exception of a modest contraction in managerial occupations in the 2000s, the gender gap in overwork remained remarkably steady in both occupation groups throughout the period.[11]

[Figure 6]

The final figures show trends in the wage premium or penalty associated with overwork in the professions and managerial occupations, net of the CPS covariates.[12] Trends in the wage returns to overwork in the professional (Figure 7a) and managerial occupations (Figure 7b) are comparable to trends in other occupations: between 1979 and 2009, overworking professionals and managers pulled ahead from their full-time counterparts by approximately 0.2 log points in hourly wages (see also Figure 4). Coupled with especially large gender gaps in overwork in these occupations, the end result is that rising wages for overwork were especially consequential in the professional and managerial occupations.

[Figure 7]

Table 4 formalizes this result, presenting JMP decompositions for the two major occupation groups. As above, the price and composition change effects are net of the covariates of wage listed in Table 1. The first row indicates that the gender wage gap declined between 1979 and 2007 in both occupation groups, as indicated by negative coefficients. The decline was

[11] While we think the backcoding method employed here most accurately capture consistent occupation effects among available methods, it is still possible that a sharp decrease occurred between 2002 and 2003 could be in part due to occupation coding changes.

[12] The estimates in Figure 7 are based on pooled data, which allows us to generate more robust estimates in the occupation-specific samples.

more dramatic in managerial occupations (17%) than in the professions (8%), but in both groups it was substantially muted compared to the 21% decline observed for full sample (see Table 2).

[Table 4]

How much did rising returns to overwork contribute to these trends? The second column of Table 4 indicates positive price effects of overwork for both occupation groups. The magnitude of this price change effect greater in absolute terms in managerial occupations (0.034) than in professional occupations (0.024), although as a percentage of the total change in the gender gap in wages, the contribution of the price effect is greater in the professions (30%) than in managerial occupations (20%). Put differently, in the absence of rising returns to overwork, the gender gap in wages in managerial occupations would have declined by an additional 20%, and the gender gap in wages in the professions would have declined by a third again as much as it in fact did. In both groups, the price effect is larger than in the full sample (see Table 2), and it shows the largest effect (in percentage terms) among all occupation groups (not shown, but results available from the first author).

As in the full labor market, changes in the composition effect of overwork in the professions and management are quite small. The largest composition change effect is observed in the managerial occupations (0.007), where it accounts for 4% of the total change of the gender pay gap. Even in managerial occupations, however, the composition change effect is trivial compared to the price effects.

In summary, the growth in the hourly wage payoff to overwork was especially pronounced in the professions and management. In these occupations, the gender gap in wages has been especially sticky in the last two decades, and some of this stickiness can be traced to overwork and its gender-specific consequences.

Conclusion

This article points to the strong relationship between trends in overwork and trends in the gender gap in wages. Rising prices for overwork, in particular, widened the gender gap in hourly wages between 1979 and 2007, thereby counteracting the wage-equalizing effects of women's massive gains in educational attainment and other wage-related human capital attributes. Approximately half of the effect of overwork is a function of the unequal distribution of overwork across occupations that experienced different pay growth, and half occurs within occupations. Our results also show that the overwork effect is particularly strong in the professions and management, the "greedy occupations" that have attracted so much sociological interest for so long (e.g., Coser 1974). In these occupations, rising prices for overwork entirely offset the wage-gap compressing effects of ever more equal educational attainment.

As important as this overwork effect is, it cannot explain why the convergence in the gender gap in wages slowed so dramatically in the 2000s. This period saw virtually no convergence in the gender gap in overwork, meaning that there were no compositional changes in overwork that could attenuate the gender gap in wages. To be sure, the 2000s did not differ from the 1980s or 1990s in this regard: compositional change effects were weak throughout the period of this study (see, e.g., Figure 2a). However, the price change effect of overwork was also reduced virtually to zero in the 2000s, unlike the 1980s and 1990s.

What, then, can account for stagnation of the gender gap in the 2000s, above and beyond that which can be linked to overwork? Our analysis of the CPS data did not identify a "smoking gun," nor did our analysis of SIPP data: although the latter show that compositional and price changes in actual experience, job tenure, and unionization – all of which are unmeasured in the CPS – had modest equalizing effects on wages, they cannot account for stagnation of the gender gap in wages. Much of the slowdown in wage convergence appears instead to be due to slowing

rates of gender integration in occupations that are pulling apart from each other in their pay. It is beyond the scope of this article to explore this desegregation effect further, but we nonetheless note that our results are consistent with the claim that occupational segregation can coexist with egalitarianism as long as cultural belief systems support "separate but equal" roles for men and women (see Charles and Grusky 2004).

Our results also beg a second question: why did the price of overwork increase so spectacularly? Across the labor force as a whole, the overwork wage penalty of the 1980s gave way to a wage premium after the mid-1990s. The wage returns to overwork remained negative in the professions, but shrank dramatically over time, thereby generating an inequality-exacerbating price effect in these occupations as well. Space and data limitations prevent us from teasing out the sources of this shift here, but we see this area as ripe for additional research.

Rising rates of overwork and rising returns to overwork appear, at first glance, to be gender neutral processes: there is nothing inherently gendered, for example, about an employment system in which an employee's assumed value is linked to work hours. We also found no evidence of gender differences in the returns to overwork. However, even ostensibly gender-neutral shifts in the social organization of work and family can have decidedly gender-relevant consequences. In this case, the growth in overwork and its wage returns, when coupled with persistent gender gaps in overwork, exacerbated gender inequality in wages and fully offset the equalizing effect of women's rapid gains in educational attainment. New ways of organizing work reproduce old forms of inequality.

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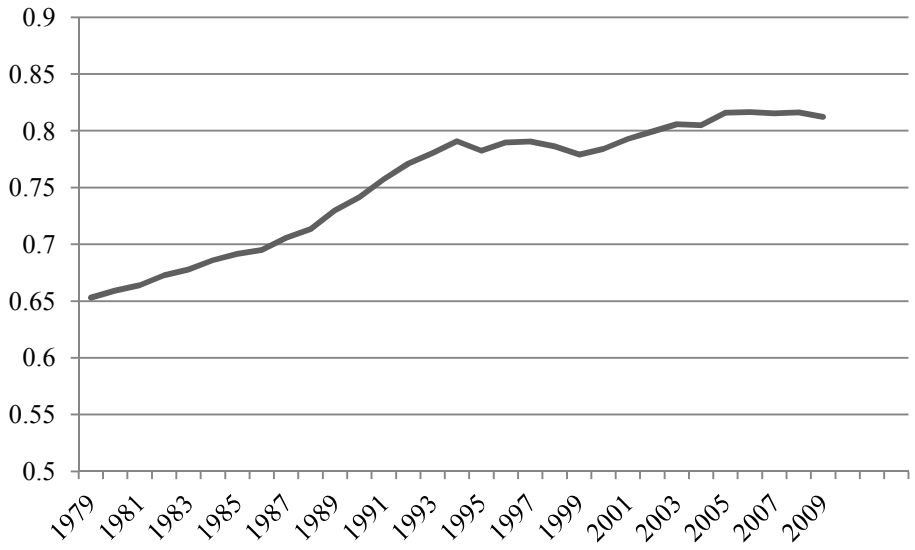
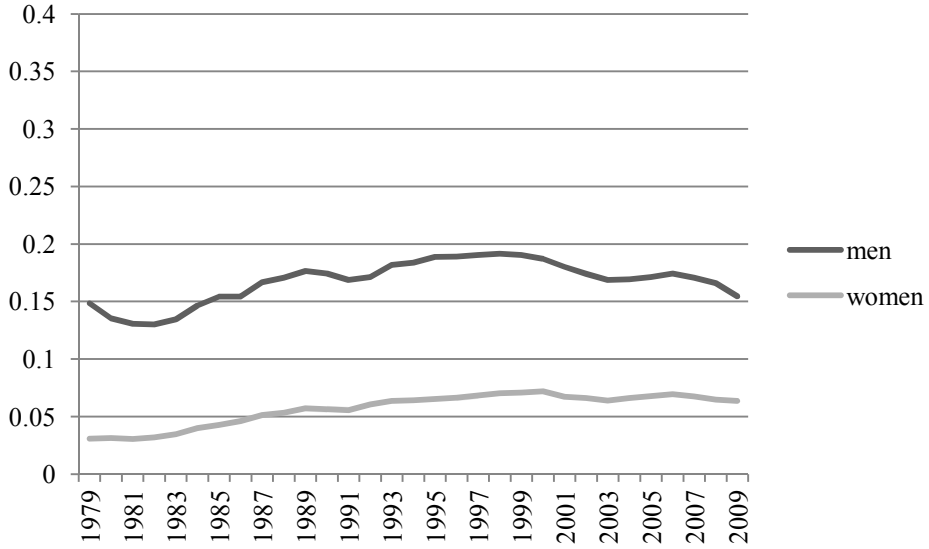
Figure 1. Women's mean hourly wages as a proportion of men's

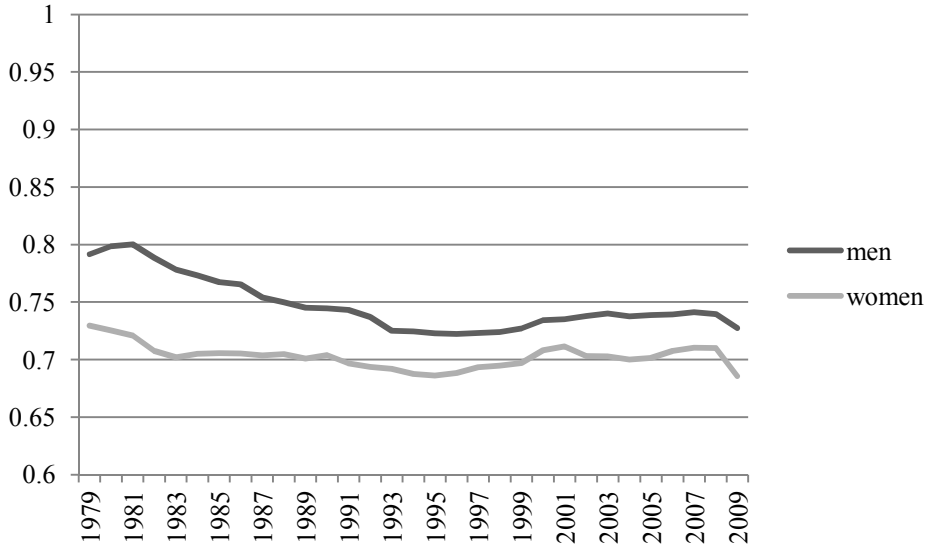


Source: CPS MORG data, 1979-2009

Figure 2. Proportion of men and women by work hour status



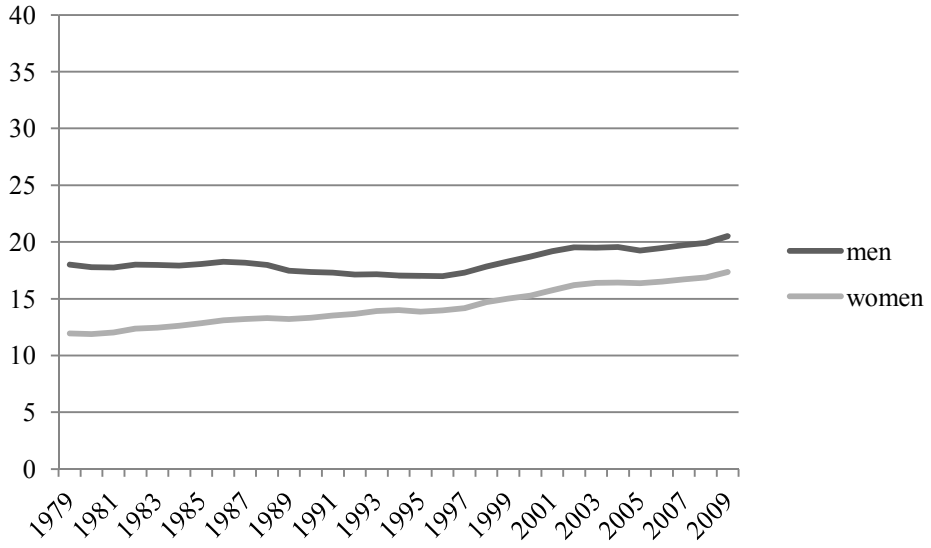
(a) Overwork



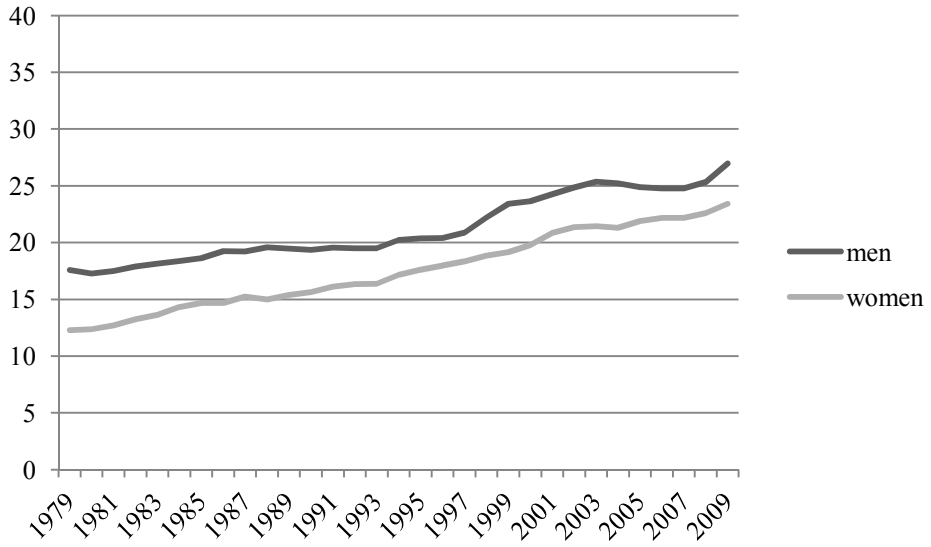
(b) Full-time

Source: CPS MORG data, 1979-2009

Figure 3. Hourly wages of men and women by work hour status (in 2004 dollars)



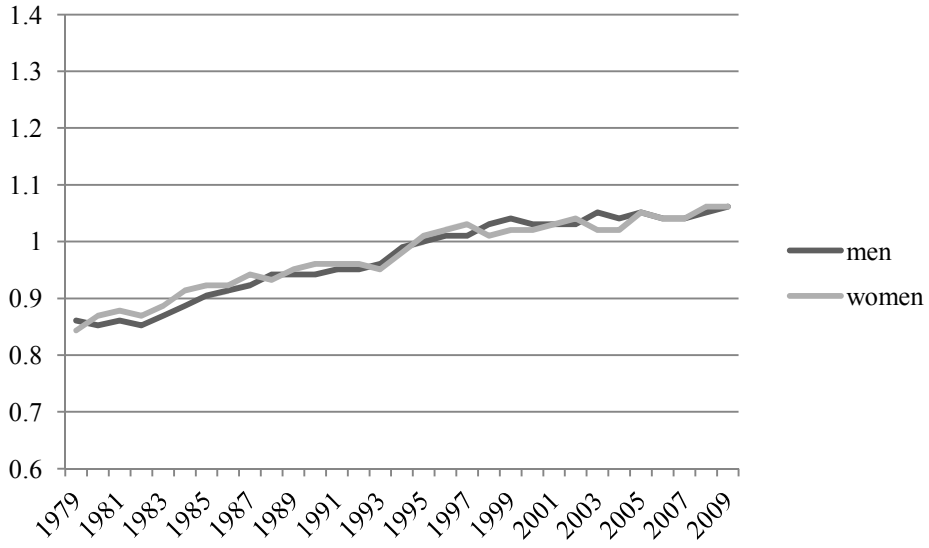
(a) Full-time



(b) Overwork

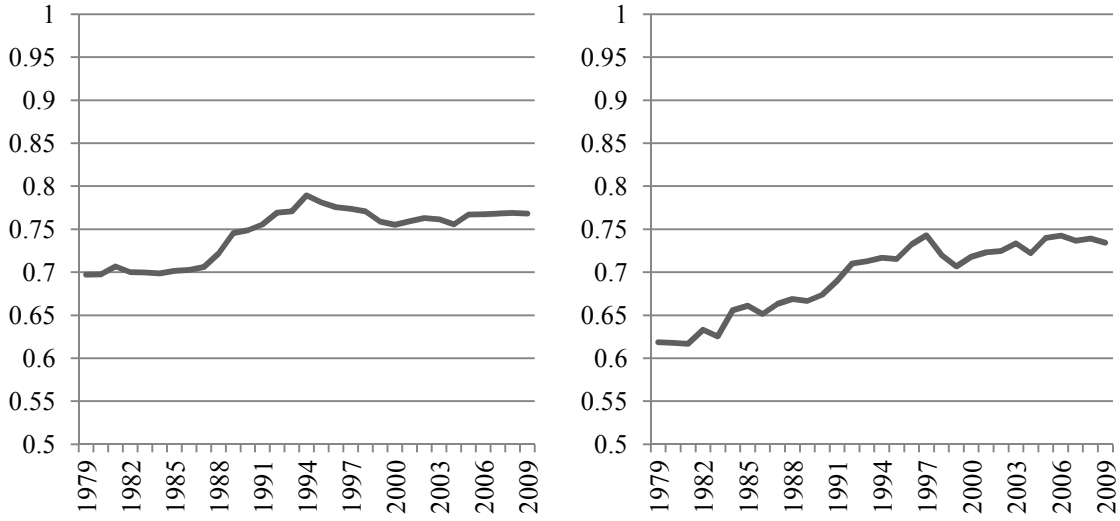
Source: CPS MORG data, 1979-2009

Figure 4. Adjusted mean hourly wages of overworkers as a proportion of wages of full-time workers



Source: CPS MORG data, 1979-2009.
Note: The effects are adjusted by demographic and job-related factors (see Table A1)

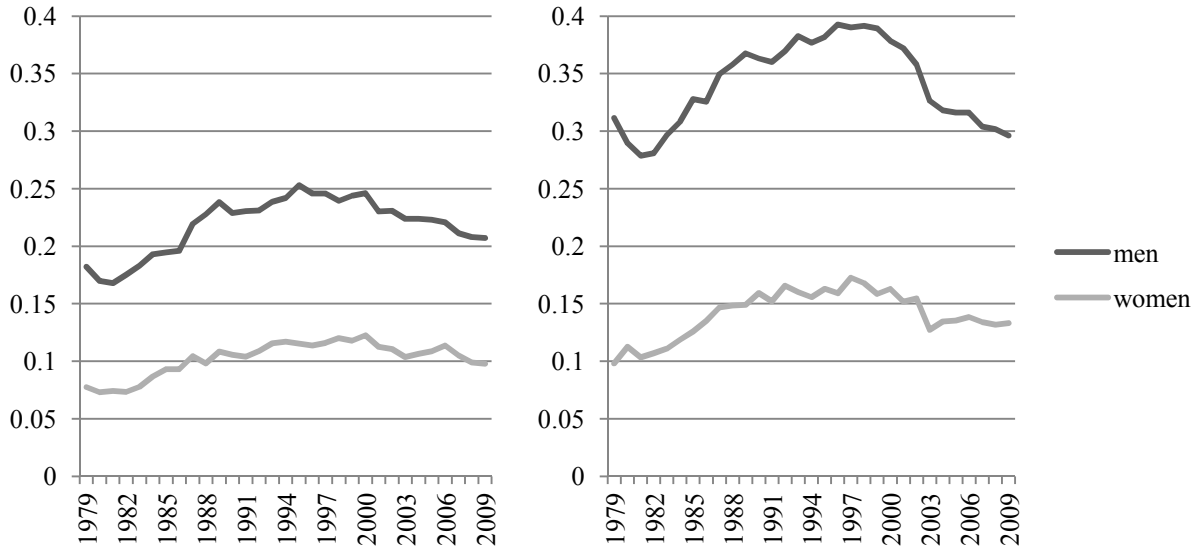
Figure 5. Women's mean hourly wages as a proportion of men's by occupation group



(a) Professional (b) Managerial

Source: CPS MORG data, 1979-2009

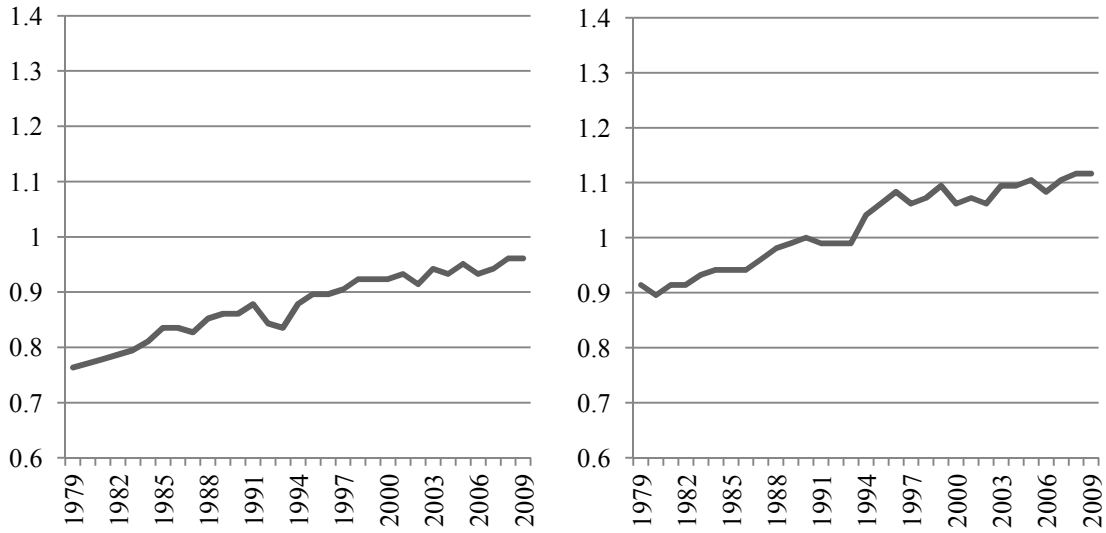
Figure 6. Proportion of men and women who worked 50 hours or more by occupation group



(a) Professional (b) Managerial

Source: CPS MORG data, 1979-2009

Figure 7. Adjusted mean of hourly wages of overworkers as a proportion of wages of full-time workers, by occupation group



(a) Professional (b) Managerial

Source: CPS MORG data, 1979-2009
Note: The effects are adjusted by demographic and job-related factors (see Table A1)

Table 1. Means and standard deviations of variables used in the JMP decomposition, by gender

Variable	Men		Women	
	Mean	Std. Dev.	Mean	Std. Dev.
Natural logarithm of hourly wages	7.352	0.568	7.094	0.533
Hourly wages (2004 US$)				
1979	17.588	9.998	11.486	6.093
1989	17.271	11.250	12.606	7.555
1999	18.731	13.430	14.593	9.861
2007	19.956	14.577	16.272	11.552
Overwork (works 50 or more hours per week)				
1979	0.149		0.031	
1989	0.177		0.057	
1999	0.190		0.071	
2007	0.171		0.068	
Part-time, non-economic reasons	0.053		0.178	
Part-time, economic reasons	0.016		0.029	
Part-time, missing reason	0.009		0.026	
Age	37.651	12.038	37.908	12.193
Age squared	1562.530	956.113	1585.688	966.654
Black	0.101		0.127	
Hispanic	0.114		0.089	
Other race	0.041		0.043	
High school graduate	0.342		0.351	
Some college	0.257		0.295	
College graduate	0.171		0.178	
Advanced degree	0.086		0.077	
Potential work experience	18.562	12.229	18.609	12.458
Potential work experience squared	494.084	533.025	501.512	532.913
Midwest	0.245		0.246	
South	0.340		0.346	
West	0.217		0.207	
Metropolitan resident	0.811		0.813	
Public sector	0.145		0.198	
N	328,564		299,199	

Source: CPS MORG data, 1979, 1989, 1999, and 2007.

Table 2. Decomposition of changes in the gender wage gap, 1979-2007

	1979-2007	
	Model 1 Occupation Not adjusted	Model 2 Occupation adjusted
Change in differentials	-0.212	0.000
Observed prices		
All b's	0.005	0.009
Overwork	0.020	0.011
Part-time variables	-0.002	0.000
Age variables	0.008	0.006
Race variables	0.001	0.002
Education variables	-0.014	-0.006
Potential experience variables	-0.004	-0.003
Region variables	0.000	-0.001
Metropolitan resident	-0.004	0.000
Sector	-0.004	-0.001
Observed x's		
All x's	-0.047	-0.017
Overwork	0.002	0.002
Part-time variables	-0.013	-0.006
Age variables	-0.057	-0.023
Race variables	-0.004	-0.002
Education variables	-0.008	0.000
Potential experience variables	0.031	0.010
Region variables	0.001	0.001
Metropolitan resident	0.002	0.001
Sector	0.001	0.000
Unexplained differential	-0.170	0.008
Unobserved prices	0.023	-0.001
Unobserved quantities	-0.193	0.009
N	316,893	

Source: CPS MORG data, 1979 and 2007

Table 3. Decomposition of changes in the gender wage gap, 1979-1989, 1989-1999, and 1999-2007

	1979-1989	1989-1999	1999-2007
Change in differentials	-0.109	-0.062	-0.042
Observed Prices			
All b's	0.018	0.002	0.002
Overwork	0.011	0.011	0.000
Part-time variables	-0.002	-0.009	0.000
Age variables	0.000	0.001	0.005
Race variables	0.000	0.000	0.001
Education variables	0.001	-0.001	-0.003
Potential experience variables	0.000	0.000	-0.002
Region variables	0.000	0.000	0.001
Metropolitan resident	0.000	0.000	0.000
Sector	-0.002	0.001	-0.001
Observed x's			
All x's	-0.023	-0.014	-0.028
Overwork	0.000	0.000	-0.001
Part-time variables	-0.004	-0.005	-0.005
Age variables	-0.030	-0.011	-0.015
Race variables	-0.002	0.001	-0.003
Education variables	-0.002	-0.006	-0.011
Potential experience variables	0.016	0.007	0.007
Region variables	0.000	0.001	0.000
Metropolitan resident	0.001	0.000	0.000
Sector	0.000	0.000	0.000
Unexplained differential	-0.104	-0.050	-0.015
Unobserved prices	0.022	0.000	0.008
Unobserved quantities	-0.126	-0.050	-0.024
N	319,797	310,870	307,966

Source: CPS MORG data, 1979, 1994, and 2007

Table 4. Decomposition of overwork effect on the gender gap in wages by occupation, 1979 to 2007

	Professionals	Managers
Change in the gender gap	-0.081	-0.171
Overwork prices	0.024	0.034
Overwork quantity	-0.001	0.007

Source: CPS MORG data, 1979 and 2007.

Notes: Each decomposition model also fits the variables listed in Table 1.

Appendix

Table A1. Means and standard deviations of variables, all CPS years

Variable	Men		Women	
	Mean	Std. Dev.	Mean	Std. Dev.
Hourly wages, logged	7.336	0.577	7.089	0.536
Hourly wages (2004 US pennies)	1828.393	1258.034	1400.087	947.587
Overwork (usual work hours 50 or more)	0.169		0.059	
Part-time, non-economic reasons	0.054		0.176	
Part-time, economic reasons	0.022		0.037	
Part-time, missing reasons	0.009		0.026	
Age	37.573	11.899	37.839	12.023
Age squared	1553.308	944.801	1576.344	952.887
Married	0.722		0.742	
Black	0.099		0.125	
Hispanic	0.116		0.087	
Other race	0.042		0.042	
High school graduate	0.343		0.352	
Some college	0.262		0.302	
College graduate	0.172		0.178	
Advanced degree	0.086		0.076	
Potential work experience	18.449	12.061	18.517	12.288
Potential work experience squared	485.829	524.615	493.873	524.824
Midwest	0.242		0.244	
South	0.343		0.347	
West	0.218		0.207	
Metropolitan resident	0.809		0.810	
Public sector	0.146		0.197	
N		2,580,696		2,403,179

Source: CPS MORG data, 1979-2009

Table A2. Decomposition of trends in the gender wage gap between 1996 and 2004, SIPP and CPS

	SIPP, 1996-2004	CPS, 1996-2004
Change in differentials	-0.028	-0.029
Observed prices		
All b's	0.016	0.008
Overwork	0.005	0.004
Part-time variables	0.005	0.001
Age variables	0.003	0.009
Race variables	0.001	0.000
Education variables	-0.001	-0.004
Experience variables	0.005	
Potential experience variables		-0.004
Region variables	0.000	0.000
Metropolitan resident	0.000	0.000
Sector	0.000	0.002
Union	0.000	
Job tenure variables	-0.002	
Observed x's		
All x's	-0.034	-0.019
Overwork	0.000	0.000
Part-time variables	-0.003	-0.005
Age variables	-0.001	-0.016
Race variables	-0.003	-0.001
Education variables	-0.012	-0.005
Experience variables	-0.006	
Potential experience variables		0.009
Region variables	0.000	-0.001
Metropolitan resident	0.001	0.001
Sector	0.001	0.000
Union	-0.003	
Job tenure variables	-0.007	
Unexplained differential	-0.011	-0.018
Unobserved prices	-0.001	0.003
Unobserved quantities	-0.010	-0.021
N	77,373	302,423

Source: SIPP 1996 and 2004; CPS MORG data, 1996 and 2004

Supplementary Appendix for Reviewers

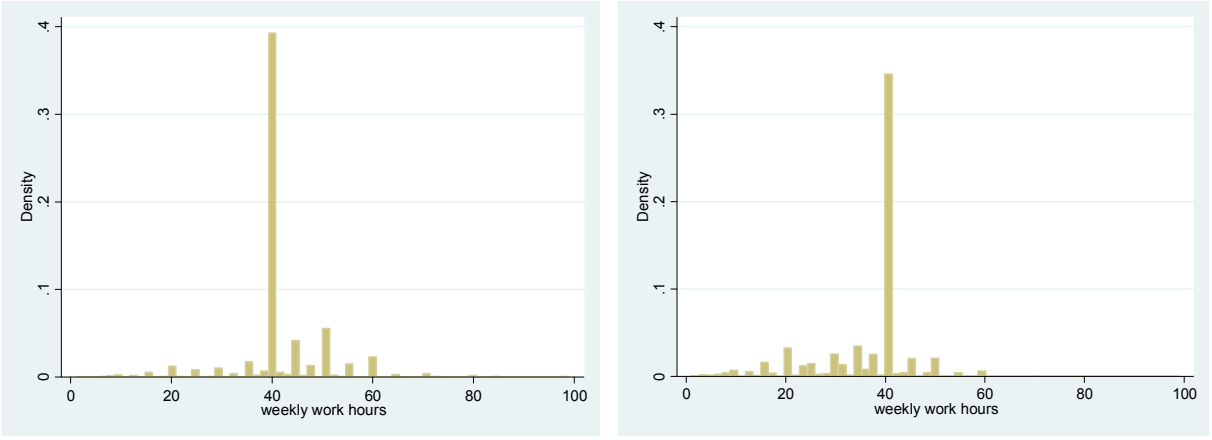
Overwork and the Slow Convergence in the Gender Gap in Wages

This appendix reports additional details about the distribution of work hours (Table S1 and Figure S1), trends in work hours within our work-hour categories (Figure S2a-c), and results from alternative model specifications.

Table S1. Means and standard deviations of weekly work hours, by work hour category

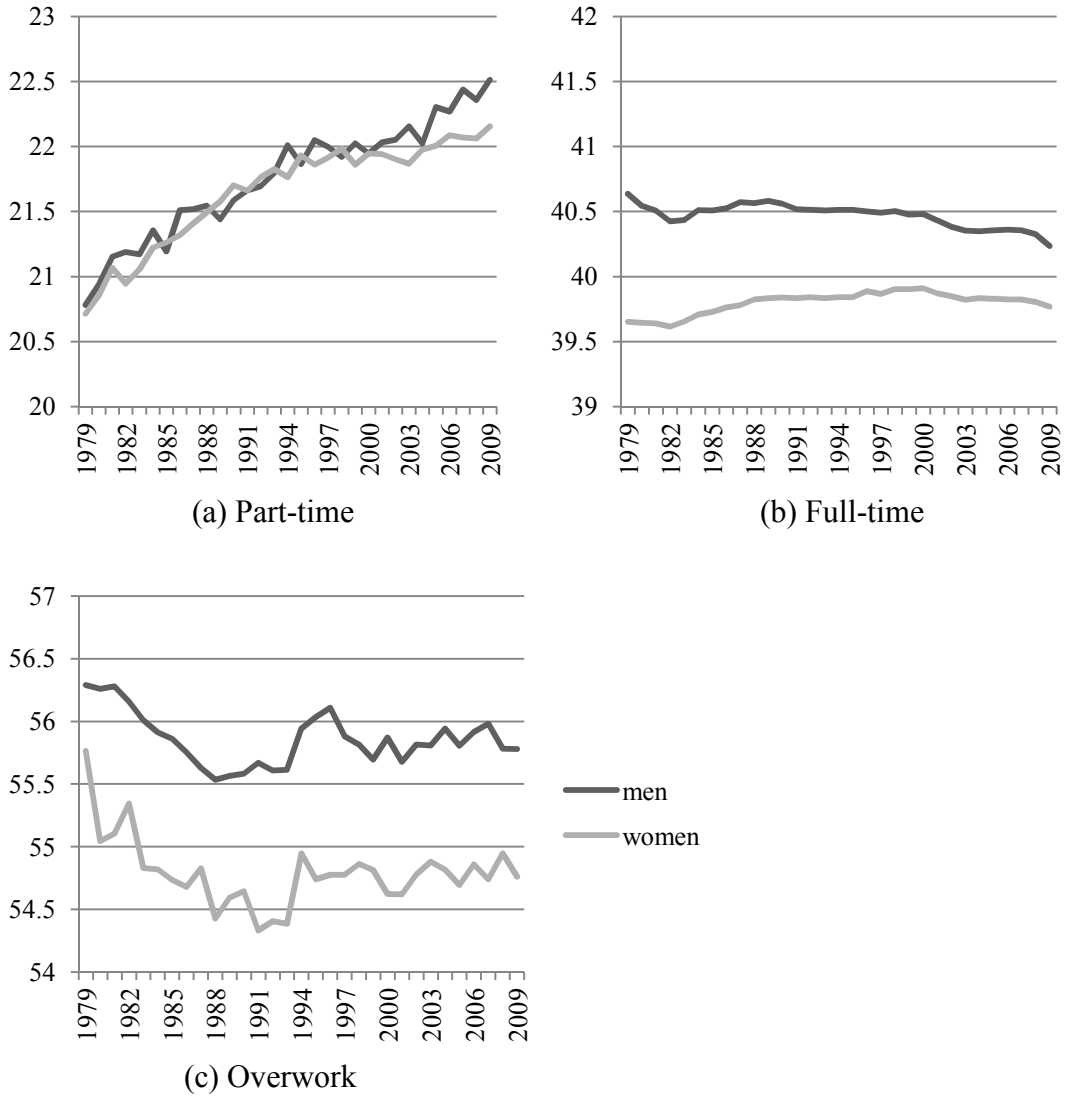
	Men			Women		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.
Part-time	214,273	21.84	7.58	589,794	21.70	7.71
Full-time	1,921,380	40.46	2.17	1,676,215	39.81	2.10
Overwork	445,043	55.84	8.37	137,170	54.75	8.06

Figure S1. Histograms of weekly work hours



(a) men (b) women

Figure S2. Trends in mean work hours, by gender and work hour category



Sensitivity Analyses

To check the robustness of our reported results, we re-estimated our models with three alternative specifications. The first defines overwork using a cut-point of 60 hours per week (see also footnote 3). Figure S3 shows the trend in wage returns to overwork and the first column of Table S2 reports the wage decomposition results under this specification. These results show, as in the models using the 50-hour threshold, a gender-gap exacerbating effect of overwork driven by price increases.

The second specification addresses whether the changing price effect of overwork is an artifact of declining work hours among overworkers (see Figure S2c). The relevant wage model includes a continuous measure of work hours, in addition to our categorical measures of overwork and part-time work. The results under this specification, which are reported in Figures S4 and the second column of Table S2, yield substantively the same conclusion.

The third specification estimates the overwork effect on *weekly* earnings, for the subset of respondents who report their wages in a periodicity other than hourly earnings (e.g., weekly wages or an annual salary). These results (see Figure S5 and the third column of Table S2) also show the same substantive pattern as the main results.

Figure S3. Trend in estimated coefficient of overwork (relative to full time work) where overwork is defined as 60 or more hours per week

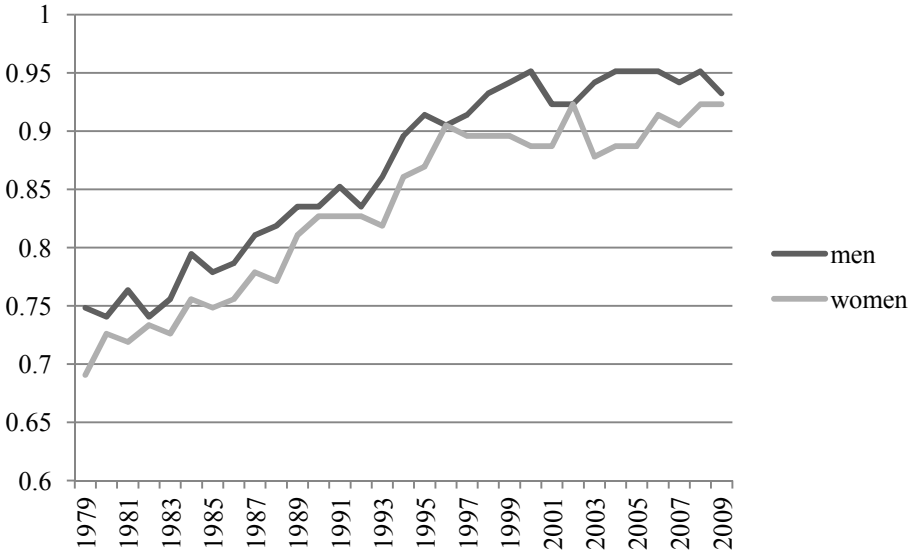


Figure S4. Trend in estimated coefficient of overwork (relative to full-time work) where model includes a continuous measure of weekly work hours

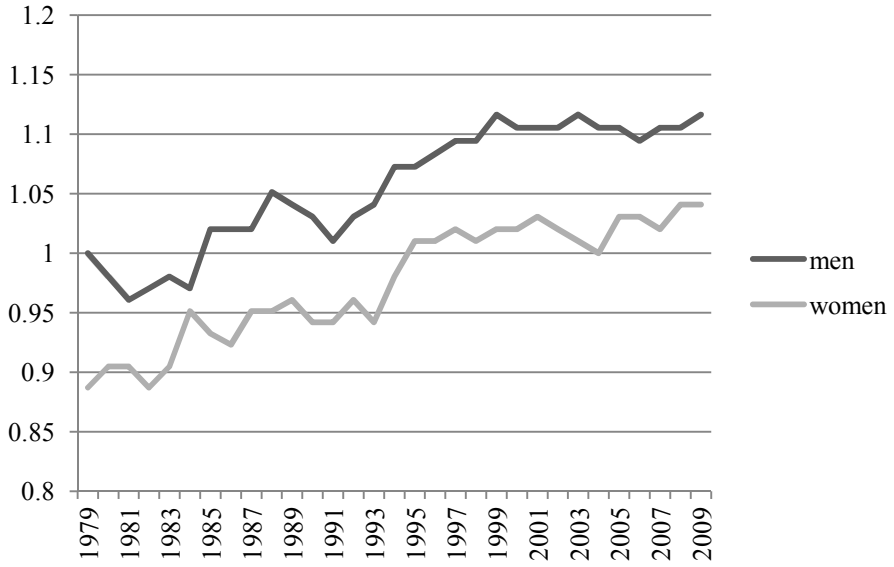


Figure S5. Trend in estimated effect of overwork (relative to full-time work) on weekly wages of

those who are not hourly workers

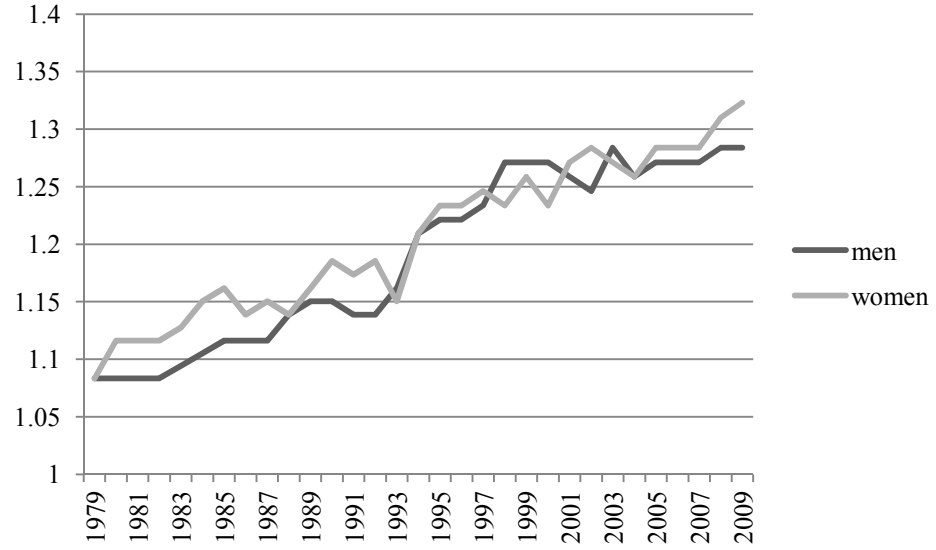


Table S2. Decomposition of changes in the gender wage gap under alternative model specifications

	1979-2007		
	Cutpoint of 60 hours	Work hour categories + work hours	Weekly earnings of non-hourly workers
Change in differentials	-0.212	-0.212	-0.255
Observed prices			
All b's			
Overwork	0.009	0.010	0.022
Part-time variables	0.000	-0.019	-0.006
Weekly work hours		0.027	
Age variables	0.007	0.008	0.002
Race variables	0.001	0.001	0.001
Education variables	-0.014	-0.014	-0.012
Potential experience variables	-0.004	-0.004	0.000
Region variables	0.000	0.000	-0.001
Metropolitan residency	0.000	0.000	0.000
Sector	-0.003	-0.004	-0.002
Observed x's			
All x's	-0.049	-0.043	-0.103
Overwork	-0.013	-0.021	-0.032
Part-time variables	0.000	0.000	-0.003
Weekly work hours		0.015	
Age variables	-0.057	-0.058	-0.100
Race variables	-0.004	-0.004	-0.006
Education variables	-0.008	-0.008	-0.012
Potential experience variables	0.031	0.031	0.043
Region variables	0.001	0.001	0.001
Metropolitan residency	0.002	0.002	0.003
Sector	0.000	0.001	0.003
Unexplained differential	-0.161	-0.185	-0.156
Unobserved prices	0.024	0.036	0.031
Unobserved quantities	-0.184	-0.221	-0.187
N	316,893		129,798