Journal of Economic Literature 2017, 55(3), 789–865
https://doi.org/10.1257/jel.20160995

The Gender Wage Gap: Extent, Trends, and Explanations†

Francine D. Blau and Lawrence M. Kahn*

Using Panel Study of Income Dynamics (PSID) microdata over the 1980–2010 period, we provide new empirical evidence on the extent of and trends in the gender wage gap, which declined considerably during this time. By 2010, conventional human capital variables taken together explained little of the gender wage gap, while gender differences in occupation and industry continued to be important. Moreover, the gender pay gap declined much more slowly at the top of the wage distribution than at the middle or bottom and by 2010 was noticeably higher at the top. We then survey the literature to identify what has been learned about the explanations for the gap. We conclude that many of the traditional explanations continue to have salience. Although human-capital factors are now relatively unimportant in the aggregate, women's work force interruptions and shorter hours remain significant in high-skilled occupations, possibly due to compensating differentials. Gender differences in occupations and industries, as well as differences in gender roles and the gender division of labor remain important, and research based on experimental evidence strongly suggests that discrimination cannot be discounted. Psychological attributes or noncognitive skills comprise one of the newer explanations for gender differences in outcomes. Our effort to assess the quantitative evidence on the importance of these factors suggests that they account for a small to moderate portion of the gender pay gap, considerably smaller than, say, occupation and industry effects, though they appear to modestly contribute to these differences. (*JEL* I26, J16, J24, J31, J71)

1. *Introduction*

The gender wage gap has now been intensively investigated for a number of decades, but also remains an area of active and innovative research. In this article, we provide new empirical estimates delineating the extent of and trends in the gender wage gap and their potential explanations. We then survey the literature to identify what has been learned about the explanations of the gap, both those that can be readily

*Blau: Cornell University, NBER, IZA, DIW, and CESifo; Kahn: Cornell University, IZA, CESifo, and NCER (Australia). We are indebted to Steven Durlauf, Janet Currie, Anne Winkler, Martha Bailey, Virginia Valian, Shoshana Grossbard, and four anonymous referees for helpful comments and suggestions and to Jason Cook and Ankita Patnaik for excellent research assistance.

† Go to https://doi.org/10.1257/jel.20160995 to visit the article page and view author disclosure statement(s).

included in conventional analyses and those that cannot; both traditional explanations and newer ones that have been offered. Our primary focus will be on the United States, although we also place the United States in a comparative perspective, particularly as such comparisons help to further our understanding of the sources of the gender wage gap. The focus on the United States is, in part, designed to make our task more manageable, as there has been an explosion of research on this topic across many countries. Nonetheless, we believe much of what we have learned for the United States is applicable to other countries, particularly other economically advanced nations. In our comprehensive review of the literature, we particularly emphasize areas where there has been exciting new research on more traditional explanations and newer explanations and trends, including research on gender differences in psychological attributes/noncognitive skills and mathematics test scores, and on the reversal of the gender education gap.

The long-term trend has been a substantial reduction in the gender wage gap, both in the United States and in other economically advanced nations (Blau and Kahn 2008). However, the shorter-term picture in the United States has been somewhat mixed. The period of strongest wage convergence between men and women was the 1980s, and progress has been slower and more uneven since then. Moreover, a number of other related trends appear to have plateaued or slowed since the 1990s, including increases in female labor-force participation rates and reductions in occupational segregation by sex.

The plan of the paper is as follows. In section 2, we begin by documenting the changes in the gender gap that have occurred in the United States since the 1950s, based on published data. We then provide new analyses for the 1980 to 2010 period that include decompositions of the changes in the gender wage gap into portions associated with key characteristics such as schooling, experience, industry, occupation, and union status. We also examine how women fared relative to men at various points in the wage distribution. Our decompositions show the importance of these measured factors in accounting for the levels and changes in the gender pay gap. We also find that an unexplained gap remains and, moreover, that it has been stable subsequent to a dramatic narrowing over the 1980s.

In the remaining sections, we probe what is known about the various factors that contribute to the gender pay gap, including the extent of and trends in these factors. Some of the variables we consider are measured in our data set and included in our analysis in section 2, as well as other similar type analyses. Other factors are not included and presumably help to provide insight into the sources of the unexplained gap. However, it is important to point out that the effects of factors that are not explicitly included in traditional regression analyses may be taken into account, to some extent, by measured variables. For example, women have been found to be more risk averse than men on average, which could lower their relative wages. However, to the extent that this factor operates through gender differences in occupational sorting, e.g., if it results in women avoiding occupations with greater variance in earnings, regression analyses that control for occupation will adjust for this factor.

Our consideration of explanatory factors begins in section 3, where we discuss variables economists have traditionally emphasized in studying the gender pay gap. These include human capital (schooling and work experience), the family division of labor, compensating wage differentials, discrimination, and issues relating to selection into the labor

force.[1] Gender differences in occupations, industries, and firms are a component of this discussion. We especially emphasize new empirical and theoretical research on these traditional factors.

We then turn in section 4 to a discussion of a relatively new field of research among economists studying gender: the impact of norms, psychological attributes, and noncognitive skills on the gender pay gap. This body of work includes both survey evidence and lab and field experiments. It has the potential to help explain not only what economists have called the unexplained gender wage gap (i.e., the portion not accounted for by gender differences in measured qualifications) but also gender differences in some of the measured factors themselves. However, a theme that emerges from some of the experimental work is that some psychological attitudes may themselves be influenced by context. For example, anticipated treatment of women in the labor market may affect their aspirations. The formation of norms and attitudes thus, in our view, is a potentially fruitful area of research that has received relatively little attention by economists.

We then turn in section 5 to a discussion of the impact of policy on the gender wage gap, including both antidiscrimination policy and family leave policies. While the discussion up to this point emphasizes gender-specific factors (i.e., gender differences in behavior, qualifications, and treatment), in section 6, we highlight that the overall structure of wages can affect the gender wage gap, given that men and women have different skills and qualifications and work in different occupations and industries. Hence, changes over time or differences across countries in the return to various skills or to working in high-paying sectors (occupations or industries) will affect the gender pay gap. As another example, policies such as minimum wages or union-negotiated wage floors that bring up the bottom of the distribution will disproportionately affect women even if the law or union agreement is not gender specific. In section 6, we discuss wage structure and refer to evidence both in the United States and from other countries in which the wage structure is much more compressed as a result of union wage setting. Finally, section 7 presents conclusions.

2. *Overview of the US Gender Wage Gap*

In this section, we use published data, information from the Michigan Panel Study of Income Dynamics (PSID), and the annual March Current Population Survey (CPS) to establish the facts on the levels and trends in the US gender wage gap and their sources (in a descriptive sense). Accounting for the sources of the level and changes in the gender pay gap will provide guidance for understanding recent research studying gender and the labor market.

Figure 1 shows the long-run trends in the gender pay gap over the 1955–2014 period based on two published series: usual weekly earnings of full-time workers and annual earnings of full-time, year-round workers. After many years with a stable female/male earnings ratio of roughly 60 percent, women's relative wages began to rise sharply in the 1980s, with a continued, but slower and more uneven rate of increase thereafter. By 2014, women full-time workers earned about 79 percent of what men did on an annual basis and about 83 percent on a weekly basis.

To better understand the sources of the gender wage gap, we analyze data from the PSID, which is the only data source that has information on actual labor-market experience (a crucial variable in gender analyses)

[1] Selection issues arise because we do not observe wage offers for people who are not currently employed and a smaller share of the female than of the male population is employed. Moreover, the share of both groups—but particularly of women—who are employed has changed over time.

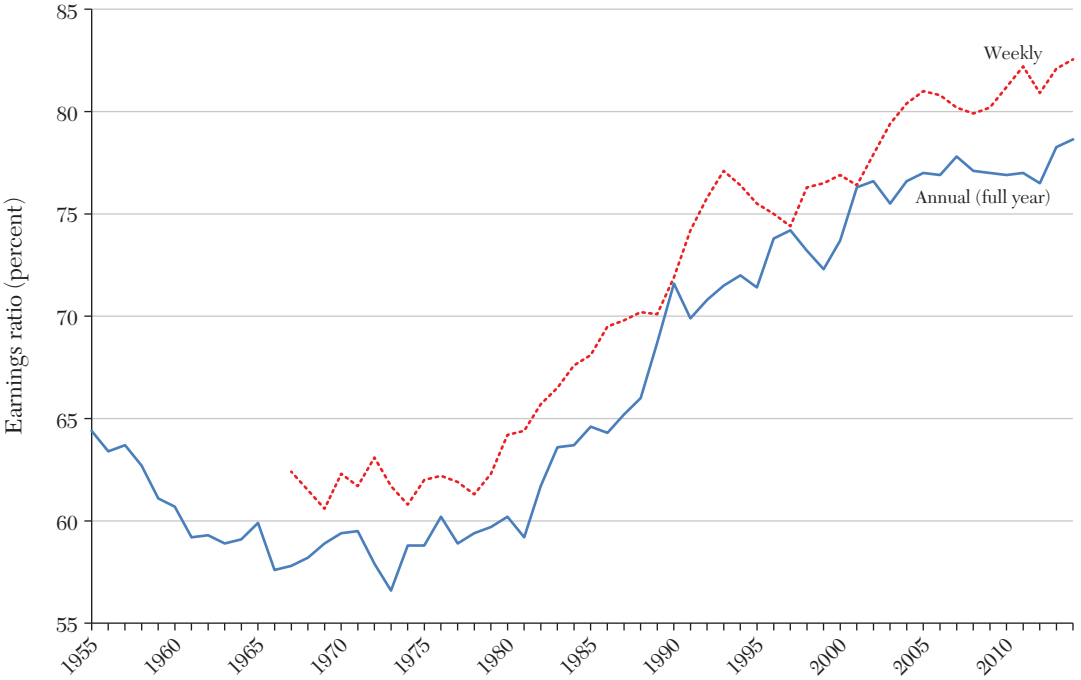

Figure 1. Female-to-Male Earnings Ratios of Full-Time Workers 1955–2014

Notes: Workers aged sixteen and over from 1979 onward, and fourteen and over prior to 1979.

Source: Fig. 7-2 "Evidence on Gender-Differences in Labor Market Outcomes," Francine D. Blau and Anne E. Winkler, *The Economics of Women, Men, and Work*, eighth edition. (New York: Oxford University Press 2018), p.173. By permission of Oxford University Press, USA.

for the full age range of the population. We focus on men and women ages 25–64 who were full-time, non-farm, wage and salary workers and who worked at least 26 weeks during the preceding year. The focus on full-time workers and those with substantial labor-force attachment over the year is designed to identify female and male workers with fairly similar levels of labor-market commitment. However, we have repeated our analyses on the full sample of all wage and salary earners (including those employed part time or part year) and obtained very similar results to those shown here. The sample is also restricted to family heads and spouses/cohabitors because the PSID only supplies the crucial work history information for these individuals. Due to this and other limitations in coverage by the PSID, described in the data appendix, we present some additional data on the gender pay gap using the fully nationally representative March CPS.[2] The empirical results in this section are of interest in and of themselves

[2]Additional information on the details of our data preparation and analysis is available in the online dData appendix. Means and other data presented here are for the sample used in our regression analyses. In the PSID, we exclude cases with missing data on the dependent or explanatory variables, or variables needed to construct them. In the CPS, we exclude cases with allocated earnings. See table 1 for sample sizes.

TABLE 1
UNADJUSTED FEMALE/MALE LOG HOURLY WAGE RATIOS, FULL-TIME WORKERS

	Sample size					
Year	Men	Women	Mean	Tenth percentile	Fiftieth percentile	Ninetieth percentile
Panel A. Panel Study of Income Dynamics (PSID)						
1980	2,282	1,491	62.1%	64.8	60.1	62.4
1989	2,617	2,068	74.0%	76.3	72.4	74.6
1998	2,391	2,146	77.2%	80.3	79.8	73.8
2010	2,368	2,456	79.3%	81.5	82.4	73.9
Panel B. March current populations survey (CPS)						
1980	21,428	13,484	63.5%	68.7	61.9	64.3
1989	21,343	16,487	72.4%	78.1	72.2	71.4
1998	17,520	14,231	77.1%	81.3	76.2	76.1
2010	24,229	20,718	82.3%	87.6	82.2	76.6

Notes: Sample includes nonfarm wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are exp(*D*), where *D* is the female mean log wage, tenth, fiftieth, or ninetieth percentile log wage minus the corresponding male log wage.

and also serve to set the stage for the literature review to follow by providing a frame of reference for how each of the measured factors discussed relates to the overall gender wage gap and changes in the gap. Our data cover the 1980–2010 period, in which, as figure 1 shows, women have made major gains in relative wages.

Table 1 shows the evolution of the female/male ratio of average hourly earnings at the mean and also the tenth, fiftieth, and ninetieth percentiles for four years—1980, 1989, 1998, and 2010—based on both PSID and CPS data.[3] Because earnings refer to the previous year, we use, for example, the 1981 data to measure wages in 1980. The overall pattern is very similar across the two data sets, and also largely matches that in the published data shown in figure 1, increasing one's confidence in the PSID.[4] Specifically, gains in the female/male wage ratio were largest in the 1980s and occurred at a slower pace thereafter, with the ratio rising from 62 to 64 percent in 1980 to 72 to 74 percent in 1989, with a further increase to 79 to 82 percent by 2010.[5]

The time pattern at the bottom (tenth percentile), middle (fiftieth percentile), and top (ninetieth percentile) of the wage distribution is similar to that for the overall mean: the gender wage ratio rose over the period, with the largest gains during the 1980s. However,

[3] Entries are calculated as exp (D), where D is the female log wage at the mean, or at the indicated percentile, minus the corresponding male log wage.

[4] The unemployment rate was 7.1 percent in 1980, 5.3 percent in 1989, 4.5 percent in 1998, and 9.6 percent in 2010 (see http://data.bls.gov/timeseries/LNU04000000?years_option=all_years&periods_option=specific_periods&periods=Annual+Data, accessed December 27, 2015). The high level of unemployment in 2010 may raise concerns about the representativeness of that year for studying the gender pay gap. Reassuringly, however, we found similar results when we ended our PSID sample in 2006, before the great recession began.

[5] The larger female gains in relative wages during 1980s is a result we have studied in some detail in prior work (Blau and Kahn 2006), where we explicitly compared the 1980s and the 1990s.

TABLE 2
Schooling and Actual Full-Time Work Experience by Gender, PSID

Year	Men	Women	Difference: Men–Women
Years of schooling			
1981	13.3	13.2	0.2
1990	13.8	13.7	0.0
1999	14.2	14.3	–0.1
2011	14.3	14.5	–0.2
Bachelor's degree only			
1981	18.1%	15.3%	2.7%
1990	20.0%	17.6%	2.3%
1999	23.4%	22.2%	1.2%
2011	26.2%	24.7%	1.5%
Advanced degree			
1981	10.0%	7.4%	2.5%
1990	10.3%	8.7%	1.6%
1999	11.7%	10.8%	0.9%
2011	12.9%	15.7%	–2.8%
Years of full time experience			
1981	20.3	13.5	6.8
1990	19.2	14.7	4.5
1999	19.8	15.9	3.8
2011	17.8	16.4	1.4

Note: Sample includes full time nonfarm wage and salary workers ages 25–64 with at least twenty-six weeks of employment.

a closer examination shows that women gained least, in a relative sense, at the top. In both the PSID and CPS, women at the top had a slightly higher pay ratio than those in the middle and a slightly lower pay ratio than those at the bottom in 1980. Yet by 2010, in both datasets, women's relative pay at the top was considerably less than that at the middle and bottom of the distribution: 8–9 percentage points less than that at the middle or bottom in the PSID, and 6–11 percentage points less in the CPS. Later in this section, we will consider the role of measured factors in accounting for the slower reduction at the top and in following sections we will attempt to shed additional light by reviewing the literature on the labor market for highly skilled workers.

At the same time that the gender pay gap has been narrowing, women have been increasing their relative labor market qualifications and commitment to work. Tables 2 and 3 show the extent of such changes among our PSID sample of full-time workers. Table 2 focuses on the prime human-capital determinants of men's and women's wages, education, and actual full-time experience. In the case of education, there was a dramatic reversal of the gender gap. In 1981, women had lower average levels of schooling than men and were less likely to have exactly a bachelor's or an advanced degree. Over the period, women narrowed the education gap with men and, by 2011, women had higher average levels of schooling and were more likely to have an advanced degree

than men.[6] While men had a slightly higher incidence of having exactly a bachelor's degree, women were more likely to have at least a bachelor's degree (i.e., the sum of the bachelor's degree only and advanced degree categories).[7]

In the case of labor-market experience, the story is one of a substantial narrowing of the gender experience gap. In 1981, men had nearly seven more years of full-time labor-market experience on average than women. By 2011, the gap had fallen markedly to only 1.4 years, with the fastest rate of increase in women's relative experience occurring during the 1980s.[8] Thus, on these two basic measures of human capital—schooling and actual labor market experience—women made important gains during the 1981–2011 period, reversing the education gap and greatly reducing the experience gap.

Table 3 further explores trends in the determinants of wages by showing gender differences in the incidence of high-level jobs, as well as collective-bargaining coverage. Rising employment in managerial or professional jobs may be an indicator of increasing human capital or work commitment, even controlling for levels of schooling and actual labor market experience. For example, such jobs may entail higher levels of responsibility and pressure than other jobs, and only those with the appropriate training and commitment may be qualified to take them. Increases in women's relative representation in such jobs may then be a further indicator of their rising human capital and labor-market commitment. However, women's representation in such jobs may also be affected by employer discrimination in entry or promotions. Women's improvements may, therefore, also reflect reductions in discrimination. Both interpretations are plausible. First, it seems likely that women's increasing levels of schooling and, as discussed below, increasing representation in lucrative fields of study, as well as their rising experience levels, would be expected to lead to their greater representation in high-level positions. Second, given women's increasing qualifications and commitment to the labor market, employer incentives for statistical discrimination (this concept is discussed further below) have likely been reduced.

Under either interpretation, studying these differences can yield insights into the sources of the gender pay gap. Table 3 shows remarkable increases in women's relative representation in such high-level jobs. The male advantage in managerial jobs fell from 12 percentage points in 1981 to just two percentage points in 2011. Moreover, while women were more likely than men to work in professional jobs throughout the period, their advantage grew from five percentage points in 1981 to nine percentage points in 2011. However, many women in professional jobs remain employed in traditionally female occupations such as nursing or K–12 teaching that are generally less lucrative than traditionally male professions. We therefore also show, in table 3, gender differences in the incidence of employment in "male" professional jobs, which we define as professional jobs other than nursing or K–12 and other noncollege teaching positions, most of which were predominantly male at the start

[6] Tables 2 and 3 refer to 1981, 1990, 1999, and 2011, rather than 1980, etc., as shown in table 1, because earnings refer to the previous year, while other variables are measured as of the survey date.

[7] CPS data also show that, in 1981, men had higher levels of schooling and incidence of bachelor's or advanced degrees than women; by 2011, women in the CPS had higher levels of schooling than men, as in the PSID. However, in the 2011 CPS, women not only had a higher incidence of advanced degrees, but also a slightly higher incidence of exactly a college degree than men.

[8] Some of the small experience gap in 2011 may have resulted from the recession. For example, in 2007 (i.e., before the recession), the full-time experience gap was 2.6 years, compared to 2011's gap of 1.4 years and the 1999 gap of 3.8 years. Whether the fall to 1.4 years by 2011 was a continuation of a trend or was due to the recession is unclear, though the upshot is the same: a substantial reduction in the gender experience gap.

TABLE 3
Incidence of Managerial or Professional Jobs and Collective-Bargaining Coverage by Gender, PSID

Year	Men	Women	Difference: Men–Women
Managerial jobs			
1981	21.5%	9.2%	12.3%
1990	21.1%	10.9%	10.2%
1999	21.8%	15.3%	6.5%
2011	18.3%	16.2%	2.2%
Professional jobs			
1981	17.0%	21.8%	–4.8%
1990	19.4%	26.1%	–6.6%
1999	20.4%	26.9%	–6.4%
2011	21.7%	31.1%	–9.4%
"Male" professional jobs			
1981	14.6%	10.1%	4.5%
1990	17.3%	14.1%	3.2%
1999	17.6%	13.2%	4.4%
2011	18.6%	17.8%	0.8%
Collective-bargaining coverage			
1981	34.5%	21.1%	13.3%
1990	25.4%	19.4%	6.1%
1999	21.5%	18.2%	3.3%
2011	17.4%	18.9%	–1.5%

Notes: Sample includes full time nonfarm wage and salary workers ages 25–64 with at least twenty-six weeks of employment. "Male" professional jobs are professional jobs excluding nurses and K–12 and other noncollege teachers.

of our period. While men were four percentage points more likely than women to be in such jobs in 1981, by 2011, the gender gap had been virtually eliminated. At the same time women were making these occupational gains, they were greatly reducing their concentration in administrative support and clerical jobs.[9]

In addition to these occupational changes, one notable feature of the post-1980 labor market is the steady reduction in the portion of the economy covered by collective bargaining. Table 3 shows that this reduction hit men much harder than women. Specifically, men's collective-bargaining coverage fell from 34 percent in 1981 to 17 percent in 2011, while women's coverage only declined from 21 percent to 19 percent.[10] As is the case with women's gains in

[9]We obtained very similar results on the gender gaps in managerial, professional, and "male" professional employment using the March CPS.

[10]While the PSID data show women as now having slightly higher collective bargaining coverage than men, US Bureau of Labor Statistics (BLS) data show men continuing to retain a small edge. Specifically, in 1983, among those 16 years and older, 27.7 percent of men were covered by collective bargaining, compared to 18.0 percent of women; by 2011, men's coverage had decreased to 13.5 percent, while women's declined to 12.5 percent (http://data.bls.gov/pdq/SurveyOutputServlet, accessed August 18, 2014).

education, full-time labor-market experience, and employment in high-level occupations, we expect the elimination of the gender gap in collective bargaining coverage to contribute to a reduction in the gender pay gap.[11]

How have gender differences in women's labor-market qualifications and employment location affected the gender wage gap? And how have improvements in women's relative characteristics affected changes in the gender wage gap? We study these questions by decomposing levels and changes in the gender wage gap over the 1980–2010 period using log wage regressions. We proceed in two stages. First, we estimate wage models that only control for education, experience, race/ethnicity, region, and metropolitan-area residence. We term this the "human capital specification," since other than basic controls, we include only human-capital variables—education and experience. Second, we augment this model with a series of industry, occupation, and union coverage dummy variables. We term this equation the "full specification." Because these latter variables may have an ambiguous interpretation—i.e., they may represent human capital, other labor market skills, and commitment, on the one hand, or employer discrimination, on the other hand—we present both versions. Note that we do not control for marital status or number of children, since these are likely to be endogenous with respect to women's labor-force decisions. Our decompositions can be viewed as reduced forms with respect to family formation decisions.[12]

We measure education by controlling for years of schooling, plus dummy variables for having exactly a bachelor's degree and an advanced degree. We include measures of both full-time and part-time labor-market experience and their squares. Race and ethnicity are controlled for using four mutually exclusive categories: white non-Hispanic (the excluded category), black non-Hispanic, other non-Hispanic, and Hispanic. We control for three of the four census regions, as well as including a dummy variable for residence in a metropolitan area. In the full specification, we additionally control for a series of fourteen industry and twenty occupation dummy variables, government employment, and a collective-bargaining coverage dummy variable. (In the decompositions below, government employment is included with industry.) The construction of these categories took account of changes in the PSID's coding scheme over the period and is described in the online data appendix.

2.1 *Explaining the Gender Wage Gap at the Mean*

Figure 2 shows female to male log wage ratios (i) unadjusted for covariates (i.e., reproduced from table 1), (ii) adjusted for the covariates in the human capital specification, and (iii) adjusted for the covariates in the full specification. The adjusted female/male wage ratios shown in figure 2 and analyzed in more detail in table 4 are computed using a traditional Oaxaca–Blinder decomposition of male/female differences in log wages into a component accounted for by differences in characteristics and an unexplained component (Oaxaca 1973; Blinder 1973). The latter is often taken to be an estimate of the extent of discrimination—i.e., unequal pay for equally qualified

[11] In the PSID, the convergence in the collective-bargaining coverage of men and women was a result of both a larger fall in men's private-sector coverage and an increase in women's public-sector coverage, with men's public-sector coverage remaining stable.

[12] An additional reason we did not control for marital status and children in our basic regressions is that such variables are expected to increase male wages but decrease female wages, complicating one's assessment of gender gaps in explanatory variables. Nonetheless, when we included these variables in our basic wage regressions, the decomposition results were very similar to those shown here.

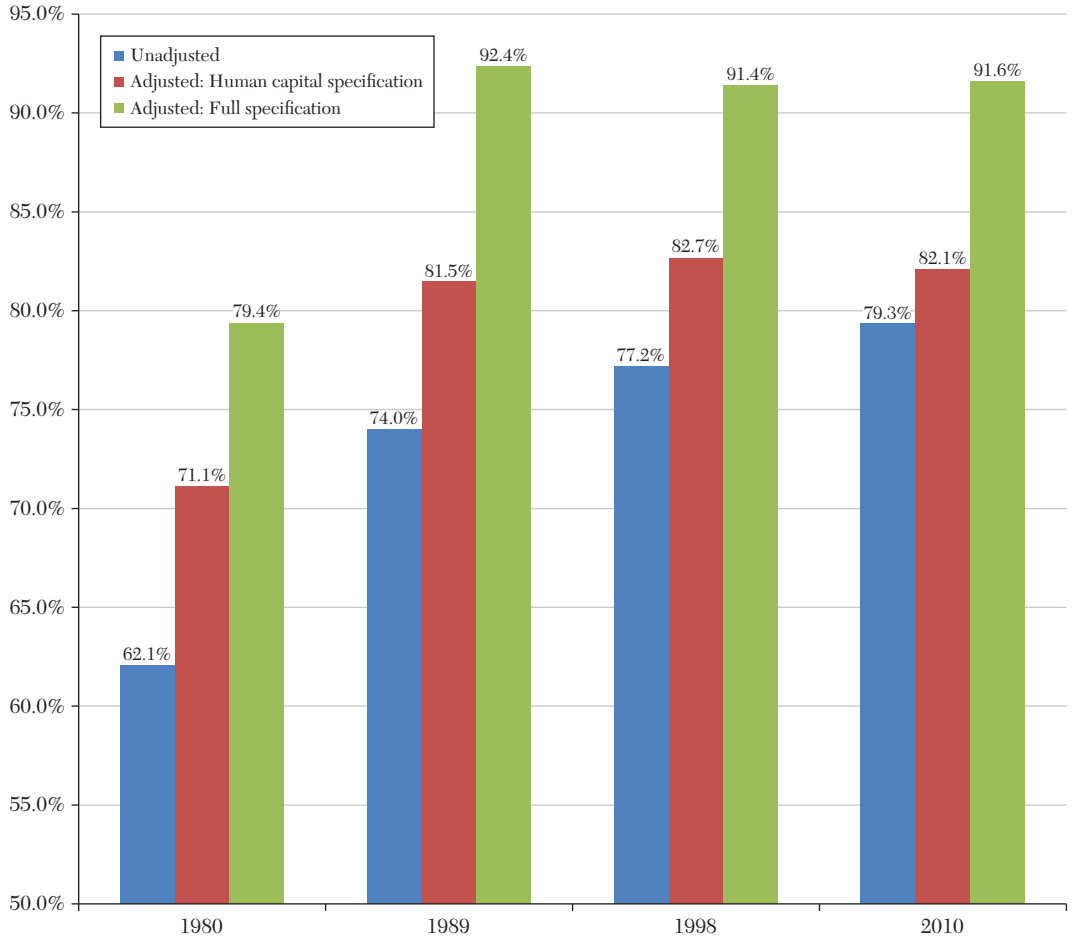

Figure 2. Female to Male log Wage Ratio, Unadjusted and Adjusted for Covariates (PSID)

Source: Authors' calculations from Panel Study of Income Dynamics (PSID) data. See text for definitions.

workers. However, the unexplained portion of the gender pay gap may include the effects of unmeasured productivity or compensating differentials, and some of the explanatory variables such as industry or occupation may be affected by discrimination. We consider this issue in greater detail in section 3.9, while our discussion of research on selection, unmeasured attributes such as competitiveness or risk aversion, and possible glass ceilings will shed light on some possible sources of the pay gap that cannot be explained by measured characteristics.

The following equations illustrate the Blinder–Oaxaca decomposition. For year t, estimate separate male (m) and female (f) ordinary least squares (OLS) wage

TABLE 4
DECOMPOSITION OF GENDER WAGE GAP, 1980 AND 2010 (PSID)

	1980		2010	
	Effect of gender gap in explanatory variables		Effect of gender gap in explanatory variables	
Variables	log points	Percent of gender gap explained	log points	Percent of gender gap explained
Panel A. Human-capital specification				
Education variables	0.0129	2.7	–0.0185	–7.9
Experience variables	0.1141	23.9	0.0370	15.9
Region variables	0.0019	0.4	0.0003	0.1
Race variables	0.0076	1.6	0.0153	6.6
Total explained	0.1365	28.6	0.0342	14.8
Total unexplained gap	0.3405	71.4	0.1972	85.2
Total pay gap	0.4770	100.0	0.2314	100.0
Panel B. Full specification				
Education variables	0.0123	2.6	–0.0137	–5.9
Experience variables	0.1005	21.1	0.0325	14.1
Region variables	0.0001	0.0	0.0008	0.3
Race variables	0.0067	1.4	0.0099	4.3
Unionization	0.0298	6.2	–0.0030	–1.3
Industry variables	0.0457	9.6	0.0407	17.6
Occupation variables	0.0509	10.7	0.0762	32.9
Total explained	0.2459	51.5	0.1434	62.0
Total unexplained gap	0.2312	48.5	0.0880	38.0
Total pay gap	0.4770	100.0	0.2314	100.0

Notes: Sample includes full time nonfarm wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are the male–female differential in the indicated variables multiplied by the current year male log wage coefficients for the corresponding variables. The total unexplained gap is the mean female residual from the male log wage equation.

regressions for individual i (the i and t subscripts are suppressed to simplify the notation):

$$(1) \qquad Y_m = X_m B_m + u_m$$

$$(2) \qquad Y_f = X_f B_f + u_f$$

where Y is the log of wages, X is a vector of explanatory variables such as education and experience, B is a vector of coefficients, and u is an error term.

Let b_m and b_f be respectively the OLS estimates of B_m and B_f, and denote mean values with a bar over the variable. Then, since OLS with a constant term produces residuals with a zero mean, we have:

$$(3) \quad \overline{Y}_m - \overline{Y}_f = b_m \overline{X}_m - b_f \overline{X}_f = b_m\left(\overline{X}_m - \overline{X}_f\right) + \overline{X}_f(b_m - b_f).$$

The first term on the far right-hand side of (3) is the impact of gender differences in the explanatory variables evaluated using the

male coefficients. The second term is the unexplained differential and corresponds to the average female residual from the male wage equation. In figure 2, we take the exponential of this residual and obtain the simulated female-to-male wage ratio, controlling for the indicated variables. This residual corresponds to an experiment where we compare a woman's actual wage with her predicted wage from the male equation. One might think of the predicted wage as the outcome of a discrimination case in which a firm that previously was found to have discriminated against women is now required to treat women the same as it treats men. The decomposition in (3) of course could be performed using the female coefficients and the male means, and we have performed such a decomposition as well, with similar results to the ones reported here, although the unexplained residual was somewhat larger using the male means.[13]

The results for the unadjusted ratios in figure 2 mirror the trends from the published data, showing a large increase in the female-to-male wage ratio over the 1980s, with continued but smaller gains in subsequent decades.[14] Over the 1980–2010 period as a whole, the unadjusted ratio increased substantially from 62.1 to 79.3 percent. The adjusted ratios also rose considerably over this period, from 71.1 to 82.1 percent in the human-capital specification and from 79.4 to 91.6 percent in the full specification. However virtually all of these gains in the adjusted ratios occurred in the 1980s. This means that, while a reduction in the residual or unexplained gap played an important role in the narrowing of the gender wage gap over the 1980s, it has not been a factor since then (see also Blau and Kahn 2006). Figure 2 also indicates that the difference between the human capital adjusted ratio and the unadjusted ratio fell dramatically over the 1980–2010 period, reflecting women's increasing human-capital levels relative to men's. By 2010, the human-capital variables (and the other variables included in this specification) explained very little of the gender wage gap: the unadjusted ratio was 79 percent, compared to the adjusted ratio of 82 percent. As Goldin (2014) has commented, "As women have increased their productivity enhancing characteristics and as they 'look' more like men, the human capital part of the wage difference has been squeezed out." As we shall see shortly in table 4, this represents, to some extent, countervailing factors: women are now *better* educated than men but they continue to lag (slightly) in actual labor-market experience. In the full specification, the adjusted ratio (91.6 percent) remained considerably higher than in the human-capital specification (82.1 percent) in 2011,

[13] Some have argued that a wage regression pooling men and women should be used, since it is claimed that this would be the wage regression prevailing in a nondiscriminatory labor market (Cotton 1988; Neumark 1988). We have not done so here because there would likely be general-equilibrium changes if discrimination were eradicated, and we do not know what the resulting reward structure would look like. Instead, we take the more modest approach of performing the decomposition using alternative weights and comparing the results. As just mentioned, however, the experiment of taking a woman and valuing her characteristics using the male coefficients does correspond to a real-life scenario. We should also point out that in data sets such as the CPS that do not measure actual experience, the female equation will give a less accurate estimate of the return to labor market experience than the male equation.

[14] The US labor force aged over the 1980–2010 period, and it is well-known that gender pay gaps increase with age. To investigate whether aging has influenced our picture of the trends in the gender wage gap, we re-weighted our data with 1980 age weights using a quartic in age in a procedure based on DiNardo, Fortin, and Lemieux (1996). Men and women in our wage samples were in fact three to four years older in 2010 than 1980. When we repeated our analyses using 1980 age weights, we found that the overall female-to-male wage ratio would have been 80.7 percent in 2010, compared to its actual value of 79.3 percent as shown in table 1 and figure 2, a slight increase, as expected. However, the adjusted ratios were very similar to those shown in figure 2.

suggesting a continued substantial role for occupation and industry in explaining the gender wage gap (recall that union differences have now been virtually eliminated).

Table 4 provides further detail on the contribution of particular labor-market characteristics to the gender wage gap. Specifically, it shows the fraction of the total gender wage gap in 1980 and 2010 accounted for by gender differences in each group of variables for both the human capital and full specifications, again based on the Oaxaca–Blinder decomposition. The entries are the male–female differences in the means of each variable multiplied by the corresponding male coefficients from the current year wage regression. In panel A, one sees the contribution of traditional human-capital variables—education and experience—not controlling for industry, occupation, or union status. This specification in effect allows human capital to affect these intervening variables and thus gives the reduced-form effect of education and experience in explaining the gender wage gap. In 1980, the male advantage in education raised the gender wage gap somewhat, while the male experience gap contributed substantially (0.114 log points) and accounted for nearly a quarter of the gap. By 2010, due to the education reversal, women's *higher* level of education slightly *raised* their relative wage. Moreover, the much smaller (compared to 1980) male advantage in labor-market experience contributed only a small amount (0.037 log points) to the gender wage gap, accounting for 16 percent of the now much-reduced gender wage gap. Together, human-capital factors (education and experience) accounted for 27 percent of the gender wage gap in 1980 compared to only 8 percent in 2010. Another notable change was the decline in the unexplained gap—from 0.341 log points in 1980 to 0.197 log points in 2010. This also contributed substantially to the narrowing of the gender gap over the period, although, as we have seen, the decrease in the unexplained gap occurred only during the 1980s. Nonetheless, unexplained factors accounted for a substantial share of the gender gap in both years, actually a bit larger *share* of gap in 2010 (85 percent) than in 1980 (71 percent).

Table 4, panel B, shows the decomposition of the gender pay gap using the full specification. Interestingly, the effects of education and experience are quite similar to that in panel A, implying that the impact of these measures of human capital operates primarily within industries, occupations, and union coverage status. In 1980, gender gaps in industry and occupation together accounted for 0.097 log points, or 20 percent of the gender pay gap, with gender differences in union coverage contributing an additional 0.03 log points or 6 percent of the gap. By 2010, the convergence in male and female unionization rates had virtually eliminated the contribution of this factor, but occupation and industry continued to account for a substantial gender gap of 0.117 log points or 51 percent of the smaller 2011 gender gap. Indeed, whether taken separately or combined, occupation and industry now constitute the largest measured factors accounting for the gender pay gap. In both years, the unexplained gap was considerably smaller in the full specification than in the human-capital specification, also highlighting the importance of industry and occupation. As in the case of the human-capital specification, a marked decline in the unexplained gap (from 0.231 log points in 1980 to 0.088 log points in 2010) contributed to the narrowing of the gender wage gap, and, again, this decrease occurred over the 1980s. However, as in the case of the human capital specification, unexplained factors continue account for a substantial share of the gender gap in 2010 (38 percent) as they had in 1980 (49 percent). The continued importance of occupation and industry in accounting for the gender gap, and the rise in the

TABLE 5
Effect of Changes in Explanatory Variables and Male Wage Coefficients on the Change in the Gender Wage Gap, 1980–2010

	Base: 1980 male wage equation; 2010 male–female gap in explanatory variables		Base: 2010 male wage equation; 1980 male–female gap in explanatory variables	
Variables	Human capital specification	Full specification	Human capital specification	Full specification
Effect of changing means				
Education variables	–0.0219	–0.0219	–0.0461	–0.0343
Experience variables	–0.0767	–0.0674	–0.0460	–0.0433
Region variables	–0.0058	–0.0030	–0.0004	0.0002
Race variables	–0.0018	–0.0017	0.0006	0.0003
Unionization	—	–0.0331	—	–0.0303
Industry variables	—	–0.0080	—	0.0032
Occupation variables	—	–0.0253	—	–0.0369
All Xs	–0.1062	–0.1603	–0.0920	–0.1411
Effect of changing coefficients				
Education variables	–0.0095	–0.0041	0.0148	0.0083
Experience variables	–0.0004	–0.0006	–0.0310	–0.0246
Region variables	0.0042	0.0037	–0.0011	0.0005
Race variables	0.0096	0.0049	0.0071	0.0030
Unionization	—	0.0003	—	–0.0025
Industry variables	—	0.0031	—	–0.0082
Occupation variables	—	0.0506	—	0.0622
All Bs	0.0039	0.0579	–0.0103	0.0386
Effect of changing unexplained gaps	–0.1433	–0.1432	–0.1433	–0.1432
Change in the total wage gap	–0.2456	–0.2456	–0.2456	–0.2456

Notes: Effect of changing means is the change over the 1980–2010 period in the male–female difference in the indicated variables multiplied by the indicated male log wage coefficients for the corresponding variables. Effect of changing coefficients is the change over the 1980–2010 period in the male wage coefficients for the indicated variables, multiplied by the corresponding male–female difference in the means of the indicated variables.

relative importance of these factors, suggests that future research on explanations might fruitfully focus on gender differences in employment distributions and their causes. This meshes well with increased attention to the role of firms as firm–worker matched data increasingly become available.

One puzzling finding in table 4 is that, despite the occupational improvements of women shown in table 3, gender differences in occupation accounted for a larger pay gap in 2010 than in 1980 (0.076 versus 0.051 log points). However, while women upgraded their occupations during this period, the wage consequences of gender differences in occupations became larger as well. We study these consequences formally in table 5. There we provide estimates of the impact

of changes in the gender gaps in covariates on the change in the gender wage gap using a constant set of male wage coefficients (for 1980 or 2010). To do this, we adapt an approach developed by Juhn, Murphy, and Pierce (1991) (see also Blau and Kahn 1997), which also yields estimates of the effect of changing coefficients and the effect of changes in the unexplained gap.

We begin with male (m) wage and female (f) wage equations as in (1) and (2) above for each of the two years (0, 1). Then,

(4) Effect of Changing Means

$$= (\Delta \overline{X}_1 - \Delta \overline{X}_0) b_{1m}$$

(5) Effect of Changing Coefficients

$$= \Delta \overline{X}_0 (b_{1m} - b_{0m})$$

(6) Effect of Changing Unexplained Gaps

$$= \overline{X}_{1f} (b_{1m} - b_{1f}) - \overline{X}_{0f} (b_{0m} - b_{0f}),$$

where X and b have been defined previously and a Δ prefix signifies the (mean) male–female difference for the variable immediately following. The effect of changing means measures the contribution of changes in male–female differences in measured labor market characteristics (Xs) on changes in the gender wage gap. So, for example, if women move into higher-paying occupations it will reduce the gender wage gap. The effect of changing coefficients reflects the impact of changes in prices of measured labor market characteristics, as indexed by male coefficients, on changes in the gender wage gap. For example, given that women are located in different occupations than men, an increase in the return to occupations in which men are more heavily represented weights the gender difference in occupations more heavily and hence raises the gender wage gap, all else equal. Finally, the effect of changing unexplained gaps measures the impact of this factor on changes in the gender wage gap, with, e.g., a declining unexplained gap working to decrease the gender wage gap. The impact of changing means, changing coefficients, and changes in the unexplained gap together sum to the observed change in the total wage gap.

The first two columns of table 5 use the 1980 male wage equation and 2010 male–female differences in the means of the covariates as the base, while the second two columns use the opposite values as base, in each case chosen to exhaust the total change in the gender pay gap.

In the human-capital specification (giving the largest estimate of the impact of these variables), women's improvements in education and experience taken together are shown to narrow the gender pay gap by 0.092 to 0.098 log points, or about 38–40 percent of the actual closing of the gender pay gap. Thus, improvements in these traditional measures of human capital were a very important part of the story explaining the decrease in the gender pay gap. Results for the full specification illuminate the role of industry, occupation, and unionism. Taken together, these variables narrowed the gender gap by 0.064–0.066 log points or 26–27 percent of the closing. This reflects convergence in men's and women's occupations and union status in roughly equal measure, with relatively little evidence of narrowing of industry differentials. In terms of occupational convergence, women reduced their concentration in administrative support and service jobs, relative to men, and, as we have seen, increased their representation in managerial and professional jobs, including traditionally male professions. As well as occupational upgrading of women, the female relative gains reflect some adverse trends for men, including in production jobs and the increase

in their employment in service positions, as well as their considerably larger loss of union employment.

In both specifications, the decline in the unexplained gender wage gap plays a substantial role in accounting for the wage convergence of women and men, explaining 58 percent of the closing.[15] (As we have noted previously, this decrease occurred almost entirely in the 1980s.) Of course, this begs the question as to what caused this decrease. There are a number of possible sources. The two most straightforward are that the decline represents a decrease in discrimination against women and/or a decrease in gender differences in unmeasured characteristics. Also potentially important are demand shifts favoring women relative to men and trends in the extent and type of selection of women and men into the labor force. In Blau and Kahn (2006), we present some evidence consistent with each of these possible explanations, suggesting that all might have played a role. These are all issues that we address below.

The decomposition presented in table 5 also permits us to identify the role of changes in overall prices (coefficients) in affecting the trends. In general, for the 1980–2010 period, price changes are not found to play a major role in the human-capital specification, but adverse price movements did negatively affect women's gains in the full specification, almost entirely due to rising returns to occupations in which women were underrepresented. However, female improvements in the explanatory variables and a narrowing of the unexplained gap more than outweighed these adverse price changes. This analysis highlights the notion that shifts in labor-market prices can affect women's progress in narrowing the gender wage gap. The role of wage structure in affecting changes over time in relative wages of women, as well as differences across countries in the magnitude of the gender wage gap, is considered in section 6.

[15] Coincidentally, the female residual fell by almost identical amounts in the human capital and full specifications (0.1432–0.1433 log points). Using the female coefficients as the base yielded qualitatively similar results for the changes in characteristics; however, the effects of price changes were very small.

2.2 *Explaining the Gender Wage Gap Across the Wage Distribution*

As we saw in table 1, as of 2010, (i) there was a relatively large gender gap at the top of the distribution and (ii) the wage gap fell more slowly over the 1980–2010 period at the top than at other portions of the distribution. These two patterns suggest the notion of a "glass ceiling" in which women face barriers in entering the top levels of the labor market and which we discuss in more detail in section 3. To provide some further evidence on this phenomenon, we decompose the gender pay gap at specific percentiles of the distribution into portions due to covariates and portions due to wage coefficients. The latter component corresponds to the unexplained gap and, while as noted above, is sometimes taken to be a measure of discrimination, may be a biased estimate.

To study the unexplained gap across the distribution, we use a method developed by Chernozhukov, Fernández-Val, and Melly (2013), which decomposes unconditional intergroup gaps (in our case, male–female gaps) at a given percentile into a portion due to the distribution of characteristics and a portion due to different wage functions conditional on characteristics. This latter portion corresponds to the unexplained gap. As discussed by the authors, the method involves computing the distribution of characteristics and the conditional wage distribution by gender. For example, as above, let log wages be denoted by Y, y be a specific value of log wages, m represent males, f represent

females, and X be a vector of characteristics affecting wages. Then,

$$(7) \quad F_{Y[m,m]}(y) = \int F_{Ym|Xm}(y|x)\, dF_{Xm}(x)$$

$$(8) \quad F_{Y[f,f]}(y) = \int F_{Yf|Xf}(y|x)\, dF_{Xf}(x)$$

$$(9) \quad F_{Y[m,f]}(y) = \int F_{Ym|Xm}(y|x)\, dF_{Xf}(x)$$

where $F_{Y[m,m]}$ refers to the unconditional distribution of log wages with the male wage function and the male characteristics, with a corresponding definition for $F_{Y[f,f]}$; $F_{Y[m,f]}$ is the hypothetical wage distribution that would face women if they were rewarded according to the male wage function; $F_{Ym|Xm}$ refers to the conditional distribution of male wages given their characteristics; and F_{Xm} refers to the distribution of male characteristics, with corresponding definitions for $F_{Yf|Xf}$ and F_{Xf}.

To decompose the differences between the unconditional male and female wage distributions, we note that:

$$(10) \quad F_{Y[m,m]} - F_{Y[f,f]} = \left\{F_{Y[m,m]} - F_{Y[m,f]}\right\} + \left\{F_{Y[m,f]} - F_{Y[f,f]}\right\}.$$

The first term in brackets in equation (10) shows the effect of differing distributions of personal characteristics, while the second term shows the wage function effect. To implement the decomposition, Chernozhukov, Fernández-Val, and Melly (2013) suggest computing the empirical distribution of the X variables and using quantile regressions for the conditional wage distribution. We follow that procedure and estimate one hundred quantile regressions. In addition, we compute the standard errors using bootstrapping with one hundred repetitions.

In table 6, we present the decomposition results for the tenth, fiftieth, and ninetieth percentiles.[16] At each percentile, women's covariates improved relative to men's over the period in both the human capital and full specifications, resulting in comparable declines of 0.09–0.10 log points in the gender wage gap across the distribution. The lesser progress of women at the top was entirely due to much larger reductions in the unexplained gap (coefficient effects) at the tenth and fiftieth percentiles than at the ninetieth percentile. In the human-capital specification, the unexplained gap fell by 0.18 to 0.20 log points at the tenth and fiftieth percentiles, but only by 0.06 log points at the ninetieth percentile; in the full specification, the corresponding reductions in the unexplained gap were 0.16 to 0.18 log points at the tenth and fiftieth percentiles but only 0.05 log points at the ninetieth percentiles. By 2010, the unexplained gap was larger at the ninetieth percentile than at the tenth or fiftieth percentile in both specifications; in contrast, in 1980, the unexplained gap was smaller at the ninetieth than at the fiftieth, although still larger than at the tenth percentile.[17]

These coefficient effects suggest the possibility of a glass ceiling among highly skilled women, although they could also result from unmeasured factors leading highly skilled

[16]The decomposition allows us to recover the unconditional distribution of wages by adding the effects of the covariates and wage coefficients, and the results closely match the actual percentiles. The Chernozhukov, Fernández-Val, and Melly (2013) approach is similar in principle to the method of unconditional quantile regressions suggested by Firpo, Fortin, and Lemieux (2009).

[17]While the unexplained gap in the full specification for 2010 appears very low at the tenth percentile, we are reluctant to place a strong interpretation on this in light of its relatively large standard error. Taking the coefficient effect at face value suggests a larger role for differences by occupation, industry, and unionism in accounting for gender wage gaps at the bottom than at the other percentiles (especially the ninetieth) where gender difference in wages within occupation, industry, and union status appear to play a relatively large role.

TABLE 6
Decomposition of the Gender log Wage Gap by Unconditional Distribution Percentile (PSID)

	1980		2010	
	Specification		Specification	
Percentile	Human capital	Full	Human capital	Full
Panel A. Effect of covariates				
Tenth percentile	0.1767	0.2729	0.0721	0.1648
	(0.0234)	(0.0374)	(0.0249)	(0.0453)
Fiftieth percentile	0.1215	0.2381	0.0237	0.1274
	(0.0167)	(0.0279)	(0.0151)	(0.0235)
Ninetieth percentile	0.1139	0.2281	0.0265	0.1246
	(0.0188)	(0.0260)	(0.0203)	(0.0329)
Panel B. Effect of wage coefficients				
Tenth percentile	0.2958	0.1886	0.1134	0.0319
	(0.0429)	(0.0487)	(0.0359)	(0.0511)
Fiftieth percentile	0.3876	0.2598	0.1836	0.0835
	(0.0220)	(0.0275)	(0.0231)	(0.0255)
Ninetieth percentile	0.3316	0.2336	0.2749	0.1790
	(0.0269)	(0.0285)	(0.0341)	(0.0357)
Panel C. Sum of covariate and wage coefficient effects				
Tenth percentile	0.4725	0.4615	0.1855	0.1967
	(0.0367)	(0.0353)	(0.0266)	(0.0314)
Fiftieth percentile	0.5091	0.4979	0.2073	0.2109
	(0.0226)	(0.0232)	(0.0236)	(0.0211)
Ninetieth percentile	0.4455	0.4617	0.3014	0.3036
	(0.0314)	(0.0311)	(0.0346)	(0.0342)

Notes: Sample includes full time nonfarm wage and salary workers ages 25–64 with at least twenty-six weeks of employment. Entries are based on the decomposition of the unconditional gender log wage gap at each indicated percentile, based on methods in Chernozhukov, Fernández-Val, and Melly (2013). Standard errors are in parentheses and are computed by bootstrapping with one hundred repetitions.

men to earn particularly high relative wages. We discuss research on discrimination in section 3.8, as well as work suggesting an important role for penalties for flexibility (shorter hours and work-force interruptions) in explaining gender gaps in skilled occupations in section 3.4. However, we note here that such a result—either a relatively large unexplained gender gap at the top or more slowly falling gender pay gaps at the top than elsewhere in the distribution—is a common finding in the recent literature on the gender gap that uses quantile regression methods to study these issues. For example, in earlier work (Blau and Kahn 2006), we used PSID data and found that the unexplained gender pay gap in 1998 at the ninetieth percentile was larger than at lower percentiles and that it had fallen less since 1979. Similarly, also using PSID data, Kassenboehmer and Sinning (2014) found that the unexplained gender gap fell by less at the ninetieth

percentile than at lower regions of the distribution over the 1993–95 to 2004–08 periods and that, in 2004–08, there was a somewhat larger unexplained gap at the ninetieth than at the fiftieth percentile. Moreover, European research also typically finds a larger unexplained gap at the top than the middle of the distribution (e.g., Arulampalam, Booth, and Bryan 2007 using microdata on eleven countries for 1995–2001 and Albrecht, Björklund, and Vroman 2003 using Swedish data for the 1990s).

2.3 *Summary*

Our overview of the US gender wage gap shows a substantially decreased but persistent wage gap between men and women. Decompositions indicate the importance of changes in gender differences in education and experience, as well as occupation and union status in accounting for the reduction in the gender pay gap. They also highlight the diminished role of human-capital factors in accounting for the gender wage gap over time—due both to the reversal of the education gap between men and women and the narrowing of the gender gap in experience. Gender differences in occupation and industry remain important in explaining the gender wage gap, despite occupational upgrading of women relative to men. However, the role of unions in accounting for gender differences in wages has virtually disappeared, as have gender differences in unionization. While a decrease in the unexplained gap played a role in narrowing the gender wage gap in the 1980s, an unexplained gender wage gap remains and has been roughly stable since the 1980s decline. We also found that the gender wage gap is currently larger at the top of the wage distribution and has decreased more slowly at the top than at other points in the distribution. This remains the case even after accounting for measured characteristics. We now turn to a discussion of the underlying factors affecting the observed sources of the gender pay gap, as well as in factors that may be included in the unobserved gap in accounting exercises like this one. We also probe for insights on why the gap is larger at the top.

3. *Traditional Factors Affecting the Gender Pay Gap*

3.1 *Labor-Force Participation*

Labor-force participation is a crucial factor in understanding developments in women's wages. This is the case both because the receipt of wages is conditional on employment, and also because women's labor-force attachment is a key factor influencing the gender wage gap. US women's labor force participation rates increased dramatically in the five decades following World War II and this increase, driven by rising participation rates of married women, underlies what Goldin (2006) has termed the "quiet revolution" in gender roles that underlies women's progress in narrowing the gender wage gap and other dimensions of labor market outcomes. For that reason, we briefly summarize the trends in female labor-force participation in the United States.

The sharp increase in female participation rates is illustrated in figure 3, which shows the rate rising from 31.8 percent in 1947 to 57.2 percent in 2013. The *gender gap* in participation rates was further reduced by the steady decline in male participation rates over this period. As may be seen in figure 3, the growth in female participation rates began to slow and then plateau in the 1990s. Female participation rates have fallen in the wake of the great recession, mirroring a similar pattern among men.

There is a voluminous literature on the sources of rising female labor-force participation rates dating at least from Mincer's (1962) insightful analysis of the early post–World War II increase. Consistent

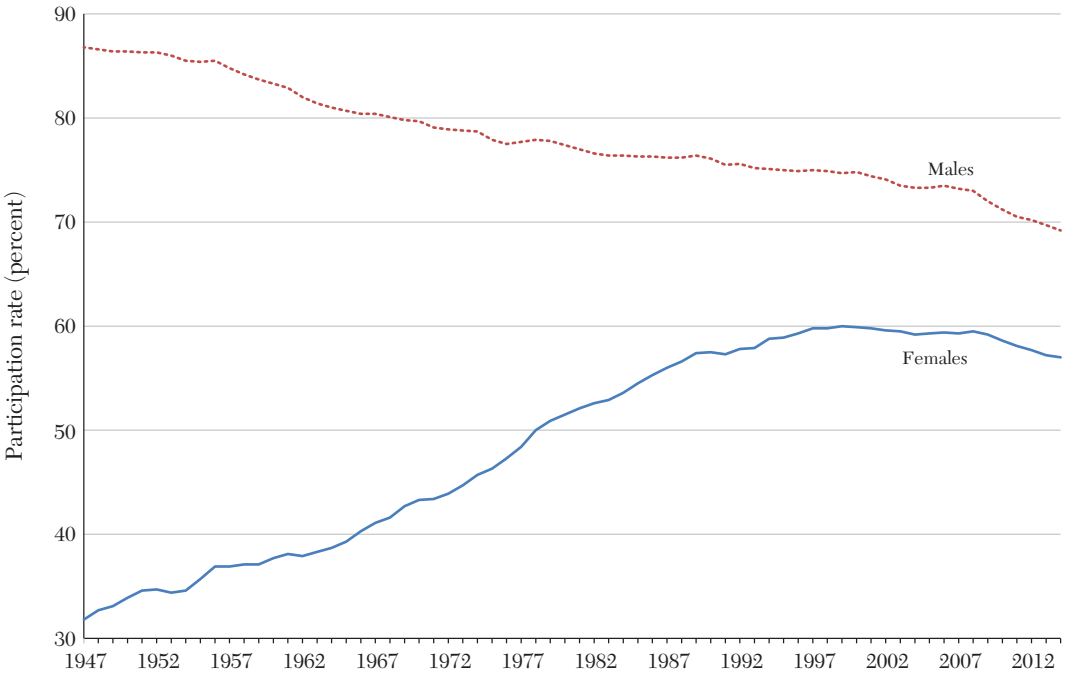

Figure 3. Trends in Female and Male Labor-Force Participation Rates, 1947–2014 (age sixteen and over)

Notes: Based on data from the Current Population Survey available at www.bls.gov and *Employment and Earnings*, various issues.

Source: Fig. 5-2 "The Labor Force: Definitions and Trends," Francine D. Blau and Anne E. Winkler, *The Economics of Women, Men, and Work*, eighth edition. (New York: Oxford University Press 2018), p. 95. By permission of Oxford University Press, USA.

with Mincer's original analysis, numerous studies have continued to find that rising real wages for women have played a major role in explaining the rise in married women's labor-force participation. The substitution effect due to increases in female wages more than outweighed the negative income effect due to increases in their husbands' incomes during periods of rising male wages.[18] Moreover, during the 1970s and 1980s, husbands' real incomes stagnated overall and declined for less-educated men. While this factor contributed to increases in women's labor-force participation during this period, consistent with Mincer's initial insight, it accounted for relatively little of the increase, with rising female wages continuing to play the more important role (Juhn and Murphy 1997; Blau and Kahn 2007). Indeed, the married women with the largest increase in market hours since 1950 were those with high-wage husbands (see Juhn and Murphy 1997 and McGrattan and Rogerson 2008), likely drawn in by widening wage inequality and rising returns to skill (e.g., Autor, Katz, and Kearney 2008). Rising returns to skill likely also underlie the much larger increases in labor-force participation rates for highly

[18] See, e.g., Blau and Kahn (2007) and references therein. For an excellent discussion of longer term factors, see Goldin (2006).

educated women relative to their less educated counterparts (Blau 1998; Blau, Ferber, and Winkler 2014, figure 6-6).

A number of other factors apart from rising wages and increasing educational attainment have also been found to be important in explaining women's increasing labor-force participation. These include the greater availability of market substitutes for home work and improvements in household technology (e.g., Greenwood, Seshadri, and Yorukoglu 2005), the development and dissemination of the birth control pill (Goldin and Katz 2002; Bailey 2006; Bailey, Hershbein, and Miller 2012), and demand shifts that favored occupations like clerical work where women were well represented (Goldin 1990; Oppenheimer 1976).[19] At the same time, however, studies focused on conventional economic variables (wages, nonlabor or husband's income, education, and demographic variables) for periods of rapid increase in female participation rates (i.e., prior to the 1990s) generally find that measured variables, including the key wage and income variables, cannot fully explain the observed increases.[20] This suggests an important role for shifts in preferences and other unmeasured factors. Cotter, Hermsen, and Vanneman (2011) and Fortin (2015) provide some evidence on attitudes, although establishing causation in this relationship is challenging, since people may adjust their attitudes in light of their labor-force behavior and outcomes as well as vice versa.

A final point to note is that, between 1980 and 2000, females' own wages and income elasticities declined substantially in magnitude (Blau and Kahn 2007; Heim 2007). This is of significance in that it has brought female elasticities closer to male elasticities, and, though a gender difference remains, may be interpreted as an indicator that women are coming to more closely approximate men in terms of the role that market work plays in their lives (Goldin 2006; Blau and Kahn 2007).

3.2 *Selection and the Gender Wage Gap*

Changes over time in female participation rates raise the issue of selection bias (Heckman 1979; Gronau 1974), since data on wages are available only for a self-selected group of labor-force participants. As noted above, inclusion in the wage sample requires employment and, depending on the study, there may be additional requirements, for example, being a wage and salary worker (i.e., not self-employed), working full-time, working full-year or a minimum number of weeks in a year, etc. Selection bias is likely to be a more serious issue for women's than men's wages because the closer the wage sample is to 100 percent of the underlying population, the smaller the selection bias.[21]

In considering wage differences between men and women, the focus would ideally be on wage offers rather than observed wages; selection bias arises because the latter are influenced by individuals' decisions about whether or not to participate in the wage and salary sector. Self-selection into the wage sample may take place on either measured or unmeasured factors, and both may affect trends in observed wages. Our decompositions in section 2 and other similar work are able to standardize for shifts in measured factors; however selection on unmeasured factors can bias the estimated coefficients in wage regressions and potentially result in misleading estimates of levels and trends in adjusted gender wage gaps. If inclusion in the wage sample is selective of those with

[19] Female labor-force participation may also be affected by changes in cohort size that cause imbalances in marriage markets (Amuedo-Dorantes and Grossbard 2007).

[20] See Blau and Kahn (2007) and references therein.

[21] See Mulligan and Rubinstein's (2008) discussion of the identification-at-infinity method of correcting for selection and associated references.

higher (lower) wage offers, the mean of observed wages will be higher (lower) than the mean of wage offers. And, further, there are plausible scenarios under which the magnitude and even the sign of the selection bias may change over time. For example, intuitively we would expect changes in labor-force participation rates to change the extent of selection bias and, as we have seen, not only have female participation rates increased over time, the pace of the increase has varied, with rapid rises prior to 1990, followed by slower growth and eventual plateauing thereafter. Moreover, as Mulligan and Rubinstein (2008) point out, selection patterns may change over time even in the absence of changing participation rates with, for example, changes in skill prices.[22] Or, as another example, Blau and Kahn (2006) point to changes in public policies, specifically welfare and the Earned Income Tax Credit (EITC), as affecting selection in the 1990s. Thus, the direction of any potential selection bias on either wage levels or trends is unclear, a priori.

Does selection produce misleading estimates of levels and trends in the gender wage gap and is the effect sizable? The evidence on this is mixed. Blau and Beller (1988) examine the impact of selection bias on the trends in the gender earnings gap over the 1970s (1971–81), using a standard Heckman two-step selectivity bias correction for both the male and female wage equations. The first stage was identified by the inclusion of the individual's nonlabor income, a dummy for whether s/he was age sixty-two or over (and hence entitled to early social security benefits), and the number of family members who were aged eighteen to sixty-four. Demographic variables such as marital status and number of children that are sometimes used to identify the selection correction were included in the wage equation, as well as the selection equation.

Blau and Beller found that, while published data on the median earnings of year-round, full-time workers showed little change in the gender pay gap during the 1970s, expanding the sample to include all workers (i.e., part-year and part-time) and using a regression approach to standardize for weeks and hours worked increased the estimate of earnings gains in an OLS context. When they corrected for selectivity bias, they found that wage offers resulted in substantially higher estimates of wage gains for white women, relative to white men, than did observed wages. Although the effect of the selectivity bias correction was to lower the estimated increase in the earnings ratio for blacks, the coefficients on the selectivity variables were not significant.

Blau and Kahn (2006) examined the gender wage gap over the 1979–1998 period, using wage data from the PSID for 1979, 1989, and 1998. They adjusted for selection in several stages. They began by progressively expanding their wage sample, first by adding part-time workers to their base sample of full-time workers; then, for those still lacking wage observations, by using the longitudinal nature of their data set to recover real wages for the most recent year available in a four-year window. For the remaining individuals, in the spirit of Neal and Johnson's (1996) and Neal's (2004) analyses of black–white wage differentials, they estimated median regressions and included some additional individuals by making assumptions about whether they placed above or below the median of real-wage offers. Specifically, they assumed that individuals with at least a college degree and at least eight years of actual full-time labor-market experience had above median wage offers for their gender, and that those with less than a high school degree

[22] Similarly in his comparison of black and white wages for women, Neal (2004) points out that selection may operate differently even for two groups that have roughly similar participation rates.

and less than eight years of actual full-time labor-market experience had below median wage offers for their gender.

For each year, Blau and Kahn (2006) find that selection bias is positive, i.e., that the raw and human capital adjusted gender gaps in wage offers are larger than the corresponding gaps for observed wages. However, their results suggest that the direction of the selectivity effect on wage *growth* differed between the 1980s and 1990s. In the 1980s, convergence was slower after correcting for selection; however, in the 1990s, convergence was faster after the correction. They argue that the results for the 1980s are consistent with evidence that employment gains for married women were largest for wives of higher-wage men who themselves are likely to be more skilled (on both measured and unmeasured characteristics). In contrast, the pattern for the 1990s may reflect the large entry of relatively low-skilled, female single-family heads during this decade (as we have seen increases in married women's participation rates had slowed), which has been linked to changes in welfare policies and the expansion of the EITC (e.g., Meyer and Rosenbaum 2001). For the 1979–98 period as a whole, their results suggest the selectivity adjustment had a nontrivial but small impact on the trends in either the unadjusted or adjusted differential.

In contrast Mulligan and Rubinstein (2008) obtain a much more significant role for selection in accounting for the convergence in observed wages between 1975–79 and 1995–99. Using data from the Current Population Survey and focusing on workers employed full time and full year, they implement two approaches: a Heckman two-step estimator and an identification-at-infinity method. Their Heckman two-step estimator is identified by inclusion of number of children aged 0–6 interacted with marital status in the first stage. The identification-at-infinity method entails estimating some of the wage equation parameters on a sample that is selected based on observed characteristics such that nearly all of the sample is predicted to be employed full time and full year. In most cases, they find virtually no evidence of closing of the gender wage gap once selection has been accounted for. Mulligan and Rubinstein (2008) explain their findings in terms of rising wage inequality that has increased the returns to skill. In response, women with less human capital may drop out of the workforce, while those with more human capital may enter. While it is possible to control for some indicators of human capital in their CPS data (e.g., formal education), it is also quite possible that some indicators are unmeasured, giving rise to a change in the composition of the female workforce based on unmeasured characteristics, and hence, an important role for the selectivity bias adjustment. Consistent with this story, they find that selection of women into the full-time, full-year workforce was negative in the 1970s and shifted to positive in the 1990s.

Finally, Jacobsen, Khamis, and Yuksel (2014) estimate wage equations for each year in the 1964–2013 period using March CPS data in order to construct a measure of lifetime earnings. Using a similar method and specification to that in Mulligan and Rubinstein (2008), they find increasingly positive selection into employment toward the end of their sample period, like Mulligan and Rubinstein (2008). However, in contrast to Mulligan and Rubinstein's (2008) wage results, they find that the gender gap in lifetime earnings closed in the 1980s, although it then stopped converging. These findings for lifetime earnings are broadly similar to the adjusted-wage trends reviewed in section 2.

Possible selection bias in measuring the gender wage gap is an important and complex issue. Thus, it may not be surprising that efforts to address it have not yet achieved a consensus. Some differences arise because each of the reviewed studies not only focuses

on a different data set or time period, but each uses a different approach to correcting for selection or implements it differently—including different definitions of the wage sample and different specifications of estimating equations. The PSID (used by Blau and Kahn 2006 and our data source in section 2) permits a control for actual labor-market experience, which will perforce be an unmeasured factor in a study based on the CPS (e.g., Blau and Beller 1988; Mulligan and Rubinstein 2008; and Jacobsen, Khamis, and Yuksel 2014), which does not contain this information. More fundamentally, available approaches to correcting for selection bias each have their own strengths and weaknesses. One issue raised by estimation of the Heckman two-step estimator is that an exclusion restriction (i.e., a variable that affects labor supply but does not affect wages) is needed (or at least desirable). The studies employing this approach reviewed here based identification on variables that could be argued to directly affect wages (such as nonlabor income in the case of Blau and Beller 1988 or marriage and children in the cases of Mulligan and Rubinstein 2008 and Jacobsen, Khamis, and Yuksel 2014). Moreover, while it doesn't require exclusion restrictions, the identification-at-infinity method used by Mulligan and Rubinstein (2008) raises some concern because the experience of the groups identified as having a high probability of year-round, full-time employment may not be representative of the larger male and female wage samples.[23] Finally, while the approach used by Blau and Kahn (2006) of adding observations above and below the median based on high education, high experience or low education, low experience does not raise identification issues, it does require the assumption that the wage offers for the identified groups are above median or below median, *conditional* on their measured human-capital levels. This is an assumption that may reasonably be questioned, particularly at the high end.[24]

Thus, we see the issue of selection bias as an area where continued research, and perhaps new methodologies, are needed to resolve the debate,[25] though we note that with the substantial upgrading of women's education, experience levels, and occupations that we documented in section 2, it seems highly unlikely to us that unadjusted gaps, at least, have failed to rise.

3.3 *Education and Mathematics Test Scores*

Education is an area that has seen a reversal of the gender differential, as our analysis of the PSID in section 2 showed. In the United States, traditionally, men were more likely than women to go to college and beyond. So, for example, in 1971, women received 43 percent of associate and bachelor's degrees, 40 percent of master's degrees, 14 percent of PhDs, and 6 percent of first professional degrees (awarded in postcollege professional training programs, including medicine, law, dentistry, pharmacy,

[23] For example, Mulligan and Rubinstein (2008) find that when the sample is restricted to those with characteristics that predict a 0.8 or higher probability of being employed, it includes 0.8 percent (1970s), 0.5 percent (1980s), and 1.2 percent (1990s) of the white female full-time, full-year observations. This amounts to roughly 300 female observations per five year CPS cross-section.

[24] Blau and Kahn argue that this assumption is more likely to be valid for the low-education, low-experience group (placed below the median). When they repeat the analyses adding only the low-education, low-experience group, their results are virtually identical.

[25] Blundell et al. (2007) propose a method that uses bounds, tightened by restrictions based on economic theory, to estimate changes in the distributions of wages that allow for the nonrandom selection into work. Applying this method to the United Kingdom, they find evidence of increases in the relative wages of women. Olivetti and Petrongolo (2008) explore the role of selection in employment in accounting for international differences in the gender wage gap using alternative assumptions on the position of imputed wages of the nonemployed in the spirit of Neal (2004) and Blau and Kahn (2006).

veterinary medicine, and theology). By 1980, women had caught up to men in college graduation and subsequently they have surpassed them. As of 2011, women earned 57 percent of bachelor's degrees and 62 percent of associate degrees. There have been comparable gains at the postgraduate level—with women receiving 61 percent of master's degrees, 51 percent of PhDs, and 49 percent of first professional degrees (Blau, Ferber, and Winkler 2014, chapter 8).[26] The broad outlines of these trends prevail across the economically advanced nations and many developing countries as well (Goldin, Katz, and Kuziemko 2006, and Becker, Hubbard, and Murphy 2010).

In addition, the type of education women receive has changed toward more mathematics and career-oriented programs. Substantial gender differences in college majors remain, but college majors are considerably less gender segregated than they were in the 1960s (Blau, Ferber, and Winkler 2014, chapter 8). Many of these gains were achieved by the 1980s, however, with less progress since then (England and Li 2006; Bronson 2015). Significantly, women continue to lag in the STEM (science, technology, engineering, and mathematics) fields, particularly in mathematically intensive fields (Ceci et al. 2014). And gender differences in college major have been found to be an important determinant of the pay gap between college-educated men and women (Black et al. 2008).

As relatively more highly educated female cohorts have replaced earlier ones, women have now become more highly educated than men in the overall population (Blau, Ferber, and Winkler 2014, chapter 8). The female advantage is particularly evident in the labor force (see section 2), which is still more highly selected on education for women than for men. The reasons why women have overtaken men in education are not fully understood, but seem to take in both pecuniary and nonpecuniary factors. The edge men traditionally enjoyed in college and beyond could be rationalized within a human-capital investment framework. Women's shorter expected worklife reduced their gains to investing in large amounts of formal schooling, although other factors, including familial attitudes, social gender norms, and discrimination by educational institutions could be factors as well. From the human-capital perspective, women's rising labor-force attachment is expected to raise the returns to their investment in higher education and thus to narrow the educational gender gap. Working in the same direction, reductions in occupational segregation associated with the increased entry of college women into higher-paying, formerly male managerial and professional jobs likely provided a further economic incentive for women to invest in college; of course, rising college attendance by women increased their likelihood of qualifying for high-level positions as well.[27] These employment gains likely reflect, at least in part, the government's antidiscrimination in employment effort spearheaded by the enforcement of Title VII of the Civil Rights Act and the implementation of Affirmative Action

[26] These figures are based on published data from the Department of Education. In 2011, women also received 46 percent of master's degrees in business, which are not included in the tabulation of first professional degrees in the Department of Education data.

[27] Decreases in occupational segregation were especially pronounced among the college educated (Blau, Brummund, and Liu 2013a, 2013b). It is unclear whether the college wage premium is higher for women than men. Earlier work by Dougherty (2005) and others suggested that returns measured in this way were higher for women, but Hubbard (2011) presents evidence that this is not the case when topcoding in the major dataset used in these studies, the CPS, is corrected.

for government contractors (evidence on this is discussed in section 5).

A number of additional factors likely contributed to the increase in women's educational attainment. First is the development of "the pill" and its growing availability to young, unmarried women beginning in the late 1960s and early 1970s. The availability of the pill was associated with and facilitated a delay in marriage and childbearing, which in turn enabled women to pursue professional training after college (Goldin and Katz 2002 and Bailey 2006). Second, passage and enforcement of Title IX of the Civil Rights Act, which banned discrimination in educational institutions, led to changes in admission and other practices that facilitated and encouraged women's increased participation in higher education. Third, social norms and views on gender-appropriate education investments most likely also changed. Finally, as Goldin, Katz, and Kuziemko (2006) show, girls were well-positioned to increase their college attendance in terms of their high school grade point averages and class rank, which surpassed those of boys even during the era in which boys' college going exceeded girls'. Moreover, while girls' high-school preparation and test scores in science and mathematics initially lagged those of boys', these gaps were reduced as girls' expectations of attending college increased.

While the above considerations may help to explain why women have caught up to men in education, or at least why they have *reduced* the gender education gap (since women's expected labor-force attachment is still less than men's), women's surpassing men is more puzzling—especially since, as noted earlier, this is an international phenomenon. A number of possible explanations for this have been offered, and all may play a role to some extent.

First, a college education not only increases one's own income but also results in family-related income gains due to assortative mating. Such gains are likely to be larger for women than men, since, in the majority of couples, men are still the higher earners. Moreover, college-educated women have lower divorce rates and a lower incidence of out-of-wedlock births, making them less likely to become lower income, single-family heads. To the extent this association is causal, this factor would also increase family-related returns to college more for women than men. DiPrete and Buchmann (2006) find that such family-related income gains (adjusted for family size) increased more for women than for men, suggesting that this may be part of the reason for the increase in women's college going. Further, in the event of a divorce, Bronson (2015) argues that college provides insurance value and presents evidence that this consideration helps to explain the growth in women's college attendance.

Second, there are gender differences in noncognitive skills—for summaries and discussions, see Goldin, Katz, and Kuziemko (2006) and Becker, Hubbard, and Murphy (2010)—that suggest girls have lower *nonpecuniary* costs of investing in college than boys. For one thing, as noted earlier, girls have traditionally excelled relative to boys in secondary school academic performance and this was the case even when they were less likely than boys to go to college. This suggests that girls find school less difficult or unpleasant than boys. There is evidence, for example, that boys spend much less time doing homework than girls (Porterfield and Winkler 2007). In addition, boys have a much higher incidence of school disciplinary and behavioral problems, ranging from minor infractions to school suspensions and participation in criminal activity, and boys are also two to three times more likely to be diagnosed with attention deficit hyperactivity disorder (Goldin,

Katz, and Kuziemko 2006). The reasons for these gender differences have not been fully determined, but one factor suggested by Goldin, Katz, and Kuziemko (2006) may be the later maturation of boys. Regardless of their source, to the extent that females have lower total (pecuniary plus nonpecuniary) costs of investing in education on average than males, they will have a larger response to given increases in the benefits of college.

Becker, Hubbard, and Murphy (2010) also focus on noncognitive skills, but emphasize gender differences in their *distribution.* They present evidence that the variance in noncognitive (or what they call nontraditional) skills is smaller for women than men, suggesting that under some circumstances, the elasticity of supply to college will be higher for women than men. This depends on the location of the relevant portion of the distribution of costs. If, as appears likely, the relevant portion is close to the mean of costs, the density of individuals that can respond to an increase in benefits is larger for a lower-variability distribution that peaks around the mean—as is the case for women. If women have a higher elasticity of supply to college, then even for equal changes in the benefits, women can overtake men in college attainment.

Gender differences in one cognitive skill, mathematics, have gotten particular attention. A gender differential in mathematics ability and preparation as indicated by test scores is potentially linked to gender differences in wages and occupations. Traditionally, US males have had higher average mathematics test scores than females, as well as higher representation at top performance levels. As noted earlier, the gender difference in math scores has narrowed as high school curricula of boys and girls have gotten more similar. Indeed, some evidence indicates that boys no longer have higher average math test scores during their high-school years than girls.[28] However, there is continuing evidence of a gender difference at top performance levels, with males outnumbering females at the very high ranges of science and math tests, and females outnumbering males at the very high ranges of reading and language tests (e.g., Pope and Sydnor 2010). The male advantage at the upper end of math test scores has been cited as a factor in the underrepresentation of women in STEM fields, although this contention has been the focus of considerable debate.[29] Of particular interest, a significant strand of recent research focuses on the social determinants of these differences and implicitly asks whether gender differences in math performance may be influenced by educational policy and other environmental factors.

Evidence that social influences matter comes from a variety of sources. For example, several studies document considerable geographic variation in the gender gap in measured mathematics ability at the mean and at the top levels of performance, both within the United States (Pope and Sydnor 2010) and across countries (Guiso et al. 2008; Fryer and Levitt 2010; and Nollenberger, Rodríguez-Planas, and Sevilla 2016). Of

[28] Hyde et al. (2008); this study used data from state assessments of cognitive performance. However, Fryer and Levitt (2010) continue to find a gender gap at the high-school level using the Early Childhood Longitudinal Study kindergarten cohort, which is a sample of children entering kindergarten in 1998. Both studies are critical of SAT data since the pool of students taking the test is not representative of the full population and selection into the test may differ by gender.

[29] For example, while Hyde et al. (2008) note the slightly greater variance of male test scores in their data, they argue that gender differences along this dimension "are insufficient to explain lopsided gender patterns in participation in some STEM fields." In their extensive review, Ceci et al. (2014) are also skeptical that math differences can account for the female underrepresentation in math-intensive fields. For an early study delineating the relationship between mathematical ability and field choice and its relationship to male–female differences in earning and occupations, see Paglin and Rufolo (1990).

particular interest, Guiso et al. (2008) find that girls' math scores were positively related to indicators of country-level gender equity,[30] and Nollenberger, Rodríguez-Planas, and Sevilla (2016) report parallel findings that the mathematical performance of girls relative to boys among second-generation immigrants (i.e., native-born children of immigrants) is positively related to an indicator of gender-equity indexes in the *parents'* source country. In addition, the falling gender gap in math performance mentioned earlier also suggests that gender differences in math scores are affected by environmental factors. Moreover, the framing of the test can affect females' performance, as found by Spencer, Steele, and Quinn's (1999) research on stereotype threat: they found that women did as well as men on a difficult math test if they were told that men and women tended to do equally well; however, if women were told that women tend perform less well than men, then they did worse than men on the test. And, in some cases, teachers may discriminate against girls in their assessment of math tests, as found by Lavy and Sand's (2015) study of Israeli schools.

Is the gender gap in math test scores sufficient to account for an important portion of the gender pay gap? In her study of the impact of psychological factors on the gender pay gap, Fortin (2008) estimated wage regressions for two cohorts (the National Longitudinal Study of the High School Class of 1972—NLS 72—and the National Education Longitudinal Study of 1988/94—NELS 88) and controlled for their scores on a math test taken while they were seniors in high school. Fortin's (2008) focus was on the impact of psychological factors, but her inclusion of math scores in her wage regressions allows us to assess their quantitative importance.[31] Her tabulations show that, while males outscored females on the math test, consistent with our earlier discussion, the gap in standardized scores was smaller for the later cohort. For workers in their mid-twenties in the earlier cohort, in 1979, the difference in scores accounted for 4.4 percent of the raw pay gap (of 0.237 log points), not controlling for completed schooling, and 3.0 percent controlling for completed schooling.[32] For workers in their mid-twenties in the later cohort, in 2000, the effects were much smaller: 1.4 percent of the raw pay gap (of 0.181 log points) not controlling for completed schooling, and 0.7 percent controlling for schooling. Notably, these small effects do not control for occupation, which is a likely route through which math ability can affect earnings. Thus, differences in math scores do not appear to account for much of the raw gender pay at a point in time. However, our calculations based on the Fortin study suggest that the declining gender difference in math scores between the two cohorts can account for 10–14 percent of the 0.056 log point decrease in the gender wage gap across cohorts.

[30] However, Fryer and Levitt (2010) report that the finding that the gender math gap is linked to measures of gender equality is sensitive to the inclusion of Muslim countries where, although women have very low measured status, there is little or no gender gap in math. Hoffman, Gneezy, and List (2011) provide intriguing experimental evidence in support of the role of environment with their finding that the gender gap in spatial abilities disappears when one compares a matrilineal to an adjacent patrilineal society in Northeast India.

[31] We multiply the gender gap in the test score by the estimated wage coefficient on the test score, which comes from a regression that pools men and women.

[32] These regressions control for part-time employment, experience, and personal characteristics (race, marital status, and presence of children), as well as a number of noncognitive traits (self-esteem, external locus of control, importance of money/work and family/people). However the estimated effect of math score is similar in the fully specified model when the noncognitive traits are excluded.

3.4 *Labor-Force Experience and Work Hours*

In this section, we focus on the empirical literature that illuminates the importance for the gender wage gap of work experience and work hours. Dating from the seminal work of Mincer and Polachek (1974), gender differences in experience and labor-force attachment have been seen as central to the understanding of the gender wage gap. Under a traditional division of labor by gender in the family, women will anticipate shorter and more discontinuous work lives as a consequence of their family responsibilities; they will thus have lower incentives to invest in on-the-job training than men. Their resulting smaller human-capital investments and reduced labor-market experience will lower their relative earnings. Human capital depreciation during workforce interruptions will further lower the wages of women upon their return to market work. Women are also expected to choose occupations for which human-capital investments are less important and in which the skill depreciation that occurs during time spent out of the labor force is minimized (Polachek 1981).

Further insights are obtained by distinguishing between general training (which is transferable across firms) and firm-specific training (which imparts skills that are unique to a particular enterprise).[33] Women will especially avoid jobs requiring large investments in firm-specific skills because the returns to such investments are reaped only as long as one remains with a particular employer. At the same time, employers are expected to be reluctant to hire women for such jobs because they bear some of the costs of firm-specific training. (Since general training is transferable, a simple model predicts that employees will bear the costs and reap the returns to such training, although under certain circumstances firms may share the costs and benefits here as well; see Acemoglu and Pischke 1999). Employer discrimination for jobs requiring firm-specific training would be consistent with models of statistical discrimination where, given employer uncertainty about worker productivity or stability, firms may discriminate against groups like women or minorities based on real or perceived average differences (Phelps 1972; Aigner and Cain 1977; Royalty 1996). As Altonji and Blank (1999) point out, such discrimination is plausible, given evidence that firms face uncertainty about the productivity of their workers.[34]

Recent work by Goldin (2014) continues to highlight the role of work-force interruptions in lowering women's wages but outlines a different mechanism for this effect. Goldin (2014) analyzes the impact of interruptions in the context of a broader analysis of the impact of temporal flexibility (or the lack thereof) in impacting the gender wage gap. In particular, she focuses on the disproportionate rewards in some occupations/firms for working long hours and particular hours.[35] Her main focus is on hours of work, but as she notes, interruptions can also be analyzed in this context. She argues that

[33] See Becker (1993) for this distinction and Blau, Ferber, and Winkler (2014) for a graphical development of its application to gender differences in on-the-job training investments.

[34] See, for example Farber and Gibbons 1996; and Altonji and Pierret 2001; or, more recently, Kahn (2013) and Kahn and Lange (2014).

[35] In related work, Cha and Weeden (2014) examine the role of an increase in the prevalence of long (fifty or more) work hours and the rising returns to long hours in slowing convergence in the gender wage gap during the 1979–2009 period. They find that this factor worked to increase the gender wage gap by about 10 percent of the total change over this period—mainly due to the rising return to long hours (the gender gap in the incidence of long hours was relatively constant). This factor was particularly important in managerial and professional occupations. Cortés and Pan (2016) provide evidence on the impact of long hours on the gender wage gap among skilled workers, taking into account the endogeneity of hours.

the explanation for a high wage penalty for temporal flexibility can best be understood through the lens of personnel economics rather than human-capital theory. In particular, she sees such pay differences as arising because of differences across workplaces in the value of long hours, rather than of differences across individuals in amounts of human capital. The result is a classic compensating differential equilibrium à la Rosen (1986). Workers place different values on temporal flexibility (with women placing a higher value on it than men) and firms or sectors confront different cost to providing it—workers sort across workplaces accordingly.[36]

Goldin points to (and presents empirical support for) the importance of occupational characteristics that make providing flexibility extremely costly in some sectors and relatively inexpensive in others. So, the wage penalty for flexibility is likely to be high in jobs that require meeting deadlines (time pressure), being in contact with others to perform the job, maintaining and establishing interpersonal relationships, adhering to preset schedules, and doing work for which other workers are not close substitutes. As an example, there may be a high penalty to shorter hours or workforce interruptions for lawyers at a large, high-powered firm, not because of the smaller amount of human capital acquired by those working fewer hours or the depreciation of their human capital stock during time out of work, but rather due to interruptions in servicing clients and the inability to smoothly hand over work to other employees. We shall return to her findings below in the context of our discussion of individual occupations.

[36] Flabbi and Moro (2012) build a search model in which women's demand for flexibility leads to the kind of compensating differential Goldin (2014) discusses. Interestingly, Flabbi and Moro (2012) define flexibility as having a part-time job, explicitly making the connection between work hours and flexibility.

The Goldin analysis is interesting in itself and also highlights that findings showing returns to long hours and labor-market experience and penalties to workforce interruptions are susceptible to other interpretations than human capital. In addition to the factors that Goldin highlights affecting the costs of providing flexibility, others include signaling or screening[37]—longer hours and workforce continuity may signal greater willingness to work hard, as well as greater motivation and commitment, and be used by employers to screen for those traits. Related to the signaling argument, discrimination may be due to statistical discrimination against the "type" of worker who puts a high premium on temporal flexibility.

As we have seen in section 2, and as borne out in a wide literature, there is considerable evidence that overall gender differences in labor-market experience account for a significant, though shrinking, portion of the gender wage gap, and that decreases in the gender experience gap help to account for the corresponding decline in the gender wage gap that we have observed in recent decades (e.g., Blau and Kahn 1997; Blau and Kahn 2006; O'Neill and Polachek 1993; Gayle and Golan 2012).[38] Our results in section 2 imply that gender differences in experience explained 24 percent of the gender gap in 1980 compared to 16 percent of the (considerably smaller) gender gap in 2010,

[37] See, for example, Landers, Rebitzer, and Taylor (1996); see Goldin (2014) for additional references.

[38] Bailey, Hershbein, and Miller (2012) explore the role of access to the pill in altering women's human-capital investments (labor-market experience and education) and hence lowering the gender wage gap. Weinberger and Kuhn (2010) examine the extent to which the decline in the gender wage gap was associated with changes across cohorts in the relative rate of wage growth after labor market entry (slopes), versus changes in relative earnings levels at labor-market entry (levels). They find that the former (plausibly associated with post-school investments including experience) accounts for about one-third of the decline, with the remainder associated with changes across cohorts (i.e., each entry cohort faring better than its predecessor).

while the declining gender difference in experience accounted for 18–31 percent of wage convergence between men and women over the 1980–2010 period.[39]

As we have seen, Mincer and Polachek (1974) also point to a negative effect on women's wages of workforce interruptions. Some evidence has been found in support of this expectation. For example, Light and Ureta (1995) analyzed young workers over the 1966–84 period and found that the *timing* of labor-market experience accounted for as much as 12 percent of the unadjusted gender pay gap. However, it is possible that the role of workforce interruptions has diminished as women have become more firmly attached to the labor force. Consistent with this, Blau and Kahn (2013b) find that, although coefficients on variables measuring time out of the labor force are generally negative (though not always significant), estimates of the unexplained gender wage gap are not sensitive to their inclusion, not only in 1999, but in 1990 and 1980 as well.[40] Their data from the PSID did not permit them to look at the timing of interruptions, but Spivey (2005), using data from the National Longitudinal Survey of Youth 1979, found that timing of experience can explain only a negligible portion of the gender wage gap among workers observed over the 1979–2000 period.[41]

The foregoing results suggesting a relatively small and diminished role for workforce experience and interruptions in explaining the gender wage gap currently are for the labor market as a whole. In contrast, recent influential work has highlighted the particular importance of labor-force experience, interruptions, and hours worked in some occupations, including business and professions like law, where work histories and current hours seem to be a particularly important determinant of gender wage differences. Also of interest are findings from Goldin (2014) that point to the high penalty for flexibility in some high-wage occupations. This work is of particular interest in that the findings are applicable to the upper end of the wage distribution where, as we have seen, the gender wage gap has declined more slowly than at other regions.

Looking first at lawyers, Noonan, Corcoran, and Courant (2005) focused on two cohorts of graduates of the University of Michigan Law School fifteen years after graduation; the first cohort was surveyed between 1987 and 1993 and the second between 1994 and 2000.[42] The results for the two cohorts were quite similar. The gap in pay between women and men was found to be relatively small at the outset of their careers, but fifteen years later, men earned over 50 percent more. A considerable portion of this difference reflected choices that male and female workers made, including the greater propensity of women lawyers to currently work shorter hours and to have worked part time in the past or to have taken some time out after childbirth.

[39] Published government data on tenure (length of time with a particular employer) also indicate a precipitous drop in the gender gap. In 1966, men's median tenure was 2.4 years more than women's; by 2012, the gender gap had fallen to only 0.1 years. And the share of long-term workers, those with tenure of 10 or more years, was only slightly higher for men (35 percent) than for women (33 percent). See, US Department of Labor, Bureau of Labor Statistics, "Job Tenure of Workers, January 1966," *Special Labor Force Report* No. 77 (1967); and US Department of Labor, Bureau of Labor Statistics, "Employee Tenure in 2012," News Release (September 18, 2012), available at http://www.bls.gov/news.release/pdf/tenure.pdf (accessed December 1, 2012). Note median tenure data are for workers sixteen and over; the share of long tenure is for workers twenty-five and over.

[40] Data are for full-time workers aged 18–65 in the indicated year.

[41] Respondents were 14–22 in 1979. Spivey provides a useful review of the literature on the wage effects of workforce interruptions.

[42] See also Goldin's (2014) reexamination of these data that arrives at broadly consistent findings.

Also important was job setting (type and size of employer).

Bertrand, Goldin, and Katz (2010) examined earnings of MBAs who graduated between 1990 and 2006 from the Booth School of Business of the University of Chicago (they were surveyed in 2006–07). Like the study of lawyers, the researchers reported a relatively small gender differential at the outset of the career. However, averaged across the full set of MBA graduates (individuals who had been out for one to sixteen years), men earned 0.29 log points (33 percent) more than women. By 10–16 years post-degree, men earned 0.60 log points (82 percent) more. The study found that the gender gap could largely be explained by labor-supply factors like weekly hours and actual post-MBA work experience, which were in turn related to career–family tradeoffs.

This research suggests substantial penalties for shorter hours, lesser experience, and workforce interruptions among JDs and MBAs. With respect to hours, it should be noted that both of these decompositions focus on annual earnings, leaving open whether the importance of current hours reflects simply a proportional reduction in earnings or an additional hourly wage penalty for shorter hours. Moreover, these results could be seen in the context of the human-capital model, and the particular importance of human capital in these occupations. Goldin (2014), however, views such results as more consistent with her analysis of the high penalties to *flexibility* in these and other high-level occupations, including a convex return to current hours.[43] More generally, for college graduates in the ninety-five highest-earnings occupations, she found that an index of occupational characteristics associated with high costs of flexibility was positively related to (i.e., increased) the (adjusted) gender log wage gap, as was the estimated elasticity of annual earnings with respect to weekly hours in the occupation. Business occupations and law had high values on the inflexibility index and high elasticities of annual earnings with respect to weekly hours, while technology and science jobs scored much lower on the inflexibility measure and had smaller elasticities.[44] The latter finding is surprising in a human-capital context in that it might be expected that human-capital acquisition and depreciation of skills would be particularly important in science and technology jobs. As a further contrast to business and law, Goldin provides a case study of pharmacists (see also Goldin and Katz 2016) in which industry developments and technological factors have greatly reduced the costs of flexibility and the gender pay gap has fallen accordingly.

At the other end of the spectrum from long hours among full-time workers is the large gender difference in the incidence of part-time work. For example, among wage and salary workers in 2013, 25.6 percent of women and 13.0 percent of men worked part time, defined as usually working less than thirty-five hours per week (BLS 2014, p. 27). The gender gap in the incidence of part-time work was slightly larger in 1998, with 25.8 percent of women and 10.7 percent of men working part time (BLS 1999, p. 2). Because part-time workers have lower hourly earnings than full-time workers (Blank 1990; Hirsch 2005), the higher incidence of

[43] Goldin (2014) notes that about two-thirds of the total penalty from job interruptions among those in the Chicago MBA sample who were ten to sixteen years out is due to taking *any* time out. Cumulative time not working is only about one year for these women, which would seem a relatively modest interruption to elicit large penalties in a human-capital context.

[44] Hersch (2013) found that the presence of children reduced labor-market activity more for married women from elite colleges than for married women from less selective institutions, with MBAs having the largest difference.

part-time work among women than among men has the potential to increase our estimate of overall gender pay gap compared to the data on full-time workers we presented in section 2. Recall, however, that when we extended the sample of workers in the PSID to include all wage earners, the conclusions were largely unchanged. Nonetheless, given the greater concentration of women in part-time work, it is instructive to consider wage determination among part-time workers and look explicitly at the extent of the part-time penalty.

A simple economic view of part-time work is similar to that offered by Goldin (2014) described above, namely that it is an amenity for those who value flexibility in their work schedule. Since it may cost firms something to allow workers to choose part-time hours (e.g., additional hiring and training expenses), workers' desires for flexibility suggest the formation of an equilibrium-compensating wage differential for part-time work, in this case a penalty in hourly wages. Some support for this view of part-time work can be seen by noting that, in 2014, of 25.1 million workers who usually worked part time, 19.5 million (78 percent) did so for noneconomic reasons, according to the BLS (http://www.bls.gov/cps/cpsaat20.htm, accessed August 9, 2015).[45] Thus, most workers chose part-time work for reasons other than the lack of availability of full-time jobs, although involuntary part-time employment can be important, especially during recessions (Blank 1990). In addition, the possibility of discrimination may influence the family division of labor and lead women to choose part-time employment for some of the reasons listed by the BLS as voluntary (such as child care).

Estimates of the impact of part-time status on wages confront the issue of selection, since the type of worker choosing part-time employment may well have different measured and unmeasured productivity characteristics from full-time workers. While research is not extensive, it does not appear to support the finding of a part-time penalty, once measured characteristics and selection on unobservables have been taken into account.

For instance, an early analysis of the part-time penalty by Blank (1990) for 1987 used both instrumental variables and selectivity bias-correction to address the selection problem. She found that taking into account personal and job characteristics in an OLS regression led to a 0.21 log point (24 percent) part-time penalty for women and a 0.30 log point (35 percent) penalty for men. However, the results were mixed when she took into account selection and she stressed that unmeasured worker and job heterogeneity were likely important in explaining the observed penalty.

An alternative method for addressing selection that does not require exclusion restrictions is to use longitudinal data and individual fixed effects. Using this approach, Hirsch (2005) found for 1995–2002 data that there was a raw 0.22 log point part-time wage shortfall for women and a 0.46 log point part-time shortfall for men. However, after controlling for worker and job characteristics, including occupational-skill requirements, in an OLS regression, the estimated part-time penalty fell to 0.09 log points for women and 0.19 log points for men. Thus, most of the observed part-time shortfall in wages was associated with observed worker and job characteristics. Moreover, using the longitudinal nature of the CPS rotation group structure, he found, in wage change equations, part-time penalties of only 0.015 log points for women and 0.019 for men (the latter estimate was statistically insignificant). Thus, Hirsch (2005) concludes that the observed difference between part-time and full-time workers' wages is fully explained

[45] Noneconomic reasons included child care, health, family obligations, school attendance, and the like.

by measured worker and job characteristics and unobserved worker heterogeneity.[46] Of course, part-time work could adversely affect one's career progression relative to full-time work, which is a separate issue.

3.5 *Gender Differences in Formal Training and Turnover*

Considerable empirical evidence supports the prediction of the human-capital model that women will receive less on-the-job training than men, although much of it is not very recent (e.g., Altonji and Spletzer 1991; Barron, Black, and Loewenstein 1993). This finding is consistent with employer and worker decisions based on a lower expected probability of women remaining with the firm or in the workforce. A study by Royalty (1996) is particularly illuminating in that she explicitly examined the role of women's higher (predicted) probability of turnover in explaining the gender training difference. While Royalty supports the expectation that anticipated turnover helps to account for the gender difference in training, interestingly, she finds that a major portion of the training gap remains unexplained even after this and other determinants of training are taken into account. This finding, which is analogous to an unexplained gap in an analysis of the gender wage differential, is consistent with a role for discrimination, although, as in that case, it may also be due to omitted factors.

As in the case of experience, it would be interesting to see this literature updated to account for the impact of rising women's labor-force attachment on the findings. This is especially the case in that younger cohorts of women now have higher educational attainment than men, and more-educated workers are believed to get more on-the-job training than less-educated workers as implied by their steeper experience-earnings profiles.[47]

Since gender differences in quit behavior can differentially impact the wages and occupations of men and women, it is important to ascertain the extent and sources of such differences. In general, while some evidence suggests that women workers may have higher quit rates on average than men, most of this difference has been found to be due to the types of jobs they are in and the worker's personal characteristics.[48] That is, *all else equal*, women are no more likely to quit than their male counterparts. Indeed, it is unclear that even the average gender difference in quitting still prevails. Using data on young workers from the 1987 wave of the National Longitudinal Survey of Youth (NLSY) 1979, Royalty (1998) finds the average probability of staying on the job is not significantly different for men and women.

However, consistent with women placing a greater priority on family responsibilities to the detriment of their labor market outcomes, evidence indicates that women are more likely to quit their jobs for family-related reasons or to exit to nonemployment, while men are more likely to quit for job-related reasons (Sicherman 1996; Royalty 1998; and Keith and McWilliams 1995), adversely affecting women's wages relative to men's (Keith and McWilliams 1995). It would be of interest to see analyses of both quitting and the reasons for quitting updated to see whether the outlines of the earlier findings still hold. In light of the declining gender differences in

[46] There are also a number studies that look within industries and occupations and find the part-time penalty is small after accounting for selection; see Hirsch (2005) for a review.

[47] In a study using data from the NLSY1979 through 2006, Kosteas (2013) found that, consistent with expectations based on the human capital model, women with more traditional gender role attitudes (as measured in 1979) were less likely to invest in training. While Kosteas did not examine results for men, this finding suggests that gender roles are still relevant for some women.

[48] This finding dates back to the first detailed work on this topic by Viscusi (1980) and Blau and Kahn (1981) and is reflected in the findings of more recent studies, e.g., Sicherman (1996); and Royalty (1998).

labor-force attachment, it is reasonable to expect that gender differences in quit behavior have further diminished.

3.6 *The Impact of the Gender Division of Labor and Motherhood*

Traditional gender roles and women's greater responsibility for nonmarket work may negatively affect women's labor-market outcomes beyond their impact of labor-force attachment per se. In this section, we first consider the motherhood wage penalty, which has gotten considerable attention in the literature. We then review other ways in which traditional gender roles can reduce women's relative wages.

Considerable empirical evidence indicates a negative relationship between children and women's wages, commonly known as the motherhood wage penalty.[49] While the observed empirical association could be causal, it could also be due to selection. The selection argument is plausible in that women with lower wage offers will have lower costs of children. However, there are also a number of reasons for expecting a causal effect, beyond an impact on work experience and the incidence of part-time work. First, particularly in the era before parental leave was mandated, but even to some extent today, the birth of a child may cause a woman to break her tie to her current employer, either to withdraw from the labor force entirely or to switch to a more "child-friendly" job. To the extent this occurs, she forgoes the returns to any prior firm-specific training she might have received, as well as any returns to having made a particularly good job match. Second, as we have seen, anticipation of this possibility could deter both women and their employers from making large investments in the firm-specific training of women of childbearing age. Third, motherhood may reduce women's productivity in a variety of ways not readily captured in wage analyses including, for example, less effort expended at work (see, for example, Becker 1985; Albanesi and Olivetti 2009), constraints on work schedules and travel, and reluctance to be promoted to a more demanding job.

A final possibility is that mothers may face discrimination and there is persuasive experimental evidence from Correll, Benard, and Paik (2007) that this is the case. In this study, the authors first conducted a laboratory experiment in which they asked student evaluators to assess résumés of equally qualified same-sex (female or male) job applicants who differed only as to parental status. Mothers were perceived by evaluators as less competent and less committed to paid work, and lower starting salaries were recommended for them. In contrast, the evaluators did not penalize men for being fathers; indeed, they perceived fathers to be more committed and recommended higher starting salaries for them. Correll, Benard, and Paik (2007) further confirmed their lab findings using a field experiment in which they sent résumés and cover letters from fictional, equally qualified, same-sex applicants to employers advertising for job openings. They found that prospective employers called mothers back only about half as often as nonmothers, while fathers were not disadvantaged in the hiring process, although, in contrast to the lab experiment, fathers were not advantaged relative to nonfathers. (However, a recent experimental study in academic labor markets by Williams and Ceci (2015) did not show a motherhood penalty; we discuss this study further below.) To the extent such discrimination against mothers exists, it could be due to statistical discrimination based on employers' perceptions of average

[49] For a recent review of the literature and comparative findings across economically advanced countries see Sigle-Rushton and Waldfogel (2007). Early influential treatments include Fuchs (1988); Korenman and Neumark (1992); and Waldfogel (1998).

differences in productivity between mothers and nonmothers.

There has also been some research focusing on the impact of family status on men's wages, with most of the focus on the observed strong positive association between marriage and male earnings, controlling for measured characteristics. Here again, the question arises as to whether this relationship is causal and, if so, why. The possibility that it reflects selection is intuitively plausible in that, even today, men tend to be the primary wage earners in most families. This gives women a considerable incentive to select spouses with higher earnings potential. There are, however, also reasons for expecting the relationship to be causal. Specialization in the family à la Becker (1991) allows married men to focus on the market while their wives have primary responsibility for nonmarket production. Related to this, traditional notions of gender roles that view the husband as the primary earner may increase married men's effort and motivation, and hence their wages. It is also possible that employers discriminate in favor of married men—this is hinted at by the findings on parental status discussed above. Overall, as in the case of the motherhood wage penalty, the empirical evidence suggests that some portion of the observed relationship is causal.[50]

As noted earlier, women's generally greater nonmarket responsibilities could impact labor-market outcomes in a number of ways. Becker's (1985) theoretical analysis focused on the longer hours that married women and mothers tend to spend in these activities, which could reduce the effort that they put into their market jobs, controlling for hours, and thus decrease their hourly wages compared to men. Indeed, it has been found that additional hours spent in housework are associated with lower wages, all else equal, although results are stronger for married women than married men (see, e.g., Hersch and Stratton 1997 and 2002). The Hersch and Stratton studies pay careful attention to endogeneity by estimating instrumental-variable and fixed-effect models. An interesting result in Hersch and Stratton (2002) links the strength of the negative effects to the type of housework that women are typically more likely to perform—routine tasks like meal preparation, cleaning, shopping, and laundry—that are more likely to be engaged in on a daily basis and that, the authors argue, are more likely to interfere with market productivity.

Another factor identified by research in this area is the location of the family (see early work by Frank 1978; Mincer 1978; and Sandell 1977). To the extent that families place priority on the husband's, rather than on the wife's, career in determining the location of the family, her earnings are likely to be decreased. She may be a "tied mover," relocating when it is not advantageous for her to leave a job where she has accumulated firm-specific training or that is a particularly good match. Alternatively, she may be a "tied stayer," unwilling to relocate despite better opportunities elsewhere. This pattern need not merely reflect adherence to traditional gender roles. It is economically rational for the family to place greater emphasis on the employment and earnings prospects of the larger earner (generally the husband) whose gains to migration may outweigh any losses of the spouse who is a tied mover. Cooke et al. (2009) present recent evidence that this is indeed still the case on average, i.e., that migration is associated with a significant increase in total family earnings, despite declines in women's earnings.

[50] For useful reviews of the literature, see, Ribar (2004) and Rodgers and Stratton (2010). For an early influential study see Korenman and Neumark (1991). There is also some evidence that fatherhood increases male earnings, particularly when the mother experiences a workforce interruption (Lundberg and Rose 2000).

Anticipation of a lesser ability to determine the geographic location of the family may also lead women to select occupations in which jobs are likely to be readily obtained in any labor market, thus constraining their occupational choices to geographically flexible jobs. As Benson (2014) points out, even as women have entered higher-level, traditionally male occupations in recent years, their entry into the more geographically dispersed occupations (e.g., physicians, accountants, pharmacists, and managers) has been considerably greater than the more geographically clustered (e.g., specialized engineers and physical scientists). In light of the examples offered by Benson, this factor may play a role in women's lower representation in STEM fields—it would be interesting to know if being geographically clustered is a general characteristic of such jobs.

Some recent work has elaborated on how location decisions are likely to be affected as some couples, particularly college-educated "power couples," try to accommodate both careers by making a joint location decision. Costa and Kahn (2000) report that college-educated couples became increasingly located in large metropolitan areas over the 1970–90 period. They argue that this is because large metropolitan areas offer more potential job matches for both members of the couple. They point to the increase in the share of dual-career households among the college educated over this period and note Goldin's (1997) evidence that the career orientation of college-educated women also increased. They also note that, if returns to education are higher in larger cities, power couples have a greater income loss of locating outside of them than do other dual career couples. Costa and Kahn show that the concentration of power couples in larger metropolitan areas is greater than for other household types and exceeds what would be predicted for observationally identical single individuals, thus supporting the colocation argument.

On the other hand, Compton and Pollak (2007), using longitudinal data, do not find that power couples (again, in which both spouses have college degrees) are more likely to migrate to larger cities than other couples. Rather, their findings suggest that it is the education (and presumably the earning power) of the husband that principally affects the couple's propensity to migrate to a large metropolitan area, implying that, even among of power couples, relocations may still adversely affect women's wages relative to men's.[51] This is plausible in that, even in power couples, it is likely that the husband is the higher earner, as well as more likely to be in an occupation that is geographically clustered.

3.7 *Occupations, Industries, and Firms*

In this subsection we consider empirical evidence on the extent and dimensions of employment segregation by sex. The results in section 2 indicate that, while the share of the gender wage gap due to human capital (education and experience) has declined noticeably, the share accounted for by locational factors like occupation and industry actually increased from 27 percent of the 1980 gap to 49 percent of the much smaller 2010 gap. Moreover, although occupational upgrading by women contributed to the narrowing of the gap over this period, much of this effect was offset by adverse (to women) movements in returns to occupations. The firm dimension, not accessible in data sets like the PSID and CPS that were used above, has also been shown to be important. Finally, gender differences in representation

[51] They suggest that the location trends delineated by Costa and Kahn are due to higher rates of power couple formation in larger metropolitan areas. They also note that the trend of increasing concentration of power couples in larger metropolitan areas did not continue between 1990 and 2000.

across the hierarchies within occupations, as particularly emphasized in discussions of the glass ceiling, constitute another dimension of employment differences that is also generally not captured by these data sets, at least directly. Indirectly, some light on this may be shed by quantile-regression analyses focusing at the top, as illustrated by our estimates in section 2.

Of these dimensions of employment differences, occupational differences between men and women have received the most attention. Gender differences in occupations have been and continue to be striking, although they have declined significantly since 1970. In terms of general outlines, in 1970, women were considerably more concentrated than men in administrative support and service occupations, and a bit more highly represented in professional jobs overall, and particularly in predominantly female professions like teaching and nursing. Men were considerably more likely to be in managerial jobs and much more concentrated than women in blue-collar occupations, including relatively high-paying craft and skilled positions. They were also considerably more likely than women to be in predominantly male professions like law, medicine, and engineering. Since 1970, women have reduced (but not eliminated) their overrepresentation in administrative support and service jobs and made significant inroads into management and male professions.[52] There has been little change in gender differences in representation in blue-collar occupations. However, occupational dissimilarity has been reduced by men's loss of production jobs and increased representation in service occupations.[53]

The Census provides information on some 500+ detailed occupational classifications. The Duncan and Duncan (1955) segregation index provides a useful summary measure, giving the percentage of females (or males) who would have to change jobs for the occupational distribution of women and men to be the same, with a value of 0 indicating no segregation and a value of 100 indicating complete segregation. Early work suggested little change in the extent of occupational segregation prior to 1970 (Gross 1968; Jacobs 1989). Starting in 1970, there was considerable progress in reducing the extent of occupational segregation (Beller 1982; Bianchi and Rytina 1986). For the 1970–2009 period Blau, Brummund, and Liu (2013a, 2013b) provide estimates based on a comparable set of Census occupational categories for 2000.[54] They report that the index was 64.5 in 1970 and fell to 51.0 by 2009, a sizable decline from an extremely high initial level. However, the index declined at a diminished pace over the decades, falling by 6.1 points over the 1970s and 4.3 points over the 1980s, but only 2.1 points over the 1990s and just 1.1 points (on a decadal basis) over the 2000s. They also report that trends differed across educational groups: substantial progress was made by highly educated women, who succeeded in moving into formerly male managerial and professional occupations; gains were smaller for less-educated women, reflecting the lack of progress in integrating male blue-collar occupations.

While the overall decline in segregation was substantial, the 51 percent figure for

[52] In some cases, women's entry into predominantly male occupations has been sizable enough to result in "resegregation" of the occupation as predominantly female. Reskin and Roos (1990) provide examples where this has occurred due to technological change that reduced occupational requirements. Pan (2015) suggests it may also reflect occupational tipping, where the female share of an occupation becomes high enough that men exit (or avoid entering) because they prefer not to work in an occupation with too many women.

[53] This discussion is based on Blau, Ferber, and Winkler (2014), chapter 7; 1970 occupational data were converted into Census occupational categories for 2000 using a crosswalk developed in Blau, Brummund, and Liu (2013b).

[54] Their findings are similar to earlier studies for overlapping periods, where available.

2009 indicates that occupational differences between men and women remain large. A sizable literature indicates that female occupations pay less than male occupations for workers with similar measured characteristics (e.g., Levanon, England, and Allison 2009).[55] Our estimates in section 2 imply that occupational differences can explain (in an accounting sense) one-third of the gender wage gap in 2010. This estimate includes controls for actual labor-market experience and industry, but is based on only twenty-one occupations. Nonetheless, it is very similar to Goldin's (2014) estimate for a number of samples (based on education and labor-force attachment) based on the American Community Survey (2009–11) using the full set of three-digit occupations, but with no control for actual experience (which is not available in the ACS) or industry. Our results in table 4 also indicate that occupation is the largest single factor accounting for the gender pay gap, with the second being industry (fourteen categories and government employment) at 18 percent. Taken together, occupation and industry differences account for over one-half of the gender wage gap. There has been less focus in the literature on industry differences in explaining the gender wage gap.

Another related dimension of employment differences between men and women that has also gotten less attention, perhaps in part due to data limitations, is gender differences in the distribution of employment by firm. An early study by Blau (1977) presented evidence of high levels of employment segregation of men and women by firm *within* narrowly defined occupational categories and showed its important contribution to gender wage differentials within occupations. She developed a model in which employer tastes for discrimination against women à la Becker (1971) are widespread, but the ability to exercise them is constrained by the firm's position in the wage hierarchy, which is determined by a variety of institutional and market forces and cannot easily be altered to accommodate employer discriminatory preferences (comparable to the notion of firm effects). Consistent with this model, she found women were concentrated in firms that paid lower wages to *both* men and women across all occupations, and conversely men tended to be employed at the firms that paid higher wages to both sexes. Subsequent work confirmed the continued importance of differences in the distribution of employment across firms in accounting for overall gender wage differences, although Groshen (1991) finds a larger role for firms than Bayard et al. (2003).

With the growing availability of matched firm–worker data, the firm dimension has the potential to become an increasingly active area of research. For example, recent work has considered the role of monopsony in explaining the gender wage gap. A number of studies (discussed in greater detail below) find, consistent with a role for monopsony, that women have lower labor-supply elasticities to the firm than men. One of these studies, Webber (2016), uses matched firm–worker data and reports that women's lower labor-supply elasticities are primarily due to cross-firm, rather than within-firm, differences in elasticities, suggesting a reason why firms that disproportionately employ women tend to be lower paying overall. As

[55] Early studies highlighting the empirical importance of occupational and in some cases industry differences in explaining the gender wage gap include Fuchs 1971; Blinder 1973; Oaxaca 1973; and Sawhill 1973. For examples of early studies examining the effect of percent female in the occupation on earnings, see Sorensen (1990) and Macpherson and Hirsch (1995); there is also a wide literature in sociology examining this issue, see Levanon, England, and Allison (2009) for a review. More recently some research suggests that "care work"—occupations in which "concern for the well-being of others is likely to affect the quality of services provided"—may pay less ceteris paribus. For a review, see Folbre (2012), quotation is from p. 66; see also Hirsch and Manzella (2015). Women are disproportionately represented in such jobs.

another example, a recent study by Card, Cardoso, and Kline (2016), using Portuguese firm–worker data, investigates the relative importance of sorting across firms (i.e., women's greater likelihood of working at low wage firms) and within firm bargaining (with women receiving less of the premium men receive in working for high-wage firms) in explaining the gender wage gap. They find evidence that both factors play a role.

Finally, not only do men and women tend to work in different occupations, they also tend to be employed at different levels of the hierarchy within occupations. This is the case in a number of arenas, ranging from business to academia to unions. So, for example, recent data on Fortune 500 companies indicate that, although women are nearly half of managers, they comprise only 14.3 percent of executive officers, and 3.8 percent (19) of CEOs, and hold just 16.6 percent of board seats.[56] Or, in law, women are less likely than men to be employed as partners in large firms (over 50)—as was true for 26 percent of male, compared to 14 percent of female, 1979–85 graduates of the University of Michigan Law School fifteen years after graduation (Noonan, Corcoran, Courant 2005). Similarly, in 2012 only 15 percent of AFL–CIO executive council members were women.[57] And, as a final example, in academia, the female share decreases as we move up the ranks—from assistant professors (61 percent) to associate professors (50 percent) to full professors (28 percent) (Blau, Ferber, and Winkler 2014, chapter 7).

In all these cases, it is difficult to determine whether the scarcity of women at the top is simply due to the fact that women are relative newcomers and it takes time to move up through the ranks (the "pipeline" argument) or whether it represents particular barriers to women's advancement (i.e., a "glass ceiling"). Moreover, a lower representation of women at higher levels could be due to discrimination or subtle barriers facing women, but could also reflect greater work–family conflicts for women that reduce their productivity and/or interest in high-level positions.

Nonetheless, there are indicators that at least some of the gender difference reflects discrimination. For example, a number of studies (e.g., Blau and DeVaro 2007; Cobb-Clark 2001; McCue 1996; and Addison, Ozturk, and Wang 2014 for college women), find that women are less likely to be promoted, all else equal, although some do not (e.g., Hersch and Viscusi 1996). For academics, some studies find lower probabilities of promotion for women, even after accounting for indicators of qualifications like number of publications, although results differ by field and gender differences appear to have diminished in recent years (Ginther and Kahn 2014; and Ceci et al. 2014).[58] The possibility of discrimination is further suggested by studies in both the corporate world (Bell 2005; Shin 2012; Kurtulus and Tomaskovic-Devey 2012) and academia (Ehrenberg et al. 2012), finding that women at the lower ranks fare better (in terms of representation or wages) when

[56] Data on executive officers are for 2012 and for CEOs and boards of directors for 2011. See *2012 Catalyst Census: Fortune 500 Women Executive Officers and Top Earners*, available at http://www.catalyst.org/ (accessed December 11, 2012); Catalyst, *Catalyst Pyramid: U.S. Women in Business* (New York: Catalyst, 2012), available at www.catalyst.org (accessed December 21, 2012); and *2012 Catalyst Census: Fortune 500 Women Board Directors*, available at http://www.catalyst.org/ (accessed December 11, 2012).

[57] "About AFL–CIO," at www.aflcio.org, accessed March 2012. The American Federation of Labor–Congress of Industrial Organizations (AFL–CIO) is the largest union federation in the United States.

[58] Focusing on the most recent research, evidence of a ceteris paribus female shortfall in promotions is found for economics and the life sciences, but not for other social sciences and natural sciences.

women are more highly represented at the higher ranks.[59]

A study by Gayle, Golan, and Miller (2012) on executives finds that women are less likely overall to become executive managers. However, the authors attribute this difference to women's greater likelihood of leaving the occupation; among those who survive in the occupation, the authors find that women are in fact more likely to be promoted, all else equal. Whether women's higher exit level is due to discrimination is, in the authors' view an open question. We would also point out that, given women's higher exit rate, women survivors in the executive labor market may be an especially positively selected group, which might suggest that a promotion comparison could understate ceteris paribus gender differences.

Whatever the sources of the women's lesser representation at the top, research suggests it can have substantial consequences for gender wage differences. For example, our own data analyses in section 2 indicated that gender wage gaps at higher levels of the wage distribution were larger and declined more slowly over time than at lower levels. And, as we noted, this result appears in line with other research both in the United States and abroad. As another example, Bertrand and Hallock's (2001) study of gender differences in pay among the five highest-paid executives in S&P 1500 firms found that the 2.5 percent of executives in their sample who were women earned 45 percent less than their male counterparts. This was partly due to female executives being younger and thus having less seniority. However, three-quarters of the gender pay gap was due to women managing smaller companies, as well as their lower likelihood of being the CEO, chair, or president of their company.

[59] A recent paper by Bertrand et al. (2014) examining the effects of corporate board quotas for women in Norway found that the reform increased the representation of women on corporate boards and reduced their pay gap relative to male board members. However, although they found evidence suggestive of a growing representation of female employees at the very top of the firms' income distribution (top five highest earners), they did not find evidence of female gains elsewhere in the firms' income distribution (i.e., they found no evidence of "trickle down" below the top five highest earners).

3.8 *Theoretical Perspectives on Labor-Market Discrimination*

To the extent that gender differences in outcomes are not fully accounted for by productivity differences due to gender differences in human capital and other supply-side sources, models of labor-market discrimination offer an explanation. Theoretical work in this area was initiated by Becker's (1971 [1957]) model of racial discrimination. Becker conceptualized discrimination as a taste and analyzed three cases: those in which the discriminatory tastes were held by employers, coworkers, and customers or clients. Under certain circumstances, such discrimination will cause a wage differential between men and women. Discriminatory employers will only hire women at a sufficient wage discount that compensates them for the disutility of employing women. Discriminatory male workers will demand a wage premium to work with women, thus raising men's relative wages, and the reluctance of discriminatory customers or clients to buy goods or services provided by women will make women less productive in terms of revenue brought in, thus depressing their relative wages.

Becker (1971 [1957]) and others (e.g., Arrow 1973) have pointed out that competitive forces should reduce or eliminate employer discrimination in the long run because the least discriminatory firms, which hire more lower-priced female labor, would have lower costs of production and should drive the more discriminatory firms out of business. One answer to why this does not appear to have occurred, suggested initially

by Becker himself, is that discrimination will be located in sectors of the economy that are not competitive.

While Becker emphasized monopolistic elements in the product market, a related approach targets monopsonistic power on the part of the employer in the labor market (e.g., Madden 1973; Black 1995).[60] Monopsony could help to explain how discriminatory gender wage differences arise and persist if employers wield greater monopsony power over women than men. For this to hold, women's supply of labor to the *firm* must be less wage elastic than men's. This might seem counterintuitive at first blush, in that there is clear evidence that women have a *larger* own-wage elasticity of labor supply to the *labor market* than men, although, as noted previously, in the United States the gender difference has been decreasing since 1980 (Blau and Kahn 2007; Heim 2007). However, a variety of factors could still potentially result in women having a smaller responsiveness to wage changes at the firm level. Perhaps the most intriguing possibility is discrimination itself. Black (1995) develops a model in which search costs give employers a degree of monopsony power. If there is discrimination against women, women will face higher search costs than men, increasing employers' monopsony power over them.

In addition, models of statistical discrimination (Phelps 1972) were developed, in part to explain the persistence of discrimination in the long run in the face of competitive forces. Such models assume uncertainty and imperfect information; thus, differences between groups in the expected value of productivity or in the reliability with which productivity may be predicted may result in differences in the treatment of members of each group. As a consequence, firms may pay women less, exclude them from jobs requiring substantial firm-specific training, or deny them promotions (for promotions, see Lazear and Rosen 1990).

It has been argued that such statistical discrimination (making decisions on the basis of the average characteristics of the group) is consistent with profit maximization and can thus persist in the face of competitive forces. However, Aigner and Cain (1977) contend that such models are no more convincing in explaining the persistence of discrimination than models based on tastes. To the extent that employers' views are correct, the lower expected productivity of women will reduce their wages, but women as a group will be paid their expected productivity. This does not constitute labor-market discrimination as economists define it, i.e., pay differences that are not accounted for by productivity differences. Moreover, they argue that when employer beliefs regarding average differences are erroneous, discrimination clearly exists, but discrimination based on such misperceptions is even less likely to persist in the long run than discrimination based on tastes. However, if women's productivity is less reliably predicted than men's, this difference may lead to a productivity shortfall among women if assignment mistakes are important. In this case, even with free entry, a discriminatory differential might persist, although the authors expect that a market for more accurate productivity assessment would arise, reducing such a differential. Finally, although they acknowledge that less reliable predictions of a group's productivity combined with risk aversion by employers could produce a discriminatory differential, a perfectly elastic supply of risk-neutral entrepreneurs would be expected to erode discriminatory differentials based on this factor.

In the context of Aigner and Cain's model, suppose first that employer perceptions are

[60] See Manning (2003) for a systematic development of the "new monopsony" literature and its application to the gender wage gap, among other issues.

correct—is it appropriate to consider this a form of "discrimination" in any sense? From a normative perspective, the answer may be yes, to the extent that basing employment decisions on a characteristic like sex could be viewed as inequitable. Indeed, the practice of judging an individual on the basis of group characteristics, rather than upon his or her own merits, seems the very essence of stereotyping or discrimination. Such behavior is certainly not legal, for example, under antidiscrimination laws and regulations.

Now consider the situation where employer perceptions are incorrect. If statistical discrimination is accompanied by feedback effects, this may be a credible source of persistent discriminatory pay differences (Arrow 1973; Lundberg and Startz 1983). For example, if employers incorrectly expect that women are more likely to quit their jobs, they may respond by giving women less firm-specific training or assigning them to dead-end jobs. Faced with fewer incentives to remain on the job, women may respond by exhibiting the higher turnover that employers expect.

Further insight on the persistence of discrimination is suggested by what Bertrand, Chugh, and Mullainathan (2005) have termed implicit discrimination. This is based on findings from social psychologists that discriminatory attitudes and stereotyping may be unconscious (e.g., Fiske 1998)—suggesting that they would not be easily eliminated. Indeed, as gender discrimination has become less socially acceptable, it has likely become less overt and more subtle, as well as unconscious. Finally, as our discussion of statistical discrimination above suggests, discrimination can adversely affect women's human-capital investments and labor-force attachment by lowering the market rewards to this behavior—i.e., through feedback effects (e.g., Weiss and Gronau 1981).

Models based on tastes for discrimination are consistent with employment segregation, but do not necessarily predict it will occur. If wages are flexible, it is possible that discrimination will result in lower pay for women, but produce little or no segregation. However, if discriminatory tastes against women in traditionally male pursuits are both strong and prevalent, women may tend to be excluded from these areas. If such segregation does occur, it may or may not be associated with gender pay differentials. In the presence of sufficient employment opportunities in the female sector, equally qualified women may earn no less than men. The relationship between occupational segregation and earnings differentials in an otherwise competitive setting is clarified in Bergmann's (1974) overcrowding model. If potentially equally qualified men and women are segregated by occupation, the wages in male and female jobs will be determined separately by the supply and demand for labor in each sector. Workers in male jobs will enjoy a relative wage advantage if the supply of labor is more abundant relative to demand for female than for male occupations.

3.9 *Evidence on Labor-Market Discrimination*

Empirical research on the extent of discrimination began with work that used regression methods and versions of the Oaxaca–Blinder decomposition discussed above to calculate unexplained female wage shortfalls (i.e., a wage gap not accounted for by gender differences in measured characteristics) as estimates of discrimination. For example, in section 2, we presented results on the unexplained gap for a number of years based on PSID data. We found an unexplained gender wage gap in each year, although the magnitude of the gap had declined over time. The finding of such an unexplained gap is fairly standard in the literature (for reviews, see, e.g., Altonji and Blank 1999; Stanley and Jarrell 1998; and Hersch 2007). Such an unexplained or residual

wage gap is often taken as an estimate of labor-market discrimination. However, as is well known, such estimates are suggestive, but not conclusive. Discrimination is overstated if men have higher levels of unmeasured productivity (or poorer working conditions). On the other hand, if women are better endowed with unmeasured characteristics on average, as may be the case with some variables, like people skills discussed below, regression methods would understate discrimination. The unexplained gap will also understate discrimination if some of the explanatory variables such as experience, occupation, industry, or union status have themselves been influenced by discrimination—either directly through the discriminatory actions of employers, coworkers, or customers, or indirectly through feedback effects. For these reasons, the literature has moved in the direction of research designs that use various strategies to overcome the problems of traditional statistical analyses. For example, some studies use samples of men and women such as lawyers or MBAs in which samples are more homogeneous and the controls for qualifications are much more detailed than in commonly used databases such as the CPS or the PSID. Presumably omitted-variable biases are less severe in such homogeneous samples.[61] In addition, experimental research, such as audit studies, tests for discrimination under circumstances where, by construction, men and women have identical qualifications. Finally, we will briefly consider the small number of studies that have tested other predictions of Becker's (1971) discrimination model for gender to see whether or not the results are consistent with discrimination.

[61] While we believe the findings of such studies are instructive for studying discrimination, we do not mean to imply that the Bertrand, Goldin, and Katz (2010) study that we reference below was designed for this purpose.

As just noted, studies applying the same statistical techniques as labor-market-wide studies, but focusing on more homogeneous groups of workers like lawyers and MBAs, may provide more convincing evidence of labor-market discrimination. In addition, given their data sources, they are able to control for detailed characteristics (e.g., grade point averages while in school), not available in broader studies. We have already considered such studies above and found that they also provide deeper insights into the supply-side sources of gender differentials, particularly the important role of hours worked and workforce interruptions in demanding professions. Here we focus on their implications for estimates of discrimination.

One qualification that must be made in interpreting the results of such studies for this purpose is that, when we focus on specific occupations, we introduce an additional element of selection, beyond selection into employment discussed above. The direction of such selection is unclear a priori, however it seems reasonable to us that, when we focus on high-level, traditionally male-oriented professions, women may be a positively selected group relative to men. If this is the case, then studies of such occupational subgroups will tend to understate the extent of discrimination.

The studies of lawyers (Noonan, Corcoran, and Courant 2005) and MBAs (Bertrand, Goldin, and Katz 2010) referenced earlier find that, even if one accounts for variables related to family status, like work-force interruption and fewer hours worked, unexplained gender earnings differences remain, which are potentially due to discrimination, although they are of course susceptible to other explanations. In the law study, men earned 11 percent more, controlling for an extensive list of worker qualifications and other factors, including grades while in law school, detailed work history data, and type and size of employer. In the MBA study, men

earned nearly 7 percent more even accounting for work-force interruptions, fewer hours worked, and gender differences in business school GPAs and finance courses taken.[62]

There has also been research analyzing gender differences in the most mathematically intensive academic fields (geoscience, engineering, economics, mathematics/computer science, and the physical sciences). The findings of this literature have recently been reviewed by Ceci et al. (2014). These results are mixed, with some studies finding little gender salary gap in these fields, once experience and productivity are controlled for, while others find that a male salary premium persists even after controlling for these factors.

Given the problems with traditional statistical studies, researchers have been interested in uncovering alternative sources of evidence on discrimination. As noted above, one approach that provides particularly persuasive evidence of discrimination is experiments, either naturally occurring labor market events that may be seen and analyzed as if they were experiments or actual experiments in which the researcher manipulates the treatment so as to test for discrimination, either in the laboratory or in the field. An advantage of experimental studies is that they offer estimates of the role of discrimination that are potentially less contaminated by unmeasured factors. A disadvantage is that they do not yield evidence about discrimination (i.e., the presence or absence thereof) beyond the focal group of the study. This is a rapidly growing research approach and we illustrate the findings by a selection of studies that impart the flavor and show the breadth of these findings.

The first study we consider is Goldin and Rouse's (2000) investigation of the impact of the natural experiment created when symphony orchestras began to adopt "blind" auditions for musicians in which a screen is used to conceal the identity of the candidate. They found that the adoption of the screen substantially increased the probability that a woman would advance out of preliminary rounds and be the winner in the final round. The switch to blind auditions was found to explain one-quarter of the increase in percentage female in the top five symphony orchestras in the United States, from less than 5 percent of all musicians in 1970 to 25 percent in 1996.

A second study, Neumark (1996), was a field experiment or hiring audit. Male and female pseudo-job-seekers were given similar résumés and sent to apply for jobs waiting on tables at the same set of sixty-five Philadelphia restaurants. The results provided statistically significant evidence of discrimination against women in high-priced restaurants (where earnings of workers are generally higher). In these restaurants, a female applicant's probability of getting an interview was 40 percentage points lower than a male's and her probability of getting an offer was 50 percentage points lower.

A third experimental study, a field experiment by Moss-Racusin et al. (2012) sheds light on possible bias in academic science. Science faculty from the fields of biology, chemistry, and physics at six large, research-intensive universities (three public and three private) were asked to provide feedback on the application materials of (fictitious) senior undergraduate students who they were told ultimately intended to go to

[62] This was calculated by evaluating the regression coefficient on the female dummy in table 3, specification 6; see Bertrand, Goldin, and Katz (2010), p. 239. This was the authors' preferred specification and the most highly specified regression that did not include a control for "reason for choosing job," which we felt inappropriate to include in a regression estimating the unexplained gap potentially due to discrimination. Specification 8 in table 3 which includes both reason for choosing job as well as variables reflecting job function and employer type estimates a smaller negative coefficient on gender than specification 6; in this specification the gender coefficient is larger than its standard error, but not statistically significant.

graduate school and had recently applied for a science laboratory manager position. Faculty participants rated the male applicants as significantly more competent and suitable for the position than the (identical) female applicants. Participants also set a starting salary for male applicants that was almost $4,000 higher than the salary offered to female applicants, and offered more career mentoring to the male applicants. Female faculty were equally likely to exhibit bias against the female students as male faculty.

A fourth study, by Reuben, Sapienza, and Zingales (2014), implemented a laboratory experiment where some subjects (employers) hired other subjects (applicants) to perform an arithmetic task that, on average, men and women perform equally well. Their findings are consistent with negative stereotyping of women in math-related areas. They found that when employers had no information about applicants other than appearance (which makes sex clear), both male and female employers were twice as likely to hire a man as a woman. The discrimination (sex differential) was similar when applicants self-reported their expected performance, largely because men tended to overestimate future performance (women also slightly underestimated theirs)—and employers did not correct for this. Gender discrimination in hiring was reduced, but not eliminated (i.e., women were still under-hired), when employers were provided with full information about applicants' previous performance on the task. One very interesting feature of this study is that subjects (employers) were given the Implicit Association Test (IAT), a computer-based behavioral assessment designed to measure implicit or unconscious gender stereotyping or bias.[63] They found that IAT scores were correlated with the initial bias in sex-related beliefs (when employers only knew the sex of the applicant) and with a bias in updating expectations when performance information was self-reported (i.e., not sufficiently correcting for male overestimation). While, as we have noted, discrimination against women persisted even when information about applicants' previous performance was available, the extent of such discrimination was not correlated with IAT score.

Fifth, we point to the results of the study by Correll, Benard, and Paik (2007), summarized above, that suggests that women, but not men, face discrimination based on their parental status. Using both laboratory and field experiments, they found that the participants had less favorable views regarding the résumés of equally qualified mothers relative to those of nonmothers, while fathers were not disadvantaged relative to nonfathers. Such a finding suggests discrimination against women based on parental status.

Finally, in a field experiment of university hiring of STEM-field faculty, Williams and Ceci (2015) confronted faculty respondents with materials for matched male and female applicants. In their main experiments, subjects received, for each of three shortlisted candidates, a search-committee chair's narrative summary of the candidate's credentials (with no curriculum vitae or specifics on publications, in order that the same narratives could cover multiple fields and institutions). Importantly, the narratives included the mean numerical rating given by faculty members of the hypothetical department based on research publications, job talk, reference letters, and interviews with individual faculty. Two of the applicants, one male and one female, received an identical highest rating of 9.5, with a third "foil" candidate receiving a lower but still excellent rating. The authors found that the respondents exhibited, on average, a preference for female

[63] See Greenwald, McGhee, and Schwartz (1998). Subjects took the version measuring the association between sex and science-related abilities.

applicants in biology, psychology, and engineering, and gender neutrality in economics. One difference between this study and the previous ones we have reviewed that found evidence of discrimination is that, as emphasized by the authors, it focused on a select group of applicants, with PhDs, publications, etc., for tenure-track positions. Williams and Ceci speculate that bias is more likely to arise when applicants' records are more ambiguous. Even to the extent this the case, it is still of concern that there may be discrimination in opportunities like lab manager or in mathematics tasks that could provide the gateway to STEM fields. However, a concern that we have about the Williams and Ceci setup is that it equalizes the candidates with a specific numerical rating, which seems to us unrealistic in most hiring situations in academia. This, in effect, experimentally eliminates any discrimination that could take the form of a biased evaluation of qualifications; such a bias may arise in the more realistic situation in which qualifications are appraised by those making the hiring decision.

As we have seen, Becker (1971) and others (e.g., Arrow 1973) have pointed out that competitive forces should reduce or eliminate employer discrimination in the long run because the least discriminatory firms, which hire more lower-priced female labor, would have lower costs of production and should drive the more discriminatory firms out of business. For this reason, Becker suggested that discrimination would be more severe in firms or sectors that are shielded, to some extent, from competitive pressures. Consistent with this reasoning, Hellerstein, Neumark, and Troske (2002) found that, among plants with high levels of product market power (and hence the ability to discriminate), those employing relatively more women were more profitable. Similarly, Black and Strahan (2001) reported that, with the deregulation of the banking industry beginning in the mid-1970s, the gender wage gap in banking declined. (Deregulation was viewed as increasing competitiveness within the industry.) And Black and Brainerd (2004) found that increasing vulnerability to international trade (i.e., increased competitive pressure) reduced apparent gender wage discrimination in concentrated industries, again as predicted by the Becker model. In a similar vein, Heyman, Svaleryd, and Vlachos's (2013) study based on Swedish worker–firm matched data found evidence that a firm takeover was associated with a reduction in the gender wage gap. They interpret takeovers as a manifestation of competitive pressure.

There is also some evidence consistent with statistical discrimination against women, based on employers' difficulty in distinguishing more from less career-oriented women. So, for example, Gayle and Golan (2012) propose a model in which workers have private information on their costs of participating in the labor force. They show that this asymmetric information is quantitatively important in explaining the gender pay gap. Similarly, Thomas (2015) proposes a model that shows that if there is asymmetric information about worker's future labor-force participation, the imposition of mandated maternity leave policies can increase the gender gap in promotion. This is because such policies make it more difficult for employers to distinguish between more and less family-oriented women, since they disproportionately raise post-birth employment by the former. Consistent with the model, she presents evidence that the Family and Medical Leave Act of 1993 increased women's probability of remaining employed but lowered their probability of promotion and that information asymmetry played a role in producing this result.

Finally, as we discussed above, greater monopsony power of employers over women than men workers provides a possible mechanism for the existence and persistence of

a discriminatory gap. This requires greater elasticity of labor supply to the firm for men than women. Evidence on gender differences in labor supply elasticities at the firm level for the United States is mixed. On the one hand, using data from labor-force surveys, Viscusi (1980), Blau and Kahn (1981), and Light and Ureta (1992) all find that women's quit rates are at least as wage responsive as men's; Manning (2003), too, finds no evidence of lower female separation elasticities in data for the United States and the United Kingdom. On the other hand, Ransom and Oaxaca (2010) report some evidence consistent with the monopsony model as an explanation for gender wage differentials at a chain of grocery stores, as do Ransom and Sims (2010) for schoolteachers in Missouri. Moreover, using economy-wide linked employer–employee data, Webber (2016) finds evidence of lower labor supply elasticities for women. Internationally, Barth and Dale-Olsen (2009) and Hirsch, Schank, and Schnabel (2010) find evidence using matched employer–employee data that men's turnover is more wage elastic than women's in Norway and Germany, respectively.

4. *Norms, Psychological Attributes, and Noncognitive Skills*

Labor economists have become increasingly interested in the effect of noncognitive or "soft" skills—including psychological attributes, preferences, and personality—on labor-market outcomes and behavior (Heckman and Kautz 2012). This trend has been driven by a number of factors, but perhaps most important is that, although considerable evidence supports the importance of traditional economic variables in explaining labor-market behavior and outcomes, there is almost always a sizeable component of any behavior or outcome that is not explained by these variables, leading researchers to reach out beyond the confines of traditional economic models for explanations. With respect to gender, intriguing findings suggest a number of psychological attributes that differ between women and men. For example, women have been found to be less willing than men to negotiate and compete and to be more risk averse (for reviews, see Bertrand 2011; Croson and Gneezy 2009). Gender differences in such characteristics have been proposed as an explanation for women's lower wages and lower representation in high-level jobs.

In considering research on gender differences in psychological attributes or noncognitive skills, some cautions must be borne in mind. First, even if men and women do differ on average, it is not possible at this point to know the role of nature versus nurture. We do not attempt to address this fundamental issue here, however, we consider it important that research suggests social factors play a part and have highlighted such findings. Moreover, whatever their origin (nature or nurture), gender differences may still be malleable—so, for example, women may be encouraged to negotiate and given tips on improving their negotiating skills. Second, gender differences in noncognitive skills do not necessarily all favor men. For example, there is some evidence that women have better interpersonal or "people" skills than men (Borghans, ter Weel, and Weinberg 2014). Another area where differences favor women is that, as we saw in our discussion of education, the greater behavioral problems of boys appear to contribute to their lower rate of college going. Also, it should be noted that a particular psychological attribute—like men's willingness to compete or lower risk aversion—may be an advantage in some settings but a disadvantage in others.[64]

[64] For example, Eckel and Füllbrunn (2015) provide experimental evidence from a financial-asset market that female traders are less likely to produce speculative price bubbles.

In addition, as we shall see below, the same trait may be rewarded differently for men and women, or indeed even be penalized for women when it is rewarded for men.

Finally, much of the evidence on gender differences in psychological attributes has been gleaned from laboratory experiments, and there are reasonable concerns about generalizing the results of such experiments outside the lab. And, while confirmation of lab results in the field is suggestive, even in this case, there may be questions about how well the experiment represents what would occur in a real-world setting (Harrison and List 2004, and Pager 2007). Moreover, importantly, findings from laboratory or field experiments generally cannot be easily translated into accounting for a particular portion of the gender wage gap. Studies based on survey questions in data sets that include information on respondents' attitudes and preferences, along with other characteristics and labor-market outcomes, are more promising in this regard but elicit their own sets of concerns about endogeneity and precisely what it is (i.e., what particular trait or traits) one is really measuring.

Capitalizing on two excellent recent reviews (Bertrand 2011; Croson and Gneezy 2009), we discuss this work selectively. And, in light of the above cautions, we particularly focus on research that contributes to our understanding of the applicability and broader significance of the findings from lab experiments, as well as on research that sheds light on the role of social factors in producing the observed gender differences. To particularly address the gap in our knowledge of the quantitative importance of noncognitive factors, we begin by summarizing survey-based evidence where authors have provided sufficient information for us to compute the contribution of these factors to explaining the gender wage gap. We acknowledge that such studies, still relatively scarce, do not comprise the "last word" on the importance of such factors and discuss the issues such studies confront below. However, we believe it is nonetheless useful to get some indication of the potential impact of such factors.

4.1 *Survey-Based Evidence on the Impact of Psychological Attributes on the Gender Pay Gap*

As our decompositions of the gender pay gap showed, there is a persistent unexplained pay gap; moreover, gender differences in occupations and industries also contribute importantly to the gender pay gap. While discrimination could explain such results, a recent series of papers (see table 7) based on survey evidence attempts to test whether gender differences in personality traits, or noncognitive skills, could provide an alternative explanation for both types of outcomes. Men are found to place a higher value on money, to have higher self-esteem, to be less risk averse, more competitive, self-confident and disagreeable, and to believe that they control their own fate (an internal, as opposed to external, locus of control) to a greater extent than women (see the studies in table 7). Psychological attributes such as self-confidence may contribute to a worker's productivity, and thus act like human-capital variables in a wage regression (Mueller and Plug 2006). Alternatively, a trait such as placing a high value on money may signal a willingness to accept a difficult working environment in return for higher pay (Fortin 2008). In this latter case, psychological factors stand in for compensating wage differentials. Under either interpretation (human capital or compensating differentials), in equilibrium, we expect such traits to be related to wages, and, if men and women differ in psychological attributes, then they will contribute to explaining the gender pay gap.

Some of the studies of the impact of psychological factors on the gender pay gap use information on respondents' answers to attitudinal questions to construct indexes

TABLE 7
Selected Studies Assessing the Role of Psychological Traits in Accounting for the Gender Pay Gap

Study	Sample	Traits examined	Raw gender wage gap (logs)	Effect of gender differences in psych. factors on gender pay gap (logs)	Percentage of gender pay gap due to gender differences in psych. traits
Mueller and Plug (2006)	Wisconsin 1957 HS grads, 1992 data	"Big 5": extroversion; agreeableness; conscientiousness; neuroticism; openness	0.587	0.043–0.095	7.3–16.2
Semykina and Linz (2007)	Russia 2000–2003	Locus of control; challenge/affiliation	0.311–0.397	0.012–0.026	3.0–8.4
Fortin (2008)	US NELS 1972 and 1988 cohorts: 1979, 1986, and 2000	Self-esteem; locus of control; money/work importance; people/family importance	0.181–0.237	0.008–0.032	4.4–14.0
Manning and Swaffield (2008)	British cohort study: 1970 birth cohort, 2000 data	Risk; competitiveness; self-esteem; other-regarding; career orientation; locus of control	0.203	0.005–0.056	2.5–27.6
Nyhus and Pons (2012)	Netherlands 2005	Locus of control; time preference	0.246	0.028–0.035	11.5–14.1
Reuben, Sapienza, and Zingales (2015)	2008 Univ. of Chicago Booth MBA cohort	Taste for competition	0.119	0.010–0.012	8.4–10.1
Cattan (2014)	NLSY 1979, 4 points in life cycle	Self-confidence	0.18–0.30	0.010–0.036	5.4–14.5

Notes: Manning and Swaffield (2008) entry based on their model with all psychological variables included (table 9, line 8). Cattan (2014) entry based on marginal effect of self-confidence (table 9, panel C).

of psychological traits, which then become explanatory variables in wage regressions. One can then assess the quantitative importance of such controls in explaining the level or change in the gender pay gap. In addition, one study measured respondents' tastes for competition at a time before labor-market entry and then estimated the effect of gender differences in these tastes on the gender pay gap observed after they entered the labor market (Reuben, Sapienza, and Zingales 2015).

Researchers in this area have had to confront several difficult empirical issues in implementing their tests. First, if the psychological factors are measured at the same time

wages are measured, then one cannot rule out the possibility of reverse causality. For this reason, some authors use data in which psychological attributes were measured before labor-market outcomes (e.g., Fortin 2008; Reuben, Sapienza, and Zingales 2015; and Cattan 2014), reducing the possibility of reverse causality. In other cases, authors appeal to psychological research suggesting that basic personality traits do not change much over the life cycle (Mueller and Plug 2006); if so, then labor-market developments would not affect personality traits. We would point out, however, that anticipated discrimination can affect one's attitudes even if they are measured before one enters the labor market. Second, combining a battery of questions into a usable index presents measurement issues that have been the subject of much psychometric research; attention is paid in the economics literature to the reliability of such measures (Mueller and Plug 2006; Cattan 2014; Nyhus and Pons 2012). Third, as suggested above, psychological traits can affect wages directly, controlling for measured factors such as human capital, industry, and occupation, as well as indirectly through their influence on schooling, experience, and occupation and industry (e.g., risk takers are likely to be more attracted to the financial sector). Some of the economic research in this area attempts to separate the direct and indirect effects of psychological factors. This is usually done in one of two ways. One may estimate reduced-form wage regressions, excluding the intermediate factors and including the psychological factors; one can then compare the impact of psychological factors, controlling and not controlling for covariates that they are believed to affect. Alternatively, one can estimate a structural model where the intermediate factors (schooling, occupation, etc.) and wages are endogenous variables (Cattan 2014).

A fourth issue in estimating the impact of psychological factors on wages concerns the possible heterogeneity of effects. For example, self-confidence may be rewarded differently among executives than clerical workers (Cattan 2014). Importantly from our point of view is, as mentioned earlier, that the labor-market may reward the same trait differently for men than for women (Manning and Swaffield 2008). For example, ambitiousness may be seen as a positive trait for men but a negative one for women. This discussion raises the issue of how one should assess gender differences in psychological factors. Some studies run a pooled regression to estimate the wage effects of psychological factors, while others present estimates based on male and then female coefficients.

Table 7 summarizes the results of several studies that examine the importance of psychological factors or noncognitive skills on the gender pay gap where, if needed, we estimated this impact based on data presented in the paper. The notable finding from this table is that, in each case, gender differences in psychological factors account for a small to moderate portion of the gender pay gap. The proportion of the total gender pay gap accounted for by gender differences in psychological factors ranges from 2.5 percent percent to 28 percent, with all of the studies except for Manning and Swaffield (2008) finding that these traits account for 16 percent or less of the gender pay gap. Recall from table 4 that in 2010, occupation and industry differences accounted for about 51 percent of the gender pay gap. Of course, as noted, some of these occupational and industry effects may have been due to psychological factors, and below, we discuss some research that sheds light on this possibility.

A related question these analyses can potentially address is whether our estimates of the unexplained gap such as those shown in table 4 would be smaller if one had data on psychological factors. To the extent that some of the measured factors (like occupation or

education) are, in part, the outcome of noncognitive skills, or at least correlated with them, controls for these measurable factors may implicitly adjust for much of the effect of noncognitive factors. And there is also the related question of whether any such reduction would be large in magnitude. Of the studies in table 7, Semykina and Linz's (2007) analysis of Russia, Nyhus, and Pons's (2012) study of the Netherlands, and Reuben, Sapienza, and Zingales' (2015) study of the University of Chicago Booth MBA cohort of 2008 shed light on this question. In Nyhus and Pons's (2012) paper, the authors did not control for occupation or industrial sector, but did include a control for working in the public sector. They found that adding psychological traits to the equation reduced the unexplained gender pay gap from 0.185 to 0.154 log points, a reduction of 0.031 log points, or 17 percent of the unexplained gap. Semykina and Linz (2007) controlled for sector and whether the respondent was a manager. Adding psychological traits led to a reduction in the unexplained pay gap from 0.196 to 0.185 log points, or about 6 percent of the unexplained gap. Reuben, Sapienza, and Zingales (2015) measured MBA students' tastes for competition while they were students using a similar instrument as in Niederle and Vesterlund's (2007) study of gender differences in competitiveness (discussed below). The authors then collected data on respondents' total earnings in their first year after leaving the MBA program and analyzed the impact of competitiveness on the gender pay gap. Using a pooled regression of log earnings on covariates, the data showed a statistically significant female wage shortfall of 0.097 log points when the authors controlled for a measure of risk aversion, several psychological traits such as trust and reciprocity, age, race, marital status, GMAT test scores, performance in business school, and pre-MBA work experience and sector, but not competitiveness. When the authors' measure of competitiveness was added to the model, the female pay shortfall was reduced to 0.087 log points, or by about 10 percent. Note that the raw gender pay gap was 0.119 log points, so controlling for a long list of psychological factors (other than competitiveness), ability measures, demographic information, and prior work experience only reduced the gap to 0.097 log points.[65] Based on the results of these three studies, psychological factors do not appear to account for a large share of the unexplained pay gap.

As noted, several studies examined both the direct and indirect effects of psychological traits on the gender pay gap (Nyhus and Pons 2012, Cattan 2014, Fortin 2008, Mueller and Plug 2006, Semykina and Linz 2007). With the exception of Mueller and Plug's (2006) study of the 1957 high school senior class in Wisconsin as of 1992, these papers found that the indirect effects of psychological factors were small—most of the modest effects we see in table 7 occur controlling for covariates such as schooling, industry, and occupation. In Mueller and Plug's (2006) case, adding psychological factors alone explained 16 percent of the gender pay gap; however, when the authors controlled for human capital, region, marital status, and number of children, psychological factors accounted for 10 percent of the raw pay gap. And when the authors further controlled for industry and occupation, these traits explained only 7 percent of the gender pay gap. Thus, this paper suggests some important indirect effects of psychological factors on schooling, industry, and occupation. Notably, this study had the most

[65] Reuben, Sapienza, and Zingales (2015) were only able to observe first-year earnings, and it is likely that in the long run the gender pay gap would increase, as in Bertrand, Goldin, and Katz's (2010) study of an earlier cohort of Chicago Booth MBAs. Whether competitiveness differences would help account for such an increase in the gender pay gap within a cohort is an open question.

extensive industry and occupation controls of those in table 7.

While Mueller and Plug (2006) did not assess the contribution of adding psychological factors to the unexplained pay gap, we note that when they added industry and occupation to a model that controlled for human capital, region, marital status, children, and psychological factors, the unexplained gap fell from 0.280 to 0.184 log points, a reduction of 0.096 log points, or about 34 percent of the unexplained gap. This reduction is similar to the decrease in the unexplained gap we found for the Full versus the Human Capital Specifications in section 2 (table 4), where we of course did not have psychological variables available.[66] Hence, the Mueller and Plug (2006) results provide further support for the importance of industry and occupation even, in this case, controlling for psychological factors.

Of the studies in table 7, Fortin's (2008) is noteworthy because it assesses the importance of psychological factors both at a point in time and in accounting for the reduction in the gender pay gap since the 1970s. Specifically, as noted earlier, she analyzed two cohorts of students (the National Longitudinal Study of the High School Class of 1972 and the National Education Longitudinal Study of 1988/94) to examine the effect of psychological factors measured while in school. For workers in their mid-twenties, she found that a reduction in gender differences in psychological factors accounted for about 10 percent of the intercohort reduction in the gender pay gap between 1979 and 2000 (from 0.237 to 0.181 log points). She also found that psychological traits were somewhat more important for the 1972 cohort when they reached their early thirties, explaining up to 14 percent of the gender pay gap in 1986, compared to 6 percent in 1979 when they were in their mid-twenties. The within-cohort comparison suggests that some of the gender difference in career advancement may be related to psychological traits.

Finally, we note that although most of the studies in table 7 used a pooled regression to assess the effects of gender differences in psychological traits, Manning and Swaffield (2008) used separate regressions and then male and then female regression coefficients. The authors found that, using male coefficients, gender differences in psychological factors accounted for 28 percent of the gender pay gap among thirty year olds in 2000, a seemingly important effect. However, when they used female coefficients, psychological factors account for only 2.5 percent of the gender pay gap. This discrepancy in findings suggests generally lower rewards to psychological traits for women than men.[67]

As noted earlier, not all gender differences in noncognitive factors favor men in their relationship to wages. For example, Mueller and Plug (2006) found that women are on average more conscientious than men, a difference also suggested in Goldin, Katz, and

[66] In table 4, adding industry, occupation, and union status to the human-capital model led to reduction in the unexplained gap of 0.109 log points in both 1980 and 2010, or 32–55 percent of the unexplained gap.

[67] In a recent study of 624 graduating seniors from the classes of 2011, 2012, and 2013 at the University of Santa Clara and Haverford College, Kamas and Preston (2015) study the effect on the gender gap in pay of personality traits measured while the students were seniors using experiments similar to those of Niederle and Vesterlund (2007). Men were found to be more competitive and confident and less risk averse than women. The authors then collected information on the students for the 2012–14 period, a very early stage of their career. Controlling for performance on a math task and years since graduation, competitiveness did not appear to explain the gender pay gap in this sample. However, the subgroup of women who were confident and chose to compete earned as much money as men did and much more than other women. While this result was based on a small number of women (9.9 percent of the original 344 female participants—i.e., thirty-four students—were judged as confident and chose to compete), the result does suggest that psychological attributes can interact, increasing their importance.

Kuziemko's (2006) analysis of why female education levels have overtaken those of males. Moreover, Borghans, ter Weel, and Weinberg (2014) present evidence that there is a female advantage in "people-skills" and find evidence of a people skills premium in wages. Further, Borghans, ter Weel, and Weinberg's (2014) results indicate a growing importance of interpersonal interactions (in part due to increased computer use) in affecting wages that can help explain rising female relative wages, although they do not assess the quantitative importance of people skills in accounting for the reduction in the gender pay gap.

The issue we raised earlier, of gender differences in returns to psychological attributes is highlighted by Mueller and Plug's (2006) study of the reward to the "big five" personality traits—openness to experience, conscientiousness, extroversion, agreeableness, and neuroticism.[68] One of the most consistent gender differences in personality traits has been found for agreeableness, with women being found to be more agreeable than men (Bertrand 2011). Agreeableness refers to being more trusting, straightforward, altruistic (warm), compliant, modest, and sympathetic. Perhaps not surprisingly given labor market realities, Mueller and Plug (2006) find, in a regression context, that men earned a premium for being *disagreeable*. However, this attribute was not found to be related to women's wages. Thus, the gender difference in agreeableness contributed to the gender earnings gap both because men were considerably more disagreeable than women, but also because only men were rewarded for this trait (Mueller and Plug 2006).[69] These findings hint at a double bind for women. As in the case of negotiation (discussed below), women face potential penalties for not engaging in this behavior but, if they do, may elicit negative or less positive responses than men. Also striking is Manning and Swaffield's (2008) finding noted above that psychological attributes accounted for a much larger share of the gender wage gap using male then female coefficients.

While findings such as those in table 7 are informative in elucidating some of the possible omitted factors that lie behind gender differences in wages as well as the unexplained gap in traditional wage regressions, in general, the results suggest that these factors do not account for a large portion of either the raw or unexplained gender gap. Moreover, the coefficients on noncognitive skills in a wage equation cannot necessarily be given a causal interpretation. Both wages and attitudes, for example, may be determined by the same exogenous factor(s). And, as in the case of the traditional productivity proxies discussed above, there may be important feedback effects from differential treatment in the labor market (and the anticipation of such differential treatment) to noncognitive traits. So, for example, gender differences in the importance placed on money may influence wages through negotiating behavior or effort, but the source of women's lower emphasis on money could be, at least in part, anticipation of lower income due to labor-market discrimination. Finally, in analyses based on self-reported survey data, there is likely to be some ambiguity as to precisely what trait one is measuring. For these reasons, just as research on labor-market discrimination

[68] For a definition of each trait, see Mueller and Plug (2006).

[69] See also Judge, Livingston, and Hurst (2012). One must, of course, be cautious in basing conclusions about the contribution of gender differences in individual regression coefficients (on either categorical or continuous variables) to the gender pay gap in isolation from the other coefficients in the model (Oaxaca and Ransom 1999). Additional results were that men were also rewarded for emotional stability and openness to experience, while women were rewarded for conscientiousness and openness to experience.

has tended to move towards experimental evidence, at least in confirming findings based on statistical analyses of survey data, there has been a parallel development in studying the impact of psychological characteristics. We move to a consideration primarily of experimental evidence in the next subsections.

4.2 *Negotiation*

Researchers have found that men's and women's average propensities to negotiate differ, with women being much less likely to do so (Babcock and Laschever 2003; see also reviews in Bertrand 2011; and Croson and Gneezy 2009). Women's lower propensity to negotiate over salaries, raises, or promotions, could reduce their pay relative to men's. The observed gender difference could reflect social factors, including women being socialized to feel that they are being pushy or overbearing (unfeminine) if they negotiate—i.e., pursuing their own goals in the face of conflict with others (Babcock and Laschever 2003). Consistent with the notion that the female gender role is seen as incongruent with negotiating, a meta-analysis by Mazei et al. (2015) found that gender differences in negotiating outcomes were reduced when negotiators negotiated on behalf of *another individual.* Moreover, women may have learned that their negotiating can trigger a negative response from others. For example, in a series of laboratory experiments, Bowles, Babcock, and Lai (2007) asked study participants to evaluate managers based on a transcript or a video of a job-placement interview. They found that participants were disinclined to work with female managers who negotiated for higher compensation but negotiating had little effect on their evaluation of male managers.

Results from a field experiment by Leibbrandt and List (2015) confirm the gender differences in negotiating behavior obtained in the lab studies, but suggest that such differences may be sensitive to the cues given. In examining the response of applicants to job advertisements, they found that men were more likely to negotiate than women when there was no explicit statement that wages were negotiable. However, when it was explicitly stated that wages were negotiable, the gender difference disappeared and even reversed. This suggests that, for women, negotiating is less acceptable behavior but the gender difference can be overcome if it is signaled to be appropriate.

While it may be possible to enhance women's negotiating skills and reduce the gender difference in negotiating, it is also important to realize that there are limitations to what may be achieved by doing so. Negotiation is a form of bargaining and, as such, the outcome is influenced by the alternatives available to the individual. To the extent that women face discrimination in the labor market that lowers their wages relative to men's, their expected outcome from the bargaining process will be smaller than for their male counterparts. Moreover, if, as we have seen may be the case, women who negotiate elicit negative responses compared to men, the gender difference in the prospective result from negotiating is further widened.

4.3 *Competition*

There is evidence from laboratory experiments that, on average, men are more competitively inclined than women (Bertrand 2011, Croson and Gneezy 2009). In Niederle and Vesterlund's (2007) influential study, for example, subjects were given a task (adding up sets of two-digit numbers) for which there was no average gender difference in performance. Subjects received feedback on their own performance, but not on their performance relative to others. When subsequently given a choice between a noncompetitive compensation scheme (a piece rate—pay according to the number of problems correctly solved) and a competitive

compensation scheme (a tournament where only the highest scorer out of a group of 4 was compensated), men overwhelmingly (73 percent) selected the tournament while only a minority (35 percent) of the women did so. Low-performing men chose to compete more than high-performing women. Interestingly, while high-scoring women lost out financially by shying away from competition, low-performing men competed too much from a payoff-maximizing perspective. The gender difference in attitudes towards competition could be a disadvantage for women in the labor market, potentially lowering their relative pay and leading them to avoid certain occupations or business settings, although these findings also suggest that men may sometimes compete more than is optimal.

An interesting recent study suggests that differences in attitudes toward competition observed in the lab do translate into differences in career choices. Buser, Niederle, and Oosterbeek (2014) collected data on the competitiveness of high school students in the Netherlands through in-class experiments and then tracked their subsequent education choices across four study profiles at age fifteen. While boys and girls had very similar levels of academic ability, boys were substantially more likely than girls to choose the more prestigious profiles. The authors found that up to 23 percent of the gender difference in profile choice could be attributed to gender differences in competitiveness, as assessed by the in-class experiments.

Some evidence that women shy away from competitive environments is also indicated by a recent large-scale field experiment. Flory, Leibbrandt, and List (2015) randomly assigned job-seekers into viewing online job advertisements with different compensation schemes. Consistent with the results of lab experiments, the more heavily the compensation package tilted towards rewarding the individual's performance relative to a coworker's performance, the more the applicant pool shifted to being more male dominated. However, there was little or no gender difference when compensation was *only slightly* (rather than heavily) based on performance relative to a coworker's or when the job was to be compensated based on team (rather than individual) relative performance. Moreover, the sex-type of the job mattered. The occupation under study was administrative assistant. A male-oriented ad described tasks focused around sports. The "female" ad was similar in other respects but the focus was general—the authors deemed this a female-type job because, nationally, administrative assistant is a predominantly female occupation (79 percent female in 2001). Strikingly, there were no gender differences in propensity to apply under any of the compensation schemes for the female treatment—the gender differences described above were only obtained for the male-type job. While it would have been interesting to see results for a completely neutral occupation, these findings suggest a strong interaction between the gender role or identity of the task and men's and women's propensity to compete. Moreover, while individual responses to compensation schemes were not correlated with readily observable characteristics like education and experience, a blind analysis of the quality of interview questionnaire responses suggested that the highly competitive regime disproportionately attracted low-ability males. As the authors note, this is consistent with Niederle and Vesterlund's (2007) finding that "males compete too much" in terms of maximizing monetary payoffs.

While much of this evidence does indeed suggest that men are, on average, more attracted to competitive environments than women, what are the effects of this difference on the gender pay gap? Using the British Workplace Employment Relations Survey for 1998 and 2004, Manning and Saidi (2010) find, as expected, that women

were indeed less likely to have jobs with pay for performance than men. However, this gender difference accounted for only a very small portion of the British pay gap overall and among managerial workers. Thus, the impact of gender differences in competitiveness on the gender pay gap based on this evidence appears to be very limited.

Finally, also of interest is a study that compared the results of lab experiments testing for gender differences in preferences for competition in two different cultures (Gneezy, Leonard, and List 2009). The findings of this study strongly suggest that men's and women's attitudes toward competition are influenced by broader social factors. The authors found that, consistent with the results in developed countries, men opted to compete at roughly twice the rate of women in a traditional patriarchal society (the Maasai of Tanzania). However, in a matrilineal/matrilocal society where inheritance and residence are determined by the female lineage (the Khasi of India), women chose the competitive environment more often than men.

There is also some evidence that competition increases the *relative* performance of men compared to women when both participate in the activity, although the evidence on this is more mixed (Croson and Gneezy 2009). On the one hand, Gneezy, Niederle, and Rustichini (2003), for example, found no significant difference in performance by gender under piece rates for a maze-solving task on the computer. However, when pay was competitive, men's performance was increased significantly and women's stayed the same, yielding a gender difference. On the other hand, Niederle and Vesterlund's (2007) study, discussed above, found that the performance of both men and women improved similarly under the tournament and there was still no gender difference in performance.[70]

[70] See also the review of recent studies in Örs, Palomino, and Peyrache (2013).

Some particularly compelling evidence on the impact of competition on performance is presented in a recent study by Örs, Palomino, and Peyrache (2013). The authors examined gender differences in performance for the same group of subjects on real-world academic achievement examinations that differed in their levels of competition. They found that men performed better than women on the highly competitive entrance exam for admission to the master of science in management at the École des Hautes Études Commerciales (HEC) in Paris even though, for the same cohort, women performed significantly better than men on the national baccalauréat exam two years prior, which the authors characterize as "noncompetitive." Moreover, among the subset admitted to HEC, women outperformed the same males in first-year grades in nonmathmatically oriented classes (where grades are based on relative performance only in a very loose sense).

4.4 *Risk Aversion*

Based on the laboratory experiments they review, Croson and Gneezy (2009) report that women are, on average, more risk averse than men.[71] All else equal, occupations with more variable earnings are expected to pay a compensating wage differential to induce workers to accept the higher levels of risk. To the extent women are more likely to avoid such jobs, women's greater risk aversion could lower their earnings relative to men (Bertrand 2011). Risk aversion could also plausibly affect job performance in particular occupations, such as money managers.

Interestingly, Croson and Gneezy (2009) report that, while women are found to be

[71] Manning and Swaffield's (2008) survey evidence also indicates that women are more risk averse than men. A review and analysis by Nelson (2015), however, finds the results to be more mixed, with some studies reporting higher female average risk taking and many cases in which the male advantage lacked statistical significance.

more risk averse among persons drawn from the general population or among university students, studies that focus on managers and professionals have found little or no evidence of gender differences in financial risk preferences. For example, one study of mutual fund managers found that funds managed by men and women did not differ in risk or performance. Similarly, male and female managers and entrepreneurs displayed similar risk propensities. It is not possible to know whether such findings are due to the type of selection we have just discussed (with more risk-taking individuals of both sexes choosing to enter or remain in particular fields) or learning (people who initially differ in their risk propensities may learn from their professional environment). In either case, however, these findings suggest that while women's relative aversion to risk may lower their relative earnings due to occupational sorting, this factor probably does not help to explain *within* occupational earnings differences (or at least not within the occupations studied). Further, to the extent these findings are due to learning, it suggests that these preferences can be shaped by environment.

4.5 *Norms and Gender Identity*

Recent work by Bertand, Kamenica, and Pan (2015) points to possible far-reaching effects of adherence to traditional gender roles on the relative outcomes of men and women. They draw on Akerlof and Kranton's (2010) development of the concept and implications of identity, defined as a sense of belonging to a social category, combined with a view about how people who belong to that category should behave. Departures from these norms are perceived as generating costs and hence people seek to avoid them.

Bertrand, Kamenica, and Pan (2015) probe the consequences of the view that a wife should not earn more than her husband and find it to impact a number of outcomes. For example, they find that, within marriage markets, as the probability that a randomly chosen woman would outearn a randomly chosen man increases, marriage rates decline. Similarly, couples in which the wife outearns her husband have lower rates of marital satisfaction and are more likely to divorce. Of particular relevance to the issues under consideration here, they find that, in couples in which the wife's potential income is likely to exceed her husband's (based on predicted income), the wife is less likely to be in the labor force and, if she does work, her income is lower than predicted. Such a selection pattern would lower the observed relative wages of employed married women. Also of interest, given the inverse relationship between housework and wages, they find, based on time-use surveys, that the gender gap in nonmarket work is *increased* if the wife earns more than her husband. This finding is particularly surprising given that Beckerian notions of comparative advantage would lead us to expect the opposite (Becker 1991),[72] assuming that relatively higher-earning women do not generally have even higher relative values of nonmarket time. A possible interpretation of this pattern is that these high-earning wives are attempting to compensate for violating the gender norm of earning less than their husbands. As we have seen, greater housework time is expected to negatively affect wages.

The findings from Bertrand, Kamenica, and Pan (2015) suggest that additional explorations of gender norms and identity by economists would be fruitful in understanding the gender wage gap and other gender differences in outcomes. However, while the findings in this paper are striking, it is possible that the strength of this norm may

[72] That is, the division of labor in the family should be determined by the comparative advantage of each spouse in market versus nonmarket activity.

be diminishing. First, the share of married-couple families in which the wife outearns her husband has been growing steadily, as married women's labor-force participation and education levels have increased and the male-female wage gap has declined. For example, this share increased by over 80 percent between 1981 and 2015, among families in which both members of the couple had earnings (from 15.9 to 29.3 percent).[73] Moreover, there is evidence that in the bulk (60 percent) of couples in which the wife outearns her husband, this disparity is relatively permanent—that is, it persists over a three-year period (Winkler, McBride, and Andrews 2005). Second, attitudes seem to be becoming more permissive along this dimension. A 2013 attitude survey found that only 28 percent of adults agreed that "It's generally better for a marriage if the husband earns more than his wife" compared to 40 percent in 1997. College graduates had especially permissive views, with only 18 percent supporting this view (Wang, Parker, and Taylor 2013). While an adherence to traditional gender norms need not be conscious and overt in order to influence behavior, it is nonetheless of interest that such views, as expressed, are becoming more permissive. Moreover, this has been occurring at the same time the share of couples where the wife outearns her husband has been increasing. This points to the likelihood that couples are acting on their more permissive views and also to the possibility that behavior (the increasing incidence of such families) influences norms and attitudes, as well as the reverse.

[73] US Census Bureau, Historical Income Tables-Families, "Table F-22. Married-Couple Families with Wives' Earnings Greater Than Husbands' Earnings: 1981 to 2015," https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-income-families.html, accessed August 8, 2017. Similarly, Wang, Parker, and Taylor (2013) report that, among married couples with children under age eighteen, the share of families in which the mother earned more than the father increased from 3.8 percent in 1960 to 22.5 percent in 2011.

5. *Evidence on the Impact of Policy*

Women's relative skills and the degree of discrimination they face can be affected by equal employment opportunity laws and regulations, as well as by government policies directed at the difficulties of combining work and family. In this section, we briefly consider what is known about these types of policies and their impacts, focusing primarily on the United States.

The United States was a world leader in implementing equal employment opportunity policy as the first economically advanced nation to pass and implement antidiscrimination laws and regulations (Blau and Kahn 1996b). The centerpiece of the government's antidiscrimination activities is Title VII of the Civil Rights Act of 1964, which broadly bans discrimination by sex (as well as by race, religion, and national origin) in virtually all aspects of the employment relationship, including hiring and firing, training, promotion, wages, and fringe benefits and covers all businesses employing fifteen or more workers. Title IX, an important amendment to the Civil Rights Act passed in 1972, prohibits sex discrimination in most educational institutions. In addition, the Equal Pay Act of 1963 mandates equal pay for men and women who do substantially equal work in the same establishment. Further, under some circumstances, affirmative action, or "pro-active steps … to erase differences between women and men, minorities and nonminorities, etc." (Holzer and Neumark 2000a, p. 484), is also required, primarily for government contractors under an executive order promulgated in 1965 and amended to include women in 1967. Affirmative action has also been voluntarily adopted by many employers.

In thinking about the impact of the government's antidiscrimination enforcement effort, one question that arises is whether the time path of the increase in women's relative earnings (see figure 1) appears compatible

with an effect of these laws and regulations. This question arises because we see no indication of a notable improvement in women's relative earnings in the immediate post-1964 period that might be attributable to the effects of the government's antidiscrimination effort; the gender pay ratio remained basically flat through the late 1970s or early 1980s, after which it began to increase. In contrast, blacks experienced considerable increases in their relative earnings in the decade following the passage of the civil rights laws that many scholars attribute, at least in part, to the impact of these laws (e.g., Donohue and Heckman 1991).

Nonetheless, there is some evidence from a variety of detailed, micro-level studies of a positive effect of government equal employment opportunity policies on women's earnings and occupations. Beller (1979, 1982) used enforcement activity as an indicator of the strength of government sanctions under Title VII and found evidence of improvements over the 1967–74 period in women's relative earnings (Beller 1979) and their probability of being employed in a predominantly male occupation (Beller 1982). Carrington, McCue, and Pierce (2000) took firm size as an indicator of coverage and enforcement and found that, over the 1963–87 period, the relative employment of women and blacks by larger employers increased. Kurtulus (2012) found that the share of women and minorities in high-paying skilled occupations grew more over the 1973–2003 period at federal contractors than other employers. Moreover, she found that these gains took place primarily prior to or in the early years of the Reagan administration and after 1991; a pattern that matches what is known about climate of enforcement of affirmative action and antidiscrimination laws more broadly, including a winding down of the enforcement effort during the Reagan years. Kurtulus's (2012) findings are consistent with an earlier study by Leonard (1990), which found faster employment growth for black and white females at contractor establishments over the 1974–80 period. Finally, Holzer and Neumark (1999 and 2000b) measured affirmative action by employer self-reports (this could include both mandated and voluntary programs) and found cross-sectional evidence that affirmative action reallocates women and minorities to the affirmative action sector by increasing both their applications and employment. This is likely to raise their relative wages, since the authors find that such firms are higher paying and, in addition, have smaller race and sex differences in wages (see also Holzer and Neumark 2000a for a review).

We find these results of female gains due to equal employment policy not implausible, despite the time pattern of aggregate female relative earnings gains, for at least two reasons. First, we note that some improvements in women's status do indeed date to the 1970s—chiefly, the growth in women's enrollments in professional schools and the beginning of a substantial decline in occupational segregation. The educational shifts may reflect, at least in part, the impact of Title IX, but also a response to perceived increases in labor-market opportunities that improved the incentives for women to train for nontraditional jobs. (Of course these shifts also reflect a variety of supply-side factors that we discussed in section 3.3.) Moreover, since occupational segregation by sex was considerably more pronounced than by race (Fuchs 1988 and Jacobsen 1994), such occupational shifts may have been more necessary for women than for blacks to reap wage gains from the government's antidiscrimination efforts, thus resulting in a greater lag in the impact of the government's equal employment opportunity policies on women's relative earnings. Second, these laws and regulations were rolled out during a period of extremely high growth in female labor supply; the negative

wage effects of this expansion in labor supply could have camouflaged an otherwise positive effect of the government's efforts.[74] On the other hand, it is puzzling that the largest female relative-wage gains and the strongest evidence of a decline in the unexplained gender wage gap were during the 1980s (see section 2 and section 6), which includes a period in which the government's antidiscrimination effort was noticeably scaled back.

Turning to work–family policy, we focus on parental leave, although we note that there are a wide range of other possible policies, including child care, that might be considered. The Family and Medical Leave Act (FMLA) of 1993 mandates that eligible workers be allowed to take up to twelve weeks of unpaid leave for birth or adoption, acquiring a foster child, illness of a child, spouse, or parent, or their own illness.[75] (Firms may voluntarily provide longer and/or paid leave.) Workers are entitled to their jobs upon returning from the leave. To the extent that parental leave policies strengthen worker attachment to the firm, they may encourage firm-specific investments, thus raising women's relative wages (since parental leave is much more likely to be taken by women than men). However, they may also encourage labor-force withdrawal for longer periods of time than otherwise (especially if they are of long duration), reducing women's accumulation of experience. Mandated leaves, again, particularly of long duration, may also diminish women's opportunities by increasing employer costs of hiring women and hence providing incentives to discriminate against them. Mandated leaves might also reduce women's relative wages to finance the benefit (e.g., Gruber 1994). Thus, the effect of parental leaves on the gender wage gap is theoretically ambiguous. Empirical evidence for the United States suggests that the effect of the FMLA has been modest; it has been found to have a small positive effect on employment and no effect on wages (Baum 2003 and Waldfogel 1999). Results are broadly similar for California's introduction of six weeks of paid leave (with a replacement ratio of 55 percent) in 2004. Employment probabilities in the post-leave period were increased; and the effect on wages was not statistically significant (see, Baum and Ruhm 2013). A recent study by Thomas (2015), discussed above, does however suggest that FMLA increased the gender gap in promotion.

Since provision of parental leave in the United States is considerably less generous (in both duration and payment) than in other economically advanced countries, international comparisons may shed light on potential effects of more generous leave policies. In a study of nine Western industrialized countries, Ruhm (1998) found that female earnings were unaffected by rights to short parental leaves, while longer leaves (more than five or six months) lead to reductions in women's relative wages. These findings are consistent with results from Blau and Kahn (2013a), which found that the greater expansion of family-friendly policies in other economically advanced countries than in the United States between 1990 and 2010 increased female labor-force participation in these countries relative to United States, but was associated with a lower likelihood of women having full-time jobs or working as managers or professionals. (The mean duration of leave in these other countries was fifty-seven weeks in 2010, up from

[74] In addition, prior to 1980, large increases in the labor-force participation of younger women resulted in a small decline in average experience for women as a whole, due to the shifting age composition of women workers (Goldin 1990, p. 41).

[75] The FMLA requires the individual to have worked at least 1,250 hours in the past year and covers only workers in firms with at least fifty employees. In addition, the Pregnancy Discrimination Act of 1978 (an amendment to Title VII of the Civil Rights Act) prohibits employers from discriminating against workers on the basis of pregnancy.

thirty-seven weeks in 1990.) Taken together, these results suggest that a number of offsetting factors may be at work, with little impact on wages for shorter leaves and a negative effect dominating for long periods of mandated parental leave. Some innovative policies have been developed recently, including parental leave entitlements that incentivize fathers' leave taking (Dahl, Løken, and Mogstad 2014; Patnaik 2016), which may reduce the negative effects of extended leaves on women. The long-run impact of these policies on gender and the labor market, as well as the division of labor within the family, is an important research topic.

6. *Wage Structure, Demand, and Institutions*

Much research on the gender pay gap focuses on gender-specific factors: differences in qualifications, including experience, or treatment of women by firms (discrimination). In addition, however, men and women work in a world economy in which labor-market prices, such as the returns to education or experience, are affected by larger forces of supply and demand, as well as by labor-market institutions in the various countries. We now consider research that studies the impact of these larger economic forces on the gender pay gap.

A useful starting point is a key insight of Juhn, Murphy, and Pierce (1991), a study of black–white wage differentials, that the overall wage structure can affect the relative wages of specific groups. By "wage structure," we mean the returns that the labor market offers for various skills and for employment in various industries or occupations. For example, countries with strong unions that raise the wages of less-skilled workers tend to have a relatively compressed wage structure, while, in the United States, wages are determined in a more decentralized manner, resulting in a more dispersed wage structure. The wage structure can also change over time, as rewards to skills and premiums for employment in high-wage occupations and industries increase or decrease.

Both the human capital and discrimination explanations of the gender pay gap suggest a potentially important role for wage structure in determining how women fare, relative to men, across countries or over time. We illustrate by some examples focused on the temporal dimension. For example, despite important recent gains, women still have less experience than men, on average. If the labor-market return to experience rises over time, women will be increasingly disadvantaged by their lesser amount of experience. In addition, both the human capital and discrimination models suggest reasons why women are likely to be employed in different occupations and perhaps in different industries than men. This implies that an increase in the returns to employment in "male" occupations or industries will also place women at an increasing disadvantage. In fact, the patterns of rising overall wage inequality in the labor market, particularly in the 1980s, resulted from precisely such increases in the market rewards to skill and to employment in high-wage male sectors (Blau and Kahn 1997). This means that women as a group were essentially "swimming upstream" in a labor market growing increasingly unfavorable to workers with below-average skills—in this case, below-average experience—and for workers employed in disproportionately female occupations and industries. Yet the 1980s were precisely the time period in which women made the largest gains.

6.1 *US Evidence on the Impact of Wage Structure on the Gender Wage Gap*

How were US women able to swim upstream and narrow the gender wage gap in the face of economy-wide forces working against them? Blau and Kahn (1997 and

2006) found that this was the outcome of two broad sets of countervailing factors. On the one hand, working to decrease the gender wage gap, women increased their qualifications relative to men and, in the 1980s, the unexplained gender gap also narrowed substantially. On the other hand, working to widen the gender wage gap, particularly during the 1980s, were changes in wage structure (or returns to characteristics) that favored men over women. Of particular importance were a rise in the return to experience and increases in returns to employment in occupations and industries where men are more highly represented.[76] The sizable increase in the supply of women over the 1980s is another factor that likely worked to widen the gender wage gap as well. The decrease in the gender wage gap occurred because the factors favorably affecting women's wages were large enough to more than offset the impact of unfavorable shifts in returns and increasing female labor supply.

However, the matter may be more complicated than a simple decomposition of the trends would suggest. While rising demand for skill did shift labor-market prices in a way that worked against women on net in the 1980s, the underlying labor market demand shifts that widened overall wage inequality appear to have favored women relative to men in certain ways. Thus, these demand shifts likely also contributed to a decrease in the unexplained gender gap identified in Blau and Kahn (1997 and 2006) and section 2. Overall, manufacturing employment declined, particularly in the 1980s. In addition, some evidence indicates that technological change produced within-industry demand shifts that favored white-collar relative to blue-collar workers in general. Given that men have tended to hold a disproportionate share of manufacturing and blue-collar jobs, these shifts would be expected to benefit women relative to men (Berman, Bound, and Griliches 1994; Blau and Kahn 1997 and 2006). Further, evidence suggests that increased computer use favors women's wages compared to men (Krueger 1993; Weinberg 2000; Welch 2000; Autor, Levy, and Murnane 2003; Beaudry and Lewis 2014). This may reflect women's greater comparative advantage in cognitive relative to manual or motor skills ("brains" versus "brawn" to borrow Welch's (2000) terminology).[77] Moreover, Borghans, ter Weel, and Weinberg (2014) present evidence that interpersonal interactions have become more important with the spread of computers. Since women's interpersonal skills tend to exceed men's, on average, this factor worked to increase women's wages relative to men's (Borghans, ter Weel, and Weinberg 2014).

Finally, figures 1 and 2 show that the gender pay gap closed much more slowly after 1990 than during the 1980s. Some evidence for the importance of demand shifts in causing this slowdown comes from Blau and Kahn (2006), who find that demand shifts related to industries and occupations favoring women were smaller in the 1990s than in the 1980s. Moreover, Borghans, ter Weel, and Weinberg (2014) find that the growth in the demand for interpersonal skills was faster in the 1980s than in the 1990s. In both of these studies, the slowdown in demand shifts favorable to women coincided with the slowdown in gender wage convergence overall and in the unexplained gap obtained in

[76] While this was true of price shifts in the 1980s, our findings in table 5 indicate that for the 1980–2010 period, only changes in rewards to occupations produced substantial adverse price shifts for women.

[77] Bacolod and Blum (2010) present evidence that there has been an increase in the labor-market return to cognitive skills and a corresponding decrease in the return to motor skills. This has likely benefited women relative to men, since women tend to be more highly represented in occupations where cognitive skills are important while men are more likely to be in jobs that emphasize motor skills.

decompositions like those presented in section 2.

6.2 *International Comparative Evidence on the Impact of Wage Structure on the Gender Wage Gap*

As mentioned earlier, many other countries have far more centralized wage-setting institutions than the United States, resulting in a far higher degree of wage compression. Centralized collective bargaining tends to reduce wage differentials through the negotiation of relatively high wage floors, which raise the relative wages of those near the bottom of the distribution, including women (Blau and Kahn 1996a). In countries such as many of those in the OECD, unions cover a much larger portion of the labor market than in the United States, and wage setting is much more centralized, leading to overall wage compression. Several studies have found that this kind of overall wage compression helps to explain international differences in the gender pay gap at a point in time. For example, Blau and Kahn (1992 and 1996b) found that wage compression explained all of the difference between the US (with a relatively high) gender pay gap and that in nine other industrialized countries; and Blau and Kahn (2003) found that differences in wage compression were an important factor explaining differences in the gender pay gap across twenty-two countries. Similarly, Kidd and Shannon (1996) found that wage compression helped explain Australia's smaller gender pay gap in relation to Canada's. And some studies have found that changes in wage compression over time within a country help explain changes in the gender pay gap (Edin and Richardson 2002—Sweden; Datta Gupta, Oaxaca, and Smith 2006—Denmark).

One of the most dramatic changes in the world over the last twenty-five years has been the fall of communism. In former Soviet Bloc countries and in China as well, highly centralized wage-setting institutions with considerable wage compression were replaced with market-oriented, decentralized wage setting. These changes in institutions may be expected to widen the gender pay gap and this has indeed been found to be the case. For example, Brainerd (2000) found for the Czech Republic, Hungary, Poland, Russia, the Slovak Republic, and Ukraine that, after the fall of Communism, the wage structure became more dispersed and this raised the gender pay gap. Moreover, Orazem and Vodopivec (2000) found similar results for Slovenia after the fall of communism there, although there was little effect of the changing wage structure on the gender pay gap in Estonia. Finally, focusing on the 1988–2004 period, during which China's labor market became much less centralized as its economy became much more market oriented, Zhang et al. (2008) found that the resulting spread in the wage structure raised the gender pay gap considerably.

An additional test of the importance of wage structure is to look at employment. If firms take labor costs as given, high union-negotiated wage floors should lower female relative employment. And this is precisely what Bertola, Blau, and Kahn (2007) find in a study of relative employment in seventeen countries over the 1960–96 period. Specifically, they find that greater coverage by highly centralized unions lowers female employment and raises female unemployment, compared with men's.

7. *Conclusion*

We have shown that the gender pay gap in the United States fell dramatically from 1980 to 1989, with slower convergence continuing through 2010. Using PSID microdata, we documented the improvements over the 1980–2010 period in women's education, experience, and occupational representation, as well as the elimination of the female

shortfall in union coverage, and showed that they played an important role in the reduction in the gender pay gap. Particularly notable is that, by 2010, conventional human-capital variables (education and labor-market experience) taken together explained little of the gender wage gap in the aggregate. This is due to the reversal of the gender difference in education, as well as the substantial reduction in the gender experience gap. On the other hand, gender differences in location in the labor market—distribution by occupation and industry—continued to be important in explaining the gap in 2010. A decrease in the unexplained gap over the 1980s contributed to the robust convergence in the gender wage gap over that decade, with the unexplained gap falling sharply from 21–29 percent in 1980 to 8–18 percent by 1989. However, the unexplained gap did not fall further subsequently, remaining in this range over the succeeding twenty years. We also found that both the raw and the unexplained gender pay gap declined much more slowly at the top of the wage distribution that at the middle or the bottom. By 2010, the raw and unexplained female shortfalls in wages, which had been fairly similar across the wage distribution in 1980, were larger for the highly skilled than for others, suggesting that developments in the labor market for executives and highly skilled workers especially favored men.

Our review of the literature was designed to shed light on the explanations for the gender wage gap, both factors that have been traditionally emphasized and newer explanations that have been offered. We provided a discussion of the causes of women's improvements in measured skills, emphasizing the remarkable reversal of the gender gap in college attendance, as well as women's increasing commitment to the paid labor force. In light of the persistent unexplained pay gap, we then discussed recent research on gender differences in factors that standard data sets cannot measure, or which have not been the focus of conventional wage gap studies. We considered the ways in which conventional gender roles and gender identity, as well as the presence of children, can contribute to the gender wage gap. We also examined evidence on gender difference in mathematics test scores and noncognitive skills such as gender differences in attitudes toward competition, negotiation, and risk aversion.

We conclude that many of the traditional explanations continue to have salience for understanding the gender wage gap and changes in the gap, although some factors have increased and others have decreased in importance. One of our findings is that while convergence between men and women in traditional human-capital factors (education and experience) played an important role in the narrowing of the gender wage gap, these factors taken together explain relatively little of the wage gap in the aggregate now that, as noted above, women exceed men in educational attainment and have greatly reduced the gender experience gap. Nonetheless, labor-market experience remains an important factor in analyzing female wages, and the absence of data on prior labor-market experience in many widely used cross-sectional data sets, like the CPS and the ACS, remains an issue. Such information is likely increasingly relevant for male wages, as well in the wake of the disruptive effects of the great recession. Including retrospective experience questions in these data sets would address this important omission (see, Blau and Kahn 2013b). Moreover, recent research suggests an especially important role for work force interruptions and shorter hours in explaining gender wage gaps in high-skilled occupations than for the workforce as a whole—this work is particularly relevant in that, as we have seen, the gender wage gap at the top of the wage distribution appears to have decreased more slowly than at the middle and the

bottom. While this might suggest a continued relevance of human-capital factors for these labor markets, the interpretation of these findings in a human capital framework has been challenged. Goldin (2014), for example, argues that they more likely represent the impact of compensating differentials, in this case wage penalties for temporal flexibility. Additional research pinpointing when and where labor-force interruptions and hours differences are important and testing the reasons for their impact would be useful.

Although decreases in gender differences in occupational distributions contributed significantly to convergence in men's and women's wages, gender differences in occupations and industries are quantitatively the most important measurable factors explaining the gender wage gap (in an accounting sense). Thus, in contrast to human-capital factors, gender differences in location in the labor market, a factor long highlighted in research on the gender wage gap, remain exceedingly relevant. The continued importance of gender differences in employment by industry and occupation, as well as by firm, suggests the fruitfulness of research aimed at better understanding the underlying reasons for these gender differences, as well as their consequences. The growing availability of matched firm–worker data should facilitate such research.

Another factor emphasized in traditional analyses that remains important is differences in gender roles and the gender division of labor. Current research continues to find evidence of a motherhood penalty for women and a marriage premium for men. Moreover, the greater tendency of men to determine the geographic location of the family continues to be a factor even among highly educated couples. The importance of dual-career issues in the location of families highlights another area of potentially useful research in an era in which such couples have become increasingly important. Here, as in other areas, greater understanding of feedback effects would be important—the division of labor in the family potentially responds to, as well as causes, gender differences in wages.

The persistence of an unexplained gender wage gap suggests, though it does not prove, that labor-market discrimination continues to contribute to the gender wage gap, just as the decrease in the unexplained gap we found in our analysis of the trends over time in the gender gap suggests, though it does not prove, that decreases in discrimination help to explain the decrease in the gap. We cited some recent research based on experimental evidence that strongly suggests that discrimination cannot be discounted as contributing to the persistent gender wage gap. Indeed, we noted some experimental evidence that discrimination against mothers may help to account for the motherhood wage penalty as well. Future work could usefully focus on efforts to test for discrimination and understand its quantitative importance, as well as help us to better understand which model or models of discrimination are most consistent with the patterns we observe.

Psychological attributes or noncognitive skills comprise one of the newer explanations for gender differences in outcomes, and we have reviewed an impressive array of recent research suggesting that there are indeed notable gender differences along this dimension. While male advantages in some factors, like risk aversion and propensity to negotiate or compete, may help to explain not only some of the unexplained gender wage gap but also gender differences in occupations and fields of study, it is important to note that women may have advantages in some other areas, like interpersonal skills. Moreover, we found evidence that gender differences in some psychological attributes/noncognitive skills can themselves be affected by social context and thus might not be independent causes of the gender pay gap

in the first place. And, while gender differences in some psychological attributes/noncognitive skills have been observed, more work is needed to confirm these differences outside the laboratory setting where much of the research has been focused, although we have reviewed some recent studies that have done so. In addition, there is also relatively little research that would enable us to determine the quantitative importance of these differences for the gender wage gap. To address this issue, we focused on a subset of papers in this area that used methods, primarily regression analysis of survey data, which permitted us to calculate the quantitative evidence on the importance of these factors. The notable finding from this exercise is that, in each case, gender differences in psychological factors account for a small to moderate portion of the gender pay gap, considerably smaller than, say, occupation and industry effects, though they appear to modestly contribute to these differences. Thus, this source of the gender gap, based at least on what we know at this point, while worth pursuing, does not appear to provide a silver bullet in our understanding of gender differences in labor-market outcomes. Continued research in this and other areas is likely to benefit from field experiments, which arguably provide credible exogenous variation in the economic environment facing workers as well as real-world settings, and will likely continue to provide insights into gender differences in preferences, behavior, and labor-market outcomes.

Finally, we reviewed research that finds that, given men's and women's differing skill levels and locations in the economy (by occupation, industry, and firm), overall labor market prices can have a significant effect on the gender wage gap. In particular, the more compressed wage structures in many other OECD countries, due to the greater role of unions and other centralized wage-setting institutions in these countries, have served to lower the gender pay gap there relative to the United States by bringing up the bottom of the wage distribution. This appears to have also lowered female employment and raised female unemployment compared with men, as would be expected if higher wage floors are binding. This evidence on the impact of wage-setting institutions on the gender wage gap could become increasingly relevant to the United States as minimum wage hikes, some quite substantial, are being contemplated at many levels of government.

Data Appendix

Here, we briefly summarize a number of data issues for the analyses in tables 1–6 based on microdata taken from the indicated waves of the PSID and the March CPS. (See our online data appendix for a fuller description.) The PSID is the only data source that has information on actual labor-market experience for the full age range of the population. However, because the PSID only supplies this work history information for family heads and spouses/cohabitors, it does not cover adults who are living with relatives, such as grown children living in their parents' home. In addition, the PSID's base sample began with roughly 5,000 families from 1968, when immigrants were a much smaller portion of the population. This means that the current PSID sample, which consists of these original families plus split-offs, undercounts immigrants today. For these reasons, we also show data from the CPS that are more representative of the whole US population.

We focus on men and women aged 25–64 who were full time, nonfarm, wage and salary workers and who worked at least twenty-six weeks during the preceding year. We also excluded those in the military. See table 1 for sample sizes. This age group has, for the most part, left school, allowing us to abstract

from issues of combining work and school attendance. Limiting the top of the age range to sixty-four to some degree abstracts from normal retirement issues (patterns were very similar when we limited the sample to ages 25–54). In addition, by limiting our sample to those who worked full time and had at least twenty-six weeks of work in the prior year, we are focusing on those with a relatively strong labor-market commitment. This sample restriction leads to a relatively homogeneous sample with respect to this commitment, allowing us to reach more accurate conclusions about the prices women and men face in the labor market. We exclude the self-employed and those in agriculture on the grounds that it is difficult to separate labor income from capital income or income in kind for these groups. Our basic dependent variable is the log of average hourly earnings, which we compute in the PSID by dividing annual labor earnings by annual hours worked and in the CPS by dividing annual wage and salary earnings by annual hours worked. Means and other data presented here are for the sample used in our regression analyses. In the PSID, we exclude cases with missing data on the dependent or explanatory variables, or variables needed to compute them. In the CPS, we exclude cases with allocated earnings.

For early years of the PSID, separate values for wage and salary income and self-employment/farm income are not available for wives. Therefore, for analyses using the PSID, we use total labor earnings for people who report that they were not self-employed on any job. In earlier work (Blau and Kahn 2004), we showed that this did not have an important effect on average hourly earnings among household heads, a group for which we had data on both total labor earnings and wage and salary earnings. While the PSID does not topcode earnings, the CPS does, although the method for doing so changed. For 1981 and 1990, the topcoded values represented true top codes. In those years, we multiplied the topcoded value by 1.45. In 1999, the topcode was replaced with the mean earnings for topcoded individuals with similar characteristics and, in 2011, a rank proximity-swapping procedure was used. In those years, we used the values provided in the CPS.[78] (In each year, less than 2 percent of the sample was topcoded.) In both data sets, we exclude those earning less than $2/hour in 2010 dollars, using the Personal Consumption Expenditures deflator (taken from www.bea.gov). This cutoff equals 28–38 percent of the real federal minimum wage across our sample period (see http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1#reqid=9&step=3&isuri=1&904=1980&903=4&906=a&905=2014&910=x&911=0, accessed August 19, 2014 and http://www.dol.gov/whd/minwage/chart.htm, accessed August 19, 2014). We experimented with other cutoffs, including a flat $3/hour in 2010 dollars, as well as using 50 percent of each year's real minimum wage as a cutoff. The results were very similar to those presented here.

Data on actual experience from the PSID are obtained as follows. Whenever people join the PSID panel for the first time as a head or partner, they are asked how many years they worked since they were eighteen years old, and, of these years, how many involved full-time work. In addition, in other years (1976 and 1985), the PSID asked all heads and partners these two questions regardless of when they joined the panel. The answers to these questions form the base from which we calculate actual full-time experience and part-time experience (which is defined as total experience minus full-time experience). Once we have these initial values for

[78] See our online data appendix and IPUMS CPS, "Income Components: Topcodes, Replacement Values, and Swap Values," available at https://cps.ipums.org/cps/topcodes_tables.shtml .

full-time and part-time experience, we fill in the period between the date these questions were asked and the focal year by using the longitudinal work history data collected for all heads and partners in the years after they join the panel or in the years after 1976 or 1985, whichever comes last. For example, suppose the respondent joined the panel in 1987 and we want to compute full-time and part-time experience as of the 1990 survey. These were collected as of 1987. We then add one to total labor market experience for each year between 1987 and 1990 in which the person worked positive hours and one for full-time experience for each year the person worked at least 1,500 hours. Part-time experience is increased by one for each year there were positive but less than 1,500 hours of employment.

One complication that arises is that the PSID began skipping alternate years with the 1999 survey, meaning that for 1999 and beyond we need to fill in two years of experience. As described in the online appendix, each wave contains different information that can be used to extract work status in the gap year (e.g., 1997–98). Upon extracting as much information as possible, remaining missing values were filled using statistical methods to impute the probability of working and full-time/part-time employment. For example, suppose we do not have information on annual work hours between 1997 and 1998. To fill in this missing year of experience, we estimate logit models separately by gender for having positive work hours and for working at least 1,500 hours in the previous year for both 1997 and 1999. To estimate total and full-time experience for the missing year (i.e. the year between 1997 and 1998), we average the two predicted values for these variables from the 1999 logit and the 1997 logit. (This procedure is described in greater detail in the online appendix.) Note that we do not fill in missing observations for other variables in this fashion. Our rationale for doing so for work experience is that it accumulates over time. If a respondent has a single missing value for any wave, then all subsequent work experience values will also be missing. Due to this cumulative nature, we fill in missing values for this variable.

References

Acemoglu, Daron, and Jörn-Steffen Pischke. 1999. "The Structure of Wages and Investment in General Training." *Journal of Political Economy* 107 (3): 539–72.

Addison, John T., Orgul Demet Ozturk, and Si Wang. 2014. "The Role of Gender in Promotion and Pay over a Career." *Journal of Human Capital* 8 (3): 280–317.

Aigner, Dennis J., and Glen G. Cain. 1977. "Statistical Theories of Discrimination in Labor Markets." *ILR Review* 30 (2): 175–87.

Akerlof, George A., and Rachel E. Kranton. 2010. *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton and Oxford: Princeton University Press.

Albanesi, Stefania, and Claudia Olivetti. 2009. "Home Production, Market Production and the Gender Wage Gap: Incentives and Expectations." *Review of Economic Dynamics* 12 (1): 80–107.

Albrecht, James, Anders Björklund, and Susan Vroman. 2003. "Is There a Glass Ceiling in Sweden?" *Journal of Labor Economics* 21 (1): 145–77.

Altonji, Joseph G., and Rebecca M. Blank. 1999. "Race and Gender in the Labor Market." In *Handbook of Labor Economics: Volume 3C*, edited by Orley C. Ashenfelter and David Card, 3143–259. Amsterdam and Boston: Elsevier, North-Holland.

Altonji, Joseph G., and Charles R. Pierret. 2001. "Employer Learning and Statistical Discrimination." *Quarterly Journal of Economics* 116 (1): 313–50.

Altonji, Joseph G., and James R. Spletzer. 1991. "Worker Characteristics, Job Characteristics, and the Receipt of On-the-Job Training." *ILR Review* 45 (1): 58–79.

Amuedo-Dorantes, Catalina, and Shoshana Grossbard. 2007. "Cohort-Level Sex Ratio Effects on Women's Labor Force Participation." *Review of Economics of the Household* 5 (3): 249–78.

Arrow, Kenneth. 1973. "The Theory of Discrimination." In *Discrimination in Labor Markets*, edited by Orley Ashenfelter and Albert Rees, 3–33. Princeton and Oxford: Princeton University Press.

Arulampalam, Wiji, Alison L. Booth, and Mark L. Bryan. 2007. "Is There a Glass Ceiling over Europe? Exploring the Gender Pay Gap across the Wage Distribution." *ILR Review* 60 (2): 163–86.

Autor, David H., Lawrence F. Katz, and Melissa S. Kearney. 2008. "Trends in U.S. Wage Inequality: Revising the Revisionists." *Review of Economics and Statistics* 90 (2): 300–323.

Autor, David H., Frank Levy, and Richard J. Murnane. 2003. "The Skill Content of Recent Technological Change: An Empirical Exploration." *Quarterly Journal of Economics* 118 (4): 1279–333.

Babcock, Linda, and Sara Laschever. 2003. *Women Don't Ask: Negotiation and the Gender Divide*. Princeton and Oxford: Princeton University Press.

Bacolod, Marigee P., and Bernardo S. Blum. 2010. "Two Sides of the Same Coin: U.S. 'Residual' Inequality and the Gender Gap." *Journal of Human Resources* 45 (1): 197–242.

Bailey, Martha J. 2006. "More Power to the Pill: The Impact of Contraceptive Freedom on Women's Life Cycle Labor Supply." *Quarterly Journal of Economics* 121 (1): 289–320.

Bailey, Martha J., Brad Hershbein, and Amalia R. Miller. 2012. "The Opt-In Revolution? Contraception and the Gender Gap in Wages." *American Economic Journal: Applied Economics* 4 (3): 225–54.

Barron, John M., Dan A. Black, and Mark A. Loewenstein. 1993. "Gender Differences in Training, Capital, and Wages." *Journal of Human Resources* 28 (2): 343–64.

Barth, Erling, and Harald Dale-Olsen. 2009. "Monopsonistic Discrimination, Worker Turnover, and the Gender Wage Gap." *Labour Economics* 16 (5): 589–97.

Baum, Charles L. 2003. "The Effect of State Maternity Leave Legislation and the 1993 Family and Medical Leave Act on Employment and Wages." *Labour Economics* 10 (5): 573–96.

Baum, Charles L., and Christopher J. Ruhm. 2013. "The Effects of Paid Family Leave in California on Labor Market Outcomes." National Bureau of Economic Research Working Paper 19741.

Bayard, Kimberly, Judith Hellerstein, David Neumark, and Kenneth Troske. 2003. "New Evidence on Sex Segregation and Sex Differences in Wages from Matched Employee–Employer Data." *Journal of Labor Economics* 21 (4): 887–922.

Beaudry, Paul, and Ethan Lewis. 2014. "Do Male–Female Wage Differentials Reflect Differences in the Return to Skill? Cross-City Evidence from 1980–2000." *American Economic Journal: Applied Economics* 6 (2): 178–94.

Becker, Gary S. 1971. *The Economics of Discrimination*, Second edition. Chicago and London: University of Chicago Press, 1957.

Becker, Gary S. 1985. "Human Capital, Effort, and the Sexual Division of Labor." *Journal of Labor Economics* 3 (1 Part 2): S33–58.

Becker, Gary S. 1991. *A Treatise on the Family*. Cambridge, MA and London: Harvard University Press, 1981.

Becker, Gary S. 1993. *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, Third edition. Chicago and London: University of Chicago Press, 1964.

Becker, Gary S., William H. J. Hubbard, and Kevin M. Murphy. 2010. "Explaining the Worldwide Boom in Higher Education of Women." *Journal of Human Capital* 4 (3): 203–41.

Bell, Linda A. 2005. "Women-Led Firms and the Gender Gap in Top Executive Jobs." Institute for the Study of Labor Discussion Paper 1689.

Beller, Andrea H. 1979. "The Impact of Equal Employment Opportunity Laws on the Male/Female Earnings Differential." In *Women in the Labor Market*, edited by Cynthia B. Lloyd, Emily S. Andrews, and Curtis L. Gilroy, 304–30. New York: Columbia University Press.

Beller, Andrea H. 1982. "Occupational Segregation By Sex: Determinants and Changes." *Journal of Human Resources* 17 (3): 371–92.

Benson, Alan. 2014. "Rethinking the Two-Body Problem: The Segregation of Women into Geographically Dispersed Occupations." *Demography* 51 (5): 1619–39.

Bergmann, Barbara R. 1974. "Occupational Segregation, Wages and Profits When Employers Discriminate By Race or Sex." *Eastern Economic Journal* 1 (2): 103–10.

Berman, Eli, John Bound, and Zvi Griliches. 1994. "Changes in the Demand for Skilled Labor within U.S. Manufacturing: Evidence from the Annual Survey of Manufactures." *Quarterly Journal of Economics* 109 (2): 367–97.

Bertola, Giuseppe, Francine D. Blau, and Lawrence M. Kahn. 2007. "Labor Market Institutions and Demographic Employment Patterns." *Journal of Population Economics* 20 (4): 833–67.

Bertrand, Marianne. 2011. "New Perspectives on Gender." In *Handbook of Labor Economics*, Volume 4B, edited by Orley Ashenfelter and David Card, 1543–90. Amsterdam and Boston: Elsevier, North-Holland.

Bertrand, Marianne, Sandra E. Black, Sissel Jensen, and Adriana Lleras-Muney. 2014. "Breaking the Glass Ceiling? The Effect of Board Quotas on Female Labor Market Outcomes in Norway." National Bureau of Economic Research Working Paper 20256.

Bertrand, Marianne, Dolly Chugh, and Sendhil Mullainathan. 2005. "Implicit Discrimination." *American Economic Review* 95 (2): 94–98.

Bertrand, Marianne, Claudia Goldin, and Lawrence F. Katz. 2010. "Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors." *American Economic Journal: Applied Economics* 2 (3): 228–55.

Bertrand, Marianne, and Kevin F. Hallock. 2001. "The Gender Gap in Top Corporate Jobs." *ILR Review* 55 (1): 3–21.

Bertrand, Marianne, Emir Kamenica, and Jessica Pan. 2015. "Gender Identity and Relative Income within Households." *Quarterly Journal of Economics* 130 (2): 571–614.

Bianchi, Suzanne M., and Nancy Rytina. 1986. "The Decline in Occupational Sex Segregation during the 1970s: Census and CPS Comparisons." *Demography* 23 (1): 79–86.

Black, Dan A. 1995. "Discrimination in an Equilibrium Search Model." *Journal of Labor Economics* 13

(2): 309–34.
Black, Dan A., Amelia M. Haviland, Seth G. Sanders, and Lowell J. Taylor. 2008. "Gender Wage Disparities among the Highly Educated." *Journal of Human Resources* 43 (3): 630–59.
Black, Sandra E., and Elizabeth Brainerd. 2004. "Importing Equality? The Impact of Globalization on Gender Discrimination." *ILR Review* 57 (4): 540–59.
Black, Sandra E., and Philip E. Strahan. 2001. "The Division of Spoils: Rent-Sharing and Discrimination in a Regulated Industry." *American Economic Review* 91 (4): 814–31.
Blank, Rebecca M. 1990. "Are Part-Time Jobs Bad Jobs?" In *A Future of Lousy Jobs? The Changing Structure of U.S. Wages*, edited by Gary Burtless, 123–55. Washington, DC: Brookings Institution Press.
Blau, Francine D. 1977. *Equal Pay in the Office*. Lexington: Lexington Books.
Blau, Francine D. 1998. "Trends in the Well-Being of American Women, 1970–1995." *Journal of Economic Literature* 36 (1): 112–65.
Blau, Francine D., and Andrea H. Beller. 1988. "Trends in Earnings Differentials By Gender, 1971–1981." *ILR Review* 41 (4): 513–29.
Blau, Francine D., Peter Brummund, and Albert Yung-Hsu Liu. 2013a. "Erratum to: Trends in Occupational Segregation By Gender 1970–2009: Adjusting for the Impact of Changes in the Occupational Coding System." *Demography* 50 (2): 493–94.
Blau, Francine D., Peter Brummund, and Albert Yung-Hsu Liu. 2013b. "Trends in Occupational Segregation By Gender 1970–2009: Adjusting for the Impact of Changes in the Occupational Coding System." *Demography* 50 (2): 471–92.
Blau, Francine D., and Jed Devaro. 2007. "New Evidence on Gender Differences in Promotion Rates: An Empirical Analysis of a Sample of New Hires." *Industrial Relations* 46 (3): 511–50.
Blau, Francine D., Marianne A. Ferber, and Anne E. Winkler. 2014. *The Economics of Women, Men, and Work*, Seventh edition. Upper Saddle River, NJ: Pearson.
Blau, Francine D., and Lawrence M. Kahn. 1981. "Race and Sex Differences in Quits By Young Workers." *ILR Review* 34 (4): 563–77.
Blau, Francine D., and Lawrence M. Kahn. 1992. "The Gender Earnings Gap: Learning from International Comparisons." *American Economic Review* 82 (2): 533–38.
Blau, Francine D., and Lawrence M. Kahn. 1996a. "International Differences in Male Wage Inequality: Institutions versus Market Forces." *Journal of Political Economy* 104 (4): 791–837.
Blau, Francine D., and Lawrence M. Kahn. 1996b. "Wage Structure and Gender Earnings Differentials: An International Comparison." *Economica* 63 (250): S29–62.
Blau, Francine D., and Lawrence M. Kahn. 1997. "Swimming Upstream: Trends in the Gender Wage Differential in the 1980s." *Journal of Labor Economics* 15 (1 Part 1): 1–42.
Blau, Francine D., and Lawrence M. Kahn. 2003. "Understanding International Differences in the Gender Pay Gap." *Journal of Labor Economics* 21 (1): 106–44.
Blau, Francine D., and Lawrence M. Kahn. 2004. "The US Gender Pay Gap in the 1990s: Slowing Convergence." National Bureau of Economic Research Working Paper 10853.
Blau, Francine D., and Lawrence M. Kahn. 2006. "The U.S. Gender Pay Gap in the 1990s: Slowing Convergence." *ILR Review* 60 (1): 45–66.
Blau, Francine D., and Lawrence M. Kahn. 2007. "Changes in the Labor Supply Behavior of Married Women: 1980–2000." *Journal of Labor Economics* 25 (3): 393–438.
Blau, Francine D., and Lawrence M. Kahn. 2008. "Women's Work and Wages." In *The New Palgrave Dictionary of Economics*, Second edition, edited by Steven N. Durlauf and Lawrence E. Blume, 762–72. London: Palgrave Macmillan.
Blau, Francine D., and Lawrence M. Kahn. 2013a. "Female Labor Supply: Why Is the United States Falling Behind?" *American Economic Review* 103 (3): 251–56.
Blau, Francine D., and Lawrence M. Kahn. 2013b. "The Feasibility and Importance of Adding Measures of Actual Experience to Cross-Sectional Data Collection." *Journal of Labor Economics* 31 (2 Part 2): S17–58.
Blau, Francine D. and Anne E. Winkler. 2018. *The Economics of Women, Men, and Work*, Eighth edition. Oxford and New York: Oxford University Press.
Blinder, Alan S. 1973. "Wage Discrimination: Reduced Form and Structural Estimates." *Journal of Human Resources* 8 (4): 436–55.
Blundell, Richard, Amanda Gosling, Hidehiko Ichimura, and Costas Meghir. 2007. "Changes in the Distribution of Male and Female Wages Accounting for Employment Composition Using Bounds." *Econometrica* 75 (2): 323–63.
Borghans, Lex, Bas ter Weel, and Bruce A. Weinberg. 2014. "People Skills and the Labor-Market Outcomes of Underrepresented Groups." *ILR Review* 67 (2): 287–334.
Bowles, Hannah Riley, Linda Babcock, and Lei Lai. 2007. "Social Incentives for Gender Differences in the Propensity to Initiate Negotiations: Sometimes It Does Hurt to Ask." *Organizational Behavior and Human Decision Processes* 103 (1): 84–103.
Brainerd, Elizabeth. 2000. "Women in Transition: Changes in Gender Wage Differentials in Eastern Europe and the Former Soviet Union." *ILR Review* 54 (1): 138–62.
Bronson, Mary Ann. 2015. "Degrees Are Forever: Marriage, Educational Investment, and Lifecycle Labor Decisions of Men and Women." Unpublished.
Buser, Thomas, Muriel Niederle, and Hessel Oosterbeek. 2014. "Gender, Competitiveness and Career Choices." *Quarterly Journal of Economics* 129 (3): 1409–47.

Card, David, Ana Rute Cardoso, and Patrick Kline. 2016. "Bargaining, Sorting, and the Gender Wage Gap: Quantifying the Impact of Firms on the Relative Pay of Women." *Quarterly Journal of Economics* 131 (2): 633–86.

Carrington, William J., Kristin McCue, and Brooks Pierce. 2000. "Using Establishment Size to Measure the Impact of Title VII and Affirmative Action." *Journal of Human Resources* 35 (3): 503–23.

Cattan, Sarah. 2014. "Psychological Traits and the Gender Wage Gap." Unpublished.

Cha, Youngjoo, and Kim A. Weeden. 2014. "Overwork and the Slow Convergence in the Gender Gap in Wages." *American Sociological Review* 79 (3): 457–84.

Ceci, Stephen J., Donna K. Ginther, Shulamit Kahn, and Wendy M. Williams. 2014. "Women in Academic Science: A Changing Landscape." *Psychological Science* 15 (3): 75–141.

Chernozhukov, Victor, Iván Fernández-Val, and Blaise Melly. 2013. "Inference on Counterfactual Distributions." *Econometrica* 81 (6): 2205–68.

Cobb-Clark, Deborah A. 2001. "Getting Ahead: The Determinants of and Payoffs to Internal Promotion for Young U.S. Men and Women." In *Gender Convergence in the Labor Market*, edited by Solomon Polachek, 339–72. Bingley, UK: Emerald.

Compton, Janice, and Robert A. Pollak. 2007. "Why Are Power Couples Increasingly Concentrated in Large Metropolitan Areas?" *Journal of Labor Economics* 25 (3): 475–512.

Cooke, Thomas J., Paul Boyle, Kenneth Couch, and Peteke Feijten. 2009. "A Longitudinal Analysis of Family Migration and the Gender Gap in Earnings in the United States and Great Britain." *Demography* 46 (1): 147–67.

Correll, Shelley J., Stephen Benard, and In Paik. 2007. "Getting a Job: Is There a Motherhood Penalty?" *American Journal of Sociology* 112 (5): 1297–338.

Cortes, Patricia, and Jessica Pan. 2016. "When Time Binds: Returns to Working Long Hours and the Gender Wage Gap among the Highly Skilled." Institute for the Study of Labor Discussion Paper 9846.

Costa, Dora L., and Matthew E. Kahn. 2000. "Power Couples: Changes in the Locational Choice of the College Educated, 1940–1990." *Quarterly Journal of Economics* 115 (4): 1287–315.

Cotter, David, Joan M. Hermsen, and Reeve Vanneman. 2011. "The End of the Gender Revolution? Gender Role Attitudes from 1977 to 2008." *American Journal of Sociology* 117 (1): 259–89.

Cotton, Jeremiah. 1988. "On the Decomposition of Wage Differentials." *Review of Economics and Statistics* 70 (2): 236–43.

Croson, Rachel, and Uri Gneezy. 2009. "Gender Differences in Preferences." *Journal of Economic Literature* 47 (2): 448–74.

Dahl, Gordon B., Katrine V. Løken, and Magne Mogstad. 2014. "Peer Effects in Program Participation." *American Economic Review* 104 (7): 2049–74.

Datta Gupta, Nabanita, Ronald L. Oaxaca, and Nina Smith. 2006. "Swimming Upstream, Floating Downstream: Comparing Women's Relative Wage Progress in the United States and Denmark." *ILR Review* 59 (2): 243–66.

DiNardo, John, Nicole M. Fortin, and Thomas Lemieux. 1996. "Labor Market Institutions and the Distribution of Wages, 1973–1992: A Semiparametric Approach." *Econometrica* 64 (5): 1001–44.

DiPrete, Thomas A., and Claudia Buchmann. 2006. "Gender-Specific Trends in the Value of Education and the Emerging Gender Gap in College Completion." *Demography* 43 (1): 1–24.

Donohue, John J., III, and James Heckman. 1991. "Continuous versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks." *Journal of Economic Literature* 29 (4): 1603–43.

Dougherty, Christopher. 2005. "Why Are the Returns to Schooling Higher for Women than for Men?" *Journal of Human Resources* 40 (4): 969–88.

Duncan, Otis Dudley, and Beverly Duncan. 1955. "A Methodological Analysis of Segregation Indexes." *American Sociological Review* 20 (2): 210–17.

Eckel, Catherine C., and Sascha C. Füllbrunn. 2015. "Thar SHE Blows? Gender, Competition, and Bubbles in Experimental Asset Markets." *American Economic Review* 105 (2): 906–20.

Edin, Per-Anders, and Katarina Richardson. 2002. "Swimming with the Tide: Solidary Wage Policy and the Gender Earnings Gap." *Scandinavian Journal of Economics* 104 (1): 49–67.

Ehrenberg, Ronald G., George H. Jakubson, Mirinda L. Martin, Joyce B. Main, and Thomas Eisenberg. 2012. "Diversifying the Faculty across Gender Lines: Do Trustees and Administrators Matter?" *Economics of Education Review* 31 (1): 9–18.

England, Paula, and Su Li. 2006. "Desegregation Stalled: The Changing Gender Composition of College Majors, 1971–2002." *Gender and Society* 20 (5): 657–77.

Farber, Henry S., and Robert Gibbons. 1996. "Learning and Wage Dynamics." *Quarterly Journal of Economics* 111 (4): 1007–47.

Firpo, Sergio, Nicole M. Fortin, and Thomas Lemieux. 2009. "Unconditional Quantile Regressions." *Econometrica* 77 (3): 953–73.

Fiske, Susan T. 1998. "Stereotyping, Prejudice, and Discrimination." In *The Handbook of Social Psychology*, Fourth edition, edited by Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindzey, 357–411. New York: McGraw-Hill.

Flabbi, Luca, and Andrea Moro. 2012. "The Effect of Job Flexibility on Female Labor Market Outcomes: Estimates from a Search and Bargaining Model." *Journal of Econometrics* 168 (1): 81–95.

Flory, Jeffrey A., Andreas Leibbrandt, and John A. List. 2015. "Do Competitive Workplaces Deter Female Workers? A Large-Scale Natural Field Experiment on Job Entry Decisions." *Review of Economic Studies* 82 (1): 122–55.

Folbre, Nancy, ed. 2012. *For Love and Money: Care*

Provision in the United States. New York: Russell Sage Foundation.
Fortin, Nicole M. 2008. "The Gender Wage Gap among Young Adults in the United States: The Importance of Money versus People." *Journal of Human Resources* 43 (4): 884–918.
Fortin, Nicole M. 2015. "Gender Role Attitudes and Women's Labor Market Participation: Opting-Out, AIDS, and the Persistent Appeal of Housewifery." *Annals of Economics and Statistics* 117–118: 379–401.
Frank, Robert H. 1978. "Why Women Earn Less: The Theory and Estimation of Differential Overqualification." *American Economic Review* 68 (3): 360–73.
Fryer, Roland G., Jr., and Steven D. Levitt. 2010. "An Empirical Analysis of the Gender Gap in Mathematics." *American Economic Journal: Applied Economics* 2 (2): 210–40.
Fuchs, Victor R. 1971. "Differences in Hourly Earnings between Men and Women." *Monthly Labor Review* 94 (5): 9–15.
Fuchs, Victor R. 1988. "Women's Quest for Economic Equality." Cambridge, MA and London: Harvard University Press.
Gayle, George-Levi, and Limor Golan. 2012. "Estimating a Dynamic Adverse-Selection Model: Labour-Force Experience and the Changing Gender Earnings Gap 1968–1997." *Review of Economic Studies* 79 (1): 227–67.
Gayle, George-Levi, Limor Golan, and Robert A. Miller. 2012. "Gender Differences in Executive Compensation and Job Mobility." *Journal of Labor Economics* 30 (4): 829–72.
Ginther, Donna, and Shulamit Kahn. 2014. "Academic Women's Careers in the Social Sciences." In *The Economics of Economists: Institutional Setting, Individual Incentives, and Future Prospects*, edited by Alessandro Lanteri and Jack Vromen, 285–315. Cambridge and New York: Cambridge University Press.
Gneezy, Uri, Kenneth L. Leonard, and John A. List. 2009. "Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society." *Econometrica* 77 (5): 1637–64.
Gneezy, Uri, Muriel Niederle, and Aldo Rustichini. 2003. "Performance in Competitive Environments: Gender Differences." *Quarterly Journal of Economics* 118 (3): 1049–74.
Goldin, Claudia. 1990. *Understanding the Gender Gap: An Economic History of American Women*. New York and Oxford: Oxford University Press.
Goldin, Claudia. 1997. "Career and Family: College Women Look to the Past." In *Gender and Family Issues in the Workplace*, edited by Francine D. Blau and Ronald G. Ehrenberg, 20–58. New York: Russell Sage Foundation.
Goldin, Claudia. 2006. "The Quiet Revolution That Transformed Women's Employment, Education, and Family." *American Economic Review* 96 (2): 1–21.
Goldin, Claudia. 2014. "A Grand Gender Convergence: Its Last Chapter." *American Economic Review* 104 (4): 1091–119.
Goldin, Claudia, and Lawrence F. Katz. 2002. "The Power of the Pill: Oral Contraceptives and Women's Career and Marriage Decisions." *Journal of Political Economy* 110 (4): 730–70.
Goldin, Claudia, and Lawrence F. Katz. 2016. "A Most Egalitarian Profession: Pharmacy and the Evolution of a Family-Friendly Occupation." *Journal of Labor Economics* 34 (3): 705–46.
Goldin, Claudia, Lawrence F. Katz, and Ilyana Kuziemko. 2006. "The Homecoming of American College Women: The Reversal of the College Gender Gap." *Journal of Economic Perspectives* 20 (4): 133–56.
Goldin, Claudia, and Cecilia Rouse. 2000. "Orchestrating Impartiality: The Impact of 'Blind' Auditions on Female Musicians." *American Economic Review* 90 (4): 715–41.
Greenwald, Anthony G., Debbie E. McGhee, and Jordan L. K. Schwartz. 1998. "Measuring Individual Differences in Implicit Cognition: The Implicit Association Test." *Journal of Personality and Social Psychology* 74 (6): 1464–80.
Greenwood, Jeremy, Ananth Seshadri, and Mehmet Yorukoglu. 2005. "Engines of Liberation." *Review of Economic Studies* 72 (1): 109–33.
Gronau, Reuben. 1974. "Wage Comparisons—A Selectivity Bias." *Journal of Political Economy* 82 (6): 1119–43.
Groshen, Erica L. 1991. "The Structure of the Female/Male Wage Differential: Is It Who You Are, What You Do, or Where You Work?" *Journal of Human Resources* 26 (3): 457–72.
Gross, Edward. 1968. "Plus ca change . . . ? The Sexual Structure of Occupations over Time." *Social Problems* 16 (2): 198–208.
Gruber, Jonathan. 1994. "The Incidence of Mandated Maternity Benefits." *American Economic Review* 84 (3): 622–41.
Guiso, Luigi, Ferdinando Monte, Paola Sapienza, and Luigi Zingales. 2008. "Culture, Gender, and Math." *Science* 320 (5880): 1164–65.
Harrison, Glenn W., and John A. List. 2004. "Field Experiments." *Journal of Economic Literature* 42 (4): 1009–55.
Heckman, James J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47 (1): 153–61.
Heckman, James J., and Tim Kautz. 2012. "Hard Evidence on Soft Skills." *Labour Economics* 19 (4): 451–64.
Heim, Bradley T. 2007. "The Incredible Shrinking Elasticities: Married Female Labor Supply, 1978–2002." *Journal of Human Resources* 42 (4): 881–918.
Hellerstein, Judith K., David Neumark, and Kenneth R. Troske. 2002. "Market Forces and Sex Discrimination." *Journal of Human Resources* 37 (2): 353–80.
Hersch, Joni. 2007. "Sex Discrimination in the Labor Market." *Foundations and Trends in Microeconomics* 2 (4): 281–361.
Hersch, Joni. 2013. "Opting Out among Women with Elite Education." *Review of Economics of the Household* 11 (4): 469–506.

Hersch, Joni, and Leslie S. Stratton. 1997. "Housework, Fixed Effects, and Wages of Married Workers." *Journal of Human Resources* 32 (2): 285–307.

Hersch, Joni, and Leslie S. Stratton. 2002. "Housework and Wages." *Journal of Human Resources* 37 (1): 217–29.

Hersch, Joni, and W. Kip Viscusi. 1996. "Gender Differences in Promotions and Wages." *Industrial Relations* 35 (4): 461–72.

Heyman, Fredrik, Helena Svaleryd, and Jonas Vlachos. 2013. "Competition, Takeovers, and Gender Discrimination." *ILR Review* 66 (2): 409–32.

Hirsch, Barry T. 2005. "Why Do Part-Time Workers Earn Less? The Role of Worker and Job Skills." *ILR Review* 58 (4): 525–51.

Hirsch, Barry T., and Julia Manzella. 2015. "Who Cares—and Does It Matter? Measuring Wage Penalties for Caring Work." *Research in Labor Economics* 41: 213–75.

Hirsch, Boris, Thorsten Schank, and Claus Schnabel. 2010. "Differences in Labor Supply to Monopsonistic Firms and the Gender Pay Gap: An Empirical Analysis Using Linked Employer–Employee Data from Germany." *Journal of Labor Economics* 28 (2): 291–330.

Hoffman, Moshe, Uri Gneezy, and John A. List. 2011. "Nurture Affects Gender Differences in Spatial Abilities." *Proceedings of the National Academy of Sciences* 108 (36): 14786–88.

Holzer, Harry, and David Neumark. 1999. "Are Affirmative Action Hires Less Qualified? Evidence from Employer–Employee Data on New Hires." *Journal of Labor Economics* 17 (3): 534–69.

Holzer, Harry, and David Neumark. 2000a. "Assessing Affirmative Action." *Journal of Economic Literature* 38 (3): 483–568.

Holzer, Harry, and David Neumark. 2000b. "What Does Affirmative Action Do?" *ILR Review* 53 (2): 240–71.

Hubbard, William H. J. 2011. "The Phantom Gender Difference in the College Wage Premium." *Journal of Human Resources* 46 (3): 568–86.

Hyde, Janet S., Sara M. Lindberg, Marcia C. Linn, Amy B. Ellis, and Caroline C. Williams. 2008. "Gender Similarities Characterize Math Performance." *Science* 321 (5888): 494–95.

Jacobs, Jerry A. 1989. "Long-Term Trends in Occupational Segregation By Sex." *American Journal of Sociology* 95 (1): 160–73.

Jacobsen, Joyce P. 1994. "Trends in Workforce Sex Segregation, 1960–1990." *Social Science Quarterly* 75 (1): 204–11.

Jacobsen, Joyce P., Melanie Khamis, and Mutlu Yuksel. 2014. "Convergences in Men's and Women's Life Patterns: Lifetime Work, Lifetime Earnings, and Human Capital Investment." Institute for the Study of Labor Discussion Paper 8425.

Judge, Timothy A., Beth A. Livingston, and Charlie Hurst. 2012. "Do Nice Guys—and Gals—Really Finish Last? The Joint Effects of Sex and Agreeableness on Income." *Journal of Personality and Social Psychology* 102 (2): 390–407.

Juhn, Chinhui, and Kevin M. Murphy. 1997. "Wage Inequality and Family Labor Supply." *Journal of Labor Economics* 15 (1 Part 1): 72–97.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce. 1991. "Accounting for the Slowdown in Black–White Wage Convergence." In *Workers and Their Wages: Changing Patterns in the United States*, edited by Marvin H. Kosters, 107–43. Washington, DC: American Enterprise Institute.

Kahn, Lisa B. 2013. "Asymmetric Information between Employers." *American Economic Journal: Applied Economics* 5 (4): 165–205.

Kahn, Lisa B., and Fabian Lange. 2014. "Employer Learning, Productivity, and the Earnings Distribution: Evidence from Performance Measures." *Review of Economic Studies* 81 (4): 1575–613.

Kamas, Linda, and Anne Preston. 2015. "Competing with Confidence: The Ticket to Labor Market Success for College-Educated Women." Unpublished.

Kassenboehmer, Sonja C., and Mathias Sinning. 2014. "Distributional Changes in the Gender Wage Gap." *ILR Review* 67 (2): 335–61.

Keith, Kristen, and Abagail McWilliams. 1995. "The Wage Effects of Cumulative Job Mobility." *ILR Review* 49 (1): 121–37.

Kidd, Michael P., and Michael Shannon. 1996. "The Gender Wage Gap: A Comparison of Australia and Canada." *ILR Review* 49 (4): 729–46.

Korenman, Sanders, and David Neumark. 1991. "Does Marriage Really Make Men More Productive?" *Journal of Human Resources* 26 (2): 282–307.

Korenman, Sanders, and David Neumark. 1992. "Marriage, Motherhood, and Wages." *Journal of Human Resources* 27 (2): 233–55.

Kosteas, Vasilios D. 2013. "Gender Role Attitudes, Labor Supply, and Human Capital Formation." *Industrial Relations* 52 (4): 915–40.

Krueger, Alan B. 1993. "How Computers Have Changed the Wage Structure: Evidence from Microdata, 1984–1989." *Quarterly Journal of Economics* 108 (1): 33–60.

Kurtulus, Fidan Ana. 2012. "Affirmative Action and the Occupational Advancement of Minorities and Women during 1973–2003." *Industrial Relations* 51 (2): 213–46.

Kurtulus, Fidan Ana, and Donald Tomaskovic-Devey. 2012. "Do Female Top Managers Help Women to Advance? A Panel Study Using EEO-1 Records." *Annals of the American Academy of Political and Social Science* 639 (1): 173–97.

Landers, Renee M., James B. Rebitzer, and Lowell J. Taylor. 1996. "Rat Race Redux: Adverse Selection in the Determination of Work Hours in Law Firms." *American Economic Review* 86 (3): 329–48.

Lavy, Victor, and Edith Sand. 2015. "On the Origins of Gender Human Capital Gaps: Short and Long Term Consequences of Teachers' Stereotypical Biases." National Bureau of Economic Research Working Paper 20909.

Lazear, Edward P., and Sherwin Rosen. 1990. "Male–Female Wage Differentials in Job Ladders." *Journal of Labor Economics* 8 (1 Part 2): S106–23.

Leibbrandt, Andreas, and John A. List. 2015. "Do Women Avoid Salary Negotiations? Evidence from a Large-Scale Natural Field Experiment." *Management Science* 61 (9): 2016–24.

Leonard, Jonathan S. 1990. "The Impact of Affirmative Action Regulation and Equal Employment Law on Black Employment." *Journal of Economic Perspectives* 4 (4): 47–63.

Levanon, Asaf, Paula England, and Paul Allison. 2009. "Occupational Feminization and Pay: Assessing Causal Dynamics Using 1950–2000 U.S. Census Data." *Social Forces* 88 (2): 865–92.

Light, Audrey, and Manuelita Ureta. 1992. "Panel Estimates of Male and Female Job Turnover Behavior: Can Female Nonquitters Be Identified?" *Journal of Labor Economics* 10 (2): 156–81.

Light, Audrey, and Manuelita Ureta. 1995. "Early-Career Work Experience and Gender Wage Differentials." *Journal of Labor Economics* 13 (1): 121–54.

Lundberg, Shelly J., and Elaina Rose. 2000. "Parenthood and the Earnings of Married Men and Women." *Labour Economics* 7 (6): 689–710.

Lundberg, Shelly J., and Richard Startz. 1983. "Private Discrimination and Social Intervention in Competitive Labor Market." *American Economic Review* 73 (3): 340–47.

Macpherson, David A., and Barry T. Hirsch. 1995. "Wages and Gender Composition: Why Do Women's Jobs Pay Less?" *Journal of Labor Economics* 13 (3): 426–71.

Madden, Janice Fanning. 1973. *The Economics of Sex Discrimination*. Lexington, MA: Lexington Books.

Manning, Alan. 2003. *Monopsony in Motion: Imperfect Competition in Labor Markets*. Princeton and Oxford: Princeton University Press.

Manning, Alan, and Farzad Saidi. 2010. "Understanding the Gender Pay Gap: What's Competition Got to Do with It?" *ILR Review* 63 (4): 681–98.

Manning, Alan, and Joanna Swaffield. 2008. "The Gender Gap in Early-Career Wage Growth." *Economic Journal* 118 (530): 983–1024.

Mazei, Jens, Joachim Hüffmeier, Philipp Alexander Freund, Alice F. Stuhlmacher, Lena Bilke, and Guido Hertel. 2015. "A Meta-analysis on Gender Differences in Negotiation Outcomes and Their Moderators." *Psychological Bulletin* 141 (1): 85–104.

McCue, Kristin. 1996. "Promotions and Wage Growth." *Journal of Labor Economics* 14 (2): 175–209.

McGrattan, Ellen R., and Richard Rogerson. 2008. "Changes in the Distribution of Family Hours Worked since 1950." In *Frontiers of Family Economics: Volume 1*, edited by Peter Rupert, 115–38. Bingley, UK: Emerald.

Meyer, Bruce D., and Dan T. Rosenbaum. 2001. "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers." *Quarterly Journal of Economics* 116 (3): 1063–114.

Mincer, Jacob. 1962. "Labor Force Participation of Married Women: A Study of Labor Supply." In *Aspects of Labor Economics*, edited by H. Gregg Lewis, 63–97. Princeton and Oxford: Princeton University Press.

Mincer, Jacob. 1978. "Family Migration Decisions." *Journal of Political Economy* 86 (5): 749–73.

Mincer, Jacob, and Solomon Polachek. 1974. "Family Investments in Human Capital: Earnings of Women." *Journal of Political Economy* 82 (2 Part 2): S76–108.

Moss-Racusin, Corinne A., John F. Dovidio, Victoria L. Brescoll, Mark J. Graham, and Jo Handelsman. 2012. "Science Faculty's Subtle Gender Biases Favor Male Students." *Proceedings of the National Academy of Science* 109 (41): 16474–79.

Mueller, Gerrit, and Erik Plug. 2006. "Estimating the Effect of Personality on Male and Female Earnings." *ILR Review* 60 (1): 3–22.

Mulligan, Casey B., and Yona Rubinstein. 2008. "Selection, Investment, and Women's Relative Wages over Time." *Quarterly Journal of Economics* 123 (3): 1061–110.

Neal, Derek A. 2004. "The Measured Black–White Wage Gap among Women Is Too Small." *Journal of Political Economy* 112 (Supplement 1): S1–28.

Neal, Derek A., and William R. Johnson. 1996. "The Role of Premarket Factors in Black–White Wage Differences." *Journal of Political Economy* 104 (5): 869–95.

Nelson, Julie A. 2015. "Are Women Really More Risk-Averse than Men? A Re-analysis of the Literature Using Expanded Methods." *Journal of Economic Surveys* 29 (3): 566–85.

Neumark, David. 1988. "Employers' Discriminatory Behavior and the Estimation of Wage Discrimination." *Journal of Human Resources* 23 (3): 279–95.

Neumark, David, Roy J. Bank, and Kyle D. Van Nort. 1996. "Sex Discrimination in Restaurant Hiring: An Audit Study." *Quarterly Journal of Economics* 111 (3): 915–41.

Niederle, Muriel, and Lisa Vesterlund. 2007. "Do Women Shy Away from Competition? Do Men Compete Too Much?" *Quarterly Journal of Economics* 122 (3): 1067–101.

Niederle, Muriel, and Lise Vesterlund. 2010. "Explaining the Gender Gap in Math Test Scores: The Role of Competition." *Journal of Economic Perspectives* 24 (2): 129–44.

Nollenberger, Natalia, Núria Rodríguez-Planas, and Almudena Servilla. 2016. "The Math Gender Gap: The Role of Culture." *American Economic Review* 106 (5): 257–61.

Noonan, Mary C., Mary E. Corcoran, and Paul N. Courant. 2005. "Pay Differences among the Highly Trained: Cohort Differences in the Sex Gap in Lawyer's Earnings." *Social Forces* 84 (2): 853–72.

Nyhus, Ellen K., and Empar Pons. 2012. "Personality and the Gender Wage Gap." *Applied Economics* 44 (1): 105–18.

Oaxaca, Ronald L. 1973. "Male–Female Wage Differentials in Urban Labor Markets." *International Economic Review* 14 (3): 693–709.

Oaxaca, Ronald L., and Michael R. Ransom. 1999. "Identification in Detailed Wage Decompositions." *Review of Economics and Statistics* 81 (1): 154–57.

Olivetti, Claudia, and Barbara Petrongolo. 2008. "Unequal Pay or Unequal Employment? A Cross-Country Analysis of Gender Gaps." *Journal of Labor Economics* 26 (4): 621–54.

O'Neill, June, and Solomon Polachek. 1993. "Why the Gender Gap in Wages Narrowed in the 1980s." *Journal of Labor Economics* 11 (1 Part 1): 205–28.

Oppenheimer, Valerie Kincade. 1976. *The Female Labor Force in the United States: Demographic and Economic Factors Governing Its Growth and Changing Composition*. Westport, CT: Greenwood Press, 1970.

Orazem, Peter F., and Milan Vodopivec. 2000. "Male–Female Differences in Labor Market Outcomes during the Early Transition to Market: The Cases of Estonia and Slovenia." *Journal of Population Economics* 13 (2): 283–303.

Örs, Evren, Frederic Palomino, and Eloic Peyrache. 2013. "Performance Gender Gap: Does Competition Matter?" *Journal of Labor Economics* 31 (3): 443–99.

Pager, Devah. 2007. "The Use of Field Experiments for Studies of Employment Discrimination: Contributions, Critiques, and Directions for the Future." *Annals of the American Academy of Political and Social Science* 609: 104–33.

Paglin, Morton, and Anthony M. Rufolo. 1990. "Heterogeneous Human Capital, Occupational Choice, and Male–Female Earnings Differences." *Journal of Labor Economics* 8 (1 Part 1): 123–44.

Pan, Jessica. 2015. "Gender Segregation in Occupations: The Role of Tipping and Social Interactions." *Journal of Labor Economics* 33 (2): 365–408.

Patnaik, Ankita. 2016. "Reserving Time for Daddy: The Short and Long-Run Consequences of Fathers' Quotas." Unpublished.

Phelps, Edmund S. 1972. "The Statistical Theory of Racism and Sexism." *American Economic Review* 62 (4): 659–61.

Polachek, Solomon William. 1981. "Occupational Self-Selection: A Human Capital Approach to Sex Differences in Occupational Structure." *Review of Economics and Statistics* 63 (1): 60–69.

Pope, Devin G., and Justin R. Sydnor. 2010. "Geographic Variation in the Gender Differences in Test Scores." *Journal of Economic Perspectives* 24 (2): 95–108.

Porterfield, Shirley L., and Anne E. Winkler. 2007. "Teen Time Use and Parental Education: Evidence from the CPS, MTF, and ATUS." *Monthly Labor Review* 130 (5): 37–56.

Ransom, Michael R., and Ronald L. Oaxaca. 2010. "New Market Power Models and Sex Differences in Pay." *Journal of Labor Economics* 28 (2): 267–89.

Ransom, Michael R., and David P. Sims. 2010. "Estimating the Firm's Labor Supply Curve in a 'New Monopsony' Framework: Schoolteachers in Missouri." *Journal of Labor Economics* 28 (2): 331–55.

Reskin, Barbara F., and Patricia A. Roos. 1990. *Job Queues, Gender Queues: Explaining Women's Inroads into Male Occupations*. Philadelphia: Temple University Press.

Reuben, Ernesto, Paola Sapienza, and Luigi Zingales. 2014. "How Stereotypes Impair Women's Careers in Science." *Proceedings of the National Academy of Sciences* 111 (12): 4403–08.

Reuben, Ernesto, Paola Sapienza, and Luigi Zingales. 2015. "Taste for Competition and the Gender Gap among Young Business Professionals." National Bureau of Economic Research Working Paper 21695.

Ribar, David C. 2004. "What Do Social Scientists Know about the Benefits of Marriage? A Review of Quantitative Methodologies." Institute for the Study of Labor Discussion Paper 998.

Rodgers, William M., III, and Leslie S. Stratton. 2010. "Male Marital Wage Differentials: Training, Personal Characteristics, and Fixed Effects." *Economic Inquiry* 48 (3): 722–42.

Rosen, Sherwin. 1986. "The Theory of Equalizing Differences." In *Handbook of Labor Economics: Volume 1*, edited by Orley C. Ashenfelter and Richard Layard, 641–92. Amsterdam and Boston: Elsevier, North-Holland.

Royalty, Anne Beeson. 1996. "The Effects of Job Turnover on the Training of Men and Women." *ILR Review* 49 (3): 506–21.

Royalty, Anne Beeson. 1998. "Job-to-Job and Job-to-Nonemployment Turnover By Gender and Educational Level." *Journal of Labor Economics* 16 (2): 392–433.

Ruhm, Christopher J. 1998. "The Economic Consequences of Parental Leave Mandates: Lessons from Europe." *Quarterly Journal of Economics* 113 (1): 285–317.

Sandell, Steven H. 1977. "Women and the Economics of Family Migration." *Review of Economics and Statistics* 59 (4): 406–14.

Sawhill, Isabel V. 1973. "The Economics of Discrimination against Women: Some New Findings." *Journal of Human Resources* 8 (3): 383–96.

Semykina, Anastasia, and Susan J. Linz. 2007. "Gender Differences in Personality and Earnings: Evidence from Russia." *Journal of Economic Psychology* 28 (3): 387–410.

Shin, Taekjin. 2012. "The Gender Gap in Executive Compensation: The Role of Female Directors and Chief Executive Officers." Annals of the American *Academy of Political and Social Science* 639 (1): 258–78.

Sicherman, Nachum. 1996. "Gender Differences in Departures from a Large Firm." *ILR Review* 49 (3): 484–505.

Sigle-Rushton, Wendy, and Jane Waldfogel. 2007. "Motherhood and Women's Earnings in Anglo-american, Continental European, and Nordic Countries." *Feminist Economics* 13 (2): 55–91.

Sorensen, Elaine. 1990. "The Crowding Hypothesis and Comparable Worth." *Journal of Human Resources* 25 (1): 55–89.

Spencer, Steven J., Claude M. Steele, and Diane M.

Quinn. 1999. "Stereotype Threat and Women's Math Performance." *Journal of Experimental Social Psychology* 35 (1): 4–28.

Spivey, Christy. 2005. "Time Off at What Price? The Effects of Career Interruptions on Earnings." *ILR Review* 59 (1): 119–40.

Stanley, T. D., and Stephen B. Jarrell. 1998. "Gender Wage Discrimination Bias? A Meta-regression Analysis." *Journal of Human Resources* 33 (4): 947–73.

Thomas, Mallika. 2015. "The Impact of Mandated Maternity Benefits on the Gender Differential in Promotions: Examining the Role of Adverse Selection." Unpublished.

U.S. Department of Labor, Bureau of Labor Statistics. 1999. "Highlights of Women's Earnings in 1998." Report 928.

U.S. Department of Labor, Bureau of Labor Statistics. 2014. "Highlights of Women's Earnings in 2013." Report 1051.

Viscusi, W. Kip. 1980. "Sex Differences in Worker Quitting." *Review of Economics and Statistics* 62 (3): 388–98.

Waldfogel, Jane. 1998. "Understanding the 'Family Gap' in Pay for Women with Children." *Journal of Economic Perspectives* 12 (1): 137–56.

Waldfogel, Jane. 1999. "The Impact of the Family and Medical Leave Act." *Journal of Policy Analysis and Management* 18 (2): 281–302.

Wang, Wendy, Kim Parker, and Paul Taylor. 2013. "Breadwinner Moms." http://www.pewsocialtrends.org/2013/05/29/breadwinner-moms/.

Webber, Douglas A. 2016. "Firm-Level Monopsony and the Gender Pay Gap." *Industrial Relations* 55 (2): 323–45.

Weinberg, Bruce A. 2000. "Computer Use and the Demand for Female Workers." *ILR Review* 53 (2): 290–308.

Weinberger, Catherine J., and Peter J. Kuhn. 2010. "Changing Levels or Changing Slopes? The Narrowing of the Gender Earnings Gap 1959–1999." *ILR Review* 63 (3): 384–406.

Weiss, Yoram, and Reuben Gronau. 1981. "Expected Interruptions in Labour Force Participation and Sex-Related Differences in Earnings Growth." *Review of Economic Studies* 48 (4): 607–19.

Welch, Finis. 2000. "Growth in Women's Relative Wages and in Inequality among Men: One Phenomenon or Two?" *American Economic Review* 90 (2): 444–49.

Williams, Wendy M., and Stephen J. Ceci. 2015. "National Hiring Experiments Reveal 2:1 Faculty Preference for Women on STEM Tenure Track." *Proceedings of the National Academy of Sciences* 112 (17): 5360–65.

Winkler, Anne E., Timothy D. McBride, and Courtney Andrews. 2005. "Wives Who Outearn Their Husbands: A Transitory or Persistent Phenomenon for Couples?" *Demography* 42 (3): 523–35.

Zhang, Junsen, Jun Han, Pak-Wai Liu, and Yaohui Zhao. 2008. "Trends in the Gender Earnings Differential in Urban China, 1988–2004." *ILR Review* 61 (2): 224–43.

This article has been cited by:

1. Joshua Landon, Joseph Gastwirth. 2022. Graphical Measures Summarizing the Inequality of Income of Two Groups. *Statistics and Public Policy* **9**:1, 20-25. [Crossref]
2. Alessia Rubini, Cristina Vilaplana-Prieto, Marta Flor-Alemany, Lorena Yeguas-Rosa, Miriam Hernández-González, Francisco Javier Félix-García, Francisco Javier Félix-Redondo, Daniel Fernández-Bergés. 2022. Assessment of the Cost of the Mediterranean Diet in a Low-Income Region: Adherence and Relationship with Available Incomes. *BMC Public Health* **22**:1. . [Crossref]
3. Alicia Chávez, Gabriel Rodríguez-Puello. 2022. Commodity price shocks and the gender wage gap: Evidence from the Metal Mining Prices Super-Cycle in Chile. *Resources Policy* **76**, 102497. [Crossref]
4. Marie-Christine Laible, Hanna Brenzel. 2022. Does Personality Matter? Noncognitive Skills and the Male Migrant Wage Gap in Germany. *International Migration Review* **56**:2, 376-409. [Crossref]
5. Pooja Sengupta, Roma Puri. 2022. Gender Pay Gap in India: A Reality and the Way Forward—An Empirical Approach Using Quantile Regression Technique. *Studies in Microeconomics* **10**:1, 50-81. [Crossref]
6. Pablo Lavado, Luciana Velarde, Gustavo Yamada. 2022. Cognitive and socioemotional skills and wages: the role of latent abilities on the gender wage gap in Peru. *Review of Economics of the Household* **20**:2, 471-496. [Crossref]
7. Yolanda F. Rebollo-Sanz, Sara De la Rica. 2022. Gender gaps in skills and labor market outcomes: evidence from the PIAAC. *Review of Economics of the Household* **20**:2, 333-371. [Crossref]
8. Sheng Fang, Chorching Goh, Mark Roberts, Lixin Colin Xu, Albert Zeufack. 2022. Female entrepreneurs and productivity around the world: Rule of law, network, culture, and gender equality. *World Development* **154**, 105846. [Crossref]
9. Daniel B. Oerther, Leila Gautham, Nancy Folbre. 2022. Environmental Engineering as Care for Human Welfare and Planetary Health. *Journal of Environmental Engineering* **148**:6. . [Crossref]
10. Kadri Männasoo. 2022. Working hours and gender wage differentials: Evidence from the American Working Conditions Survey. *Labour Economics* **76**, 102148. [Crossref]
11. Jordy Meekes, Wolter H.J. Hassink. 2022. Gender differences in job flexibility: Commutes and working hours after job loss. *Journal of Urban Economics* **129**, 103425. [Crossref]
12. Peter Arcidiacono, Josh Kinsler, Tyler Ransom. 2022. Asian American Discrimination in Harvard Admissions. *European Economic Review* **144**, 104079. [Crossref]
13. Chadwick Curtis, Julio Garín, Robert Lester. 2022. Working, consuming, and dying: Quantifying the diversity in the american experience. *Journal of Economic Dynamics and Control* **138**, 104357. [Crossref]
14. Ariane Agunsoye, Jerome Monne, Janette Rutterford, Dimitris P. Sotiropoulos. 2022. How gender, marital status, and gender norms affect savings goals. *Kyklos* **75**:2, 157-183. [Crossref]
15. Alessandra Cassar, Y. Jane Zhang. 2022. The competitive woman: Evolutionary insights and cross-cultural evidence into finding the Femina Economica. *Journal of Economic Behavior & Organization* **197**, 447-471. [Crossref]
16. Luisa Girelli. 2022. What does gender has to do with math? Complex questions require complex answers. *Journal of Neuroscience Research* **115**. . [Crossref]

17. Federico Caviggioli, Alessandra Colombelli, Chiara Ravetti. 2022. Gender differences among innovators: a patent analysis of stars. *Economics of Innovation and New Technology* **81**, 1-19. [Crossref]
18. Rafael Sánchez, Javier Finot, Mauricio G. Villena. 2022. Gender wage gap and firm market power: evidence from Chile. *Applied Economics* **54**:18, 2109-2121. [Crossref]
19. Helena Fornwagner, Monika Pompeo, Nina Serdarevic. 2022. Choosing Competition on Behalf of Someone Else. *Management Science* **111**. . [Crossref]
20. Simon Rabaté, Sara Rellstab. 2022. What Determines the Child Penalty in the Netherlands? The Role of Policy and Norms. *De Economist* **CXV**. . [Crossref]
21. Eun Jin Shin. 2022. Representation and Wage Gaps in the Planning Profession. *Journal of the American Planning Association* **31**, 1-15. [Crossref]
22. Marco Battaglini, Jorgen Harris, Eleonora Patacchini. 2022. Interactions with Powerful Female Colleagues Promote Diversity in Hiring. *Journal of Labor Economics* **74**. . [Crossref]
23. Ian Burn, Michael E. Martell. 2022. Gender typicality and sexual minority labour market differentials. *British Journal of Industrial Relations* **56**. . [Crossref]
24. Mark Egan, Gregor Matvos, Amit Seru. 2022. When Harry Fired Sally: The Double Standard in Punishing Misconduct. *Journal of Political Economy* **259**, 000-000. [Crossref]
25. Eva O. Arceo-Gomez, Raymundo M. Campos-Vazquez, Raquel Y. Badillo, Sergio Lopez-Araiza. 2022. Gender stereotypes in job advertisements: What do they imply for the gender salary gap?. *Journal of Labor Research* **34**. . [Crossref]
26. Amit K. Nandkeolyar, Jessica Bagger, Srinivas Ekkirala. 2022. Damned if she does, damned if she doesn't: The interactive effects of gender and agreeableness on performance evaluation. *Journal of Business Research* **143**, 62-71. [Crossref]
27. Gabriel Cruz, Tomás Rau. 2022. The effects of equal pay laws on firm pay premiums: Evidence from Chile. *Labour Economics* **75**, 102135. [Crossref]
28. Bernardo Fanfani. 2022. Tastes for discrimination in monopsonistic labour markets. *Labour Economics* **75**, 102107. [Crossref]
29. Valentin Bolotnyy, Natalia Emanuel. 2022. Why Do Women Earn Less than Men? Evidence from Bus and Train Operators. *Journal of Labor Economics* **40**:2, 283-323. [Crossref]
30. Estefanía Galván. 2022. Gender Identity and Quality of Employment. *Economica* **89**:354, 409-436. [Crossref]
31. Carina Cavalcanti, Christopher Fleming, Andreas Leibbrandt. 2022. Risk externalities and gender: Experimental evidence. *Journal of Economic Behavior & Organization* **196**, 51-64. [Crossref]
32. Nick Wuestenenk, Katia Begall. 2022. The motherhood wage gap and trade-offs between family and work: A test of compensating wage differentials. *Social Science Research* **79**, 102726. [Crossref]
33. Lisa M. Leslie, Elinor Flynn. 2022. Diversity Ideologies, Beliefs, and Climates: A Review, Integration, and Set of Recommendations. *Journal of Management* **11**, 014920632210862. [Crossref]
34. Mark Paul, Khaing Zaw, William Darity. 2022. Returns in the Labor Market: A Nuanced View of Penalties at the Intersection of Race and Gender in the US. *Feminist Economics* **33**, 1-31. [Crossref]
35. Marjolijn Das, Willem R. Boterman, Lia Karsten, Jan J. Latten. 2022. Women's migration to cities. *Journal of Biosocial Science* **80**, 1-28. [Crossref]

36. Orlando Richard, María del Carmen Triana, Marcus Stewart. 2022. Store leader gender and store sales performance: When and why do women and men underperform?. *Human Resource Management* **60**. . [Crossref]
37. Claudia Roethlisberger, Franziska Gassmann, Wim Groot, Bruno Martorano. 2022. The contribution of personality traits and social norms to the gender pay gap: A systematic literature review. *Journal of Economic Surveys* **5**. . [Crossref]
38. Robert Kaestner, Ofer Malamud. 2022. Headstrong Girls and Dependent Boys: Gender Differences in the Labor Market Returns to Child Behavior. *ILR Review* **48**, 001979392210869. [Crossref]
39. Pilar Beneito, Maria E. Rochina-Barrachina, Amparo Sanchis. 2022. Female R&D teams and patents as quality signals in innovative firms. *Economics of Innovation and New Technology* **424**, 1-32. [Crossref]
40. Adeboye Adeleken, Mark H.R. Bussin. 2022. Occupational segregation and gender pay gap dynamics in the formal sector of South Africa. *SA Journal of Human Resource Management* **20**. . [Crossref]
41. John Levendis, Aaron Lowen. 2022. What Same-Sex Adoption Laws Can Tell Us About the Gender Wage Gap in the United States. *Journal of Family and Economic Issues* **79**. . [Crossref]
42. Yao Yao, George S. Chen, Lin Zhang. 2022. Gender segregation in the causal effect of foreign direct investment on educational attainment: the Chinese experience. *Applied Economics* **144**, 1-15. [Crossref]
43. Daniel M. Butler, Margit Tavits, Dino Hadzic. 2022. Gender Bias in Policy Representation in Post-Conflict Societies. *Political Research Quarterly* **81**, 106591292110450. [Crossref]
44. Sébastien Buttet, Alice Schoonbroodt. 2022. Should I Go to Graduate School? The Role of Preference for Children and Human Capital Accumulation. *Journal of Human Capital* . [Crossref]
45. Andree Ehlert, Eva García-Morán. 2022. Workers' self-selection into public sector employment: A tale of absenteeism. *Kyklos* **20**. . [Crossref]
46. Maria Marchenko, Hendrik Sonnabend. 2022. Artists' labour market and gender: Evidence from German visual artists. *Kyklos* **62**. . [Crossref]
47. Yvonne Ziegler, Regine Graml, Kristine Khachatryan, Vincenzo Uli. 2022. Working mothers in East and West Germany: a cluster analysis using a three-stage approach. *Gender in Management: An International Journal* **37**:3, 423-437. [Crossref]
48. Alison L. Booth, Patrick Nolen. 2022. Gender and Psychological Pressure in Competitive Environments: A Laboratory-based Experiment. *Economica* **100**. . [Crossref]
49. Ganghua Mei, Lei Yue. 2022. Labor supply and time use: evidence from cohabiting women in the United States. *Applied Economics* **33**, 1-26. [Crossref]
50. Clotilde Napp, Thomas Breda. 2022. The stereotype that girls lack talent: A worldwide investigation. *Science Advances* **8**:10. . [Crossref]
51. Mustafa Kamal, Paul Blacklow. 2022. Attitudes and personality in the Australian gender wage gap. *Applied Economics* **49**, 1-18. [Crossref]
52. William J. Scarborough, Jessica Moeder. 2022. Culture's Gendered Consequences: The Relationship Between Local Cultural Conditions and the Gender Wage Gap. *Social Currents* **46**, 232949652110450. [Crossref]
53. Wolfgang Keller, Hale Utar. 2022. Globalization, Gender, and the Family. *The Review of Economic Studies* **100**. . [Crossref]

54. Andreas Born, Eva Ranehill, Anna Sandberg. 2022. Gender and Willingness to Lead: Does the Gender Composition of Teams Matter?. *The Review of Economics and Statistics* **104**:2, 259-275. [Crossref]
55. Marta Dominguez-Folgueras. 2022. It's about gender: A critical review of the literature on the domestic division of work. *Journal of Family Theory & Review* **14**:1, 79-96. [Crossref]
56. Melissa M. Yu, Shannon A. Merillat, Allison L. Weathers, David A. Evans, Rebecca A. Wolf, John P. Ney. 2022. Gender Discrepancies in Neurologist Compensation. *Neurology* **98**:9, e893-e902. [Crossref]
57. Jay H. Hardy, Kian Siong Tey, Wilson Cyrus-Lai, Richard F. Martell, Andy Olstad, Eric Luis Uhlmann. 2022. Bias in Context: Small Biases in Hiring Evaluations Have Big Consequences. *Journal of Management* **48**:3, 657-692. [Crossref]
58. Alvin Thomas, Jennifer Clare Wirth, Julie Poehlmann-Tynan, David J. Pate. 2022. "When She Says Daddy": Black Fathers' Recidivism following Reentry from Jail. *International Journal of Environmental Research and Public Health* **19**:6, 3518. [Crossref]
59. Amy Whitaker, Gregory C. Wolniak. 2022. Social Exclusion in the Arts: The Dynamics of Social and Economic Mobility Across Three Decades of Undergraduate Arts Alumni in the United States. *Review of Research in Education* **46**:1, 198-228. [Crossref]
60. Sabrina Wulff Pabilonia, Victoria Vernon. 2022. Telework, Wages, and Time Use in the United States. *Review of Economics of the Household* **122**. . [Crossref]
61. Marlon Williams. 2022. Is there a gender gap in our responses to a gender pay gap? An experiment. *Applied Economics Letters* **29**:4, 346-350. [Crossref]
62. Paul Hufe, Ravi Kanbur, Andreas Peichl. 2022. Measuring Unfair Inequality: Reconciling Equality of Opportunity and Freedom from Poverty. *The Review of Economic Studies* **43**. . [Crossref]
63. Johann Bacher, Martina Beham-Rabanser, Matthias Forstner. 2022. Can work value orientations explain the gender wage gap in Austria?. *International Journal of Sociology* **55**, 1-21. [Crossref]
64. Jia-Qi Cheong, Suresh Narayanan, Jacqueline Lisa Fernandez. 2022. Re-examining Gender Earning Differentials in Malaysian Manufacturing. *Asian Economic Papers* **21**:1, 64-91. [Crossref]
65. Thanh-Tam Nguyen-Huu. 2022. Do "inferior" jobs always suffer from a wage penalty? Evidence from temporary workers in Cambodia and Pakistan. *International Journal of Development Issues* **21**:1, 106-141. [Crossref]
66. Thomas Le Barbanchon, Julien Sauvagnat. 2022. Electoral Competition, Voter Bias, and Women in Politics. *Journal of the European Economic Association* **20**:1, 352-394. [Crossref]
67. Jesse Davis, Paige Ouimet, Xinxin Wang. 2022. Hidden Performance: Salary History Bans and the Gender Pay Gap. *The Review of Corporate Finance Studies* **133**. . [Crossref]
68. Javier Gonzalez, Francisco Parro. 2022. Aggregate Costs of a Gender Gap in the Access to Business Resources. *The B.E. Journal of Macroeconomics*, ahead of print. [Crossref]
69. Tomasz Obloj, Todd Zenger. 2022. The influence of pay transparency on (gender) inequity, inequality and the performance basis of pay. *Nature Human Behaviour* **495**. . [Crossref]
70. MILA GETMANSKY SHERMAN, HEATHER E. TOOKES. 2022. Female Representation in the Academic Finance Profession. *The Journal of Finance* **77**:1, 317-365. [Crossref]
71. Sasiwimon Warunsiri Paweenawat, Lusi Liao. 2022. Parenthood penalty and gender wage gap: Recent evidence from Thailand. *Journal of Asian Economics* **78**, 101435. [Crossref]

72. Aradhna Krishna, A. Yeşim Orhun. 2022. Gender (Still) Matters in Business School. *Journal of Marketing Research* **59**:1, 191-210. [Crossref]
73. Nicola Maaser, Fabian Paetzel, Stefan Traub. 2022. Gender and Nominal Power in Multilateral Bargaining. *Games* **13**:1, 11. [Crossref]
74. Yucong Zhao, Bing Ye, Jinchuan Shi. 2022. Gender identity, preference, and relative income within households. *China Economic Review* **71**, 101741. [Crossref]
75. Andrés Villarreal, Wei-hsin Yu. 2022. Research Note: Gender Differences in Employment During the COVID-19 Epidemic. *Demography* **59**:1, 13-26. [Crossref]
76. Elena Fumagalli, Laura Fumagalli. 2022. Subjective well-being and the gender composition of the reference group: Evidence from a survey experiment. *Journal of Economic Behavior & Organization* **194**, 196-219. [Crossref]
77. Jens Mazei, Julia B. Bear, Joachim Hüffmeier. 2022. Avoiding Backlash or Proving One's Manhood? Beliefs About Gender Differences in Negotiation. *Group Decision and Negotiation* **31**:1, 81-110. [Crossref]
78. Dániel Horn, Hubert János Kiss, Tünde Lénárd. 2022. Gender differences in preferences of adolescents: Evidence from a large-scale classroom experiment. *Journal of Economic Behavior & Organization* **194**, 478-522. [Crossref]
79. Paul David Boll, Lukas Mergele, Larissa Zierow. 2022. The gender pay gap in university student employment. *Empirical Economics* **105**. . [Crossref]
80. Christine L Exley, Judd B Kessler. 2022. The Gender Gap in Self-Promotion. *The Quarterly Journal of Economics* **95**. . [Crossref]
81. Stacey Pope, John Williams, Jamie Cleland. 2022. Men's Football Fandom and the Performance of Progressive and Misogynistic Masculinities in a 'New Age' of UK Women's Sport. *Sociology* **13**, 003803852110633. [Crossref]
82. Ian Lundberg. 2022. The Gap-Closing Estimand: A Causal Approach to Study Interventions That Close Disparities Across Social Categories. *Sociological Methods & Research* **10**, 004912412110557. [Crossref]
83. Melanie Jones, Ezgi Kaya. 2022. The gender pay gap: what can we learn from Northern Ireland?. *Oxford Economic Papers* **74**:1, 94-114. [Crossref]
84. Wen Li, Kunio Urakawa, Fumihiko Suga. 2022. Are Social Norms Associated with Married Women's Labor Force Participation? A Comparison of Japan and the United States. *Journal of Family and Economic Issues* **94**. . [Crossref]
85. Nicholas Apergis, Nicola Lynch. 2022. The impact of economic freedom on the gender pay gap: evidence from a survey of UK households. *Journal of Economic Studies* **49**:1, 61-76. [Crossref]
86. Habitamu Asifawu Tonch, Wook Sohn. 2022. The impact of informal credit on household welfare: evidence from rural Ethiopia. *Applied Economics Letters* **29**:1, 12-16. [Crossref]
87. Pilar Beneito, José J. Garcia-Gómez. 2022. Gender Gaps in Wages and Mortality Rates During Industrialization: The Case of Alcoy, Spain, 1860–1914. *Feminist Economics* **28**:1, 114-141. [Crossref]
88. Maryna Tverdostup, Tiiu Paas. 2022. Gender disparities in wage returns to human capital components: how different are European labour markets?. *Baltic Journal of Economics* **22**:1, 28-48. [Crossref]

89. Hu Li, Chenyu Dong, Xiaofeng Wang. 2022. Female migrants in China: Second child fertility behavior and employment stability. *Asian Journal of Women's Studies* **28**:1, 2-23. [Crossref]
90. Boris Groysberg, Paul Healy, Eric Lin. 2022. Determinants of Gender Differences in Change in Pay among Job-Switching Executives. *ILR Review* **75**:1, 168-199. [Crossref]
91. M. José González, İbrahim Sönmez. 2022. Challenging Heteronormativity: An Analysis of the Effect of Sexual Orientation on Earnings in Spain. *Journal of Family Issues* **43**:1, 141-163. [Crossref]
92. Yanay Farja, Avi Tillman, Ori Zax. 2022. The Gender Gap: Looking at the Entire Distribution. *Journal of Interdisciplinary Economics* **34**:1, 51-68. [Crossref]
93. Ulf Rinne, Hendrik Sonnabend. 2022. Female workers, male managers: Gender, leadership, and risk-taking. *Southern Economic Journal* **88**:3, 906-930. [Crossref]
94. Paul Glewwe, Yang Song, Xianqiang Zou. 2022. Labor market outcomes, cognitive skills, and noncognitive skills in rural China. *Journal of Economic Behavior & Organization* **193**, 294-311. [Crossref]
95. Stephanie Briel, Aderonke Osikominu, Gregor Pfeifer, Mirjam Reutter, Sascha Satlukal. 2022. Gender differences in wage expectations: the role of biased beliefs. *Empirical Economics* **62**:1, 187-212. [Crossref]
96. Mahalia Jackman. 2022. The effect of tourism on gender equality in the labour market: Help or hindrance?. *Women's Studies International Forum* **90**, 102554. [Crossref]
97. Landon Schnabel, Cyrus Schleifer, Eman Abdelhadi, Samuel Perry. 2022. The Religious Work Ethic and the Spirit of Patriarchy: Religiosity and the Gender Gap in Working for Its Own Sake, 1977 to 2018. *Sociological Science* **9**, 75-101. [Crossref]
98. Ananya Rajagopal. Gender Dynamics 39-66. [Crossref]
99. Simona Catuogno, Maria Angela Manzi, Paola Paoloni. Five Years of Gender Research in the Public Sector by the IPAZIA Observatory: A Review of the Studies and a Research Agenda 1-30. [Crossref]
100. Hadas Mandel, Assaf Rotman. 2022. The Stalled Gender Revolution and the Rise of Top Earnings in the United States, 1980 to 2017. *Sociological Science* **9**, 136-158. [Crossref]
101. Giuliana Birindelli, Antonia Patrizia Iannuzzi. The Gender Pay Gap in the Financial Sector: Where Do We Stand? 153-189. [Crossref]
102. María P. Recalde, Lise Vesterlund. Gender Differences in Negotiation and Policy for Equalizing Outcomes 455-475. [Crossref]
103. Sara Grubanov-Boskovic, Spyridon Spyratos, Stefano Maria Iacus, Umberto Minora, Francesco Sermi. 2022. Monitoring COVID-19-Induced Gender Differences in Teleworking Rates Using Mobile Network Data. *Journal of Data Science* **189**, 1-19. [Crossref]
104. Teresa Corbella, Amado Alarcón, Joanna Andraszak. 2021. Language gender gap at work across OECD countries. *Language Problems and Language Planning* **45**:3, 284-308. [Crossref]
105. Lisa Toczek, Hans Bosma, Richard Peter. 2021. The Gender Pay Gap: Income Inequality Over Life Course – A Multilevel Analysis. *Frontiers in Sociology* **6**. . [Crossref]
106. Yaron Zelekha. 2021. What stands behind the gender gap in entrepreneurship? Untangling the intergenerational parental role. *PLOS ONE* **16**:12, e0261108. [Crossref]
107. Ann M. Beutel, Cyrus Schleifer. 2021. Family Structure, Gender, and Wages in STEM Work. *Sociological Perspectives* **2**, 073112142110600. [Crossref]

108. Federico Caviggioli, Alessandra Colombelli, Chiara Ravetti. Star inventors and gender gaps in patented innovations 4243-4250. [Crossref]

109. Rie Kijima, Mariko Yang-Yoshihara, Marcos Sadao Maekawa. 2021. Using design thinking to cultivate the next generation of female STEAM thinkers. *International Journal of STEM Education* **8**:1. . [Crossref]

110. Zhuo Chen, Yihong Zhang, Huabin Luo, Donglan Zhang, Janani Rajbhandari-Thapa, Yuheng Wang, Ruoxi Wang, Grace Bagwell-Adams. 2021. Narrowing but persisting gender pay gap among employees of the US Department of Health and Human Services during 2010–2018. *Human Resources for Health* **19**:1. . [Crossref]

111. Tomáš Lichard, Filip Pertold, Samuel Škoda. 2021. Do women face a glass ceiling at home? The division of household labor among dual-earner couples. *Review of Economics of the Household* **19**:4, 1209-1243. [Crossref]

112. Ioannis Petrakis. 2021. Determinants of female labour force participation: Evidence from Greece. *LABOUR* **35**:4, 538-567. [Crossref]

113. Lina Aldén, Spencer Bastani, Mats Hammarstedt. 2021. Ethnic Background and the Value of Self-Employment Experience: Evidence from a Randomized Field Experiment*. *Oxford Bulletin of Economics and Statistics* **83**:6, 1287-1310. [Crossref]

114. Ulrike Neyer, Daniel Stempel. 2021. Gender discrimination, inflation, and the business cycle. *Journal of Macroeconomics* **70**, 103352. [Crossref]

115. Amée Bryan, Stacey Pope, Alexandra J. Rankin-Wright. 2021. On the Periphery: Examining Women's Exclusion From Core Leadership Roles in the "Extremely Gendered" Organization of Men's Club Football in England. *Gender & Society* **35**:6, 940-970. [Crossref]

116. Alicia de Quinto, Laura Hospido, Carlos Sanz. 2021. The child penalty: evidence from Spain. *SERIEs* **12**:4, 585-606. [Crossref]

117. Oriana Bandiera, Greg Fischer, Andrea Prat, Erina Ytsma. 2021. Do Women Respond Less to Performance Pay? Building Evidence from Multiple Experiments. *American Economic Review: Insights* **3**:4, 435-454. [Abstract] [View PDF article] [PDF with links]

118. Alessandro Bucciol, Luca Zarri. 2021. The Non-Cognitive Roots of Civic Honesty: Evidence from the US. *Journal of Behavioral and Experimental Economics* **95**, 101758. [Crossref]

119. Christopher M. Whaley, Tina Koo, Vineet M. Arora, Ishani Ganguli, Nate Gross, Anupam B. Jena. 2021. Female Physicians Earn An Estimated $2 Million Less Than Male Physicians Over A Simulated 40-Year Career. *Health Affairs* **40**:12, 1856-1864. [Crossref]

120. Hernan Galperin. 2021. "This Gig Is Not for Women": Gender Stereotyping in Online Hiring. *Social Science Computer Review* **39**:6, 1089-1107. [Crossref]

121. Ana P. Fernandes, Priscila Ferreira. 2021. Executives' gender pay gap and financing constraints. *Journal of Economic Behavior & Organization* **192**, 381-404. [Crossref]

122. Gustav Tinghög, Ali Ahmed, Kinga Barrafrem, Thérèse Lind, Kenny Skagerlund, Daniel Västfjäll. 2021. Gender differences in financial literacy: The role of stereotype threat. *Journal of Economic Behavior & Organization* **192**, 405-416. [Crossref]

123. Nicolas Eber, Abel François, Laurent Weill. 2021. Gender, age, and attitude toward competition. *Journal of Economic Behavior & Organization* **192**, 668-690. [Crossref]

124. Stefani Milovanska-Farrington. 2021. The Effect of COVID-19 as an Economic Shock on the Gender and Ethnic Gap in Labour Market Outcomes. *Studies in Microeconomics* **9**:2, 227-255. [Crossref]
125. Janet C Gornick, Eva Sierminska. 2021. Wealth accumulation and retirement preparedness in cross-national perspective: A gendered analysis of outcomes among single adults. *Journal of European Social Policy* **31**:5, 549-564. [Crossref]
126. Uwe Jirjahn, Jens Mohrenweiser. 2021. Works councils and organizational gender policies in Germany. *British Journal of Industrial Relations* **59**:4, 1020-1048. [Crossref]
127. Conor Lennon. 2021. G.I. Jane Goes to College? Female Educational Attainment, Earnings, and the Servicemen's Readjustment Act of 1944. *The Journal of Economic History* **81**:4, 1223-1253. [Crossref]
128. Carolina Neira, Eduardo Rodríguez, Álvaro Valdés. 2021. Equality without equity: The gender pay gap at the National University of Colombia. *Latin American Economic Review* 1-30. [Crossref]
129. Greg Lewis, Jonathan Boyd, Rahul Pathak. 2021. Progress Toward Increasing Women's and Minorities' Access to Top State Government Jobs?. *Public Personnel Management* **56**, 009102602110565. [Crossref]
130. Anna Manzoni. 2021. Equalizing or Stratifying? Intergenerational Persistence across College Degrees. *The Journal of Higher Education* **92**:7, 1028-1058. [Crossref]
131. Ezgi Kaya. 2021. Gender wage gap trends in Europe: The role of occupational skill prices. *International Labour Review* **113**. . [Crossref]
132. Jungho Cho, Daecheon Yang. 2021. Impact of minimum wage legislation on gender differentials in sticky wages: evidence from Korea. *Applied Economics Letters* 1-4. [Crossref]
133. Benjamin Artz. 2021. Gender, job satisfaction and quits: A generational comparison. *The Social Science Journal* **57**, 1-18. [Crossref]
134. Jeffrey T. Denning, Brian A. Jacob, Lars J. Lefgren, Christian vom Lehn. 2021. The Return to Hours Worked within and across Occupations: Implications for the Gender Wage Gap. *ILR Review* **4**, 001979392110453. [Crossref]
135. Maryam Safari, Jacqueline Birt, Yi Xiang. 2021. The sociology of compensation inequality in upper-echelon positions: evidence from Australia. *Accounting & Finance* **2**. . [Crossref]
136. José Enrique Rodríguez Hernández. 2021. Part-time employment versus underemployment of mothers and women in Spain. *Labor History* **62**:5-6, 575-589. [Crossref]
137. René Böheim, Marian Fink, Christine Zulehner. 2021. About time: the narrowing gender wage gap in Austria. *Empirica* **48**:4, 803-843. [Crossref]
138. Curtis Lockwood Reynolds, Amanda L. Weinstein. 2021. Gender differences in quality of life and preferences for location-specific amenities across cities. *Journal of Regional Science* **61**:5, 916-943. [Crossref]
139. Michaela Fuchs, Anja Rossen, Antje Weyh, Gabriele Wydra-Somaggio. 2021. Where do women earn more than men? Explaining regional differences in the gender pay gap. *Journal of Regional Science* **61**:5, 1065-1086. [Crossref]
140. Aleida Cobas-Valdés, Javier Fernández-Macho. 2021. Gender Dissimilarities in Human Capital Transferability of Cuban Immigrants in the US: A Clustering Quantile Regression Coefficients Approach with Consideration of Implications for Sustainability. *Sustainability* **13**:21, 12004. [Crossref]

141. Said Muhammad, Kong Ximei, Shahab E. Saqib, Nicholas J. Beutell. 2021. Women's Home-Based Entrepreneurship and Family Financial Position in Pakistan. *Sustainability* **13**:22, 12542. [Crossref]
142. Jaan Masso, Jaanika Meriküll, Priit Vahter. 2021. The role of firms in the gender wage gap. *Journal of Comparative Economics* **67**. . [Crossref]
143. Roshini Brizmohun, Diana Alessandrini, Valentina Hartarska. 2021. Gender wage gap in small islands: Effect of a policy framework in Mauritius. *Review of Development Economics* **25**:4, 2207-2229. [Crossref]
144. Margaret Lee, Laura J. Kray. 2021. A gender gap in managerial span of control: Implications for the gender pay gap. *Organizational Behavior and Human Decision Processes* **167**, 1-17. [Crossref]
145. Mario Daniele Amore, Orsola Garofalo. 2021. Pay inequality and gender dynamics in top executive positions. *Corporate Governance: An International Review* **29**:6, 526-540. [Crossref]
146. Pushkar Maitra, Ananta Neelim, Chau Tran. 2021. The role of risk and negotiation in explaining the gender wage gap. *Journal of Economic Behavior & Organization* **191**, 1-27. [Crossref]
147. Daniel Montolio, Pere A. Taberner. 2021. Gender differences under test pressure and their impact on academic performance: A quasi-experimental design. *Journal of Economic Behavior & Organization* **191**, 1065-1090. [Crossref]
148. Toyin Ajibade Adisa, Gbolahan Gbadamosi, Olatunji David Adekoya. 2021. Gender apartheid: The challenges of breaking into "man's world". *Gender, Work & Organization* **28**:6, 2216-2234. [Crossref]
149. Maéva Doumbia, Marion Goussé. 2021. Gender identity and relative income within households: Evidence from Canada. *Canadian Journal of Economics/Revue canadienne d'économique* **54**:4, 1667-1683. [Crossref]
150. Gunn Elisabeth Birkelund, Bram Lancee, Edvard Nergård Larsen, Javier G Polavieja, Jonas Radl, Ruta Yemane. 2021. Gender Discrimination in Hiring: Evidence from a Cross-National Harmonized Field Experiment. *European Sociological Review* **4**. . [Crossref]
151. Astrid Elkjær Sørensen, Stinne Skriver Jørgensen, Maja Meiland Hansen. 2021. Half a century of female wage disadvantage: an analysis of Denmark's public wage hierarchy in 1969 and today. *Scandinavian Economic History Review* **12**, 1-21. [Crossref]
152. Alica Ida Bonk, Laure Simon. 2021. From He-Cession to She-Stimulus? The labor market impact of fiscal policy across gender. *SERIEs* **30**. . [Crossref]
153. Abigail LeBlanc, Stephen Sheppard. 2021. Women artists: gender, ethnicity, origin and contemporary prices. *Journal of Cultural Economics* **34**. . [Crossref]
154. Aleksandra Gaweł, Katarzyna Mroczek-Dąbrowska. 2021. Gender pay gap in explaining female entrepreneurship – industry perspective of selected European countries. *International Journal of Manpower* **12**. . [Crossref]
155. Tamar Kricheli-Katz. 2021. Gender Inequalities in Markets. *Annual Review of Law and Social Science* **17**:1, 109-122. [Crossref]
156. Monica Fisher, Paul A. Lewin, Ryanne Pilgeram. 2021. Farmworkers and the gender wage gap: An empirical analysis of wage inequality in US agriculture. *Applied Economic Perspectives and Policy* **37**. . [Crossref]
157. Ewa Cukrowska-Torzewska. 2021. Gender gap in reservation wages and the choice of education field. *Applied Economics Letters* **34**, 1-5. [Crossref]

158. Camilla Gaiaschi. 2021. Highly Skilled Women Reaching the Top: A Cost-free Achievement? Analyzing the Gender Promotion Gap in the Medical Profession. *Social Forces* **100**:2, 622-648. [Crossref]

159. Stefanie Stantcheva. 2021. Understanding Tax Policy: How do People Reason?. *The Quarterly Journal of Economics* **136**:4, 2309-2369. [Crossref]

160. INSOOK LEE. 2021. Wage Discrimination and Tax Progressivity. *The Singapore Economic Review* **88**, 1-32. [Crossref]

161. Robert Schmidt, Stefan T Trautmann. 2021. Implementing (Un)fair Procedures: Containing Favoritism When Unequal Outcomes are Inevitable. *The Journal of Law, Economics, and Organization* **54**. . [Crossref]

162. David Pettinicchio, Michelle Lee Maroto. 2021. Combating Inequality: The Between- and Within-Group Effects of Unionization on Earnings for People with Different Disabilities. *The Sociological Quarterly* **62**:4, 763-787. [Crossref]

163. Nora Waitkus, Lara Minkus. 2021. Investigating the Gender Wealth Gap Across Occupational Classes. *Feminist Economics* **27**:4, 114-147. [Crossref]

164. Daniel Graeber, Alexander S. Kritikos, Johannes Seebauer. 2021. COVID-19: a crisis of the female self-employed. *Journal of Population Economics* **34**:4, 1141-1187. [Crossref]

165. Zhen Yu, Xiaoling Wu, Meng Li, Rufei Guo. 2021. Import competition and the gender gap in labor force participation: Evidence from China. *China Economic Review* **69**, 101689. [Crossref]

166. Elizabeth D. Almer, M. Kathleen Harris, Julia L. Higgs, Joseph R. Rakestraw. 2021. Partner Gender Differences in Prestige of Clients Served at the Largest U.S. Audit Firms. *Journal of Business Ethics* **173**:2, 401-421. [Crossref]

167. Yi Chen, Hong Zhang, Li-An Zhou. 2021. Motherhood and Gender Wage Differentials within a Chinese Firm. *Economic Development and Cultural Change* **70**:1, 283-320. [Crossref]

168. Nghia Thi Thu Nguyen, Cheng-Tao Tang, Chun Yee Wong. 2021. The Impacts of Social Enterprises on Labor Market Outcomes: Evidence from Vietnam. *Sustainability* **13**:19, 10864. [Crossref]

169. Rachel Aleks, Tina Saksida, Sam Kolahgar. 2021. Practice What You Preach: The Gender Pay Gap in Labor Union Compensation. *Industrial Relations: A Journal of Economy and Society* **60**:4, 403-435. [Crossref]

170. Anne-Sophie Bruno, Nathalie Greenan, Jeremy Tanguy. 2021. Does the Gender Mix Influence Collective Bargaining on Gender Equality? Evidence from France. *Industrial Relations: A Journal of Economy and Society* **60**:4, 479-520. [Crossref]

171. Rania Gihleb, Osnat Lifshitz. 2021. Dynamic effects of educational assortative mating on labor supply. *Review of Economic Dynamics* **12**. . [Crossref]

172. Luise Görges. 2021. Of housewives and feminists: Gender norms and intra-household division of labour. *Labour Economics* **72**, 102044. [Crossref]

173. Ann L. Owen, Andrew Wei. 2021. Sexism, household decisions, and the gender wage gap. *Labour Economics* **72**, 102062. [Crossref]

174. McKinley L. Blackburn. 2021. Are U.S. teacher salaries competitive? Accounting for geography and the retransformation bias in logarithmic regressions. *Economics of Education Review* **84**, 102169. [Crossref]

175. Gregory B. Upton, Han Yu. 2021. Labor demand shocks and earnings and employment differentials: Evidence from the U.S. shale oil & gas boom. *Energy Economics* **102**, 105462. [Crossref]
176. Miriam Marcén, Marina Morales. 2021. Culture and the cross-country differences in the gender commuting gap. *Journal of Transport Geography* **96**, 103184. [Crossref]
177. Mahalia Jackman, Kishmar Lorde. 2021. Gaps in the (paid) work hours of male and female heads of households: empirical evidence from Barbados. *International Journal of Manpower* **42**:7, 1321-1337. [Crossref]
178. Hao Li, Chun Chen, Zhi Zhang. 2021. Are gender differences related to non-cognitive abilities? —— Evidence from China. *Journal of the Asia Pacific Economy* **6**, 1-20. [Crossref]
179. Rocío Sánchez-Mangas, Virginia Sánchez-Marcos. 2021. Wage Growth across Fields of Study among Young College Graduates: Is There a Gender Gap?. *CESifo Economic Studies* **67**:3, 251-274. [Crossref]
180. Paola Belingheri, Filippo Chiarello, Andrea Fronzetti Colladon, Paola Rovelli. 2021. Twenty years of gender equality research: A scoping review based on a new semantic indicator. *PLOS ONE* **16**:9, e0256474. [Crossref]
181. Eberhard Feess, Jan Feld, Shakked Noy. 2021. People Judge Discrimination Against Women More Harshly Than Discrimination Against Men – Does Statistical Fairness Discrimination Explain Why?. *Frontiers in Psychology* **12**. . [Crossref]
182. Giacomo Vagni, Richard Breen. 2021. Earnings and Income Penalties for Motherhood: Estimates for British Women Using the Individual Synthetic Control Method. *European Sociological Review* **37**:5, 834-848. [Crossref]
183. Cody Cook, Rebecca Diamond, Jonathan V Hall, John A List, Paul Oyer. 2021. The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers. *The Review of Economic Studies* **88**:5, 2210-2238. [Crossref]
184. Tal Shahor, Javier Simonovich, Moshe Sharabi. 2021. Wage gap between men and women in Israel. *Israel Affairs* **27**:5, 950-968. [Crossref]
185. Saara Vaahtoniemi. 2021. The finance wage premium: Finnish evidence from a gender perspective. *LABOUR* **35**:3, 412-431. [Crossref]
186. Young-Joo Lee, Chang Kil Lee. 2021. The roots of the gender pay gap for nonprofit CEOs. *Nonprofit Management and Leadership* **32**:1, 155-167. [Crossref]
187. Kris Hardies, Clive Lennox, Bing Li. 2021. Gender Discrimination? Evidence from the Belgian Public Accounting Profession*. *Contemporary Accounting Research* **38**:3, 1509-1541. [Crossref]
188. Rohan Best, Noura Saba. 2021. Quantifying Australia's Gender Superannuation Gap. *Economic Record* **97**:318, 410-423. [Crossref]
189. Elisa R. Birch, Alison C. Preston. 2021. The Evolving Wage Structure of Young Adults in Australia: 2001 to 2019. *Economic Record* **97**:318, 365-386. [Crossref]
190. Avinno Faruk. 2021. Analysing the glass ceiling and sticky floor effects in Bangladesh: evidence, extent and elements. *SN Business & Economics* **1**:9. . [Crossref]
191. Galit Klein, Zeev Shtudiner, Moti Zwilling. 2021. Uncovering gender bias in attitudes towards financial advisors. *Journal of Economic Behavior & Organization* **189**, 257-273. [Crossref]
192. Ping Li, Xiaozhou Chen, Qi Yao. 2021. Body Mass and Income: Gender and Occupational Differences. *International Journal of Environmental Research and Public Health* **18**:18, 9599. [Crossref]

193. Rodrigo Troncoso, Louis de Grange, Danae Rodríguez. 2021. The impact of commute time on the gender wage gap: An empirical analysis. *Case Studies on Transport Policy* **9**:3, 1106-1111. [Crossref]
194. Maik Hamjediers. 2021. Can Regional Gender Ideologies Account for Variation of Gender Pay Gaps? The Case of Germany. *Social Sciences* **10**:9, 347. [Crossref]
195. DEEKSHA TAYAL, SOURABH PAUL. 2021. Discouraged Worker Effect and Labor Market Behavior of Urban Married Women. *Asian Development Review* **38**:02, 93-122. [Crossref]
196. Dany Kessel, Johanna Mollerstrom, Roel van Veldhuizen. 2021. Can simple advice eliminate the gender gap in willingness to compete?. *European Economic Review* **138**, 103777. [Crossref]
197. Vincent J. Roscigno, Jill E. Yavorsky, Natasha Quadlin. 2021. Gendered Dignity at Work. *American Journal of Sociology* **127**:2, 562-620. [Crossref]
198. Andrew R. Finley, Curtis M. Hall, Amanda R. Marino. 2021. Negotiation and executive gender pay gaps in nonprofit organizations. *Review of Accounting Studies* **30**. . [Crossref]
199. Anett Friedrich, Sandra Hirtz. 2021. Same educational level, same wage returns? An analysis over time and across occupations in Germany. *Journal of Education and Work* **34**:5-6, 632-648. [Crossref]
200. Leonardo J. Maldonado. 2021. Decomposing the gender pay gap in the formal sector in Venezuela: a microdata analysis 1985–2015. *Applied Economics Letters* **28**:14, 1145-1151. [Crossref]
201. Abdelaziz Alsharawy, Ross Spoon, Alec Smith, Sheryl Ball. 2021. Gender Differences in Fear and Risk Perception During the COVID-19 Pandemic. *Frontiers in Psychology* **12**. . [Crossref]
202. Terra McKinnish. 2021. Prevalence of Long Work Hours by Spouse's Degree Field and the Labor Market Outcomes of Skilled Women. *ILR Review* **74**:4, 898-919. [Crossref]
203. Louise Johannesson, Hildegunn Kyvik Nordås. 2021. Services Trade: The Great Gender Equaliser?. *Foreign Trade Review* **56**:3, 341-363. [Crossref]
204. Patrick Ishizuka, Kelly Musick. 2021. Occupational Inflexibility and Women's Employment During the Transition to Parenthood. *Demography* **58**:4, 1249-1274. [Crossref]
205. Altantsetseg Batchuluun. 2021. The gender wage gap in Mongolia: Sectoral segregation as a driving factor. *Review of Development Economics* **25**:3, 1437-1465. [Crossref]
206. Hadas Mandel, Amit Lazarus. 2021. Contextual Effects on the Gendered Division of Housework: A Cross-Country and Cross-Time Analysis. *Sex Roles* **85**:3-4, 205-220. [Crossref]
207. Waverly W. Ding, Atsushi Ohyama, Rajshree Agarwal. 2021. Trends in gender pay gaps of scientists and engineers in academia and industry. *Nature Biotechnology* **39**:8, 1019-1024. [Crossref]
208. Andreas Menzel, Christopher Woodruff. 2021. Gender wage gaps and worker mobility: Evidence from the garment sector in Bangladesh. *Labour Economics* **71**, 102000. [Crossref]
209. Jia Wang, Raymond Sin-Kwok Wong. 2021. Gender-oriented statistical discrimination: Aggregate fertility, economic sector, and earnings among young Chinese workers. *Research in Social Stratification and Mobility* **74**, 100622. [Crossref]
210. Roger Pizarro Milian, Brad Seward. 2021. How wide is the gap? Examining gender income disparities among private career college graduates. *Canadian Review of Sociology/Revue canadienne de sociologie* **58**:3, 419-440. [Crossref]
211. Michelle J. Budig, Misun Lim, Melissa J. Hodges. 2021. Racial and gender pay disparities: The role of education. *Social Science Research* **98**, 102580. [Crossref]

212. Youngsoo Jang, Minchul Yum. 2021. Nonlinear occupations and female labor supply over time. *Review of Economic Dynamics* **125**. . [Crossref]

213. Traci Sitzmann, Elizabeth M. Campbell. 2021. The Hidden Cost of Prayer: Religiosity and the Gender Wage Gap. *Academy of Management Journal* **64**:4, 1016-1048. [Crossref]

214. Michael Danquah, Abdul Malik Iddrisu, Ernest Owusu Boakye, Solomon Owusu. 2021. Do gender wage differences within households influence women's empowerment and welfare? Evidence from Ghana. *Journal of Economic Behavior & Organization* **188**, 916-932. [Crossref]

215. Haining Wang, Zhiming Cheng. 2021. Mama loves you: The gender wage gap and expenditure on children's education in China. *Journal of Economic Behavior & Organization* **188**, 1015-1034. [Crossref]

216. Orkideh Gharehgozli, Vidya Atal. 2021. Gender Wage Gap: Within and Across Borders. *Studies in Business and Economics* **16**:2, 74-83. [Crossref]

217. Marcela Perticará, Mauricio Tejada. 2021. Sources of gender wage gaps for skilled workers in Latin American countries. *The Journal of Economic Inequality* **125**. . [Crossref]

218. Renée B Adams, Roman Kräussl, Marco Navone, Patrick Verwijmeren. 2021. Gendered Prices. *The Review of Financial Studies* **34**:8, 3789-3839. [Crossref]

219. Vincenzo Alfano, Lorenzo Cicatiello, Giuseppe Lucio Gaeta, Mauro Pinto. 2021. The Gender Wage Gap among Ph.D. Holders: Evidence from Italy. *The B.E. Journal of Economic Analysis & Policy* **21**:3, 1107-1148. [Crossref]

220. Shaista Waqar, Rubina Hanif, Jennifer Loh. 2021. Invisibility not invincibility: Pakistani women and the lack of career ascendance. *Gender in Management: An International Journal* **36**:6, 731-744. [Crossref]

221. William J Scarborough, Katherine Sobering, Ronald Kwon, Mehr Mumtaz. 2021. The costs of occupational gender segregation in high-tech growth and productivity across US local labor markets. *Socio-Economic Review* **64**. . [Crossref]

222. Magnus Bygren, Michael Gähler, Charlotta Magnusson. 2021. The Constant Gap: Parenthood Premiums in Sweden 1968–2010. *Social Forces* **100**:1, 137-168. [Crossref]

223. Sarah R. Hayford, Jessica Halliday Hardie. 2021. Gender Differences in Adolescents' Work and Family Orientations in the United States. *The Sociological Quarterly* **62**:3, 488-509. [Crossref]

224. Duc Hien Nguyen. 2021. The Political Economy of Heteronormativity. *Review of Radical Political Economics* **2**, 048661342110112. [Crossref]

225. Dominica Bartnik, Paul Edward Gabriel, Susanne Schmitz. 2021. The impact of occupational feminization on the gender wage gap and estimates of wage discrimination. *Applied Economics Letters* **1**, 1-5. [Crossref]

226. Leena Sachdeva, Kumkum Bharti, Mridul Maheshwari. 2021. A five-decade review of gender-based occupational segregation: A bibliometric study of influential authors, institutions, and research clusters. *Australian Journal of Career Development* **30**:2, 117-128. [Crossref]

227. Kai Ou, Xiaofei Pan. 2021. The effect of task choice and task assignment on the gender earnings gap: An experimental study. *European Economic Review* **136**, 103753. [Crossref]

228. Jessica A. Peck. 2021. The disproportionate impact of COVID-19 on women relative to men: A conservation of resources perspective. *Gender, Work & Organization* **28**:S2, 484-497. [Crossref]

229. Yoshio Yanadori, Carol T. Kulik, Jill A. Gould. 2021. Who pays the penalty? Implications of gender pay disparities within top management teams for firm performance. *Human Resource Management* **60**:4, 681-699. [Crossref]

230. Tobias Schlager, Bhavya Mohan, Katherine DeCelles, Michael Norton. 2021. Consumers—Especially Women—Avoid Buying From Firms With Higher Gender Pay Gaps. *Journal of Consumer Psychology* **31**:3, 518-531. [Crossref]

231. Peter Davies, Marco G. Ercolani. 2021. Gender, motivation and labour market beliefs in higher education choices. *Higher Education* **82**:1, 127-144. [Crossref]

232. Pamela Wicker, Christoph Breuer, Sören Dallmeyer. 2021. The gender earnings gap among elite athletes in semi-professional sports. *Managing Sport and Leisure* **19**, 1-18. [Crossref]

233. Krista B. Lewellyn, Maureen I. Muller-Kahle. 2021. A Configurational Exploration of How Female and Male CEOs Influence Their Compensation. *Journal of Management* **18**, 014920632110272. [Crossref]

234. Julian Aramburu, Ana Goicoechea, Ahmed Mushfiq Mobarak. Coding Bootcamps for Female Digital Employment: Evidence from an RCT in Argentina and Colombia . [Crossref]

235. Philip Rosenbaum. 2021. Pregnancy or motherhood cost? A comparison of the child penalty for adopting and biological parents. *Applied Economics* **53**:29, 3408-3422. [Crossref]

236. Adam Walke. 2021. De-unionization and the wages of essential workers. *Review of Social Economy* **54**, 1-28. [Crossref]

237. René Böheim, Philipp Stöllinger. 2021. Decomposition of the gender wage gap using the LASSO estimator. *Applied Economics Letters* **28**:10, 817-828. [Crossref]

238. Ana Fernandes, Martin Huber, Giannina Vaccaro. 2021. Gender differences in wage expectations. *PLOS ONE* **16**:6, e0250892. [Crossref]

239. Tim Kovalenko, Marina Töpfer. 2021. Cyclical dynamics and the gender pay gap: A structural VAR approach. *Economic Modelling* **99**, 105488. [Crossref]

240. Muhammad Irfan, Omar K. Bhatti, Rashida K. Malik. 2021. Impact of Compensation on Inclusive Organizations. *Compensation & Benefits Review* **53**:3, 103-129. [Crossref]

241. Orestes P. Hastings, Daniel Schneider. 2021. Family Structure and Inequalities in Parents' Financial Investments in Children. *Journal of Marriage and Family* **83**:3, 717-736. [Crossref]

242. DA KE. 2021. Who Wears the Pants? Gender Identity Norms and Intrahousehold Financial Decision-Making. *The Journal of Finance* **76**:3, 1389-1425. [Crossref]

243. Jason A. Grissom, Jennifer D. Timmer, Jennifer L. Nelson, Richard S.L. Blissett. 2021. Unequal pay for equal work? Unpacking the gender gap in principal compensation. *Economics of Education Review* **82**, 102114. [Crossref]

244. François Contensou, Radu Vranceanu. 2021. Working time and wage rate differences: Revisiting the role of preferences and labor scarcity. *Research in Economics* **75**:2, 164-175. [Crossref]

245. Eleonora Matteazzi, Stefani Scherer. 2021. Gender Wage Gap and the Involvement of Partners in Household Work. *Work, Employment and Society* **35**:3, 490-508. [Crossref]

246. Raymundo M. Campos-Vazquez, Jaime Lara. 2021. International migration and the gender wage gap. *Journal of Demographic Economics* **87**:2, 213-232. [Crossref]

247. Marko Ledić, Ivica Rubil. 2021. Beyond Wage Gap, Towards Job Quality Gap: The Role of Inter-Group Differences in Wages, Non-Wage Job Dimensions, and Preferences. *Social Indicators Research* **155**:2, 523-561. [Crossref]

248. Niels-Jakob Harbo Hansen, Karl Harmenberg, Erik Öberg, Hans Henrik Sievertsen. 2021. Gender disparities in top earnings: measurement and facts for Denmark 1980-2013. *The Journal of Economic Inequality* **19**:2, 347-362. [Crossref]

249. Hildegunn E. Stokke. 2021. The gender wage gap and the early-career effect: the role of actual experience and education level. *LABOUR* **35**:2, 135-162. [Crossref]

250. Soham Sahoo, Stephan Klasen. 2021. Gender Segregation in Education: Evidence From Higher Secondary Stream Choice in India. *Demography* **58**:3, 987-1010. [Crossref]

251. Michael P. Kranak, Griffin W. Rooker, Codey J. Carr, Peter Bradtke, John Michael Falligant, Nicole L. Hausman. 2021. Evaluation of accepted and rejected submissions in the Journal of Applied Behavior Analysis : Gender and experience. *Journal of Applied Behavior Analysis* **54**:3, 1175-1187. [Crossref]

252. Matthias Collischon, Andreas Eberl. 2021. Social capital as a partial explanation for gender wage gaps. *The British Journal of Sociology* **72**:3, 757-773. [Crossref]

253. Katherine B. Coffman, Christine L. Exley, Muriel Niederle. 2021. The Role of Beliefs in Driving Gender Discrimination. *Management Science* **67**:6, 3551-3569. [Crossref]

254. Matthias Collischon. 2021. Personality traits as a partial explanation for gender wage gaps and glass ceilings. *Research in Social Stratification and Mobility* **73**, 100596. [Crossref]

255. Pau Baizan. 2021. Welfare regime patterns in the social class-fertility relationship: Second births in Austria, France, Norway, and the United Kingdom. *Research in Social Stratification and Mobility* **73**, 100611. [Crossref]

256. Ben Jann, Barbara Zimmermann, Andreas Diekmann. 2021. Lohngerechtigkeit und Geschlechternormen: Erhalten Männer eine Heiratsprämie?. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie* **73**:2, 201-229. [Crossref]

257. Alessandra Cassar, Mary L. Rigdon. 2021. Option to cooperate increases women's competitiveness and closes the gender gap. *Evolution and Human Behavior* **287**. . [Crossref]

258. Danilo Cavapozzi, Marco Francesconi, Cheti Nicoletti. 2021. The impact of gender role norms on mothers' labor supply. *Journal of Economic Behavior & Organization* **186**, 113-134. [Crossref]

259. Hannes Kröger, Jörg Hartmann. 2021. Extending the Kitagawa–Oaxaca–Blinder decomposition approach to panel data. *The Stata Journal: Promoting communications on statistics and Stata* **21**:2, 360-410. [Crossref]

260. Xuan Jiang. 2021. Women in STEM: Ability, preference, and value. *Labour Economics* **70**, 101991. [Crossref]

261. Jennifer Graves, Zoë Kuehn. 2021. Specializing in growing sectors: Wage returns and gender differences. *Labour Economics* **70**, 101994. [Crossref]

262. Maria De Paola, Rosetta Lombardo, Valeria Pupo, Vincenzo Scoppa. 2021. Do Women Shy Away from Public Speaking? A Field Experiment. *Labour Economics* **70**, 102001. [Crossref]

263. Lisa Klein Vogel. 2021. The Right Tool for the Job: Child Support Enforcement Tools and Their Relationship to Payments. *Human Service Organizations: Management, Leadership & Governance* **45**:3, 216-237. [Crossref]

264. Kjersti Misje Østbakken, Marte Marie Frisell. 2021. Lønnsforskjeller mellom kvinner og menn – hvilken rolle spiller bedriften?. *Tidsskrift for kjønnsforskning* **45**:1, 21-38. [Crossref]
265. Lixin Cai. 2021. Labour supply dynamics at the extensive and intensive margins of the UK men and women. *International Journal of Manpower* **42**:3, 372-393. [Crossref]
266. Rabeh Morrar, Hélène Syed Zwick. 2021. Determinants and wage penalty of qualification mismatches: the case of Palestine. *Journal of Education and Work* **34**:4, 504-517. [Crossref]
267. Lourenço S. Paz, John Ssozi. 2021. The Effects of Chinese Imports on Female Workers in the Brazilian Manufacturing Sector. *The Journal of Development Studies* **57**:5, 807-823. [Crossref]
268. Alexandra E. Hill, Jesse Burkhardt. 2021. Peers in the Field: The Role of Ability and Gender in Peer Effects among Agricultural Workers. *American Journal of Agricultural Economics* **103**:3, 790-811. [Crossref]
269. Erling Barth, Sari Pekkala Kerr, Claudia Olivetti. 2021. The dynamics of gender earnings differentials: Evidence from establishment data. *European Economic Review* **134**, 103713. [Crossref]
270. Tinh Doan, Peter Thorning, Luis Furuya-Kanamori, Lyndall Strazdins. 2021. What Contributes to Gendered Work Time Inequality? An Australian Case Study. *Social Indicators Research* **155**:1, 259-279. [Crossref]
271. Michael D. Briscoe, Jennifer E. Givens, Madeleine Alder. 2021. Intersectional Indicators: A Race and Sex-Specific Analysis of the Carbon Intensity of Well-Being in the United States, 1998–2009. *Social Indicators Research* **155**:1, 97-116. [Crossref]
272. Sabrin Beg, Anne Fitzpatrick, Adrienne M. Lucas. 2021. Gender Bias in Assessments of Teacher Performance. *AEA Papers and Proceedings* **111**, 190-195. [Abstract] [View PDF article] [PDF with links]
273. Martha J. Bailey, Thomas Helgerman, Bryan A. Stuart. 2021. Changes in the US Gender Gap in Wages in the 1960s. *AEA Papers and Proceedings* **111**, 143-148. [Abstract] [View PDF article] [PDF with links]
274. Anne Ardila Brenøe. 2021. Brothers increase women's gender conformity. *Journal of Population Economics* **CXV**. . [Crossref]
275. Rebeca Maria Garcia-Garcia, Rosella Soriano Gonzalez, Vianney Lara-Prieto, Jorge Membrillo-Hernandez. Women for Leadership in Engineering: a link Between Students and High-Impact Projects 278-281. [Crossref]
276. Diego Emilio Linthon-Delgado, Lizethe Berenice Méndez-Heras. 2021. Descomposición de la brecha salarial de género en el Ecuador. *Revista Mexicana de Economía y Finanzas* **17**:1, 1-25. [Crossref]
277. Amaia Palencia-Esteban. 2021. Occupational segregation of female and male immigrants in the European Union: accounting for cross-country differences. *International Labour Review* **91**. . [Crossref]
278. Deborah M. Figart. 2021. The 2021 Veblen-Commons Award Recipient: Deborah M. Figart: Good Work. *Journal of Economic Issues* **55**:2, 271-292. [Crossref]
279. Suzanne H. Bijkerk, Silvia Dominguez-Martinez, Jurjen Kamphorst, Otto H. Swank. 2021. Labor Market Quotas When Promotions Are Signals. *Journal of Labor Economics* **39**:2, 437-460. [Crossref]
280. Naomi Gershoni, Corinne Low. 2021. The power of time: The impact of free IVF on Women's human capital investments. *European Economic Review* **133**, 103645. [Crossref]

281. Miriam Gensowski, Mette Gørtz, Stefanie Schurer. 2021. Inequality in personality over the life cycle. *Journal of Economic Behavior & Organization* **184**, 46-77. [Crossref]

282. Amelie Tihlarik, Stefan Sauer. 2021. New Management Approaches in Digitized Work as the Cure for Inequality?. *Social Sciences* **10**:4, 124. [Crossref]

283. Lingqian Hu. 2021. Gender differences in commuting travel in the U.S.: interactive effects of race/ethnicity and household structure. *Transportation* **48**:2, 909-929. [Crossref]

284. Victor N. Rudakov, Ilya A. Prakhov. 2021. Gender differences in pay among university faculty in Russia. *Higher Education Quarterly* **75**:2, 278-301. [Crossref]

285. Ellen Ernst Kossek, Matthew Perrigino, Alyson Gounden Rock. 2021. From ideal workers to ideal work for all: A 50-year review integrating careers and work-family research with a future research agenda. *Journal of Vocational Behavior* **126**, 103504. [Crossref]

286. Tom Buchanan, Adian McFarlane, Anupam Das. 2021. Examining the family dynamics of the Canadian gender income gap. *SN Social Sciences* **1**:4. . [Crossref]

287. Melinda N. Ritchie, Hye Young You. 2021. Women's Advancement in Politics: Evidence from Congressional Staff. *The Journal of Politics* **83**:2, 421-438. [Crossref]

288. Mengsha Luo. 2021. Cohort dynamics in relation to gender attitudes in China. *Chinese Journal of Sociology* **7**:2, 194-216. [Crossref]

289. Dorota Witkowska, Aleksandra Matuszewska-Janica. 2021. Factors determining disproportions in men and women's wages in the European Union countries. *Wiadomości Statystyczne. The Polish Statistician* **66**:3, 22-44. [Crossref]

290. Gordon B Dahl, Andreas Kotsadam, Dan-Olof Rooth. 2021. Does Integration Change Gender Attitudes? The Effect of Randomly Assigning Women to Traditionally Male Teams*. *The Quarterly Journal of Economics* **136**:2, 987-1030. [Crossref]

291. Clinton L. Neill, Ange Thomas Kakpo, Roger Mack. 2021. The role of experience, specialty certification, and practice ownership in the gender wage gap for veterinarians in the United States. *Journal of the American Veterinary Medical Association* **258**:6, 591-600. [Crossref]

292. Tushar Agrawal. 2021. Gender segregation and wage differentials in India: the role of educational attainment and occupational choices. *International Journal of Manpower* **42**:1, 1-20. [Crossref]

293. Hadas Mandel, Assaf Rotman. 2021. Revealing the Concealed Effect of Top Earnings on the Gender Gap in the Economic Value of Higher Education in the United States, 1980–2017. *Demography* . [Crossref]

294. Nicola Gagliardi, Benoît Mahy, François Rycx. 2021. Upstreamness, Wages and Gender: Equal Benefits for All?. *British Journal of Industrial Relations* **59**:1, 52-83. [Crossref]

295. Adrián Nieto. 2021. Native-immigrant differences in the effect of children on the gender pay gap. *Journal of Economic Behavior & Organization* **183**, 654-680. [Crossref]

296. Lukáš Lafférs, Bernhard Schmidpeter. 2021. Early child development and parents' labor supply. *Journal of Applied Econometrics* **36**:2, 190-208. [Crossref]

297. Cevat Giray Aksoy, Berkay Özcan, Julia Philipp. 2021. Robots and the Gender Pay Gap in Europe. *European Economic Review* **110**, 103693. [Crossref]

298. Wei-hsin Yu, Haoshu Duan. 2021. Does school learning shape gender ideology? Academic performance and adolescents' attitudes toward gender practices. *Social Science Research* **95**, 102524. [Crossref]

299. Susan Shiland Marvel. 2021. The wage gap in the PA profession. *Journal of the American Academy of Physician Assistants* **34**:3, 49-52. [Crossref]

300. Sunyu Ham. 2021. Explaining Gender Gaps in the South Korean Labor Market During the COVID-19 Pandemic. *Feminist Economics* **23**, 1-19. [Crossref]

301. Nan L. Maxwell, Nathan Wozny. 2021. Gender Gaps in Time Use and Labor Market Outcomes: What's Norms Got to Do with it?. *Journal of Labor Research* **42**:1, 56-77. [Crossref]

302. Stephan Klasen, Anna Minasyan. 2021. Affirmative Action and Intersectionality at the Top: Evidence from South Africa. *Industrial Relations: A Journal of Economy and Society* **47**. . [Crossref]

303. Teodora-Maria Soare, Céline Detilleux, Nick Deschacht. 2021. The impact of the gender composition of company boards on firm performance. *International Journal of Productivity and Performance Management* **27**. . [Crossref]

304. Yan Wu, Janneke Pieters, Nico Heerink. 2021. The gender wage gap among China's rural–urban migrants. *Review of Development Economics* **25**:1, 23-47. [Crossref]

305. David B. Yerger, Amber L. Stephenson. 2021. Advocating the use of threshold effects estimation: An illustration using the gender wage gap. *Human Resource Development Quarterly* **32**:1, 77-91. [Crossref]

306. Christina Treleaven, Sylvia Fuller. 2021. BB see: Transparency legislation and public discussions of wage inequality. *Canadian Review of Sociology/Revue canadienne de sociologie* **58**:1, 7-24. [Crossref]

307. Dominik Hangartner, Daniel Kopp, Michael Siegenthaler. 2021. Monitoring hiring discrimination through online recruitment platforms. *Nature* **3**. . [Crossref]

308. Emma K. Quinn, Andrew Harper, Ela Rydz, Peter M Smith, Mieke W Koehoorn, Cheryl E. Peters. 2021. Men and women at work in Canada, 1991–2016. *Labour & Industry: a journal of the social and economic relations of work* **1**, 1-12. [Crossref]

309. Céline Detilleux, Nick Deschacht. 2021. The causal effect of the number of children on gender-specific labour supply elasticities to the firm. *Industrial Relations Journal* **88**. . [Crossref]

310. David Card, Dean R. Hyslop. 2021. Female Earnings Inequality: The Changing Role of Family Characteristics and Its Effect on the Extensive and Intensive Margins. *Journal of Labor Economics* **39**:S1, S59-S106. [Crossref]

311. Anna Sokolova, Todd Sorensen. 2021. Monopsony in Labor Markets: A Meta-Analysis. *ILR Review* **74**:1, 27-55. [Crossref]

312. Karin Sanders, Helen De Cieri. 2021. Similarities and differences in international and comparative human resource management: A review of 60years of research. *Human Resource Management* **60**:1, 55-88. [Crossref]

313. Alba E. Gámez, Manuel Angeles. Women's Participation in the Labor Market 1237-1248. [Crossref]

314. Laura Schifman, Rikki Oden, Carolyn Koestner. Gender Wage Gap: Causes, Impacts, and Ways to Close the Gap 663-673. [Crossref]

315. Aleksey Oshchepkov. Gender Pay Gap in Russia: Literature Review and New Decomposition Results 211-233. [Crossref]

316. Marge Unt, Magda Rokicka, Kadri Täht, Triin Roosalu. “Glass Ceiling” and “Sticky Floor” in Estonian Public and Private Sectors 195-209. [Crossref]
317. Maryia Akulava, Alina Verashchagina. Dynamics of the Gender Wage Gap in Belarus: Are There Any Changes from 2001 to 2016? 161-179. [Crossref]
318. Aneeta Rattan, Ezgi Ozgumus. 2021. Embedding mindsets in context: Theoretical considerations and opportunities for studying fixed-growth lay theories in the workplace. *Research in Organizational Behavior* **10**, 100127. [Crossref]
319. Lee Allison, Yu Liu, Samuele Murtinu, Zuobao Wei. 2021. Gender and Firm Performance around the World: The Roles of Finance, Technology, and Labor. *SSRN Electronic Journal* **67**. . [Crossref]
320. Yana Gallen, Melanie Wasserman. 2021. Informed Choices: Gender Gaps in Career Advice. *SSRN Electronic Journal* **9**. . [Crossref]
321. J. Michelle Brock, Ralph De Haas. 2021. Discriminatory Lending: Evidence from Bankers in the Lab. *SSRN Electronic Journal* **93**. . [Crossref]
322. Mallory Avery. 2021. A Hidden Cost of Affirmative Action: Muddying Signals about Women’s Ability. *SSRN Electronic Journal* **15**. . [Crossref]
323. Julia Brandl, Levent Yilmaz, Bianca Schönherr. 2021. Gender differences in pre-career salary estimations. A classroom experiment with job offers based on the pay transparency reform in Austria. *SSRN Electronic Journal* . [Crossref]
324. Indermit S. Gill, Eric L. Dixon. 2021. Poverty Reduction in the United States During its Middle-Income Stage of Development. *SSRN Electronic Journal* **58**. . [Crossref]
325. Ariel Binder. 2021. Why Bother? The Effect of Declining Marriage Market Prospects on Labor-Force Participation by Young Men. *SSRN Electronic Journal* **110**. . [Crossref]
326. John Iceland. 2021. US disparities in affluence by household structure, 1959 to 2017. *Demographic Research* **44**, 653-698. [Crossref]
327. Sean P. Clarke. The Nurse Workforce 39-60. [Crossref]
328. Muhammad Salar Khan, Hamza Umer. 2021. Benefits and Challenges of COVID-19 Induced Telework Across Gender: Policy Lessons for Sustainable Future Telework. *SSRN Electronic Journal* **93**. . [Crossref]
329. Vasiliki Bozani. Masculinity, Femininity, and Workplace Outcomes 1-27. [Crossref]
330. Sumit S. Deole, Tugba Zeydanli. 2021. Does education predict gender role attitudes?: Evidence from European datasets. *SSRN Electronic Journal* **128**. . [Crossref]
331. Anjali Adukia, Alex Eble, Emileigh Harrison, Hakizumwami Birali Runesha, Teodora Szasz. 2021. What We Teach About Race and Gender: Representation in Images and Text of Children’s Books. *SSRN Electronic Journal* **59**. . [Crossref]
332. Stephane P. Francioli, Michael S. North. The older worker: gender and age discrimination in the workplace 215-235. [Crossref]
333. Sheila Mitra-Sarkar. Gendered Mobility 173-183. [Crossref]
334. Tom VanHeuvelen, Natasha Quadlin. 2021. Gender Inequality in STEM Employment and Earnings at Career Entry: Evidence from Millennial Birth Cohorts. *Socius: Sociological Research for a Dynamic World* **7**, 237802312110643. [Crossref]
335. Tomáš Doseděl. Proměna role vzdělání v době čtvrté průmyslové revoluce . [Crossref]

336. Alexandra S. Wormley, Matthew Scott, Kevin Grimm, Norman P. Li, Bryan K.C. Choy, Adam B. Cohen. 2021. Loosening the definition of culture: An investigation of gender and cultural tightness. *Current Research in Ecological and Social Psychology* **2**, 100021. [Crossref]

337. Emily Conover, Melanie Khamis, Sarah Pearlman. 2021. Gender Imbalances and Labor Market Outcomes: Evidence from Large-Scale Mexican Migration. *IZA Journal of Development and Migration* **12**:1. . [Crossref]

338. Ezgi Kaya. 2021. Gender wage gap across the distribution: What is the role of within- and between-firm effects?. *IZA Journal of Development and Migration* **12**:1. . [Crossref]

339. William E. Even, David A. Macpherson. 2020. The Gender Wage Gap and the Fair Calculations Act. *Journal of Forensic Economics* . [Crossref]

340. Panagiotis Arsenis, Miguel Flores. 2020. Determinants of students' salaries in the professional training year. *Teaching in Higher Education* 1-14. [Crossref]

341. Thomas Le Barbanchon, Roland Rathelot, Alexandra Roulet. 2020. Gender Differences in Job Search: Trading off COMMUTE AGAINST WAGE*. *The Quarterly Journal of Economics* **136**:1, 381-426. [Crossref]

342. Ellora Derenoncourt, Claire Montialoux. 2020. Minimum Wages and Racial Inequality*. *The Quarterly Journal of Economics* **136**:1, 169-228. [Crossref]

343. Heather Joshi, Alexander Bryson, David Wilkinson, Kelly Ward. 2020. The gender gap in wages over the life course: Evidence from a British cohort born in 1958. *Gender, Work & Organization* **36**. . [Crossref]

344. Mark Granberg, Niklas Ottosson, Ali Ahmed. 2020. Do ethnicity and sex of employers affect applicants' job interest? An experimental exploration. *Journal for Labour Market Research* **54**:1. . [Crossref]

345. Pau Baizan. 2020. Linking social class inequalities, labor market status, and fertility: An empirical investigation of second births. *Advances in Life Course Research* **46**, 100377. [Crossref]

346. Christine Wiedman. 2020. Rewarding Collaborative Research: Role Congruity Bias and the Gender Pay Gap in Academe. *Journal of Business Ethics* **167**:4, 793-807. [Crossref]

347. Khadija van der Straaten, Niccolò Pisani, Ans Kolk. 2020. Unraveling the MNE wage premium. *Journal of International Business Studies* **51**:9, 1355-1390. [Crossref]

348. Ichiro Iwasaki, Xinxin Ma. 2020. Gender wage gap in China: a large meta-analysis. *Journal for Labour Market Research* **54**:1. . [Crossref]

349. Martin Biewen, Bernd Fitzenberger, Matthias Seckler. 2020. Counterfactual quantile decompositions with selection correction taking into account Huber/Melly (2015): An application to the German gender wage gap. *Labour Economics* **67**, 101927. [Crossref]

350. Mohamad Zeina, Alfred Balston, Amitava Banerjee, Katherine Woolf. 2020. Gender and ethnic differences in publication of BMJ letters to the editor: an observational study using machine learning. *BMJ Open* **10**:12, e037269. [Crossref]

351. Krishna K. Bommakanti, Laramie L. Smith, Lin Liu, Diana Do, Jazmine Cuevas-Mota, Kelly Collins, Fatima Munoz, Timothy C. Rodwell, Richard S. Garfein. 2020. Requiring smartphone ownership for mHealth interventions: who could be left out?. *BMC Public Health* **20**:1. . [Crossref]

352. Ebo Botchway, Kofi Fred Asiedu. 2020. Ownership type and earnings gap decomposition: Evidence from the Ghanaian labor market. *African Development Review* **32**:4, 619-631. [Crossref]

353. Inés Berniell, Lucila Berniell, Dolores de la Mata, María Edo, Mariana Marchionni. 2020. Gender gaps in labor informality: The motherhood effect. *Journal of Development Economics* **46**, 102599. [Crossref]
354. Shisong Qing. 2020. Gender role attitudes and male-female income differences in China. *The Journal of Chinese Sociology* **7**:1. . [Crossref]
355. Iryna Kyzyma. 2020. How Poor Are the Poor? Looking beyond the Binary Measure of Income Poverty. *The Journal of Economic Inequality* **18**:4, 525-549. [Crossref]
356. Olga Alonso-Villar, Coral Río. 2020. The welfare effects of occupational segregation by gender and race: Differences across US Regions. *Papers in Regional Science* **99**:6, 1773-1797. [Crossref]
357. Ardiana Gashi, Nick Adnett. 2020. Are Women Really Paid More than Men in Kosovo? Unpicking the Evidence. *South East European Journal of Economics and Business* **15**:2, 83-95. [Crossref]
358. Dana Kanze, Mark A. Conley, Tyler G. Okimoto, Damon J. Phillips, Jennifer Merluzzi. 2020. Evidence that investors penalize female founders for lack of industry fit. *Science Advances* **6**:48. . [Crossref]
359. Rufei Guo, Junsen Zhang. 2020. The Effects of Children's Gender Composition on Filial Piety and Old-Age Support*. *The Economic Journal* **130**:632, 2497-2525. [Crossref]
360. Janette Dill, Melissa J Hodges. 2020. The Racialized Glass Escalator and Safety Net: Wages and Job Quality in "Meds and Eds" among Working-Class Men. *Social Problems* **25**. . [Crossref]
361. Leafia Zi Ye, Michal Engelman. 2020. Mobility, Stagnation, or Attrition? Diverse Earning Trajectories in a Cohort of Foreign-born Men. *Population and Development Review* **34**. . [Crossref]
362. John Kuk, Zoltan Hajnal. 2020. Democratic Party Control Reduces Gender Inequality. *Legislative Studies Quarterly* **121**. . [Crossref]
363. Michael Oberfichtner, Claus Schnabel, Marina Töpfer. 2020. Do unions and works councils really dampen the gender pay gap? Discordant evidence from Germany. *Economics Letters* **196**, 109509. [Crossref]
364. John Iceland, Ilana Redstone. 2020. The declining earnings gap between young women and men in the United States, 1979–2018. *Social Science Research* **92**, 102479. [Crossref]
365. Francesca Barigozzi, Helmuth Cremer, Kerstin Roeder. 2020. Caregivers in the family: Daughters, sons and social norms. *European Economic Review* **130**, 103589. [Crossref]
366. Jens Mazei, Marc Mertes, Joachim Hüffmeier. 2020. Strategies Aimed at Reducing Gender Differences in Negotiation Are Perceived by Women as Ineffective. *Sex Roles* **83**:9-10, 580-594. [Crossref]
367. Frédéric Chantreuil, Kévin Fourrey, Isabelle Lebon, Thérèse Rebière. 2020. Magnitude and evolution of gender and race contributions to earnings inequality across US regions. *Research in Economics* **8**. . [Crossref]
368. Marco Castelluccio. 2020. Flat tax? Maybe not a bad idea after all. *Research in Economics* **43**. . [Crossref]
369. Carolina Castagnetti, Luisa Rosti, Marina Töpfer. 2020. Discriminate me — If you can! The disappearance of the gender pay gap among public-contest selected employees in Italy. *Gender, Work & Organization* **27**:6, 1040-1076. [Crossref]
370. Klavs Ciprikis, Damien Cassells, Jenny Berrill. 2020. Transgender labour market outcomes: Evidence from the United States. *Gender, Work & Organization* **27**:6, 1378-1401. [Crossref]
371. Rachel S. Simpson, Breanna J. Scott, Kate J. Hamm, Jacquelyn M. Tyra, Heather M. Jackson, Marie L. P. Fermil, Leslie K. Kinder, Carl J. Bassi. 2020. Optometry Compensation Study: Narrowing Down

the Unexplained Gender Wage Gap in Optometry. *Optometry and Vision Science* **97**:11, 970-977. [Crossref]

372. Cecilia Arana Håkanson, Fanny Fredriksson, Helene Engstrand Lilja. 2020. Attention deficit hyperactivity disorder and educational level in adolescent and adult individuals after anesthesia and abdominal surgery during infancy. *PLOS ONE* **15**:10, e0240891. [Crossref]
373. HoKwan Cheung, Caren B. Goldberg, Alison M. Konrad, Alex Lindsey, Vias Nicolaides, Yang Yang. 2020. A meta-analytic review of gender composition influencing employees' work outcomes: implications for human resource development. *Human Resource Development International* **23**:5, 491-518. [Crossref]
374. Morgan Hardy, Gisella Kagy. 2020. It'S Getting Crowded in Here: Experimental Evidence of Demand Constraints in the Gender Profit Gap. *The Economic Journal* **130**:631, 2272-2290. [Crossref]
375. Shao-Hsun Keng. 2020. Gender bias and statistical discrimination against female instructors in student evaluations of teaching. *Labour Economics* **66**, 101889. [Crossref]
376. Allison Daminger. 2020. De-gendered Processes, Gendered Outcomes: How Egalitarian Couples Make Sense of Non-egalitarian Household Practices. *American Sociological Review* **85**:5, 806-829. [Crossref]
377. Gauri Kartini Shastry, Olga Shurchkov, Lingjun Lotus Xia. 2020. Luck or skill: How women and men react to noisy feedback. *Journal of Behavioral and Experimental Economics* **88**, 101592. [Crossref]
378. Jesper J. Rözer, Bas Hofstra, Matthew E. Brashears, Beate Volker. 2020. Does unemployment lead to isolation? The consequences of unemployment for social networks. *Social Networks* **63**, 100-111. [Crossref]
379. Eunice S. Han. 2020. The Effects of Teachers' Unions on the Gender Pay Gap among U.S. Public School Teachers. *Industrial Relations: A Journal of Economy and Society* **59**:4, 563-603. [Crossref]
380. Michael T. French, Andrew R. Timming. 2020. Hormone Therapy and Discrimination in the Labor Market: Emerging Experimental Evidence on the Economics of Endocrinology. *Endocrine Research* **45**:4, 254-257. [Crossref]
381. Tetiana Lysenko, Qingfang Wang. 2020. RACE/ETHNICITY, GENDER, AND EARNINGS OF EARLY CAREER STEM GRADUATES IN THE U.S. *Geographical Review* **110**:4, 457-484. [Crossref]
382. Suqin Ge, Yu Zhou. 2020. Robots, computers, and the gender wage gap. *Journal of Economic Behavior & Organization* **178**, 194-222. [Crossref]
383. Gregory Verdugo, Guillaume Allègre. 2020. Labour force participation and job polarization: Evidence from Europe during the Great Recession. *Labour Economics* **66**, 101881. [Crossref]
384. Nazli Sila Alan, Katsiaryna Salavei Bardos, Natalya Y. Shelkova. 2020. CEO-to-employee pay ratio and CEO diversity. *Managerial Finance* **ahead-of-print**:ahead-of-print. . [Crossref]
385. Steven Batt, Tara Grealis, Oskar Harmon, Paul Tomolonis. 2020. Learning Tableau: A data visualization tool. *The Journal of Economic Education* **51**:3-4, 317-328. [Crossref]
386. Laura Casares Field, Matthew E. Souther, Adam S. Yore. 2020. At the table but can not break through the glass ceiling:Board leadership positions elude diverse directors. *Journal of Financial Economics* **137**:3, 787-814. [Crossref]

387. Kristen P. Jones, Judith A. Clair, Eden B. King, Beth K. Humberd, David F. Arena. 2020. How help during pregnancy can undermine self-efficacy and increase postpartum intentions to quit. *Personnel Psychology* **73**:3, 431-458. [Crossref]

388. Izaskun Barba, Belen Iraizoz. 2020. Effect of the Great Crisis on Sectoral Female Employment in Europe: A Structural Decomposition Analysis. *Economies* **8**:3, 64. [Crossref]

389. Veronika Grimm, Holger A. Rau, Simeon Schächtele. 2020. Gender differences in multi-employee gift exchange with self-reported contributions. *PLOS ONE* **15**:9, e0238236. [Crossref]

390. Bobbi Thomason, Inmaculada Macias-Alonso. 2020. COVID-19 and raising the value of care. *Gender, Work & Organization* **27**:5, 705-708. [Crossref]

391. Jennifer Robson, Johanna Peetz. 2020. Gender differences in financial knowledge, attitudes, and behaviors: Accounting for socioeconomic disparities and psychological traits. *Journal of Consumer Affairs* **54**:3, 813-835. [Crossref]

392. Allison M. Traylor, Linnea C. Ng, Abby Corrington, Jeanine L. M. Skorinko, Michelle R. Hebl. 2020. Expanding Research on Working Women More Globally: Identifying and Remediating Current Blindspots. *Journal of Social Issues* **76**:3, 744-772. [Crossref]

393. Yang Shen, Lai Jiang. 2020. Labor Market Outcomes of Professional Women with Two Children after the One-Child Policy in China. *Journal of Social Issues* **76**:3, 632-658. [Crossref]

394. Vaani Pardal, Madeliene Alger, Ioana Latu. 2020. Implicit and Explicit Gender Stereotypes at the Bargaining Table: Male Counterparts' Stereotypes Predict Women's Lower Performance in Dyadic Face-to-Face Negotiations. *Sex Roles* **83**:5-6, 289-302. [Crossref]

395. Holly Monti, Martha Stinson, Lori Zehr. 2020. How Long Do Early Career Decisions Follow Women? The Impact of Employer History on the Gender Wage Gap. *Journal of Labor Research* **41**:3, 189-232. [Crossref]

396. Miriam Grønning, Irene Kriesi, Stefan Sacchi. 2020. Skill Specificity of Upper-Secondary Training Occupations and the Gender Pay Gap. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie* **72**:S1, 291-315. [Crossref]

397. Benoit Dostie, Mohsen Javdani. 2020. Not for the Profit, But for the Training? Gender Differences in Training in the For-Profit and Non-Profit Sectors. *British Journal of Industrial Relations* **58**:3, 644-689. [Crossref]

398. Luiza Antonie, Laura Gatto, Miana Plesca. 2020. Full-Time and Part-Time Work and the Gender Wage Gap. *Atlantic Economic Journal* **48**:3, 313-326. [Crossref]

399. Nick Drydakis, Klaus F. Zimmermann. 2020. Guest editorial. *International Journal of Manpower* **41**:6, 621-628. [Crossref]

400. Rong Zhao. 2020. Are Nonprofits More Equitable than For-Profits? An Estimate of the Gender Pay Gap in the U.S. Human Services Field. *Human Service Organizations: Management, Leadership & Governance* **44**:4, 343-361. [Crossref]

401. Moses Shayo. 2020. Social Identity and Economic Policy. *Annual Review of Economics* **12**:1, 355-389. [Crossref]

402. Alexandre Mas, Amanda Pallais. 2020. Alternative Work Arrangements. *Annual Review of Economics* **12**:1, 631-658. [Crossref]

403. Adam Storer, Daniel Schneider, Kristen Harknett. 2020. What Explains Racial/Ethnic Inequality in Job Quality in the Service Sector?. *American Sociological Review* **85**:4, 537-572. [Crossref]

404. Philip Rosenbaum. 2020. Does early childbearing matter? New approach using Danish register data. *Labour Economics* **65**, 101852. [Crossref]

405. Iqra Mohiuddin, Muhammad Asif Kamran, Shokhrukh-Mirzo Jalilov, Mobin-ud-Din Ahmad, Sultan Ali Adil, Raza Ullah, Tasneem Khaliq. 2020. Scale and Drivers of Female Agricultural Labor: Evidence from Pakistan. *Sustainability* **12**:16, 6633. [Crossref]

406. Xavier St-Denis. 2020. Sociodemographic Determinants of Occupational Risks of Exposure to COVID-19 in Canada. *Canadian Review of Sociology/Revue canadienne de sociologie* **57**:3, 399-452. [Crossref]

407. Francesca Barigozzi, Helmuth Cremer, Kerstin Roeder. 2020. Having it all, for all: Child-care subsidies and income distribution reconciled. *Journal of Economic Behavior & Organization* **176**, 188-211. [Crossref]

408. . The Cambridge Handbook of the International Psychology of Women **1**, . [Crossref]

409. . Work and Family Issues 273-372. [Crossref]

410. S. Alvin Leung, Rachel Gali Cinamon. Career Development of Women 275-288. [Crossref]

411. Jeounghee Kim, Sangeeta Chatterji. 2020. Gender and Educational Variations in the Earnings Premiums of Occupational Credentials. *The B.E. Journal of Economic Analysis & Policy* **20**:3. . [Crossref]

412. Siwei Cheng. 2020. How to Borrow Information From Unlinked Data? A Relative Density Approach for Predicting Unobserved Distributions. *Sociological Methods & Research* **1**, 004912412092621. [Crossref]

413. Iñigo Hernandez-Arenaz. 2020. Stereotypes and tournament self-selection: A theoretical and experimental approach. *European Economic Review* **126**, 103448. [Crossref]

414. Frauke von Bieberstein, Stefanie Jaussi, Claudia Vogel. 2020. Challenge-seeking and the gender wage gap: A lab-in-the-field experiment with cleaning personnel. *Journal of Economic Behavior & Organization* **175**, 251-277. [Crossref]

415. Chujun Lin, R. Michael Alvarez. 2020. Personality traits are directly associated with anti-black prejudice in the United States. *PLOS ONE* **15**:7, e0235436. [Crossref]

416. Quentin Lippmann, Alexandre Georgieff, Claudia Senik. 2020. Undoing Gender with Institutions: Lessons from the German Division and Reunification. *The Economic Journal* **130**:629, 1445-1470. [Crossref]

417. Thomas Skora, Heiko Rüger, Nico Stawarz. 2020. Commuting and the Motherhood Wage Gap: Evidence from Germany. *Sustainability* **12**:14, 5692. [Crossref]

418. Francine D. Blau, Lawrence M. Kahn, Peter Brummund, Jason Cook, Miriam Larson-Koester. 2020. Is there still son preference in the United States?. *Journal of Population Economics* **33**:3, 709-750. [Crossref]

419. Susan L. Averett, Cynthia Bansak, Julie K. Smith. 2020. Behind Every High Earning Man is a Conscientious Woman: The Impact of Spousal Personality on Earnings and Marriage. *Journal of Family and Economic Issues* **9**. . [Crossref]

420. Rune V. Lesner. 2020. Labor market sorting on personality traits and the gender wage gap. *Applied Economics Letters* **27**:11, 940-944. [Crossref]

421. Adalgiso Amendola, Roberto Dell'Anno, Lavinia Parisi. 2020. How did the Great Recession Affect Gender Disparity in Europe? An Analysis by a Multidimensional Deprivation Approach. *Applied Economics* **52**:26, 2780-2794. [Crossref]
422. Ewa Cukrowska-Torzewska, Iga Magda. 2020. The gender wage gap in the workplace: Does the age of the firm matter?. *European Journal of Industrial Relations* **26**:2, 123-137. [Crossref]
423. Orkideh Gharehgozli, Vidya Atal. 2020. Revisiting the gender wage gap in the United States. *Economic Analysis and Policy* **66**, 207-216. [Crossref]
424. Cléo Chassonnery-Zaïgouche. 2020. HOW ECONOMISTS ENTERED THE 'NUMBERS GAME': MEASURING DISCRIMINATION IN THE US COURTROOMS, 1971–1989. *Journal of the History of Economic Thought* **42**:2, 229-259. [Crossref]
425. Nils Witte, Andreas Haupt. 2020. Is Occupational Licensing More Beneficial for Women than for Men? The Case of Germany, 1993/2015. *European Sociological Review* **36**:3, 429-441. [Crossref]
426. David Niven, Alexis Straka, Anwar Mhajne. 2020. Who Reveals, Who Conceals?: Candidate Gender and Policy Transparency. *Political Research Quarterly* **73**:2, 396-408. [Crossref]
427. Britta Hoyer, Thomas van Huizen, Linda Keijzer, Sarah Rezaei, Stephanie Rosenkranz, Bastian Westbrock. 2020. Gender, competitiveness, and task difficulty: Evidence from the field. *Labour Economics* **64**, 101815. [Crossref]
428. Barbara Petrongolo, Maddalena Ronchi. 2020. Gender gaps and the structure of local labor markets. *Labour Economics* **64**, 101819. [Crossref]
429. Bastian Becker. 2020. Mind the Income Gaps? Experimental Evidence of Information's Lasting Effect on Redistributive Preferences. *Social Justice Research* **33**:2, 137-194. [Crossref]
430. Bijetri Bose, Feliz Quiñones, Gonzalo Moreno, Amy Raub, Kate Huh, Jody Heymann. 2020. Protecting Adults With Caregiving Responsibilities From Workplace Discrimination: Analysis of National Legislation. *Journal of Marriage and Family* **82**:3, 953-964. [Crossref]
431. Joshua Hall, Amanda Ross, Jamie Bologna Pavlik. 2020. Laissez-Faire Economic Policy in a World Where Gender Income Gaps Exist: Helping or Hurting?. *Journal of Economics, Race, and Policy* **3**:2, 144-158. [Crossref]
432. Felix Busch. 2020. Gender Segregation, Occupational Sorting, and Growth of Wage Disparities Between Women. *Demography* **57**:3, 1063-1088. [Crossref]
433. M. Niaz Asadullah, Saizi Xiao. 2020. The changing pattern of wage returns to education in post-reform China. *Structural Change and Economic Dynamics* **53**, 137-148. [Crossref]
434. Emre YANIKKERREM, Özge TOPSAKAL, Asuman BOZ. 2020. Sağlık Bilimleri Fakültesi Öğrencilerinin Toplumsal Cinsiyet Eşitliği Tutumlarının İncelenmesi. *Düzce Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi* . [Crossref]
435. Asri Özgümüs, Holger A. Rau, Stefan T. Trautmann, Christian König-Kersting. 2020. Gender Bias in the Evaluation of Teaching Materials. *Frontiers in Psychology* **11**. . [Crossref]
436. Sun-Ki Choi, Hyungjo Hur. 2020. Does job mismatch affect wage and job turnover differently by gender?. *Education Economics* **28**:3, 291-310. [Crossref]
437. David Ong, Yu (Alan) Yang, Junsen Zhang. 2020. Hard to get: The scarcity of women and the competition for high-income men in urban China. *Journal of Development Economics* **144**, 102434. [Crossref]

438. Tymon Słoczyński. 2020. Average Gaps and Oaxaca–Blinder Decompositions: A Cautionary Tale about Regression Estimates of Racial Differences in Labor Market Outcomes. *ILR Review* **73**:3, 705-729. [Crossref]

439. Kamesha Spates, Na'Tasha M. Evans, Brittany Clarvon Watts, Nasra Abubakar, Tierra James. 2020. Keeping Ourselves Sane: A Qualitative Exploration of Black Women's Coping Strategies for Gendered Racism. *Sex Roles* **82**:9-10, 513-524. [Crossref]

440. Anna Bindler, Randi Hjalmarsson. 2020. The Persistence of the Criminal Justice Gender Gap: Evidence from 200 Years of Judicial Decisions. *The Journal of Law and Economics* **63**:2, 297-339. [Crossref]

441. Yuan Cheng, Meng Chang, Yanbo Xue. 2020. Understanding the promotion dilemma for females based on a computational model. *Communications in Nonlinear Science and Numerical Simulation* **84**, 105173. [Crossref]

442. Paola Profeta. Gender Equality and Public Policy **40**, . [Crossref]

443. Abdelrahman Zuraik, Louise Kelly, Vernita Perkins. 2020. Gender differences in innovation: the role of ambidextrous leadership of the team leads. *Management Decision* **58**:7, 1475-1495. [Crossref]

444. Mary Borrowman, Stephan Klasen. 2020. Drivers of Gendered Sectoral and Occupational Segregation in Developing Countries. *Feminist Economics* **26**:2, 62-94. [Crossref]

445. Marisa Turesky, Mildred E. Warner. 2020. Gender Dynamics in the Planning Workplace. *Journal of the American Planning Association* **86**:2, 157-170. [Crossref]

446. Johannes Wieschke. 2020. Employer changes and their effects on wages. Differences between genders and between different types of job mobility among German university graduates. *Journal of Education and Work* **33**:3, 212-228. [Crossref]

447. Stephan Klasen. 2020. From 'MeToo' to Boko Haram: A survey of levels and trends of gender inequality in the world. *World Development* **128**, 104862. [Crossref]

448. Dan Zeltzer. 2020. Gender Homophily in Referral Networks: Consequences for the Medicare Physician Earnings Gap. *American Economic Journal: Applied Economics* **12**:2, 169-197. [Abstract] [View PDF article] [PDF with links]

449. C. Richie. 2020. Whose interests are advanced by LGBT bioethics?. *Ethics, Medicine and Public Health* **13**, 100467. [Crossref]

450. Kyung H Park, Nayoung Rim. 2020. The Disparate Impact of Up-or-Out Promotion Policy on Fertility Timing. *American Law and Economics Review* **22**:1, 127-172. [Crossref]

451. Leonie Gerhards, Michael Kosfeld. 2020. I (Don't) Like You! But Who Cares? Gender Differences in Same-Sex and Mixed-Sex Teams. *The Economic Journal* **130**:627, 716-739. [Crossref]

452. Elizabeth J. Casabianca, Alessia Lo Turco, Claudia Pigini. 2020. Equal Pay for Equal Task: Assessing Heterogeneous Returns to Tasks across Genders. *Industrial Relations: A Journal of Economy and Society* **59**:2, 197-239. [Crossref]

453. Koji Ueno, Alexandra Krause. 2020. Occupational attainment and depressive symptoms in young adulthood. *Stress and Health* **36**:2, 107-118. [Crossref]

454. . Case Studies 315-433. [Crossref]

455. Nauro F. Campos. Goulash Labour Market Structural Reforms 407-433. [Crossref]

456. Paula England, Andrew Levine, Emma Mishel. 2020. Progress toward gender equality in the United States has slowed or stalled. *Proceedings of the National Academy of Sciences* **117**:13, 6990-6997. [Crossref]

457. Tom Buchanan, Jean E. Wallace. 2020. Work satisfaction in a rapidly feminized profession: assessing the intersection of gender, parenting and support resources among veterinary doctors. *Sociological Spectrum* **40**:2, 116-135. [Crossref]

458. Lori L. Taylor, Joanna N. Lahey, Molly I. Beck, Jeffrey E. Froyd. 2020. How to Do a Salary Equity Study: With an Illustrative Example From Higher Education. *Public Personnel Management* **49**:1, 57-82. [Crossref]

459. Christine L. Exley, Muriel Niederle, Lise Vesterlund. 2020. Knowing When to Ask: The Cost of Leaning In. *Journal of Political Economy* **128**:3, 816-854. [Crossref]

460. Mónica Segovia-Pérez, Rosa Belén Castro Núñez, Rosa Santero Sánchez, Pilar Laguna Sánchez. 2020. Being a woman in an ICT job: an analysis of the gender pay gap and discrimination in Spain. *New Technology, Work and Employment* **35**:1, 20-39. [Crossref]

461. Shu Yang, Romi Kher, Scott L. Newbert. 2020. What signals matter for social startups? It depends: The influence of gender role congruity on social impact accelerator selection decisions. *Journal of Business Venturing* **35**:2, 105932. [Crossref]

462. Bidisha Mandal, Michael P. Brady. 2020. The Roles of Gender and Marital Status on Risky Asset Allocation Decisions. *Journal of Consumer Affairs* **54**:1, 177-197. [Crossref]

463. Vartuhi Tonoyan, Robert Strohmeyer, Jennifer E. Jennings. 2020. Gender Gaps in Perceived Start-up Ease: Implications of Sex-based Labor Market Segregation for Entrepreneurship across 22 European Countries. *Administrative Science Quarterly* **65**:1, 181-225. [Crossref]

464. Karen Mumford, Cristina Sechel. 2020. Pay and Job Rank among Academic Economists in the UK: Is Gender Relevant?. *British Journal of Industrial Relations* **58**:1, 82-113. [Crossref]

465. Sarah Louise Jewell, Giovanni Razzu, Carl Singleton. 2020. Who Works for Whom and the UK Gender Pay Gap. *British Journal of Industrial Relations* **58**:1, 50-81. [Crossref]

466. Lisa Klein Vogel. 2020. Help me help you: Identifying and addressing barriers to child support compliance. *Children and Youth Services Review* **110**, 104763. [Crossref]

467. Barbara Zimmermann. 2020. Gender Gap in the Career Success of University Graduates: Effects of Work-Related Values. *Swiss Journal of Sociology* **46**:1, 37-71. [Crossref]

468. Leib Litman, Jonathan Robinson, Zohn Rosen, Cheskie Rosenzweig, Joshua Waxman, Lisa M. Bates. 2020. The persistence of pay inequality: The gender pay gap in an anonymous online labor market. *PLOS ONE* **15**:2, e0229383. [Crossref]

469. Barbara Pertold-Gebicka. 2020. Parental leave length and mothers' careers: what can be inferred from occupational allocation?. *Applied Economics* **52**:9, 879-904. [Crossref]

470. Sarah Damaske. 2020. Job Loss and Attempts to Return to Work: Complicating Inequalities across Gender and Class. *Gender & Society* **34**:1, 7-30. [Crossref]

471. Joana Passinhas, Isabel Proença. 2020. Measuring the gender disparities in unemployment dynamics during the recession: evidence from Portugal. *Applied Economics* **52**:6, 623-636. [Crossref]

472. Bernhard Hammer, Sonja Spitzer, Lili Vargha, Tanja Istenič. 2020. The gender dimension of intergenerational transfers in Europe. *The Journal of the Economics of Ageing* **15**, 100234. [Crossref]

473. Deni Mazrekaj, Kristof De Witte. 2020. The effect of modular education on school dropout. *British Educational Research Journal* **46**:1, 92-121. [Crossref]

474. Naomi Friedman-Sokuler, Moshe Justman. 2020. Gender, culture and STEM: Counter-intuitive patterns in Arab society. *Economics of Education Review* **74**, 101947. [Crossref]

475. Anne-Kathrin Kronberg. 2020. Workplace Gender Pay Gaps: Does Gender Matter Less the Longer Employees Stay?. *Work and Occupations* **47**:1, 3-43. [Crossref]

476. Raymond Robertson, Gladys Lopez-Acevedo, Yevgeniya Savchenko. 2020. Globalisation and the Gender Earnings Gap: Evidence from Sri Lanka and Cambodia. *The Journal of Development Studies* **56**:2, 295-313. [Crossref]

477. Moritz A. Drupp, Menusch Khadjavi, Marie-Catherine Riekhof, Rudi Voss. 2020. Professional identity and the gender gap in risk-taking. Evidence from field experiments with scientists. *Journal of Economic Behavior & Organization* **170**, 418-432. [Crossref]

478. Katherine Weisshaar, Tania Cabello-Hutt. 2020. Labor Force Participation Over the Life Course: The Long-Term Effects of Employment Trajectories on Wages and the Gendered Payoff to Employment. *Demography* **57**:1, 33-60. [Crossref]

479. Mihaela Pintea. 2020. Dynamics of female labor force participation and welfare with multiple social reference groups. *The B.E. Journal of Macroeconomics* **20**:1. . [Crossref]

480. Dong Zhou, Langchuan Peng, Ying Dong. 2020. The impact of Internet usage on gender role attitudes. *Applied Economics Letters* **27**:2, 86-92. [Crossref]

481. Sheila Ellwood, Javier Garcia-Lacalle, Sonia Royo. 2020. The shattered glass ceiling and a narrowing gender pay gap in NHS foundation trusts: gender and salaries of chief executives. *Public Money & Management* **40**:1, 31-41. [Crossref]

482. Sarah Gammage, Shareen Joshi, Yana van der Meulen Rodgers. 2020. The Intersections of Women's Economic and Reproductive Empowerment. *Feminist Economics* **26**:1, 1-22. [Crossref]

483. Zoltan L. Hajnal. Dangerously Divided **57**, . [Crossref]

484. Anders Fremstad, Mark Paul. 2020. Opening the Farm Gate to Women? The Gender Gap in U.S. Agriculture. *Journal of Economic Issues* **54**:1, 124-141. [Crossref]

485. Rebecca C. Grossman. The Gender Pay Gap in Medicine 110-127. [Crossref]

486. Jill E. Yavorsky, Janette Dill. 2020. Unemployment and men's entrance into female-dominated jobs. *Social Science Research* **85**, 102373. [Crossref]

487. Ewa Cukrowska-Torzewska, Anna Lovasz. 2020. The role of parenthood in shaping the gender wage gap – A comparative analysis of 26 European countries. *Social Science Research* **85**, 102355. [Crossref]

488. Michael Christl, Monika Köppl-Turyna. Gender Wage Gaps and Skills 1-21. [Crossref]

489. Erica L. Plambeck, Kamalini Ramdas. 2020. Alleviating Poverty by Empowering Women Through Business Model Innovation: Manufacturing & Service Operations Management Insights and Opportunities. *Manufacturing & Service Operations Management* **22**:1, 123-134. [Crossref]

490. Miracle Ntuli, Prudence Kwenda. Gender Gaps in Employment and Wages in Sub-Saharan Africa: A Review 183-203. [Crossref]

491. Hugo Figueiredo. Returns to Higher Education and Gender 1-10. [Crossref]

492. Anne Boschini, Kristin Gunnarsson, Jesper Roine. 2020. Women in top incomes – Evidence from Sweden 1971–2017. *Journal of Public Economics* **181**, 104115. [Crossref]

493. Naomi G. Goldberg, Alyssa Schneebaum, Laura E. Durso, M. V. Lee Badgett. LGBTQ-Parent Families in the United States and Economic Well-Being 105-124. [Crossref]
494. Svetlana Skorniakova, Veronika Leontyeva, Dmitrii Popov, Veronika Fokina, Anna Safonova. 2020. Gender equality: legislative issues of the Russian Federation in socio-political discourse. *E3S Web of Conferences* **164**, 11021. [Crossref]
495. Tomasz Obloj, Todd R. Zenger. 2020. The Influence of Pay Transparency on Inequity, Inequality, and the Performance-Basis of Pay in Organizations. *SSRN Electronic Journal* . [Crossref]
496. Simon Dato, Petra Nieken. 2020. Gender differences in sabotage: the role of uncertainty and beliefs. *Experimental Economics* **23**:2, 353. [Crossref]
497. Birgitta Jansson. 2020. Changes in Disposable Personal Income and the Gender Personal Income Gap in Sweden, 1983–2010: A Study of Three Different Income Positions. *Social Science History* **44**:2, 381-408. [Crossref]
498. Rafael Perez Ribas, Breno Sampaio, Giuseppe Trevisan. 2020. Do Relative Disadvantages in College Reinforce Women's Glass Ceiling?. *SSRN Electronic Journal* . [Crossref]
499. Nickolas Gagnon, Kristof Bosmans, Arno M. Riedl. 2020. The Effect of Unfair Chances and Gender Discrimination on Labor Supply. *SSRN Electronic Journal* . [Crossref]
500. Imko Meyenburg, Sandra Selmanovic. Gender and Inequality in the Workplace: Lessons from Institutional and Marxist-Feminist Perspectives 1-28. [Crossref]
501. Xinyu Cao, Dennis Zhang, Lei Huang. 2020. The Impact of COVID-19 on Labor Market and Gender Inequality: Evidence from a Gig Economy Platform. *SSRN Electronic Journal* . [Crossref]
502. Andrew Dustan, Kristine Koutout, Greg Leo. 2020. Beliefs about Beliefs about Gender. *SSRN Electronic Journal* . [Crossref]
503. Luis Santos-Pinto, Leonidas Enrique de la Rosa. Overconfidence in Labor Markets 1-42. [Crossref]
504. Katie Meara, Francesco Pastore, Allan Webster. 2020. The gender pay gap in the USA: a matching study. *Journal of Population Economics* **33**:1, 271-305. [Crossref]
505. Gurpal Sran, Felix Vetter, Matthew Walsh. 2020. Employer Responses to Pay History Inquiry Bans. *SSRN Electronic Journal* . [Crossref]
506. Hugo Figueiredo. Over-Skilling, Under-Skilling, and Higher Education 2168-2175. [Crossref]
507. Hugo Figueiredo. Returns to Higher Education and Gender 2474-2483. [Crossref]
508. Jörg Drechsler, Benjamin Klein. Secure Matrix Computation: A Viable Alternative to Record Linkage? 240-254. [Crossref]
509. Nazli Sila Alan, Katsiaryna Bardos, Natalya Y Shelkova. 2020. CEO-to-Employee Pay Ratio and CEO Diversity. *SSRN Electronic Journal* . [Crossref]
510. Swati Singh, Sita Vanka. Sustainable HRM for Sustainable Careers of Women Professionals 87-108. [Crossref]
511. Louis Pierre Lepage. 2020. Endogenous Learning, Persistent Employer Biases, and Discrimination. *SSRN Electronic Journal* . [Crossref]
512. Robert Holton. Global Inequality and Global Poverty 355-373. [Crossref]
513. Neil Das. 2020. Motherhood: The Main Reason For Hollywood's Gender Wage Gap?. *SSRN Electronic Journal* . [Crossref]

514. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
515. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
516. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
517. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
518. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
519. 2020. OUP accepted manuscript. *Oxford Review Of Economic Policy* . [Crossref]
520. Jiang Li, Benoit Dostie, Gaelle Simard-Duplain. 2020. What is the Role of Firm-Specific Pay Policies on the Gender Earnings Gap in Canada?. *SSRN Electronic Journal* **67**. . [Crossref]
521. Dennie van Dolder, Martijn J. van den Assem, Thomas Buser. 2020. Gender and Willingness to Compete for High Stakes. *SSRN Electronic Journal* . [Crossref]
522. Sitian Liu, Yichen Su. 2020. The Geography of Jobs and the Gender Wage Gap. *SSRN Electronic Journal* . [Crossref]
523. Jaan Masso, Jaanika Meriküll, Priit Vahter. 2020. The Role of Firms in the Gender Wage Gap. *SSRN Electronic Journal* **67**. . [Crossref]
524. Anna Veremchuk. 2020. Gender Gap in Pension Income: Cross-Country Analysis and Role of Gender Attitudes. *SSRN Electronic Journal* **115**. . [Crossref]
525. Jaanika Meriküll, Maryna Tverdostup. 2020. The Gap that Survived the Transition: The Gender Wage Gap Over Three Decades in Estonia. *SSRN Electronic Journal* **112**. . [Crossref]
526. Per Henrik Hansen, John Rand, Ngu Wah Win. 2020. The Gender Wage Gap in Myanmar: Adding Insult to Injury?. *SSRN Electronic Journal* **67**. . [Crossref]
527. Kai Ou, Xiaofei Pan. 2020. The Effect of Task Choice and Task Assignment on the Gender Earnings Gap: An Experimental Study. *SSRN Electronic Journal* **57**. . [Crossref]
528. June Huang, Shirley Lu. 2020. Testing for Countersignaling in CSR Disclosures: Evidence from the Gender Pay Gap. *SSRN Electronic Journal* **10**. . [Crossref]
529. Rense Nieuwenhuis. Family Policy: Neglected Determinant of Vertical Income Inequality 657-681. [Crossref]
530. Ian D. Gow, David F. Larcker, Edward Watts. 2020. Board Diversity and Shareholder Voting. *SSRN Electronic Journal* . [Crossref]
531. Sabrina Wulff Pabilonia, Victoria Vernon. 2020. Telework and Time Use in the United States. *SSRN Electronic Journal* **122**. . [Crossref]
532. David Freiberg, Katie Panella, George Serafeim, Rob Zochowski. 2020. Accounting for Organizational Employment Impact. *SSRN Electronic Journal* . [Crossref]
533. Laura K. Brown, Elizabeth Troutt. 2020. Projecting Grid Compression to Reduce Gender Salary Gaps. *Relations industrielles / Industrial Relations* **75**:3, 526-546. [Crossref]
534. Yaryna YURYK. 2019. Professional gender segregation in the labor market of Ukraine. *Economy and forecasting* **2019**:4, 101-118. [Crossref]
535. Yaryna YURYK. 2019. Professional gender segregation in the labor market of Ukraine. *Ekonomìka ì prognozuvannâ* **2019**:4, 104-120. [Crossref]

536. Amanda McFarland, Sarah Pearlman. 2019. Knowledge Obsolescence and Women's Occupational Sorting: New Evidence from Citation Data. *The B.E. Journal of Economic Analysis & Policy* **20**:1. . [Crossref]

537. Marc J Lerchenmueller, Olav Sorenson, Anupam B Jena. 2019. Gender differences in how scientists present the importance of their research: observational study. *BMJ* l6573. [Crossref]

538. Linhui Yu, Junsen Zhang, Yanbing Wen. 2019. Does foreign investment liberalisation enhance women's economic status? Micro-evidence from urban China. *The World Economy* **42**:12, 3404-3429. [Crossref]

539. Hannah Riley Bowles, Bobbi Thomason, Julia B. Bear. 2019. Reconceptualizing What and How Women Negotiate for Career Advancement. *Academy of Management Journal* **62**:6, 1645-1671. [Crossref]

540. Pamela Wicker, George B. Cunningham, Drew Fields. 2019. Head Coach Changes in Women's College Soccer: An Investigation of Women Coaches Through the Lenses of Gender Stereotypes and the Glass Cliff. *Sex Roles* **81**:11-12, 797-807. [Crossref]

541. Rosangela Bando, Samuel Berlinski, José Martinez Carrasco. 2019. Progress and Challenges for an Evidence-Based Gender Equality Policy: a Focus in Latin America and the Caribbean. *Journal of Economics, Race, and Policy* **2**:4, 187-201. [Crossref]

542. Balazs Vedres, Orsolya Vasarhelyi. 2019. Gendered behavior as a disadvantage in open source software development. *EPJ Data Science* **8**:1. . [Crossref]

543. Kathryn H. Anderson, Damir Esenaliev. 2019. Gender Earnings Inequality and Wage Policy: Teachers, Health Care, and Social Workers in Central Asia. *Comparative Economic Studies* **61**:4, 551-575. [Crossref]

544. Felice B. Klein, Pierre Chaigneau, Cynthia E. Devers. 2019. CEO Gender-Based Termination Concerns: Evidence From Initial Severance Agreements. *Journal of Management* **40**, 014920631988742. [Crossref]

545. Elena Meschi, Joanna Swaffield, Anna Vignoles. 2019. The role of local labour market conditions and pupil attainment on post-compulsory schooling decisions. *International Journal of Manpower* **40**:8, 1482-1509. [Crossref]

546. Roderick W. Jones. 2019. The Impact of Student Loan Debt and Student Loan Delinquency on Total, Sex-, and Age-specific Suicide Rates during the Great Recession. *Sociological Inquiry* **89**:4, 677-702. [Crossref]

547. Nicholas Barr. Gender and Family: Conceptual Overview 1-24. [Crossref]

548. Iga Magda, Ewa Cukrowska-Torzewska. 2019. Do Women Managers Lower Gender Pay Gaps? Evidence from Public and Private Firms. *Feminist Economics* **25**:4, 185-210. [Crossref]

549. Dorrit Posel, Daniela Casale. 2019. Gender and the economy in post-apartheid South Africa: Changes and challenges. *Agenda* **33**:4, 3-10. [Crossref]

550. Henrik Kleven, Camille Landais, Jakob Egholt Søgaard. 2019. Children and Gender Inequality: Evidence from Denmark. *American Economic Journal: Applied Economics* **11**:4, 181-209. [Abstract] [View PDF article] [PDF with links]

551. Joyce C. Wang, Lívia Markóczy, Sunny Li Sun, Mike W. Peng. 2019. She'-E-O Compensation Gap: A Role Congruity View. *Journal of Business Ethics* **159**:3, 745-760. [Crossref]

552. Esfandiar Maasoumi, Le Wang. 2019. The Gender Gap between Earnings Distributions. *Journal of Political Economy* **127**:5, 2438-2504. [Crossref]
553. Christopher R. Bollinger, Barry T. Hirsch, Charles M. Hokayem, James P. Ziliak. 2019. Trouble in the Tails? What We Know about Earnings Nonresponse 30 Years after Lillard, Smith, and Welch. *Journal of Political Economy* **127**:5, 2143-2185. [Crossref]
554. Hendrik Santoso Sugiarto, Ee-Peng Lim, Ngak-Leng Sim. On Analysing Supply and Demand in Labor Markets: Framework, Model and System 511-520. [Crossref]
555. Yossef Tobol, Ronen Bar-El, Yuval Arbel, Ofer H. Azar. 2019. Gender differences in the effect of employee-manager friendships on salary dynamics in CPA firms. *Heliyon* **5**:10, e02658. [Crossref]
556. Brian Aronson, Lisa A. Keister. 2019. Overwork, Specialization, and Wealth. *Journal of Marriage and Family* **81**:5, 1053-1073. [Crossref]
557. Joyce J. Chen, Daniel Crown. 2019. The Gender Pay Gap in Academia: Evidence from the Ohio State University. *American Journal of Agricultural Economics* **101**:5, 1337-1352. [Crossref]
558. Coral Río, Olga Alonso-Villar. 2019. Occupational Achievements of Same-Sex Couples in the United States by Gender and Race. *Industrial Relations: A Journal of Economy and Society* **58**:4, 704-731. [Crossref]
559. Patrizia Ordine, Giuseppe Rose, Gessica Vella. 2019. Employment protection and gender gap. *International Journal of Manpower* **41**:1, 1-16. [Crossref]
560. Dan Cassino, Yasemin Besen-Cassino. 2019. Race, threat and workplace sexual harassment: The dynamics of harassment in the United States, 1997–2016. *Gender, Work & Organization* **26**:9, 1221-1240. [Crossref]
561. Tamar Khitarishvili. 2019. GENDER PAY GAPS IN THE FORMER SOVIET UNION: A REVIEW OF THE EVIDENCE. *Journal of Economic Surveys* **33**:4, 1257-1284. [Crossref]
562. Ayal Kimhi, Nirit Hanuka-Taflia. 2019. What drives the convergence in male and female wage distributions in Israel? A Shapley decomposition approach. *The Journal of Economic Inequality* **17**:3, 379-399. [Crossref]
563. Loukas Balafoutas, Matthias Sutter. 2019. How uncertainty and ambiguity in tournaments affect gender differences in competitive behavior. *European Economic Review* **118**, 1-13. [Crossref]
564. Antti Sieppi, Jaakko Pehkonen. 2019. Parenthood and gender inequality: Population-based evidence on the child penalty in Finland. *Economics Letters* **182**, 5-9. [Crossref]
565. David J Maume, Orlaith Heymann, Leah Ruppanner. 2019. National Board Quotas and the Gender Pay Gap among European Managers. *Work, Employment and Society* 095001701986450. [Crossref]
566. G. Baublyte, J. Korhonen, D. D'Amato, A. Toppinen. 2019. " Being one of the boys ": perspectives from female forest industry leaders on gender diversity and the future of Nordic forest-based bioeconomy. *Scandinavian Journal of Forest Research* **34**:6, 521-528. [Crossref]
567. Benedikt Gerst, Christian Grund. 2019. Career interruptions and current remuneration. *International Journal of Manpower* **40**:5, 850-878. [Crossref]
568. Marwa Biltagy. 2019. Gender wage disparities in Egypt: Evidence from ELMPS 2006 and 2012. *The Quarterly Review of Economics and Finance* **73**, 14-23. [Crossref]
569. Marina Mileo Gorsuch. 2019. Gender, Sexual Orientation, and Behavioral Norms in the Labor Market. *ILR Review* **72**:4, 927-954. [Crossref]

570. Stephen J. Choi, Mitu Gulati, A. C. Pritchard. 2019. Should I Stay or Should I Go? The Gender Gap for Securities and Exchange Commission Attorneys. *The Journal of Law and Economics* **62**:3, 427-456. [Crossref]

571. Magnus Carlsson, Stefan Eriksson. 2019. Age discrimination in hiring decisions: Evidence from a field experiment in the labor market. *Labour Economics* **59**, 173-183. [Crossref]

572. Ian Burn, Kyle Kettler. 2019. The more you know, the better you're paid? Evidence from pay secrecy bans for managers. *Labour Economics* **59**, 92-109. [Crossref]

573. Sascha O. Becker, Ana Fernandes, Doris Weichselbaumer. 2019. Discrimination in hiring based on potential and realized fertility: Evidence from a large-scale field experiment. *Labour Economics* **59**, 139-152. [Crossref]

574. Thomas Breda, Clotilde Napp. 2019. Girls' comparative advantage in reading can largely explain the gender gap in math-related fields. *Proceedings of the National Academy of Sciences* **116**:31, 15435-15440. [Crossref]

575. Michael E. Martell. 2019. Age and the new lesbian earnings penalty. *International Journal of Manpower* **41**:6, 649-670. [Crossref]

576. Christophe J Nordman, Leopold R Sarr, Smriti Sharma. 2019. Skills, personality traits, and gender wage gaps: evidence from Bangladesh. *Oxford Economic Papers* **71**:3, 687-708. [Crossref]

577. Tom Lane. 2019. Get her off my screen: taste-based discrimination in a high-stakes popularity contest. *Oxford Economic Papers* **71**:3, 548-563. [Crossref]

578. Claire Cahen. 2019. Does Individualizing the Labor Contract Hurt Women?. *Industrial Relations: A Journal of Economy and Society* **58**:3, 317-375. [Crossref]

579. Katsuya Oi. 2019. Does Gender Differentiate the Effects of Retirement on Cognitive Health?. *Research on Aging* **41**:6, 575-601. [Crossref]

580. Marko Pitesa, Madan M. Pillutla. 2019. Socioeconomic Mobility and Talent Utilization of Workers from Poorer Backgrounds: The Overlooked Importance of Within-Organization Dynamics. *Academy of Management Annals* **13**:2, 737-769. [Crossref]

581. Ganisher Davlyatov, Nancy Borkowski, Haiyan Qu, Darrell Burke, Janet Bronstein, Andrew Brickman. 2019. Are community health centers' chief executive officers' compensation related to clinical performance?. *Health Care Management Review* **Publish Ahead of Print**. . [Crossref]

582. Novice Patrick Bakehe. 2019. Le travail à temps partiel dans un pays en développement : l'exemple du Cameroun. *Mondes en développement* **n° 186**:2, 143-158. [Crossref]

583. Galyna Lopushnyak, Anna Shandar. 2019. Gender differentiation of payment for labor in Ukraine. *Social and labour relations: theory and practice* **9**:1, 1-13. [Crossref]

584. Gabriella Berloffa, Eleonora Matteazzi, Alina Şandor, Paola Villa. 2019. Gender inequalities in the initial labour market experience of young Europeans. *International Journal of Manpower* **40**:3, 379-397. [Crossref]

585. Daniela Piazzalunga, Maria Laura Di Tommaso. 2019. The increase of the gender wage gap in Italy during the 2008-2012 economic crisis. *The Journal of Economic Inequality* **17**:2, 171-193. [Crossref]

586. Coral del Río, Olga Alonso-Villar. 2019. Occupational segregation by sexual orientation in the U.S.: exploring its economic effects on same-sex couples. *Review of Economics of the Household* **17**:2, 439-467. [Crossref]

587. Angela Cools, Eleonora Patacchini. 2019. The brother earnings penalty. *Labour Economics* **58**, 37-51. [Crossref]

588. Yanan Chen, Kyle A. Kelly. 2019. The gender difference in wages and the returns to schooling over the great recession in the U.S. *Research in Economics* **73**:2, 190-198. [Crossref]

589. Benita Combet, Daniel Oesch. 2019. The Gender Wage Gap Opens Long before Motherhood. Panel Evidence on Early Careers in Switzerland. *European Sociological Review* **35**:3, 332-345. [Crossref]

590. Geraldine Healy, M. Mostak Ahamed. 2019. Gender Pay Gap, Voluntary Interventions and Recession: The Case of the British Financial Services Sector. *British Journal of Industrial Relations* **57**:2, 302-327. [Crossref]

591. Dorji Lethro, Takahiro Akita. 2019. The roles of education in expenditure inequality in Bhutan: an analysis in an urban–rural context. *Asia-Pacific Journal of Regional Science* **3**:2, 465-485. [Crossref]

592. David L. Schaffer, Joseph M. Westenberg. 2019. Time Flexibility, Women's Wages, and the Gender Wage Gap. *Atlantic Economic Journal* **47**:2, 217-239. [Crossref]

593. Mehmet Erdem Yaya. Women Empowerment and Income Inequality during the Great Recession in the United States 46-53. [Crossref]

594. Ariel J. Binder, John Bound. 2019. The Declining Labor Market Prospects of Less-Educated Men. *Journal of Economic Perspectives* **33**:2, 163-190. [Abstract] [View PDF article] [PDF with links]

595. Jenny Säve-Söderbergh. 2019. Gender gaps in salary negotiations: Salary requests and starting salaries in the field. *Journal of Economic Behavior & Organization* **161**, 35-51. [Crossref]

596. Nicole M. Fortin. 2019. Increasing earnings inequality and the gender pay gap in Canada: Prospects for convergence. *Canadian Journal of Economics/Revue canadienne d'économique* **52**:2, 407-440. [Crossref]

597. Syeda Tamkeen Fatima, Abdul Qayyum Khan. 2019. Globalization and female labor force participation: The role of trading partners. *The Journal of International Trade & Economic Development* **28**:3, 365-390. [Crossref]

598. Prashant Loyalka, Ou Lydia Liu, Guirong Li, Igor Chirikov, Elena Kardanova, Lin Gu, Guangming Ling, Ningning Yu, Fei Guo, Liping Ma, Shangfeng Hu, Angela Sun Johnson, Ashutosh Bhuradia, Saurabh Khanna, Isak Froumin, Jinghuan Shi, Pradeep Kumar Choudhury, Tara Beteille, Francisco Marmolejo, Namrata Tognatta. 2019. Computer science skills across China, India, Russia, and the United States. *Proceedings of the National Academy of Sciences* **116**:14, 6732-6736. [Crossref]

599. Benjamin Bruns. 2019. Changes in Workplace Heterogeneity and How They Widen the Gender Wage Gap. *American Economic Journal: Applied Economics* **11**:2, 74-113. [Abstract] [View PDF article] [PDF with links]

600. Molly Mayer, Céline Le Bourdais. 2019. Sharing Parental Leave Among Dual-Earner Couples in Canada: Does Reserved Paternity Leave Make a Difference?. *Population Research and Policy Review* **38**:2, 215-239. [Crossref]

601. Katrien Stevens, Stephen Whelan. 2019. Negotiating the Gender Wage Gap. *Industrial Relations: A Journal of Economy and Society* **58**:2, 141-188. [Crossref]

602. Barbara Petrongolo. 2019. The gender gap in employment and wages. *Nature Human Behaviour* **3**:4, 316-318. [Crossref]

603. Christian Pfeifer, Gesine Stephan. 2019. Why women do not ask: gender differences in fairness perceptions of own wages and subsequent wage growth. *Cambridge Journal of Economics* **43**:2, 295-310. [Crossref]

604. Francesca Manzi. 2019. Are the Processes Underlying Discrimination the Same for Women and Men? A Critical Review of Congruity Models of Gender Discrimination. *Frontiers in Psychology* **10**. . [Crossref]
605. Liza Reisel, Kjersti Misje Østbakken, Paul Attewell. 2019. Dynamics of Claims Making and Gender Wage Gaps in the United States and Norway. *Social Politics: International Studies in Gender, State & Society* **26**:1, 87-115. [Crossref]
606. Suzanne Bartholomae, D. Elizabeth Kiss, Jesse B. Jurgenson, Barbara O'Neill, Sheri Lokken Worthy, Jinhee Kim. 2019. Framing the Human Capital Investment Decision: Examining Gender Bias in Student Loan Borrowing. *Journal of Family and Economic Issues* **40**:1, 132-145. [Crossref]
607. Thi Kieu Van Tran, Ehsan Elahi, Liqin Zhang, Van Huyen Bui, Quang Trung Pham, Thuy Duong Tran, Thi Lien Ta, Munawar Hassan. 2019. Gender gap in rice productivity: evidence from Vietnam. *International Journal of Social Economics* **46**:2, 241-251. [Crossref]
608. 2019. Glossary. *World Employment and Social Outlook* **2019**:1, 117-121. [Crossref]
609. Helmuth Cremer, Kerstin Roeder. 2019. Income taxation of couples, spouses' labor supplies and the gender wage gap. *Economics Letters* **175**, 71-75. [Crossref]
610. Eszter Czibor, Jörg Claussen, Mirjam van Praag. 2019. Women in a men's world: Risk taking in an online card game community. *Journal of Economic Behavior & Organization* **158**, 62-89. [Crossref]
611. David Klinowski. 2019. Selection into self-improvement and competition pay: Gender, stereotypes, and earnings volatility. *Journal of Economic Behavior & Organization* **158**, 128-146. [Crossref]
612. H. Muge Yayla-Kullu, Lana McMurray. The Pay Equity Dilemma Women Face Around the World 129-137. [Crossref]
613. Clara Kulich, Marion Chipeaux. Gender Inequality in Economic Resources 35-51. [Crossref]
614. Alba E. Gámez, Manuel Angeles. Women's Participation in the Labor Market 1-12. [Crossref]
615. Laura Schifman, Rikki Oden, Carolyn Koestner. Gender Wage Gap: Causes, Impacts, and Ways to Close the Gap 1-11. [Crossref]
616. Hugo Figueiredo. Over-Skilling, Under-Skilling, and Higher Education 1-8. [Crossref]
617. Richard Chisik, Julian Emami Namini. 2019. INTERNATIONAL TRADE AND LABOR-MARKET DISCRIMINATION. *Economic Inquiry* **57**:1, 353-371. [Crossref]
618. David Anderson, Margrét V. Bjarnadóttir, Cristian L. Dezső, David Gaddis Ross. 2019. On a Firm's Optimal Response to Pressure for Gender Pay Equity. *Organization Science* **30**:1, 214-231. [Crossref]
619. Victor Rudakov, Ilya Prakhov. 2019. Gender Wage Inequality in Russian Universities. *SSRN Electronic Journal* . [Crossref]
620. Annick Vignes, Timothy Yu-Cheong Yeung. 2019. Gender Pay Gap in French Public Administration: An Application of a Novel Three-Step Approach of Blinder-Oaxaca Decomposition with Fixed Effect Model. *SSRN Electronic Journal* . [Crossref]
621. Joseph E. Zveglich, Yana van der Meulen Rodgers, Editha Laviña. 2019. Expected Work Experience: A New Human Capital Measure. *SSRN Electronic Journal* . [Crossref]
622. Patricia Gallego-Granados. 2019. The Part-Time Wage Gap Across the Wage Distribution. *SSRN Electronic Journal* . [Crossref]
623. Aline Zucco. 2019. Occupational Characteristics and the Gender Pay Gap. *SSRN Electronic Journal* . [Crossref]

624. Andrew Shephard. 2019. Marriage Market Dynamics, Gender, and the Age Gap. *SSRN Electronic Journal* . [Crossref]
625. Astrid Krenz. 2019. The Gender Gap in International Trade: Female-Run Firms and the Exporter Productivity Premium. *SSRN Electronic Journal* . [Crossref]
626. Luigi Droste. Die Gesellschaft des Ressentiments 153-188. [Crossref]
627. Deepak Hegde, Manav Raj. 2019. Does Gender Affect Work? Evidence from U.S. Patent Examination. *SSRN Electronic Journal* . [Crossref]
628. Jenny Bimrose. Guidance for Girls and Women 385-412. [Crossref]
629. Shaun Davies, Edward Dickersin Van Wesep, Brian Waters. 2019. On the Magnification of Small Biases in Decision-Making. *SSRN Electronic Journal* . [Crossref]
630. Suqin Ge, Yu Zhou. 2019. Robots, Computers, and the Gender Wage Gap. *SSRN Electronic Journal* . [Crossref]
631. Tomas Lichard, Filip Pertold, Samuel Škoda. 2019. Do Women Face a Glass Ceiling at Home? The Division of Household Work among Dual-Earner Couples. *SSRN Electronic Journal* . [Crossref]
632. Sumit Agarwal, Keyang Li, Yu Qin, Jing Wu. 2019. The Impact of Fertility Relaxation on Female Labor Market Outcomes. *SSRN Electronic Journal* . [Crossref]
633. Carolyn Sloane, Erik Hurst, Dan Black. 2019. A Cross-Cohort Analysis of Human Capital Specialization and the College Gender Wage Gap. *SSRN Electronic Journal* . [Crossref]
634. Xian-Zhou Zhao, Yu-Bing Zhao, Li-Chen Chou, Barbara Hoinunnem Leivang. 2019. Changes in gender wage differentials in China: a regression and decomposition based on the data of CHIPS1995–2013. *Economic Research-Ekonomska Istraživanja* **32**:1, 3168-3188. [Crossref]
635. Benjamin Bennett, Isil Erel, Lea Henny Stern, Zexi Wang. 2019. Feminist Firms. *SSRN Electronic Journal* . [Crossref]
636. Sonja Settele. 2019. How Do Beliefs About the Gender Wage Gap Affect the Demand for Public Policy?. *SSRN Electronic Journal* . [Crossref]
637. Catherine Doren, Katherine Y. Lin. 2019. Diverging Trajectories or Parallel Pathways? An Intersectional and Life Course Approach to the Gender Earnings Gap by Race and Education. *Socius: Sociological Research for a Dynamic World* **5**, 237802311987381. [Crossref]
638. Tatsushi Oka, Ken Yamada. 2019. Heterogeneous Impact of the Minimum Wage: Implications for Changes in Between- and Within-Group Inequality. *SSRN Electronic Journal* . [Crossref]
639. J. Michelle Brock, Ralph De Haas. 2019. Gender Discrimination in Small Business Lending. Evidence from a Lab in-the-Field Experiment in Turkey. *SSRN Electronic Journal* . [Crossref]
640. Sonja Settele. 2019. How Do Beliefs About the Gender Wage Gap Affect the Demand for Public Policy?. *SSRN Electronic Journal* **55**. . [Crossref]
641. Andrew Finley, Curtis M. Hall, Amanda Marino. 2019. Executive Gender Pay Gaps in Nonprofit Organizations. *SSRN Electronic Journal* . [Crossref]
642. Maryna Tverdostup, Tiiu Paas. 2019. Valuation of Human Capital and the Gender Wage Gap in Europe. *SSRN Electronic Journal* . [Crossref]
643. Mila Getmansky Sherman, Heather Tookes. 2019. Female Representation in the Academic Finance Profession. *SSRN Electronic Journal* . [Crossref]

644. Wei Si. 2019. Does Higher Education Empower Women? Evidence from China's Higher Education Expansion. *SSRN Electronic Journal* . [Crossref]

645. Jason Sockin, Michael Sockin. 2019. A Pay Scale of Their Own: Gender Differences in Performance Pay. *SSRN Electronic Journal* . [Crossref]

646. Hannah Stoppelmann. 2019. Examining the Glass Ceiling for Female Entrepreneurs: An Empirical Analysis. *SSRN Electronic Journal* **30**. . [Crossref]

647. François Longin, Estefania Santacreu-Vasut. 2019. Stock Market Reaction to Female CEO Nominations: Is the Market Gendered?. *SSRN Electronic Journal* . [Crossref]

648. Shuwen Li, Xiangdong Qin, Daniel Houser. 2018. Revisiting gender differences in ultimatum bargaining: experimental evidence from the US and China. *Journal of the Economic Science Association* **4**:2, 180-190. [Crossref]

649. Francesca Barigozzi, Helmuth Cremer, Kerstin Roeder. 2018. Women's career choices, social norms and child care policies. *Journal of Public Economics* **168**, 162-173. [Crossref]

650. Jeffrey Carpenter, Rachel Frank, Emiliano Huet-Vaughn. 2018. Gender differences in interpersonal and intrapersonal competitive behavior. *Journal of Behavioral and Experimental Economics* **77**, 170-176. [Crossref]

651. Tien M. Vu, Hiroyuki Yamada. 2018. Decomposing Vietnamese gender equality in terms of wage distribution. *Pacific Economic Review* **23**:5, 705-731. [Crossref]

652. Tran Le Huu Nghia. 2018. The skills gap of Vietnamese graduates and final-year university students. *Journal of Education and Work* **31**:7-8, 579-594. [Crossref]

653. Frances Woolley. 2018. The political economy of university education in Canada. *Canadian Journal of Economics/Revue canadienne d'économique* **51**:4, 1061-1087. [Crossref]

654. Karen Codazzi, Valéria Pero, André Albuquerque Sant'Anna. 2018. Social norms and female labor participation in Brazil. *Review of Development Economics* **22**:4, 1513-1535. [Crossref]

655. Alison Preston, Elisa Birch. 2018. The Western Australian wage structure and gender wage gap: A post-mining boom analysis. *Journal of Industrial Relations* **60**:5, 619-646. [Crossref]

656. Marco Francesconi, Matthias Parey. 2018. Early gender gaps among university graduates. *European Economic Review* **109**, 63-82. [Crossref]

657. Aline Bütikofer, Sissel Jensen, Kjell G. Salvanes. 2018. The role of parenthood on the gender gap among top earners. *European Economic Review* **109**, 103-123. [Crossref]

658. James Albrecht, Mary Ann Bronson, Peter Skogman Thoursie, Susan Vroman. 2018. Reprint of: The career dynamics of high-skilled women and men: Evidence from Sweden. *European Economic Review* **109**, 83-102. [Crossref]

659. Leonora Risse, Lisa Farrell, Tim R L Fry. 2018. Personality and pay: do gender gaps in confidence explain gender gaps in wages?. *Oxford Economic Papers* **70**:4, 919-949. [Crossref]

660. Chen Huang. 2018. WHY ARE U.S. WOMEN DECREASING THEIR LABOR FORCE PARTICIPATION IF THEIR WAGES ARE RISING?. *Economic Inquiry* **56**:4, 2010-2026. [Crossref]

661. Benjamin Artz, Amanda H. Goodall, Andrew J. Oswald. 2018. Do Women Ask?. *Industrial Relations: A Journal of Economy and Society* **57**:4, 611-636. [Crossref]

662. Jia Yu, Yu Xie. 2018. Motherhood Penalties and Living Arrangementsin China. *Journal of Marriage and Family* **80**:5, 1067-1086. [Crossref]

663. Florencia Torche. 2018. Intergenerational Mobility at the Top of the Educational Distribution. *Sociology of Education* **91**:4, 266-289. [Crossref]

664. Andreas Peichl, Paul Hufe, Marc Stöckli. 2018. Ökonomische Ungleichheit in Deutschland – ein Überblick. *Perspektiven der Wirtschaftspolitik* **19**:3, 185-199. [Crossref]

665. David Neumark. 2018. Experimental Research on Labor Market Discrimination. *Journal of Economic Literature* **56**:3, 799-866. [Abstract] [View PDF article] [PDF with links]

666. Quentin Lippmann, Claudia Senik. 2018. Math, girls and socialism. *Journal of Comparative Economics* **46**:3, 874-888. [Crossref]

667. Maria De Paola, Michela Ponzo, Vincenzo Scoppa. 2018. Are Men Given Priority for Top Jobs? Investigating the Glass Ceiling in Italian Academia. *Journal of Human Capital* **12**:3, 475-503. [Crossref]

668. Ana Maria Takahashi, Shingo Takahashi, Thomas N. Maloney. 2018. Gender gaps in STEM in Japanese academia: The impact of research productivity, outside offers, and home life on pay. *The Social Science Journal* **55**:3, 245-272. [Crossref]

669. Yann Algan, Nicole M. Fortin. Computer Gaming and the Gender Math Gap: Cross-Country Evidence among Teenagers 183-228. [Crossref]

670. Laura E.M. Traavik. 2018. Career equality. *Gender in Management: An International Journal* **33**:6, 451-465. [Crossref]

671. Olive Melissa Minor, Michelle Cameo. 2018. A Comparison of Wages by Gender and Region of Origin for Newly Arrived Refugees in the USA. *Journal of International Migration and Integration* **19**:3, 813-828. [Crossref]

672. Iñigo Hernandez-Arenaz, Nagore Iriberri. 2018. Women ask for less (only from men): Evidence from bargaining in the field. *Journal of Economic Behavior & Organization* **152**, 192-214. [Crossref]

673. Hiromi Hara. 2018. The gender wage gap across the wage distribution in Japan: Within- and between-establishment effects. *Labour Economics* **53**, 213-229. [Crossref]

674. Nick Drydakis. 2018. Economic pluralism in the study of wage discrimination: a note. *International Journal of Manpower* **39**:4, 631-636. [Crossref]

675. Vishal K. Gupta, Sandra C. Mortal, Xiaohu Guo. 2018. Revisiting the gender gap in CEO compensation: Replication and extension of Hill, Upadhyay, and Beekun's (2015) work on CEO gender pay gap. *Strategic Management Journal* **39**:7, 2036-2050. [Crossref]

676. Lawrence M. Kahn. 2018. Permanent Jobs, Employment Protection, and Job Content. *Industrial Relations: A Journal of Economy and Society* **57**:3, 469-538. [Crossref]

677. Cyndy R. Snyder, Arati Dahal, Bianca K. Frogner. 2018. Occupational mobility among individuals in entry-level healthcare jobs in the USA. *Journal of Advanced Nursing* **74**:7, 1628-1638. [Crossref]

678. Anthony B. Atkinson, Alessandra Casarico, Sarah Voitchovsky. 2018. Top incomes and the gender divide. *The Journal of Economic Inequality* **16**:2, 225-256. [Crossref]

679. Hsueh-Hsiang Li. 2018. Do mentoring, information, and nudge reduce the gender gap in economics majors?. *Economics of Education Review* **64**, 165-183. [Crossref]

680. James Albrecht, Mary Ann Bronson, Peter Skogman Thoursie, Susan Vroman. 2018. The career dynamics of high-skilled women and men: Evidence from Sweden. *European Economic Review* **105**, 83-102. [Crossref]

681. Andrés F. Barrientos, Alexander Bolton, Tom Balmat, Jerome P. Reiter, John M. de Figueiredo, Ashwin Machanavajjhala, Yan Chen, Charley Kneifel, Mark DeLong. 2018. Providing access to confidential research data through synthesis and verification: An application to data on employees of the U.S. federal government. *The Annals of Applied Statistics* **12**:2. . [Crossref]

682. Morgan Hardy, Gisella Kagy. 2018. Mind The (Profit) Gap: Why Are Female Enterprise Owners Earning Less than Men?. *AEA Papers and Proceedings* **108**, 252-255. [Abstract] [View PDF article] [PDF with links]

683. Sarah Fleche, Anthony Lepinteur, Nattavudh Powdthavee. 2018. Gender Norms and Relative Working Hours: Why Do Women Suffer More than Men from Working Longer Hours than Their Partners?. *AEA Papers and Proceedings* **108**, 163-168. [Abstract] [View PDF article] [PDF with links]

684. Martin Biewen, Stefanie Seifert. 2018. Potential Parenthood and Career Progression of Men and Women – A Simultaneous Hazards Approach. *The B.E. Journal of Economic Analysis & Policy* **18**:2. . [Crossref]

685. Ania Plomien. 2018. EU Social and Gender Policy beyond Brexit: Towards the European Pillar of Social Rights. *Social Policy and Society* **17**:2, 281-296. [Crossref]

686. Marianne Bertrand. 2018. Coase Lecture - The Glass Ceiling. *Economica* **85**:338, 205-231. [Crossref]

687. Dana Kanze, Laura Huang, Mark A. Conley, E. Tory Higgins. 2018. We Ask Men to Win and Women Not to Lose: Closing the Gender Gap in Startup Funding. *Academy of Management Journal* **61**:2, 586-614. [Crossref]

688. Inmaculada García-Mainar, Víctor M Montuenga, Guillermo García-Martín. 2018. Occupational Prestige and Gender-Occupational Segregation. *Work, Employment and Society* **32**:2, 348-367. [Crossref]

689. Fiona Eva Bakas, Carlos Costa, Zélia Breda, Marília Durão. 2018. A Critical Approach to the Gender Wage Gap in Tourism Labor. *Tourism Culture & Communication* **18**:1, 35-49. [Crossref]

690. Daniela Piazzalunga. 2018. The Gender Wage Gap Among College Graduates in Italy. *Italian Economic Journal* **4**:1, 33-90. [Crossref]

691. Esther Ann Bøler, Beata Javorcik, Karen Helene Ulltveit-Moe. 2018. Working across time zones: Exporters and the gender wage gap. *Journal of International Economics* **111**, 122-133. [Crossref]

692. Nickola C. Overall, Matthew D. Hammond. 2018. How Intimate Relationships Contribute to Gender Inequality: Sexist Attitudes Encourage Women to Trade Off Career Success for Relationship Security. *Policy Insights from the Behavioral and Brain Sciences* **5**:1, 40-48. [Crossref]

693. Wifag Adnan, Sami H. Miaari. 2018. Voting patterns and the gender wage gap. *Journal of Economic Behavior & Organization* **146**, 222-247. [Crossref]

694. Philip Arestis. Importance of Tackling Income Inequality and Relevant Economic Policies 1-42. [Crossref]

695. Patricia Peinado, Felipe Serrano. Gender Inequality in the Labour Market and the Great Recession 233-274. [Crossref]

696. Tali Kristal, Yinon Cohen, Edo Navot. 2018. Benefit Inequality among American Workers by Gender, Race, and Ethnicity, 1982-2015. *Sociological Science* **5**, 461-488. [Crossref]

697. Jing Xu. 2018. The Gender Gap in Executive Promotions. *SSRN Electronic Journal* . [Crossref]

698. Tamar mname Khitarishvili. 2018. Gender Pay Gaps in the Former Soviet Union: A Review of the Evidence. *SSRN Electronic Journal* . [Crossref]

699. Suzanne Bijkerk, Silvia Dominguez-Martinez, Jurjen J.A. Kamphorst, Otto H. Swank. 2018. Labor Market Quotas. *SSRN Electronic Journal* . [Crossref]

700. Matthias Collischon. 2018. Can Personality Traits Explain Glass Ceilings?. *SSRN Electronic Journal* . [Crossref]

701. Aline Butikofer, Sissel Jensen, Kjell G. Salvanes. 2018. The Role of Parenthood on the Gender Gap Among Top Earners. *SSRN Electronic Journal* . [Crossref]

702. Yana Gallen. 2018. Motherhood and the Gender Productivity Gap. *SSRN Electronic Journal* . [Crossref]

703. Andreas Born, Eva Ranehill, Anna Sandberg. 2018. A Man's World? The Impact of a Male Dominated Environment on Female Leadership. *SSRN Electronic Journal* . [Crossref]

704. V. Joseph Hotz, Per Johansson, Arizo Karimi. 2018. Parenthood, Family Friendly Workplaces, and the Gender Gaps in Early Work Careers. *SSRN Electronic Journal* . [Crossref]

705. Glenn David Ellison, Ashley Swanson. 2018. Dynamics of the Gender Gap in High Math Achievement. *SSRN Electronic Journal* . [Crossref]

706. Joni Hersch, Blair Bullock. 2018. The Law and Economics of Employment Discrimination Law. *SSRN Electronic Journal* . [Crossref]

707. Michael Neugart, Anna Zaharieva. 2018. Social Networks, Promotions, and the Glass-Ceiling Effect. *SSRN Electronic Journal* . [Crossref]

708. Federico Gutierrez. 2018. Reaching the Top or Falling Behind?: The Role of Occupational Segregation in Women's Chances of Finding a High-Paying Job Over the Life-Cycle. *SSRN Electronic Journal* . [Crossref]

709. Anne Gielen, Esmee Zwiers. 2018. Biology and the Gender Gap in Educational Performance: The Role of Prenatal Testosterone in Test Scores. *SSRN Electronic Journal* . [Crossref]

710. Federico Gutierrez. 2018. Commuting Patterns, the Spatial Distribution of Jobs and the Gender Pay Gap in the U.S. *SSRN Electronic Journal* . [Crossref]

711. Daniel Montolio, Pere A. Taberner. 2018. Gender Differences Under Test Pressure and Their Impact on Academic Performance: A Quasi-Experimental Design. *SSRN Electronic Journal* . [Crossref]

712. Mariya Brussevich, Era Dabla-Norris, Christine Kamunge, Pooja Karnane, Salma Khalid, Kalpana Kochhar. 2018. Gender, Technology, and the Future of Work. *Staff Discussion Notes* **18**:07, 1. [Crossref]

713. Yi Chen, Hong Zhang, Li-An Zhou. 2018. Motherhood and Gender Wage Differentials Within the Firm: Evidence From China. *SSRN Electronic Journal* . [Crossref]

714. Christine I. Wiedman. 2018. Rewarding Collaborative Research: An Analysis of Gender and Academic Accounting Faculty Salaries. *SSRN Electronic Journal* . [Crossref]

715. Drew McNichols. 2018. Information and the Persistence of the Gender Wage Gap; Early Evidence from California's Salary History Ban. *SSRN Electronic Journal* . [Crossref]

716. Kris Hardies, Clive Lennox, Bing Li. 2018. Gender Discrimination? Evidence from the Belgian Public Accounting Profession. *SSRN Electronic Journal* . [Crossref]

717. Renée B. Adams, Min S. Kim. 2018. Unsuccessful Teams. *SSRN Electronic Journal* . [Crossref]

718. Sarah Jewell, Giovanni Razzu, Carl Singleton. 2018. Who Works for Whom and the UK Gender Pay Gap?. *SSRN Electronic Journal* . [Crossref]

719. Rekha K. Chandrabose, Amy C.S. Pearson. 2018. Organizing Women in Anesthesiology. *International Anesthesiology Clinics* **56**:3, 21-43. [Crossref]

720. Saumitra Jha, Moses Shayo. 2018. Learning by Trading. *SSRN Electronic Journal* . [Crossref]

721. Jeremy Greenwood, Nezih Guner, Guillaume Vandenbroucke. 2017. Family Economics Writ Large. *Journal of Economic Literature* **55**:4, 1346-1434. [Abstract] [View PDF article] [PDF with links]

722. Christina Boll, Anja Rossen, André Wolf. 2017. The EU Gender Earnings Gap: Job Segregation and Working Time as Driving Factors. *Jahrbücher für Nationalökonomie und Statistik* **237**:5, 407-452. [Crossref]

723. Rasmus Landerss, Helena Skyt Nielsen, Marianne Simonsen. 2017. How Going to School Affects the Family. *SSRN Electronic Journal* . [Crossref]

724. Loukas Balafoutas, Brent Davis, Matthias Sutter. 2017. How Uncertainty and Ambiguity in Tournaments Affect Gender Differences in Competitive Behavior. *SSRN Electronic Journal* . [Crossref]

725. William E. Even, David A. MacPherson. 2017. The Gender Wage Gap and the Fair Calculations Act. *SSRN Electronic Journal* . [Crossref]

726. Gregory Upton, Han Yu. 2017. Local Labor Market Shocks and Employment and Earnings Differentials: Evidence From Shale Oil and Gas Booms. *SSRN Electronic Journal* . [Crossref]

727. Marianne Bertrand. 2017. The Glass Ceiling. *SSRN Electronic Journal* . [Crossref]

728. Tim Liu, Christos Andreas Makridis, Paige Ouimet, Elena Simintzi. 2017. Is Cash Still King: Why Firms Offer Non-Wage Compensation and the Implications for Shareholder Value. *SSRN Electronic Journal* **55**. . [Crossref]

729. Da Ke. 2017. Who Wears the Pants? Gender Identity Norms and Intra-Household Financial Decision Making. *SSRN Electronic Journal* . [Crossref]

730. Felipe Benguria, Josh Ederington. 2017. Decomposing the Effect of Trade on the Gender Wage Gap. *SSRN Electronic Journal* **10**. . [Crossref]

731. David Anderson, Margret Bjarnadottir, Cristian L. Dezso, David Gaddis Ross. 2016. On a Firm's Optimal Response to Pressure for Gender Pay Equity. *SSRN Electronic Journal* . [Crossref]

732. Matthew E. Souther. 2016. Racial and Gender Inequality in the Boardroom. *SSRN Electronic Journal* . [Crossref]