

What is the gender pay gap and is it real?

The complete guide to how women are paid less than men and why it can't be explained away

Report • By [Elise Gould](#), [Jessica Schieder](#), and [Kathleen Geier](#) • October 20, 2016

Working women are paid less than working men. A large body of research accounts for, diagnoses, and investigates this “gender pay gap.” But this literature often becomes unwieldy for lay readers, and because pay gaps are political topics, ideological agendas often seep quickly into discussions.

This primer examines the evidence surrounding the gender pay gap, both in the literature and through our own data analyses. We will begin by explaining the different ways the gap is measured, and then go deeper into the data using hourly wages for our analyses,¹ culling from extensive national and regional surveys of wages, educational attainment, and occupational employment.

Summary

Why different measures don’t mean the data are unreliable

A number of figures are commonly used to describe the gender wage gap. One often-cited statistic comes from the Census Bureau, which looks at annual pay of full-time workers. By that measure, women are paid 80 cents for every dollar men are paid. Another measure looks at hourly pay and does not exclude part-time workers. It finds that, relative to men, typical women are paid 83 cents on the dollar.² Other, less-cited measures show different gaps because they examine the gap at different parts of the wage distribution, or for different demographic subgroups, or are adjusted for factors such as education level and occupation.

The presence of alternative ways to measure the gap can create a misconception that data on the gender wage gap are unreliable. However, the data on the gender wage gap are remarkably clear and (unfortunately) consistent about the scale of the gap. In simple terms, no matter how you measure it, there is a gap. And, different gaps answer different questions. By discussing the data and the rationale behind these seemingly contradictory measures of the wage gap, we hope to improve the discourse around the gender wage gap.

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Why adjusted measures can't gauge the full effects of discrimination

The most common analytical mistake people make when discussing the gender wage gap is to assume that as long as it is measured “correctly,” it will tell us precisely how much gender-based discrimination affects what women are paid.

Specifically, some people note that the commonly cited measures of the gender wage gap do not control for workers' demographic characteristics (such measures are often labeled unadjusted). They speculate that the “unadjusted” gender wage gap could simply be reflecting other influences, such as levels of education, labor market experiences, and occupations. And because gender wage gaps that *are* “adjusted” for workers' characteristics (through multivariate regression) are often smaller than unadjusted measures, people commonly infer that gender discrimination is a smaller problem in the American economy than thought.

However, the adjusted gender wage gap really only narrows the analysis to the potential role of gender discrimination *along one dimension*: to differential pay for equivalent work. But this simple adjustment misses all of the potential differences in opportunities for men and women that affect and constrain the choices they make before they ever bargain with an employer over a wage. While multivariate regression can be used to distill the role of discrimination in the narrowest sense, it cannot capture how discrimination affects differences in opportunity.

In short, one should have a very precise question that he or she hopes to answer using the data on the wage differences between men and women workers. We hope to provide this careful thinking in the questions we address in this primer.

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A summary of some key questions and answers in this primer

Given that gender wage gaps are strikingly persistent in economic data, it is natural to then ask, “What causes these gaps?” And, further, “Do women’s own choices and labor force characteristics drive the gender wage gap, or are women’s opportunities for higher pay constricted relative to men?” Although this paper will largely focus on empirical data to answer questions about the size and scope of the gaps for different groups of women, we will use the data to shed light on some of these “why” questions.

- **How much do women make relative to men?** A typical, or median, woman working full time is paid 80 cents for every dollar a typical man working full time is paid. When evaluated by wages per hour, a typical woman is paid 83 cents for every dollar a man is paid. Both of these measures are correct, but examining women’s earnings per hour is our preferred way of looking at the wage gap.³
- **Is the wage gap the same whether you are a front-line worker or a high-level executive?** There is much greater parity at the lower end of the wage distribution, likely because minimum wages and other labor market policies create a wage floor. At the 10th percentile, women are paid 92 cents on the male dollar, whereas women at the 95th percentile are paid 74 cents relative to the dollar of their male counterparts’ hourly wages.
- **Does a woman’s race or ethnicity affect how much she makes relative to a man?** Asian and white women at the median actually experience the biggest gaps relative to Asian and white men, respectively. But that is due, in part, to the fact that Asian and white men make much more than black or Hispanic men. Relative to white non-Hispanic men, black and Hispanic women workers are paid only 65 cents and 58 cents on the dollar, respectively, compared with 81 cents for white, non-Hispanic women workers and 90 cents for Asian women.
- **Can women close the wage gap by getting more education?** It appears not. Women are paid less than similarly educated men at every level of education. And the wage gap tends to rise with education level. This, again, in part likely reflects labor market policies that foster more-equal outcomes for workers in the lower tier of the wage distribution. It also may be affected by certain challenges that disproportionately affect women’s ability to secure jobs at the top of the wage distribution, such as earnings penalties for time out of the workforce, excessive work hours, domestic gender roles, and pay and promotion discrimination.
- **Can women close the gap by choosing different occupations?** Partly, but these “choices” stem from a lifetime of decisions shaped by economic and social forces.
 - Men constitute greater shares of certain types of jobs, or occupations, and women greater shares in others. Some say that these differences in how men and women are distributed across occupations explain much of the gender wage gap. In truth, it explains some of the gap, but not nearly as much as is assumed. And even when we reduce the size of the measured gap by controlling for occupational distributions, that does not mean that the remaining gap provides a

complete view of the role of discrimination on women's wages. Gender discrimination doesn't happen only in the pay-setting practices of employers making wage offers to nearly identical workers of different genders. It can happen at every stage of a woman's life, from steering her away from science and technology education to shouldering her with home responsibilities that impede her capacity to work the long hours of demanding professions.

- Women who work in male-dominated occupations are paid significantly less than similarly educated males in those occupations. So even recommending that women choose better-paying occupations does not solve the problem.
- **Are women in unions, relative to their male peers, better or worse off?** Working women in unions are paid 89 cents for every dollar paid to unionized working men; nonunionized working women are paid 82 cents for every dollar paid to nonunionized working men.
- **Do women with children pay a “motherhood penalty”?** Yes, and not just in terms of hourly wages.
 - After giving birth, women's pay lags behind pay of similarly educated and experienced men and of women without children. There is no corresponding “fatherhood penalty” for men.⁴
 - Outside the labor market, mothers are also charged a time penalty. For example, among married full-time working parents of children under the age of 18, women still spend 50 percent more time than men engaging in care activities within the home. Among child-rearing couples that include a woman either working part time or staying at home to parent, the burden of caring for family members is even more disproportionately borne by women. This higher share of domestic and care work performed by women suggests that cultural norms and expectations strongly condition (and often restrict) the labor market opportunities of women. Indeed, it likely plays a role in the lower labor force participation of mothers relative to men or women without children.
 - The higher share of domestic and care work performed by women is also a disadvantage for women in high-prestige, high-wage jobs in which employers demand very long hours as a condition of work.
- **Does a shrinking wage gap unequivocally indicate a good thing—that women are catching up to men?** Unfortunately no. Because the gender pay gap has both a numerator (women's wages) and a denominator (men's wages), one cannot make firm normative judgments about whether a given fall (or rise) in the gender pay gap is welcome news. For example, about 30 percent of the reduction of the gender wage gap between the median male and female worker since 1979 is due to the decline in men's wages during this period.
- **If we counted benefits, would women be doing less bad relative to men?** The gender pay gap in cash wages would not disappear by factoring in other employee benefits because women are less likely than men to have employer-provided health insurance and have fewer retirement resources than men.

The gender pay gap is a fraught topic. Discussions about it would benefit greatly from a thorough review of the empirical evidence. The data can answer only precise questions, but the answers can help us work toward the broader questions. This paper aims to provide this precision in search of broader answers. Readers can access the data we analyze and report in this paper in the [EPI State of Working America Data Library](#). By making the data publicly available and usable, we hope to advance constructive discussions of the gender pay gap.

The gender wage gap 101: The basics

The gender wage gap is a measure of pay disparity between men and women. While it can be measured different ways, the data are clear: women are still paid much less relative to men (about 83 cents per dollar, by our measure), and progress on closing the gap has stalled.

What is the gender wage gap?

The wage gap means women are paid:

82.7 percent of men's wages. This translates to 83 cents per dollar. The "typical" (median) woman is paid 83 cents per every dollar the typical man is paid.

In dollar terms this means women bring home:

\$3.27 less per hour than men. The median hourly wage is \$15.67 for women and \$18.94 for men.

The gender wage gap is a measure of what women are paid relative to men. It is commonly calculated by dividing women's wages by men's wages, and this ratio is often expressed as a percent, or in dollar terms. This tells us how much a woman is paid for each dollar paid to a man. This gender pay ratio is often measured for year-round, full-time workers and compares the annual wages (of hourly wage and salaried workers) of the median ("typical") man with that of the median ("typical") woman; measured this way, the current gender pay ratio is 0.796, or, expressed as a percent, it is 79.6 percent (U.S. Census Bureau 2016). In other words, for every dollar a man makes, a woman makes about 80 cents.

The difference in earnings between men and women is also sometimes described in terms of how much less women make than men. To calculate this gap from the ratio as defined above, simply subtract the ratio from 1. So, if the gender pay ratio is about 80 percent (or 80 cents on the dollar), this means that women are paid 20 percent less (or 20 cents less per dollar) than men. A larger difference between men's and women's earnings

translates into a *lower* ratio but a larger *gap* in their earnings.

We keep with this convention of using median wages of wage and salary workers rather than average wages of wage and salary workers because averages can be skewed by a handful of people making much more or much less than the rest of workers in a sample. However, we examine median wages on an hourly basis and include all workers reporting a positive number of work hours. This hourly measure constitutes a limited “adjustment” in research methodology in that it accounts for the fact that men work more hours on average during the year, and that more women work part time.⁵ This limited adjustment allows us to compare women’s and men’s wages without assuming that women, who still shoulder a disproportionate amount of responsibilities at home, would be able or willing to work as many hours as their male counterparts.

Computed this way using data from the federal government’s Current Population Survey Outgoing Rotation Group, or CPS ORG in shorthand, the typical woman is paid 82.7 percent of what the typical man is paid (CPS ORG 2015). Or in common terms, women are paid 83 cents on the male dollar.

Notwithstanding our limited adjustment, this is basically the “raw” or “unadjusted” gap that we explore throughout this report when we consider the ways a large basket of factors interact and create the wage gap women experience when they cash their paychecks.

Would adjusting the raw gender wage gap to include factors such as education help explain the gap? Maybe it is not as big of a problem as it seems?

Adjustments can help round out our understanding but unfortunately, as we explain here, they don’t explain away the gap. It is important to understand why.

The gender wage gap described above and referred to in this primer has the virtue of being clear and simple. It provides a good overview of what is going on with typical women’s earnings relative to men’s. But it does not tell us what the wage gap is between men and women doing similar work, and whether the size of the gap derives in part from differences in education levels, experience levels, and other characteristics of working men and women. To round out our understanding of the disparity between men’s and women’s pay, we also consider “adjusted” measures of the gender wage gap—with the caveat that the adjusted measures may understate the wage disparities.

Adjusted wage gap estimates control for characteristics such as race and ethnicity, level of education, potential work experience, and geographic division. These estimates are made using average wages rather than median because it requires standard regression techniques. Again, using the Current Population Survey data from the CPS Outgoing Rotation Group, but making these adjustments, we find that the wage gap grows, with women on average paid 21.7 percent less than men.⁶ The unadjusted penalty for the average woman is 17.9 percent.⁷ The measured penalty actually increases when

accounting for these influences because women workers, on average, have higher levels of education than men.⁸

Models that control for a much larger set of variables—such as occupation, industry, or work hours—are sometimes used to isolate the role of discrimination in setting wages for specific jobs and workers. The notion is that if we can control for these factors, the wage gap will shrink, and what is left can be attributed to discrimination. Think of a man and woman with identical education and years of experience working side-by-side in cubicles but who are paid different wages because of discriminatory pay-setting practices. We also run a model with more of these controls, and find that the wage gap shrinks slightly from the unadjusted measure, from 17.9 percent to 13.5 percent.⁹ Researchers have used more extensive datasets to examine these differences. For instance, Blau and Kahn (2016) find an unadjusted penalty of 20.7 percent, a partially adjusted penalty of 17.9 percent, and a fully adjusted penalty of 8.4 percent.¹⁰

But switching to a fully adjusted model of the gender wage gap actually can radically understate the effect of gender discrimination on women’s earnings. This is because gender discrimination doesn’t happen only in the pay-setting practices of employers making wage offers to nearly identical workers of different genders. Instead, it can potentially happen at every stage of a woman’s life, from girlhood to moving through the labor market. By the time she completes her education and embarks on her career, a woman’s occupational choice is the culmination of years of education, guidance by mentors, expectations of parents and other influential adults, hiring practices of firms, and widespread norms and expectations about work/family balance held by employers, co-workers, and society (Gould and Schieder 2016). So it would not be accurate to assume that discrimination explains only the gender wage gap that remains after adjusting for education, occupational choice, and all these other factors. Put another way, we cannot look at our adjusted model and say that discrimination explains *at most* 13.5 percent of the gender wage gap. Why? Because, for example, by controlling for occupation, this adjusted wage gap no longer includes the discrimination that can *influence* a woman’s occupational choice.

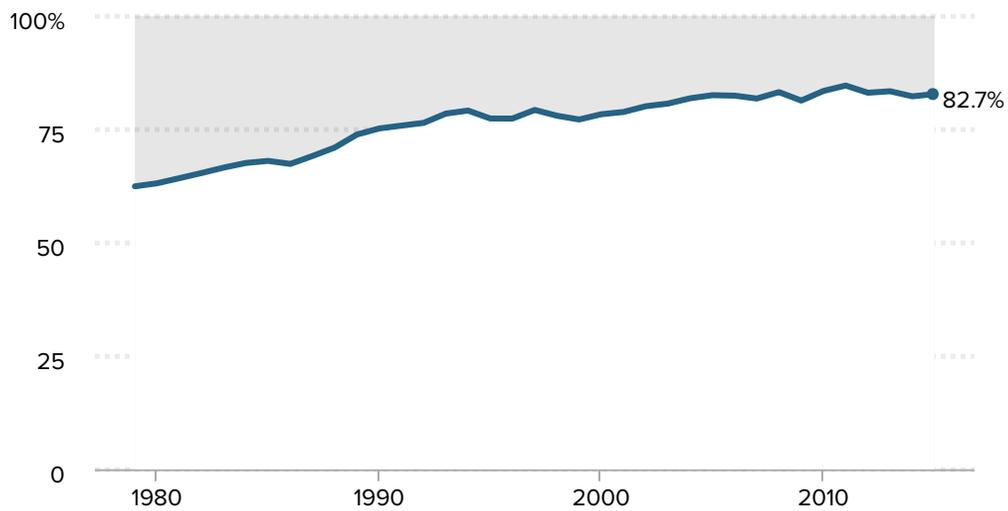
How much does the gender pay gap cost women over a lifetime?

The average woman worker loses more than \$530,000 over the course of her lifetime because of the gender wage gap, and the average college-educated woman loses even more—nearly \$800,000 (IWPR 2016). It’s worth noting that each woman’s losses will vary significantly based on a variety of factors—including the health of the economy at various points in her life, her education, and duration of periods out of the labor force—but this estimate demonstrates the significance of the cumulative impact. And, as explained later, the gap may play a role in the retirement insecurity of older American women.

Figure A

Progress in closing the gender pay gap has largely stalled

Women's hourly wages as a share of men's at the median, 1979–2015



Source: EPI analysis of Current Population Survey microdata. For more information on the data sample see EPI's State of Working America [Data Library](#).

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Yes, but isn't the gender pay gap smaller than it used to be?

Over the past three and a half decades, substantial progress has been made to narrow the pay gap. Women's wages are now significantly closer to men's, but in recent years, that progress has stalled.

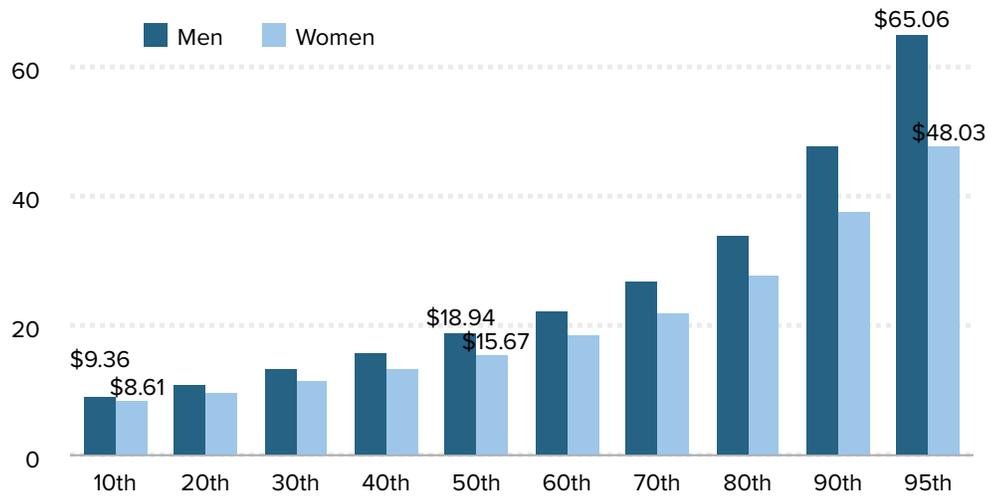
From 1979 to the early 1990s, the ratio of women's median hourly earnings to men's hourly median earnings grew partly because women made disproportionate gains in education and labor force participation. After that, convergence slowed, and over the past two decades, it has stalled. According to the most recent data, as of 2015, women's hourly wages are 82.7 percent of men's hourly wages at the median (**Figure A**), with the median woman paid an hourly wage of \$15.67, compared with \$18.94 for men (**Figure B**).

It's not entirely clear why women have stopped gaining on men. But as discussed later in the section on the "motherhood penalty," the tendency for women with children to receive systematically lower pay has stubbornly persisted, suggesting that the gender pay gap is not going away anytime soon. Economist Claudia Goldin's research supports this conclusion. According to Goldin, current trends indicate that women's wages will still be pulled down over the course of their working lifetimes, even after controlling for education and work time (Goldin 2014).

Figure B

Women earn less than men at every wage level

Hourly wages by gender and wage percentile, 2015



Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata. For more information on the data sample see EPI's State of Working America [Data Library](#).

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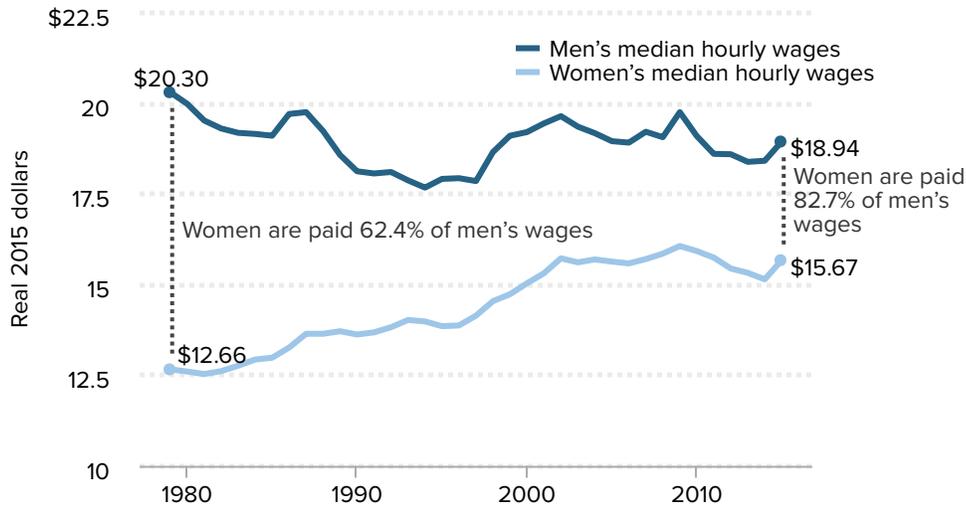
How much of the narrowing of the gender pay gap is due to women's earnings rising, and how much is due to men's earnings falling?

Since 1979, median men's wages have stagnated, falling 6.7 percent in real terms from \$20.30 per hour to \$18.94 (**Figure C**). At the same time, women's real median hourly wages have increased. In 1979, they were equal to roughly 62.4 percent of men's real median hourly wages. By 2015, they were equal to 82.7 percent of men's real wages at the median—a substantial reduction in the wage gap. Unfortunately, this means that about 30 percent of the reduction was due to the decline in men's wages. The stagnation and decline of median men's wages has played a significant role in the decline in the unadjusted gender wage gap. Women's wages increased as more women had increased their participation in the labor force, increased their educational attainment, and entered higher-paying occupations. (Davis and Gould 2015). At the same time, for most workers, wages no longer increased with increases in economy-wide productivity. Had workers' wages continued to keep pace with productivity, both men and women would be earning much more today.

Figure C

The gender wage gap persists, but has narrowed since 1979

Median hourly wages, by gender, 1979–2015



Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata. For more information on the data sample see EPI's State of Working America [Data Library](#).

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Does a woman's race, age, or pay level affect the gender gap she experiences?

Belonging to a certain race or age group does not immunize women from experiencing the gender wage gap. It affects women across the board, though higher-earning women and middle-age women are at a greater disadvantage relative to their male counterparts. And relative to white male wages, black and Hispanic women are the most disadvantaged.

Is the gender wage gap a problem for low- or high-earning women?

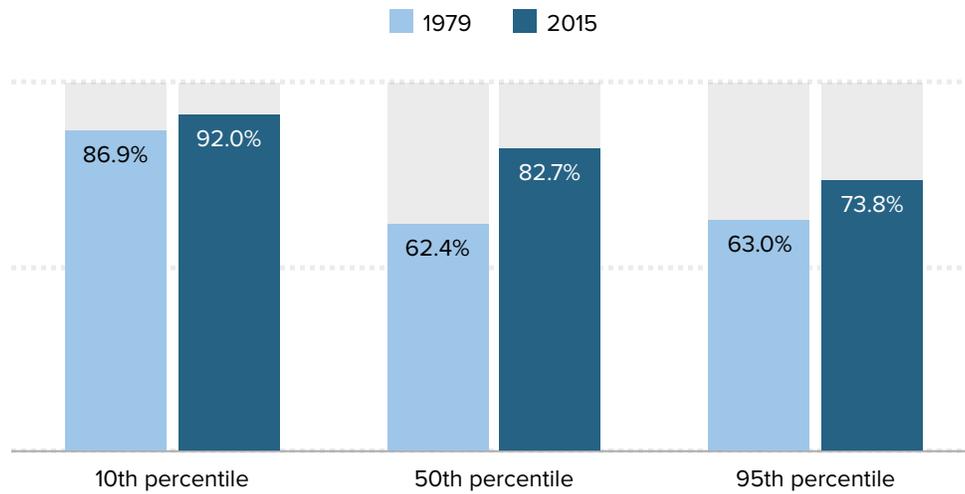
The gender wage gap is a problem for women at every wage level. At each and every point in the wage distribution, men significantly out-earn women, although by different amounts, to be sure (Figures B and C).

In 2015, the gap between men's and women's hourly wages was smallest among the lowest-earning workers, with 10th percentile women earning 92.0 percent of men's wages. The minimum wage is partially responsible for this greater equality among the lowest earners. It sets a wage floor that applies to everyone, which means that people near the bottom of the distribution are likely to make more equal wages, even though those wages are very low (Figure D).

Figure D

The gender wage gap is still widest among top earners

Women's hourly wages as a share of men's at various wage percentiles, 1979 and 2015



Notes: The xth-percentile wage is the wage at which x% of wage earners earn less and (100-x)% earn more.

Source: EPI analysis of Current Population Survey Outgoing Rotation group microdata

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At the median, women's hourly wages are equal to 82.7 percent of men's wages.

The gender wage gap is largest at the top of the wage distribution, with women at the 95th percentile getting paid 73.8 percent of wages at the male 95th percentile. Economist Claudia Goldin argues that women in high-wage professions experience a wider gender gap because they are penalized for not working long, inflexible hours (Goldin 2014). Such rigorous work schedules tend to weigh disproportionately heavily on women, who are still responsible for more housework and child/elder care than men.

It is interesting to note that the wage gap between median men and women workers has narrowed noticeably over the past four decades (Hegewisch and DuMonthier 2016). At the low end, the gap has not closed as much, but the existence of the minimum wage likely kept wages of low-paid men and women closer together even in the 1970s. And the relatively fast growth of men's wages at the 95th percentile has kept this gap from closing as much as the median gap (Economic Policy Institute 2016).

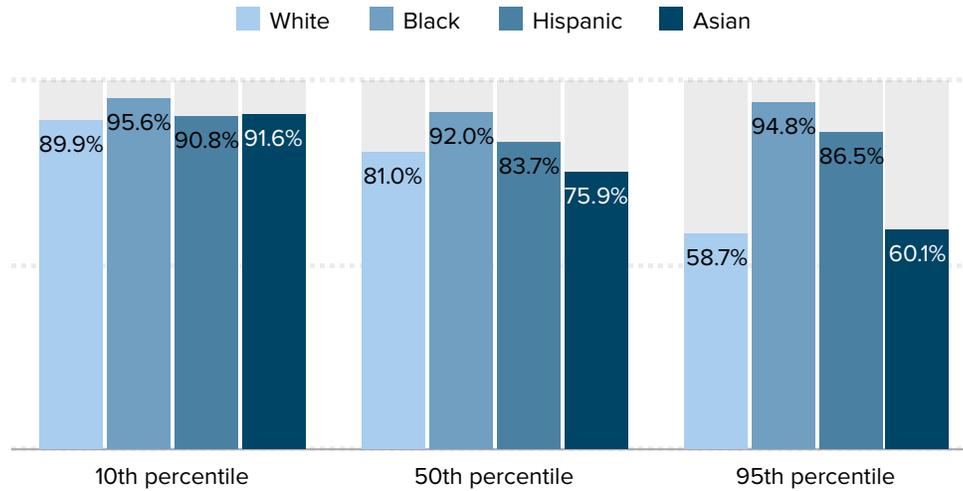
How do women of different races and ethnicities experience the gender wage gap?

Relative wage gaps are larger for high-wage white and Asian women but black and Hispanic women are paid least relative to white men.

Figure E

Women of every race and ethnicity make less than their male counterparts

Women’s hourly wages as a percentage of men’s hourly wages of the same race, by wages percentile, 2015



Source: EPI analysis of Current Population Survey microdata

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Figure E looks at low-, middle-, and high-wage women and compares their wages with those of men within their same racial and ethnic group. Here higher-wage white and Asian women are paid the least relative to their male peers, i.e., the gender wage gap is largest among high-earning whites and Asians.

When we compare the wages of white women and women of color with wages of white men, white and Asian women fare better than their black and Hispanic counterparts (**Figure F**). White non-Hispanic women are paid 81.0 percent and Asian women 89.8 percent, of what non-Hispanic white men make. But the shares are much lower for black and Hispanic women, at 65.3 percent and 57.6 percent, respectively (CPS ORG 2011–2015).

In terms of the impact on women’s paychecks, this means that relative to the typical white man, the typical white woman takes home \$4.00 less per hour, black women take home \$7.31 less per hour, Hispanic women take home \$8.91 less per hour, and Asian women take home \$2.15 less per hour.

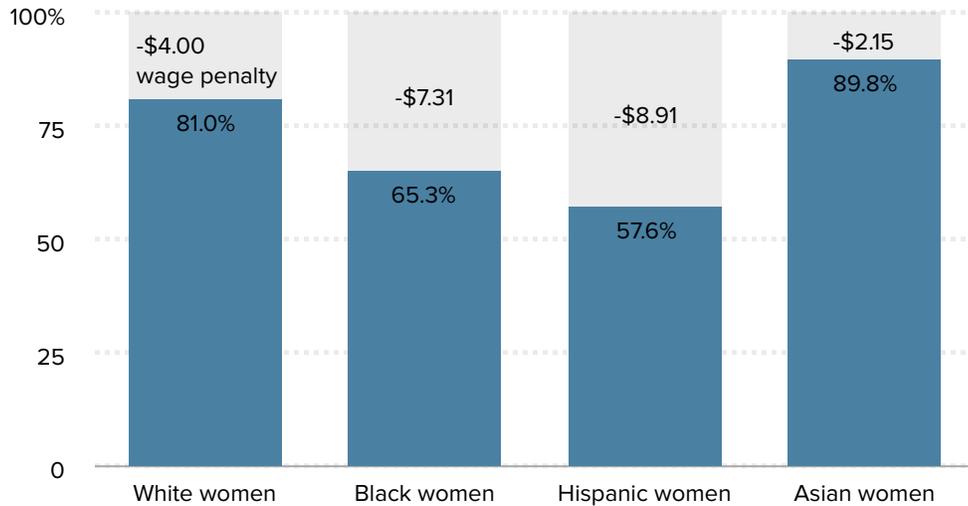
What is the gender wage gap for immigrant women?

Native-born workers of either gender are paid more per hour than (non-naturalized) foreign-born workers (**Figure G**). However, non-naturalized foreign-born women—like their

Figure F

Black and Hispanic women experience the biggest pay gaps

Women’s median hourly wages as a share of white men’s and their per hour wage penalties, by race and ethnicity, 2015



Notes: Values displayed above columns represent the difference between women's median hourly wages and median hourly wages of white men.

Source: EPI analysis of Current Population Survey microdata, 2015

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native-born counterparts—experience a wage gap that further reduces their earnings. The typical non-naturalized foreign-born woman is paid 80 cents per dollar of what a foreign-born man is paid (\$11.26 as a share of \$14.02). Among undocumented Mexican immigrants, the gender wage gap is wider: for every dollar a man is paid, a woman is paid 71 cents (Garcia and Oakford 2013).

So while foreign-born workers overall are disadvantaged in terms of wages, non-naturalized foreign-born women are additionally disadvantaged by the gender wage gap. Compared with native-born men, the average foreign-born woman is paid 58.4 cents on the dollar. Foreign-born naturalized workers not only earn higher wages than their non-naturalized and native-born counterparts, but have a slightly smaller gender wage gap.

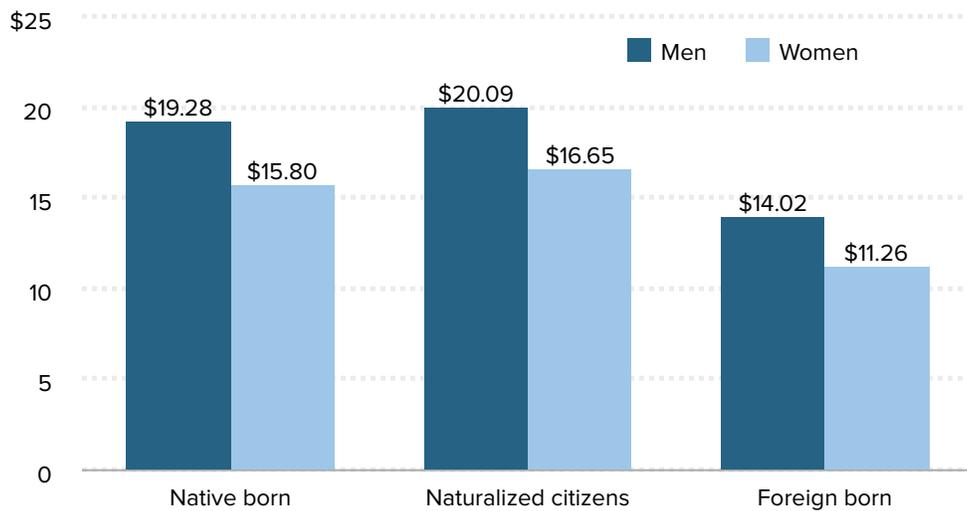
Does the gender wage gap get bigger or smaller as women age?

The gender wage gap is quite small for workers in their teens and early 20s, but the gap grows with age (**Figure H**). For typical working men, hourly wages rise until around the age of 45 and then plateau, but for typical working women, hourly wages top off earlier (in the 35 to 44 age range). After around 40, women’s wage growth plateaus and then drops off earlier than men’s. This holds true when measuring the gap using median weekly earnings

Figure G

Foreign-born women are dually disadvantaged

Median hourly wages by immigration status and gender, 2015



Notes: Includes individuals older than 16. The category native born includes individuals born in the United States, Puerto Rico, and U.S. outlying areas, as well as individuals born abroad of American parents. The category foreign born includes foreign-born individuals who are not citizens of the United States.

Source: EPI analysis of Current Population Survey microdata

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of full-time wage and salary workers (Hill 2016). The growth in the gender wage gap during this time of life reflects the disproportionate impact of family responsibilities on women’s careers. Other research shows that from the beginning of their working lives, women experience a gender wage gap that is still expected to swell significantly over the course of their careers, regardless of education or work experience (Goldin 2014).

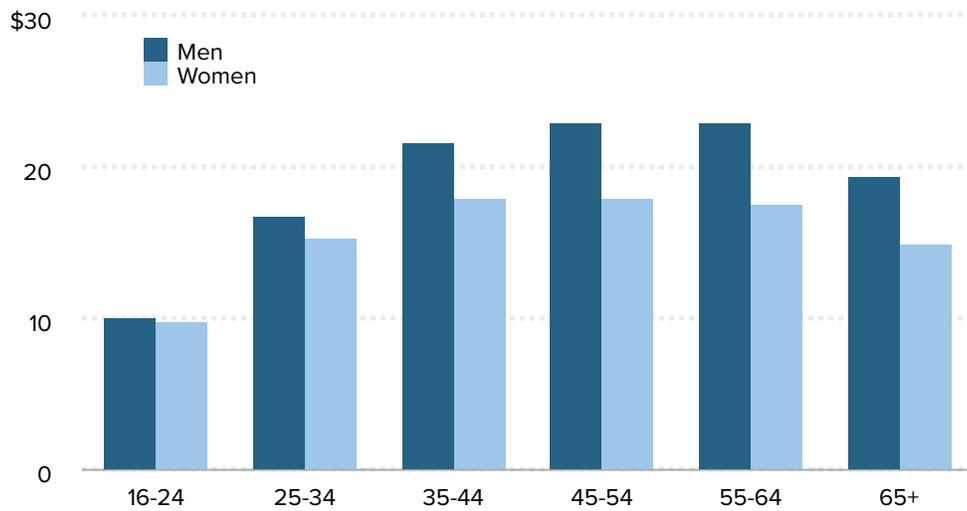
How do work experience, schedules, and motherhood affect the gender wage gap?

Women’s experience levels and work schedules do factor into the gender wage gap. Rather than disproving the role of discrimination, work experience, hours, and schedules in part reflect the social expectations that still disadvantage women. These influences all play a role in the “motherhood wage penalty” evident in the data.

Figure H

Women’s hourly wages plateau and then begin to decline earlier than men’s

Median hourly wage gap by age and gender, 2015



Source: EPI analysis of Current Population Survey microdata

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Are women paid less because they have less experience?

On average, women have less work experience than men, and this contributes to the gender wage gap. But it would not be correct to conclude that this helps disprove the role of discrimination, because the lack of experience itself is a function of social expectations and norms that disadvantage women in the workplace. Women are more likely to temporarily exit the labor force—most often to raise children, although increasingly to care for an older relative—which leaves them with less work experience. One study of workers with MBAs showed that a year after receiving the degree, only 4 percent of men had experienced a career interruption of six months or more, compared with 9 percent of women (Goldin 2014). Further out from their schooling the gap grows: after 10 years, 10 percent of men had experienced a career interruption, compared with 32 percent of women experiencing a career interruption nine years out. And in the 10 to 16 years following graduation with an MBA, 40 percent of women had experienced a career interruption. (Bertrand, Goldin, and Katz 2009)

Do women’s work schedules affect the gender wage gap?

Women tend to work different hours than men, which affects their earnings. However, the story is different depending on wage level. Women are more likely than men to work low-

wage jobs, and low-wage workers are more likely to experience irregular work schedules, such as irregular shift times or on-call shifts, than are other workers (Golden 2015; Davis and Gould 2015). For low-wage parents especially, irregular schedules—often associated with pay that changes from paycheck to paycheck—can be paralyzing as they try to coordinate childcare and meet basic household needs.

Among higher-wage workers, firms tend to disproportionately reward those who work long and particular hours, and those individuals are more likely to be men, which creates a wider wage gap for higher-wage women (Hersch and Stratton 2002; Goldin 2014). But when workers have more temporal flexibility—that is, more choice as to the schedules and number of hours they work—the gender gap narrows. In fact, Goldin (2014) finds that temporal *inflexibility* is an important contributor to the gender gap. Long, inflexible work schedules tend to weigh disproportionately heavily on women, who are still responsible for more housework and child/elder care than men.

Women are also roughly twice as likely to work part time as men; 24.5 percent of women work part time versus 12.4 percent of men (Golden 2016). The biggest disadvantage part-time workers face is their relatively lower rates of pay and benefits coverage relative to full-time workers. When adjusting for differences in personal, educational, locational, industrial, and occupational characteristics of the workers, women who work part time earn 9 percent less than full-time working women. Disadvantages are compounded when women work part time involuntarily—they are willing and able to work full time but can only obtain part-time work. Women of color are disproportionately involuntarily part time.

What we do know is that, in recent decades, women have been working substantially more hours. Between 1979 and 2012, the median annual hours worked by women increased by 739 hours (Appelbaum, Boushey, and Schmitt 2014). Median annual hours of work by mothers increased even more dramatically, rising 960 hours from 1979 to 2012 (Appelbaum, Boushey, and Schmitt 2014). For mothers and for women overall, all of the increase in work hours took place by 2000 (Appelbaum, Boushey, and Schmitt 2014).

Despite these advances, women still work fewer paid hours than men (OECD 2016).

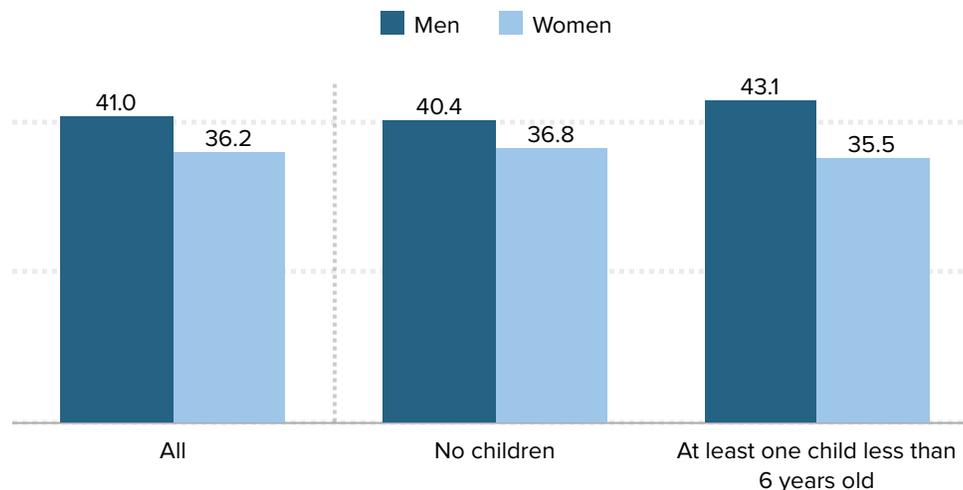
How does the gender wage gap change after a woman has children?

Research has consistently shown that women with children are paid less than women without children and men with or without children.¹¹ In short, there does seem to be a motherhood penalty for earnings. Even after researchers control for variables such as education and experience, they find that mothers are paid approximately 4.6 percent less on an hourly basis than women who are not mothers (Budig 2014). Compared with their counterparts 40 years ago, first-time mothers today are older and have more education and work experience; after giving birth, they are less likely to leave the labor force and more likely to return to work quickly (Laughlin 2011). Despite women's greater experience, education, and attachment to the labor force, the motherhood pay penalty persists (Budig 2014).

Figure I

After the birth of a child, fathers spend more time at the office, whereas mothers spend less

Average weekly hours worked, by gender and household type, 2014



Notes: Sample is limited to prime-age workers (workers age 25–54) with positive average weekly hours worked.

Source: EPI analysis of the March Current Population Survey

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Our research on the work hours of parents finds that women with children under the age of 6 work 5.5 hours less per week (13.4 percent fewer weekly hours) than the average working man, while women without children work 4.1 hours less per week (10.1 percent fewer hours) than the average man (**Figure I**).

Our research also looks at labor force participation, which is generally defined as the share of a given population that is in the labor force (i.e., that is working or looking for work). Because of social norms and home responsibility, women, in general, are less likely to work than men. As shown in **Figure J**, 71.0 percent of all mothers are in the labor force, as are 73.8 percent of all prime-age women and 88.3 percent of all prime-age men.¹² It's particularly striking that labor force attachment of parents differs for men and women: fathers are more likely to be in the labor force than are men without children, but mothers are less likely to be in the labor force than are women without children.

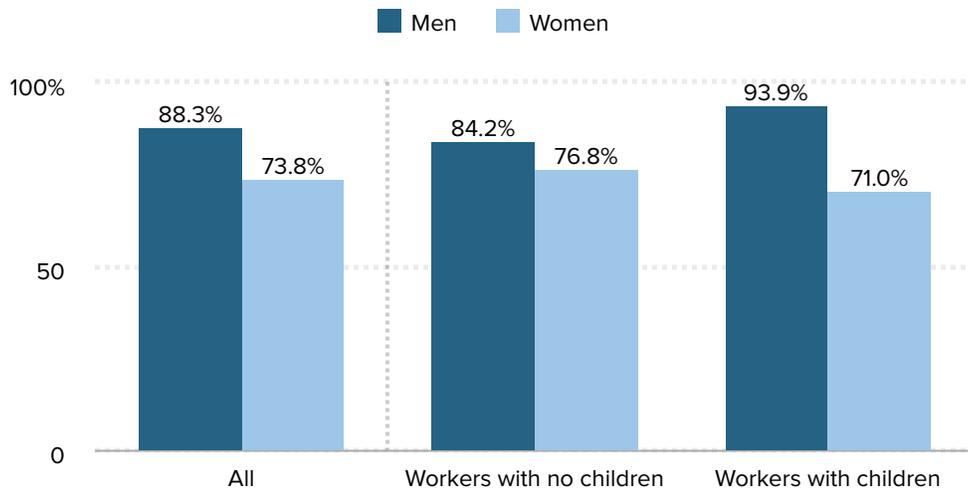
How do education and job and occupational characteristics affect the gender wage gap?

Some have suggested that women could narrow the wage gap if they made different educational or occupational choices. The data suggest it's not that simple.

Figure J

Parenthood has opposite effects on mothers' and fathers' labor force participation

Labor force participation by gender and parental status, 2013–2015



Note: Sample limited to people ages 25–54. Children are defined as being less than 18 years old. The labor force participation rate is the percentage of people who either have a job or are actively looking for a job, and are not on active duty in the Armed Forces or living in institutions (such as correctional facilities or nursing homes).

Source: EPI analysis of Current Population Survey microdata

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Does education level affect the gender wage gap?

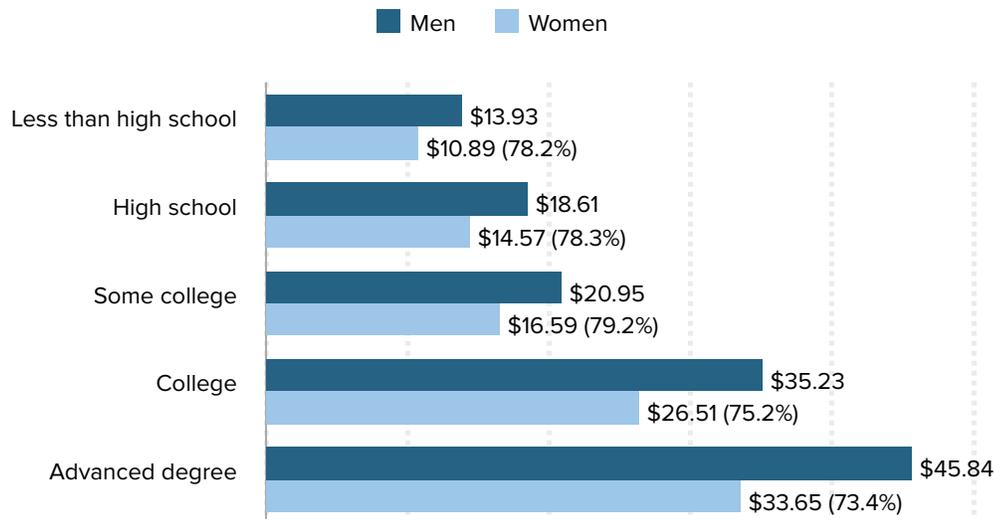
One thing the data clearly show is that women have not been able to educate themselves out of the gender wage gap, at least in terms of broad formal credentials. While women are more likely to graduate from college than men, and are more likely to receive a graduate degree than men (Gould and Schieder 2016), at every education level, women are paid less than men (**Figure K**).

Among workers who have not completed high school, women are paid 78.2 percent of what men are paid. Among workers who have a college degree, the share is 75.2 percent; and among workers who have an advanced degree, it is 73.4 percent. Women with advanced degrees still make less per hour than men with college degrees. Even straight out of college, women with a college degree make \$4 less per hour than their male peers—a gap that has grown since 2000 (Kroeger, Cooke, and Gould 2016).

Figure K

Women earn less than men at every education level

Average hourly wages, by gender and education, 2015



Source: EPI analysis of Current Population Survey Outgoing Rotation Group microdata. For more information on the data sample see EPI's State of Working America [Data Library](#).

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Does the choice of college major affect the gender wage gap?

Part of the gender wage gap can be attributed to college major. Women are more likely to major in subjects such as education and the humanities, and these majors are associated with lower-paying jobs after graduation. At the same time, fewer women major in the STEM (science, technology, engineering, and math) subjects, which are associated with the most lucrative jobs (Corbett and Hill 2015).

Although college major doesn't always determine occupation after graduation, there is a link between major and salary in the workforce. **Figure L** shows that people with college degrees in majors favored by women are making less 10 years after graduation. For example, engineering majors are paid on average nearly twice as much as education majors 10 years after graduation.

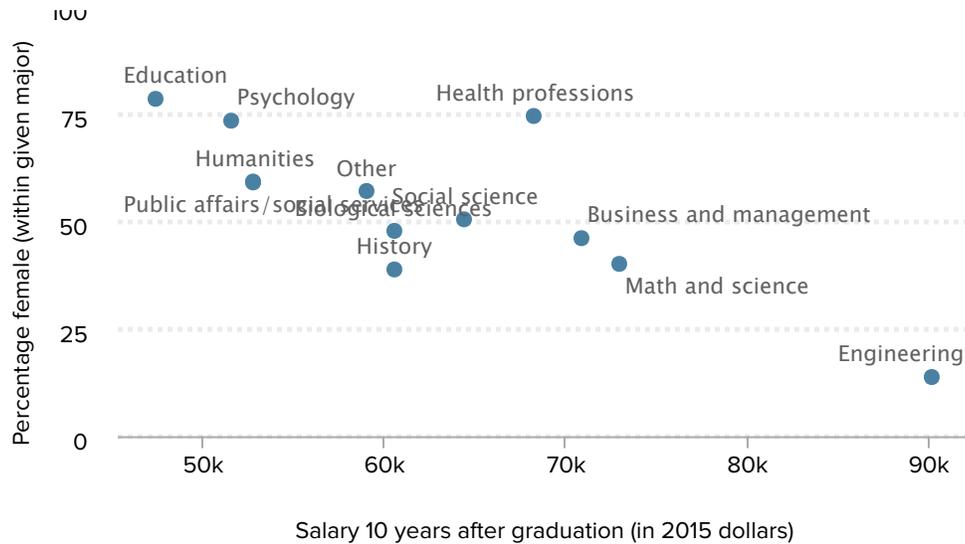
Contrary to what some may believe, educational choices remain gendered today. For example, male seniors graduating in 2008 were more than five times as likely as their female counterparts to have majored in engineering and engineering technology, while women in that same year were three times as likely as their male counterparts to have studied education (NCES 2011–2015).

These choices of college majors, however, should not be seen as completely unconstrained. Women's experiences before college strongly influence their college

Figure L

Undergraduate majors favored by women pay less 10 years after graduation

Undergraduate major by gender and salary 10 years after graduation



Notes: Salaries are based on the current or most recent salary of college graduates of the class of 1993 10 years after graduation in 2003. The salaries are then inflated to 2015 dollars using the CPI-U for easier comparison with today's wages. The percentage of graduates who are female by major is based on a survey of college students graduating in 1993 for consistency.

Source: U.S. Department of Education, National Center for Education Statistics, B&B: 93/03 Baccalaureate and Beyond Longitudinal Study

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trajectories. For example, women arrive in college less interested in STEM fields than their male counterparts. Only 14 percent of first-time college women chose science-related fields in 2012, compared with 39 percent of first-time college men (OECD 2015). Among STEM majors, women are disproportionately in the biological and life sciences, while men dominate engineering and computer science (Corbett and Hill 2015).

How much of the wage gap is due to lower pay in women-dominated occupations versus wage disparities among men and women in the same occupation?

A gender pay gap exists both within and between industries and occupations (Goldin 2014). This means that occupations that have more women in them tend to pay less (the “between occupation” wage gap), and that within each occupation, whether male- or female-dominated, men tend to be paid more than women (the “within-occupation” gap). This within-occupation gap means that even when men and women work in the same occupation—whether as hairdressers, cosmetologists, nurses, teachers, computer

engineers, mechanical engineers, or construction workers—men make more, on average, than women (CPS ORG 2011-2015).

Some have argued that the gender wage gap mostly reflects choices women make about career paths—and choices about occupation in particular. But as it turns out the within-occupation gender wage gap plays a larger role in the occupational gender wage gap than the between-occupation wage gap (the fact that both men and women in occupations with higher shares of women are paid less). As a thought experiment, imagine all women are picked out of their jobs and dropped into jobs to mirror how men are distributed throughout the occupational labor market. For example, if 1.22 percent of men are currently software developers, suppose 1.22 percent of women (instead of today's 0.33 percent of women) became software developers.¹³ What would this occupational reassignment of women do to the wage gap? Claudia Goldin imagines this scenario in a 2014 paper (Goldin 2014). After controlling for differences in education and preferences for full-time work, she finds that only 32 percent of the gender pay gap for college graduates would be closed by redistributing women and men across occupations. On the other hand, as much as 68 percent of the gender pay gap by occupation for college graduates is due to the within-occupation gap (Goldin 2014).¹⁴ This means if you left women in their current occupations and just closed the gaps between women and their male counterparts *within* occupations (e.g., if male and female civil engineers, and male and female teachers, made the same per hour), that would close a whopping 68 percent of the gap.

Furthermore, evidence shows that as women's participation in a particular occupation rises, pay within that occupation falls (Miller 2016; Oldenziel 1999). Some researchers attribute this phenomenon to “devaluation,” in which employers ascribe a lower value to work done in female-dominated occupations and thus pay them less (Levanon, England, and Allison 2009).

Therefore, changing which occupations women are in will only partially close the gender wage gap. If we want to equalize earnings between men and women, we need to pay as much attention to the fact that women in the same job make less than men as we do to the fact that female-dominated professions pay less.

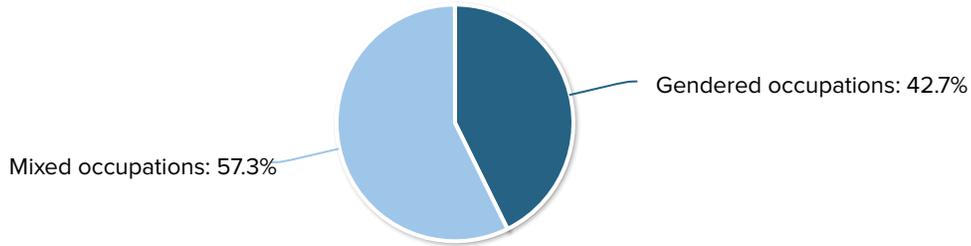
Has the gender wage gap shrunk as more men and women blaze paths into “nontraditional” occupations?

This is a trick question. From the early 1960s to the 1990s, more men and women moved into “nontraditional” occupations. (An occupation is considered “nontraditional” for a particular gender if that gender constitutes less than 25 percent of employees in the occupation [Carl D. Perkins Career and Technical Education Improvement Act of 2006]).¹⁵ So for example more women found jobs in recreation and more men became nurses (Landivar 2013; Miller 2016). But the movement toward gender integration in occupations slowed down after the 1990s and came to a complete halt during the 2000s (Hegewisch and Hartmann 2014). Gen Xers, who reached their mid-40s mainly in the 2010s, saw an

Figure M

43 percent of workers are in highly gendered occupations

Percentage of workers in occupations in which more than 75 percent of workers are of a single gender, 2011–2015



Notes: We define gendered-occupations as occupations in which more than 75 percent of workers are of one gender. This definition is based on the definition of "traditional" occupations included in the Carl D. Perkins Vocational and Technical Education Act of 1998 S.250-6. Employment counts are averaged over the time period, 2011-2015.

Source: EPI analysis of Current Population Survey Outgoing Rotation group data

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increase in occupational segregation between ages 25 and 45. In fact virtually all cohorts of workers all saw a small increase in occupational segregation in the 2000s and 2010s (Hegewisch and Hartmann 2014).

For all our progress, as of recent years, only about 6 percent of women are employed in nontraditional (i.e., traditionally male) occupations. These same sets of occupations employ 45 percent of all men. At the same time, only about 5 percent of men are in traditionally female occupations, while these occupations employ 40 percent of all female workers.

Figure M shows more simply how gender segregated our occupations still are in the United States. More than 40 percent of workers are in occupations in which more than three-fourths of workers are of one gender.

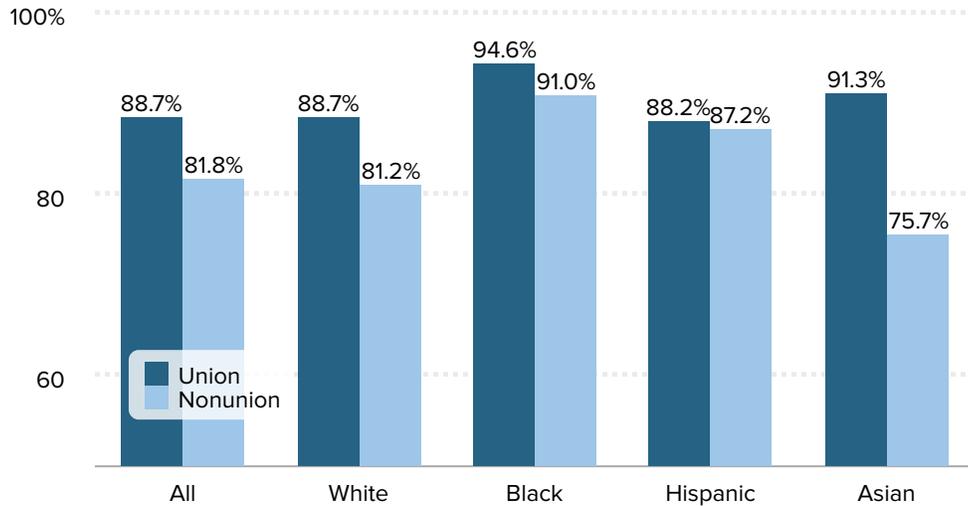
And this segregated distribution of men and women across jobs matters to the gender wage gap. Occupation and industry (taken together) account for about half of the overall gender wage gap (Blau and Kahn 2016).

Finally, it is important to note that the distribution of men and women across occupations is not a simple matter of unconstrained choice. Much research suggests that many women are driven out of nontraditional occupations by hostile work environments. For example, 63 percent of women working in science, engineering, and technology experience sexual harassment (Hewlett et al. 2008). Over time, 52 percent of women in science, engineering,

Figure N

Women generally experience a smaller pay gap when their workplace is unionized

Women's median weekly earnings for full-time wage and salary employees as a percent of men's, by race and ethnicity, 2014



Notes: The values represent the difference between the median weekly earnings of full-time wage and salary workers who are union members or are covered by a union contract and those who are not.

Source: EPI analysis of Anderson, Hegewisch, and Hayes, 2015

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and technology quit their jobs, half of whom end up leaving these fields altogether (Hewlett et al. 2008).

Does union membership close the gender pay gap?

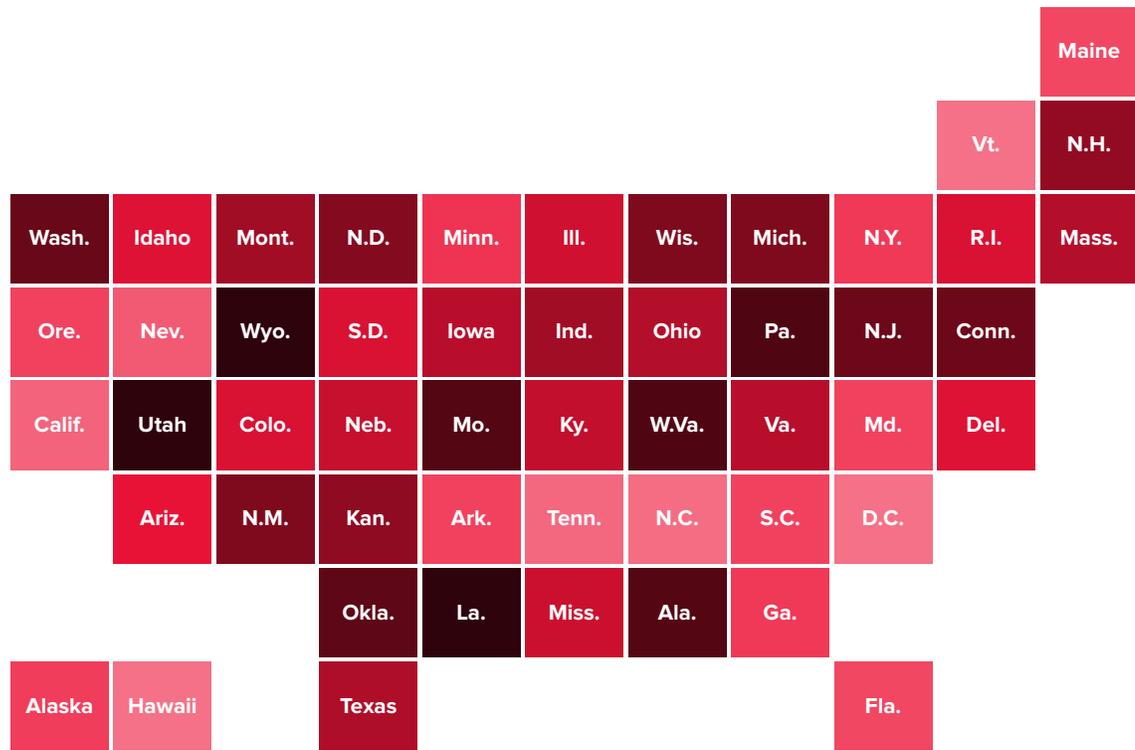
Unions not only raise wages for male and female workers alike, but also reduce the size of the gender wage gap. Women in unions are paid 31 percent more than their nonunionized sisters. Among racial and ethnic subgroups, black, Hispanic, and white women in unions make 34, 42, and 31 percent more than their nonunion counterparts (Anderson, Hegewisch, and Hayes 2015).¹⁶ Unionization raises women's wages by 11.2 percent, compared with nonunion women who have similar characteristics (Schmitt 2008).

Women in unions also experience a smaller gender pay gap than their nonunionized counterparts (**Figure N**). Women workers in unions are paid 88.7 percent of what their male counterparts are paid, while for nonunionized women the share is 81.8 percent (Anderson, Hegewisch, and Hayes 2015).

Figure O

The difference between men’s and women’s pay varies greatly by state

Median hourly women’s wages as a share of men’s by state, 2013–2015



75.0% | 92.6%

Notes: Values represent averages 2013-2015.

Source: EPI analysis of Current Population Survey microdata

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Does the gender wage gap depend on where you live?

Yes. The gender wage gap varies widely by state. The gender wage gap, as measured by women’s share of men’s hourly wages at the median, ranges from 74.8 percent (in Wyoming) to 92.9 percent (in Washington, D.C.; **Figure O**). Typical female workers in Washington, D.C., and Vermont make more than 90 percent of the wages of their male counterparts. In nine states, women are paid less than 80 percent of their male counterparts’ wages. Similarly, the gender gap in annual earnings ranges from 65.3 percent in Louisiana to 89.5 percent in Washington, D.C. (NWLC 2015).

A number of factors may be contributing to these differences, such as the mix of predominant industries or cultural differences. For example, after holding other factors constant, states with a higher score of “religiosity”—including higher frequency of prayer,

worship service attendance, and expressed belief in prayer among other measures—experience a wider gender wage gap (Wiseman and Dutta 2016). According to the researchers, the reason for this is that religiosity is often associated with more traditional views about gender roles.

The raw gender wage gap is larger in rural areas than in urban areas. In metropolitan areas, the gender gap in median hourly wages is 83.2 percent, while in nonmetropolitan areas, it is 81.7 percent.

The gender pay gap in the United States is bigger than the gap in many other developed countries. The gender pay gap in the United States is larger than the Organization for Economic Cooperation and Development (OECD) average when considering the difference between the wages of full-time annual median male and female wages. Within the OECD, the United States has the 12th largest gender gap overall, and the U.S. gap is bigger than the gap in most European countries. That said, making direct international comparisons is often difficult. For example, part-time work by one parent is more common in Europe, as is substantial use of parental leave and paid vacations, while single parenthood is more common in the United States (Ruhm 2011).

A common thread in these data is that the burden of parenthood is distributed differently in various countries. This means that policies meant to address the motherhood penalty likely need to be tailored differently across these countries as well. For example, the availability of parental leave might make a woman in Europe less likely to leave her employer following her pregnancy, whereas in the United States, taking any significant amount of time off at all following childbirth might lead to her losing her job. On the other hand, in many of the OECD countries, women are less likely to work full time and less likely to attain high-level positions than are women in the United States, suggesting that flexibility comes at a cost (Blau and Kahn 2013a).

There is another way in which geography might affect the gender wage gap. Women are more willing to move for a husband's employment than vice versa (Abraham, Auspurg, and Hinz 2010). This suggests that women are less able to widen the geographic net over which to search for good job opportunities.

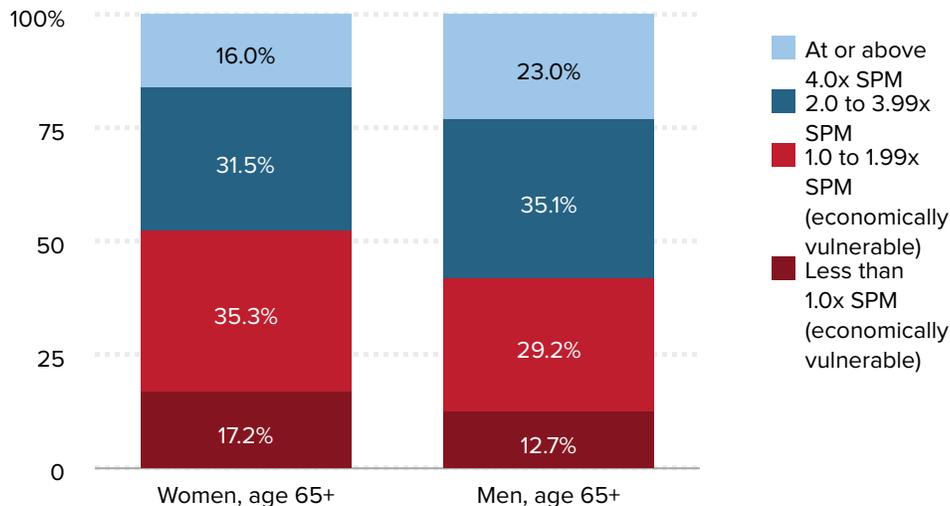
How might the gender wage gap affect the retirement security of America's working women?

It is hard to isolate the effect of the gender wage gap on American women's retirement security. According to the U.S. Department of Labor, women's lower lifetime earnings means that they receive lower Social Security payments and experience fewer opportunities to save for retirement. Average annual Social Security benefits for women are only \$13,392, and the annual median income in retirement for women is only \$14,000,

Figure P

Elderly women are more likely than elderly men to be economically vulnerable

Share of the elderly at various income levels, expressed as multiples of the supplemental poverty measure (SPM) threshold, by gender



Source: EPI analysis of pooled 2010–2012 Current Population Survey Annual Social and Economic Supplement microdata

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well below the \$19,000 to \$29,000 that a single person needs to live in retirement, depending on geographic area (DOL 2015).

That may be a key reason why elderly women are more likely than elderly men to be economically vulnerable (defined as earning less than twice what they would need to earn to be above the supplemental poverty measure). As shown in **Figure P**, over half (52.5 percent) of American women age 65 or older are economically vulnerable, compared with 41.9 percent of same-aged men.

But the gender wage gap is not the only factor that contributes to women’s lower lifetime earnings. Women’s caregiving responsibilities often push them into working fewer hours, and working part time often limits opportunities for advancement. Women’s time out of the workforce translates into lower earnings and can often erode women’s early and mid-life savings. Further, caregiving costs women \$274,044 (\$142,693 in lost wages and \$131,351 in lost Social Security) over their lifetime, plus an additional \$50,000 in lost pension income (DOL 2015).

In addition to their lower Social Security and retirement earnings, older women also have limited opportunities to earn money in the labor force. Not only is the gender pay gap highest among workers age 55 to 64, but recent studies suggest that women face “robust” age discrimination in the labor market, and that age discrimination against women is worse than it is for men (Neumark, Burn, and Button 2015; Farber, Silverman, and von Wachter 2015). Since working longer later in life yields less than it would for a man (DOL

2015), this leaves less room for women to catch up on retirement savings. It also means that when older women are given a choice between staying home to care for family or staying in the workplace, the latter option is relatively less advantageous. In a recent survey, one-fifth of all women ages 45 to 74 reported that they had taken time off work within the past five years to act as caregivers (DOL 2015). Older women's caregiving responsibilities extend not just to their children but also to their parents. About 9.7 million Americans over age 50 care for their parents, and women are the majority of the caregivers.

The labor force participation rate of older women has grown in the past two decades, but it is still lower than older men's (DOL 2015). In 2012, 35.1 percent of women ages 55 and older were in the labor force, compared with 46.8 percent of their male counterparts (DOL 2015). In 1992, those figures for older women and older men were 22.8 percent and 38.4 percent, respectively (DOL 2015).

What role do “unobservables” like discrimination and productivity play in the wage gap?

The unexplained, or residual, portion of the pay gap is the difference in pay between men and women who are observationally identical. It is what is left when researchers control for all observable characteristics. It is due to factors that are otherwise difficult to measure—which could include not only discrimination but also differences in productivity that are unrelated to influences such as educational level and experience. What can the size and trajectory of this residual gap tell us about the scope of discrimination in the workplace?

Is discrimination an expanding or shrinking factor in gender wage gaps?

Even when researchers control for all observable characteristics, a portion of the gender wage gap is left unexplained. Economists often argue that this unexplained portion, while not synonymous with discrimination, may tell us how much gender discrimination could be affecting wages.

By this measure, discrimination is either stable or increasing. In a 2016 study, economists Francine Blau and Lawrence Kahn found that the unexplained portion of the gender wage gap narrowed dramatically in the 1980s, shrinking from between 21 and 29 percent of the gap in 1980 to between 8 and 18 percent of the gap in 1989. However, after 1989, the unexplained portion of the gap did not narrow any further, and it has remained stable ever since.

In a 2014 study, economist Claudia Goldin found that the unexplained, or “residual,” gap makes up more of the gap today than it did in the 1980s. Women today have more education and work experience, which has whittled away the influence of those factors on the gap. Human capital factors such as education and experience made up about 25 percent of the wage gap in 1979, but only 8 percent in 1998.

This residual gap is not uniform across occupations. Goldin argues that some professions disproportionately reward those who work very long hours, and this might explain why she finds a larger residual gap in business occupations than in science and technology fields. Also some high-wage firms have adopted pay-setting practices that disproportionately reward individuals who work very long and very particular hours, including weekends or late nights. This means that—even if men and women are equally productive per hour—individuals in these firms who are more likely to work a very high number of weekly hours and be available at particular off hours are paid more. This reward of long and nonstandard hours for highly credentialed employees works to men’s advantage (Hersch and Stratton 2002; Goldin 2014).

But expansion or contraction of the residual gap does not mean that discrimination is expanding or contracting to the same degree because the residual wage gap only captures discrimination in pay-setting between similar workers. It does not capture the range of factors that influence the different labor market experience of men and women before employers make hourly pay offers, and discrimination—in the form of society-wide constraints on choices—can certainly enter into these factors. For example, women’s choice of college major or occupation is conditioned on how well educated in science and math they were in college and even before. If gender differences in teachers’ attention or perception of academic excellence influence these choices about college major and occupation, then it will affect pay outcomes. Therefore, controlling for current occupation disguises how discrimination can filter men and women differently into high- or low-paying occupations.

While we can’t precisely measure how big the role of discrimination is, or set a ceiling on its impact, we do know that it exists. Empirical evidence of outright discrimination in hiring, promotions, and even wage-setting is strong and includes the following:

- One famous study found that switching to blind auditions led to a significantly higher proportion of female musicians in orchestras (Goldin and Rouse 1997).
- An experimental study of résumés submitted for job openings found bias against women and mothers and a preference for male applicants (Steinpreis, Anders, and Ritzke 1999). Another résumé study showed discrimination against women in the sciences (Moss-Racusin et al. 2012).
- Researchers have also found that women are viewed as less competent than men, and that mothers are judged as even less competent than childless women (Ridgeway and Correll 2004).
- In her book, *Selling Women Short: The Landmark Battle for Workers’ Rights at Wal-Mart* (2004), Liza Featherstone reported that “women make up 72 percent of Wal-

Mart's hourly workforce (nonsalaried workers), but only 34 percent of its managers are women. Women also earn less than their male counterparts in nearly every position at the company.”

Is the gender gap a result of men being “better” or more productive workers than women?

As noted, the unexplained, or residual, portion of the pay gap is the difference in pay between men and women who are observationally identical. Some argue that one of the difficult-to-measure factors is differences in productivity that are unrelated to influences such as educational level and experience. Some argue that women's disproportionate childcare responsibilities may make them less productive.

Studies that have directly explored worker productivity show little evidence of a motherhood penalty on productivity. Recent research by the Federal Reserve Bank of St. Louis that examined productivity among academic economists found that, over the course of a career, women with children were more productive than women without children (Krapf, Ursprung, and Zimmerman 2014). Additionally, women with two children were more productive than women with one child. Another study of blue-collar workers, a group chosen because of the belief that there would likely be productivity differences by gender, found that women were generally as productive as men (Petersen, Snartland, and Milgrom 2006).

In fact, research on impressions of women in the workplace suggests women's productivity might in fact be systematically underestimated (Burgess 2013). Researchers have noted that women are caught in a paradox between appearing too feminine (not qualified) and not feminine enough (lacking in social skills), which often causes their performance to be evaluated much more strictly than men's (Burgess 2013). The same study found that mothers were seen as less competent than childless women (Burgess 2013). For men, parenthood status had no effect on their perceived competency.

Another study found both men and women were conflicted by the notion that they should put work before family and other personal affairs (Reid 2015). Women, however, were much less likely to be perceived as putting work first.

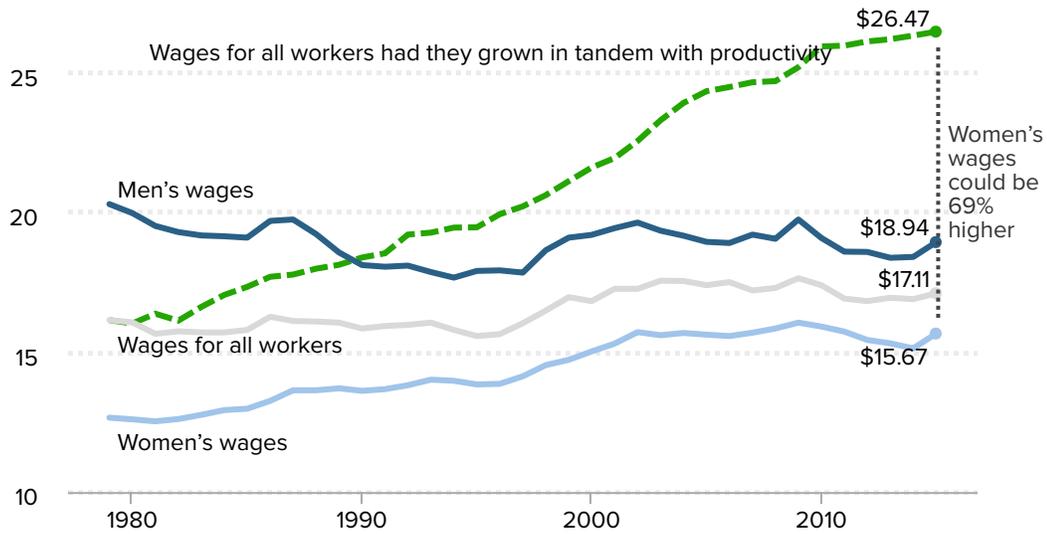
Framing the question of pay fairness (as this question does) implies that men's pay is very closely aligned with their productivity. But in fact, for decades, the wages of the vast majority of both men and women have not kept pace with economy-wide productivity as productivity continued to increase but wages largely stagnated. This contrasts with the decades before about 1980, when wage growth and productivity growth were closely linked.

If wages had continued to grow with productivity, the vast majority of both women and men would be better off today (**Figure Q**). For example, Davis and Gould (2015) have shown that had the gender wage gap closed and had wages grown with productivity since 1979, the median woman's wages would be nearly 70 percent higher today.

Figure Q

Eliminating the gender and inequality wage gap could raise women's wages by 69%

Median hourly wages for men and women, compared with wages for all workers had they increased in tandem with productivity, 1979–2015



Source: Reproduced from Figure G in Alyssa Davis and Elise Gould, *Closing the Pay Gap and Beyond: A Comprehensive Strategy for Improving Economic Security for Women and Families*, EPI Briefing Paper #412, November 18, 2015

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How might discrimination—in the form of norms and expectations—be affecting the wage gap by constraining women's choices?

Women do indeed make choices, but those choices do not occur in a vacuum. Our society's institutions and norms exert a powerful influence on what choices are available and what form they take.

How well do grade school test scores measure aptitude?

One study found that parents are more likely to expect their sons, rather than their daughters, to work in STEM fields, even when their daughters performed at the same level in mathematics (OECD 2015). This suggests that cultural norms influence girls' confidence which in turn influences their success (Herbert and Stipek 2005).

Though girls are underrepresented among students with the highest math test scores, research shows that this gap differs geographically. In areas where people were more likely to say “women [are] better suited for home” and “math is for boys,” girls were more likely to have lower math scores and higher scores on reading tests (Pope and Syndor 2010). In the same states where girls had stereotypically gender-normative test scores, boys scored higher in math than girls but also lower in reading. More evidence that children’s disparate test scores may be the result of cultural factors, not innate differences, is found in the fact that in some states girls scored better at subjects in which cultural cues might have suggested they should be more gifted, and the same was true for boys.

Other research shows that gender bias among teachers negatively affects girls, with the worst effects for girls in less well-off families and girls whose fathers have more years of schooling than their mothers (Lavy and Sands 2015).

Cultural attitudes also affect girls’ confidence, which in turn affects their math performance (OECD 2015). One study found that girls are more likely to express feelings of anxiety over mathematics, and on average their math scores were lower. But among girls who reported similar levels of confidence as boys, the gender gap in performance disappeared (OECD 2015).

Cultural stereotypes appear to have a direct impact on academic performance (OECD 2015). Asians, for example, are stereotyped as being good at math. When Asian girls were told they were taking a quantitative skills test to assess ethnic differences in performance, they scored higher than a control group, which was given no explanation for why they were taking the test. By contrast, Asian girls scored worse when they were told they were taking a quantitative assessment to determine gender differences.

How does the cultural steering of girls away from math and science affect occupational choice?

In college, girls are less likely to major in STEM subjects than men and are less likely to major in STEM than in other subjects. Yet STEM majors are associated with the highest earnings. But even though they are not studying the subjects that lead to the most lucrative jobs, women’s level of education continues to increase. Today, women earn more than half of all associate degrees, bachelor’s degrees, master’s degrees, and Ph.D.s (although in this last category, they make up only 51 percent of recipients).

One obstacle to increasing women’s share of employment in lucrative fields is the attrition rate of highly qualified women working in science, engineering, and technology (SET) fields. One study found that as many as half of highly qualified female SET professionals left their jobs because of hostile work environments and job pressures at odds with traditionally gendered domestic roles (Hewlett et al. 2008). Yet the gender wage gap persists even among recent graduates (Gould and Kroeger 2016).

Do work scheduling practices disadvantage women?

In some fields—particularly among highly credentialed workers in very well-paid occupations—employees are disproportionately rewarded for working very long hours and/or at inconvenient times, with short notice. There seems to be little compelling evidence that this reflects smart economic thinking by employers. For example, productivity suffers for employees in medical fields who work long hours (Lockley et al. 2007). Yet these practices persist and affect women. As noted earlier, women in high-wage professions experience a wider gender gap because they are penalized for not working long, inflexible hours. Such rigorous work schedules tend to weigh disproportionately heavily on women, who are still responsible for more housework and child/elder care than men.

But in the United States and around the world, when unpaid work is accounted for, women do more work than men, reflecting again the social expectation that women disproportionately undertake nonmarket work. This trend holds even for children: Although girls spend more time doing chores than boys, they are less likely than boys to be paid an allowance (University of Michigan 2007).

Does sex segregation in occupations affect women’s salary expectations?

Sex segregation in occupations is a reality; women dominate some occupations, just as men dominated others. However, when women enter male-dominated occupations, they have similar or lower expected wages than their female counterparts who go into female-dominated occupations (Pitts 2002). This suggests that when women enter female-dominated occupations, they are rationally situating themselves to be paid higher wages *once discrimination is taken into account*. Another study (Hwang and Polachek 2004) found that women “choose female jobs to earn a relatively greater amenity package than they would have received elsewhere. Similarly, men choose male jobs to earn relatively more.”

How do family and child-rearing roles affect women’s choices?

It is often suggested that women who are planning to have children seek out “mother-friendly” occupations, sacrificing higher pay for work environments that are more conducive to balancing professional and family responsibilities whether because they are lower stress or offer greater flexibility. But Budig and England (2001) find little support in the data for this. They find motherhood does not impact mothers’ pay through the types of jobs women with children choose (except when it comes to choosing part-time jobs, which does partially account for the motherhood penalty). Instead, they find that it is mothers’

breaks in employment, as opposed to the jobs they take, that lead to a discrepancy in pay between mothers and women without children.

Goldin (2014) argues that women's labor market choices are strongly conditioned by social norms and expectations regarding who bears the burden of domestic work as well as employer indifference toward this burden. "The observed patterns of decreased labor supply and earnings substantially reflect women's choices *given family constraints and the inflexibility of work schedules in many corporate and finance sector jobs,*" the report explains.

Finally, the perception that women with children choose to work less is often false. Instead, mothers in the workplace are simply judged more harshly in regard to their employer commitment than women without children. Correll, Benard, and Paik (2011) find that mothers are seen as less committed to the workplace than women without children in comparable jobs. For men, it's the opposite: fathers are seen as more committed than childless men.

Do salary and incentive pay setting practices affect the gender wage gap?

Gender differences in salary negotiation explain a portion of the gender gap. Men are more likely to negotiate their salary, which increases their earnings (Babcock and Laschever 2007). However, men and women face different social incentives for negotiation, and there is evidence that women are more likely to be penalized when they negotiate (Bowles, Babcock, and Lei 2006). The constraints on negotiation clearly have an impact: women who consistently negotiate their salary are paid over \$1 million more across their lifetime than women who do not negotiate (Babcock and Laschever 2007).

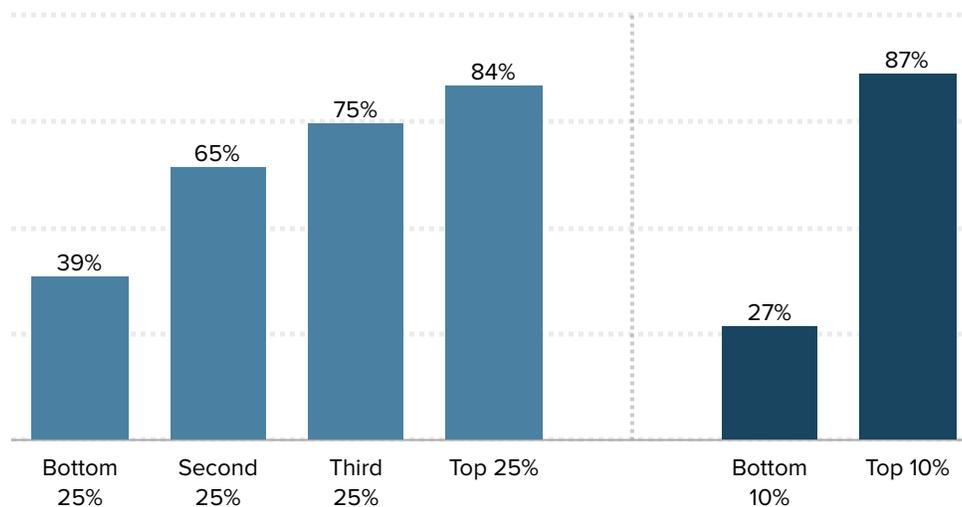
Evidence also shows that men benefit disproportionately from incentive pay (Albanesi, Olivetti, and Prados 2015). Female executives receive a lower share of incentive pay relative to their male counterparts, and this difference accounts for 93 percent of the gender gap in total pay (Albanesi, Olivetti, and Prados 2015). Performance pay also disproportionately rewards male executives. Researchers found that every \$1 million increase in firm value generates a \$17,150 increase in firm-specific wealth for male executives, but only a \$1,670 increase for their female counterparts (Albanesi, Olivetti, and Prados 2015). This research suggests that women are hurt by incentive pay at the top of the earnings spectrum in two ways: (1) women are less likely to be rewarded using incentive pay when they are in high-ranking managerial positions, and (2) they are less likely to reach those commanding heights of the economy where they would receive more of their pay through an incentive-based structure.

Is there a gender gap in other forms of worker compensation, such as health

Figure R

Low-wage workers are less likely to have access to paid sick days

Percent of private industry workers with access to paid sick days, by wage group, 2016



Source: Bureau of Labor Statistics' National Compensation Survey--Employee Benefits in the United States, July 2016 (Table 6)

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insurance, paid sick leave, and retirement benefits?

Only 60 percent of men and 62 percent of women have access to paid sick days (Williams and Gault 2014). Although there doesn't appear to be an overall gender gap in paid sick time, Hispanic women are less likely than men to have access to paid sick time; 49 percent of Latinas lack such a benefit. Two disproportionately female groups, low-wage workers and part-time workers, are also less likely to have paid sick leave than their higher wage and full-time counterparts (BLS 2015; **Figure R**).

Women are less likely than men to receive health insurance through their own job. In 2015, 34 percent of women had employer-provided health insurance, compared with 43 percent of men (KFF 2016).

However, men's and women's overall participation rates in employer retirement plans are about the same, despite the fact that, as of 2012, women were slightly more likely than men to work for employers that offered retirement plans. The equal participation rate is due to a gap in eligibility that limits women's participation (Brown et al.).

But equal participation does not mean equal retirement security. Because of their care responsibilities, women are more likely to move in and out of the workforce. This weakens their earnings power, and as a result, women have less retirement wealth than men, both

in traditional pensions and employer savings accounts such as 401(k)s. In 2010, women's income from defined-benefit employer pensions was about 33 percent less than men's (Brown et al.). And an analysis of 3 million participants in money manager Vanguard's fund showed that the median amount accumulated in defined-contribution retirement accounts (i.e., 401(k)s and the like) was 34 percent less for women than for men (Brown et al.).

Women age 65 and older are 80 percent more likely than their male counterparts to be living in poverty (Brown et al.). And widowed women are twice as likely as widowed men to be living below the poverty line (Brown et al.).

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Endnotes

1. Wages here refers to the hourly wages of all wage and salary workers between 18 and 64 years old. Throughout we use wage gap and pay gap interchangeably to refer to the wage gap.

2. The typical woman (or man) referred to here and throughout is the median female (or male) worker.
3. Unless otherwise specified, the EPI analyses throughout this piece use data on hourly wages of all workers, not just full-time workers. Technically, this is an adjusted gender wage gap measure because the weekly or annual gender wage gap would allow hours of work to differ. An hourly wage gap will not capture the direct effect of differences in hours or weeks worked, but it will capture the indirect effect of wage differences due to the effect of hours on hourly wages. This limited adjustment allows us to compare women's and men's wages without assuming that women, who still shoulder a disproportionate amount of responsibilities at home, would be able or willing to work as many hours as their male counterparts. Examining this "raw" gap, we hope to have a more thorough conversation about the ways a large basket of factors interact and create the wage gap women experience when they cash their paychecks. Of course, our answers to questions about the wage gap also draw on the work of other researchers, who may use different measures. Claudia Goldin for example uses earnings of full-time full-year workers.
4. While there is no fatherhood penalty in the data, there is evidence that fathers who take leave are punished as well (Bertrand, Goldin, and Katz 2009).
5. The median is the value you get if you take a set of numbers, arrange them from highest to lowest, and choose the number that is exactly in the middle. Technically, the median hourly wage is an adjusted gender wage gap measure because the weekly or annual gender wage gap would allow hours of work to differ. For details on the methodology used, see the "Documentation" section of the Economic Policy Institute's State of Working America Data Library (epi.org/data/).
6. The regression-based gap is based on average wages and controls for gender, race and ethnicity, education, experience, and geographic division. The log of the hourly wage is the dependent variable.
7. Economic Policy Institute (EPI) analysis of CPS ORG hourly wage data for workers age 18 to 64 using a simple weighted regression model with only a gender control variable.
8. Here education is measured on a mutually exclusive five-point scale: workers who have less than a high school diploma, those who have completed high school but no further schooling, those who have some college experience but have not earned a college degree, those who have earned a college degree, and those with advanced degrees.
9. Here we add in controls for major industry category, detailed occupation (four digit), and full-time status.
10. Blau and Kahn's modified model includes controls for education, experience, race/ethnicity, region, and metropolitan area residence. Their more fully specified model adds in a series of industry, occupation, and union coverage dummy variables.
11. For our purposes, parents are those with children under age 18.
12. Women and men are limited in these comparisons to individuals between ages 25 and 54. Children are defined as under age 18.
13. EPI analysis of CPS ORG data by 532 occupation categories averaged 2011–2015.
14. Using female weights gives a lower share of 58 percent. Using female weights would mean you would move men out of their occupations.

15. Nontraditional occupations are defined by the Carl D. Perkins Career and Technical Education Improvement Act of 2006 (as well as preceding legislation) as “occupations or fields of work, including careers in computer science, technology, and other current and emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work.”
16. Median weekly earnings for full-time wage and salary workers.

References

- Abraham, Martin, Katrin Auspurg, and Thomas Hinz. 2010. “Migration Decisions within Dual-Earner Partnerships: A Test of Bargaining Theory.” *Journal of Marriage and Family*, vol. 72, no. 4, 876–892.
- Albanesi, Stefania, Claudia Olivetti, and Maria José Prados. 2015. *Gender and Dynamic Agency: Theory and Evidence on the Compensation of Top Executives*. Federal Reserve Bank of New York Staff Reports, no. 718.
- Anderson, Julie, Ariane Hegewisch, and Jeff Hayes. 2015. *The Union Advantage for Women*. Institute for Women’s Policy Research.
- Appelbaum, Eileen, Heather Boushey, and John Schmitt. 2014. *The Economic Importance of Women’s Rising Hours of Work: Time to Update Employment Standards*. Center for American Progress and the Center for Economic and Policy Research.
- Arons, Jessica. 2008. *Lifetime Losses: The Career Wage Gap*. Center for American Progress.
- Babcock, Linda, and Sara Laschever. 2007. *Women Don’t Ask: The High Cost of Avoiding Negotiation – And Positive Strategies for Change*. New York, NY: Bantam Dell.
- Bertrand, Marianne, Claudia Goldin, and Lawrence Katz. 2009. *Dynamics of the Gender Gap for Young Professionals in the Corporate and Financial Sectors*. National Bureau of Economic Research Working Paper No. 14681.
- Blau, Francine D., and Lawrence M. Kahn. 2013. “Female Labor Supply: Why Is the US Falling Behind?” *American Economic Review*, vol. 103, no. 3, 251–256.
- Blau, Francine D., and Lawrence M. Kahn. 2016. *The Gender Wage Gap: Extent, Trends, and Explanations*. National Bureau of Economic Research, Working Paper No. 21913.
- Bowles, Hannah Riley, Linda Babcock, and Lei Lai. 2006. “Social Incentives for Gender Differences in the Propensity to Initiate Negotiations: Sometimes It Does Hurt to Ask.” *Organizational Behavior and Human Decision Processes*, vol. 103, 84–103.
- Brown, Jennifer Erin, Nari Rhee, Joelle Saad-Lessler, and Diane Oakley. 2016. *Shortchanged in Retirement: Continuing Challenges to Women’s Financial Future*. National Institute for Retirement Security.
- Budig, Michelle J. 2014. *The Fatherhood Bonus and the Motherhood Penalty: Parenthood and the Gender Gap in Pay*. Third Way Next.
- Budig, Michelle J., and Paula England. 2001. “The Wage Penalty for Motherhood.” *American Sociological Review*, vol. 66, 204–225.

- Bureau of Labor Statistics (BLS). 2015. *American Time Use Survey Public Data Series*. U.S. Census Bureau.
- Burgess, Noël. 2013. *The Motherhood Penalty: How Gender and Parental Status Influence Judgments of Job-Related Competence and Organizational Commitment*. University of Rhode Island.
- Carl D. Perkins Career and Technical Education Improvement Act of 2006. 2006. 20 U.S.C. 2301 et seq.
- Corbett, Christianne, and Catherine Hill. 2015. *Solving the Equation: The Variables for Women's Success in Engineering and Computing*. American Association of University Women.
- Correll, Shelley J., Stephen Benard, and In Paik. 2011. "Getting a Job: Is There a Motherhood Penalty?" *American Journal of Sociology*, vol. 112, no. 5, 1297–1339.
- Current Population Survey Outgoing Rotation Group microdata (CPS ORG). 2011–2015. Survey conducted by the Bureau of the Census for the Bureau of Labor Statistics [[machine-readable microdata file](#)]. Washington, D.C.: U.S. Census Bureau.
- Davis, Alyssa, and Elise Gould. 2015. *Closing the Pay Gap and Beyond: A Comprehensive Strategy for Improving Economic Security for Women and Families*. Economic Policy Institute, Briefing Paper No. 412.
- Economic Policy Institute. 2016. *State of Working America Data Library*.
- Farber, Henry S., Dan Silverman, and Till von Wachter. 2015. *Factors Determining Callbacks to Job Applications by the Unemployed: An Audit Study*. National Bureau of Economic Research Working Paper No. 21689.
- Featherstone, Liza. 2004. *Selling Women Short: The Landmark Battle for Workers' Rights at Wal-Mart*. New York: Basic Books.
- Garcia, Ann, and Patrick Oakford. 2013. *Unequal Pay Day for Immigrant Women*. Center for American Progress.
- Golden, Lonnie. 2015. *Irregular Work Scheduling and Its Consequences*. Economic Policy Institute Briefing Paper No. 394.
- Golden, Lonnie. 2016 (forthcoming). *Still Falling Short: The Persistence of Involuntary Part-time Work in the US Economy—Trends, Sources, Consequences, and Solutions (Working title)*. Economic Policy Institute report.
- Goldin, Claudia. 2014. "A Grand Gender Convergence: Its Last Chapter." *American Economic Review*, vol. 104, no. 4, 1091–1119.
- Goldin, Claudia, and Cecilia Rouse. 1997. *Orchestrating Impartiality: The Impact of "Blind" Auditions on Female Musicians*. National Bureau of Research Working Paper No. 5903.
- Gould, Elise, and Teresa Kroeger. 2016. "Straight Out of College, Women Make \$4 Less per Hour than Men—and the Gap Is Getting Wider." *Working Economics* (Economic Policy Institute blog), April 3.

- Gould, Elise, and Jessica Schieder. 2016. *“Women’s Work” and the Gender Pay Gap: How Discrimination, Societal Norms, and Other Forces Affect Women’s Occupational Choices—and Their Pay*. Economic Policy Institute.
- Hegewisch, Ariane, and Asha DuMonthier. 2016. *The Gender Wage Gap: 2015; Earnings Differences by Race and Ethnicity*. Institute for Women’s Policy Research.
- Hegewisch, Ariane, and Heidi Hartmann. 2014. *Occupational Segregation and the Gender Wage Gap: A Job Half Done*. Institute for Women’s Policy Research.
- Herbert, Jennifer, and Deborah Stipek. 2005. “The Emergence of Gender Difference in Children’s Perceptions of Their Academic Competence.” *Journal of Applied Developmental Psychology*, vol. 26, no. 3, 276–295.
- Hersch, Joni, and Leslie S. Stratton. 2002. “Housework and Wages.” *The Journal of Human Resources*, vol. 37, no. 1, 217–229.
- Hewlett, Sylvia Ann, Carolyn Buck Luce, Lisa J. Servon, Laura Sherbin, Peggy Shiller, Eytan Sosnovich, and Karen Sumberg. 2008. *The Athena Factor: Reversing the Brain Drain in Science, Engineering, and Technology*. Harvard Business Review.
- Hill, Catherine. 2016. *The Simple Truth about the Gender Pay Gap (Spring 2016)*. Association of American University Women.
- Hwang, Soo Kyeong, and Solomon William Polachek. 2004. *Occupational Self-Selection and the Gender Wage Gap: Evidence From Korea and United States*. Binghamton University.
- Institute for Women’s Policy Research (IWPR). 2016. *Status of Women in the States* (online database). Accessed October 2016.
- The Henry J. Kaiser Family Foundation (KFF). 2016. *Women’s Health Insurance Coverage*.
- Krapf, Matthias, Heinrich W. Ursprung, and Christian Zimmerman. 2014. *Parenthood and Productivity of Highly Skilled Labor: Evidence from the Groves of Academe*. Institute for the Study of Labor (IZA) Discussion Paper No. 7904.
- Kroeger, Teresa, Tanyell Cooke, and Elise Gould. 2016. *The Class of 2016: The Labor Market Is Still Far from Ideal for Young Graduates*. Economic Policy Institute.
- Landivar, Liana Christin. 2013. *Men in Nursing Occupations: American Community Survey Highlight Report*. U.S. Census Bureau.
- Laughlin, Lynda, 2011. *Maternity Leave and Employment Patterns: 2006–2008*. Current Population Report, P70-128. U.S. Census Bureau, Washington, DC.
- Lavy, Victor, and Edith Sands. 2015. *On the Origins of Gender Human Capital Gaps: Short and Long Term Consequences of Teachers’ Stereotypical Biases*. Warwick Economics Research Paper Series No. 1085.
- Levanon, Asaf, Paula England, and Paul Allison. 2009. “Occupational Feminization and Pay: Assessing Causal Dynamics Using 1950-2000 U.S. Census Data.” *Social Forces*, vol. 88, no. 2, 865–892.
- Lockley, Steven W., Laura K. Barger, Najib T. Ayas, Jeffrey M. Rothschild, Charles A. Czeisler, and Christopher P. Landrigan. 2007. *Effects of Health Care Provider Work Hours and Sleep Deprivation*

on Safety and Performance.” *The Joint Commission Journal on Quality and Patient Safety*, vol. 33, no. 11, supplement.

Miller, Claire Cain. 2016. “As Women Take Over a Male-Dominated Field, the Pay Drops.” *New York Times*, March 18.

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 Sciences of the United States of America*, 2012 vol. 109, no. 41, 16474–16479.

National Center for Education Statistics (NCES). 2011–2015. B&B: 93/03 Baccalaureate and Beyond Longitudinal Study. U.S. Department of Education. Computation by NCES PowerStats on February 26, 2016.

National Women’s Law Center (NWLC). 2015. “The Wage Gap by State for Women Overall 2014.”

Neumark, David, Ian Burn, and Patrick Button. 2015. *Is It Harder for Older Workers to Find Jobs? New and Improved Evidence from a Field Experiment*. National Bureau for Economic Research Working Paper No. 21669.

Oldenziel, Ruth. 1999. *Making Technology Masculine: Men, Women, and Modern Machines in America, 1870-1945*. Amsterdam: Amsterdam University Press.

Organisation for Economic Co-operation and Development (OECD). 2015. *The ABC of Gender Equality in Education: Aptitude, Behavior, Confidence*.

Organisation for Economic Co-operation and Development (OECD). 2016. *Employment: Time Spent in Paid and Unpaid Work, by Sex*.

Petersen, Trond, Vermund Snartland, and Eva M. Meyersson Milgrom. 2006. *Are Female Workers Less Productive Than Male Workers?* Institute for Research on Labor and Employment (IRLE) Working Paper 136-06.

Pitts, Melissa M. 2002. *Why Choose Women’s Work If It Pays Less? A Structural Model of Occupational Choice*. Federal Reserve Bank of Atlanta, Working Paper 2002-30.

Pope, Devin G., and Justin R. Sydnor. 2010. “Geographic Variation in the Gender Differences in Test Scores.” *Journal of Economic Perspectives*, vol. 24, no. 2, 95–108.

Reid, Erin. 2015. “Embracing, Passing, Revealing, and the Ideal Worker Image: How People Navigate Expected and Experienced Professional Identities.” *Organization Science*, vol. 26, no. 4, 997–1017.

Ridgeway, Cecilia L., and Shelley J. Correll. 2004. “Unpacking the Gender System: A Theoretical Perspective on Gender Beliefs and Social Relations.” *Gender and Society*, vol. 18, 510.

Ruhm, Christopher J. 2011. “Policies to Assist Parents with Young Children.” *The Future of Children/Center for the Future of Children, the David and Lucile Packard Foundation*, vol. 21, no. 2, 37–68.

Schmitt, John. 2008. *The Union Advantage for Low-Wage Workers*. Center for Economic and Policy Research.

Steinpreis, Rhea E., Katie A. Anders, and Dawn Ritzke. 1999. “The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A National Empirical Study.” *Sex Roles*, vol. 41, nos. 7-8, 509–528.

Williams, Claudia, and Barbara Gault. 2014. Institute for Women's Policy Research (IWPR). *Paid Sick Days Access in the U.S.: Differences by Race/Ethnicity, Occupation, Earnings, and Work Schedule*. IWPR Fact Sheet #B328.

Wiseman, Travis, and Nabamita Dutta. 2016. *Religion and the Gender Wage Gap: A U.S. State-Level Study*.

University of Michigan Institute for Social Research. 2007. *Time, Money, and Who Does the Laundry*. Research Update No. 4.

U.S. Census Bureau. 2016. Income and Poverty in the United States: 2015: *Table A-4. Number and Real Median Earnings of Total Workers and Full-Time, Year-Round Workers by Sex and Female-to-Male Earnings Ratio: 1960 to 2015*.

U.S. Department of Labor Women's Bureau (DOL). 2015. *Older Women Workers and Economic Security*. Women's Bureau Issue Brief.