

# Report on Gender Pay Gap Literature

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Women, generally, earn less than men. Economists usually measure this as the ratio of the median hourly wage of women to the median hourly wage of men. (The median is the 50th percentile --- the middle of the pack.) So, if the median woman is earning \$16 per hour and the median man earns \$19, the ratio is  $16 / 19 = 84\%$ . The gender pay gap is the difference from 100%, so  $100\% - 84\% = 16\%$

There are many factors that can affect pay:

- industry/college-major
- education level
- years employed (called "experience" in economics literature)
- race/ethnicity (unfortunately)
- working odd hours or being on-call
- ability to move for a job
- etc.

Economists can take *some* of these into account using "multivariate regression". The result is the "adjusted gender pay gap". Since economists cannot take everything into account, this isn't the true measure of direct wage discrimination, but it is the best we can do. Two different studies of the adjusted gender pay gap put the value at 8.4% and 13.5%. Glassdoor.com, using a more detailed but non-random data set, put the number at 5.4% (and 7.4% when looking at total compensation).

The unadjusted gender pay gap is 20.4% (U.S. Census Bureau 2016). The value was around 40% until 1980. It dropped until about 2000 and has stayed steady at slightly over 20% since then. This is the unadjusted number, so as women's experience and education got closer to men's, the value has dropped.

I was unable to find a plot of the adjusted gender pay gap over time. This would tell us if direct wage discrimination had decreased.

What causes the difference between the adjusted and unadjusted pay gaps? Some is caused by the gap in education and experience for older female workers. Most likely, the largest factor is the choice of college major/industry/career. Younger women are currently half of all doctorates and more than half of bachelor's and master's degrees. But women are less likely to go into high-paying professions like engineering, the sciences, or business. (Note: Women are represented in biology and the life sciences, including 50.7% of new medical school students.) The papers linked at the end go into some detail on the careers, the issues women students face before entering a field, and the unpleasantness women experience in some male-dominated fields. Thus, while the adjusted gender pay gap is a measure of the direct wage discrimination, there is indirect wage discrimination, where women feel unwelcome to join

high paying fields. But quantifying that is difficult, since women choose careers for a variety of reasons.

Another factor affecting pay is having a child. Women tend to do more of the work caring for and managing children. (They also do it for aging relatives.) After a child, mothers tend to work less (1.3 hours per week less than non-mothers) and fathers work more (2.7 hours per week more than non-fathers). Mothers are less like to work (5.8% fewer than non-mothers) and father are more likely to work (9.7% more than non-fathers). If the father earns more per hour than the mother, it makes sense for the father to specialize in earning money for the household and have the mother specialize in tending to the children. However, this can lead to a cycle of discrimination where mothers do not work, so women are perceived as earning less, so new mothers choose not to work, etc.. Moreover, mothers tend to choose jobs with regular hours, which limits their choice. Similarly, having children in school or not being the breadwinner restricts moving to a new city for a job, further limiting job choice. "Half of working parents (49%) and nearly six in ten single working parents (57%) have chosen to pass up a job they felt would conflict with family obligations." (Harris Polls, June 19, 2014, "Vast Majority of Americans Favor Flexible Workplace Policies")

The gender pay gap is not the same for all women. For low income women, the minimum wage can mean they get paid the same as men. (Note: Don't feel too proud about this. Milton Friedman would argue: if a sexist boss would pay \$8 per hour for a man and \$6 per hour for a woman, a minimum wage of \$7 would prevent the woman from being hired and earning any wage.) Women tend to negotiate their salary less often. For example, of Carnegie Mellon University's new master's graduates, only 7% of the women negotiated their salary while 57% of men did. The salaries of negotiating women were an average 7.6% higher or almost \$4k, which almost matched the average 7.4% difference between men and women's salaries. (Babcock & Laschever, 2003) However, work by Bowles (2005), says that both men and women preferred to work with women who did not negotiate, and the preference was stronger with women than men! So, women have a catch-22: negotiation increases salary but may have other negative repercussions.

Race is a factor too. Black men generally earn less than white men and, when adjusted for education, experience, and some other factors, their gap in wages is 22%. In fact, that values is similar to white women's gap with white men: 22.5%. Black women seem to get both effects: their gap is 34.2%. Hispanic men have a gap of roughly 15% and, for Hispanic women, it is roughly 33%. So, both black and Hispanic women get paid \$2 for every \$3 paid to white men with similar experience and education. (Note: The numbers in this paragraph do not adjust for industry/college-major/job title.)

A curious result in gender pay is that the ride-sharing company Uber has a gender pay gap of 7%. Uber is often considered an "ideal marketplace" by economists, since anyone can participate and all the drivers have the same contract with Uber. Still, drivers' earnings differ by gender. Researchers put this down to 4 reasons: men drive faster, women stay closer to their home, women avoid high-crime neighborhoods that have many bars, and men have more experience. Men have more experience

because they drive more often and stay on Uber longer than women. An experienced driver can earn at least 14% on Uber than a new one, by choosing times and places and by canceling unprofitable trips. The paper does not examine why women, who make up 29% of new Uber drivers, quit faster than men do. (Note: Women did decrease the gap by 0.49% by choosing more profitable times to drive than men, particularly Sunday afternoon. (Think NFL football.).)

What can be done?

Well, the "obvious" solution for an economist would be to give every woman a cash payment, either equal to the average dollar value of the gap (e.g. \$2k) or as a multiple of their own salary (e.g., 7%). A similar thing can be done for black men, black women, Hispanic men, Hispanic women, homosexuals, transgendered, brunets, autistic, etc.. Economically, the idea works. Those in the job market still have an incentive to work and to find higher paying jobs. Employers have an incentive to hire women (or members of other groups) because they get the same productivity at a lower cost to them. However, in practice, the exact calculation of the amounts and the decision which of groups get identified would be a political nightmare.

A more realistic way to solve this is by lawsuits. "Equal pay for equal work" was part of the Equal Pay Act of 1963. I'm not a lawyer, so you probably have better knowledge about what's necessary to sue for sexual discrimination. But these lawsuits require data about salaries and one radical idea is to make everyone's salary public knowledge. This is already the case for most state jobs. A handful of companies, like Whole Foods and Value, allow salaries to be known internally. Most don't. A 2010 survey found 19% of companies prohibited discussing salaries and another 31% discouraged it. A softer version of this transparency was required by the UK in April 2017. Companies with over 250 employees must publish a report with the average and median pay of men and women. But a company that mostly employs computer scientists, which is a high-pay field dominated by men, will have a large pay gap even if their hiring is non-discriminatory. The UK data is not enough to bring a lawsuit. Reports do not need to have every salary or identify every person, but they need details on every job title, split by gender.

The proposed "Paycheck Fairness Act" (S. 819, H.R. 1869) includes a provision that prevents employers from retaliation against employees who discuss their wages. (Among many other provisions) The website Glassdoor.com allows employees to anonymously post their wages on the site. (I don't know of any lawsuits that cite Glassdoor's data, but I'd be surprised if the website hasn't inspired some lawsuits.)

Transparency laws not only helps the ill-treated bring lawsuits, it helps researchers gather better data. That data can help us identify where discrimination is manifesting in employment.

A more difficult solution is to change the culture. If women don't feel welcome in computer science classes or computer science workplaces, they will not go into computer science. And the US will lose

out by not making the most of their talents. Better preparation in high school is important. Research has shown girls-only math classes to be valuable in high school. (Although, I wonder if that prepares women for learning with men in later classes.) At the college level, bonuses could be given for women graduates who chose to become professors and act as role models. Governments have advertised professions in the past, for example, by publicizing famous women in the field.

Companies can help. They can do bias training. They can do "blind auditions", where interviewers do not know the gender or race of the candidate. When orchestras switched to having auditioners play behind a screen, where the evaluators could not see the gender of the auditioner, women saw a large jump in job offers.

Workplace policies can also improve the gender pay gap. Women are more likely to take care of children or relatives. So, unpaid leave and flexible hours will allow them to compete for more jobs.

The CAE report from April 2015 suggests raising the minimum wage. (It also suggests reforming overtime regulations. The overtime regulations were updated by the Obama administration in May 2016.) More women than men have a salary close to the minimum wage, so raising the minimum wage should decrease the gap. The gap gets smaller but this really isn't a "cure" all women. And, since more women are working near the minimum wage, more women would be likely to lose their job by increasing it. (NOTE: It is not as simple as that and the minimum wage is a complex issue that would require its own report to explain.)

Unions can help, because salaries are negotiate as a group and enforced by the union.

Women can try to learn how to negotiate ... and decide if they want to accept the cultural consequences of negotiating.

Unemployment benefits or universal basic income will give more women a better negotiating position: being able to wait for a better offer.

I didn't find an exhaustive list of all measure that could help shrink the gender pay gap. There may be others I haven't considered.

Economics lesson:

In some of the papers, you'll see "lifetime earnings". It's a bad metric. It sounds wonderful to say "this can cost each woman hundreds of thousands of dollars". First, there's inflation involved. Second, it's not clear when lifetime earnings should be measured at. Third, it isn't clear if the metric is computed for all-ages using this year's statistics or if younger ages use previous years' statistics. It's bad. If you need a life-time measure, there's a good one on the top of page 2 of the CAE report. It shows women

aged 65 with 40% less in their IRA retirement saving accounts than men. It's not a clear picture of what's going on now – because those women earned less years ago – but it's a clear specific number.

If you want a big number, there are 48 million women working full-time at a median salary of \$40k. If we take the conservative direct discrimination number of 7.4% of total compensation from the Glassdoor report, that's \$142B per year that women are missing out on.

#### References:

CAE report. It's okay.

[https://obamawhitehouse.archives.gov/sites/default/files/docs/equal\\_pay\\_issue\\_brief\\_final.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/equal_pay_issue_brief_final.pdf)

Glassdoor report. It's not a random sample of data, but it is accurate down to job title.

<https://www.glassdoor.com/research/app/uploads/sites/2/2016/03/Glassdoor-Gender-Pay-Gap-Study.pdf>

EPI report. Uses unadjusted gender wage gap a lot, which isn't as good as the adjusted.

<https://www.epi.org/publication/what-is-the-gender-pay-gap-and-is-it-real/>

EPI report for data on black men and black women. Adjusted, but not for industry/college major.

<https://www.epi.org/blog/racial-gaps-in-wages-wealth-and-more-a-quick-recap/>

EPI report for data on Hispanic men and women. Adjusted, but not for industry/college major.

<https://www.epi.org/files/pdf/147311.pdf>

Dallas Federal Reserve Bank. Texas Latinos vs. all US Latinos. Immigrants vs. native-born.

<https://www.dallasfed.org/~media/documents/research/swe/2010/swe1001c.pdf>

Research paper on Uber's gender pay gap.

<https://web.stanford.edu/~diamondr/UberPayGap.pdf>

Webpage on UK's gender wage gap reporting requirements.

<https://www.uk.mercer.com/our-thinking/explaining-the-uk-gender-pay-gap-reporting-regulations.html>

Wikipedia page of "Equity Pay Act of 1963"

[https://en.wikipedia.org/wiki/Equal\\_Pay\\_Act\\_of\\_1963](https://en.wikipedia.org/wiki/Equal_Pay_Act_of_1963)

Wikipedia page of proposed "Paycheck Fairness Act".

[https://en.wikipedia.org/wiki/Paycheck\\_Fairness\\_Act](https://en.wikipedia.org/wiki/Paycheck_Fairness_Act)