The Gender Pay Gap

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During the 1970s, when the Equal Rights Amendment campaign was at its peak, proponents lamented that women earned only 60 cents for every dollar that men earned, implying a "gender pay gap" of 40 cents (or 40 percent). Although the gender pay gap had stood at roughly that level for decades, and although the Amendment was never passed, during the 1980s a striking thing happened: the "raw" pay gap shrunk rapidly, and it has continued to shrink to this day, although the pace of change slowed in the 1990s.

Interestingly, however, whereas in 1979, a substantial portion of the gender pay gap could be accounted for by the combined effect of traditional measures of human capital—education and labor market experience, particularly women's lesser amount of labor market experience—today almost none of it can. Gender differences in industry and occupation distributions continue to be important sources of the gender pay gap. This raises some important questions: What role does gender discrimination play in determining today's wage gap? What other factors contribute to gender differences in wages?

THE GENDER PAY GAP AND ITS CAUSES

Figure 1 (next page) shows estimates of the gender wage gap for full-time workers from the Current Population Surveys (CPS) for selected years from 1979 to 2004. The raw wage gap started at 35 percent in 1979, fell sharply (by nearly eight percentage points) over the next decade, and then declined at a slower pace (by four percentage points) to 1998. Between 1998 and 2004, the pace of change picked up again: The wage gap declined by 4.5 percentage points in just six years—a similar rate of decline to that which had existed in the 1980s. By 2004, the wage gap was 18 percent. What creates these wage gaps, and what influences their evolution?

Economists analyze the gender wage gap using wage regressions—that is, statistical analyses specifying the relationship between wages and productivity-related characteristics for men and women. These regressions show that some of the raw wage gap is due to differences in the measured characteristics of men and women. For example, in 1979, while male and female full-time workers had about the same level of

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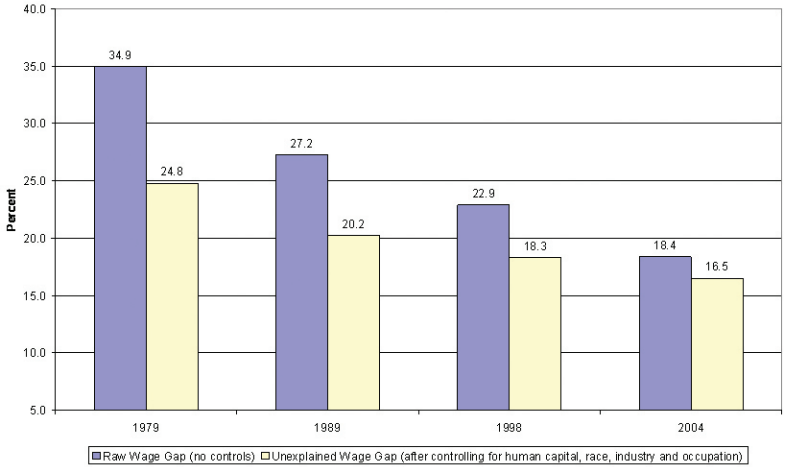
Figure 1: Gender Wage Gaps, Based on Average Hourly Earnings of Full-Time Workers (Data from the Current Population Survey)



Entries are percentages of male wages, based on authors' calculations. Controls include: years of schooling, potential experience, and its square; and 21 industry and 17 occupation dummy variables. The years refer to the period during which wages and salaries were earned. Those earning less than $2 or more $200 per hour in 2000 dollars (PCE deflator) were excluded.

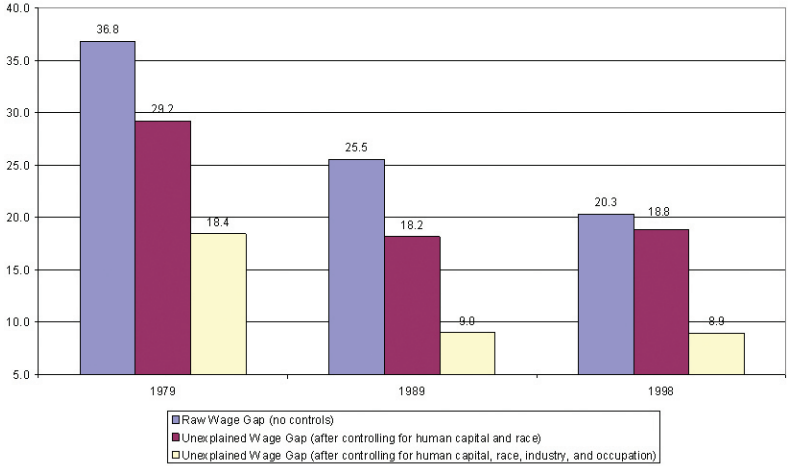
education, on average, male workers tended to have slightly more potential experience (years elapsed since completing their schooling), providing one nondiscriminatory reason that their pay was higher. Male workers were also a bit more likely to be white than female workers are, and whites earn more than nonwhites on average (a whole different kind of pay gap, potentially explained in part by a different kind of discrimination). Moreover, women were more likely to work in lower-paying occupations and industries, as teachers and clerical or service workers, for example, rather than as managers or in high-paying craft or operator jobs. In 1979, about ten cents of the wage gap was explained by these factors, particularly occupation and industry differences. In 2004, by contrast, only two cents was explained.

The CPS data set, disappointingly, does not tell us about men's and women's work experience—how many years they actually worked in the past. Accordingly, in Figure 1, we use "potential" experience, a variable calculated from information about the individual's age and educational attainment. However this variable may not accurately approximate work experience, particularly for women: Traditionally, women moved in and out of the labor force depending on the needs of their families, meaning that they might end up having far less work experience than they had the potential to attain. Thus, having a good measure of prior work experience is extremely important in studying gender differences in pay. That is why, in a recent study, we used the Michigan Panel Study of Income Dynamics (PSID), the only nationally-representative database with information on *actual* work experience, to study this issue.

As may be seen in Figure 2 (next page), using the PSID data, we found a similar pattern of declining raw gender wage gaps for full-time workers, as we had using the CPS data included in Figure 1, over 1979–98, the period covered by our study.

However, there is also a crucial contrast: Gender differences in measured human capital (education and experience) do not explain much of the gender wage gap that is displayed if we use the CPS data and the potential experience measure. (Thus, we do not show these effects separately in Figure 1). Yet we do find these differences to be important in some years in the PSID. Controlling for education and actual work experience lowered the wage gap from 37 to 29 percent in 1979, and from 26 to 18 percent in 1989, chiefly due to the control for

Figure 2: Gender Wage Gaps, Based on Average Hourly Earnings of Full-Time Workers (Data from the Panel Study of Income Dynamics)



Entries are percentages of male wages, based on a study by Francine Blau and Lawrence Kahn. Controls for human capital include years of schooling, dummy variables for college and advanced degrees, full-time and part-time experience and their squares; controls for occupation and industry include 25 industry and 19 occupation dummy variables, and a control for collective bargaining coverage. The years refer to the period during which wages and salaries were earned. Those earning less than $1 or more than $250 per hour in 1983 dollars (PCE deflator) were excluded.

gender differences in work experience. However, in 1998, the wage gap, controlling for human capital and race, was only slightly less than the raw gap; in other words, the traditional human capital measures explained almost none of the raw wage gap. This outcome occurred because, among full-time workers in 1998, women's higher education levels roughly counterbalanced their lower experience levels, so that in the end, the effect of these two factors was more or less a wash.

Figure 2 also shows what happens to the unexplained wage gap when we control both for human capital and for sector (industry and occupation). If women opt to take jobs in lower-paying occupations and industries, or are restricted by discrimination to such jobs, that too could explain the wage gap. Adding these controls makes a substantial difference in all years. Thus, with the full set of controls we have described, the unexplained wage gap had fallen to nine percent by 1989, where it remained in 1998.

The unexplained gap, with these controls, may be compared to our findings from the CPS in Figure 1, which shows larger unexplained gaps of 17 to 18 percent for 1998 and 2004. While the PSID data rely upon better measures of experience, the CPS data are more timely and have larger sample sizes. Thus, both sets of results are of interest, and both show an unexplained wage gap—of nine to 17 percent in the most recent year.

DO PAY GAPS REFLECT DISCRIMINATION?

Do these results mean that discrimination against women currently accounts for a pay gap of nine to 17 cents on the dollar, or nine to 17 percent? One might be tempted to think so. After all, if white women with two years of college education who are in managerial jobs in the transportation equipment industry make nine to 17 cents less on the dollar than white men in the same position, then discrimination seems a likely answer. Discrimination may not be the culprit, however. Perhaps omitted factors such as working conditions or motivation explain the remaining pay gap. Or, perhaps women work at lower levels of the managerial hierarchy and all employees, women or men, are paid less in these lower-level positions. In that case, the "unexplained" wage gap of 9–17 percent could overstate discrimination.

Before we become too complacent, however, we should note that discrimination could just as easily result in more than nine to 17 cents of disparity. For example, discrimination can affect

employer hiring and promotion policies and decrease women's employment in highly-paid occupations and industries. Put differently, if we look at a man who is a manager and earns much more than a woman clerical worker, a regression might suggest that he earns more for being a manager, not for being a man. But what if he was made a manager *because* he was a man? Or, thinking more broadly, if discrimination lowers women's wages relative to men's, it could influence the decisions couples make as to who will drop out of the labor force to care for children, whose career will determine the location of the family, etc. The anticipation of such discrimination or experience with it could influence women's incentives to invest in education, how much experience they accumulate, and what industries and occupations they decide to enter.

Thus, findings from wage regressions are suggestive, but they do not give us definite answers. The case that gender discrimination is still real, however, is bolstered by research looking for direct evidence using an experimental approach.

David Neumark analyzed the results of a hiring "audit" in which male and female pseudo-job-seekers were given similar résumés and sent to apply for waiter or waitress jobs at the same set of Philadelphia restaurants. In high-priced restaurants where earnings of workers are generally higher than in the other establishments, a female applicant's probability of getting an interview or an offer was substantially lower than a male's. A second study by Claudia Goldin and Cecilia Rouse examined the impact of the "natural experiment" in which major symphony orchestras in the United States adopted "blind" auditions. In a blind audition, a screen is used to conceal the identity of the candidate. Using data from actual auditions, the authors found that the screen substantially increased the probability that a woman would advance out of preliminary rounds and be the winner in the final round. Both of these studies suggest the existence of discrimination in particular sectors, but, of course, they do not tell us how extensive its effects are in the economy generally.

THE EVOLUTION OF THE GENDER WAGE GAP OVER TIME

As we have seen, the gender wage gap fell sharply in the 1980s and then declined at a slower pace in the 1990s. The pace of change picked up again after that. What accounts for the increase in women's pay relative to men's over time?

In our recent study, which focused on the 1979–98 period, we found that improvements in women's human capital (for instance, through greater education and experience) accounted for some of the increase, with declining gender differences in experience playing a larger role in the 1980s, and women's rising relative educational attainment playing a larger role in the 1990s. We found that the rising occupational attainment of women relative to men also contributed to the increase, as women moved out of clerical and service jobs, and into managerial and professional occupations, and as men moved out of (or lost) relatively high-paying craft and operator jobs (the latter especially in the 1980s).

In addition, in the 1980s, but not the 1990s, our analysis indicated that a major reason for the convergence in men's and women's wages was that the "unexplained" gender wage gap declined sharply. This suggests that, during that decade, women improved their unmeasured skills relative to men, or that discrimination against them decreased. Indeed both of these factors may have played a role. Women may also have benefited from a shift in labor market demand favoring them, particularly in the 1980s. There has been a rise in the demand for white-collar, relative to blue-collar, workers,

in part due to technological change. Women are much more likely than men to work in white-collar jobs, and therefore such a development is likely to have benefited women relative to men.

What are we to make of the recent increase in the rate of decline in the gender wage gap? It may signal a resumption of a strong long-run trend toward convergence of women's and men's pay, or it may prove to be of only short duration. One short-term factor could be the recession of 2001 and the relatively high unemployment rates that lingered in its aftermath. The demand for male workers tends to be more cyclically sensitive than that for female workers, due to their greater concentration in blue-collar jobs and durable goods manufacturing industries.

CONCLUDING COMMENTS

What does the future hold now that women earn about 80 cents for every dollar that men earn, implying a gender pay gap of 20 percent? While this represents a considerable gain from the 1970's gender pay gap of 40 percent, further gains for women are certainly possible. Women's education has been rising relative to men's, and, indeed, among younger cohorts women are now more likely to graduate college than men. This trend shows no signs of abating. And, technological change, which has likely raised women's relative wages through demand effects, will probably continue and could even accelerate.

On the other hand, the gender pay gap seems unlikely to vanish in the near term. For one thing, women continue to confront discrimination in the labor market, and, although its extent seems to be decreasing, it is unlikely to be completely eliminated soon. In addition, at least some of the remaining pay gap is surely tied to the gender division of labor in the home. Women still retain primary responsibility for housework and child care in most American families. This pattern has been slowly changing as families respond to rising labor market opportunities for women that increase the opportunity cost of such arrangements, as well as the increasing prevalence of policies, both voluntary and government-mandated, that facilitate the integration of workers' job and family responsibilities. Of course, how far such changes will go is difficult to predict.

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