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Research Summaries

The Gender Pay Gap

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Over the past 25 years, the gender pay gap has narrowed dramatically in the United States. In our recent research, we analyze the sources of the relative wage gains for women in the United States, and we study the determinants of gender differences in pay using international comparisons of the gender gap.

Trends over the 1980s and 1990s in the United States

After a long period of constancy at about 60 percent, the gender pay ratio in the United States started to increase in the late 1970s. The pace of change was especially rapid during the 1980s, but it appears to have slowed considerably during the 1990s. We examine the sources of the robust trends of the 1980s in detail and investigate the reasons for the slower gains for women during the 1990s.

Looking first at the 1980s experience, it is striking that the wage gains for women occurred during a time when overall wage inequality increased substantially. This raises the question of how women were able to narrow the gender gap in pay when overall labor-market trends were increasingly unfavorable for low-wage workers in general, and women were disproportionately represented at the bottom of the wage distribution.

In analyzing the decline in the gender pay gap, it makes sense to start with the two major explanations economists have developed for group differences in pay: differences in human capital investments or other qualifications; and labor market discrimination — differences in the treatment of men and women who are equally qualified. These two explanations are not necessarily mutually exclusive, and indeed considerable evidence supports each explanation for gender pay differences at any particular point in time. There also may be important feedback effects: discrimination in the labor market may lower women's incentives to invest in their qualifications, and women's lower qualifications reinforce statistical discrimination against them.[1]

Building on earlier work by Chinhui Juhn, Kevin M. Murphy, and Brooks Pierce, we argue that to explain trends over time in the gender pay differential, we also must consider a third factor: overall trends in wage structure.[2] Wage structure refers to the returns the market sets for various skills or for employment in particular occupations or industries. Although wage structure was previously overlooked, both the human capital and the discrimination explanations of the pay gap imply that it plays a potentially important role in determining how women fare over time. For example, despite recent pay gains, women still have less work experience than men, on average. This means that if the market return to experience rises over time, women will be increasingly disadvantaged by having less experience. In addition, both the human capital and the discrimination models suggest reasons why women and men are likely to be employed in different occupations and perhaps in different industries. This implies that an increase in the rewards for employment in "male" occupations or industries will further place women at an increasing disadvantage. In fact, the patterns of rising overall wage inequality for both men and women have been associated with precisely such increases in the market rewards to skill and to employment in high-paying male sectors. This means that, during the 1980s, women as a group were essentially "swimming upstream" in a labor market that was growing increasingly unfavorable for workers with below-average skills — in this case experience — and for workers employed in disproportionately female-dominated occupations and industries.

How can we explain the decrease in the gender pay gap in the 1980s, when overall shifts in labor market returns were working against women as a group? Our analysis of this period, using data from the Panel Study of Income Dynamics,[3] indicates that women were able to more than overcome the effect of adverse shifts in overall wage structure (that is rising labor-market returns to skills and to employment in high-paying male sectors) on their relative wages by improving their qualifications relative to men. So,

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although on average women continue to have less labor-market experience than men, they have narrowed the gender difference in experience considerably. They also have upgraded their occupations relative to men's, as they moved out of clerical and service occupations and into professional and managerial jobs.[4] Women also have benefited from a decrease in the "unexplained" pay gap. Such a shift may reflect an upgrading of women's unmeasured labor-market skills, a decline in labor market discrimination against women, or a shift in labor market demand favoring women over men. Indeed all of these factors may well have played a role, and all appear credible during this period.

Since women improved their relative level of measured skills, as shown by the narrowing of the gap in full-time job experience, it is plausible that they also enhanced their relative level of unmeasured skills. For example, women's increasing labor-force attachment may have encouraged them to acquire more on-the-job training. There is also evidence that women have increasingly acquired more market-oriented formal education, reducing gender differences in college majors and in professional education. The male-female difference in SAT math scores also has declined.[5]

It may seem less credible that discrimination against women declined in the 1980s than that women's unmeasured human capital improved, because the federal government actually scaled back its antidiscrimination enforcement effort during the 1980s.[6] However, as women increased their commitment to the labor force and improved their job skills, the rationale for statistical discrimination against them diminished. Thus, it is plausible that this type of discrimination decreased. And in the presence of feedback effects, the revised views of employers can generate further increases in women's wages by raising the returns to investments in job qualifications and skills. To the extent that one does not fully control for such job qualifications in the statistical analysis used to explain the change in the gender wage gap, they may also help to explain the decline in the unexplained gap.

Finally, the underlying labor-market demand shifts that widened wage inequality during the 1980s may have favored women relative to men in certain ways and thus, also may have contributed to a decrease in the unexplained gender gap. There is some evidence that technological change has produced intra-industry demand shifts that have favored white-collar workers in general.[7] Given the traditional male predominance in blue-collar jobs, one might expect this shift to benefit women more than men and partly to offset the large increase in female labor supply that also occurred during this time.[8] In addition, increasing computer use favors women both because they are more likely than men to use computers at work and because computers restructure work in ways that de-emphasize physical strength.[9]

The framework we used to obtain these results assumes that labor market returns to skills and to employment in particular sectors — as estimated from a sample of male workers — are determined by forces outside the gender pay gap and are a useful indicator of the market rewards for both men and women.[10] This assumption is consistent with evidence that widening wage inequality in the 1980s and 1990s was significantly affected by economywide forces, including technological change, international trade, the decline in unionism, and the falling real value of the minimum wage.[11] And increases in wage inequality during this period were similar for men and women, suggesting that both groups may have been affected similarly by these trends.[12] This implies that our assumption is reasonable. However, under some circumstances, the gender pay gap could influence male wage inequality. For example, suppose there is a fixed overall hierarchy of jobs and that jobs determine wages. In this case, as women succeed in narrowing the gender pay gap by moving up in the overall distribution of jobs (and wages), men who are displaced move down resulting in widening male inequality. Nichole M. Fortin and Thomas Lemieux argue that recent trends in the gender pay gap and male wage inequality are consistent with such a model.[13] In this view, women's gains to some extent have come at the expense of men's losses.

Unfortunately, the data are not yet available to undertake the type of detailed study for the 1990s that we summarize above for the 1980s. Most important, datasets that contain information on actual labor-market experience, a crucial variable for analyzing the male-female pay gap, have not yet been released for a period that covers most of the decade. However, we have explored what could be learned from preliminary analyses of available data, specifically the Current Population Surveys.[14] We find that changes in the composition of the male and female workforces by age and education cannot explain the slowing of convergence in the gender pay gap in the 1990s. Nor does it appear that the effect of changes in wage structure on changes in the gender gap was more adverse in the 1990s than in the previous decade. These findings suggest that the slower progress of women during the 1990s was probably attributable to one or more of the following factors: less rapid improvement in women's qualifications (such as experience) relative to men's in

the 1990s than in the 1980s; a smaller decline in discrimination against women in the 1990s than in the 1980s; and less favorable demand shifts for women in the 1990s than in the 1980s. Future research is needed to sort out these explanations.

International Differences in the Gender Pay Gap

Our work on international differences in the gender pay gap addresses the following paradox: while the relative qualifications of U.S. women are high compared with those of women in other countries, and the United States has had a longer and often stronger commitment to antidiscrimination laws than most industrialized nations, the United States has long been among the countries with the largest gender gaps. The especially rapid narrowing of the gender pay gap that occurred in the United States during the 1980s moved it closer to the middle of the pack, but one might still question why U.S. women do not rank higher relative to their counterparts in other advanced countries.

Our analysis of these international differences – particularly the relatively low ranking of the United States – indicates that wage-setting institutions differ considerably by country. These differences have implications for wage structures and hence, for wage inequality and the gender-earnings ratio. The manner in which wages are determined may be highly centralized, as is true in many other OECD countries. These countries have very strong unions; and wages in both the union and nonunion sector are often determined largely by a collective bargaining process. Many collective bargaining agreements extend to nonunion workers, and nonunion firms voluntarily imitate union pay structures.[15] This contrasts with the highly decentralized pattern of wage setting in the United States.

Applying techniques similar to those we use to analyze trends over time in the gender gap, we find that the higher level of wage inequality in the United States than in a number of other advanced countries is the primary reason for its relatively high gender pay gap.[16] As noted earlier, this approach is essentially an accounting technique and does not explicitly test such assumptions as the applicability of the same set of estimated labor-market returns to both men and women. However, in another paper, we report the results of a more direct test for the effect of overall male inequality on the gender pay gap across a number of countries in a regression context. This research design also allows us to determine whether our earlier results were specific to the U.S. situation compared to other countries or were more generally true for a broad range of international comparisons.

Our findings are strikingly similar to those obtained using the Juhn-Murphy-Pierce decomposition technique. Specifically, using International Social Survey Programme microdata for each country and year from 1985-94 (100 country-year observations in all), we find that higher inequality of male wages (controlling for the distribution of male productivity characteristics) and higher female labor supply had large, statistically significant, positive effects on the gender pay gap. The differences in inequality of male wages were quantitatively more important than female labor supply in explaining differences across countries in the size of the gap. Based on these regression estimates, the contribution of higher wage inequality and higher female labor supply in the United States to the larger U.S. gender pay gap can be estimated. Both factors help explain the higher U.S. gap, with wage inequality being considerably more important than female labor supply. It is interesting to note that because these variables are more than sufficient to account for the higher U.S. gender pay gap, the implication is that unmeasured factors — perhaps higher female qualifications or less discrimination — favor U.S. women compared to their counterparts in other countries.[17]

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[1] *For a summary of this evidence, see F.D. Blau and L.M. Kahn, "Gender Differences in Pay," NBER Working Paper No. 7732, June 2000, and* Journal of Economic Perspectives *14, (Fall 2000), pp. 75–99.*

[2] *C. Juhn, K.M. Murphy, and B. Pierce, "Accounting for the Slowdown in Black-White Wage Convergence," in* Workers and Their Wages, *M. Kosters, ed. Washington, DC: AEI Press, 1991; F.D. Blau and L.M. Kahn, "Rising Wage Inequality and the U.S. Gender Gap,"* American Economic Review Papers and Proceedings, *84 (May 1994), pp. 23–8; F.D. Blau and L.M. Kahn, "The Impact of Wage Structure on Trends in U.S. Gender Wage Differentials 1975-1987," NBER Working Paper No. 6078, June 1997, and F.D. Blau and L.M. Kahn, "Swimming Upstream: Trends in the Gender Wage Differential in the 1980s,"* Journal of Labor Economics, *15 (January 1997), pp. 1–42.*

[3] *F.D. Blau and L.M. Kahn, "Swimming Upstream."*

[4] *In this work, we analyze the impact on women's relative wages of shifts in broad (one digit) occupations and industries. For a description of the trends in occupational segregation by sex over the 1970s and 1980s, see F.D. Blau, P. Simpson, and D. Anderson, "Continuing Progress? Trends in Occupational Segregation over the 1970s and 1980s," NBER Working Paper No. 6716, September, 1998, and* Feminist Economics *4, (Fall 1998), pp. 29–71.*

[5] *For evidence on these trends, see F.D. Blau, M.A. Ferber, and A.E. Winkler, Chapter 6, "Differences in Occupations and Earnings: The Human Capital Model," in* The Economics of Women, Men, and Work. *4th ed., forthcoming from Prentice-Hall.*

[6] *J.S. Leonard, "Women and Affirmative Action,"* Journal of Economic

Perspectives, *3 (Winter 1989), pp. 61–75.*

[7] *E. Berman, J. Bound, and Z. Griliches, "Changes in the Demand of Skilled Labor Within U.S. Manufacturing Industries: Evidence From the Annual Survey of Manufacturing,"* Quarterly Journal of Economics, *109 (May 1994), pp. 367–97.*

[8] *F.D. Blau and L.M. Kahn, "Swimming Upstream" and "Gender Differences in Pay."*

[9] *A.B. Krueger, "How Computers Have Changed the Wage Structure: Evidence from Microdata, 1984–1989,"* Quarterly Journal of Economics, *108 (February 1993), pp. 33–60; B.A. Weinberg, "Computer Use and the Demand for Female Workers,"* Industrial and Labor Relations Review, *53 (January 2000), pp. 290–308; and F. Welch, "Growth in Women's Relative Wages and in Inequality Among Men: One Phenomenon or Two?"* American Economic Review, *90 (May 2000), pp. 444–9, in which Welch emphasizes the growing importance of "brains" relative to "brawn" as a factor narrowing the gender pay gap.*

[10] *We use male wage regressions to estimate the prices of (returns to) the various characteristics.*

[11] *See, for example, L.F. Katz and D.H. Autor, "Changes in the Wage Structure and Earnings Inequality," in* Handbook of Labor Economics, *vol. 3A, O.C. Ashenfelter and D. Card, eds. Amsterdam: Elsevier, 1999.*

[12] *See, for example, F.D. Blau, "Trends in the Well-Being of American Women, 1970–1995," NBER Working Paper No. 6206, October 1997, and* Journal of Economic Literature, *36 (March 1998), pp. 112–65; and F.D. Blau, M.A. Ferber, and A.E. Winkler, Chapter 8, "Recent Developments in the Labor Market: Their Impact on Women and Men," in* The Economics of Women, Men, and Work.

[13] *N.M. Fortin and T. Lemieux, "Are Women's Wage Gains Men's Losses? A Distributional Test,"* American Economic Review, *90 (May 2000), pp. 456–60.*

[14] *F.D. Blau and L.M. Kahn, "Gender Differences in Pay."*

[15] *See for example, F.D. Blau and L.M. Kahn, "Institutions and Laws in the Labor Market," in* Handbook of Labor Economics, *vol. 3A, O.C. Ashenfelter and D. Card, eds. Amsterdam: Elsevier, 1999; F.D. Blau and L.M. Kahn, "International Differences in Male Wage Inequality: Institutions Versus Market Forces," NBER Working Paper No. 4678, September 1996, and* Journal of Political Economy, *104 (August 1996), pp. 791–837; L.M. Kahn, "Collective Bargaining and the Interindustry Wage Structure: International Evidence,"* Economica, *65 (November 1998), pp. 507–34; F.D. Blau and L.M. Kahn, "Do Cognitive Test Scores Explain Higher U.S. Wage Inequality?" NBER Working Paper No. 8210, April 2001; F.D. Blau and L.M. Kahn,* U.S. Labor Market Performance in International Perspective: The Role of Labor Market Institutions, *forthcoming from Russell Sage Foundation.*

[16] *F.D. Blau and L.M. Kahn, "Wage Structure and Gender Earnings Differentials: An International Comparison."* Economica, *63 (May 1996), pp. S29–S62; F.D. Blau and L.M. Kahn, "The Gender Earnings Gap: Some International Evidence," in* Differences and Changes in Wage Structures, *R.B. Freeman and L.F. Katz, eds. Chicago: University of Chicago Press, 1995; and F.D. Blau and L.M. Kahn, "Gender Differences in Pay."*

[17] *F.D. Blau and L.M. Kahn, "Understanding International Differences in the Gender Pay Gap," NBER Working Paper No. 8200, April 2001.*