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WHERE ARE WE IN THE ECONOMICS  
OF GENDER? THE GENDER PAY GAP

Francine D. Blau

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**ABSTRACT**

Empirical research on gender pay gaps has traditionally focused on the role of gender-specific factors, particularly gender differences in qualifications and differences in the treatment of otherwise equally qualified male and female workers (i.e., labor market discrimination). This paper explores the determinants of the gender pay gap and argues for the importance of an additional factor, wage structure, the array of prices set for labor market skills and the rewards received for employment in favored sectors. Drawing on joint work with Lawrence Kahn, I illustrate the impact of wage structure by presenting empirical results analyzing its effect on international differences in the gender gap and trends over time in the gender differential in the U.S.

Francine D. Blau  
School of Industrial and Labor Relations  
Cornell University  
265 Ives Hall  
Ithaca, NY 14853-3901  
and NBER

While the gender pay gap has been an important focus of modern economists concerned with the economics of gender, it was not necessarily the primary concern of early commentators on gender inequities. For example, in the 19th century, with few married women employed outside the home, observers like American feminist, Charlotte Perkins Gillman (1898), and Marxist, Friedrich Engels (1884), focused on the gender division of labor itself and espoused the emancipating effects of women's participation in market work. Among economists as well as the general public, interest in gender issues including the gender pay gap has proceeded hand-in-hand with the growth in women's labor force participation. As women have come to comprise a larger share of the paid labor force and as market work has loomed larger in the typical woman's life, interest in the determinants of gender differences in labor market outcomes has also grown.

Of these labor market outcomes, the wage is of fundamental importance as a major determinant of economic welfare for employed individuals, as well as of the potential gain to market employment for those not currently employed. Further it serves as a significant input into a myriad of decisions ranging from labor supply to marriage and fertility, as well as a factor influencing bargaining power and relative status within the family. Thus, I focus here on wages in confidence that I am examining a question of considerable interest to economists and of considerable importance to women's economic well-being. However, I readily acknowledge that wages are by no means the whole story even as a measure of economic well-being.

Research on the gender pay gap has traditionally focused on the role of what might be termed, gender-specific factors, particularly gender differences in qualifications and differences in the treatment of otherwise equally qualified male and female workers (i.e., labor market discrimination). An innovative feature of recent research on gender and race differentials has been to integrate the analysis of the gender pay gap as well as other demographic differentials

into the study of wage structure in general.<sup>1</sup> Wage structure describes the array of prices set for various labor market skills (measured and unmeasured) and rents received for employment in particular sectors of the economy.

Wage structure is potentially of considerable importance in determining the relative earnings of groups like women who tend on average to have lower skills or to be located in lower paying sectors of the economy. In this paper I will first consider the determinants of gender differentials, highlighting the role of wage structure. I will then illustrate the impact of wage structure by summarizing some of my recent work with Lawrence Kahn on international differences in male-female wage differentials (Blau and Kahn 1992a, Blau and Kahn 1995, and Blau and Kahn 1996), and on trends over time in gender differentials in the U.S. (Blau and Kahn 1994, Blau and Kahn forthcoming). I will then offer some concluding thoughts and suggest some implications for public policy.

### **DETERMINANTS OF THE GENDER PAY GAP: GENDER SPECIFIC FACTORS**

An initial early impetus to the study of wage differentials was provided by the British experience in World War I. Pursuant to the war effort, there was some substitution of women into traditionally male civilian jobs, although not nearly to the degree that there would be during World War II. Questions of the appropriate pay for women under these circumstances arose and stimulated a number of economic analyses of the sources of the gender pay differential—all of which gave a prominent causal role to occupational segregation (e.g., Edgeworth 1922, Fawcett 1918, Webb 1919). Modern efforts to understand the gender pay gap have generally rested on

two strong pillars: the human capital explanation and models of labor market discrimination. These are gender specific explanations in that they focus on gender differences in qualifications or treatment as the cause of the pay gap.

Human capital explanations developed by Mincer and Polachek (1974), Polachek (1981) and others explain gender differences in economic outcomes on the basis of productivity differences between the sexes. This explanation is based on the gender division of labor within the family which, as we have seen, was the focus of the 19th century commentators, and traces the impact of this division on the wages and occupations of men and women. Anticipating shorter and more discontinuous work lives as a consequence of their role within the family, women will have less incentive to invest in market-oriented formal education and on-the-job training than men. Their resulting smaller human capital investments will lower their earnings relative to men's. Similar considerations are also expected to produce gender differences in occupations, as women choose occupations where such investments are less important and where the wage penalties for work force interruptions are smaller. In the absence of parental leave policies, women will especially avoid jobs requiring large investments in firm-specific skills because the returns to such investments are reaped only as long as one remains with the firm. Since the costs of firm-specific training are shared by employers and employees, employers are reluctant to hire women for these jobs due to their shorter expected tenure on average. The difficulty of distinguishing more career-oriented women from less career-oriented women means that the former may be the victims of such "statistical discrimination" as well (see below).

Thus, the human capital model provides a logically consistent explanation for gender differences in economic outcomes based on the traditional division of labor in the family. Not

only will women earn less, but they will tend to be located in different occupations. Gender differences in industrial distribution could also occur if industries vary in their skill requirements. Thus the human capital model provides a rationale for the pay gap based on the voluntary decisions of women and men. Working in a similar direction is Becker's (1985) model in which the longer hours women spend on housework lowers the effort they put into their market jobs compared to men's and hence reduces their wages. But these models may also be viewed as shedding light on how the traditional division of labor in the family disadvantages women in the labor market. Thus, in this sense, they provide some support for the claim of the 19th century observers that the traditional division of labor is of fundamental importance in determining women's status within the larger society. To the extent that gender differences in outcomes are not fully accounted for by productivity differences derived from these and other sources, models of labor market discrimination offer an explanation.

Theoretical work on discrimination was initiated by Becker's (1957) examination of race discrimination. Becker conceptualized discrimination as a taste or personal prejudice against members of a particular group. Models of statistical discrimination were later developed, in part to explain the persistence of discrimination in the long run in the face of competitive labor markets (e.g., Phelps 1972, Aigner and Cain 1977, and Lundberg and Startz 1983). Such models assume a world of uncertainty and imperfect information and focus on differences between groups in the expected value of productivity or in the reliability with which productivity may be predicted. Since the real or perceived average gender differences that underlie statistical discrimination against women in the labor market tend to stem from the traditional division of labor in the family, this constitutes another route by which traditional gender roles within the

family adversely effect women's labor market outcomes. Another aspect of interest is the relationship between occupational segregation and a discriminatory wage gap formulated in Bergmann's (1974) overcrowding model. Discriminatory exclusion of women from "male" jobs results in an excess supply of labor in "female" occupations, depressing wages there for otherwise equally productive workers.

These two explanations, gender differences in qualifications and differences in treatment of otherwise similar men and women, do not necessarily constitute mutually exclusive sources of gender wage differentials. Both may play a role and empirical studies based on cross-sectional data within countries provide considerable empirical support for each. One problem here is that evidence for discrimination relies on the existence of a residual gender pay gap which cannot be explained by gender differences in measured qualifications. This accords well with the definition of labor market discrimination, i.e., pay differences between groups that are not explained by productivity differences, but may also reflect group differences in unmeasured qualifications or compensating differentials. If men are more highly endowed with respect to these omitted variables then we would overestimate discrimination. Alternatively, if some of the factors controlled for (e.g., occupation, tenure with the employer) themselves reflect the impact of discrimination, then discrimination will be underestimated.

Another challenge to empirically decomposing the gender pay gap into its constituent parts is the existence of feedback effects. The traditional division of labor in the family may influence women's market outcomes through its effects on their acquisition of human capital and on rationales for employer discrimination against them. But it is also the case, that by lowering the market rewards to women's human capital investments and labor force attachment,

discrimination may reinforce the traditional division of labor in the family (e.g., Blau 1984, Blau and Ferber 1992, Weiss and Gronau 1981, and Lundberg and Startz 1983). Even small initial discriminatory differences in wages may cumulate to large ones as men and women make human capital investment and time allocation decisions on the basis of them. Another 19th century observer, John Stuart Mill, touched on this very relationship over 100 years ago when he advocated women's "admissibility to all the functions and occupations hitherto retained as the monopoly of the stronger sex," claiming that "their disabilities elsewhere are only clung to in order to maintain their subordination in domestic life" (1878: 94).

#### **DETERMINANTS OF THE GENDER PAY GAP: THE ROLE OF WAGE STRUCTURE**

Thus, we see that the clear determination of the impact of qualifications vs. discrimination in the gender pay gap is difficult for both empirical and conceptual reasons. However, both explanations share a common focus of being gender specific explanations of the pay gap. Analyses of trends over time in the gender differential within countries as well as intercountry comparisons of gender earnings ratios have traditionally tended to emphasize these types of gender-specific factors. The last 15 to 20 years have been a time of ferment in the labor market with rapid changes in skill differentials and thus wage inequality in much of the industrialized world. Nowhere have these changes been more dramatic than in the U.S. It has been a natural extension of the study of these types of realignments to examine their consequences for various demographic groups. Moreover, upon further reflection it is clear that the traditional gender specific factors imply an important role for wage structure.



The human capital model suggests that men and women tend to have different levels of labor market skills (especially work experience) and to be employed in different occupations and perhaps in different industries. Discrimination models too suggest that women may be segregated in different sectors of the labor market. This implies a potentially important role for wage structure in determining the pay gap. All else equal, the larger the returns to skills and the larger the rents received by individuals in favored sectors, the larger will be the gender gap. Similarly, labor market discrimination and/or actual female deficits in unmeasured skills result in employers treating women as if they have lower unmeasured as well as measured skills. Thus, the higher the rewards to unmeasured skills, the larger will be the gender gap, other things being equal.

The notion of a “high” or a “low” return is intrinsically a relative concept. Thus, the framework provided by wage structure requires some frame of reference and is particularly useful in analyzing changes over time in gender differentials or differences across countries in gender gaps. Such intertemporal and cross-country comparisons enable us to measure the effects of wage structure comparatively with reference to the situation that existed at an earlier point in time or that prevails in another country.

Consider the following examples. Suppose that in two countries, women have lower levels of labor market experience than men but that the gender difference in experience is the same in the two countries. If the return to experience is higher in one country, then that nation will have a larger gender pay gap. Similarly, an increase in the return to experience within a country will, all else equal, raise the gender gap. Or, as another example, suppose that the extent of occupational segregation by sex is the same in two countries but that the wage premium

associated with employment in "male" jobs is higher in one country. Then, again, that nation will have a higher pay gap. In like manner, an increase over time in the wage premium for "male" jobs will increase the gender gap, *ceteris paribus*. This second example suggests that a clear-cut distinction between gender-specific factors and wage structure may be difficult to achieve. A gender-specific policy like comparable worth which mandates pay adjustments across male and female jobs to provide for equal pay for work of equal value within the firm, can obviously affect wage structure. Nonetheless, as I hope to show below, the notion of wage structure is quite useful and can shed considerable light on international differences in the gender gap as well as trends over time within countries.

Wage structure itself is determined by a variety of factors, including relative supplies of labor of various skill levels, technology, the composition of demand, and wage setting institutions. In recent years, there has been an increase in wage inequality within most of the industrialized countries (Gottschalk and Joyce 1995). Juhn, Murphy and Pierce (1993), in their work on the U.S. trends, make a strong case that this trend reflects a rising return to skills, both measured and unmeasured. We do not have full consensus regarding the reasons for this increase in the return to skill, but technological change and the impact of international trade are two of the chief candidates in the United States (e.g., Katz and Murphy 1992, Bound and Johnson 1992, Borjas and Ramey 1995). In addition, institutional factors, including declining union density and a falling value of the minimum wage, appear to have also contributed to rising inequality (Freeman 1994, Card forthcoming).

With respect to international comparisons, Kahn and I have emphasized in our work that systems of centrally-determined pay are likely to entail less wage inequality and smaller gender

wage differentials for a number of reasons. First, in the U.S., a significant portion of the male-female pay gap has been found to be associated with interindustry or interfirm wage differentials (Blau 1977, Johnson and Solon 1986, Sorensen 1990, and Groshen 1991). The relatively large pay variation across industries and firms in the U.S. is to some extent an outgrowth of our relatively decentralized pay-setting institutions. Therefore, centralized systems which reduce the extent of wage variation across industries and firms are likely to lower the gender differential, all else equal. Second, since in all countries the female wage distribution lies below the male distribution, centralized systems that raise minimum pay levels regardless of gender will also tend to lower male-female wage differentials. In Blau and Kahn (forthcoming a), we find considerable evidence consistent with the view that, compared to the U.S., the more centralized wage setting institutions of other industrialized countries not only reduce overall wage inequality, but that this reduction is primarily due greater compression at the bottom of the wage distribution in these countries rather than at the top. This tendency to bring up the bottom of the wage distribution in turn reflects not only the impact of conscious government and union policies in some countries, but, more generally, wage setting institutions in both the union and nonunion sector which lead to greater wage compression in each sector compared to the U.S. Of particular interest, is the greater prevalence in other countries of contract extension and other informal mechanisms which extend union-determined wages (and thus the more compressed union wage structure) to the nonunion sector.

## INTERNATIONAL DIFFERENCES IN THE GENDER GAP: A U.S.-SWEDEN COMPARISON

My work with Lawrence Kahn on international differences in the gender gap addresses a puzzle. While the relative qualifications of American women are high compared to women in other countries and the U.S. has had a longer and often stronger commitment to anti-discrimination laws than most industrialized nations, the U.S. has traditionally been among the countries with the largest gender gaps. Our results based on comparisons of the U.S. to nine other industrialized nations (Blau and Kahn 1995 and Blau and Kahn 1996) suggests that the resolution of this paradox lies in the enormous importance of overall wage structure in explaining the lower ranking of U.S. women. That is, the gender gap in the U.S. is relatively high, not because of the traditional gender-specific factors but rather due to the relatively large penalty that the U.S. wage structure imposes on groups that have below average skills (measured and unmeasured) or are located in less favored sectors. We find that the U.S. gap would be similar to that in countries like Sweden and Australia (the countries with the smallest differentials) if the U.S. had their level of wage inequality.

I illustrate the role of wage structure in influencing international differences in the gender pay gap in more detail by presenting some of our findings for the U.S.-Sweden comparison (Blau and Kahn 1996). This comparison is of interest because the U.S. and Sweden represent cases at the extremes of an international ranking of gender ratios with Sweden having among the highest gender ratios of the advanced industrialized countries, and the U. S. having among the lowest. This was particularly the case for the year from which we draw our data, 1984, since the gender gap has been narrowing in the U.S. and widening in Sweden. An additional reason why our

results for these two countries are especially interesting is that our data sources, the Michigan Panel Study of Income Dynamics (PSID) for the U.S. and the Household Market and Nonmarket Activities Survey (HUS) for Sweden, contain information on actual labor market experience and thus permit us to control for this important variable in our wage regressions and corresponding decompositions.

### **U.S.-Sweden Differences in the Gender Gap**

The extent of the U.S.-Sweden difference in gender ratios may be seen in Figure 1 which shows unadjusted and adjusted gender log wage ratios for each country in 1984.<sup>2</sup> The unadjusted ratios of 66.9 percent for the U.S. and 82.7 percent for Sweden, indicate that the ratio was nearly 16 percentage points higher in Sweden—a considerable difference. Swedish women also fare better after adjusting for all variables, including education and experience, as well as major industry and occupation: the adjusted wage ratio<sup>3</sup> was 82.2 percent for the U.S. and 90.9 percent for Sweden. Thus, while adjusting for measured characteristics raises the ratio in each country and reduces the gap between the two countries, a substantial differential in gender ratios of almost 9 percentage points remains.

Interpreting these findings in terms of the conventional gender-specific explanations would lead us to view the smaller unexplained gender gap in Sweden as indicating that, compared to U.S. women, Swedish women encounter less discrimination or have more favorable levels of unmeasured characteristics compared to men or both. The reduction in the U.S.-Sweden difference in the gender gap when controls are added for measured characteristics would imply that Swedish women, on net, also have more favorable levels of measured characteristics

compared to their male counterparts than do U.S. women. These conclusions make intuitive sense in some respects. With regard to measured characteristics, Sweden's considerably more generous family leave policy may result in Swedish women being more firmly attached to their employers and to the labor market than U.S. women.<sup>4</sup> With respect to discrimination, the results are somewhat surprising in that, as noted above, the U.S. has a considerably longer commitment to anti-discrimination laws than Sweden. However, it could be that Sweden's long term commitment to attacking traditional gender roles through a variety of policies is responsible for the smaller unexplained pay gap in Sweden.

### **The Role of Wage Structure**

Despite the apparent reasonableness of the conclusions based on the conventional approach, our examination of the role of wage structure suggests that they are incorrect. It is not differences in women's qualifications or labor market treatment that are responsible for the larger U.S. gender gap, rather it is differences in overall labor market prices in the two countries. To illuminate the role of wage structure, Kahn and I adapted a framework developed by Juhn, Murphy and Pierce (1991) to analyze trends over time in race differentials in the U.S. Gender-specific factors, including differences in qualifications and the impact of labor market discrimination, are regarded as determining the percentile ranking of women in the male wage distribution, while the overall wage structure (as measured by the magnitude of male wage inequality) determines the wage penalty or reward associated with this position in the wage distribution.

The basic premise here is that males at the same percentile ranking as women may be viewed as comparable in the eyes of employers. Thus, the same set of factors will determine the

relative rewards of women and of these comparable males. The portion of the gender differential associated with women's lower ranking in the distribution in country A as compared to country B is ascribed to differences between the two countries in gender-specific factors (i.e., qualifications and treatment), while the portion that is due to the wage penalty associated with that position (i.e., greater wage inequality) in country A than in country B is attributed to wage structure.

Some indirect evidence for the assumption that the same factors determine the relative rewards of women and of these male comparables, is that wage inequality is higher in the U.S. than in the other countries among both men and women (Blau and Kahn 1995 and Blau and Kahn 1996).<sup>5</sup> Similarly, wage inequality in the U.S. has been increasing among both men and women (Katz and Murphy 1992, Blau and Kahn forthcoming b). This suggests that the same sets of factors--the prices of measured and unmeasured skills and wage-setting institutions--affect the wages of both men and women in a similar way.

It should be noted, however, that the possibility of discrimination complicates this division into gender-specific factors and wage structure because what we have labeled as the impact of wage structure may also include a component which is due to the interaction between wage structure and discrimination. That is, discrimination pushes women down in the distribution of male wages, while wage structure determines how large the penalty is for that lower position in the distribution.

### **Empirical Findings for the Effect of Wage Structure**

Figure 2 presents the mean percentile rankings of women in each country's overall male wage distribution<sup>6</sup> and residual male wage distribution.<sup>7</sup> Our reasoning suggests that the female percentile rankings may be taken as overall indicators of gender-specific factors, that is the

relative qualifications and treatment of women in each country. The placement of women in the overall male wage distribution represents the combined effects of gender differences in qualifications and treatment (or unmeasured characteristics). The ranking of women in the male residual wage distribution represents the effect of gender differences in treatment (or unmeasured characteristics) only. Differences between the rankings of the two countries in Figures 1 and 2 represent the role of wage structure or the wage penalty associated with being below average in the distribution in each country.

Looking first at the findings for the unadjusted gender wage difference, we see that, despite the large U.S.-Sweden difference in the unadjusted gender gap, the mean percentile rankings of women in the male wage distribution in Sweden and the U.S. are virtually identical. On average in each country women rank at about the 30th percentile in the male wage distribution. This implies that the large difference in the gender gap between the two countries is entirely due to differences in wage structure, i.e., the larger wage penalty placed on women's lower position in the male wage distribution in the U.S. This means that at the same mean percentile ranking, the resulting U.S. gender ratio is much lower than in Sweden.

As discussed above, the overall mean female percentile rankings in Figure 2 show the combined effect of both sets of gender-specific factors: qualifications and labor market discrimination. It would be interesting to compare the U.S. and Sweden with respect to the latter, that is their treatment of otherwise equally qualified men and women. We have seen that the traditional estimate which involves computing adjusted earnings ratios, indicates that Swedish women fare considerably better. As noted above, such estimates are subject to bias; and



the adjusted ratios presented in Figure 1 are no exception. On the one hand, we may lack data on some factors which influence wages, although our inclusion of actual labor market experience at least surmounts this particular problem. On the other hand, we control for broadly defined industry and occupation even though these variables may reflect the impact of labor market discrimination. What is primarily of interest here, however, is the contrast between the traditional measure, the adjusted ratio shown in Figure 1, and the female residual percentile ranking shown in Figure 2.

For each country, we drop each woman's residual from the male wage regression into the distribution of male wage residuals and find the female mean of the resulting percentiles. This is an indicator of the relative wages of women in each country after controlling for gender differences in personal characteristics, industry and occupation. Unlike the traditional measure, it is not contaminated by differences in wage structure between the two countries. The caveat of course remains that, as with any analysis of this type, differences in the female rankings may also represent cross-country differences in the unmeasured characteristics of women relative to men. Indeed, in the absence of discrimination, one way to think of the rewards (penalties) associated with a higher (lower) position in the residual wage distribution would be as a return to unmeasured skills or characteristics.

Looking at Figure 2, we again find that while there are sizable U.S.-Sweden differences in the adjusted gender ratios, the mean percentile rankings of women in the residual wage distribution are virtually identical; in each country women rank at about the 37th percentile, on average. This implies that the observed differences in the adjusted gender ratios in Figure 1 are entirely due to differences in wage structure between the two countries, i.e., the larger wage

penalty placed on women's lower position in the male residual wage distribution in the U.S. Putting this somewhat differently, the extent of labor market discrimination against women (or unmeasured productivity differences between men and women) appears to be no greater in the U.S. than in Sweden.

Our detailed decomposition of the U.S.-Sweden gender log wage differentials (Blau and Kahn 1996) sheds additional light on the specific factors underlying these general results. Our finding that gender differences in observed characteristics do not contribute to the U.S.-Sweden difference in the gender gap reflects off-setting effects. On the one hand, there is a somewhat smaller gender difference in actual experience in Sweden (5 years) than in the U.S. (6 years) and a slightly more favorable relative occupational distribution of Swedish than of U.S. women. On the other hand, this is offset by smaller gender differences in the U.S. in educational attainment and industrial distribution. At a common set of prices (or rewards for measured characteristics) for both countries, the gender differences observed characteristics contribute about the same amount to the male-female pay gap in each country. As we saw in our discussion of Figure 1, however, using the conventional approach, differences characteristics contribute to a larger gender differential in the U.S. than in Sweden. This is because the conventional approach uses own-country prices; that is Swedish prices for Sweden and U.S. prices for the U.S. In general, the prices of skills are higher in the U.S. and this means that the female deficits (i.e., the lower qualifications of women compared to men) are more heavily penalized in the U.S.

Breaking this price factor out separately, we find that the impact of differences in observed prices between the U.S. and Sweden strongly favors Swedish women. The Swedish-U.S. differences in relative rewards to employment by industry is the most important factor,<sup>8</sup>

although less favorable (for women) prices of education and experience in the U.S. also play a role. Overall, the effect of wage structure, including the impact of prices of both measured and unmeasured characteristics, is more than sufficient to account for the considerably larger gender gap in the U.S.

Finally, Figure 3 presents the female percentile comparisons of the U.S. and Sweden in greater detail. It shows the female cumulative distribution functions that results from placing women in male wage deciles on the basis of the male log wage cutoffs.<sup>9</sup> So, for example, in the U.S., approximately 20 percent of women fall in the first decile of the male distribution of log wages; almost 44 percent in or below the second male decile; etc. The results indicate that our conclusions based on a comparison of the mean female percentiles in the male distribution are fully supported by the more detailed comparison. Specifically, the U.S. female cumulative distribution function is quite similar to that of Sweden. Particularly notable is the larger proportion of women in the lowest male wage decile in Sweden (29 percent) than in the U.S. (20 percent). This suggests an important role for labor market institutions which tend to "bring up the bottom" in reducing the gender pay gap in Sweden relative to the U.S. That is, although the percentage of women who fall in the bottom male decile in Sweden generally exceeds that in the U.S., the gender pay gap is smaller in Sweden. This suggests that formal or de facto wage floors in Sweden lessen the wage penalty for those in the bottom male decile.

I would argue that the rankings in Figure 2 and the distributions in Figure 3 provide an informative basis for comparing the economic status of women in the two countries. The fact that, on average, women in both the U.S. and Sweden "out-earn" about 30 percent of male

workers tells us a great deal about the relative qualifications and treatment of women compared to men in each country. What makes the rankings so informative in this respect, is that they are not affected by differences in wage structure between the two countries. Moreover, our finding that U.S. and Swedish women have similar rankings, on average, in the male wage distribution is quite surprising given the large disparities in gender earnings ratios shown in Figure 1.

However, what this similar ranking in the male wage distribution in each of the two countries buys in terms of relative wage levels is of course also extremely important. The wage is an important indicator of economic well-being in and of itself and also, as noted above, a significant input into decision-making. So I would suggest that both measures, conventional earnings ratios and percentile rankings, are of interest.

### **SWIMMING AGAINST THE TIDE: TRENDS IN THE GENDER GAP IN THE U.S.**

While these findings on international differences in the gender gap help to resolve one paradox, they generate another. Wage inequality has been increasing in the U.S. Our analysis implies that in the face of rising wage inequality, American women are essentially swimming upstream in a labor market growing increasingly unfavorable for workers with below average skills. In the face of rising rewards to labor market skills (measured and unmeasured) as appears to have occurred over the last 15 to 20 years, women's relative skills and labor market treatment have to improve merely for the pay gap to remain constant; still larger gains are necessary for it to be reduced. Yet the gender pay gap has actually been falling in the U.S. since the late 1970s. How can we explain this apparent contradiction?

Kahn and I have examined this issue (Blau and Kahn 1994, Blau and Kahn, forthcoming b) and found that women were able to swim against the current during the 1970s and 1980s and narrow the gender gap because gains in gender specific factors were large enough to counterbalance the negative effect of the trends in wage structure on their relative earnings. Women gained from improvements in their relative qualifications, particularly their relative experience<sup>10</sup> and occupational distribution. A larger negative impact of de-unionization on male than female workers also contributed to a narrowing of the differential. Women also benefited from a substantial decline in the "unexplained" portion of the gender gap, particularly when the adverse effects of widening residual inequality are netted out. These reductions in the unexplained gap may reflect improvements in unmeasured characteristics or reductions in discrimination. Both explanations are credible for this period. Since women improved the relative level of their measured characteristics, it is plausible that they also enhanced the relative level of their unmeasured characteristics. Further, as women increased their commitment to the labor market and their other job skills, it is possible that the rationale for statistical discrimination against them diminished. Moreover, while government efforts to enforce the anti-discrimination laws appear to have been reduced during the 1980s (Leonard 1989), it is possible that women's relative wage gains indirectly reflect the impact of government enforcement efforts in earlier years which had the effect of encouraging women to train for and enter traditionally male fields.

Another insight that may be derived from a focus on wage structure relates to the possibility that shifts in skill prices may have impacted men and women differently. In particular men and women appear to be viewed by employers as imperfect substitutes in the labor market. This is suggested by the considerable differences in the occupations and industries in which they

work, as well as the substantial pay differences that exist for men and women with the same measured characteristics (e.g., Blau and Ferber 1992). Thus, while rising skill prices may be expected to widen the gender pay gap, such changes need not affect men and women in precisely the same way. We examined this issue in Blau and Kahn (forthcoming b) and found that, over the 1980s, shifts in demand for output across industry-occupation cells favored women over men for low and medium skilled workers, but men over women among high skilled workers. The growth in the supply of women was also considerably larger at high skill levels.

Such a “gender twist” in the net supply of skill may have affected the relative gains of women within skill groups. We find evidence that this is indeed the case. While the unadjusted pay gap closed slightly faster for high skill women over the 1980s, industry and union representation effects strongly favored women at the bottom and middle of the skill distribution relative to those at the top. High skill women nonetheless advanced at a roughly similar pace as the other groups due to the large improvement in their human capital characteristics and occupational distribution. Further, wage gains for low skilled women would have been greater had the minimum wage not declined in real value over this period. The progress of high skilled women during the 1980s is particularly impressive given the relatively unfavorable demand and supply shifts they faced.

## CONCLUSION

As wage inequality has been increasing in recent years in many of the industrialized countries, labor economists have increasingly turned their attention to understanding its

determinants and the reasons for changes over time. In this talk I have endeavored to highlight the role of wage structure in determining the size of the gender pay gap both across countries and within a particular country, in this case the United States, where wage inequality is especially large. In addition to bringing a useful new construct to bear on analyses of male-female pay gaps, such a focus serves to integrate analyses of demographic differentials into the study of wage structure in general. This in itself is an interesting new development in labor economics.

From the perspective of our consideration of the determinants of the gender gap, the analysis of the trends in the pay gap over time in the U.S. provides an interesting comparison to our consideration of international differences in the gender gap. With respect to the puzzle of the relatively high U.S. gender pay gap compared to other countries, wage structure provides the whole story—the traditional gender-specific factors do not appear to play a role. In contrast, with respect to the narrowing of the gender gap over time in the U.S., the traditional gender specific factors, i.e., improvements in women's relative qualifications and declines in labor market discrimination as conventionally measured, are an extremely important part of the story. The insight which wage structure contributes is nonetheless also important; that is, the notion that women were indeed swimming against the tide. In the absence of substantial improvements in the gender-specific factors, the gender gap would have widened not narrowed. A comparison of these findings also serves to illustrate the more general point that the relative importance of gender-specific factors vs. wage structure in any particular situation is an empirical question. With hindsight it is perhaps not surprising that wage structure proved to be a more significant part of the story in the international comparison than in the intertemporal one. Differences across countries in wage inequality, particularly between the U.S. and other industrialized nations, are

of considerably greater magnitude than the changes in the level of inequality that have occurred in the U.S. over time, as significant as those changes have been.

The points made here about the potential importance of wage structure for the gender pay gap can readily be expanded to encompass the relative wages of other demographic groups, such as racial or ethnic minorities or immigrants, which have below average skills and/or face discrimination in the labor market. Thus, the well-being of particular demographic groups depends not only on group-specific factors like relative qualifications and the extent of discrimination against them, but also on the market factors and institutional arrangements which determine the return to skills in general and the relative rewards to employment in the particular sectors of the economy. This insight has a number of policy implications. While I will particularly address policies aimed at women, these point can readily be generalized to other demographic groups.

First, in evaluating the effectiveness of "gender-specific" policies, that is policies which are specifically designed to impact economic outcomes for women, it is important to net out the effects of wage structure. On the one hand, policies may be erroneously deemed ineffective, or their impact may be underestimated, because the positive effect of the policies are disguised by adverse shifts in wage structure. So, for example, cross-national comparisons of the gender gap could lead one to conclude that gender-specific policies in the U.S. have been relatively ineffective in comparison to those in other countries. On the contrary, my work with Kahn implies that U.S. gender specific policies have been quite successful. U.S. women have lagged behind those in other countries because of the high level of wage inequality in the U.S. which heavily penalizes workers with below average wages, regardless of gender. On the other hand,



gender-specific policies could be incorrectly judged successful, or the extent of their success exaggerated, if they happen to be accompanied by changes in wage structure which benefit women as a group.

A second potential policy implication that follows from our work is that outcomes for women are affected not only by policies specifically targeted at them, but also by wage structure in general. This means that policies designed to alter wage structure, such as the promotion of more centralized wage determination or the establishment of relatively high minimum wages, constitute an alternative approach to improving wage outcomes for women. While this constitutes a potential benefit of such policies, it is important to bear in mind that they also have costs which need to be balanced against this benefit. These costs may be substantial.

First there is the concern that minimum wages, particularly the imposition of relatively high wage floors, may create unemployment.<sup>11</sup> Second, centralized wage setting may allow firms too little flexibility to respond to differences in market conditions across industries or at the local level. Moreover, the compression of wage premia for skills may dampen workers incentives to acquire appropriate training.<sup>12</sup> Finally, overly ambitious attempts to regulate the labor market may result in the growth of an uncovered sector, as appears to be the case, for example, in Italy.

The substantial potential costs to direct government intervention in wage setting suggest caution in using this approach to **attack** gender (or other demographic) differentials. An additional issue is that developments in the 1980s and 1990s have led to the decentralization of bargaining in virtually every industrialized country (see, Katz 1993, Edin and Holmlund 1995, and Edin and Topel 1994). As the protection of centralized wage structures fall away, women

who continue to have less human capital on average and to encounter labor market discrimination are left exposed to downward pressures on their relative wages. Thus, the fundamental answer to the gender pay gap may well with gender-specific policies designed to increase women's human capital and reduce discrimination against them. In a way, this conclusion is not entirely surprising in that it is these gender-specific differences in qualifications and treatment that constitute the basic cause of women's lower labor market outcomes. Were there no such differences, men and women would be similarly affected by the overall wage structure and by changes in it.

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**FOOTNOTES**

<sup>1</sup> Work on gender is described below. Wage structure has also been found to play a role in U.S. trends in black-white and immigrant-native wage differentials (Juhn, Murphy and Pierce 1991, LaLonde and Topel 1992).

<sup>2</sup> Wages are equal to average hourly earnings.

<sup>3</sup> That is, for each country  $j$ , we estimate a male wage equation:

$$(1) \quad Y_{im} = X_{im}\beta_m + e_{im}$$

where  $Y_i$  is the log of wages;  $X_i$  is a vector of explanatory variables including education, experience and its square, and major industry and occupation,  $\beta$  is a vector of coefficients and  $e_i$  is a residual. The adjusted wage ratio is:

$$(2) \quad R_a = \exp \{-(e_m - e_f)\} \equiv \exp(e_f) \equiv (X_f\beta_f)/(X_f\beta_m)$$

where  $e_m$  and  $e_f$  are the mean residuals from the male wage regression for men ( $m$ ) and women ( $f$ ),  $X_f$  is a vector of means of the explanatory variables for women, and  $\beta_m$  and  $\beta_f$  are vectors of estimated coefficients from wage regressions estimated for men and women separately.

<sup>4</sup> The expected impact of family leave (disproportionately taken by women even when it is available to men) is unclear a priori. On the one hand, it is possible that such policies raise the relative earnings of women by encouraging the preservation of their ties to particular firms and hence increasing the incentives of employers and women to invest in firm-specific training. On the other hand, the existence of such policies could increase the incidence and/or duration of temporary labor force withdrawals among women, raising the gender gap. Further, the incremental costs associated with mandated leave policies may increase the incentives of employers to discriminate against women.

<sup>5</sup> Similarly, across our full sample of countries, male and female wage and residual wage variation are highly correlated (Blau and Kahn 1995 and Blau and Kahn 1996).

<sup>6</sup> We assign each woman in country  $j$  a percentile ranking in country  $j$ 's male wage distribution. The female mean of these percentiles by country is presented in Figure 2 as the "female percentile."

<sup>7</sup> We find the percentile ranking of each woman's wage residual from the male wage regression ( $e_{if}$ ) in the distribution of male wage residuals from the male wage regression ( $e_{im}$ ). The mean female percentile for each country is presented in Figure 2 as the "female residual percentile."

<sup>8</sup> This is not surprising given Edin and Zetterberg's (1992) finding that interindustry wage differentials are much smaller in Sweden than in the U.S.

<sup>9</sup> Bernhardt, Morris and Handcock (forthcoming) use a similar methodology to examine the distribution of women's wages relative to the male distribution over time in the U.S.

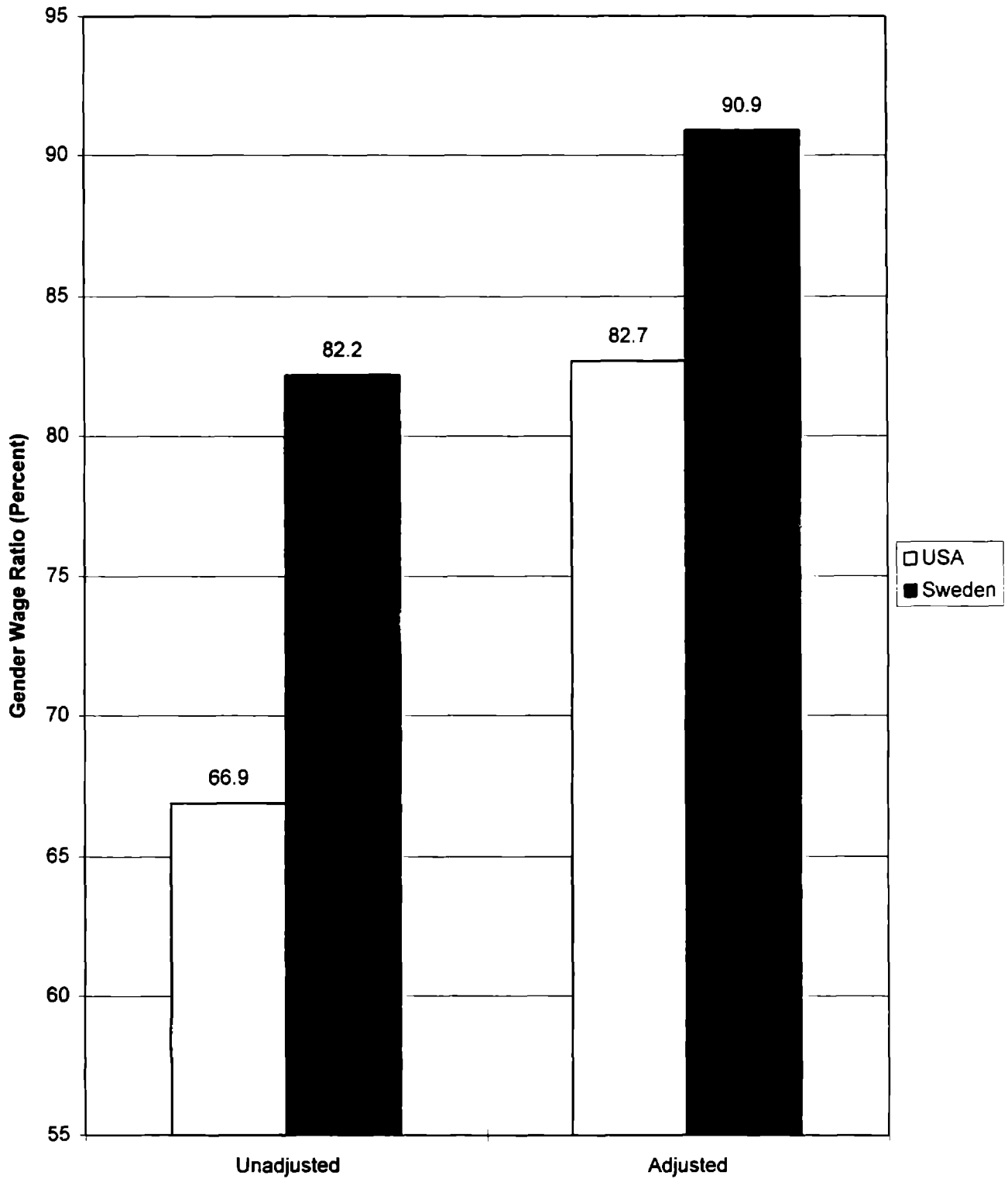
<sup>10</sup> O'Neill and Polachek (1993) and Wellington (1993) also provide evidence of the importance of women's gains in relative experience in narrowing the gender gap.

<sup>11</sup> For example, Katz, Loveman and Blanchflower (1995) report that in France, where the minimum wage increased from 45.7 to 53.3 percent of median earnings from 1967 to 1987, the problem of youth unemployment has been more severe and the duration of unemployment has tended to be longer than in other OECD countries. And Edin and Topel (1994) find that the solidarity wage policy followed in Sweden in the 1960s and 1970s disproportionately raised pay and lowered relative employment in low wage industries. On the other hand there is evidence for the U.S. that suggests that relatively small increases in the minimum wage do not have adverse employment effects. See Card and Krueger (1995); for responses to their research see, ILRR (1995).

<sup>12</sup> Both complaints have been voiced about Sweden's "solidarity" wage policy by employers, and that country's generous student stipends and subsidized loans for higher education may be viewed in part as a means of off-setting the distortions caused by wage compression (Edin and Holmlund 1995).

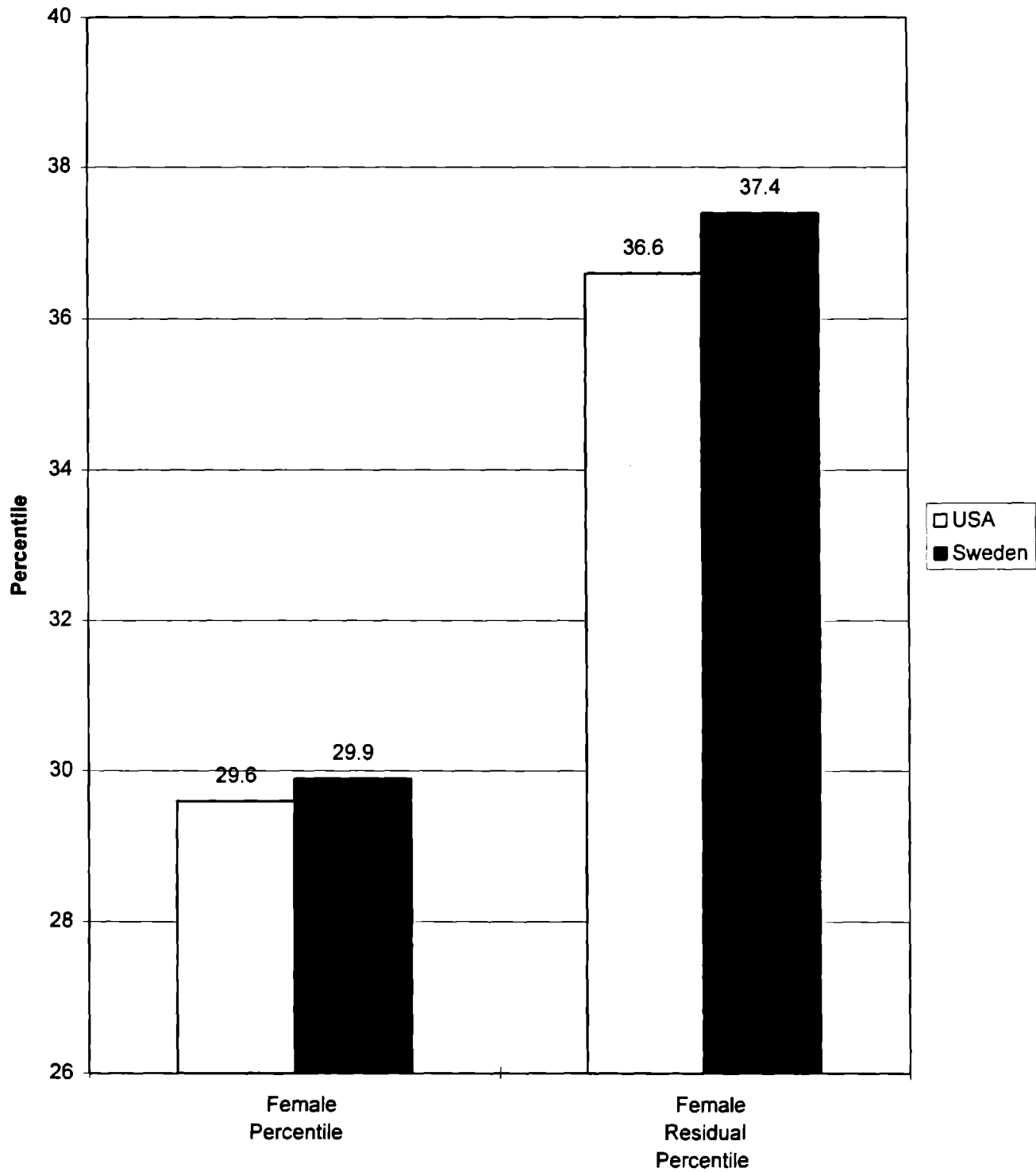


**Figure 1: The Gender Wage Ratio in the US and Sweden, 1984**



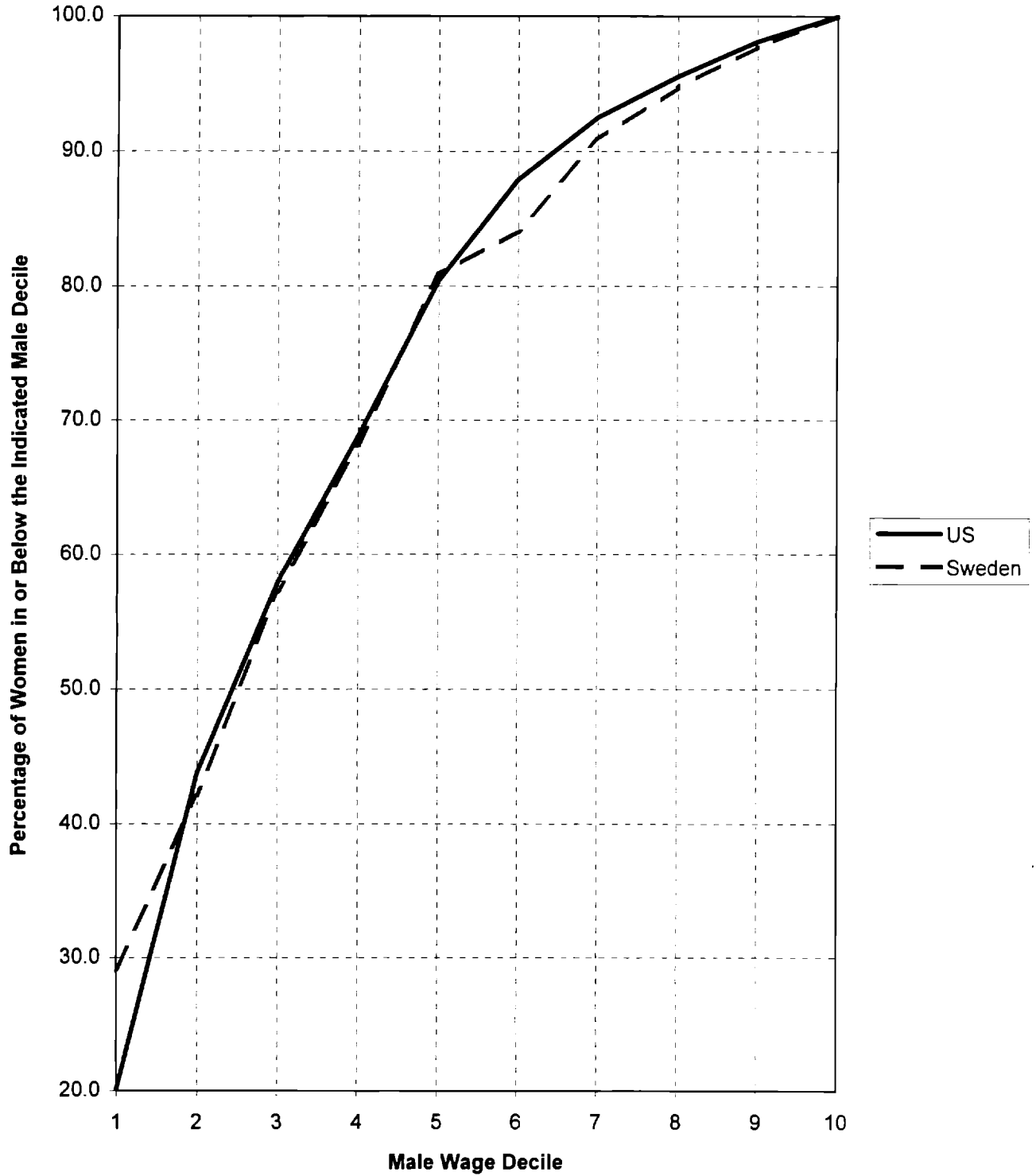
Source: F. D. Blau and L. M. Kahn, "Wage Structure and Gender Earnings Differentials: An International Comparison," *ECONOMICA*, 1996.

**Figure 2: The Mean Female Percentile in the Male Distribution in the U.S. and Sweden**



Source: F. D. Blau and L. M. Kahn, "Wage Structure and Gender Earnings Differentials: An International Comparison," *ECONOMICA*, 1996.

**Figure 3: Cumulative Distribution Function, Female Wages Relative to the Male Wage Distribution, U.S. and Sweden**



Source: F. D. Blau and L. M. Kahn, "Wage Structure and Gender Earnings Differentials: An International Comparison," *ECONOMICA*, 1996.