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THE GENDER EARNINGS GAP: SOME INTERNATIONAL EVIDENCE

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ABSTRACT

This paper uses micro-data to analyze international differences in the gender pay gap among a sample of ten industrialized nations. We particularly focus on explaining the surprisingly low ranking of the U.S. in comparison to other industrialized countries. 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). An innovative feature of our study is to focus on the role of wage structure--the array of prices set for various labor market skills--in influencing the gender gap.

The striking finding of this study is the enormous importance of overall wage structure in explaining the lower ranking of U.S. women. Our results suggest that the U.S. gap would be similar to that in countries like Sweden, Italy and Australia (the countries with the smallest gaps) if the U.S. had their level of wage inequality. This insight helps to resolve three puzzling sets of facts: (1) U.S. women compare favorably with women in other countries in terms of human capital and occupational status; (2) the U.S. has had a longer and often stronger commitment to equal pay and equal employment opportunity policies than have most of the other countries in our sample; but (3) the gender pay gap is larger in the U.S. than in most industrialized countries. An important part of the explanation of this pattern is that the labor market in the U.S. places a much larger penalty on those with lower levels of labor market skills (both measured and unmeasured).

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Despite in many cases dramatic reductions in the male-female pay gap since the 1950s, gender differentials persist in all industrialized nations. However, the size of the gender gap varies considerably across countries. Published data suggest that, by the late 1980s, the Scandinavian countries, France, Australia and New Zealand had female-to-male hourly pay ratios of 80-90 percent, while other countries in Western Europe and the U.S. had pay ratios of roughly 65-75 percent. The U.S. was among the countries with the largest differentials. Only Japan with a ratio as low as 50 percent had a consistently larger gap (see Figure 1). This paper uses micro-data to analyze international differences in the gender pay gap among a sample of ten industrialized nations. We particularly focus on explaining the surprisingly low ranking of the U.S. in comparison to other industrialized countries. An advantage of an international perspective is that countries vary considerably with respect to governmental policies, women's relative labor market qualifications and wage-setting institutions. Such variability allows one to infer reasons for differences in the pay gap and, by implication, the impact of alternative government policies.

Empirical research on gender pay gaps has traditionally focused on the role of gender differences in qualifications and of differences in the treatment of otherwise equally qualified male and female workers (i.e., labor market discrimination). Analyses of trends over time in the gender differential within countries as well as intercountry comparisons of gender earnings ratios have tended to emphasize these types of gender-specific factors. An innovative feature of our study is to focus on the role of wage structure as an additional factor influencing the gender gap. To analyze the impact of wage structure, we adapt a framework developed by Juhn, Murphy and Pierce (1991) to analyze trends over time in race differentials in the U.S. Our findings suggest that labor market institutions that affect overall wage inequality have an extremely important effect on the gender earnings gap.

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. Research on gender-specific factors influencing the pay gap suggests that men and women tend to have different levels of labor market skills and to be employed in different sectors. This implies a potentially important role for wage structure in determining the pay gap. For example, 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. 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 country will have a higher pay gap.

Skill prices can be affected by relative supplies, by technology (e.g. high tech industries place a premium on highly trained workers), by the composition of demand, or, as emphasized in this paper, by the wage-setting institutions of each country. Specifically, centralized wage-setting institutions which tend to reduce interfirm and interindustry wage variation and are often associated with conscious policies to raise the relative pay of low-wage workers (regardless of gender) may indirectly reduce the gender pay gap.

The striking finding of this study is the enormous importance of overall wage structure in explaining the international differences, particularly the lower ranking of U.S. women. The higher level of wage inequality in the U.S. than elsewhere works to increase the gender differential in the U.S. relative to all the other countries in our sample. Our results suggest that the U.S. gap would be similar to that in countries like Sweden, Italy and Australia (the countries with the smallest gaps) if the U.S. had their level of wage inequality.

This insight helps to resolve three puzzling sets of facts: (1) U.S. women compare favorably with women in other countries in terms of human capital and occupational status; (2) the U.S. has had a longer and often stronger commitment to equal pay and equal employment opportunity policies than have most of the other countries in our sample; but (3) the gender pay gap is larger in the U.S. than in most industrialized countries. An important part of the explanation of this pattern is that the labor market in the U.S. places a much larger penalty on those with lower levels of labor market skills (both measured and unmeasured). Put differently, our findings suggest that the gender gap in pay in the U.S. would be far less than it is if U.S. wage-setting processes more closely resembled those in the other countries, as long as U.S. women retained the same level of relative skills.[1]

In addition to having a relatively high level of wage inequality, the U.S. labor market has seen a major increase in inequality and the rewards to skills over the 1970s and 1980s (Katz and Murphy, 1992; Juhn, Murphy and Pierce, forthcoming). Thus, while American women have increased their relative levels of labor market skills (Blau and Ferber, 1992; O'Neill and Polachek, 1991), they are essentially swimming upstream in a labor market that has grown increasingly unfavorable to those with below-average skills. The decline in the U.S. gender pay gap in the 1980s becomes all the more impressive in light of this growing overall inequality. Below, we present U.S. data indicating that over the 1971-88 period, rising U.S. wage inequality reduced the convergence in the gender pay gap by about one fourth.

The paper is organized as follows. Section I presents a brief overview of our findings, highlighting the striking importance of wage structure in explaining the international differences. Section II summarizes the institutional setting in each country focusing on gender-specific policies and the degree of centralization of wage-setting institutions. Section III outlines the basic analytical framework and presents detailed empirical results based on our microdata files. Section IV examines the impact of rising inequality on the U.S. gender pay gap over the 1971-88 period. Finally, Section V presents our conclusions.

I. An Overview of the Findings

International differences in gender gaps are summarized in Figure 2 which gives gender earnings ratios adjusted for hours for ten industrialized countries based on our micro-data files for each country. Data are from the mid-1980s, with the exception of Norway and Sweden for

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[1] Of course, under different wage-setting institutions, U.S. women might have different incentives to acquire labor market skills.

which the data are from around 1980.[2] (More detailed information about the data and the adjustment process are given below.) Figure 2 indicates that Italy, Sweden, Austria and Australia have the highest gender ratios. The U.S. ranks towards the bottom of the group, with six of the nine countries (Sweden, Norway, Australia, Austria, Italy, and Germany) having higher gender earnings ratios, and only three (the U.K., Hungary and Switzerland) having lower ratios.

The Italian ratio probably overstates the actual gender ratio in that country. Italy has an especially large proportion of workers who are self-employed or work in an informal sector in which government-mandated benefits are not paid. The self-employed could not be included in computing the gender ratio for Italy because hours worked were not available for them. However, we did ascertain that the gender ratio (not adjusted for hours) in Italy is considerably smaller (.6566) when the self-employed are included than when the sample is restricted to employees (.7431).[3] Further, it is likely that informal sector employment is underreported by the respondents in our survey-based data, possibly also resulting in an understatement of the gender gap. Nonetheless, it is likely that Italy is among the countries with the smallest gender gaps, although not necessarily heading the list, as would be suggested by the data in Figure 2.

To illuminate the role of wage structure, we present the mean percentile rankings of women in the male wage distribution for each country in Figure 3.[4] Gender-specific factors, including differences in qualifications and the impact of labor market discrimination, are

[2] The country rankings here are similar to those based on published data (when available) or other studies. Note, however, the ratios for the Scandinavian countries and Australia are below those reported in OECD publications. This discrepancy appears to be due to the OECD data being restricted to manufacturing workers for Sweden and Norway and to nonsupervisory employees for Australia. The magnitudes of the gender ratios which we obtain are consistent with other studies which use microdata for these countries.

[3] The gender ratios for the other countries were similar regardless of whether or not the self-employed were included. Our results include the self-employed for the other countries.

[4] That is, 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.

viewed 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 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, and differences between the rankings of countries in Figures 2 and 3 represent the role of wage structure.

The most striking difference is for the U.S. Whereas the U.S. ranks towards the bottom of the list with respect to the female-male earnings ratios, it ranks near the top in terms of women's percentile ranking. Only Italy ranks higher and, as noted above, we have most likely overstated Italy's gender ratio. Thus, the relatively high gender pay gap in the U.S. does not appear to be due to a low ranking of women in the male wage distribution, rather it is due to the higher level of wage inequality in the U.S. which results in an especially large wage penalty for being below average in the distribution.

Also notable in comparing the two figures is the change in the rankings of the Scandinavian countries. Sweden falls from the 2nd highest country in Figure 2 to the 5th in Figure 3, while Norway falls from 5th in Figure 2 to 8th in Figure 3. This suggests that the relatively more equal wage distribution in the Scandinavian countries is an important reason for the relatively high status of women there. So, for example, while the mean percentile ranking of women in the U.S. is 33.2, at the U.S. level of male wage inequality this corresponds to a wage which is 66.9 percent of the male mean. In contrast, Swedish women's percentile ranking of 28.2 corresponds to a wage which is 77.2 percent of the male mean and Norwegian women's ranking of 26.4 corresponds to 71.4 percent of the male mean.

II. The Institutional Setting

In this section we review international differences in gender-specific policies and basic wage-setting institutions. Human capital is also a major determinant of gender pay gaps, and below, we present some international comparisons of women's relative levels of measured human capital. However, international differences in policies and institutions appear to be more dramatic than those in women's relative human capital levels, at least in our sample. Further, human capital can be affected by such policies and institutions as discussed below. We therefore emphasize the institutional setting in our comparisons of gender-based wage differentials. We first consider what the effect of the policies and wage-setting institutions is expected to be; then we compare each country to the U.S. across each dimension. We also note findings from previous research which suggest the importance of both gender-specific policies and labor market institutions in reducing the gender pay gap in specific instances.

Gender-specific policies include equal employment opportunity (EEO) and anti-discrimination laws, as well as laws and policies governing family leave. The expected positive effect of the former on the earnings ratio is reasonably straightforward, although the impact will most likely depend on the effectiveness of the legislation as well as its provisions. Moreover, evaluating the impact of EEO law changes on women's relative pay in specific instances is complicated by the difficulty of locating an appropriate control group and, as Ehrenberg (1989) has pointed out, the possibility that the change in law was endogenously determined.

In general, it is expected that, given considerable segregation of women by occupation and industry, equal pay laws mandating equal pay for equal work within the same occupation and firm will have a relatively small effect. Laws requiring equal opportunity, hiring preferences, and/or "comparable worth" (i.e., equal pay for work of equal value to the firm, regardless of specific occupational category) have potentially larger impacts on the wage differential. In addition, since EEO laws involve occupational shifts, they may require considerable time to have an impact on pay. Thus, the comparable worth approach which provides for immediate increases in relative pay in female-dominated occupations may be expected to have the largest initial wage effect, possibly accompanied by a negative impact on female employment.

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 for the affected group. Further, the incremental costs associated with mandated leave policies may increase the incentives of employers to discriminate against women.

With respect to wage structure, it seems likely that systems of centrally-determined pay entail smaller gender wage differentials for a variety of reasons. First, in the U.S., a significant portion of the male-female pay gap is associated with interindustry or interfirm wage differentials that result from its relatively decentralized-pay setting institutions (Blau, 1977; Johnson and Solon, 1986; Sorensen, 1990; and Groshen, 1991). Thus, 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 consciously raise minimum pay levels regardless of gender will also tend to lower male-female wage differentials. Finally, the impact of gender-specific policies to raise female wages may be greater under centralized systems where such policies can be more speedily and effectively implemented.

We now turn to a comparison of the U.S. to the other countries in our sample along each of these three dimensions. First, with respect to gender-specific discrimination policies, equal employment policy in the U.S.[5] has consisted of the Equal Pay Act of 1963 (requiring equal pay for equal work), the Civil Rights Act of 1964 (requiring equal employment opportunity), and the Executive Order implemented in 1968 (which requires government

[5] See Blau and Ferber (1992) for a summary.

contractors to take "affirmative action" to see that women and minorities are equitably treated). Comparable worth pay policies remain rare in the private sector although they have been adopted by a number of state governments.

In general, U.S. policies in this area compare relatively favorably on their face to those of the other countries in our sample. All have passed some equal pay and equal opportunity legislation, but, interestingly, the U.S. commitment, particularly to equal employment opportunity, predates that in most of the other countries (See Table 1). While Italy did mandate Equal Pay through collective bargaining in the industrial sector in 1960 (predating the U.S. Equal Pay Act by three years), an Equal Employment Opportunity Act was not passed there until 1977. The earliest of the other countries, Australia and the U.K., began to implement equal pay in 1969 and 1970. Equal Opportunity measures were instituted in 1975 in the U.K. and 1978 in Norway. The remainder of the countries passed all relevant legislation in the 1980s. The one country with a clearly stronger intervention than the U.S. is Australia, the only one to have implemented a national policy of comparable worth through its labor courts (see below). (Although Switzerland incorporated the principle of equal pay for work of equal value into its constitution in 1981 (Simona 1985), there is no indication that it has been implemented as yet).

There is some econometric evidence that, all else equal, government policy in the 1970s raised the U.S. female-male pay ratio (Beller, 1979); and further that the portion of the differential attributable to discrimination (as conventionally measured) declined (Blau and Beller, 1988). Stronger evidence of the impact of anti-discrimination policies has been obtained for Australia, Sweden and the U.K. Since the impact of these policies was related to labor market structure, we discuss it below.

The laws governing maternity and parental leave in the various countries are summarized in Table 2. The U.S. is the only country in our sample which does not have government-mandated leave at the federal level. It is, however, required in the U.S. that pregnancy be treated the same as any other medical disability. Thus, leave for the physical aspects of child-bearing must be covered under a firm's medical disability plan, if it has one. Further, it has been found that 40 percent of employees of large and medium size establishments are employed at firms which provide parental leave to women beyond this, the vast majority (92 percent) at firms offering unpaid leave (Hyland, 1990). Plans allowed an average of 20 weeks off for unpaid leave. It may be noted that provision for parental leave is particularly generous in Sweden where nearly a year of paid parental leave is provided after 12 weeks of paid (at 90 percent) maternity leave. While the U.S. clearly lags behind the other countries in the provision of parental leave, as our discussion above suggests, it is unclear what impact this will have on the pay gap.

U.S. pay-setting is far less centralized than that in the other countries in this study, with the possible exception of Switzerland. The U.S. unionization rates of 20.5 percent for male and 12.5 percent for female workers are considerably lower than elsewhere (see Table A-2). Further, the collective bargaining process itself is very decentralized in the U.S., with an emphasis on single-firm agreements, and the U.S. government exerts minimal intervention in wage-setting (Flanagan, Kahn, Smith and Ehrenberg, 1989). Wage determination is also highly decentralized in Switzerland where there is no minimum wage legislation and many collective bargaining agreements do not mention pay (Wrong 1987). While we have no explicit information on Hungary, we assume that as a (then) Communist country, albeit a somewhat more market-oriented one, it most likely had relatively centralized wage-determination institutions.

Wage setting is clearly very centralized in the Scandinavian countries where the great majority of workers (64-80 percent in our micro-data) are unionized and the collective bargaining process is very centralized. For example, in Sweden and Norway, the major union federation (LO) signs an agreement with the employers (SAF) covering a major portion of the labor force.[6] Several changes in collective bargaining practices, both gender-specific and general, helped reduce the Swedish gender pay gap (Lofstrom and Gustafsson 1991). From 1960-65, labor and management phased out the system of separate wage schedules for men and women that had previously existed in Swedish collective bargaining agreements. In addition, from 1968 to 1974, the LO made a conscious effort to raise the relative wages of lower-paid workers, regardless of gender. Finally, in 1977 the LO and SAF negotiated a comprehensive package of equal employment provisions, predating the 1980 passage of formal EEO legislation.

German and Austrian wage determination institutions are also highly centralized, and Austrian pay-setting in particular appears to resemble that of Sweden and Norway. While a smaller percentage of Austrian workers is unionized than in Scandinavia (Table A-2), collective bargaining agreements in Austria in most cases cover an entire industry or group of industries throughout the country. There thus appears to be little room for interfirm differentials in negotiated wages among union workers. Further, the terms of such agreements extend to nonunion workers (Tomandl and Fuerboeck, 1986).

While collective bargaining in Germany is less centralized than in Austria, it is undoubtedly more centralized than in the U.S. Unlike the U.S. emphasis on single-firm agreements, contracts usually cover all employers in an industry in a state (Kennedy 1982). As in Austria, the terms of such agreements extend to nonunion workers. In contrast to Austria, however, nationwide agreements and interindustry contracts are rare.

The Australian wage setting process while also highly centralized differs considerably from the countries described above. In Australia minimum wage rates for occupations are set by government tribunals.[7] Currently, nearly 90 percent of employees are covered by tribunal

[6] While wage setting is still far more centralized in these countries than in other European nations, there were some signs that the system was becoming less centralized in the 1980s (Leion, 1985; Thorsrud, 1985).

[7] This description of Australian pay-setting is based on Gregory and Daly (1991) and Killingsworth (1990).

awards. Until World War II, female award rates were set at 54 percent of male rates; in 1950, this was raised to 75 percent. From 1969 to 1972, the concept of equal pay for equal work was implemented, as the female award rate was raised to 100 percent of the male rate for the same job. Finally, in 1972, the Federal Tribunal moved to the comparable worth concept so that women in female occupations would also be covered by rulings on the minimum male award in other occupations.[8] The raw data in Figure 1, as well as some econometric evidence (e.g., Gregory and Daly, 1991) suggest that these gender-specific policies implemented by the wage courts have played an important role in lowering the pay gap.

Wage determination in Italy is also a very centralized process, and has included explicit attempts to narrow pay differentials in a manner similar to that in Scandinavia. First, while about 40 percent of the Italian labor force in 1985 was unionized (Bean and Holden, 1992), labor courts in Italy are empowered to extend the terms of collective bargaining agreements to nonunion workers (Treu, 1990), most likely yielding an effective degree of unionization which is considerably greater. Second, and more important for understanding the Italian wage structure, is the operation of the wage indexation system, known as the *scala mobile*. This system, in existence since 1975, gives across-the-board lira increases in wages in response to inflation in a conscious attempt to reduced skilled-nonskilled pay differentials (Treu, 1990). By 1990, Italian employers claimed that accumulated indexation payments accounted for 40 percent of labor costs.[9]

Wage-setting in Britain appears to be less centralized than in the countries reviewed above, but is most likely more centralized than in the U.S. Roughly 40-50 percent of British workers are in unions, suggesting a larger role for unions and the collective bargaining process in Britain. In other respects, the wage-setting process appears similar to the U.S. In the British private sector in 1980, only 26 percent of all (union and nonunion) workers had their

[8] While about 40 percent of workers are covered by federal (compared to state or other) awards, these other tribunals often follow the federal lead (Killingsworth 1990).

[9] See "New Industrial Relations Talks Continue," (January 1990), p. 7.

wages set in multiemployer contracts or by wages councils. The rest were covered by single-firm agreements or had wages determined by management (Sisson and Brown, 1983). Similarly government intervention in British pay-setting has been largely limited to periods in which incomes policies limited overall wage increases and reliance on such policies waned in the 1980s (Davies, 1983).

In an econometric analysis that controlled for other factors affecting women's relative pay, Zabalza and Tzannatos (1985) found significant effects for the 1970 equal pay legislation. This legislation was implemented through collective agreements (it was not until 1975 that the labor market was more broadly covered). Not only was it required that differentiated male and female rates be removed, but also that in workplaces covered by collective agreements women could not be paid at less than the lowest male rate (OECD 1988; Zabalza and Tzannatos 1985). Thus, the impact of the law was in part to raise the minimum for women covered by collective bargaining.

III. Earnings Ratios in the Micro-Data

Our principal data source for the study of individual countries is the International Social Survey Programme (ISSP) data. The following countries and time periods were used: Austria (1985-87), West Germany (1985-88), Hungary (1986-88), Switzerland (1987), United Kingdom (1985-88), and United States (1985-88). The 1985-88 ISSP files lack data on the Scandinavian countries, and preliminary results suggested that the Australian data in the ISSP were inconsistent with other sources and that the Italian ISSP data contained very few observations on women. We therefore supplemented the ISSP with three additional micro-data sets in order to include these countries with very high gender earnings ratios. We used the Class Structure and Class Consciousness (CSCC) data base, originally compiled by Erik Wright, for Sweden (1980) and Norway (1982); the Income Distribution Survey (IDS) for

Australia (1986); and a Bank of Italy (BI) survey for Italy (1987).[10] In each case, the sample was restricted to individuals aged 18-65 years old.

The specific earnings measures used in the data for each country are described in detail in the Appendix. In each case the earnings figure is expressed on an annual or monthly basis. The computation of gender wage differentials from these data sets is complicated by the omission from these files of information on annual weeks worked. Weekly hours worked is available, however, allowing for some adjustment of the earnings data for time input.[11] (The adjustment for time input is described below.) In all but two cases, the earnings variable was coded into categories.[12] In the analyses presented below, we arbitrarily coded the top (open-ended) category as 1.2 times its minimum value. However, the gender ratios were virtually identical when we experimented with alternative assumptions for the top category ranging from 1 to 1.5 times its minimum value. Finally, concern for adequate sample size led us to pool years of data for those countries in the ISSP surveyed more than once (see above).

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[10] For descriptions of these data, see Blanchflower and Freeman (1992)--ISSP; Rosenfeld and Kalleberg (1990)--CSCC; Blackburn and Bloom (1991)--IDS; and Erickson and Ichino (1992)--BI.

[11] There is information on weeks worked for Australia and for a subset of the Norwegian data. Analyses correcting for weeks worked yielded very similar results to those reported here, with slightly lower adjusted gender differentials. Lack of information on hours worked for those with multiple jobs forced us to limit the Swedish sample to those with one job only.

[12] The Australian earnings data were originally reported as a continuous variable. However, to maintain comparability with the other countries, we recoded the Australian earnings into the ISSP's intervals for Australia. When the analysis was performed for Australia using the original continuous variable, the results were virtually identical to those reported here. The BI data were also continuous but did not match up with the ISSP categories for Italy. We therefore used the continuous earnings variable for Italy. As noted below, Italy's wage distribution had lower residual variance than in most of the other countries. Use of earnings categories for these other countries implies that Italy's residual variance would have been even lower relative to the others if earnings categories had been used for Italy as well.

A. Estimation of the Gender Differentials

Table 3 gives estimated gender ratios for log earnings corrected for hours for all workers and by marital status. These estimates were obtained as follows. For each country, the following regression was run separately by sex:[13]

(1) $$\ln EARN = b_0 + b_1 PART + b_2 HRPART + b_3 HRFULL + B'X + e,$$

where ln(EARN) is the natural log of earnings; PART is a dummy variable for part-time employment (less than 35 hours per week); HRPART and HRFULL are interactions of weekly work hours with part- and full-time status; X is a vector of explanatory variables including years of schooling, potential experience and its square, union membership,[14] and industrial and occupation dummy variables; and e is an error term. (See the Appendix for the variable means and regression results.) The model allows for both a part-time shift term and different slopes for hours for part-time and full-time workers. A detailed adjustment for part-time employment is important in light of the prevalence of part-time work for women in many countries (see below).

The PART, HRPART and HRFULL coefficients from (1) were used to adjust each person's earnings for work hours by assuming a 40 hour work week. That is, For each worker i, we have:

(2) $$YFULL_i = \ln EARN_i - b_1 PART_i - b_2 HRPART_i - b_3(HRFULL_i - 40)$$

where the coefficients, b_n, are obtained from estimating equation (1) for males and females separately. Gross hours-corrected gender earnings ratios based on the mean of YFULL for the indicated groups were then calculated for each country and are shown in Table 3.

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[13]For countries with more than one year of data, the log earnings variable was obtained by transforming each observation into its 1988 (or end year) equivalent on the basis of regressions including only gender and year dummy variables. Thus, the dependent variable for each observation on individual i in year t is $\ln EARN_{it} - \Sigma_t b_t YR_{it}$, where $\ln EARN_{it}$ is the observed log earnings for individual i in year t, YR_{it} and b_t are the dummy variable and estimated coefficient for year t respectively, and the end year is the omitted year.

[14] Union status was not available for Italy or Australia.

In the first column are the hours-corrected gender earnings ratio for all workers shown in Figure 2. The last two columns of Table 3 provide gender ratios for married and for single workers separately.[15] It is well-known that the family division of labor can influence pay gaps by affecting women's (and men's) investments in human capital, accumulation of seniority and experience, and job search strategies.[16] Except for Hungary, for which we have no data on hours, the pay ratio is relatively high among single workers, ranging from .83 to .98.[17] Further, the rankings of the pay gaps for single workers are not always consistent with the overall rankings. In contrast, the pay gap is much larger for married workers and corresponds more consistently to the rankings for the overall labor force. Nonetheless, since the ratios for married workers are always lower than those for single workers, a question may be raised as to whether the overall differences in ratios across countries are simply due to intercountry differences in family composition. This appears not to be the case, however. In the second column of Table 3, the earnings ratios for all workers are computed using the U.S. proportions of married and single workers. The implied ratios are similar to those for all workers in the first column of the Table. This similarity suggests that cross-country differences in the family composition of the labor force do not account for the observed differences in relative pay gaps. Rather, as concluded above, it is the intercountry differences in the ratios particularly among married workers that drive the international differences.

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[15] Note that equation (1) which is used to obtain hours-corrected earnings for each individual does not control for marital status. This specification was employed because of the complications involved in considering marital status as a productivity indicator for men and women (see our discussion below). We do however provide additional results for a subsample of married workers, a strategy that in effect controls for marital status.

[16] The division of labor in the home can also of course be affected by women's relative labor market opportunities. Nonetheless, we would still expect the division of labor to have some impact on relative pay.

[17] Reasons for the low estimated pay gaps among single workers include the likelihood that they are disproportionately young (the pay gap is lower for young workers--see Mincer and Polachek, 1974), and that single males are less productive than married males (see Korenman and Neumark, 1991).

B. Gender Differences in Worker Characteristics

The data presented in Table 3 suggest that international differences in the gender pay gap are not due to differences in marital status composition. Before providing a formal decomposition of these pay gaps, we briefly examine intercountry differences in other worker characteristics. Such data can reveal at least qualitative differences in the relative labor market skills of women across countries. Overall, we conclude that U.S. women compare favorably with those in other countries when we consider their labor market qualifications relative to those of men.

For all countries except Switzerland and Italy, education and potential experience are similar for men and women (see Table A-2). In Switzerland, the female labor force is less educated and younger than the male labor force, while in Italy, women are more highly educated and younger than men. While unfortunately we lack data on actual labor market experience, some indication of labor force commitment may be gained by an examination of the labor force participation (LFP) rates by gender-marital status groups for each country shown in Table 4. As may be see in the Table, the labor force participation rate of the U.S. women is higher than that in any of the other countries except Sweden. The absolute male-female differential in participation rates in the U.S. is comparable to that in Hungary and lower than that in any of the other countries apart from Sweden.

While the U.S. female population has higher labor force participation than most other countries in the 1980s, this does not necessarily imply that the average employed American woman has more labor market experience. It is possible that in a country with a high female participation rate recent entrants comprise a high proportion of the labor force, and thus that women workers have less experience on average than in a country with a low female LFP rate. On the other hand, it is possible that a country's high female LFP rate is due to a more continuous labor force attachment among women (Blau and Ferber, 1992; Polachek, 1990).

Polachek (1990) in fact finds that in the 1970s, a growing female LFP rate in the U.S. was associated with a rising gender gap in actual experience. This finding was due to the low experience levels of the large number of new entrants (or reentrants). However, by the 1980s, rising U.S. female LFP rates in the U.S. were accompanied by rising female relative experience levels. Lacking international data on actual experience, we tentatively conclude that U.S. women are at least as oriented toward market work as women in most other countries.

This conclusion is reinforced by an examination of the incidence of part-time work shown in Table 5. A smaller percentage of employed women in the U.S. than in any other country works part time (less than 35 hours per week). Further, since the incidence of part-time work among men is considerably higher in the U.S. than in other countries, the gender differential in part-time work is much smaller in the U.S. than elsewhere. We particularly note the high incidence of part-time work among Scandinavian women. About 46 percent of Swedish and 53 percent of Norwegian employed women work part-time, compared to only 24 percent of employed U.S. women.[18] Finally, while the incidence of part-time work is only slightly higher for Italian than for U.S. women, the Italian female labor force participation rate is much lower than that in the U.S. (Table 4).

The commitment of U.S. women to market work is further underscored by examination of the incidence of part-time work by marital status also shown in Table 5. In all countries, married women are more likely to work part-time than single women, and single men generally have a higher incidence of part-time work than married men. However, U.S. married women are far less likely to work part-time than those in any other country, while U.S. married men are slightly more likely to work part-time than those elsewhere. In addition, the gap in the incidence of part-time work between married and single women is only about .10 in the U.S., while it ranges from .24 to .36 elsewhere.

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[18] The high incidence of PART for Scandinavian women may be due in part to the generous family leave policies in these countries. In addition to policies guaranteeing paid parental leave in both Sweden and Norway, Sweden has since 1979 allowed working parents of small children the right to have a six hour day on demand (Haavio-Mannila and Kauppinen, forthcoming).

Tables 4 and 5 are suggestive of a higher level of relative labor force commitment among U.S. women, particularly married women, than among those in most other countries. Table 6 indicates a lower level of occupational segregation (at the one-digit level of aggregation) for U.S. women than for those in other countries (with the exception of Switzerland).[19] Industrial segregation, again measured at the one digit level, is similar in the U.S. to that in the other countries in the sample. The high levels of occupational and industrial segregation in Scandinavia are especially noteworthy and perhaps understandable in light of the high incidence of part-time work there.

A country's level of occupational segregation is likely to reflect both women's relative training levels and labor force commitment and the impact of employer, governmental or union policies (Reskin, et. al., 1986; Blau and Ferber, 1992). To the extent that it reflects training and commitment, we may again conclude that U.S. women's workforce credentials relative to men's exceed those in other countries.

C. Analysis of International Differences in the Pay Gap: The Effects of Skills, Treatment of Women and Overall Inequality

Juhn, Murphy and Pierce (1991) have devised a method that allows us to decompose the international differences in gender pay gaps into a portion due to gender-specific factors and a portion due to differences in the overall level of wage inequality. Following their notation, suppose that we have for male worker i and country j a male wage equation:

(3) $$Y_{ij} = X_{ij}B_j + \sigma_j\Theta_{ij},$$

where Y_{ij} is the log of wages; X_{ij} is a vector of explanatory variables; B_j is a vector of coefficients; Θ_{ij} is a standardized residual (i.e. with mean zero and variance 1 for each country); and σ_j is the country's residual standard deviation of wages (i.e. its level of male residual wage inequality).

[19]This conclusion regarding the U.S. position largely holds true when the segregation index is calculated using published data from the ILO (Blau and Ferber, 1992, p. 309). Note that our findings for Switzerland must be interpreted with caution given the small size of our sample. A segregation index computed on the basis of ILO data does not indicate a lower level of segregation for Switzerland than for the U.S.

Then the male-female log wage gap for country j is:

(4) $$D_j \equiv Y_{mj} - Y_{fj} = \delta X_j B_j + \sigma_j \delta \Theta_j,$$

where the m and f subscripts refer to male and female averages, respectively; and a δ prefix signifies the average male-female difference for the variable immediately following. Equation (4) states that the country's pay gap can be decomposed into differences in measured qualifications (δX_j), and differences in the standardized residual ($\delta \Theta_j$) multiplied by the money value per unit difference in the standardized residual (σ_j).[20] Note that the final term of (4) corresponds to the "unexplained" differential in a standard decomposition of the gender differential when the contribution of the means is evaluated using the male function.

The pay gap difference between two countries j and k can then be decomposed using (4):

(5) $$D_j - D_k = (\delta X_j - \delta X_k) B_k + \delta X_j (B_j - B_k) + (\delta \Theta_j - \delta \Theta_k) \sigma_k + \delta \Theta_j (\sigma_j - \sigma_k).$$

The first term in (5) reflects the contribution of intercountry differences in observed labor market qualifications (X) to the gender gap. For example, the pay gap in one country may be less than in another due to women's higher relative levels of education. The second term reflects the impact of different measured prices across countries for observed labor market qualifications. For example, for a given (positive) male-female difference in schooling, a higher return to education will raise the male-female pay gap.

The third term measures the effect of international differences in the relative wage positions of men and women after controlling for measured characteristics (i.e., whether women rank higher or lower within the male residual wage distribution). That is, it gives the

[20] Note that this formulation is based on a single wage equation for males. That is, one could repeat the analysis starting with a female wage equation. Male-female differences in regression coefficients can reflect either discrimination or sex-correlated measurement errors of variables such as experience. In using the male wage equation for this decomposition analysis, we in effect simulate what the wage equation in a nondiscriminatory labor market would look like (although the elimination of discrimination might change the male as well as the female reward structure). We present both male and female wage equations for each country in the Appendix.

contribution to the cross-country difference in the gender gap that would result if the two countries had the same levels of residual male wage inequality and differed only in their percentile rankings of the female wage residuals. In one country, for instance, the average woman's wage residual may be at the 35th percentile of the male distribution, while in another country, it may be at only the 25th percentile. This percentile ranking may reflect gender differences in unmeasured characteristics and/or the impact of labor market discrimination against women. In the empirical work which follows, we label this term the "gap" effect.

Finally, the fourth term of (5) reflects intercountry differences in residual inequality. It measures the contribution to the intercountry difference that would result if two countries had the same percentile rankings of the female wage residuals and differed only in the extent of male residual wage inequality. Suppose, as is likely, that, controlling for measured characteristics, the female mean log wage is less than the male mean in country j. Then the larger is the intercountry difference in the overall residual inequality in wages (σ_j-σ_k), the larger difference there will be in the ultimate pay gaps in the two countries. That is, unmeasured deficits in female relative skills or discrimination lower women's position in the male distribution of wage residuals. The larger the penalty a country places on being below average in wages, the larger will be its pay gap. In the empirical work below we label this the effect of "unobserved prices."

Following Juhn, Murphy and Pierce (1991), we estimate the third term and fourth terms of (5) empirically using the entire distributions of wage residuals for each country. For example, to compute $(\delta\Theta_j-\delta\Theta_k)\sigma_k$, we first give each woman in country j a percentile number based on the ranking of her wage residual (from the country j male wage regression) in country j's distribution of male wage residuals. We then impute each country j woman's wage residual given her percentile ranking in country j and the distribution of male wage residuals in country k. The difference between the mean of these imputed wage residuals for country j and the actual mean female wage residual for country k is used to find the estimate of $(\delta\Theta_j-\delta\Theta_k)\sigma_k$

(note that the mean male residual is always zero). The fourth term of (5), $\delta\Theta_j(\sigma_j-\sigma_k)$, is obtained analogously.

According to (5), the full impact of gender-specific factors is reflected in the sum of the first and third terms, the effect of gender differences in qualifications and of gender differences in wage rankings at a given level of measured characteristics. Labor market structure is reflected in the sum of the second and fourth terms, the impact of intercountry differences in returns to measured and unmeasured characteristics. Within the framework of a traditional decomposition, the sum of the third and fourth terms represents the impact of intercountry differences in the "unexplained" differential which is commonly taken as an estimate of discrimination.

The possibility of discrimination complicates the interpretation of the last term of (5). With labor market discrimination, this term in part reflects the interaction between country j's level of discrimination (defined as pushing women down the distribution of wages) and intercountry differences in the overall level of inequality which determine how large the penalty is for that lower position in the distribution (Juhn, Murphy and Pierce, 1991). We will present some indirect evidence that in the case of the countries compared here, this term at least in part reflects the impact of overall wage-setting. The observed price effect may also reflect discrimination if, for example, women are "crowded" by exclusion into certain sectors, lowering relative earnings there even for men (Bergmann, 1974).

We implement this decomposition using the Juhn, Murphy and Pierce (1991) accounting method performed on equation (1). Each country's gross gender differential is expressed in terms of YFULL, hours corrected earnings defined in equation (2). The explanatory variables in X include the traditional human capital variables of education, potential experience and its square, as well as union membership, and one-digit industry and occupation dummy variables.[21] The structural variables may reflect both worker skills and

[21] For Hungary, Australia and Italy, industry and/or occupation differ from those for the rest of the countries. In addition, for the latter two, union membership status is not available. For

rents received by workers with these characteristics. Unfortunately the data sets available to us lack information on actual labor market experience. Thus this remains an important omitted variable in these analyses, although, to some degree, our controls for education, hours, industry, and occupation may pick up some of the effects of such omissions.

We have not controlled for marital status in this analysis, although, as noted above, it may be an important factor influencing the pay gap. An alternative would have been to include marital status as a productivity characteristic. However, such an approach is problematic since this variable appears to measure higher skills for men (Korenman and Neumark, 1991), but most likely lower skills for women, especially when data on actual labor market experience are lacking. The approach we have followed allows us to place a sharper interpretation in the decomposition on the impact of differences in labor market skills. Recognizing the potential importance of marital status, however, we also perform a decomposition of pay gaps among married workers. Differences in the results for the whole labor force and those for married workers can provide interesting insights in cross-country comparisons. Sample size limitations prevented us from analyzing single workers.

The decomposition for the whole labor force is summarized in Table 7 and that for married workers (based on equation 1 estimated for married workers only) is presented in Table 8. Looking first at the results for the whole work force (Table 7), we see that the mean female percentile, after controlling for measured characteristics,[22] ranges from 21.2 in Germany to about 37 in the United States, Australia, Sweden and Italy. It is noteworthy that U.S. (and Italian) women place at the top of the list. The column headed "Gap" shows the contribution of each country's female placement in the male residual wage distribution to its

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the purposes of comparing the U.S. and these countries, we estimated U.S. equations that conformed to the same specification as each country.

[22] For each country, this is the mean of the percentile ranking of each woman's residual from the male regression (e_{if}) in the distribution of male wage residuals (e_{im}).

relative pay gap. The figure is positive for all countries except Australia and Italy,[23] indicating that these differences in rankings raise the differential relative to the U.S., often substantially (the unweighted average effect is .1886). The column headed "Unobserved Prices" shows that the lower level of residual wage inequality in each of the other countries has a negative effect, often quite considerable, on its gap relative to that in the U.S. (the unweighted average effect is -.2015).

Table 7 also provides estimates of the impact of measured skills and their prices on intercountry differences in the pay gap. The "Observed X's" effect is generally positive, indicating that U.S. women have relatively favorable levels of the measured variables (the unweighted average effect is .0286). The "Observed Prices" effect is always negative, indicating that the male returns to the explanatory variables increase the pay gap in the U.S. relative to other countries (the unweighted average effect is -.0699). However, these observed effects are much smaller in magnitude than the Unobserved Prices and Gap effects.

The last two columns of the lower panel of Table 7 give the total effect of gender-specific factors and wage structure. The results suggest that U.S. women fare well with respect to gender-specific factors (as measured by the sum of the Observed X's and the Gap effects). For all but Italy, Australia and Sweden, U.S. women have relatively favorable levels of both productivity characteristics and gender-specific treatment in the labor market. For these three countries, the gender-specific factors (i.e., the observed X's and the gap effects) approximately cancel out. In contrast, the U.S. level of inequality (reflected in the sum of Observed Prices and Unobserved Prices effects) greatly raises its gender pay gap compared to each of the other countries in the sample. This inequality effect is sufficient or more than

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[23] Although in both Table 7 and Table 8, the mean female percentile is highest in U.S., there are a few instances in which the gap effect is negative. This reflects 1) our use of the whole distribution in computing the percentiles and the gap effects which can result in such inconsistencies and 2) our use of alternative specifications for the U.S. wage regression to compare the U.S. to countries for which we were not able to include the same industry, occupation, or union status variables which occasionally resulted in a slightly lower percentile for the U.S. than for the country in question.

sufficient to account for the higher pay gap in the U.S. than in the six countries with the smaller gaps.

The conclusions for married women (Table 8) are similar to those for all workers. U.S. women again have the highest percentile ranking, yet the pay gap is larger in the U.S. than in all the other countries except the U.K.[24] We again find that the U.S. level of inequality raises its pay gap, while gender specific factors usually lower it. With the exception of Australia and Sweden, higher U.S. inequality (i.e., wage structure) is sufficient or more than sufficient to explain the higher pay gap in the U.S. compared to the countries with smaller differentials. In the case of Australia and Sweden, U.S. inequality accounts for 72-79 percent of the difference in the married worker pay gap. One interpretation of the moderate difference between these results and the results for all workers (where inequality accounted for 100 percent of the cross-country difference) is that the types of gender-related interventions in Sweden and Australia (discussed above) have had a disproportionate effect on married workers. Parental leave (Sweden) and comparable worth (Australia) may have especially large positive effects on the relative earnings of married women.

An additional point of interest is that, in both Tables 7 and 8, the residual standard deviation of the wage regressions is considerably higher for U.S. men and women than for men and women in other countries (the female residual standard deviation is computed from a female wage regression). Across all the countries in the sample, the correlation coefficient between the male and female standard deviations is .9344. The fact that the male and female standard deviations seem to move together in this manner adds to credibility to our framework in which a country's overall level of inequality is assumed to affect both men and women.[25] Other than the U.S., the residual standard deviation is higher for Australia than for the other

[24] Marital status is not available for Italy.

[25] The standard deviation of gross hours corrected earnings (YFULL) is also higher in the U.S. than elsewhere (results not shown). Similarly, across all countries, the correlation of the male and female standard deviations is .9647.

countries. This occurs despite the Australian tradition of administered wages. This suggests that actual earnings may deviate from award levels, which are intended to be the minimum rates.[26]

The striking finding of Tables 7 and 8 is the importance of wage structure in explaining international differences in the gender gap. However, as noted earlier, what we have labeled wage inequality could also reflect the impact of labor market discrimination. What are we thus to conclude about labor market structure? From a number of indirect indicators we conclude that it is important, even though it may not be possible to precisely estimate its effect.

First, our review of wage-setting institutions in each country strongly suggests that the U.S. system is considerably less centralized than in other countries, thus making a finding of the importance of wage structure plausible. Second, the U.S. has had a longer and often stronger commitment to Equal Pay and Equal Employment Opportunity policies than most other countries in our sample.[27] Further, U.S. women compare favorably to women in other countries in terms of their qualifications and occupational status relative to men. Thus, it is credible that gender-specific factors do not explain the relatively high pay gap in the U.S. Third, we found that residual wage variation (and, in results not shown, wage variation) of both men and women in the U.S. considerably exceeds that of the same gender group in other countries. Similarly, across all countries, female and male wage (and residual wage) variation were found to be highly correlated. This, suggests that the same set of factors--measured and unmeasured prices and wage-setting institutions--affect the wages of both men and women in each country in a similar way. Finally, and perhaps most importantly, even though the

[26] According to Watts and Mitchell (1990), the Australian wage award system allows for considerable variability in actual earnings. Such variations can be achieved by promotions. In the 1980s, the dispersion in actual earnings appeared to increase, despite the imposition of awards with uniform percentage wage increases (Watts and Mitchell, 1990).

[27] A primary exception is the comparable worth approach pursued in Australia which might be expected to produce a larger immediate impact on wages.

estimated wage inequality effect may include the impact of gender discrimination as it interacts with wage structure, our findings nonetheless suggest an extremely important role for wage inequality in affecting the gender ratio.

IV. Swimming Upstream: U.S. Women and the Male Wage Distribution--1971 to 1988

Figure 1 shows that in the 1980s, the gender pay gap in the U.S. narrowed considerably, following a long period of relative stability. In addition, as noted above, labor market inequality has been increasing in the U.S. in recent years. The analysis reported above indicated that the high level of U.S. wage inequality has raised its gender pay gap compared to that in other countries. This finding, in conjunction with these time-series features of the U.S. labor market, implies that U.S. women have been swimming against a current of rising inequality. The falling gender gap in the U.S. becomes even more impressive in light of these recent trends.

To provide some evidence on the degree to which growing inequality has retarded the progress of women's relative pay in the U.S., we have included some analyses of wages from the 1971-88 period. Specifically, we have examined the log of real weekly wages for full-time workers using data from the 1972, 1982 and 1989 Current Population Surveys. This information refers to earnings in 1971, 1981, and 1988, respectively. Earnings are expressed in 1981 dollars using the consumer price index.

Trends in the pay gap and in the wage distribution for these years are described in the upper panel of Table 9. During this time, women moved steadily up the distribution of male wages, from an average percentile of 19.53 in 1971 to a 30.41 figure for 1988;[28] the pace of this upward movement increased in the 1980s. The gender pay differential also fell during both the 1971-1981 and 1981-1988 periods, with some acceleration after 1981. (Figure 1

[28] This latter figure is roughly similar to our results for gross hours corrected earnings from the ISSP (33.2) given in Figure 3, providing further confirmation of the ISSP's representativeness.

shows similar trends.) The declining gender gap reflected a combination of falling male and rising female real wages over the 1971-88 period.

Table 9 also indicates that the standard deviations of the log of female and the log of male real earnings both rose in the 1980s; from 1971 to 1981, however, only male variability increased. Katz and Murphy (1992) found similar male and female patterns for changes in overall wage inequality. Such results could imply that the wage structure widened for both men and women in the 1980s but only for men in the 1970s, calling into question (at least for the 1970s) our approach based on male inequality. However, changes in the variation in log wages are not the same as changes in the wage structure, since the former can be affected by changes in the distribution of productive characteristics as well as in skill prices. Katz and Murphy (1992) in fact found that residual wage inequality rose steadily and at similar rates for both men and women in both the 1970s and 1980s. These findings do suggest that similar processes were at work for both men and women in the U.S. during this period.[29]

The lower panel of Table 9 provides a decomposition of changes in the pay gap into portions due to women's movement up the male distribution and due to changes in male inequality. The stories for the two subperiods are similar: if the overall degree of inequality had not risen, the pay gap would have closed faster than it in fact did. Taking the 1971-88 period as a whole, if male inequality had stayed at its 1971 level but women's relative qualifications and/or treatment had improved at their actual rates, then the pay gap would have fallen by .2301 log points. Since the actual fall in the pay gap was .1735 log points, our figures imply that growing inequality in the 1970s and 1980s reduced the convergence in the pay gap by .0566 log points (or about one fourth--24.6 percent--of the potential decline in the pay gap). The retarding effect of increasing inequality on female gains is also illustrated in Figure 4 where we see that, had male wage inequality remained at its 1971 level, the gender

[29] Since Juhn, Murphy and Pierce (forthcoming) found in their study of male wage inequality that residual inequality grew within as well as between cohorts, they interpret the increase as being due to a rise in skill prices rather than to an increase in the variance of unobserved productivity characteristics.

ratio would have increased from 58.0 in 1971 to 73.1 percent in 1988, 4 percentage points higher than the actual 1988 ratio of 69.0 percent.

The results for the U.S. trends imply a moderate but noticeable effect of rising inequality in slowing the convergence in women's relative pay. It is noteworthy that the inequality effect is smaller in Table 9 than it is in Tables 7 and 8. That is, the higher U.S. level of inequality compared to other countries has a larger effect on intercountry differences in the gender pay gap than changes in U.S. inequality over time have had on U.S. trends in the pay gap. While there have been major recent changes in the U.S. wage structure, cross-sectional differences between the U.S. and other countries are even more dramatic.

V. Conclusions

In this paper, we have used micro-data to examine the gender pay gap in ten industrialized countries. Published data indicate that the gender gap is higher in the U.S. than in most industrialized countries; and it is higher than six of the countries in our sample. The striking finding of the paper is the importance of wage structure in explaining the higher U.S. gender gap. The greater level of wage inequality in the U.S. than elsewhere works to increase the gender differential in the U.S. relative to all the other countries in our sample. Our results suggest that the U.S. gap would be similar to that in countries like Sweden, Italy and Australia (the countries with the smallest gaps) if the U.S. had their level of wage inequality. This suggests that we need to focus both on the supply and demand for skills (i.e., some of the determinants of skill prices) and on wage-setting institutions to explain this important cause of international differences in the gender pay gap. In a brief review of the institutional setting in each of these countries we concluded that the wage-determination process in the U.S. is more decentralized than elsewhere, quite likely contributing to its higher level of wage inequality.

Much attention has been focused on women's growing relative levels of skills and labor force commitment as causes of changes in the pay gap. Our research suggests that to understand changes in the gender pay gap fully, it would also be fruitful to examine the impact of changes in wage structure. As a preliminary step in that direction, we examined male and female trends in real weekly wages for the 1971-1988 period in the U.S. to determine the degree to which growing U.S. inequality has retarded the growth of women's relative wages. In the face of rising inequality, women's relative skills and treatment have to improve merely for the pay gap to remain constant; still larger gains are necessary for it to be reduced. We found that women were able to counter the effects of rising inequality on their relative earnings through a steady increase in their percentile ranking in the male wage distribution, from 19.53 in 1971 to 30.41 in 1988. The pace of this upward movement quickened in the 1980s as did the increase in women's relative wages. Our results indicate that increasing inequality reduced women's potential gains in relative pay by about one quarter during the 1971-88 period.

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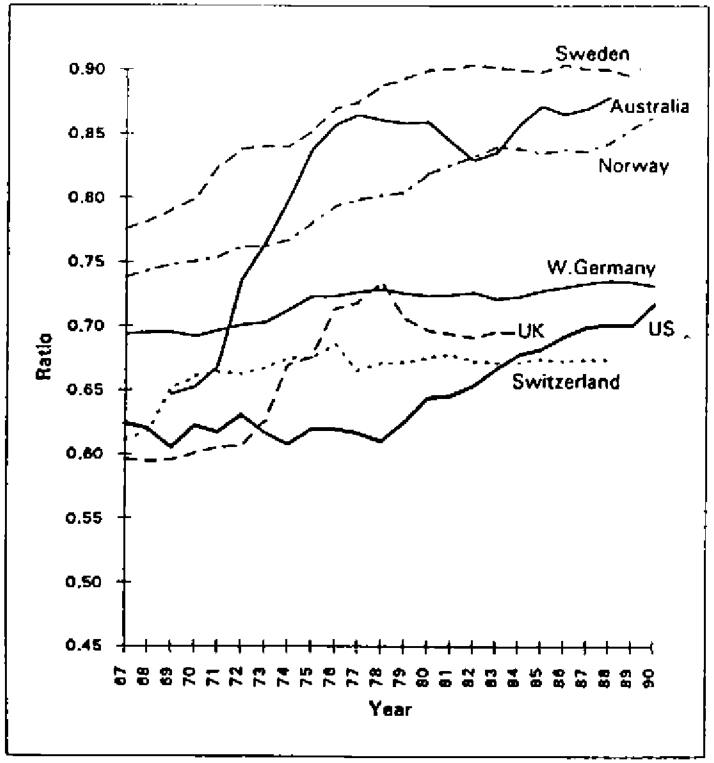
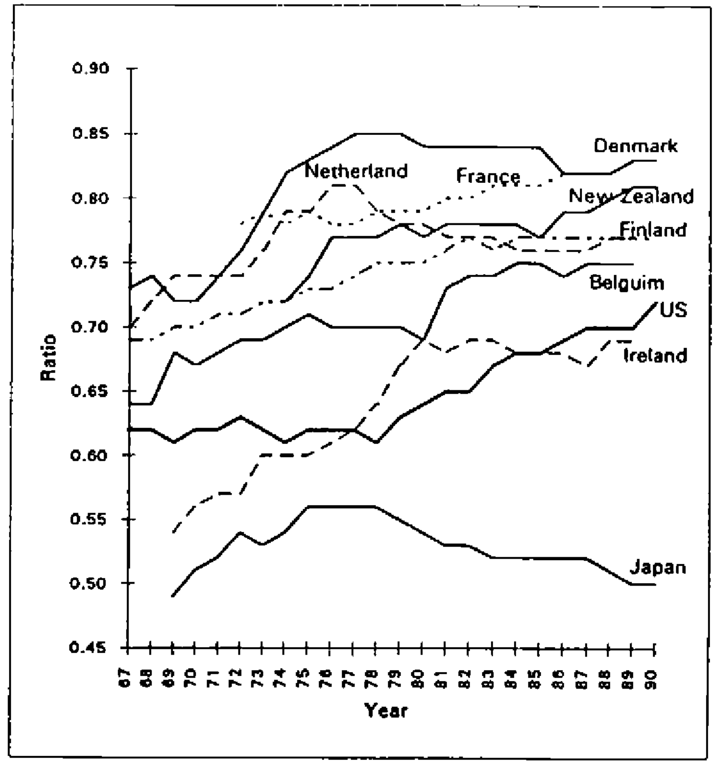
Figure 1

Female-to-Male Hourly Earnings Ratios, Nonagricultural Workers, 1967-90



a) Sample Countries



b) Other Countries

Source: Various issues of OECD, LABOR FORCE STATISTICS; ILO, YEARBOOK OF LABOUR STATISTICS; and U.S. BLS, HANDBOOK OF LABOR STATISTICS.

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Figure 2: Gender Earnings Ratios Adjusted for Hours Only (Percent)

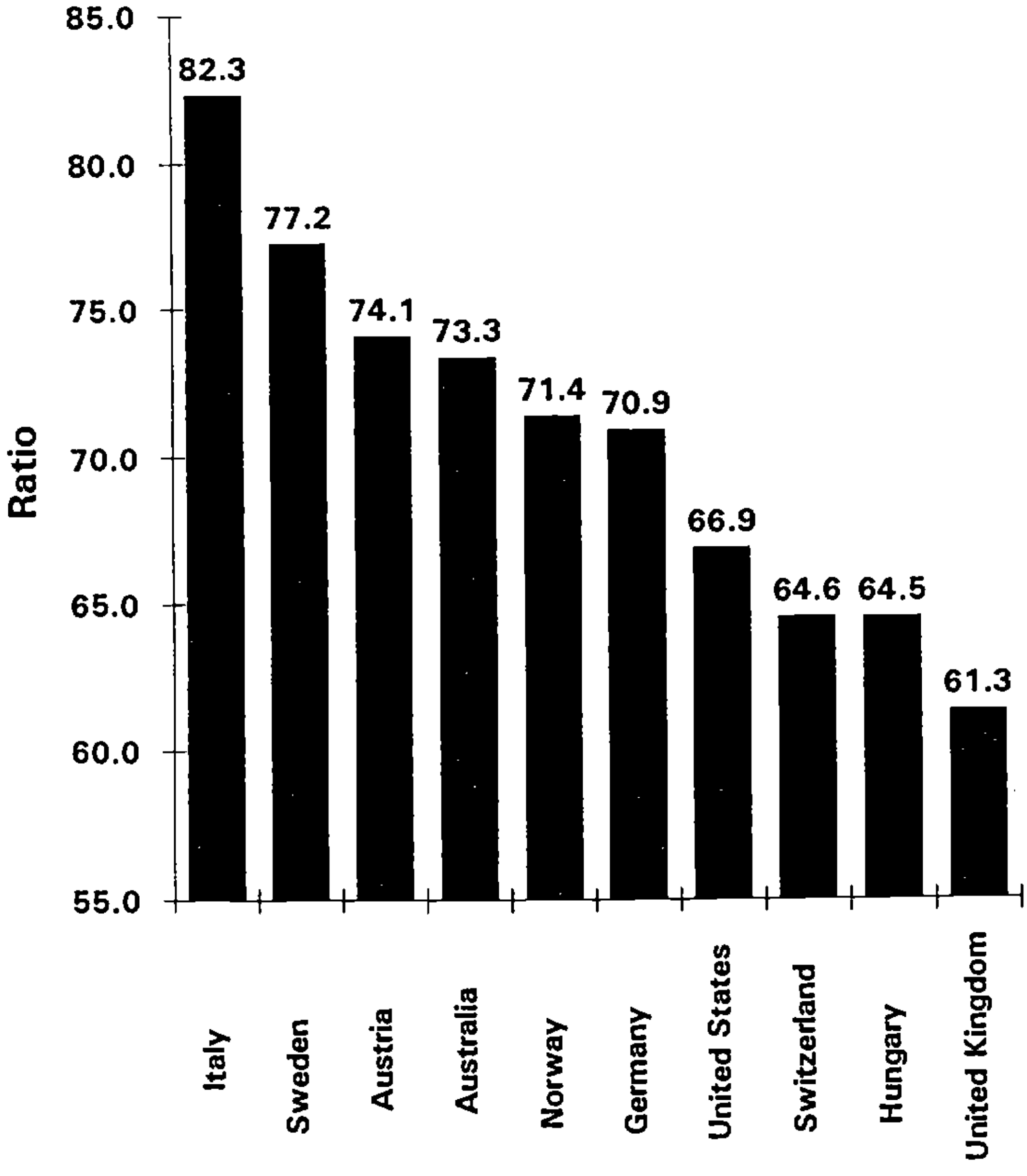

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Figure 3: Female Percentile in Male Distribution

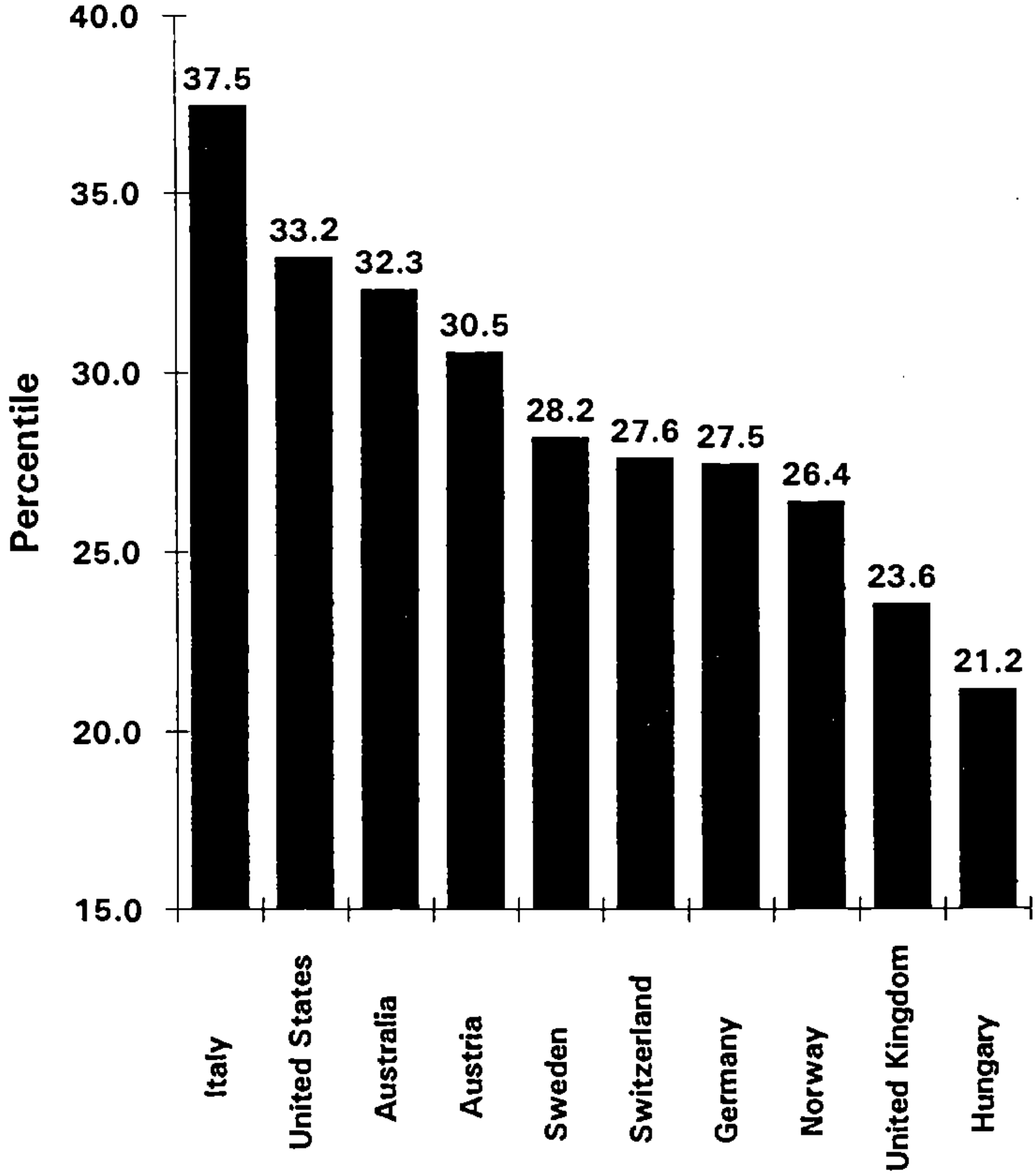

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Figure 4: Simulated Female-Male Pay Ratios: U.S., 1971-88 (Percent)

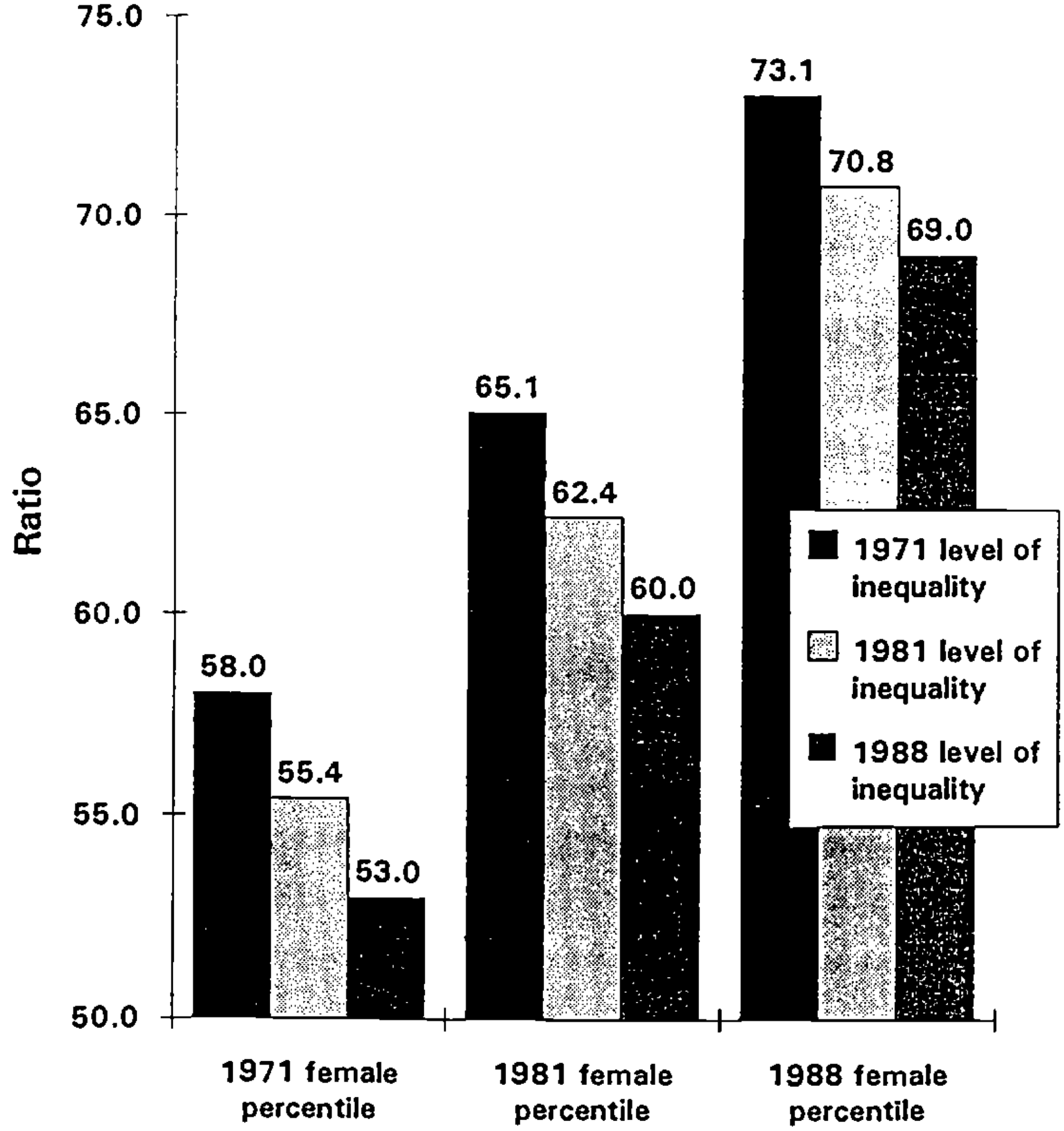

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Table 1

Equal Pay and Equal Employment Opportunity Policy

Country		Year	Principal Implementing Measures: Title	Principal Implementing Measures: Enforcement Machinery
Australia	Equal Pay	1969 1972	Major decisions by Conciliation and Arbitration Commission	Conciliation and Arbitration Commission
	Equal Employment Opportunity	1984 1984, 1987 1986	Sex Discrimination Act Public Service Act Amendments Affirmative Action Act	Sex Discrimination Commissioner Public Service Commission Human Rights and Equal Opportunities Commission; Affirmative Action Agency
Austria	Equal Pay	1979	Law on Equal Treatment in Employment (amended)	Equality Commission
	Equal Employment Opportunity	1985		Ministry of Labour
Germany	Equal Pay	1980	Code of Civil Procedure (§ 612)	Ministry of Labour and Social Affairs; Labour Courts
	Equal Employment Opportunity	1949 1980	Basic Law Code of Civil Procedure (§§ 611*a*, 611*b*, 612*a*)	Ministry of Labour and Social Affairs; Labour Courts
		1986	Directive on professional promotion of women in Federal Administration	Ministry of Youth, Family, Women and Health
Italy	Equal Pay	1960	Equal Pay Agreement of the industrial sector	Collective bargaining parties
		1964	Equal Pay Law for the agricultural sector	Ministry of Labor
	Equal Employment Opportunity	1977 1983	Act on Equal Employment Opportunities between the Sexes Ministerial Decree of the Implementation of Equal Employment Opportunities Principles	Labour Tribunals; Ministry of Labour

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Table 1 cont'd.

Equal Pay and Equal Employment Opportunity Policy

Country		Year	Principal Implementing Measures: Title	Principal Implementing Measures: Enforcement Machinery
Norway	Equal Pay Equal Employment Opportunity	1978	Act on Equal Status between the Sexes	Equal Status Council; Equal Status Ombudsman; Equal Status Appeals Board
			Basic Agreement between Employers' and Trade Unions' Confederation	Collective bargaining parties
Sweden	Equal Pay Equal Employment Opportunity	1980 1983-1984	Act on Equality between Men and Women at Work	Equal Opportunity Ombudsman
			Major Equal Opportunity Agreements between Employers' and Trade Unions' Confederation in Private and Public Sector	Collective bargaining parties
United Kingdom	Equal Pay	1970 1975 1984	Equal Pay Act (in force) (amended)	Industrial Tribunals
	Equal Employment Opportunity	1975 1986	Sex Discrimination Act (amended)	Equal Opportunities Commission (EOC); Industrial Tribunals
United States	Equal Pay	1963	Equal Pay Act	Equal Employment Opportunity Commission (EEOC)
	Equal Employment Opportunity	1964 1972	Civil Rights Act, Title VII Equal Employment Opportunities Act	Equal Employment Opportunity Commission (EEOC)
		1968	Executive Order 11375	Office of Federal Contract Compliance Programs

Source: Organization for Economic Cooperation and Development, OECD Employment Outlook (September 1988), Table 5.11, pp. 167-8.

NBERTAB3.DOC/wfw

Table 2

Maternity and Parental Leave

Country	Maximum Length	Paid/Unpaid
	Maternity Leave	
Australia	52 weeks	Unpaid[a]
Austria	16 weeks	100%
Germany, Federal Republic	14 weeks	100%
Hungary	24 weeks	100%
Italy	5 months	80%
Norway	20 weeks	100%
Sweden	12 weeks	90%
Switzerland	8-12 weeks	Paid as sickness[b]
United Kingdom	40 weeks	Up to 90%[c]
United States	---[d]	---
	Parental Leave	
Australia	Up to 66 weeks[e]	Mostly unpaid
Austria	Age 1 year	Unpaid (allowance possible)
Germany, Federal Republic	Age 1 year	Paid (fixed allowance)
Hungary	Age 18 months	Paid (child-care benefits)
Italy	6 months	Paid (reduced benefits)
Norway	70 days	Paid (social security)
Sweden	360 days	Paid[f] (social security)
United States	---[g]	---

a Provisions for Commonwealth Government employees include 12 weeks' paid leave under certain conditions.

b Compensation depends on the level of insurance.

c 18 weeks paid at different rates.

d Some states provide unpaid maternity leave. Federal law prohibits employment discrimination based on pregnancy and childbirth.

e Applies to some public sector employees only. Parental leave may encompass maternity leave, adoption leave, etc.

f 90% for the first 270 days, then reduced fixed rate.

g In some states only. Up to 12 weeks, unpaid.

Source: International Labour Organization, Conditions of Work Digest, 7, no. 2 (February, 1988), Tables 2 and 3, pp. 20-1.

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Table 3

Gender Earnings Ratios Corrected for Hours[a]

Country	All Workers: Own Country Family Composition	All Workers: US Family Composition[b]	Married Workers	Single Workers
Australia	0.7334	0.7386	0.6756	0.9044
Austria	0.7407	0.7489	0.6607	0.9170
Germany	0.7091	0.7248	0.6006	0.9806
Hungary	0.6454	0.6631	0.6087	0.7728
Italy	0.8232	----	----	----
Norway	0.7138	0.7411	0.6756	0.8958
Sweden	0.7724	0.7865	0.7209	0.9435
Switzerland	0.6455	0.6872	0.6140	0.8709
United Kingdom	0.6133	0.6447	0.5604	0.8251
United States	0.6692	0.6692	0.5672	0.8758

[a]YFULL, earnings evaluated at full-time (40) hours (see equation (2)). The number of hours is not available for Hungary, but all workers are full time. Marital status is not available for Italy.

[b]Computed using U.S. proportions of married and single workers.

Table 4

Labor Force Participation Rates

	Men			Women		
Country	Married	Not Married	All	Married	Not Married	All
Australia	0.8933	0.8688	0.8856	0.5624	0.6774	0.5956
Austria	0.7701	0.7956	0.7784	0.3883	0.5605	0.4444
Germany	0.8408	0.7047	0.7884	0.3742	0.5759	0.4477
Hungary	0.8552	0.8041	0.8423	0.6638	0.6320	0.6562
Italy (1980)	---	---	0.7880	---	---	0.4390
Norway	0.9067	0.7790	0.8778	0.5896	0.5960	0.5910
Sweden (1988)	---	---	0.9000	---	---	0.8500
Switzerland	0.9679	0.8477	0.9312	0.3949	0.8181	0.6045
United Kingdom	0.9211	0.8202	0.8930	0.5572	0.6686	0.5886
United States	0.9068	0.8564	0.8873	0.6200	0.7076	0.6614

Note: Source for Sweden is Lofstrom and Gustafsson (1991). Source for Italy is OECD, Labor Force Statistics (1990), p. 299.

Table 5

Means for Married, Spouse Present (MARSP) and Part-time Work (PART), Employed Sample

	Married (MARSP)		Part-time (PART)					
			Men			Women		
Country	Men	Women	All	Single	Married	All	Single	Married
Australia	0.6971	0.6494	0.0457	0.0674	0.0362	0.3740	0.2070	0.4641
Austria	0.6651	0.5711	0.0218	0.0233	0.0211	0.2821	0.1444	0.3855
Germany	0.6859	0.5252	0.0170	0.0280	0.0119	0.3455	0.1663	0.5076
Italy	---	---	0.0573	---	---	0.2613	---	---
Norway	0.8053	0.8050	0.0697	0.0679	0.0701	0.5251	0.2673	0.5875
Sweden	0.7374	0.7177	0.0525	0.0500	0.0534	0.4565	0.2766	0.5272
Switzerland	0.7268	0.3129	0.0232	0.0377	0.0177	0.2517	0.1386	0.5000
United Kingdom	0.7664	0.7060	0.0366	0.0464	0.0336	0.4485	0.2034	0.5506
United States	0.6366	0.5059	0.1145	0.1800	0.0771	0.2437	0.1915	0.2947

Note: PART is defined as employed for less than 35 hours per week. This variable is not available for Hungary. Marital status is not available for Italy.

Table 6

Gender Segregation Indexes by 1-digit Occupation and Industry

Country	Occupation	Industry
Australia	0.3807	0.3302
Austria	0.4020	0.3140
Germany	0.4216	0.3203
Hungary	0.4084	0.2467
Norway	0.4341	0.3893
Sweden	0.4614	0.4263
Switzerland	0.3222	0.2913
United Kingdom	0.4395	0.3488
United States	0.3568	0.3430

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Table 7

Analysis of Log Wages (YFULL): All Workers

Country	D[a]	Female Residual	Mean Female Percentile[b]	Male Residual Strd. dev.	Female Residual Strd. dev.	D_i-D_{USA}
Australia	0.3100	-0.2386	36.8	0.5998	0.6811	-0.0956
Austria	0.3002	-0.2739	30.4	0.3967	0.4450	-0.1014
Germany	0.3437	-0.2939	30.5	0.3774	0.4903	-0.0579
Hungary	0.4379	-0.4115	21.2	0.3905	0.3667	0.0252
Italy	0.1946	-0.1653	37.3	0.3811	0.4375	-0.1737
Norway	0.3371	-0.3070	29.5	0.4101	0.5120	-0.0645
Sweden	0.2582	-0.1985	36.2	0.4231	0.4551	-0.1434
Switzerland	0.4377	-0.2233	35.1	0.4048	0.5260	0.0361
United Kingdom	0.4889	-0.3904	24.1	0.4084	0.4379	0.0873
United States	0.4016	-0.2777	37.3	0.6717	0.7725	----

Country	Ob-served X's	Ob-served Prices	Gap	Unob-served Prices	Sum Gender-Specific[c]	Sum Wage Structure[d]
Australia	0.0595	-0.0737	-0.0410	-0.0404	0.0185	-0.1141
Austria	0.0679	-0.1655	0.2283	-0.2321	0.2962	-0.3976
Germany	0.0351	-0.1091	0.2538	-0.2376	0.2889	-0.3467
Hungary	-0.0257	-0.0351	0.5827	-0.4967	0.5570	-0.5318
Italy	0.0111	-0.0434	-0.0133	-0.1282	-0.0022	-0.1716
Norway	0.0062	-0.0999	0.2445	-0.2152	0.2507	-0.3151
Sweden	-0.0236	-0.0406	0.0203	-0.0995	-0.0033	-0.1401
Switzerland	0.1008	-0.0102	0.0020	-0.0564	0.1028	-0.0666
United Kingdom	0.0261	-0.0514	0.4200	-0.3073	0.4461	-0.3587

[a] The gender difference in YFULL, earnings evaluated at full-time (40) hours (see equation (2)).

[b] The mean female residual percentile in the male distribution of wage residuals.

[c] The sum of the observed X's and gap effects.

[d] The sum of the observed and unobserved prices effects.

Notes: Regressions include controls for education, potential experience and its square, union status, and occupation and industry dummy variables. The U.S. value used to calculate "D_i-D_{USA}" for Hungary, Australia and Italy is based on hours corrections from U.S. regressions which conform to the specifications for each of those countries. However, the U.S. value in the "D" column is based on the more detailed specification permitted by the ISSP and CSCC data files.

Table 8

Analysis of Log Wages (YFULL): Married Workers

Country	D[a]	Female Residual	Mean Female Percentile[b]	Male Residual Strd. dev.	Female Residual Strd. dev.	$D_i - D_{USA}$
Australia	0.4091	-0.3629	28.7	0.5480	0.6887	-0.1621
Austria	0.4255	-0.3966	23.9	0.4047	0.4751	-0.1427
Germany	0.5068	-0.4817	18.8	0.3280	0.5225	-0.0614
Hungary	0.4964	-0.4462	18.8	0.3811	0.3703	-0.0700
Norway	0.3881	-0.3435	25.6	0.3735	0.5033	-0.1801
Sweden	0.2839	-0.2536	30.2	0.3537	0.4152	-0.2843
United Kingdom	0.5789	-0.4587	21.0	0.3931	0.4510	0.0107
United States	0.5682	-0.4650	30.4	0.6062	0.8450	----

Country	Observed X's	Observed Prices	Gap	Unobserved Prices	Sum Gender-Specific[c]	Sum Wage Structure[d]
Australia	0.0513	-0.0578	-0.0958	-0.0598	-0.0445	-0.1176
Austria	0.0509	-0.1251	0.2142	-0.2826	0.2651	-0.4077
Germany	0.0145	-0.0924	0.4740	-0.4573	0.4885	-0.5497
Hungary	-0.0281	-0.0168	0.4997	-0.5248	0.4716	-0.5416
Norway	-0.0102	-0.0483	0.1129	-0.2344	0.1027	-0.2827
Sweden	-0.0307	-0.0422	-0.0279	-0.1835	-0.0586	-0.2257
United Kingdom	0.0040	0.0130	0.3170	-0.3233	0.3210	-0.3103

[a]The gender difference in YFULL, earnings evaluated at full-time (40) hours (see equation (2)).

[b]The mean female residual percentile in the male distribution of wage residuals.

[c]The sum of the observed X's and gap effects.

[d]The sum of the observed and unobserved prices effects.

Notes: Regressions include controls for education, potential experience and its square, union status, and occupation and industry dummy variables. The U.S. value used to calculate "$D_i - D_{USA}$" for Hungary, Australia and Italy is based on hours corrections from U.S. regressions which conform to the specifications for each of those countries. However, the U.S. value in the "D" column is based on the more detailed specification permitted by the ISSP and CSCC data files.

Table 9

Analysis of Log Real Weekly Wages for Full-Time Workers, United States, 1971-1988 (1981 dollars)

	1971	1981	1988
Mean Female Percentile in Male Distribution	19.53	24.06	30.41
Ln(wage)			
Males	5.9800	5.8857	5.9003
	(.5123)	(.5493)	(.5891)
Females	5.4360	5.4148	5.5298
	(.4754)	(.4773)	(.5354)
Differential	0.5440	0.4709	0.3705

	Decomposition of Changes		
Period	Total Change in Ln(wage)	Due to Change in Female Percentile	Due to Change in Male Inequality
1971-1981	-0.0731	-0.1143	0.0412
1981-1988	-0.1004	-0.1251	0.0247
1971-1988	-0.1735	-0.2301	0.0566

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Appendix

Variable Definitions, Means and Earnings Regression Results by Country

Definitions of the explanatory variables are given in Table A-1. The earnings definitions for each country are listed below:

Austria: Net Monthly Income from Employment

Germany and Switzerland: Net Income per Month after taxes and social insurance

Italy: Annual labor income

Britain: Total annual earnings before taxes

USA: Previous year's earnings from occupation before taxes

Hungary: Monthly earnings

Sweden: Income (from all sources) in previous year

Norway: Annual income from all jobs.

Australia: Annual earnings from all jobs.

Table A-1

Definitions of Explanatory Variables

EDUC = years of schooling completed
PEXP = age - EDUC - 6
PEXPSQ = EXP squared
UNION = dummy variable for union membership

Occupation dummy variables:
- PROF = professional and technical workers (the omitted category)
- MGR = managers, except farm
- CLER = clerical workers
- SALES = sales workers
- CRAFT = craft workers
- OPER = operatives
- LAB = laborers, except farm
- SERVWK = service workers
- FARMMGR = farm managers
- FARMLAB = farm laborers

Industry dummy variables:
- AG = agriculture, forestry and fisheries
- MINCON = mining and construction
- MANDUR = durable goods manufacturing
- MANNON = nondurable goods manufacturing
- TRANS = transportation, communications and utilities
- WTRADE = wholesale trade
- RTRADE = retail trade
- FIRE = finance, insurance and real estate
- SERVS = services
- GOVT = government (the omitted category).

Industry dummy variables for Hungary:
- AG (see above)
- MINMAN = mining and manufacturing
- CONST = construction
- TRANS (see above)
- TRADE = wholesale and retail trade
- SERVS = services, finance insurance and real estate
- GOVT (see above), the omitted category

Occupation dummy variables for Australia:
- MGR = managers and farm managers
- CLER, CRAFT, and OPER (see above)
- LAB = laborers and farm laborers
- SALESW = sales and service workers
- PROF (see above), the omitted category

Industry dummy variables for Australia:
- AG, TRANS, MINCON (see above)
- MANUF = manufacturing
- TRADE = wholesale and retail trade
- FISERV = finance, insurance, real estate and services
- GOVT (see above), the omitted category

Table A-1, cont'd

Definitions of Explanatory Variables

Occupation dummy variables for Italy:
- BLUE = blue collar
- WHITELOW = lower level white collar
- WHITEHI = higher level white collar, the omitted category

Industry dummy variables for Italy:
- AG, TRANS, TRADE (see above)
- IND = Mining, Construction and Manufacturing
- FIRE, GOVT (see above)
- SERVS (see above), the omitted category

Table A-2

Means of Explanatory Variables

	Germany		United Kingdom		United States		Austria		Switzerland		Sweden		Norway	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
PART	0.017	0.346	0.037	0.449	0.115	0.244	0.022	0.282	0.023	0.252	0.053	0.456	0.070	0.525
HPART	0.437	7.619	0.892	9.233	2.626	5.268	0.514	6.284	0.585	6.252	1.300	10.526	1.624	10.737
HFULL	44.308	28.212	43.664	21.604	42.459	33.487	45.531	31.502	47.335	33.367	41.151	22.138	41.386	19.280
EDYRS	10.205	10.400	11.291	11.331	13.383	13.265	11.089	10.911	11.335	10.565	10.236	10.460	11.256	10.950
PEXP	22.939	19.613	21.817	20.628	18.843	18.962	20.712	19.138	23.134	18.565	22.746	22.419	22.267	21.473
PEXPSQ	676.298	523.591	642.187	576.875	497.025	513.662	580.379	521.858	664.526	503.707	694.397	685.044	659.995	617.569
UNION	0.349	0.180	0.471	0.396	0.205	0.125	0.542	0.349	0.433	0.265	0.786	0.796	0.599	0.595
MGR	0.104	0.069	0.157	0.066	0.187	0.141	0.145	0.062	0.180	0.095	0.055	0.018	0.102	0.039
CLER	0.092	0.272	0.072	0.327	0.055	0.259	0.134	0.298	0.116	0.293	0.063	0.198	0.088	0.237
SALES	0.049	0.119	0.046	0.077	0.061	0.054	0.042	0.078	0.054	0.061	0.061	0.093	0.070	0.095
CRAFT	0.351	0.059	0.292	0.081	0.206	0.028	0.308	0.073	0.183	0.014	0.197	0.021	0.220	0.017
OPER	0.095	0.015	0.119	0.032	0.124	0.071	0.101	0.037	0.090	0.027	0.269	0.087	0.190	0.060
LAB	0.013	0.019	0.051	0.008	0.059	0.009	0.047	0.028	0.021	0.020	0.050	0.006	0.017	0.012
SERVWK	0.057	0.134	0.060	0.191	0.081	0.208	0.061	0.183	0.052	0.075	0.072	0.321	0.052	0.191
FARMMGR	0.024	0.011	0.005	0.001	0.019	0.003	0.042	0.046	0.018	0.014	0.020	0.000	0.038	0.008
FARMLAB	0.009	0.007	0.005	0.003	0.009	0.002	0.014	0.014	0.003	0.007	0.009	0.006	0.010	0.008
AG	0.031	0.021	0.015	0.007	0.041	0.013	0.056	0.050	0.031	0.020	0.048	0.006	0.056	0.019
MICON	0.121	0.018	0.118	0.011	0.119	0.013	0.128	0.034	0.103	0.014	0.127	0.021	0.118	0.014
MANDUR	0.244	0.094	0.195	0.072	0.151	0.064	0.235	0.096	0.188	0.088	0.225	0.069	0.207	0.081
MANNON	0.111	0.098	0.129	0.107	0.092	0.066	0.103	0.147	0.152	0.129	0.094	0.084	0.034	0.056
TRANS	0.056	0.011	0.104	0.032	0.086	0.035	0.076	0.014	0.070	0.034	0.138	0.051	0.125	0.021
WTRADE	0.023	0.030	0.044	0.029	0.046	0.018	0.030	0.041	0.003	0.020	0.037	0.012	0.047	0.031
RTRADE	0.043	0.153	0.073	0.181	0.115	0.174	0.058	0.103	0.000	0.000	0.039	0.102	0.053	0.104
FIRE	0.050	0.051	0.051	0.054	0.052	0.083	0.042	0.050	0.088	0.054	0.015	0.018	0.047	0.044
SERVS	0.089	0.248	0.202	0.439	0.218	0.471	0.112	0.317	0.111	0.122	0.230	0.565	0.299	0.606

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Table A-2 (cont'd.)
Means of Explanatory Variables

	Australia		Hungary		Italy	
	Men	Women	Men	Women	Men	Women
PART	0.046	0.374	---	---	0.057	0.261
HPART	0.929	7.031	---	---	1.318	5.733
HFULL	42.370	25.865	---	---	39.163	29.515
EDYRS	11.010	11.189	11.406	11.026	9.820	11.017
PEXP	19.388	17.161	19.765	19.971	23.917	19.664
PEXPSQ	519.751	431.540	524.690	530.290	732.306	532.517
UNION	---	---	0.636	0.762	---	---
MGR	0.114	0.030	0.059	0.051	---	---
CLER	0.093	0.348	0.072	0.242	---	---
SALESW	0.078	0.198	0.012	0.039	---	---
CRAFT	0.241	0.038	0.252	0.080	---	---
OPER	0.116	0.033	0.270	0.076	---	---
LAB	0.157	0.149	0.110	0.179	---	---
BLUE	---	---	---	---	0.514	0.384
WHITELOW	---	---	---	---	0.433	0.606
SERVWK	---	---	0.041	0.107	---	---
FARMMGR	---	---	0.012	0.003	---	---
FARMLAB	---	---	0.058	0.032	---	---
AG	0.034	0.013	0.233	0.132	0.034	0.035
MICON	0.104	0.018	---	---	---	---
MANUF	0.215	0.113	---	---	---	---
TRANS	0.146	0.046	0.111	0.056	0.116	0.162
TRADE	0.163	0.194	0.042	0.116	0.112	0.035
FISERV	0.257	0.556	---	---	---	---
IND	---	---	---	---	0.392	0.186
FIRE	---	---	---	---	0.040	0.039
GOVT	---	---	---	---	0.144	0.131
MINMAN	---	---	0.316	0.280	---	---
CONST	---	---	0.092	0.048	---	---
SERVS	---	---	0.147	0.320	---	---

NBERTAB2.DOC, MEAN92.ASC

Table A-3

Coefficients from Regression Analysis of YFULL

	YFULL Coefficients for Germany				YFULL Coefficients for United Kingdom			
	Men		Women		Men		Women	
Variable	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
INTERCEP	6.0688	0.0912	6.3533	0.1780	8.0856	0.1508	7.7343	0.2127
PART	-0.5261	0.2609	-1.1741	0.1773	-1.3979	0.2071	-1.8227	0.1557
HPART	0.0256	0.0094	0.0358	0.0053	0.0491	0.0078	0.0579	0.0029
HFULL	0.0107	0.0013	0.0027	0.0029	0.0045	0.0012	0.0042	0.0035
EDYRS	0.0478	0.0042	0.0535	0.0089	0.0700	0.0096	0.0928	0.0112
PEXP	0.0686	0.0032	0.0480	0.0058	0.0529	0.0033	0.0145	0.0040
PEXPSQ	-0.0011	0.0001	-0.0009	0.0001	-0.0010	0.0001	-0.0002	0.0001
UNION	0.0250	0.0213	0.1033	0.0451	0.0515	0.0236	0.0707	0.0290
MGR	0.0555	0.0382	0.1125	0.0744	0.1101	0.0397	-0.0875	0.0623
CLER	-0.1775	0.0445	-0.0363	0.0509	-0.3158	0.0505	-0.2251	0.0430
SALES	0.0277	0.0523	-0.1492	0.0727	-0.0606	0.0597	-0.3541	0.0665
CRAFT	-0.1860	0.0323	-0.2051	0.0895	-0.2253	0.0373	-0.4172	0.0680
OPER	-0.2417	0.0421	-0.0612	0.1521	-0.3488	0.0456	-0.5156	0.0893
LAB	-0.5462	0.0908	-0.2836	0.1307	-0.4431	0.0577	-0.2227	0.1524
SERVWK	-0.1020	0.0481	-0.2497	0.0620	-0.2678	0.0535	-0.4489	0.0467
FARMMGR	-0.1357	0.1695	-0.7794	0.2792	-0.0177	0.1726	-0.8178	0.4971
FARMLAB	-0.2572	0.1547	-0.2342	0.2505	-0.3512	0.1880	-0.6753	0.2757
AG	-0.2911	0.1600	-0.0674	0.2176	-0.2860	0.1256	-0.1540	0.2187
MICON	-0.0050	0.0384	0.0214	0.1311	0.0208	0.0546	0.1342	0.1323
MANDUR	0.0524	0.0311	-0.0224	0.0709	-0.0594	0.0498	0.0971	0.0736
MANNON	0.0353	0.0374	-0.1834	0.0736	0.0077	0.0525	0.0281	0.0701
TRANS	0.0676	0.0474	0.1702	0.1618	-0.0138	0.0548	0.1142	0.0860
WTRADE	-0.0608	0.0672	-0.0903	0.1042	-0.0411	0.0689	0.1811	0.0914
RTRADE	-0.0994	0.0536	-0.1338	0.0662	-0.3327	0.0598	-0.1362	0.0646
FIRE	0.1061	0.0547	0.0097	0.0874	0.1424	0.0643	0.0463	0.0738
SERVS	-0.0300	0.0393	-0.0808	0.0511	-0.1782	0.0483	-0.0674	0.0560
S.E.E.	.3774		.4903		.4084		.4379	
R2	.4582		.3526		.4016		.6521	
Sample size	1592		874		1477		1204	

NBERTAB2.DOC, COEF92.ASC

Table A-3 (cont'd)

Coefficients from Regression Analysis of YFULL

	YFULL Coefficients for the United States				YFULL Coefficients for Austria			
	Men		Women		Men		Women	
Variable	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
INTERCEP	8.2375	0.1770	8.1492	0.2507	8.8191	0.1507	8.5387	0.2357
PART	-0.7413	0.1763	-1.6344	0.1843	-1.4062	0.4051	-1.3813	0.2189
HPART	0.0238	0.0062	0.0421	0.0056	0.0549	0.0162	0.0375	0.0067
HFULL	0.0085	0.0018	0.0050	0.0029	0.0054	0.0018	-0.0029	0.0034
EDYRS	0.0695	0.0080	0.0810	0.0117	0.0187	0.0080	0.0484	0.0124
PEXP	0.0534	0.0055	0.0333	0.0066	0.0342	0.0053	0.0301	0.0066
PEXPSQ	-0.0008	0.0001	-0.0004	0.0001	-0.0005	0.0001	-0.0005	0.0001
UNION	0.2222	0.0469	0.1344	0.0704	0.0789	0.0354	0.0761	0.0492
MGR	0.0757	0.0642	0.0927	0.0838	-0.0908	0.0755	-0.1068	0.1151
CLER	-0.3257	0.0908	-0.1161	0.0748	-0.2499	0.0747	-0.0954	0.0754
SALES	-0.0660	0.0917	-0.5432	0.1189	-0.2707	0.1085	-0.1729	0.1159
CRAFT	-0.1738	0.0681	-0.1290	0.1575	-0.2919	0.0668	-0.3829	0.1136
OPER	-0.3292	0.0780	-0.2162	0.1259	-0.3266	0.0800	-0.2741	0.1462
LAB	-0.5927	0.0952	-0.5162	0.2501	-0.3842	0.0959	-0.3099	0.1505
SERVWK	-0.3620	0.0838	-0.4565	0.0804	-0.2849	0.0839	-0.3055	0.0791
FARMMGR	-0.4261	0.2119	0.4187	0.4612	-0.7096	0.1633	-0.6664	0.2803
FARMLAB	-0.5874	0.2447	-0.9051	0.5658	-0.4406	0.1587	-0.4234	0.2150
AG	0.1102	0.1743	-0.5273	0.2605	-0.0389	0.1388	-0.0132	0.2601
MICON	-0.1844	0.0884	-0.3026	0.2211	0.0493	0.0649	-0.1102	0.1338
MANDUR	0.0177	0.0828	0.0655	0.1378	-0.0275	0.0588	0.0764	0.0972
MANNON	-0.0550	0.0898	-0.2454	0.1371	0.0299	0.0667	-0.0295	0.0975
TRANS	0.0403	0.0914	0.1340	0.1507	-0.0171	0.0734	0.0940	0.1939
WTRADE	-0.2941	0.1103	-0.2987	0.1933	0.2073	0.1069	0.1628	0.1249
RTRADE	-0.3025	0.0864	-0.3796	0.1089	-0.1369	0.0894	0.0098	0.1026
FIRE	0.0399	0.1056	-0.0377	0.1214	0.2223	0.0937	0.1295	0.1151
SERVS	-0.2801	0.0759	-0.2486	0.0973	-0.0078	0.0683	0.0330	0.0705
S.E.E.	.6717		.7725		.3967		.4450	
R2	.3808		.4206		.2883		.3754	
Sample size	1406		1194		642		436	

NBERTAB2.DOC, COEF92.ASC

Table A-3 (cont'd)

Coefficients from Regression Analysis of YFULL

	YFULL Coefficients for Switzerland				YFULL Coefficients for Sweden			
	Men		Women		Men		Women	
Variable	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
INTERCEP	6.2999	0.1917	6.2689	0.5978	9.4122	0.2359	9.6928	0.5082
PART	0.0939	0.5455	-2.1373	0.6649	-0.7021	0.3539	-1.1591	0.4648
HPART	-0.0008	0.0203	0.0665	0.0164	0.0198	0.0129	0.0307	0.0061
HFULL	0.0082	0.0028	0.0021	0.0117	0.0047	0.0028	0.0011	0.0106
EDYRS	0.0548	0.0067	0.0736	0.0172	0.0434	0.0098	0.0426	0.0116
PEXP	0.0719	0.0076	0.0543	0.0155	0.0674	0.0063	0.0297	0.0082
PEXPSQ	-0.0010	0.0001	-0.0008	0.0003	-0.0010	0.0001	-0.0004	0.0002
UNION	0.0292	0.0440	0.1327	0.1135	0.1856	0.0575	0.2828	0.0701
MGR	0.1735	0.0673	-0.0985	0.1800	0.1813	0.1060	0.2228	0.2065
CLER	-0.0448	0.0831	-0.0022	0.1503	-0.0589	0.0980	0.0820	0.0959
SALES	-0.1387	0.1082	-0.3101	0.2676	0.0591	0.1356	-0.0116	0.1649
CRAFT	-0.2318	0.0739	-0.1221	0.4239	-0.0151	0.0786	-0.1128	0.2179
OPER	-0.1631	0.0921	-0.1092	0.3465	-0.1832	0.0750	0.1938	0.1467
LAB	-0.2081	0.1578	-0.1627	0.3438	-0.1149	0.1272	0.0597	0.3691
SERVWK	-0.2955	0.1146	-0.3821	0.2029	-0.2598	0.0980	-0.0610	0.0887
FARMMGR	-1.0129	0.2748	-0.2577	0.7095	-0.5679	0.2391	0.0000	0.0000
FARMLAB	0.0150	0.4585	0.1439	0.5670	-0.1725	0.2900	-0.5875	0.3538
AG	-0.0096	0.2132	-0.2208	0.5417	0.2624	0.1842	0.0000	0.0000
MICON	0.0720	0.0823	0.2963	0.4067	0.1777	0.1182	0.3277	0.2192
MANDUR	0.1055	0.0706	0.1037	0.1809	0.1746	0.1123	-0.0218	0.1572
MANNON	0.0478	0.0736	-0.0111	0.1906	0.1167	0.1225	-0.1237	0.1481
TRANS	-0.0187	0.0986	0.4299	0.2779	0.1508	0.1147	0.0280	0.1517
WTRADE	-0.2745	0.4206	0.3203	0.3443	0.1869	0.1530	0.0207	0.2764
RTRADE	0.0000	0.0000	0.0000	0.0000	0.0322	0.1748	-0.0353	0.1762
FIRE	0.2721	0.0874	0.2463	0.2221	0.5201	0.1931	0.2367	0.2120
SERVS	0.0625	0.0801	0.3602	0.1649	0.1146	0.1065	-0.0171	0.1109
S.E.E.	.4049		.5236		.4231		.4551	
R2	.5341		.4294		.4240		.4257	
Sample size	388		147		457		333	

NBERTAB2.DOC, COEF92.ASC

Table A-3 (cont'd)

Coefficients from Regression Analysis of YFULL

YFULL Coefficients for Norway

Variable	Men Coeff	Men Std Error	Women Coeff	Women Std Error
INTERCEP	10.2470	0.1844	11.1202	0.3962
PART	-1.5105	0.1818	-2.0945	0.3370
HPART	0.0536	0.0066	0.0529	0.0046
HFULL	0.0052	0.0016	-0.0095	0.0078
EDYRS	0.0453	0.0070	0.0385	0.0119
PEXP	0.0531	0.0048	0.0099	0.0072
PEXPSQ	-0.0008	0.0001	-0.0001	0.0001
UNION	0.0648	0.0331	0.2091	0.0499
MGR	0.0465	0.0592	-0.0028	0.1238
CLER	-0.0051	0.0620	-0.0582	0.0723
SALES	0.0073	0.0784	0.0232	0.1311
CRAFT	-0.0630	0.0552	-0.1612	0.1977
OPER	-0.1419	0.0607	-0.2354	0.1329
LAB	-0.1307	0.1281	0.0766	0.2741
SERVWK	0.0094	0.0752	-0.2786	0.0764
FARMMGR	-0.5140	0.1725	2.1019	0.5204
FARMLAB	-0.7038	0.2001	1.0246	0.5229
AG	0.3971	0.1934	-1.5774	0.4789
MINCON	-0.0478	0.1311	-0.3251	0.2456
MANDUR	-0.0037	0.1273	-0.1261	0.1755
MANNON	-0.2243	0.1476	-0.2625	0.1919
TRANS	-0.0315	0.1303	0.2525	0.2193
WTRADE	0.1342	0.1421	-0.2353	0.1989
RTRADE	-0.0375	0.1434	-0.3269	0.1830
FIRE	0.1425	0.1383	-0.0611	0.1834
SERVS	-0.1339	0.1242	-0.1704	0.1600
S.E.E.	.4101		.5120	
R2	.4139		.5101	
Sample size	832		518	

YFULL Coefficients for Australia

Variable	Men Coeff	Men Std Error	Women Coeff	Women Std Error
INTERCEP	8.9394	0.0958	8.8661	0.1631
PART	-1.5624	0.1153	-1.6534	0.1397
HPART	0.0388	0.0042	0.0472	0.0024
HFULL	0.0019	0.0014	0.0028	0.0031
EDYRS	0.0452	0.0046	0.0410	0.0058
PEXP	0.0579	0.0028	0.0295	0.0038
PEXPSQ	-0.0010	0.0001	-0.0004	0.0001
MGR	-0.0149	0.0362	-0.1992	0.0805
CLER	-0.1389	0.0380	-0.1506	0.0410
SALESW	-0.1999	0.0416	-0.2987	0.0478
CRAFT	-0.2205	0.0328	-0.3468	0.0742
OPER	-0.1485	0.0394	-0.3662	0.0862
LAB	-0.2629	0.0364	-0.4735	0.0518
AG	-0.8151	0.0595	-0.5734	0.1231
MICON	-0.0603	0.0429	0.1726	0.1056
MANUF	-0.0831	0.0376	0.0488	0.0661
TRANS	-0.0072	0.0393	0.0739	0.0775
TRADE	-0.2151	0.0400	-0.0734	0.0610
FISERV	-0.2083	0.0366	-0.0115	0.0544
S.E.E.	.5998		.6811	
R2	.3135		.4318	
Sample size	4556		3003	

Table A-3 (cont'd)

Coefficients from Regression Analysis of YFULL

YFULL Coefficients for Hungary

Variable	Men Coeff	Men Std Error	Women Coeff	Women Std Error
INTERCEP	8.1770	0.0830	7.7577	0.0807
EDYRS	0.0375	0.0036	0.0463	0.0039
PEXP	0.0329	0.0030	0.0319	0.0028
PEXPSQ	-0.0006	0.0001	-0.0005	0.0001
UNION	0.0115	0.0212	0.1027	0.0225
MGR	0.0552	0.0475	-0.1281	0.0466
CLER	-0.1546	0.0451	-0.1851	0.0293
SALES	-0.3007	0.0961	-0.3734	0.0578
CRAFT	-0.0550	0.0358	-0.2164	0.0419
OPER	-0.0717	0.0374	-0.1305	0.0420
LAB	-0.1076	0.0453	-0.2507	0.0357
SERVWK	-0.0977	0.0558	-0.1862	0.0378
FARMMGR	-0.0564	0.0904	-0.8869	0.1567
FARMLAB	-0.1442	0.0545	-0.3435	0.0630
AG	-0.0517	0.0455	0.0054	0.0495
MINMAN	0.0536	0.0428	-0.0593	0.0439
CONST	-0.0230	0.0496	-0.0012	0.0560
TRANS	-0.0735	0.0490	0.0197	0.0538
TRADE	-0.1243	0.0630	-0.0216	0.0506
SERVS	0.0264	0.0447	-0.1825	0.0427
S.E.E.	.3905		.3668	
R2	.2059		.2819	
Sample size	1876		1835	

YFULL Coefficients for Italy

Variable	Men Coeff	Men Std Error	Women Coeff	Women Std Error
INTERCEP	8.7303	0.0783	8.7173	0.1579
PART	-0.4825	0.1064	-0.8566	0.1268
HPART	0.0205	0.0039	0.0207	0.0030
HFULL	0.0082	0.0012	0.0005	0.0027
ED	0.0395	0.0022	0.0525	0.0034
EXP	0.0457	0.0019	0.0377	0.0027
EXPSQ	-0.0007	0.0000	-0.0005	0.0001
BLUE	-0.5476	0.0330	-0.4142	0.0950
WHITELOW	-0.3783	0.0294	-0.2420	0.0910
AG	-0.1392	0.0363	-0.6666	0.0523
IND	0.0579	0.0196	0.0102	0.0282
TRADE	0.0578	0.0245	0.0299	0.0287
TRANS	0.1081	0.0243	0.0420	0.0504
FIRE	0.2218	0.0338	0.1546	0.0481
GOVT	-0.0162	0.0228	-0.0415	0.0299
S.E.E.	.3811		.4375	
R2	.3995		.3741	
Sample size	4152		2480	

NBERTAB2.DOC, COEF92.ASC