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## Earnings and Percentage Female: A Longitudinal Study

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### Abstract

Comparable worth is designed to raise the earnings of women assumed to be penalized for working in female-dominated occupations. Comparable worth advocates assume that the relation between earnings and percentage female in an occupation is due to crowding or other forms of discrimination. An alternative explanation is that the relation stems from women freely choosing different occupations. In other words, preferences are an omitted variable. In our study, we first replicate previous research that has used cross-sectional data to find a negative relation between earnings and percentage female (in an occupation) for both men and women. However, using longitudinal data to control for time-invariant omitted variables, we find that while men's estimated penalty is not reduced, the percentage female penalty falls substantially for women and is not statistically significant. These results imply that estimates of the percentage female effect based on cross-sectional data may be inflated for women. An exception to this general finding is that women with intermittent labor force participation do experience a sizeable penalty for working in female-dominated occupations. Hence, this pattern of results suggests that a comparable worth policy would most likely benefit women with discontinuous employment—perhaps an unintended outcome.

### Keywords

CAHRS, ILR, center, human resource, studies, advanced, earnings, female, comparable worth, women, discrimination

### Comments

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**EARNINGS AND PERCENTAGE FEMALE:  
A LONGITUDINAL STUDY**

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**Working Paper #89-04**

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This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make the results of Center research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

## ABSTRACT

Comparable worth is designed to raise the earnings of women assumed to be penalized for working in female-dominated occupations. Comparable worth advocates assume that the relation between earnings and percentage female in an occupation is due to crowding or other forms of discrimination. An alternative explanation is that the relation stems from women freely choosing different occupations. In other words, preferences are an omitted variable. In our study, we first replicate previous research that has used cross-sectional data to find a negative relation between earnings and percentage female (in an occupation) for both men and women. However, using longitudinal data to control for time-invariant omitted variables, we find that while men's estimated penalty is not reduced, the percentage female penalty falls substantially for women and is not statistically significant. These results imply that estimates of the percentage female effect based on cross-sectional data may be inflated for women. An exception to this general finding is that women with intermittent labor force participation do experience a sizeable penalty for working in female-dominated occupations. Hence, this pattern of results suggests that a comparable worth policy would most likely benefit women with discontinuous employment--perhaps an unintended outcome.

An important source of the lower earnings of women relative to men is their differential placement in firms, occupations, and jobs (Sieling, 1984; Bielby & Baron, 1986). One explanation is that women choose different occupations than men because of different preferences. Because of weaker labor force attachment, for example, women may choose occupations where their skills will depreciate less slowly during spells of absence from the labor market (Polachek, 1981).<sup>1</sup>

An alternative explanation is that discrimination results in the differential placement. For example, women may have historically had access to only a limited number of occupations. This "crowding" would have resulted in an oversupply of labor to these occupations, driving down wages (Bergmann, 1974). Further, it has been suggested that persons employed in female-dominated occupations receive lower returns to occupational characteristics (e.g. specific vocational preparation) because "women's work" is undervalued. Consistent with these hypotheses, evidence suggests that the percentage female of an occupation's employment is negatively associated with earnings (Fuchs, 1971; Rytina, 1981; Treiman & Hartmann, 1981; Johnson & Solon, 1986; El Cheikh, 1988; Sorensen, 1987). Further, Buchele and Aldrich (1985) found that unequal returns to two occupational characteristics, general educational development and specific vocational preparation, explained the majority of women's earnings disadvantage.

If discrimination is the culprit, comparable worth is a public policy option that seeks to raise women's relative earnings. There is, however, some ambiguity concerning how to measure the impact of a private sector comparable worth policy. For example, Johnson and Solon

(1986) and Sorensen (1987) measured the impact of comparable worth as the reduction in the earnings gap that would result if women worked in occupations having the same level of percentage female as men. Aldrich and Buchele (1986), however, have referred to this as an "upper-bound estimate of the comparable worth wage adjustment for women" (pp. 121-122).<sup>2</sup>

Our paper does not attempt to resolve the question of how to measure the impact of a comparable worth policy.<sup>3</sup> Instead, we focus on the question of how important the gender composition of occupations is in explaining earnings differences between men and women. The answer to this question should prove useful in assessing the impact of a comparable worth policy using whatever definition one deems most appropriate.

In addressing such issues, we note that previous research has relied exclusively on cross-sectional data. Longitudinal data, however, provide more potential control over the unmeasured variables (e.g. preferences, abilities, and occupational characteristics) that some argue account for the observed relation between earnings and percentage female. In this study, we compare results obtained using cross-sectional versus longitudinal designs.

#### METHOD

##### Sample

National Longitudinal Surveys (NLS) Youth cohort data from two years, 1983 and 1986, when respondents were between the ages of 18-25 and 21-28, respectively, were used. This sample is characterized by high mobility--an important advantage for our purposes.<sup>4</sup> We estimate a

fixed effects model below as a means of controlling constant, unmeasured influences on earnings. It is well known, however, that such a model exacerbates errors in variables problems. Thus, when estimates from a fixed effects model differ from estimates based on cross-sectional data, one is often unsure whether the discrepancy is due to better control of omitted variables or instead measurement error difficulties. One solution is to use data where actual changes in variables are large relative to errors. The use of a young sample with high mobility in the present study helps achieve this goal. As a further step, data collected 3 years apart (from 1983 and 1986) are used to permit adequate time for significant changes in key variables.

Two types of samples are used. The first sample included any person who worked for earnings during 1986. This sample, referred to as the 1986 cross-section, permits comparison with previous research that has been cross-sectional in nature.

The second included only persons who worked for earnings in 1983 and 1986.<sup>5</sup> As such, this sample, referred to as the longitudinal sample, included only persons with a somewhat stronger attachment to the labor market.

### Measures

The dependent variable is the natural logarithm of the hourly wage.

Four sets of independent variables are used. First, the percentage of females in a 3-digit 1970 occupation is taken from tabulations published in Rytina (1982).

Second, information on other occupational characteristics

associated with 3-digit 1970 occupations came from Appendix F of Miller, Treiman, Cain, and Roos's (1980) report on the 4th edition of the Dictionary of Occupational Titles. The characteristics are the same as those used by Johnson and Solon (1986): specific vocational preparation, general educational development, environmental conditions, and physical demands.

Third, individual characteristics included years of education, weeks worked since 1975 (and its square), coverage by a collective bargaining contract, marital status, usual weekly hours, and school enrollment status. A variable for year in the sample was also included.

Fourth, 16 dummy variables were used to define industry classifications based on 1970 industry codes.

### Analyses

First, data from the 1986 cross-section were used to estimate the following wage equation:

$$\text{Ln}(W_i) = X_i B + e_i \quad (1)$$

where  $\text{Ln}(W_i)$  is a vector of the natural logarithm of hourly wages for  $i$  persons;  $X_i$  is a matrix of observations on the independent variables;  $B$  is a coefficient vector; and  $e$  is a disturbance term composed of all unmeasured causes of wages.

Second, data from 1983 and 1986 (the longitudinal sample) were pooled and treated as a single cross-section. Thus, with  $t = 1983$  or 1986, we have:

$$\text{Ln}(W_{it}) = X_{it} B + e_{it} \quad (2)$$

In this model,  $B$  is referred to as the between groups estimator.



Given the availability of longitudinal data, we also estimated a model that specifies fixed individual effects for each individual over time by redefining the error term of (2):

$$\text{Ln}(W_{it}) = X_{it}B + u_i + v_{it} \quad (3)$$

where  $u_i$  is a time-invariant individual effect and  $v_{it}$  is a disturbance term. In this model,  $B$  is the fixed effects or within groups (where each person is a "group") estimator.

Estimates of these equations were obtained separately for men and women and used to decompose wage differences into two components (Blinder, 1973; Jones, 1983): (a) differences in mean levels of endowments, and (b) differences in coefficients or prices received for these endowments. Because the result of a decomposition varies as a function of which group is used as the standard (Cain, 1986), we report decompositions using both the advantaged and disadvantaged group as the standard.

As discussed earlier, different authors have chosen different methods of estimating the impact of a private sector comparable worth policy. In terms of the standard decomposition model (i.e. partitioning into levels/endowments, coefficients/returns, and total attributable), they can be defined as follows. First, the measure used by Sorensen (1987) and Johnson and Solon (1986) is equal to the portion of the earnings gap due to differences between men and women in levels of percentage female. Note that this measure is equivalent to Aldrich and Buchele's (1986) upper-bound measure of impact. Second, Aldrich and Buchele describe a lower-bound measure which is equivalent to the portion of the earnings gap due to differences in levels and

coefficients (i.e. the total amount attributable).

## RESULTS

Table 1 reports means and standard deviations.

The first set of results in Table 2 are estimates using the 1986 cross-section. The coefficients on percentage female indicate that movement from a 100% female occupation to a 100% male occupation is associated with an earnings decline of 13.2% for men, 9.9% for women. Although the magnitude of these effects are somewhat smaller than in previous work using individual level Current Population Surveys data (e.g. Johnson & Solon, 1986; Sorensen, 1987), the pattern is similar in that men's penalty is higher.

The other two sets of results reported in Table 2 use the longitudinal sample. Results based on the between groups model indicate that movement from a 100 % male to a 100 % female occupation would be associated with a 19.2 % decrease in earnings for men, versus a 4.7 % decrease in earnings for women. We note also that the percentage female coefficient for women is of marginal statistical significance ( $p = .07$ ). Recall that to be included in the longitudinal sample, a person needed to have earnings in both 1983 and 1986. Relative to the 1986 cross-section, the longitudinal sample would consequently include persons with stronger attachment to the labor force. Thus, one hypothesis for women's lower percentage female coefficient in the longitudinal sample is that greater labor force attachment reduces their percentage female penalty.<sup>6</sup>

The final set of results in Table 2 are estimates for the within groups model. The within groups estimate of the percentage female

coefficient is identical for men.<sup>7</sup> However, the percentage female coefficient for women is reduced by approximately one-fourth and is not statistically significant. This finding may provide support for those who argue that the effect of percentage female on women's earnings is partly a function of omitted variables (e.g. preferences).

The first part of Table 3 reports decomposition results based on the 1986 cross-sectional data. Using either the endowments or total amount attributable as a measure of comparable worth's impact, the implication is the same--comparable worth would narrow the earnings gap. To facilitate comparison with results based on a less restricted age group, we used Sorensen's (1987) results (based on Current Population Surveys data) to calculate corresponding figures.<sup>8</sup> In her study, differences in levels of percentage female accounted for 14-25% of the earnings gap (versus 25-33% here). The total amount attributable to differences in endowments and coefficients together was 8% in her study (versus 20% in ours). In other words, her cross-sectional results are quite consistent with ours. This similarity is important because it suggests that the young age of our sample is not a critical factor in explaining our results.

The remaining decompositions in Table 3 report earnings decompositions using the longitudinal data. Based on the between groups estimates, differences in levels of percentage female account for 15-61% of the earnings gap. The figure based on the within groups model is nearly identical.

Because of the much higher penalty for percentage female experienced by men, however, the decomposition implies that the

earnings gap would actually become wider if differences in coefficients were eliminated. The net result of combining the portions attributable to differences in endowments and coefficients is that the total attributable to percentage female is negative. Thus, using these longitudinal data, the two methods for assessing the impact of a comparable worth policy yield conflicting results. Based on endowments alone (the upper-bound estimate), comparable worth would be expected to narrow the gap by 12-61%. In contrast, based on both endowments and coefficients (the lower-bound estimate), the gap would actually be expected to increase by 12-17%.

It is important to note, however, that although the findings regarding the impact of percentage female on the earnings gap are mixed, other factors clearly do work against women. Specifically, the intercept and individual characteristics (in the within groups model) contribute most to women's lower earnings. Thus, a key finding appears to be that it may not be percentage female (or other occupational characteristics) that explain women's lower earnings. Rather, lower returns to individual characteristics (including gender) may be most important.<sup>9</sup>

#### DISCUSSION

We found that the coefficient on percentage female for women obtained using longitudinal data was smaller than that using cross-sectional data. This reduction in the magnitude of the coefficient may have resulted from better control of time-invariant omitted variables (e.g. preferences, abilities). An important implication is that previous research (all cross-sectional in nature) may have over-

estimated the impact of percentage female on earnings of women.<sup>10</sup>

Based on the within groups model, women moving from an occupation employing virtually men only to an occupation employing only women would result in a decrease in earnings of 3.7%. If instead, we consider a change from the typical male occupation (26 % female) to the typical female occupation (71 % female), the decrease in women's earnings would be 1.7%. Finally, even this modest effect is open to question given the lack of statistical significance of the percentage female coefficient in the women's within groups equation.

If, however, we follow the method employed by Johnson and Solon (1986) and Sorensen (1987), we would nevertheless conclude that a comparable worth policy would reduce the earnings gap by 12-61% (based on the within groups model). Yet, this method ignores the fact that men receive a greater earnings penalty than women for working in female-dominated occupations. Taking this result into consideration leads to the conclusion that a comparable worth policy would actually widen the earnings gap. These conflicting implications suggest the need for future work to develop more precise methods of measuring the impact of a comparable worth policy.

The differences between the cross-sectional and longitudinal results did not appear to be solely a function of the within groups model's better control of omitted variables. Note that to be included in the longitudinal sample, a person had to have earnings in both 1983 and 1986. To be included in the 1986 cross-section, only earnings in 1986 were necessary. Thus, it is possible that continuity of labor force participation may have influenced the size of the penalty

incurred for working in a female-dominated occupation.

To test this hypothesis, we constructed a sample composed of persons who worked in 1983 only or in 1986 only (i.e. in only 1 of the 2 survey years). Table 4 reports equation estimates based on this sample of persons with weaker labor attachment. In contrast to our other results, the percentage female coefficient in the full model for women is  $-.166$ , more than 4 times its magnitude in the longitudinal sample.

Further, as Table 5 indicates, eliminating the effect of percentage female would reduce earnings differences, using either of the definitions discussed. These results raise the possibility that a comparable worth policy would mostly benefit women with less regular participation in the labor force--an unintended outcome perhaps.

Although evidence suggests that comparable worth may raise women's relative earnings in the public sector (Sorensen, 1986), the results of the present study raise doubts about such a policy achieving a similar outcome in the private sector. Moreover, it is not clear that the desired target groups would be reached. Our results, for example, imply that women with intermittent employment patterns would be the main beneficiaries. Similarly, Smith (1988), using Current Population Surveys data, concluded that a comparable worth policy would cover a minority of women and would most likely benefit women with relatively greater earnings.<sup>11</sup>

The young age of our sample raises the question of how well our results would generalize to the full labor force. As reported above, our cross-sectional results were similar to those based on Current

Population Surveys data, suggesting some generalizability to broader age groups. In any case, the age groups included in the current study represented approximately 22 % and 26 % of the labor force in 1983 and 1986, respectively, making this age group important in its own right.

Finally, despite the small role of percentage female (among persons with more regular labor force participation), it remains clear that women are paid less than men. Even in models that supplement standard human capital factors with firm level measures of productivity (e.g. performance ratings) and responsibility (e.g. narrow job titles), as well as measures of the type of human capital (e.g. precise measures of field of study), women still realize an earnings shortfall (Gerhart, 1988).

Consequently, if earnings discrimination does exist, the most likely culprit still appears to be unequal treatment based on individual, not occupational characteristics. Therefore, the main policy implication is the need to focus on eliminating the impact of individual factors such as race, sex, etc., rather than using a broad-based approach that seeks to eliminate the impact on earnings of occupational characteristics such as percentage female. Further, some evidence suggests that women's lower earnings can be traced to their lower salaries at the time of hire (Gerhart, 1988), rather than lower salary growth within firms (Gerhart & Milkovich, 1987). Together with evidence that employers exhibit some preference against hiring women (Olian, Schwab, & Haberfeld, 1987), policy initiatives that focus on equal access to firms and equitable starting salaries may prove more useful.

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## FOOTNOTES

1. See England (1982) for an alternative view.
2. Taking yet another approach, Buchelle and Aldrich (1985), instead of examining the role of percentage female, measured the impact of comparable worth as the reduction in the earnings gap resulting from the elimination of unequal returns to occupational characteristics realized by men and women. However, most authors (including Aldrich & Buchelle in their later work) focus on percentage female--we do the same.
3. See Ehrenberg (1987) for a critique and discussion of attempts to measure the impact of a comparable worth policy.
4. Initial work on these issues used the Current Population Surveys (El Cheikh, 1988). However, these data had important drawbacks. Chief among them was that longitudinal data were limited to two consecutive years on any person. One year proved to be an inadequate period of time for any significant mobility to occur. As such, estimates for a fixed effects model of the type discussed below were very imprecise as indicated by equation  $R^2$ s that did not reach statistical significance. In response to these problems, we decided to use data from the Youth Cohort of the National Longitudinal Surveys.
5. This restriction was necessary for estimation of the within groups or fixed effects model.
6. An alternative explanation is that the pooling (and double-counting of some persons) causes the different results. To test this possibility, we pooled persons who worked in either 1983 or 1986. We obtained percentage female coefficients of  $-.160$  ( $SE = .020$ ) and  $-.100$  ( $SE = .020$ ), for men and women, respectively. These, of course are quite close to those obtained using the 1986 cross-section, suggesting that it is not the pooling of different years that changes the results.
7. Note also that for both men and women, the magnitude of the  $R^2$  in the within groups model is comparable to that in the between groups model, suggesting that the strategy of spacing the two time periods three years apart and using a young sample was successful in reducing the errors in variables problem.
8. Sorensen did not report her complete decomposition results. We calculated the results based on her Tables 2 and 3.
9. Where independent variables do not have a natural metric, scaling decisions are made. The latter influence the portion of the difference attributed to differences in constants and returns to other independent variables (Jones, 1983). Consequently, interpretation of differences in returns to particular independent variables is risky.
10. An alternative explanation for obtaining smaller coefficients using a within groups model is that errors in variables problems were exacerbated. In our study, however, the latter explanation may be difficult to sustain because the percentage female coefficient for men

was actually larger using the within groups model. Moreover, the equation  $R^2$ s were comparable in the between and within groups models for both men and women. Thus, we conclude that the use of a sample where actual changes in variables were large relative to errors of measurement effectively controlled potentially severe errors in variables difficulties.

11. Note also that within-firm studies (Rosenbaum, 1985; Hartmann, 1987; Gerhart & Milkovich, 1987) have provided little support for the notion that the female dominance of an occupation or job contributes to lower pay. Because comparable worth is a within-firm policy, these results again raise questions about its effect on earnings differentials.

## Author Notes

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TABLE 1

## Means and Standard Deviations

Variable	1986 Cross-section				Longitudinal Sample			
	Men		Women		Men		Women	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
NATURAL LOG OF HOURLY PAY	1.87	.49	1.70	.50	1.77	.51	1.62	.49
PERCENTAGE FEMALE <sup>a</sup>	.25	.25	.68	.28	.26	.26	.71	.27
INDIVIDUAL CHARACTERISTICS								
Years of Education	12.44	2.31	12.97	2.13	12.30	2.17	12.93	1.93
Weeks Worked <sup>a</sup> (since 1975)	2.64	1.19	2.53	1.22	2.26	1.20	2.27	1.18
Weeks Worked Squared	8.41	6.67	7.90	6.50	6.56	6.13	6.54	5.98
Collect. Barg. Coverage	.19	.40	.15	.36	.20	.40	.15	.35
Marital Status	.35	.48	.44	.50	.31	.46	.38	.48
Usual Weekly Hours	40.98	10.59	35.93	10.30	39.33	11.36	35.18	10.74
Year (1986=1, 1983=0)	---	---	---	---	.50	.50	.50	.50
Enrollment Status	.11	.31	.13	.33	.16	.30	.17	.30
OCCUPATIONAL CHARACTERISTICS								
Specific Vocat. Prep.	4.87	1.75	4.76	1.57	4.70	1.73	4.66	1.53
General Educ. Development	3.30	.89	3.52	.84	3.22	.87	3.49	.81
Environmental Conditions	.76	.81	.26	.48	.76	.81	.24	.47
Physical Demands	2.05	.95	1.52	.70	2.08	.91	1.56	.69

<sup>a</sup>Divided by 100

[TABLE 1 is continued]

TABLE 1 (continued)

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INDUSTRY									
Personal Services	.03	.18	.08	.27	.04	.20	.08	.28	
Agriculture	.03	.18	.01	.09	.04	.20	.01	.09	
Mining	.01	.11	.004	.06	.01	.11	.00	.07	
Construction	.11	.31	.01	.09	.10	.30	.01	.09	
Manufacturing--durables	.15	.36	.06	.25	.13	.34	.05	.23	
Manufacturing--nondurables	.10	.29	.09	.28	.09	.29	.09	.28	
Transportation	.04	.20	.01	.12	.04	.19	.01	.11	
Communications	.01	.10	.01	.11	.01	.10	.01	.10	
Utilities	.02	.14	.004	.06	.02	.13	.00	.07	
Wholesale Trade	.03	.17	.02	.12	.03	.16	.02	.13	
Retail Trade	.18	.38	.21	.40	.21	.41	.22	.41	
Finance, Insurance and Real Estate	.04	.21	.09	.29	.04	.20	.10	.30	
Business Services	.09	.28	.06	.24	.08	.27	.04	.21	
Entertainment and Recreation Services	.01	.11	.01	.11	.02	.14	.01	.12	
Professional Services	.10	.29	.28	.45	.10	.30	.28	.45	
Public Administration	.05	.21	.05	.22	.04	.20	.06	.23	
NUMBER OF OBSERVATIONS		3484		3426		4920		4588	

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TABLE 2

## Estimates for Earnings Equation

Variable	1986 Cross-section				Longitudinal Sample							
	Men		Women		Between Groups				Within Groups			
	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
INTERCEPT	.587	.075	.285	.073	.660	.062	.050	.064	---	---	---	---
PERCENTAGE FEMALE	-.132	.033	-.099	.040	-.192	.028	-.047	.026	-.192	.038	-.036	.037
INDIVIDUAL CHARACTERISTICS												
Years of Education	.043	.004	.039	.004	.040	.003	.045	.004	.037	.012	.006	.012
Weeks Worked (since 1975)	.135	.022	.144	.022	.173	.018	.112	.019	.269	.023	.247	.024
Weeks Worked Squared	-.003	.004	-.007	.004	-.010	.003	-.0006	.004	-.017	.004	-.012	.004
Collect. Barg. Coverage	.254	.017	.168	.020	.235	.014	.173	.017	.166	.021	.142	.024
Marital Status	.064	.015	-.020	.014	.084	.013	-.001	.012	.036	.019	-.008	.019
Usual Weekly Hours <sup>a</sup>	-.001	.001	.0002	.001	-.001	.0006	.0005	.0006	-.002	.0007	-.0004	.0008
Enrollment Status	-.157	.024	-.072	.022	-.103	.018	-.053	.017	-.141	.026	-.126	.024
Year (1986=1, 1983=0)	---	---	---	---	.058	.013	.079	.014	---	---	---	---
OCCUPATIONAL CHARACTERISTICS												
Specific Vocat. Prep.	.017	.010	.025	.011	.022	.008	.044	.009	.032	.011	.044	.013
General Educ. Development	.074	.021	.075	.023	.048	.016	.044	.019	-.032	.024	-.002	.026
Environmental Conditions	-.019	.011	-.043	.018	-.026	.009	.0006	.015	-.011	.012	.063	.021



TABLE 2 (continued)

Physical Demands	-.027	.011	-.002	.012	-.037	.010	.012	.010	-.046	.013	-.0008	.014
INDUSTRY												
Personal Services	---	---	---	---	---	---	---	---	---	---	---	---
Agriculture	.062	.051	.157	.085	.022	.039	.190	.067	.065	.055	.026	.103
Mining	.403	.071	.428	.109	.348	.058	.576	.089	.169	.095	.336	.126
Construction	.343	.043	.468	.080	.324	.035	.448	.065	.279	.048	.503	.088
Manufacturing--durables	.242	.039	.440	.037	.226	.031	.477	.033	.241	.043	.385	.050
Manufacturing--nondurables	.202	.041	.378	.034	.205	.032	.384	.029	.211	.047	.417	.045
Transportation	.293	.049	.369	.064	.237	.040	.420	.058	.177	.055	.286	.084
Communications	.275	.077	.480	.068	.191	.064	.503	.058	-.003	.125	.325	.093
Utilities	.329	.060	.595	.113	.315	.052	.603	.087	.267	.080	.634	.142
Wholesale Trade	.154	.052	.357	.060	.150	.043	.459	.048	.149	.057	.340	.063
Retail Trade	.005	.037	.207	.029	.014	.029	.299	.024	.042	.039	.267	.033
Finance, Insurance and Real Estate	.218	.047	.375	.034	.215	.039	.424	.028	.195	.056	.319	.043
Business Services	.135	.041	.316	.038	.085	.033	.347	.034	.061	.045	.292	.045
Entertainment and Recreation Services	.090	.070	.141	.067	-.015	.047	.248	.052	.063	.062	.136	.070
Professional Services	.086	.041	.303	.030	.077	.032	.334	.025	.090	.045	.325	.035
Public Administration	.235	.047	.315	.039	.187	.039	.357	.032	.231	.054	.338	.047
R <sup>2</sup>	.375		.367		.418		.390		.376		.368	
NUMBER OF OBSERVATIONS	3484		3426		4920		4588		2460		2294	

TABLE 3

## Decomposition of Earnings Differences

Sources	1986 Cross-section			Longitudinal Sample					
	Returns	Endow	Total	Between Groups			Within Groups		
				Returns	Endow	Total	Returns	Endow	Total
Percentage Female	-13 <sup>a</sup> (-05) <sup>b</sup>	33 (25)	20	-73 (-27)	61 (15)	-12	-78 (-29)	61 (12)	-17
Individual Charact. <sup>c</sup>	40 (35)	-02 (03)	38	-14 (-18)	-16 (-12)	-30	259 (239)	-19 (1)	240
Occup. Charact.	-41 (-42)	-22 (-21)	-64	-66 (-150)	-22 (-03)	-153	-176 (-215)	-14 (25)	-190
Industry	-100 (-096)	30 (26)	-70	-159 (-156)	25 (22)	-134	-129 (-125)	20 (16)	-109
Intercept	176	---	176	429	---	429	176	---	176
Total	61 (68)	39 (32)	100	62 (78)	38 (22)	100	52 (46)	48 (54)	100

<sup>a</sup>Men's coefficients used as standard.<sup>b</sup>Women's coefficients used as standard.<sup>c</sup>Includes a dummy variable for year.

TABLE 4

Estimates for Earnings Equation, Persons with Earnings in 1983 Only  
or 1986 Only

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Variable	Men		Women	
	b	SE	b	SE
INTERCEPT	.563	.100	.396	.106
PERCENTAGE FEMALE	-.085	.045	-.166	.043
INDIVIDUAL CHARACTERISTICS				
Years of Education	.045	.005	.073	.021
Weeks Worked <sup>a</sup> (since 1975)	.142	.029	.191	.031
Weeks Worked Squared	-.007	.007	-.019	.007
Collect. Barg. Coverage	.255	.025	.161	.030
Marital Status	.106	.022	-.019	.021
Usual Weekly Hours <sup>a</sup>	-.002	.001	-.001	.001
Enrollment Status	-.130	.027	-.053	.030
OCCUPATIONAL CHARACTERISTICS				
Specific Vocat. Prep.	.019	.013	.052	.017
General Educ. Development	.063	.029	-.006	.034
Environmental Conditions	.006	.015	-.042	.024
Physical Demands	-.032	.016	-.033	.018

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[TABLE is continued]

TABLE 4 [continued]

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INDUSTRY				
Personal Services	---	---	---	---
Agriculture	-.023	.063	.545	.094
Mining	.444	.092	.844	.257
Construction	.334	.055	.772	.122
Manufacturing--durables	.315	.050	.533	.051
Manufacturing--nondurables	.167	.054	.519	.049
Transportation	.367	.068	.523	.089
Communications	.305	.100	.681	.102
Utilities	.369	.089	.761	.151
Wholesale Trade	.162	.069	.476	.091
Retail Trade	.047	.048	.337	.037
Finance, Insurance and Real Estate	.145	.072	.515	.048
Business Services	.135	.052	.408	.051
Entertainment and Recreation Services	.015	.095	.246	.080
Professional Services	.110	.053	.442	.039
Public Administration	.212	.063	.487	.054
R <sup>2</sup>	.335		.341	
Number of Observations	2053		1955	

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TABLE 5

Decomposition of Earnings Differences, Persons Working in 1983  
only or 1986 only

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Variables	Returns	Endowments	Total
Percentage Female	11% <sup>c</sup> (28%) <sup>a</sup>	34% (17%)	45%
Individual Charact.	35% (46%)	1% (-10%)	36%
Occup. Charact.	53% (51%)	-11% (-8%)	42%
Industry	-155%(-140%)	44% (29%)	-111%
Intercept	86% (86%)	0% (0%)	86%

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Total	30% (70%)	70% (30%)	100%
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