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INDUSTRY WAGE DIFFERENTIALS AND THE GENDER WAGE GAP

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Abstract. Using the March, 1988, Current Population Survey, we find significant interindustry hourly wage differentials for female workers, which are significant even after controlling for variations in the productivity-related characteristics of workers. These are at least as large and as varied as those for males, but highly correlated with male industry wage differentials. In spite of this, there are considerable differences in the industry wage differentials for the two sexes. Of the overall sex wage gap of about 0.35, 12 - 22 percent can be explained by differences in the industry coefficients for male and female workers and 15-19 percent by differences in the distribution of male and female workers across industries. Thus, the combined industry effects explain about one-third of the overall sex wage gap.

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Several recent studies have shown that wage differentials exist between industries which cannot be explained by productivity-related characteristics of workers, nor by industry characteristics such as unionization or concentration[1] . These patterns have been shown to persist over time and in other countries as well as the U.S. Several theories have been offered to explain this anomaly, from the early wage contours of Dunlop to more recent models of efficiency wages and rent sharing.[2] Most of the work to date has considered only male wages or wages of the total employed work force.

In the present study, we examine the pattern of interindustry wage differentials separately for women and men in the United States in 1988. There are four questions of interest. First, do these differentials exist among female workers as they do among males? Second, is there as much variation in industry wage differentials among women as among men? Third, is there a high correlation between the male and female differentials -- that is, do industries that pay above or below average male wages tend to do so for females as well? Fourth, of the overall wage gap between female and male workers, what proportion is due to (i) disparities in the pattern of industry wage differentials by gender; (ii) differences in the distribution of male and female workers among industries; and (iii) differences in productivity-related factors?

This last question is of particular interest since several other studies have examined it. Using Census of Population data, Hodson and England (1986) calculated that 15 percent of the overall sex wage gap in 1970 resulted from differences in the distribution of employed men and women across industries. On the other hand Roos (1981) found that gender differences in employment across industries explained only 0.4 percent of the overall wage gap on the basis of 1974-77 NORC General Social Surveys data.[3] Groshen (1991), using different data sources over the 1974-83 time periods, found that differences in the employment distribution by gender accounted for a significant portion of the overall sex wage gap but the employment distribution reflected both establishments as well as industries. She concluded that "white male wages would still be 12 percent above female wages (even after full occupational integration) as the result of sex segregation by establishment and 'job cell'" (p.464).

More recently, Sorensen (1991) and Blau and Kahn (1992) calculated that changes in the sex distribution of employment among industries helped account for between 10 and 16 percent of the decline in the sex wage gap during the late 1970s and early 1980s. However, both also found that the divergence between the industry wage premia for males and females served to widen the wage gap over this period. Results for both of these studies were based on two-digit industries, not the three-digit industry level, which we consider below.

1. Industry Wage Differentials by Gender

We use the March, 1988, Current Population Survey (CPS) for our data analysis.[4] Our regression equation is a semilog earnings function of the following form:

$$(1) \quad \ln W_i = a + b_1 EDUC_i + b_2 EXP_i + b_3 EXP^2_i + b_4 URBAN_i + b_5 SMSA_i + \Sigma\zeta_j REGION_{ji} + b_7 MARRIED_i + b_8 RACE_i + \Sigma\alpha_j OCCUP_{ji} + \Sigma\beta_j INDUS_{ji} + \epsilon_i$$

where

W_i = hourly wage of individual i, estimated as the ratio of annual earnings in 1987 to the product of weeks worked in 1987 and hours worked per interview week.

$EDUC_i$ = years of schooling of individual i.

EXP_i = years of work experience of individual i, estimated as age less schooling less 6.

$URBAN_i$ = dummy variable for urban residence (central city versus other).

$SMSA_i$ = size of population of SMSA of residence.

$REGION_i$ = set of 3 dummy variables for region of country (Northeast, South, and West).

$MARRIED_i$ = dummy variable for marital status (currently married, with spouse present versus other).

$RACE_i$ = dummy variable for race (non-white versus white).

$OCCUP_{ji}$ = set of 13 dummy variables for one-digit occupation j

ϵ_i = stochastic error term.

Our variable of greatest interest here is $INDUS_{ji}$. Three sets of dummy variables are used, based on : (i) 14 Census one-digit industries (13 dummy variables); (ii) 46 two-digit industries (45 dummy variables); and 224 three-digit industries (223 dummy variables, though see footnotes to Table 1).

OLS regressions are estimated separately for male and female workers. In addition, for each gender, two different samples are used: (i) all workers, including part-time and part-year workers (ALL); and (ii) only full-time, full-year workers (FTFY). Moreover, for regressions with the three-digit industry codes, the ALLSM and FTFYSM samples omit workers employed in industries with 10 or less of each sex represented in the CPS sample. The sample sizes range from 22,162 to 38,347 individuals.

Following Krueger and Summers (1988), we define the industry wage differential d_j for industry j as:

$$(2) \quad d_j = \hat{\beta}_j - [\Sigma_k \hat{\beta}_k \cdot s_k],$$

where b_j is the regression coefficient estimated for the dummy variable for industry j and s_k is the proportion of the sample employed in industry k. The industry wage differentials have been effectively normalized as deviations from an employment weighted average of the regression coefficients for all the industry dummies.[5]

Table 1 presents summary results of the regression analysis. The first three columns show the maximum and minimum values for d_j by gender and sample, as well as the range and adjusted standard deviation of d. At the one-digit industry level, industry wage differentials among FTFY females run from a high of 0.26 (public utilities) to a low of -0.19 (retail trade), a range of 0.45. Not surprisingly, finer industry categories produces larger differentials. Among FTFY females, the range is 0.77 at the two-digit industry level and 1.38 at the three-digit industry level. The same pattern holds for male workers: both the range of the differentials and their dispersion increases as finer industry categories are used.[6]

The results also indicate there is as much dispersion in d_j among female workers as among male workers. At the one-digit level, the range and the adjusted standard deviation of industry wage differentials are slightly larger for male workers than female workers. At the two-digit level, there is slightly greater variation among female workers. And at the three-digit level, the range is greater for female workers than male workers, while the adjusted standard deviation is slightly smaller.

It is noteworthy that Krueger and Summers (1988, pp. 264,266,287), which combined workers of both sexes together, showed less dispersion in industry wage differentials than we do. Their adjusted standard deviation on the basis of the 1984 CPS was 0.09 for one-digit industries, compared to our estimates of 0.14 for females and 0.15 for males; 0.14 for two-digit industries, compared to ours of 0.17 for females and 0.16 for males; and 0.16 for three-digit industries, compared to ours of 0.18 for females and 0.19 for males. The difference in results may be due partly to the fact that Krueger and Summers used slightly fewer one- and two-digit industry categories than we did and partly to the fact that industry wage differentials may have increased between 1984 and 1988.[7]. But it also suggests that separating the sexes unmasks greater dispersion in interindustry wage differentials.

In this study, as in others (Krueger and Summers, 1988, for example), the majority of the coefficients on the industry dummies are significant, even though the earnings function equation controls for age, schooling, experience, race, marital status, occupation, and region.[8] The industry dummy variables are jointly significant at the one percent significance level in all cases (sixth column of Table 1), and increase the explanatory power of the earnings function model (column 5 of Table 1). Alone, the industry dummy variables explain from 12 percent (one-digit industries) to 22 percent (three-digit industries) of the variation in earnings across individual workers.[9]

Tables 2, 3, and 4 show industry wage differentials for females in rank order from highest to lowest-paying industry. The also show the rank of each industry for males, as well as the male wage differential. As shown in Table 2, a female worker in the (one-digit) mining industry earned 28 percent higher wages than the average female worker among all industries. This was the highest wage differential for females among one-digit industries. A male in the mining industry earned 23 percent more than the average male worker. Mining was also the industry with the highest wage differential among male workers. Both the signs of our industry wage differentials and their magnitude are quite similar to those estimated by Krueger and Summers for their sample of workers which included both males and females in 1984.[10]

Generally there is close correspondence in the rank order of industries by gender. Mining, for example, is the best paying one digit industry for both sexes; tobacco products is the highest-paying two-digit category for females and the second highest for males; tires and inner tube products is the highest-paying three-digit industry for females and the third highest-paying one for males. Simple correlation coefficients between the male and female wage differentials by sample and level of industry disaggregation are shown in Table 5. Though the correlations between genders become smaller as finer industry gradations are used, they are all quite high, ranging from 0.79 to 0.95. It is also interesting that the correlation coefficients are lower for full-time, year-round workers than for all workers.

2. Gender Wage Gaps by Industry

In Tables 1 through 5, we have presented industry wage differentials by gender, defined as the industry coefficients estimated for each sex ($\hat{\beta}^m{}_j$ and $\hat{\beta}^f{}_j$) normalized as deviations from the employment weighted mean differential for each sex over all industries (see equation (2)). We now define the industry gender wage gap, g_j, for industry j as:

$$(3) \qquad g_j = (\hat{\beta}^f{}_j - \hat{\beta}^m{}_j) + (\hat{a}^f - \hat{a}^m)$$

where $\hat{a}^f$ is the constant term in the female wage regression and $\hat{a}^m$ is the constant term in the male wage regression. The industry gender wage gap is, in effect, the difference between the estimated industry coefficients for females and males plus the difference between the female and male intercepts. In other words, the industry gender wage gap shows the difference between the female and the male coefficients for each industry after netting out the adjusted wage difference between the average female and male worker in the omitted industry. By construction, most of the industry gender wage gaps will be negative, since men generally earn more than women, after controlling for productivity-related individual characteristics of workers (that is, $\hat{a}^m$ is greater than $\hat{a}^f$).[11]

Panel A of Table 6 shows gender wage gaps for one-digit industries, ranked by the magnitude of the gap. Agriculture shows the largest positive gap for both the ALL sample (+.04) and the FTFY sample (+.14). These figures indicate that the industry wage differential d_j for females in this industry is 4 percent (14 percent for the FTFY sample) larger than that for males. Females in nondurable goods have industry wage differentials that are 13 percent below that for males. In entertainment and recreation services, FTFY females have wage differentials 11 percent below that for males. At the two-digit level, the industry gender wage gap ranges from a high of 0.07 in the lumber and wood products industry to a low of -0.31 for private household workers. Among two-digit industries, the industry gender wage gap is positive for only 9 of the 44 industries. At the three-digit level, the range is from a high of 0.36 for miscellaneous professional and related services to a low of -0.63 for the leather products industry.

As to be expected, the range and variation in industry gender wage gaps is greater for more disaggregated industry classifications. The overall range in g at the one-digit industry level is 0.17 (.04 + .13) for the ALL sample and 0.25 for the FTFY sample, and the standard deviation of g is 0.04 for the ALL sample and 0.07 for the FTFY sample. At the two-digit level, the range is 0.38 and the standard deviation is 0.08 for the ALL sample. At the three-digit industry level, the range is 0.60 and the standard deviation is 0.13 for the FTFYSM sample.

3. Decomposition of the Overall Sex Wage Gap

For our last piece of analysis, we consider the factors that account for the overall wage gap between males and females. We are particularly interested in the contribution played by differences in industry wage coefficients and differences in the distribution of employment across industries by gender. Let X be the vector of explanatory variables excluding the industry dummy variables:

$$X = (EDUC, EXP, EXP^2, URBAN, SMSA, REGION, MARRIED, RACE, OCCUP_1, \ldots, OCCUP_{13})$$

and γ the corresponding vector of coefficients. Then

(4) $\ln W^m_i = a^m + \gamma^m X^m_i + \Sigma\beta^m_j INDUS^m_{ji} + \epsilon^m_i$

and

(5) $\ln W^f_i = a^f + \gamma^f X^f_i + \Sigma\beta^f_j INDUS^f_{ji} + \epsilon^f_i$

Then, it can be shown directly that:

(6) $$\overline{\ln W^m} - \overline{\ln W^f} = [(\hat{a}^m - \hat{a}^f) + \bar{\gamma}(X^m - X^f) + (\hat{\gamma}^m - \hat{\gamma}^f)\bar{X}] + \Sigma_j \bar{\beta}_j(s^m_j - s^f_j) + \Sigma_j \bar{s}_j(\hat{\beta}^m_j - \hat{\beta}^f_j).$$

where $\bar{\gamma} = (\hat{\gamma}^m + \hat{\gamma}^f)/2$; $\bar{X} = (X^m + X^f)/2$; $s^m_j = \overline{INDUS^m_j}$ and $s^f_j = \overline{INDUS^f_j}$ by definition (they both represent industry employment shares); $\overline{\beta} = (\hat{\beta}^m + \hat{\beta}^f)/2$; and $\overline{s} = (s^m + s^f)/2$.[12]

From Equation (6), the overall wage gap between male and female workers can be decomposed into three effects: (1) the portion due to the different employment distributions of males and females across industries $[\Sigma_j \overline{\beta}_j(s^m_j - s^f_j)]$; (2) the portion due to differences in the male and female estimated industry coefficients $[\Sigma_j \overline{s}_j(\beta^m_j - \beta^f_j)]$; and (3) the percent explained by all other factors (this includes the difference between the male and female intercepts as well as the effects of all the other variables beside industry in the earnings function).

Results are shown in Table 7. The overall sex wage gap (the percentage difference in the geometric mean for male and female hourly earnings) varies from 0.34 to 0.36, depending on the sample used.[13] The proportion of the overall sex wage gap explained by differences in the employment distributions of male and female workers varies from 13 to 19 percent, depending on the level of industry disaggregation and the sample used. These results indicate that, ceteris paribus, women tend to be more concentrated in the low-paying industries than male workers. The effect is stronger for all workers than for FTFY ones -- that is, a rather large percentage of female part-time and/or part-year workers are found in industries with low industry coefficients (a higher percentage than for FTFY females).[14] Also, the effect is somewhat stronger at three-digit industry level than at the one- or two-digit level. The size of our two-digit industry employment distribution effect is similar in magnitude to that calculated by Hodson and England (1986), Sorenson (1991), and Blau and Kahn (1992). However, it is clear that disaggregation to the three-digit industry level shows an even stronger effect from differences in employment distribution than those obtained in previous studies.

The proportion of the overall wage gap explained by differences in industry wage coefficients varies from 0 to 22 percent. As to be expected the effect is much stronger at the three-digit industry level than the one- or two-digit level. Moreover, the effect is much stronger for FTFY workers than for all workers. At the three-digit level, the effect varies from 12 to 22 percent. Among FTFY workers, the proportion of the wage gap explained is over one fifth.

4. Concluding Remarks

We find that differentials do exist among industries in the hourly earnings of female workers. These differentials are significant even after controlling for variations in the productivity-related characteristics of workers known to affect individual earnings. The interindustry wage differentials for female workers are at least as large and as varied as those for males. There is also a high correlation between the male and female industry wage differentials. In spite of this, there are considerable differences in the industry wage differentials for the two sexes. Of the overall sex wage gap of about 0.35, 12 - 22 percent can be explained by differences in the industry coefficients for male and female workers (at the three-digit industry level). Moreover, between 15 and 19 percent of the wage gap is due to differences in the distribution of male and female workers across (three-digit) industries. Thus, at the three-digit industry level, the combined industry effects explain between 31 and 38 percent over the overall sex wage gap.

The results of this paper highlight two important remaining contributing factors to the still fairly high wage gap between male and female workers.

The first is that even after adjusting for productivity-related characteristics of workers, there still remains a not insubstantial wage gap at the industry level between genders. Second, female workers, particularly part-time and part-year workers, still tend to be concentrated in the low-paying industries relative to male workers.

A third point, related to potential public policy correctives, is that high wage industries for males are not necessarily the same as those for females (even though the correlation in wage differentials is relatively high). Thus, an expansion of female employment in some male high-wage industries may not necessarily lower the overall sex wage gap.

NOTES

[1] See, for example, Dickens and Katz (1987a,1987b), Krueger and Summers (1987,1988), and, most recently, Levy and Murnane (1992) and Zetterberg (1992). Earlier work on the subject can be found in Slichter (1950).

[2] See, for example, Dunlop (1957), Katz (1986), Dickens and Katz (1987a), and Thaler (1989).

[3] Differences in results appear due to differences in both methodology and data. Hodson and England regressed the average male and the average female wage in each industry on various characteristics of that industry. Since males and females earn different "returns" on each industry characteristic, they were able to use their estimated coefficients to calculate what the sex wage gap would have been with (i) the same employment distribution across industries but different returns to industry characteristics and (ii) the same returns but different employment distributions. Of the two, the former had the larger effect on closing the sex wage gap. Roos' findings that industry gender differences were not important appears primarily due to the inclusion of occupational effects, which were not present the Hodson and England study.

[4] Samples of workers were selected from the 1988 CPS and included only those individuals in the survey who had reported working in the preceding year and who had reported income from employment, total hours of work, and weeks of work that implied an hourly wage between $1.00 and $250.00. In addition, the samples excluded the following groups: (i) under age 16; (ii) in the armed forces; (iii) self-employed unincorporated business income; and (iv) employed on a farm.

[5] The weighted average industry wage premium $[\Sigma_k \hat{\beta}_k \cdot s_k]$ is equal to -0.07, -0.08 and -0.06 for male workers for the one-digit, two-digit, and three-digit industry code regressions, respectively. For females workers, the respective

values are -0.12, -0.13 and -0.17. The fact that values are more negative for female workers reflects the greater tendency for female workers to be employed in relatively low wage industries.

[6] Results on wage premia are based on only 225 three-digit industry categories. The reason is that there were 7 three-digit industries with no female employees in the ALL sample and 2 additional three-digit industries with no female employees in the FTFY sample.

[7] See, for example, Gittleman and Wolff (1993) for some supporting evidence.

[8] In our earnings function regressions for males, coefficients of only 2 of the 13 one-digit industry dummy variables, 5 of the 44 two-digit dummies, and 72 of the 231 three-digit dummies were statistically insignificant. For females, the respective counts were 1 out of 13, 7 out of 44, and 83 out of 231. All the industry categories with insignificant coefficients were also ones with a very small number of workers represented in the CPS sample.

[9] The industry dummy variables by themselves (without any other explanatory variables in the estimating equation) explain 12.8 percent, 16.0 percent and 22.6 percent of the variation in male earnings across one-, two-, and three-digit industries, respectively; they explain 12.4 percent, 15.9 percent and 19.2 percent, respectively, of the variation in female earnings.

[10] Krueger and Summers (1988) reported industry wage premia ranging from +0.22 (mining) to -0.11 (wholesale & retail trade) among one-digit industries; from +0.37 (petroleum products.) to -0.36 (private household workers) among two-digit industries; and from +0.60 (miscellaneous petroleum and coal products) to -1.49 (educational services n.e.c.).

[11] The difference in constant terms, $\hat{a}^m - \hat{a}^f$, by sample and industry disaggregation is as follows:

	Industry Codes		
	1-digit	2-digit	3-digit
ALL	0.06	0.10	0.04
FTFY	-0.04	0.01	-0.04
ALLSM			0.04
FTFYSM			0.05

[12] Similar decompositions were also performed on the basis of the estimated coefficients for the male regressions and those for the female regressions. The results are quite similar for average, male, or female estimated coefficients.

[13] Technically, the overall sex wage gap is measured as the difference between the mean log wages for male and female workers (the geometric means), not the difference in the logarithm of average wages for male and female workers.

[14] It is also likely that a higher percentage of female part-time and/or part-year workers are concentrated in low-paying industries relative to FTFY females than of male part-time and/or part-year workers relative to FTFY males. However, since the fraction of part-time and/or part-year female workers to all female workers is higher than for men, the difference in these fractions may also account for the differences in results.

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Table 1

Summary Statistics for Industry Wage Differentials by Gender, Sample, and Set of Industry Dummy Variables[a]

	Industry Wage Differentials d_j							
	Maximum	Minimum	Range	STD[b]	Change[c] in R^2	F-Stat[c]	Reg. R^2	Sample Size
A. 14 One Digit Industries								
MALE								
ALL	+0.23	-0.23	0.46	0.15	.022	110*	.413	38,347
FTFY	+0.19	-0.30	0.49	0.15	.029	103*	.396	28,071
(Ind.)	(mining)	(agriculture)						
FEMALE								
ALL	+0.28	-0.15	0.43	0.14	.027	106*	.316	35,159
FTFY	+0.26	-0.19	0.45	0.14	.040	105*	.341	22,549
(Ind.)	(public util)	(retail trade)						
B. 46 Two Digit Industries								
MALE								
ALL	+0.33	-0.30	0.63	0.16	.034	48*	.423	38,347
FTFY	+0.29	-0.34	0.63	0.16	.041	44*	.408	28,071
(Ind.)	(motor veh)	(agriculture)						
FEMALE								
ALL	+0.48	-0.32	0.80	0.17	.043	51*	.332	35,159
FTFY	+0.45	-0.32	0.77	0.17	.058	46*	.359	22,549
(Ind.)	(tobacco mfg)	(pri.hh ser.)						
C. 224 Three Digit Industries								
MALE								
ALL	+0.47	-0.65	1.12	0.19	.058	18*	.449	38,344
FTFY	+0.41	-0.69	1.10	0.19	.077	17*	.444	28,046
ALLSM	+0.41	-0.64	1.05	0.19	.060	21*	.450	37,515
FTFYSM	+0.36	-0.69	1.05	0.19	.076	20*	.446	27,314
(Ind)	(Paper mills)	(Religious Org.)						
FEMALE								
ALL	+0.75	-0.56	1.31	0.18	.058	14*	.347	35,159
FTFY	+0.87	-0.51	1.38	0.18	.080	13*	.381	22,549
ALLSM	+0.63	-0.56	1.19	0.18	.056	16*	.346	34,870
FTFYSM	+0.55	-0.52	1.07	0.18	.074	14*	.381	22,162
(Ind)	(Tire mfg.)	(Lodging ex.hotels)						

a. Regression results are based on equation (1) in the text. The FTFY samples include only full-time, year-round workers; the ALL samples include part-time and part-year workers, as well as those in FTFY. For regressions with the three-digit industry codes, the ALLSM and FTFYSM samples omit workers employed in industries with 10 or less of each sex represented in the CPS sample.

For one-digit industries, there are 13 industry dummy variables. For two-digit industries, there are 44 industry dummy variables (there were no employed workers recorded in one of the 46 industry categories). For three-digit industries, there are 223 industry dummy variables for the ALL sample; 221 industry dummy variables for the FTFY sample (two industries had no males or no females); 189 industry dummy variables for the ALLSM sample; and 183 industry dummy variables for the FTFYSM sample. In each case, the omitted industry is public administration.

The percentage of industry dummy variables not significantly different from zero by sample are as follows:

	MALES			FEMALES		
	1-digit	2-digit	3-digit	1-digit	2-digit	3-digit
ALL	15	11	32	8	16	37
FTFY	8	9	32	0	25	31
ALLSM			28			32
FTFYSM			28			27

b. STD is the adjusted standard deviation of industry wage differentials d_j, given by:

$$[\mathrm{Var}(\hat{\beta}) - \Sigma_K \hat{\sigma}^2_i / K]^{.5}$$

where K is the number of industries and $\hat{\sigma}$ is the standard error of $\hat{\beta}_i$. See Krueger and Summers (1988), p. 267, for details.

c. Change in R^2 is the change in the regression (reg.) R^2 from the inclusion of the industry dummy variables. The F-statistic shows the joint contribution of adding the industry dummy variables to the regression. A star (*) indicates that the F-statistic is significant at the one percent level.

Table 2

Male and Female Industry Wage Differentials for One-Digit Industries

Female Rank	Industry	Female Wage Differential	Male Rank	Male Wage Differential
(1)	Mining	+.28	(1)	+.23
(2)	Transport & public utilities	+.26	(2)	+.14
(3)	Durable goods manufacturing	+.20	(3)	+.13
(4)	Finance, insurance & real estate	+.13	(5)	+.09
(5)	Construction	+.09	(6)	+.05
(6)	Non-durable manufacturing	+.08	(4)	+.10
(7)	Wholesale trade	+.05	(7)	0
(8)	Public administration	0	(8)	0
(9)	Business & repair service	-.02	(9)	-.09
(10)	Professional & related service	-.03	(10)	-.12
(11)	Agriculture, forestry & fishery	-.08	(14)	-.23
(12)	Entertainment & recreational serv	-.12	(11)	-.14
(13)	Personal services	-.14	(13)	-.19
(14)	Retail Trade	-.15	(12)	-.16

Table 3
Male and Female Industry Wage Differentials for Two-Digit Industries

Female Rank	Industry	Female Wage Differential	Male Rank	Male Wage Differential
(1)	Tobacco manufacturing	+.48	(2)	+.33
(2)	Aircraft & parts manufacturing	+.45	(4)	+.26
(3)	Petroleum & coal products	+.38	(6)	+.23
(4)	Motor vehicles & equipment	+.38	(1)	+.33
(5)	Communications	+.36	(11)	+.18
(6)	Other transport equipment	+.31	(10)	+.19
(7)	Chemicals & allied products	+.29	(3)	+.27
(8)	Utilities & sanitation services	+.29	(7)	+.23
(9)	Mining	+.28	(8)	+.23
(10)	Paper & allied products	+.28	(5)	+.24
(11)	Machinery except electric	+.27	(13)	+.14
(12)	Photo equipment & watches	+.19	(15)	+.12
(13)	Transportation	+.19	(17)	+.10
(14)	Fabricated metal products	.+.17	(20)	+.06
(15)	Electrical machinery	+.16	(14)	+.14
(16)	Hospitals	+.16	(28)	0
(17)	Insurance & real estate	+.16	(24)	+.04
(18)	Stone, clay & glass products	+.15	(16)	+.11
(19)	Lumber & wood products	+.15	(37)	-.07
(20)	Primary metals	+.14	(9)	+.20
(21)	Rubber & miscel. plastics	+.14	(18)	+.10
(22)	Banking & other finance	+.12	(12)	+.16
(23)	Construction	+.09	(22)	+.05
(24)	Textile mill products	+.08	(26)	+.02
(25)	Food & kindred manufacturing	+.08	(27)	+.02
(26)	Toys & sporting goods	.+.07	(40)	-.12
(27)	Furniture & fixtures	+.07	(33)	-.03
(28)	Wholesale trade	+.06	(29)	0
(29)	Printing & publishing	+.04	(23)	.05
(30)	Other professional services	+.03	(38)	-.07
(31)	Miscel. & not. spec. manuf.	+.02	(35)	-.04
(32)	Public administration	0	(30)	0
(33)	Other transport equipment	0	(31)	0
(34)	Business services	-.01	(34)	-.03
(35)	Health services (exc. hospitals	-.02	(25)	+.04
(36)	Repair services	-.03		-.18
(37)	Apparel & other textiles	-.06	(39)	-.10
(38)	Leather products	-.06	(36)	-.06
(39)	Agriculture	-.08		-.27
(40)	Educational services	-.08		-.17
(41)	Forestry & fishery	-.10	(32)	-.01
(42)	Entertainment & recreation serv	-.12		-.14
(43)	Personal services exc. household	-.13		-.20
(44)	Retail trade	-.15		-.16
(45)	Social services	-.22		-.30
(46)	Private household services	-.32		-.16

Table 4
Male and Female Industry Wage Differentials for Three-Digit Industries
(Top Twenty and Bottom Twenty, on the Basis of the ALLSM Sample))

Female Rank	Industry	Female Wage Differential	Male Rank	Male Wage Differential
(1)	Tire & innertube products	+.63	(3)	+.37
(2)	Engines & turbine products	+.53	(14)	+.29
(3)	Tobacco products	+.49	(9)	+.34
(4)	Pulp, paper & paperboard	+.48	(2)	+.40
(5)	Telephone utilities	+.47	(6)	+.34
(6)	Aircraft & parts	+.45	(17)	+.28
(7)	U.S. Postal service	+.42	(21)	+.26
(8)	Petroleum & refining	+.41	(5)	+.36
(9)	Guided missiles, space vehicles	+.41	(19)	+.27
(10)	Motor vehicles & equipment	+.38	(7)	+.34
(11)	Air transportation	+.36	(25)	+.24
(12)	Electric light & power utilities	+.36	(4)	+.37
(13)	Industrial & miscel chemicals	+.36	(11)	+.31
(14)	Railroads	+.36	(12)	+.30
(15)	Electrical computing equipment	+.35	(26)	+.24
(16)	Household appliances	+.32	(37)	+.18
(17)	Crude petroleum, natural gas extraction	+.32	(33)	+.19
(18)	Miscel. paper products	+.31	(40)	+.15
(19)	Office & accounting machines	+.31	(22)	+.25
(20)	Metals & minerals mining except petroleum	+.30	(36)	+.18
(212)	Misc. gen. merchandise stores	-.18	(208)	-.24
(213)	Scrap & waste metal wholesale	-.19	(197)	-.20
(214)	Religious organizations	-.19	(231)	-.63
(215)	Drug stores	-.18	(168)	-.08
(216)	Horticultural services	-.20	(166)	-.08
(217)	Retail bakeries	-.20	(214)	-.30
(218)	Miscel. wholesale durable goods	-.21	(153)	-.04
(219)	Shoe stores	-.22	(198)	-.21
(220)	Hardware stores	-.23	(220)	-.31
(221)	Funeral services	-.26	(206)	-.23
(222)	Sporting goods & bike stores	-.28	(203)	-.23
(223)	Variety stores	-.28	(225)	-.42
(224)	Dairy products stores	-.31	(158)	-.06
(225)	Liquor stores	-.31	(221)	-.31
(226)	Retail florists	-.31	(215)	-.30
(227)	Private household workers	-.33	(196)	-.20
(228)	Child day care services	-.37	(229)	-.58
(229)	Bowling alleys & pool parlors	-.38	(226)	-.44
(230)	Retail nurseries & garden stores	-.39	(212)	-.26
(231)	Lodging places except hotels	-.56	(230)	-.60

Table 5

Simple Correlation Coefficient between Male Industry Wage Differentials (d^m) And Female Industry Wage Differentials (d^f) by Sample

	Industry Dummy Variables		
	1-digit	2-digit	3-digit
ALL	0.95	0.90	
FTFY	0.89	0.88	
ALLSM			0.83
FTFYSM			0.79

Table 6

Industry Gender Wage Gaps (g_j) by Sample and Set of Industry Dummy Variables[a]

Rank[b]	Industry	Sample ALL	Sample FTFY
A. One-Digit Industries			
(1)	Agriculture, forestry & fishery	+.04	+.14
(2)	Transport & public utilities	+.01	+.08
(3)	Professional & related service	-.02	+.05
(4)	Durable goods manufacturing	-.04	+.03
(5)	Business & repair services	-.04	+.02
(6)	Public administration	-.05	+.04
(7)	Wholesale trade	-.05	+.02
(8)	Personal services	-.06	+.03
(9)	Mining	-.07	+.01
(10)	Finance, insurance & real estate	-.07	-.02
(11)	Construction	-.08	-.07
(12)	Entertainment & recreational serv	-.09	-.11
(13)	Retail trade	-.10	-.06
(14)	Nondurable goods	-.13	-.07
	Average Wage Gap	-.05	+.004
	Standard Deviation of Wage Gap	.04	.07

B. Two-Digit Industries (Results based on All sample)

Rank	Industry	g_j	Rank	Industry	g_j
(1)	Lumber & wood products (ex furn)	+.07	(24)	Utilities & sanitation	-.09
(2)	Agriculture	.04	(25)	Mining	-.09
(3)	Aircraft & parts	.04	(26)	Food & kindred products	-.10
(4)	Toys & sporting goods	.03	(27)	Motor vehicles & equip.	-.10
(5)	Communications	.03	(28)	Public administration	-.10
(6)	Hospitals	.0	(29)	Apparel & textiles	-.11
(7)	Tobacco products	.01	(30)	Construction	-.11
(8)	Repair services	.01	(31)	Stone,clay,glass product	-.11
(9)	Petroleum & coal products	.002	(32)	Rubber & misc. plastics	-.11
(10)	Machinery except electrical	-.002	(33)	Paper & allied manuf.	-.11
(11)	Other transportation equipment	-.02	(34)	Electrical machinery	-.12
(12)	Insurance & real estate	-.03	(35)	Business services	-.13
(13)	Fabricated metal products	-.04	(36)	Chemicals & allied prod.	-.13
(14)	Other professional services	-.04	(37)	Entertainment,recreation	-.13
(15)	Furniture & fixtures	-.05	(38)	Retail trade	-.13
(16)	Transportation	-.06	(39)	Leather products	.0
(17)	Social services	-.06	(40)	Other transport equipment	.0
(18)	Educational services	-.06	(41)	Printing & publishing	-.16
(19)	Photo equipment & watches	-.07	(42)	Banking & other finance	-.19
(20)	Personal services exc household	-.08	(43)	Health except hospitals	-.21

(21) Wholesale trade	-.08	(44) Primary metals	-.21
(22) Miscel. & not specified manuf.	-.09	(45) Forestery & fisheries	-.24
(23) Textile mill products	-.09	(46) Private household serv.	-.31

Average Wage Gap -.08 [-.03 for FTFY]
Standard Deviation of Wage Gap .08 [.08 for FTFY]

C. Three-Digit Industries (Results based on FTFYSM sample)[c]

(1) Misc professional & related serv	+.36	(233) Leather products	-.63
(2) Religious organizations	+.28	(232) Offices of physicians	-.53
(3) Agricultural production-crops	+.23	(231) Offices of dentists	-.49
(4) Farm machinery & equipment	+.19	(230) Dairy products stores	-.45
(5) Agricult. production-livestock	+.32	(229) Libraries	-.38
(6) Sugar & confectionary products	+.10	(228) Liquor stores	-.35
(7) Bowling, billiards & pool	+.08	(227) Plastics manufactures	-.33
(8) Toys, amusements, sporting goods	+.08	(226) Hardware,plumbing & heat	-.17
(9) Tires & innertube products	+.07	(225) Lumber,construct material	-.32
(10) Detective & protection services	+.07	(224) Jewelry stores	-.30
(11) Residential care facilities	+.07	(223) Wholesale paper products	-.28
(12) Radio & T.V. broadcasting	+.07	(222) Business management serv.	-.28
(13) Sawmills & millwork	+.06	(221) Blast furnaces & steel	-.28
(14) Ordnance manufactures	+.06	(220) Drug stores, retail	-.28
(15) Engines & turbines	+.05	(219) Food stores, n.e.c.	-.27
(16) Sanitary services	+.05	(218) Business services nec	-.26
(17) Petroleum products, wholesale	+.04	(217) Ship & boat building	-.26
(18) Cutlery & handtools	+.04	(216) Legal services	-.26
(19) Miscel. paper & pulp products	+.04	(215) Miscel. personal services	-.26
(20) Crude petroleum and natural gas extraction	+.02	(214) Miscel. entertain.& rec.	-.24

Average Wage Gap -.11 [ALL: -.08 ;FTFY: -.04; ALLSM: -.05]
Standard Deviation of Wage Gap .13 [ALL: .16 ;FTFY: .18; ALLSM: .12]

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a. Industry gender wage gap, g_j, is given in equation (3).

b. Rank based on results for ALL sample.

c. Results are shown for the highest 20 and lowest 20 industries.

Table 7

Decomposition of the Overall Sex Wage Gap into:
An Industry Wage Differential and Industry Employment Distribution Effect[a]

	Overall Sex Wage Gap	Percentage of Overall Wage Gap due to Differences in: Employment Distribution	Industry Coefficients	All Other Factors
	$[\overline{\ln W^m} - \overline{\ln W^f}]$	$[\Sigma\bar{\beta}_j(s^m_j - s^f_j)]$	$[\Sigma\bar{s}_j(\hat{\beta}^m_j - \hat{\beta}^f_j)]$	
A. One-Digit Industry Classification				
ALL sample	.34	15.9	-0.7	84.4
FTFY sample	.36	13.4	7.6	79.0
B. Two-Digit Industry Classification				
ALL sample	.34	16.3	-0.2	84.8
FTFY sample	.36	12.9	11.9	75.3
C. Three-Digit Industry Classification				
ALL sample	.34	19.2	11.7	69.0
ALLSM sample	.34	19.4	13.4	67.2
FTFY sample	.36	15.2	22.4	62.3
FTFYSM sample	.34	15.5	20.6	63.8

a. The decomposition is from Equation (6). $\bar{\beta}_j = (\hat{\beta}^m_j + \hat{\beta}^f_j)/2$, the average value of the estimated values of β. The last term of the decomposition, all other factors, is given by:

$$(\hat{a}^m - \hat{a}^f) + [\bar{\gamma}(X^m - X^f) + (\hat{\gamma}^m - \hat{\gamma}^f)\bar{X}]$$

the differences in intercepts, means of variables and coefficients on all variables in earnings function other than dummy variables for industry of employment.