Gender Wage Differentials, Affirmative Action, and Employment Growth on the Industry Level

by

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1. **Introduction**

The fact that some industries will pay higher (or lower) wages to the same grade of labor has been amply demonstrated in the literature, from Dunlop (1957), who first pointed out the existence of wage contours, Slichter (1950), and Weiss (1966) to the more recent studies reviewed in Dickens and Katz (1987). In this latter group, average industry wages (combining both male and female workers) are usually regressed on various industry characteristics, including the mean education and age of workers. These studies also use the percent of females employed in the industry as an independent variable (typically yielding a negative regression coefficient). Krueger and Summers (1988) used industry wage premia, average industry wage levels adjusted for industry characteristics, as the dependent variable, though they also combined the wages of male and female workers.

One exception is the paper of Hodson and England (1986) who ran separate regressions on male and female earnings, but they used averages wages for each gender in each industry as the dependent variable rather than individual wages. A second is Blau and Kahn (1992) who examined male and female industry wage premia in different countries (including the U.S.), though they used only nine industry categories and only a small number of controls for occupation. However, where appropriate, we will compare our findings with theirs below.

Our 1995 study examined the pattern of interindustry wage differentials separately for women and men in the United States on the basis of data on individual wages and related characteristics contained in the 1988 Current

Population Survey (CPS). We were particularly interested in whether patterns of wage premia by industry were similar for female and male workers. We found that like male workers, female workers showed a wide variation in industry wage differentials, after adjusting for productivity-related characteristics such as education and age, across industries. Among full-time, year-round workers in three digit industries the female premia ranged from -0.52 (lodging except hotels) to +0.55 (tire manufacturers). For males, they ranged from a low of -0.69 (religious organizations) to +0.36 (paper mills).[1]

Our 1995 study also found that the pattern of industry wage differentials was similar -- though not identical -- between female and male workers (the rank correlation coefficient between the two sets of wage premia ranged from 0.79 to 0.95, depending on the level of disaggregation used). We found that the gender gap in wage premia at the industry level explained between 12 and 22 percent of the overall gender gap in earnings. Differences in the distributions of male and female employment across these industries accounted for only another 13 to 19 percent of the overall gender wage gap in our study.

Another interesting finding emerged from our 1991 study. We found there a strong positive relation between the rate of decline in gender employment segregation on the occupational level and the rate of employment growth of the occupation. Over the period 1970-80, for example, the Duncan and Duncan Index (averaged across 235 industries) declined by 0.19 in the fastest-growing occupational group and by only 0.05 in the slowest growing one. The fastest growing occupations were also the ones where relative female earnings rose the most. From this set of results, we concluded that growth might be associated with lowering barriers or otherwise increasing opportunities for females to enter industries where male workers (and their associated high wages) predominate. This conclusion is supported by the work of Bell and Freeman (1991) who found that over the period from 1970 to 1987 the largest increases in the share of female workers in industry employment occurred in the highest wage industries.

The present study examines factors that might explain the difference between female and male industry wage premia. It focuses on three industry characteristics in particular -- the extent to which firms in each industry were likely to be targeted for Affirmation Action compliance review or investigation, industry employment growth, and industry profitability. We find strong evidence that all three factors help narrow the gender gap in industry wage premia. Other characteristics that we have looked at, including average plant size, the capital intensity of the production process, both the average level and variance in worker education, and changes in overall sales and wage levels were statistically much less important.

The next section of the paper (Section 2) provides a discussion of why wage premia might differ between male and female workers within the same industry. Section 3 introduces our model and estimation techniques, and Section 4 discusses the regression results. Concluding remarks are made in the final part of the paper.

2. **Why Should Industries Pay Different Wage Premia to Males and Females?**

Before discussing why wage premia might differ between genders, it is first helpful to address the issue of why industries pay wage premia at all. There are, generally speaking, two different schools of thought on this issue: (1) efficiency wage theories, where industries with positive wage premia find it profit-maximizing to pay workers above market wages in order to reduce shirking on jobs where it is very difficult or expensive to monitor workers or in order to minimize turnover and the costs associated with it; and (2) rent sharing or equity wage theories in which high profit firms in protected markets share some part of the profits with workers either because of strong union pressure or the threat of unionization or simply because they have the ability to pay higher wages.

A third line of argument is that industry wage premia actually represent unmeasured differences in worker quality. However, as Krueger and Summers (1987) note, the pattern of research shows a remarkable similarity of the rank order of industries in terms of wage premia across countries and also over time within the same country (also see Gittleman and Wolff, 1993, for similar evidence). So, if workers in high premia industries are more productive, there then must be some consistent, industry-specific characteristics which make them more productive. They see this as essentially rent sharing which may coincidentally elicit greater effort from workers. They further point out that when individual workers change industries, their wage change is strongly correlated with the difference in average wage differentials between the industry they left and the one they entered (while it is unlikely that their ability has changed).

In this study, we also consider which of the competing theories can best be used to explain gender differences in industry wage premia. One possibility is that males and females occupy different occupational ranks within an industry. If females, for example, are usually placed in jobs where efficiency wages are not needed (where shirking is less likely or turnover less costly), this might mean that males would get larger wage premia.

However, the industry wage premia we use here are derived from earnings function regressions in which the occupation of the worker (13 one-digit occupational dummy variables) is taken into account, so that the coefficients on our industry dummy variables (used as the basis for a measure of the gender gap in industry wage premium in the present study) are computed after the occupation effects are partially controlled for.

This method of controlling for occupational differences does not, unfortunately, take into account the possibility that the same occupation may be harder to monitor in one industry than in another. Sicherman (1996), for example, finds a very high level of occupational gender segregation within the firm that he studied. His results show that women had higher quit rates than men in the firm, and attributed this to the fact that women occupied lower-level jobs. If efficiency wages are paid to workers from whom long tenure is expected to be more likely, a disparity in gender wage premia within the same firm might result.

The existence of different male and female occupational distributions within the same industry could also be compatible with rent sharing theories, if it were more likely that equity wages are shared with the most powerful workers in the industry, presumably the male workers. However, it seems more likely that oligopolistic, high-profit industries concerned with equity (or possessing a greater able to pay) would give both male and female employees above average wages. In this case, the gender gap in wage premia should be narrower in such industries.

Another possible explanation is that males and females have different geographic distributions within the same industry. Although our earnings function regressions did control for place of residence (central city versus other; size of population of SMSA of residence; and four regions of the country), they did not control for differences in male and female labor supply by locality. If industries have differing elasticities of substitution of female for male labor (or differing discriminatory preferences by gender), geographic variations in the relative supplies of male and female labor might cause differences in gender wage premia. For example, in a locality with a limited supply of male labor, industries with a high elasticity of substitution of female for male labor would hire more females (with lower wage premia since female labor supply is more elastic) and industries with a low elasticity of substitution (or greater preferences for men) would have to pay higher wage premia to attract male workers. Some supporting evidence is provided by Leonard (1996), who finds that changes in gender wage gaps varied widely across cities in the U.S.

This argument would account for why men earn higher premia than women. As shown in Appendix 2, the great majority, 128 out of 158 industries, are ones in which men received greater wage premia than women in 1988. However, there are 30 industries in which women had greater wage premia. The converse of this argument is hard to make since it implies that cities with a limited supply of female labor also are ones in which the female labor supply is less elastic than the local male supply.

Another explanation of gender differences in industry wage premia might come from McGoldrick (1995). She finds that both male and female workers receive compensating wage differentials for working in an occupation with unsystematic earnings uncertainty (that is, variations in earnings which are not associated with factors over which the individual worker has control). Moreover, the compensating differentials are greater for women than men for the same degree of earnings uncertainty. The same argument might be applied to industry of employment. However, the results reported in Appendix 2 suggest just the opposite -- namely that male workers receive larger positive compensation for unsystematic earnings uncertainty and females are less risk averse (that is, more willing to tolerate working in an industry with lower average but more positively skewed wages).

Finally, a divergence in wage premia between male and female workers might simply be due to discrimination against female workers. Leonard (1984a) found more discrimination by gender than by race when he compared workers' wages with their marginal products. He suggested that female workers may enter high wage industries in greater numbers at the cost of receiving pay below their marginal product. Whether wage premia reflect rent sharing or efficiency wages, earnings opportunities are generally lower for females than for males. High wage industries can thus afford to give female workers a smaller share of rents or a smaller efficiency wage premium to discourage shirking.

3. **Our Model and Estimation Techniques**

The variable of chief interest in this study is GGIWP, the gender gap in industry wage premia. GGIWP is the difference between male and female pay in an industry after netting out all of the wage differences that are related to the productivity-related characteristics of the worker.

We first estimate earnings functions for male and female workers separately using individual data from the 1988 Current Population Survey (the March supplement). The earnings function is given by:[2]

(1) $\ln W_i = a + b_1 EDUC_i + b_2 EXP_i + b_3 EXP^2_i + b_4 URBAN_i + b_5 SMSA_i + \Sigma \zeta_j REGION_{ji} +$

$$b_7 MARRIED_i + b_8 RACE_i + \Sigma\alpha_j OCCUP_{ji} + \Sigma\beta_j INDUS_{ji} + u_i$$

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

u_i = stochastic error term.

GGIWP is given by:

$$(2) \qquad GGIWP = \hat{W}^f_i - \hat{W}^m_i = (\hat{a}^f + \hat{b}^f_i) - (\hat{a}^m + \hat{b}^m_i)$$

the difference between the female (f) and male (m) estimated coefficient $\hat{b}_i$ on the dummy variable for industry i after netting out the adjusted wage difference between the average workers of each gender in the omitted industry, public administration (the intercepts from the regressions for each gender, $\hat{a}^f$ and $\hat{a}^m$). Most of the industry gender wage gaps will be negative, since men generally earn more than women, even after controlling for the productivity-related individual characteristics of workers. Values of GGIWP for three digit industries are taken directly from our 1995 study and are shown in Appendix 2.[3]

The dependent variable in the regression model in this paper is GGIWP. Our model relates the gender gap in industry wage premia for each industry i to various characteristics of that industry. The estimating equation is:

$$(1) \quad GGIWP_i = a + b_1 AA_i + b_2 EMPGRTH_i + b_3 PROFRATE_i + b_4 PLANTSIZ_i + b_5 PAYCHNG_i + b_6 SALESCHG_i + b_7 MEANEDUC_i + b_8 STDEDUC + b_9 KLRATIO_i + \epsilon_i$$

where:

AA_i = the relative incidence of federal contractor firms in industry i, which is intended as an indicator of the likelihood that a firm in this industry might be the target of an Affirmative Action compliance review or that firms in this industry might expect to become targets for such a review.

$EMPGRTH_i$ = the percentage growth in employment in industry i over the 1986-88 period.

$PROFRATE_i$ = average profit rate for firms in industry i over the 3 year period, 1986-88, defined as total business receipts minus cost of sales and operations per dollar of assets.

$PLANTSIZ_i$ = average number of workers per establishment in industry i over the 3 year period, 1986-88.

$PAYCHNG_i$ = percent change in the annual payroll of industry i over the 3 year period, 1986-88.

$SALESCHG_i$ = percent change in the total business receipts of industry i over the 3 year period, 1986-88.

$MEANEDUC_i$ = average years of schooling for workers in industry i in 1988.

$STDEDUC_i$ = the standard deviation in years of schooling among workers in industry i in 1988.

$KLRATIO_i$ = average value of assets per employee for firms in industry i in 1988.

ϵ_i = stochastic error term, which is assumed to be independently (but not necessarily identically) distributed.

See Appendix 1 for sources and methods for each of the variables.

Two samples are used to estimate the model. The first, called the EVERYIND sample, includes all of the 156 industries for which data are available for all of the independent variables.[4] For the EVERYIND sample, the dependent variable is the gender gap in industry wage premia based on male and female industry wage differentials taken from earnings functions estimated over samples of all workers, including both part- and full-time workers, as well as part- and full-year ones. The second, called the SIGFTYS sample, includes only those industries for which male and female industry dummy variables for full-time, full-year (FTFY) workers are both statistically significant at the 10 percent level (a total of 81 industries). The dependent variable for this sample is the gender gap in industry wage premia based on wage differentials taken from earnings functions estimated for FTFY workers only. Descriptive statistics on GGIWP for alternative samples are shown in Table 1.

Two estimation techniques are used. The first is ordinary least squares (OLS), under the assumption that the error term is identically distributed. The second is weighted least squares (WLS), with the industry's share of total employment as the weight, in order to correct for potential heteroschedasticity.

4. **Regression Results**

The regression results, shown in Table 2, provide strong support to our principal hypotheses. The goodness of fit was greater for the SIGFTYS sample than the EVERYIND sample, as might be expected, since the former is restricted to industries in which industry dummy variables in the underlying earnings functions equations were significant. The R^2-statistic is of the order of 0.43-0.44 for the SIGFTYS sample, which is quite high for cross-industry regressions of this sort. The fit is also better for the weighted than the unweighted forms. However, the coefficient estimates and significance levels are remarkably similar across the four regression forms.

A. Affirmative Action. Our key variable, AA (Affirmative Action), is negative in all four regressions, indicating that industries that have been a more frequent target of affirmative action have, on average, a lower gender wage gap in industry wage premia. The variable is statistically significant at the 5 percent level in three of the four regression forms and at the 10 percent level in the other. The results indicate rather strongly that this program has been effective in narrowing the female-male gap in industry wage premia and suggest that, at least in part, the gap in premia may have reflected discrimination against female workers within industries.[5]

It is important to note that Leonard (1996) finds no significant impact during the period of the 1980s of his Affirmative Action variable on the gender gap in earnings -- rather than the gender gap in industry wage premia as we use here. Leonard (1984b) previously found that the firms most likely to be targets for review were those that already had high ratios of female to male employment and he concluded that the main goal of the program was earnings parity rather than more equitable employment distributions of males and females. Of course, cause and effect are difficult to disentangle here because our data are for 1988, a time when a narrow gap in gender industry wage premia may have reflected earlier AA actions or at least the results of defensive actions taken by firms to avert an investigation. As Donohue and Heckman (1991) point out, the econometric evidence that government Affirmative Action efforts have had an impact are weak, in large part because available measures of federal activity or pressure are weak. Beller (1979) does report some evidence that EEOC reduced the gender wage gap, and Dolton, O'Neill and Sweetman (1996) also find evidence that anti-discrimination laws reduced the gender wage gap in Great Britain. However, none of these studies looks specifically at the effects of Affirmative Action on the gender gap in industry wage premia, and the evidence here is that this program did have a significant effect on narrowing this gap.

B. Employment Growth. Our second principal finding is that EMPGRTH is negative in all four regressions, indicating that industries that have high rates of employment growth have, on average, low gender gaps in industry wage premia. This variable is statistically significant at the one percent level in three out of the four regressions and at the five percent level in the fourth.

This set of results clearly reinforces the findings from our 1991 study and supports our argument that fast-growing industries offer female workers opportunities that are similar to those for males and thus tend to pay similar wage premia to the two genders. This may mean, as we mentioned above, that the occupational distributions of males and females are more similar in these industries because fast growth lowers barriers to female workers to enter those jobs where either efficiency or equity wage premia are more likely. This result is somewhat in line with Bell and Freeman's (1991) finding that the industries with the greatest increases in relative female employment were those with the largest wage increases.

The results on the effect of employment growth on GGIWP are all the more impressive when one remembers that our model controls for changes in pay (PAYCHNG) and industry sales growth (SALESCHG) -- both of which widen rather than narrow the GGIWP. Increases in employment will narrow the gap if they occur in industries in which male and female workers are considered close substitutes (or where there is less discrimination against hiring females). Such industries will be able to expand more rapidly because they will be better able to attract females by paying them more equitable wage premia. Leonard (1986a) argues that the efficacy of Affirmative Action depends critically on growth. Compliance reviews are much more likely to take place both at large and at growing establishments where detrimental effects on current male employees are likely to be low.

It is also possible that slow or negative growth may widen the GGIWP if, as Bound and Johnson (1992) point out, the seniority system in shrinking industries causes them to fire the lowest level male workers first while retaining the senior male workers, at the top of the wage distribution, and to pay even lower wages to new female hires because female labor supply is more elastic than the male labor supply. This argument would explain why EMPGRTH has a negative effect on GGIWP, and it would also be compatible with Bell and Freeman's (1991) finding that the industries with the largest increases in the percentage of female workers also had the highest growth rates and the highest average wage.

It may well be, given the negative coefficient of the PROFRATE variable, that the firms that expanded most had the highest profits specifically because they let in large numbers of highly productive females and paid they more equitably. If females are more likely than males to have difficulty finding employment at above average wage levels, one might expect them to work harder to hold onto such jobs. Sicherman (1996) finds that women were more likely than men to quit jobs with one firm when they saw the possibility of earning higher wages elsewhere. Competitive market theory holds that the firms that will expand most will be those which do not discriminate in a market where others do. All these factors may help explain the strong, significant relation between growth in employment and a narrowing of the GGIWP.

C. Profitability. Our third principal finding is that PROFRATE is negative in all four regressions, indicating that industries that have high profit rates have, on average, low gender gaps in industry wage premia. This variable is statistically significant at the one percent level in all four regressions.

This result could be attributed to rent sharing. Firms in protected markets and with greater ability to pay are more likely to share their bounty equitably with both genders. This finding is also compatible with efficiency wage theory, which predicts that firms in competitive markets become large and profitable specifically because they elicit greater productivity and less turnover by paying females, like males, above market wages or by lowering barriers to females entering the occupations within the industry where compensation is greater in order to reduce turnover and shirking. Here, too, if there is greater discrimination against females in the market in general, female workers will be all the more likely to work hard and hold onto their jobs at firms in such industries. Sicherman (1996) finds that women have higher quit rates than men at early tenure on the job, but that as tenure increases, women's quit rates decline to levels similar to and eventually below those of male workers. Dolton, O'Neill and Sweetman (1996) report large increases in unmeasured labor quality of female workers at high profit firms in Great Britain. Leonard (1984a) finds that female employment rose most at federal contractor firms with the highest profits and that there was no loss in productivity at such firms and no evidence that female productivity was lower, on average, at such firms.

Pugel (1980) finds that measures of excess return or economic profitability is superior to measures of market concentration in explaining inter-industry variations in wages and estimates that labor receives 7 to 14 percent of the total excess return. Pugel, however, explains this as efficiency wages, not rent sharing. More productive workers end up in the high wage industries. It appears from our results that such industries also pay females wage premia closer to those of males. Moreover, if female workers are more likely than male workers to be undercompensated relative to their "true" productivity in general, this would explain why female workers would be even more likely than males to raise the overall profit level of firms that pay them more equitably through less shirking and lower turnover rates.

Krueger and Summers (1987), on the other hand, emphasize the importance of rent sharing as the explanation: More profitable industries, those with monopoly power, where labor's share is smaller, pay higher wages than less profitable ones. Managers maximize a utility function which includes both profits and the well-being of their workers. With an inelastic product demand curve, the cost of raising wages would thereby be reduced. As a result, high wage industries reward all types of workers about equally, despite wide differences in their backgrounds and job characteristics.

A study by Luski and Weinblatt (1994) for the Israeli economy shows a clear-cut positive relationship between industry wage levels and the degree of monopolization of an industry and concludes that interindustry wage differentials are very similar for workers at both low and high skill levels. It should also be noted that Hodson and England (1986) find that although industry profits are positively correlated with both male and female wage levels, the positive effect is much larger for males (although, interestingly, they find that industry concentration has a negative effect on earnings for both genders and this effect is also much larger for males). However, their study is based on 1970 data, and they use aggregated data with average gender wage levels in each industry and note that there may have been some serious aggregation problems in their analysis.

Though we have no variable for industry concentration in our model, we believe our finding that high industry profits tend to narrow the GGIWP is essentially compatible with both rent sharing and efficiency wage theories, and the strong, highly significant results in our study may most appropriately be explained by the fact that high-profit firms in both competitive and concentrated industries pay females wage premia similar to those of male workers. In the case of concentrated industries, it is likely that causality runs from high profits to a narrow gender wage because of equity considerations and ability to pay. In the case of competitive industries, it is likely that the causality runs from a narrow gender wage gap to high profits, because if there is, in general, discrimination against females in terms of pay, it is likely that those firms who pay females efficiency wages comparable to those of males will increase their profits by eliciting higher effort and less turnover from their female workers.[6]

D. Plant Size. The results indicate that average plant size (PLANTSIZ) has a positive coefficient on GGIWP in all four regression, indicating that industries with larger plant size tend to have larger gender gaps in industry wage premia. The coefficient is significant at the one percent level in only one of the four regressions, at the five percent level in a second, at the ten percent level in a third, and is not significant in the fourth. Most studies, such as Masters (1969), show that larger plants pay higher average wages.

The usual interpretation is that large plant industries tend to have stronger unions and lower ratios of female to male employment. But, since union strength has historically meant higher wages or more generous rent sharing for more senior workers (usually male), it might explain the wider gap between male and female wage premia in such industries. It may too be associated with industries with strong preferences for male workers, especially in high skill jobs, which might imply payment of larger wage premia to male workers to attract and retain male rather than female workers. Leonard (1986b) argues that corporate size is probably of greater consequence than establishment size in affecting gender wage differentials.

E. Pay Changes and Sales Growth. Both variables have positive coefficients. PAYCHNG is significant at the one percent level in two of the four regressions, at the five percent level in a third, and at the ten percent level in the fourth. SALESCHG is significant at the one percent level in one form, at the five percent level in a second, and at the ten percent level in a third and is not significant in the fourth. It should be noted that the simple correlation between SALESCHG and PAYCHNG is very small, 0.06, suggesting that the two effects are acting independently to widen the GGIWP.

Our interpretation of these results hinges on the fact that we have already controlled for employment growth and profitability. Increases in industry sales and pay tend to widen the GGIWP because shifts in the demand for an industry's output causes shifts in the demand curve for both male and female labor. These, in turn, raise wages that the firms will offer to both genders. Given the fact that the male labor supply curve is generally less elastic than that for female workers, this would mean that firms would be forced to pay higher wage premia to male than female workers and thus widen the gender gap in the wage premia in that industry. Since the growth in employment, by itself, narrows the gender gap, so industries that expand output in response to a rise in demand for their product by hiring a smaller number of (mainly male) workers do so by raising overall wage levels, while industries that expand by adding more female workers show smaller rises in overall wage levels and larger increases in employment. Both effects are compatible with the differing elasticities of male and female labor supply. Some support is provided by Bell and Freeman (1991), who find that firms with the largest increases in sales had the highest wage increases but the lowest employment growth. These firms may have hired females by using them to replace low skill males or those with the least seniority (cf. Bound and Johnson, 1992).

The evidence in our study here suggests that the industries with the biggest increases in demand for their products have been those with a preference for male workers or those with the least incentives to pay similar, rent-sharing, equity or efficiency wages to workers of both genders. It may be that they attract new male workers by paying large wage premia while attracting female workers by lowering the credentials required for hiring. It is also clear that import-competing industries, for which output prices and sales declined during this period, showed smaller wage increases for all workers during the 1980s. This would narrow the gender gap in wage premia, if males had been more likely than females to benefit from rent sharing before the decline in demand for the industry's output, or if males at the top of the wage ladder were more likely than others, of both genders, to have left these industries when demand and pay declined. Sachs and Shatz (1996) support this argument with the observation that the overall gender gap in wages tended to narrow in these industries.

F. Education. The average level of education of workers within an industry (MEANEDUC) is generally negatively related to GGIWP, but the coefficient is significant in only one of the four regressions (and then at only the ten percent level). As such, we must conclude that average education does not have much impact on the GGIWP. We include this variable because Dickens and Katz (1987) find education to be the most important variable in explaining inter-industry variations in average wages (including both genders). Bound and Johnson (1992), too, cite a substantial increase in the relative wages of highly educated workers during the 1980s, presumed to be brought about by a shift in the skill structure of labor demand during this period.

The standard deviation of education (STDEDUC) is not significant in any of the four regressions. We include this variable as a proxy for the range in the occupational distribution of workers within an industry. As noted above, one of the reasons why males and females in the same industry might receive different wage premia is that the occupational distributions of male and female workers within that industry might differ. Further, this might reflect geographic variations in the disparities of educational credentials required of female relative to male workers within the same industry when local labor market conditions differ. We thought that such gender disparities might be correlated with the overall variation of educational levels within an industry but this result is not borne out by the regression analysis.

G. Capital Intensity. The capital-labor ratio has a negative coefficient in all four regressions but is not significant in any. We include capital intensity since as, Masters (1969) and others have argued, more capital intensive industries might require more highly skilled workers and production might entail greater coordination and therefore such industries might generally have higher interindustry wage differentials. The results here indicate that the gender wage gap is not related to this variable.

5. Summary and Policy Implications

Our principal finding is that Affirmative Action, employment growth, and profitability each leads to a narrowing of the gender gap in industry wage premia. These effects act independently of each other. With regard to the Affirmative Action variable, our results contrast sharply with those of Leonard (1996), who concludes that Affirmative Action had lost its effectiveness as a measure to reduce the gender wage gap in the 1980s. The difference in results is likely attributable to the fact that the dependent variable in his regression analysis is the gender gap in earnings, whereas ours is the gender gap in industry wage premia.

In terms of policy implications, our results provide new support to the recent effectiveness of the Affirmative Action program, which is currently under fire from so many sources and has been greatly diminished in size and budget since the late 1970s. Our results are particularly important because they refer to industry wage premia and thus control for differences in male and female productivity and more accurately reflect discrimination effects than the female-male wage gap. Indeed, in our 1995 study, we estimated that gender differences in industry wage premia might have explained as much as 22 percent of the overall male-female wage gap.

The very strong evidence we have produced on the subject of industry employment growth is indirectly related to the Affirmative Action program. As Leonard (1986b) observes, it is more fruitful to target such programs, particularly compliance reviews, at fast-growing industries, since these are the ones in which increasing both female wages and female employment opportunities will have the least adverse effect on the earnings and opportunities of existing male employees. In stagnant industries, in contrast, such programs will take the form of a zero-sum game in which raising female wages and employment opportunities will occur at the expense of males.

So, too, are the implications of industry profitability. Though we cannot conclude from our study here which way the direction of causality runs -- firms either increase their profits by paying females more equitably (if the premia represent efficiency wages) or spread their excess profits more equitably with female workers (to the extent the premia represent rents). In either case, government policy should be aimed at educating firms as to the profit-enhancing benefits from paying females equitably or admitting females into jobs where efficiency wages are relevant. Moreover, equal opportunity programs should be strongly targeted on firms in high profit industries.

Footnotes

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[1] See Fields and Wolff (1995) for a full list of wage premia by gender at the 3-digit industry level.

[2] See Fields and Wolff (1995) for more details on the estimation techniques.

[3] Appendix 3 shows a comparison of our male and female industry wage premia for full year workers in one digit industries with theirs for the 9 industries they looked at in the U.S. Considering that Blau and Kahn's specification for their earnings equation was different from ours and that they used smaller samples, there is a surprising degree of similarity between their results and ours. The rank correlation between the two sets of coefficients is quite high (0.82 for females and 0.73 for males). Shown also is a comparison of results for GGIWP (see below for the definition). There is again a high degree of correspondence, with a rank correlation of 0.73.

[4] Two of the original 158 industries were not included in the EVERYIND regressions because at least one of the independent variables for this industry has an extreme outlier value.

[5] We also used an alternative version of this index, the dollar value of federal government purchases from industry i divided by the number of establishments in industry i. However, this variable was not statistically significant in any of the regressions.

[6] In an alternative regression specification, we substituted the growth in labor productivity (defined as sales divided by employment) over the 1986-88 period for sales growth. The coefficient of labor productivity growth was

negative in every case but was statistically not as significant as that for sales growth.

References

Bell, Linda A., and Richard B. Freeman (1991), "The Causes of Increasing Interindustry Wage Dispersion in the United States," Industrial and Labor Relations Review, Vol. 44, No. 2, pp. 275-287.

Beller, Andrea H. (1979), "The Economics of Enforcement of an Antidiscrimination Law: Title VII of the Civil Rights Act of 1964," Journal of Law and Economics, Vol. 22, No. 1, pp. 359-380.

Blau, Francine D. and Lawrence M. Kahn (1992), "The Gender Earnings Gap: Some International Evidence," National Bureau of Economic Research Working Paper # 4224, Cambridge, Mass., December.

Bound, John, and George Johnson (1992), "Changes in the Structure of Wages in the 1980's: An Evaluation of Alternative Explanations," The American Economic Review, Vol. 82, No. 3, pp. 371-392.

Dickens, William T., and Lawrence F. Katz (1987), "Interindustry Wage Differences and Industry Characteristics," in Kevin Lang and Jonathan S. Leonard, eds., Unemployment and the Structure of Labor Markets. Oxford: Basil Blackwell, pp. 48-89.

Dolton, Peter, Donald O'Neill and Olive Sweetman (1996), "Gender Differences in a Changing Labor Market," Journal of Human Resources, Vol. 31, No. 3, pp. 549-565.

Donohue, John H., and James Heckman (1991), "Continuous vs. Episodic Change: The Impact of Civil Rights Policy On The Economic Status of Blacks," Journal of Economic Literature, Vol. 29, No. 4, pp. 1603-1643.

Dunlop, John T. (1957), The Theory of Wage Determination (London: Macmillan & Co.).

Fields, Judith, and Edward N. Wolff (1991), "The Decline of Sex Segregation and the Wage Gap, 1970-80," Journal of Human Resources, Vol. 26, No. 4, Fall, pp. 608-22.

Fields, Judith, and Edward N. Wolff (1995), "Industry Wage Differentials and the Gender Wage Gap" Industrial and Labor Relations Review, Vol. 49, No. 1, October, pp. 105-120.

Gittleman, Maury, and Edward N. Wolff (1993), "International Comparisons of Inter-Industry Wage Differentials." Review of Income and Wealth, Series 39, No. 3, (September), pp. 295-312.

Hodson, Randy, and Paula England (1986), "Industrial Structure and Sex Differences in Earnings," Industrial Relations, Vol. 25, No. 4, Winter, pp. 16-32.

Krueger, Alan B. and Lawrence H. Summers (1987), "Reflections on the Inter-Industry Wage Structure," in K. Lang and J. Leonard, eds., Unemployment and the Structure of Labor Markets, Basil Blackwell, Oxford, pp. 17-47.

Krueger, Alan B., and Lawrence H. Summers (1988), "Efficiency Wages and the Inter-Industry Wage Structure," Econometrica, Vol. 56, No.2, March, pp. 259-293.

Leonard, Jonathan S. (1984a), "Antidiscrimination or Reverse Discrimination: The Impact of Changing Demographics, Title VII, and Affirmative Action on Productivity," Journal of Human Resources, Vol. 19, No. 2, pp. 145-174.

Leonard, Jonathan S. (1984b), "The Impact of Affirmative Action on Employment," Journal of Labor Economics, Vol. 2, No. 4, pp. 439-463.

Leonard, Jonathan S. (1986a), "What Was Affirmative Action," American Economic Review Papers and Proceedings, Vol. 76, No. 3, pp. 359-363.

Leonard, Jonathan S. (1986b), "The Effectiveness of Equal Employment Law and Affirmative Action Regulation," in Ronald Ehrenberg ed., Research In Labor Economics, Vol. 8, Part B, pp. 319-359.

Leonard, Jonathan S. (1996), "Affirmative Action Thirty Years Later: Wage Disparities and Affirmative Action in the 1980's," American Economic Review, Papers & Proceedings, Vol. 86, No. 2, pp. 285-301.

Luski, I. and J. Weinblatt (1994), "Concentration and the Inter-Industry Wage Structure: The Israeli Manufacturing Sector", Applied Economics, Vol. 26, No. 2, pp. 121-127.

Masters, Stanley H. (1969), "An Interindustry Analysis of Wages and Plant Size", Review of Economics and Statistics, Vol. 51, No. 3, August, pp. 341-345.

McGoldrick, Kim Marie (1995),"Do Women Receive Compensating Wages for Earnings Uncertainty?" Southern Economic Journal, Vol. 62, No. 1, pp. 210-222.

Pugel, Thomas A. (1980), "Profitability, Concentration and the Interindustry Variation in Wages," Review of Economics and Statistics, Vol. 62, May, pp. 248-253.

Sachs, Jeffrey D., and Howard J. Shatz (1996), "U.S. Trade with Developing Countries and Wage Inequality," American Economic Review, Vol. 86, No. 2, pp. 234-239.

Sicherman, Nachum (1996), "Gender Differences in Departures from a Large Firm," Industrial and Labor Relations Review Vol. 49, No. 3, pp. 484-505.

Slichter, S. (1950), "Notes on the Structure of Wages," Review of Economics and Statistics, Vol. 32, No. 2, pp. 80-91.

Weiss, Leonard (1966), "Concentration and Labor Earnings," American Economic Review, Vol. 56, No. 1, pp. 96-117.

Table 1

Descriptive Statistics on the Gender Gap in Industry Wage Premia (GGIWP)
For Alternative Samples of Workers

Sample	Mean	Standard Deviation	Minimum Value	Maximum Value
158 Three-digit Industries with no missing data	-0.09	0.12	-0.47	0.40
86 Three-digit Industries with no missing data and male and female industry dummy variables are both statistically significant at 10 percent level	-0.09	0.11	-0.46	0.24
81 Three-digit Industries with no missing data and male and female industry dummy variables for FTFY workers only are both statistically significant at 10 percent level	-0.08	0.11	-0.53	0.20

a. Computations from the 1988 Current Population Survey. See Appendix 2 for a full listing of values of GGIWP at the 3-digit industry.

Table 2

Regression Results of Gender Gap in Industry Wage Premia (GGIWP) on Industry Characteristics

Mean Values of Independent Variables		Regression Coefficients[a]			
		EVERYIND[b]		SIGFTYS[c]	
EVERYIND[b]	SIGFTYS[c]	unweighted	weighted	unweighted	weighted
Constant		0.133	0.030	-0.001	-0.200
AA (Affirmative Action)		-0.020*	-0.021**	-0.029**	-0.027**
1.30	1.10	(0.011)	(0.009)	(0.014)	(0.013)
EMPGRTH (Employment Growth)		-0.309***	-0.281***	-0.501***	-0.411**
0.03	0.04	(0.104)	(0.093)	(0.169)	(0.221)
PROFRATE (Profit Rate)		-0.059***	-0.049***	-0.081***	-0.079***
0.65	0.67	(0.018)	(0.013)	(0.018)	(0.018)
PLANTSIZ (Plant Size)		0.024**	0.019***	0.019*	0.009
51.5	60.1	(0.011)	(0.005)	(0.010)	(0.006)
PAYCHNG (Pay Change)		0.262***	0.242***	0.343**	0.324*
0.12	0.12	(0.090)	(0.081)	(0.149)	(0.193)
SALESCHG (Sales Growth)		0.023	0.063**	0.073*	0.115***
0.24	0.26	(0.038)	(0.029)	(0.038)	(0.042)
MEANEDUC (Education)		-0.013	-0.012*	-0.010	0.003
12.7	12.6	(0.010)	(0.007)	(0.011)	(0.011)
STDEDUC (Std Dev of Educ)		-0.014	0.018	0.031	0.041
2.46	2.47	(0.019)	(0.018)	(0.020)	(0.027)
KLRATIO (Capital/Labor)		-0.071	-0.050	-0.055	0.036
4.04	3.85	(0.103)	(0.113)	(0.141)	(0.187)
R^2-Statistic		0.190	0.313	0.427	0.444
(F-Statistic)		(3.8)	(7.4)	(5.9)	(6.3)
Standard Error		0.1073	1.524	0.0895	1.369
Sample Size		156	156	81	81

a. Standard errors are shown below regression coefficient.

b. Includes all industries with no missing data.

c. Includes only industries with no missing data and for which male and female industry dummy variables for FTFY workers are both statistically significant at the 10 percent level.

*** significant at the one percent level (2-tailed test)
** significant at the five percent level (2-tailed test)
* significant at the ten percent level (2-tailed test)

Appendix 1

Data Sources and Methods

AA_i = the relative incidence of federal contractor firms in industry i. Though we tried several indices to represent this variable, the most successful was based on Leonard (1984b)'s data. The variable is defined as the percentage of Leonard's sample of 69,000 federal contractor firms that are in industry i divided by the percent of his sample with non-federal contractor firms in industry i.

$EMPGRTH_i$ = the percentage growth in employment in industry i over the 1986-88 period. This was computed from data in the 1986 and 1988 Current Population Surveys.

$PROFRATE_i$ = average profit rate for firms in industry i over the 3 year period, 1986-88, defined as total business receipts minus cost of sales and operations per dollar of assets. The source is: Internal Revenue Service, Statistics of Income, Corporation Income Tax Returns, Publication 16 (Rev. 11-91), 1986, 1987 and 1988.

$PLANTSIZ_i$ = average number of workers per establishment in industry i over the 3 year period, 1986-88. The source is: U.S. Bureau of the Census, County Business Patterns 1986-88 United States, CBP 88-01, December 1990.

$PAYCHNG_i$ = percent change in the annual payroll of industry i over the 3 year period, 1986-88. The source is: U.S. Bureau of the Census, op. cit.

$SALESCHG_i$ = percent change in the total business receipts of industry i over the 3 year period, 1986-88. The source is: Internal Revenue Service, op. cit.

$MEANEDUC_i$ = average years of schooling for workers in industry i in 1988. This was computed from data in the 1988 Current Population Survey.

$STDEDUC_i$ = the standard deviation in years of schooling among workers in industry i in 1988. This was computed from data in the 1988 Current Population Survey.

$KLRATIO_i$ = average value of assets per employee for firms in industry i in 1988. The source is: Internal Revenue Service, op. cit., 1988.

Appendix 2

Values of GGIWP, Gender Gap in Industry Wage Premia, for 3-Digit Industries[a]

Rank	Industry	GGIWP	Significant?[b]
1	LEATHER PRODUCTS EX FOOTWEAR[c]	-0.474	No
2	OFFICES OF PHYSICIANS	-0.461	Yes
3	DAIRY PRODUCTS STORES	-0.397	No
4	LIBRARIES	-0.377	No
5	BUSINESS MANAG SERVICES	-0.357	No
6	HARDWARE+HEAT WHSL TR	-0.324	No
7	OFFICES OF DENTISTS	-0.323	Yes
8	OTHER PRIMARY METAL	-0.296	No
9	RETL NURSERIES	-0.280	No
10	MISC PERSONAL SERVICES	-0.277	No
11	HORTICULTURAL SERVICES	-0.274	No
12	ELEC+GAS UTIL	-0.269	Yes
13	DRUG STORES	-0.254	Yes
14	FORESTRY	-0.236	Yes
15	SHIP+BOAT BLDG+REPAIR	-0.223	Yes
16	JEWELRY STORES	-0.223	Yes
17	FOOD STORES NEC	-0.220	No
18	COMPUTER+DATA PROC SERVICES	-0.211	No
19	LEGAL SERVICES	-0.208	No
20	PAPER PROD WHSL TR	-0.204	No
21	SECURITY BROKERS+INVST	-0.203	Yes
22	BUSINESS SERVICES, n.e.c.	-0.199	No
23	OFFICES OF HEALTH PRAC NEC	-0.199	No
24	SPORTING GODS STORES	-0.198	Yes
25	LUMBER WHSL TR	-0.197	No
26	BUS+TRADE SCHOOLS	-0.192	Yes
27	PRINTING PUBLISH EX NEWSPAPERSSS	-0.189	Yes
28	PAPERBOARD CONTAINERS+BOXES	-0.188	No
29	PHOTO EQUIP MFG	-0.186	No
30	CEMENT+PLASTER PROD MFG	-0.184	No
31	NONCOMMERCL SCIENTIFIC RESCH	-0.177	No
32	MEMBERSHIP ORGAN	-0.173	Yes
33	PRIM ALUMINUM US	-0.173	No
34	FUNERAL PARLORS	-0.169	Yes
35	BLAST FURNACES STEELWRKS	-0.163	No
36	GAS+STEAM UTIL	-0.158	No
37	SHOE STORES	-0.157	Yes
38	DRUGS MFG	-0.156	No
39	ELEC LIGHT+POWER UTIL	-0.152	Yes
40	MISC VEHICLE DEALERS	-0.149	No
41	FISHING HUNTING+TRAPPING	-0.149	No
42	ELEC MACH NEC	-0.148	Yes
43	GROCERY STORES	-0.147	Yes
44	PLASTICS SYNTHETICS+RESINS	-0.147	No
45	LIQUOR STORES	-0.144	No

46	BUS SERVICE+URBAN TRNSPT	-0.143	Yes
47	LUMBER RETL TR	-0.141	Yes
48	CREDIT AGENCIES	-0.140	Yes
49	MISC PLASTIC PRODUCTS MFG	-0.140	No
50	ENGINEER+ARCHITECT SERVICES	-0.139	No
51	DEPARTMENT STORES	-0.139	Yes
52	BANKING	-0.138	No
53	THEATERS+MOVIES	-0.137	Yes
54	MISC STONE PROD MFG	-0.137	No
55	TRUCKING	-0.132	No
56	ALCOHOLIC BEV WHSL TR	-0.130	No
57	MISC FAB TEXTILE PRODCTS	-0.129	Yes
58	FAB STRUCTURL METAL MFG	-0.127	No
59	INSURANCE	-0.126	No
60	TELEGRAPH UTIL	-0.124	No
61	MISC WHSL NONDUR GDS	-0.120	Yes
62	GLASS MFG	-0.116	No
63	BEAUTY SHOPS	-0.106	No
64	SOAPS+COSMETICS MFG	-0.106	No
65	MISC ENTERTAIN SERVICES	-0.106	Yes
66	LAUNDRY+CLEANING SERVICES	-0.105	Yes
67	LODGING EX HOTELS	-0.105	Yes
68	MOTOR VEH+EQUIP MFG	-0.103	Yes
69	METALWRKING MACHINERY	-0.103	No
70	CONSTRUCTION	-0.102	No
71	INDUS CHEMICALS MFG	-0.100	Yes
72	YARN TEAD+FABRIC MILLS	-0.100	No
73	SAVINGS+LOANS	-0.099	Yes
74	INC TRANSPORT SERVICES	-0.098	Yes
75	RADIO+TV MFG	-0.096	No
76	HEALTH SERVICES NEC	-0.095	Yes
77	PETROLEUM REFINING	-0.095	Yes
78	SCI INSTRUMENTS MFG	-0.093	No
79	APPAREL+ACCESSORIES MFG	-0.092	Yes
80	OFFICE+ACCTNG MACHINES	-0.092	No
81	GROCERIES WHSL TR	-0.092	No
82	MISC GEN STORES	-0.091	Yes
83	MISC MFG US	-0.090	Yes
84	RAILROADS	-0.089	Yes
85	MISC WOOD PROD MFG	-0.088	Yes
86	AUTO+HOME SUPPLY STORES	-0.087	Yes
87	BOWLING ALLEYS	-0.085	No
88	APPAREL STORES	-0.082	Yes
89	MOTOR VEH DEALERS	-0.080	Yes
90	MISC RETAIL STORES	-0.080	Yes
91	NEWSPAPER PUB+PRINTING	-0.079	Yes
92	ELEMEN+SECONDARY SCHOOLS	-0.078	Yes
93	WATER TRANSPORT	-0.078	No
94	MACH EX ELECTRICAL MFG	-0.077	No
95	ACCTNG+AUDIT SERVICES	-0.077	No
96	MISC TEXTILE PROD MFG	-0.075	No
97	MACHINERY+EQUIP WHSL TR	-0.075	No

98	METAL FORGINGS+STAMP	-0.070	No
99	EATING+DRINKING PLACES	-0.069	Yes
100	CONSTR+HANDLING MACHINES	-0.067	No
101	PULP PAPER+PAPERBRD MILLS	-0.065	Yes
102	COMMERCIAL R+D+TEST LABS	-0.064	No
103	HARDWARE STORES	-0.062	Yes
104	FURNITURE MFG	-0.057	Yes
105	RETAIL BAKERIES	-0.055	Yes
106	GAS SERVICE STATIONS	-0.052	Yes
107	HOTELS+MOTELS	-0.051	Yes
108	FURNITURE STORES	-0.048	Yes
109	APPAREL+FABRIC WHSL TR	-0.046	No
110	MEAT PROD MFG	-0.042	Yes
111	JOB TRNG+VOC SERVICES	-0.041	Yes
112	ELECTRON COMPUTING MFG	-0.038	Yes
113	COLLEGES+UNIVERSITIES	-0.036	Yes
114	SERVICES TO DWELLINGS	-0.032	Yes
115	OPTICAL+HEALTH SUPPLIES MFG	-0.025	No
116	KNIT MILLS	-0.025	Yes
117	HH APP RADIO+TV STORES	-0.024	Yes
118	AIR TRANSPORT	-0.023	Yes
119	METALS+MIN WHSL TR	-0.021	No
120	TELEPHONE UTIL	-0.018	Yes
121	CRUDE PETROL+NAT GAS EXTRCTN	-0.017	Yes
122	DRUGS+CHEM WHSL TR	-0.017	No
123	NURSING CARE FACILITIES	-0.011	Yes
124	GUIDED MISSILES MFG[c]	-0.010	Yes
125	VARIETY STORES	-0.009	No
126	ELEC GDS WHSL TR	-0.003	No
127	OTHER RUBBER PRODUCTS MFG	-0.003	No
128	CUTLERY+HARDWARE MFG	-0.001	No
129	HH APPLIANCES MFG	0.001	Yes
130	MISC FAB METAL PROD MFG	0.006	No
131	MISC PAPER+PULP PROD	0.011	No
132	SANITARY SERV	0.012	No
133	HOSPITALS	0.015	Yes
134	REAL ESTATE	0.018	Yes
135	MOTOR VEH WHSL TR	0.022	Yes
136	EDUC SERVICES NEC	0.022	Yes
137	FARM PRODCTS WHSL TR	0.025	Yes
138	WATER SUPPLY UTIL	0.026	No
139	TOYS+SPORTING MFG	0.029	No
140	FARM SUPP WHSL TR	0.031	Yes
141	AIRCRAFT+PRTS MFG	0.032	Yes
142	WAREHOUSING+STORAGE	0.036	No
143	RESIDET CARE FACILITIES	0.038	Yes
144	ADERTISING	0.038	No
145	PETROLEUM WHSL TR	0.040	No
146	BOOK+STATIONERY STORES	0.043	Yes
147	MISC PROF+RELATED SERVICES	0.050	No
148	PERSONNEL SUPPLY SERVICES	0.059	Yes
149	MISC REPAIR SERVICES	0.061	Yes

150	AGRI SERV EX HORTICUL	0.068	Yes
151	FOOTWEAR EX RUBBER MFG	0.090	Yes
152	ORDNANCE	0.100	No
153	DETECTIVE+PROTECT SERVICES	0.110	Yes
154	TIRES+INNER TUBES MFG	0.113	Yes
155	RADIO+TV BROADCAST	0.146	Yes
156	SAWMILLS	0.159	No
157	AGRI PDC LIVESTCK	0.242	Yes
158	MOBILE HOME DEALERS	0.400	No

a. Industries are ranked in terms of the value of GGIWP.

b. "Yes" indicates that male and female industry dummy variables are both statistically significant at the 10 percent level in the earnings function regressions.

c. This industry is not included in the EVERYIND regressions because at least one of the independent variables for this industry has an extreme outlier value.

Appendix 3

Comparison of Our Results with Blau and Kahn (1992)

A. Coefficient Estimates of Industry Dummy Variables[a]

Industry Category	Male Workers: Blau & Kahn Coeff(rank)	Male Workers: Our Study Coeff(rank)	Female Workers: Blau & Kahn Coeff(rank)	Female Workers: Our Study Coeff(rank)
Agriculture, Forestry, and Fisheries	-0.527* (9)	-0.333* (9)	0.110 (1)	-0.319* (9)
Mining and Construction	-0.303 (7)	0.005* (3)	-0.184* (6)	-0.001* (5)
Manufacturing, Durables	0.066 (2)	0.536* (2)	0.018 (4)	0.054* (2)
Manufacturing, Non-Durables	-0.245* (4)	-0.063* (5)	-0.055 (5)	0.026* (3)
Transportation, Communication and Utilities	0.134 (1)	0.120* (1)	0.040 (2)	0.072* (1)
Wholesale Trade	-0.299 (6)	-0.073* (6)	0.294* (8)	-0.078* (6)
Retail Trade	-0.380* (8)	-0.307* (8)	-0.303* (9)	-0.224* (8)
Finance, Insurance, and Real Estate	-0.038 (3)	-0.016 (4)	0.040 (3)	0.001 (4)
Services	-0.249* (5)	-0.164* (7)	-0.280* (7)	-0.150* (7)
Intercept	8.149	0.938	8.238	1.020
Sample Size	1,194	24,460	1,406	33,519
Rank Correlation	0.73		0.82	

B. Estimates of GGIWP

Industry Category	Blau & Kahn Coeff. (rank)	Our Study Coeff(rank)
Agriculture, Forestry, and Fisheries	-0.726 (9)	-0.100 (6)
Mining and Construction	-0.207 (7)	0.075 (4)
Manufacturing, Durables	0.500 (1)	0.400 (1)
Manufacturing, Non-Durables	-0.279 (8)	-0.170 (9)
Transportation, Communication and Utilities	0.005 (2)	-0.036 (3)
Wholesale Trade	-0.093 (4)	-0.077 (5)
Retail Trade	-0.165 (5)	-0.164 (8)
Finance, Insurance, and Real Estate	-0.166 (6)	-0.099 (7)
Services	-0.057 (3)	0.095 (2)
Rank Correlation	0.73	

a. Both sets of regression coefficients are based on full-time workers only. Public administration is the omitted category in both studies. Blau and Kahn combined mining and construction into one category whereas we estimated separate coefficients for each industry, which are combined into a weighted average in the table above. Blau and Kahn also estimated a single coefficient for services, whereas we estimated separate coefficients for four service industries, which are combined into a weighted average in the table above.

* The regression coefficient for the corresponding industry dummy variable is significant at the 10 percent level.

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