

An Empirical Analysis of Recent Trends in Gender Wage Differences for U.S. Workers

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This paper analyzes data from the National Longitudinal Survey of Youth (1979 cohort) to assess recent trends in the wages of male and female workers in the U.S. labor market. Over the period 1990-2012, we observe two general wage trends for white, black and Hispanic females, relative to white males: First, all groups experienced a decline in their relative wage ratios; second, the portion of the wage gap due to gender differences in worker characteristics has also declined. These trends are especially pronounced following the Great Recession of 2007-2009. Our results are consistent with those found by other researchers.

INTRODUCTION

Researchers, policymakers, and the general public are well acquainted with the gender wage gap in the United States. Recent studies on the historical persistence of gender earnings differentials include Blau and Kahn (2013; 2016), and Goldin (2014), and numerous others. Although there is overall consensus about the existence of gender wage differentials, there is less agreement about the causes. Some have attributed the continuing presence of gender wage differentials to factors such as the interrupted labor force participation of women, gender differences in human capital, occupations or industry of employment, and to unequal labor market treatment (discrimination) (see Blau and Kahn, 2016). Although gender differences in such human capital investments as education have fallen over time, the aggregate wage gap between men and women in the U. S. has held constant over the last 20 years -- in the range of 74 to 79 percent (Blau and Kahn, 2008; 2016; Goldin, 2014). Goldin (2016) further investigates the wage gap over the life cycle by constructing cohorts from cross sectional data. Her primary conclusion is that, "...difference in earnings by sex greatly increases during the first several decades of working life" (p. 1097). However, in most instances, the female/ male wage ratio increases again when workers are in their forties.

This paper uses panel data from the 1979 National Longitudinal Survey of Youth (NLSY79) to investigate the relative wages of men and women in the U.S. labor force. Our primary empirical objective is to assess gender wage differentials over time as workers progress through their labor market careers. We examine relative wage ratios for white, black and Hispanic women and determine the percentage of the wage gap explained by differences in human capital attributes, as well as the residual (unexplained) portion. We then determine whether our results are consistent with those found in other studies. Our

period of investigation corresponds with the general decline and plateau of the relative wage of women that has taken place since 1990, as documented by others who employ cross-sectional data (e.g., Goldin, 2014) and alternative longitudinal data sources (Blau and Kahn, 2016). Additionally, our study investigates whether white women fare differently than women of color over the course of their labor market careers.

Long-Term Gender Earnings Ratios: NLSY79 Data

To assess recent trends in the male-female wage gap, we use the 1979 National Longitudinal Survey of Youth (NLSY79) for the period 1990-2012. We use this twenty-two year period to compare our longitudinal results with recent cross-sectional studies of gender inequality. In 1990, the NLSY79 was comprised of workers between the ages of 25 and 33; by 2012, the sample age distribution was 47-55. Thus, we follow workers as they begin their careers and progress to the point where they are considered 'prime-aged'. An added bonus of this period is that we can explore whether the Great Recession of 2007-2009 had an impact on the gender wage gap. Our samples include non-farm workers with positive wage and salary income. We exclude full-time military, self-employed, and those with missing information on relevant variables. Although the NLSY79 originally was conducted annually, beginning in 1996, the cohort interviews were changed to every 2 years. Thus, for consistency, we adopt two-year sample intervals for the entire period 1990-2012, resulting in a total of twelve samples.

Figures 1 and 2 illustrate the trend in gender earnings ratios since 1990 for three demographic groups: white, black, and Hispanic females (with white males as the reference group); recessions are indicated by the shaded areas. While there are minor variations over time, in general the log wage ratio declined slightly for all three groups over the sample period. This trend held for all workers as well as for year-round, full-time workers. The relative female wage ratios peaked in the mid 1990's, fell until 2002 and recovered somewhat until 2008. It also appears that the relative wage gains since 2002 were more pronounced for black and Hispanic women. Although slightly higher than the cross-sectional wage ratios found in other studies, our ratios are similar to results reported in Blau and Kahn (2016) and Goldin (2014). The general U-shape from the mid 1990's until 2006 corresponds to Goldin's (2014) findings that gender wage differences rise as workers first enter the labor force and then converge again when workers reach their 40's (in 2002 our sample age distribution was 37-45). However, with the exception of white female year-round, full-time workers, the U-shaped trend in gender wage ratios is reversed following the Great Recession of 2007-2009. In the next section we explore how male-female differences in human capital attributes, and/or in the returns to these attributes, may be related to these gender earnings ratios.

FIGURE 1
FEMALE TO MALE HOURLY EARNINGS RATIOS BY ETHNICITY
ALL WORKERS: 1990-2012
(REFERENCE GROUP: WHITE MALES)

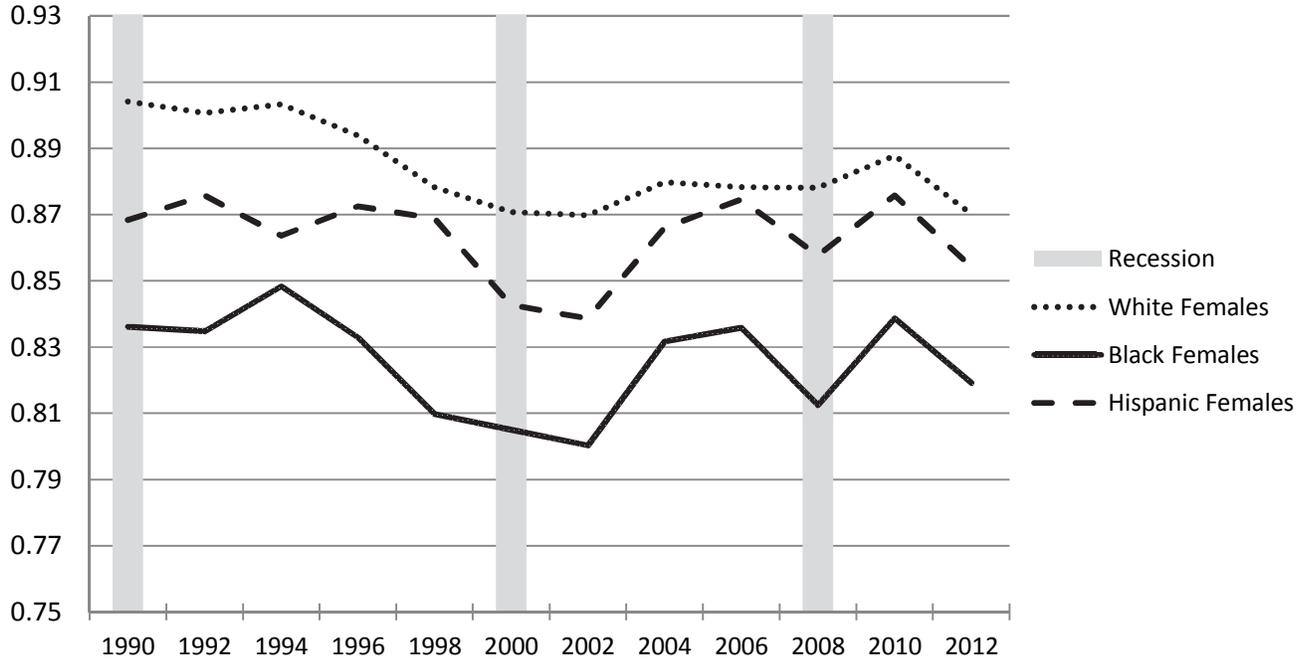
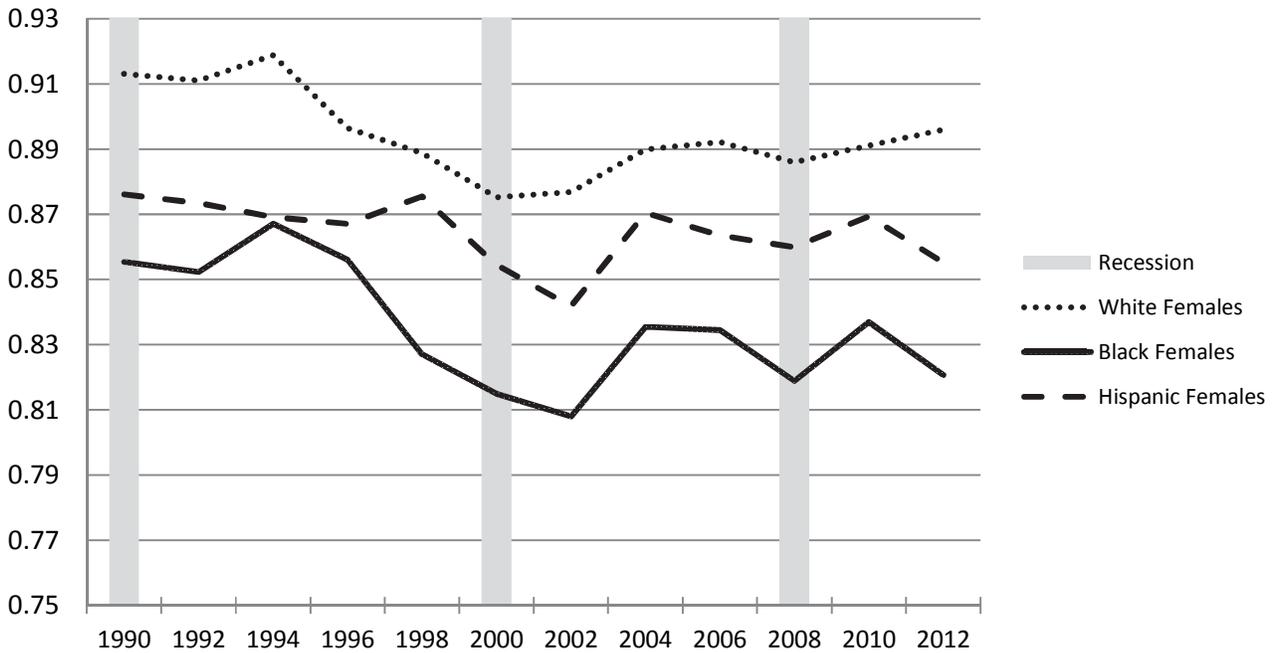


FIGURE 2
FEMALE TO MALE HOURLY EARNINGS RATIOS BY ETHNICITY
YRFT WORKERS: 1990-2012
(REFERENCE GROUP: WHITE MALES)



Components of Male-Female Earnings Differentials

The Blinder (1973) / Oaxaca (1973) wage decomposition model estimates the portion of the wage gap between two groups of workers that is due to group differences in average traits (productivity characteristics); any ‘unexplained’ residual, essentially due to differences in estimated earnings structures, is often attributed to the inferior returns to the human capital characteristics of the lower-wage group. This residual often serves as a proxy for wage discrimination.

Following this methodology, we first estimate Mincer (1974) human capital wage regressions separately for males and females in each sample year:

$$\ln W_i = \alpha + \sum_j \beta_j X_j + \varepsilon \quad (1)$$

where the dependent variable is the logarithm of hourly earnings for the i th worker, X_j is a standard set of socioeconomic characteristics linked to earnings (see Appendix Table 1), and ε is the stochastic error term. OLS estimation of the parameters in (1) allows the wage gap between males (M) and females (F) to be expressed as:

$$WG = \overline{\ln W_M} - \overline{\ln W_F} = [(\bar{X}_M - \bar{X}_F)\hat{\beta}_M] + [(\hat{\alpha}_M - \hat{\alpha}_F) + (\hat{\beta}_M - \hat{\beta}_F)\bar{X}_F] \quad (2)$$

Where the carrot notation denotes estimated parameters from the gender wage equations and the bar notation indicates sample means of the explanatory variables. The first bracketed term in (2) is interpreted as the nondiscriminatory portion of the gender wage gap (WG) -- that is, the amount due to gender differences in earnings-related characteristics. The second term estimates the portion due to differences in the estimated wage model coefficients: the unexplained portion which is often attributed to discriminatory factors in the labor market that devalue the characteristics of female workers. By analyzing each component of WG over time, we can observe if there are any relative shifts in the sources of the gender wage gap as young women progress through their careers and reach middle-age.

Figure 3 illustrates the 20-year trend in the percentage of the gender wage gap that is attributable to mean differences in earnings-related characteristics, i.e., the first bracketed term in expression (2). Figure 4 shows this trend for year-round full-time workers. In both instances, white males are the reference group. During the first half of our sample period there was a general increase in the portion of the male-female wage gap accounted for by differences in characteristics, especially for black and Hispanic women, although less so for white women. This outcome suggests that as white, black and Hispanic women in the NLSY79 cohort gained labor market experience during the 1990s, estimates of gender wage discrimination, measured by the ‘unexplained’ portion of the wage gap, declined. However, since 2000, the explained portion of the wage gap has fallen for all three groups. This trend is especially pronounced after the Great Recession (2007-2009).

Throughout our sample period, it appears that standard human capital variables explain little of the wage gap for white females, a result consistent with that found by Goldin (2014) and Blau and Kahn (2016). Using PSID microdata, Blau and Kahn attribute this outcome to increasing education levels of women, to the point where by 2011, women had higher average levels of education than men. They also found that women made great strides in closing the gender gap in labor market experience. By 2011 they determined that women had accumulated only 1.4 fewer years of labor market experience than men (p. 4). As women have increased their human capital investments and “look” more like men, Goldin (2014) suggests that the first bracketed portion of the wage gap has been “squeezed out” over time (p. 1094). Our results also echo those of Blau and Kahn (2016) who find that in 2010, only 14.8% of the wage gap is explained by traditional human capital variables (p. 72). As shown in Tables, 3 and 4, the results for white females differ markedly from those for women of color. For black women, differences in the earnings-related characteristics explained the majority of the wage gap until 2008; for Hispanic women, this outcome holds for the entire sample period.

An examination of the sample descriptive statistics in Appendix Table 2 may help shed light on the above findings. ² As reported in Blau and Kahn (2016), white females actually have more years of schooling than white males in our NLSY79 samples. Minority women have slightly less schooling than men. On the other hand, our more accurate labor market experience measure (see Appendix Table 1) indicates a significant advantage for white males over all three female groups, and this difference increases over time. ³ By 2012, males have accumulated nearly 6 additional years of actual labor market experience than females. Our findings on experience levels indicate greater differences by gender than Blau and Kahn (2013) report using PSID data. Although we might expect that gender differences in experience would help explain a growing portion of the wage gap, this is apparently not the case.

Figures 3 and 4 also illustrate one notable trend in the gender wage gap since 2000: as workers mature, the explained portion of the wage gap decreases – even among year round full time workers. In general, our longitudinal results are consistent with other studies which indicate that the explained portion of the gender wage gap falls over time. Explanations for this somewhat paradoxical result include persistent labor market discrimination, poor negotiating skills, differential treatment in promotion standards because women are more likely to leave their position, and compensating wage differences (i.e., wage penalties) for labor force gaps and hours differences (Blau and Kahn, 2013; Goldin, 2014).

FIGURE 3
PERCENTAGE OF MALE-FEMALE WAGE GAP
ATTRIBUTABLE TO GENDER DIFFERENCES IN CHARACTERISTICS:
ALL WORKERS, 1990-2012
(REFERENCE GROUP: WHITE MALES)

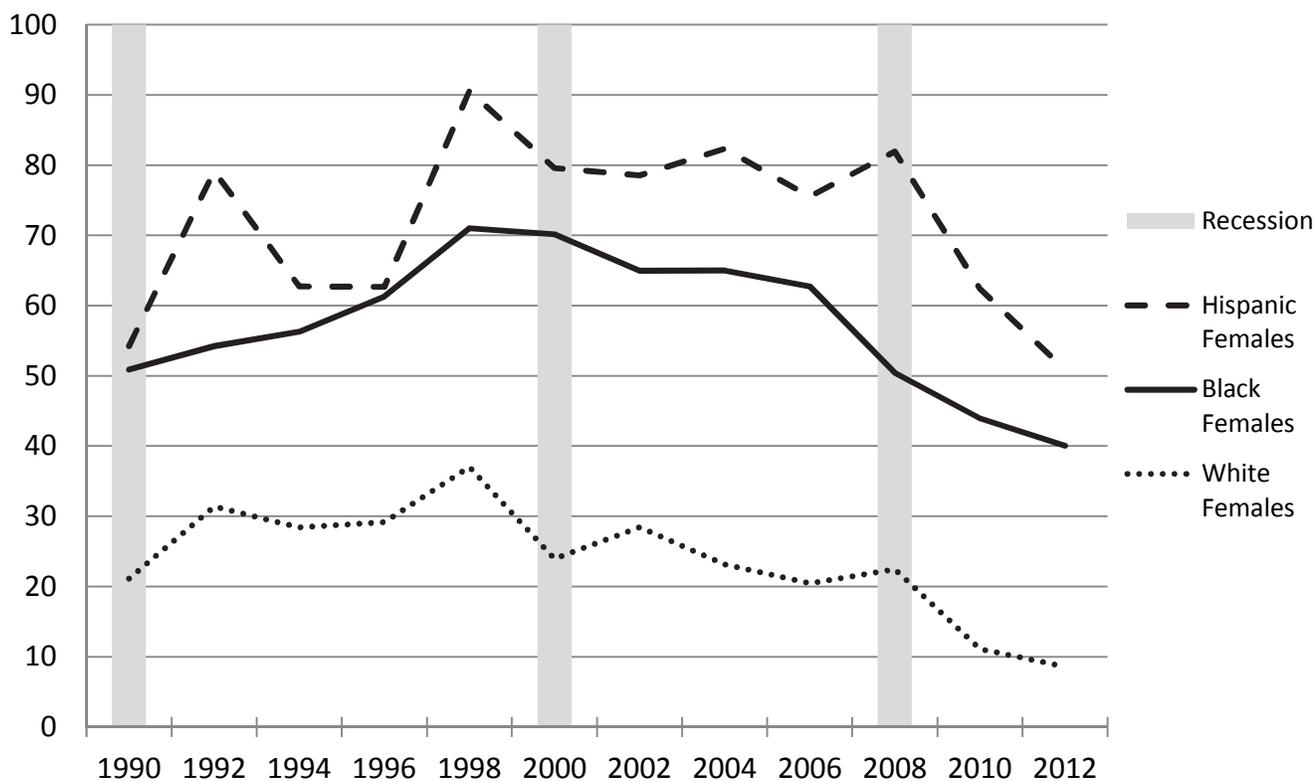
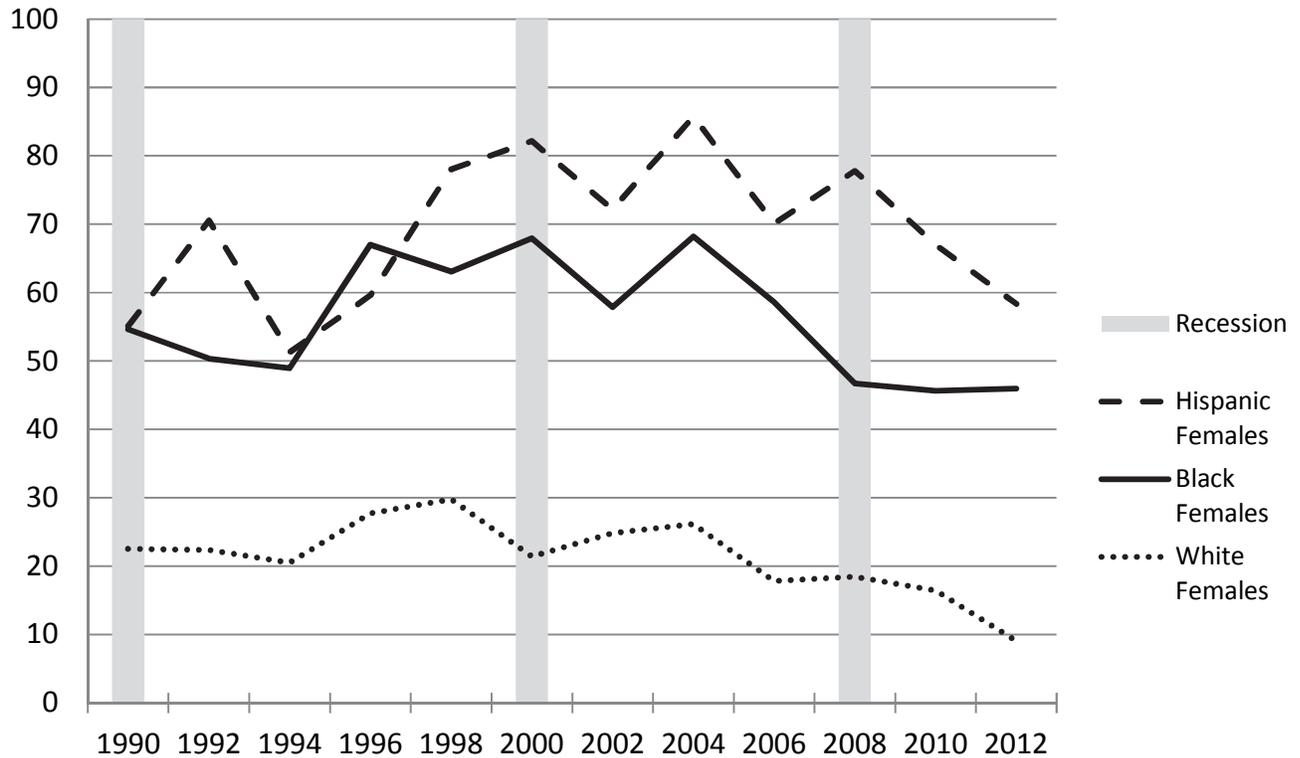


FIGURE 4
PERCENTAGE OF MALE-FEMALE WAGE GAP
ATTRIBUTABLE TO GENDER DIFFERENCES IN CHARACTERISTICS:
YEAR-ROUND FULL-TIME WORKERS, 1990-2012
(REFERENCE GROUP: WHITE MALES)



SUMMARY

This study investigates long-term trends in relative gender wage levels, and explores whether the composition of the male-female wage gap changes over time as women gain labor market experience. Our analysis of NLSY79 data indicates that in the 1990s female hourly earnings, relative to white males, declined for white, black and Hispanic women. This trend reversed itself somewhat during the early 2000s. However, during the latter part of that decade female wage ratios remained relatively flat and then started to decline. Like other researchers, we also find that traditional productivity-related characteristics explain a diminishing portion of the white male-female wage gap over time. Unlike the outcome for white females, human capital differences still account for nearly half of the gender wage differential for black and Hispanic women, relative to white men. However, for all groups the explained portion of the wage differential decreased during the latter years of our sample, most notably after the Great Recession of 2007-2009.

Further exploration of the decline in the explained portion of the gender wage gap is warranted since women account for a significant portion of the labor market. Some potential avenues for additional research include investigating the importance of gender differences in occupational choice or industry of employment (Gabriel and Schmitz, 2007), as well as labor market locational preferences. Blau and Kahn (2016) note that traditional gender family roles may still play a part in explaining wage differentials. For example, a “motherhood” wage penalty appears to still exist for women while men enjoy a marriage premium. Furthermore, among highly educated couples, geographical family location is most likely

determined by the employment prospects of men (Blau and Kahn, 2016, p. 49). These issues are worthy of additional investigation.

ENDNOTES

1. The decomposition in expression (2) adopts the standard approach by assuming that white men face the “discrimination-free”, counter-factual wage structure. Among the shortcomings of the Blinder-Oaxaca technique, it fails to account for pre-market discrimination due to racial differences in access to and/or quality of human capital (Neal and Johnson, 1996). However, this methodology remains the standard approach for comparing wages among groups of workers (Fortin, et al., 2011).
2. The descriptive statistics for the year-round, full-time samples yield similar results. These are available upon request.
3. Our experience measure, YRFTEXP, equals annual hours worked divided by 1750, and then summed over each sample year since 1979. With individual data on annual hours worked, YRFTEXP captures the intensity of a worker’s labor market activity over time. Although expressed in years, YRFTEXP can be interpreted as year-round, full-time equivalent years. (see Gabriel and Schmitz, 2013; Blau and Kahn, 2013)

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APPENDIX TABLE 1: INDEPENDENT VARIABLES IN WAGE REGRESSIONS (X)

EDUC: Years of schooling completed

MOMED: Mother's educational attainment

AFQT: Armed Forces Qualifications Test percentile

YRFTEXP: Year-round, full-time equivalent years of labor market experience. A cumulative measure of work experience based on annual hours worked, divided by 1750 (see Gabriel and Schmitz (2013))

YRFTEXPSQ: $YRFTEXP * YRFTEXP$

Dichotomous Variables:

- ***MSP***: marital status (= 1 if married, spouse present)
- ***Census region*** (NORTHEAST (base), WEST, NORTH CENTRAL, SOUTH)
- ***URBAN***: urban residence (= 1 if resides in an urban area)
- ***UNION***: union status (= 1 if a union member or covered by collective bargaining)

APPENDIX TABLE 2
SAMPLE DESCRIPTIVE STATISTICS -- SELECTED YEARS -- ALL WORKERS
STANDARD DEVIATIONS IN PARENTHESES

Variable	1990				1994			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
HREARN	11.62 (6.60)	9.72 (7.18)	8.24 (4.98)	9.05 (6.56)	14.75 (8.20)	12.03 (9.76)	10.08 (7.20)	10.60 (6.49)
LOGHREARN	2.30 (0.57)	2.09 (0.61)	1.95 (0.59)	2.05 (0.55)	2.55 (0.54)	2.31 (0.59)	2.15 (0.57)	2.20 (0.59)
EDUC	13.27 (2.60)	13.51 (2.32)	13.36 (1.95)	12.94 (2.17)	13.66 (2.48)	13.78 (2.34)	13.50 (1.96)	13.03 (2.31)
MSP (%)	57.9%	61.4%	35.4%	55.6%	65.3%	65.4%	37.3%	60.5%
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AFQT	53.74 (29.13)	53.15 (25.88)	27.01 (20.86)	33.65 (23.08)	57.34 (27.46)	54.73 (25.31)	27.00 (20.41)	32.63 (23.36)
YRFTEXP	10.42 (3.67)	8.75 (3.38)	7.73 (3.58)	8.12 (3.40)	15.12 (4.58)	12.46 (4.27)	11.50 (4.65)	11.63 (4.47)
YRFTEXPSQ	121.99 (77.49)	88.07 (59.20)	72.50 (57.63)	77.48 (55.60)	249.38 (138.97)	173.52 (103.31)	153.96 (105.62)	155.06 (100.89)
MOMED	11.77 (2.57)	11.72 (2.52)	11.00 (2.60)	8.29 (3.97)	12.06 (2.30)	11.94 (2.35)	10.91 (2.54)	8.07 (3.95)
NORTHCENT(%)	31.8%	29.3%	15.7%	8.8%	35.2%	31.8%	16.0%	8.0%
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WEST(%)	16.3%	15.4%	6.4%	44.0%	16.1%	16.7%	6.7%	45.1%
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SOUTH(%)	31.8%	34.8%	63.2%	33.5%	29.5%	33.4%	62.4%	33.8%
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URBAN(%)	72.7%	73.0%	85.8%	95.0%	75.8%	74.1%	85.6%	93.7%
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UNION(%)	17.2%	12.1%	25.3%	16.4%	22.0%	16.8%	28.9%	20.4%
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<i>Sample Size</i>	1929	1814	763	457	1442	1292	686	461

APPENDIX TABLE 2
SAMPLE DESCRIPTIVE STATISTICS -- SELECTED YEARS -- ALL WORKERS
STANDARD DEVIATIONS IN PARENTHESES

Variable	1998				2002			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
HREARN	19.44 (13.93)	14.60 (12.35)	11.44 (8.03)	14.30 (15.16)	26.65 (22.82)	18.52 (17.63)	15.04 (13.14)	16.79 (16.06)
LOGHREARN	2.78 (0.61)	2.45 (0.67)	2.24 (0.65)	2.41 (0.66)	3.04 (0.67)	2.66 (0.69)	2.48 (0.68)	2.57 (0.68)
EDUC	13.70 (2.58)	13.79 (2.29)	13.44 (2.02)	13.06 (2.56)	13.83 (2.60)	13.95 (2.33)	13.54 (2.20)	13.01 (2.62)
MSP (%)	68.7%	68.9%	36.1%	59.4%	70.5%	68.3%	35.4%	55.1%
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AFQT	56.42 (27.83)	53.82 (25.14)	25.64 (20.48)	31.91 (23.70)	57.26 (27.86)	53.77 (24.97)	25.74 (20.22)	31.36 (23.98)
YRFTEXP	17.43 (4.97)	13.86 (4.86)	12.55 (5.55)	13.13 (5.05)	20.05 (5.34)	15.80 (5.36)	14.51 (5.96)	14.47 (5.71)
YRFTEXPSQ	328.40 (172.38)	215.62 (130.31)	188.19 (138.91)	197.91 (125.82)	430.61 (210.03)	278.21 (163.00)	246.08 (171.20)	241.83 (159.06)
MOMED	12.06 (2.38)	11.90 (2.24)	10.84 (2.59)	8.08 (3.83)	12.06 (2.41)	11.86 (2.36)	10.84 (2.73)	7.91 (3.85)
<u>NORTHCENT</u> (%)	34.5%	33.2%	17.3%	9.4%	36.6%	33.6%	18.6%	7.5%
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<u>WEST</u> (%)	16.2%	15.6%	7.2%	43.0%	16.0%	16.0%	6.0%	44.7%
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<u>SOUTH</u> (%)	31.1%	33.3%	63.2%	34.3%	30.8%	32.9%	62.1%	36.9%
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<u>URBAN</u> (%)	62.7%	60.6%	78.1%	81.6%	65.1%	63.8%	83.6%	85.7%
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<u>UNION</u> (%)	22.1%	15.9%	23.0%	20.2%	21.8%	18.0%	24.3%	20.1%
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<i>Sample Size</i>	1323	1273	712	446	1219	1169	663	412

APPENDIX TABLE 2
SAMPLE DESCRIPTIVE STATISTICS -- SELECTED YEARS -- ALL WORKERS
STANDARD DEVIATIONS IN PARENTHESES

Variable	2006				2012			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
HREARN	29.41 (23.51)	20.13 (17.21)	16.96 (12.30)	19.59 (16.87)	36.57 (29.20)	23.10 (17.25)	19.44 (14.60)	21.53 (15.78)
LOGHREARN	3.15 (0.67)	2.77 (0.66)	2.65 (0.61)	2.74 (0.68)	3.36 (0.68)	2.93 (0.65)	2.76 (0.66)	2.87 (0.62)
EDUC	13.97 (2.61)	14.08 (2.42)	13.69 (2.20)	13.13 (2.62)	14.10 (2.59)	14.30 (2.50)	13.88 (2.24)	13.49 (2.56)
MSP (%)	71.0%	68.8%	37.7%	54.3%	71.9%	66.6%	33.5%	50.1%
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AFQT	58.08 (27.77)	55.10 (24.98)	26.32 (20.72)	30.41 (23.13)	58.84 (27.19)	55.71 (24.85)	26.53 (20.45)	32.01 (23.55)
YRFTEXP	22.19 (5.94)	17.69 (5.74)	16.69 (6.36)	16.52 (5.98)	25.96 (6.34)	20.63 (6.13)	20.18 (6.61)	19.87 (6.31)
YRFTEXPSQ	527.83 (255.05)	345.69 (195.62)	318.79 (207.24)	308.48 (188.53)	713.88 (315.99)	463.16 (244.00)	450.93 (261.48)	434.43 (240.56)
MOMED	12.02 (2.35)	11.86 (2.34)	10.77 (2.63)	7.82 (3.86)	12.02 (2.32)	12.00 (2.25)	10.86 (2.47)	8.19 (4.04)
NORTHCENT(%)	34.8%	33.1%	18.5%	8.1%	33.7%	34.0%	17.7%	7.9%
	--	--	--	--	--	--	--	--
WEST(%)	17.0%	14.8%	5.6%	45.9%	17.1%	15.5%	5.8%	44.5%
	--	--	--	--	--	--	--	--
SOUTH(%)	30.9%	33.2%	62.8%	34.5%	32.4%	31.4%	63.7%	37.2%
	--	--	--	--	--	--	--	--
URBAN(%)	66.9%	65.4%	84.8%	85.3%	72.3%	70.0%	89.0%	88.2%
	--	--	--	--	--	--	--	--
UNION(%)	22.6%	19.0%	28.0%	24.4%	21.9%	20.1%	28.9%	27.6%
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<i>Sample Size</i>	1126	1130	626	394	992	1001	553	355

APPENDIX TABLE 3
WAGE REGRESSIONS -- SELECTED YEARS -- ALL WORKERS
COEFFICIENTS AND (STANDARD ERRORS)

Variable	1990				1994			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	0.869*	0.668*	0.533*	0.765*	0.867*	0.506*	0.885*	1.133*
	(0.114)	(0.115)	(0.168)	(0.229)	(0.133)	(0.128)	(0.168)	(0.205)
EDUC	0.057*	0.067*	0.069*	0.046*	0.051*	0.063*	0.048*	0.061*
	(0.006)	(0.007)	(0.012)	(0.013)	(0.007)	(0.008)	(0.012)	(0.012)
MSP	0.165*	0.040	0.062	0.062	0.143*	0.053	-0.003	0.041
	(0.024)	(0.026)	(0.040)	(0.047)	(0.027)	(0.030)	(0.038)	(0.047)
AFQT	0.003*	0.004*	0.004*	0.002*	0.004*	0.004*	0.007*	0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
YRFTEXP	0.052*	0.050*	0.053**	0.114*	0.070*	0.081*	0.045*	0.016
	(0.014)	(0.016)	(0.021)	(0.029)	(0.012)	(0.015)	(0.017)	(0.023)
YRFTEXPSQ	-0.001	-0.001	0.000	-0.004**	-0.002*	-0.002*	-0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
MOMED	0.002	-0.007	0.001	0.009	0.005	-0.003	0.005	-0.003
	(0.005)	(0.006)	(0.008)	(0.006)	(0.006)	(0.007)	(0.008)	(0.006)
NORTHCENT	-0.094*	-0.091**	-0.128	-0.237**	-0.147*	-0.136**	-0.146**	-0.253**
	(0.031)	(0.036)	(0.067)	(0.100)	(0.035)	(0.042)	(0.063)	(0.100)
WEST	-0.097*	-0.068	-0.035	-0.189*	-0.134*	-0.067	-0.048	-0.1945*
	(0.037)	(0.042)	-0.091)	(0.070)	(0.042)	(0.048)	(0.085)	(0.070)
SOUTH	-0.114*	-0.075**	-0.138**	-0.252*	-0.110*	-0.116*	-0.160*	-0.317*
	(0.033)	(0.035)	(0.056)	(0.072)	(0.037)	(0.041)	(0.052)	(0.073)
URBAN	0.099*	0.133*	0.072	0.060	0.110*	0.135*	0.082	0.021
	(0.027)	(0.030)	(0.061)	(0.118)	(0.031)	(0.034)	(0.060)	(0.096)
UNION	0.168*	0.167*	0.142*	0.063	0.150*	0.071	0.149*	0.099
	(0.030)	(0.040)	(0.044)	(0.064)	(0.031)	(0.039)	(0.041)	(0.057)
<i>R² (adjusted)</i>	0.216	0.200	0.240	0.208	0.243	0.291	0.289	0.281
<i>F statistic</i>	49.41	42.20	22.92	11.91	43.00	49.10	26.32	17.32
<i>*Statistically significant at 1% level</i>								
<i>** Statistically significant at 5% level</i>								

**APPENDIX TABLE 3 - CONTINUED
WAGE REGRESSIONS -- SELECTED YEARS--ALL WORKERS
COEFFICIENTS AND (STANDARD ERRORS)**

Variable	1998				2002			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	0.756*	0.428*	0.822*	1.135*	0.818*	0.859*	0.868**	0.573
	(0.151)	(0.148)	(0.170)	(0.224)	(0.202)	(0.178)	(0.422)	(0.467)
EDUC	0.061*	0.083*	0.063*	0.067*	0.089*	0.076*	0.045	0.068**
	(0.008)	(0.009)	(0.012)	(0.014)	(0.009)	(0.010)	(0.031)	(0.029)
MSP	0.204*	0.007	0.092**	0.050	0.178*	-0.029	0.004	-0.063
	(0.032)	(0.036)	(0.041)	(0.056)	(0.040)	(0.041)	(0.099)	(0.118)
AFQT	0.004**	0.001	0.007*	0.002	0.004*	0.001	0.010*	0.008**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)
YRFTEXP	0.057*	0.065*	0.063*	0.037	0.047*	0.054*	0.074**	0.112**
	(0.013)	(0.015)	(0.015)	(0.025)	(0.016)	(0.016)	(0.035)	(0.050)
YRFTEXPSQ	-0.001	-0.001	-0.001	-0.000	-0.001	-0.001	-0.002**	-0.003
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)
MOMED	0.015**	0.014	-0.001	0.016**	0.008	0.012	0.002	0.005
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.019)	(0.020)
NORTHCENT	-0.126*	-0.166*	-0.136	-0.392*	-0.108**	-0.187*	0.078	-0.200
	(0.041)	(0.048)	(0.071)	(0.117)	(0.050)	(0.055)	(0.176)	(0.243)
WEST	-0.030*	-0.137**	-0.136	-0.255*	-0.087	-0.034	0.435**	-0.061
	(0.049)	(0.056)	(0.091)	(0.085)	(0.061)	(0.064)	(0.220)	(0.207)
SOUTH	-0.113*	-0.144*	-0.288*	-0.283*	-0.112**	-0.147*	0.111	-0.188
	(0.042)	(0.047)	(0.059)	(0.088)	(0.053)	(0.054)	(0.145)	(0.204)
URBAN	0.008	0.069**	-0.027	-0.041	-0.003	0.072	0.073	0.237
	(0.030)	(0.034)	(0.049)	(0.072)	(0.038)	(0.040)	(0.135)	(0.139)
UNION	0.155*	0.115**	0.121**	-0.004	0.062	0.065	-0.030	-0.017
	(0.035)	(0.045)	(0.047)	(0.072)	(0.043)	(0.0501)	(0.110)	(0.197)
<i>R</i> ² (adjusted)	0.291	0.253	0.367	0.267	0.278	0.184	0.214	0.376
<i>F</i> statistic	50.43	40.17	38.50	15.77	39.27	23.24	5.20	6.63
<i>*Statistically significant at 1% level</i>								
<i>** Statistically significant at 5% level</i>								

**APPENDIX TABLE 3 - CONTINUED
WAGE REGRESSIONS -- SELECTED YEARS--ALL WORKERS
COEFFICIENTS AND (STANDARD ERRORS)**

Variable	2006				2012			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	1.007*	0.924*	0.939*	1.728*	1.634*	0.954*	1.282*	1.453*
	(0.185)	(0.164)	(0.179)	(0.272)	(0.226)	(0.184)	(0.252)	(0.262)
EDUC	0.085*	0.075*	0.057*	0.040*	0.092*	0.080*	0.050*	0.081*
	(0.009)	(0.009)	(0.012)	(0.015)	(0.009)	(0.009)	(0.014)	(0.013)
MSP	0.258*	-0.007	0.059	0.016	0.142*	0.022	-0.001	-0.013
	(0.038)	(0.038)	(0.043)	(0.061)	(0.042)	(0.038)	(0.055)	(0.054)
AFQT	0.004*	0.002*	0.006*	0.005*	0.004*	0.003*	0.004*	0.006*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
YRFTEXP	0.028**	0.045*	0.070*	0.020	0.000	0.038*	0.041**	-0.005
	(0.013)	(0.014)	(0.014)	(0.025)	(0.015)	(0.015)	(0.018)	(0.023)
YRFTEXPSQ	0.000	0.000	-0.001*	0.001	0.000	0.000	-0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
MOMED	0.007	0.009	0.006	0.017	0.008	0.004	0.010	-0.012
	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)	(0.007)
NORTHCENT	-0.131*	-0.157*	-0.088*	-0.386*	-0.247*	-0.150*	-0.165	-0.240
	(0.049)	(0.051)	(0.072)	(0.139)	(0.054)	(0.051)	(0.090)	(0.128)
WEST	0.021	-0.043	0.084	-0.170	-0.146**	0.022	-0.015	-0.079
	(0.058)	(0.060)	(0.106)	(0.100)	(0.063)	(0.060)	(0.124)	(0.089)
SOUTH	-0.050	-0.084	-0.147**	-0.399*	-0.164*	-0.063	-0.248*	-0.193**
	(0.052)	(0.050)	(0.062)	(0.104)	(0.055)	(0.052)	(0.077)	(0.092)
URBAN	0.053	0.022	-0.017*	-0.005	0.059	0.024	0.146	0.103
	(0.037)	(0.038)	(0.061)	(0.088)	(0.043)	(0.040)	(0.085)	(0.081)
UNION	0.137*	-0.023	0.160*	-0.066	0.004	-0.133*	0.161*	-0.070
	(0.041)	(0.046)	(0.047)	(0.077)	(0.045)	(0.046)	(0.056)	(0.063)
<i>R² (adjusted)</i>	0.302	0.220	0.333	0.275	0.277	0.266	0.199	0.378
<i>F statistic</i>	45.24	29.88	29.33	14.52	35.55	33.87	13.42	20.57
<i>*Statistically significant at 1% level</i>								
<i>** Statistically significant at 5% level</i>								

APPENDIX TABLE 4
WAGE REGRESSIONS -- SELECTED YEARS--YRFT WORKERS
COEFFICIENTS AND (STANDARD ERRORS)

Variable	1990				1994			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	0.842*	0.589*	0.786*	0.661*	0.844*	0.655*	0.841*	1.066*
	(-0.125)	(0.133)	(0.188)	(0.250)	(0.143)	(0.171)	(0.185)	(0.228)
EDUC	0.058*	0.064*	0.048*	0.056*	0.055*	0.053*	0.055*	0.053*
	(-0.007)	(0.007)	(0.011)	(0.013)	(0.007)	(0.008)	(0.010)	(0.012)
MSP	0.170*	0.007	0.029	-0.004	0.156*	0.057*	-0.023	0.012
	(0.023)	(0.024)	(0.040)	(0.044)	(0.028)	(0.030)	(0.036)	(0.046)
AFQT	0.003*	0.004*	0.006*	0.002**	0.003*	0.005*	0.006*	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
YRFTEXP	0.051*	0.067*	0.062**	0.129*	0.064*	0.086*	0.046**	0.054
	(0.016)	(0.019)	(0.027)	(0.036)	(0.013)	(0.021)	(0.021)	(0.028)
YRFTEXPSQ	-0.001	-0.002**	-0.001	-0.005**	-0.002*	-0.002*	-0.001	0.000
	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)
MOMED	0.001	0.003	0.000	0.011	0.006	-0.002	0.006	-0.001
	(0.05)	(0.005)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)
NORTHCENT	-0.076*	-0.174*	-0.088	-0.236**	-0.130*	-0.195*	-0.117	-0.279*
	(0.031)	(0.035)	(0.064)	(0.095)	(0.035)	(0.044)	(0.061)	(0.097)
WEST	-0.055	-0.134*	-0.052	-0.204*	-0.076	-0.126**	-0.007	-0.252*
	(0.037)	(0.040)	(0.088)	(0.069)	(0.043)	(0.050)	(0.077)	(0.070)
SOUTH	-0.102*	-0.147*	-0.133**	-0.316*	-0.100*	-0.191*	-0.157*	-0.351*
	(0.032)	(0.034)	(0.053)	(0.069)	(0.037)	(0.042)	(0.049)	(0.070)
URBAN	0.091*	0.132*	0.039	0.013	0.124*	0.114*	0.064	0.020
	(0.027)	(0.029)	(0.061)	(0.110)	(0.031)	(0.036)	(0.056)	(0.099)
UNION	0.163*	0.088**	0.122*	0.009	0.147*	0.059	0.088**	0.113**
	(0.030)	(0.036)	(0.042)	(0.062)	(0.031)	(0.039)	(0.037)	(0.056)
<i>R² (adjusted)</i>	0.237	0.303	0.277	0.290	0.253	0.307	0.358	0.320
<i>F statistic</i>	47.19	47.53	18.69	12.14	40.35	35.95	25.97	15.86

*Statistically significant at 1% level

** Statistically significant at 5% level

**APPENDIX TABLE 4 -- CONTINUED
WAGE REGRESSIONS -- SELECTED YEARS--YRFT WORKERS
COEFFICIENTS AND (STANDARD ERRORS)**

Variable	1998				2002			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	1.032*	0.496*	0.684*	1.386*	0.900*	0.540*	0.777**	0.923
	(0.156)	(0.163)	(0.172)	(0.243)	(0.200)	(0.190)	(0.393)	(0.529)
EDUC	0.059*	0.075*	0.052*	0.052*	0.095*	0.075*	0.079*	0.078**
	(0.008)	(0.009)	(0.011)	(0.013)	(0.009)	(0.010)	(0.027)	(0.035)
MSP	0.166*	0.038	0.066	-0.041	0.171*	0.037	0.095	-0.286**
	(0.031)	(0.035)	(0.039)	(0.050)	(0.039)	(0.040)	(0.084)	(0.119)
AFQT	0.004*	0.002**	0.007*	0.005*	0.004*	0.002**	0.009*	0.006**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)
YRFTEXP	0.041*	0.061*	0.075*	0.043	0.030	0.060*	0.097*	0.041
	(0.013)	(0.017)	(0.016)	(0.028)	(0.016)	(0.018)	(0.034)	(0.058)
YRFTEXPSQ	-0.001	-0.001	-0.002*	0.000	0.000	-0.001	-0.003**	-0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)
MOMED	0.011	0.022*	0.006	0.008	0.006	0.024*	-0.030	0.003
	(0.007)	(0.008)	(0.008)	(0.007)	(0.008)	(0.009)	(0.017)	(0.022)
NORTHCENT	-0.121*	-0.151*	-0.036	-0.297*	-0.105**	-0.113**	0.082	0.104
	(0.040)	(0.050)	(0.068)	(0.103)	(0.048)	(0.056)	(0.153)	(0.261)
WEST	-0.040	-0.103	-0.042	-0.236*	-0.099	0.014	0.106	-0.234
	(0.047)	(0.058)	(0.091)	(0.079)	(0.059)	(0.066)	(0.197)	(0.211)
SOUTH	-0.126*	-0.195*	-0.151*	-0.340*	-0.129**	-0.111**	-0.048	-0.185
	(0.041)	(0.048)	(0.058)	(0.079)	(0.050)	(0.054)	(0.128)	(0.208)
URBAN	-0.008	0.006	0.005	-0.101	-0.017	0.099**	-0.094	0.364**
	(0.029)	(0.034)	(0.045)	(0.065)	(0.036)	(0.040)	(0.118)	(0.140)
UNION	0.148*	0.002	0.149*	-0.048	0.089**	-0.016	-0.069	-0.015
	(0.033)	(0.044)	(0.044)	(0.063)	(0.041)	(0.050)	(0.096)	(0.219)
<i>R² (adjusted)</i>	0.280	0.290	0.399	0.334	0.307	0.252	0.357	0.449
<i>F statistic</i>	44.10	32.33	33.81	15.39	41.97	24.31	7.91	6.70
<i>*Statistically significant at 1% level</i>								
<i>** Statistically significant at 5% level</i>								

**APPENDIX TABLE 4 -- CONTINUED
WAGE REGRESSIONS -- SELECTED YEARS--YRFT WORKERS
COEFFICIENTS AND (STANDARD ERRORS)**

Variable	2006				2012			
	White Males	White Females	Black Females	Hispanic Females	White Males	White Females	Black Females	Hispanic Females
INTERCEPT	1.117*	0.910*	0.838*	1.787*	1.371*	1.023*	1.333*	1.744*
	(0.181)	(0.205)	(0.179)	(0.268)	(0.219)	(0.213)	(0.258)	(0.299)
EDUC	0.086*	0.078*	0.051*	0.042*	0.092*	0.082*	0.040*	0.080*
	(0.009)	(0.009)	(0.011)	(0.014)	(0.009)	(0.009)	(0.013)	(0.012)
MSP	0.266*	0.053	0.058	0.040	0.169*	0.042	0.041	-0.045
	(0.038)	(0.039)	(0.040)	(0.056)	(0.041)	(0.037)	(0.053)	(0.054)
AFQT	0.004*	0.003*	0.006*	0.005*	0.005*	0.002**	0.006*	0.006*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
YRFTEXP	0.019	0.047**	0.070*	-0.007	0.013	0.021	0.056*	-0.034
	(0.013)	(0.019)	(0.015)	(0.026)	(0.014)	(0.017)	(0.019)	(0.026)
YRFTEXPSQ	0.000	-0.001	-0.001*	0.001	0.000	0.000	-0.001	0.002**
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)
MOMED	0.013	0.005	0.010	0.013	0.008	0.019**	0.008	-0.007
	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)	(0.009)	(0.011)	(0.007)
NORTHCENT	-0.169*	-0.198*	-0.069	-0.424*	-0.198*	-0.124**	-0.269*	-0.153
	(0.048)	(0.056)	(0.066)	(0.133)	(0.053)	(0.053)	(0.089)	(0.130)
WEST	-0.022	-0.046	0.144*	-0.229**	-0.136**	0.014	-0.053	-0.105
	(0.056)	(0.065)	(0.010)	(0.093)	(0.061)	(0.063)	(0.125)	(0.087)
SOUTH	-0.091	-0.154*	-0.085	-0.352*	-0.113**	-0.102	-0.305*	-0.231*
	(0.050)	(0.054)	(0.057)	(0.096)	(0.054)	(0.053)	(0.076)	(0.088)
URBAN	0.026	0.044	0.082	0.073	0.078	0.049	0.089	0.085
	(0.036)	(0.040)	(0.057)	(0.082)	(0.042)	(0.040)	(0.085)	(0.079)
UNION	0.099**	-0.059	0.163*	-0.109	0.010	-0.172*	0.150*	-0.087
	(0.040)	(0.048)	(0.043)	(0.072)	(0.044)	(0.046)	(0.054)	(0.064)
<i>R² (adjusted)</i>	0.325	0.242	0.377	0.367	0.325	0.283	0.275	0.406
<i>F statistic</i>	46.66	25.10	28.45	16.13	40.43	28.22	16.72	18.99
<i>*Statistically significant at 1% level</i>								
<i>** Statistically significant at 5% level</i>								