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ARTICLES

Accumulating Disadvantage: The Growth in the Black–White Wage Gap Among Women

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Abstract Between 1980 and 2002, the black–white wage gap among women tripled, climbing steadily despite improving economic conditions in the 1990s. Relative distribution analysis shows an increasingly dense accumulation of black women's wages in the lowest deciles of white women's wage distribution over time. Although the transition to an "office economy" rewarded both black and white women with wage gains, white women reaped greater benefits. During the 1990s, black managers and professionals lost ground relative to white women, but also relative to other black women workers. Regardless of the economic climate, then, black women accumulated disadvantage, suffering most in the chilly economic climate of the 1980s, and benefiting least during the economic expansion of the 1990s.

Keywords Racial wage inequality · Work and occupations · Gender · Stratification

After the 1950s, civil rights successes, affirmative action, the rise in federally sponsored public employment, and the mass exodus of black women from private household labor vastly improved the status of black women workers (Blau and Beller 1992; Burstein 1979; Katz et al. 2005). Data suggest that by the late 1970s, black women not only reached parity, but in some circumstances made greater hourly wages than white women with similar characteristics (Blau and Kahn 1994; McCrate and Leete 1994; Neal 2004). Since 1980, however, the mean black–white wage gap among women has widened dramatically approaching 18% by 2002 (see Fig. 1). In dollar terms, the gap in hourly wage among black women and white women grew from 69 cents in 1980 to $2.85 in 2002.[1]

[1] PCE deflated to 2000 dollars

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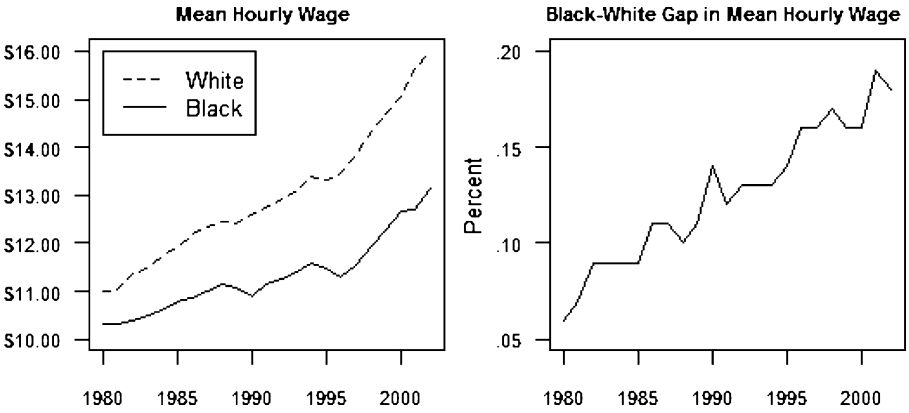

Fig. 1 Black–white wage differences among women, 1980–2002. CPS MORG data, weighted; PCE deflated to 2000 dollars; black and white women workers, ages 25–54

The rise in earnings inequality in the United States since the 1970s is well-documented (Bernhardt et al. 2001; Couch and Daly 2002; Mishel et al. 1997; Morris and Western 1999), yet relatively few studies address the marked growth in the black–white wage gap among women. Although the black–white wage gap among men is higher than women's, it has remained fairly stable (Bernhardt et al. 2001; Western and Pettit 2005) while the gap among women grew steadily throughout both the 1980s and 1990s. The growth in the wage gap among black and white women is puzzling in light of the previous convergence of wages, the increasing occupational diversity of black women, and the apparent decline in racial discrimination in the post-Civil Rights era (Blau and Beller 1992; Burstein 1979; Katz et al. 2005).

To date, there have been few analyses of the black–white wage gap among women that extend beyond estimating the magnitude of the gap and the effect of changing selection into the labor force (Blau and Beller 1992; Browne and Askew 2005; Neal 2004). In addition, much of the research has been limited to young women because, in a sense, they are "canaries in the coal mine," and particularly vulnerable to structural shifts (Antecol and Bedard 2002; Bound and Dresser 1999). However, the trend in wage inequality differs when including women workers over thirty. The growth in the black–white wage gap among young women grew markedly in the 1980s, then stagnated in the 1990s (Browne and Askew 2005). When extending the sample to all prime-age workers, 25–54 years old, black women's wages continued to erode relative to white women's during the 1990s (Kim 2002, see Fig. 1). Because unskilled workers experience little wage growth over their work life and college graduates are taking longer to both graduate and reach their peak earnings, limiting analyses to young women may dampen the real and continuing losses experienced by black women earners (Bernhardt et al. 2001).

In this article, I extend the analysis of the black–white wage gap among women through 2002, examining the wage outcomes of full-time and part-time workers, ages 25–54. I aim to examine whether factors implicated in the growth in men's inequality also explain the growth in women's racial wage inequality or whether

factors unique to women provide a stronger explanation for the marked growth in the black–white wage gap among women in the United States.

Explanations of Wage Inequality

The growth in overall earnings inequality in the United States has been attributed to skills mismatch, deindustrialization, a labor market increasingly bifurcated into low-skill, low-pay and high-skill, high-pay jobs, and an eroding wage floor (Browne 1999; Card and DiNardo 2002; Mishel et al. 2001; Morris and Western 1999). In addition to these broad labor market shifts in the United States, women experienced changes unique to their social position including increased labor force participation and aggregate occupational upgrading; that is, moving, as a group, from clerical and operative work to professional and managerial occupations.

Skills Mismatch

Industry shifts in employment have changed demand for particular skills in the labor market. The skills mismatch hypothesis states that the shift to a post-industrial economy has shifted demand toward highly-skilled workers, exacerbating the effect of the differential skills that black and white workers bring to the labor market. The good jobs/bad jobs debate expands upon this notion of demand shift by noting not only increasing rewards for skill, but also declining returns to unskilled labor, claiming that the wage structure is increasingly bifurcated into high-skill, high paying and low-skill, low paying jobs. In addition to the increasing polarization of jobs, the falling wage floor due to deunionization and the erosion of the minimum wage has further increased inequality (Bernhardt et al. 2001; Mishel et al. 1997; Morris and Western 1999).

The growth in the college wage premium supports the notion of greater demand for high-skill workers since 1980 and has been broadly investigated in the research on inequality (Gottschalk 1997; Levy and Murnane 1992; Morris and Western 1999). The premium for a college degree relative to a high school diploma grew more than 50% between 1979 and 1994 for all workers, as earnings for high school graduates fell (Gottschalk 1997). Although degree attainment has increased for both black women and white women, white women's degree advantage relative to black women grew during the 1980s (Blau and Beller 1992; Bound and Dresser 1999). Many studies find that differential educational attainment contributed significantly to the black–white wage gap among women in the 1980s with estimated contributions ranging from 25% to 40% of the wage gap (Antecol and Bedard 2002; Blau and Beller 1992; Bound and Dresser 1999; Kim 2002).

I will extend these estimates to 2002 in order to examine the effect of the college premium on women's wages during the economic expansion of the latter half of the 1990s. I predict a stronger effect of degree attainment on the black–white wage gap among women since white women increased their degree advantage over black women and the degree premium grew during the 1990s.

As labor force participation among both black women and white women increased during the 1980s, the black–white gap in experience among young women grew (Kilbourne et al. 1994; McCrate and Leete 1994). In 1980, young

white women had approximately 2 months more experience than black women, but by 1986 their average experience advantage had grown to almost a year (Kilbourne et al. 1994: p 1167; McCrate and Leete 1994: p 171). Antecol and Bedard (2002) found black women's lesser experience to be the greatest contributor to the black–white wage gap among young women by 1994. Although studies of young workers indicate that white women rapidly accumulated experience during the 1980s surpassing black women, these results cannot be generalized to all prime-age women or predict whether white women's advantage in work experience continued to grow during the 1990s.

Unfortunately, Current Population Survey data do not contain a measure of work experience, so I use age as a proxy for experience. I hypothesize that the return to age will increase for white women over the observation period as they accumulate experience, while black women's return to age will stagnate or decline, especially during the 1980s, when black women experienced little wage growth.

Deindustrialization

A sizable body of research examines changes in earnings and earnings inequality since the 1970s, mainly focusing on men's wages (Bernhardt et al. 2001; Mishel et al. 2001; Farkas and Vicknair 1996; Juhn et al. 1991; Maume et al. 1996; Morris and Western 1999; Western and Pettit 2005). Changes in industry, occupation, and the wage structure have contributed to both the growth in earnings inequality and the decline in average earnings for men over the past thirty years. The effects of globalization, the shrinking manufacturing sector, increased immigration, the decline in union representation, and the erosion of the minimum wage have all exacerbated wage inequality (Mishel et al. 2001; Morris and Western 1999).

Deindustrialization includes myriad features that affect wages, particularly for the less skilled, including an overall decline in manufacturing employment, the movement of manufacturing jobs from inner cities to metropolitan areas, and the replacement of manufacturing jobs with service sector employment (Bernhardt et al. 2001; Massey and Denton 1992; Wilson 1990). Studies show that the shrinking manufacturing sector drove down the wages of less-skilled men in the 1970s and 1980s, disproportionately affecting black male earners (Darity and Myers 1998; Massey and Denton 1992). Because black women have historically had a larger proportional share of employment in the manufacturing industry relative to white women, declines in the manufacturing industry should have disproportionately affected black women as they moved to service sector jobs.

Although African American women may have disproportionately lost jobs in the manufacturing industry, I expect to find that the decline in manufacturing had a relatively minor effect on women's wages because their mean wage in the manufacturing industry has been relatively low due to their overrepresentation as operatives. In addition, relative to men, women have not been heavily represented in the industry.

Occupational Upgrading

Deindustrialization contributed to the emergence of an "office economy" (Carnevale and Rose 1998), a venue where women workers were already well-represented. As a result,

they experienced broad occupational upgrading with the proportion of women working as professionals (excluding teaching) or managers grew from 12% to 28% between 1970 and 2000 (Katz et al. 2005). While occupational upgrading helped improve the wages of black women in the 1960s and 1970s, mainly due to their transition out of private household service (Blau and Beller 1992), by the 1980s, occupational upgrading improved white women's wages far more than black women's (Blau and Beller 1992).

In evaluating the effect of occupation on the black–white wage gap, I expect aggregate occupational upgrading will benefit white women more than black women both because of their greater educational attainment and their growing labor force attachment.

Eroding Wage Floor

In addition to occupation and industry shifts, other changes in the labor market such as the erosion of the minimum wage heightened general wage inequality in the United States (Bernhardt et al. 2001; Grodsky and Pager 2001; Mishel et al. 2003; Katz et al. 2005). The erosion of the minimum wage affects more than minimum wage workers as employers often use it as a benchmark for hourly wage offers (e.g., one dollar above the minimum wage) (Morris and Western 1999). Since black women are increasingly concentrated in the lower tail of the earnings distribution and more likely to be paid hourly relative to white women, I predict a greater effect of hourly pay on the wage gap as the value of the minimum wage declined.

Research findings regarding the black–white wage gap among women in the United States have been limited due to the focus on the effect of changing selection into the labor force and the restriction of samples to young women (Antecol and Bedard 2002; Blau and Beller 1992; Bound and Dresser 1999; Neal 2004). In addition, most previous analyses examine women's wages during the 1980s or focus on one particular issue (e.g., the wage penalty of children and marriage (see Antecol and Bedard 2002; Budig and England 2001; Waldfogel 1997)). This paper examines the growth in racial wage inequality among women more broadly by evaluating the effect of human capital and job characteristics on the growth in wage inequality and updating trends through 2002.

Data

In this analysis, I use the Current Population Survey's Merged Outgoing Rotation Group (MORG) data for the years 1980–2002. The Merged Outgoing Rotation Group (MORG) is derived from the Current Population Survey (CPS). The CPS is a monthly household survey of between 50,000 and 60,000 households conducted by the U.S. Department of Labor's Bureau of Labor Statistics in order to measure labor force participation and employment. Each household that enters the Current Population Survey is interviewed for 4 months, skipped for 8 months, then interviewed again for 4 months. Since the CPS adds new households every month, in any 1 month, one quarter of the sample is rotating out—either for an 8 month break or because it is the end of the 16-month survey period. The MORG comprises these outgoing households.

The MORG is optimal for investigating the black–white wage gap among women because of its large sample size, representative sample, reliable earnings data, and consistency in questioning throughout the observation period. The MORG also has shortcomings, including no variable describing work experience and a lack of information regarding union representation and children in the household until 1983 and 1984, respectively.

In this analysis, I limit the MORG sample to black women and white women workers who receive wages, are not self-employed, and from the ages 25 and 54. The observation years 1980, 1990, and 2002 were chosen to illustrate change across both the 1980s and 1990s. Although there are data available after 2002, the occupation and industry codes were changed substantially in 2003. For this reason, 2002 will be the final observation year, though the wage gap continued to grow after the observation period.

The dependent variable in this analysis is the natural log of hourly wages deflated to 2000 dollars using the Personal Consumer Expenditure (PCE) index. Data are weighted using the CPS weights provided in the dataset. I use age (a continuous variable) as a proxy for experience. Education is derived from the highest grade completed and although this results in some overestimation of diplomas and degrees (Frazis et al. 1995), the effect should remain constant over the observation period. Because the influence of educational attainment is non-linear, dummy variables best capture the changing effect of educational attainment. I code education as less than high school, high school, some college, and college degree with high school as the omitted category in regression models. I code marital status as married, never married, and previously married (divorced, separated, or widowed) with married as the omitted category.

Occupation is divided into nine categories: professional and technical; managerial; sales; clerical; service; craftsmen; operatives; labor; and farm. Industry is divided into eleven categories: agriculture, mining, and construction; manufacturing; wholesale and retail trade; transportation and communications; finance, insurance, and real estate; other service; health care; education and social services; public administration; personal service and entertainment; and private household. I retain private household industry as a separate category because, in 1980, 6% of African American women were still employed in this industry.

Other job-related variables measure regional residence (West, Midwest, South with Northeast as the omitted category), residence in rural areas, part-time work, whether paid hourly as opposed to salaried, and public sector. Both black women and white women experienced significant migration out of rural areas, perhaps due to declining job opportunities, so the evaluation of returns to rural residence is important. Unfortunately, coding ambiguities in the MORG result in a large proportion of respondents reporting a zip code that includes both central city and metropolitan areas, making residency impossible to categorize. For this reason, I only evaluate the effect of rural residence. I also include dummy variables for working part time (less than 35 h per week), working in the public sector, and being paid hourly. Among women, white women have been more likely to work part time while the majority of women work for hourly pay, with black women more likely to be paid hourly.

Methods

Relative Distribution

Relative distribution methods provide an opportunity to evaluate earnings inequality across the wage distribution by illustrating the wage distribution of one group or time period relative to another. Relative distribution uses probability density functions (PDF) to express the probability, within a group, of being at a particular wage observation then applying that probability to another group's wage distribution.

The advantages of the relative distribution method are that it requires few assumptions, is non-parametric, is robust to outliers, and the graphical output is relatively easy to understand. Relative distribution also has some disadvantages, namely, it needs a relatively large sample size and is vulnerable to heaping, both due to rounding when reporting wages (e.g., reporting $5.00 per hour instead of $4.90) and over-representation of earners at particular wages (e.g., the minimum wage). This heaping makes it sometimes difficult to interpret, particularly if the heaping occurs at the decile mark. For this analysis, I smooth wages for easier interpretation without substantively changing the outcome.

In order to calculate the relative density let Y_w represent the observed log hourly wages of white women with a cumulative density function (CDF) of $F_w(y)$ and density (PDF) of $f_w(y)$. Let Y_b be observed hourly wages for black women with a CDF of $F_b(y)$ and density $f_b(y)$. The distribution of Y_b relative to Y_w is defined as:

$$R = F_w(Y_b)$$

The relative distribution, R, is obtained for Y_b by transforming it by the CDF of white women's wages (F_w). R measures the rank of Y_b relative to Y_w and is expressed as a percentile residing between 0 and 1 (Handcock and Morris 1999). The graphical representation of the probability density function (PDF) of r (referred to as the relative density, *rd*) illustrates the distribution of relative wages.

Regression Decomposition

The purpose of regression decomposition is to separate the observed wage differences into the proportion due to compositional difference and the proportion due to differential rewards to characteristics. Decomposition uses variable means and coefficients derived from ordinary least squares regression with means representing specific attributes of group members such as age, education, occupation, and industry and coefficients expressing returns, the effect of these characteristics on earnings. Differences in coefficients imply differential rewards for skill or job characteristics.

Let T be the total wage gap among white and black women's earnings while M represents differences in means and R represents differences in returns, an expression of discrimination or unmeasured characteristics of black and white women earners.

$$T = \sum_i b_{iw} x_{iw} - \sum_i b_{ib} x_{ib} \tag{1}$$

$$M = \sum_i b_{ib}(x_{iw} - x_{ib}) \tag{2}$$

$$R = \sum_i x_{iw}(b_{iw} - b_{ib}) \tag{3}$$

There are several approaches to decomposition analysis and, in this study, I employ the Oaxaca-Blinder (Blinder 1976; Oaxaca 1973) method that Jones and Kelley (1984) refer to as the deprivation model.[2] This method expresses the wage gap in terms of the compromised group's deficiencies and the improvement needed for them to reach parity with the privileged group.

Results

Changing Human Capital and Job Characteristics

Both black women and white women experienced broad shifts in human capital and job characteristics over the 1980s and 1990s illustrating the fundamental changes experienced by women workers in the United States (see Table 1). Although both black women and white women increased their educational attainment, in absolute terms, white women made greater gains. By 2002, one third of white women had college degrees while only one fifth of black women did. The proportion of black and white women in clerical, service, and operative occupations declined while the proportion in professional/technical and managerial occupations grew. However, the transition out of clerical occupations was far greater for white women decreasing by 13 percentage points relative to black women's 5 percentage point decline.

There were fewer shifts in industry relative to occupation, the most notable being large losses in manufacturing, growth in the business and repair services industry, and, for black women, a decline in work in private households. Overall, then, black women and white women had similar trends, but white women had steeper gains in areas associated with wage growth such as professional occupations and college degree attainment. Between 1980 and 2002, distributional shifts imply that changes in education, occupation, industry, and other job characteristics help explain the growth in the black–white wage gap over the observation period.

In addition to compositional shifts, both black and white women experienced mean wage gains across both the 1980s and 1990s, yet white women gained more. During the remarkable gains of the 1990s, the mean wage of black women grew by

[2] One of the central issues in using decomposition is how to address interaction effects (Jones and Kelley 1984). In this case the term "interaction" describes the portion of the gap that is a combination of the difference in means and the difference in returns. For instance, if women work 30 hours relative to men's 40 and make $2.50 relative to men's $3.00 per hour, the deficiency is in both hours worked and hourly pay (Jones and Kelley 1984). Although there are various methodological reasons for separating the interaction from the effect of coefficients, in this particular decomposition the interaction has little effect. For substantive reasons, then, the interaction is included in the coefficients in order to better describe what African American women need in order to achieve equity.

Table 1 Descriptive statistics for selected variables

	White			Black		
	1980	1990	2002	1980	1990	2002
Mean age	38	38	40	37	37	39
Proportions:						
Less than high school	.13	.07	.04	.25	.13	.09
High school	.47	.42	.29	.42	.44	.32
Some college	.19	.24	.31	.18	.26	.36
College	.22	.28	.36	.14	.18	.23
Northeast	.23	.22	.21	.20	.17	.17
North central/Midwest	.28	.27	.28	.19	.19	.18
South	.31	.32	.32	.52	.56	.57
West	.18	.19	.19	.09	.08	.09
Part time	.24	.23	.21	.16	.13	.12
Paid hourly	.55	.57	.56	.62	.68	.66
Public sector	.23	.21	.20	.31	.28	.26
Occupation						
Professional/technical	.22	.24	.29	.16	.17	.21
Manager/official	.08	.13	.18	.04	.08	.12
Clerical	.37	.30	.24	.29	.27	.24
Sales	.06	.11	.10	.02	.07	.07
Operative	.10	.06	.04	.16	.12	.08
Service	.14	.12	.11	.29	.24	.24
Industry						
Manufacturing	.18	.14	.10	.19	.15	.09
Transportation/communication	.05	.05	.05	.05	.07	.08
Wholesale/retail trade	.18	.18	.17	.10	.12	.13
Finance/insurance/real estate	.09	.10	.09	.06	.08	.07
Business/repair services	.06	.09	.11	.04	.06	.08
Health care	.15	.16	.18	.19	.19	.22
Education/social service	.18	.17	.19	.19	.16	.18
Public administration	.05	.05	.05	.08	.09	.09
Private household	.01	.01	.01	.06	.02	.01

CPS MORG data, weighted; black and white women workers, ages 25–54

21% while white women's mean wage grew 28%. Although white women had a higher overall mean wage across the observation period, in 1980 black women had a wage advantage as degree holders, professionals, managers, clerical workers, and within education and social service industries. By 1990, however, white women had greater mean wages within all human capital and job characteristics, and their advantage continued to grow through the 1990s.

Among occupational categories with the biggest gains in women workers, white women experienced greater wage gains relative to black women. Between 1980 and 2002, white women in professional, managerial, and sales occupations gained 40%,

53%, and 48% in mean hourly wage respectively, while black women gained 21%, 23%, and 1% respectively. In comparison, clerical occupations, which both employed the most women and had the greatest decline in employment across the observation years, had more similar wage gains for black women and white women (18% and 22%, respectively). White women, then, had higher growth in both representation and wages among occupations with the highest mean wage—professional/technical and managerial. Among occupations with low mean wages or job losses, such as service, operative, labor, and clerical occupations, wage gains were more similar for black women and white women leading to a smaller wage gap.

Among industries that employed the most women, black women had lower mean wage growth between 1980 and 2002. Mean wages in wholesale and retail trade were far below the mean for each race group, but even among this low-paying industry, white women gained $3.56 per hour between 1980 and 2002, while black women gained only $1.27 per hour on average. Among better-paying industries such as health care, white women had both higher mean wages and stronger wage growth over time.

Taken together, trends in composition and mean wage indicate that white women profited more from the transition to a service economy. Women's movement into occupations with higher mean wages benefited white women through greater movement into white collar occupations, and greater mean wage growth within these occupations. In contrast, white women and black women were more "equal" within declining occupations and occupations with low mean wages. Thus although black and white women experienced wage gains, particularly during the 1990s, relative to white women, black women were increasingly disadvantaged.

Within-group Changes in Wage Distribution

Since 1980, mean wages have grown increasingly dissimilar for black and white women (see Fig. 1); however, changes in summary statistics can obscure the extent of distributional change. For instance, a wage distribution that experienced equal shifts to the 10th and 90th deciles could result in greater inequality with no corresponding change in mean wage. Relative distribution methods illustrate whether summary statistics accurately reflect the trend in inequality for women earners, or whether individuals at the bottom (or top) of the earnings distribution overly influence the results. In addition, relative distribution methods can also illustrate changes in a particular group's earnings distribution over time.

Figure 2a illustrates black and white women's wages in 1990 relative to their 1980 wage distributions. If the wage distributions were equal, then the line and deciles would be flat, residing at 1. The further wages stray from one and the less horizontal the line, the greater the inequality between groups. In 1990 relative to 1980, Fig. 2a shows that both black women and white women experienced greater inequality with a higher proportion of workers in the tails and fewer in the lower-middle portion of the distribution. This illustrates a typical u-shaped pattern of inequality, popularly referred to as "the rich getting richer and the poor getting poorer" or the "decline of the middle class."

Although these distributional shifts look similar, closer examination reveals that black women experienced an approximate 60% increase in workers in the lowest decile of their 1980 wages while white women experienced an approximate 20% increase in the lowest decile. At the same time, white women had greater growth

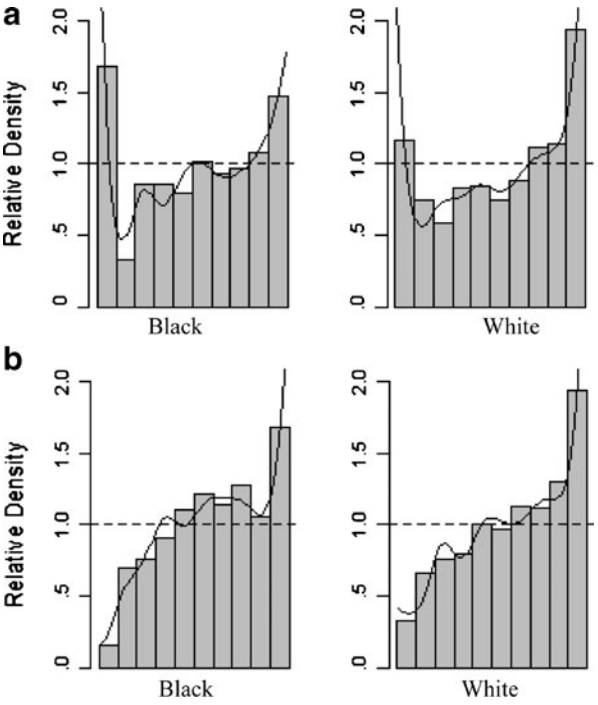

Fig. 2 Changes in the distribution of women's wages over time. **a** 1990 wages relative to 1980 wages. **b** 2002 wages relative to 1990 wages. *Bars* represent deciles of the entire wage distribution; CPS MORG data, weighted; PCE deflated to 2000 dollars

than black women in the upper end of their 1980 earnings distribution. By 1990, almost twice as many white women were in the upper decile relative to 1980, while black women increased their representation by only 50%.

The change in the relative wage distribution during the 1990s was markedly different with both black and white women experiencing broad wage gains across the distribution (see Fig. 2b). However, white women had greater improvement in the upper end of their distribution, again almost doubling their presence in the upper decile of their 1990 distribution and increasing in the ninth decile by approximately 30%. Black women gained approximately 60% more in the top decile with little change in the ninth decile. Although black women made wage gains, they were more likely to move to the middle, rather than the top, of the previous wage distribution.

Although black and white women had similar trends in their wage distributions over the 1980s and 1990s, each transition resulted in a greater proportion of white women, relative to black women, moving to the upper deciles of their previous earnings distribution. In real dollar terms, white women's gains were even greater since they began with higher wages than black women, both on average and in the upper deciles.

Black–white Relative Wage Distributions

Black and white women had similar patterns of wage growth and loss, characterized by greater within-race wage inequality in the 1980s, followed by generalized wage gains in the 1990s. However, black women's wages relative to white women's reveal a steady accumulation of disadvantage. In 1980, approximately 50% more black women made wages in the lowest decile of white women's earnings distribution,

mainly due to the significant proportion of black women who earned the minimum wage (see Fig. 3). Fewer black women made wages in the top half of white women's earnings distribution, but except for the disproportionate number of very low earning black women, wage inequality was not marked.

In 1990, the disadvantage of black women workers became more widespread as the proportion of black women in the top half of white women's distribution declined, particularly in the top decile where there were almost 50% fewer black earners. Black women also became more concentrated in the bottom half of white women's wage distribution, particularly within the bottom three deciles. In 1990, not only were black earners highly overrepresented in the bottom decile, but also had disproportionately accumulated in the second and third deciles.

The wage disadvantage of black women continued to grow, leaving black women clustered even lower in white women's distribution by 2002. Fifty percent more black women resided in the bottom two deciles of white women's wage distribution, with 30% more in the third decile. The proportion of black women in the top half of white women's wage distribution continued to decline, but instead of being limited to the highest earners, black women began to suffer losses across the entire top half of the distribution. Not only were there half as many black women in the top decile, but also in the ninth decile. Additionally, the seventh and eighth deciles had 25% fewer black women than white women.

Overall then, the character of wage inequality among black women and white women changed between 1980 and 2002. In 1980, there was little inequality except among very low earners; by 1990, black women experienced an inequality of extremes—that is, among the very lowest and very highest earners. However, by 2002, inequality took on a more general form with black women generally earning less than white women across the wage distribution.

The Wage Effects of Human Capital and Job Characteristics

Relative to white women, black women's earnings steadily eroded over both the 1980s and the 1990s, both at the mean and across the wage distribution. While in 1980, some groups of black women had higher mean wages than white women (e.g.,

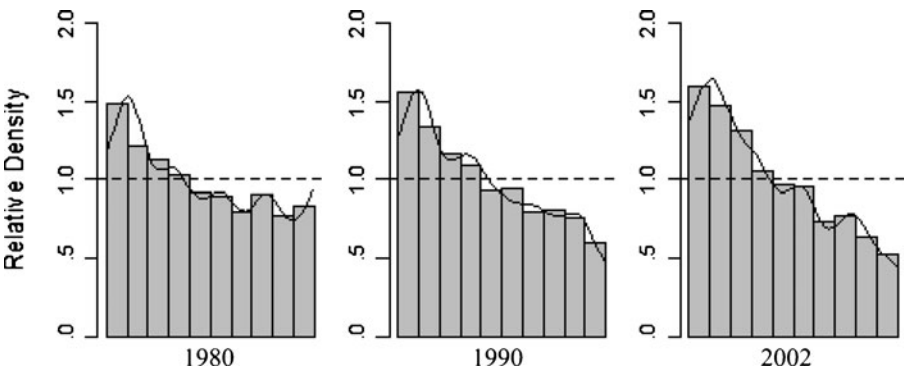

Fig. 3 Black women's relative wage distribution over time. *Bars* represent deciles of the entire wage distribution; CPS MORG data, weighted; PCE deflated to 2000 dollars

degree holders, professionals, and managers), by 1990, white women out earned black women across-the-board. Although both black and white women experienced mean wage gains in the 1990s, black women's relative status declined.

Regression decomposition illustrates to what extent changing composition of and returns to human capital and job characteristics contributed to the marked growth in the wage gap. Table 2 summarizes the proportion of the gap explained by differential composition of and rewards to characteristics in 1980, 1990, and 2002 (see Appendix A for a detailed table). In 1980, essentially all the wage gap was explained by compositional difference, that is, the differential distribution of black and white women across human capital and job characteristics. However, the explanatory power of differential distributions decreased over time and, by 1990, just over two thirds of the wage gap was explained by compositional difference. Stated another way, if black women were equal in education and job characteristics in 1980, they would have had a higher mean wage than white women. By 1990, however, differential human capital and job characteristics became less able to explain differences in black and white women's wages; instead, differential pay within characteristics began to contribute to wage inequality.

Skills

The effect of educational attainment on the wage gap increased over time, primarily due to the growing disparity in college degree attainment (see Table 3). By 2002, the disproportionate number of white women with a college degree was responsible for almost one fifth of the black–white log wage gap (see Appendix A). Differential pay within educational levels also began to advantage white women, contributing approximately 8% of the wage gap in 2002. Interestingly, black and white women with "some college" contributed the majority of the effect of differential pay. The category "some college" includes both individuals who completed some post-secondary coursework and individuals completing certificated professional programs. The growth in the effect of differential pay implies that white women are completing postsecondary training and certification programs associated with work in the health care industry.

As predicted, the return to age changed over time. Differential returns to age had a negative effect on the wage gap in 1980 and 1990, suppressing the wage gap by almost one third in 1990. In other words, if black and white women had a similar return to age, the wage gap would have been larger by a third. This trend reversed itself by 2002, when white women's greater return to age contributed approximately 10% of the log wage gap. If women's labor force participation increased, age would

Table 2 Summary of the decomposition of the black–white log earnings differential for women

	1980	1990	2002
Total log wage gap	.063	.132	.167
Proportion explained by			
Returns	−34%	35%	34%
Composition	134%	65%	66%

CPS MORG data, weighted; PCE deflated to 2000 dollars; black and white women workers, ages 25–54

Table 3 Decomposition of the black–white log earnings differential for women

	1980			1990			2002		
	Composition	Return	Total	Composition	Return	Total	Composition	Return	Total
Total log wage gap	8.4	−2.1	6.3	8.6	4.6	13.2	11.1	5.7	16.7
Age	.1	−.7	−.5	.2	−8.0	−7.8	.6	3.3	3.9
Education	2.5	−1.1	1.4	2.8	.2	3.0	4.6	1.3	5.9
Southern residence	2.3	1.9	4.1	4.2	1.2	5.4	2.3	−.3	2.0
Part-time	−.4	−.6	−1.0	−1.3	.6	−.7	−.6	.1	−.5
Paid hourly	.3	−5.0	−4.7	1.0	−4.2	−3.1	1.5	−1.8	−.3
Public sector	−.4	.4	.0	−.7	.2	−.5	−.2	.6	.3
Occupation	5.0	−.3	4.7	4.9	1.7	6.6	4.5	6.8	11.3
Industry	−.4	−.7	3.3	−1.2	2.7	1.5	−.8	2.0	1.3

Decomposition is expressed in percentage points of wage gap; occupation and industry express the total effect of occupation and industry dummy variables; CPS MORG data, weighted; PCE deflated to 2000 dollars; black and white women workers, ages 25–54

increasingly correlate with work experience, which is implied by the growing return to age for white women. Black women's return to age did not stagnate or decrease as predicted, but their gains did not keep pace with white women's.

Region

Living in the South had a significant impact on the wage gap in 1980 and 1990. Table 3 shows that, in 1990, the wage penalty for living in the South contributed a remarkable 5.4 percentage points to the wage gap. Approximately three quarters of the contribution was due to the disproportionate number of black women living in the South and one quarter was explained by the lower pay received by women living in the South. As the rest of the country transitioned to a post-industrial economy, the South lagged behind, with an economy that disproportionately relied on manufacturing and agriculture (Carlton, David L., personal communication, Feb 22, 2007). In 1990, women in the South were more likely to work in retail sales and as manufacturing operatives and less likely to work as professionals and managers as well as in the health care industry. By 2002 they had largely "caught up," becoming more similar to the rest of the United States in occupation and industry distributions. The steep penalty for living in the South, then, was temporary, brought on by the economic climate of the 1980s and the slower transition from a goods-producing economy.

Job Characteristics

In 1980, white women experienced a large penalty for receiving hourly pay relative to salaried pay. By 2002, the wage penalty for hourly pay became more similar for black and white women, mainly due to the increasing disparity of wages for black hourly and salaried workers. In a sense, this is good news, indicating that black

women were increasingly profiting in salaried positions. Unfortunately, the proportion of black women working for hourly pay increased over the 1980s, and, by 2002, two thirds of black women were paid by the hour.

The effect of differential pay within industries grew during the 1980s, explaining one third of the wage gap by 1990 with the health care industry contributing over half of the industry effect. However, by 2002, industry had relatively little influence on the black–white wage gap among women although differential rewards in the health care industry still contributed almost 10% of the wage gap. As expected, reductions in manufacturing employment had little effect on the wage gap since black and white women experienced similar declines in composition and never experienced above average returns to manufacturing employment.

Occupational distribution contributed significantly to the wage gap explaining 4.6–5 percentage points of the wage gap throughout the observation period—a much larger share of the wage gap in 1980 (approximately two thirds) than in 2002 (less than one third). Black women's overrepresentation in low-skill service occupations was most influential, contributing approximately two percentage points to the wage gap throughout the observation period. However, since the effect of occupational distribution remained consistent as the wage gap grew, it is a poor explanation for the growth in inequality (see Appendix A).

Differential returns to occupation became more significant to the wage gap over time. Thirteen percent of the wage gap in 1990 was explained by disparate pay within occupations, with sales occupations responsible for almost half. By 2002, the proportion of the wage gap explained by differential pay within occupations grew to 40%, with professional/technical occupations contributing almost half and sales and managerial occupations each contributing almost one quarter. During the shift from a goods-producing to a service economy, women experienced broad occupational upgrading, but within this upward mobility, black and white women did not fare equally. Racial wage inequality grew, particularly among white collar occupations, making the differential effects of "moving up" the dominant explanation for the black–white wage gap among women by 2002.

The Puzzling Outcomes of Black Professionals and Managers in the 1990s

Although the relative decline in the status of black women workers is concerning, increased racial sorting of the broader wage distribution is not surprising given that white women made greater strides in human capital, leaving them well-poised to take advantage of new opportunities. Even as black women strengthened their position in the labor market, in every instance, white women made greater gains. For instance, while black women gained 5 percentage points in degree attainment, white women gained 8. While 6% of white women left clerical occupations only 3% of black women did; and while the proportion of white women working as managers and professionals grew 10 percentage points, the proportion of black women grew by 8 percentage points. Taken together, these small differences resulted in accumulating disadvantage for black women even within the context of rapid wage growth among both black and white women workers.

The plight of black women managers and professionals over the observation period is particularly concerning. In addition to losing ground relative to white

women, they also lost ground relative to other black women workers. The wage premium for black professionals and managers relative to black clerical workers experienced a puzzling decline over the 1990s, falling from 22% to 14% and 19% to 16%, respectively (see Table 4). During the same period, the premium for white

Table 4 OLS regression estimates of the effect of human capital and job characteristics on women's log hourly wage

	White			Black		
	1980	1990	2002	1980	1990	2002
Age (5 years)	.01***	.02***	.03***	.02***	.03***	.03***
Less than high school[a]	−.07***	−.12***	−.15***	−.07***	−.09***	−.20***
Some college	.06***	.10***	.07***	.05***	.09***	.04***
College	.15***	.25***	.32***	.21***	.24***	.31***
Midwest[b]	.01***	−.10***	−.04***	.02***	−.06***	−.05***
South	−.04***	−.14***	−.10***	−.11***	−.17***	−.09***
West	.06***	−.01***	.01*	.04***	.01	.01*
Rural[c]	−.10***	−.16***	−.12***	−.12***	−.17***	−.11***
Professional[d]	.23***	.24***	.24***	.22***	.22***	.14***
Manager	.14***	.20***	.24***	.22***	.19***	.16***
Sales	−.04***	.01***	.06***	−.02*	−.08***	−.12***
Operative	−.06***	−.09***	−.05***	−.10***	−.11***	−.13***
Service	−.18***	−.21***	−.21***	−.14***	−.17***	−.19***
Manufacturing[e]	.21***	.26***	.22***	.19***	.25***	.20***
Transportation/ communications	.33***	.38***	.26***	.34***	.37***	.20***
Fire/insurance/real estate	.12***	.22***	.21***	.10***	.17***	.13***
Business and repair services	.13***	.18***	.15***	.07***	.10***	.10***
Health care	.16***	.27***	.23***	.08***	.13***	.13***
Education/social service	−.04***	−.02***	−.05***	.02***	.04***	.01**
R^2	.35	.44	.38	.40	.45	.40
N	44,989	50,217	47,328	6,068	7,042	

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$ (two-tailed tests); Dependent variable is log hourly wage; Unstandardized OLS regression coefficients; Controls for part-time, paid hourly, and public sector; Occupation variables not shown include craftsman, farm labor, and non-farm labor. Industries not shown include agriculture, personal and recreation services, and private household. Analysis is restricted to black and white women, ages 25–54, working in the public and private sector

[a] Reference category: High school

[b] Reference category: Northeast

[c] Reference category: Non-rural

[d] Reference category: Clerical

[e] Reference category: Wholesale/retail trade

professionals remained at 24%, while the premium for white managers grew from 20% to 24%.

The losses of black professionals and managers are puzzling in light of the general wage growth among black women workers. Although wages among women professionals and managers grew, indicating increased demand, the distribution of wages became increasingly racialized during the 1990s implying that, with a greater supply of skilled white women workers, black women fell in the labor queue. King (1998) extends labor queue theory by describing "bumping," in which a group extends downward in the labor queue, replacing a less-favored group that previously occupied an occupational niche. Evidence suggests that black women became less valued workers in the 1990s. In a time of corporate reorganization and downsizing, displaced black professionals and managers were more likely to remain unemployed, more likely to be pushed into lower white collar or blue collar occupations, and more likely to make wages that were 80% or less of their previous wage (McBrier and Wilson 2004). In addition, opportunities for promotion were also racialized. In their examination of black male workers, Wilson et al. (1999) find a more prescribed path to occupational mobility and promotion for black professionals and managers relative to white professionals and managers. While black promotion relied on human capital, direct work experience, and promotion within a company, white workers enjoyed more generalized opportunities based on informal systems.

The racialized nature of both outcomes for displaced workers and promotion of white collar workers (McBrier and Wilson 2004) implies that opportunities for black workers in the 1990s declined relative to white workers. Longitudinal data support this notion by illustrating an increasing dispersion in occupational attainment trajectories among black and white workers during the 1990s (Miech et al. 2003). With greater job instability and an increased supply of white women professionals and managers, black women professionals and managers lost ground, shifting downward in the labor queue.

Conclusion

Explanations for the growth in women's wage inequality are largely as I predicted. White women increased their degree advantage, both through more rapid growth in degree attainment and a larger gain in degree premium. Still, the majority of the wage gap in 2002 could not be explained by educational difference; instead, white women's gains outpaced black women's on every front. The increasing effect of age, particularly for white women, implies that with stronger labor force attachment, white women gained in work experience over the observation period leading to greater returns to human capital and job characteristics.

Also as predicted, the decline in the manufacturing industry had a relatively minor effect on both black and white women's wages. Instead, the wage effects of differential pay within occupation grew, becoming the largest contributor to the wage gap by 2002. Even after controlling for education, the effect of differential pay within occupations, particularly white collar occupations, became extremely influential in the black–white wage gap among women, explaining 40% of the gap. At the same time, the effect of industry waned and where women worked—the factory, the store, or the hospital—became less important than the nature of tasks performed.

In only one respect did the analyses not support my prediction—the effect of hourly pay on the wage gap did not increase over the observation period. The majority of women are paid hourly and I assumed as black women became increasingly concentrated in the lower tail of white women's wage distribution, the negative effect of being paid hourly would grow, yet increased racial stratification among hourly workers was not evident. The growth in wage inequality was not due to a growing proportion of black workers in low-paying service jobs that pay hourly, but to wage gains that disproportionately favored white women. Both black and white women workers did well, particularly in the 1990s, but white women gained far more ground, leaving black women behind.

Although this analysis finds no evidence of a direct effect of the shrinking manufacturing industry on the wages of black women, broad changes associated with deindustrialization led to the declining relative position of black women. As predicted by skills mismatch and the good jobs/bad jobs debate, the effect of education and occupation on the earnings and wage inequality of women increased over time. In addition, the growing difference in pay between hourly and salaried workers, and black women's increased density in the lower tail of white women's wage distribution lends support to the claim that jobs were increasingly polarized into "good jobs" and "bad jobs," while the distribution of women into these jobs became more racialized.

The 1980s and 1990s were a unique time for black women workers. Like all women, they improved their position in the labor market through greater educational attainment, stronger labor force participation, and growth in white collar occupations. Like African American men, their lower educational attainment, overrepresentation in the South, and predominance in low-wage occupations made them particularly vulnerable to the economic hardships of the 1980s and less able to take advantage of the economic expansion of the 1990s. Yet, African American women's social position cannot be expressed as a "sum of its parts." Instead, their social and labor market positions are distinct from both white women and black men.

One of the significant contributions of black feminist thought is its explication of intersectionality (King 1988; Collins 2000; Browne and Misra 2003). In brief, intersectionality conceptualizes disadvantages and privileges of particular social identities as multiplicative rather than additive (King 1988). Collins (2000) describes a matrix of domination resulting in distinct social locations for individuals based on race, class, sex, and other characteristics. Although the economic status of women is often investigated in terms of the gender wage gap, this obscures the markedly different historical and social location of black women relative to white women. For instance, "women's work" holds decidedly different meanings for black women and white women. While white women have historically dominated clerical occupations, black women have long been associated with personal caretaking. Historically, one of the few jobs available to African American women was as a domestic worker and this occupational niche persists although within a different industry. In 2002, the most common job among African American women is "nursing aide," a position informed by the confluence of race, class, and gender.[3] Because of the "triple jeopardy" experienced by black women, it is vital to analyze their labor market

[3] CPS Merged Outgoing Rotation Group data, weighted

outcomes separately rather than simply reducing race or gender to a control variable within broader analyses.

Although social locations may be situated in a "matrix," the social power ascribed to these locations is hierarchical. Within the context of the labor market, this hierarchy results in a labor queue that is simultaneously racialized and gendered. As white women became more desirable workers, they moved up in the labor queue, securing better jobs and improving their wage outcomes and labor force opportunities. Yet white women's gains did not exist in a vacuum; instead the interdependency between the gains and losses of different groups resulted in a decline for black women workers. Browne and Misra (2003) explain

> "the experiences of Latina workers are connected to the experiences of White women. For example, White women are more likely to be viewed as professional workers than Latinas, and White women benefit from this privilege. In addition, many White families in high-paying professional jobs rely on Latina workers to relieve them of their caregiving duties by taking low-paying jobs doing housekeeping and caring for children and the elderly. White women then doubly benefit from the social constructions that define Latinas within the labor market." (p. 491).

Similarly, the interconnectedness of social locations helps explain black women's relative decline. As employers re-conceptualize white women as strongly attached to the labor force and as work becomes increasingly "professionalized," white women move up in the labor queue, displacing black women who, in moving further down the queue, have greater difficulty finding work and restricted access to desirable jobs (Browne 2000; McBrier and Wilson 2004).

Future Research

Although a significant proportion of the growth in the black–white wage gap can be attributed to differences in educational attainment, the majority cannot; instead, a growing proportion of wage inequality is attributed to differential pay within human capital and job characteristics. Even among the most advantaged workers—professionals, managers, and the college-educated—black women are increasingly relegated to the lowest-paying jobs (Dozier forthcoming). Black women professionals and managers lost ground not only relative to white women, but also relative to black clerical workers. This is particularly concerning since educational attainment and occupational upgrading are typically prescribed as "remedies" for racial and ethnic inequality. Further research must examine whether black women's growing disadvantage is due to the relegation of African American women to "bad jobs" as professionals and managers, that is, whether their occupations have changed at the detailed occupational code level, or whether, within the same occupations, racial wage inequality has grown.

In addition, the broader financial well-being of black women needs further investigation. Generally, analyses of financial status examine hourly wages, a strategy that likely belies the actual financial circumstances of African American women. Although black women are more likely to work full-time, they are also more likely to be unemployed, meaning that their annual wages may be lower than

implied by their hourly wage. Furthermore, examinations of wage inequality do not incorporate the "per capita" family income, that is, how much income is available per family member. In this sample, almost 30% of black women were single parents, meaning that not only did black women earn less, but they were often the sole support for a family. If estimates of inequality took into account annual wages and per capita family income, black–white wage inequality would likely look far worse. Further research that more broadly conceptualizes financial health could provide a more accurate assessment of African American women's financial well-being in the United States.

Appendix A

Table 5 Decomposition of the black–white log wage gap among women

	1980			1990			2002	
	Composition	Return	Total	Composition	Return	Total	Composition	Return
Constant		.022	.022		.120	.120		−.051
Age	.001	−.007	−.005	.002	−.080	−.078	.006	.033
Never married	.000	.000	.000	.004	−.001	.003	.004	−.003
Previously married	−.002	.001	−.001	.000	−.006	−.006	.000	−.005
Less than high school	.009	.000	.010	.005	−.002	.003	.010	.002
Some college	.000	.002	.002	−.002	.002	.000	−.002	.009
College	.015	−.013	.002	.024	.003	.027	.038	.002
Midwest	.002	−.003	−.001	−.006	−.009	−.014	−.005	.003
South	.023	.019	.041	.042	.012	.054	.023	−.003
West	.003	.005	.008	.001	−.004	−.003	.001	−.002
Rural residence	−.010	.004	−.006	−.013	.001	−.012	−.009	−.004
Part time	−.004	−.006	−.010	−.013	.006	−.007	−.006	.001
Paid hourly	.003	−.050	−.047	.010	−.042	−.031	.015	−.018
Public sector	−.004	.004	.000	−.007	.002	−.005	−.002	.006
Professional/technical	.013	.002	.015	.015	.006	.021	.011	.029
Manager/official	.009	−.006	.003	.010	.001	.011	.009	.015
Sales	−.001	−.001	−.002	−.003	.010	.007	−.003	.019
Craftsmen	.000	.001	.001	.000	.002	.003	.000	.001
Operatives	.006	.004	.010	.006	.001	.007	.005	.003
Labor	.000	.001	.001	.001	.001	.002	.001	.002
Service, other	.022	−.005	.017	.021	−.005	.016	.024	−.002
Farm	.002	.000	.002	−.001	.000	.000	−.001	.000
Agriculture/construction	.003	−.002	.001	.003	.000	.002	.004	−.002
Manufacturing	−.001	.003	.002	−.004	.002	−.002	.001	.002
Transportation/	−.002	.000	−.002	−.007	.001	−.006	−.005	.003

Table 5 (continued)

	1980			1990			2002	
	Composition	Return	Total	Composition	Return	Total	Composition	Return
communication								
Finance/insurance/real estate	.003	.002	.004	.003	.005	.008	.003	.007
Professional service	.002	.003	.005	.003	.007	.011	.002	.005
Health care	−.004	.012	.008	−.005	.022	.017	−.005	.018
Education/social services	.000	−.011	−.011	.000	−.010	−.010	.000	−.013
Public administration	−.005	−.001	−.006	−.006	.000	−.006	−.007	−.001
Personal/Entertainment service	.000	.001	.001	.000	.002	.002	.000	.000
Private household	.000	−.002	−.002	.001	−.001	.000	.000	.000
Total contribution to wage gap	.084	−.021	.063	.086	.046	.132	.111	.057

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