Northern Losses and Southern Gains: Regional Variation in the Evolution of Black/White Earnings Differences in the United States, 1976-2017

Charles L. Ballard and John H. Goddeeris*

June 25, 2020

*Department of Economics, Michigan State University, East Lansing, MI 48824. Ballard: ballard@msu.edu; Goddeeris: goddeeri@msu.edu. We are grateful to Andy Ballard and Jeff Wooldridge for helpful comments, and to Laura Boisten, Lauren Swartz, Mitchell Timmerman, and Isaac Updike for excellent research assistance. Any errors are our responsibility.

Northern Losses and Southern Gains: Regional Variation in the Evolution of Black/White Earnings Differences in the United States, 1976-2017

ABSTRACT

We document large differences among regions of the United States, in the trends of the black/white earnings gap. Using Current Population Survey data from 1976 to 2017, we find that, outside the former Confederate states, the earnings of black workers decreased substantially relative to their non-Hispanic white counterparts. These relative decreases were much larger for women than for men. By contrast, in the states of the former Confederacy, the racial earnings gap shrank somewhat for men, and changed very little for women. For both women and men, the largest relative losses for black workers were in the East North Central Census Division.

The earnings gap between black workers in the former Confederate states and black workers in the rest of the United States decreased substantially. Non-Hispanic white workers in the former Confederate states gained relative to non-Hispanic white workers in the rest of the United States, but these relative gains for southerners were much smaller for white workers than for black workers.

We decompose the earnings differences to identify the sources of the poor relative performance of earnings for black workers. Although black workers increased their educational attainment, their years of schooling did not catch up with those of white workers. The effect of schooling on earnings increased dramatically in the late 20th century, so that the earnings penalty suffered by black workers from their lower level of schooling increased.

Although the estimated rate of return to an additional year of schooling increased for men and women of both races in the late 20th century, it decreased in the 21st century for black women, and for black men in the former Confederate states.

Substantial occupational segregation by race persisted throughout this period, as black workers continued to work disproportionately in low-paying occupations. As occupational pay differences widened, occupational segregation consistently explained a substantial part of the earnings differences, for women and men in both regions.

Northern Losses and Southern Gains: Regional Variation in the Evolution of Black/White Earnings Differences in the United States, 1976-2017

I. Introduction

In the middle decades of the 20th century, the earnings of African American workers increased dramatically, both in real purchasing power and in relation to their white counterparts. Average annual earnings of black men rose from 44 percent of white men's earnings in 1939 to 66 percent in 1979. Black women's relative annual earnings increased even more rapidly, from 40 percent of white women's earnings in 1939 to 101 percent in 1979.[1] These remarkable increases in the relative earnings of black workers coincided with a period during which the overall structure of wages was flatter than it had been before; Margo (1995) shows that the general compression of the wage structure contributed to the relative gains of black workers in the 1940s.

For the United States as a whole, these relative gains for black workers have slowed down or reversed since the 1970s.[2] However, much less attention has been paid to regional variation in the trends in racial earnings differences in the last 40 years.[3] In this paper, we describe and analyze the remarkable differences between different regions in the United States in the trajectories of black/white

[1] These figures are from Jaynes (1990, Table 3), based on Census data for the population with earnings aged 15 and older. He reports very similar relative increases in black *weekly* earnings as a percent of white *weekly* earnings. The gains are smaller but still substantial when expressed on a per-capita basis, including non-earners. For additional analysis and discussion, see Freeman (1973), Smith and Welch (1989), Donohue and Heckman (1991), Card and Krueger (1992), and Margo (1995).

[2] For example, see Bound and Freeman (1992), Hirsch and Winters (2014), Mandel and Semyonov (2016), Fisher and Houseworth (2017), and Bayer and Charles (2018).

[3] Vigdor (2006) is a notable exception.

relative earnings from 1976 to 2017.[4] As is common in the recent literature, we concentrate on comparisons between black workers and non-Hispanic white workers.[5] For convenience, we use "white" to refer to "non-Hispanic white."

Since the late 1970s, the earnings gap between southern black women and southern white women has stayed approximately constant. Outside the South, however, the ratio of the median black woman's earnings to those of the median white woman has fallen by more than 15 percentage points. As we shall see below, we find decreases of this magnitude throughout the entire earnings distribution, and not just at the median.

Even after the gains from the 1940s to the 1970s, the earnings of black men in the South were still very low relatively. Starting from this low base, the earnings of southern black men have continued to increase relative to the earnings of southern white men since the 1970s. Outside the South, black men have lost ground to white men in the last 40 years, although the relative losses of black *men* outside the South were much smaller than the relative losses of black *women* outside the South.

If there are differences in employment-to-population ratios, or if the potential earnings of non-earners differ systematically by race, population-based comparisons can look substantially different from comparisons of workers only. Indeed, during the years studied here, there have been important changes in labor-force participation, both for women and for men.[6] Several researchers have studied

[4] We choose 1976 as the first year of our study because it is near the beginning of two related phenomena-- the general widening of earnings differences, and the slowing or reversal of the increase in black/white earnings ratios.

[5] The results shown below are fundamentally similar to the results from a comparison of black workers with *all* white workers.

[6] Bound and Freeman (1992), Holzer, Offner, and Sorensen (2005), and others have documented a pronounced decline in labor-force participation among black men.

black/white earnings differences across the entire adult population (or subsets of it delineated by age), including non-earners. These analyses involve imputing or otherwise making assumptions about the potential earnings of non-earners.[7] They have established that labor-market outcomes for the entire African American population are considerably less favorable than for black workers.

These papers dealing with selective attrition from employment make an important contribution. In this paper, however, we focus on racial earnings differences between groups of full-time year-round (FTYR) workers,[8] for several reasons. First, comparisons of the earnings of black and white *workers* are interesting and important, regardless of what is happening to participation. For example, Goldin (2006) analyzes female/male earnings ratios for times when labor-force participation was much lower for women than for men, and we believe her results for earnings are important, despite the differences in participation.

Second, the main point of many of the papers in this literature is that accounting for selectivity in non-participation can make black/white wage differences look "worse", in the sense that the racial gap in potential earnings for the entire population is substantially larger than the gap in actual earnings for workers. However, we show that it is not necessary to rely on differential labor-force attrition to find a growing black/white gap in labor-market outcomes. Outside the South, we find that the racial earnings gap widened substantially, even when we restrict our attention to FTYR workers.

Third, most of this literature deals only with racial differences among men. Although we do study men, we put considerable emphasis on our results for women. Women are now a majority of

[7] Butler and Heckman (1977), Brown (1984), Chandra (2000), Juhn (2003), Western and Pettit (2005), and Bayer and Charles (2018) study the effects of differential participation on black/white comparisons for men. Blau and Beller (1992), Neal (2004), and Fisher and Houseworth (2017) discuss this for women.

[8] We define FTYR workers as those working at least 40 weeks per year and at least 35 hours per week.

black workers. Also, northern women are the group for whom we find the greatest increase in the black/white earnings gap. Fisher and Houseworth (2017) conclude that accounting for selection into work does not have a large effect on changes over time in black/white earnings gaps for women.

The rest of the paper proceeds as follows. We describe our data in Section II. Section III provides a detailed description of the very different paths of earnings taken by workers in different regions of the United States, for black women, white women, black men, and white men. Most of our comparisons are of black/white earnings gaps in the former Confederate states ("the South") as compared with the rest of the country. We highlight the considerable convergence in gaps that has occurred over our time period, as black workers had greater relative gains, or smaller relative losses, in the South, where they started the period much further behind whites. At the end of Section III we look at the data slightly differently, comparing workers of each race in the South with workers of the same race in the rest of the United States. We find that southern black workers gained on their northern counterparts to a much greater degree than did southern white workers.

In Section IV, we use the techniques of Oaxaca (1973) and Blinder (1973) to shed light on the reasons for the different trajectories of earnings gaps across regions. Because racial gaps in educational attainment have not entirely closed, rising returns to education in the late 20th and early 21st centuries favored white workers relative to black workers everywhere, as did increasing pay differentials across occupations. Much of the regional convergence in racial earnings gaps can be "explained" by differential changes across regions in educational attainment and in the distribution of employment among occupations. However, wherever we find gaps, a large fraction of them is unexplained by the differences in characteristics that we control for, and only among southern men does the unexplained portion of the gap shrink over time. We conclude with some discussion of our findings in Section V.

II. Data

We use data from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). Our data were collected in March of each year from 1977 to 2018, but the earnings data are for the year preceding the survey. Thus, we use data on earnings from 1976 to 2017.[9] For many of our calculations and analyses, we pool together the annual data from six adjacent years. We have seven such six-year samples, beginning with 1976-1981 and ending with 2012-2017.

We exclude from our analysis those workers with allocated (that is, imputed) earnings, as well as those who are primarily self-employed or primarily engaged in unpaid caregiving. We also exclude a small number of workers for whom residence in a metropolitan area is "not identifiable." In a manner consistent with many other studies, we include only those aged 25-54.[10]

A small fraction of earners in the ASEC have top-coded earnings. This is of no consequence for comparisons of medians or other quantiles of distributions up to the 90th percentile, since top-coded earnings are always higher than the 90th percentile. However, we will also model black/white differences in the mean of log earnings, and following Autor, Katz, and Kearney (2008), we multiply the top-coded earnings by 1.5. The results are not sensitive to the factor chosen because the number of top-coded observations is small, and the log transformation reduces the impact of extreme earnings outliers on the mean.

[9] We extracted the data from the Integrated Public Use Microdata Series (Flood, *et al*. (2018)). We calculated percentile rankings using the "sumdist" software (Jenkins (1999)). Throughout, we use the appropriate survey weights.

[10] In addition to the calculations reported here for FTYR workers aged 25-54, we have also performed the calculations for *all* FTYR workers. The results, which are available on request, are very similar to those shown here.

After performing calculations for a variety of definitions of the "South", we have chosen to focus primarily on the 11 states that were once part of the Confederate States of America.[11] The key interregional differences emerge most clearly when we divide the country between the former Confederacy and the rest of the United States, although we see similar patterns when we use other sets of southern states. Hereafter, we will streamline the exposition by using "South" or "southern" to refer to the former Confederate states, and "North" or "northern" to refer to the rest of the U.S.

The sampling frame for the ASEC is restricted to the non-institutional population. For those aged 25-54, the institutionalized are mostly incarcerated, and sharply rising rates of incarceration among black men in the late 20th century are well documented.[12] The ASEC sample also includes military personnel only if they live in a household with at least one civilian adult,[13] but this does not make much of a difference. While African American men make up a disproportionately large fraction of the U.S. military, the fraction of those aged 25-54 in military service is small, for both races. Chandra (2003) concludes that exclusion of the military "is not a first-order source of bias" in black/white wage comparisons.

[11] These are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. In recent years, these 11 states have been home to slightly more than half of the African American population.

[12] Using data from decennial censuses, Bayer and Charles find that the share of black men aged 25-54 who are institutionalized rises from 3.3 percent in 1980 to 8.9 percent in 2000, and then declines slightly. Among white men in the same age range, the shares are 0.7 percent in 1980 and 1.3 percent in 2000.

[13] We exclude these military personnel.

III. Paths of Earnings for Black and Non-Hispanic White Workers, 1976-2017

A. Earnings Comparisons between the Former Confederate States and the Rest of the United States

In this section, we report comparisons of annual earnings between groups of black and white FTYR workers, unadjusted for differences in education, experience, or other potentially relevant variables. We often use "workers" as shorthand for FTYR workers. We report calculations for both sexes, beginning with women.

1. Comparisons for Women at the Median

For the United States as a whole, the ratio of the earnings of the median black female FTYR worker to the earnings of the median white female FTYR worker decreased by about 10 percentage points over the period studied here. However, this overall trend is the result of very different trends in different regions. At the beginning of the period studied here, the black/white median earnings ratio for women in the North was approximately unity. Figure 1 shows that, in the late 1970s and early 1980s, the median black/white earnings ratio for women was about 20 percentage points higher in the North than in the South.[14] Since then, the ratio has plummeted by nearly 20 percentage points in the North, while it has changed only very slightly in the South.

<Figure 1 here>

2. Comparisons for Women Throughout the Earnings Distribution

Figure 1 compares the *median* black female FTYR worker with the *median* white female FTYR worker. In Figure 2, we compare the earnings of black and white female FTYR workers at various

[14] In Figure 1, as well as in other figures shown later, we average the earnings ratios over a series of six-year periods, which allows us to see the trends more clearly.

places in their respective earnings distributions. To create the results shown in Figure 2, we calculate the ratio of the earnings of the black woman at the 10th percentile of the black women's earnings distribution to the earnings of the white woman at the 10th percentile of the white women's earnings distribution, for each of the 42 years studied here. We then use a linear regression to estimate the annual number of percentage points by which the ratio increased or decreased over the period. We repeat this procedure for the 20th, 30th, …, 90th percentiles. The data points in Figure 2 are the coefficient estimates from those regressions. The error bars in the figure represent 95-percent confidence intervals, based on standard errors generated according to the Newey-West (1987) procedure. We also use the Newey-West procedure for other estimates, shown below.

<Figure 2 here>

The upper graph line in Figure 2 shows that the earnings gap between southern black women and southern white women changed very little in the last four decades, throughout most of their earnings distributions. The estimated coefficients are close to zero, and not statistically significant. However, at the 80th and 90th percentiles, southern black women lost ground relative to southern white women to a statistically significant degree.

The lower graph line in Figure 2 is truly remarkable. In the North, the earnings ratio between black women and white women decreased by about four-tenths of one percentage point *per year* over the 42 years studied here, everywhere in their earnings distributions.

3. Comparisons for Men at the Median

For the entire United States, the ratio of the earnings of the median black male worker to the earnings of the median white male worker did not change much during the period studied here. However, Figure 3 shows that this flat pattern for the entire United States is actually the result of very different

trajectories in the South and North. In the late 1970s and early 1980s, the median earnings ratio for men tended to be about 15 percentage points higher in the North than in the South. In recent years, this interregional difference has fallen almost to zero. The convergence is the result of a substantial increase in the ratio in the former Confederacy, combined with a substantial decrease in the rest of the United States.[15]

<Figure 3 here>

4. Comparisons for Men Throughout the Earnings Distribution

We repeated the procedure described above, this time for men. We show the results in Figure 4, which reveals that the earnings of southern black men *increased* relative to those of southern white men at most points in their earnings distributions. We estimate that the black/white earnings ratio for southern men increased to a statistically significant extent from the 10th percentile to the 60th percentile of their earnings distributions, typically by about one-fourth of one percentage point per year. Only at the top of the earnings distributions did the ratio not increase.

<Figure 4 here>

However, in the North, the earnings of black men *decreased* relative to the earnings of white men throughout their entire earnings distributions. In the lower part of the earnings distributions, the earnings ratio decreased by less than one-tenth of one percentage point per year; these losses fall short of statistical significance at the 10th and 20th percentiles. In the upper reaches of the earnings

[15] Figures 1 and 3 reveal the paths of the *median* black worker's earnings relative to those of the *median* white worker. We have also compared the *mean* earnings for black workers with the *mean* earnings of white workers. The results for means, which are available on request, are very similar to the results for medians. The median ratio is usually slightly larger than the mean ratio. The difference between the median ratio and the mean ratio tends to be somewhat larger for men than for women.

distributions, northern black male workers lost ground relative to northern white male workers by about two-tenths of one percentage point per year; these relative losses are statistically significant.

Thus, both in and out of the former Confederacy, black men's earnings performed relatively better (either with larger relative gains or with smaller relative losses) in the bottom half of the earnings distribution. The same is true for black women's earnings in the former Confederate states.[16]

Every point on each of the graph lines in Figure 2 is lower than the corresponding point in Figure 4. In other words, the black/white earnings ratios for men increased more, or decreased less, than the corresponding ratios for women. This relationship holds throughout the earnings distributions, in both South and North. However, although the *trend* in the black/white ratio has been more favorable for men than for women, the *level* of the black/white ratio is still more favorable for women than for men, as seen in Figures 1 and 3.

B. Earnings Comparisons for States

Figures 1-4 reveal stark differences between the former Confederate states and the rest of the United States, in the changing relationships between the earnings of black and white workers. In this section, we consider the evolution of black/white earnings differences in selected states. For many of the individual states, the number of black workers in the ASEC data in some years is very small or even zero, so that it would not be meaningful to perform the kind of calculations shown in Figures 1-4. However, substantial numbers of black workers appear in the data for 18 states and the District of Columbia. For these 19 jurisdictions, we perform the calculations for the median, as well as for the 25th and 75th percentiles.

[16] Blau and Kahn (2017) document a similar trend in comparisons of women and men, with women catching up to men less rapidly at the top of the distribution.

Following the procedure used earlier, we first calculate the ratio of the earnings of the median black woman or man to the earnings of the median white woman or man. We then use a linear regression to estimate the annual number of percentage points by which the ratio changes. The results for women are in Table 1, and for men in Table 2.

<Table 1 here>

As shown in Table 1, the estimates indicate that the median black woman's earnings rose in relation to the median white woman's earnings in four southern states. However, none of these increases is statistically significant. In four other southern states, the median black female worker suffered a small relative loss that was not statistically significant. In the remaining states and the District of Columbia, the median black working woman lost ground to the median white working woman to a statistically significant degree. In seven of these states, all of which are outside the former Confederacy, the relative losses are at least as large as four-tenths of one percentage point *per year*, over the 42-year period studied here. In Michigan, the median black working woman lost about five-sixths of one percentage point *per year* to her white counterpart.

In Table 2, we show the results of the same calculations for men. While black women did not achieve a statistically significant gain relative to white women in any of the 19 jurisdictions, black men made significant relative gains in five southern states. However, at the bottom of Table 2, we see that black men suffered significant relative losses in four states, none of which is in the former Confederacy.

<Table 2 here>

Comparing Tables 1 and 2, we see that the median black male worker had a larger relative gain than the median black female worker (or a smaller relative loss) in each of these 19 jurisdictions except

Texas. The rankings are similar for men and women: Alabama and South Carolina are in the top three for both women and men, while Michigan and Ohio are in the bottom three for both sexes.

The calculations shown in Tables 1 and 2 are for the median black and white workers in 18 states and the District of Columbia. We have also performed these calculations for the black and white workers at the 25th and 75th percentiles. The results, which are available on request, are similar to what we have seen for the median.

C. Paths of Real Earnings

To this point, our comparisons have all involved ratios, which can rise or fall due to changes in the numerator (earnings of black workers) or the denominator (earnings of white workers). If black workers lost ground relatively, it is important to know whether this was because they suffered actual *decreases* in their real, inflation-adjusted earnings, or whether they experienced earnings *increases* that were smaller than the gains for whites. In this section, we report changes in real earnings, adjusting for inflation using the Personal Consumption Expenditures deflator (PCE), from the Bureau of Economic Analysis of the U.S. Department of Commerce.[17]

In Figure 1, we saw that the relative earnings gap between the median black woman and the median white woman stayed roughly constant in the South. This is because the real earnings of both groups increased very substantially, at a similar rate. In 2017 dollars, the earnings of the median southern black woman increased from about $21,000 to about $35,000 over the period studied here, while the median southern white woman's earnings increased from about $27,000 to about $45,000.

[17] We prefer the PCE deflator to the Consumer Price Index (CPI) because of the evidence that the CPI overstates the true rate of inflation. (See Boskin, *et al*. (1997).)

Thus, the real earnings for each group increased by about two-thirds, and the racial earnings gap changed very little.

Figure 1 also showed that, among women, the median northern black worker lost a great deal of ground relative to the median northern white worker. Although the real earnings of northern black women did increase, the pace of growth was much slower than that of northern white women. The earnings of the median woman in the North were about $31,000 (in 2017 dollars) in the late 1970s, for both black and white workers. By 2017, the median northern white woman's earnings had risen to about $50,000, while the median northern black woman's earnings had risen only to about $40,000. Most of this divergence occurred after 2000-- the real earnings of the median black woman in the North are little different in recent years from what they were in the earliest years of the 21st century, while the real earnings of the median white woman in the North have continued to grow.

In Figure 3, comparing male workers, we saw that in the South the median black man gained relative to the median white man. In fact, real earnings increased by a rather similar *absolute* amount for both groups. Since southern black men were starting from a lower base level of real earnings, the increase was *relatively* larger for them. In a typical year in the late 1970s and early 1980s, the median southern black man and the median southern white man earned about $31,000 and $47,000, respectively, in 2017 dollars. In a typical recent year, these had risen to about $41,000 and $56,000.

Figure 3 also showed that the median northern black male worker lost some ground relative to the median northern white male worker over these four decades. While neither of these groups of men experienced very strong increases in real earnings, the gains were especially paltry for the median northern black male worker. The real earnings of the median white man in the North increased from about $53,000 to $60,000 in 2017 dollars, while the median northern black man's real earnings rose only from about $43,000 to about $45,000.

In the East North Central Census Division (Illinois, Indiana, Michigan, Ohio, and Wisconsin), the real earnings of the median black man *decreased* during the period studied here. In 2017 dollars, the earnings of the median black man in the East North Central Division decreased from about $47,000 in a typical year at the beginning of our period of study to less than $42,000 at the end. In Michigan over this period, the real earnings of the median black man decreased from about $52,000 to about $42,000, and the real earnings of the black man at the 25th percentile of the black men's distribution fell from about $42,000 to about $29,000.

The preceding few paragraphs have dealt with the real earnings of the median worker, for eight combinations of sex, race, and region. In Figure 5, we show the results of regressions that estimate the annual rate of change in real earnings at the 10th, 20th, …, 90th percentile of the earnings distribution, for the same eight combinations.[18]

<Figure 5 here>

Each of the four panels of Figure 5 has a graph line for white workers and another for black workers. These reinforce the conclusions drawn from Figures 2 and 4. In the North, real earnings grew more rapidly for white workers than for black workers throughout their entire earnings distributions (and not just at the median), both for women and for men. (See Panels (a) and (c) of Figure 5.) In the South, as shown in Panel (b), the real earnings of black women grew at about the same rapid rate as the real earnings of white women in most of their earnings distributions. Only at the very top of the distribution did southern black women experience slower earnings growth than southern white women. The only panel of Figure 5 in which black workers have more rapid earnings

[18] These are simple regressions of the natural log of real earnings at particular percentiles on a time trend. Each point graphed in Figure 5 represents the coefficient on the time trend from one of these regressions.

growth is Panel (d); real earnings grew faster for black men in the South than for their white counterparts in nearly all of their earnings distributions.[19]

Each of the eight graph lines in Figure 5 slopes upward monotonically. In other words, the tendency for earnings to grow more rapidly at the top of the earnings distribution since the 1970s holds for both sexes, both races, and both regions. In addition, each point in Panel (b) of Figure 5, for southern women, is higher than the corresponding point in Panel (d), for southern men, and each point in Panel (a), for northern women, is higher than the corresponding point in Panel (c), for northern men. In other words, the growth of real earnings was stronger for women than for men, for both races and in both regions, throughout their earnings distributions.[20]

D. Earnings Differences between Regions, for Workers of the Same Race

Thus far, we have compared black workers in a given region with white workers in the same region. If we look at the same data in a different way, we can compare workers of a given race in one region with workers of the same race in a different region. We show these comparisons in Figures 6(a) and 6(b).

In Figure 6(a), we compare the earnings of the median female worker in the states of the former Confederacy with the earnings of the median female worker in the rest of the United States. As before, we consider FTYR workers, aged 25-54. The top graph line in Figure 6(a) shows that the median

[19] As mentioned earlier, we use the Personal Consumption Expenditures deflator to make the inflation adjustments for Figure 5. If we had instead used the Consumer Price Index, every graph line in Figure 5 would shift downward. This downward shift is large enough to push the growth rates for low-earning northern men below zero.

[20] Although women experienced more rapid *growth* of real earnings, they did not achieve parity with men in either region or for either race. By the end of the period studied here, for full-time year-round workers aged 25-54, the median black woman earned about 86 percent as much as the median black man in the South, and about 88 percent in the rest of United States. At the same time, the median southern white woman earned about 78 percent as much as the median southern white man, and the median northern white woman earned about 79 percent as much as the median northern white man.

southern white woman earned less than the median northern white woman throughout the period studied here. This earnings gap remained in a very narrow range, with the median southern white woman earning between about 90 percent and 93 percent as much as the median northern white woman.

<Figure 6(a) here>

The lower graph line in Figure 6(a) shows a very different story for black women. At the beginning of the period, the median southern black woman earned less than 75 percent as much as the median black woman in the rest of the U.S. Four decades later, the regional earnings gap for black women had closed a great deal, to a ratio of about 90 percent.

Figure 6(b) shows the same comparison for men that we saw for women in Figure 6(a). The two figures are remarkably similar. The median southern white man earned less than the median northern white man throughout the period; the gap narrowed by a few percentage points. However, the median black male worker in the South caught up with the median black male worker in the rest of the U.S. very substantially, with the ratio rising from about 73 percent to more than 90 percent.

<Figure 6(b) here>

Figures 6(a) and 6(b) compare the median worker in the former Confederate states with the median worker in the rest of the country. In Figures 7(a) and 7(b), we chart these trends throughout the distributions of earnings, with the technique used previously to create Figures 2 and 4.

Figure 7(a) shows that black women in the South gained rapidly, relative to black women in the North, throughout their earnings distributions. These relative gains were around four-tenths of one percentage point per year from the 10^{th} percentile to the 70^{th} percentile. The relative gains were smaller at the 80^{th} and 90^{th} percentiles, although the rate of increase was statistically significant in every case.

<Figure 7(a) here>

The lower graph line of Figure 7(a) shows that the earnings of southern white women increased modestly relative to the earnings of northern white women in most of their earnings distributions. However, the relative increases were considerably smaller for southern white women than for southern black women, and the rates of increase fell short of statistical significance at some percentiles.

Figure 7(a) compared southern women with women in the rest of the United States; Figure 7(b) shows the same comparison for men. The relative gains for southern black men tend to be even larger than the relative gains for southern black women. In the lower part of their earnings distributions, black men in the South caught up with northern black men at a rate of about six-tenths of one percentage point per year over the four decades studied here.

<Figure 7(b) here>

In Figure 7(a), we saw that the earnings gains for southern women, relative to northern women, were substantially larger for black women than for white women. Figure 7(b) shows that the same is true for men: Although southern white men did gain ground relative to white men in the rest of the country, the relative gains were considerably smaller for southern white men than for southern black men.[21]

[21] Earlier, we saw that black workers had the largest gains relative to white workers in Alabama, and the largest relative losses in Michigan. When we compare black workers in Alabama with black workers in Michigan, the results are striking. At the beginning of our period of study, the earnings ratio of the median black worker in Alabama to the median black worker in Michigan was about 52 percent, both for women and for men. By the end of the period, the ratio was about 93 percent for women and 96 percent for men.

IV. Decompositions of the Black/White Earnings Differences

In this section, we analyze the factors that have contributed to the earnings trends described above, using the decomposition technique pioneered in economics by Blinder (1973) and Oaxaca (1973).[22] The starting point for this analysis is the estimation of linear regressions of the form

$$Y_i^b = \beta_0^b + \Sigma_{j=1}^n \beta_j^b X_{ji}^b + u_i^b \quad (1)$$

and

$$Y_i^w = \beta_0^w + \Sigma_{j=1}^n \beta_j^w X_{ji}^w + u_i^w, \quad (2)$$

where Y_i is the logarithm of earnings for worker *i*, the *b* and *w* superscripts refer to black and white workers, the X_j's are the observable characteristics used to explain *Y*, and the β_j's are coefficients to be estimated. The u_i's are unmeasured determinants of Y_i, assumed to have zero mean conditional on the X_j's.[23] We can then write the mean outcome difference as

$$\bar{Y}^b - \bar{Y}^w = (\Sigma_j \hat{\beta}_j^b \bar{X}_j^b - \Sigma_j \hat{\beta}_j^w \bar{X}_j^w) + (\hat{\beta}_0^b - \hat{\beta}_0^w), \quad (3)$$

where the $\bar{Y}$'s are mean log earnings, the $\hat{\beta}_j$'s are estimated coefficients, the $\bar{X}$'s are the means of the explanatory variables, and the $\hat{\beta}_0$'s are estimated constant terms.

If we add $(\Sigma_j \hat{\beta}_j^w \bar{X}_j^b - \Sigma_j \hat{\beta}_j^w \bar{X}_j^b)$ to the right-hand side of equation (3) and rearrange, we can express the mean outcome difference as

$$\bar{Y}^b - \bar{Y}^w = \Sigma_j \hat{\beta}_j^w (\bar{X}_j^b - \bar{X}_j^w) + \Sigma_j \bar{X}_j^b (\hat{\beta}_j^b - \hat{\beta}_j^w) + (\hat{\beta}_0^b - \hat{\beta}_0^w). \quad (4)$$

The first term on the right-hand side of equation (4) is the "composition effect", which is the portion of the mean log difference accounted for by differences between the means of the measured

[22] The technique of Blinder and Oaxaca is an extension and generalization of a technique introduced by Kitagawa (1955).

[23] In all of the regressions on which we report below, we adjust the standard errors for clustering by jurisdiction (*i.e.*, the 50 states and the District of Columbia).

characteristics of the two groups. The second and third terms are the "structural effect", which is the portion due to differences in coefficients.[24] The full structural effect is also often called the "unexplained" difference in the means, because it cannot be accounted for by differences in the $\bar{X}$'s.

The composition effect can be further decomposed into the parts due to differences in subsets of the $\bar{X}$'s. For sets of categorical variables, the segment of the *composition* effect due to that set is invariant with respect to the choice of omitted category. However, there are well-known difficulties with decomposition of the *structural* effect, including the fact that the estimated effect of a set of categorical variables changes with the omitted category.[25] (See Fortin, Lemieux, and Firpo (2011).) We will not discuss the components of the structural effects, except to comment on the black/white differences in the estimated return to education.

[24] This decomposition is subject to a standard index-number problem. If we had instead added $(\Sigma_j \hat{\beta}_j^b \bar{X}_j^w - \Sigma_j \hat{\beta}_j^b \bar{X}_j^w)$ to both sides of equation (3), we would have expressed the mean outcome difference as $\bar{Y}^b - \bar{Y}^w = \Sigma_j \hat{\beta}_j^b (\bar{X}_j^b - \bar{X}_j^w) + \Sigma_j \bar{X}_j^w (\hat{\beta}_j^b - \hat{\beta}_j^w) + (\hat{\beta}_0^b - \hat{\beta}_0^w)$. In other words, we can weight the composition effect by either the black coefficients or the white coefficients. In what follows, we will report results from the version shown in equation (4), with the white coefficients. We have also performed the decomposition using the black coefficients. The results, which are available on request, are broadly similar to those reported here. The largest differences between the two versions occur for men in the former Confederate states, primarily because of the large racial differences in educational attainment and in the coefficients for education for that group. In the case of men in the former Confederacy, the explained/composition effect of education and the total explained/composition effect are larger when we use the white coefficients, typically by about two log points. However, even in this case, the fundamental character of the results is not changed.

[25] This is one reason why we choose to measure educational attainment with a single variable for the number of years of schooling. However, some researchers in this literature have used sets of categories for educational attainment. We have also performed the Oaxaca-Blinder decompositions with a set of five educational categories (less than high school, high-school diploma, some college, Bachelor's degree, and education beyond a Bachelor's degree). This change in specification has no effect on the estimates for anything other than education. Although the results for education are different in detail, their importance is similar to what we report below. (Results are available on request.)

We use the following explanatory variables: years of education, potential experience[26] and its square,[27] sets of indicator variables for industry and occupation, indicator variables for whether the individual is a federal employee or an employee of a state or local government, and an indicator variable for residence in a metropolitan area. We have nine industry categories and 24 occupation categories. We use agriculture as the omitted industry, and sales workers as the omitted occupation. We show a full list of the industry and occupation variables in Table 3.

<Table 3 here>

We divide the data in many ways. For example, in some of the regressions that provide the foundation for the Oaxaca-Blinder decompositions, the sample consists of African American women in the 11 former Confederate states who are working full-time year-round, and are aged 25-54. In any one year, this leaves us with a sample of only a few hundred observations. To increase the power of our estimates, we perform the regressions using samples pooled over six-year periods, ranging from 1976-1981 to 2012-2017. We control for year effects with a set of indicator variables. To avoid any problems associated with changes in the price level, we once again express the earnings for every observation in 2017 dollars, adjusting for inflation using the PCE deflator.

We have chosen *X* variables that are commonly used in wage or earnings functions in the literature to capture factors that may be expected to influence earnings causally, regardless of race. Years of education and labor-market experience (which we proxy with potential experience) are

[26] The ASEC data do not include a direct measure of experience. We define potential experience as *AGE – EDUCATION – 6*. For those with fewer than 12 years of schooling, we define potential experience as *AGE – 17*.

[27] By using a quadratic in potential experience, we are consistent with several studies in this literature. However, Fisher and Houseworth (2017) use a quartic. We have also performed the decomposition using a quartic. (Results are available on request.) The differences between the results of the quadratic and quartic specifications are very small.

traditional measures of human capital. Industry and occupation could influence earnings for workers with the same education and experience, for a number of reasons. For example, there may be compensating differentials for differences in job characteristics, or shifts in demand and supply may lead to inter-industry or inter-occupation pay differentials that are not immediately competed away, or barriers to entry into certain jobs may lead to differences in pay. Similarly, differences between urban and rural labor markets may lead to differences in pay between urban and rural workers with similar measured human capital.

However, even if education, experience, industry, occupation, and residential location have causal effects on earnings, they are not randomly assigned. Thus, we must be cautious about giving causal interpretations to the estimated coefficients and, by extension, to the components of Oaxaca-Blinder decompositions. Of particular concern is the possibility that the measured *X* variables may be correlated with unmeasured influences on earnings (ability, effort, etc.), and that such correlations may vary across races, regions, and over time.[28] Selective movement into or out of full-time work or selective migration across regions could also lead to correlations with unobservables. Thus, although we have chosen these explanatory variables because they have plausible interpretations in terms of their effects on earnings, we do not want to claim too much for our results. We will interpret the results mainly in terms of association, rather than causation.

We will report the results from Oaxaca-Blinder decompositions shortly. First, however, Table 4 shows the average number of years of schooling, along with the regression coefficient on the number

[28] Fortin, Lemieux, and Firpo (2011) emphasize that the interpretation of decompositions of wage differences depends on an "ignorability" assumption, by which the distributions of unmeasured determinants of wages are the same across groups, conditional on measured *X*'s.

of years of schooling, in the six-year periods for which we perform the regressions, by race, sex, and region. This information is important by itself, and it will help us to explain the decomposition results.

<Table 4 here>

In the first half of the 20th century, the racial gap in educational attainment was very large, but it was decreasing, as the educational attainment of African Americans increased rapidly. (See Smith and Welch (1989).) Table 4 shows that by the late 1970s, the average black/white gap in the number of years of schooling had fallen to less than one year for female workers, both in and out of the South. For male workers at that time, the racial schooling gap was about two years in the South, and more than one year in the North.

During the period studied here, the average number of years of schooling increased monotonically for black workers in both regions, as younger, more-educated cohorts replaced older ones. However, educational attainment also increased for white workers. Table 4 shows that the racial gap in average years of schooling has changed rather little for working women since the 1970s. In fact, in the North, the gap for women *increased* somewhat in the last few decades, as northern white working women achieved especially rapid gains in educational attainment. For men, the process of racial convergence in the mean number of years of schooling continued into the 21st century in the South, and through the 1990s in the rest of the country. In recent years, however, the shrinkage of the racial gap in schooling has essentially stopped. For both sexes and regions, the difference between white and black workers in the mean number of years of schooling has settled in a range between six months and one year. [29]

[29] In addition to differences in educational attainment across cohorts, average years of schooling within regions can also change due to differences by education in movements into or out of FTYR work or in migration patterns. In Appendix Table A, we show average years of schooling by time period and region in the full populations, aged 25-54, that are covered by the ASEC (including those who are not engaged in FTYR work). Average years of schooling are always lower in the full population than

Table 4 also shows the regression coefficients for the number of years of schooling. These are the estimated effects of one additional year of schooling on the logarithm of earnings, holding constant other covariates. At the beginning of our period of study, this rate of return to education in the South was much higher for white workers than for black workers, both for women and for men. In the rest of the United States, the racial difference was very small.

From the late 1970s until the turn of the 21st century, the return to education increased rapidly for both sexes and races, in both regions. For white women workers, the rate of return changed very little in either region after 2000. For black women workers, however, the coefficient *decreased* substantially in recent years in both regions. As a result, the racial difference in the return to education for female workers was larger in the 2012-2017 period than in any other period, in both regions. Over the four decades studied here, the racial difference in the return to education also increased for men in the North, but not in the South.

In the next two sections, we briefly summarize the results of Oaxaca-Blinder decompositions of the differences in earnings between black and white workers, over time and in both regions. We report the results in for women in Table 5 and for men in Table 6, separately for the North and South. We will then look more closely at how these results shed light on the temporal patterns we saw in Figures 1 and 3. In particular, we will focus on the convergence in black/white earnings gaps between the South and North.

among FTYR workers, and black/white gaps are larger in the full population. Except for black women in the South, *changes* in average years of schooling over time are quite similar for the full population and FTYR workers. For black women in the South, gains in years of schooling over time are substantially larger for the full population than for FTYR workers, indicating that selection into FTYR work increasingly skewed toward those with low levels of education.

A. Decomposition Results for Women

We begin with northern women, the group for whom the racial earnings gap changed the most over the period studied here. We report the results for this group in Table 5(a). As in Table 4, this table has seven columns, one for each of the six-year periods from 1976-81 to 2012-17. The top row shows the mean log earnings difference between black and white workers. The next row shows the total "explained" portion of the gap, *i.e.*, the total composition effect associated with black/white differences in characteristics, $\Sigma_j \hat{\beta}_j^w \left(\bar{X}_j^b - \bar{X}_j^w\right)$. The total explained/composition effect is followed by its component parts.[30] Near the bottom of each table, we have the total "unexplained" portion, *i.e.*, the structural effect associated with differences in coefficients, $\Sigma_j \bar{X}_j^b \left(\hat{\beta}_j^b - \hat{\beta}_j^w\right) + \left(\hat{\beta}_0^b - \hat{\beta}_0^w\right)$.

We have already seen that the median northern black woman worker was essentially at parity with her northern white counterpart at the beginning of the period studied here. Table 5(a) shows that this is also true at the mean; the total gap was only one log point in 1976-81. However, the gap increased dramatically over time, reaching 18 log points in 2012-17. Table 5(a) reveals that both the composition effect and the structural effect were very close to zero at the beginning of the period, and both increased substantially over time.

<Table 5(a) here>

For both women and men and in both regions, the variables with the largest impact on the composition effect are education and occupation. In the case of women in the North, the explained/composition effect of education increased from about four log points at the beginning of the period to more than nine log points in 2012-17. The composition effect of occupation also increased over time, from about three log points to about five log points.

[30] Table 5(a) and subsequent tables do not include the composition effect associated with the set of indicator variables for years, because it is minuscule in every case.

The other most notable results in Table 5(a) deal with residential location and government employment. Location in a metropolitan area is associated with higher earnings. In the North, black women are more likely to live in metropolitan areas than white women, so this effect is favorable for black women workers. Its magnitude rises in the 1980s and 1990s, but then falls back to the level it had at the beginning of the period. Government employment is associated with higher earnings, which also is favorable for black women in the North, although this effect diminishes over time. Burbridge (1994) documents the importance of government employment for black women.[31]

In Table 5(b), we report the results of Oaxaca-Blinder decompositions of racial earnings differences for female workers in the South. The top row of Table 5(b) shows that the mean log difference between black and white women workers in the former Confederate states stayed remarkably constant during the four decades studied here, around 21 to 24 log points (*i.e.*, about 20 percentage points).[32] Throughout the period, the explained/composition effect is about half of the total effect. Thus, for southern women, differences in observed characteristics explain about half of the racial earnings gap. Together, education and the occupation variables account for somewhat more than 100 percent of the full composition effect in every six-year period. The education effect increases over time, by about two log points from the initial period to the final one, while the occupation effect decreases by a similar amount. None of the other variables individually contributes much to the composition effect for southern women. The metropolitan area variable explains much less of the black/white gap for southern women than for northern women, because the racial difference in the

[31] We estimate separate coefficients for employment in the federal government and in state or local government, but we only report the combined effect in Tables 5 and 6. For the effects shown in Tables 5(a) and 5(b), federal employment is considerably more important than state/local employment.

[32] In Figures 1 and 2, we saw that the median earnings gap between black and white women in the former Confederate states changed very little. Here, we see a similar result when we evaluate the earnings difference at the mean.

propensity of women to reside in metropolitan areas is much smaller in the former Confederate states than in the rest of the United States.

<Table 5(b) here>

B. Decomposition Results for Men

Table 6(a) shows that the total mean log earnings gap between black and white men in the North rose from about 26 log points in 1976-81 to about 31 log points in 2006-11, before falling to about 29 log points in 2012-17. The explained/composition effect increases substantially over time, from eight log points in the first period to 13 log points in the last period. Thus, we find an increase in the fraction of the total effect that is explained by differences in observed worker characteristics, from less than one-third of the total initially to 44 percent by the final period.

<Table 6(a) here>

Education and occupation are the main contributors to the explained portion of the earnings gap for northern men, just as they were for women. Black/white differences in schooling account consistently for about six to eight log points of the overall difference. The portion associated with differences in occupation starts at five log points, and increases to seven in the final period. The effect of residing in a metropolitan area is favorable for black male workers in the North, similar to what we have seen for northern women, although the effect is not quite as large for men. The effect of potential experience is also favorable for northern black workers initially, but this effect fades by the 1990s.

Table 6(b) shows the decomposition results for men in the South. This is the only one of the four groups featured here (men and women, South and North) for which the total racial gap in mean log earnings shrank over time. The total gap decreased from about 45 log points in 1976-81 to about 35 log points in 2012-17 (*i.e.*, from about 37 percent to about 30 percent). Despite this decrease, the total

gap remained larger for men in the South than for any of the other three groups featured here, throughout the entire period.

<Table 6(b) here>

The composition effect accounted for a roughly constant share of the total gap for southern men, ranging between 42 and 49 percent. Thus, the composition effect and the structural effect both declined somewhat in absolute terms as the total gap declined. Similar to what we saw for southern women, education and occupation combined account for all of the composition effect (or slightly more) in all periods for southern men. In 1976-81, the explained/composition effect associated with education was nearly 13 log points for southern men, which is much larger than the corresponding effects for any of the other sex/region groups. By the final period, this component had declined by 5.4 log points, which by itself accounts for more than half of the decline in the total gap. Occupational differences by race are also more important for southern men than for any of the other three groups featured here. This component of the composition effect ranges from 8 to 11 log points, declining slightly between the initial period and the final one. The potential experience term favors southern black workers in the initial period, but explains little in the other periods. None of the other variables makes an important contribution to the composition effect for southern men.[33]

[33] The regressions underlying Tables 5 and 6 do not include a variable for marital status. However, in decompositions that are available on request, we add marital status to the set of explanatory variables used so far. We find that marital status is associated with a negative effect on the earnings of black male workers, in both regions. This is because in our sample, black male workers are much less likely to be married than are their white counterparts, and the marriage coefficient for male workers is large and positive. This stands in contrast to the results for women, for whom marital status does rather little to explain the racial earnings gaps. For women, the coefficients for marriage are often negative, and always of much smaller magnitude than the coefficients for men. For discussion of the very different effects of marriage on the earnings of men and women, see Korenman and Neumark (1991) and Waldfogel (1998).

C. Discussion of the Effect of Industry of Employment on the Decompositions

In Tables 5 and 6, racial differences in the distribution of workers across industries never had a substantial effect. We have seen that the relative earnings losses for black workers were largest in the East North Central Census Division, where the shrinkage of manufacturing was especially pronounced. Consequently, we have also performed Oaxaca-Blinder decompositions for the East North Central Division. Even there, however, the effect of industries is generally modest. Differences in industrial structure favored black women workers in the East North Central Division, due to their concentration in the relatively highly paid manufacturing sector. However, this usually accounted for less than one log point of the overall difference. For men in the East North Central Division, the effect of industry turned from slightly positive to slightly negative.

The small role that the industry variables play in explaining black/white gaps throughout Tables 5 and 6 warrants some comment, since Gould (2020) has attributed an important role to the decline of manufacturing for the growth of black/white earnings gaps among men.[34] It is well-known that the share of employment in manufacturing declined substantially during the period we study. Nationwide, combining white and black workers, manufacturing went from 34.9 percent of FTYR employment of men in our initial period to 17.7 percent in our final period. The corresponding numbers for women are a decline from 21.6 percent to 8.0 percent.

Despite these substantial changes in industry structure, we find that the contribution of the industry variables to the composition effect is small in every time period, for women and men in both regions. The estimated effect is also often positive, in which case it favors black workers. The composition effects of industry variables shown in Tables 5 and 6 are the product of differences in

[34] Gould also finds that the decline of manufacturing employment had negative effects on a wide variety of social indicators, including marriage rates, death rates, and child mortality, and that these effects were more harmful for blacks than for whites.

mean log earnings for whites across industries and differences in employment shares between black and white workers. The small effects that we find are understandable, because differences in manufacturing employment shares between black and white workers are often modest, as is the earnings premium in manufacturing relative to other industries (this "premium" is sometimes negative, especially for women). When we multiply these modest differences, they produce small effects. Employment shares in manufacturing fall in all subgroups, for black and white workers, male and female, North and South. For men, the declines are larger for black workers than white workers, but this difference is not large enough to create a large effect in the decompositions.

In evaluating the effect of the decline in manufacturing employment, we rely on cross-sectional differences in *relative* wages across industries in each period. On the other hand, Gould's estimates are based on variation over time in the decline of manufacturing across metropolitan areas. If the places that are hardest hit by declining manufacturing experience a general decline in the demand for labor that reduces *all* wages, rather than just manufacturing wages, our approach would not capture that effect, but Gould's approach would.

However, the decline in the manufacturing share of employment among black men is similar across regions. (It decreases by 21.5 percentage points from the first period to the last in the North, and by 19.6 percentage points in the South.) This suggests that the decline of manufacturing is not a first-order factor in explaining the convergence of black/white earnings gaps across regions.

D. Further Decomposition of the Regional Convergence in the Black/White Earnings Gap

Figures 1 and 3 showed some striking trends in the median earnings of FTYR workers over the four-decade period that we consider, and the results for total gaps shown in Tables 5 and 6 indicate similar trends for mean earnings. Southern black men gained ground relative to southern white men, and

southern black women held their own relative to southern white women. At the same time, northern black workers of both sexes lost ground to northern white workers, and the relative decline was quite substantial for women. These differences in trends produced a convergence between the regions in the racial earnings gaps. For both women and men, black workers did much better relative to white workers in the North than the South at the beginning of our period of study, but this regional difference shrank dramatically over time. In an effort to understand these trends, we look more deeply at the results of the Oaxaca-Blinder decompositions in this section.

We adapt a procedure used by Blau and Kahn (2017) in their analysis of changes in female/male earnings gaps. The composition effect component of the black/white earnings gap, $\Sigma_j \hat{\beta}_j^w \left(\bar{X}_j^b - \bar{X}_j^w\right)$, can change over time for a particular gender and region because the coefficient vector changes, or because of a change in the black/white differences in the means of characteristics. Adding a subscript for time period, the change in the composition effect between $t = 0$ and $t = 1$ can be decomposed as

$$\Sigma_j \hat{\beta}_{j1}^w \left(\Delta \bar{X}_{j1}\right) - \Sigma_j \hat{\beta}_{j0}^w \left(\Delta \bar{X}_{j0}\right) = \Sigma_j \hat{\beta}_{j0}^w \left(\Delta \bar{X}_{j1} - \Delta \bar{X}_{j0}\right) + \Sigma_j \left(\hat{\beta}_{j1}^w - \hat{\beta}_{j0}^w\right) \Delta \bar{X}_{j1}, \quad (5)$$

where $\Delta \bar{X}_{jt} = \bar{X}_{jt}^b - \bar{X}_{jt}^w$ (*i.e.*, $\Delta \bar{X}_{jt}$ denotes the difference between the black mean and the white mean in characteristic j at time t). The first sum on the right-hand-side of equation (5) is the change in the composition effect due to changes in the $\Delta \bar{X}$'s (*i.e.*, changes in the black/white differences in the means of characteristics). The second sum is the change in the composition effect due to changes in the (white) coefficients.

Table 7 summarizes the changes in the components of black/white earnings gaps between the initial six-year period and the final one, for women and for men, in both regions. The first three columns present the results for women. Column 1 shows the changes in gaps and in the components of gaps in the mean of log earnings in the North; column 2 does the same for the South. Column 3 shows

the difference between the changes in the North and the changes in the South. As we saw in Table 5, the total racial earnings gap for women increased by 17 log points in the North and by only one log point in the South. (The negative signs in Table 7 indicate that gaps are widening over time.) As a result, the gaps converged between the two regions, narrowing by 16 log points. Most of this convergence is accounted for by changes in the composition effects. The composition effect in the North moved toward the one in the South, so that the North-South difference in composition effects converged by 10 log points (64 percent of the convergence in the total gaps).

<Table 7 here>

The breakdown of the changes in the composition effect into those associated with changing means and those associated with changing coefficients is also interesting. In the North, changes in black/white differences in means and changes in coefficients contribute about equally to the growing racial earnings gap for women. In the South, changes in coefficients have an effect that is similar to that in the North, but the changes in differences in means move strongly in the opposite direction. As a result, the composition effect changes very little in the South, and the convergence in the composition effect between northern and southern women is entirely accounted for by differences in the component associated with differences in means.

We take this explanation a step further in the lower part of Table 7, where we apportion the effects of changing means and changing coefficients among the different explanatory variables. We see that changing differences in means tend to reduce the racial gaps in earnings for southern women, but increase them for northern women. (As an example of how this can happen, we saw in Table 4 a slight increase in the gap in mean years of schooling in the North, and a slight decrease in the South.) The most dramatic example of this difference in effects across regions is associated with the occupation variables—racial differences in the distribution of occupations changed in a way that was

favorable for black women in the South, but unfavorable for northern black women. The effects of changing coefficients are more similar across regions, which is consistent with the small role that changing coefficients play in the convergence across regions of the total racial earnings gap for women. However, this should not obscure the fact that changes in the return to education and to the average wages paid in different occupations contribute to growing gaps in *both* regions.

We repeat this analysis for men, and report the results in columns 4 to 6 of Table 7. As we saw in Table 6, the total racial earnings gap for men increased in the North and declined in the South. The convergence in the total gap was 13 log points, most of which is accounted for by the 10 log points of convergence in the composition effect. As in the case of women, the North-South convergence in the composition effect is entirely accounted for by differential changes in the $\Delta\bar{X}$'s across regions. Another similarity with women is that the overall effect of changing coefficients is a substantial increase in the racial earnings gaps, which occurs in a similar way in both regions. This similarity in effects across regions extends to the changes in coefficients of the most important variables, education and occupations.

When we decompose the effects of changing means for men, we see that the narrowing of the gap in years of schooling shown in Table 4 reduces the racial earnings gaps for men in both regions, but does so to a much greater extent in the South. The changing distribution of occupations has no effect on the composition effect in the North, but reduces the gap substantially in the South.

E. Discussion of Unexplained/Structural Effects

As we conclude our discussion of the Oaxaca/Blinder results, it is appropriate to make a few additional remarks about the unexplained/structural component of the earnings gaps-- the part that is *not* accounted for by differences in the X variables across races. It is important to note the persistent

strength of the total unexplained component. As seen in Tables 5 and 6, except for northern women in 1976-81 (a time when the total gap for that group was very small), a large portion of the total gap is unexplained in every case, always more than two-fifths for women and more than one-half for men. Among women, the unexplained gap increases very substantially over time in the North, and increases by a smaller amount in the South. Among men in the North, the unexplained gap stays in a rather narrow range, falling slightly between the first six-year period and the last. Only among southern men is there any substantial decrease in the unexplained gap. For this group, the unexplained gap decreases by about four log points over our full time period, although this is also the group for which that gap remains larger than for any other. In our final six-year period, 2012-2017, the total unexplained/structural effect is about 12 log points for southern women, 8 log points for northern women, 20 log points for southern men, and 16 log points for northern men.

Adjusting for the composition effect takes the prevailing white wage structure for each sex, region, and time period as a given, and constructs a counterfactual in which black workers are paid at the level of white workers with the same years of education and experience who work in similar industries, occupations, and locations. The unexplained gap is the gap that remains after making those adjustments. What, then, are we to make of these substantial unexplained gaps? It is tempting to conclude that they reflect labor-market discrimination against black workers. A competing explanation for at least some of the unexplained gap, however, is that employers observe more about worker productivity than our X variables measure, and that (conditional on the X's) the average black worker has lower productivity than the average white worker. [35] Differences in school quality are the

[35] We note, however, that declining participation in FTYR work has been more pronounced for black men than white men. If non-participants tend to have poor unmeasured determinants of earnings, this effect should tend to *diminish* the unexplained gaps among male workers.

most obvious candidate reason that some unmeasured differences in productivity might exist. Although we believe that discrimination is a very plausible explanation for much of the structural gaps, we cannot with confidence rule out a role for unmeasured characteristics, or measure its extent. We are therefore reluctant to draw strong conclusions about the possible role of changes in current labor-market discrimination, over time or across regions.

Equation (4) shows that the structural effect comes from differences in coefficients between black and white workers, including differences in intercepts. Table 4 shows that, in almost every case, the estimated return to an additional year of schooling is larger for white workers than for black workers. The racial difference in the schooling coefficients also becomes larger over time in the North (and for women in the South in the 2012-2017 period). These differences in schooling coefficients clearly contribute to the structural components of schooling, which are quite substantial in some cases. They could be due, in part, to differences in school quality, but discrimination that has larger effects on earnings at higher levels of schooling could also play a part.

Finally, we should not lose sight of the fact that *unexplained* differences in earnings are not the only differences worthy of concern. Earnings differences accounted for by the composition effect are neither benign nor untainted by discrimination. Differences in educational attainment reflect longstanding inequalities in opportunity, and racial differences in occupational distributions likely stem, at least in part, from discrimination in access to better-paying jobs.

V. Conclusion

In this paper, we have documented remarkably large regional differences in the trajectory of the black/white earnings gap. Using data from the Current Population Survey for 1976 to 2017, we find that, outside the former Confederate states, the earnings gap between black workers and their non-

Hispanic white counterparts widened substantially. The increase in the size of the racial earnings gap was larger for women than for men, and larger at the top of the earnings distribution than at the bottom. For both men and women, the growth in the racial earnings gap was greatest in the East North Central Census Division. By contrast, in the states of the former Confederacy, the racial earnings gap decreased somewhat for men, and changed very little for women.

By analyzing the same data in a different way, we find that the earnings gap between black workers in the former Confederate states and black workers in the rest of the United States decreased substantially. Non-Hispanic white workers in the former Confederate states did achieve some gains relative to their counterparts in the rest of the United States, but these relative gains for southerners were much smaller for white workers than for black workers.

Differences in educational attainment play a large role in explaining the racial earnings gaps. During the period studied here, the mean number of years of schooling increased for black workers, but it also increased for white workers. The gaps in years of schooling changed little for women over our time period, increasing slightly in the North and decreasing slightly in the South. These gaps decreased more substantially for men, especially in the South, but a gap of three-fourths of a year remained in both regions. At the same time, the effect of schooling on earnings increased dramatically in the late 20th and early 21st centuries, so that there has been an increase in the earnings penalty that black workers suffer from their lower level of schooling.[36]

Because of the increase in the return to education, the portion of the racial earnings gap explained by schooling differences increased for women in the South, and it increased sharply for

[36] In addition, toward the end of the period studied here, the estimated rate of return to an additional year of schooling *decreased* for black female workers in both regions, and for black male workers in the former Confederacy. In recent years, the estimated rate of return was lower for black workers than for non-Hispanic white workers by more than two log points, for women and men in both regions.

women in the rest of the United States. Only for southern men do we observe a decrease in the portion of the racial earnings gap explained by differences in the mean number of years of schooling. This is largely because the racial gap in educational attainment was far larger for southern men than for any other group at the beginning of the period, and it decreased more over time for southern men than for any other group.

Occupational segregation by race also explains a substantial part of the racial earnings gaps. Occupational segregation decreased in the South, both for women and for men, but it remained substantial, and occupational segregation did not change a great deal in the rest of the country. When we combine persistent occupational segregation with increasing earnings differences by occupation, the result is that occupational differences are an important part of the explained/composition effect throughout the period, for both sexes and in both regions. In fact, occupational differences are a larger part of the explained/composition effect than educational differences in half of the 28 decompositions reported in Tables 5 and 6.

Residence in a metropolitan area explains a part of the earnings gap for men and women outside the former Confederate states, but not for those in the former Confederacy. Differences in the industry of employment explain a surprisingly small portion of the racial earnings gap because the distribution of industry of employment is not dramatically different for different races.

We find the persistence of earnings gaps between black and white workers, and indeed the growth of the gaps outside of the South, to be remarkable, but it is reasonable to ask whether these findings are surprising. Resentment and animosity by white Americans toward black Americans are among the most enduring features of the economic, social, and political landscape in the United States. Although the legal structures of slavery and Jim Crow are now gone, there is ample evidence that racial resentment is still a very powerful force for a substantial part of the white population. *De jure*

racial segregation in the United States was eliminated more than half a century ago, but *de facto* segregation is profound. Boustan (2010) shows that cities that received more black migrants in the middle decades of the 20th century also lost more white residents. Her estimate that each black arrival led to 2.7 white departures suggests that the "white flight" from cities to suburbs was racially motivated to a large degree. The result was to leave a large part of the black population geographically and economically isolated, living in cities with limited fiscal capacity.

Ironically, our results show that since the 1970s black workers have made more progress, or suffered smaller losses, in the South, where African Americans had long experienced the greatest economic, social, and political disadvantages. At the beginning of the period studied here, the racial earnings gap was much larger in the former Confederate states than in the rest of the United States, but that is no longer true. If there was once a time when racial inequity in earnings was primarily a southern problem, our results show clearly that it is now a national one.

What, if anything, can be done to reduce or reverse the relative losses that African American workers have suffered in much of the United States in the last 40 years? One place to start would be widespread public recognition of the facts presented here; without public understanding of the facts, public action to change them seems unlikely.[37]

Even then, it will not be easy to reduce the earnings gaps. Chetty *et al*. (2020) show that black children experience much less upward intergenerational mobility than white children, and much more downward mobility. Unless this is changed, substantial racial disparities are likely to persist. Chetty

[37] Perhaps there is hope in this regard. In May 2020, an African American man named George Floyd died while in police custody in Minneapolis. Video showing a white police office pressing his knee into Floyd's neck for nearly nine minutes was publicized very widely. Public opinion surveys suggest that this dramatic event may have led to a substantial increase in the fraction of white Americans who believe that black Americans face systemic barriers.

et al. suggest a variety of measures that could improve economic outcomes for the next generation of African Americans, including "mentoring for boys, efforts to reduce racial bias among whites, or efforts to facilitate social interaction across racial groups within a given area."[38]

Chetty and his co-authors are less sanguine about the long-run efficacy of policies with more immediate effects, such as an increase in the minimum wage or the Earned Income Tax Credit. While we share the concern that contemporaneous gains may not be sustained fully from generation to generation, we are more optimistic about policies that would reduce earnings differences in the near term. The greatest relative progress for black workers occurred during the "Great Compression" in the middle of the 20th century, when earnings inequality was generally much lower than it is now. (See Goldin and Margo (1992) and Margo (1995).) The relative losses documented here have occurred at the same time as a large increase in overall earnings inequality. A general reduction in earnings differences would benefit groups with relatively low earnings, such as African Americans. Taking steps to achieve a more equal overall earnings distribution, and maintain it over time, could be an important complement to efforts to address the disadvantages specifically faced by the African American community.

[38] Our analysis does not explicitly address residential segregation by race. Nevertheless, it is noteworthy that many of the metropolitan areas that are most highly segregated by race are in the parts of the United States where we find that black workers have suffered the largest relative losses. We have seen that, during the years studied here, black workers fared worse in the East North Central Census Division than in any other Division, and worse in Michigan than in any other state. Governing.com (2020) use data for 2013-2017 from the American Community Survey to calculate indexes of black/white segregation in 234 metropolitan areas. Of the 29 areas that are most highly segregated by race, 15 are in the East North Central Division (including Chicago, Cincinnati, Cleveland, Detroit, Indianapolis, and Milwaukee), and six are in Michigan. Only two of those 29 areas are in the former Confederate states.

Figure 1
Earnings of the Median Black Woman, as Percent of Earnings of the Median Non-Hispanic White Woman, for Full-Time Year-Round Workers Aged 25-54, in Selected Regions of the United States, Six-Year Averages, 1976-2017

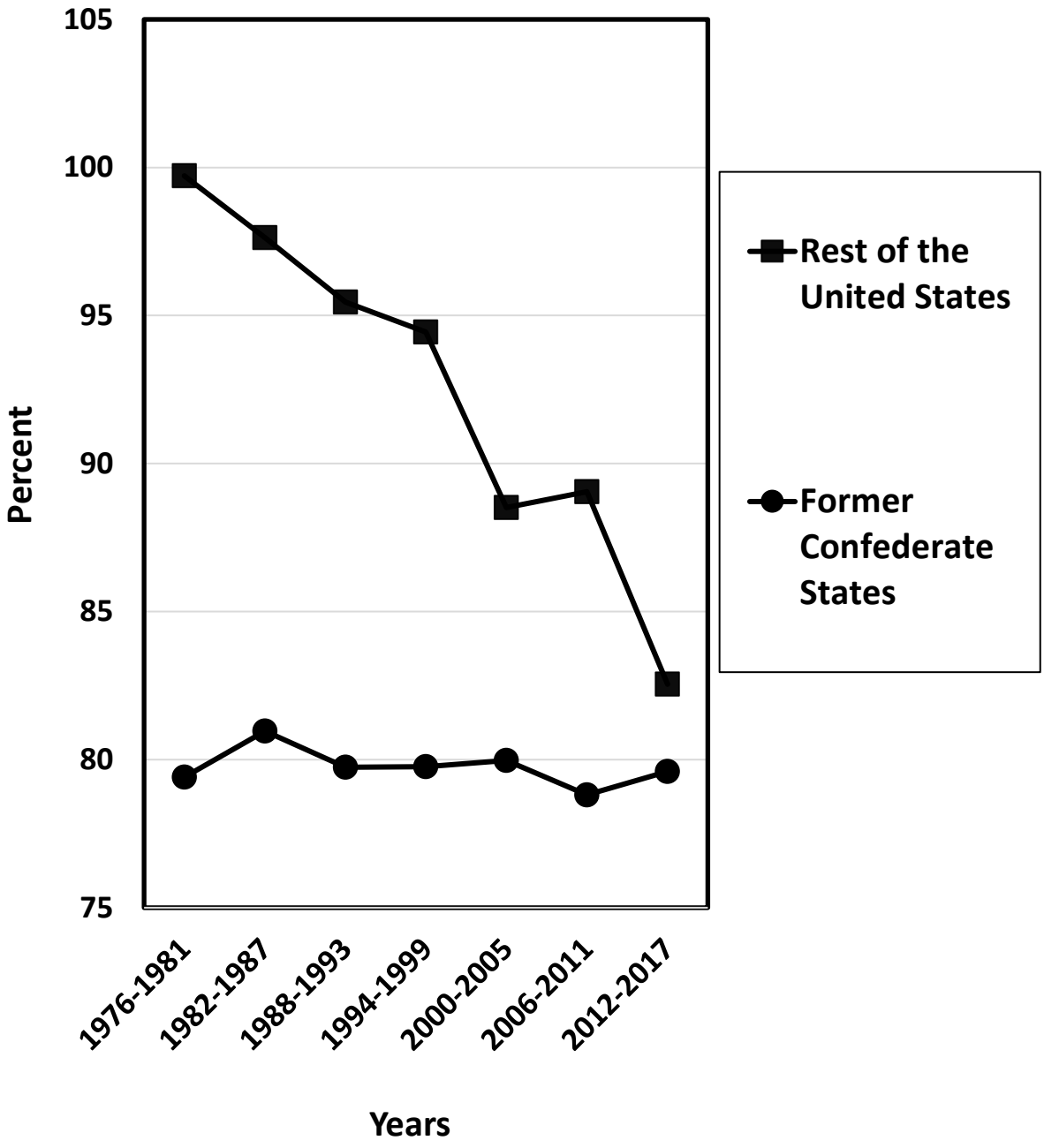

Figure 2
Estimated Annual Rate of Change in (Earnings of Black Women as Percent of Earnings of Non-Hispanic White Women), for Full-Time Year-Round Workers Aged 25-54, for Selected Regions and Points in the Earnings Distributions, 1976-2017

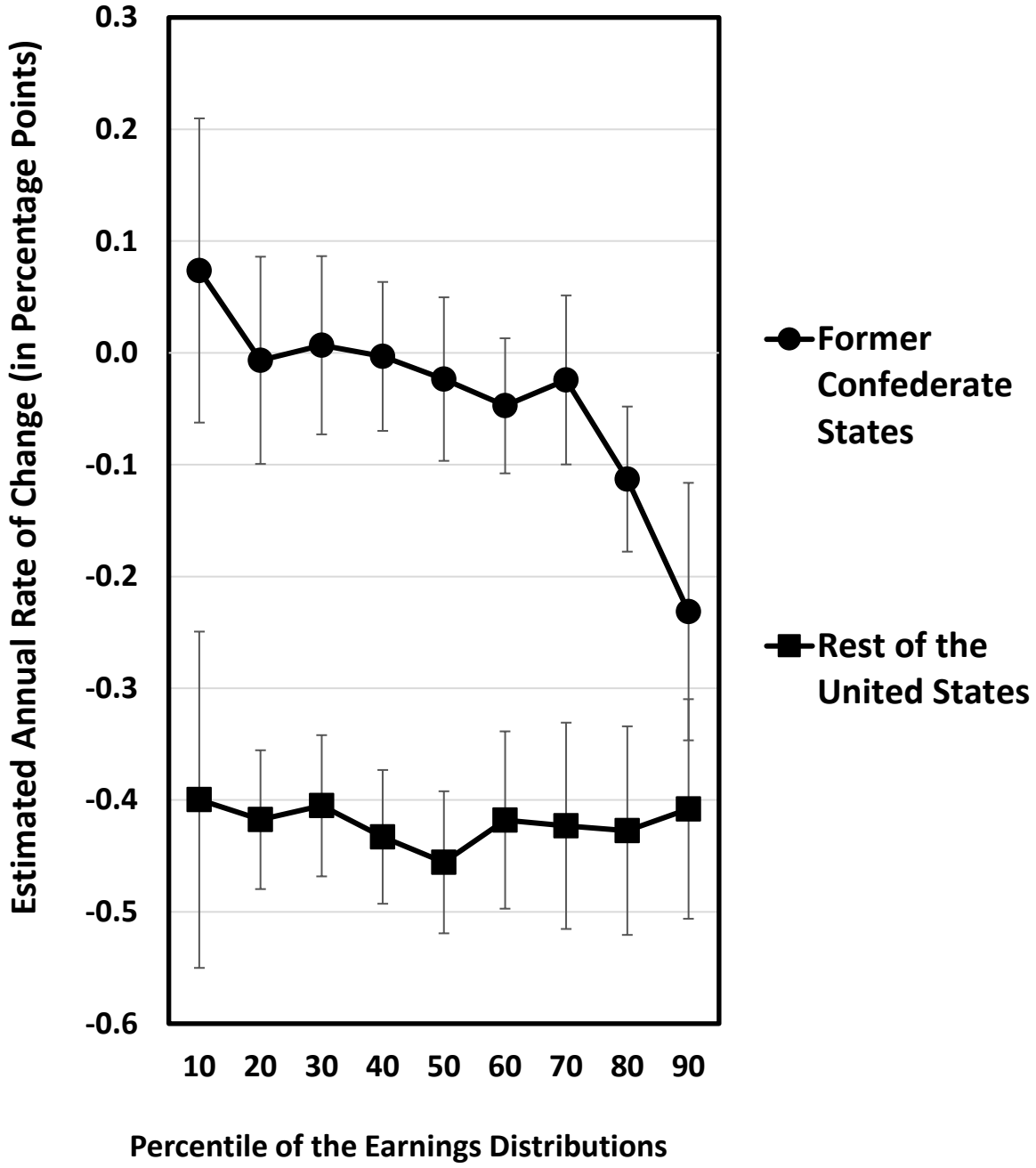

Figure 3
Earnings of the Median Black Man, as Percent of Earnings of the Median Non-Hispanic White Man, for Full-Time Year-Round Workers Aged 25-54, in Selected Regions of the United States, Six-Year Averages, 1976-2017

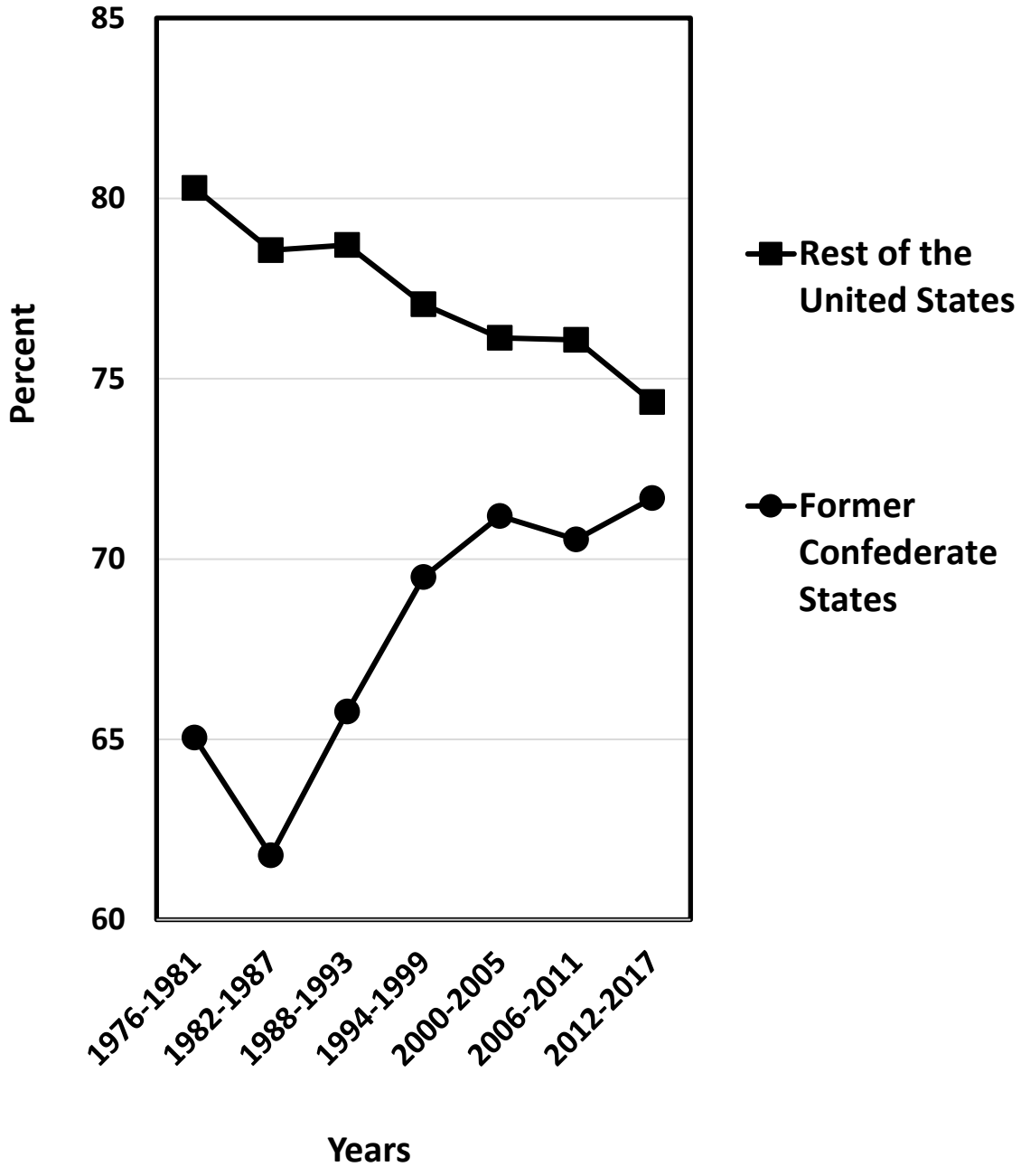

Figure 4
Estimated Annual Rate of Change in (Earnings of Black Men as Percent of Earnings of Non-Hispanic White Men), for Full-Time Year-Round Workers Aged 25-54, for Selected Regions and Points in the Earnings Distributions, 1976-2017

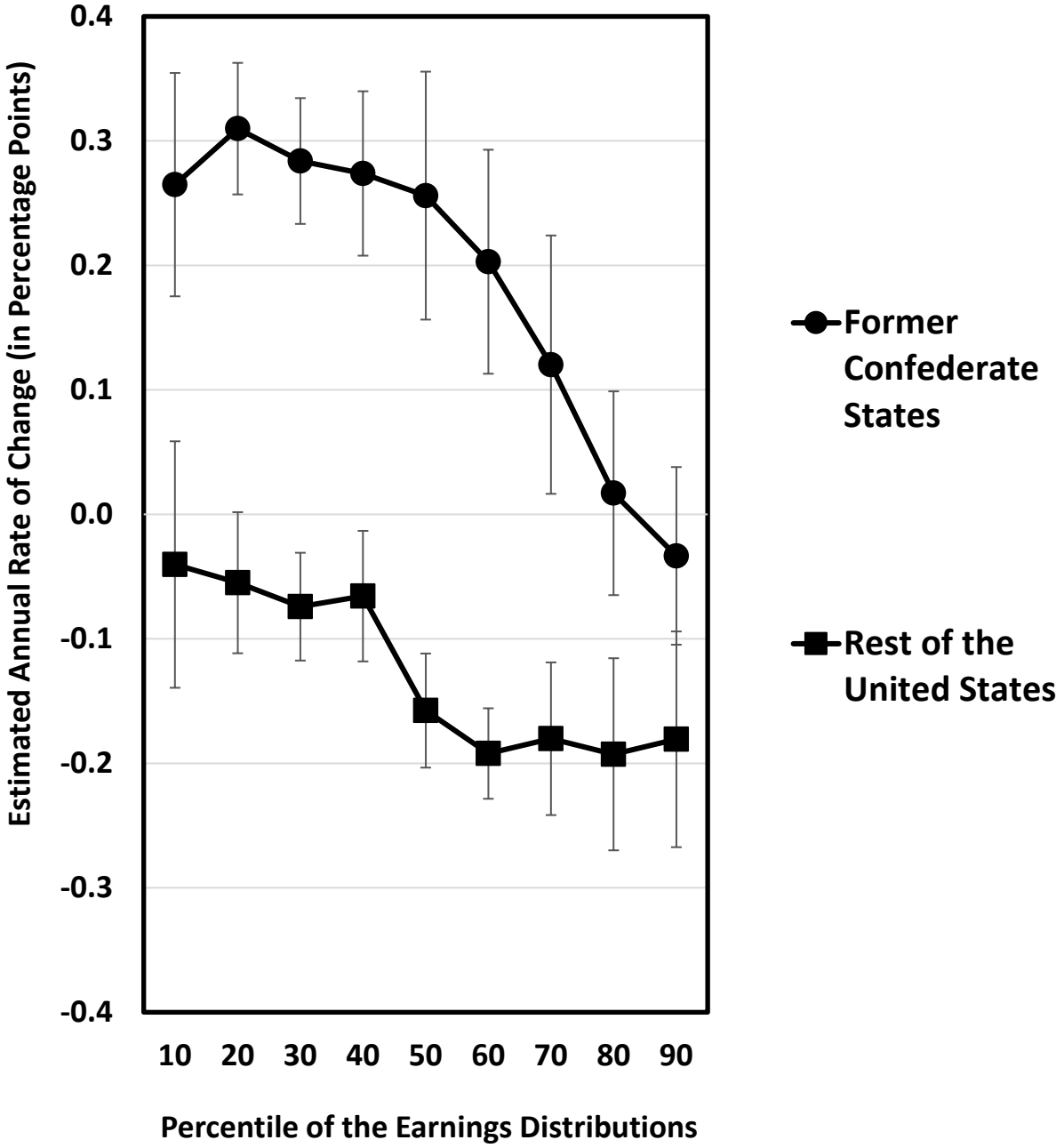

Figure 5

Estimated Annual Rate of Change in Inflation-Adjusted Earnings, by Race, at Selected Percentiles of the Earnings Distributions, for Full-Time Year-Round Workers Aged 25-54, in Selected Regions of the United States, 1976-2017 (adjusted for inflation by the Personal Consumption Expenditures Deflator)

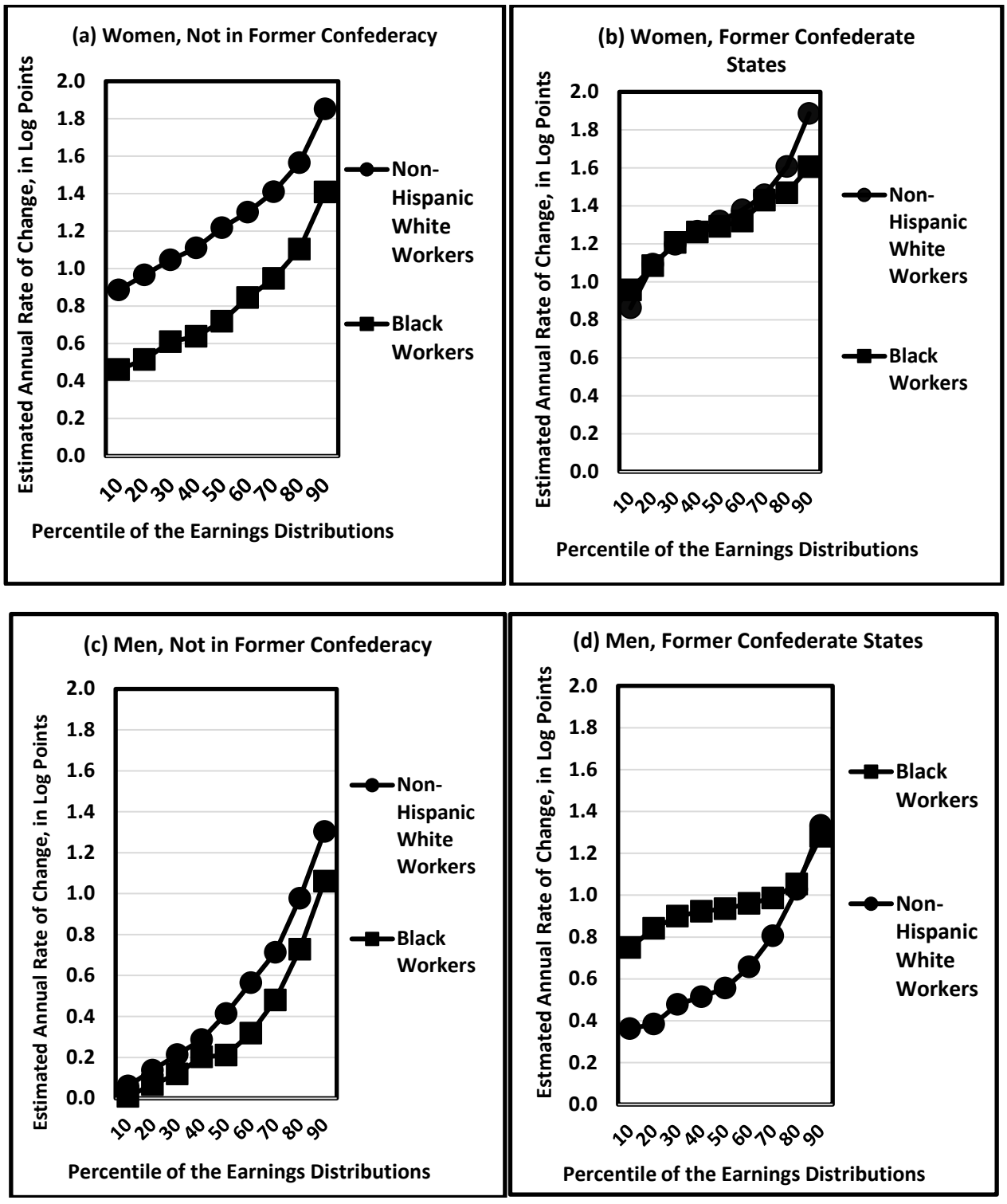

Figure 6(a)
Earnings of the Median Female Worker in the Former Confederate States, as Percent of Earnings of the Median Female Worker in the Rest of the United States, by Race, for Full-Time Year-Round Workers Aged 25-54, Six-Year Averages, 1976-2017

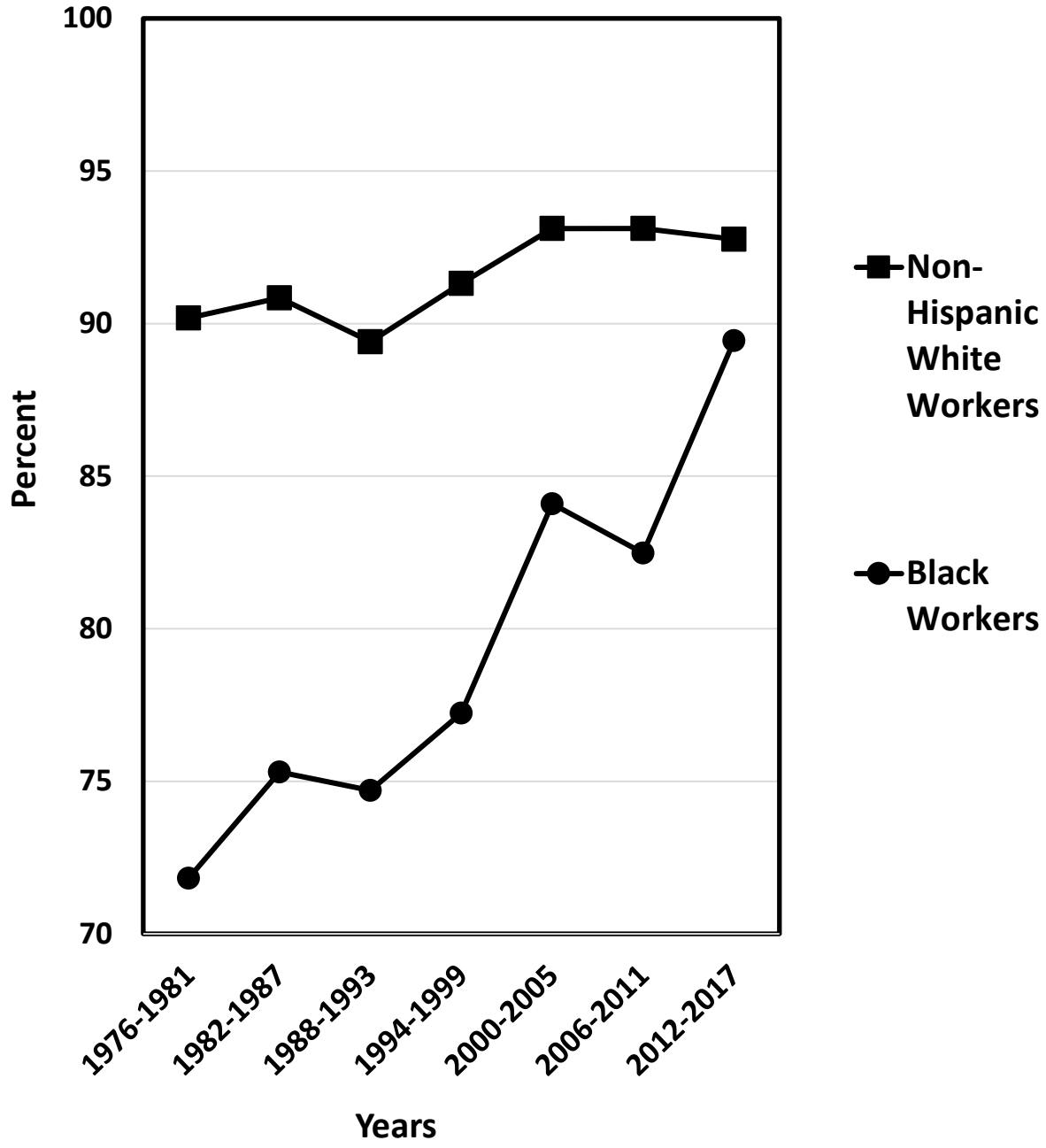

Figure 6(b)
Earnings of the Median Male Worker in the Former Confederate States, as Percent of Earnings of the Median Male Worker in the Rest of the United States, by Race, for Full-Time Year-Round Workers Aged 25-54, Six-Year Averages, 1976-2017

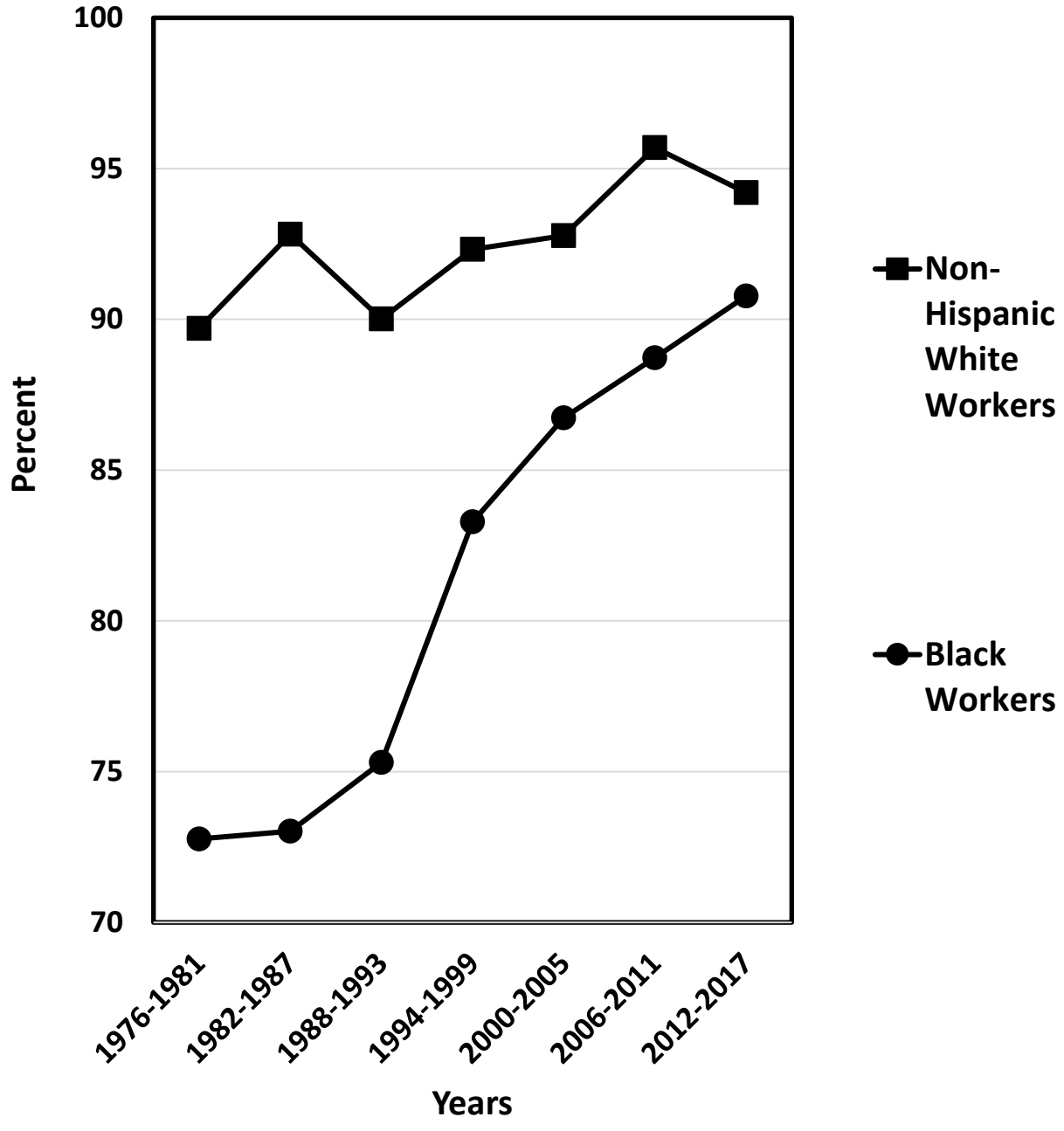

Figure 7(a)
Estimated Annual Rate of Change in (Earnings of Female Workers in Former Confederacy as Percent of Earnings of Female Workers in Rest of U.S.), for Full-Time Year-Round Workers Aged 25-54, for Selected Points in the Earnings Distributions

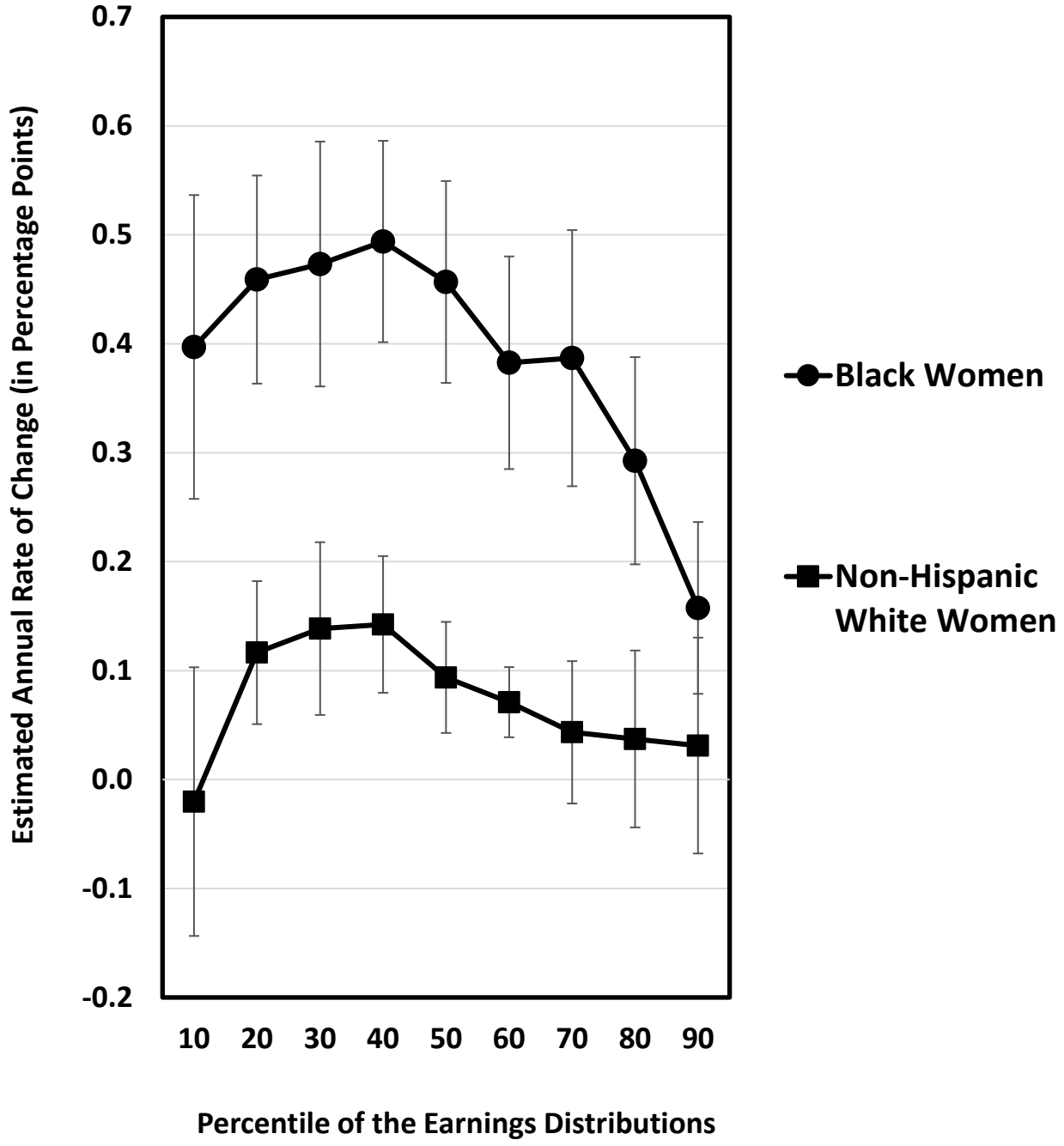

Figure 7(b)
Estimated Annual Rate of Change in (Earnings of Male Workers in Former Confederacy as Percent of Earnings of Male Workers in Rest of U.S.), for Full-Time Year-Round Workers Aged 25-54, for Selected Points in the Earnings Distributions

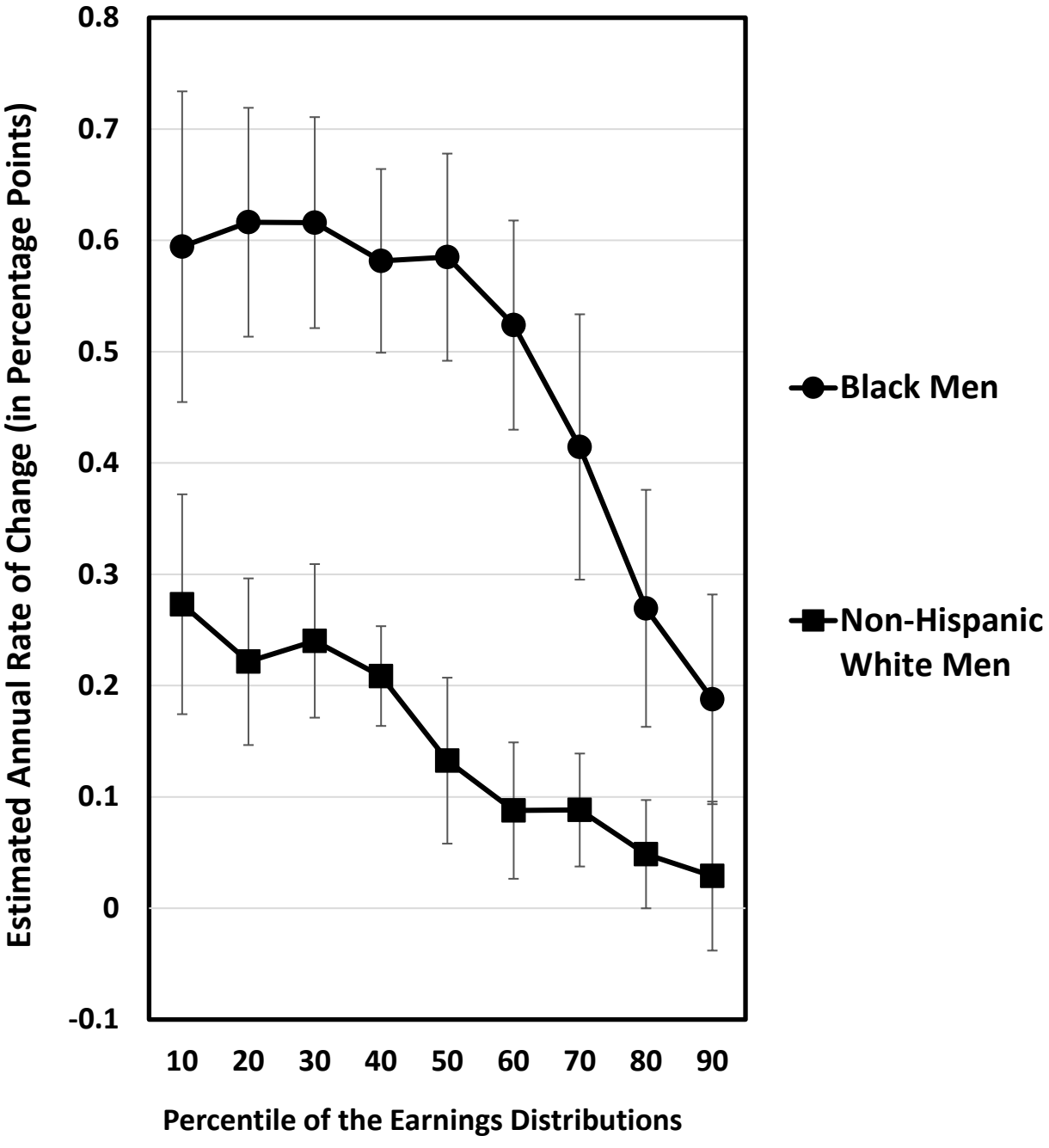

Table 1

Estimated Annual Rate of Change in the Ratio of the Earnings of the Median Black Female Worker to the Earnings of the Median Non-Hispanic White Female Worker, for Full-Time Year-Round Workers Aged 25-54, 1976-2017 (in Percentage Points per Year)†

Alabama	0.20	
Texas	0.12	
South Carolina	0.09	
Georgia	0.02	
Florida	-0.05	
Mississippi	-0.06	
North Carolina	-0.09	
Virginia	-0.10	
Tennessee	-0.21	*
District of Columbia	-0.21	**
Maryland	-0.31	*
Louisiana	-0.33	**
New Jersey	-0.40	***
California	-0.41	***
Pennsylvania	-0.43	***
Illinois	-0.44	***
Ohio	-0.47	***
New York	-0.50	***
Michigan	-0.83	***

† Standard errors are adjusted using the Newey-West (1987) procedure. Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Table 2

Estimated Annual Rate of Change in the Ratio of the Earnings of the Median Black Male Worker to the Earnings of the Median Non-Hispanic White Male Worker, for Full-Time Year-Round Workers Aged 25-54, 1976-2017 (in Percentage Points per Year) †

Alabama	0.68	***
South Carolina	0.43	***
Georgia	0.39	***
Mississippi	0.37	***
North Carolina	0.29	***
Tennessee	0.17	
Florida	0.13	
Virginia	0.11	
New Jersey	0.09	
Texas	0.09	
Maryland	0.04	
District of Columbia	-0.03	
New York	-0.07	
Illinois	-0.11	
Pennsylvania	-0.19	*
Louisiana	-0.20	
California	-0.34	***
Ohio	-0.45	***
Michigan	-0.52	***

† Standard errors are adjusted using the Newey-West (1987) procedure. Asterisks indicate statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Table 3
Industry and Occupation Categories Used in the Oaxaca-Blinder Decompositions

1. **Industry**
    - Agriculture*
    - Construction
    - Finance, Insurance, and Real Estate
    - Manufacturing
    - Mining
    - Public Administration
    - Services
    - Trade
    - Transportation, Utilities, and Communication

2. **Occupation**
    - Architecture and Engineering Workers
    - Arts, Design, Entertainment, Sports, and Media Workers
    - Building and Grounds Cleaning and Maintenance Workers
    - Business Operations Specialists
    - Community and Social Services Workers
    - Computer and Mathematical Workers
    - Construction Workers
    - Education, Training, and Library Workers
    - Extraction Workers
    - Farming, Fishing, and Forestry Workers
    - Financial Specialists
    - Food Preparation and Serving Workers
    - Healthcare Practitioners
    - Healthcare Support Workers
    - Installation, Maintenance, and Repair Workers
    - Legal Workers
    - Life, Physical, and Social Scientists
    - Management
    - Office and Administrative Support Workers
    - Personal Care and Service Workers
    - Production Workers
    - Protective Service Workers
    - Sales and Related Workers*
    - Transportation and Material Moving Workers

* Denotes the Category Excluded from Regressions

Table 4
Years of Schooling and Return to Schooling, for Full-Time Workers Aged 25-54, for Black and Non-Hispanic White Workers, by Sex and Region, 1976-2017

	1976-81	1982-87	1988-93	1994-99	2000-05	2006-11	2012-17
Women, Outside the Former Confederate States							
Black Years of Schooling	12.57	13.03	13.27	13.44	13.61	13.89	14.17
White Years of Schooling	13.24	13.70	13.82	14.01	14.25	14.56	15.01
Difference (Black - White)	*-0.67*	*-0.67*	*-0.55*	*-0.56*	*-0.64*	*-0.67*	*-0.84*
Black Schooling Coefficient	0.059	0.067	0.077	0.091	0.093	0.092	0.084
White Schooling Coefficient	0.056	0.068	0.082	0.105	0.108	0.109	0.111
Difference (Black - White)	*0.003*	*-0.002*	*-0.005*	*-0.015*	*-0.015*	*-0.018*	*-0.027*
Women, Former Confederate States							
Black Years of Schooling	12.20	12.85	13.07	13.24	13.47	13.74	14.15
White Years of Schooling	12.92	13.37	13.61	13.82	14.10	14.44	14.75
Difference (Black - White)	*-0.72*	*-0.52*	*-0.54*	*-0.58*	*-0.63*	*-0.69*	*-0.60*
Black Schooling Coefficient	0.046	0.068	0.085	0.089	0.107	0.099	0.086
White Schooling Coefficient	0.062	0.079	0.092	0.105	0.109	0.107	0.111
Difference (Black - White)	*-0.016*	*-0.010*	*-0.005*	*-0.017*	*-0.002*	*-0.008*	*-0.025*
Men, Outside the Former Confederate States							
Black Years of Schooling	12.15	12.79	13.05	13.25	13.36	13.53	13.75
White Years of Schooling	13.41	13.81	13.84	13.94	14.07	14.23	14.49
Difference (Black - White)	*-1.26*	*-1.02*	*-0.79*	*-0.69*	*-0.71*	*-0.71*	*-0.74*
Black Schooling Coefficient	0.060	0.071	0.062	0.071	0.075	0.073	0.078
White Schooling Coefficient	0.063	0.067	0.076	0.090	0.096	0.102	0.101
Difference (Black - White)	*-0.006*	*0.001*	*-0.015*	*-0.023*	*-0.020*	*-0.028*	*-0.021*
Men, Former Confederate States							
Black Years of Schooling	11.04	12.04	12.45	12.70	13.01	13.32	13.55
White Years of Schooling	13.06	13.44	13.59	13.71	13.89	14.10	14.31
Difference (Black - White)	*-2.02*	*-1.41*	*-1.14*	*-1.01*	*-0.88*	*-0.79*	*-0.76*
Black Schooling Coefficient	0.039	0.064	0.073	0.063	0.080	0.088	0.076
White Schooling Coefficient	0.064	0.076	0.079	0.088	0.096	0.102	0.097
Difference (Black - White)	*-0.026*	*-0.015*	*-0.008*	*-0.024*	*-0.016*	*-0.016*	*-0.023*

Table 5(a)
Decomposition of the Mean Log Difference between the Earnings of Black Women and Non-Hispanic White Women, for Full-Time Year-Round Workers outside the Former Confederate States, Six-Year Periods, 1976-2017†

	1976-1981	1982-1987	1988-1993	1994-1999	2000-2005	2006-2011	2012-2017
Total Gap	-0.010	**-0.044****	**-0.064*****	**-0.076*****	**-0.129*****	**-0.123*****	**-0.181*****
	(0.015)	(0.019)	(0.021)	(0.019)	(0.019)	(0.022)	(0.021)
Total Explained/	-0.010	-0.015	-0.025*	**-0.039*****	**-0.067*****	**-0.067*****	**-0.102*****
Composition Effect	(0.009)	(0.015)	(0.015)	(0.013)	(0.014)	(0.016)	(0.016)
Education	**-0.038*****	**-0.046*****	**-0.046*****	**-0.059*****	**-0.069*****	**-0.073*****	**-0.093*****
	(0.005)	(0.009)	(0.008)	(0.007)	(0.007)	(0.008)	(0.009)
Potential Experience &	**0.005*****	**0.011*****	**0.008*****	**0.005*****	**0.002**	**0.007*****	**0.010*****
Experience Squared	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.003)
Industries	0.004	**0.015*****	**0.008****	0.004*	**0.006*****	0.004*	0.002
	(0.003)	(0.004)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)
Occupations	**-0.026*****	**-0.042*****	**-0.047*****	**-0.039*****	**-0.045*****	**-0.042*****	**-0.052*****
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)
Government Employee	**0.018*****	**0.014*****	**0.013*****	**0.011*****	**0.006*****	**0.006*****	**0.007*****
	(0.005)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Metro Area	**0.027*****	**0.033*****	**0.038*****	**0.037*****	**0.034*****	**0.030*****	**0.026*****
	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Total Unexplained/	0.001	**-0.028****	**-0.039*****	**-0.037****	**-0.063*****	**-0.056*****	**-0.079*****
Structural Effect	(0.013)	(0.012)	(0.015)	(0.015)	(0.013)	(0.014)	(0.012)
N(white)	28,039	37,906	49,579	43,463	65,810	57,855	46,302
N(black)	3,752	4,714	5,643	5,001	9,136	8,285	6,532

† Robust standard errors, adjusted for clustering by state, are in parentheses. Asterisks indicate statistical significance at the **1% (***)**, **5% (**)**, and 10% (*) levels.

Table 5(b)
Decomposition of the Mean Log Difference between the Earnings of Black Women and Non-Hispanic White Women, for Full-Time Year-Round Workers in the Former Confederate States, Six-Year Periods, 1976-2017†

	1976-1981	1982-1987	1988-1993	1994-1999	2000-2005	2006-2011	2012-2017
Total Gap	**-0.213*** **	**-0.214*** **	**-0.218*** **	**-0.215*** **	**-0.239*** **	**-0.227*** **	**-0.224*** **
	(0.015)	(0.019)	(0.018)	(0.015)	(0.020)	(0.016)	(0.019)
Total Explained/ Composition Effect	**-0.117*** **	**-0.107*** **	**-0.115*** **	**-0.114*** **	**-0.125*** **	**-0.127*** **	**-0.106*** **
	(0.015)	(0.016)	(0.015)	(0.011)	(0.016)	(0.015)	(0.016)
Education	**-0.044*** **	**-0.041*** **	**-0.050*** **	**-0.060*** **	**-0.068*** **	**-0.074*** **	**-0.066*** **
	(0.009)	(0.010)	(0.010)	(0.005)	(0.007)	(0.008)	(0.008)
Potential Experience & Experience Squared	-0.001	0.001	0.002	**-0.003** **	-0.004	0.003	0.003
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Industries	0.000	0.002	**0.009** **	**0.009*** **	**0.006*** **	0.002	0.003
	(0.003)	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
Occupations	**-0.078*** **	**-0.070*** **	**-0.081*** **	**-0.069*** **	**-0.064*** **	**-0.066*** **	**-0.056*** **
	(0.008)	(0.007)	(0.006)	(0.005)	(0.007)	(0.007)	(0.008)
Government Employee	0.000	0.002	**0.005** **	**0.005** **	**0.002** **	**0.003** **	**0.005*** **
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
Metro Area	0.006	0.000	0.001	0.002	0.003	0.004	0.006*
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.003)
Total Unexplained/ Structural Effect	**-0.096*** **	**-0.107*** **	**-0.103*** **	**-0.101*** **	**-0.114*** **	**-0.100*** **	**-0.118*** **
	(0.013)	(0.010)	(0.013)	(0.009)	(0.010)	(0.008)	(0.013)
N(white)	9,803	12,226	15,142	12,742	15,419	13,678	13,655
N(black)	2,940	3,462	4,287	3,748	6,573	6,153	6,164

† Robust standard errors, adjusted for clustering by state, are in parentheses. Asterisks indicate statistical significance at the **1% (***)**, **5% (**)**, and 10% (*) levels.

Table 6(a)
Decomposition of the Mean Log Difference between the Earnings of Black Men and Non-Hispanic White Men, for Full-Time Year-Round Workers outside the Former Confederate States, Six-Year Periods, 1976-2017†

	1976-1981	1982-1987	1988-1993	1994-1999	2000-2005	2006-2011	2012-2017
Total Gap	**-0.257*** **	**-0.271*** **	**-0.252*** **	**-0.270*** **	**-0.300*** **	**-0.314*** **	**-0.294*** **
	(0.023)	(0.016)	(0.016)	(0.018)	(0.017)	(0.018)	(0.017)
Total Explained/	**-0.080*** **	**-0.086*** **	**-0.094*** **	**-0.104*** **	**-0.119*** **	**-0.122*** **	**-0.130*** **
Composition Effect	(0.012)	(0.010)	(0.013)	(0.013)	(0.011)	(0.013)	(0.015)
Education	**-0.080*** **	**-0.069*** **	**-0.060*** **	**-0.062*** **	**-0.068*** **	**-0.072*** **	**-0.074*** **
	(0.007)	(0.009)	(0.009)	(0.008)	(0.007)	(0.008)	(0.010)
Potential Experience &	**0.027*** **	**0.022*** **	0.005	0.003	0.003	**0.011*** **	0.004*
Experience Squared	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.002)
Industries	0.003	0.000	-0.003	-0.003	-0.002	-0.004	-0.004*
	(0.005)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Occupations	**-0.051*** **	**-0.063*** **	**-0.066*** **	**-0.071*** **	**-0.077*** **	**-0.080*** **	**-0.071*** **
	(0.005)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)
Government Employee	0.000	-0.001	0.000	-0.001	-0.001*	0.000	0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Metro Area	**0.021*** **	**0.026*** **	**0.030*** **	**0.029*** **	**0.026*** **	**0.022*** **	**0.015*** **
	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
Total Unexplained/	**-0.177*** **	**-0.185*** **	**-0.158*** **	**-0.166*** **	**-0.181*** **	**-0.192*** **	**-0.164*** **
Structural Effect	(0.018)	(0.011)	(0.010)	(0.013)	(0.013)	(0.012)	(0.011)
N(white)	53,808	58,198	68,708	58,016	87,074	73,492	58,362
N(black)	3,793	4,195	4,755	4,207	7,563	6,974	5,705

† Robust standard errors, adjusted for clustering by state, are in parentheses. Asterisks indicate statistical significance at the **1% (***)**, **5% (**)**, and 10% (*) levels.

Table 6(b)
Decomposition of the Mean Log Difference between the Earnings of Black Men and Non-Hispanic White Men, for Full-Time Year-Round Workers in the Former Confederate States, Six-Year Periods, 1976-2017†

	1976-1981	1982-1987	1988-1993	1994-1999	2000-2005	2006-2011	2012-2017
Total Gap	**-0.449*** **	**-0.447*** **	**-0.421*** **	**-0.384*** **	**-0.384*** **	**-0.377*** **	**-0.353*** **
	(0.024)	(0.019)	(0.022)	(0.027)	(0.021)	(0.019)	(0.018)
Total Explained/ Composition Effect	**-0.206*** **	**-0.202*** **	**-0.199*** **	**-0.190*** **	**-0.184*** **	**-0.168*** **	**-0.150*** **
	(0.015)	(0.015)	(0.017)	(0.014)	(0.019)	(0.013)	(0.009)
Education	**-0.129*** **	**-0.107*** **	**-0.090*** **	**-0.088*** **	**-0.084*** **	**-0.081*** **	**-0.074*** **
	(0.009)	(0.012)	(0.010)	(0.008)	(0.009)	(0.007)	(0.007)
Potential Experience & Experience Squared	0.015***	0.007	0.004	0.002	0.000	0.003	0.002
	(0.003)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)	(0.002)
Industries	0.003	0.001	0.002	**0.008** **	**0.006** **	0.001	0.000
	(0.003)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Occupations	**-0.094*** **	**-0.094*** **	**-0.108*** **	**-0.107*** **	**-0.106*** **	**-0.092*** **	**-0.082*** **
	(0.008)	(0.010)	(0.007)	(0.005)	(0.008)	(0.006)	(0.005)
Government Employee	-0.002	**-0.005*** **	**-0.005** **	**-0.004*** **	-0.002*	-0.002	-0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Metro Area	0.002	-0.004	-0.002	-0.002	0.002	0.002	0.004*
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.002)
Total Unexplained/ Structural Effect	**-0.243*** **	**-0.245*** **	**-0.222*** **	**-0.194*** **	**-0.200*** **	**-0.209*** **	**-0.203*** **
	(0.020)	(0.014)	(0.017)	(0.024)	(0.008)	(0.015)	(0.017)
N (white)	16,284	17,152	18,948	15,899	19,270	17,069	16,911
N (black)	3,347	3,307	3,769	3,163	5,137	4,674	4,902

† Robust standard errors, adjusted for clustering by state, are in parentheses. Asterisks indicate statistical significance at the **1% (***)**, **5% (**)**, and 10% (*) levels.

Table 7
Changes in Gaps and in Components of Gaps in Log Earnings between Black and Non-Hispanic White Workers, 1976-81 to 2012-17

	Women			Men		
	North	South	North - South	North	South	North - South
Total Gap	-0.171	-0.011	-0.160	-0.037	0.096	-0.133
Composition Effect	-0.091	0.011	-0.103	-0.050	0.056	-0.106
Changing Means	-0.045	0.056	-0.101	-0.008	0.103	-0.111
Changing Coefficients	-0.047	-0.045	-0.002	-0.041	-0.047	0.005
Structural Effect	-0.080	-0.022	-0.057	0.013	0.040	-0.027
Changing Means						
Education	-0.009	0.007	-0.017	0.033	0.081	-0.048
Experience	-0.001	0.003	-0.004	-0.022	-0.013	-0.009
Industries	-0.001	0.006	-0.007	-0.009	0.002	-0.011
Occupations	-0.016	0.035	-0.051	0.000	0.028	-0.028
Government Employee	-0.010	0.005	-0.015	-0.001	0.002	-0.003
Metro Area	-0.008	-0.001	-0.007	-0.008	0.003	-0.011
Total	-0.045	0.056	0.101	-0.008	0.103	-0.111
Changing Coefficients						
Education	-0.046	-0.029	-0.017	-0.028	-0.025	-0.002
Experience	0.005	0.001	0.004	0.000	0.000	-0.001
Industries	-0.001	-0.004	0.003	0.003	-0.005	0.008
Occupations	-0.010	-0.014	0.003	-0.021	-0.015	-0.005
Government Employee	-0.001	0.000	-0.001	0.001	-0.001	0.002
Metro Area	0.006	0.001	0.006	0.001	-0.001	0.002
Total	-0.047	-0.045	-0.002	-0.041	-0.047	0.005

Note: The entries in this table are based on the results reported in Tables 5 and 6, and the decomposition shown in Equation (5).

References

Autor, David H., Lawrence F. Katz, and Melissa S. Kearney (2008), "Trends in U.S. Wage Inequality: Re-Assessing the Revisionists." *Review of Economics and Statistics* 90 (2): 300-323.

Bayer, Patrick, and Kerwin Kofi Charles (2018), "Divergent Paths: A New Perspective on Earnings Differences between Black and White Men since 1940." *Quarterly Journal of Economics* 133 (3): 1459-1501.

Blau, Francine D., and Andrea H. Beller (1992), "Black/white Earnings over the 1970s and 1980s: Gender Differences in Trends." *Review of Economics and Statistics* 74 (2): 276-286.

Blau, Francine D., and Lawrence M. Kahn (2017), "The Gender Wage Gap: Extent, Trends, and Explanations." *Journal of Economic Literature* 55 (3): 789-865.

Blinder, Alan S. (1973), "Wage Discrimination: Reduced Form and Structural Estimates." *Journal of Human Resources* 8 (4): 436-455.

Boskin, Michael J., Ellen R. Dulberger, Robert J. Gordon, Zvi Griliches, and Dale W. Jorgenson (1997), "The CPI Commission: Findings and Recommendation." *American Economic Review* 87 (2): 78–83.

Bound, John, and Richard B. Freeman (1992), "What Went Wrong? The Erosion of Relative Earnings and Employment among Young Black Men in the 1980s." *Quarterly Journal of Economics* 107 (1): 201-232.

Boustan, Leah Platt (2010), "Was Postwar Suburbanization 'White Flight'? Evidence from the Black Migration." *Quarterly Journal of Economics* 125 (1): 417-443.

Brown, Charles (1984), "Black/white Earnings Ratios since the Civil Rights Act of 1984: The Importance of Labor Market Dropouts." *Quarterly Journal of Economics* 99 (1): 31-44.

Burbridge, Lynn C. (1994), "The Reliance of African-American Women on Government and Third-Sector Employment." *American Economic Review* 84 (2): 103-107.

Butler, Richard, and James Heckman (1977), "The Impact of Government on the Labor Market Status of Black Americans: A Critical Review." In Farrell E. Bloch and Leonard J. Hausman (eds.), *Equal Rights and Industrial Relations*. Madison, Wisconsin: Industrial Relations Research Association: 235-281.

Card, David, and Alan B. Krueger (1992), "School Quality and Black/white Relative Earnings: A Direct Assessment." *Quarterly Journal of Economics* 107 (1): 151-200.

Chandra, Amitabh (2000), "Labor-Market Dropouts and the Racial Wage Gap, 1940-1990." *American Economic Review* 90 (2): 333-338.

Chetty, Raj, Nathaniel Hendren, Maggie R. Jones, and Sonya R. Porter (2020), "Race and Economic Opportunity in the United States: an Intergenerational Perspective." *Quarterly Journal of Economics* 135 (2): 711-783.

Donohue, John J., III, and James Heckman (1991), "Continuous Versus Episodic Change: The Impact of Civil Rights Policy on the Economic Status of Blacks." *Journal of Economic Literature* 29 (4): 1603-1643.

Fortin, Nicole, Thomas Lemieux, and Sergio Firpo (2011). "Decomposition Methods in Economics." In Orley Ashenfelter and Richard Layard (eds.), *Handbook of Labor Economics, Volume 4A*. Amsterdam: North Holland: 1-102.

Fisher, Jonathan D., and Christina A. Houseworth (2017). "The Widening Black/white Wage Gap among Women." *LABOUR* 31 (3): 288-308.

Flood, Sarah, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [dataset]. Minneapolis, MN: IPUMS, 2018. https://doi.org/10.18128/D030.V6.0.

Freeman, Richard B. (1973), "Changes in the Labor Market for Black Americans 1948-1972." *Brookings Papers on Economic Activity* 1973 (1): 67-120.

Goldin, Claudia (2006), "The Quiet Revolution That Transformed Women's Employment, Education, and Family." *American Economic Review* 96 (2): 1-21.

Goldin, Claudia, and Robert A. Margo (1992), "The Great Compression: The Wage Structure in the United States at Mid-Century." *Quarterly Journal of Economics* 107 (1): 1-34.

Gould, Eric D. (2020), "Torn Apart? The Impact of Manufacturing Employment Decline on Black and White Americans." *The Review of Economics and Statistics*. Posted Online March 06, 2020; https://doi.org/10.1162/rest_a_00918

Governing.com (2020), "Residential Segregation Data for U.S. Metro Areas." https://www.governing.com/gov-data/education-data/residential-racial-segregation-metro-areas.html. Accessed June 17, 2020.

Hirsch, Barry T., and John V. Winters (2014), "An Anatomy of Racial and Ethnic Trends in Male Earnings in the U.S." *Review of Income and Wealth* 60 (4): 930-947.

Holzer, Harry J., Paul Offner, and Elaine Sorensen (2005), "Declining Employment among Young Black Less-Educated Men: The Role of Incarceration and Child Support." *Journal of Policy Analysis and Management* 24 (2): 329-350.

Jaynes, Gerald (1990), "The Labor Market Status of Black Americans: 1939-1985." *Journal of Economic Perspectives* 4 (4): 9-24.

Jenkins, Stephen P. (1999), "SUMDIST: Stata module to calculate summary statistics for income distributions," Statistical Software Components S366005, Boston College Department of Economics, revised 19 Sep 2006.

Juhn, Chinhui (2003), "Labor Market Dropouts and Trends in the Wages of Black and White Men." *Industrial and Labor Relations Review* 56 (4): 643-662.

Kitagawa, Evelyn M. (1955), "Components of a Difference between Two Rates." *Journal of the American Statistical Association* 50 (272): 1168-1194.

Korenman, Sanders, and David Neumark (1991), "Does Marriage Really Make Men More Productive?" *Journal of Human Resources* 26 (2): 282-307.

Mandel, Hadas, and Moshe Semyonov (2016), "Going Back in Time? Gender Differences in Trends and Sources of the Racial Pay Gap, 1970 to 2010." *American Sociological Review* 81 (5): 1039-1068.

Margo, Robert A. (1995), "Explaining Black/white Wage Convergence, 1940-1950." *Industrial and Labor Relations Review* 48 (3): 470-481.

Neal, Derek A. (2004), "The Measured Black/white Wage Gap among Women is Too Small." *Journal of Political Economy* 112 (S1): S1-S28.

Newey, Whitney K., and Kenneth D. West (1987), "A Simple, Positive Semi-definite, Heteroskedasticity and Autocorrelation Consistent Covariance Matrix." *Econometrica* 55 (3): 703-708.

Oaxaca, Ronald (1973), "Male-Female Wage Differentials in Urban Labor Markets." *International Economic Review* 14 (3): 693-709.

Smith, James P., and Finis R. Welch (1989), "Black Economic Progress after Myrdal." *Journal of Economic Literature* 27 (2): 519-564.

Vigdor, Jacob L. (2006), "The New Promised Land: Black/white Convergence in the American South, 1960-2000." National Bureau of Economic Research Working Paper No. 12143.

Waldfogel, Jane (1998), "Understanding the 'Family Gap' in Pay for Women with Children." *Journal of Economic Perspectives* 12 (1): 137-156.

Western, Bruce, and Becky Pettit (2005), "Black/white Wage Inequality, Employment Rates, and Incarceration." *American Journal of Sociology* 111 (2): 553-578.