

Understanding the Contribution of Legislation, Social Activism, Markets, and Choice to the Economic Progress of African Americans in the Twentieth Century

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1 Introduction

Thirty-five years after passage of the Civil Rights Act, considerable controversy still surrounds the issue of whether federal legislation prohibiting discrimination played a significant role in elevating the economic well-being of African Americans. The literatures in law and in economics present conflicting views, many of which point to the ineffectiveness of federal interventions and discount the role of social activism more generally. Many economists claim that the wage gains experienced by African Americans over the last five decades can best be explained by self-improvement in terms of decisions to acquire more and better quality schooling and to migrate to locations with better opportunities. Legal scholars examining the relationship between the legal pressure imposed by federal laws and the pattern of wage gains often conclude that the laws were ineffective because most of the advances occurred during time periods of few lawsuits. This paper attempts to make progress towards resolving some of the conflicting visions that have been presented in the literature. We adopt an integrated approach that includes a comprehensive econometric and statistical exploration to understand the nature and timing of wage and employment gains and documentation of the legal forces that have shaped economic opportunities of minorities throughout the Twentieth century.

Our research emphasizes three main points. First, direct attempts to evaluate the impact of federal laws econometrically by using measures of enforcement intensity – such as the number of Title VII lawsuits or the budget of the EEOC – have been largely unsuccessful, because these measures do not adequately reflect the pressures imposed by the law. Indeed, any effort to rely on such measures is likely to support the view that the law was not important because few Title VII lawsuits were brought in the early days of the statute’s existence when large gains for African-Americans appeared to have registered, while many suits were brought during a later period when there were fewer relative gains.¹

The enigma of the apparent temporal mismatch between the intensity of the federal anti-discrimination effort and the period of significant African-American progress is largely attributable to a misconstruction of civil rights policy. Careful scrutiny of federal activity in the early 1960s reveals a massive attack launched against racial exclusion in Southern employment, voting, and accommodations. The 1964 Civil Rights Act was directed toward the South, as were the 1962 and 1965 Voting Rights Acts and federal school desegregation

¹See, e.g., Butler and Heckman (1977) and Donohue and Heckman (1991).

policy (Whalen and Whalen, 1985). Studies that focus solely on the impact of fair employment policy miss the crucial point that it was only one part of a total federal effort directed against a way of life that previously excluded African Americans from many sectors of Southern society. For example, Rosenberg (1991) focuses narrowly on the impact of court-ordered school desegregation and ignores both the size of the entire federal intervention in the South and the spillover effects from successful federal challenges to school segregation and voting exclusion. Assessing the impact of the full force of civil rights interventions requires taking a more comprehensive view of legislative and litigative activities and of their effects. When all aspects of the attack on discrimination are considered, there is significant alignment between the strength of the federal pressure in the South and the accompanying rise in African-American economic status there.

Second, the analysis of the impact of laws and of social activism has frequently been conducted at a national level. It is important to disaggregate to the regional and industrial level as finely as the data will permit, because many questions about the impact of federal anti-discrimination laws and social activism on employment, wages and education depend on the local legal regime in force prior to the enactment of the law. The legal context and educational opportunities varied dramatically between the South with its legacy of Jim Crow legislation and the North, which by 1964 was largely already covered by various state anti-discrimination laws.

An important methodological function is also served by focusing on Southern states at the time that Title VII went into effect in 1965. One of the most intractable difficulties in assessing the impact of any law is distinguishing the effects of the legal interventions themselves from the effects of changes in the underlying attitudes of the population that led to the passage of the legislation in the first place. The fact that federal activity was imposed on the South and that African-American relative improvement was most rapid in the South makes more credible the argument that federal policy was effective in the period 1965-1975 and serves to counter the argument that the laws were merely the manifestation of preexisting social change. Federal activity had its greatest apparent effect in the region that resisted it the most.

Third, because there is no convincing direct measure of Federal activity, much of our analysis of the impact of Title VII and other components of civil rights policy must proceed indirectly through a process of eliminating other plausible explanations for the measured

gains. Accordingly, one must account for all of the major rival hypotheses. A leading argument put forth in the economics literature maintains that long-term, secular trends in education and migration account for most of the advance in black economic status. In particular, increases in the quantity and quality of black schooling are said to be among the most important factors in explaining the decrease in the black-white wage gap over the period 1940-1980 (Smith and Welch, 1986, 1989). Another factor that is important to understanding changes in the wage gap over time is selective withdrawal of low-wage workers from the labor market that is more heavily concentrated among black men. Such withdrawal would appear to elevate black economic status relative to that of whites by ignoring blacks with zero earnings. Finally, Census aggregates reveal that during the 1970s there was tremendous growth in the employment of African-Americans in the government sector.² Observed gains in earnings and in employment may therefore be attributable directly to governmental hiring. In this chapter, we perform a disaggregated assessment of each of these sources of black economic gains using Decennial Census data from 1940-1990. We supplement our analysis with state-level and county-level data on quality of schooling.

Given the current political and legal interest in federal civil rights policy, it is not surprising that a large number of scholarly articles and books have recently addressed many of the issues we raise. What is surprising is that there seems to be an emerging view that civil rights policy has been of little value in enhancing the economic welfare of blacks. Thus, Rosenberg (1991) argues that the Supreme Court's announcement in *Brown v. Board of Education* that racial segregation of public schools violated the equal protection clause had no discernible impact on the welfare of black Americans. Richard Epstein (1992: p. 505), building on the work of his colleagues Richard Posner (1987) and William Landes (1968), argues that "modern civil rights laws [not only] strangle the operation of labor and employment markets, [but] are a new form of imperialism that threatens the political liberty and intellectual freedom of us all." More disturbing than the rhetoric, however, is that fact that major law and economics scholars have coalesced around a theoretically driven vision of the impact of civil rights law, when the ultimate questions on which they opine so strongly are empirical matters that are susceptible to verification or refutation. Building upon what we contend is an erroneous interpretation of the work of Gary Becker (1957), these scholars have endorsed an idealized view of the market that maintains that discrimination is self-correcting in com-

²This growth may have been stimulated by greater political representation engineered by the Voting Rights Act or by the 1972 Amendment that made Title VII laws applicable to state and local governments.

petitive labor markets. This view virtually rules out the possibility that governmental action may serve a useful social function in addressing the problem of employment discrimination.

In section two of this chapter, we critically evaluate arguments put forth in the legal literature that purport to show that federal civil rights policies have been ineffective. We begin by discussing Rosenberg's (1991) thesis concerning the ineffectiveness of judicial decision-making to effect significant social change. We then address the libertarian view espoused by Epstein and others that discrimination will be driven out in a competitive economy. According to this view, government interventions are only effective in eliminating discrimination insofar as they eliminate barriers to competition. Thus Epstein argues that the breakthrough of black employment in the Southern textile industry, documented by Heckman and Payner (1989), was simply the result of federal intervention that undermined racist governmental hiring restrictions imposed by Southern states prior to 1964. We present evidence that contradicts this view and suggests that social custom, not restrictive government legislation, provides the most likely explanation for racial exclusions in hiring.

Sections three and four of this chapter present results from our econometric analysis of micro-data from the 1940-1990 decennial Censuses. We build on existing research in the empirical literature in assessing the relative importance of supply-side factors and demand-side factors in explaining black economic progress. We carefully consider one of the major competing hypotheses that denies a significant governmental role in advancing black economic progress – that gains experienced by African American workers were mainly the result of self-improvement as embodied in decisions to get more and better quality schooling and to migrate to labor markets with higher wages. We find that schooling quality is an important determinant of the education levels that African American workers attained, but that increases in measured quality of schooling do not account for the sharp relative increases in the market valuation of black schooling.

In section four, we discuss why arguments that education and quality “explain” black economic progress to the exclusion of other factors such as law, litigation and social activism are misleading, because they ignore the central role of legal and social interventions in raising educational levels of black workers and in increasing the quality of schools available to them. Changes in education levels and in schooling quality cannot be viewed as exogenous with respect to social interventions. We describe research reported in Donohue, Heckman and Todd (2000) that shows that increases in empirical measures of schooling quality in

Southern segregated school systems that occurred in the late 1930's and early 1940's were closely aligned with lawsuits initiated by the NAACP to equalize black and white teacher pay.

In section five, we examine the evidence for direct effects of antidiscrimination legislation and accompanying enforcement activities on wages and employment. The 1960's and 1970's witnessed a dramatic increase in the share of black employment in the government sector. However, we find that the overrepresentation of black workers in the government sector generally increases the relative black-white average wage gap. Within the government sector, blacks and whites are treated more equally than they are in the private sector, but the government sector pays less than the private sector and employs relatively more blacks. Thus, government employment on average lowers black-white relative wages.

In section five, we also examine the support for a direct effect of EEOC activity on black employment in the private sector. We contrast black employment growth in industries targeted by the EEOC with growth in other industries and find that employment growth of black men and women tended to be much greater in targeted industries. Section six concludes.

2 Weighing the evidence on the ineffectiveness of federal civil rights policies

2.1 The difficulty in using citation counts to measure the effects of litigation

A widely cited book – Gerald Rosenberg's *The Hollow Hope: Can the Courts Bring About Social Change?* – offers a major challenge to the notion of the efficacy of court-initiated civil rights activity. In his provocative first section, Rosenberg claims that the Brown decision had no important impact on the civil rights movement or on the evolution of black economic and social progress. Rosenberg finds that Brown was rarely cited in newspapers, political rhetoric, or public opinion polls during the turbulent civil rights era of the late 1950s and early 1960s. His methodology of assessing the frequency of citations leads him to conclude that more “immediate” – i.e. more recent – causes were of greater significance than Brown. By this standard, a decision that spawned a whole host of subsidiary decisions and legislation, as Brown did, would be unimportant because the subsidiary decisions and legislation would

appear more important in any particular instance. This approach to causal analysis is methodologically flawed, because it confuses immediate causes and ultimate causes. It cannot capture the slowly moving forces set in motion by Brown that took more than a decade to unfold in the manifestations of the Voting Rights Act, the Civil Rights Act, and other actions by the Federal government.

Rosenberg's study also selectively reports the evidence against the importance of Brown. For example, it ignores the well-documented rapid compliance with Brown that characterized the Border states and the role played by the judiciary in the late 1960's and early 1970's in initiating court-ordered busing plans. (Wasby, D'Amato, and Metrailler, 1977.) It also fails to note that the impetus for school desegregation came from Brown. Had the Supreme Court endorsed the racially segregated school systems of the South as constitutionally permissible, Congress in the mid-1960s would have felt far less pressure to provide financial incentives for school systems to desegregate.

Rosenberg's claim that desegregation and the breakup of the American version of apartheid were inevitable is unconvincing, because it denies the stability of segregation and discrimination in employment and social practices that existed in the South, despite the massive economic and social changes accompanying the transformation from agriculture to industry (Heckman and Payner, 1989). This evidence is further discussed below.

2.2 The libertarian argument that competition eliminates discrimination

An article of faith among some academics and policy makers is that if productive workers are not being hired because of labor market discrimination, competitive market pressures will ensure that they will be quickly snapped up by other employers. Senator Orrin Hatch has asserted, for example, that "The EEOC has sometimes been credited with opening up new pools of labor that corporations somehow contrived to ignore, and occasionally with hastening the breakdown of traditional barriers to labor mobility....But in the context of the market's endless search for efficiency, these anomalies would have been eliminated anyway, leaving only the question of whether they were worth the expenditures compelled by law."³

The theoretical basis for the view that competition drives out discrimination, we contend, rests on a misinterpretation of Becker's (1957) theory of discrimination . Under Becker's the-

³Quoted in Leonard (1984: p. 145).

ory, if employers have a taste for discrimination then they are willing to pay higher wages to hire workers of a preferred group. In equilibrium, the higher demand for the preferred group bids up their wages and leads to unequal relative wages, even though workers in the preferred and non-preferred groups may be equally productive. In this case, nondiscriminating firms can hire workers from the non-preferred group and thereby incur lower production costs and potentially drive discriminators out of the market. As Becker points out, however, competition drives out discrimination only when there are enough nondiscriminating firms willing to enter the market with labor demand curves that absorb the supply of labor of the non-preferred group. And even in this case, firms with lower than average cost curves due to superior technology or entrepreneurial capacity can afford to discriminate and will not be driven out of the market.

In addition to employer discrimination, Becker considers other types of discrimination such as employee and consumer discrimination. Employee discrimination occurs when a firm's employees are willing to accept lower wages to avoid working with certain types of coworkers, which Becker shows makes it cost-minimizing for firms to segregate the workforce. This type of discrimination is compatible with a pure profit motive and there is no competitive pressure to eliminate it. Another type of discrimination is consumer discrimination, which occurs when consumers prefer to purchase a firm's services or products from particular types of employees. To maximize sales, a firm would naturally cater to consumer preferences by hiring the kinds of workers consumers prefer. For example, the fact that there were virtually no black bank tellers in South Carolina prior to interventions by the EEOC may be partly attributable to consumer discrimination. When multiple types of discrimination are taken into account, it is clear that Becker's theory of discrimination does not provide a theoretical basis for the view that discrimination will be eliminated in a competitive market.

A major empirical challenge to the libertarian view was presented by Heckman and Payner's (1989) analysis of the employment of blacks in the South Carolina textile industry over most of this century.⁴ They demonstrate that black employment levels rose dramatically at about the time that Title VII went into effect and the federal government contract compliance program was initiated in 1965. They carefully document the share of black employment by sex in the textile industry of the state over the period 1910-1974. Through two World Wars, the Great Depression and the Korean War, the share of blacks remained

⁴Textiles has long been the major manufacturing employer in the state, accounting for 80 percent of all manufacturing employment in 1940 and more than 50 percent in 1970. (Heckman and Payner, 1989.)

low and stable, despite the expanding employment in the industry throughout this period. Regardless of the degree of labor market tightness or slackness, virtually no black women, and only a small portion of black men worked in the textile industry in the 55 years before 1965. After that date, black male and female wages and employment levels (relative to those of white males and in absolute terms) suddenly accelerated in the industry. As Heckman and Payner summarize: “The breakthrough in black employment in [South Carolina] occurred shortly after the implementation of Title VII civil rights legislation. The highly synchronized breakthrough in black employment that occurred in all counties of the state irrespective of the tightness or slackness of county local labor markets and the available supply of blacks suggests a common factor was present in all counties – federal pressure.” This breakthrough is shown in Figure 1, which is reproduced from their paper.

The experience of the virtually complete exclusion of blacks from the Southern textile industry followed by a major breakthrough in 1965 challenges the view that the problem of employment discrimination is self-correcting. Supporters of that view have responded in two ways. One response does not directly address the experience of the South Carolina textile industry, but rather seeks to demonstrate that, from a statistical perspective, any black gains that occur in the post-1965 period are better explained by supply-side factors, such as better educated black workers, than by a change in demand induced by federal antidiscrimination policy. We address this critique in Sections three and four of this chapter.

Another argument put forth in Epstein (1992), which we address in this section, concedes that federal intervention was needed in 1965 and did succeed in advancing black economic welfare, but that this intervention was only necessary and successful to the extent that it eliminated the coercive power of racist Southern state and local government that kept firms from hiring black workers. According to this argument, if the market had been unimpeded by the restrictions of government, there would have been no need for federal intervention in 1965. *A fortiori* there is no case for federal intervention in labor markets today.

Epstein argues that blacks were excluded from the textile industry over this long time period only because southern segregationist legislation and other governmental restrictions kept them from being hired. While Gary Becker, writing in 1957, observed that the Southern textile industry was “extremely competitive,”⁵ Epstein paints a very different picture of the labor market. In his view, “[for] much of the period before 1965, segregation pursuant to

⁵Gary Becker, *The Economics of Discrimination* (1957). Others have suggested that some textile plants in isolated areas enjoyed monopsony power over the available labor supply.

statute, the very antithesis of a market system, was dominant in the South. (Epstein, 1992: p.251). Epstein blames a 1915 South Carolina statute that mandated racially segregated facilities for textile workers of different races for defeating competitive employment practices in the industry.⁶ It should be noted that this Jim Crow statute did not mandate the exclusion of blacks, but simply required that black and white textile workers be kept segregated. Epstein argues that having to maintain segregated facilities would have imposed high costs on employers that made the hiring of black workers financially impossible. But South Carolina was unusual in having a law that governed employment of blacks in textiles. Other Southern textile states had a similar pattern of racial exclusion without any formal law regulating this behavior. Therefore, focusing solely on South Carolina exaggerates the importance of government restrictions in fostering discrimination. The question Epstein raises, though, as to whether discrimination in the South was driven by custom or legislation is enormously important and has not been extensively studied.⁷ Below, we present evidence that social custom and not binding legislation largely accounts for exclusionary employment practices.

2.3 A basis for empirically evaluating the libertarian hypothesis

The libertarian hypothesis has a number of testable implications. To the extent that racial exclusions from the Southern textile industry were generated by segregationist legislation, it is likely that (1) such exclusions would not be found prior to passage of the segregationist law or during periods when the law was not enforced, (2) the exclusion would occur only in areas subject to such legislation, and (3) when the segregationist law ultimately came to be seen as unconstitutional, the racial exclusion would quickly be undone by competitive pressures. The empirical evidence contradicts all three points. First, the South Carolina law requiring separate but equal facilities in textile firms was not adopted until 1915 and seems not to have been enforced after the 1920s, yet Heckman and Payner document that the exclusion

⁶p. 246. The law was formally repealed by the South Carolina legislature in 1972. Act No. 1049 – An Act to Repeal Section 40-452, Code of Laws of South Carolina, 1962, Relating to Separation of Employees of Different Races in Cotton Textile Factories. March 8, 1972.

⁷As Howard Rabinowitz, one of the primary Southern historians focusing on this period, has observed: “Strange as it might seem, during the entire debate over [C. Vann Woodward’s thesis advanced in *The Strange Career of Jim Crow*], there has been remarkably little interest in the Jim Crow statutes themselves, and no one has satisfactorily followed the life of a statute from its origins through passage and the effects of implementation.” (Rabinowitz, 1988: p.850)

of blacks in the industry was complete from 1910-1915 and continued until 1965.⁸ Second, despite the fact that other leading textile states such as North Carolina, Georgia, and Virginia had no such Jim Crow legislation, they show the same pattern of racial exclusion in the textile industry followed by a pronounced breakthrough by black workers beginning in 1965.⁹ Specifically, between 1964 and 1965 black employment in the textile industry increased by 59 percent in South Carolina and 73 percent in North Carolina. (Butler, Heckman, and Payner, 1989: p.245.) Third, the unconstitutionality of the segregationist legislation pertaining to the South Carolina textile industry, if not immediately apparent after the 1954 decision in *Brown v. Board of Education*, would have been uniformly recognized considerably before the passage of the 1964 Civil Rights Act, but the employment gains documented by Heckman and Payner only came in 1965.

In addition to segregationist laws, there were also an array of ostensibly neutral legal restrictions – such as the antienticement and antirecruitment laws discussed in Zeichner (1940) and Cohen (1976) – that could have served to restrict the free flow of black labor in the South throughout the 20th century. The libertarian interpretation assumes that these restrictions prevented the market from eliminating the patterns of discriminatory exclusions of blacks from higher paying jobs and industries, but there are reasons to doubt this interpretation. It appears that many of the legal restrictions were primarily designed to protect the interests of landowners in ensuring that their farm laborers would not accept advances from them and then fail to work on the farm until the end of the harvest. (Zeichner, 1939: p.30.) This meant that, once a labor contract was signed, black agricultural workers were restricted in their mobility; but this restriction lasted at most one year. Thus, in the late 19th century, large numbers of blacks seeking higher wages moved from Georgia, Alabama and other southeastern states to Arkansas, Louisiana, and Mississippi, and, after World War I, fled the South entirely. Table 2 shows migration patterns over the period 1910-1960. With so much evidence of black mobility, it is difficult to believe that the legal restrictions tying sharecroppers to their farms for the one-year contract duration kept blacks from moving into low-skilled manufacturing employment.

To further address the question of whether law or custom served to maintain the virtually

⁸Indeed, there was a modest increase in the percentage of blacks hired in the industry following the enactment of the law. The data that Heckman and Payner used in their study go back to 1910, five years prior to the passage of the 1915 textile segregation act.

⁹North Carolina did have a law that required separate toilet facilities for blacks in manufacturing firms, but we doubt such a law was responsible for the industry's strict racial exclusion.

all-white character of certain industries, we examine the legal statutes that were specifically directed towards the Southern textile industry and the history of their enforcement. It is significant that the pattern of black employment in the South was so stable despite the absence of explicit Jim Crow restrictions in many states. (See the summary of segregationist legislation in Table 1.) Racist legislation was common in restricting conduct in the social sphere but not in the economic sphere. Informal law and custom and not formal law kept blacks out of certain industries and at lower levels of wages. Table 2 summarizes the types of segregationist laws in effect in different states. With the exception of South Carolina, employment laws pertained only to segregation of washroom facilities.

If Jim Crow restrictions alone impaired the ability of the market to protect blacks, then we should not see similar systematic exclusions in the North, which, with only rare exception, did not have segregationist legislation governing the employment relationship. But recent work by Whatley and Wright (1991) finds significant discrimination against blacks in the Northern auto industry. One of the most discriminatory firms – General Motors –enjoyed considerable growth during its period of racial exclusion. Northrup (1968) documents widespread exclusions in airplane manufacturing in such states as New York, New Jersey, Connecticut, and California. In both cases, these exclusions existed prior to the emergence of unions.

Thus, accumulated empirical evidence challenges the view that discrimination cannot exist in a competitive economy and the view that Jim Crow laws were largely responsible for maintaining exclusionary employment practices. In fact, there is even some evidence to suggest that the libertarian hypothesis has it backwards. Within two months after the decision in *Brown*, the Citizens' Councils of white segregationists were formed to seek legislation that would maintain the Southern segregated way of life. With the Southern system under stress from the federal government, the Citizens' Councils sought to use legislation to buttress segregation. Rather than racist legislation being the central problem thwarting the operation of the market, the federal governmental threat to the continued operation of a economy driven by customary discrimination generated racist legislation designed to thwart the federal civil rights initiative.

3 Has Black Economic Progress been Continuous or Episodic?

If dismantlement of formal Jim Crow laws does not account for black economic gains after 1960, what factors do account for it? A number of works, including the U.S. Civil Rights Commission report of 1986, attribute economic progress primarily to long-term trends in migration and to secular improvements in education. For example, James Smith and Finis Welch, write in their 1989 paper that “The racial wage gap narrowed as rapidly in the 20 years prior to 1960 (and before affirmative action) as during the 20 years afterward. This suggests that the slowly evolving historical forces we have emphasized in this essay - education and migration - were the primary determinants of the long-term black economic improvement. At best, affirmative action has marginally altered black wage gains around this long-term trend.” (Smith and Welch (1989: p.555.)) Card and Krueger (1992) take this type of analysis a step further by examining the direct relationship between increases in the market valuation of black education and changes in the quality of schools attended by successive cohorts of black workers. They conclude that relative improvements in the quality of black schooling over successive cohorts of workers explain 50-80% of the change in the market valuation of their education. Altogether, this body of research creates the impression that individual choices to acquire more and better quality schooling or to migrate are the primary factors in explaining rising relative wages over time. The residual contribution of federal interventions and social activism is deemed to be small in comparison.

In this section, we reconsider the empirical evidence in support of the self-improvement, supply-side account of wage convergence. First, we summarize major trends in wages and employment over the 1940-1990 time period as well as trends in education. Subsequently, we review results from the literature that uses wage decomposition methods to distinguish between demand and supply influences on the black-white wage gaps. We discuss assumptions invoked in previous studies and show how alternative assumptions about functional forms and about choice of sample greatly affect inferences from wage decompositions. Finally, we present our own estimates of the relative contribution of education, educational quality and labor market demand factors in explaining convergence over time in black-white wages based on data from the 1960-1990 decennial Censuses. We explore how estimates are affected by changes in samples and by adjustments that correct for labor force selectivity (selective withdrawal of low wage workers from the data base used to measure black economic

progress).

We reach four main conclusions. The first is that the choice of analysis sample matters greatly to our understanding of the sources of black-white wage convergence over time. Different empirical studies in the literature impose different sample inclusion criteria, and alternative samples produce very different estimates of the size and relative importance of cross-cohort change and changes that occur for all cohorts at a point in time. Secular shifts are more likely caused by pre-market factors like schooling and schooling quality. Changes that occur for all cohorts at a point in time are more closely linked to tight labor markets, legislation and court rulings and other social activism. Alternative sampling rules vitally affect the empirical weight placed on secular factors, social activism and tight labor markets.

Second, alternative ways of introducing quality measures into earnings functions greatly affect the estimated impacts of quality on the black-white wage gap. There are multiple channels by which schooling quality may affect earnings and focusing only on one channel distorts the view of quality's total effect. The literature has emphasized the effect of quality operating on rates of return to schooling. In our reexamination of the evidence, we find that the support for a direct effect of quality in elevating black-white relative returns to education is fragile and highly dependent on the choice of functional form and the choice of sample. We find more robust support, however, for an indirect effect of quality operating as a determinant of educational attainment levels.

Third, a significant portion of the observed wage convergence over time is due to selective withdrawal of low wage black workers. Both black and white labor force participation rates have declined since 1960 with the decline for African American workers being much greater. Adjusting for selection also affects the interpretation of decompositions of the sources of relative progress.

Fourth, arguments that education and quality "explain" black advances to the exclusion of law, litigation and social activism are misleading, because they ignore the central role of social interventions, in the form of private philanthropy and legal activity, in raising the quality of black schools. In section four we discuss research from Donohue, Heckman and Todd (2000) that demonstrates the importance of philanthropic contributions and legal interventions in improving both the availability of and funding of black Southern schools.

3.1 Trends in wages, employment, education and schooling quality

From 1940-1990, the gap in average wages of black and white male workers declined considerably from more than 50% in 1940 to less than 25% in 1990. Convergence for female workers was even greater. In this section, we describe how the gains in earnings, employment, education and educational quality were distributed across decades. We also consider the question of whether gains measured in terms of mean wages of workers are overinflated, due to selective withdrawal over time of low wage workers from the labor force. Our estimates are based on samples of males and females age 16-65 who were born in the U.S. and living in the U.S. at the time of the Census. When the sample is further restricted to workers, we require that individuals work at least one week. (See Appendix A for more information and the definitions of our samples.)

Wages The gradual, relentless narrowing in the black-white wage differential that the human capital story would lead us to expect is difficult to discern in the data. Over the 70 years from 1920-1990, measured black relative wage gains were concentrated in two periods: during the economic rebound from the Great Depression induced by World War II, and in the two decades following the launching of an intensive federal effort to guarantee the civil rights of blacks.

Table 3a shows the trend in mean and median wages for men and women over the period 1940-1990 for three different measures of earnings: annual earnings including business income, annual earnings excluding business income and weekly earnings including business income. Including business income generally leads to lower wage ratios. Comparing the top and bottom panels, we see that black men earn less than white men both because they tend to work fewer weeks and because their average weekly wage is lower. As seen in Table 4, white men worked on average more weeks in every decade.

Relative black wage gains are concentrated mainly in three decades. The 1960-70 decade was the period of greatest growth in wages for black women relative to white women. The median weekly wage ratio increased by 0.29 from 1960 to 1970 and then by an additional 0.21 from 1970 to 1980. By 1980, both mean and median weekly wages for black women exceeded those of white women. For men, the largest improvement comes in 1940's, when the median weekly wage ratio (shown in the third panel) grows from 0.49 to 0.61. In the 1950's, wages grew for both races in levels but stagnated in relative terms. Then from the

late 1960's through the 1980's, relative wages grew steadily.

Heckman (1990) attributes the strong wage growth over the 60's partly to an upturn in the Southern economy that benefited the large proportion of blacks living in the South (59% in 1960). In the 70's, there was little growth in overall wages for both races, but wages continued to grow for African American workers in relative terms. In the most recent decade, there has been a slight decrease in black relative wages with median weekly wage ratios declining by 3% from 1980 to 1990. Juhn, Murphy and Pierce (1990) and Bound and Freeman (1989) attribute the recent erosion of earlier gains primarily to changes in the demand and supply of different skill groups that are not specifically race-related but serve to widen the racial wage gap. The demand for low skill labor has declined relative to that of high skill labor and, as a result of the legacy of discrimination, blacks are over-represented among the unskilled.

Measured black gains from 1940-1950 were comparable to the gains from 1965-1975. However, the simple comparison that Smith and Welch offer between black advances over the 1940-1960 period and gains in the subsequent twenty-year period, during which time the federal antidiscrimination laws went into effect, is correct but somewhat misleading. First, the higher wages earned by Southern black migrants to the North are not adjusted downward for cost-of-living increases, nor do Census income figures correct for the value of farm production consumed by Southern agricultural workers. Second, black incomes may have been greatly lowered by the Depression and subsequently elevated by the War.¹⁰ Without a sizable wage gain during the 1940s, we would be left with a very different story than the one offered by the advocates of long-term continuous change hypothesis. The long period of narrowing skill differentials between blacks and whites would be then be linked with only one decade of relative black progress – that following the passage of the 1964 Civil Rights Act, when the aggregate black/white earnings ratio rose from .62 in 1964 to .72 by 1975, before falling to .69 in 1987.(based on the authors' tabulations from annual data from the Current Population Survey)

Migration During the so-called Great Migration, enormous numbers of blacks were fleeing the South.(Recall Table 1.) One would expect this massive exodus of young blacks to

¹⁰The U.S. Civil Rights Commission (1986) attributes part of black wage growth in the 40's to the fact that more white men were employed in the military during WWII and as a result saw their earnings depressed in this decade.

contribute to narrowing the racial wage gap, because blacks were largely leaving low-paid agricultural jobs in the South and securing higher-paying industrial jobs in the North. In the decade of the 1940s and 1950s, roughly a quarter of young black men living in the South migrated North. This amazing exodus grew at an even faster pace in the first half of the 1960s, but then the outflow slowed to a trickle. Over the decade of the 1970s the flow was reversed as the South experienced net black in-migration. Thus, while black migration is an important explanation of black progress in the period prior to the passage of the 1964 Civil Rights Act, it cannot serve as an explanation for the substantial black gains in the aftermath of the civil rights legislation. Indeed, rather than undermining the case that federal civil rights policy aided blacks – as the above quote from Smith and Welch would suggest – the story of black migration powerfully supports it. Something dramatic happened in the mid-1960s to make Southern blacks decide to remain in the South. The cause of this shift was likely the perception that the comprehensive federal effort, directed primarily at the South, to eliminate barriers to blacks in housing, voting, schooling, and employment would improve the quality of life in the South.

The Importance of Labor Force Dropouts The estimates in Table 3a are based on workers and are potentially sensitive to the problem that different percentages of potential workers are actually working in different time periods. Figures 2 (a)-(b) graph the percentages of workers not in the labor force by race over time and shows the well-known trend of declining male labor force participation, which is especially pronounced among black men, and the trend of increasing participation for females of both races. The trend for males accelerated in the 1960's-1980's and then participation rates stay roughly constant from 1980 to 1990. For women, participation rates for black women converge towards and eventually surpass those of white women.

If workers dropping out of the labor force come from the lowest part of the wage distribution and African Americans have higher dropout rates, then looking at changes in mean and median wages of workers can overstate the extent of convergence in black-white wages. Obtaining an unbiased estimate of the mean wage difference from the selected sample of workers generally requires building a model of selection and using a statistical procedure to control for bias as we do later in the paper. Under certain conditions, however, the median wage is robust to the selectivity problem. If nonworkers come from the lower half of the wage distribution and constitute less than 50% of the sample, then we can still get an unbiased

estimate of the median of the full wage distribution.¹¹ Computing the median only requires knowing the percentage of censored observations. For men, the assumption that nonworkers come from the bottom of the distribution is more reasonable than for women, because men are more likely to drop out of the labor force for reasons related to earnings potential.

Table 3b compares median wage ratios for men where now workers are excluded and included in the sample. Recent decreases in black relative median wages put the wage ratio in 1990 at about the same level as it was 1950. Excluding or including labor force nonparticipants makes an enormous difference as to whether black-white wage gaps today are any smaller than they were forty years ago.

Virtually all studies of black economic progress ignore dropouts and use samples of workers to measure wages. Two exceptions indicate that correcting for selective withdrawal may be important. Richard Butler and James Heckman (1977) show that black economic wage growth in the period 1960-1977 is inflated by excluding low wage blacks. When he adjusts for selective withdrawal, Charles Brown (1984) reduces the post-1964 upward trend in black progress by 50% for a slightly longer time period. Accounting for dropouts greatly affects measures of black economic progress.

Mean and Median Wage Trends by Birth Cohort Tables 5a displays mean and median wage ratios for men within and across ten year birth cohorts. Relative wage ratios increase over time (see the diagonals). Smith and Welch (1989) term this pattern a *vintage effect*, which they attribute primarily to increases in education levels and improvements in the quality of schools attended by younger cohorts of black workers. The lower panel of the table shows that the pattern generally holds for medians as well, although, for 1980-1990, the mean and median wage ratios decline for two age cohorts. Table 5b reveals a similar pattern for women.

If birth-cohort-specific factors, such as educational attainment levels and educational quality, are primarily responsible for the increases in wages, then relative wages for a given age cohort over time (for which schooling quality and education levels remain constant over time after the schooling years) should remain relatively stable. However, wages *within* birth

¹¹If some dropouts come from above the median of the wage distribution, then our assumption that they all come from the bottom would generate an upward-biased median and so lead to an overstatement of the median wage black-white wage ratio if this phenomenon is more heavily concentrated among blacks. The idea of assigning values to lower censored observations and comparing quantiles of distributions above the point of censoring is also used in Powell (1986) and Neal and Johnson (1996).

cohorts also tend to increase over time for later birth cohorts of the same age and these cross-birth-cohort changes are concentrated in the period 1960-1980. For example, black workers born in the 1920-29 cohort saw their wages increase relative to white workers in each decade through 1990. Black workers born in the 1940-49 cohort first experience an increase in their relative wages and then a decrease. Such gains point to the importance of factors other than changes in the quantity and quality of education in explaining wage gains. Cross-cohort improvements are particularly strong for women in the period 1960-1980, but also for men when medians are examined. This cross-cohort improvement is better interpreted as due to tight labor markets and social policy aimed at black workers.

For women, the within-cohort relative wage gains are larger than for men, both in terms of means and medians. In 1960, black women in the 1930-39 birth cohort earned an average of 60% of the white female wage. Just ten years later, the same cohort earned 98% of the white wage.¹²

Changes in Black-White Relative Earnings Distributions Looking only at mean and median wages may miss other important changes in the wage distribution, such as an increase in earnings inequality that is mean or median-invariant. One way to assess such changes is to compare the density of earnings for blacks relative to the overall earnings density. Figures 3(a)-(d) plot the relative density for men, conditional on education levels.¹³ The upper four panels show the relative density of annual earnings and the bottom four panels show the relative density after adjusting the median of the black earnings distribution to be equal to that in the overall distribution. The “location adjusted” panels are useful for isolating changes in the spread of the distribution: if for instance blacks are found in the middle of the distribution (their histogram bars are above the expected 10) then the black earnings distribution is narrower than that of the workforce as a whole.¹⁴

Figure 3(a) shows that in 1960 black wages mostly occupied the bottom of the wage

¹²The only way these changes could be attributed to changes in schooling quality and education is if the composition of the black female labor force were changing relative to that of the white female labor force. To investigate this possibility, consider the education levels for women in the 1930-39 birth cohort in the period 1960-70. In 1960, the mean education level for the 1930-39 birth cohort was 10.4 for black women and 12.0 for white women compared to 11.0 for black women and 12.0 for white women in 1970. It is doubtful that the increase of 0.6 in the education level of black women can account for a 38% increase in the wage ratio.

¹³If the densities were equal, the histogram bars would all be of height 10.

¹⁴This type of decomposition of changes in the distribution into overall changes and changes due to changing spread is discussed in Morris and Handcock (1997).

distribution at all education levels, particularly at the lowest levels. The bottom panels reveal that black wages also tended to have a narrower spread than the overall wage distribution. Figure 4(a) plots the change in the relative distributions between 1970 and 1960 and shows the gain in relative wages from 1960 to 1970.

In Figure 3(c), we see that by 1980, for the lowest education category, wages are no longer concentrated at the bottom (although they were still less likely to be found at the top). For other education levels, wages still fell heavily at the low end, but less so than in previous years. A consistent pattern across all Census years is that wages for black men have lower variance than overall wages. Figures 4(b)-(c) show changes in relative densities for 1980-70 and 1990-80 comparisons. In the 1970-1980 decade, wages for men with less than or equal to 12 years of education and with 16 or more years of college moved up in the overall distribution, while men with 13-15 years experienced an increase in the spread of the distribution without much gain. For the 1980-1990 decade, when median and mean wages generally declined, men with less than 12 years of education or with more than 16 years of education experienced some gains.

Trends in Education and Educational Quality The human capital explanation for wage convergence emphasizes the importance of improvements in schooling, both in terms of quantity and quality, in generating increases in relative wages. Table 6 gives education frequency distributions for men and women calculated from the 1940-1990 decennial Censuses. To facilitate comparisons, Figures 5a-b show relative frequencies (black divided by white).¹⁵ In 1940, African Americans were about 6 times more likely than whites to have 0-4 years of education. Over time, the educational attainment distributions become more similar by race, but in 1990 blacks are still about twice as likely to be found in the lower education categories (5-8 and 9-11 years) and much disparity remains at the higher levels. At the highest levels (13-15 years, 16 years, and 17 or more years) the racial disparity is greater for men than for women, which may partly account for why the percentage wage gap for men is greater than for women.

Along with rising quantities of education, Margo (1990) and Card and Krueger (1992) document rather dramatic black relative improvements in the quality of education as measured by three variables: the student-teacher ratio, the length of the school term, and teacher

¹⁵If the frequency within an education group is equal across groups, then the relative percentage equals one.

salaries. Figure 6 depicts changes over time in these three empirical measures of schooling quality for Southern states where schools were racially segregated up until the *Brown v. Board of Education* (1954) ruling. The quality data are obtained from biannual reports from the U.S. Office of Education.¹⁶ The plots show the convergence in average empirical schooling quality measures that began roughly in the 1930's. By the time of the Supreme Court's decision, pupil-teacher ratios, term lengths, and teacher salaries were approximately equal in black and white schools. Below we summarize our research investigating the sources of changes in schooling quality. (Also see Margo, 1990, and Donohue, Heckman and Todd, 2000.)

The quality data are obtained from biannual reports from the U.S. Office of Education.¹⁷ The plots show the convergence in average empirical schooling quality measures that began roughly in the 1930's. By the time of the Supreme Court's decision, pupil-teacher ratios, term lengths, and teacher salaries were approximately equal in black and white schools. In section 4, we discuss the sources of relative improvements in school quality.

3.2 Accounting for changes in the black-white wage gap

The U.S. Civil Rights Commission report of 1986 emphasizes the importance of long-term trends in education and educational quality along with trends in migration as primary factors in explaining the narrowing in the black-white wage gap over time. A major result of Smith and Welch (1986, 1889) is that over time, black workers also experienced relative increases in the market valuation of each year of schooling. In fact, their study finds that rising relative returns to schooling are even more important than rising levels of schooling in explaining the decrease in the wage gap over time. Smith and Welch attribute increasing education returns primarily to better quality schooling, but as we discuss below there are alternative ways of interpreting the evidence. They could be due to increasing demand for educated black workers - possibly stimulated by civil rights legislation. Card and Krueger (1992) quantify the link between rising returns to schooling and improvements in schooling quality and conclude that quality improvements account for 50-80% of the relative increase in economic returns to education and for about 20% of overall relative wage growth.

¹⁶Many schools were for all practical purposes still segregated after the Brown ruling, but the data are not reported separately by race after 1954.

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In considering the findings of this earlier literature, it is useful to compare existing empirical studies in terms of the assumptions invoked to empirically distinguish the effects of different factors affecting the black-white earnings differentials. Four distinct supply and demand factors that would tend to elevate relative black earnings are:

- (1) greater relative increases in the number of years of education accumulated by black workers
- (2) greater relative improvements in the quality of schools attended by black workers, which would tend to elevate their levels of human capital and increase the labor market valuation of each year of schooling
- (3) increases in the labor market valuation of black education arising from migration to labor markets with higher relative wages or to changing labor market demand conditions, possibly due to tight labor markets and/or civil rights interventions.
- (4) increases in the levels of and market valuation of black worker experience levels.

Because Smith and Welch do not attempt to control for the quality of black and white education, their analysis cannot distinguish between (2) and (3). They can document when blacks begin to receive higher returns for each year of education, but they do not attempt to determine whether these higher returns are the product of a supply-side factor – such as better quality of schooling for black workers – or of demand-side factors pushing up black relative wages.

Card and Krueger (1992) attempt to disentangle the effects of supply-side factors from those of demand-side factors by focusing their analysis on a group of migrant workers who were born in the South and living in a northern metropolitan area. Under an assumption that the workers face similar labor market demand conditions, Card and Krueger attribute differences in earnings of workers educated in different states to differences in the quality of their schooling. The migrant group that is the focus of their analysis comprises about 25% of the black sample in 1960 and 1970 but only about 5% of the white sample. As we illustrate below, inference based on this self-selected migrant subsample should be interpreted with caution, because it often differs in important ways from inference based on more representative samples.

3.2.1 How alternative assumptions about sampling rules and estimating equations matter

Each empirical study of black-white wage differences in the literature invokes its own set of assumptions, which can make it difficult to compare results across studies or to draw general conclusions. We next consider how alternative ways of selecting analysis samples affects our understanding of black-white wage differences. Then we take up the question of how adjustments for labor force selectivity affect empirical findings. While some results are relatively robust to alternative samples and adjustment for selectivity, other results are found to be very fragile.

How choice of sample matters Even studies based on identical data sources often use different sampling rules to define their samples, which can vitally affect inferences. For example, our study and the analyses of Smith and Welch (1989) and Card and Krueger (1992) are all based on decennial Census data. The Smith and Welch study is based on 1940-1980 Census data and includes only full-time male workers who report a minimum of 26 weeks worked.¹⁸ Individuals whose weekly income (calculated as the sum of wage or salary income and agricultural self-employment income divided by weeks worked) falls outside of year-specific cutoff points are also excluded from the sample.

Card and Krueger draw on the 1960, 1970, and 1980 Census files. They include occasional and part-time workers that Smith and Welch exclude. Military personnel and students are both included as long as they worked for pay at least one week during the year. On the other hand, all self-employed workers (not just non-agricultural workers) and all business income earnings are not included. The upper income and lower income cutoff points used in defining the Card and Krueger sample lie above those for the Smith and Welch sample.¹⁹ Thus the Card-Krueger sample represents some workers who are less attached to the workforce in terms of fewer weeks worked than the sample analyzed by Smith and Welch, although it requires a higher income for inclusion. Table 7 summarizes the sample restrictions across the two studies and, in the third column, compares them to those of our sample as reported in

¹⁸They delete from their sample full-time students and military personnel as well as non-agricultural self-employed workers.

¹⁹The CK lower wage bounds eliminate 13.3% of blacks and 15.7% of whites in 1960. For 1970 and 1980, the corresponding numbers are (6.2, 9.1), (4.7,5.7), respectively. The SW lower wage bounds are less stringent; for 60, 70 and 80 they eliminate (6.5,2.2), (3.9,6.2) and (4.5,5.2) respectively. However, the SW 27 weeks worked criterion eliminates in 60-70-80 (22.7,25.2), (22.7,26.1), (35.4, 29.5), respectively.

Heckman and Todd (2000). We impose fewer restrictions so as to examine the consequences of various exclusion restrictions.

To gain an understanding of how different sampling rules affect empirical analyses, we next compare results obtained using five different subsamples: (a) Smith and Welch’s sample (1989), henceforth SW, (b) the sample used in Card and Krueger (1992), henceforth CK(1) (c) the South-North migrant subsample of CK(1) used in the CK regression analysis of quality effects, henceforth CK(2), (d) our own sample, henceforth HT(1), and (e) a subsample of HT(1) used in a regression analysis of quality effects, HT(2).²⁰ The HT samples impose fewer exclusion restrictions and are used to examine the consequences of various exclusion restrictions.

We examine the effects of applying these various sample inclusion criteria in a simple wage decomposition that decomposes the change in the average log wage gap into components attributable to continuing cohorts (within-cohort improvements) or to different weighting of cohorts and new entrants (between-cohort improvements). Let y_{ct}^r denote the average log wage for birthcohort c in year t for race r , where $r \in \{b, w\}$. The change in the log wage gap between two time periods, 1960 and 1970, is decomposed into within and between components as follows:

$$\begin{aligned}
(y_{1970}^b - y_{1970}^w) - (y_{1960}^b - y_{1960}^w) &= \sum_c p_{c,1960}^b y_{c,1970}^b - \sum_c p_{c,1960}^w y_{c,1970}^w \\
&\quad - \sum_c p_{c,1960}^b y_{c,1960}^b - \sum_c p_{c,1960}^w y_{c,1960}^w \\
&\quad + \sum_c (p_{c,1970}^b - p_{c,1960}^b) y_{c,1970}^b \\
&\quad + \sum_c (p_{c,1970}^w - p_{c,1960}^w) y_{c,1970}^w
\end{aligned}$$

where the summation is over cohorts. The first two components give the change in the log wage gap that would be expected if cohort weights were fixed at base year values (1960). The last two components show the additional change due to changing cohort weights over the years, which includes the effect of entry and exit of cohorts.

The effects of applying the five different sample selection criteria described above are displayed in Table 8, showing the component of change in the average log wage gap attributable to continuing cohorts (within cohort improvements) or to different weighting of cohorts and new entrants (between cohort improvements). For the 1980-1990 wage changes, the SW

²⁰The HT(2) sample is restricted to persons born in states with a substantial black population. In 1960, this subsample includes 99% of blacks and 82% of whites.

and CK samples disagree in magnitude and sign with the latter producing a decline in the black-white wage gap. Over the period 1960-1980, wage improvement in the CK samples is less than in the SW samples. The CK(1) sample attributes much less of the overall wage change to within cohort change and more to between cohort change than do the SW and HT samples. CK(2) is anomalous in showing a *decline* in the “within cohort” effect of wage improvements in 1960-1970. Because the CK lower wage bounds eliminate a larger fraction of low wage blacks, the sample attenuates the effect of labor force withdrawal in producing wage growth in the 60-70 period. It also dampens the effect of the tight labor market of that period that served especially to raise relative wages of unskilled minority workers. In the period 1980-1990, the CK sample inclusion bounds become less stringent and produce a much greater (in absolute value and in relative terms) within cohort effect compared to that found under other sampling rules.

An important feature of Table 8 that is robust across all samples is the negative “within cohort” effect in the period 1980-1990. It arises from the adverse change in the labor market for low skill workers and the fact that blacks are overly represented among the less skilled. Another robust finding is the decline in the “between cohort” effect, usually identified with the replacement of low quality cohorts by high quality cohorts. One interpretation of this phenomenon is that by 1990 secular “quality” improvements in the overall black workforce were slowing down, so the retirement of cohorts most severely affected by the low schooling quality of the Jim Crow era ceased to be quantitatively important. At the same time, schooling quality of the youngest cohorts with many members educated in inner city schools did not improve as rapidly as the schooling quality of the previous generation improved over its predecessors. (See Heckman and Todd, 2000, for an elaboration of this point)

3.2.2 Taking into account selective labor force withdrawal

Labor force participation began to decline for black males both relatively and absolutely by 1960. By 1990, black labor force withdrawal reached 23% as compared to 10% for whites. The white withdrawal rate also increases from 1960-1990 but more gradually. Virtually all the studies of black economic progress focus on samples of workers to measure wages. Two exceptions indicate that correcting for selective withdrawal may be important. Richard Butler and James Heckman (1977) show that there are two reasons why black economic wage growth in the period 1960-1977 is inflated by excluding low wage blacks. One reason is that

the composition of the labor force is changing over time as lower wage workers drop out of the labor force. When he adjusts for selective withdrawal, Charles Brown (1984) reduces the post-1964 upward trend in black progress by roughly 50%. The second reason labor force withdrawal of black workers would be expected to increase black wages is the withdrawal represents a decrease in the supply of black labor, which would tend to increase its price. Accounting for dropouts greatly affects the measure of black economic progress.

Failure to account for labor market selectivity can lead to a distorted view of the pattern of relative wage changes as well as biased estimates of the contribution of various determinants of the wage gap. To control for selective withdrawal of low wage workers, we use a method developed in Heckman (1980) which includes in the earnings equation a polynomial approximation to the selection bias function. The bias function is approximated by a truncated power series in the estimated probability of participating in the labor force, which we estimate by a probit model.

3.2.3 Wage decomposition results

We now present results from a regression accounting analysis that decomposes the change in the black-white wage ratio in two different census years into the changes due to changing characteristics and those due to changing returns to characteristics. We examine how results are affected by (a) changes in samples and (b) by correcting for labor force selectivity. To maintain comparability with the earlier literature, we use a standard decomposition method that was also used in Smith and Welch (1989), but we use estimates from our own model as described in the footnote to Table 9. (See Heckman and Todd, 2000, for a detailed discussion of the model on which these estimates are based.)

Let t be the current-year and τ a base year. Let $\bar{z}_t^w, \bar{z}_t^b, \bar{z}_\tau^w, \bar{z}_\tau^b$ denote the mean vectors of black and white characteristics included in the earnings model and $\gamma_t^w, \gamma_t^b, \gamma_\tau^w, \gamma_\tau^b$ denote the associated vectors of coefficients. The change in log black wages minus log white wages between time periods t and τ is decomposed in the following way:

$$\begin{aligned}
[(\bar{z}_t^b \gamma_t^b - \bar{z}_t^w \gamma_t^w) - (\bar{z}_\tau^b \gamma_\tau^b - \bar{z}_\tau^w \gamma_\tau^w)] &= [(\bar{z}_t^b - \bar{z}_t^w) - (\bar{z}_\tau^b - \bar{z}_\tau^w)] \gamma_\tau^w && \text{(main effect)} \\
&+ (\bar{z}_t^b - \bar{z}_\tau^b)(\gamma_\tau^b - \gamma_\tau^w) && \text{(race interaction)} \\
&+ (\bar{z}_t^b - \bar{z}_t^w)(\gamma_t^w - \gamma_\tau^w) && \text{(year interaction)} \\
&+ \bar{z}_t^b [(\gamma_t^b - \gamma_t^w) - (\gamma_\tau^b - \gamma_\tau^w)] && \text{(race-year interaction)}.
\end{aligned}$$

The decomposition can be performed separately for each of the variables included in the earnings model. The first two terms measure the contribution of changing mean characteristics, valued at base year returns. The *main effect* is the change in the wage gap predicted by the change in the characteristics of black workers from year τ to t , valued at base year white parameter values. The *race-interaction* measures the additional change in the wage gap predicted by the change in black characteristics, taking into account that black and white base year returns differ. For example, if white returns to education in the base year are higher than black returns, then an increase in mean levels of education overall leads to an increase in the wage gap.

The second two terms measure the contribution of changing returns or prices of characteristics to black economic progress. The *year-interaction* measures the effect of a change in the wage gap due to an increase in the returns to a characteristic, valued at white mean characteristic levels. If blacks have on average less of a characteristic for which the return increases, the wage gap increases. The last component, the *race-year* interaction effect, measures the change in the wage gap that occurs because black-white relative returns to characteristics are changing over time. This term is most often identified with across cohort changes in the prices of characteristics, possibly arising from quality improvements or from tight labor markets and social activism that favor black workers. The large negative “year effect” for 1980-1990 is due in large part to the decline in the market price of unskilled labor and the fact that blacks are overrepresented among the least skilled workers (Juhn, Murphy and Pierce, 1990).

For the sake of brevity, in Table 9 we focus on the contribution of education, which plays a central role in the earlier literature. Results for other variables are reported in our companion paper (Heckman and Todd, 2000). We summarize the main findings from that analysis.

The overall change in the wage gap is very different across samples. Nonetheless, across all cohorts and in all samples except the CK(2) sample, there is a positive main effect of education and a positive race-year effect that is at least as large in magnitude as the main effect. The race-year effect emphasized by Smith and Welch (1986, 1989) as a major factor in explaining wage convergence is robust across most sample definitions and survives the correction for sample selection. The total contribution of education in explaining the change in the wage gap is very high for males age 31-40 in all samples except the SW sample for

which it is a more modest 24%. Correcting for selection in the HT sample substantially reduces the total contribution of education for the youngest age group. Thus, a considerable part of the measured total contribution of education to eliminating the wage gap for younger workers in this period is due to the selective withdrawal of low wage, unskilled blacks from the workforce and hence from the statistics used to measure black economic progress.

3.2.4 Contribution of quality to changing wage gaps

The strong race-year effect described above is often identified with relative improvements in the quality of schools attended by successive cohorts of black workers. However, as discussed above and in Heckman, Layne-Farrar and Todd (1996), there are many channels besides the education slope effect through which schooling quality operates in the earnings equations. In Heckman and Todd (2000), we explore the effect of schooling quality as it operates through education slope effects, experience slope effects, and equation intercepts. We document that the estimated coefficients associated with the quality variables tend to be extremely fragile with respect to changes in the functional form equations relating rates of return to quality. There is no support for quality as a major determinant of rising relative rates of returns to schooling, except under the particular assumptions maintained in the CK study and for their sample of South-North migrants (CK-2 sample).

Here, we report estimates of the relationship between earnings gaps, education gaps, and schooling quality gaps. Table 10(a) reports estimates from a regression of the average log weekly black-white wage gap for cells of data defined by states-of-birth, age of birth (or birth cohort) in a range of ages, and census years on black-white education gaps and quality gaps. The specification includes year and cohort intercepts. The regression model reported in column (2) differs from that in column (1) by adding as a regressor the black-white gap in quality, where quality is measured by the pupil-teacher ratio. Moving from column (2) to column (3), we see that the quality variable is statistically significant only when the specification does not include the education gap variable. Thus, quality is an important predictor of the earnings gap only because it predicts the education gap. (Similar results are reported in Heckman, Layne-Farrar and Todd, 1996.) In column (4), we see that when we include all three empirical measures of quality gaps (pupil-teacher ratios, term lengths and teacher salaries), none of the quality measures is statistically significant nor are they jointly significant. Again, inclusion of the education gap variable in column (5) results in changes

in the sign of the quality variables and estimates that are less precisely determined.

From this analysis, we conclude that the evidence is consistent with a strong role for quality as a determinant of educational attainment. However, the support for a quality as a direct determinant of earnings, affecting the returns to education, is less robust. Yet this aspect of schooling quality is emphasized by Card and Krueger and especially by Smith and Welch in explaining the cross-cohort improvement in the returns that black workers receive for their schooling. In our other work, we show that the support for a relationship between schooling quality and returns to education is very fragile (Heckman and Todd, 2000). There is no convincing evidence that rising relative rates of return are due to supply-side factors rather than demand side factors.

4 Explaining improvements in quality of schooling

As previously discussed, improvements in educational quality are often cited as a leading explanation for the narrowing of the black/white wage differential after 1960 (e.g. Welch, 1967, Smith and Welch, 1989, Card and Krueger, 1992). In the early part of the Twentieth century, the quality of black segregated schools in the South was much inferior to that of white schools. Black teachers earned roughly half of a white teacher's salary. The ratio of pupils per teacher in black schools was higher, with about 20 additional students per class. Term lengths were shorter by three to four weeks. Beginning in the late 1930s, great gains were made in the provision of schooling for African Americans, both in terms of quantity and quality, and by 1950 most empirical measures of schooling quality had reached parity.

Inferior quality schooling leads to lower levels of human capital accumulated for each year of school, creating less incentives to invest in schooling and lowering the market return to schooling for workers educated in inferior quality schools. In the preceding section and in Heckman, Layne-Farrar and Todd (1996), we show that there is strong support for an empirical link between quality of schooling and educational attainment. However, the link between quality of schooling and earnings, conditional on education (the effect of quality on the "return to education"), is a more tenuous one. The latter relationship has been the main focus of the SW and CK studies that seek to establish that increases in the relative evaluation of black schooling across successive cohorts of workers are due primarily to improvements in their quality of schooling and not to increased demand for educated black workers.

Thus far, assessments of the effects of schooling quality on earnings have ignored how

schooling quality is determined. Analyses that treat schooling quality as “predetermined” outside the social system do not capture the effect of social activism and litigation in shaping quality. To help resolve the current debate over the importance of social and government interventions in accounting for black economic progress, Donohue, Heckman and Todd (2000) investigate the sources of improvements in the quality of Southern black schools during the period 1911-1960. They conclude that the data support a strong role for government and private interventions in improving both the availability of schools for African Americans as well as the quality of schooling, as measured by pupil-teacher ratios, term lengths, pupil expenditure and teacher salaries.

Annual schooling input measures for segregated Southern black schools improved steadily from 1910 through the 1960s. The gains in the early part of the century are remarkable, because they came at a time when Southern blacks were almost completely excluded from the political process and discrimination was pervasive in the distribution of schooling funds. Bond (1934) discusses discriminatory educational funding practices in Southern segregated school systems, including the common practice of redistributing funds allocated to black students at the state level to white schools at the local level.²¹ Myrdal (1944) raises the question of why black schools were funded at all given the direct connection between voting rights and the share in public services.

Recent research in this area offers some explanations for why black schools improved in spite of the absence of black political power. Margo (1990) speculates that the threat of legal intervention (under *Plessy v. Ferguson*, 1896), the support of philanthropic foundations, and the threat of migration with the consequent loss of relatively inexpensive labor. He provides empirical support for Bond’s school revenue redistribution theory. However, these studies present only limited empirical evidence on the relative importance of different factors in bringing about observed gains in educational quality.

Donohue, Heckman and Todd (2000), henceforth DHT, note that school quality measures improved in the South in absolute terms for both black and white students over the years 1911-1960. In the earlier period, from the 1910’s to the mid 1930’s, schooling quality

²¹The state allocations were equitable due to a holdover from the Reconstruction: “The Reconstruction legislatures placed schools for the two races on an equal basis” (Bond, 1934, p. 203). Rather than overturn the law, southern whites simply turned the funds allocated to blacks by the state law into a source of revenue for white children at the local level. Myrdal (1944) and Pritchett (1986) further corroborate the practice of funding white schools at the expense of black students.

improved in absolute terms but not in relative terms. Then, beginning in the late 1930's, empirical measures of quality began on a path towards convergence. By the *Brown v. Board of Education* in 1954, black and white schools in most Southern states were similar on average in terms of their empirical measures of schooling quality.

In the earlier time period, philanthropic activity is a major force that improved black schools at a time when blacks had little political influence. DHT present evidence that the activities of three philanthropies, the Rosenwald Fund, the Jeanes Fund and the Slater Fund, were substantial in magnitude. The foundations maximized the influence of their contributions by providing resources that were not easy to divert to other uses, such as physical capital and teacher training, and by targeting resources to states needing them most. The philanthropies also acted as catalysts, spurring local communities to action and increasing state involvement. For example, the Rosenwald Fund matched the contributions of local communities, thereby increasing incentives for them to contribute and ensuring involvement. The physical property the Rosenwald Fund left behind made a lasting contribution to educational opportunities open to black children.

Migration may also be an important factor in explaining quality changes. Students of both races moving to urban areas benefitted from higher quality schools there. However, rural - urban migration within the South is relatively neutral, and has little effect on black-white quality gaps. In addition, it is possible that the migration of African American labor out of the South put substantial pressure on white land owners to take actions towards stemming the outflow of their relatively inexpensive labor supply, which may have included improvements in the quality of schooling.

However, philanthropic activities and migration cannot explain the convergence in quality measures that began in the late 1930's. By this time, the larger philanthropic organizations had for the most part ceased their activities. Migration, while still important in the '30s, '40s, and '50s, had tapered off some by the late 30s and does not appear to be the driving force behind changes in the quality measures. The threat of migration as an inducement to raising black schooling quality cannot explain the improvement in black schooling quality in the 1930s when New Deal acreage restrictions and the depressed labor market reduced the demand for black labor. Nor does WWII match the timing of relative increase in teacher salaries, as might be expected, if increases in teacher salaries were due primarily to labor shortages as suggested by Margo (1990). However, there is evidence that WWII opened

occupations to black workers that were formally restricted, which may have facilitated civil rights activity directed against discrimination in the teaching sector. (See Heckman and Payner, 1989, and Donohue and Heckman, 1991.)

What emerges as the most compelling explanation for the rapid gains in relative black/white educational quality in this period is legal activity. Legal action, in the form of a minimum term length law and civil suits regarding teacher pay equity, is closely synchronized with relative improvements in quality. The most significant gains in schooling quality came in response to litigation in southern states. Starting in the mid 1930s, the NAACP led lawsuits to equalize teacher salaries in a number of southern states. These lawsuits focused national attention on southern educational practices and appear to have encouraged preventive actions by southern school authorities meant to fend off integration. This time period is marked by significant absolute and relative improvements in schooling quality. The civil litigation campaign launched by the NAACP emerges as the dominant factor behind relative gains in teacher salaries.²²

The results of this analysis show that interventions that were external to the Southern economy were instrumental in changing the quantity and quality of schools available to African Americans. General economic forces, such as migration to urban areas and northern states, also had an influence on schooling quality levels but do not fully explain the particular timing of relative gains.

The human capital explanation for black/white wage convergence, as put forth by Smith and Welch (1989), emphasizes the importance of schooling quality in bringing about wage gains and downplays the importance of civil rights activity. This view understates the importance of social interventions in accounting for black economic advances, because much of the convergence in the quality of schooling available to African Americans is directly attributable to the civil rights movement and the litigative activity that it stimulated.

²²Studies downplaying the importance of *Brown v. Board of Education* on black school reform, such as *Hollow Hope* by Rosenberg (1991), overlook the twenty years of legal activity, and the progress it generated, that preceded Brown. Indeed, it is difficult to portray the Brown decision as a single case. Rather, the entire period starting with the 1930 NAACP report on teacher wage inequalities and culminating with the Civil Rights Act of 1964 may be viewed as an interrelated process with the same goal: the end of legalized racial discrimination.

5 Government Effects on Employment and Wages

In this section, we present empirical evidence on the role of government in explaining black economic progress. We show that government at all levels (federal, state and local) is the most significant employer of black workers and could be expected to have some effect on black economic outcomes, regardless of whether government policies were effective in changing employment and earnings patterns in the private sector. We use a nonparametric wage simulation method to analyze the effect that employment in the government sector may have had on black-white relative wage distributions. We also present evidence on wage growth and employment growth for black men and women in private-sector industries targeted by the EEOC for violations of anti-discrimination laws.

Table 11a shows the percentage of black and white men at different education levels who reported working for either the local, state or federal government in 1960-1990s. The percentage in the government sector increases with education level, for both races. From 1960 to 1970, government employment expanded for all education levels and age cohorts, and the expansion for black men was greater than for white men. By 1970, approximately one third of black men with some college and two-thirds with four years of college were employed by the government—about twice the fraction for white men. For all education levels, government employment contracted from 1980 to 1990.

Table 11b gives comparable employment percentages for working women. From 1960 to 1970, at the highest education levels, nearly 80% of black women and about 60% of white women were employed in the government sector. For all education levels and for most census years (all but 1960), black women are more likely than white women to be employed by the government at some level. In 1990, they are about twice as likely.

These tables show that the government was and still is a major employer of black workers. The importance of the government sector in the overall labor market increased from 1960 to 1970 and has declined somewhat from 1980 to 1990. Even if government antidiscrimination efforts were ineffective in the private sector, they could still have a big effect on black economic outcomes if they made a difference in the government sector.

5.1 The Effect of Government Employment on Black-White Wage Ratios

To consider how relative wage ratios might be affected by government employment, in Heckman and Todd (2000) we simulate the wage distribution that would be observed if black workers had the same observed characteristics as white workers, where one of the characteristics of interest is the proportion employed in the government. This simulation is performed by first computing the distributions of wages for both black and white workers conditional on characteristics such as education and region of residence. Then we give blacks the white distribution of those characteristics and use the estimated relationship between black wages and characteristics when we examine means of the counterfactual wage distributions. (See Heckman and Todd (2000) for further information on this procedure.)

The results of this simulation exercise are reported in Table 12, which shows the unconditional wage ratios for men (obtained from the actual wage distributions) to wage ratios obtained after giving blacks the distribution of region of residence, residence in an SMSA, education, and government employment enjoyed by whites. For all census years, aligning the distribution of region of residence, SMSA and education leads to an increase in the black-white wage ratio. In 1960 for the 1900-1910 birth cohort, these observables account for 10 percentage points of the 56 percentage point unconditional wage gap. Aligning the proportions employed in the government sector has no effect on wages in 1960. However, in 1970-1990 aligning government employment percentages *reduces* the black-white wage ratio by about 5%. Given that blacks are more likely to be employed in the government sector, this result implies that greater employment in the government sector generally depresses black-white wage ratios. Although racial wage gaps are lower in the government sector, average wage levels on average are also lower for both blacks and whites.²³

5.2 Growth of Earnings and Employment in EEOC-targeted Industries

The Federal government made elimination of discrimination in hiring and employment a major goal beginning with the Civil Rights Act of 1964. During the decade of the 1960's, the black-white wage ratio of mean weekly wages jumped by .08 for men and by .18 for women

²³There may of course be more nonpecuniary rewards to government employment, such as greater job stability or benefits, that are not captured by wages.

in the 1960's, an increase matched only by the increase of the 1940's. Several researchers have suggested, however, that government civil rights activity may not be the best explanation for this jump in the 1960's. As previously discussed, long term secular trends in black education and migration and the doubling in this decade in the percent of black men out of the workforce are major rival explanatory factors.

As we have previously remarked, Federal antidiscrimination efforts did not affect all regions of the country, sectors of the economy or industries equally. In terms of region, Donohue and Heckman (1991) note that Title VII enforcement activity was mainly directed toward the South. Table 13, which shows wage ratios for males within occupations by private/government sector, show that wages within the government sector are mostly higher than in the private sector and have been so since 1970. The percentage of blacks employed in government expanded in the 60s and 70s.

We next present evidence that government interventions also appear to have been effective in the private sector. Certain industries accepted black workers and gave them more equitable pay at a rapid pace, apparently due to pressure imposed by the EEOC aimed at combatting discriminatory practices.

The Equal Employment Opportunity Commission (EEOC) began in 1967 to hold public hearings about discriminatory practices in certain industries. Some of the first hearings were held in Los Angeles and the industries targeted were drug companies (in 1967), motion picture, radio, television, aerospace, banking and insurance. Other widely publicized hearings were held in Houston, New York City and in the Carolina textile industry. Additional industries targeted during the 1970s included the telephone, petroleum, and steel industries. In 1972 a mandate expanded the enforcement powers of the EEOC to include state and local government and higher education.

Tables 14(a) and (b) show the change in black representation in each of these industries from 1960 to 1970 and from 1980 to 1990, based on decennial Census data. As a rough estimate of the EEOC's impact, the tables compare employment growth in these industries with the average percent growth in the remaining industries and in the remaining industries in the South. For men, the total representation of blacks in American industry remained at around 8% throughout the two decades. Most of the EEOC targeted industries, on the other hand, showed increases in percent black in the 1970s (with the exception of movies and steel). Increases ranged from 9% in local government to 110% in utilities. Some of

these industries were expanding in overall employment, as shown by the first column in the table, while others were contracting. One would expect to see a greater increase in hiring in expanding industries. In the 1980's, while the overall proportion of blacks in the remaining industries stayed constant, some industries that had been targeted by the EEOC in the previous decade continued to show modest gains. Gains for women in representation in each of the two decades are even more dramatic (note that the tables compare black to white women only).

The right hand portion of Tables 14a and b show the proportion of whites and blacks who were engaged in "skilled" occupations in each industry. In the U.S. as a whole, 23% of black men and 47% of white men were engaged in skilled occupations. Those percentages rose to 28% and 48% in 1980, a 23% increase for black men. Certain industries targeted by the EEOC, though not all, showed much greater gains: a 59% gain for black men in banking, a 66% gain in pharmaceuticals, etc. Black women show even more dramatic gains: in the (very small) television industry the proportion in skilled occupations rose more than 800%. Hence when the industries the EEOC targeted are compared against the average across all other industrial sectors, there is support for an effect of EEOC activity on black hiring and occupational mobility in the private sector.

6 Summary and Conclusions

This chapter evaluates arguments that attribute economic advances of black workers over the last five decades to decisions by individuals to get more and better quality schooling or to migrate to locations with better opportunities. We question the empirical justification for conclusions drawn by the U.S. Civil Rights Commission and others that long-term secular economic trends can account for most of the economic progress of black workers and that episodic interventions, in the form of social activism, legislation and/or litigation, are not primary factors. We discuss why long-term changes in education and educational quality cannot properly be regarded as rival explanatory factors, because the improvements themselves are closely tied to social interventions and the early civil rights movement.

In evaluating the effects of coordinated anti-discrimination efforts, we emphasize the importance of taking a more encompassing view of civil rights policies and how they evolved over time and of looking at the effects in disaggregated data, rather than focussing narrowly on the effects of a particular piece of legislation in isolation as is most commonly done.

For example, in state-level data, Donohue, Heckman and Todd (2000) find that an early NAACP campaign that spanned several years was effective in equalizing teacher salaries and in improving other dimensions of the quality of Southern black schools. Also, as noted in Margo (1990), the threat of court-imposed integration was probably an important factor towards equalization that is difficult to measure.

We challenge both the theoretical and empirical basis for the view that the problem of discrimination is self-correcting in a competitive labor market. The fact that many profitable industries engaged in exclusionary hiring practices, despite the absence of legal barriers regulating their operations, presents a serious challenge to the libertarian view that competition will drive discriminators out of the market. Furthermore, Heckman and Payner (1989) provide convincing evidence that blacks made no breakthrough in employment in the Southern textile industry until after the passage of the 1964 Civil Rights Act. In most states, there were no legal restrictions barring firms from hiring black workers, so it was largely social custom and not restrictive laws that prohibited their hiring in certain industries.

We consider the empirical evidence offered in the literature in support of the human capital, supply-side account of wage convergence. From 1940 to 1990, black-white male worker wage ratios increased from below 0.5 to around 0.75. Over the same time period, labor force participation rates declined, with the declines for black males being much greater than for white males. When out-of-labor force persons are taken into account, however, a much different pattern emerges from black-white wage comparisons. The pattern suggests relative improvement until the 1970's and then stagnation with some deterioration in the most recent decade. Government and social activism benefits workers. At the same time, for reasons not fully accounted for in the literature, low wage workers have dropped out of the labor force and hence from the data used to measure economic progress in wages. This is the dark side of measured black economic progress which suggests that the interventions that may have helped workers may also have caused fewer blacks to be employed.

Regulation of employment typically reduces it. Affirmative action laws that make it difficult to fire blacks may make it more likely that fewer firms hire blacks to avoid potential discrimination cases in the future. The evidence on job security regulations that make it costly to fire labor suggests that they reduce employment overall, but increase it for protected workers. (See the evidence on job security legislation summarized in Heckman and Pages, 2000.) Affirmative action is a form of job security and by analogy may reduce overall black

employment while protecting it for covered workers. However, much further research is required to make this conclusion empirically solid.

The evidence from our wage decompositions supports Smith and Welch's (1989) earlier finding that rising black-white relative returns to education and rising levels of education are both important in explaining increases in relative wages. Their finding is fairly robust to controlling for sample selectivity and to perturbations in the analysis sample, although adjustment for withdrawal of low wage workers from the labor force lowers the overall contribution of education in explaining black wage gains. However, we question the usual interpretation given to rising returns as arising mainly from increases in quality of education received by black workers (Smith and Welch, 1989, and Card and Krueger, 1992). Another plausible explanation of the same evidence is that relative increases in returns to education are attributable to greater labor market demand for educated black workers, engineered at least in part by government policy and social activism. In the earlier part of the century, African Americans living in the South had access only to low skill jobs. They had very limited access to high skilled jobs or to the type of training that would have prepared them for such jobs. The increase in the demand for skilled black workers stimulated by the civil rights movement would be expected to increase returns to black education. Much of the economic literature has emphasized the importance of improvements in supply-side factors, such as quality of schooling, over demand-side factors. However, when we examine the empirical link between estimated rates of return and empirical measures of schooling quality, the evidence in favor of such a relationship is very fragile. Estimates change depending on functional form assumptions and/or changes in sample inclusion criteria. Drawing on evidence reported in Donohue, Heckman and Todd (2000), improvements in schooling and schooling quality in the early part of the 20th century are due to both private philanthropy and social activism, as practiced by the NAACP salary equalization suits of the late 1920's and early 1940's.

This chapter also presents evidence on the role of government in advancing black economic status for workers. First, we document that the government sector is a major employer of black workers, and that the fraction employed in the government is increasing in the education level of the workers. When the characteristics of black workers are aligned with those of white workers, we find that government employment tends to *increase* rather than decrease the black-white wage gap. Although the government sector is less likely to discriminate, it

also typically pays lower wages than the private sector.

Our examination of employment and occupational changes in industries targeted by the EEOC reveals substantial increases in the percentages of blacks employed and of blacks employed in more skilled occupations within those industries. Thus, there is support for a direct effect of EEOC activity on black employment outcomes in the private sector.

In summary, when we adopt a more comprehensive approach to measuring the sources of black economic progress, we find a substantial role for government and social activism in promoting the status of black workers. However, progress has not been uniform. Low skilled blacks have withdrawn from the workforce and part of the measured relative wage gain of black workers is due to their labor force withdrawal and hence their absence from the data base used to estimate the wages of workers. Part of the reduced participation of blacks in the workforce may be due to the very regulatory system that has promoted the wages of working blacks.

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DATA APPENDIX FOR CENSUS SAMPLES

The samples used in this paper are taken from the 1940, 1950, 1960, 1970, 1980 and 1990 Public-Use Census Samples. The 1940 sample consists of the self-weighting subsample which represents 1% of the population. The 1950 sample consists of sample-line persons (for whom questions regarding earnings were asked) which represent about 0.303% of the population. The 1960 sample is a self-weighting 1% sample. The 1970 sample is taken from two Public-Use A samples: the 1% State sample (5% form) and the 1% State sample (15% form). It is a self-weighting sample of 2% of the population. The 1980 and 1990 Census samples are both 5% Public Use A samples. The 1980 sample is self-weighting but the 1990 sample is not. For 1990, we use person weights to reweight the sample back to random proportions.

Summary of Sample Restrictions for each Census Year

age: sample includes individuals age 16-64. For Census years when a *quarter-of-birth* variable is available, we take into account the quarter of birth in calculating the age of each individual from the *year of birth* variable provided in the dataset.

race: only individuals reported as being black or white are included in the analysis.

place of birth: sample includes individuals born in the 50 U.S. states.

place of residence: sample includes individuals living in the 50 U.S. states.

imputations: Individuals with imputed information on age, race, sex, education, weeks worked or income are excluded. For years when all the imputation flags are not provided, we omit individuals on the basis of the available imputation flags.

Constructed Variables

number of weeks worked: For 1940, 1950, 1980 and 1990, weeks worked are reported as a point estimate. For 1960 and 1970, they are reported in intervals. To obtain a point estimate for 1960 and 1970, we calculate the mean number of weeks worked within cells defined by sex, race and age class (10 year age intervals) and weeks worked intervals (as given in the 1970 and 1980 datasets). We then impute the 1980 cell mean number of weeks worked to individuals in the 1960 and 1970 Census samples.

experience: Potential experience is measured by Age - Years of Education - 6.

years of education: For the 1940-1980 Censuses, years of education is reported as the highest grade completed. For the 1990 Census, years of education is reported differently: by categories for first through fourth grade and for fifth through eighth grade, by year for ninth through 12th grade, and then by degree attained. To maintain comparability with the other Census samples, we impute the number of years of school associated with

each category or degree. For those with some college but no degree or for those with an associate degree, we assign 14 years of school. For those with a bachelors degree, we assign 16 years of school. For professional degrees we assign 17 years and for masters degrees and beyond, including doctoral degrees, we assign 18 years of school.

Table 1
Intercensal Migration from the South^(a)
Percentage of Population Migrating

Decade	Black % of pop	White % of pop
1910-20	5.1	1.9
1920-30	8.4	2.2
1930-40	3.7	1.0
1940-50	12.5	1.6
1950-60	11.6	6.3

(a): Historical Statistics of the United States, Part I Table Series A 195-209 (population), Series C 25-75 (intercensal migration).

Table 2
Segregationist Laws by State as of 1949^(a)

Type of Law Authorizing or Requiring Segregation by State Law	States
Amusements/Public Halls	AR, GA, MO, OK, SC, TN, VA
Public Schools	AL, AZ, AR, DE, DC, FL, GA, KS, KY, LA, MD, MS, MO, NM, NC, OK, SC, TN, TX, VA, WV, WY
Employment ^(b)	AR, NC, OK, SC, TN, TX
Hospitals	AL, DE, GA, KY, LA, MD, MS, MO, NC, OK, SC, TN, TX, VA, WV
Penal Institutions	AL, AR, FL, GA, LA, MS, NC, SC, TN, VA
Welfare Institutions	AL, DE, KY, LA, NC, OK, TN, TX, WV
Transportation	AL, AR, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA
Housing ^(c)	LA, TX, VA
Mixed Marriage Prohibited	AL, AZ, AR, CA, CO, DE, FL, GA, ID, IN, KY, LA, MD, MS, MO, MT, NE, NV, NC, ND, OK, OR., SC, SD, TN, TX, UT, VA, WV, WY

(a) Source: Murray et. al., 1951

(b) According to Murraray et. al., 1951, "Segregation in employment has been legislated in only six states. Four of these – Arkansas, Oklahoma, Tennessee and Texas – require separate wash rooms for Negro and white workers employed in the mining industry. North Carolina provides for the maintenance of separate toilet facilities for Negroes and whites employed in manufacturing or other business. South Carolina has an elaborate statute requiring segregation in minute detail of employees working in cotton textile manufacturing establishments. As a practical matter, segregation in employment in most Southern states is generally established without the aid of statute." (pp. 17-18)

(c) Zoning ordinances were declared unconstitutional in 1917, but these states had not repealed their laws.

Table 3a
Mean and Median Black-White Ratios
Based on Annual Earnings incl. Business Income
for Working Men and Women, 1940-1990 †

Census Year	Men		Women	
	Mean	Median	Mean	Median
1940	0.48	0.46	0.42	0.38
1950	0.54	0.54	0.53	0.38
1960	0.53	0.52	0.60	0.44
1970	0.62	0.64	0.85	0.80
1980	0.68	0.68	1.02	1.06
1990	0.68	0.66	0.97	0.96

Earnings Ratios Based on Annual Wage and Salary Earnings
(excl. Business Income)

Census Year	Men		Women	
	Mean	Median	Mean	Median
1940	0.48	0.46	0.42	0.38
1950	0.61	0.59	0.54	0.42
1960	0.60	0.57	0.61	0.46
1970	0.67	0.66	0.87	0.77
1980	0.72	0.71	1.04	1.09
1990	0.70	0.70	0.99	1.00

Earnings Ratios Based on Weekly Earnings,
(incl. Business income)

Census Year	Men		Women	
	Mean	Median	Mean	Median
1940	0.49	0.49	0.39	0.41
1950	0.61	0.58	0.60	0.48
1960	0.58	0.59	0.62	0.51
1970	0.66	0.65	0.86	0.80
1980	0.74	0.71	1.06	1.01
1990	0.73	0.69	1.02	0.98

† Tabulations based on subsamples of men and women, age 16-64 from the 1940-1990 Decennial Censuses (see Appendix A for summary of other sample restrictions). No adjustment is made for top-coded earnings.

Table 3b
Mean and Median Black-White Ratios for Men
Based on Annual Earnings incl. Business Income
1940-1990 †

Census Year	Mean	Median	Median
	Workers Only (1)	Workers Only (2)	incl. Nonworkers †† (3)
1940	0.48	0.46	0.46
1950	0.54	0.54	0.44
1960	0.53	0.52	0.46
1970	0.62	0.64	0.52
1980	0.68	0.68	0.46
1990	0.68	0.66	0.47

Earnings Ratios Based on
Annual Wage and Salary Earnings
(excl. Business Income)

Census Year	Mean	Median	Median
	Workers Only (1)	Workers Only (2)	incl. Nonworkers †† (3)
1940	0.48	0.46	0.46
1950	0.61	0.59	0.53
1960	0.60	0.57	0.52
1970	0.67	0.66	0.57
1980	0.72	0.71	0.50
1990	0.70	0.70	0.50

Earnings Ratios Based on Weekly Earnings,
(incl. Business income)

Census Year	Mean	Median	Median
	Workers Only (1)	Workers Only (2)	incl. Nonworkers †† (3)
1940	0.49	0.49	0.49
1950	0.61	0.58	0.56
1960	0.58	0.59	0.52
1970	0.66	0.65	0.57
1980	0.74	0.71	0.55
1990	0.73	0.69	0.52

† Tabulations based on subsamples of men and women, age 16-64 from the Decennial Censuses (see Appendix A for additional sample restrictions). No adjustment is made for top-coded Earnings.

†† The third column includes nonworkers (imputed a wage below the median) in calculating the median wage ratio.

Table 4
Mean and Median Number of Weeks Worked †
for Working Men, 1940-1990

Census Year	Mean			Median		
	Black	White	Ratio	Black	White	Ratio
1940	41	42	0.96	48	52	0.92
1950	43	45	0.95	50	52	0.96
1960	43	46	0.94	52	52	1.00
1970	44	46	0.96	52	52	1.00
1980	43	45	0.94	52	52	1.00
1990	43	46	0.94	52	52	1.00

Mean and Median Number of Weeks Worked †
for Working Women, 1940-1990

Census Year	Mean			Median		
	Black	White	Ratio	Black	White	Ratio
1940	39	39	0.99	50	49	1.02
1950	36	37	0.96	40	47	0.85
1960	36	36	0.99	42	42	1.00
1970	38	37	1.02	48	42	1.14
1980	40	40	1.01	50	50	1.00
1990	42	43	0.98	52	52	1.00

† Ratios tabulated based on subsamples of working men and women from the 1940-1990 Decennial Censuses. (See Appendix A for additional sample restrictions.)

Table 5a
Mean Black-White Weekly Wage Ratio by Birth Cohort
for Working Men, 1940-1990

Birth Cohort	1940	1950	1960	1970	1980	1990
1870-79	0.44	.	.	.	.	.
1880-89	0.43	0.57	.	.	.	.
1890-99	0.44	0.55	0.51	.	.	.
1900-09	0.49	0.60	0.57	0.61	.	.
1910-19	0.54	0.60	0.58	0.61	0.70	.
1920-29	0.57	0.66	0.60	0.62	0.69	0.73
1930-39	.	0.77	0.64	0.66	0.70	0.72
1940-49	.	.	0.76	0.79	0.74	0.71
1950-59	.	.	.	0.97	0.78	0.71
1960-69	.	.	.	.	0.82	0.76
1970-79	.	.	.	.	.	0.86

Median Black-White Weekly Wage Ratio by Birth Cohort
for Working Men, 1940-1990

Birth Cohort	1940	1950	1960	1970	1980	1990
1870-79	0.43	.	.	.	.	.
1880-89	0.44	0.42	.	.	.	.
1890-99	0.43	0.52	0.51	.	.	.
1900-09	0.47	0.58	0.55	0.62	.	.
1910-19	0.52	0.59	0.56	0.64	0.67	.
1920-29	0.50	0.62	0.60	0.63	0.69	0.77
1930-39	.	0.80	0.58	0.70	0.72	0.73
1940-49	.	.	0.69	0.73	0.72	0.75
1950-59	.	.	.	0.89	0.78	0.73
1960-69	.	.	.	.	0.72	0.75
1970-79	.	.	.	.	.	0.67

† Tabulations based on subsamples of men, age 16-64 from the 1940-1990 Decennial Censuses (see Appendix A for additional sample restrictions). No adjustment is made for top-coded Earnings.

Table 5b
Mean Black-White Weekly Wage Ratio by Birth Cohort
for Working Women, 1940-1990

Birth Cohort	1940	1950	1960	1970	1980	1990
1870-79	0.44	.	.	.	.	.
1880-89	0.37	0.45	.	.	.	.
1890-99	0.40	0.44	0.46	.	.	.
1900-09	0.39	0.49	0.47	0.60	.	.
1910-19	0.44	0.58	0.58	0.67	0.82	.
1920-29	0.50	0.55	0.68	0.84	0.93	0.97
1930-39	.	0.49	0.60	0.98	1.07	1.05
1940-49	.	.	0.64	0.92	1.12	1.06
1950-59	.	.	.	0.96	0.96	0.99
1960-69	.	.	.	.	0.87	0.87
1970-79	.	.	.	.	.	0.91

Median Black-White Weekly Wage Ratio by Birth Cohort
for Working Women, 1940-1990

Birth Cohort	1940	1950	1960	1970	1980	1990
1870-79	0.39	.	.	.	.	.
1880-89	0.40	0.30	.	.	.	.
1890-99	0.38	0.38	0.30	.	.	.
1900-09	0.33	0.33	0.33	0.42	.	.
1910-19	0.33	0.43	0.44	0.53	0.71	.
1920-29	0.38	0.40	0.51	0.78	0.88	0.91
1930-39	.	0.33	0.38	1.00	1.06	1.03
1940-49	.	.	0.56	0.87	1.20	1.10
1950-59	.	.	.	0.87	0.92	1.00
1960-69	.	.	.	.	0.69	0.83
1970-79	.	.	.	.	.	0.80

† Tabulations based on subsamples of women from the 1940-1990 Decennial Censuses (see Appendix A for additional sample restrictions). No adjustment is made for top-coded Earnings.

Table 6
Education Distribution, Age 16-64
by Race and Sex

White Males															
Census	0	1-4	5-8	9	10	11	12	13	14	15	16	17	18	19	20
1940	1	5	41	7	9	6	18	2	3	1	4	2	0	0	0
1950	1	5	32	7	9	7	23	3	4	2	5	3	0	0	0
1960	1	3	25	7	9	7	27	4	4	2	6	2	3	0	0
1970	1	1	14	7	9	8	32	6	6	3	7	3	4	0	0
1980	0	1	7	5	7	6	35	7	8	4	10	3	3	2	2
1990 †	0	0	3	3	5	5	31	0	29	0	16	0	5	0	3

Black Males															
Census	0	1-4	5-8	9	10	11	12	13	14	15	16	17	18	19	20
1940	7	33	42	5	4	2	4	1	1	0	1	0	0	0	0
1950	5	25	40	7	6	4	8	1	1	1	1	1	0	0	0
1960	4	17	35	8	9	7	14	2	2	1	2	0	1	0	0
1970	2	8	23	9	12	10	24	3	3	1	2	1	1	0	0
1980	1	3	13	8	11	10	31	6	6	3	4	1	1	1	1
1990 †	1	1	5	5	8	9	36	0	25	0	7	0	2	0	1

White Females															
Census	0	1-4	5-8	9	10	11	12	13	14	15	16	17	18	19	20
1940	1	4	36	8	10	6	24	3	3	1	3	1	0	0	0
1950	1	3	28	7	9	7	30	4	4	2	4	2	0	0	0
1960	1	2	21	7	10	8	34	5	4	2	4	1	1	0	0
1970	0	1	12	6	10	8	40	6	5	3	6	1	1	0	0
1980	0	1	6	5	7	7	43	8	7	4	8	2	2	1	1
1990 †	0	0	2	3	5	5	35	0	31	0	14	0	4	0	1

Black Females															
Census	0	1-4	5-8	9	10	11	12	13	14	15	16	17	18	19	20
1940	5	25	46	6	5	3	7	1	1	0	1	0	0	0	0
1950	3	18	42	8	8	5	11	1	2	1	2	1	0	0	0
1960	2	11	33	9	11	9	18	2	2	1	2	0	0	0	0
1970	1	5	21	9	13	12	27	4	3	1	3	1	1	0	0
1980	1	2	11	7	11	11	34	7	6	3	4	1	1	0	0
1990 †	1	1	4	4	7	9	35	0	28	0	8	0	3	0	1

† Source: 1940-1990 Decennial Census samples. (See Appendix A for sample restrictions). In 1990, education levels are reported as highest degree obtained. To compare 1990 to other years, we convert the degrees as follows: high-school=12 years, some college, or an associates degree=14 years, bachelors degree=16 years, masters degree=18 years, phd or other professional degree=20 years.

Table 7

Comparison OF Smith-Welch, Card-Krueger, and Current Study's Sample Restrictions

	Smith-Welch Study	Card-Krueger Study	Current Study
Sex:	Male	Male	Male
Race/Citizen:	Black or white U.S. Citizens	Black or white Born and living in continental U.S. (Southern-born men living in Northern cities used in regressions)	Black or white Born and living in U.S.
Age:	16 to 65	16 to 65 (born between 1900 and 1949)	16 to 65
Employment Status:	Worked at least 27 weeks	Worked at least one week	Worked at least one week
Weekly income bounds:			
1960	\$6.25 - \$625	\$14.03 - \$1002	none
1970	\$10.00 - \$1250	\$18.00 - \$1264	none
1980	\$19.80 - \$1875	\$36.00 - \$2500	none
Other exclusions:	Records with imputations Group quarters residents Full-time students Military Self employed, except in agriculture Persons with topcoded income* if did not work at least 40 weeks	Records with imputations	Records with imputations
Wage measure:	Weekly wage+business income Topcoded income adjusted 1960-70 weeks worked calculated from the 1980 Census	Weekly wage income Topcoded income not adjusted Procedure not given	Weekly wage + business income Topcoded income not adjusted Mean by race within each weeks worked interval

Table 8
Decomposition of Average Log Wage Gap into Within and Between Components
under Alternative Sampling Rules †

SW Sample			
	1960 to 1970	1970 to 1980	1980 to 1990
1. Change in relative wage gap (%)	13.1	12.3	2.17
2. Component due to within cohort improvements ††	4.96	3.72	-1.5
3. Component due to changing cohort population weights (incl. exit of oldest cohort, entry of youngest)	8.14	8.57	3.65

CK(1) Sample			
	1960 to 1970	1970 to 1980	1980 to 1990
1. Change in relative wage gap (%)	10.3	8.49	-1.4
2. Component due to within cohort improvements	0.27	1.16	-5.5
3. Component due to changing cohort population weights (incl. exit of oldest cohort, entry of youngest)	9.99	7.33	4.13

CK(2) Sample of South-North Migrants			
	1960 to 1970	1970 to 1980	1980 to 1990
1. Change in relative wage gap (%)	5.11	4.03	-.25
2. Component due to within cohort improvements	-2.0	-3.5	-6.3
3. Component due to changing cohort population weights (incl. exit of oldest cohort, entry of youngest)	7.12	7.53	6.09

HT(1) Sample			
	1960 to 1970	1970 to 1980	1980 to 1990
1. Change in relative wage gap (%)	14.8	8.77	2.43
2. Component due to within cohort improvements	3.70	2.06	-1.6
3. Component due to changing cohort population weights (incl. exit of oldest cohort, entry of youngest)	11.1	6.71	4.05

HT(2) sample			
	1960 to 1970	1970 to 1980	1980 to 1990
1. Change in relative wage gap (%)	14.8	9.05	1.52
2. Component due to within cohort improvements	3.58	2.15	-2.6
3. Component due to changing cohort population weights (incl. exit of oldest cohort, entry of youngest)	11.3	6.90	4.08

† Source: Subsamples of male workers from the 1960-1990 Decennial Censuses. See Table 7 and Section 3.2 of the text for detailed descriptions of the subsamples.

†† The within cohort component holds the cohort population weights fixed (at the base year) in the current year-base year comparisons.

Table 9
Total Contribution of Education to Change in Relative Wage Gap
under alternative Samples, Holding Specification Constant
Specification: HT Model*

		Decade: 1970 - 1960				
Age Group		CK§	SW†	HT‡	CK-South ††	HT-LFP Corrected*
Age 31-40	Main	4.9	5.0	5.9	4.0	4.5
	Race	-3.6	-3.9	-4.8	-4.6	-4.7
	Year	-3.3	-4.1	-4.7	-3.0	-5.2
	Race-Year	7.8	5.8	13.1	8.4	5.7
	Total	5.7	2.8	9.5	4.8	0.4
	Total Change in Wage Gap	8.6	11.5	12.8	6.5	12.8
	Education Contribution (%)	66.7	24.2	74.5	73.6	2.8
Age 41-50	Main Effect	3.7	3.7	4.6	2.8	3.4
	Race Effect	-6.0	-3.6	-6.7	-3.5	-9.1
	Year Effect	-7.5	-8.5	-8.0	10.4	-6.8
	Race-Year Effect	8.4	5.4	13.3	-8.6	14.0
	Total	-1.3	-3.0	3.1	1.2	1.5
	Total Change in Wage Gap	5.6	10.2	10.1	-0.0	10.1
	Education Contribution (%)	-23.5	-29.6	31.3	-8661	14.5
		Decade: 1980 - 1970				
Age Group		CK§	SW†	HT‡	CK-South ††	HT-LFP Corrected*
Age 31-40	Main	4.2	4.6	4.8	-2.2	3.6
	Race	-1.8	-1.4	-1.4	-4.7	-2.4
	Year	0.9	0.9	0.7	-4.4	2.3
	Race-Year	17.2	14.5	16.1	10.9	7.6
	Total	20.5	18.6	20.2	-0.4	11.0
	Total Change in Wage Gap	12.3	13.7	12.6	3.6	12.6
	Education Contribution (%)	166.3	135.3	160.0	-12.3	87.2
Age 41-50	Main Effect	4.6	3.9	5.3	4.7	4.0
	Race Effect	-5.2	-2.8	-5.1	-5.9	-5.4
	Year Effect	3.3	3.6	3.1	-6.9	3.8
	Race-Year Effect	19.4	12.7	22.0	28.6	28.4
	Total	22.1	17.4	25.4	20.5	30.8
	Total Change in Wage Gap	12.1	11.0	13.3	5.6	13.3
	Education Contribution (%)	182.1	157.7	191.0	365.5	232.2
		Decade: 1990 - 1980				
Age Group		CK§	SW†	HT‡	CK-South ††	HT-LFP Corrected+
Age 31-40	Main	5.0	4.9	5.3	-0.6	3.2
	Race	0.1	0.2	0.0	0.4	-1.0
	Year	-5.7	-4.7	-4.5	-10.3	-2.2
	Race-Year	23.1	24.5	23.2	52.2	9.7
	Total	22.5	24.9	24.0	41.7	9.7
	Total Change in Wage Gap	-5.7	-1.7	-2.3	-5.9	-2.3
	Education Contribution (%)	-397.3	-1493	-1029	-712.0	-414.3
Age 41-50	Main Effect	3.0	3.7	3.1	-4.7	1.9
	Race Effect	-1.1	-0.7	-0.7	-0.5	-0.1
	Year Effect	-6.1	-4.4	-5.2	-8.3	-2.8
	Race-Year Effect	5.0	7.9	3.2	-3.2	-8.3
	Total	0.8	6.5	0.4	-16.8	-9.3
	Total Change in Wage Gap	1.0	7.0	5.1	-0.8	5.1
	Education Contribution (%)	78.5	92.1	7.2	2068.3	-184.7

* The model includes potential experience and its square, smsa indicator, state-of-birth and region-of-residence intercepts (for 9 Census regions), and state-of-birth and region-of-residence interacted with years of education. The latter interactions allow for local labor market effects on the return to education. (See Heckman, Layne-Farrar and Todd, 1996). § Card-Krueger Sample † Smith-Welch Sample ‡ Sample used in Current Study (HT sample) (29 states of birth) †† Card-Krueger Sample of Southern-born Migrants + HL Sample for HL Model Specification augmented to include a 5th degree polynomial in the probability of participating in the labor force to control selectivity. (See Heckman, 1980). The participation equation is estimated by a probit model. It includes the variables in the wage equation as well as the following: number of persons under age 18 in the household, unearned income (when available), home ownership indicator, interval of value of owned home, unemployment and welfare participation rates in the state of residence.

Table 10
Estimates of the Effect of Black-White Quality Gap on the Log Weekly Wage Gap
Dependent Variable: Mean Log Weekly Wage Gap (black-white) by state-of-birth and cohort
Samples: Working Men in Decennial Censuses 1960-1990 (HT sample)

Variable	(1)	(2)	Model (3)	(4)	(5)
intercept	-0.427 (0.014)	-0.388 (0.014)	-0.316 (0.014)	-0.389 (0.014)	-0.311 (0.016)
black-white gap in pupil-teacher ratio	...	-0.551 (0.084)	0.160 (0.104)	-0.245 (0.184)	0.185 (0.171)
black-white gap in term length	...	...	...	-0.049 (0.103)	-0.081 (0.092)
black-white gap in log teacher salary	...	...	...	0.079 (0.045)	0.034 (0.040)
black-white gap in mean education levels	...	...	0.075 (0.008)	...	0.076 (0.009)
cohort 1920-1929	0.029 (0.016)	0.015 (0.015)	0.016 (0.013)	0.019 (0.015)	0.017 (0.014)
cohort 1930-1939	0.069 (0.016)	0.045 (0.015)	0.038 (0.013)	0.048 (0.015)	0.039 (0.014)
cohort 1940-1949	0.162 (0.018)	0.133 (0.018)	0.121 (0.016)	0.130 (0.018)	0.122 (0.016)
year 1970	0.021 (0.013)	0.021 (0.012)	0.028 (0.011)	0.017 (0.013)	0.023 (0.011)
year 1980	0.038 (0.015)	0.038 (0.014)	0.023 (0.012)	0.035 (0.014)	0.019 (0.013)

Table 11(a)
Comparison of Percentages of White and Black Working Men Age 16-64
who are Employed by the Government (Federal, State or Local)†

Education Level: <12 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	11	10	0.84	.	.	.	.	.	.	.	.	.
1900-1909	10	9	0.90	12	14	1.12	.	.	.	.	.	.
1910-1919	9	11	1.22	12	16	1.30	14	21	1.46	.	.	.
1920-1929	10	12	1.16	11	15	1.35	13	21	1.59	12	17	1.42
1930-1939	13	10	0.77	10	13	1.28	10	17	1.67	10	16	1.56
1940-1949	11	7	0.67	11	14	1.34	8	15	1.75	8	13	1.56
1950-1959	.	.	.	9	21	2.47	8	18	2.23	6	12	2.18
1960-1969	.	.	.	.	.	.	8	28	3.73	4	9	2.28
1970-1979	.	.	.	.	.	.	.	.	.	4	12	2.84

Education Level: 12 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	15	13	0.84	.	.	.	.	.	.	.	.	.
1900-1909	13	23	1.83	15	23	1.58	.	.	.	.	.	.
1910-1919	15	26	1.75	17	30	1.83	16	33	2.11	.	.	.
1920-1929	15	27	1.79	16	29	1.78	17	34	2.02	14	29	2.12
1930-1939	20	29	1.47	16	27	1.74	15	28	1.91	14	26	1.91
1940-1949	24	24	0.96	19	26	1.39	14	23	1.66	13	22	1.74
1950-1959	.	.	.	19	30	1.56	13	27	2.16	11	21	1.93
1960-1969	.	.	.	.	.	.	12	32	2.72	11	21	1.99
1970-1979	.	.	.	.	.	.	.	.	.	13	25	1.89

Education Level: 13-15 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	17	26	1.49	.	.	.	.	.	.	.	.	.
1900-1909	14	28	2.01	16	29	1.86	.	.	.	.	.	.
1910-1919	16	33	2.04	18	41	2.32	16	38	2.43	.	.	.
1920-1929	15	42	2.74	17	40	2.41	17	43	2.49	15	37	2.55
1930-1939	20	38	1.92	16	38	2.42	18	40	2.17	18	39	2.23
1940-1949	18	23	1.23	21	32	1.54	18	32	1.80	18	34	1.88
1950-1959	.	.	.	17	28	1.69	14	28	1.98	16	31	1.91
1960-1969	.	.	.	.	.	.	13	25	1.98	15	28	1.84
1970-1979	.	.	.	.	.	.	.	.	.	12	21	1.84

Education Level: 16+ years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	26	29	1.12	.	.	.	.	.	.	.	.	.
1900-1909	25	46	1.82	27	63	2.37	.	.	.	.	.	.
1910-1919	25	57	2.26	27	56	2.04	25	58	2.27	.	.	.
1920-1929	23	64	2.77	26	61	2.35	28	64	2.34	21	55	2.60
1930-1939	33	65	1.98	30	60	1.99	31	59	1.88	27	57	2.08
1940-1949	18	23	1.23	38	50	1.32	30	46	1.54	28	47	1.68
1950-1959	.	.	.	40	28	0.70	23	37	1.57	21	38	1.83
1960-1969	.	.	.	.	.	.	14	67	4.67	17	31	1.79
1970-1979	.	.	.	.	.	.	.	.	.	13	9	0.68

Source: Authors tabulations based on subsamples from the 1960-1990 Decennial Censuses. See Appendix A for list of sample restrictions.

Table 11(b)
Comparison of Percentages of White and Black Working Women Age 16-64
who are Employed by the Government (Federal, State or Local)

Education Level: <12 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	10	4	0.38	.	.	.	.	.	.	.	.	.
1900-1909	9	5	0.60	11	9	0.76	.	.	.	.	.	.
1910-1919	7	6	0.83	11	12	1.07	13	20	1.53	.	.	.
1920-1929	5	6	1.06	9	14	1.49	13	23	1.81	11	21	1.85
1930-1939	4	5	1.20	8	14	1.84	11	21	1.93	10	20	1.94
1940-1949	3	3	0.99	5	13	2.46	9	19	2.15	8	16	1.93
1950-1959	.	.	.	7	26	3.72	7	17	2.57	6	12	1.95
1960-1969	.	.	.	.	.	.	7	32	4.46	4	11	2.69
1970-1979	.	.	.	.	.	.	.	.	.	4	12	2.84

Education Level: 12 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	17	9	0.53	.	.	.	.	.	.	.	.	.
1900-1909	16	14	0.85	18	23	1.30	.	.	.	.	.	.
1910-1919	15	22	1.47	18	30	1.65	20	37	1.84	.	.	.
1920-1929	12	17	1.48	17	31	1.84	20	38	1.93	17	31	1.83
1930-1939	10	15	1.60	14	26	1.81	18	33	1.77	17	29	1.73
1940-1949	9	10	1.09	11	22	1.99	15	27	1.75	15	24	1.64
1950-1959	.	.	.	11	23	2.05	11	24	2.15	12	21	1.68
1960-1969	.	.	.	.	.	.	10	28	2.74	8	18	2.32
1970-1979	.	.	.	.	.	.	.	.	.	13	25	1.89

Education Level: 13-15 years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	35	43	1.22	.	.	.	.	.	.	.	.	.
1900-1909	35	41	1.18	30	32	1.08	.	.	.	.	.	.
1910-1919	26	37	1.45	28	49	1.76	25	46	1.86	.	.	.
1920-1929	21	38	1.79	23	44	1.89	25	51	2.05	21	38	1.85
1930-1939	20	27	1.38	21	42	1.97	22	47	2.12	21	40	1.95
1940-1949	16	23	1.45	19	34	1.74	19	36	1.95	18	36	1.99
1950-1959	.	.	.	17	31	1.76	16	31	1.97	15	29	2.00
1960-1969	.	.	.	.	.	.	15	33	2.16	10	24	2.36
1970-1979	.	.	.	.	.	.	.	.	.	12	21	1.84

Education Level: 16+ years												
birth cohort	1960			1970			1980			1990		
	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio	W	B	B-W Ratio
1890-1899	61	84	1.38	.	.	.	.	.	.	.	.	.
1900-1909	66	80	1.20	66	78	1.19	.	.	.	.	.	.
1910-1919	61	80	1.30	64	79	1.23	56	78	1.39	.	.	.
1920-1929	53	81	1.52	59	82	1.40	56	81	1.44	43	73	1.71
1930-1939	58	79	1.36	59	80	1.36	54	79	1.45	46	71	1.54
1940-1949	33	23	0.70	59	72	1.22	49	68	1.39	43	62	1.44
1950-1959	.	.	.	56	31	0.55	36	50	1.38	31	48	1.54
1960-1969	.	.	.	.	.	.	28	33	1.19	21	34	1.62
1970-1979	.	.	.	.	.	.	.	.	.	13	9	0.68

Source: Authors' tabulations based on subsamples from the 1960-1990 Decennial Censuses. See Appendix A for list of sample restrictions.

Table 12
Comparison of Actual and Simulated Black-White Wage Ratios Obtained
after Adjusting for Racial Differences in Residential Location, Education Level and Employment Sector (Government or Private)^g

1960 Census					
birth cohort	unconditional (no adjustment)	Adj. for Resid. Location	Adj. for Resid. Location and Educ.	Adj. for Resid. Location and Government Emp.	Adj. for Resid. Location, Government Emp. and Educ.
1900-1910	.56	.62	.66	.66	.66
1910-1919	.58	.64	.68	.68	.68
1920-1929	.61	.66	.71	.71	.71
1930-1939	.66	.72	.74	.74	.74
1940-1949	.73	.86	.88	.88	.88
1970 Census					
birth cohort	unconditional (no adjustment)	Adj. for Resid. Location	Adj. for Resid. Location and Educ.	Adj. for Resid. Location and Government Emp.	Adj. for Resid. Location, Government Emp. and Educ.
1910-1919	.59	.64	.70	.64	.69
1920-1929	.61	.65	.72	.64	.70
1930-1939	.66	.69	.77	.69	.77
1940-1949	.79	.81	.87	.83	.90
1980 Census					
birth cohort	unconditional (no adjustment)	Adj. for Resid. Location	Adj. for Resid. Location and Educ.	Adj. for Location and Government Emp.	Adj. for Location, Government Emp. and Educ.
1920-1929	.68	.71	.78	.70	.76
1930-1939	.70	.72	.78	.71	.78
1940-1949	.76	.78	.84	.79	.85
1950-1959	.82	.84	.87	.86	.90
1990 Census					
birth cohort	unconditional (no adjustment)	Adj. for Resid. Location	Adj. for Resid. Location and Educ.	Adj. for Location and Government Emp.	Adj. for Location, Government Emp. and Educ.
1930-1939	.71	.73	.80	.73	.81
1940-1949	.72	.75	.81	.75	.82
1950-1959	.74	.77	.82	.77	.82
1960-1969	.81	.82	.86	.81	.86

† Source: Subsamples of Male Workers from the 1960-1990 Decennial Censuses. (See Appendix A for description of Samples). Residential Location refers to the nine divisions as defined by the Census. Education refers to the following categories: 12 years of less, 12 years, 13-15 years, and 16+ years. Government includes both federal, state, and local government employment.

Table 13a.
Male Black-White Ratio Within Occupations, 1940-1960 †

Occupation	1940				1950				1960			
	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black
Private Sector												
Professional	0.36	0.03	12 (6)††	10 (7)	0.48	0.03	12 (6)	10 (6)	0.52	0.03	13 (4)	12 (7)
Sales-Clerical	0.54	0.02	12 (3)	8 (6)	0.61	0.03	12 (2)	9 (5)	0.64	0.04	12 (3)	11 (4)
Service	0.70	0.16	8 (3)	7 (4)	0.79	0.12	9 (4)	8 (5)	0.77	0.14	10 (4)	8 (5)
Farming	0.36	0.19	8 (3)	4 (4)	0.50	0.11	8 (3)	4 (4)	0.33	0.04	8 (4)	5 (4)
Craft	0.55	0.05	8 (3)	6 (4)	0.66	0.08	10 (4)	7 (4)	0.66	0.11	10 (4)	8 (5)
Operator	0.65	0.14	8 (3)	6 (4)	0.73	0.23	9 (4)	7 (5)	0.73	0.28	10 (4)	8 (5)
Laborer	0.67	0.40	8 (3)	4 (4)	0.84	0.33	8 (3)	5 (5)	0.78	0.32	9 (4)	6 (5)
Government Sector												
Professional	0.60	0.06	15 (4)	16 (2)	0.79	0.10	16 (5)	16 (2)	0.82	0.13	16 (5)	16 (2)
Sales-Clerical	1.15	0.05	12 (3)	12 (3)	1.32	0.19	12 (3)	12 (3)	0.91	0.20	12 (2)	12 (3)
Service	0.83	0.11	9 (4)	8 (5)	0.69	0.20	10 (4)	8 (5)	0.74	0.23	11 (4)	10 (5)
Craft	0.65	0.04	8 (3)	7 (5)	0.82	0.07	10 (4)	10 (5)	0.81	0.08	10 (4)	10 (5)
Operator	0.83	0.05	8 (3)	6 (4)	0.86	0.15	8 (3)	8 (6)	0.91	0.14	9 (4)	9 (5)
Laborer	0.87	0.68	8 (2)	5 (5)	0.88	0.28	8 (3)	7 (5)	0.92	0.18	8 (5)	8 (6)

† Source: Tabulations based on subsamples of male workers from the 1940-1990 Decennial Censuses. See Appendix A for full list of sample restrictions and definitions of variables. "Prop. of blacks" is the proportion of the black workforce in each occupational category.

†† Note: Interquartile range shown in parentheses.

Table 13b.
Male Black-White Ratio Within Occupations, 1970-1990 †

Occupation	1970				1980				1990			
	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black	B-W Wage Ratio	Prop. of Blacks	Median Education White	Median Education Black
Private Sector												
Professional	0.68	0.06	14 (4)††	13 (4)	0.73	0.10	16 (3)	14 (4)	0.75	0.13	16 (2)	14 (2)
Sales-Clerical	0.74	0.10	12 (2)	12 (1)	0.70	0.12	13 (3)	12 (2)	0.67	0.15	14 (4)	14 (2)
Service	0.96	0.13	11 (3)	10 (5)	1.00	0.14	12 (3)	12 (2)	0.94	0.16	12 (3)	12 (3)
Craft	0.74	0.16	12 (3)	10 (4)	0.83	0.17	12 (1)	12 (2)	0.86	0.16	12 (2)	12 (2)
Operator	0.83	0.33	11 (3)	10 (4)	0.88	0.31	12 (2)	12 (2)	0.90	0.25	12 (2)	12 (1)
Laborer	0.90	0.21	11 (3)	8 (6)	1.03	0.13	12 (2)	11 (3)	0.97	0.12	12 (3)	12 (1)
Government Sector												
Professional	1.07	0.23	16 (6)	16 (5)	0.85	0.25	16 (3)	16 (4)	0.87	0.29	16 (4)	16 (4)
Sales-Clerical	1.26	0.06	12 (2)	12 (2)	0.89	0.17	13 (3)	12 (2)	0.96	0.18	14 (2)	14 (2)
Service	0.78	0.26	12 (2)	11 (4)	0.76	0.26	12 (2)	12 (3)	0.82	0.26	14 (2)	12 (2)
Farming	0.39	0.04	11 (4)	6 (4)	0.88	0.02	12 (3)	11 (3)	0.76	0.02	12 (2)	12 (2)
Craft	0.99	0.13	11 (4)	10 (5)	0.88	0.09	12 (1)	12 (2)	0.94	0.09	12 (2)	12 (2)
Operator	1.27	0.14	10 (4)	10 (5)	0.93	0.12	12 (2)	12 (2)	1.03	0.10	12 (2)	12 (2)
Laborer	0.94	0.15	10 (4)	8 (5)	0.95	0.09	12 (2)	11 (3)	0.97	0.06	12 (2)	12 (1)

† Source: Tabulations based on subsamples of male workers from the 1940-1990 Decennial Censuses. See Appendix A for full list of sample restrictions and definitions of variables. "Prop. of blacks" is the proportion of the black workforce in each occupational category.

†† Note: Interquartile range shown in parentheses.

Table 14a.
Men Employed in Industries Targeted by EEOC
1970-1980

Industry	Employment Share % Change 1970-80	% Black in Industry			% White in Skilled Occupation			% Black in Skilled Occupation		
		1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
Utilities	62	5	10	110	69	64	-7	38	34	-11
Radio-tv	22	4	6	41	84	84	-0	78	77	-1
Movies	14	6	6	-4	69	66	-5	59	55	-8
Banking	20	5	8	48	63	64	2	17	27	59
Insurance	-0	3	5	58	25	31	27	14	20	45
Telephone	17	4	6	42	89	76	-14	69	64	-7
Drug	29	6	7	12	54	59	11	22	37	66
Petroleum	-14	6	8	29	56	62	11	23	35	52
Higher ed	13	6	7	23	71	74	4	38	49	27
Steel	-15	13	12	-10	45	39	-14	25	19	-23
Aerospace	-32	5	6	22	63	66	5	32	43	37
Local gov	-2	8	8	9	26	19	-27	19	15	-20
All others-non-South	.	6	5	-1	46	48	3	24	29	21
All others-South	.	15	13	-10	47	49	5	22	27	24
All Others-Total	.	8	8	-5	47	48	4	23	28	23

1980-1990

Industry	Employment Share % Change 1970-80	% Black in Industry			% White in Skilled Occupation			% Black in Skilled Occupation		
		1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
Utilities	3	10	9	-8	64	68	6	34	45	31
Radio-tv	75	6	8	30	84	84	-0	77	74	-4
Movies	29	6	7	12	66	67	2	55	53	-3
Banking	13	8	8	4	64	67	4	27	33	22
Insurance	11	5	5	13	31	27	-12	20	20	-2
Telephone	0	6	8	34	76	80	5	64	64	-0
Drug	9	7	8	21	59	67	14	37	39	7
Petroleum	-19	8	9	5	62	65	5	35	52	49
Higher ed	1	7	7	-5	74	76	3	49	53	9
Steel	-48	12	11	-10	39	40	4	19	21	9
Aerospace	-2	6	6	-2	66	74	12	43	59	37
Local gov	21	8	11	28	19	17	-10	15	15	1
All others-non-South	.	5	6	3	48	50	5	29	32	12
All others-South	.	13	14	4	49	52	5	27	32	17
All Others-Total	-0	8	8	6	48	51	5	28	32	14

† Tabulations based on samples of black and white males, aged 16-65 employed in the specified industries. "Skilled occupations" refer to Census categories of professional, technical, managerial, and craftsmen. Some unskilled operative occupations in 1970 were reclassified as skilled in 1980; this discrepancy makes a slight difference in the industries of utilities, petroleum and steel. Percent change in share is the increase or decrease in each industry's share of total US employment.

Table 14b.
Women Employed in Industries Targeted by EEOC
1970-1980

Industry	Employment Share % Change 1970-80	% Black in Industry			% White in Skilled Occupation			% Black in Skilled Occupation		
		1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
Utilities	54	6	11	82	9	19	106	6	15	175
Radio-tv	49	3	10	258	29	49	67	5	50	856
Movies	8	6	5	-10	30	44	47	26	32	24
Banking	29	6	9	51	10	17	75	6	12	103
Insurance	14	6	9	46	7	13	95	4	10	196
Telephone	-24	11	15	35	8	20	162	4	17	329
Drug	16	8	12	41	21	27	31	14	19	39
Petroleum	-16	7	10	34	11	26	143	5	23	404
Higher ed	8	9	10	14	34	45	33	26	31	22
Steel	6	7	12	87	11	14	33	13	9	-29
Aerospace	-34	6	10	57	14	29	99	14	25	84
Local gov	-33	10	14	36	20	24	24	18	18	1
All others-non-South	.	7	7	-6	21	27	26	15	24	63
All others-South	.	19	16	-15	22	28	28	13	22	67
All Others-Total	-1	11	10	-9	21	27	27	14	23	65

1980-1990

Industry	Employment Share % Change 1970-80	% Black in Industry			% White in Skilled Occupation			% Black in Skilled Occupation		
		1970	1980	% Change	1970	1980	% Change	1970	1980	% Change
Utilities	13	11	12	8	19	31	68	15	27	78
Radio-tv	74	10	11	10	49	52	6	50	49	-2
Movies	11	5	7	39	44	51	17	32	35	11
Banking	0	9	10	18	17	29	75	12	22	77
Insurance	14	9	10	11	13	20	54	10	16	54
Telephone	-11	15	18	24	20	32	59	17	27	61
Drug	21	12	11	-8	27	43	61	19	33	76
Petroleum	-14	10	14	38	26	41	57	23	39	68
Higher ed	-2	10	10	6	45	55	21	31	41	29
Steel	-49	12	11	-11	14	23	61	9	17	89
Aerospace	-6	10	10	3	29	44	55	25	40	59
Local gov	25	14	18	28	24	24	0	18	21	17
All others-non-South	.	7	7	1	27	36	32	24	31	29
All others-South	.	16	17	6	28	36	29	22	27	24
All Others-Total	-1	10	11	6	27	36	31	23	28	26

† Tabulations based on samples of black and white females, aged 16-65 employed in the specified industries. "Skilled occupations" refer to Census categories of professional, technical, managerial, and craftsmen. Some unskilled operative occupations in 1970 were reclassified as skilled in 1980; this discrepancy makes a slight difference in the industries of utilities, petroleum and steel. Percent change in share is the increase or decrease in each industry's share of total US employment.

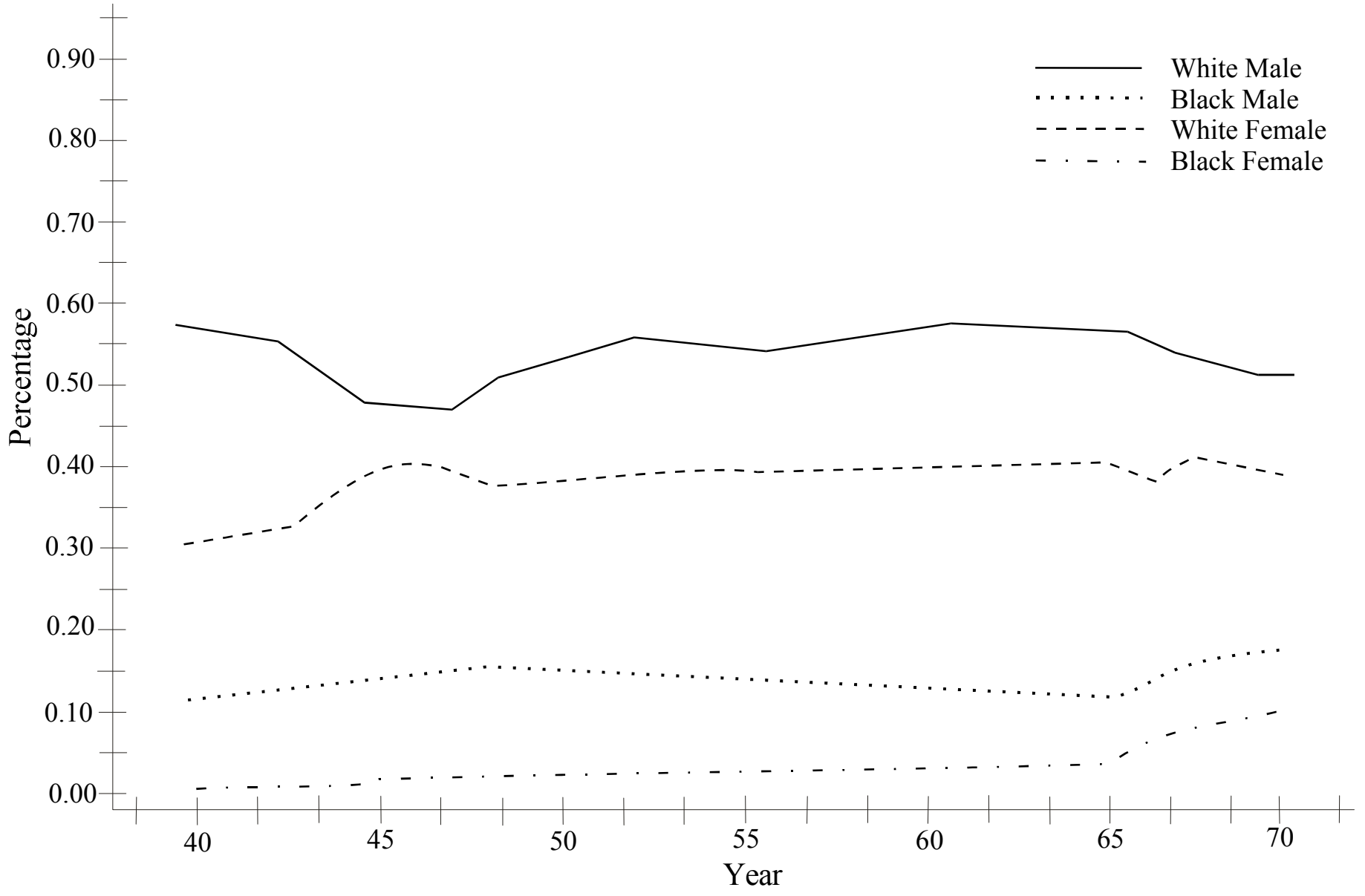


Figure 1. Aggregate Employment Shares in South Carolina Manufacturing

Figure 2a. Percent of Males Not in Labor Force, 1940-90

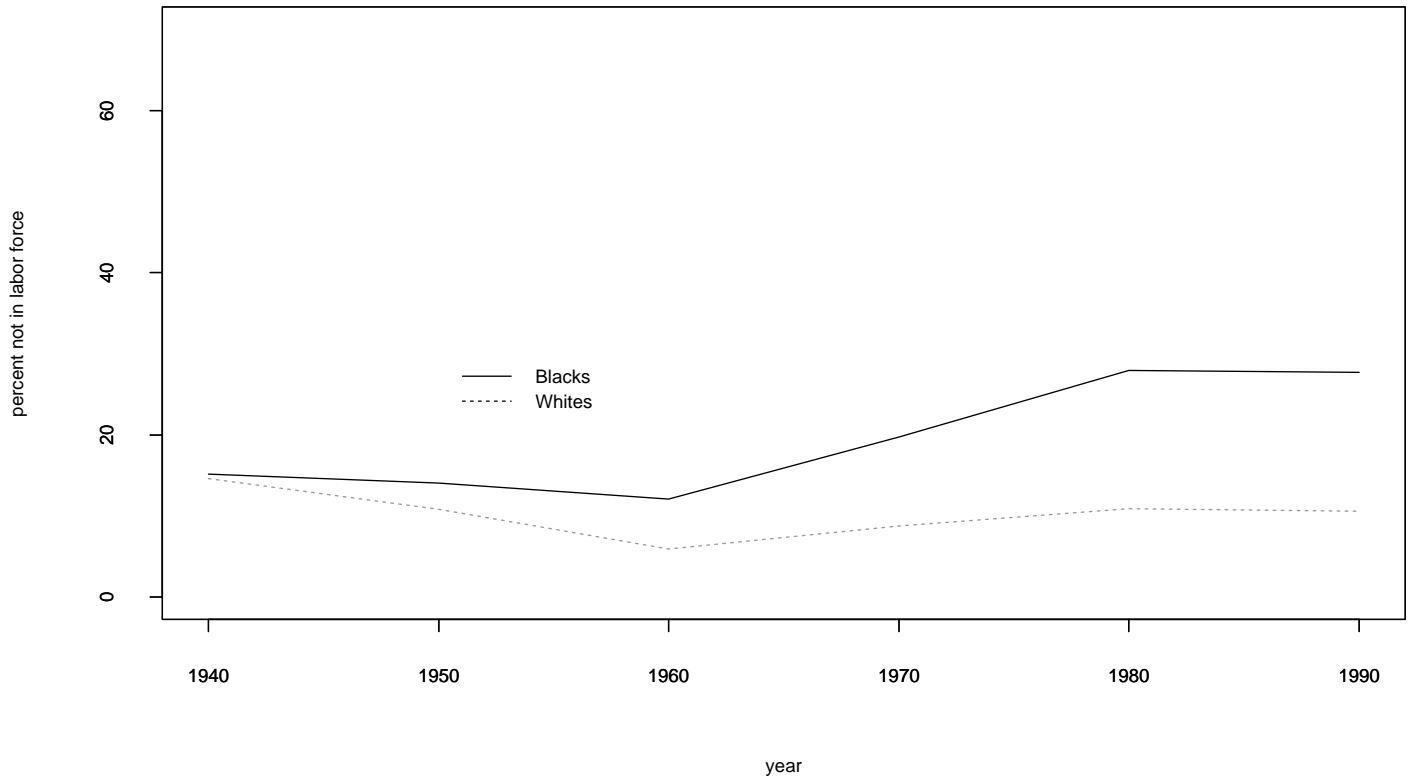


Figure 2b. Percent of Females Not in Labor Force, 1940-90

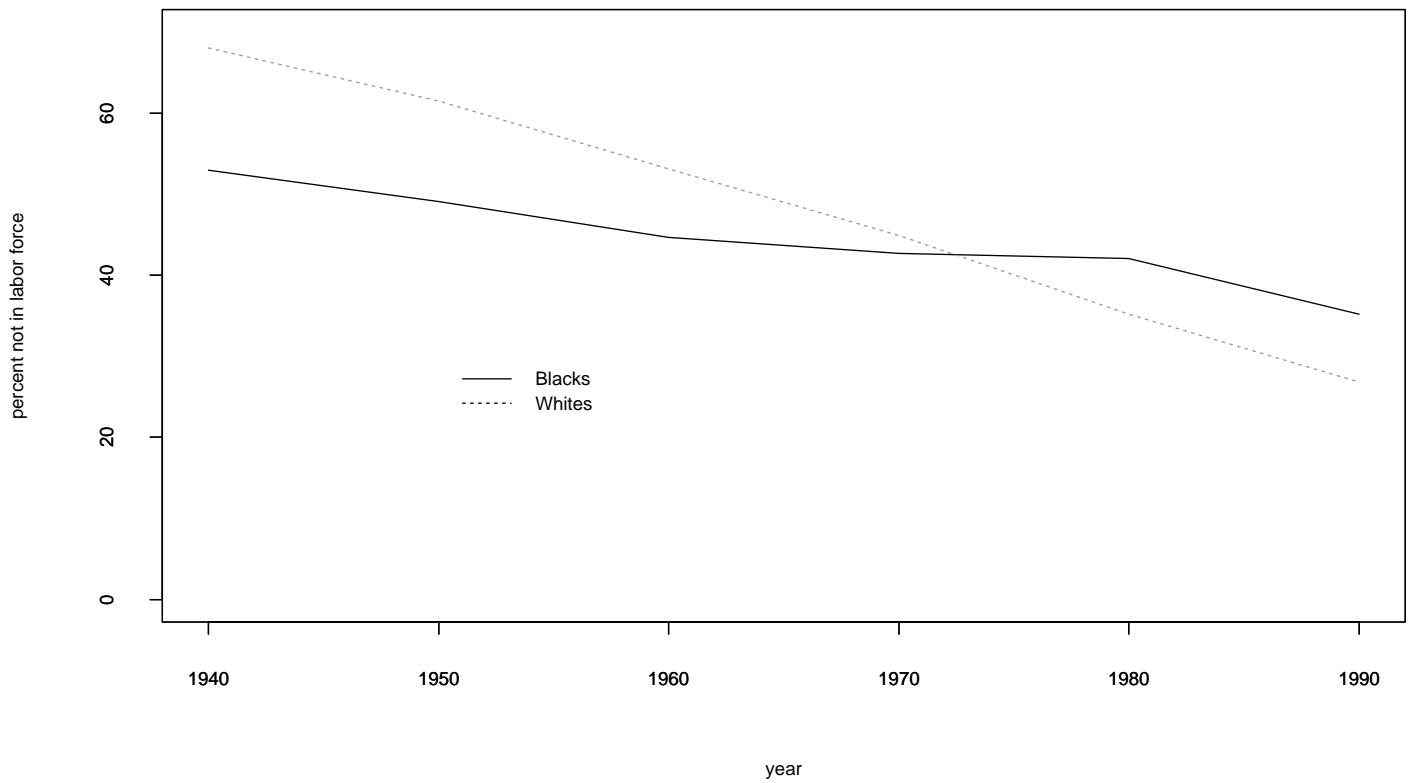
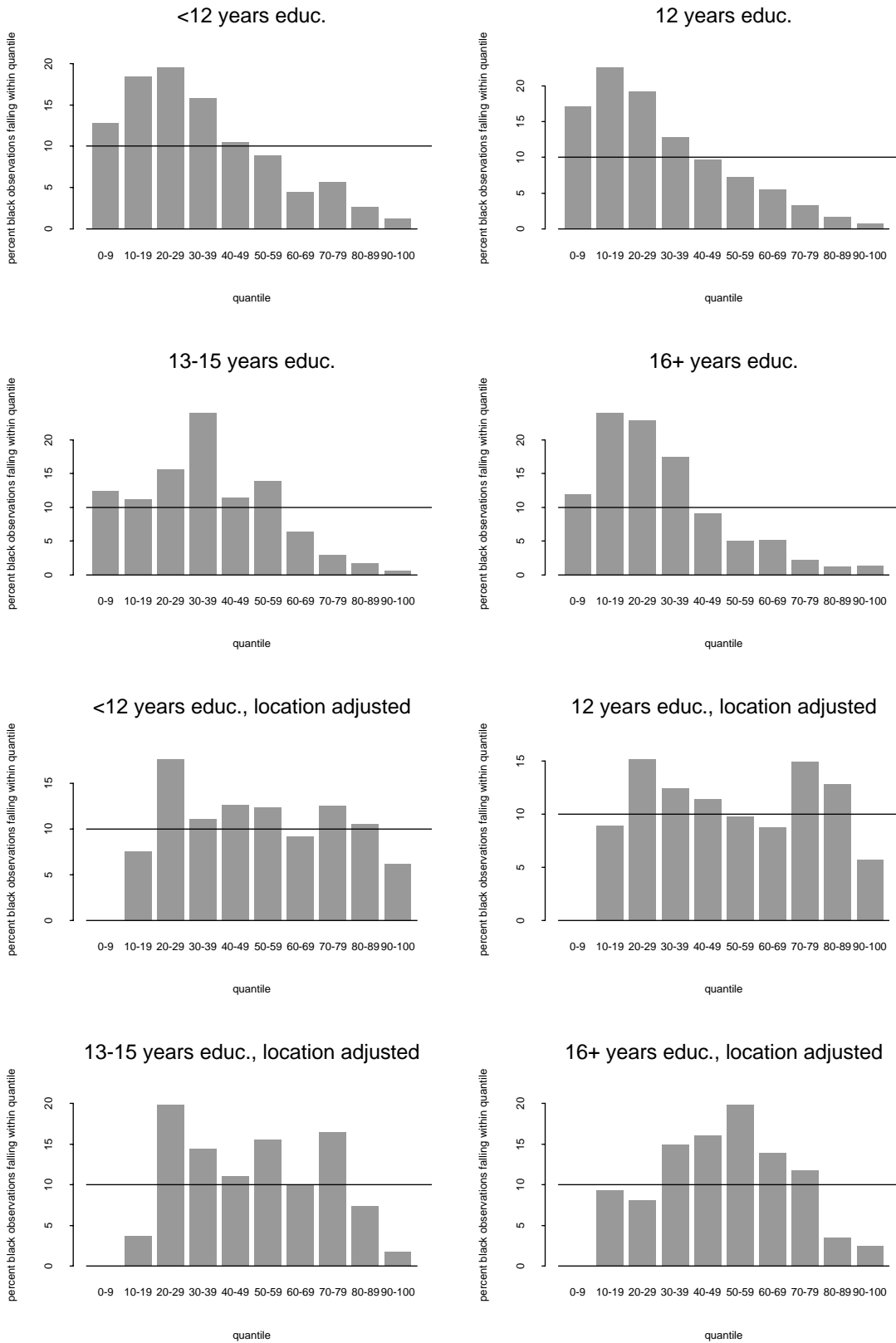
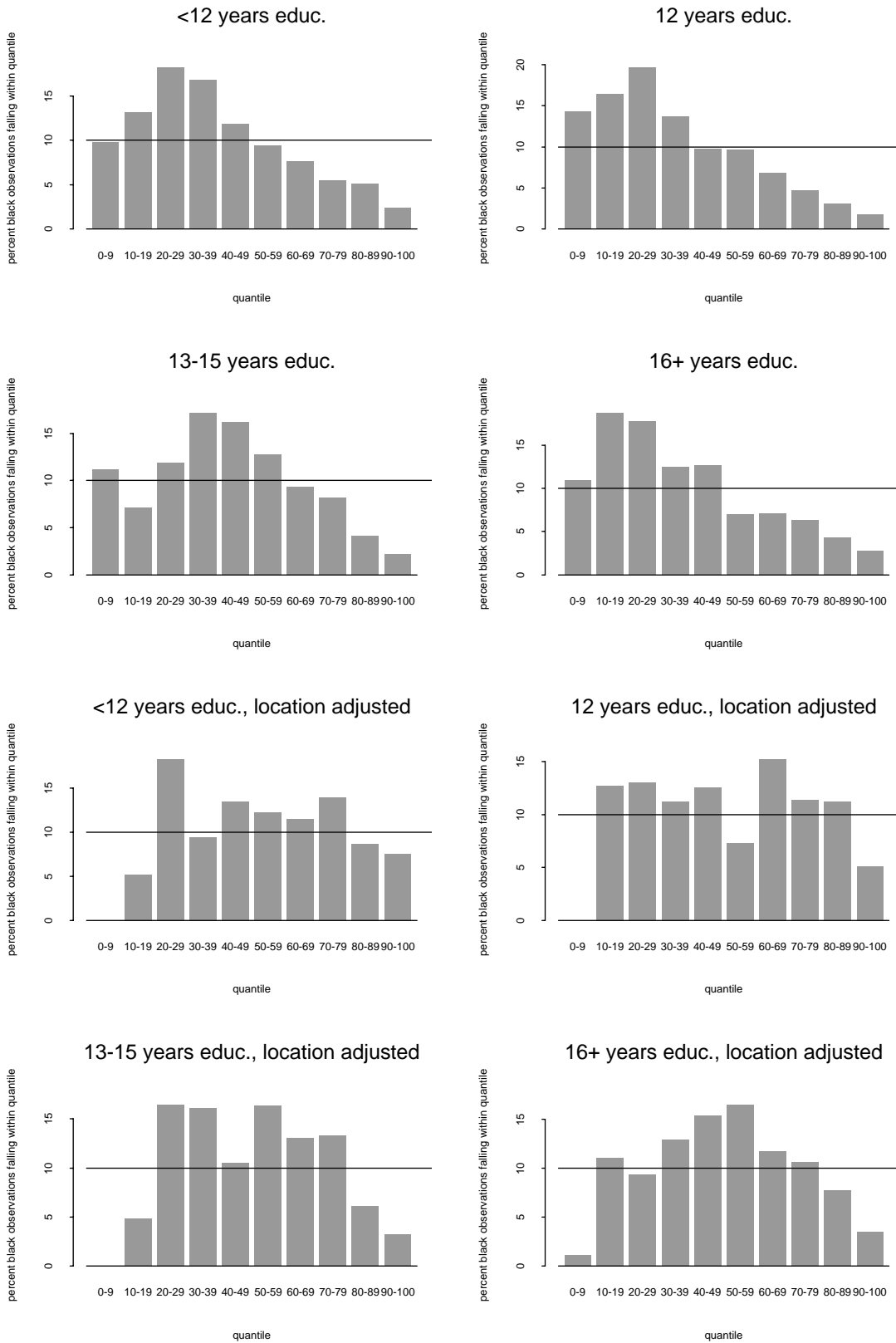


Figure 3(a): Location of Black Annual Earnings in Overall Distribution for Employed Men, 1960 Census



Source: 1960 Decennial Census (See Appendix A)

Figure 3(b): Location of Black Annual Earnings in Overall Distribution for Employed Men, 1970 Census



Source: 1970 Decennial Census (See Appendix A)

Figure 3(c): Location of Black Annual Earnings in Overall Distribution for Employed Men, 1980 Census

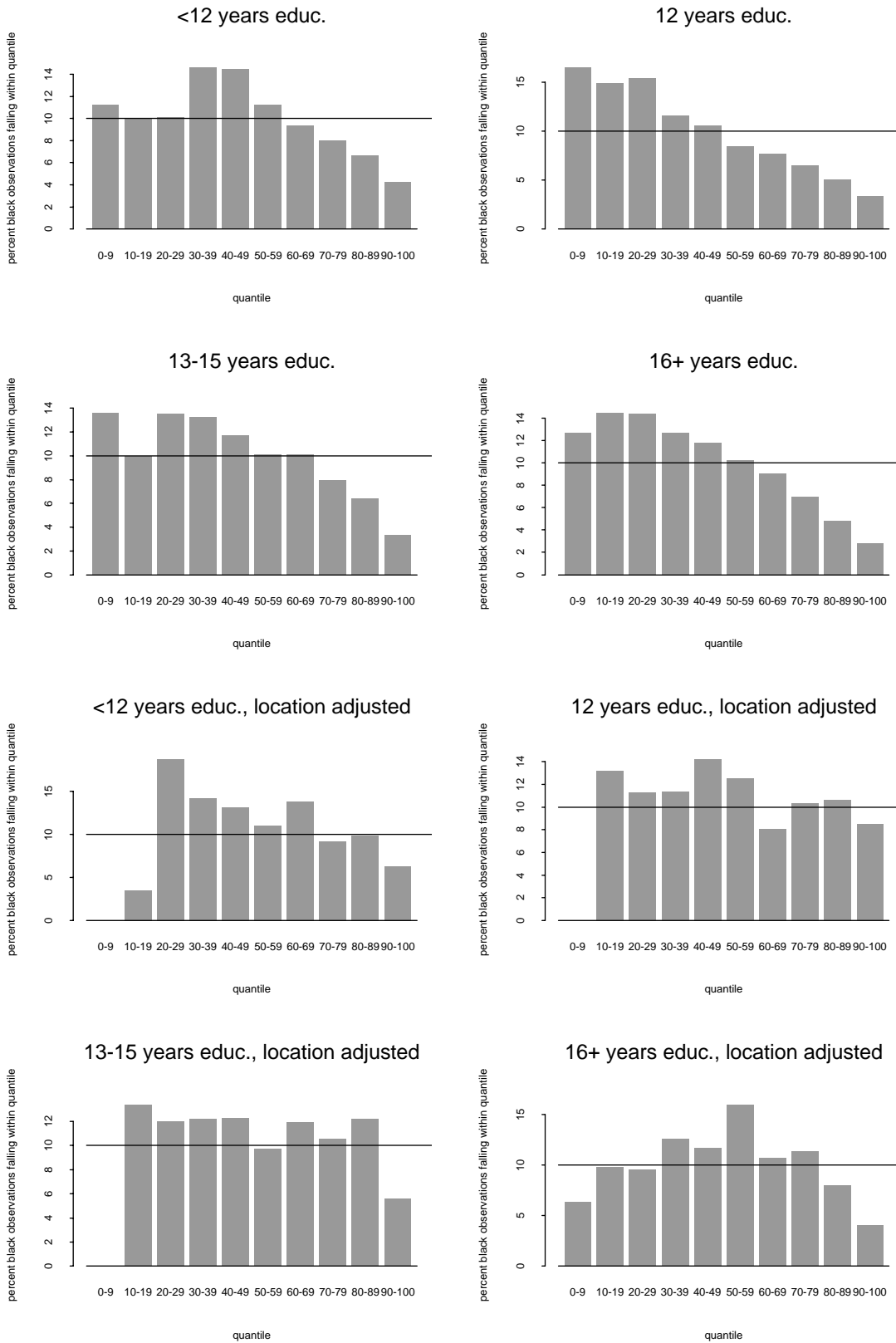


Figure 3(d): Location of Black Annual Earnings in Overall Distribution for Employed Men, 1990 Census

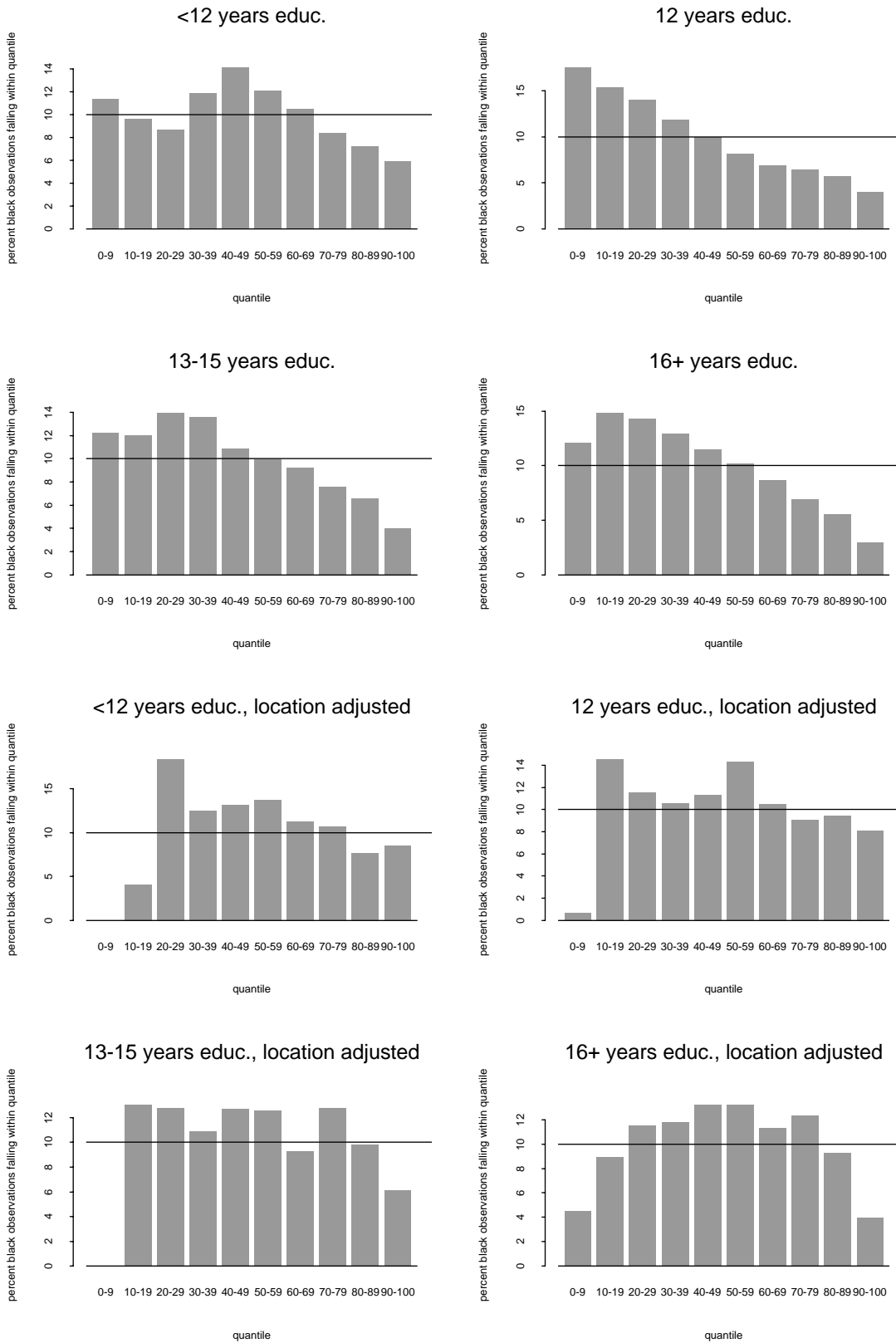
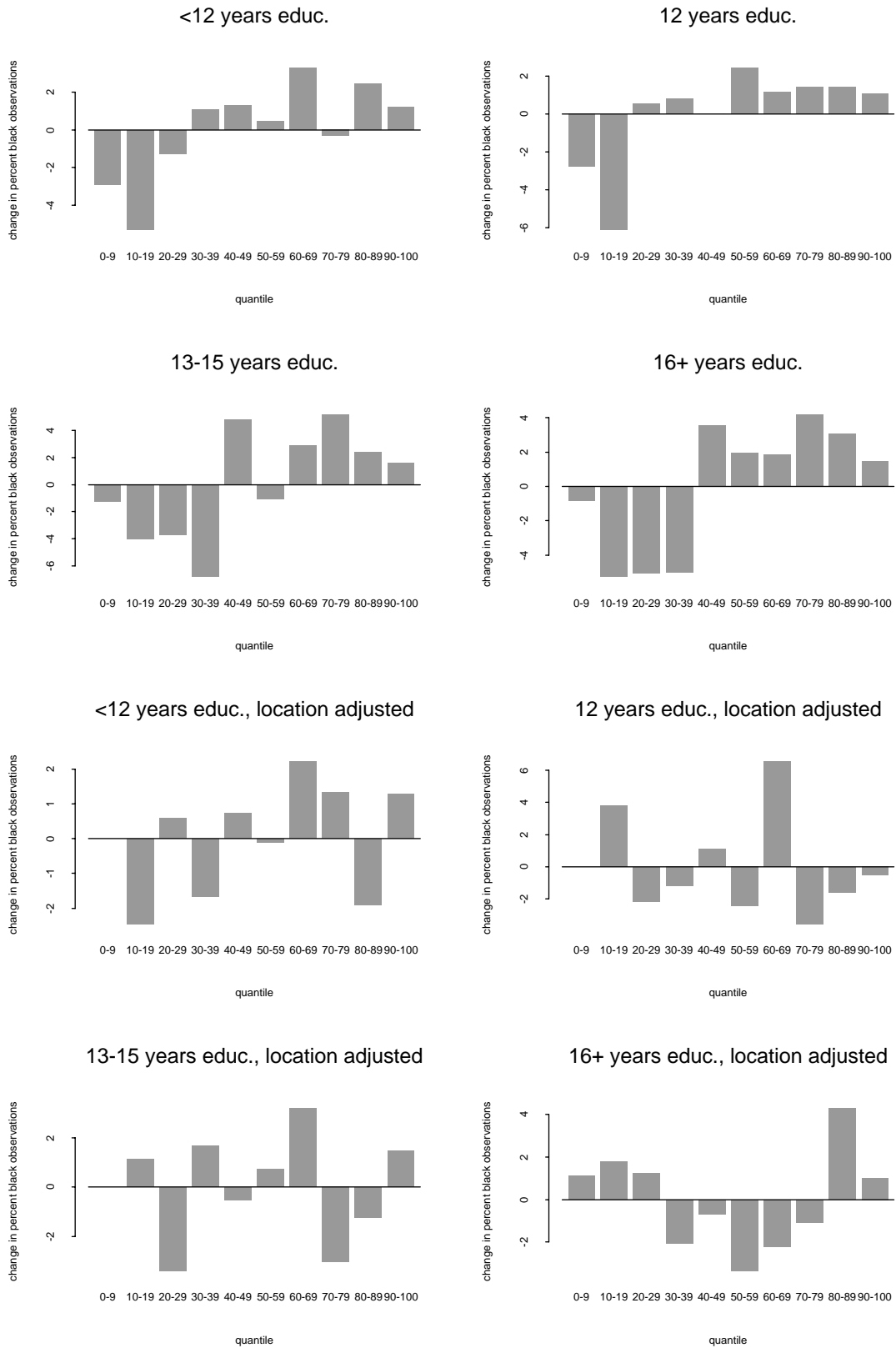


Figure 4(a): Change in Location of Black Annual Earnings in Overall Distribution, 1970-1960



Source: 1960 and 1970 Decennial Censuses (See Appendix A)

Figure 4(b): Change in Location of Black Annual Earnings in Overall Distribution, 1980-1970

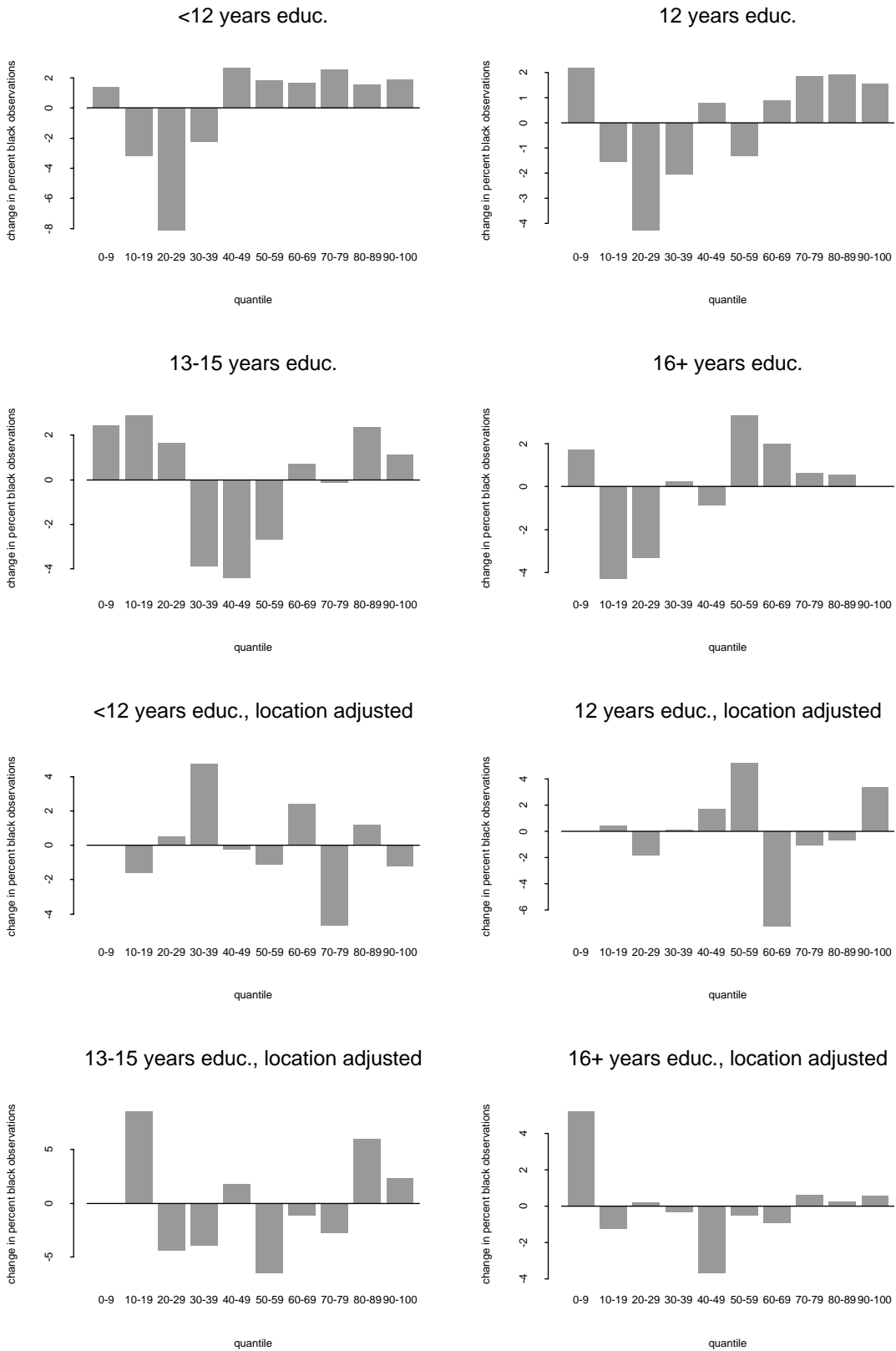
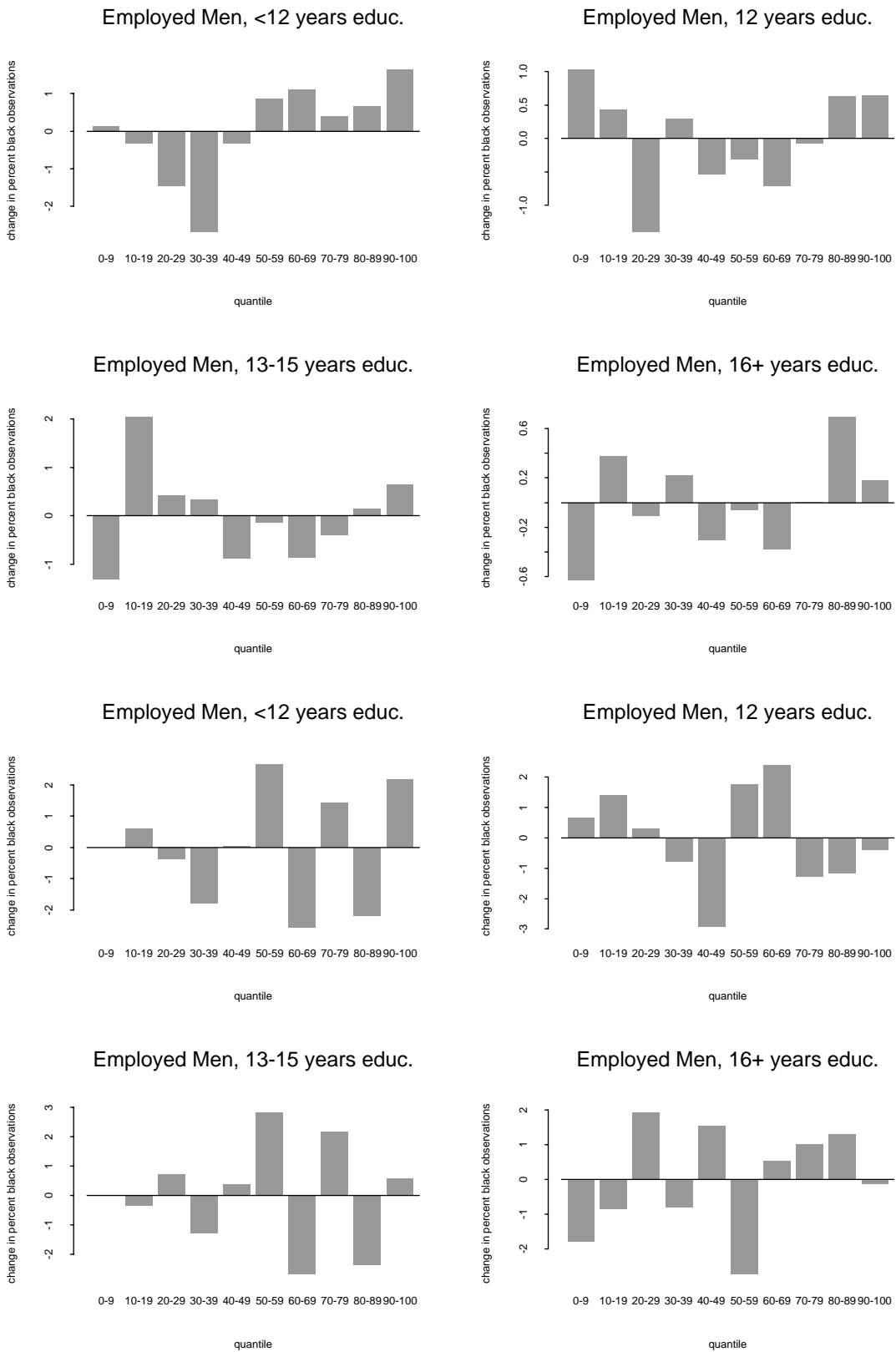
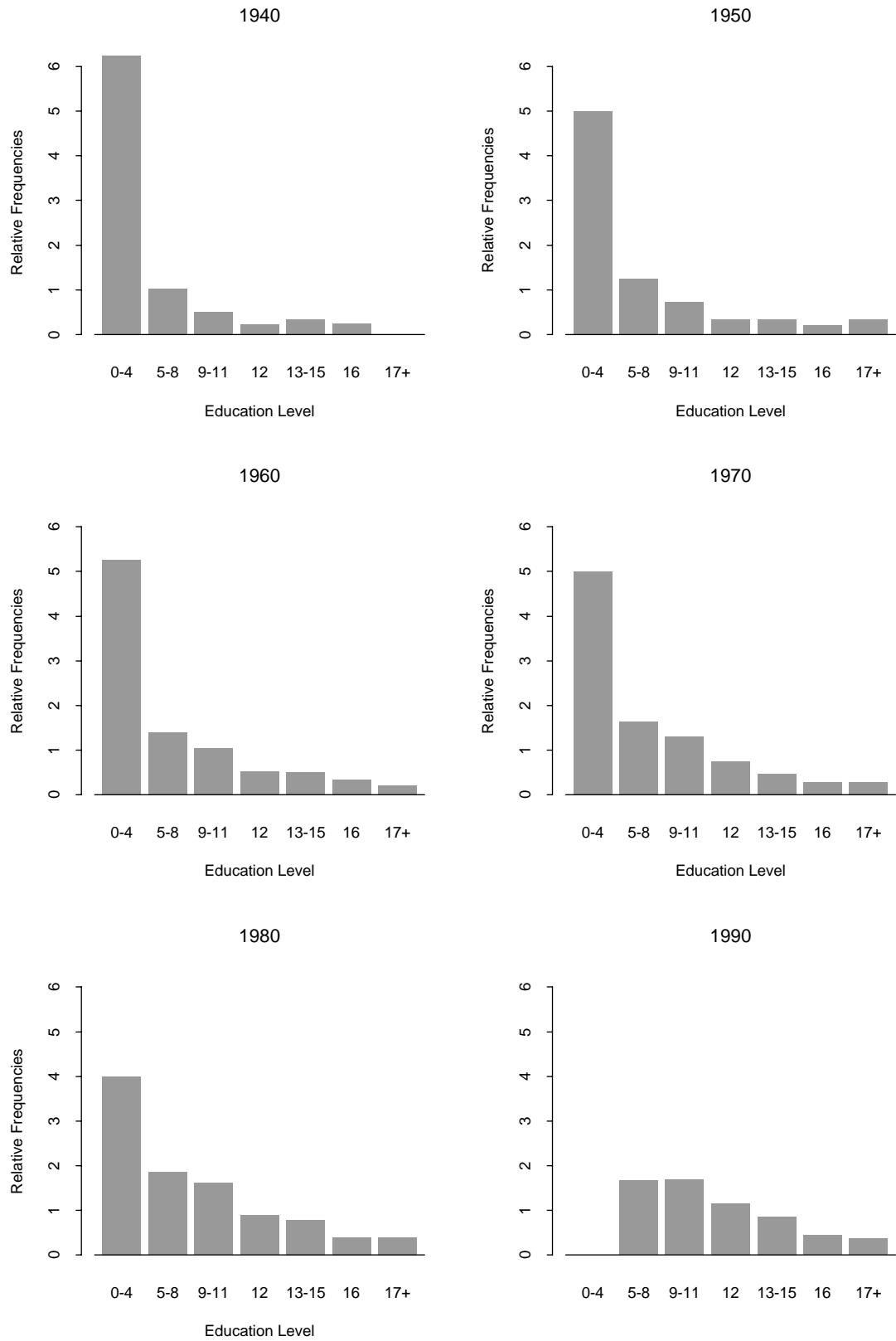


Figure 4(c): Change in Location of Black Annual Earnings in Overall Distribution, 1990-1980



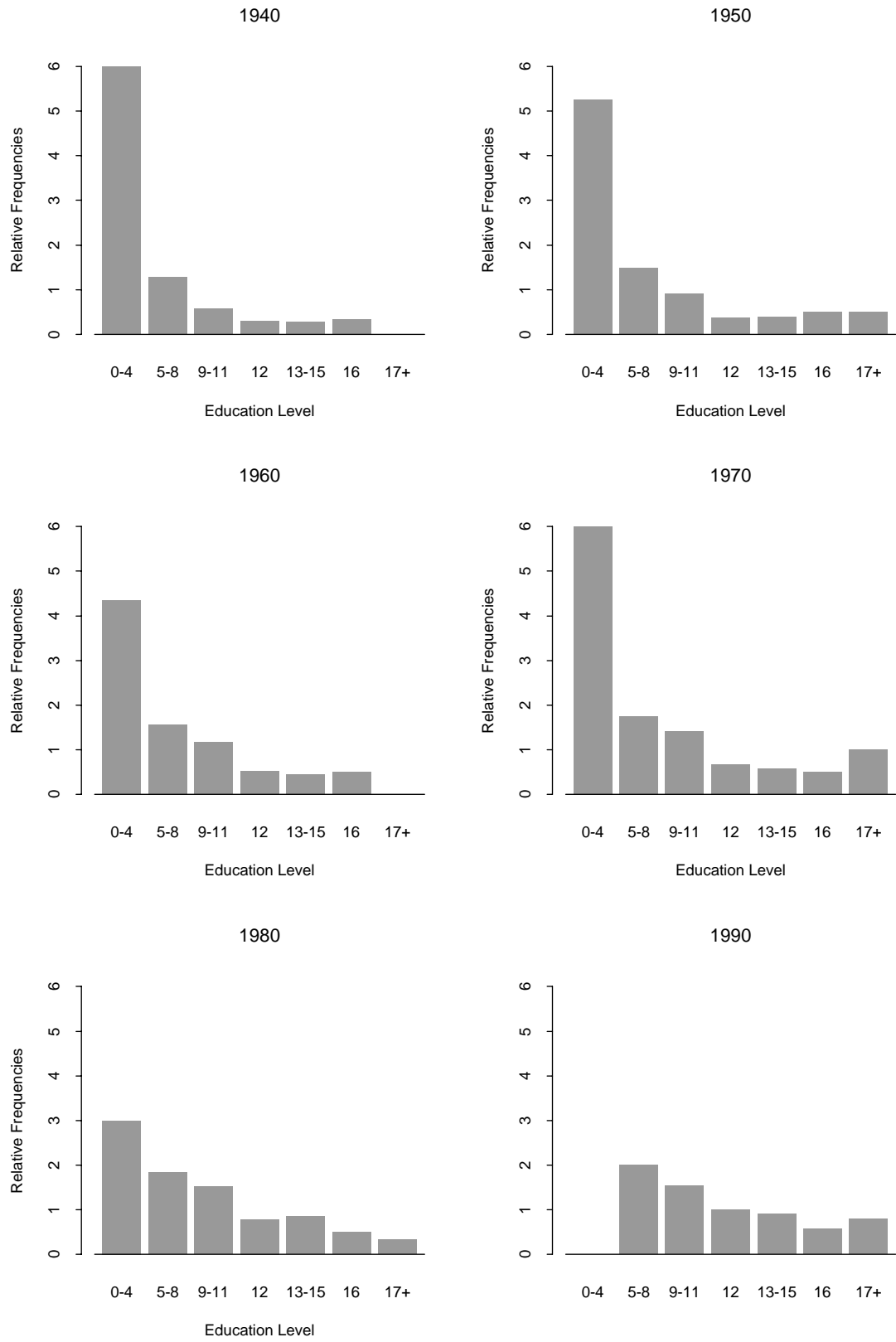
Source: 1980 and 1990 Decennial Censuses (See Appendix A)

Figure 5(a): Black-White Relative Education Frequencies for Males



Source: Authors tabulations based on 1940-1990 Decennial Census Data (See Appendix A)

Figure 5(b): Black-White Relative Education Frequencies for Females



Source: Authors tabulations based on 1940-1990 Decennial Census Data (See Appendix A)

Figure 6. Southern Average Black/White Schooling Quality Ratios over Time

(note: Southern averages are averages of state means that are weighted by black enrollment)

