
Where's the Payoff?

The Gap Between Black Academic
Progress and Economic Gains

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EXECUTIVE SUMMARY

A gap exists between the educational and the labor market progress of blacks. Blacks have gone a long way toward closing educational gaps between themselves and whites, at least as far as high school completion is concerned. Furthermore, black educational achievement, as measured by standardized tests, has improved significantly relative to whites, even when the effect of changes in family structure (i.e., the shift to single-parent families) is factored in. Nevertheless, the wages and employment opportunities of many blacks and other minorities continue to lag behind those of whites. Thus, the following question is suggested: why are blacks' earnings and employment opportunities failing to reflect their educational gains?

After an exhaustive review of the evidence, this study concludes that two primary factors are responsible for the failure of education to pay dividends at the workplace. First, because of their overrepresentation in vulnerable sectors of the labor market, blacks are more likely than whites to be adversely affected by the harmful trends that have beset the labor market over the last two decades, including shifts to lower-paying industries (from manufacturing to services); declining rates of unionization; the decline in the real value of the minimum wage; the increase in wage inequality that has favored workers with more years of education and experience; and the general erosion of worker bargaining power, labor market protections, and the social safety net. Second, blacks have the added burden of labor market discrimination, and while this factor is hard to quantify, the available evidence suggests that it has not diminished and may have increased.

This study examines educational attainment (years of schooling completed), achievement (standardized test scores), and economic progress (wage and employment trends); notes the divergence between these trends; and looks to recent research to provide explanations for this divergence. Specific issues addressed are the following:

Educational attainment: To what extent have blacks closed educational gaps between themselves and whites?

The data show that black men and women have closed much of the education gap between themselves and whites. For example, in terms of median years of schooling, black males closed a 3.3-year gap in 1940 to 0.3

Despite the educational gains by blacks and other minorities, their wages continue to lag behind those of whites.

years in 1990. For females, the gap closed from 2.7 years to 0.2 years. Similarly, between 1967 and 1993 the overall gap in high school dropout rates closed from 5.3 percentage points to 0.4 points. These trends have led to the closing of the overall gap in years of education completed. Among 25-29-year-olds, in 1940, 38.9% of white males as opposed to 10.6% of black males completed 12 years or more of schooling. By 1990, these shares were 84.6% for whites and 81.5% for blacks. A similar trend is evident for women.

There are areas, however, such as college completion, where blacks continue to lag.

Standardized test scores reveal that blacks have clearly closed the gap.

Educational achievement: What do standardized test scores reveal about the relative progress of blacks?

Some argue that black educational attainment is misrepresentative of blacks' true educational progress, since blacks attend worse schools and since these schools have worsened relative to schools attended by whites. Yet, standardized test scores reveal that, here too, blacks have clearly closed the gap. The ratio of black to white Scholastic Aptitude Test scores (both mathematics and verbal) has risen steadily since 1976, and the National Assessment of Educational Progress shows blacks catching up from the middle or late 1970s to 1990. Significant relative gains by blacks are evident both in the South and in metropolitan areas.

School quality and family structure: How have changes in these factors affected the relative educational progress of black children?

Conventional wisdom suggests that black students are at a growing relative disadvantage in school because they are overrepresented in single-parent families. However, two countervailing factors—increased levels of parental education and smaller family size—are found to outweigh this disadvantage. As to the impression that school quality, particularly in the inner city, has decreased over time, a number of studies challenge these impressions, and recent achievement data show gains for blacks within metropolitan areas.

Labor market trends: Do wage and employment trends reflect these educational developments?

The data suggest that blacks' relative educational gains are not reflected in their labor market progress. For example:

- After closing the hourly wage gap over the 1970s, blacks generally lost ground relative to whites in the 1980s. Interestingly, the wage gap actually grew faster for those black males with more education.
- The wage gap also expanded for black women in the 1980s, but their losses were more equally distributed across education groups. Recent patterns (1989-93) show some reversal in these trends, particularly for college-educated men.
- A particularly alarming trend is the degree to which young, black men with high school educations or less have been leaving the labor force. Among high school dropouts, the black employment-to-population ratio fell from 83.0% to 52.4% from 1973 to 1993. The white rate also fell, but less steeply, from 90.8% to 76.2%. Black high school graduates (the largest group) left the labor force 0.4 points a year faster than did whites from 1979 to 1989.

After closing the hourly wage gap over the 1970s, blacks generally lost ground relative to whites in the 1980s.

What forces are responsible for these developments? Researchers have found that part of the slowdown or reversal in narrowing the wage gap can be explained by continuing differences in “observable” characteristics such as education and experience. Other such observable factors include region, industry, occupation, and unionization rates. As noted above, blacks’ wage progress has been eroded in part because they are more concentrated in those areas of the labor market that have seen the steepest wage declines. These factors, taken together, usually explain about half of the slowdown in the narrowing of the wage gap. For example, the expansion of the wage benefits of a college degree over the 1980s may have helped to widen the gap, since blacks are underrepresented among college graduates. Similarly, industry shifts from high-paying manufacturing jobs to low-paying service jobs have hurt black men, since they were overrepresented in manufacturing.

There are, however, some trends that these observable factors cannot explain. Why, for example, did the average wages of black college graduates fall over the 1980s relative to those of their white counterparts? And what can explain the sharp falloff in black labor force participation, particularly among blacks with high school education or less? Ordinarily, the single most important reason that workers who would be expected to seek employment decide not to is the fall in the wage available to them. Yet research discussed in this study finds that this factor, while fully explaining the decline in labor market participation among whites, can explain only half of the decrease in participation among black males. Such trends suggest that,

beyond the “observable” factors noted above, an increase in labor market discrimination (along with a decrease in the enforcement of anti-discrimination law) must be considered as a probable cause of black labor force withdrawal.

Given these findings, it is clear that “human capital policy” (i.e., increasing workers’ skills) is necessary but not sufficient to achieve parity. Anti-discrimination policies continue to be relevant in today’s labor market, and, as this study goes to press, such policies are under attack. As long as labor market discrimination continues to prevent blacks from realizing their educational gains, such attacks are misguided.

INTRODUCTION

Despite the fact that blacks have significantly narrowed the educational gaps between themselves and whites, their labor market progress has not consistently reflected these educational gains. Blacks have also narrowed the gaps in test scores between themselves and whites, even when the effect of family structure changes (i.e., the shift to single-parent families) is factored in. Yet these educational gains are not being reflected in blacks' labor market progress.

This study first looks at the educational gains of blacks in terms of attainment and achievement. Section I tracks educational attainment (years of school completed) of blacks relative to whites. It finds that, though a substantial gap persists in college completion rates, black men and women have successfully closed much of the education gap between themselves and whites. Section II tracks educational achievement as measured by standardized test scores. It finds that blacks have successfully narrowed this gap as well. Some of blacks' most substantial relative achievement gains have come in the South.

Section III reports on the findings of a recent Rand study of the possible factors underlying blacks' educational progress. The authors conclude that family demographic changes—particularly an increase in parental education levels and a decrease in family size—have had a significant positive effect on test scores. In fact, the positive effect of these two factors is found to outweigh the negative effects of low incomes and the shift to single-parent families. However, these positive changes do not fully predict the dramatic gains, and the authors speculate that increased public investment in schools and changing social policies, such as school desegregation, may have contributed.

Section IV analyzes the relative progress of blacks in wages and employment. Here the findings are less positive. Over the 1970s, blacks generally closed wage gaps with whites, but these gaps once again expanded in the 1980s. Curiously, the largest relative losses were for black males with a college education; this group might have been expected to be spared from these pervasive negative trends. There are similar negative trends in the employment patterns of blacks relative to whites.

The final section reviews the explanations for the disconnect between

Educational gains are not being reflected in blacks' labor market progress.

blacks' educational and labor market progress, and it concludes that two primary factors are responsible:

- Because of their overrepresentation in vulnerable sectors of the labor market, blacks are more likely than whites to be adversely affected by the negative labor market trends of the last two decades, namely the shift to lower-paying industries (from manufacturing to services); declining rates of unionization; the decline in the real value of the minimum wage; the increase in wage inequality that has favored workers with more years of education and experience; and the general erosion of worker bargaining power, labor market protections, and the social safety net.
- Blacks have the added burden of labor market discrimination, and while this factor is hard to quantify, the available evidence suggests that it has not diminished and may have increased.

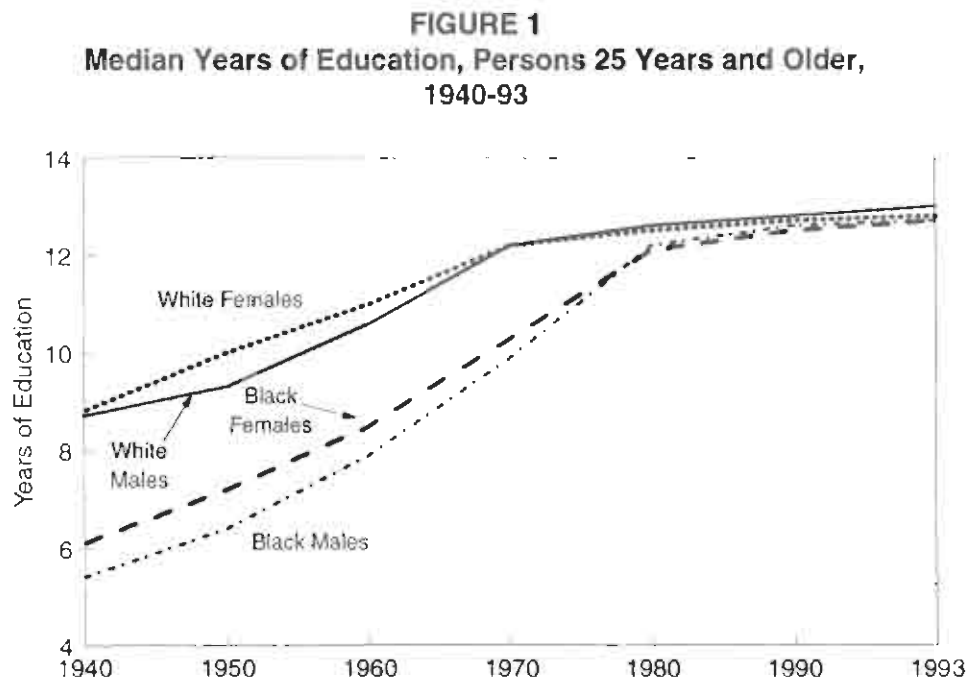
Blacks have the added burden of labor market discrimination.

I. EDUCATIONAL ATTAINMENT

Educational attainment refers to the amount of schooling of particular groups. Sample choices are important in this assessment. For example, virtually all of this analysis tracks a given age cohort through time, thus eliminating the effects of changes in the age distribution on the education distribution. Second, data permitting, cohorts are chosen such that their years of schooling are completed, so that the statistics do not reflect shares in flux. Thus, much of this analysis involves tracking the same age cohort through time.

A broad measure of comparative achievement is the median years of schooling completed by each gender and race group. **Figure 1** shows this series for persons 25 and over for the years 1940-93. In 1940, the median educational attainment level for black males has 5.4 years, compared to 8.7 years for white males. By 1990, these figures were 12.6 years for black males and 12.8 for white males. Thus, over the long term, black men closed a 3.3-year gap to 0.3 years. For females, the gap has closed from 2.7 years to 0.2 years. By this broad measure, blacks and whites now have similar levels of education.

Over the long term, black men closed a 3.3-year gap to 0.3 years.



Source: Digest of Educational Statistics (1994).

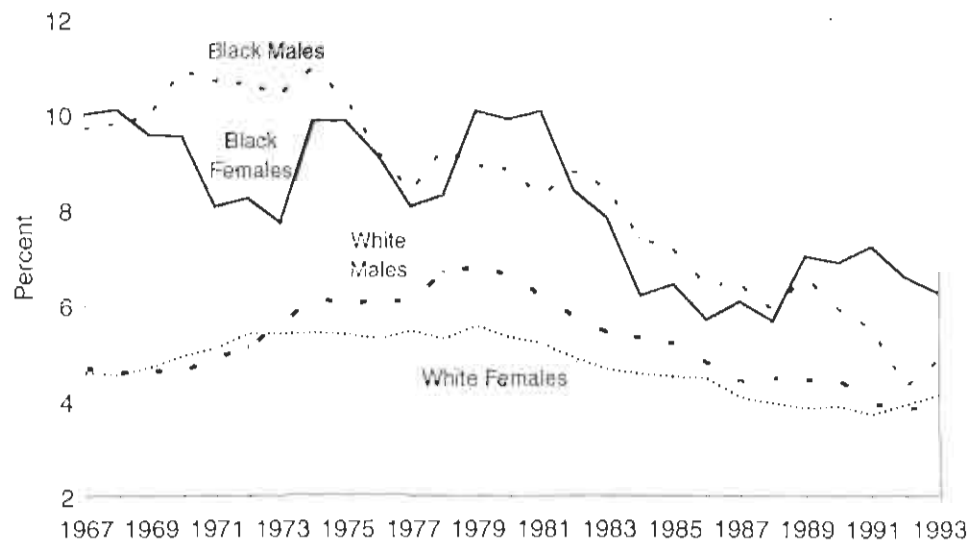
Yet this measure does not reveal the relative shares of blacks and whites who have made the important transitions in the educational system. For that information, we have to look more closely at attainment rates at various points in the educational process. We begin with dropout rates, then look at general completion rates for high school or more, then examine college enrollment and completion.

The convergence of black and white dropout rates is shown in **Figure 2**. The sample consists of 14-24-year-olds enrolled in grades 10-12 in the year prior to being surveyed; those who had not completed 12th grade or were not enrolled in school were considered dropouts. The most notable trend in the figure is the declining rates among black men and women, particularly over the 1980s. Since white dropout rates were generally flat, this dynamic led to a closing of the gap between blacks and whites. By the end of the series, black men have very similar rates to white men; for women, a spike among blacks in the late 1980s reversed the trend toward convergence. Nevertheless, in 1967, the overall gap was 5.3 percentage points (9.9% for blacks, 4.6% for whites); by 1993, it was 1.3 points (5.4% for blacks, 4.1% for whites).

Figure 2 establishes that dropout rates have generally converged, yet it

Dropout rates for blacks and whites have generally converged.

FIGURE 2
Annual Dropout Rates, Grades 10-12, Ages 14-24, 1967-93*



* Three-year moving averages.

Source: U.S. Census Bureau (1994).

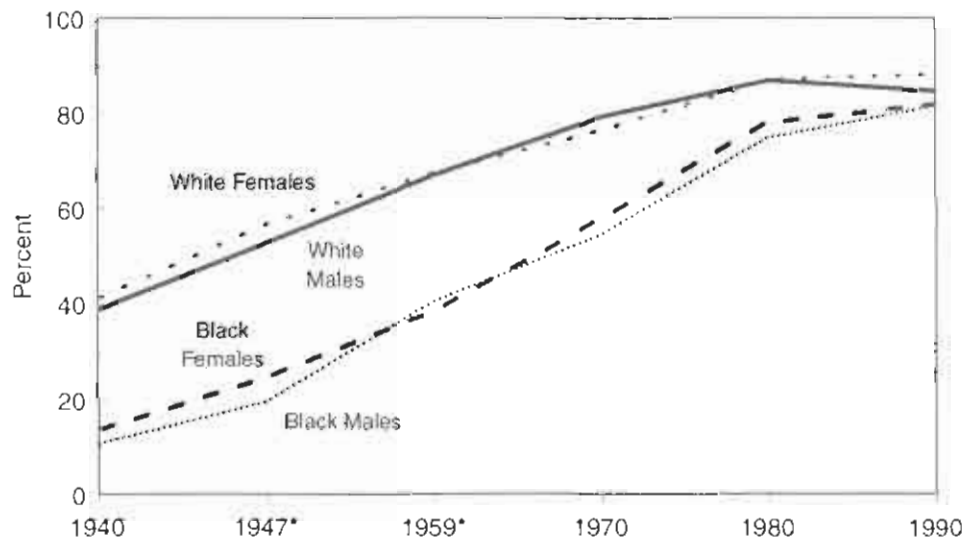
says little about attainment beyond high school. **Figure 3** confirms the finding that blacks have closed much of the overall education gap with whites. The figure shows the share of persons 25-29 years old with 12 or more completed years of education. In 1940, 38.9% of white males as opposed to 10.6% of black males completed 12 years or more. By 1990, these shares were 84.6% for whites and 81.5% for blacks. A similar trend is evident for women.

While Figure 3 reveals the unequivocal closing of the gap, it does not distinguish between rates of high school and college completion. Since a much smaller share of 25-29-year-olds has completed college, the above result could well be driven exclusively by high school completion rates. Since one of the major questions of this study involves wage differentials, and since these are in large part a function of educational attainment, the relative importance of high school or college completion is important.

Figure 4 looks at relative rates of enrollment (i.e., the percent of 18-24-year-old high school graduates by race enrolled in college; since these trends differ little by gender, both are combined).¹ Due to white declines and black increases, the enrollment gap fully closed by the late 1970s. However, a steep falloff for blacks combined with a sharp upturn for whites led to a

Blacks have closed much of the overall education gap with whites.

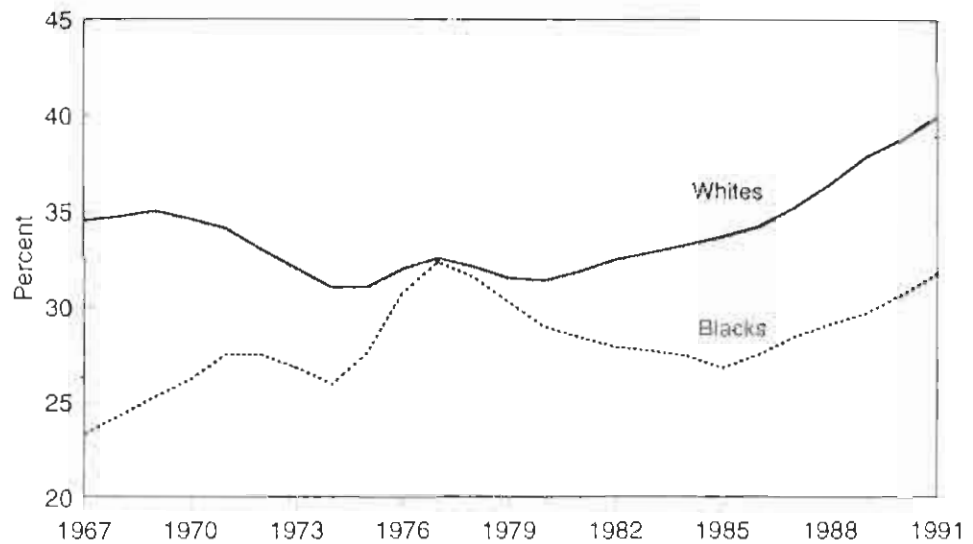
FIGURE 3
Percent of Persons Age 25-29
With a High School Degree or More, 1940-90



* Data unavailable for 1950, 1960.

Source: U.S. Census Bureau (1992).

FIGURE 4
Percent of High School Graduates
Age 18-24 Enrolled in College, 1967-91*



* Three-year moving average.

Source: U.S. Census Bureau (1994).

By 1981, blacks at all income levels were less likely than whites to enroll in college.

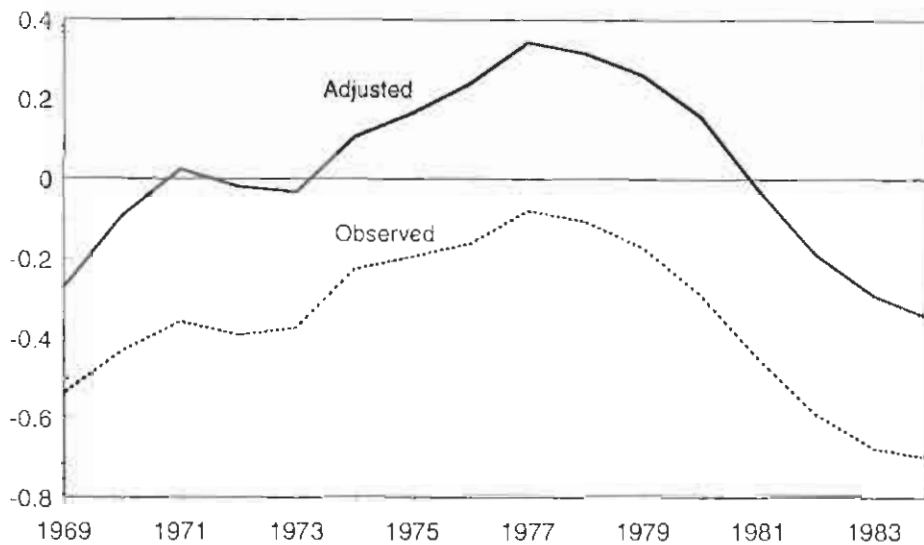
widening of the gap throughout the 1980s. By 1991, black enrollment rates were significantly lower than those of whites: 41.7% vs. 31.5%.²

An important question raised by the trend in Figure 4 is whether changes in family income are driving black college enrollment rates downward. Hauser answers this question by developing a series of regression-adjusted enrollment rates, controlling for a variety of factors, including family income (Hauser 1993).³ The resulting trends are shown in Figure 5, which graphs the relative odds of college entry (since these are log odds, zero represents equal chances of black/white college enrollment).

As seen in Figure 5, controlling for family income changes the enrollment trends portrayed in Figure 4, at least in the 1970s. Between 1973 and the end of the decade, blacks were more likely to enroll in college than were whites from families with similar incomes. But the relevant finding revealed by Figure 5 is that, by the end of the series (which has data only up to 1984), blacks' relative enrollment chances fell even when controlling for income. That is, blacks at all income levels were less likely than whites to enroll in college.

What explains this decrease in the relative likelihood of black enrollment?

FIGURE 5
Trends in Black-White Differences in College Entry,
Age 25-34, 1969-84*



* Three-year averages.

Source: Hauser (1994).

Blacks may be responding to the fact that costs of college attendance have increased while benefits have fallen.

Neither income (as shown in Figure 5) nor achievement trends (as shown below) explain the decline. Hauser argues convincingly that “the major factor driving down African-American college attendance was its decreasingly attractive terms of support, both financial and social,” (1993, 305). He points out that two changes in the public provision of college aid have put blacks at a relative disadvantage: the decline in the levels of aid (relative to need) and the shift in targeting away from the most economically disadvantaged.

A related explanation may be revealed by the wage trends reported below, which show steep relative losses for college-educated black males. Given both Hauser’s finding that the cost of attendance has increased for blacks and the fact that the relative return to a college education has fallen (that this fall was largest for college-level workers is shown below), it is perhaps not surprising that college entry rates for blacks have declined.⁴ In essence, blacks may be responding to the fact that costs of attendance have increased while benefits have fallen.

Given the pattern in the last two figures, it is not surprising that a substantial gap exists in college completion rates between blacks and whites. Figure 6 shows this lack of convergence for 25-29-year-olds. College com-

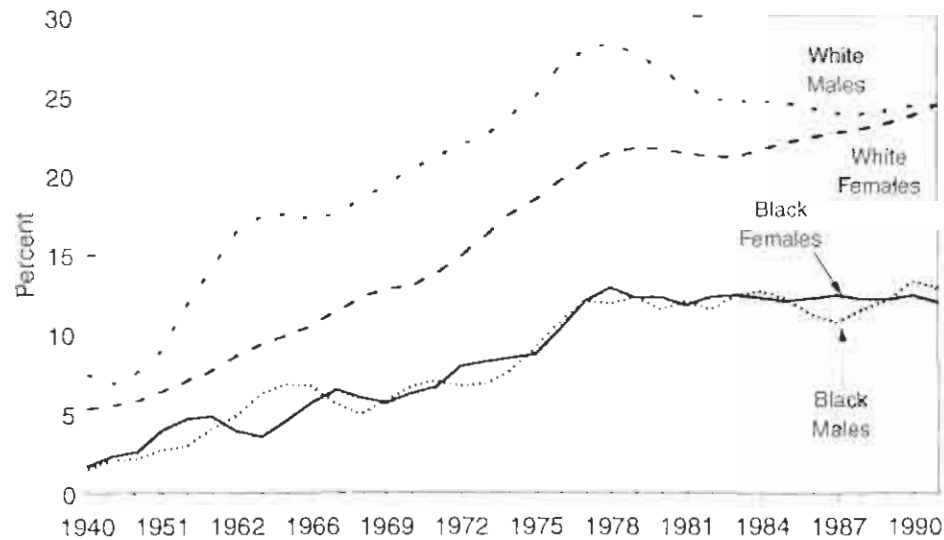
pletion rates have grown steadily for white females, while the other three series (black men and women and white men) peaked in the late 1970s and then flattened out.⁵ More to the point, the black/white college gap has not closed over the period 1964-91. Thus, in answer to the question posed above, the closing of the gap in high school or higher educational attainment, shown in Figure 3, is a function of high school, not college, completion rates.⁶

Another question suggested by these attainment series is whether the national trends have differed by region. For example, are changes in the South (historically associated with school segregation) responsible for much of the closure in dropout rates shown in Figure 2? To examine this question, a 20-year database (1973-93) was developed that uses the May (1973-78) and Outgoing Rotation Group (1979-93) files from the Current Population Survey (CPS). In order to control cohort effects, the series is restricted to 25-34-years-olds. (This series is described in the data appendix.)

Table A presents attainment shares for 25-34-year-olds by region, gender, and race. Looking first at males, the last panel (All) shows that the black/white difference in the 16+ group fell by 3.7 percentage points in the 15-year period, 1975-90 (i.e., blacks closed this gap by 3.7 points). Note that this

The closing of the gap in high school or higher educational attainment is a function of high school, not college, completion rates.

FIGURE 6
Percent of Persons Age 25-29
With 16 or More Years of Education, 1964-91*



* Three-year moving average.

Source: U.S. Census Bureau (1994).

closure was due exclusively to black upgrading; white males had a fairly constant share in the 16+ category over this period. The regional analysis shows that there are, indeed, differences across the country. Most of the gain in college attainment came from the West and, to a lesser extent, the South (the share of Southern black dropouts fell by almost half). Conversely, black males made little relative progress in college attainment in the Northeast.

Black males made dramatic gains in reducing their share of dropouts, particularly in the South. There, the difference between the share of black and white dropouts fell from 18.1 percentage points in 1975 to 5.3 points in 1990, the largest closure of the dropout gap in the four regions (note also that blacks are overrepresented in the South). This shift in the South was mostly reflected in the increased share of black Southern male high school graduates. Nevertheless, this large shift toward educational upgrading by dropouts left Southern black males with dropout levels in 1990 only slightly lower than the comparable share for whites in 1975. And, despite their relatively large gains in the college share over the period, Southern black males have the lowest regional levels of college attainment. (This is not the case for white males.)

The second part of the table shows regional attainment shares for females. While white females have steadily upgraded throughout the distribution, shifting comparable shares from dropout and high school to some college and college, black females have shifted primarily from dropouts to some college. Overall, black women (like black men) cut their share of dropouts almost by half, with much of this gain coming from the South and Northeast. However, despite the fairly impressive upgrading by black women, the fact that white women made even larger gains militated against the relative progress of black females. For example, while black females in the Northeast almost doubled their share of 16+ years, white females increased their share by a third, and so the white/black gap in the college-plus category expanded by 2.8 points over the full period.

In summary, these attainment findings reveal substantial overall black progress relative to whites. The gaps in median years of education, dropout rates, and high school completion have been substantially closed. The regional results show that both male and female blacks in the South were instrumental in closing the dropout gap with whites. Yet college enrollment and completion rates have not been large enough to close the black/white gap.

In summary, these attainment findings reveal substantial overall black progress relative to whites.

TABLE A
Educational Attainment by Race, Region, and Gender, 1975-90*
Males, Age 25-34

Years of Education	White				Black				Difference (Black-White)						
	1975	1980	1985	1990	Change 1975-90	1975	1980	1985	1990	Change 1975-90	1975	1980	1985	1990	Change 1975-90
Northeast															
<12	14.2%	10.0%	8.5%	8.3%	-5.9	24.9%	21.0%	16.0%	15.2%	-9.7	10.7	11.0	7.5	6.9	-3.8
12	39.0	38.8	39.6	42.0	3.1	42.8	42.1	46.4	46.7	3.8	4.0	3.3	6.8	4.7	0.8
13-15	17.9	19.8	19.8	18.7	0.8	18.9	21.6	19.6	21.8	2.9	1.0	1.8	-0.2	3.0	2.1
16+	29.0	31.4	32.0	31.0	2.0	13.4	15.3	18.0	16.4	2.9	-15.6	-16.1	-14.1	-14.7	1.0
Midwest															
<12	14.0%	9.4%	8.9%	9.0%	-5.0	26.0%	20.1%	16.8%	15.4%	-10.6	12.0	10.7	7.9	6.4	-5.6
12	41.4	41.1	45.4	45.7	4.3	44.2	41.8	42.6	45.4	1.3	2.8	0.7	-2.9	-0.3	-3.0
13-15	19.3	21.9	21.0	21.1	1.8	18.1	24.9	25.9	25.5	7.4	-1.2	3.1	4.9	4.5	5.7
16+	25.3	27.7	24.7	24.2	-1.1	11.8	13.3	14.8	13.7	1.9	-13.5	-14.4	-9.9	-10.6	3.0
South															
<12	19.7%	15.2%	14.0%	14.1%	-5.6	37.8%	27.7%	23.3%	19.4%	-18.4	18.1	12.5	9.3	5.3	-12.8
12	35.9	35.0	39.1	40.2	4.3	39.5	41.0	46.9	48.8	9.3	3.6	5.9	7.8	8.6	5.0
13-15	18.9	21.4	20.8	19.9	1.0	14.1	18.9	18.2	19.3	5.2	-4.8	-2.5	-2.6	-0.6	4.2
16+	25.5	28.3	26.1	25.8	0.3	8.7	12.4	11.7	12.6	3.9	-16.8	-15.9	-14.5	-13.2	3.6
West															
<12	9.0%	6.7%	6.9%	8.3%	-0.8	11.8%	9.6%	9.5%	7.6%	-4.3	2.8	2.9	2.6	-0.7	-3.5
12	30.4	31.1	36.4	40.0	9.6	45.9	34.7	39.2	44.0	-1.9	15.5	3.6	2.8	4.0	-11.5
13-15	29.9	30.1	27.7	26.0	-3.9	29.5	37.0	35.6	31.8	2.3	-0.4	6.9	7.8	5.8	6.2
16+	30.7	32.1	29.0	25.8	-5.0	12.8	18.7	15.7	16.6	3.8	-17.9	-13.4	-13.2	-9.2	8.8
All															
<12	14.7%	10.4%	9.7%	10.1%	-4.6	30.1%	23.3%	19.6%	17.0%	-13.1	15.4	13.0	9.9	6.9	-8.5
12	37.2	36.5	40.4	42.1	5.0	41.8	40.6	45.3	47.4	5.6	4.6	4.2	5.0	5.3	0.7
13-15	20.9	23.4	22.2	21.1	0.2	17.5	22.4	21.4	21.8	4.3	-3.4	-1.1	-0.7	0.7	4.1
16+	27.3	29.7	27.7	26.7	-0.6	10.6	13.7	13.7	13.8	3.1	-16.6	-16.1	-14.1	-12.9	3.7

TABLE A (cont.)
Educational Attainment by Race, Region, and Gender, 1975-90
Females, Age 25-34

Years of Education	White					Black					Difference (Black-White)				
	1975	1980	1985	1990	Change 1975-90	1975	1980	1985	1990	Change 1975-90	1975	1980	1985	1990	Change 1975-90
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Northeast															
<12	14.7%	10.5%	7.4%	6.3%	-8.3	30.2%	23.3%	19.3%	16.1%	-14.2	15.6	12.8	12.0	9.7	-5.8
12	49.1	45.5	43.5	41.1	-8.0	49.9	47.2	45.1	43.2	-6.6	0.8	1.8	1.6	2.1	1.4
13-15	15.3	18.7	20.2	21.5	6.3	12.4	18.8	20.6	25.8	13.5	-2.9	0.1	0.4	4.3	7.2
16+	21.0	25.4	28.9	31.1	10.1	7.6	10.7	15.0	14.9	7.3	-13.4	-14.7	-13.9	-16.2	-2.8
Midwest															
<12	15.2%	10.0%	8.6%	7.6%	-7.6	27.5%	23.0%	19.9%	18.8%	-8.7	12.3	13.0	11.3	11.2	-1.1
12	51.5	48.7	47.6	44.9	-6.6	47.5	43.8	42.0	42.6	-4.8	-4.0	-4.9	-5.6	-2.3	1.8
13-15	15.8	20.0	22.1	24.0	8.2	16.4	22.7	25.5	27.3	10.9	0.6	2.7	3.4	3.3	2.7
16+	17.6	21.3	21.8	23.5	5.9	8.7	10.6	12.7	11.2	2.6	-8.9	-10.7	-9.1	-12.3	-3.4
South															
<12	21.2%	15.0%	12.7%	11.9%	-9.3	37.8%	25.4%	20.2%	18.3%	-19.5	16.6	10.4	7.4	6.4	-10.2
12	46.0	44.1	42.9	40.9	-5.1	39.5	44.3	46.8	46.1	6.7	-6.5	0.2	3.9	5.2	11.8
13-15	15.4	19.1	20.9	22.1	6.7	14.1	16.7	19.7	22.3	8.2	-1.3	-2.4	-1.2	0.2	1.5
16+	17.4	21.8	23.5	25.1	7.7	8.7	13.6	13.4	13.2	4.6	-8.7	-8.2	-10.1	-11.9	-3.2
West															
<12	11.7%	8.0%	6.9%	7.7%	-4.0	19.2%	12.5%	10.2%	10.5%	-8.7	7.5	4.6	3.3	2.8	-4.7
12	41.8	38.7	39.1	39.5	-2.3	40.7	40.1	39.6	41.9	1.2	-1.1	1.4	0.5	2.4	3.5
13-15	24.9	28.9	29.2	29.0	4.1	31.5	35.1	35.1	33.0	1.5	6.6	6.2	5.9	4.0	-2.6
16+	21.6	24.5	24.8	23.8	2.2	8.6	12.3	15.1	14.5	5.9	-13.0	-12.3	-9.7	-9.3	3.8
All															
<12	16.1%	10.9%	9.0%	8.5%	-7.6	31.7%	23.3%	19.1%	17.3%	-14.3	15.5	12.4	10.0	8.8	-6.7
12	47.5	44.3	43.5	41.7	-5.7	44.2	44.3	45.0	44.6	0.4	-3.3	-0.0	1.5	2.9	6.2
13-15	17.3	21.7	22.9	23.9	6.5	14.4	20.0	22.3	24.8	10.4	-2.9	-1.7	-0.6	1.0	3.9
16+	19.1	23.1	24.6	25.9	6.8	9.8	12.4	13.7	13.3	3.5	-9.3	-10.7	-10.9	-12.7	-3.3

* 1975 is a five-year centered average; 1985-90 are three-year centered averages.
 Source: Author's analysis of BLS data as described in data appendix.

II. EDUCATIONAL ACHIEVEMENT

It is often argued that the closing of the education gap shown in Figures 1 and 3 is misleading because it fails to take into account quality differences between black and white school systems. If black education is deteriorating, then this gain is meaningful only in terms of the credential (e.g., a high-school diploma), not in terms of truly improved human capital.⁷ Since wage differentials reflect, in part, human capital investments, this distinction is important.

This section examines various time series of two standardized tests, the SAT (Scholastic Aptitude Test) and the NAEP (National Assessment of Educational Progress) to assess trends in the quality of schooling received by blacks and whites. The SAT is a college admissions test designed to predict future academic performance, while the NAEP, a nationally representative set of tests to gauge levels and trends of educational achievement, is designed more to be a survey of educational progress (and is, therefore, more inclusive than the SAT). Both of these tests have well-documented limitations, but they are widely considered to be the best sources of trends in educational achievement.⁸

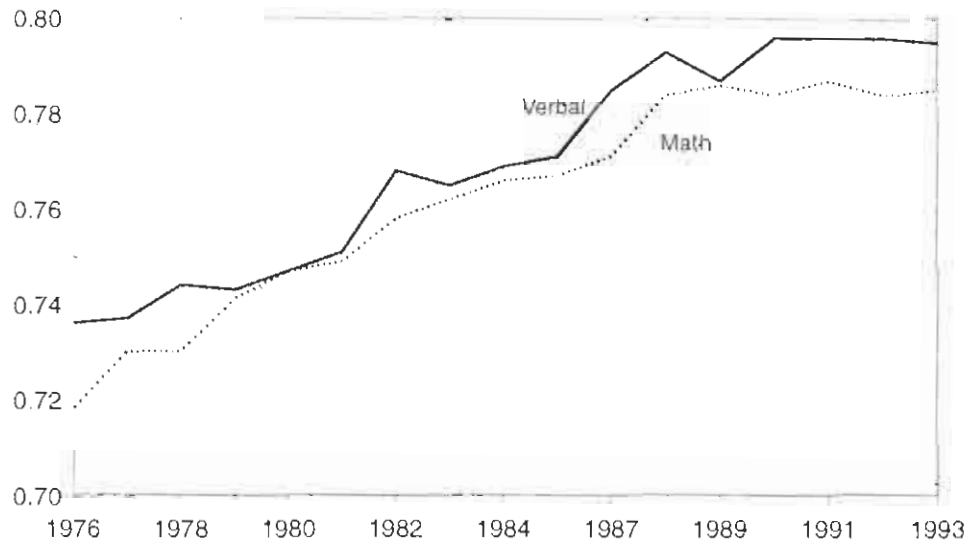
Figure 7 reveals the convergence of SAT mathematics and verbal scores in the period 1976-93. The figure shows the ratio of black to white math scores rising from about 0.72 in 1976 to 0.78 in 1990. Verbal score ratios rise from about 0.74 to 0.80. (The trend appears to have flattened in the 1990s.) This very broad SAT measure may understate the actual convergence, all other things being equal, since the composition of test takers has grown to include disproportionately more disadvantaged blacks over time.⁹ Thus, this broad and noninclusive measure reveals a steady closing of the black/white gap in mathematics and verbal scores, at least up to 1990.

The NAEP examines academic proficiency in reading, science, and mathematics. Results are reported using scales ranging from 0 to 500. Level 200 represents an understanding of simple principles; level 250, the application of general information; level 300, the analysis of procedures and data; and level 350, the integration of specialized information. We present results for black and white 17-year-olds from the mid-1970s to 1990, nationally, by region, and within region/metropolitan areas.

In general, the NAEP trends reveal 17-year-old blacks to have closed

In general, the NAEP trends reveal 17-year-old blacks to have closed much of the achievement gap between themselves and whites.

FIGURE 7
Ratio of Black to White SAT Scores,
1976-93



The largest gains in reading for blacks came in the South, where the gap has closed by half.

Source: Digest of Educational Statistics (1994).

much of the achievement gap between themselves and whites, corroborating Figure 7 above. This convergence was accomplished mostly due to relatively flat trends among whites and broad and substantial gains by blacks.¹⁰

Table B shows reading scores by race and region. Column 3 in each panel shows a steady decline in the black/white gap until 1988; the trend reverses in 1990 (the last year of data availability). Nevertheless, the calculation in column 4 shows that 44% of the black/white gap in reading scores closed over the period. The regional results show that the largest gains in reading for blacks came in the South, where the gap has closed by half.

The second part of Table B presents new data on NAEP scores within metropolitan areas, by region. Since these areas include both cities and surrounding suburban areas, it is not possible to isolate the effect of the "inner city." However, these areas would include a higher proportion of those inner city schools where, conventional wisdom suggests, blacks have become most educationally disadvantaged. In fact, in each region, metropolitan blacks closed as large a share or more of the reading gap between themselves and whites than in the region overall, as shown in Table B. This result stems from the fact that black metro scores and trends are much the same as their

TABLE B
National Assessment of Educational Progress (NAEP)
Reading Scores by Race and Region, 17-Year-Olds

	All Areas				Metro Areas Only			
	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90
Northeast								
1975	296.8	245.6	51.2		302.3	245.3	57.0	
1980	292.1	250.3	41.8		294.0	250.7	43.3	
1988	298.3	274.8	23.5		299.2	274.8	24.4	
1990	302.4	268.6	33.8		300.8	268.3	32.5	
<i>Change</i>								
1975-90	5.6	23.0	-17.4	0.34	-1.5	23.0	-24.5	0.43
Midwest								
1975	295.1	243.4	51.7		300.1	243.4	56.7	
1980	292.6	244.6	48.0		294.2	244.6	49.6	
1988	296.7	277.4	19.3		299.6	276.8	22.8	
1990	299.5	269.5	30.0		302.5	269.8	32.7	
<i>Change</i>								
1975-90	4.4	26.1	-21.7	0.42	2.4	26.4	-24.0	0.42
South								
1975	288.1	235.2	52.9		295.1	235.3	59.8	
1980	291.6	239.2	52.4		294.1	240.8	53.3	
1988	292.8	273.0	19.8		294.8	284.2	10.6	
1990	291.4	264.6	26.8		296.9	267.7	29.2	
<i>Change</i>								
1975-90	3.3	29.4	-26.1	0.49	1.8	32.4	-30.6	0.51
West								
1975	290.5	243.4	47.1		294.8	243.5	51.3	
1980	296.0	252.2	43.8		296.3	251.9	44.4	
1988	295.8	270.8	25.0		295.6	270.8	24.8	
1990	297.1	260.5	36.6		296.6	260.5	36.1	
<i>Change</i>								
1975-90	6.6	17.1	-10.5	0.22	1.8	17.0	-15.2	0.30
ALL								
1975	293.0	240.6	52.4		293.6	240.0	53.6	
1980	292.8	243.1	49.7		294.6	244.4	50.2	
1988	294.7	274.4	20.3		297.2	278.9	18.3	
1990	296.6	267.3	29.3		299.3	267.9	31.4	
<i>Change</i>								
1975-90	3.6	26.7	-23.1	0.44	5.7	27.9	-22.2	0.41

Source: Greenberg's analysis of NAEP data.

overall scores, while white trends generally show less growth in metro areas than in the region overall.¹¹ For example, in metro areas in the Northeast, blacks closed the reading gap by 24.5 points; overall in the Northeast, the reading gap fell by 17.4 points. A similar pattern is evident in the West.

Mathematics scores, shown in **Table C**, reveal a similar closing of the national gap, but great regional variation. Black scores in the Northeast grew relative to whites in the period 1978-82, but the gap widened in 1986 and 1990, ending up one point higher than where it began. Note also that, by 1990, the difference between black and white scores was significantly higher in the Northeast than in the nation as a whole (36.5 versus 21.0). The results for metro areas are quite similar to the overall regional results. Here, too, blacks in metro areas in the Northeast had the largest gap in math scores relative to whites.

Mathematics scores reveal a similar closing of the national gap, but great regional variation.

A similar pattern is again evident in the science scores (**Table D**), where the relative progress of blacks reversed in 1986, again driven by a sharp decline in the Northeast. In fact, the gap in science scores had closed by 17.4 points in the 1977-86 period in the Northeast, but then the trend sharply reversed, and the gap widened by 26.3 points between 1986 and 1990. In the South and West, blacks steadily improved their science scores while whites improved only slightly, leading to a 22% and 48% closing of the 1977 gap. The second half of the table shows that this same pattern is evident in metro areas: in the Northeast, the pre-1986 progress reversed course, while in other regions blacks in metro areas scored relative gains. However, the metro results show less relative progress among blacks in each region, except the West, due to the superior progress of whites.

The NAEP results presented thus far are averages and thus may mask distributional changes that could reveal less sanguine results for blacks. For example, if the average is dominated by the strong progress by a small group of high-achieving blacks, the earlier results might not truly indicate widespread educational improvements.

Figure 8 addresses this potential problem by presenting national black/white trends at the 10th, 25th, and 50th (median) percentiles. The figures show the differences in the scores for white and black 17-year-olds at the noted percentiles; thus, declining trends represent a closure of the gap. The trends closely reflect those in the above tables. Science and reading gaps closed over most of the 1970s for these percentiles, but grew in the late

TABLE C
National Assessment of Educational Progress (NAEP)
Mathematics Scores by Race and Region, 17-Year-Olds

	All Areas				Metro Areas Only			
	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90
Northeast								
1978	311.0	275.5	35.5		312.0	275.0	37.0	
1982	308.0	281.1	26.9		307.8	281.0	26.8	
1986	310.7	282.6	28.1		311.1	282.6	28.5	
1990	309.1	272.6	36.5		309.9	273.2	36.7	
<i>Change</i>								
1978-90	-1.9	-2.9	1.0	-0.03	-2.1	-1.8	-0.3	0.01
Midwest								
1978	307.1	273.0	34.1		309.4	272.9	36.5	
1982	305.3	274.6	30.7		309.1	274.7	34.4	
1986	306.7	279.7	27.0		309.6	276.1	33.5	
1990	314.4	292.4	22.0		315.6	292.7	22.9	
<i>Change</i>								
1978-90	7.3	19.4	-12.1	0.35	6.2	19.8	-13.6	0.37
South								
1978	301.7	262.2	39.5		306.3	263.6	42.7	
1982	299.3	266.1	33.2		302.5	268.4	34.1	
1986	306.4	278.2	28.2		309.5	278.8	30.7	
1990	305.7	290.2	15.5		310.4	289.6	20.8	
<i>Change</i>								
1978-90	4.0	28.0	-24.0	0.61	4.1	26.0	-21.9	0.51
West								
1978	300.7	268.0	32.7		300.6	267.6	33.0	
1982	301.0	271.2	29.8		302.2	270.1	32.1	
1986	304.6	281.5	23.1		305.9	282.0	23.9	
1990	309.2	286.7	22.5		307.2	285.8	21.4	
<i>Change</i>								
1978-90	8.5	18.7	-10.2	0.31	6.6	18.2	-11.6	0.35
All								
1978	305.9	268.4	37.5		307.6	269.3	38.3	
1982	303.7	271.8	31.9		306.0	273.2	32.8	
1986	307.5	278.6	28.9		309.4	279.6	29.8	
1990	309.5	288.5	21.0		311.2	287.3	23.9	
<i>Change</i>								
1975-90	3.6	20.1	-16.5	0.44	3.6	18.0	-14.4	0.38

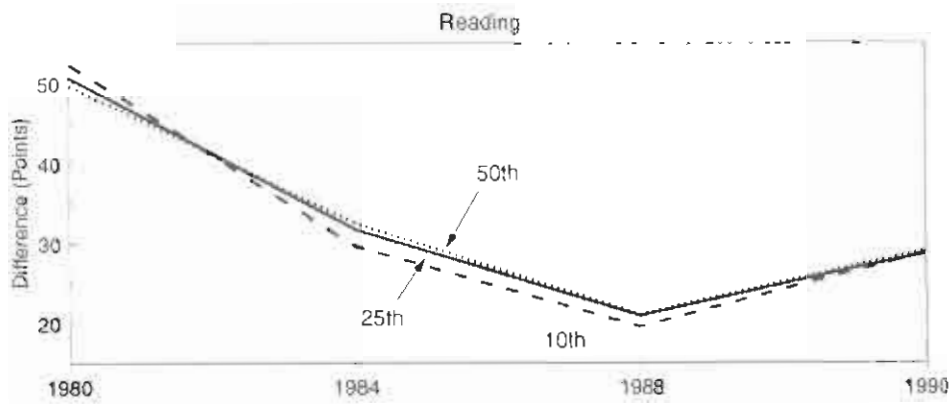
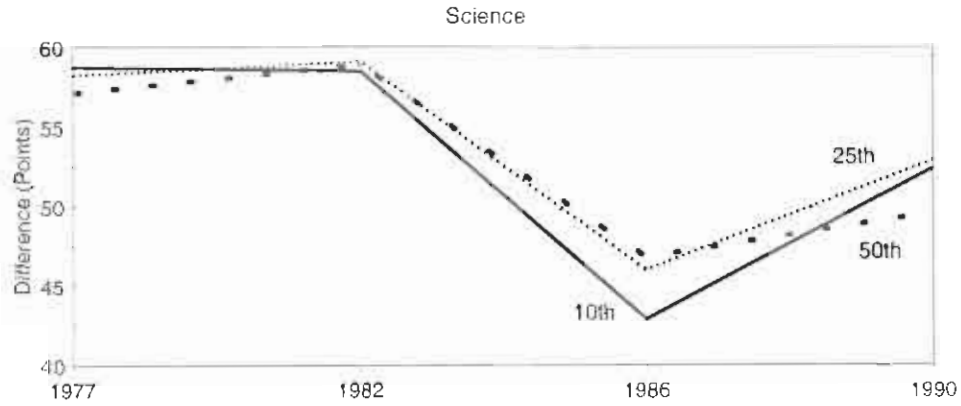
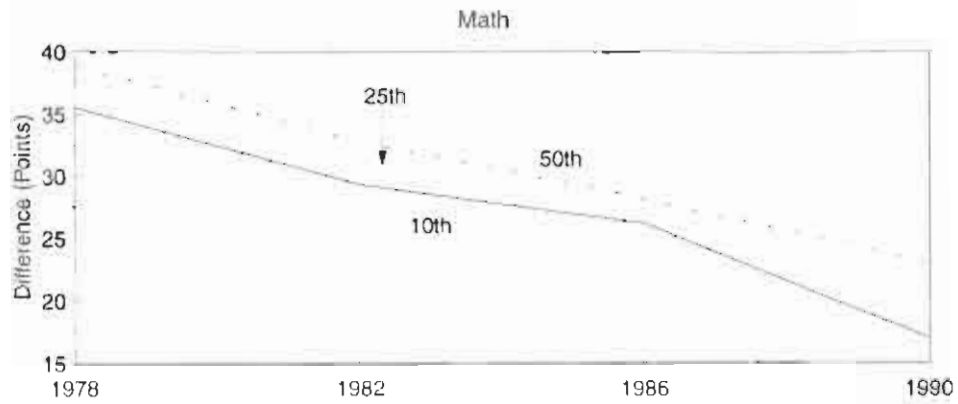
Source: Greenberg's analysis of NAEP data.

TABLE D
National Assessment of Educational Progress (NAEP)
Science Scores by Race and Region, 17-Year-Olds

	All Areas				Metro Areas Only			
	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90	White	Black	Difference (White- Black)	Share of Gap Closed, 1975-90
Northeast								
1977	301.2	243.1	58.1		302.3	242.5	59.8	
1982	292.6	232.8	59.8		292.2	232.8	59.4	
1986	297.5	256.8	40.7		296.9	256.8	40.1	
1990	304.0	237.0	67.0		303.9	236.8	67.1	
<i>Change</i>								
1977-90	2.8	-6.1	8.9	-0.15	1.6	-5.7	7.3	-0.12
Midwest								
1977	299.3	241.2	58.1		300.1	240.5	59.6	
1982	295.0	239.7	55.3		298.0	239.4	58.6	
1986	300.0	254.9	45.1		301.0	254.2	46.8	
1990	307.0	259.2	47.8		308.8	258.9	49.9	
<i>Change</i>								
1977-90	7.7	18.0	-10.3	0.18	8.7	18.4	-9.7	0.16
South								
1977	293.1	239.0	54.1		295.1	242.4	52.7	
1982	290.7	235.7	55.0		292.0	235.4	56.6	
1986	297.6	250.0	47.6		299.9	250.7	49.2	
1990	295.1	252.7	42.4		299.5	253.6	45.9	
<i>Change</i>								
1977-90	2.0	13.7	-11.7	0.22	4.4	11.2	-6.8	0.13
West								
1977	295.0	244.1	50.9		294.8	244	50.8	
1982	295.8	242.9	52.9		295.6	242.1	53.5	
1986	290.4	253.1	37.3		290.1	254.1	36.0	
1990	297.3	270.6	26.7		295.4	269.8	25.6	
<i>Change</i>								
1977-90	2.3	26.5	-24.2	0.48	0.6	25.8	-25.2	0.50
All								
1977	297.7	240.2	57.5		298.6	242.0	56.6	
1982	293.1	234.7	58.4		294.3	236.4	57.9	
1986	297.5	252.8	44.7		297.9	253.3	44.6	
1990	300.9	253.0	47.9		302.3	253.3	49.0	
<i>Change</i>								
1977-90	3.2	12.8	-9.6	0.17	3.7	11.3	-7.6	0.13

Source: Greenberg's analysis of NAEP data.

FIGURE 8
Differences in Black and White NAEP Scores,
Selected Percentiles



Source: NAEP (1990).

1980s (reflecting the average trends), while the gap in mathematics closed consistently for each percentile in the graph.

Overall, the achievement results from the SAT and the NAEP show blacks to have consistently closed national gaps between themselves and whites. The NAEP data, however, reveal two areas of concern. First, by the end of the data (1990), relative black progress may have slowed or even partially reversed (i.e., white scores grew slightly and black scores fell or stagnated). Nevertheless, the national gap has narrowed from its starting point in the late 1970s. Second, there are significant regional variations in the NAEP achievement scores, with large relative gains for blacks in the South in reading and mathematics and relative declines for blacks in the Northeast in science and mathematics. At this point, however, the data are unable to reveal whether the reversal in the late 1980s is temporary or a structural shift in the trend. It should be also be noted that this recent fall-off in black test scores among 17-year-olds in 1990 would not be reflected yet in the labor market indicators presented below, since these students would not be old enough to be included in the sample. Finally, the metro/region tables reveal significant black progress in metro areas within regions (in some cases, greater than in the region overall), though here, too, the Northeast in 1990 is an exception.

At this broad descriptive level, there is little support for arguments that explain the eroded, labor-market status of blacks by pointing to a decline in educational performance.

Thus, at this broad descriptive level, there is little support for arguments that explain the eroded, labor-market status of blacks by pointing to a decline in educational performance. As the data presented here show, blacks have increased their relative human capital over time in terms of education. The next section reviews a report that investigated factors that may have contributed to the closing of the achievement gap.

III. FINDINGS FROM THE RECENT RAND REPORT

How did blacks make such progress when changes in family structure (i.e., the shift to one-parent families, which has been particularly **steep** for blacks) have probably placed black children at a disadvantage? Shortly before the preparation of this report, the Rand Institute released an important study, the findings of which bear on the results discussed above (Grissmer et al. 1994). The authors were interested (among other subjects) in identifying the factors that explained the closing black/white gap in NAEP scores (as seen in Tables B-D). In particular, they examined the impact of changes in what they call “family and demographic effects” on NAEP test score differentials.¹²

The Rand study answers two questions relevant to this report: (1) to what extent are black students disadvantaged relative to whites regarding the impact of family structure and income on school performance, and (2) how did blacks’ relative gains on the NAEP compare to what their demographic and income trends would have predicted?¹³ The first question addresses the concern that changes in black family structure, particularly the increase in families headed by a single woman, have put black children at a relative disadvantage in school and thus, later, in the labor market. The second question allows a determination of how family changes contribute to test scores and how these contributions differ for blacks and whites. As explained below, the actual gains in test scores by blacks far surpass the gains predicted by family changes; this is not the case for whites. Such results corroborate blacks’ relative gains even when accounting for factors like the increase in single parenthood, which should (and did) have a negative impact on educational outcomes.

The **most important** positive changes (regarding children’s test scores) in family **demographics** were the increase in parental education levels and the decrease in family size. The Rand study shows that there were relatively large changes in these variables for blacks between 1970 and 1990. For example, the share of black mothers with less than a high school education fell 39.8 percentage points, from 63.6% to 23.8%. The comparable decline for nonblack mothers was 18.7 points, from 34.7% to 16.0%. There was also a large shift to smaller families. The share of black families with one or two children grew from 30.8% to 66.2%, while those with four or more fell from 36.0% to 7.0%. Nonblacks experienced similar shifts, but of smaller magni-

The actual gains in test scores by blacks far surpass the gains predicted by family changes; this is not the case for whites.

tudes. On the negative side, the share of black single-mother families grew from 36.1% to 53.3%; for nonblacks the growth was from 10.6% to 17.9%.¹⁴

Figure 9 shows that changes in family and demographic effects between 1975 and 1990 predicted equal growth for blacks and whites in math test scores and faster black growth in verbal scores.¹⁵ The authors point out that this unexpected result stems from the impact of the two positive developments among black families noted above: decreasing family size and higher levels of parental education. While both whites and blacks benefited from these changes, the gains were greater for blacks. Black children suffered a relative disadvantage in terms of their increased probability of residing in one-parent families, but this disadvantage was outweighed.

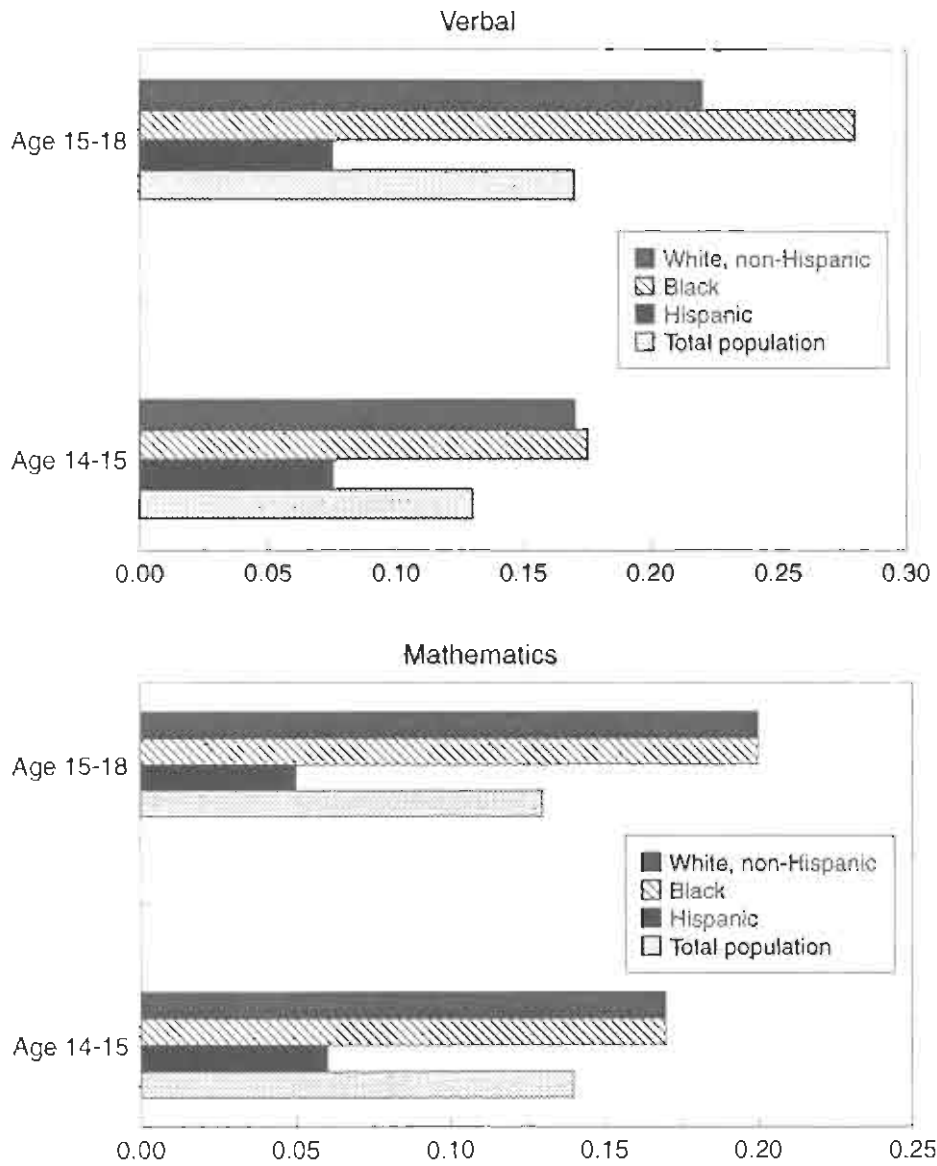
Figure 10 shows the difference between the predicted NAEP scores and the actual scores. The bars represent that part of the actual change in scores not accounted for by “family effects.” Family changes more than explain the gains made by whites (recall from the NAEP results that whites’ gains were relatively small). That is, positive changes in white families more than explain average gains by whites on the NAEPs, particularly for verbal. Apparently, other factors not accounted for in the Rand model were depressing white scores.

For blacks, however, the opposite is true. Changes in black demographics and income predict a much smaller gain than actually occurred (family effects account for about one-third of black gains). The authors suggest that “[p]erhaps the most viable hypothesis for accounting for these residual gains is increased public investment in schools and social programs and changing social policies such as school desegregation and bilingual education. These factors can plausibly be linked to school achievement, have changed markedly over the last 25 years, and might be expected to affect minority students much more than non-minority students” (Grissmer et al. 1994, 8).

Thus, the Rand study does not directly identify the factors leading to the underprediction of black test scores and the overprediction of white scores. But whether these factors reflect positive changes in motivation, values, school quality, or whatever, they have on balance been positive for blacks and negative for whites.¹⁶

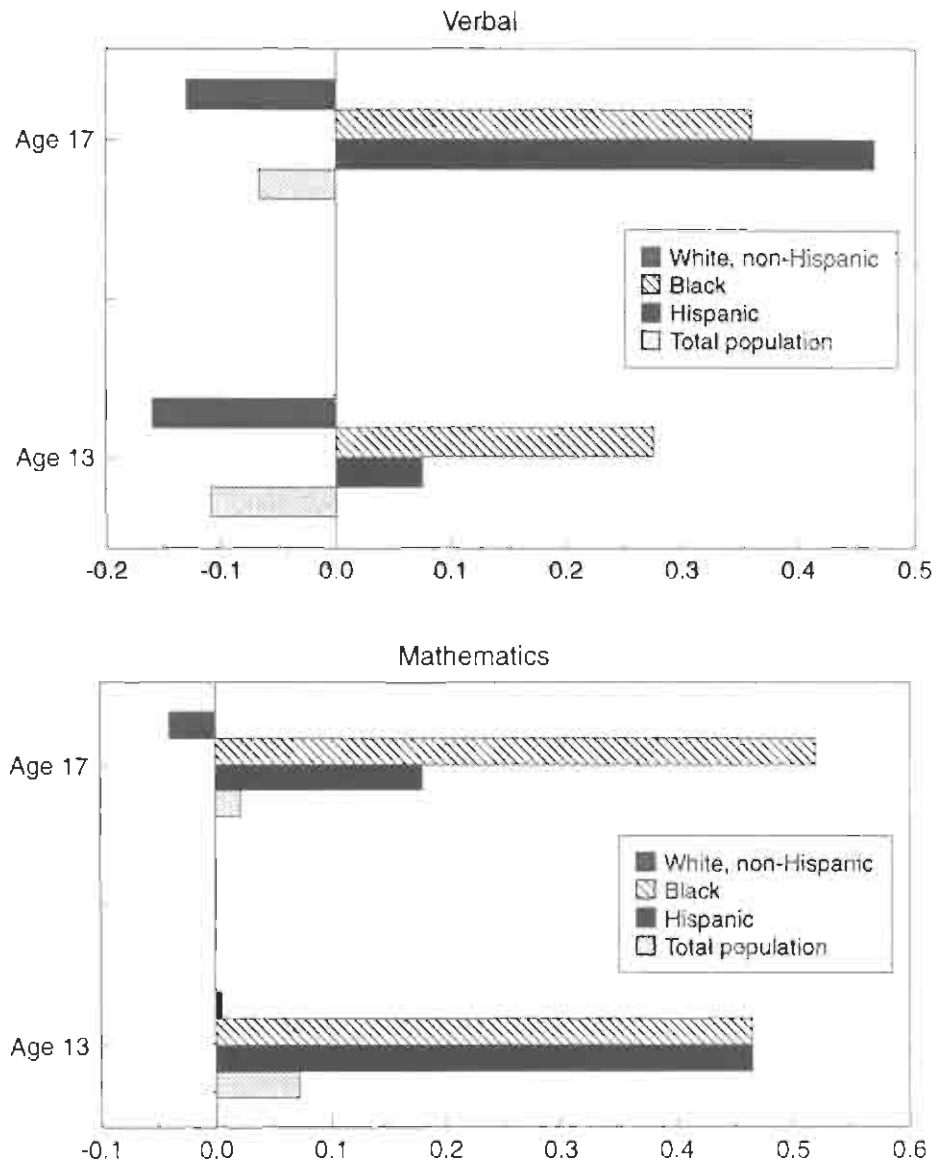
Family changes more than explain the gains in test scores made by whites; for blacks, however, the opposite is true.

FIGURE 9
Family/Demographic Effects on Test Scores, by Race,
1975-90 (Standard Deviation Units)



Source: Grissmer et al. (1994).

FIGURE 10
Differences Between Predicted and Actual NAEP Scores, by Race,
1975-90 (Standard Deviation Units)



Source: Grissmer et al. (1994).

IV. LABOR MARKET INDICATORS OF THE PROGRESS OF BLACKS

In most studies, labor market analysis of blacks' relative progress has focused on wage comparisons of black and white earnings.¹⁷ The more recent literature, however, focuses on an important new trend: the decrease in labor-market participation among black males.¹⁸ The examination of these two issues that follows focuses on 25-34-year-olds in order to control for the effects of age. Possible explanations for these trends follow the discussion of these two issues.

Hourly Wage Trends

Table E presents hourly wages by education level for whites and blacks, all ages.¹⁹ The within-racial-group trends show the various developments in the wage structure (falling hourly wages for most groups and rising wage inequality) that have been well-documented elsewhere;²⁰ it is worth noting, though, that wage decline was steeper and more pervasive in the 1979-93 period than in the earlier period, 1973-79. Furthermore, the wage structure was generally more favorable to non-college-educated persons in the 1970s and less so in the 1980s and early 1990s. (This trend generated the much-discussed increase in wage premiums in the 1980s.)

Here, the focus is on the trend in the black/white ratios in the bottom part of each panel. The general pattern is of a closing of the wage gap between 1973 and 1979 and a widening of the gap over the 1980s. Between 1989 and 1993, the overall average wage ratio has risen to its 1973 level for men and continued to fall for women.

For high-school-educated, male workers (who constituted the largest single share of workers in 1989), the black/white ratio *grew* 0.67 points a year from 1973-79 and *fell* by half that rate thereafter. The ratio for males with some college grew half a point per year in the 1970s and fell at the **same** rate in the 1980s. Thus, for the largest group of male workers (over 60% for both races in 1989), the wage gap between blacks and whites showed progress toward racial equality in the 1970s and widening racial inequality over the 1980s. A less well-known finding regards the growth in the wage gap among college-educated males. As shown here (as well as in various other studies²¹), the wage gap grew most quickly for men with 18 or more completed

For the largest group of male workers (over 60% for both races in 1989), the wage gap between blacks and whites showed progress toward racial equality in the 1970s and widening racial inequality over the 1980s.

TABLE E
Hourly Earnings, by Race and Sex, 18-64-Year-Olds
(1993 Dollars)

	Less Than High School	High School	Some College	College	College & 2+ Years	All
Males						
Whites						
1973	\$12.25	\$13.93	\$14.48	\$19.41	\$21.37	\$14.66
1979	12.26	13.79	14.59	18.34	20.46	14.80
1989	10.34	12.29	13.86	18.65	22.60	14.47
1993	9.45	11.59	13.09	17.88	22.01	13.95
1989 Shares	12.0%	39.4%	21.5%	15.5%	8.8%	100.0%
Blacks						
1973	\$9.83	\$11.08	\$12.22	\$14.66	n.a.	\$10.99
1979	10.02	11.52	12.75	15.41	\$18.45	11.64
1989	8.58	9.88	11.35	14.44	18.41	10.67
1993	8.15	9.21	10.72	15.00	17.31	10.43
1989 Shares	21.1%	43.6%	21.8%	8.9%	3.2%	100.0%
B/W Percent						
1973	80.3%	79.6%	84.4%	75.6%	n.a.	74.9%
1979	81.7	83.6	87.4	84.0	90.2	78.6
1989	83.0	80.4	81.9	77.4	81.5	73.8
1993	86.2	79.5	81.9	83.9	78.6	74.8
Annual Change						
1973-79	0.24	0.67	0.51	1.41	n.a.	0.61
1979-89	0.13	-0.32	-0.55	-0.66	-0.87	-0.49
1989-93	0.82	-0.23	-0.01	1.61	-0.71	0.25
Females						
Whites						
1973	\$7.35	\$8.82	\$9.83	\$12.80	\$16.90	\$9.37
1979	7.62	8.85	9.67	11.76	15.25	9.51
1989	6.82	8.68	10.25	13.28	17.43	10.30
1993	6.78	8.71	10.34	13.59	17.63	10.65
1989 Shares	8.7%	43.5%	24.2%	14.6%	6.3%	100.0%
Blacks						
1973	\$6.80	\$8.27	\$10.16	\$14.79	n.a.	\$8.63
1979	7.11	8.55	9.69	12.26	15.66	8.92
1989	6.46	8.05	9.95	13.09	17.54	9.33
1993	6.64	7.99	9.60	13.48	17.71	9.48
1989 Shares	15.6%	43.2%	25.0%	10.3%	4.2%	100.0%
B/W Percent						
1973	92.5%	93.8%	103.4%	115.6%	n.a.	92.2%
1979	93.3	96.7	100.2	104.3	102.7	93.8
1989	94.7	92.8	97.0	98.5	100.6	90.6
1993	97.9	91.7	92.8	99.2	100.5	89.0
Annual Change						
1973-79	0.14	0.49	-0.54	-1.87	n.a.	0.28
1979-89	0.14	-0.39	-0.32	-0.58	-0.21	-0.32
1989-93	0.81	-0.25	-1.05	0.17	-0.04	-0.40

Source: Mishel and Bernstein (1994b).

years of schooling, and second fastest for college-educated men. Such a finding does not fit into an explanation of black relative wage decline based on demand shifts away from “less-skilled” workers.

The trends among dropouts differ from those of other educational groups: dropouts of each sex steadily closed the wage gap over the period of the data, as white wages grew more slowly or fell faster than those of blacks. However, since dropouts shrank as a share over the period (about 13% in 1993), this relative advantage receives less weight over time.²²

For each group of male workers, the trend in relative wages since 1989 appears much more favorable to blacks. The fastest relative gains in this period were realized by black college-educated workers, whose wages reversed trend in 1989 and grew by \$0.56 (1993 dollars) while the wages of white college-educated workers declined. While such a reversal should not be given too much weight, given the relatively short period in question (1989-93), the gains are consistent enough across education groups to suggest a possible structural shift in trend.

While the overall pattern for women is similar to that of men in the 1970s and 1980s, the pattern within education groups differs somewhat. Here, college-educated black women actually earned more relative to whites in 1973 and 1979, but, as shown below, this trend is the result of differences in labor market experience. Nevertheless, college-educated black women lost their relative advantage in the 1980s, while the only group to close the gap were, again, high school dropouts. The most recent period, 1989-93, has generally been an extension of the 1980s’ trends, with the exception of college-educated women. Here, due to their relatively better wage growth since 1989, black women have reversed the trend and were earning only slightly less than whites in 1993.

To allow a comparison of the wage trends to the attainment trends above, **Table F** shows the same trends as Table E for persons age 25-34. **Figure 11** shows the year-by-year trend in the black/white ratio for high school, college, and all earners. (Three-year moving averages are used to smooth this series.) The trends here are generally more negative in terms of relative wages. For example, with the exception of high school graduates, each group of young, black male workers closed the gap more quickly in the 1970s than did black workers overall (e.g., young, black male workers closed the wage gap at a rate of 0.75 points annually in the 1970s versus 0.61 for all work-

The wage gap grew most quickly for men with 18 or more completed years of schooling, and second fastest for college-educated men. Such a finding does not fit into an explanation of black relative wage decline based on demand shifts away from “less-skilled” workers.

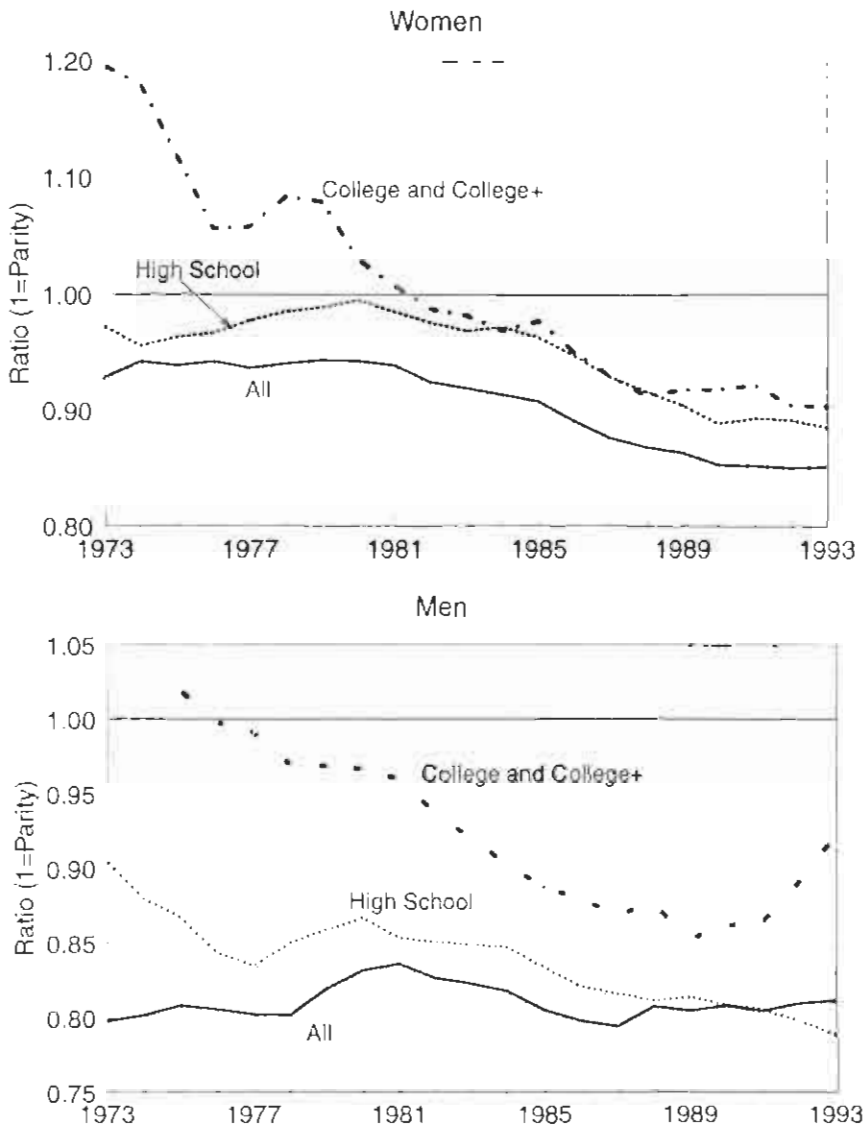
TABLE F
Hourly Earnings, by Race and Sex, 25-34-Year-Olds
(1993 Dollars)

Year	Education Level				
	<12	12	13-15	16&16+*	All
Males					
White					
1973	\$12.42	\$14.33	\$15.40	\$17.84	\$15.04
1979	12.00	13.81	14.51	16.46	14.61
1989	9.93	11.53	12.66	14.71	12.45
1993	8.73	10.59	11.70	13.67	11.52
1989 Shares	9.4%	43.0%	21.7%	26.0%	100.0%
Black					
1973	\$9.61	\$12.97	\$12.57	n.a.	\$12.00
1979	9.80	11.88	13.27	\$16.01	12.31
1989	7.73	9.41	10.55	12.14	9.86
1993	7.50	8.31	9.93	13.30	9.46
1989 Shares	13.8%	46.9%	24.9%	14.4%	100.0%
B/W Percent					
1973	77.4%	90.5%	81.6%	n.a.	79.8%
1979	81.7	86.1	91.5	97.3	84.3
1989	77.8	81.6	83.4	82.5	79.2
1993	85.9	78.5	84.9	97.3	82.1
Annual Change					
1973-79	0.71	-0.74	1.65	n.a.	0.75
1979-89	-0.38	-0.45	-0.81	-1.48	-0.51
1989-93	2.02	-0.77	0.38	3.70	0.74
Females					
White					
1973	\$7.69	\$9.18	\$11.17	\$14.03	\$10.33
1979	7.71	9.14	10.46	12.65	10.26
1989	6.73	8.65	10.58	13.48	10.40
1993	6.63	8.44	10.33	12.91	10.25
1989 Shares	5.7%	41.2%	24.2%	28.9%	100.0%
Black					
1973	\$7.01	\$8.93	\$10.30	n.a.	\$9.59
1979	7.61	9.08	10.29	\$12.63	9.71
1989	6.02	7.65	9.47	12.63	8.91
1993	6.25	7.27	9.18	11.62	8.63
1989 Shares	9.4%	43.6%	29.4%	17.6%	100.0%
B/W Percent					
1973	91.2%	97.3%	92.2%	n.a.	92.8%
1979	98.6	99.4	98.4	99.8	94.7
1989	89.6	88.4	89.6	93.8	85.7
1993	94.4	86.2	88.9	90.0	84.2
Annual Change					
1973-79	1.25	0.35	1.03	n.a.	0.31
1979-89	-0.91	-1.10	-0.88	-0.61	-0.90
1989-93	1.20	-0.56	-0.18	-0.95	-0.38

* The data do not allow a separation of college and college-plus.

Source: Authors's analysis of BLS data as described in data appendix.

FIGURE 11
Hourly Earnings Ratios, by Race, Sex, and Education, Age 25-34,
1973-93



Source: Author's analysis of BLS data; see data appendix.

ers). Yet, in the 1980s the gaps reopened for each education group, particularly for college-educated black men (1.48 points annually). There has again been a sharp reversal since 1989, when the rate of closure of the wage gap for young males returned to its 1970s' level, driven by the steep wage gains for black college-educated men (up \$1.16 between 1989 and 1993) and sharp drops for their white counterparts (\$1.04). Again, these short-term trends should be viewed with caution.

While the overall wage gap closed at about the same rate for black women of all ages and for young black women in the 1970s, the reversal of this progress in the 1980s was three times as fast for young relative to older women (-0.90 points annually versus -0.32). Young, black female high school graduates lost ground the fastest in the 1980s and continued to lose relative ground in the 1990s. Like their male counterparts, black women with college educations also experienced expanding wage gaps. (Unlike young, black males with college, this negative trend continued into the 1990s.) And while college-educated women overall realized wage gains in the 1980s, the subset of young black women did not.

Like their male counterparts, black women with college educations also experienced expanding wage gaps.

How do these findings fit with the attainment and achievement findings documented above? In this aggregate context, associations that seem clear in the data can be suggested. Regarding attainment (and, to a lesser extent, achievement), the 1970s were good years for blacks' relative progress. Whether one looks at dropout rates, median years of schooling, college enrollment and completion rates, or SAT and NAEP scores (which are presented only for the later years of the decade), blacks gain relative to whites. Thus, based on these improvements in human capital, and since the United States was about to enter a decade characterized by heightened returns to human capital, blacks should have been well poised for substantial relative gains in the 1980s. Yet in terms of wages they lost ground. This finding is at the center of the puzzle regarding labor market returns for blacks.

Employment and Labor Force Participation

As noted above, the falling labor force participation rate among blacks is an important and disturbing trend identified by many labor market analysts.²³ **Table G** presents data on two indicators of labor force participation, employment to population (EPOP) ratios, or the employment rate, and labor force participation rates (hereafter "participation rates"). These differ only in that participation rates include those unemployed and looking for work in the numerator of the equation; thus, the extent to which these two indicators diverge represents the effect of unemployment. Once again, these data refer to 25-34-year-olds. This sample restriction both controls for experience and insures that the examination looks at persons at a point in the life cycle when they are likely to be labor market participants. The third panel of each section gives the difference between the white and the black rates. The annual

change rates reveal the rate at which the gap between whites and blacks has grown. The numbers show a long-term decline in employment and participation well beyond that which could be explained by cyclical patterns of employment.

For males, both indicators show that levels are lower for blacks and, more importantly, that the gap grew most quickly for those with the least education. For example, the employment rates of black male dropouts fell by 30.6 percentage points over the full period, so that by 1993 close to half of the members of this group were either out of the labor force or unemployed. The same indicator for white males fell by less than half that of blacks (14.6 points). Black high school graduates (the largest group) left the labor force 0.4 points a year faster than whites in the period 1979-89. This trend was reversed for black males with at least some college, 1979-89, as their EPOP rates grew relative to those of whites.²⁴ In the most recent period, 1989-93, the gap has widened, particularly quickly for dropouts and those with some college.

A possibly unexpected finding from Table G involves the different annualized rates of change. Despite the fact that relative wages fell faster in the later period for most blacks, their relative EPOP rates fell faster (i.e., for high school dropouts and those with any college) in the earlier period. Thus, blacks were apparently unable to parlay their falling wages into expanded employment opportunities.²⁵

The second panel of Table G, participation rates, shows similar patterns to the EPOP panel. Here, too, non-college-educated black males have experienced notably steeper declines (from lower levels) than white males over the 1973-93 period. Note, however, the steeper declines in EPOP than participation rate for non-college-educated workers, suggesting the increasing prevalence of unemployment for these groups of workers. (This is particularly noticeable for high-school-educated black males in the 1973-89 period.)

The trends for females reveal some interesting differences from those of men. The well-established increase in female EPOPs and participation rates is evident in the table, but both were fairly flat for black women between 1979 and 1993, after growing in the earlier period. The relative slowdown was driven by non-college-educated black women.²⁶ The change rates reveal that black women, despite initially higher levels, have been consistently losing relative ground, at fairly constant rates over the period. (The

Blacks were apparently unable to parlay their falling wages into expanded employment opportunities.

TABLE G
Employment and Labor Force Participation Rates,
Males 25-34 Years Old, by Education Level, 1973-93

	<12	12	13-15	16-16+*	All
Employment to Population Ratio					
White Males					
1973	90.8%	95.7%	90.7%	94.4%	93.6%
1979	84.3	93.5	92.9	95.0	92.8
1989	81.4	92.0	92.8	95.3	92.0
1993	76.2	88.5	90.7	94.0	89.4
Black Males					
1973	83.0%	88.3%	85.8%	92.8%	86.4%
1979	72.2	85.4	86.2	88.3	82.6
1989	65.5	79.7	88.5	92.7	81.0
1993	52.4	77.5	83.2	91.0	77.1
White-Black					
1973	7.8	7.4	4.9	1.6	7.2
1979	12.1	8.1	6.7	6.7	10.2
1989	15.9	12.4	4.3	2.7	11.0
1993	23.8	11.1	7.5	3.1	12.3
Annual Change					
1973-79	0.720	0.121	0.299	0.853	0.500
1979-89	0.377	0.428	-0.238	-0.402	0.083
1989-93	1.994	-0.325	0.805	0.095	0.340
Labor Force Participation Rate					
White Males					
1973	94.9%	98.2%	93.4%	96.2%	96.2%
1979	91.7	97.5	96.0	96.7	96.3
1989	88.1	94.8	95.1	96.8	94.7
1993	88.1	95.3	95.0	96.9	95.0
Black Males					
1973	90.6%	93.5%	92.7%	94.2%	92.3%
1979	83.6	93.9	94.0	93.6	91.3
1989	76.0	89.2	93.8	97.5	89.1
1993	69.9	87.9	92.7	95.9	87.6
White-Black					
1973	4.4	4.7	0.7	2.0	3.9
1979	8.0	3.7	2.0	3.1	5.0
1989	12.1	5.6	1.3	-0.7	5.6
1993	18.2	7.4	2.3	1.0	7.3
Annual Change					
1973-79	0.604	-0.181	0.226	0.180	0.183
1979-89	0.405	0.197	-0.072	-0.372	0.063
1989-93	1.530	0.432	0.259	0.421	0.439

TABLE G (cont.)
Employment and Labor Force Participation Rates,
Females 25-34 Years Old, by Education Level, 1973-93

	<12	12	13-15	16-16+*	All
Employment to Population Ratio					
White Females					
1973	36.2%	44.4%	49.9%	61.2%	46.4%
1979	42.0	58.2	63.0	71.9	60.3
1989	47.3	69.0	75.2	82.1	71.9
1993	44.6	68.3	74.7	82.7	72.2
Black Females					
1973	40.9%	58.5%	67.9%	85.8%	55.6%
1979	42.2	62.3	73.6	84.3	62.2
1989	36.1	63.3	74.7	85.3	64.6
1993	30.0	58.8	70.6	85.6	61.2
White-Black					
1973	-4.7	-14.1	-18.1	-24.6	-9.2
1979	-0.2	-4.1	-10.6	-12.3	-1.9
1989	11.2	5.7	0.4	-3.3	7.3
1993	14.6	9.5	4.0	-2.9	11.0
Annual Change					
1973-79	0.740	1.677	1.247	2.053	1.221
1979-89	1.146	0.982	1.105	0.905	0.917
1989-93	0.849	0.939	0.899	0.084	0.933
Labor Force Participation Ratio					
White Females					
1973	39.0%	46.8%	51.7%	62.4%	48.6%
1979	48.3	61.5	66.2	74.9	63.9
1989	53.6	72.1	77.5	83.8	74.7
1993	51.2	73.2	78.6	85.4	76.4
Black Females					
1973	47.8%	64.5%	76.5%	87.0%	61.8%
1979	51.7	72.1	81.4	87.3	70.7
1989	48.0	72.4	81.6	90.5	73.1
1993	42.1	69.8	79.0	89.2	70.6
White-Black					
1973	-8.9	-17.6	-24.8	-24.6	-13.2
1979	-3.5	-10.6	-15.1	-12.3	-6.8
1989	5.5	-0.4	-4.1	-6.7	1.6
1993	9.2	3.4	-0.4	-3.8	5.8
Annual Change					
1973-79	0.903	1.174	1.622	2.048	1.071
1979-89	0.898	1.021	1.105	0.561	0.840
1989-93	0.910	0.940	0.920	0.736	1.045

* The data do not allow a separation of college and college-plus.

Source: Authors' analysis of BLS data as described in data appendix.

exception is for college-educated women in the 1970s; here, whites made progress while the black rate remained at a relatively high level.)

Clearly, non-college-educated blacks have been increasingly withdrawing from the labor force relative to similarly educated whites. We have also noted that these same workers have lost relative ground in terms of their hourly wages. Yet, as pointed out in the first section of this study, these groups have made unequivocal relative gains in both their levels of schooling and achievement tests.

Various hypotheses have been offered to explain this decrease in black labor force attachment. The consensus among labor economists is that this trend is further evidence of demand shifts away from workers with less human capital (called “less skilled” in the literature). These explanations are explored further in the next section.

As to why black dropouts have worse participation-rate trends than white dropouts, the literature is limited. The hypothesis that this is a reflection of their relatively lower levels of productivity (e.g., black dropouts are a less-productive labor input than white dropouts), and thus their decreased value to employers, is generally offered with mixed results. Juhn, for example, notes that participation rates have fallen most steeply for those groups with the steepest wage declines. Comparing blacks and whites, however, Juhn finds that, while virtually all of the falling participation rates for white males can be explained by wage decline, it explains less than half of the fall for blacks.²⁷ Thus, there must be other factors besides wage rates to account for black labor force dropout. Structural labor market changes, such as the composition shift in employment from manufacturing to services, the decline in unions, and the decrease in anti-discrimination enforcement, have been implicated as factors that have adverse implications for black employment. These factors are discussed in the following sections.

While virtually all of the falling participation rates for white males can be explained by wage decline, it explains less than half of the fall for blacks.

V. POSSIBLE EXPLANATIONS FOR THE EDUCATION/WAGE DISPARITY

The Impact of Industry and Occupational Shifts

One possible reason why blacks' improved skills are not being reflected in their wage and employment trends has to do with their distribution among industries and occupations. It is well established that certain sectors provide "rents" (i.e., wage premiums) to their workers, and it is possible that blacks have been losing access to such sectors more so than whites.²⁸ To what extent has the changing composition of the industry and occupation distribution been reflected in blacks' relative progress?

The question has been studied fairly extensively in the research on relative black progress (see Moss and Tilly 1991, 45-52). In general, sectoral shifts account for about a fifth to a third of the trend in the black/white wage differential, after controlling for education and experience. It is important, however, to discern the timing of these sectoral shifts in order to determine whether blacks whose skills have improved are nevertheless "trapped" in less profitable sectors.

A long-term perspective comes from the work of Reardon (1993), who examined the effect of sectoral shifts on racial wage differences in the period 1940-90. **Table H** shows a series of estimates of the racial wage gap for male workers with 1-10 years of potential experience. The initial row shows the declining trend in the racial gap and can be interpreted as an approximate proportional difference between black and white hourly wages, controlling for education and experience. It shows a sharp slowdown in blacks' relative progress. For example, between 1960 and 1970 the initial differential fell at about 1.5 percentage points per year $((22\%-37\%)/10)$, but between 1980 and 1990 it fell by less than 0.2 points per year.

The next rows reveal the marginal impact of region, occupation, and industry. In each case, the numbers reveal that part of the initial effect explained by the particular factor. For example, in 1940, where entry-level black males lived (region) added 7.3% to the racial wage gap. (This was mostly the effect of living in the South.) The second-to-last row combines the effects of industry and occupation, and the final row presents this value as a share of the initial gap. Thus, in 1940, blacks' industry and occupational placement accounted for just under a third of the racial wage gap.

In general, sectoral shifts account for about a fifth to a third of the trend in the black/white wage differential, after controlling for education and experience.

TABLE H
Effect of Region, Industry, and Occupation
on Race Wage Differentials, Males, 1-10 Years Experience

	1940	1950	1960	1970	1980	1990
Initial*	-0.504	-0.261	-0.369	-0.220	-0.185	-0.172
Effect of**						
Region	-0.073	-0.042	-0.048	-0.025	-0.022	-0.015
Occupation	-0.118	-0.033	-0.077	-0.038	-0.028	-0.035
Industry	-0.048	-0.024	-0.042	-0.012	-0.004	-0.013
Remainder***	-0.265	-0.162	-0.202	-0.145	-0.131	-0.109
Industry & Occupation	-0.166	-0.057	-0.119	-0.050	-0.032	-0.048
As Share of Initial	32.9%	21.8%	32.2%	22.7%	17.3%	27.9%

- * This value represents the proportional difference between black and white hourly wages, controlling for education and experience.
- ** Each row represents the separate impact of each factor on the black/white wage gap.
- *** The remainder represents that part of the black/white wage gap not explained by education, experience, region, industry, and occupation.

Source: Reardon (1993).

After shifting favorably for blacks from 1960 to 1980, sectoral placement actually hurt black relative wages between 1980 and 1990.

Young black males improved their sectoral positions substantially between 1940 and 1950, primarily by moving out of agriculture. It is particularly notable that, after shifting favorably for blacks from 1960 to 1980, sectoral placement actually hurt black relative wages between 1980 and 1990. The jump from 17.3% in 1980 to 27.9% in 1990 represents the largest increase in share over the 50 years covered by this table.

Moss and Tilly offer two hypotheses to explain what is underlying this relative slowdown in sectoral progress for blacks. Due to their disadvantaged position in the hiring queue (e.g., due to discrimination), blacks may be moving out of high-paying manufacturing jobs faster than similarly educated and experienced whites. The implication, of course, is that they are moving into low-paying service jobs. The other hypothesis suggests that whites are leaving the shrinking manufacturing sector faster than blacks but are filling the desirable slots in the high-paying sales and service occupations and industries.

Table I and Figure 12 (which tracks relative manufacturing shares), from Reardon's (1993) historical analysis, gives support to the first hypoth-

TABLE I
Industry Distribution for Men, by Race, 1940-90

Industry	1940	1950	1960	1970	1980	1990
White Men						
Agriculture	21.4%	14.2%	8.3%	5.1%	5.5%	4.4%
Construction	6.8	7.8	8.6	8.3	9.3	10.4
Manufacturing	23.5	27.4	32.1	30.7	27.4	23.1
Transportation, Utilities	9.0	9.5	8.6	8.6	9.1	7.6
Wholesale, Retail	19.4	20.2	18.1	17.9	17.1	18.3
Prof. Services, Education	9.7	10.1	13.9	18.5	20.9	25.7
Government	4.1	5.1	5.9	6.9	6.8	6.6
Miscellaneous	6.2	5.7	4.5	4.0	4.0	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Black Men						
Agriculture	41.1%	23.1%	12.5%	5.0%	4.0%	3.3%
Construction	6.4	8.8	10.2	8.8	8.6	8.5
Manufacturing	15.3	24.9	27.9	32.8	30.1	22.4
Transportation, Utilities	6.9	9.3	8.9	10.2	11.2	10.7
Wholesale, Retail	10.9	13.9	14.9	14.3	13.5	16.1
Prof. Services, Education	5.8	6.4	10.0	14.5	18.6	24.0
Government	1.7	4.3	7.1	8.6	9.7	10.7
Miscellaneous	11.9	9.4	8.5	5.8	4.3	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

There was a larger share of blacks than whites in manufacturing in 1970 (32.8% vs. 30.7%), but a slightly smaller share in 1990.

Source: Reardon (1993).

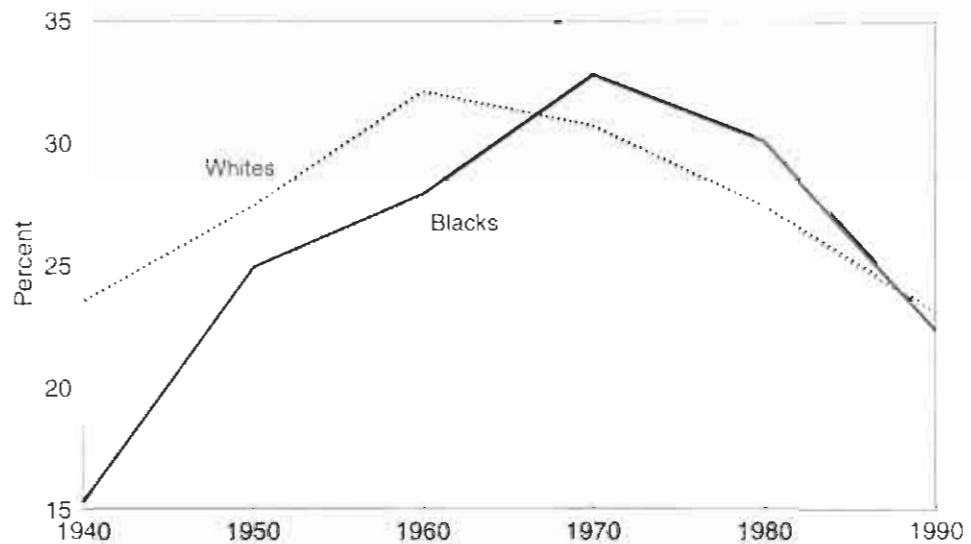
esis. Between 1970 and 1990, black males left manufacturing faster than whites (these shares do not control for education or experience). In fact, there was a larger share of blacks than whites in manufacturing in 1970 (32.8% vs. 30.7%), but a slightly smaller share in 1990. Between 1980 and 1990, blacks' share in manufacturing fell more steeply than that of whites—7.7 percentage points versus 4.3. The shift out of manufacturing by black men was accompanied by a shift of equal magnitude into services (this is also the case for whites).

Regarding occupations, research by Howell (1991), Bound and Freeman (1992), and Kletzer (1991) shows a similar pattern to that of industries. Black men appear to have left the relatively high-paying blue-collar occupations faster than whites, and they were more likely than whites to relocate in lower-paying service occupations.

At least one study (Bluestone, Stevenson, and Tilly 1991) has shown the shift out of manufacturing to be an important factor in accounting for the

Despite their educational progress, industry and occupational shifts left blacks at a relative disadvantage by the end of the period under analysis.

FIGURE 12
Share of Manufacturing Employment, by Race (Men), 1940-90



Source: Reardon (1993).

increase in joblessness among black men, documented here in Table G. The study attributes one-third of the increase in labor force nonparticipation by non-college-educated black men, age 20, to manufacturing displacement.

Thus, increased relative skill levels among blacks have not prevented them from suffering the adverse effects of sectoral shifts. Furthermore, their placement in the industry and occupation distributions have deteriorated relative to whites with similar skills.²⁹ Of course, it is possible (or even probable) that in the absence of human capital advances by blacks, black labor market outcomes would have turned out even worse. Nevertheless, despite their educational progress, industry and occupational shifts left blacks at a relative disadvantage by the end of the period under analysis.

The Impact of Declining Unionization and Real Minimum Wages

These two labor market institutions--unions and minimum wages--have consistently helped blacks in terms of wages. The union wage premium is well-established (Mishel and Bernstein 1994b, 164-70), but the impact of declining unionization on black/white wage differentials is less well known. Since

blacks are both more likely than whites to be union members and to experience labor market discrimination, they have benefited disproportionately from collective bargaining arrangements. Similarly, since blacks are overrepresented in jobs that pay at or near the minimum wage, they are relatively sensitive to its fall in real value.

Bound and Freeman (1992) examine the contribution of these two factors separately for various groups of young black workers for the period 1973-89. They find that the decline of union coverage over this period explains 5% of the decrease in blacks' relative earnings overall and 23% of the decrease for high school dropouts. The decline in the real value of the minimum wage explains 17% of the growing racial wage gap and almost the full gap (98%) for dropouts.

The Effects of Labor Market Discrimination

Moss and Tilly (1991) introduce a useful topology for examining the problem of labor market discrimination. Pure discrimination is manifested by prejudicial behavior, such as when a job (or an apartment) is given to a white person over a black person with similar qualifications, or when white workers are paid more than equally productive blacks. These occurrences are likely to increase over time if prejudiced attitudes increase or if legal checks on such attitudes decrease. Statistical discrimination in the labor market is based on employers' perceptions that the quality of black workers is de facto inferior to that of whites. Thus, an employer who prejudicially judges young black men to be bad hires will not fairly evaluate a young black applicant, despite that individual's qualifications.⁷⁹

The best evidence for pure labor market discrimination comes from audit studies, where a black and white person with identical qualifications apply for the same job. One such study (Struyk, Turner, and Fix 1991) showed that blacks progressed farther than whites in only 7% of the cases. White applicants received job offers 15% of the time; blacks received offers only 5% of the time.

One problem with this research is that it does not indicate whether this type of discrimination has increased over time and, thus, whether such discrimination can account for the slowing of black labor market progress. However, both Bound and Freeman (1992) and Donohue and Heckman (1991) present evidence to suggest that anti-discrimination enforcement has de-

The decline in the real value of the minimum wage explains 17% of the growing racial wage gap and almost the full gap (98%) for dropouts.

creased over time. Thus, unless discrimination has fallen in kind, one would expect to see its impact more pronounced in today's relatively less-protected labor environment.³¹

A series of recent interviews of employers in Chicago by Neckerman and Kirschenman (1990) produced evidence of statistical discrimination. Employers reported negative attitudes toward inner-city youths, citing their poor work ethic and low skill levels. Employers were also critical of school quality and appeared to make geographical distinctions based on whether potential employees came from "good" or "bad" neighborhoods.

Interestingly, employers' negative perceptions appeared to be sensitive to the type of job being filled. Moss and Tilly suggest that blacks may suffer more statistical discrimination in jobs that involve public interaction. If so, this prejudice could help to explain the relative disadvantage blacks face in the shift from manufacturing to services.

A final interesting finding from this research—one that bears directly on this review—shows that young inner-city blacks are more likely to be employed by firms that use written tests rather than oral interviews for screening purposes. This finding suggests that young blacks' performance in interviews may at times mask their increased skill levels.

Here again, there are only data on levels of discriminatory practices and none on trends. Nevertheless, it seems fair to hypothesize that labor market discrimination has not decreased, particularly as it affects young black men. Continued research of the type of the studies cited above is important, and will hopefully allow labor market analysts to observe trends.

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CONCLUSION

Despite great strides toward educational convergence, black wage and employment trends have been generally negative relative to those of whites. Blacks have successfully lowered their dropout rates and have attained high school completion rates similar to whites. They do, however, continue to lag whites in college enrollment and completion rates. Regarding achievement, relative black progress is unmistakable in the SATs and the NAEP data, despite a possible slowdown in convergence in the most recent data available (1990). Yet, for blacks overall and for young blacks in particular, wage and labor market participation declines have been severe.

Of course, both blacks and whites have lost ground, and the lowest-wage workers in both groups have suffered the steepest declines. Nevertheless, the labor market of the 1990s leaves blacks with two disadvantages relative to whites. First, blacks are more likely than whites to be adversely affected by the recent negative trends to hit the labor market: declining rates of unionization, the decline in the real value of the minimum wage, shifts to lower-paying industries (from manufacturing to services), the increase in wage inequality that has favored workers with more years of education and experience, and the general erosion of worker bargaining power, labor market protections, and the social safety net. Second, blacks have the added burden of labor market discrimination, and, while this factor is hard to quantify, the evidence suggests that it has not diminished and may have increased.

Regarding wage convergence, the current debate asks whether blacks' relative wage declines can be explained by differences in human capital. Research has shown that differences measured by years of education and experience, school quality,³² standardized test scores, or simply the residuals from wage regressions can explain half or perhaps more of these relative wage differences,⁴³ but they rarely explain the complete slowdown. There is room for further research: one promising approach employs longitudinal data that allows the effects of heterogeneous productivity differences to be fixed over time.⁴⁴

Regarding the decrease in black labor market participation, it has been noted that the fall in blacks' wages explains only half of the decrease in participation, thus suggesting other explanations specific to the plight of blacks. These factors include the acceleration during the 1980s of demand

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shifts relatively unfavorable to non-college-educated workers, the institutional factors noted above, such as declining unionization and a falling minimum wage, and labor market discrimination.

It appears, then, that human capital improvement is a necessary, but far from sufficient, strategy to achieve equitable racial results in the labor market. If policy makers emphasize growing demand for college-educated workers, they must also acknowledge that we are many years away from achieving racial parity in college completion rates. If they emphasize institutional changes, then they introduce a role for government in shoring up institutions that have been allowed to erode, including worker training programs, placement of displaced workers, a livable minimum wage, and strengthened labor and anti-discrimination law. Without these interventions, blacks are likely to fall further behind in the labor market, despite great strides in educational attainment and achievement.

It appears, then, that human capital improvement is a necessary, but far from sufficient, strategy to achieve equitable racial results in the labor market.

DATA APPENDIX

The data extracts (used in Tables A, F, and G) were created from the 1973-78 May Current Population Survey (CPS) files and the 1979-93 Outgoing Rotation Group (ORG) files from the monthly CPS. The sample included any civilian, noninstitutionalized, non-Hispanic, white, or black, age 25-34, either with a job, looking for work, or out of the labor market (Tables A and G). Table F uses the subset of this sample with positive earnings.

Given the age restriction (25-34), there were some sample-size problems. For example, the regional analysis in Table A by race, sex, and education generated some small cells. This limitation was dealt with in two ways. First, a minimum acceptable unweighted cell size of 50 was set, since this cell size generates the largest standard errors the authors were willing to accept. Fortunately, this problem declines in importance with the switch from the May to the ORG files in 1979.

Second, it was necessary to pool the data and create a centered average to represent an individual year. For example, analysis for 1975 was done using a pooled data set of May CPS extracts consisting of 1973, 1974, 1975, 1976, and 1977. For 1980 through 1992, three-year moving averages were used, made possible by the larger sample sizes. This means, for example, that analysis for 1989 was done on a pool of 1988, 1989, and 1990 ORG files.

The other major issue from a data standpoint was the change in educational coding that took place in 1992. Prior to 1992, education was measured as years of education completed. From 1992 on, education data was captured in terms of degree and program attainment, rather than as actual years of schooling. This effectively converted observed data from a continuous to a categorical variable, making it necessary to estimate the years of education completed. Estimation was done using a regression procedure described in Mishel and Bernstein (1994b, 363).

In order to avoid having wage results driven by outliers, observations reporting a nominal hourly wage of less than \$1.00 or greater than \$100.00 were eliminated. On average, outliers accounted for less than 0.5% of the unweighted sample. Further discussion of these data can be found in Mishel and Bernstein (1994b).

Finally, the NAEP results in Tables B-D are unpublished tabulations run by Elizabeth Greenberg. The methodology used in analyzing the NAEP is found in *NAEP User Guide* (various years), Educational Testing Service, National Center for Educational Statistics, U.S. Department of Education.

ENDNOTES

1. Hauser points out that 18-24-year-olds who have completed college will not be picked up by this series. Nevertheless, he uses an alternate series, which includes recent high school graduates of any age, and shows the exact same trends with the same timing (Hauser 1992, 286).
2. These data points for 1991 do not match exactly the points in the graph, because the graph uses three-year moving averages to smooth the trend.
3. Hauser's model also controls for sex, region, and metropolitan location.
4. Though Figure 5 combines men and women, Hauser shows that their relative odds of college entry are similar. Since their relative wage trends are also similar (black college-educated women lost ground to whites over the 1980s), this argument holds for women as well as men.
5. It has been suggested that the late 1970s peak may have been a response to the Vietnam War, as potential draftees entered college in order to defer.
6. The closing of the education gap shown in Figure 1 is more than explained by the closing of the gap of those blacks and whites with less than 16 years of completed education.
7. See Juhn, Murphy, and Pierce (1991) for a development of this argument.
8. For a discussion of these issues, see U.S. Congressional Budget Office (1986, Chapter II).
9. See, for example, Huelskamp (1994).
10. Blacks gained on whites in all three subject areas measured by the NAEP: reading, mathematics, and science. (Blacks' relative gains in science were the smallest.)
11. Since blacks are disproportionately represented in metro areas relative to whites, this result is expected.

This demographic pattern may bias some of the scoring patterns in the metro/region tables. In some regions, the NAEP non-metro sample of blacks is quite small, which leads to overall scores disproportionately representative of metro blacks.
12. These variables include: family income, size, parental education levels, age of mother at child's birth, labor force participation of child's mother, and structure of family (i.e., single head vs. two-parent).
13. The authors of the RAND study answer these questions by developing models to predict test scores from two longitudinal surveys: the NLSY and the NELS. The results from these models are applied to income and demographic variables from the March CPS in order to predict changes in test scores over time. These predictions are then compared to the actual changes in the NAEP.

It should be noted that Spriggs and Rodgers (forthcoming) find measurement error to arise when the AFQT is used (as by O'Neill 1990) to predict labor market performance for blacks. The AFQT, however, is appropriately used in the Rand study in generating equations to predict test scores by race.
14. These data are from Table 6.3 in the Rand report.
15. Note that, in these figures, changes in test scores are measured in standard deviation units.

The standard deviation is a measure of relative distance from the mean of a distribution. Since these test scores are distributed approximately normally, one standard deviation covers about 34% of the scores.

16. Of course, the Rand results are highly aggregate. The models predict averages; the only geographical controls are regions (it is unclear why the study did not control for central-city location). However, Figure 8 shows that blacks made relative gains at various percentiles below the mean, and Tables B-D show black relative gains in metropolitan locations.

17. Bound and Freeman (1992), Card and Lemieux (1994), Juhn, Murphy, and Pierce (1991).

18. Juhn (1992), Buron, Haveman, and O'Donnell (1994), Rose (1994).

19. The data source for this table is described in Mishel and Bernstein (1994b).

20. See, for example, Mishel and Bernstein, 1994b, Chapter 3.

21. Bound and Freeman (1992) find this result in a ceteris paribus context.

22. As shown in the next section, relative labor force nonparticipation rates have grown most steeply for black dropouts. Thus, this wage result probably is generated by a selection bias, since black dropouts with higher earning potential are disproportionately represented (relative to whites) in this group.

23. See, for example, Juhn (1992), Jaynes (1990), and Buron et al. (1994).

24. Given the relatively steep wage decline of these groups, shown in the previous tables, one hypothesis is that they essentially "bought" more jobs with their lower relative wages.

25. One interpretation of the faster drop for non-college workers in the 1973-79 period is that EPOP is likely to fall at a decreasing rate (i.e., its second derivative with respect to time is positive) in the absence of major additions to non-labor-income sources.

26. This part of the table reveals the interesting point that black women with at least some college have historically had notably higher EPOPs and LFPRs than white women. Only by the end of the period have white females generated rates similar to those of blacks.

27. Juhn (1992, 111). Juhn's Table VI shows that in the bottom two deciles (where both LFPR and wage decline are steepest), wage changes fully account for white LFPR changes but explaining less than half of the decline for blacks.

28. For an analysis of industry rents, see Dickens and Katz (1987).

29. This statement implies that quantity shifts more than price shifts have hurt blacks' relative standing. Decompositions by Reardon (1993) and Bound and Freeman (1992) corroborate this point.

30. Statistical discrimination can be thought of as "guilt by association." Workers in the "out" group are assumed to embody all the negative qualities the employer associates with this group.

31. A related finding is the increased importance in the "residual wage gap" between blacks and whites (Juhn, Murphy, and Pierce 1991). The audit studies actually corroborate the phenomenon of increased within-cell inequality between whites and blacks with similar characteristics.

32. Boozer, Kreuger, and Wolkon (1992) point out that a change in relative school quality is an unlikely candidate for the growth in the black/white wage gap, since relative quality generally improved for those cohorts with the steepest growth in the wage gap.
33. Card and Krueger (1992), O'Neill (1990), Card and Lemieux (1994), Juhn, Murphy, and Pierce (1991).
34. Card and Lemieux (1994), Mason (forthcoming).

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