

Introduction

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A hundred and forty-five years after the Emancipation Proclamation and fifty-five years after *Brown v. Board of Education*, segregation is no longer the law of the land, and in principle black and white children have the benefit of equal opportunities. Yet, across many dimensions, black Americans do not start life on equal footing with their white neighbors. Racial and economic inequalities shape children's experiences from very early on and as a result, on average, black and white children face very different life chances. For example, the average black child spends nearly six years in poverty, in contrast to less than one year for the average white child (Magnuson and Votruba-Drzal 2008). The long list of other related disadvantages that black children are disproportionately likely to experience is equally concerning: lower-quality schools, less access to health care, and more dangerous neighborhoods.

What do such disparities in life chances mean for black children? Among the gaps that remain between black and white children, many would agree that the most consequential is the disparity in their school outcomes. On average, black children come to school scoring lower than white children on measures of school readiness, do not do as well on tests of reading and math achievement in elementary and middle school, and are less likely to graduate from high school and go on to college. Collectively referred to as achievement gaps, these differences operate much like the proverbial half-full (or half-empty) glass of water. Some observers point out how much blacks have gained relative to whites since the days when black and white children attended separate schools. Others lament that though meaningful progress has been made, the remaining gap is substantial and a powerful explanation for the poorer standing of black Americans.

What explains these achievement gaps? It should come as no surprise that the issue has defied simple explanation. The causes and meaning of racial differences in IQ and other measures of cognitive ability have long been controversial.

A century ago, it was thought that differences in intelligence and cognitive ability, whether across individuals or across population groups, were

mainly explained by biological, and primarily genetic, processes. Today it is generally understood that, although intelligence and cognitive ability are heritable at the individual level, differences in these attributes across population groups are primarily explained by differences in environmental conditions.

Several stylized facts offer important support for this conclusion. First, social scientists point out that racial groups are socially constructed, not biologically determined. In the United States, race is a cultural invention with membership based on phenotypic characteristics. It is therefore unlikely that genetic factors explain differences between racial groups (Smedley and Smedley 2005). Second, research has found that individual differences in cognitive performance in advantaged environments appear to be driven in large part by genetic processes, whereas individual differences in disadvantaged environments appear to be more closely linked to environmental influences (Turkheimer et al. 2003). Because black children are disproportionately likely to be economically disadvantaged, this suggests that environmental factors are a potentially important determinant of their achievement. Finally, although the genetic view would have predicted relatively stable scores and differences across population groups over time, the data indicate that cognitive and IQ scores have been steadily increasing over the past 100 years and that differences across population groups have narrowed. Taken together, this evidence is persuasive that the fundamental causes of between group differences in IQ and related measures of cognitive ability lie in differing experiences and unequal opportunities, rather than differences in genes (Flynn 2007).

Given the preponderance of evidence suggesting that environmental conditions explain differences in black and white students' achievement, it is all the more urgent to understand and address the proximal and specific causes of black-white achievement gaps. Without such knowledge, little can be done to shift the odds in favor of black children's success. Test scores serve a gatekeeping function for consequential life course transitions, in particular, high school graduation and college entry. College completion, in turn, is increasingly necessary if young people are to go on to jobs that pay more than poverty-level wages (Danziger 2007; Kirsch et al. 2007). In today's knowledge economy, the premium placed on cognitive skills is greater than at any time in the past, and is likely to only rise in future. At the same time, the penalty to having low levels of skills is higher than ever, and will also only be higher in future as low-skills jobs are increasingly outsourced or filled by technology. Addressing low skills is a matter not just of equity but also of efficiency: the greatest economic resource of the nation and the fuel for economic growth is a highly skilled workforce.

A decade ago, Christopher Jencks and Meredith Phillips (1998) concluded that the single greatest remaining challenge to racial equality was the persistence of the black-white test score gap. The same statement could

certainly be made today. Although some argue that test scores are just one factor contributing to life chances, it is now widely recognized that disparities in test scores and school achievement are a major determinant of unequal outcomes across important domains (Barton 2003; Belfield and Levin 2007). The United States has made great strides in closing gaps between blacks and whites, but will never achieve racial equality without equality of school achievement. Explaining achievement gaps is not just an academic exercise; it is an economic and social imperative. The payoff to more schooling, and the penalty to poor educational attainment, is too great to allow us to close racial gaps in other outcomes without first addressing this fundamental problem.

When we began work on this book five years ago, the data indicated that the progress in gap-closing that had so captured attention in the 1970s and early 1980s had come to a halt in the late 1980s and 1990s. Some have argued that progress was permanently stalled and that no further gains in closing black-white gaps would be seen. Yet, by the time we were halfway through the book, evidence was emerging that the black-white test scores gaps are closing again. As a result, we are optimistic about the prospects for further improvements and all the more motivated to ask what factors account for the remaining gaps and what policies might address them.

History is helpful here. Over the past thirty to forty years, our country has seen first a period of remarkable progress in narrowing black-white achievement gaps, then another in which these gaps notably failed to converge, and then yet another in which progress in closing the gaps resumed. Just as the rings inside tree trunks or the layers within glaciers provide clues as to the conditions under which they were made, these historical patterns of alternating gains and stalled progress in closing test score gaps can tell us something about the conditions that are related to gap closing and those that are related to stagnation in gaps.

The chapters in this book look closely at these historical patterns and use the variation in gaps and conditions over time to deduce which economic and social factors have been important in gap closing and which are implicated in periods of stalled progress. The goal is to better understand the sources of remaining racial gaps in achievement and also to assist policy makers to make better choices about policies they might implement to close black-white achievement gaps in future.

This is an opportune time to be asking these questions. The most recent national data (shown later in this introduction) indicate that black-white achievement gaps are now lower than they have been at any time since such tests were first administered in this country. At the same time, the federal No Child Left Behind Act, which passed with bipartisan support, requires states and localities to report the average student achievement within schools separately by race as well as by other important student characteristics. These reporting requirements have transformed racial

achievement gaps into a real, tangible, and local issue in many school districts. For this, and many other reasons, states and localities are undertaking unprecedented school reforms in hopes of improving student performance on standardized tests as well as reducing achievement gaps. There has also been an explosion of interest at both the state and federal level in preschool programs to help ensure that children are ready for school and to help redress gaps in school readiness. Given this window of opportunity, it is the right time to ensure that we understand the sources of remaining gaps and do all that we can to eliminate them. Only then will we have fulfilled the promise of a society of equal opportunity, one in which children are not handicapped or advantaged by virtue of their birth into a particular racial group.

Steady Gains and Stalled Progress

This volume reports the results of a conference that was convened at the Russell Sage Foundation in November 2006. The conference considered a host of factors that might explain recent trends in the black-white test score gap. We focused in particular on the role that increasing economic and social inequality may have played. There are many ways in which changes in economic and social dimensions of inequality might affect trends in black and white children's achievement, and the conference authors tackled the major ones. In particular, they examined the role of income inequality and related family-level factors, influences prior to school entry, school-related factors such as segregation and teacher quality, and other factors including how children spend their time outside of school. The hypotheses the authors examined are not mutually exclusive. Rather, each represents a possible piece of a puzzle that when taken together may help explain the pattern of steady gains and stalled progress and may also help identify policies to promote further gains.

To set the stage for the chapters that follow, we provide some background on the black-white test score gap and then summarize recent trends in the gap as well as recent trends in economic inequality and related social inequalities that may have affected it. We then provide an overview and summary of the volume.

The Black-White Test Score Gap

The black-white test score gap has been a stubbornly persistent feature of the American landscape. However, the magnitude of the gap and the patterns of achievement underlying the gap have not been constant over time. What accounts for the pattern of steady gains and stalled progress in closing the gap? In particular, how does the stalled progress in the 1980s and 1990s relate to the rise in economic and social inequality, which began

shortly before progress began to stall? The short answer is that research to date has not provided an answer to these questions. In their landmark volume on the black-white test score gap, Jencks and Phillips (1998) examined the steady gains that occurred in the 1960s and 1970s and identified the most important factors accounting for converging test scores, chief among them being changes in families, civil rights and antipoverty initiatives, and school reforms. However, in the decade after the publication of that volume, it became apparent the steady gains analyzed in the Jencks and Phillips volume had stopped. Analysts have yet to satisfactorily explain this phenomenon, which we refer to as stalled progress. Derek Neal, who conducted the most comprehensive analysis to date, concluded that “it is not clear why the process of black-white skill convergence appeared to stop in 1990” (2006, 570). Nor has research established why progress in closing the black-white gap may have resumed again after 2000. Are we now entering another period of steady gains? If so, why?

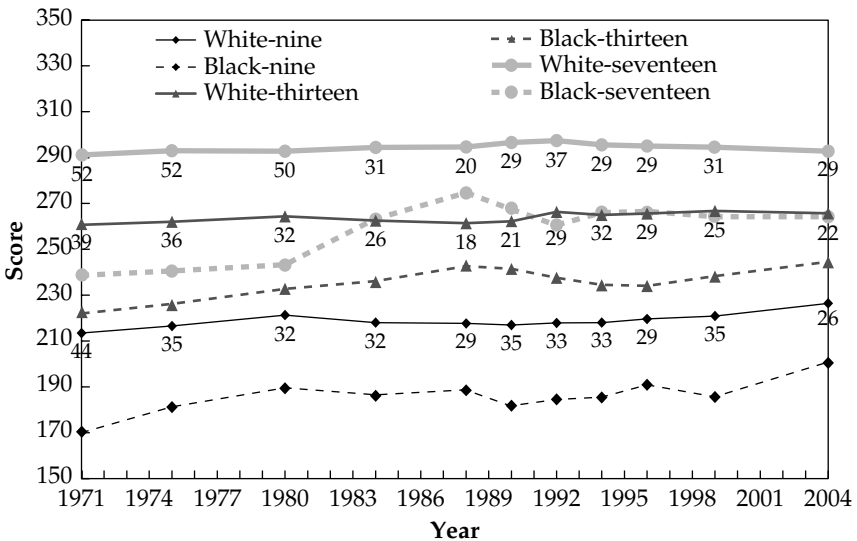
Trends in the Black-White Test Score Gap

The single best source on trends in the black-white test score gap is the National Assessment of Educational Progress Long-Term Trend data (NAEP-LTT). The NAEP-LTT has been administered to nationally representative samples of nine-, thirteen-, and seventeen-year-olds (fourth graders, eighth graders, and twelfth graders, respectively) at regular intervals since the early 1970s, with the most recent administration (as of this writing) in 2004 (Perie, Moran, and Lutkus 2005). The NAEP-LTT provides reliable data on trends in achievement over time, because the tests have remained substantially the same at each assessment.

NAEP-LTT data are available at regular intervals for both reading and math, although the tests for these two subjects were administered in different years before the 1990s. The reading long-term trend data begin in 1971 and run through 2004; the math long-term trend data that we were able to obtain begin somewhat later, in 1978, but again run through 2004.¹ We use these data to document trends in black-white test score gaps in reading and math for nine-, thirteen-, and seventeen-year-olds.² Following the convention employed in previous research, we use data reported by the test administrator to code children as black or white and focus on trends for these two subgroups.³

Trends in Reading

Figure I.1 displays the long-term trends in reading scores. For all three age groups, narrowing in the early period is attributable to relatively steep gains in achievement for black children compared with their white peers. However, it is notable that achievement levels off earlier among the

Figure I.1 NAEP-LTT Reading Scores—Nine-, Thirteen-, and Seventeen-Year-Olds

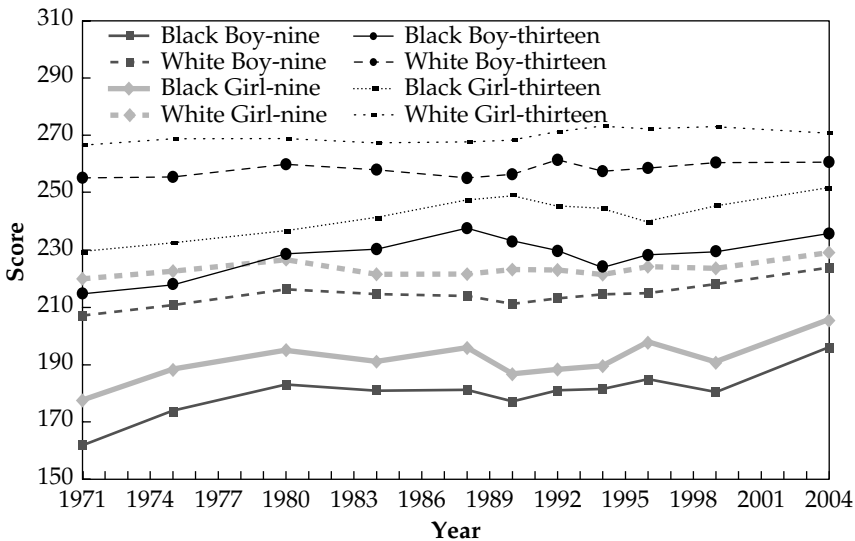
Source: Authors' compilation.

Notes: Numbers presented in the chart reflect the gap in levels of achievement between black and white children of a particular age.

younger children, by about 1980, and remains fairly flat for nearly twenty years before rising again between 1999 and 2004. Trends in the gaps follow this pattern, converging before 1980, with the gap for nine-year-olds dropping from 44 points in 1971 to 32 points in 1980, and then stagnating between 1980 and 1999, with the gap ranging from 29 to 35 points. In 2004, the gap for nine-year-olds fell to 26 points as a result of the improvements made by black children.⁴

In contrast, the black-white reading test score gap for thirteen-year-olds and seventeen-year-olds narrowed until 1988, with seventeen-year-olds making especially large gains in the early 1980s, after which black children's achievement declined, causing the black-white gap to widen. By 1994, the achievement gap among thirteen-year-olds was 32 points, just as large as it had been in 1980. In 2004, the thirteen-year-olds exhibited the same increase in performance as the nine-year-olds, but such gains were not apparent among the seventeen-year-olds.

Figure I.2 presents the reading test score trends disaggregated by both race and gender. Among nine-year-olds, girls consistently outscore boys, but the trends for girls and boys are quite similar. Among thirteen-year-olds, trends for black boys and girls are similar up to 1988, but then there is some suggestion that boys may have displayed an earlier and sharper fall

Figure I.2 NAEP-LTT Reading Scores—Nine- and Thirteen-Year-Olds

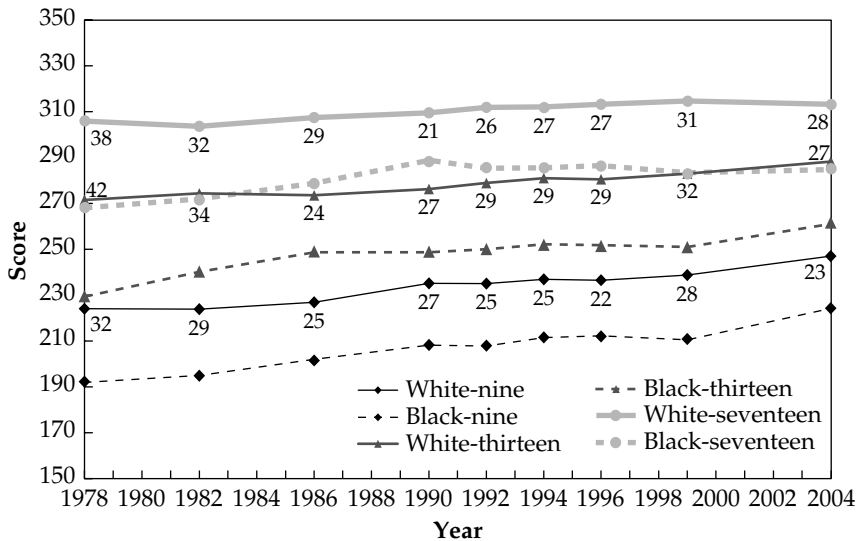
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in scores than girls, although both groups recover in the 1990s. These patterns suggest that boys may have been more affected by whatever caused the downturn in reading scores for black thirteen-year-olds than girls. Although we do not present these data for seventeen-year-olds, trends were quite similar to those presented in figure I.2 for thirteen-year-olds. For high school seniors, there were gender differences in the levels of reading achievement, and perhaps a slightly earlier and sharper fall among boys after 1988 than girls.

Given our focus on inequality, it is of interest to know whether these trends are being driven by changes at the top or the bottom of the test score distribution. We therefore also examined trends by percentiles of the score distribution as well as by parental education. In results not shown, but available on request, we found that considerable and stagnating black-white gaps during the late 1980s and 1990s were apparent at both the top and bottom of the distributions with just slight variations in the achievement patterns.

Trends in Math

As was the case for reading, black and white math test scores converged until the 1980s for nine-, thirteen-, and seventeen-year-olds. Figure I.3 plots the long-term trend in math scores. Due to improvements in the relative

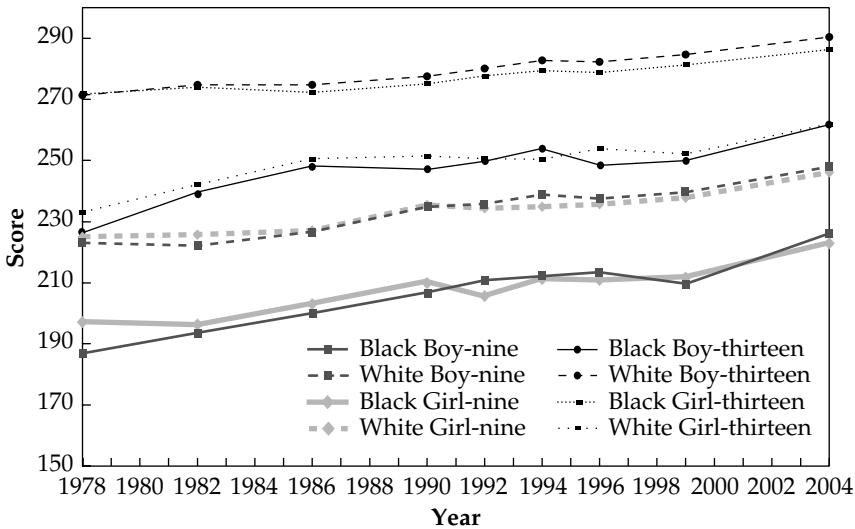
Figure I.3 NAEP-LTT Math Scores—Nine-, Thirteen-, and Seventeen-Year-Olds

Source: Authors' compilation.

Notes: Numbers presented in the chart reflect the gap in levels of achievement between black and white children of a particular age.

achievement of black students, between 1978 and 1986, the black-white gap in math scores declined from 32 to 25 points for nine-year-olds and from 42 to 24 points for thirteen-year-olds. However, this remarkable convergence was not maintained. Among nine-year-olds, black children's scores increased at nearly the same rate as white children's scores in the 1990s, so that by 2004, the black-white gap was 23 points, nearly the same as it had been in 1986. Among thirteen-year-olds, black children's achievement scores remained largely flat (until the upturn in 2004), while white children's scores continued to rise, albeit slowly. Among seventeen-year-olds, improvements in math achievement persisted through 1990, with test scores gaps converging from 38 points to 21 points. These gains, however, were not long-lasting. Black seventeen-year-olds' achievement dropped, and by 2004 the corresponding black-white test score gap was only one point smaller than it had been in 1986.

Figure I.4 plots the same trends by both race and gender and indicates that the trends by age and race do not vary by gender. Nor are there notable gender test score gaps in either race group. These results stand in contrast to those for reading, where (as shown in figure I.2) girls have an advantage over boys and where black thirteen-year-old boys possibly suffered an ear-

Figure I.4 NAEP-LTT Math Scores—Thirteen- and Nine-Year-Olds

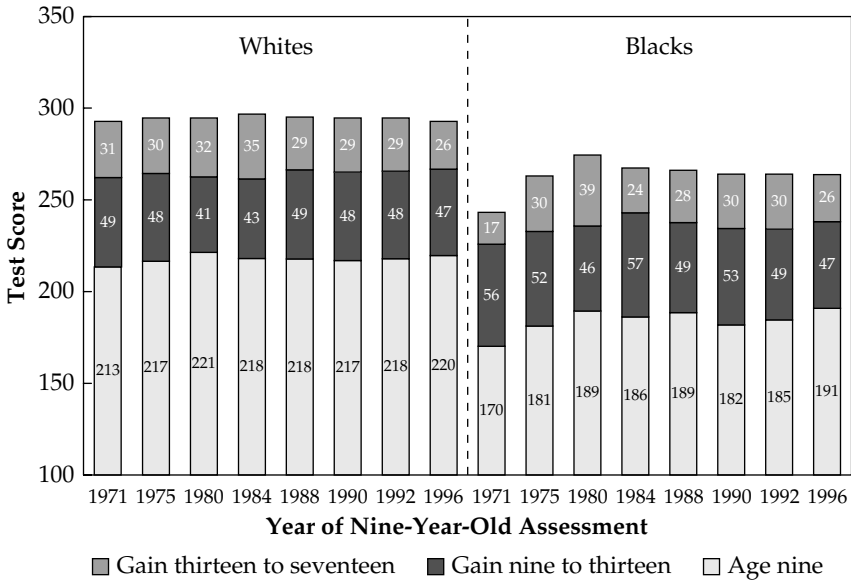
Source: Authors' compilation.

lier and sharper downturn than their female counterparts. Examining gender differences for seventeen-year-olds (not presented in the figures but available on request), we find that white girls had lower levels of math achievement than white boys, but no gender differences among black students. Among high school students as among younger children, trends in test score gaps did not differ by gender. Again, in results not shown but available on request, we also examined trends by test score percentile and parental education. For the most part, these data suggest that patterns of test score gap gains were similarly stalled during the late 1980s and 1990s at the bottom and the top of the test score distribution.

Synthetic Cohorts

It is also useful to trace the relative standing of particular cohorts of children over time. Although the NAEP does not follow individual children or cohorts, the fact that cross-sections of children four years apart in age are tested at roughly four-year intervals means that the data can be used to construct synthetic cohorts. Considering the data in this way makes apparent that much of the eighth-grade gap was already present by fourth grade. Indeed, previous research suggests that a sizable black-white achievement gap is present when children enter school (Fryer and Levitt 2004; Jencks and Phillips 1998).

Figure I.5 Synthetic Cohorts for Reading Achievement NAEP-LTT

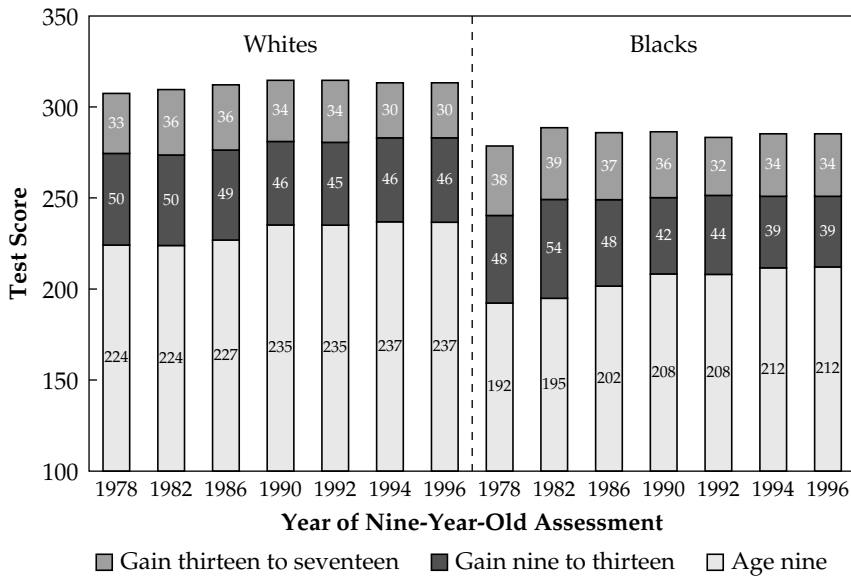


Source: Authors' compilation.

Ronald Ferguson has analyzed the NAEP cohort data and points out how distinctive the reading test score patterns are for children born in 1975 who were nine years old in 1984 (see figures I.5 and I.6; see also Ferguson 2007, chapter 2). In 1988, at age thirteen, this cohort had the smallest black-white reading gap of any prior cohort at age thirteen, and yet four years later, at age seventeen, that gap had more than doubled, suggesting that some shock may have occurred to affect the reading progress of black teenagers during this period. The later cohorts of black children did slightly better, but still faced larger black-white gaps at age seventeen than previous cohorts had.

Summary

Taken together, the evidence presented in figures I.1 to I.6 points to several important stylized facts. Over the past three decades, the black-white gap has displayed a period of steady gains, a period of stalled progress, and most recently what looks to be another period of improvement. Yet, differences in the patterns of achievement test scores underlying these trends are important. First, the trends in reading and math achievement levels differed, in particular during the period of stalled progress. During this time, reading scores for white and black children remained largely flat or

Figure I.6 Synthetic Cohorts for Math Achievement NAEP-LTTT

Source: Authors compilation.

declined, whereas math scores increased, but gains for black and white students were similar. Second, there are some important differences by age. The convergence of reading test scores appears to have ceased earlier among the nine-year-olds than thirteen-year-olds, possibly suggesting a cohort effect, yet declines in reading were particularly pronounced for cohorts of children who were teenagers in the late 1980s and 1990s, possibly suggesting a period effect. Stalled progress in math test scores occurred at roughly the same time for all age groups, which is more indicative of a period effect. Third, gender differences, both in levels and trends, appear to be important in understanding overall patterns in reading, but less important for math. Given these patterns, it seems likely that the explanations for convergence and stagnation are not one and the same, and may even differ by subject, gender, cohort, and age.

Trends in Economic Inequality and Related Social Inequality

In this section, we briefly review the current state of knowledge on economic and social inequality and consider how changes in both types of inequality might affect trends in the black-white test score gap. As noted earlier, the economic circumstances in which black and white children are

raised differ considerably. Understanding the role of inequality is important because, as we shall see, the recent growth in economic inequality has disproportionately affected black Americans, who were more likely than white Americans to be at lower levels of the earnings, income, and wealth distribution to start with. Thus, to the extent that growing economic inequality has social consequences, these are likely to be more apparent on average for black Americans than for white Americans.

Social Consequences of Economic Inequality

One reason to consider the association between economic inequality and children's test scores is the potential for social consequences of economic inequality (Neckerman 2004). Social consequences are of particular concern because they may affect the current generation of children as well as future generations. Because income and wealth are implicated in many aspects of family life, there are numerous ways that economic inequality could lead to inequality in social outcomes among families and children. Children in families at the bottom of the income and wealth distributions may have access to fewer resources in and out of the home, may receive poorer child care or health care, or may attend poorer-quality schools and have less effective teachers (see, for example, Haveman et al. 2004; Meyers et al. 2004; Phillips and Chin 2004). In addition, increased financial hardship may diminish their parents' capacity to provide warm and supportive parenting (McLoyd 1998).

Long-run effects of increased economic inequality are also potentially important. If increased economic inequality leads to increased disparities in college attendance, current economic inequality may result in economic and social inequality in the future (Ellwood and Kane 2000; Kane 2004; Dickert-Conlin and Rubenstein 2007). A further concern is the long-run impact of economic inequality on family formation, which might arise if low incomes deter men from marriage and lead to more children being raised in single-parent families (Ellwood and Jencks 2004; Martin 2004).

The effects of economic inequality on social dimensions of inequality discussed so far are examples of what William Evans, Michael Hout, and Susan Mayer termed mechanical consequences (2004). These effects are called mechanical because they reflect the fact that, to the extent an economic factor affects an individual's well-being and life chances, any increase in economic inequality, holding all else constant, will lead to an increase in inequality along these social dimensions.⁵

Evans and his coauthors (2004) also pointed to the role that can be played by externalities, which involve the influence of factors external to individuals on their outcomes. One type of externality has to do with relative deprivation. Relative deprivation theory suggests that individuals assess their well being by comparing themselves to others, especially those

who are better off than themselves. Thus, an increase in economic inequality could adversely affect individuals at the bottom of the distribution by increasing the magnitude of the differences between themselves and the better-off comparison group, leading to poorer self assessments and possibly other adverse outcomes.

A second type of externality that Evans and his coauthors discussed is a possible link between economic inequality and state spending decisions. Here, however, it is not clear what effect growing economic inequality might have. One scenario would suggest that as economic inequality increases, states might undertake policies and programs that lead to an increase in financial redistribution from wealthier to poor individuals, either because the median voter has lost economic ground and thus favors more redistribution or because the rich favor reducing inequality. However, it is also possible that as the rich gain financial resources, they exert more power over the political process and that redistributive spending, which they do not see as in their interests, falls.

A third type of externality highlighted by Evans and his coauthors (2004) has to do with economic segregation. If the neighborhoods in which families live become more economically segregated because of increasing economic inequality, such segregation could have adverse consequences for children in low-income families. This may be especially important for understanding trends in achievement gaps given the close connections between neighborhood composition and school composition.

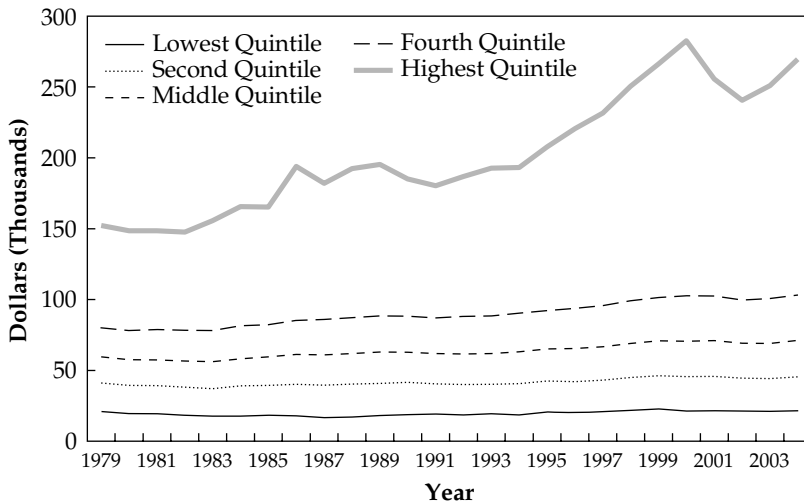
Trends in Economic Inequality

Given the possible social consequences of economic inequality, the unprecedented growth in economic inequality over the past three decades in the United States is especially worrisome. We begin with a discussion of trends in earnings, which for most Americans are the primary source of income and wealth. Two striking trends characterize the period from 1979 to 2004. The first is a decline in the earnings of the bottom 10 percent of the earnings distribution relative to the median (that is, the 50th percentile). The second is an increase in the earnings of the top 10 percent of the distribution relative to the median, with a particularly steep increase for the top 1 percent (see, for example, Piketty and Saez 2003). Thus, the growth in earnings inequality has been driven by changes at both the bottom and the top of the distribution, though the growth in inequality at the top of the distribution has been larger.

Many theories have been advanced to explain this unprecedented growth in the inequality of earnings, and most experts agree that several factors have contributed (Katz and Murphy 1992; Levy and Murnane 1992; Juhn, Murphy, and Pierce 1993; Levy 1998; Katz and Autor 1999; Autor, Katz, and Kearney 2006, 2008; Levy and Temin 2007). Skill-biased

technological change, which refers to the increased demand in the labor market for highly educated workers, has been important. As demand for highly skilled workers has grown, the wages employers are willing to pay to attract and retain such workers have also risen. Changes in executives' compensation have also been a factor for those at the top of the earnings distribution. At the other end of the distribution, changes in international trade, and in particular the auto and steel industry, have resulted in fewer well-paid blue collar jobs for workers without a college education. The decline of unions and the failure of the minimum wage to keep pace with inflation have further eroded the earnings of low-wage workers. In addition, increases in immigration of low-skilled workers have increased the supply of low-wage workers and may have exerted downward pressure on wages for less-educated native workers (Borjas, Freeman, and Katz 1997). Of course, earnings and employment continue to be affected by cyclical changes in the economy. The late 1990s economic boom, in particular, provided some boost to workers at the bottom of the distribution, whose earnings rose in real terms for the first time in several decades (Mishel, Bernstein, and Allegretto 2007). Following the economic expansion, however, low-skilled workers still had lower earnings relative to the median than they had in 1979.

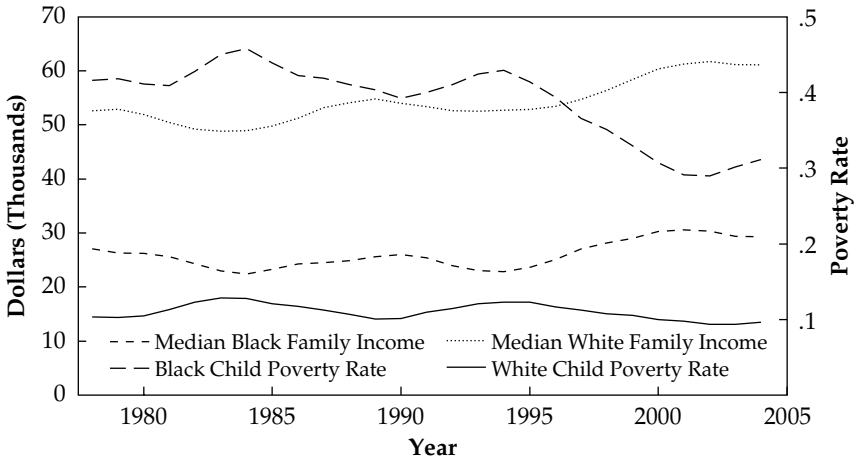
Because earnings are the major component of family incomes, these trends in earnings inequality are reflected in trends in family income inequality. However, because family incomes are also affected by other factors, in particular, family structure and patterns of family members' employment, family income inequality trends may differ somewhat from earnings inequality trends. Figure I.7 (from Congressional Budget Office 2007) shows trends in the incomes of families with children at different points of the family income distribution. If incomes were equally distributed, families in each fifth or quintile of the distribution would have one-fifth of total family income. However, this is not the case. In 1979, those in the top fifth already held 34 percent of all family income, and, the distribution had become even more unequal by 2004, as the top quintile's share of total family income rose to 47 percent. The gains were even more dramatic for the top 1 percent (not shown in the figure), whose share rose from 5.7 percent to 15.3 percent. Over the same period, the share held by all other quintiles fell. In particular, the share of those in the bottom fifth fell from 6.3 percent in 1979 to 5.1 percent in 2004; this decline would have been even worse had it not been for income gains for this quintile in the late 1990s as more single mothers went to work (Congressional Budget Office 2007). Levels of family wealth inequality are even higher than income inequality, because wealth is much more concentrated at the very top of the distribution (Kennickell 2000), though it is not clear whether inequality in family wealth has been growing as rapidly as inequality in family income (Scholz and Levine 2004).

Figure I.7 Distribution of Family Income

Source: Congressional Budget Office (2007).

What do these trends in overall economic inequality imply for black-white economic inequality? If black and white Americans had the same distribution of earnings, income, and wealth, then the increased dispersion of the past several decades would not have affected black-white inequality. However, because black and white economic circumstances were already very unequal, with black Americans more likely than white Americans to have low earnings, income, and wealth, and less likely to have high earnings, income, and wealth, the recent growth in economic inequality would be expected to exacerbate existing disparities (Altonji and Blank 1999). Of course, at the same time other factors may have operated to reduce black-white inequalities. Levels of education among black Americans have risen sharply, as has the quality of the schools they attend (Krueger, Rothstein, and Turner 2006). In addition, civil rights, antidiscrimination, and affirmative action initiatives have probably reduced discrimination in the labor market (Holzer and Neumark 2006). These factors, in the absence of increased economic inequality, would have reduced black-white gaps in earnings, income, and wealth (Altonji and Blank 1999).

Trend data for black-white earnings inequality reflect the influence of these competing trends. In the 1970s, black-white earnings gaps narrowed because of the inequality-reducing factors delineated (increased levels and quality of education and reduced discrimination), but from the late 1970s onward, the black-white earnings gaps stopped closing (Altonji and Blank

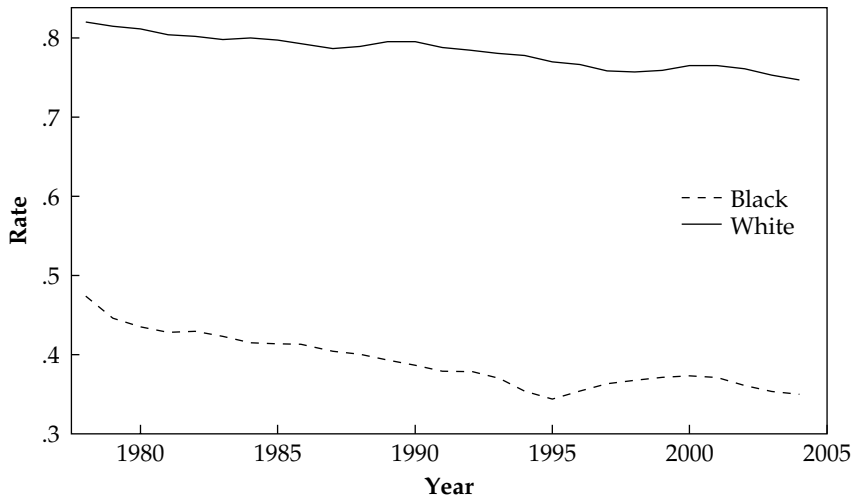
Figure I.8 Median Family Income and Child Poverty Rate by Race

Source: Authors' compilation.

1999; Krueger, Rothstein, and Turner 2006). Similar trends are evident when we examine black-white income gaps among families with children in the March Current Population Survey (see figure I.8). In this case, however, the gaps are probably also affected by other co-occurring trends, in particular, the greater decline in marriage among black families than among white. One of the strongest protective factors for family income over this period, as low-skilled workers lost ground in the labor market, was the presence of a second earner. Black families, though, are much less likely than white families to have two parents present, and this gap has widened over the past thirty or forty years (figure I.9). Finally, as noted, overall inequality in wealth is far greater than inequality in earnings or income. The same is true for black-white inequality in wealth (Shapiro and Oliver 2006; Scholz and Levine 2004).

Inequality and Trends in the Black-White Test Score Gap

The chapters in this volume examine a number of ways in which increased economic inequality, and related social dimensions of inequality, may have contributed to recent trends in the black-white test score gap and, in particular, to the stalled progress that began in the mid- to late 1980s. Because economic and social dimensions of inequality are interrelated, and because many factors affect student achievement, we would not expect any single

Figure I.9 Rates of Two-Parent Families by Race

Source: Authors' compilation.

aspect of inequality to play a predominant role. Rather, it is likely that many aspects of increased economic and social inequality may have acted together to stall the progress that black children had been making relative to their white peers up to the 1980s. Moreover, given that trends in reading and math gaps have not been constant over time but rather have been characterized by periods of steady gains as well as stalled progress, with some variation by age, cohort, and gender groups, we would not expect one set of factors to explain all the trends over time. As Ronald Ferguson emphasizes in chapter 9, the black-white test score gap has not been a unitary phenomenon over the past forty years, and its causes are likely to be multiple and complex.

A Long-Term View

The first three chapters take a long-term view. In chapter 1, Katherine Magnuson, Dan Rosenbaum, and Jane Waldfogel analyze the links between inequality and black-white achievement trends for nine-year-olds using NAEP-LTT data from the 1970s to 2004. The NAEP-LTT series is the single best source of data on trends in black and white test scores, but contains only limited data on family-level factors. The authors therefore augment the NAEP data by merging in information about the average characteristics of black and white families with children from the March

Current Population Survey (CPS). They find that controlling for the child's characteristics (that is gender, parent's level of education, and whether the household receives a newspaper, as reported in the NAEP) and the average characteristics of families of the same race group in that child's state (that is, average maternal age and education and share of families with single parents, from the March CPS) does help explain a portion of the black-white test score gap. Moreover, they also find some evidence suggesting that when income inequality in a state becomes higher, children's test score performance is lower. However, income inequality appears to be negatively related to the performance of all children and thus does not seem to be directly implicated in the stalled progress in closing the test score gap. Rather, the state and family characteristic that seems to be most related is parents' education. Improvements in black parents' education was a key factor identified in the Jencks and Phillips (1998) volume as underlying the gains in closing black-white test score gaps in the 1960s and 1970s. The analysis in chapter 1 suggests that the slower progress in closing parental education gaps in the 1990s may be a factor in explaining the stalled progress in closing the black-white test score gaps in those years.

Mark Berends and Roberto Peñaloza, in chapter 2, also take a long view, analyzing how changes in families and schools have affected the black-white test score gap for seventeen-year-olds during the thirty-two years from 1972 to 2004, taking advantage of detailed data from four cohorts of high school seniors. Consistent with earlier work (Berends et al. 2005), they find that family factors, such as the increasing education level of black parents and smaller family sizes in black families, played an important role in helping to close the black-white test score gaps in the 1970s and early 1980s. They analyze whether changes in family factors such as these continued to benefit black children after the 1980s, or whether other changes in family factors may have disadvantaged black children relative to white children. They find that for the most part, changes in family factors continued to benefit black students, but that these were offset by increasing disparities in the characteristics of schools that black and white students attend, such as the percentage minority and socioeconomic characteristics of fellow students. This result stands in contrast to the earlier period, when school improvements pursuant to the civil rights movement contributed to gains in closing black-white gaps.

Focusing on the role that family income plays, in chapter 3, Mary Campbell, Robert Haveman, Tina Wildhagen, and Barbara Wolfe use data from the National Survey of Adolescent Health to analyze the extent to which income predicts test scores for young adults age eighteen to twenty-eight and then, based on those estimates, how recent changes in income inequality are likely to have affected trends in the gaps in student test scores. They find that changes in the distribution of income per se are likely to have played only a small role in explaining trends in black-white

test score gaps, because income matters most to test scores at the bottom of the income distribution, whereas the increase in income inequality has been greatest at the top. However, they also find that blacks attend schools with higher levels of income inequality and that, though attending a more unequal school decreases black students' test scores, it slightly raises those of white students. These results point to income inequality within schools as a mechanism by which increasing income inequality could have contributed to stalled progress in closing black-white test score gaps.

Explaining Gaps at School Entry and During School

Previous work on black-white test score gaps has found that substantial gaps are already present when children enter school, and that black-white gaps tend to widen during the school years (Phillips, Crouse, and Ralph 1998; see also Fryer and Levitt 2004, 2005; Murnane et al. 2005; Clotfelter, Ladd, and Vigdor 2006). These findings suggest the importance of examining the causal mechanisms that might underlie black-white gaps at school entry as well as during the school years. The next four chapters take up this challenge.

In chapter 4, David Grissmer and Elizabeth Eiseman use nationally representative data from the Early Childhood Longitudinal Study—Kindergarten Cohort to examine black-white gaps at school entry. Expanding on previous research that has focused mainly on academic skills, they examine noncognitive skills, including fine and gross motor skills and child behavior, in addition to reading and math skills. They find that substantial black-white gaps in both cognitive and noncognitive skills are present at school entry, suggesting the need to better understand the development of both those domains in early childhood. Their work also points to the potential role that early childhood programs might play in closing black-white gaps. In particular, there is strong evidence that early education programs delivered in preschool settings can improve children's school readiness, with particularly large effects for high-quality programs serving disadvantaged children. However, the extent to which preschool programs will be able to further reduce test score gaps will depend on black children gaining an advantage over white children in enrollment rates or benefits from enrollment, or both (Magnuson and Waldfogel 2005).

Chapters 5 and 6 focus on the role of school-related factors in explaining black-white test score gaps. As noted, the fact that achievement gaps widen after school entry points to the importance of understanding what role schools might play and how that role may have changed over time. During the 1970s and early 1980s, school reforms and changes associated with the civil rights movement were credited with reducing black-white gaps in reading and math (Ferguson 2007; Ferguson with Mehta 2004).

With inequality increasing along many dimensions in the 1980s and 1990s, did inequality in school factors contribute to the stalled progress in closing the test score gaps during that period? Chapters 5 and 6 tackle this question.

In chapter 5, Jacob Vigdor and Jens Ludwig consider the role of changes in neighborhood and school segregation, which previous research has identified as important factors contributing to black-white achievement gaps (Clotfelter, Ladd, and Vigdor 2003; Clotfelter 2004; Card and Rothstein 2006). During the 1970s and 1980s, there were substantial reductions in both neighborhood and school segregation, and these reductions contributed to the narrowing of the black-white test score gap. However, in the 1990s, although neighborhood segregation continued to decline, progress in integrating schools slowed, and in some districts worsened. As a result, Vigdor and Ludwig conclude that if schools had desegregated as quickly as neighborhoods had, the black-white test score gap today would be smaller. Their analysis also suggests that if schools had continued desegregating as rapidly in the 1990s as they had in earlier decades, progress in closing the black-white test score gap might have continued rather than stalled. Vigdor and Ludwig's analysis implies that reducing segregation in schools, or addressing the reasons that segregated schools widen achievement gaps, could further reduce the black-white test score gap in future.

In chapter 6, Sean Corcoran and William Evans consider the role of another important school factor, teacher quality. Disparities in the quality of teachers to which black and white children are exposed have been identified as a key contributor to the black-white achievement gap (Ferguson 1998, 2007; Ferguson with Mehta 2004; Hanushek and Rivkin 2006; Phillips and Chin 2004). Did this aspect of inequality worsen when progress in closing black-white gaps in reading and math stalled? The analysis in this chapter suggests that the answer depends on which grades one considers. At the elementary level, the gaps in teacher qualifications, characteristics, and attitudes between teachers of the average black student and the average white student did widen during the 1990s; however, at the secondary level, they mostly narrowed or held constant. Thus, growing inequality in teacher quality may be impeding progress at the elementary level, but is not likely to be a factor explaining the stalled progress of children at the secondary level.

That black-white test score gaps widen during the school years does not necessarily mean that school factors alone are acting to widen those gaps. Factors such as how children and youth spend their time after school and during the summers and how much support their parents provide for learning may also affect children's achievement. Given the growth in economic and related social inequality in recent years, these out-of-school factors may have affected test score trends (Ferguson 1998, 2007; Ferguson with Mehta 2004). Meredith Phillips considers this question in chapter 7.

She concludes that trends in factors such as the time students spend reading for pleasure, doing homework, or watching television, as well as the amount of reading materials in the home and parental monitoring of homework and television watching, are not strongly correlated with trends in black-white test score gaps for thirteen-year-olds or seventeen-year-olds. However, she finds some links between lower rates of computer ownership and lower math scores for black students, as well as an association between an increase in disciplinary problems and a decrease in test scores for black seventeen-year-olds. There is thus some evidence that out-of-school factors may have played a role in the recent period of stalled progress, at least for some groups.

Conclusions and Policy Implications

The final two chapters reflect on the evidence about recent trends in the black-white test score gap and the factors that might explain them. Each then offers thoughts about the prospects for future gap closing and what policies might facilitate this.

In chapter 8, Helen Ladd provides a critical overview of the role that school reform policies might play in promoting gains in closing the black-white test score gap. She reviews five types of school policies that have been proposed or justified because of their potential to reduce racial test score gaps. She concludes that few education policies are likely to play a major role in reducing the black-white achievement gap, but argues that well designed policies are still a critical component of any gap-reduction strategy. Ladd identifies two school-based strategies that hold particular promise—reducing class sizes in the early grades and evening out the quality of teachers across schools serving different racial groups.

In chapter 9, Ronald Ferguson revisits the evidence on the trends in test score gaps, in particular highlighting cohort trends. He argues that changes in popular as well as school culture (for example, trends in students cutting classes and in grade inflation) may be important explanations for gap trends. He then identifies policies that might address these aspects of popular culture and school culture and thus contribute to further progress in closing test score gaps in future. Ferguson also emphasizes that the causes of black-white achievement gaps are multiple and complex and that a multifaceted approach will be needed if further progress is to be made.

What Have We Learned?

The persistent gap in test scores between black and white children remains one of the greatest challenges of our time. The chapters in this volume help us better understand the reasons why the United States has experienced

both steady gains and stalled progress in its efforts to close the black-white test score gap and provide some direction about steps the country might take to make further progress in future.

Two key conclusions stand out. First, growing economic and related social inequality has probably impeded progress in closing black-white test score gaps. Second, however, to the extent that rising inequality has played a role, its effects have been complex, working through factors at both the family and school level. Growing disparities in family income do not appear to have had large direct effects on test scores. Rather, growing disparities in income and related social dimensions have threatened progress in closing black-white achievement gaps through their effects on families and schools, which in turn influence test scores.

At the family level, the convergence in parental education of black and white children has been important in closing test score gaps. However, as others have noted (see, for example, Long, Kelly, and Gamoran 2005), the convergence in mean levels of parental education was mainly due to improvements at the lower end of the educational distribution (high school completion), and considerable gaps in postsecondary education remain. Findings presented in chapters 1 and 2 suggest that overall improvements in parental education were operating to close the gaps between 1974 and 2004. Nevertheless, in 2004, sizable gaps—in parental education, particularly postsecondary education, and test scores—remained. Thus there is considerable scope for further improvement here.

At the school level, the evidence in this volume points to several factors related to economic and social inequality that worsened for black students relative to white students and that look to have played a role in stalling progress in closing the black-white test score gap. In particular, chapters 4 and 5 point to the slowdown in school desegregation, and chapters 6 and 7 highlight the lower quality of teachers black students have relative to the quality of those white students have.

As Vigdor and Ludwig discuss in chapter 5, analysts differ as to how segregation should be measured, and over time trends in segregation can look quite disparate depending on what measure is used. The other factor affecting estimates is how much influence segregation is estimated to have in any given model. Vigdor and Ludwig use a dissimilarity index, which shows little or no increase in segregation in recent years, combined with estimates of segregation effects from rigorous models that attempt to identify causal effects by holding constant school effects. As a result, their estimate of the role that segregation has played in stalled progress is quite small. In contrast, Berends and Peñaloza in chapter 2 use the percentage of minority students to measure segregation. Segregation on this measure increased markedly between 1982 and 2004 and is estimated to be strongly associated with test scores for high school seniors in their regression models that do control for school effects. Accordingly, their estimates suggest

that segregation increased over the past two decades and that the increase contributed to a widening of the black white gap for this age group. The two chapters concur that the progress in desegregation of the 1960s and 1970s either came to a halt or was reversed in the 1980s and 1990s, and that this is a factor in the stalled progress of those decades.

Inequality in teacher quality is another factor that disadvantages black students and is likely to have played a role in the stalled progress. In chapter 6, Corcoran and Evans provide new evidence on black-white student gaps in teacher quality using data from the Schools and Staffing Survey. They conclude that black-white gaps in meaningful aspects of teacher quality have widened over the past few decades, though mainly for elementary school rather than secondary school children. In chapter 7, Ladd argues that disparities in teacher quality are at least in part attributable to segregation, noting that efforts to desegregate schools would reduce disparities in teacher quality by placing more black and white students in the same schools (though they still might have different teachers within those schools). The two chapters concur that teacher quality is a key input in students' educational achievement and that reducing disparities in teacher quality across black and white students would likely reduce black-white test score gaps.

Of course, there may be other factors—not examined here—that help explain recent trends in the black-white test score gap and in particular why progress in closing the gap stalled in the 1980s and 1990s. The chapters in this volume have examined the facets of social inequality that seem most likely to matter and for which we had adequate data. But there are some potentially important omissions. We did not consider differences in child health and how those might affect progress in closing the gap. Other researchers have found that though disparities in child health exist, they are not a large factor in explaining gaps in test scores at school entry (Currie 2005) or in later school years (Jackson 2007). Nevertheless, improvements in child health probably did play a role in the progress of the 1960s and 1970s (see, for example, Almond and Chay 2006), and the role of child health merits further attention in future work.

We also do not consider trends in parental incarceration, which have had such disproportionate effects on black families (Bushway, Stoll, and Weiman 2007; Wildeman forthcoming). Although we think it is likely that the impact of incarceration works at least partially through factors examined in this book, such as income and family structure, it too merits further examination.

Finally, we have not considered psychological factors, such as the attitudes with which black and white children approach tests and the meaning that school work and tests has for them (see, for example, Aronson 2002; Cohen et al. 2006; Fuligni 2007). Because of data limitations, such psychological factors are not included in our analyses of social inequality, but are

nonetheless important to understanding the achievement gap, and thus should continue to be studied.

Looking Ahead

The trends in the black-white test score gap over the past thirty to forty years provide ample evidence that such gaps are amenable to change, as both William Dickens and James Flynn (2006) and Ronald Ferguson (chapter 9, this volume) argue. Where do we stand now and what can we look forward to in the future? The most recent long-term trend data, from the 2004 NAEP-LTT, suggest that we may be entering another period of convergence, though sizable gaps remain. We would not want to make too much of the 2004 data until we can see whether the progress persists through the next administration of the NAEP-LTT in 2008 (scheduled to be released in 2009). Nevertheless, the 2004 results are encouraging and point to the possibility that we may be entering another period of steady gains.

We can only speculate as to how much more progress could be made in closing the racial test score gap if economic and social inequality were declining instead of increasing. In the meantime, the studies in this volume clearly point the way to some policies that would make a difference. First, there is a role for expanding black children's enrollment in high-quality preschool programs that help children enter school with higher reading and math skills. Second, there is a role for policies to improve the quality of education that black children receive once they are at school—through reducing class sizes, improving teacher quality, reducing school segregation, and increasing accountability. Third, there is a role for parents and community members to play in addressing how youth spend their time outside of school and their behavior in school. Fourth, given evidence that low incomes constrain black youth from attending college, there is a role for expansions in college financial aid programs such as Pell Grants. Together, such policies, if successful, would not only improve educational outcomes and reduce disparities in the current generation of children but also improve outcomes and reduce gaps in the next generation by increasing the share of black parents with higher education, in particular, a college degree.

Notes

1. We are grateful to the Russell Sage Foundation for their generous funding of the work reported in this volume. We obtained a copy of the beta version of the NAEP-LTT data from the U.S. Department of Education, National Center for Education Statistics under a restricted data license agreement. The mathematics testing began in 1973 but we were not able to obtain the data from before 1978. We are grateful to NCES for making these data available to us and to

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2. Information on the overall black-white gap has also been reported by NCES in several reports (see, most recently, Perie, Moran, and Lutkus 2005). One concern about data on the seventeen-year-olds is that only twelfth grade students are tested, and thus trends in test scores may be affected by trends in dropout rates.
3. It is also possible to code children using race as reported by the child him or herself. Results using this variable are very similar to those shown here. Hispanic children are not included here but are included in the analyses in chapter 3.
4. Researchers often measure black-white test score gaps as a proportion of a standard deviation. The standard deviations for these tests change slightly over time, but are typically around 40 points for reading and 36 points for math. Dividing the difference in test scores by the standard deviation yields an effect size for the gaps, which ranges from about 1 to about 0.75.
5. Another way that economic inequality can affect social dimensions of inequality or long-run economic inequality is via what Evans and his co-authors call relational effects. Relational effects refer to the impact of income (or other economic factors) becoming stronger or weaker over time (thus, they refer to changes in coefficients). In the extreme, income differences could be less consequential in affecting an outcome in a period when income inequality was rising, if over the same period the effect of income on that outcome had fallen. For instance, as public kindergarten has become the norm, the effect of family income on children's kindergarten enrollment has diminished, such that now kindergarten enrollment is more or less universal (Meyers et al. 2004). On the other hand, growing income dispersion could be more consequential than previously thought, if the effect of income on an outcome has grown over the same period. This may be the case with regard to health, as income now appears to have a stronger effect on health than it once did (Eibner and Evans 2004).

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