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The Black-White Test Score Gap Will Narrow Only Slightly Over the Next Twenty Years

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The Black-White Test Score Gap Will Narrow Only Slightly Over the Next Twenty Years

Stuart E. Smith, Alfred University (Retired)

Abstract. This study examined changes in the test score gaps in the main NAEP eighth grade assessments in mathematics and reading over the fourteen-year period, 2003 to 2017. The test score gaps were reported for public school students for the nation. In 2003 the black-white test score gap in mathematics was 35; in 2017 the test score gap was 32, a decrease of three points. For reading in 2003 the test score gap was 26; in 2017 the test score gap was also 26. Thus, there was no change in the reading test score gap over the fourteen-year period.

Objectives. The study had three objectives. The first, and main objective, was to determine to what extent, if any, the black-white test score gaps decreased on the grade 8 NAEP mathematics and reading assessments for the nation over a 14-year period, 2003-2017.

The second objective was to determine to what extent, if any, the black-white test score gap decreased over the same 14-year period on the grade 8 NAEP mathematics and reading assessments for the nation's ten largest population states.

The third objective was to determine to what extent, if any, the black-white test score gaps decreased, over the 2003-2017 period on the grade 8 NAEP mathematics and reading assessments for eight large city school districts.

Background. *The Black-White Test Score Gap* (1998), edited by Christopher Jencks and Meredith Phillips, was the landmark report concerning the causes and extent of the black-white test score gap. Jencks and Phillips say that "while it is clear that eliminating the test score gap would require enormous effort by both blacks and whites and would probably take more than one generation, we believe it can be done" (p. 2). Jencks and Phillips expand on this prediction:

...if racial equality is America's goal, reducing the black-white test score gap would probably do more to promote this goal than any other strategy that commands broad political support. Reducing the test score gap is probably both necessary and sufficient for substantially reducing racial inequality in educational attainment and earnings. (pp. 33-34)

In *Thinking K-16* (Spring, 2001), a publication of The Education Trust, the authors of the article, "Closing the Gap: Done in a Decade" assert that the achievement gap *could be closed in a decade*. The authors'

argument seems to rest heavily on the assumption that if some states have made progress in reducing the test score gaps, any state can make progress. They cite North Dakota's progress in science: "If low income eighth-graders everywhere had mastered science as well as low income students in North Dakota the national achievement gap between poor and non-poor students would virtually disappear." (p.6)

In January 2002 the No Child Left Behind Act (NCLB) was signed into law. The NCLB law stated that all children will be proficient in mathematics and reading by the end of the 2013-2014 school year. Thus, the NCLB law said, in effect, that the racial (and income) achievement gap would be closed in approximately twelve years.

It is noteworthy that Jencks and Phillips stated that it would probably take more than a generation to eliminate the black-white test score gap, whereas the Education Trust authors, and the NCLB expected the achievement gaps could be closed in ten to twelve years.

A few years after the landmark publication *The Black-White Test Score Gap*, an important research report, *Inequalities at the Starting Gate*, was published. The results reported by Valerie Lee and David Burkam (2002) were based on an analysis of data contained in the U.S. Department of Education's *Early Childhood Longitudinal Study, Kindergarten Cohort* which began in 1988.

Lee and Burkam reported results by race and by social class. As other researchers had reported, Lee and Burkam found that black children scored substantially lower than white children on achievement tests as they entered kindergarten. Probably the most noteworthy finding pertained to the quality of schools into which black children enrolled. Lee and Burkam conclude that

Considering almost every way we measured school quality, children who belong to racial minority groups (most strongly for blacks but also for Hispanics...), begin their formal schooling in lower quality schools than their white counterparts. *Whether defined by less favorable social contexts, larger kindergarten classes, less outreach to smooth the transition to first grade, less well prepared and experienced teachers, less positive attitudes among teachers, or poor neighborhoods and school conditions, children from less advantaged social backgrounds begin elementary school in lower quality institutions...The least advantaged of American children, who also begin their formal schooling at a substantial cognitive disadvantage, are systematically mapped into the nation's worst schools.* (pp. 76-77)

The authors state that “the lowest quality schools are in America’s large cities... The highest quality schools are located in the suburbs, where the most affluent citizens reside.” (p.77)

Inequality at the Starting Gate presents data pertaining to racial differences by school location. Black children entering kindergarten in 1988 lived in large cities in much higher percentages than white children; Twenty-nine percent of blacks and eight percent of white children lived in large cities. When “large city” and “medium size city” categories were combined, then slightly more than half (56%) of black children lived in larger or medium sized cities whereas approximately one quarter (26%) of white children lived in large or medium sized cities around the year 2000.

One variable often cited in connection with the black-white test-score gap is the percentage of children living in single-parent households. In the national sample employed by Lee and Burkam, 15% of white children lived in single-parent households compared to slightly more than half (53%) of black children in single-parent households.

Another often cited variable associated with the black-white test score gap is student mobility, that is, the frequent changes in residency among families of pre-school or school age children. Lee and Burkam report on one category of family mobility, namely, “living in five or more homes since birth.” Forty-five percent of black children had lived in five or more homes since birth compared to only six percent of white children.

Lee and Burkam assert “the lowest quality schools are in America’s large cities.” (p. 77) They say also that “the highest quality schools are located in the suburbs, where the most affluent citizens reside.” (p. 77) Lee and Burkam also found that eight percent of white entering kindergarteners lived in large cities whereas 29% of black entering kindergarteners lived in large cities; nineteen percent of kindergarten age white children lived in a medium sized city versus 27% of kindergarten age black children. Nearly half (47%) of young white children lived in a suburban area compared to one-third (32%) black children.

Although the following data are for eighth grade students, not beginning kindergarteners, some support for Lee and Burkam’s assertion that the highest quality schools are located in the suburbs, and that the poorest quality schools are located in large cities comes from *The Nation’s Report Card: Reading, 2009*. In this report,

reading scores for eighth grade students across the nation are reported by “city”, “suburb”, “town” and “rural”. For 2007 the average NAEP eighth grade reading score for city schools was 257; for suburban schools, the score was 267. Scores for town, and rural were 262, and 264 respectively. Thus, city schools scored ten points lower than suburban schools, and lower than town and rural schools.

If we use test scores as a measure of school quality, then these NAEP reading scores appear to support Lee and Burkam’s statement that “the highest quality schools are located in the suburbs, where the most affluent citizens reside.” As noted earlier, black families live disproportionately in large cities, at least higher proportions of younger black families do.

In 2003 Paul Barton published *Parsing the Achievement Gap*. In the introduction Barton states that “this publication is about conditions that help create and perpetuate achievement gaps.” Barton identified 14 variables which showed differences between black and white students across a number of studies performed mainly the 1990s. One of the 14 variables identified by Barton was “teacher certification.” In 1996 13% of white eighth-graders across the nation had teachers who lacked certification in junior high school or secondary school mathematics compared to 17% of black students; in 2000 17% of white students and 27% - more than one-fourth - of black students had uncertified mathematics teachers.

In 2003 Hart and Risley published an article, “The Early Catastrophe: The 30 Million Word Gap at Age 3”. This article was based on their earlier book, *Meaningful Differences in the Everyday Experience of Young American Children* (1995). Hart and Risley studied very young children in three types of families: professional, working class, and welfare. The children were from 13 professional families, 23 working class families, and six welfare families. The researcher’s results were based “on more than 1,300 hours of casual interactions between parents and their language-learning children.”

The authors say this about the experiences of the very young children in the three categories of families:

In four years of such experience an average child in a professional family would have accumulated experience with almost 45 million words; an average child in a working class family would have accumulated 26 million words; and an average child in a welfare family would have accumulated experience with 13 million words by the age of four, the average child

in a welfare family might have 13 million fewer words of cumulative experience than the average child in a working-class family. (p.8)

The authors also note that welfare children receive many fewer encouraging words than working-class and professional family children. Finally, Hart and Risley make some assessment as to the magnitude of the problem:

Estimating, as we did, the magnitude of the difference in children's cumulative experience before age 3 gives an indication of how big the problem is. Estimating the hours of intervention needed to equalize children's early experience makes clear the enormity of the effort that would be required to change children's lives. We see why our brief, but intense efforts during the War on Poverty did not succeed. But we also see the risk to the nation and its children that makes intervention more urgent than ever (p.9).

In Plain Sight: Simple Difficult Lessons from New Jersey's Expensive Effort to Close the Achievement Gap was published in 2008. The author, Gordon MacInnes, had been New Jersey's assistant commissioner for education for five years. MacInnes states that "black and Latino children are much more likely to grow up in poor families than are white and Asian children." (p.6) A second cause of reading difficulties as students enter school is that "poor children are much more likely to begin Kindergarten without the language, vocabulary, and general knowledge they need to be ready to learn to read." (p. 3) MacInnes points out that on the 2007 fourth grade NAEP reading assessment, only Massachusetts had a higher score (236) than New Jersey (231). Also in 2007 New Jersey's fourth grade reading scores increased by 12 points over 2005. MacInnes also observed that "New Jersey was the only state in which scores in all ethnic categories increased over 2005." Thus, compared to other states, New Jersey's fourth grade reading students achieved very well indeed. However, MacInnes does not tell the reader whether New Jersey made progress in reducing the black-white achievement gap in fourth grade reading.

In 2009 the National Center of Education Statistics published a report *Achievement Gaps: How Black and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress* in which black-white test score gaps on the fourth-grade (and eighth grade) NAEP reading and mathematics assessments for various years were reported. For 2003, 2005, and 2007, New Jersey's

fourth-grade reading test score gaps were 36, 33, and 26 respectively. Thus from 2003 to 2007, black-white test score gap decreased by ten points, a remarkable decrease.

New Jersey's ten point narrowing in 2007 fourth grade black-white reading gap is impressive when compared to the reading gap for the nation. For the nation, for the same years – 2003, 2005, and 2007, – the black-white test score gaps were 30, 29, and 27 for fourth grade reading. MacInnes' book, *In Plain Sight* was published in 2008. The last year for which New Jersey's fourth grade NAEP reading results were reported was 2007. As noted above, the NCES in 2008 published a report on the black-white test score gap. The most recent data in the 2009 NCES report was also 2007. Another report, *Steady Gains and Stated Progress* (Magnuson and Waldfogel, eds.) was published in 2008. One of the chapters in *Steady Gains* is especially relevant to the thrust of this present paper. The content of the chapter is captured in the chapter's title, "Can Gains in the Quality of Early Environments and Noncognitive Skills Help Explain Persistent Black-White Achievement Gaps?" (Grissmer and Eiseman, 2008). The authors state that

Historically, researchers assumed that achievement gaps emerge during schooling through inequality of schools and family characteristics, and looked to the equalization of schooling opportunity as a major policy lever. However, research now shows that a substantial share of the gap is present at school entry, and that school equalization may therefore not fully close score gaps (Lee and Burkam 2002; Fryer and Levitt (2004, 2006). (p.140)

The Nation's Report Card series does not report students eligible/not eligible for free/reduced price lunch by races. However, the NCES, in a 2009 publication, *Achievement Gaps*, (p.32) did report the percentages of black and white students eligible for free/reduced price lunch. The following percentages are for a national sample of public school eighth grade reading students in 2003. Of the students eligible for free lunch, 66% were black and 23% were white; of the students not eligible, 12% were black and 76% were white.

Methodology. In the present study the same procedure was used to compute the black-white test score gap as was used in *The Nations Report Card: Mathematics, 2003*. The reader will note that in Table 1 below (Results/Discussion) that for the nation in 2003, the white mathematics score was 287, and the black mathematics score was 252. The test score gap was calculated by subtracting 252 from 287. Hence, in 2003 the test score gap was 35.

In similar fashion the test score gaps for 2003 and 2017 in eighth grade mathematics and reading were calculated for the ten largest population states (Table 2 and Table 3). The comparable black-white test score gaps in 2003 and 2017 were calculated for eight large cities (See Table 4 and Table 5). Test score gaps for the nation's four largest cities – New York City, Los Angeles, Chicago, and Houston - are included in Table 4 and Table 5. The city school districts results are presented in rank-order according to their populations.

Results and Discussion. Table 1 (below) presents the black-white test score gaps for eighth grade mathematics for the nation for eight assessment years, 2003 to 2017. For 2003 the black-white test score gap was 35 points; in 2017, the test score gap was 32 points. Thus, over the fourteen-year period, the mathematics test score gap decreased by three points. The largest gap (35 points) was in 2003; the smallest gap (30 points) was in 2011. For the nation, black mathematics scores increased from a low of 252 in 2003 to a high of 263 in 2011; black scores declined in 2015 and 2017. Thus, for the fourteen-year period, 2003-2017, the black eighth-grade test score increased by eight score points.

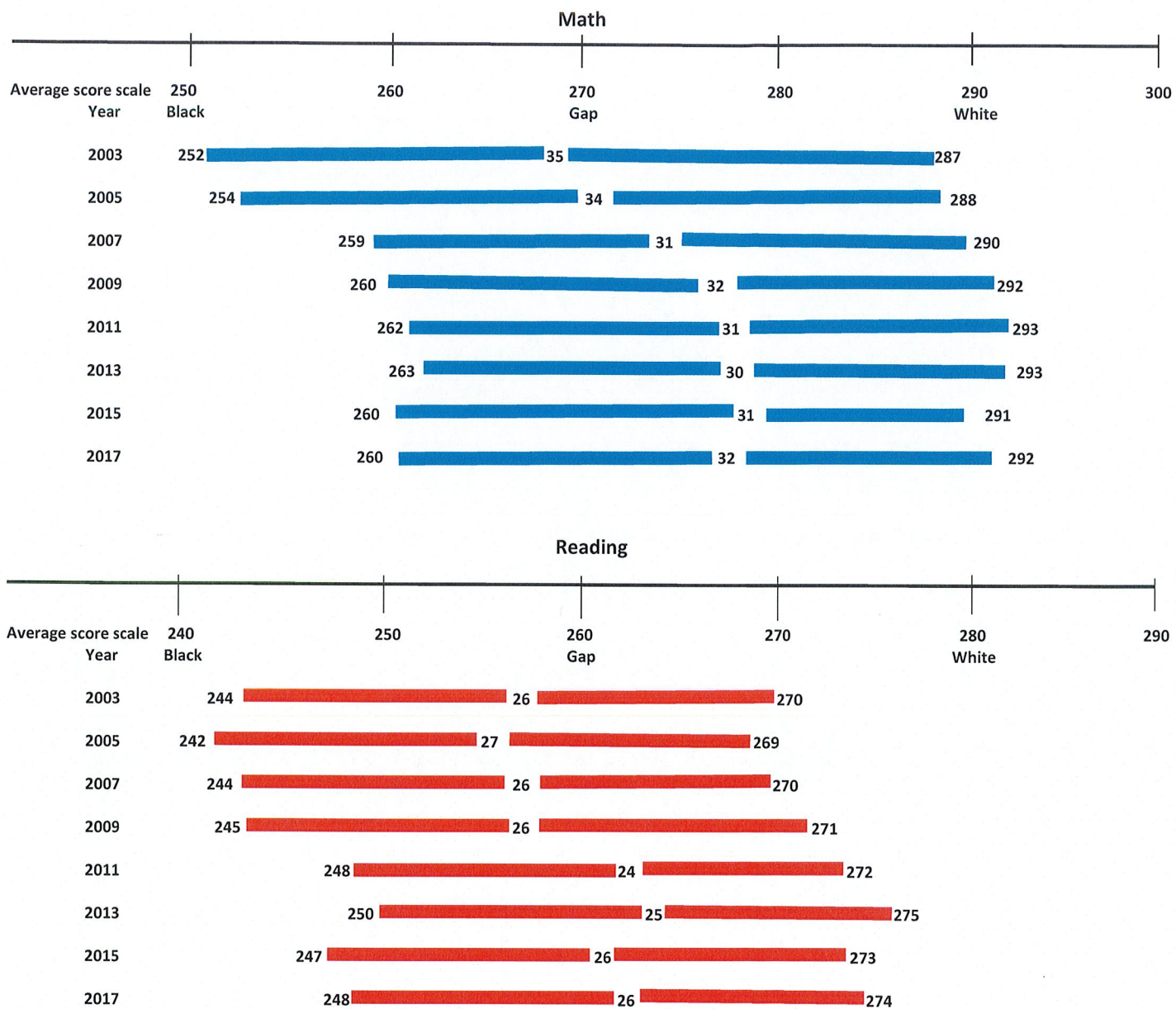
Table 1 also presents the comparable eighth grade mathematics scores for the white students. The lowest white mathematics test score was 287 in 2003. The highest white mathematics test score was 293, obtained in both 2011 and 2013.

From 2003 to 2017, black test scores increased eight points, from 252 in 2003 to 260 in 2017. For the same period, white mathematics test scores increased five points, from 287 in 2003 to 292 in 2017.

For the 14-year period 2003-2017 the black-white mathematics test score gap for the nation decreased from 35 to 32, a three-point decrease. As shown in Table 1, the decrease has not been steady. The mathematics test score gaps in 2015 and 2017 were slightly larger than in 2013.

Table 1 also presents reading test score results from 2003 to 2017 for the nation. In 2003 the black-white reading test score gap was 26 points; in 2017 the reading test score gap was 26. Hence, the black-white test score gap fourteen years later was the same as in 2003.

Table 1. For the nation the Black-White test score gap for grade 8 public school students on the NAEP mathematics and reading assessments, 2003-2017, various years.



Note. Sources for the black and white average mathematics scores were the print versions of *The Nation's Report Card Mathematics* for 2003, 2005, 2007, 2009 and

2011. Mathematics average scores for 2013, 2015, and 2017 were obtained from the NCES databases. Sources for the Black and White average reading scores were the print versions of *The Nation's Report Card Reading* for 2003, 2005, 2007, 2009 and 2011. Reading average scores for 2013, 2015, and 2017 were obtained from the NCES databases. The test score gaps were calculated by the author.

The lowest black reading score 242 was in 2005; the highest black reading score, 250 was in 2013. As was the case for eighth grade mathematics, black reading test scores were slightly lower in 2015 and 2017 than in 2013.

White reading test scores (269) were lowest in 2005; white reading test scores (275) were highest in 2013.

Over the 14-year period, the size of the reading test score gaps varied only a few points. The largest gap was 27 points in 2005; the smallest test score gap was 24 points, in 2011.

The black reading test scores increased four points from 2003 to 2017. The white reading test scores increased four points from 270 in 2003 to 274 in 2017. Thus, both black and white reading test scores increased by the same four points.

Table 2 and Table 3 (below) present black and white mathematics and reading scores for the ten largest population states in the nation. The states are listed in rank-order by population.

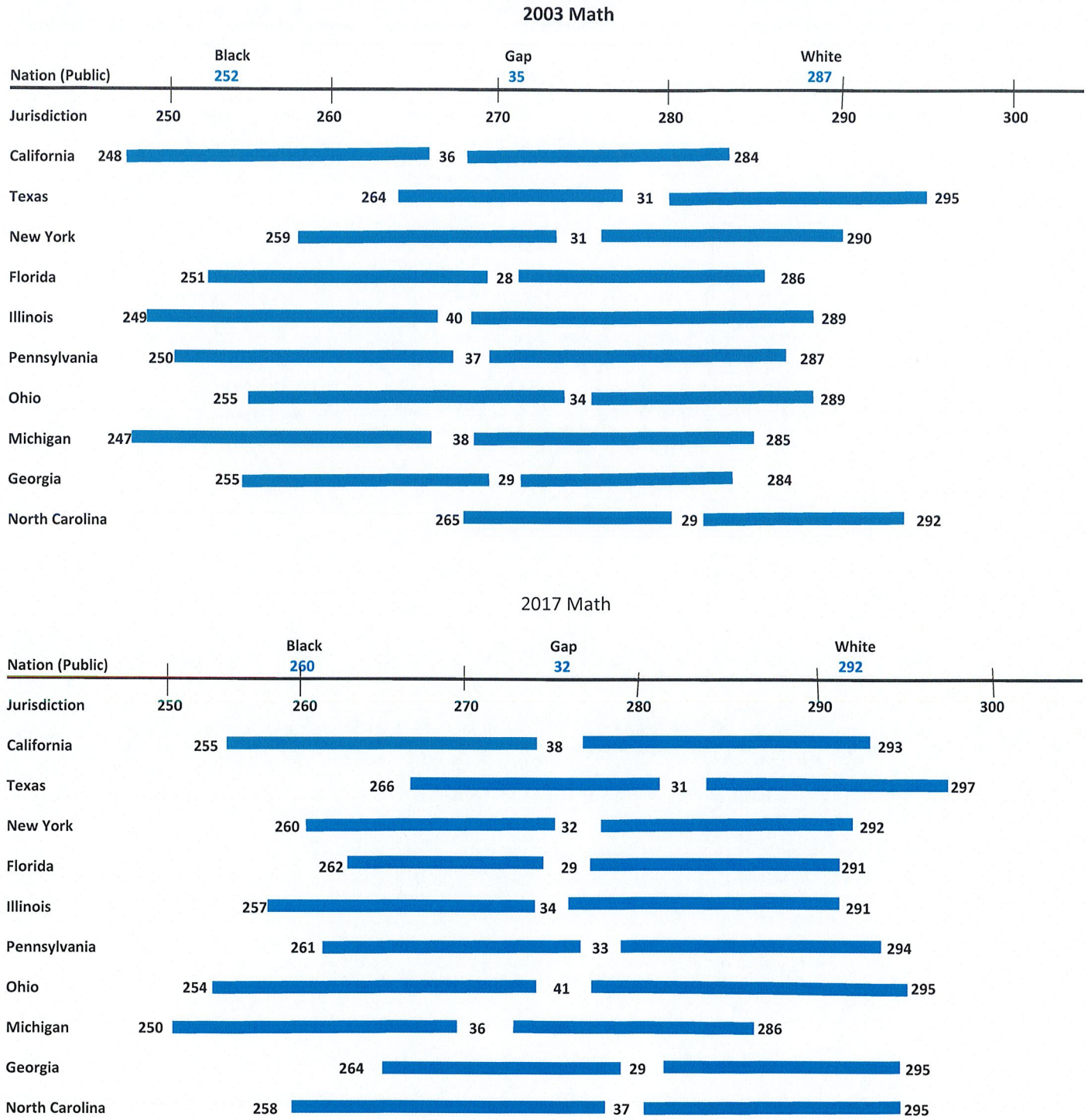
In 2017 the black-white test score gaps in reading decreased in five states, increased in three states, and in two states there was no change, compared to 2003.

Of the ten states, New York had the largest reading test score gap decreasing from 31 to 21, a 10-point decrease. But this large decrease was in part due to New York's decrease in white scores. In 2017 white scores were five points lower than in 2003 (See Table 3).

In 2017 Ohio's test score gap increased eight points over the 2003 gap. (See Table 3) Ohio's black reading test scores were five points lower in 2017 than in 2003.

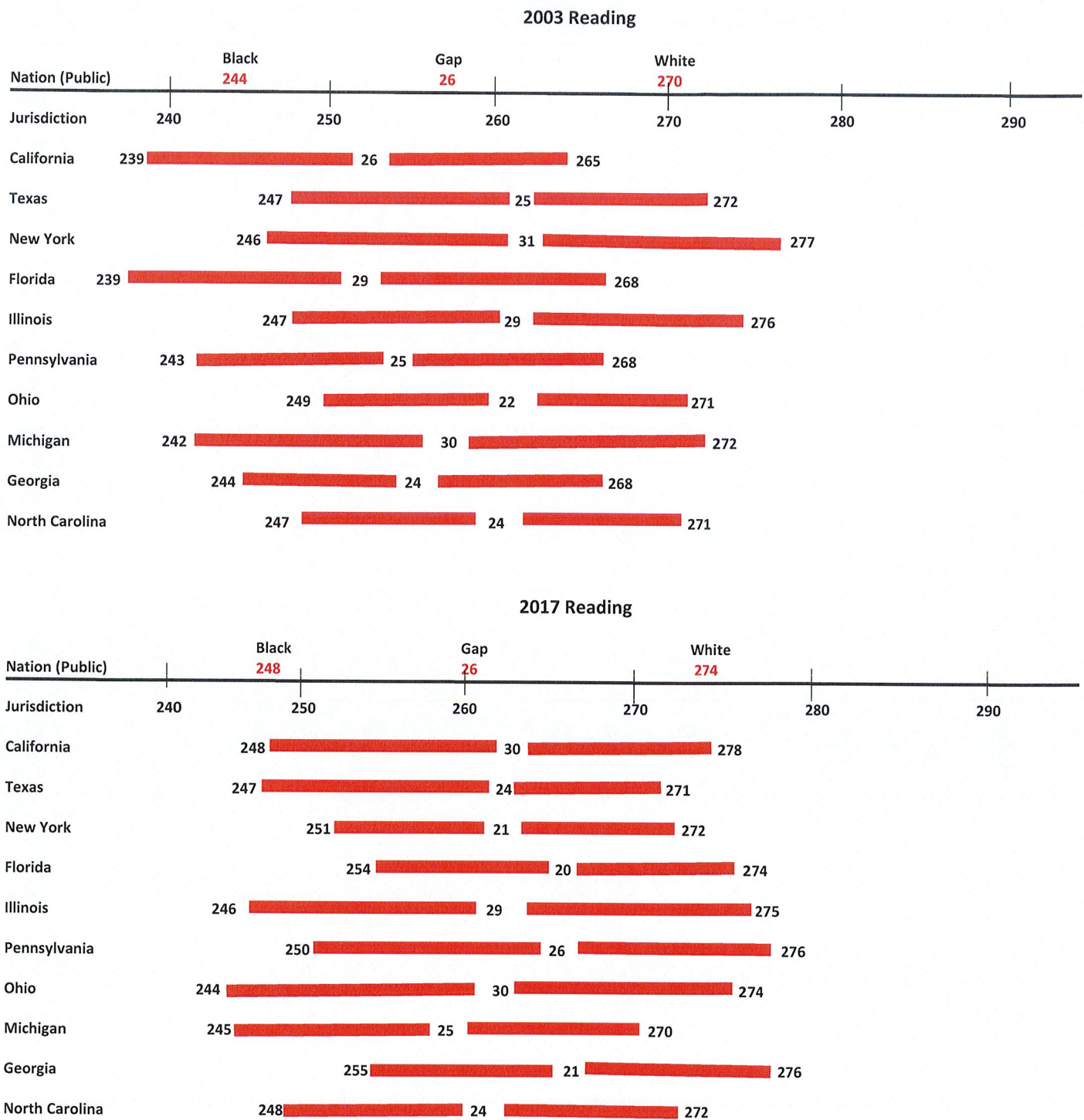
If we use the size of the test score gap as the main index of a state's progress toward reducing the black-white test score gap, then probably the 2003/2017 record for California is the most troubling of the ten largest states. California's reading test score gap in 2017 was 30 points, *four points higher than in 2003*. In 2017 California was tied with Ohio for the highest test score gap in reading. California's 2017 test score gap of 30 was four points higher than the test score gap of 26 for the nation.

Table 2. For the ten largest (population) states, the Black-White test score gap for grade 8 public school students on the NAEP mathematics assessments, 2003 and 2017.



Note. Source for Black and White average mathematics for the ten states for 2003 was the print version of *The Nation's Report Card Mathematics, 2003*. Source for Black and White average reading for the ten states for 2003 was the print version of *The Nation's Report Card Reading, 2003*. Source for the Black and White mathematics scores for 2017 was the NCES 2017 database. Source for the Black and White reading scores for 2017 was the NCES 2017 database. Test score gaps for the ten states were calculated by the author.

Table 3. For the ten largest (population) states, the Black-White test score gap for grade 8 public school students on the NAEP reading assessments, 2003 and 2017.



Note. Source for Black and White average mathematics for the ten states for 2003 was the print version of *The Nation's Report Card Mathematics, 2003*. Source for Black and White average reading for the ten states for 2003 was the print version of *The Nation's Report Card Reading, 2003*. Source for the Black and White mathematics scores for 2017 was the NCES 2017 database. Source for the Black and White reading scores for 2017 was the NCES 2017 database. Test score gaps for the ten states were calculated by the author.

Tables 4 and 5 present test score gap results for eight large city school districts for 2003 and 2017. Four of the eight cities in Table 4 and Table 5 – New York City, Los Angeles, Chicago, and Houston – are the four largest cities in the nation.

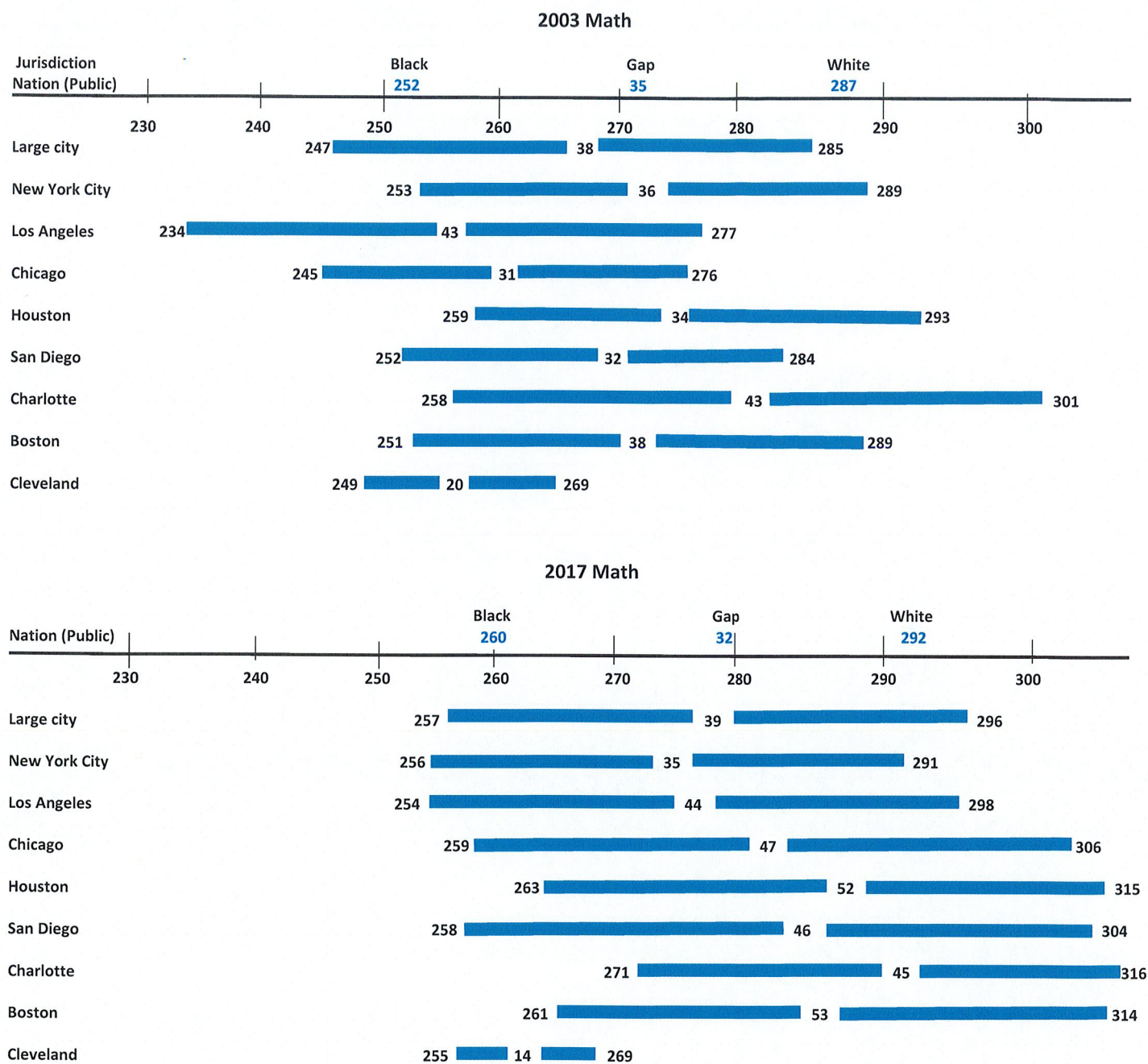
For the eight large city school districts the black-white test score gaps are markedly larger than for the comparable test score gaps for the nation and for the ten largest states. In 2003 four of the test score gaps in mathematics were larger than the test score gap for the nation, and four test score gaps were smaller. (Table 4 below) In 2017 seven of the eight city districts have test score gaps larger than the nation. The most striking aspect of the 2017 mathematics test score gaps is that *six of the eight districts had test score gaps larger than the respective gaps in 2003*. In 2017 four city school districts - Chicago, Houston, San Diego, and Boston - had test score gaps 14 points or more, larger than the respective gaps in 2003.

Mention should be made of Cleveland's small mathematics test score gap in 2003 and 2017; in 2003 the gap was 20, and 14 in 2017. In both years, the small test score gaps were due to low white scores, not due to high black scores.

The reading test score gaps for the large city school districts show much the same pattern in 2003 and 2017 as do the mathematics test score gaps. (See Tables 4 and 5) Of the eight school districts, only Los Angeles had a smaller reading gap in 2017 than in 2003. One district, Cleveland, had identical gaps of 12 in both years. In 2017 seven of the eight districts had test score gaps larger than the nation's test score of 26 in 2017. (See Table 5 below)

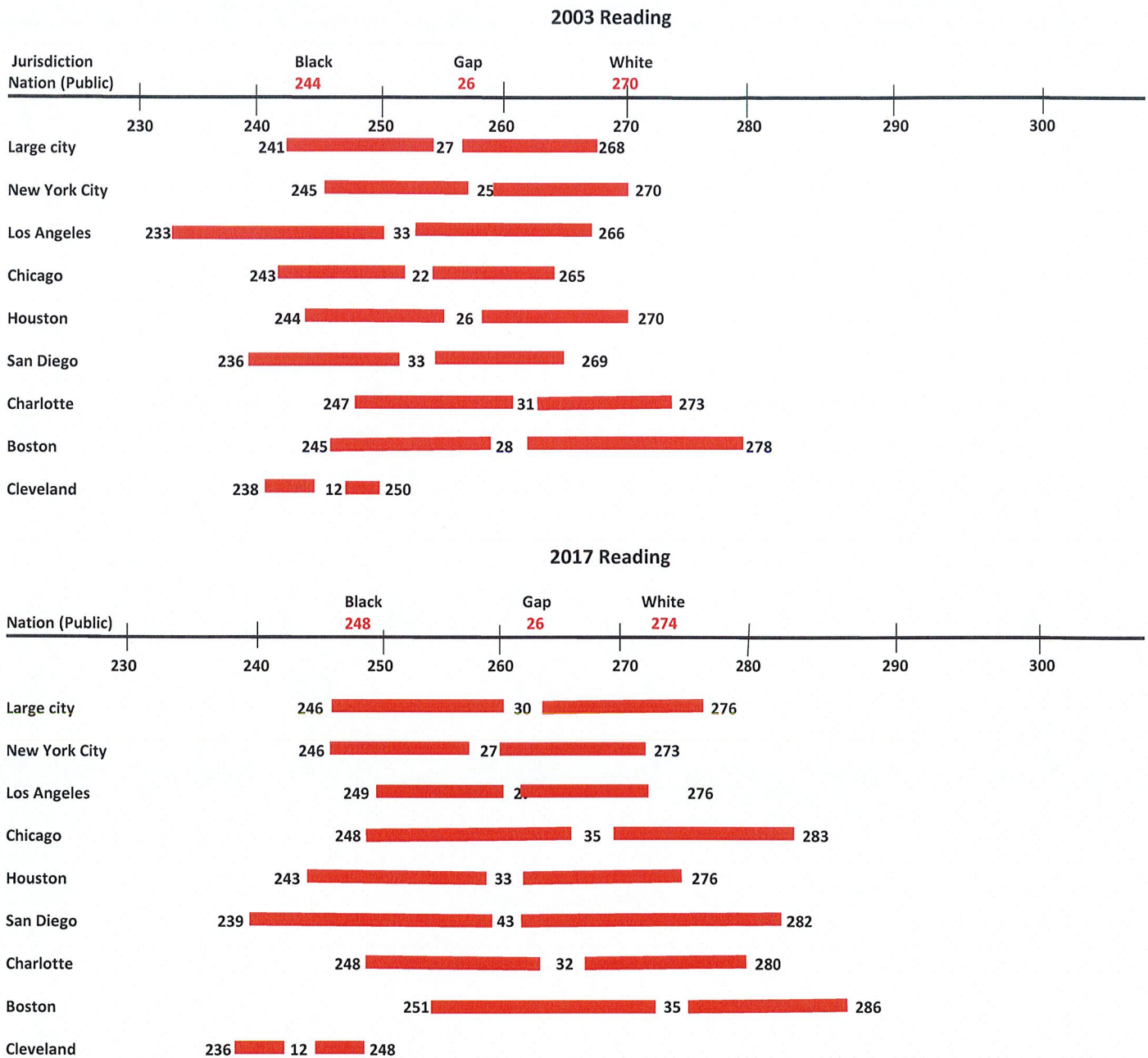
The substantial increase in the size of the test score gaps in both mathematics and reading in 2017 over 2003 clearly indicates how difficult it will be to narrow even a little the test score gap in our largest cities in the next twenty years or so.

Table 4. The eight large city school districts, the Black-White test score gap for grade 8 public school students on the NAEP mathematics, 2003 and 2017.



Note. Source for Black and White average mathematics for 2003 was the print version of *The Nation's Report Card Trial Urban District Assessment Mathematics Highlights, 2003*. Source for Black and White average reading for the ten states for 2003 was the print version of *The Nation's Report Card Trial Urban District Assessment Reading, 2003*. Source of the 2017 mathematics average scores was the NCES 2017 database. Source of the 2017 reading average scores was the NCES 2017 database. Test score gaps for the ten states were calculated by the author.

Table 5. The eight large city school districts, the Black-White test score gap for grade 8 public school students on the NAEP reading assessments, 2003 and 2017.



Note. Source for Black and White average mathematics for 2003 was the print version of *The Nation's Report Card Trial Urban District Assessment Mathematics Highlights, 2003*. Source for Black and White average reading for the ten states for 2003 was the print version of *The Nation's Report Card Trial Urban District Assessment Reading, 2003*. Source of the 2017 mathematics average scores was the NCES 2017 database. Source of the 2017 reading average scores was the NCES 2017 database. Test score gaps for the ten states were calculated by the author.

Conclusions.

1. For scores on the NAEP mathematics and reading assessments, the eighth-grade test score gaps for the nation most likely will decrease only a few points. I believe it is unlikely that the test score gap will decrease in either subject by 7 or 8 points in the next 20 years.
2. For the nation's ten largest states, the decrease in the test score gaps will probably match that of the nation, that is, the decrease will not exceed seven or eight points.
3. The expectation for the nation's largest city school districts is more pessimistic. I expect that the black-white test score gap will decrease hardly at all in the next twenty years. I expect scores for black eighth grade students will remain low, considerably lower than for their counterparts in the nation as a whole, and for their counterparts in the ten largest states.
4. If black scores remain as low as they were in 2017 in the nation's large cities, the prospects for lessening racial inequalities in educational attainment and earnings as envisioned in 1998 by Jencks and Phillips seem very dim.

References

- Baldwin Anderson, J., Hamilton, L., Rahman, T., Vanneman, A. (2009). *Achievement Gaps: How black and white students in public schools perform in mathematics and reading on the National Assessment of Educational Progress*. Washington, DC: National Center for Educational Statistics.
- Barton, P. (2003). *Parsing the achievement gap: Baselines for tracking progress*. Princeton, NJ: Educational Testing Services.
- Grissmer, D. & Eiseman, E. (2008). *Can gaps in the quality of early environments and noncognitive skills help explain persisting black-white achievement gaps?* (pp. 139-180). In *Steady gains and stalled progress: Inequality and the black-white test score gap*, edited by Katherine Magnuson and Jane Waldfogel. New York, NY: Russell Sage Foundation.
- Hart, B. & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul H. Brookes Publishing Company.
- Hart, B. & Risley, T.R. (2003). *The early catastrophe: The 30 million word gap by age 3*. (2003). *American Educator*.
- Haycock, K. & Huang, S. & Jerald, C. (2001). "Closing the gap: Done in a decade." *Thinking K-16*.
- Jencks, C. & Phillips, M. (1998). The black-white test score gap: An introduction. In C. Jencks & M. Phillips (Eds.). *The black-white test score gap* (pp. 1-51). Washington, DC: Brookings.
- Lee, V. & Burkam, D. (2002). *Inequality at the starting gate: Social background differences in achievements as children begin school*. Washington, DC: Economic Policy Institute.
- MacInnes, G. (2008). *In plain sight: Simple, difficult lessons from New Jersey's expensive effort to close the achievement gap*. New York, NY: The Century Foundation Press.
- National Center for Educational Statistics. (2003). *The nation's report card: Mathematics highlights 2003*. Washington, DC: Government Printing Office.

National Center for Educational Statistics. (2011). *The nation's report card: Trial urban district assessment mathematics 2011*. Washington, DC: Government Printing Office.

National Center for Educational Statistics. (2011). *The nation's report card: Trial urban district assessment reading 2011*. Washington, DC: Government Printing Office.

National Center for Educational Statistics, National Assessment of Educational Progress, 2013, 2015, and 2017 Mathematics Assessment.

National Center for Educational Statistics, National Assessment of Educational Progress, 2013, 2015, and 2017 Reading Assessment.