

NEPC REVIEW: FEWER CHILDREN LEFT BEHIND: LESSONS FROM THE DRAMATIC ACHIEVEMENT GAINS OF THE 1990S AND 2000S (FORDHAM INSTITUTE, OCTOBER 2019)



Reviewed by:

Jaekyung Lee

University at Buffalo, SUNY

November 2019

National Education Policy Center

School of Education, University of Colorado Boulder
Boulder, CO 80309-0249
(802) 383-0058
nepc.colorado.edu

Acknowledgements

NEPC Staff

Kevin Welner
Project Director

William Mathis
Managing Director

Alex Molnar
Publications Director

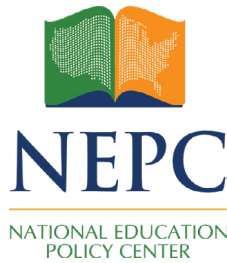
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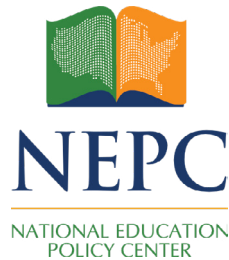
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Executive Summary

A recent Fordham report highlights the historic academic progress of Black and Hispanic groups over the past two decades at the elementary school level on the NAEP exam. From this, the report offers the major claim, based on its author's eyeball test, that the academic progress of students of color is attributable "mostly" to poverty reduction. The report, however, also acknowledges that correlation is not causation and calls for systematic statistical analysis to test the author's proposition. This review responds to that call by examining the validity of the report's arguments around progress and causes, looking to expanded data sources, including both family income and school expenditures. The review notes uneven patterns of achievement among grade levels and refutes the report's claim that flat achievement trends among 12th graders are a result of dropout reductions. My own analysis with data suggests that poverty reduction has indeed been important, as has increased school funding. Further, I raise critical questions about national progress towards both excellence and equity. First, academic progress at the elementary school level is undercut by an off-setting slump at the high school level. Second, in spite of the greater academic progress of Black and Hispanic groups during the 1990s and 2000s, Black-White and Hispanic-White achievement gaps remain substantial across all grades in core subjects. Third, despite progress in poverty reduction, racial inequalities in social and educational opportunities as well as racial differences in economic returns to educational investment persist. Overall, the report helpfully brings attention to the significant academic progress of Black and Hispanic students over the past two decades, although it is incorrect to downplay the persisting racial gaps or the phenomenon of the high school slump.



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I. Introduction

*Fewer Children Left Behind*¹ is authored by Michael J. Petrilli, President of the Fordham Institute. In this monograph, he purports to “examine(s) whether America’s schools have improved over the past quarter-century of reform.” He starts with a rebuttal of many critics of American schools regarding poor academic achievement in core subject areas. Based on national statistics, the report claims that there was enormous academic progress, particularly among racial minority groups of students during the past two decades, and it asserts that this “was mostly because of improving social and economic conditions for these children” (p. 29).

This review takes a critical look into the report’s arguments and evidence in the context of the larger literature, particularly studies of educational and social inequity. The report claims that the progress is attributable largely to poverty reduction in the same or earlier periods while appropriately acknowledging that correlation is not causation and also calling for systematic statistical analysis to test the author’s proposition. This review responds to that call by examining the validity of this argument with expanded data sources, including both family income and school expenditures. This review focuses on national-level (not state-level) analysis of data.

II. Findings and Conclusions of the Report

The Fordham Institute report finds that:

(1) from the mid- to late 1990s until about 2010, fourth and eighth grade National Assessment of Educational Progress (NAEP) scores for the lowest-achieving children, and for students of color, shot up in reading, math, and most other academic subjects; (2) At the end of this period, Black, Hispanic, and low-achieving students were reading and doing math two and sometimes three grade levels above their equivalent peers in the early 1990s.

The author claims that these achievement gains are “historic, life-changing progress” and they contributed to recent gains in the high school graduation rate for these groups.

The report then concludes that our schools do not deserve much credit for these gains. Instead, the key driving forces were the vastly improving social and economic conditions for our neediest children. This period of time corresponded with the economic expansion that ended with the economic collapse of 2008. Additionally, the author projects further progress: “given that we’re now experiencing another historic boom—one that is finally lifting the wages of the lowest-income workers—we should expect child poverty rates to continue to fall and student achievement to begin rising again.”

III. The Report’s Rationale for Its Findings and Conclusions

The author’s claims are largely based on juxtaposing two major longitudinal trends: minority groups’ academic achievement trends based on the NAEP, and national poverty trends from the census household income data. Long-term trends in pregnancy rates and graduation are also employed. As the author acknowledges, the report is highly exploratory and conjectural in nature, lacking systematic statistical data analysis or hypothesis testing typically found in research reports. Nevertheless, it illustrates the relationship between poverty and achievement at the aggregated national level.

There have been sizable reductions in poverty over the past two decades. What is puzzling is the long and uneven time lag between poverty trends and achievement trends, suggesting different causal theories may be at play. As the author pointed out, there are about seven-year gaps for fourth graders and 13-year gaps for eighth graders. If it is true that the decline in poverty primarily caused the subsequent positive achievement trend, what is the mechanism? Did poverty have accumulated impact over the period when children were born and while they grew up? Why doesn’t the high school achievement trend follow the poverty trend? The report includes no explanations of possible reasons, instead calling upon others to further explore the issue.

IV. The Reports’ Use of Research Literature

This report is not a research report in the conventional use of the phrase. It has no bibliography nor citations. There are 14 figures and four tables, only five of which label sources. A

great reliance is placed on the NAEP data explorer. Although there are casual mentions of a number of important, well-known and related studies, they do not receive much attention. The interpretations are not grounded in the broader literature of educational and social equity. Prior research suggests that it is critical to address a broader range of educational inequity variables in multiple domains which simultaneously involve both schools and social institutions. This was not done.²

V. Review of the Report's Methods

In terms of key data sources, the report used the “main” NAEP assessment, which started in 1990. This data source is trustworthy and reliable. But using NAEP “long-term trend” data from 1970 forward could have provided additional insights about the trend of reading and math achievement long before the 1990s and enabled readers to compare historical trends before and after the 1990s. The poverty data used in the report began in 1970, and report juxtaposes these two trend lines. The author eyeballed the data and saw that achievement was going up while poverty was going down. Ergo, the author claims that poverty reduction is the key contributor to raising achievement. Indeed, the substantial achievement progress among racial and ethnic minorities happened during this time frame. The gains could be logically related to the passage of the 1965 Elementary and Secondary Education Act (ESEA), but the author did not mention such a watershed event. Also unaddressed is that during the 1970s, only low-achieving students gained, whereas during the 1990s, both low-achieving and high-achieving students gained (albeit to a different extent).

The report used supplemental poverty measures (SPM) that take into account government programs that formed the social safety net, including transfer and tax credits. According to the data source report,³ the anchored SPM reveals the important and growing antipoverty role of the safety net, particularly for black and Hispanic children. This measure is relevant since government policies and programs have played a large role in reducing racial disparities in child poverty rates.

In terms of data analysis, the report relies heavily on descriptive statistics, scatter plots, and visual analysis of data patterns. The methodology is basically the *Inter-Ocular Traumatic Test* (i.e., plot the data, and if the result hits you between the eyes, then it's significant). The author appropriately acknowledges that correlation is not causation and calls for systematic analysis. Indeed, although it is impossible to fully identify and disentangle the multiple influences, there are more accurate ways of estimating potential effects on achievement gains. To illustrate, I below present a “back-of-the-envelope” calculation to estimate both family and school effects on achievement trends.⁴ Table 1 below shows approximately how much Black and Hispanic math achievement gains at Grades 4 and 8 might be attributable to family income and school funding growth during the 1990s and 2000s. This exercise ignores other confounding factors, but it demonstrates the joint contribution of both poverty reduction and school funding to an uptick in Black and Hispanic achievement gains during the period; they together help account for most of the gains observed among those students of color.

Table 1. Decomposition of Black and Hispanic average math achievement gains (in standard deviation units) based on the growth of family income and school funding during the 1990s and 2000s

| | Actual Achievement Gain | (1) Predicted Achievement Gain by Family Income Growth | (2) Predicted Achievement Gain by School Expenditure Growth | Total Predicted Achievement Gain by (1) and (2) |
|----------|-------------------------|--|---|---|
| Black | 1.0 | 0.4 | 0.4 | 0.8 |
| Hispanic | 0.9 | 0.2 | 0.4 | 0.6 |

Notes:

1. Actual achievement gain estimates are the average of standardized math achievement gains across Grades 4 and 8 during 1990-2011.
2. Predicted achievement gain estimates are then calculated as follows:
 - (1) Black median family income gains during 1990-2010 translates into 0.4 achievement gain in standard deviations; Hispanic median family income gains during 1990-2010 translates into 0.2 achievement gain in standard deviations, both based on the effect size estimate of the Duncan et al. study.⁵
 - (2) Average school per-pupil expenditure gains during 1990-2010 translates to 0.4 achievement gain in standard deviations, based on the effect size estimate of Greenwald et al. study.⁶

VI. Review of the Validity of the Findings And Conclusions

Aside from the lack of systematic data analysis, I raise three critical questions about the report's findings and conclusions.

Is it really true that fewer students got left behind?

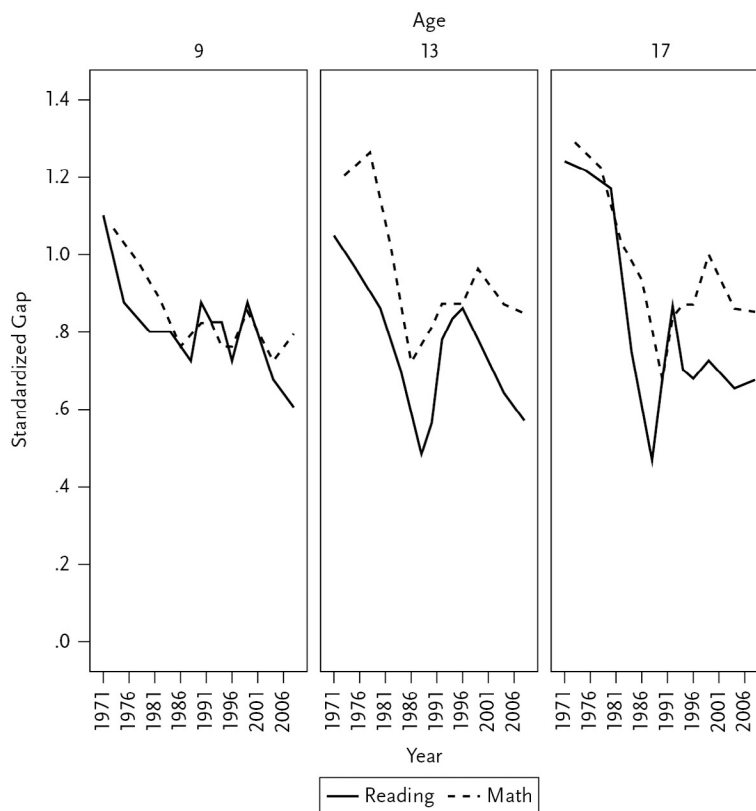
First, one striking finding from the NAEP trends is the highly uneven progress of students (regardless of race and ethnicity) between different grade levels; big progress at Grade 4, modest progress at Grade 8, and little or no progress at Grade 12. Those are facts. The report points out the possibility that the trend of fewer high school dropouts has, over time, brought more lower-performing students into the sample of 12th grade students and thus downgraded their overall performance level. Although change in dropout rate affects the composition of the student body, the nation's very slow dropout reduction cannot explain such precipitous losses of achievement gains during high school. On average, the high school dropout rate has declined from 15% in 1970 to 12% in 1990 and then down to 8% in 2010. Given that the average achievement gap between high school dropouts and stayers in reading and math standardized tests is around 80 percent of a standard deviation (estimate based on ELS: 2002 data), the dropout rate change of four percentage points during the 1990-2010 period would translate into an achievement gain of only .03 in standard deviation units.⁷ By contrast, eighth graders' achievement gains during the 1990s and 2000s were as large as one full standard deviation (equivalent to two years' worth of schooling). In other words, students enter high school much better academically prepared—as measured by the NAEP—than their counterparts from 20 years ago but end up graduating from high school

no better academically than the earlier cohorts.

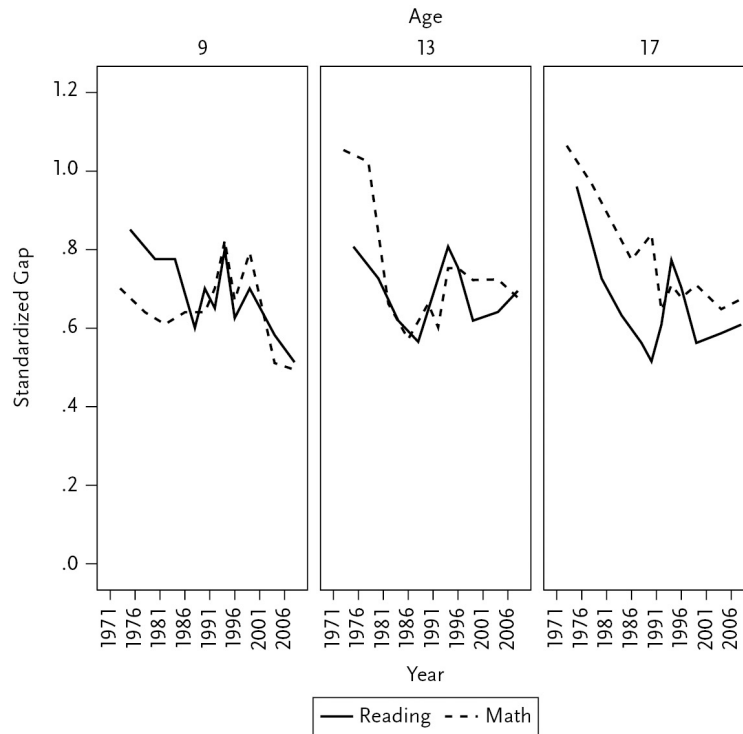
Second, in spite of the greater academic progress of Black and Hispanic groups during the 1990s and 2000s, Black-White and Hispanic-White achievement gaps remain substantial across all age groups in core subjects (see Figure 1). Attention to equity needs to track relative gaps among racial groups as well as each group's own progress. While the Black-White and Hispanic-White mathematics achievement gaps have narrowed significantly over the past three decades, there was some setback in national progress during the 1980s and early 1990s. Even with catch-up efforts since then, the achievement gaps have only narrowed back to what they used to be in the 1970s. The new trends suggest that the task of closing the gap could have been accomplished without the setback, and that past enormous gains can be repeated.

Figure 1. Black-White and Hispanic-White achievement gap trends on long-term trend NAEP reading and math (in standard deviation units)

Panel A: Black-White Gap



Panel B: Hispanic-White Gap

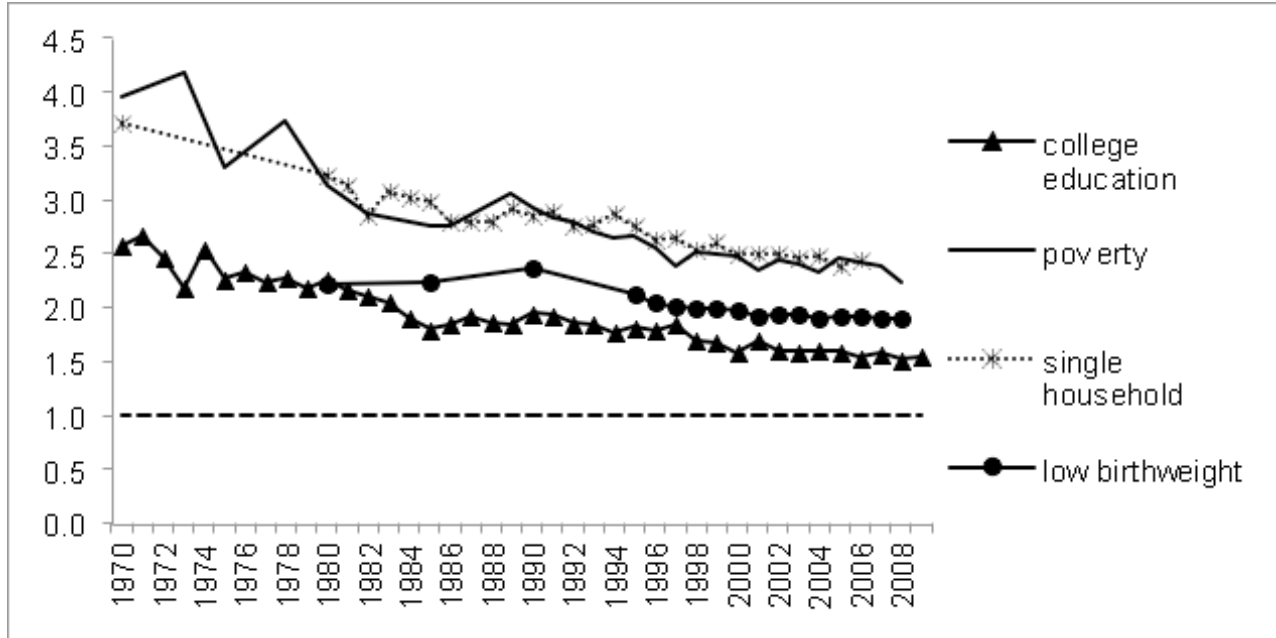


Source: Lee, J. (2016). *The anatomy of achievement gaps: Why and how American education is losing (but can still win) the war on underachievement*. New York, NY: Oxford University Press.

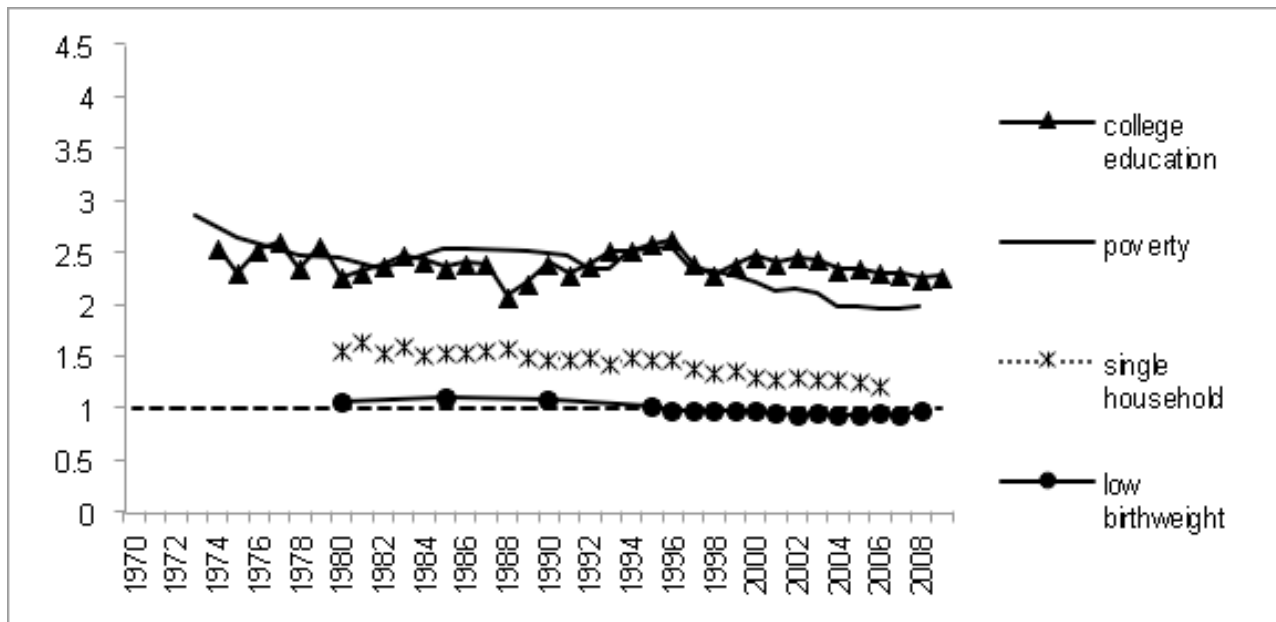
Third, in spite of more poverty reduction, significant racial gaps remain in poverty and family environmental factors including parental education, family structure (single household), and prenatal malnutrition (low birth weight) (see Figure 2). Further, even if we were able to equalize resources and environment for everyone, all students may not be able to equally benefit from the same resources and the same environment. Are the returns to family SES (such as parent income and education) lower for Blacks than for Whites? Studies show that Black children whose parents graduated from high school or college tend to still perform significantly lower in school than their White counterparts whose parents had the same level of education.⁸ This persisting racial gap is even more worrisome in light of school resegregation trends.⁹ Those who are content with the improved equality of social and educational opportunities as measured by family income and school resources should be reminded of the hard-earned lesson from the *Brown v. Board of Education* that “separate and equal” is unconstitutional.

Figure 2. Black-White and Hispanic-White gap trends in family and socioeconomic conditions (in ratios)

Panel A: Black-White Gap



Panel B: Hispanic-White Gap



Source: Lee, J. (2016). *The anatomy of achievement gaps: Why and how American education is losing (but can still win) the war on underachievement*. New York, NY: Oxford University Press.

VII. Usefulness of the Report for Guidance of Policy and Practice

The report brings attention to the significant academic progress of Black and Hispanic groups over the past two decades at elementary and middle school levels. The author is right in that those who criticize public education tend to focus on the flat achievement trend at the high school level, ignoring substantial progress at the lower grade levels. However, it is equally incorrect to ignore the phenomenon of the high school slump and declare success based on progress with younger children. Early childhood interventions cannot have sustaining effects without follow-through intervention support throughout the P-12 school system. The “fewer children left behind” argument is true among younger children and also valid from each racial group’s own academic excellence perspective. But that argument is not accurate among high schoolers and is misleading from an equity perspective.

Although the report has strong limitations, it has implications for education and social policy. The adverse effect of childhood poverty on achievement is already well known, but the report reminds us that both poverty reduction and achievement gain can happen together at a large scale, particularly among younger children. Although school effects may appear relatively weaker compared to family effects, their joint contribution to student learning should not be overlooked. Further, beyond the improvement of family income and school resources, the better educational and sociocultural support for adolescents is in order, as high school remains the weakest link in American education.¹⁰

The report itself speculates that “a rising economic tide, plus reform, plus resources is a winning combination” (p. 20). The “reform” here is the standards- and test-based accountability reforms of the period, which the author heartily endorses. He refers to some positive effects of the No Child Left Behind (NCLB) policy on student achievement. But the test-driven school accountability policy approach not only caused gaming the system (e.g., narrowing the curriculum and teaching to the test) but also failed to narrow the achievement gaps among racial groups.¹¹ Under the Every Student Succeeds Act (ESSA), policymakers now have the opportunity to re-envision the goals of educational excellence and equity, with the stronger alignment of P-12 and college education programs (e.g., early/middle college programs)¹² as well as the greater integration of school and community services (e.g., community school programs).¹³

While the author gives the credit for improved test scores to the economy (plus “reform” and “resources”), simultaneous and corresponding events such as increasing early education (Early Head Start), and stronger curriculum could just as likely be credited for a substantial portion of the gains. The Great Society mission launched in the 1960s is still necessary, since, as President Lyndon B. Johnson said in 1964, “it demands an end to poverty and racial injustice, to which we are totally committed in our time.”

Notes and References

- 1 Petrilli, M.J. (2019). *Fewer children left behind*. Washington, DC: Fordham Institute. Retrieved on October 20, 2019, from <https://fordhaminstitute.org/national/research/fewer-children-left-behind>
- 2 See the following references as examples of prior research on educational and social inequity issues.

Duncan, G. & Murnane, R. (Eds.), (2011). *Whither opportunity? Rising inequality, schools, and children's life chances*. New York, NY: Russell Foundation;

Ladd, H.F. (2012). Education and poverty: Confronting the evidence. *Journal of Policy Analysis and Management*, 31(2), 203-227;

Lee, J. (2016). *The anatomy of achievement gaps: Why and how American education is losing (but can still win) the war on underachievement*. New York, NY: Oxford University Press.
- 3 See Nolan, L., Garfinkel, I., Kaushal, N., Nam, J., Waldfogel, J., & Wimer, C. (2016). Trends in child poverty by race/ethnicity: New evidence using an anchored historical supplemental poverty measure, *Journal of applied research on children: informing policy for children at risk*, 71(1), Article 3. Available at: <http://digitalcommons.library.tmc.edu/childrenatrisk/vol7/iss1/3>
- 4 A statistical decomposition of NAEP achievement trends, that is, the shift in the national average test scores can be expressed as:
$$DY = \hat{\alpha}(DX_n\beta_n) + \hat{\alpha}(X_nD\beta_n)$$

Here, I differentiate the sources of the changes in average achievement between sequential cohorts into two components: (1) the changes in the level of factors that influence academic achievement (i.e., DX = changes in explanatory variables in standard deviation units), and (2) the changes in the effects of those factors on achievement (i.e., $D\beta$ = changes in the standardized regression coefficients for explanatory variables). The analyses here estimate only the shift attributable to changes in those factors, based on the assumptions that the effects of income and PPE variables are stable over time and also constant among racial groups and that the estimation of effects is not biased by the exclusion of other variables.
- 5 Duncan, G.J., Morris, P.A., & Rodrigues, C. (2011). Does money really matter? Estimating impacts of family income on young children's achievement with data from random-assignment experiments. *Developmental Psychology*, 5, 1263-1279. Duncan study estimates suggest that a \$1,000 increase in annual income increases young children's achievement by 5%-6% of a standard deviation.
- 6 Greenwald, R., Hedges, L.V., & Laine, R.D. (1996). The effect of school resources on student achievement. *Review of Educational Research*, 66, 361-396.

Greenwald study estimates suggest that a \$1,000 increase in per pupil expenditures increases student's achievement by 2% of a standard deviation. Note: .15 SD per \$500 in 1994 dollars changed to 2010 dollars to adjust for inflation.
- 7 Lee, J. (2010). Tripartite growth trajectories of reading and math achievement: Tracking national academic progress at primary, middle and high school levels. *American Educational Research Journal*, 47(4), 800-832. As demonstrated in this research using cross-cohort sequential analysis of NAEP trends, it is evident that American elementary school are gaining ground, whereas American high schools are losing ground in terms of value-added progress as measured by the gains from one school level to another.
- 8 In theory, the virtuous cycle of investment in parent education-child education improvement over generations may help close the racial achievement gaps in the long run (Neal, 2006). However, the differential returns to educational investment among racial groups may actually give a brake on the virtuous cycle of intergenerational transfer of human capital (Long, Kelly & Gamoran, 2012). Gosa & Alexander (2007) review the evidence

of prior research that race still makes a difference for educational success above and beyond SES in American society where opportunities for socioeconomic advancement are race-constrained.

Gosa, T., & Alexander, K.L. (2007). Family (dis)advantage and the educational prospects of better off African American youth: how race still matters. *Teachers College Record* 109(2), 285–321;

Long, D., Kelly, S., & Gamoran, A. (2012). Whither the virtuous cycle? Past and future trends in black–white inequality in educational attainment. *Social science research*, 41(1), 16-32;

Neal, D. (2006). How families and schools shape the achievement gap. In P.E. Peterson (Ed.), *Generational change: Closing the test score gap*. Lanham, MD: Rowman & Littlefield.

- 9 Orfield, G. & Frankenberg, E. (2014). *Brown at 60: Great progress, a long retreat and an uncertain future*. The Civil Rights Project. Retrieved November 10, 2019, from <https://www.civilrightsproject.ucla.edu>
- 10 The earlier high school reform policies focused on raising academic standards and high-stakes tests. The problem of student disengagement in high schools, however, calls for developing higher sense of purpose/belonging and deeper learning. See Schneider, B.L. & Stevenson, D. (1999). *The ambitious generation: America's teenagers, motivated but directionless*. New Haven, CT: Yale University Press;

Mehta, J. & Fine, S. (2019). *In search of deeper learning: The quest to remake the American high school*. Cambridge, MA: Harvard University Press.
- 11 Lee, J., & Reeves, T. (2012). Revisiting the impact of NCLB high-stakes school accountability, capacity, and resources: State NAEP 1990-2009 reading and math achievement gaps and trends. *Educational Evaluation and Policy Analysis*, 34(2), 209-231.
- 12 Haxter, C. et al. (2016). Longitudinal findings from the early college high school initiative impact study. *Educational evaluation and policy analysis*, 38(2), 410-430.
- 13 Maier, A., Daniel, J., Oakes, J., & Lam, L. (2017). *Community schools as an effective school improvement strategy: A review of the evidence*. Palo Alto, CA: Learning Policy Institute.