



NEPC REVIEW: THINK AGAIN: IS EDUCATION FUNDING IN AMERICA STILL UNEQUAL? (THOMAS B. FORDHAM INSTITUTE, JULY 2023)



Reviewed by:

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September 2023

National Education Policy Center

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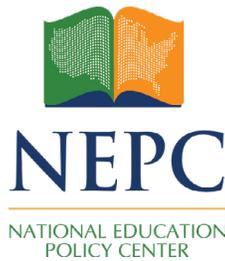
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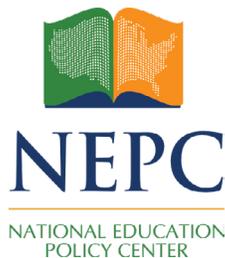
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Summary

The overarching theme of the Thomas B. Fordham Institute's report, *Think Again: Is Education Funding in America Still Unequal?* is that the problem of inequality and inadequacy of public school funding has largely been solved. While the report acknowledges that additional funds may be called for in some cases, it suggests those are relatively few. Relying on national funding averages that can mask the shortchanging of districts serving vulnerable student populations, the report's analysis is too coarse-grained to inform state-level policy, where inequities and inadequacies persist despite the report's assertion otherwise. The report also recommends that policymakers stop pursuing funding adequacy (too subjective and unscientific) and focus instead on improving efficiency and on equalizing tangible resources like teacher compensation. This argument ignores a vast literature detailing rigorous methods for analyzing education costs, allowing for reasonable calculation of funding necessary to provide all students with genuinely equal educational opportunity. It also disregards the persistent disparities and underfunding in many states' schools and districts, as well as the well-established connections between spending levels and real resources that matter, like teacher wages and class sizes. Overall, the report lacks a sound evidentiary base and provides no reliable or useful guidance for policymakers.



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I. Introduction

The overarching theme of the Thomas B. Fordham Institute’s report *Think Again: Is Education Funding in American Still Unequal?* is that inequality and inadequacy of public school funding is a problem that has largely been solved.¹ Authored by Adam Tyner, the report contends that while some schools and districts serving high shares of children in poverty may require additional support, substantial progress in equalizing school funding has been made—despite public perception to the contrary. The report essentially presents an argument that the answer to the question asked in the title is a resounding “No!”

II. Findings and Conclusions of the Report

The report finds that on average nationally, school spending “has risen dramatically over the last few decades”² and on average, higher poverty school districts have slightly more funding than lower poverty school districts. That is, school funding is now “progressive,” as it should be, solving the problem of unequal funding. A few important facts are acknowledged: that money matters for school quality and student outcomes; that it may matter even more for children from economically disadvantaged backgrounds; and, that the current small margin of funding difference may not be enough to really provide those children what they need. These are important concessions.

However, because the report finds funding gaps to have largely closed, it concludes that policymakers’ focus should move beyond a blanket recommendation to provide schools with more money and instead promote more efficient use of existing resources—with additional

funding in a few special cases. And in answer to others concerned with inequities who argue for adequacy of funding, the report answers that adequacy is an “inherently subjective and unscientific concept”³ and thus policymakers should not concern themselves with such things as determining education costs and cost variation to inform state school finance policies.⁴

The four main conclusions of the report are:

- Because funding is already progressive, improving the outcomes of lower performing students requires reforms to make schools more efficient using the funds they already have and/or allocating funding even more progressively.
- Gaps in funding by race continue in a few states and should prompt continued action to provide equalized funding.
- Focusing on equalizing classroom resources, such as access to high-quality teachers, is an objective with a more commonsense rationale—likely making it more politically tenable—than providing “adequate” resources, which is more subjective.
- The effectiveness of increased education funding faces diminishing returns in some places, and other policy improvements, from better health care to offering child tax credits, may improve the lives of students overcoming disadvantages more than additional funds for schools.⁵

III. The Report’s Rationale for Its Findings

The report’s conclusions are loosely supported by a collection of six claims framed as being part of “conventional wisdom,” each followed by what is presented as a factual discussion—often of counterclaims.

The first conclusion—that policymakers should focus on improving efficiency and perhaps tweaking funding progressiveness rather than increasing funding in general—is built on claims 1 through 3, which assert that despite public perception to the contrary, funding has already increased dramatically and has “eliminated gaps between schools serving more- and less-affluent students.”⁶ The second conclusion—that there may be a “few” states where there is a need to address racial gaps in funding—rests on claim 4, which suggests that conventional wisdom conflates gaps in funding by income and poverty with gaps in funding by race, and erroneously concludes that eliminating one means eliminating both.

The third conclusion—that policymakers should focus on specific classroom resources, rather than chasing elusive adequacy goals—draws on claims 5 and 6. In claim 5, the report rejects the assertion that equalizing funding leads to more equitable classroom-level resources, like teacher quality, acknowledging that “some resources, such as high-quality teachers, costs more in schools that serve more disadvantaged student populations.”⁷ In claim 6, the report challenges the “conventional wisdom” that equal school funding may not be adequate to meet student needs, arguing that adequacy is inherently subjective and unscientific so that what constitutes adequate “will inevitably be contested and variable across communi-

ties.”⁸ The fourth conclusion—that states should focus on other community supports and services in high-poverty areas rather than relying on schools to provide needed services—also rests on claim 6’s opposition to adequacy as a funding measure.

IV. The Report’s Use of Research Literature

Most of the claims in the report are supported by a very selective set of references to literature. Perhaps the best use of literature in the report is to support claim 2, that money matters and that money matters more for children from economically disadvantaged backgrounds. Despite the fact that there is a large body of research which affirms this finding⁹—research both spanning decades and recently published—the report focuses on one recent publication by Kirabo Jackson.¹⁰ While this a meta-analysis of numerous recent studies is appropriate, the report ignores the fact that this study and the related work it cites undermine the Fordham report’s central premise that we’ve reached a point of diminishing returns on investment in schooling. Rather, the analysis finds the opposite to be true, especially for children in high-poverty schools.¹¹

The diminishing returns assertion is instead supported in the discussion of adequate funding, referencing two sources: an early unpublished version of a national cost modeling report by myself and colleagues,¹² and a *Chalkbeat* news article by journalist Matt Barnum¹³ questioning, anecdotally, why New York State schools don’t have better outcomes given that their current funding levels meet our cost estimates (based on our more recent versions¹⁴ of similar analyses). This discussion ignores the fact that in the peer-reviewed version of our national cost model, my co-authors and I explain various reasons why a state’s student outcomes might not meet targets even if funding is allocated at our predicted cost levels.¹⁵

To support the conclusion that progressiveness of funding is no longer a problem within many states, the report relies heavily on a single source, which uses data on school and district spending from 2017-18.¹⁶ Based on a figure in this citation, the report concludes:

The only state where spending in schools serving poorer students is still markedly lower than in those serving wealthier ones is Illinois, which enacted school funding reforms in 2017 . . . In New Hampshire, Rhode Island, Vermont, and Connecticut, funding for schools serving more low-income students is very slightly lower, but in the rest of the states, school funding is either equal or higher for the schools serving more low-income students.¹⁷

More thorough, multi-year analyses applying alternative approaches to determining funding progressiveness suggest that this finding is incorrect or at least misleading—perhaps because of the limitation of a single year of data, and/or by the single method used without robustness checks across alternative specifications and approaches.¹⁸ It is not true that Illinois is the only remaining regressive state. Pennsylvania is more consistently regressive than Illinois, and other states are similarly regressive, including Connecticut and New Hampshire. (See Appendices B and C.)¹⁹

Even in the states that made progress from the 1990s to mid-2000s, like Massachusetts and New Jersey, those reforms have faded and so too has the progressive funding that came with them. Other states made little or no progress at all, whether ordered to by their courts or not. Generally, however, there is a literature which shows that court orders do, on average, induce positive response in funding progressiveness.²⁰ However, even when a state achieves an upward tilt of funding with respect to child poverty concentrations, all districts may not be in line with that pattern. Many are left out and have been for a long time.²¹ (See Appendix C.)

The author cites two sources to conclude that racial disparities aren't perfectly aligned with poverty-related disparities, both indicating that Black and Hispanic students receive slightly more per pupil, on average, nationally, than their White peers.²² It's possible to draw this finding by examining the average within-state differences across all states—but again, a finding based on such averages has little nuance and little value in informing policy. The report acknowledges this by pointing out that even in some states where poverty-related disparities have been resolved, racial disparities persist. Other analyses provide more nuanced parsing of racial differences across and within states.²³ (See Appendix D.)

The report also cites a handful of studies to support the idea that it may cost more to recruit and retain higher quality teachers, especially in higher poverty schools, and it uses these findings as a basis for claiming that the current small margin of funding progressiveness may be insufficient. Yet, the report still concludes that more emphasis should be placed on efficiency and on specific resources rather than the funding needed for those resources—implying a disconnect between how much money districts have, and the competitiveness of teacher wages or other important classroom resources. The report does accept that in some cases, additional funding may be needed for districts serving low-income or minority children to be able to pay more competitive wages, but implies that this is not the norm and thus should not be the emphasis of policy.

V. Review of the Report's Methods

The main supporting structure of the report—a discussion of claims in “conventional wisdom” with exceedingly weak evidence for some of the points made—is hardly a sound basis for determining far-reaching funding recommendations. A more thoughtful exposition would establish a sound evidentiary basis for each assertion made and each conclusion drawn, rather than this set of loosely coupled claims and rebuttals. More than a demonstration of what is reliably known about current levels of funding, the structure—and even the very title of the report—seem to be an effort to shift readers' perception away from the critical issue of underfunding for American public schools and to convince readers that the problem no longer exists. If gaps no longer persist (though they do, even if averages mask them), and if adequacy isn't a concern (it is), then policymakers have no need to worry about such things as determining common goals for schooling, what it may cost to achieve those goals, or how those costs might vary from one child to the next or from one district to the next. Nor do they need to consider what resources schools may need to meet the special needs of students in

high-poverty areas, because other community supports and services should be attending to those needs. The short version of the report is that (almost) all is well with school funding, so schools need primarily to use their resources more efficiently, though more funding just might be needed in a few places (which are actually many).

The single claim which is well supported—the second, which acknowledges that increased funding positively affects outcomes for students living in poverty—is largely ignored in the policy recommendations, except for acknowledgement that more funding might be needed in a relatively few circumstances. Given the overall focus that the problem of unequal funding has been remedied and a point of diminishing returns reached, concern for remaining inequities seems tepid, at best.

The report provides few novel analyses, and those it provides are selective, suspect, and not especially meaningful for informing policy. For example, Figure 1 of the report purports to illustrate how “Per-pupil, inflation-adjusted school spending has soared over time.”²⁴ It asserts that: “As shown, per-pupil school funding increased 81 percent in inflation-adjusted dollars from 1985 to 2019. And since the Covid-19 pandemic, schools have been showered with hundreds of billions in federal relief funds.”²⁵

My colleagues and I have explained on numerous occasions that adjusting the value of the education dollar to changes in the prices of a loaf of bread or gallon of gas is inappropriate; instead, we should think in terms of changes to labor costs over time and, in light of them, determine how to provide schools with sufficient resources to maintain a professional workforce of consistent quality.²⁶ As one researcher has demonstrated,²⁷ when changes in employment costs over time are taken into consideration, education spending has not grown at nearly the rate some suggest. (For an updated figure using this employment cost index, see Appendix E.)

Similarly, the report uses data through 2013 from another article²⁸ to show how spending gaps between higher and lower poverty districts have been closed over time. My review of these data suggest that gaps were already closed by the early 1990s and that progressive funding, on average, did increase until about 2008, at which point, some of that gain is lost, with rebound occurring in the most recent years. (For alternative versions of this point, see Appendix E.)

VI. Review of the Validity of the Findings and Conclusions

Put simply, the claims of “problem solved” are grossly overstated. Vast inequities in school funding remain within several states, with districts serving low-income, Black and brown children receiving substantially fewer resources, especially when compared with the costs of providing those children equal educational opportunity.

Money matters, and it matters more for children from economically disadvantaged backgrounds. There is no sound evidence to establish that we’ve reached a point of diminishing returns in financial support intended to enable equitable educational outcomes for children

from economically disadvantaged backgrounds.

While adequacy may be to an extent subjective, state policymakers in every state have articulated outcome goals for their education systems, the point of those goals being to establish standards that do not vary from one community to the next within their borders. To have and enforce such goals without consciously determining what it would realistically cost to meet them from district to district and from school to school is a subtle form of subterfuge.

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

The overarching premise of the report—that the problem of unequal funding has been solved—is wrong. To suggest as much with facile illustrations of national averages is disingenuous. To suggest that school spending has risen dramatically to a point of diminishing returns is misleading. No such messages are helpful for improving the state of school funding for children who need it most.

The goal of state school finance policies is to provide the resources needed for all children to have equal educational opportunity to achieve their state's outcome goals. Arguably, a well-designed national/federal school finance strategy could go much further to mitigate interstate inequality.²⁹ While educational adequacy may be an elusive concept, existing state standards are not. Further, there exist reasonable methods for estimating what is needed to achieve those standards—methods that have been used in recent years in Kansas,³⁰ Vermont,³¹ and New Hampshire³² to inform K-12 school finance formulas and to inform the financing of Texas community colleges.³³

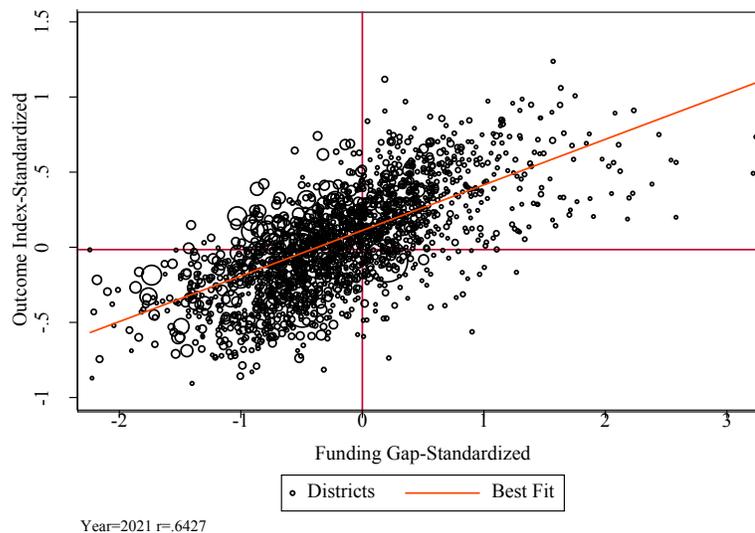
Policymakers can turn to such efforts to inform themselves about efforts to create truly equitable educational opportunity for all students. In contrast, they will find no useful guidance in the sleight of hand performance in this report.

Appendix A: National Cost Model

Figure 1 shows the relationship between funding gaps—standardized (1 = 1 standard deviation)—and existing outcomes for school districts across the country. The funding gaps are the differences between existing funding levels and the funding levels predicted to be needed in each district, for children to achieve national average outcomes in reading and math, grades 3 to 8, based on data from the Stanford Education Data Archive. The vertical axis includes the outcome measure which combines reading and math scores—standardized—for grades 3 to 8. Figure 1 has been created with data from our most recent version of the National Education Cost Model.³⁴

What this figure shows is that districts with more adequate funding tend to have higher outcomes on average. The correlation between the two is reasonable strong and linear. In other words, there’s no clear point at which districts spend so much that they reap little additional return, except perhaps at the point where districts are spending 2+ standard deviations more than they are estimated to need in order to achieve national average outcomes. We show in recent, related work that of the over 1,300 majority-Black/ Hispanic regular public-school districts located in U.S. metropolitan areas, roughly 82 percent fall in the lower left quadrant of Figure 1.³⁵

Figure 1
National Cost Model Funding Gaps and Outcome Index

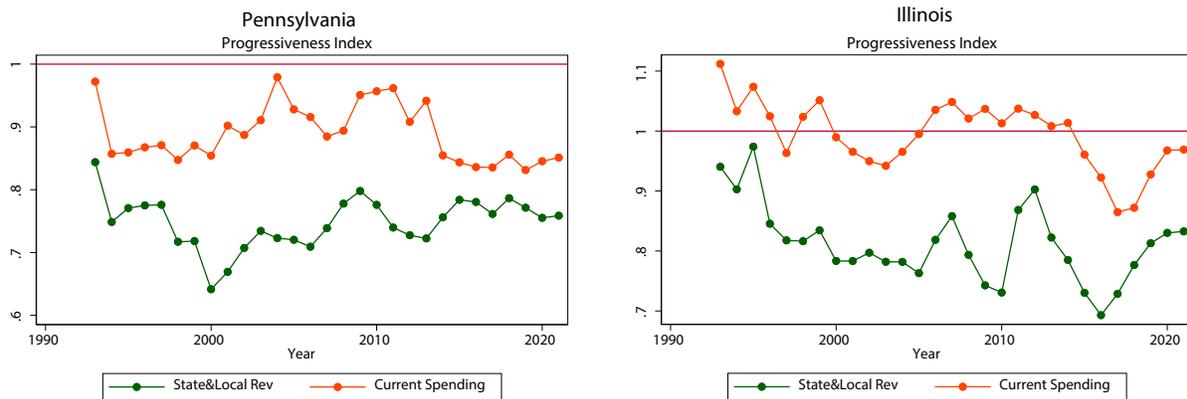


Readers can make their own scatterplots of this type for all districts in each state by going to our district adequacy profiles data visualization tool: <https://www.schoolfinancedata.org/dcdvizi/>. Select a state and select the “Adequacy/Outcomes” graph type.

Baker, B.D., Di Carlo, M., & Green III, P.C. (2022, April). *Segregation and school funding: How housing discrimination reproduces unequal opportunity*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://files.eric.ed.gov/fulltext/ED620896.pdf>

Appendix B: Regressive States of Pennsylvania and Illinois

Below are our most recent calculations of funding progressiveness over time for Pennsylvania and Illinois. Here, the progressiveness index is the predicted revenue or spending for a district with a 30% census child poverty rate to that of a district with 0% child poverty rate. Predictions are generated by a regression model of all districts nationally, controlling for a) regional variation in competitive wages, and b) district size and population sparsity. Pennsylvania is regressive for both current spending AND state and local revenue throughout the period whereas Illinois declines over time, but rebounds a bit when reforms are implemented in 2017.

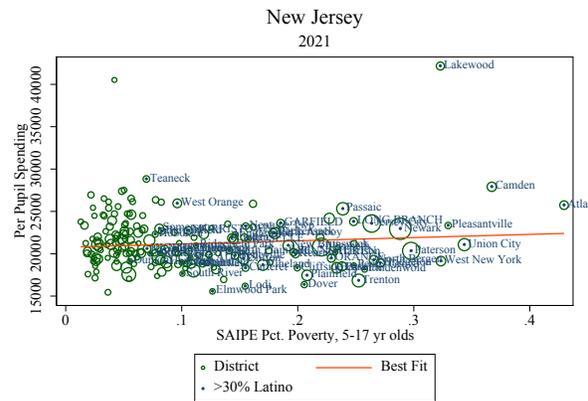
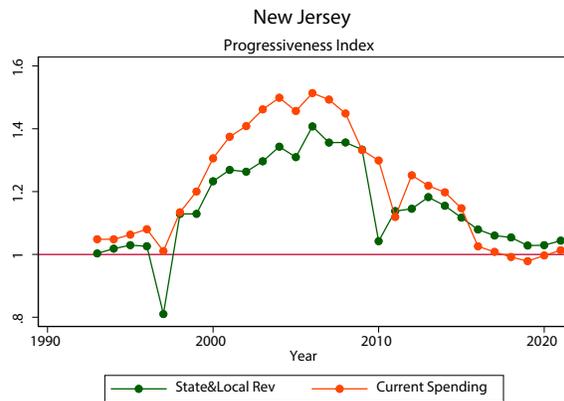
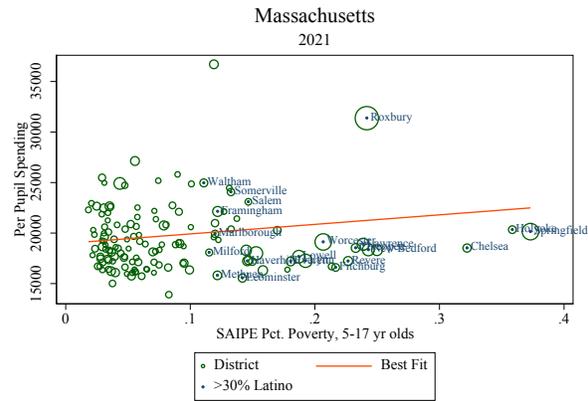
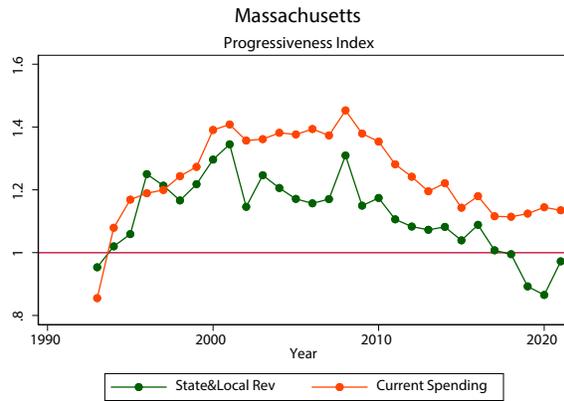
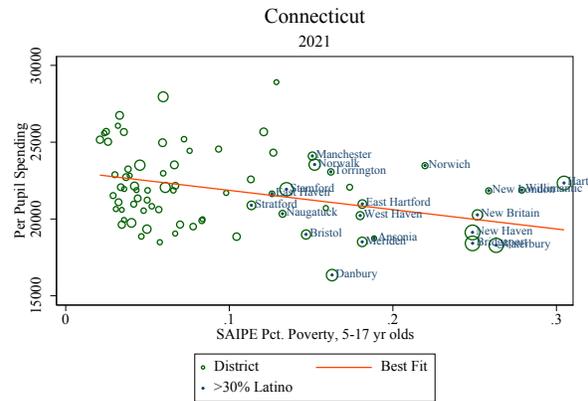
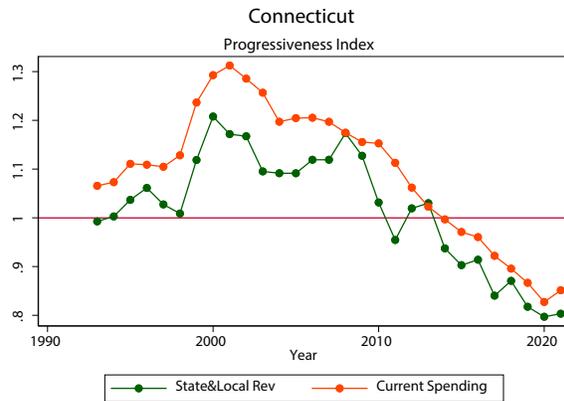


Data Source: School Finance Indicators Database

By 2021, in Pennsylvania, a district with 30% child poverty had current spending per pupil just over 80% of that of the district with 0% poverty. In Illinois, in 2017 and 2018, current spending per pupil was nearly as regressive as in Pennsylvania, but has since rebounded somewhat.

Appendix C: Statewide Patterns and Individual Districts

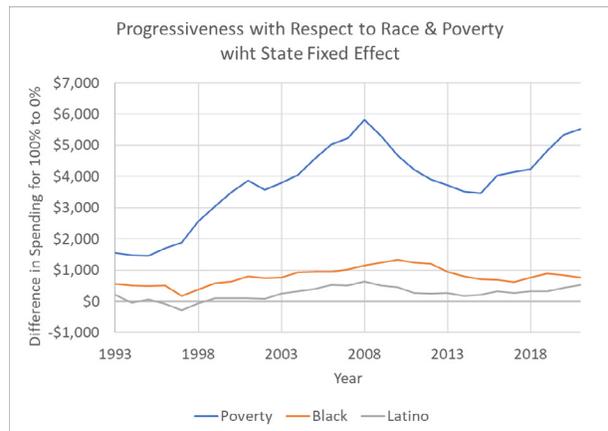
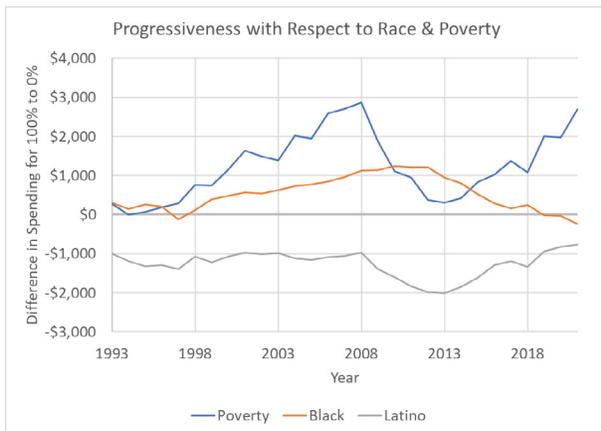
The figures below are intended to show that whatever the overall pattern—downward tilt (regressive) or upward tilt (progressive)—of revenue or spending with respect to child poverty concentration, that pattern merely represents the average trajectory and NOT the reality for individual districts. Yes, Massachusetts is progressive, but that’s not especially helpful if you are in Chelsea or Springfield. Or in Dover, NJ. And while Connecticut is regressive, it’s even worse if you are in Danbury or Waterbury. Note also in the very first graph here, Connecticut is approximately as regressive as Pennsylvania or Illinois by 2021 (see Appendix B above).



Data Source: School Finance Indicators Database

Appendix D

The figures below show the regression coefficients (weighted for enrollment) for the relationship between poverty concentration and racial composition and per pupil spending (adjusted for regional cost variation and inflation) over time. The figure on the left shows the overall national average pattern and the figure on the right shows the average pattern, within states, across all states. The overall trajectories are similar. Progressiveness with respect to poverty improved from the mid-1990s to 2008, then collapsed with the onset of the great recession. In recent years, we've returned to approximately 2008 levels. Interestingly, the rise and fall of progressiveness with respect to Black enrollment shares follows a somewhat different pattern, falling off after the great recession rather than during it. Nationally, districts with larger shares of Latino populations tend to be very poorly funded, to an extent because they are in the least well-funded state systems, including Arizona, California, Colorado and Texas. On average, within states, Black and Latino students have resources similar to or marginally above those of White students. Again, these averages mask huge differences among states.

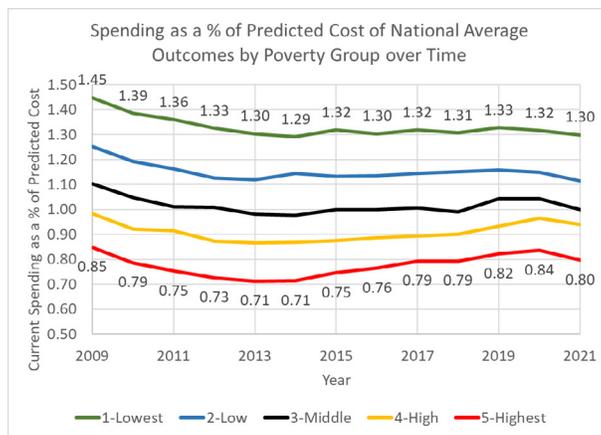
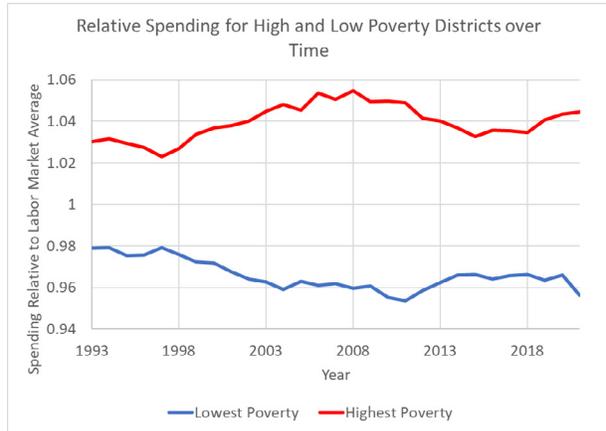
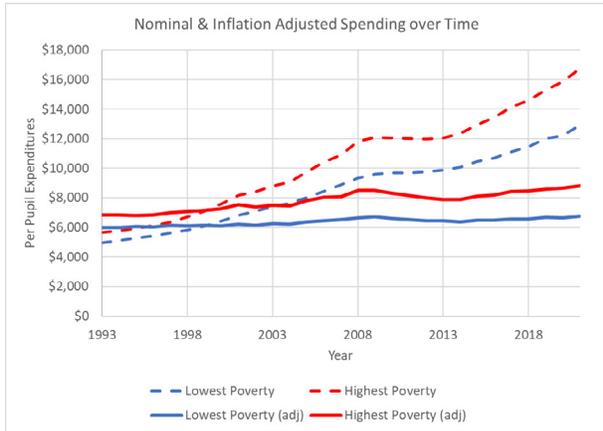


Appendix E

Finally, I present three different views of changes in absolute and relative funding levels.

1. Nominal (not adjusted for costs over time) and labor cost adjusted per-pupil spending for the top and bottom 20% of districts by child poverty within each state. Labor cost adjusted spending uses the same adjustment as Weber (2022)³⁶ intended to reflect the annual increase in the cost of hiring and retaining teachers and other school staff given the growth in wages of competing sectors, estimated using data from the Bureau of Labor Statistics.
2. Spending per pupil as a ratio to the average spending per pupil in the same labor market (Metropolitan or Micropolitan Core Based Statistical Area or rural area outside of CBSAs aggregated based on Education Comparable Wage Index) for districts in the top and bottom quintiles by child poverty concentration in each state (quintile assignment is within state). This measure is particularly useful for characterizing differences in spending between different types or groups of districts, like higher and lower poverty districts, at any given point in time and in facing the same regional labor costs. This approach corrects for both regional differences in labor costs and for changes to labor costs over time.
3. Spending per pupil as a ratio to the estimated cost per pupil for children to achieve national average outcomes, for districts by quintiles of child poverty concentration (same as above). This is the most comprehensive approach to addressing differences in costs faced by districts. This approach uses a statistical model to estimate the per-pupil costs in each district of achieving national average outcomes (math and reading scores) and then compares current spending to those costs.³⁷

The figure in the upper left shows that on average, over time, higher poverty districts in the same state have spent marginally more than lower poverty districts. That margin grew through about 2008, then slipped back. Overall, spending has not grown dramatically when adjusted for employment costs. The upper right figure shows the relative increases in higher poverty districts through 2008 which then fall off, but rebound more recently. The pattern is somewhat similar in the bottom panel when looking at spending relative to costs of achieving common outcome goals.



Notes and References

- 1 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 2 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 3). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 3 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 4). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 4 Citing only one 2008 critique (by Costrell, Hanushek and Loeb) in an invited issue (by the authors) of the *Peabody Journal of Education* and ignoring the significant body of more recent peer reviewed and older, rigorous peer-reviewed research on the topic:

Recent

- Kolbe, T., Baker, B.D., Atchison, D., Levin, J., & Harris, P. (2021). The additional cost of operating rural schools: Evidence from Vermont. *AERA Open*, 7. Retrieved August 2023, from <https://journals.sagepub.com/doi/full/10.1177/2332858420988868>
- Zhao, B. (2022). Estimating the cost function of Connecticut public K–12 education: Implications for inequity and inadequacy in school spending. *Education Economics*, 1-32.
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Older

- Duncombe, W. & Yinger, J. (2005). How much more does a disadvantaged student cost? *Economics of Education Review*, 24(5), 513-532.
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 - Duncombe, W. & Yinger, J. (2000). Financing higher student performance standards: the case of New York State. *Economics of Education Review*, 19(4), 363-386.
 - Duncombe, W. & Yinger, J. (1997). Why is it so hard to help central city schools?. *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*, 16(1), 85-113.
 - Imazeki, J. & Reschovsky, A. (2004). Is No Child Left Behind an un (or under) funded federal mandate? Evidence from Texas. *National Tax Journal*, 57(3), 571-588.
 - Gronberg, T.J., Jansen, D.W., & Taylor, L.L. (2012). The relative efficiency of charter schools: A cost frontier approach. *Economics of Education Review*, 31(2), 302-317.
- 5 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 4). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>. The report asserts: “More fundamentally, the adequacy approach puts

too much of the onus on schools to solve society's broader inequities, as if greater school funding were the only way to improve the life chances of young people. Children do not start school at the same levels, and myriad social conditions are baked into the gaps observed between groups' average test scores, grades, and other measures of academic achievement. Expecting schools to compensate for all these discrepancies inevitably crowds out other approaches." (p. 12)

- 6 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 3). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 7 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 3). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 8 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 4). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 9 Baker, B.D. (2016). *Does money matter in education?* Albert Shanker Institute. Retrieved August 9, 2023, from <https://www.shankerinstitute.org/resource/does-money-matter-education-second-edition>

10 Noting:

"Many of the more recent studies of school-finance reforms—Northwestern University economist Kirabo Jackson reviews 35 of them in a recent working paper—leverage the fact that they were implemented abruptly as a result of court mandates or close ballot initiatives. And the studies tell a remarkably consistent story: school spending makes a difference for all students, especially for students from low-income families." (p. 7)

- 11 Kirabo Jackson, on pages 6-7 of the piece cited in the report, explains that studies of recent school finance reform effects on student outcomes—in the era when school spending is now higher than in the past—still show large important changes in outcomes resulting from changes in spending, discussing specifically the following two studies:
 - Lafortune, J., Rothstein, J., & Schanzenbach, D.W. (2018). School finance reform and the distribution of student achievement. *American Economic Journal: Applied Economics*, 10(2), 1-26. Retrieved August 2, 2023, from <https://doi.org/10.1257/app.20160567>
 - Candelaria, C.A. & Shores, K.A. (2017). Court-ordered finance reforms in the adequacy era: Heterogeneous causal effects and sensitivity. *Education Finance and Policy*, 1-91. Retrieved August 2, 2023, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3009784

We also know from peer-reviewed research is that, while funding progressiveness increased up until the great recession, high poverty districts suffered larger cuts to funding after the recession and those cuts led to lower student outcomes. We have no evidence that we've maxed out our spending for student outcomes, especially for children in high-poverty communities. Rather, since the great recession, we retreated and saw the damages of that retreat:

- Jackson, C.K., Wigger, C., & Xiong, H. (2021). Do school spending cuts matter? Evidence from the Great Recession. *American Economic Journal: Economic Policy*, 13(2), 304-335.
 - Knight, D.S. (2017). Are high-poverty school districts disproportionately impacted by state funding cuts? School finance equity following the Great Recession. *Journal of Education Finance*, 169-194.
- 12 Baker, B.D., Weber, M., Srikanth, A., Kim, R., & Atzbi, M. (2018) *The real shame of the nation: The causes and consequences of interstate inequity in public school investments*. NJ: Education Law Center. Retrieved January 17, 2023, from <http://www.schoolfundingfairness.org/related-papers>

- 13 Barnum, M. (2022). As pandemic aid runs out, America is set to return to a broken school funding system. *Chalkbeat*. Retrieved August 2, 2023, from <https://www.chalkbeat.org/2022/8/25/23318969/school-funding-inequality-child-poverty-covid-relief>
- Barnum, M. & Amin, R. (2022, August 26). New York schools see a big disconnect between spending and test scores. Why? *Chalkbeat New York*. Retrieved August 2, 2023, from <https://ny.chalkbeat.org/2022/8/26/23319844/new-york-school-spending-test-scores-disconnect>
- 14 Baker, B.D., Di Carlo, M., & Weber, M. (2022). *The adequacy and fairness of state school finance systems, Fifth edition, school year 2019-20*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://files.eric.ed.gov/fulltext/ED625887.pdf>
- 15 Baker, B.D., Weber, M., & Srikanth, A. (2021). Informing federal school finance policy with empirical evidence. *Journal of Education Finance*, 47(1), 1-25.
- We explain 3 major causes for why specific states may appear out of line (spending more or less than expected, given the outcomes they achieve) with the general patterns of costs and outcomes: 1) omitted variables bias (potentially important cost factors not included in the models), 2) measurement error in spending data our outcome data, or 3) real differences in efficiency. We should not simply assume that any and all differences in one state's funding/outcome relationship are real differences in efficiency, or illustrate an overarching conclusion of diminishing returns, given that state systems may face unique cost pressures we cannot account for precisely in a national model and given potential differences in reporting spending data and equating outcome measures. (For more, see Appendix A).
- 16 Lee, H., Shores, K., & Williams, E. (2022). The distribution of school resources in the United States: A comparative analysis across levels of governance, student subgroups, and educational resources. *Peabody Journal of Education*, 97(4), 395-411.
- 17 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 9). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 18 The report also cites the Urban Institute progressiveness index, which is known to have used flawed calculations in determining state and local revenue per pupil, resulting specifically in incorrect characterizations of progressiveness in Pennsylvania.
- Barnum, M. (2022) Study at issue in PA school funding case revised to show poor kids get less. *Chalkbeat*. Retrieved August 2, 2023, from <https://philadelphia.chalkbeat.org/2022/4/25/23038601/pennsylvania-school-funding-lawsuit-study-urban-institute>
 - Chingos, M.M. (2017, June 15). *How progressive is school funding in the United States?* Brookings. Retrieved August 2, 2023, from <https://www.brookings.edu/articles/how-progressive-is-school-funding-in-the-united-states/>
- 19 For analyses of New Hampshire and comparisons with New England states, see:
- Atchison, D., Levin, J., Baker, B., & Kolbe, T. (2020, August). *Equity and adequacy of New Hampshire School Funding (DRAFT): A cost modeling approach*. American Institutes for Research. Retrieved August 2, 2023, from https://carsey.unh.edu/sites/default/files/media/2020/09/20-12685_nh_final_report_version_v5_draft_1.pdf
- 20 Oberfield, Z.W. & Baker, B.D. (2022). The politics of progressivity: Court-ordered reforms, racial difference, and school finance fairness. *American Educational Research Journal*, 59(6), 1229-1264.
- Found: "Using state-level data from 1995 to 2016, we find mixed evidence that progressivity increased following a court-ordered school-finance overhaul. Rather, we show that changes in progressivity were most consis-

tently tied to changes in student demography: As students became poorer, or more racially diverse, lawmakers created less progressive finance systems.” (p. 1229)

- 21 Baker, B.D. (2014, July 9). *America’s most financially disadvantaged school districts and how they got that way: How state and local governance causes school funding disparities*. Center for American Progress. Retrieved August 2, 2023, from <https://www.americanprogress.org/article/americas-most-financially-disadvantaged-school-districts-and-how-they-got-that-way/>

Baker, B. & Cotto Jr, R. (2020). The under-funding of Latinx-serving school districts. *Phi Delta Kappan*, 101(6), 40-46.
- 22 Lee, H., Shores, K., & Williams, E. (2022). The distribution of school resources in the United States: A comparative analysis across levels of governance, student subgroups, and educational resources. *Peabody Journal of Education*, 97(4), 395-411. Lee et al. find that, “On average, Black and Hispanic students receive \$514 and \$115 more per pupil than White students, respectively.”

Urban Institute. (2022, April 25). *Which students receive a greater share of school funding?* Retrieved August 9, 2023, from <https://urbn.is/3Hk6P93>
- 23 Baker, B.D., Srikanth, A., Cotto Jr, R., & Green III, P.C. (2020). School funding disparities and the plight of Latinx children. *Education Policy Analysis Archives*, 28(135). Retrieved August 2, 2023, from <https://doi.org/10.14507/epaa.28.5282>

Specifically, a district that is 100% Latinx is expected to have relative revenue per pupil that is 7.2% lower with respect to labor market averages than a district that is 0% Latinx. When state dummy variables are not included, differences include between and within state differences.

As Latinx population share increases relative spending decreases (e.g., across the country, where Latinx shares are higher, relative spending is lower but revenue flat. Recall, however, that because our spending and revenue measures are centered on labor market averages, they, in effect, include a labor market level fixed effect).

Again, districts with larger Black population shares have marginally higher revenue and spending per pupil. (p. 13)
- 24 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 6). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 25 Tyner, A. (2023). *Think again: Is education funding in American still unequal?* (p. 6). Thomas B. Fordham Institute. Retrieved August 2, 2023, from <https://fordhaminstitute.org/national/research/think-again-education-funding-america-still-unequal>
- 26 Baker, B.D. (2018) *Educational inequality and school finance: Why money matters for America’s students* (p. 11). Harvard Education Press.
- 27 Weber, M. (2022) How much has education spending increased over time? [blog post] *Shanker Blog*. Retrieved August 9, 2023, from <https://www.shankerinstitute.org/blog/how-much-has-education-spending-increased-over-time>
- 28 Lafortune, J., Rothstein, J., & Schanzenbach, D.W. (2018). School finance reform and the distribution of student achievement. *American Economic Journal: Applied Economics*, 10(2), 1-26. Retrieved August 2, 2023, from <https://doi.org/10.1257/app.20160567>
- 29 Baker, B.D., Di Carlo, M., & Weber, M. (2022). *Ensuring adequate education funding for all: A new federal foundation aid formula*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://www.shankerinstitute.org/fedformula>

- 30 Taylor, L., Willis, J., Berg-Jacobson, A., Jaquet, K., & Caparas, R. (2018). *Estimating the costs associated with reaching student achievement expectations for Kansas public education students: A cost function approach*. San Francisco, CA: WestEd. Retrieved August 2, 2023, from https://www.kslegislature.org/li_2018/b2017_18/committees/ctte_h_k12_education_budget_1/documents/testimony/20180316_01.pdf
- Duncombe, W. & Yinger, J. (2006). *Estimating the costs of meeting student performance outcomes adopted by the Kansas State Board of Education*. Prepared for the Kansas Legislative Division of Post Audit. Retrieved August 2, 2023, from https://kslegislature.org/li_2018/b2017_18/committees/ctte_h_k12_education_budget_1/documents/testimony/20170306_02.pdf
- 31 Kolbe, T., Baker, B.D., Atchison, D., & Levin, J. (2019). *Pupil weighting factors report*. State of Vermont, House and Senate Committees on Education. Retrieved August 2, 2023, from <https://legislature.vermont.gov/assets/Legislative-Reports/edu-legislative-report-pupil-weighting-factors-2019.pdf>
- Kolbe, T., Baker, B.D., Atchison, D., Levin, J., & Harris, P. (2021). The additional cost of operating rural schools: Evidence from Vermont. *AERA Open*, 7. Retrieved August 2, 2023, from <https://journals.sagepub.com/doi/full/10.1177/2332858420988868>
- Cutter, C. (2022, May 25). Vermont per-pupil spending reform bill signed into law. *WCAX-3*. Retrieved August 2, 2023, from <https://www.wcax.com/2022/05/24/vermont-per-pupil-spending-reform-bill-signed-into-law/>
- 32 Atchison, D., Levin, J., Baker, B., & Kolbe, T. (2020, August). *Equity and adequacy of New Hampshire School Funding (DRAFT): A cost modeling approach*. American Institutes for Research. Retrieved August 2, 2023, from https://carsey.unh.edu/sites/default/files/media/2020/09/20-12685_nh_final_report_version_v5_draft_1.pdf
- 33 Levin, J., Baker, B., Lee, J., Atchison, D., & Kelchen, R. (2022). *An examination of the costs of Texas community colleges, Appendixes*. Institute of Education Sciences, REL 2023-142. Regional Educational Laboratory Southwest.
- Additionally, a few states have used findings from our national cost model to evaluate their current K-12 state school finance policies:
- Virginia: <https://jlarc.virginia.gov/landing-2023-virginias-k-12-funding-formula.asp>
- Missouri: <https://dese.mo.gov/media/pdf/missouri-school-funding-march-2023>
- 34 Baker, B.D., Di Carlo, M., & Weber, M. (2022). *The adequacy and fairness of state school finance systems, Fifth edition, school year 2019-20*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://files.eric.ed.gov/fulltext/ED625887.pdf>
- 35 Baker, B.D., Di Carlo, M., & Green III, P.C. (2022, April). *Segregation and school funding: How housing discrimination reproduces unequal opportunity*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://files.eric.ed.gov/fulltext/ED620896.pdf>
- 36 Weber, M. (2022) How much has education spending increased over time [blog post]. *Shanker Blog*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://www.shankerinstitute.org/blog/how-much-has-education-spending-increased-over-time>
- 37 Baker, B.D., Di Carlo, M., & Weber, M. (2022). *The adequacy and fairness of state school finance systems, Fifth edition, school year 2019-20*. Albert Shanker Institute. Retrieved August 2, 2023, from <https://files.eric.ed.gov/fulltext/ED625887.pdf>