School Funding in New Jersey: A Fair Future for All
Part 4: The Cost of an Adequate Education in New Jersey

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About This Series

NJPP's second annual report on the state of school funding in New Jersey arrives at a time of unprecedented challenges, both fiscal and educational. The COVID-19 pandemic has forced school districts to radically change how they deliver instruction, while the ensuing economic downturn has created a fiscal crisis for both the state and its local school districts. Ironically, the looming threat of cuts to education spending comes at a time when there is a stronger research consensus than ever about the role of funding in student academic achievement: Adequate and equitable school funding is the necessary precondition for student success. If New Jersey is to see its students thrive through this emergency, it must find a way to ensure that all children, no matter where they live or what learning challenges they face, have access to schools that are adequately funded.

This series, *School Funding in New Jersey: A Fair Future for All*, provides an in-depth look at the current state of school finance in New Jersey: how the state got here, what the consequences have been for our students, and how the state should proceed in the face of the current crisis.

Summary

Previous reports in this series focused on New Jersey's *effort* to fund its schools, and the *progressivity* with which it distributes revenues to schools. This report focuses on *adequacy*: whether schools have the resources they need to meet a common educational goal. To evaluate New Jersey's adequacy in school funding, this analysis uses the National Education Cost Model (NECM), a method that takes into account both school inputs (spending) and outputs (test scores) to determine whether districts and states are spending what they need to provide students with a quality education.

This analysis shows New Jersey spends more than other states on its schools; consequently, New Jersey's educational outcomes are better than in other states. Yet there are some districts in New Jersey, serving proportionally more students in economic disadvantage, that do not spend enough to meet the modest goal of national average outcomes. These under-spending school districts have higher concentrations of Black and Latinx students, and fewer teachers per 100 students than other districts

that spend adequately. Many of these districts were not Abbott districts: they did not have standing under the earlier *Abbott* rulings and subsequently did not receive the benefits of increased spending during the mid-2000s.

Coupled with the analysis in Part 3 of this series, there is adequate evidence that shows even as New Jersey is relatively high-spending and high-achieving state, it has many districts that still do not have enough funding to achieve average educational outcome goals. New Jersey must acknowledge this limitation and fix its state aid formula so districts can meet the challenge of providing an adequate education for all students – even in the face of the post-pandemic fiscal crisis.

New Jersey Districts Under the National Education Cost Model

The relationship between spending and educational outcomes is well established: research shows that increased spending leads, on average, to increases in student achievement.[1] Part 2 of this series focused on two important indicators of school spending: *effort* and *progressivity*. *Effort* refers to how much of a state's economic capacity is used to fund K-12 education, while *progressivity* is a measure of how much more (or less) the neediest school districts in a state receive compared to the most affluent. Both are important; however, neither addresses the core issue of whether a state spends enough on its schools to meet its stated outcomes goals – that is, the *adequacy* of spending toward meeting stated goals. An adequacy measure, by definition, must consider not only school inputs – in other words, funding – but also school outputs, such as student academic achievement as measured by test scores.

Determining *how much* spending is needed to increase student outcomes to a desired level, however, is a complex task. Standardized testing in the United States is mostly limited to math and English language arts, and only Grades 3 through 8 are required by federal law to be tested every year across the nation. There is no uniform national test in these subjects administered in every school; instead, different states use different tests whose outcomes can only be directly compared through complex statistical transformations. Some school spending may also have little effect in these test outcomes: arts programs, athletics, infrastructure, and so on. In addition, and as reiterated in this series, school districts enrolling more students with specific learning needs, or who are disadvantaged, will require more resources to reach more comparable outcomes to districts serving fewer disadvantaged students. Even with these difficulties, however, there are reasonable (albeit complex) methods, using available data, to determine correlations between school spending in student outcomes.

This report employs the National Education Cost Model (NECM) to determine New Jersey's relative place in the nation in educational spending and outcomes. It then analyzes individual school districts in New Jersey, with the goal of ascertaining which districts still have resources that are inadequate if their students are to achieve common outcome goals. The NECM is described in detail in the Appendix: briefly, the model takes into consideration a number of "cost" factors, including variations in student needs, geographic variations in labor costs, and other factors that affect the cost of educating students.

The model estimates the costs of achieving common outcome goals, assuming that districts achieve these outcomes at average efficiency levels.

Figure 1 maps per pupil spending relative to cost (specifically, the cost of achieving average outcomes) across the U.S. Areas in green spend at least enough to achieve national average outcomes, while areas in red spend less than necessary to achieve national average outcomes. It's roughly an even split, as one might expect. Northeastern states tend to spend more than necessary to achieve national average outcomes; consequently, they achieve more than national average outcomes. This is certainly the case for New Jersey: on average and over time, New Jersey has spent more than necessary to achieve merely national average outcomes, and has far exceeded national average outcomes on the National Assessment of Educational Progress (NAEP).

Figure 1: Nation Education Cost Model Funding Gaps, 2019
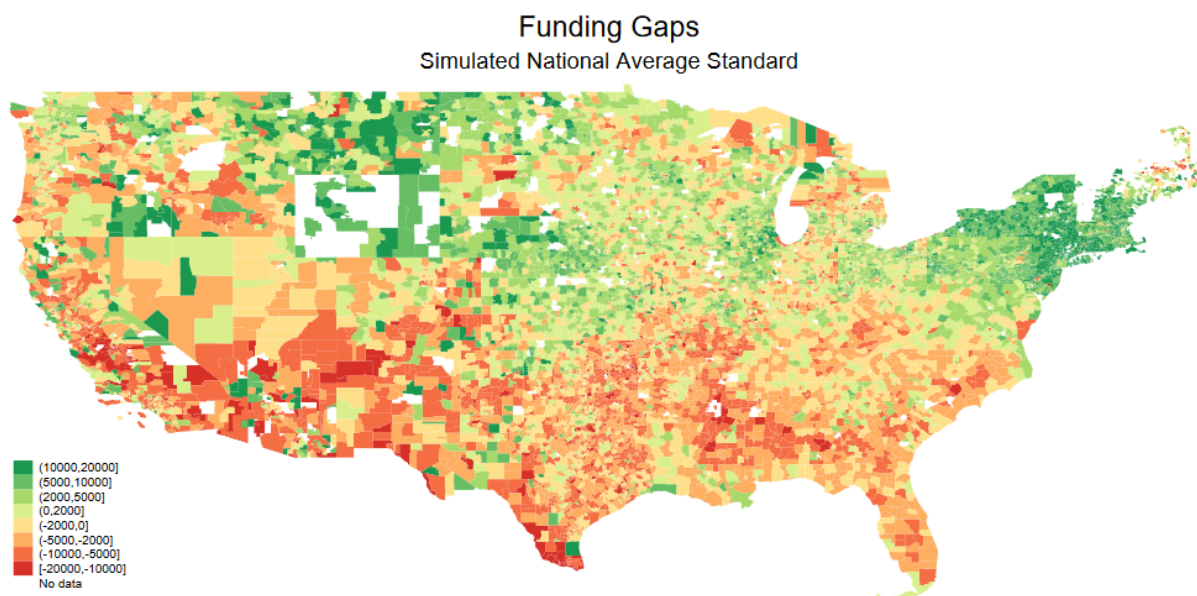
Methodology: Baker, Bruce D., Mark Alan Weber, Ajay Srikanth, Robert Kim, and Michael Atzbi. "The Real Shame of the Nation: The Causes and Consequences of Interstate Inequity in Public School Investments." New Brunswick, NJ: Rutgers, The State University of New Jersey, February 2018. http://www.schoolfundingfairness.org.https://www.shankerinstitute.org/sites/default/files/The%20Real%20Shame%20of%20the%20Nation.pdf Data source: Baker, B.D., Di Carlo, M., Srikanth, A., Weber, M.A. 2020. Rutgers Graduate School of Education/Albert Shanker Institute: School Finance Indicators Database. Retrieved from: http://www.schoolfinancedata.org.

Figure 2 shows the position of New Jersey school districts in the context of the National Education Cost Model, in terms of spending relative to cost (2019), and outcomes relative to national averages (in 2016, the most recent available outcome data). Districts in the upper right corner of the figure are those that spend more than necessary to achieve national average outcomes, and exceed national average outcomes. Districts in the lower left are districts that spend less than needed to achieve national average outcomes and fall below national average outcomes.

Our primary interest here is in those districts that fall in the lower left, some of which are relatively large districts. These are the districts that, even in New Jersey's relatively robustly funded system with high average outcomes, still lack the resources needed to achieve even national average outcomes (a relatively low bar for New Jersey's high achieving children).[2]

Figure 2: National Education Cost Model, Spending Gaps, New Jersey Districts, 2019

Data source: Baker, B.D., Di Carlo, M., Srikanth, A., Weber, M.A. 2020. Rutgers Graduate School of Education/Albert Shanker Institute: School Finance Indicators Database. Retrieved from: http://www.schoolfinancedata.org.
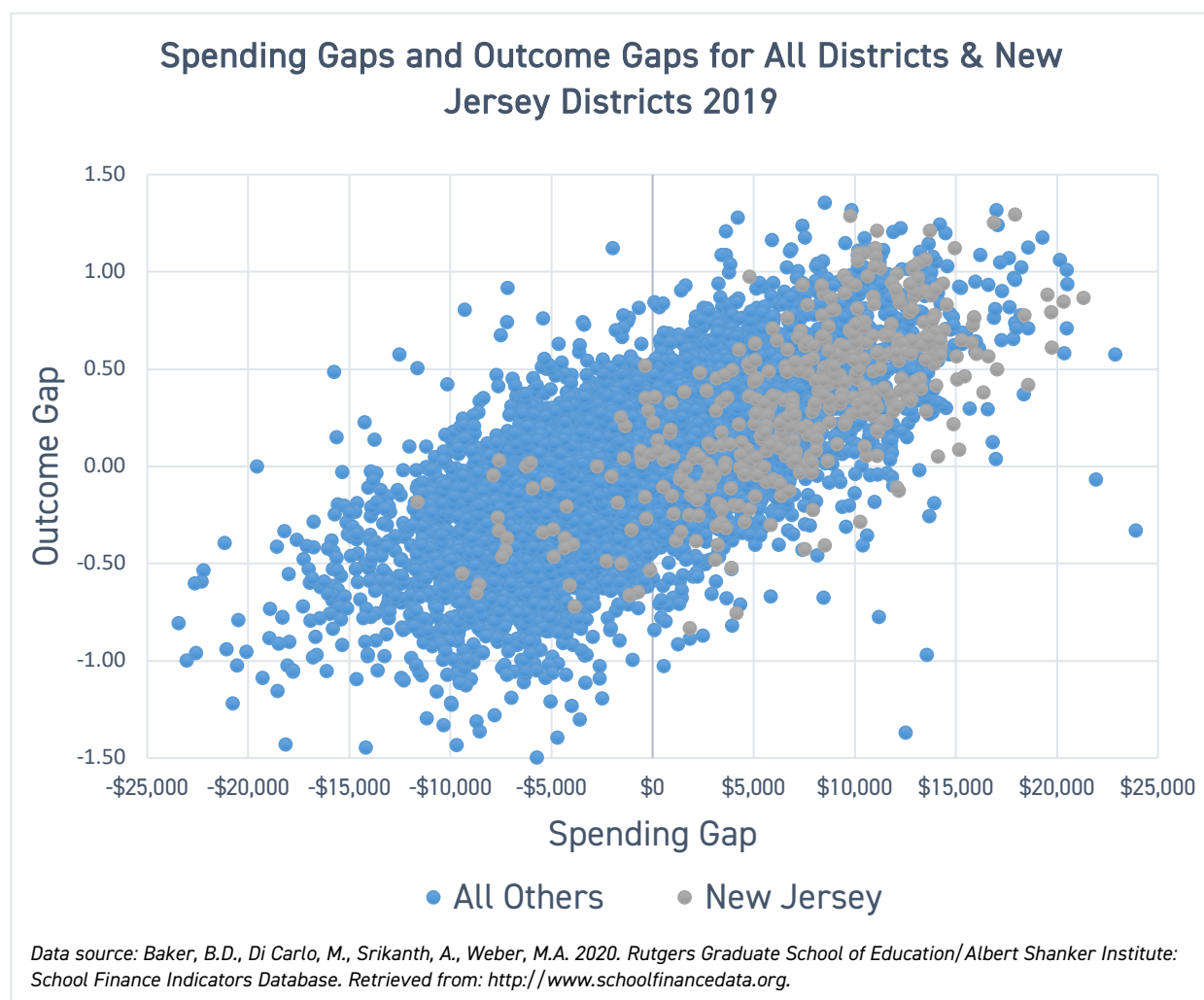
Table 1 evaluates New Jersey districts by poverty quintile, with respect to the NECM. School districts in New Jersey's lowest-poverty quintile – those in the most affluent communities – spend over $10,000 more per pupil than they would need to spend to achieve merely national average outcomes. These same districts far exceed national average outcomes; in fact, all but New Jersey's highest-poverty quintile of districts (the least affluent) spend sufficiently to achieve at least national average outcomes. But even in New Jersey, the highest-poverty quintile of schools falls nearly $2,000 per pupil short of spending necessary to achieve national average outcomes. These districts have substantially higher (regionally cost adjusted) Census poverty rates and higher concentrations of Black and Latinx children. That also have fewer teachers per 100 pupils (according to federal source data), reinforcing the previous finding linking School Funding Reform Act (SFRA) funding gaps and staffing ratios.

Table 1: National Education Cost Model, New Jersey School Districts, 2017

Poverty Quintile	1-Lowest	2-Low	3-Middle	4-High	5-Highest
Spending Gap per Pupil	$10,486	$9,579	$7,807	$5,738	-$1,856
Adjusted Poverty Rate	4 percent	7 percent	10 percent	15 percent	34 percent
Spending per Pupil 2017	$18,810	$18,459	$17,572	$18,218	$18,091
Percent Latinx	7 percent	10 percent	16 percent	24 percent	55 percent
Percent Black	3 percent	5 percent	12 percent	18 percent	25 percent
Teachers per 100 Pupils	8.57	8.32	8.16	8.41	7.57
Outcome Gap	0.72	0.61	0.40	0.18	-0.20

Data source: Baker, B.D., Di Carlo, M., Srikanth, A., Weber, M.A. 2020. Rutgers Graduate School of Education/Albert Shanker Institute: School Finance Indicators Database. Retrieved from: http://www.schoolfinancedata.org.

Figure 3 zooms in on the lower left quadrant of Figure 2, adding labels to these districts. Notably, many of these districts are the same districts facing significant – sometimes very significant – funding gaps with respect to their SFRA adequacy targets.[3] SFRA on average provides for more robust targets of funding than our national cost model; arguably the outcome goals of SFRA, while dated, at least continue to exceed current national average outcomes.

New Jersey Districts Spending Less than Needed to Achieve National Average Outcomes (2019)

Data source: Baker, B.D., Di Carlo, M., Srikanth, A., Weber, M.A. 2020. Rutgers Graduate School of Education/Albert Shanker Institute: School Finance Indicators Database. Retrieved from: http://www.schoolfinancedata.org.
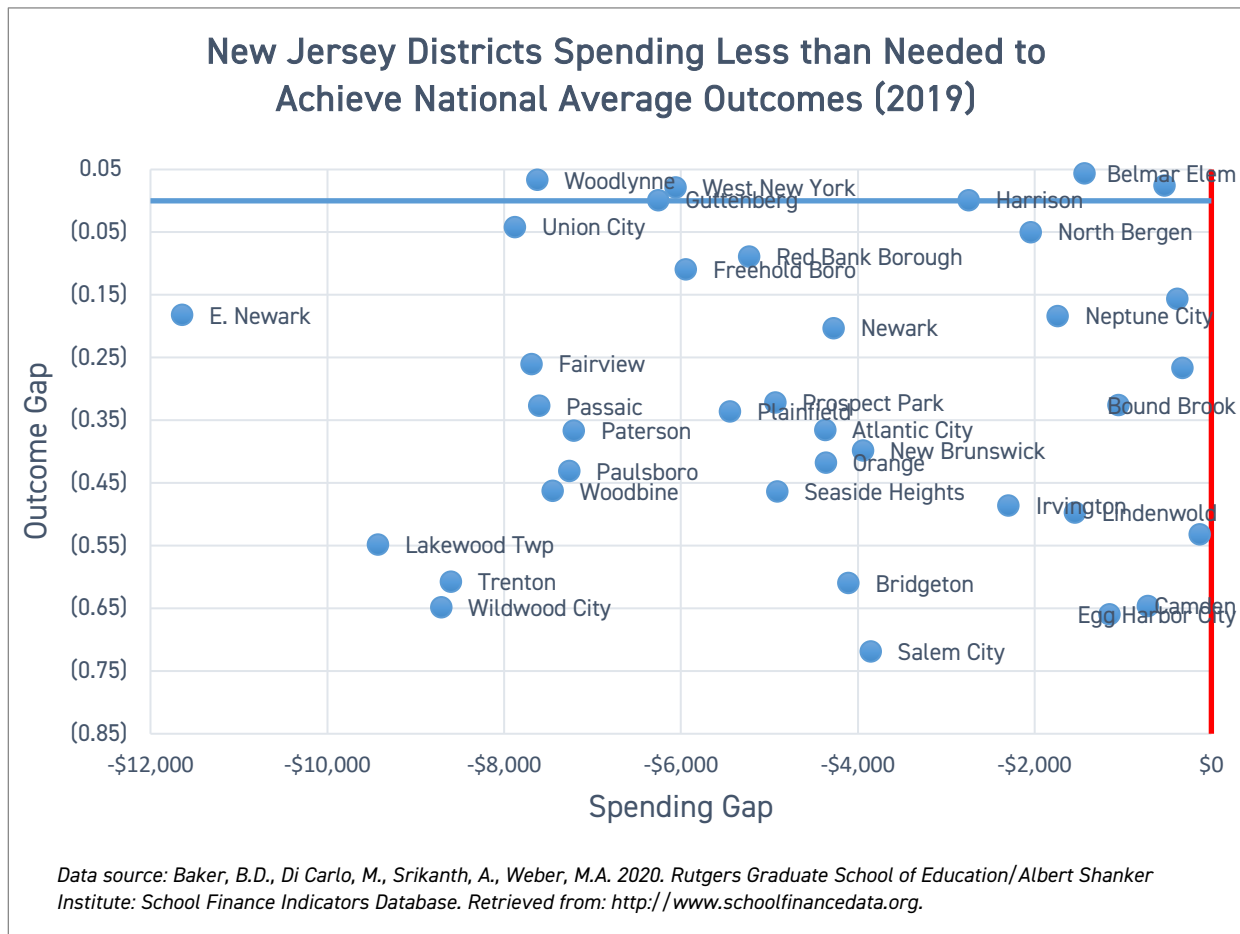
Table 2 shows the SFRA funding gaps for many of the districts identified as having the largest funding gaps under our NECM. Notably, Dover, which has a very large SFRA funding gap (over $10,000 per pupil) and a smaller but still significant NECM gap ($1,600 per pupil), presently slightly exceeds national average outcomes and does not appear in Figure 3. But Dover's student needs, which have changed dramatically over time, do warrant significant additional support from the state. Other districts with the largest SFRA funding gaps do have gaps in the NECM and, consequently, outcomes below national average. It is worth noting that many of these districts are *not* former Abbott districts: they have, therefore, never benefitted from the infusion of resources Abbott districts have in previous decades, including the 2011 restoration of funding cuts by the New Jersey State Supreme Court.

This said, former Abbott districts like Newark, Camden, Trenton, and Paterson, which have smaller SFRA funding gaps, are identified as having significant NECM gaps, even to achieve merely national average outcome levels. As stated above, there is reason to believe SFRA is setting spending targets too low: the foundation amount set as "adequate" was based on older, lower standards and was adjusted downward throughout the political process of passing the law. The finding that the NECM shows larger gaps than the SFRA simulation for these districts provides evidence that the SFRA formula does

not sufficiently address these districts' needs. Even though the NECM targets are focused on the goal of simply meeting national averages, the estimates suggest that these districts still require a substantial boost in funding to achieve this modest outcome.

Table 2: Selected New Jertsey Districts, School Funding Gaps Under Various Models

District	SFRA Adequacy Budget (Incl. Spec Ed)	NJDOE Adequacy Budget	NJDOE Gap per Pupil	SFRA Simulated Gap per Pupil	NECM Gap per Pupil
EAST NEWARK BORO	$22,464	$20,417	-$9,327	-$11,374	-$11,639
DOVER TOWN	$21,346	$19,893	-$8,586	-$10,039	-$1,600
FAIRVIEW BORO	$20,030	$18,821	-$8,746	-$9,955	-$7,687
GUTTENBERG TOWN	$21,573	$19,876	-$7,965	-$9,662	-$6,250
BOUND BROOK BORO	$21,473	$20,234	-$8,123	-$9,362	-$1,050
FREEHOLD BORO	$20,112	$18,812	-$6,565	-$7,865	-$5,938
PROSPECT PARK BORO	$19,155	$17,907	-$6,372	-$7,620	-$4,930
BELLEVILLE TOWN	$20,151	$18,167	-$5,615	-$7,599	n/a
LINDENWOLD BORO	$20,545	$19,282	-$6,101	-$7,364	-$1,541
CARTERET BORO	$20,569	$18,733	-$5,406	-$7,242	n/a
WEST NEW YORK TOWN	$21,821	$20,340	-$5,686	-$7,167	-$6,059

Conclusions

New Jersey is a state that exerts significant effort to fund K-12 education; consequently, its most affluent schools are some of the highest achieving in the nation. But the backsliding on progressivity that has characterized school funding in the Garden State over the past decade has had a severe consequence: there are still school districts that do not have the resources they need to meet basic educational goals. The National Education Cost Model (NECM) shows that a significant number of districts in New Jersey are still not spending what they need to achieve national average outcomes. These districts tend to enroll larger shares of disadvantaged and Latinx students. Many are *not* former Abbott districts; they have never enjoyed the benefits of additional resources those other districts, enrolling high levels of disadvantaged students, received through litigation.

The next report of this series addresses the issue of within-district funding inequities in New Jersey's schools. The report discusses the relative importance of within- and between-district funding disparities, and propose ways for New Jersey to conduct analyses on school-level funding differences.

Appendix: The National Education Cost Model

In the Spring of 2020, in collaboration with the Century Foundation (TCF), we released and updated[4] a detailed National Education Cost Model (NECM), which provides estimates of the per pupil cost for every district in the nation to achieve national average measured outcomes on reading and math assessments. Our model takes into consideration a number of "cost" factors including variations in student needs, such as concentrations of children from families in poverty, English Language Learners (ELLs), and children with disabilities (SWDs). The model also takes into account geographic variations in labor costs, economies of scale and population sparsity. Finally, the model estimates the costs of achieving common outcome goals assuming that districts achieve these outcomes at average efficiency levels. That is, controlling for the fact that after accounting for these other factors, some districts still spend more than expected to achieve their given outcome levels, but others spend less. We peg our cost estimates to average efficiency, or the average spending associated with achieving a given set of outcomes, controlling for other factors.

For many districts, the NECM shows that they perform "above prediction": in other words, they get higher outcomes given the characteristics of their students, characteristics of their districts, and the amount they spend. Likewise, many districts perform "below prediction": their outcomes are lower than the model would predict. This variation can encompass a number of things and should not be over-interpreted as indicating real differences in the relative efficiency of public-school districts. This may in part be the case, but we are unsure how much this is the case, since there are at least three significant categories of factors that may influence these estimates.

1. **Omitted Variables Bias**: First and foremost, cases where districts, or entire states, have spending lower than needed to achieve average outcomes, but higher than average outcomes (upper left quadrant), or vice versa, might be a result of unobserved (unmeasured, not included in model) important differences in costs, either in terms of student characteristics or other exogenous environmental factors. Our models herein are relatively simple and clearly do not capture everything that might affect cost differences, say, between schooling in New York and schooling in New Mexico. It would be implausible to determine the perfect, complete model for all districts nationally. Nonetheless the models seem to do a reasonable job at predicting cost variation in relation to outcomes and offer a huge advancement for guiding the distribution of federal aid;

2. **Measurement Error in Inputs or Outcomes** (systematic or random): The Stanford Education Data Archive takes methodologically groundbreaking steps to equate school assessments across varied state testing regimes. Our cursory review of the spatial patterns of differences between adjacent districts along state borders, however suggests that their methods and/or the underlying data, are imperfect in achieving this goal. Similar concerns exist with equating current spending measures, despite attempts by the U.S. Census Bureau and National Center for Education Statistics to provide guidance to state officials regarding specific chart of accounts codes to be included in this measure. If outcomes of a group of districts in a state are

systematically underestimated and/or spending is systematically overestimated, these districts may be misplaced in the overall distribution of districts, nationally. We have specific concerns regarding spending levels reported for New York State school districts and outcome levels of western and upstate New York districts.

3. **Differences in Inefficiency:** It is reasonable that for any two districts serving otherwise similar student populations and facing similar external cost pressures, they might achieve different outcomes even while spending the same amount. Spending the same, but achieving more (on the measured outcomes) would indicate greater efficiency in producing those measured outcomes. Ideally, we would have sufficiently complete models with sufficiently accurate and precise measures of inputs and outcomes to isolate these real differences in inefficiency. But even in this case, we have to be careful to understand what we mean by differences in efficiency. Some districts may spend more to achieve the same measured outcomes (reading and math scores grades 3 to 8) because they are spending on other things valued by their communities/constituents, such as a strong orchestra or theater program, chess, or lacrosse team. These expenditures may not translate directly to shifts in reading and math scores and thus would be "inefficient" per the model specifications herein.

Endnotes

[1] Jackson, C. K. (2020). Does school spending matter? The new literature on an old question. In L. Tach, R. Dunifon, & D. L. Miller (Eds.), *APA Bronfenbrenner series on the ecology of human development. Confronting inequality: How policies and practices shape children's opportunities* (p. 165–186). American Psychological Association. https://doi.org/10.1037/0000187-008

[2] Certainly, the pattern is not a perfect diagonal line: there are districts in the upper left and lower right quadrants and there is variation across districts in all quadrants; that is, even at the same estimated spending gap (more or less than needed, there are differences in outcomes). These variations suggests that some districts achieve higher outcomes than the model would predict given their spending, while some district achieve lower outcomes than prediction. This variation can encompass a number of things and should not be over-interpreted, especially as indicating real differences in the relative efficiency of public-school districts. This may in part be the case – but we are unsure how much this is the case, since there are at least three significant categories of factors that may influence these estimates (these factors are discussed at length in the Appendix). In brief: while there may be legitimate differences in relative efficiency of school districts, or entire states, picked up in these models, much of the variation seen in these scatterplots – for example, districts in the upper left (more efficient?) and lower right (less efficient?) – is likely attributable to omitted variables bias and measurement error. These are factors outside a school district's control; they are not indicators of inefficient practices and policies.

[3] SFRA is New Jersey's school funding law, which sets targets for "adequacy" in school funding. See Part III of this series for details.

[4] Original version: 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. Education Law Center.