Estimating the Costs of an Adequate Education in New Jersey

Recalibrating the School Funding Reform Act for the Next Decade

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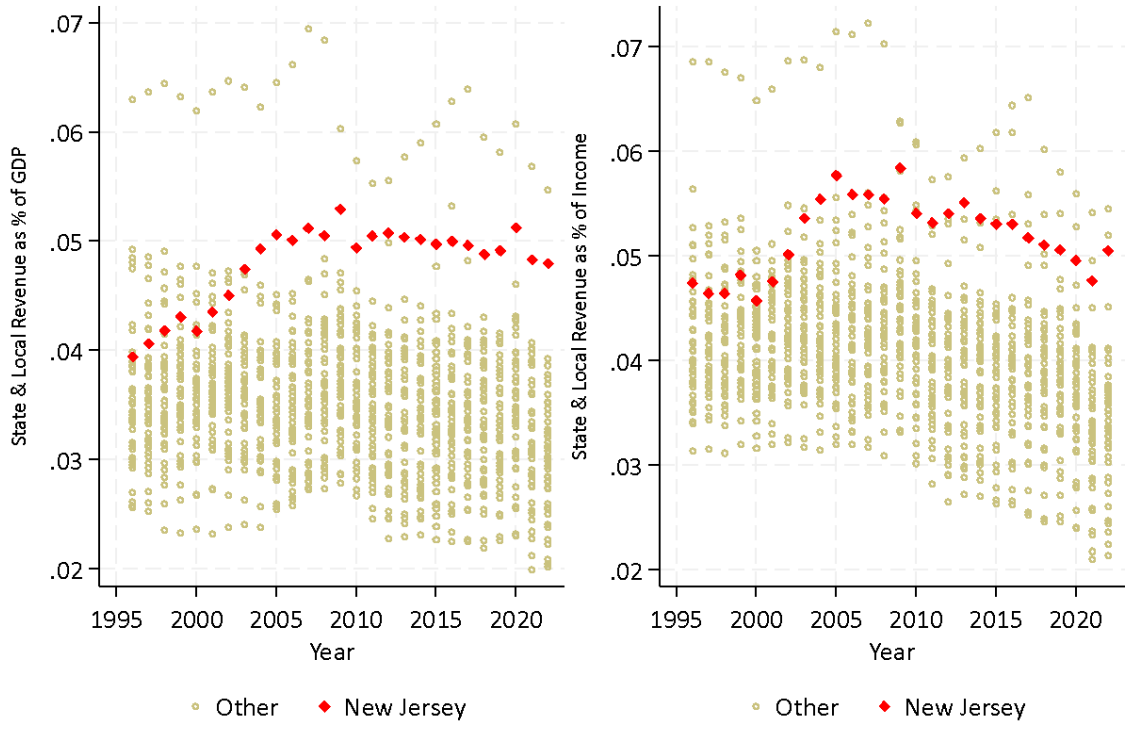
Contents

Introduction

New Jersey has long maintained one of the nation's top public education systems. The state has done so, in large part, by maintaining one of the more robust school funding formulas in the country. Figure 1 shows that New Jersey, unlike many other states, has allocated a consistently large share of its economic capacity—measured by either gross domestic product or personal income per capita—to public schooling. New Jersey remains among the highest "effort" states when it comes to state and local revenues provided to elementary and secondary education. New Jersey also ranks relatively high among states in its economic capacity (14th in GDP and 7th in income per capita), making its high effort even more fruitful for its public schools.

Figure 1. New Jersey Maintains a High Level of Effort for Financing Public Schools



This said, New Jersey does spend a smaller share of its economic productivity on elementary and secondary education than it had in the past. The state is raising less money for schools than it could if it had simply maintained pre-great-recession effort levels. In our most recent national report, we note that:

> NJ's effort was lower than its 2006 level in 7 of 7 years between 2016-2022; had effort recovered to its 2006 level during these years, total 2016-22 spending would have been $26.55 billion (13.1 percent) higher.[1]

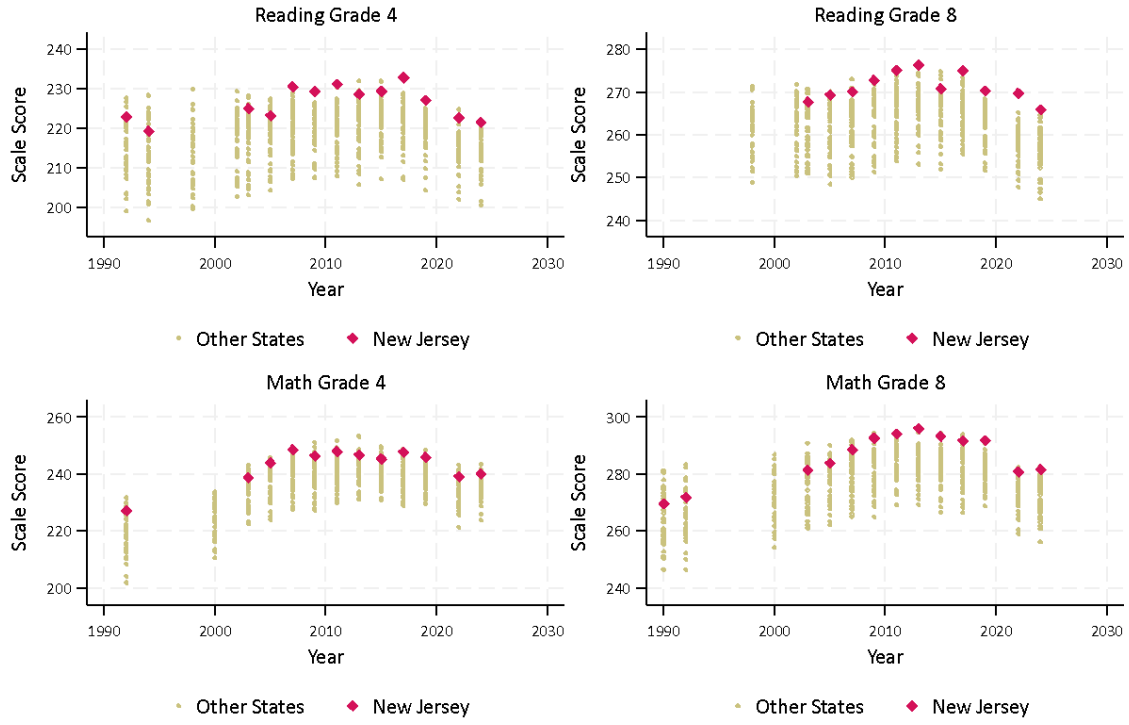
New Jersey hasn't always maintained a high level of public school funding. The state's funding effort was scaled up from around 1997 through 2005, under pressure from the state's high court.[2] New Jersey's children benefited from that scaling up of school funding; consequently, since the late 2000s, the state has been consistently among the top performers nationally on the National Assessment of Educational Progress (NAEP), particularly at the 8th grade level (after more years of exposure to higher-quality schooling).[3] Figure 2 shows the position of New Jersey among states on the NAEP reading and math assessments, in both grade 4 and 8. Notably, New Jersey students improved their position among states through the 2000s and have maintained their leading position, along with Massachusetts, in most years since. All states saw drops in NAEP performance in the post-COVID period, but New Jersey maintained its relatively high position.

Figure 2. Performance on National Assessment of Educational Progress

[1] https://www.schoolfinancedata.org/wp-content/uploads/2025/03/profiles25_NJ.pdf

[2] ABBOTT BY ABBOTT v. Burke, 710 A. 2d 450 - NJ: Supreme Court 1998 & ABBOTT BY ABBOTT v. Burke, 693 A. 2d 417 - NJ: Supreme Court 1997

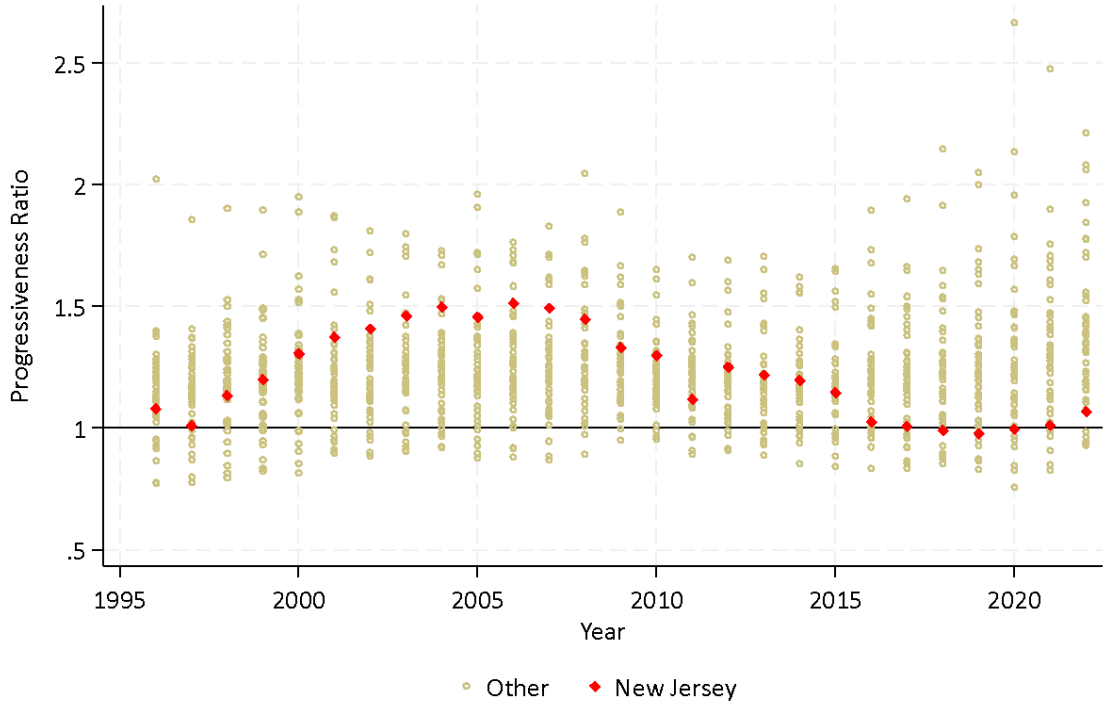
[3] https://nces.ed.gov/nationsreportcard/



Despite this academic success, New Jersey's school funding has faltered more recently in some regards. During the scaling up of funding from the mid-1990s, up to the Great Recession of 2008-09, New Jersey targeted substantial additional funding to districts serving low income and minority children. Figure 3 tracks what we refer to as our "progressiveness" index for New Jersey, among all states, over time for current spending per pupil (including federal aid). A progressiveness index of 1.0 indicates that high-poverty districts spend about the same as low-poverty districts. A progressiveness index of 1.5 would indicate that high-poverty districts spend 50% more than low-poverty districts. Of course, progressiveness alone doesn't matter much if overall spending is very low (as in states like Utah). Spending somewhat more than next to nothing does not yield an adequate public schooling system.

What we can see in Figure 3 is that New Jersey, during its period of scaling up school funding, was targeting significant additional funding to higher-poverty districts, and climbed from being below average (and "flat" with respect to poverty) in progressiveness to being a national leader in progressiveness. New Jersey held that spot until about 2007.

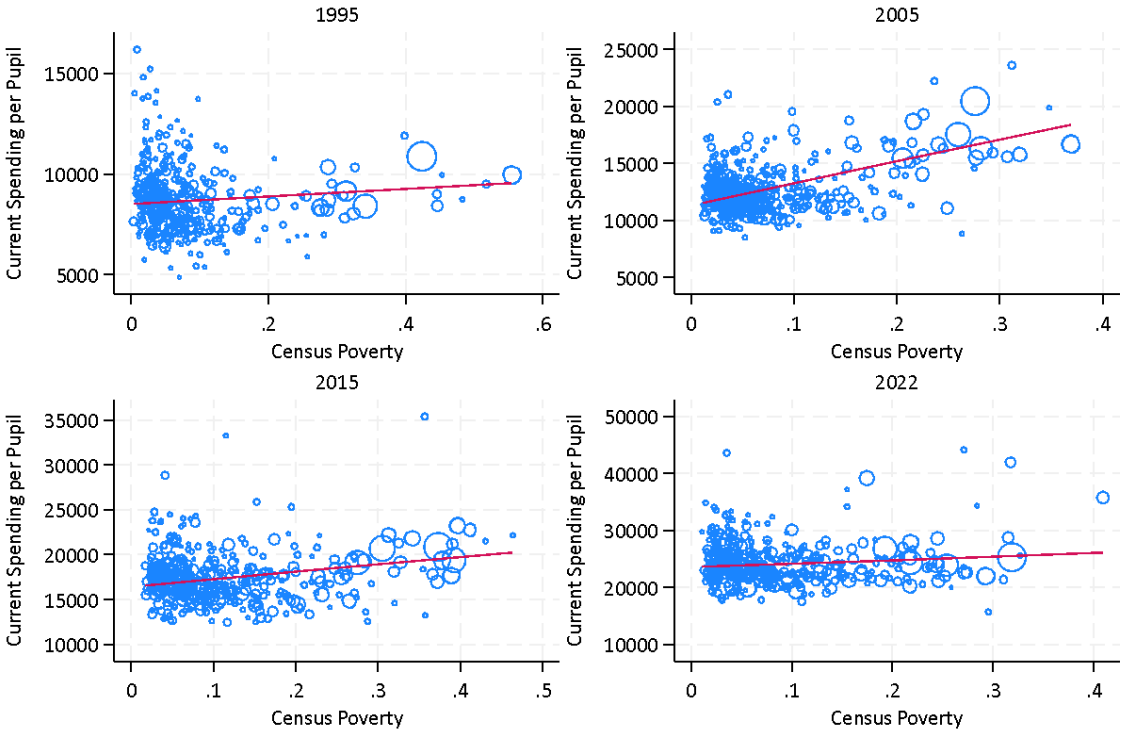
Figure 3. Progressiveness of New Jersey School Funding over Time



The shift to the School Funding Reform Act (SFRA) in 2008 started a backslide in progressiveness, which was then amplified by the Great Recession. New Jersey's school funding is now relatively flat with respect to poverty, more so than many other states. So while New Jersey remains relatively high in overall spending per pupil and effort, New Jersey school funding is no longer a beacon of progressiveness.

Figure 4 provides an alternative perspective on this problem. In 1995, small, very low-poverty districts substantially outspent high-poverty districts, leading to an overall relationship that was relatively flat. School funding reforms of the later 1990s through 2005 drove significant additional funding into high poverty districts, yielding the pattern seen for 2005. The shift to SFRA led to less progressive—less targeted funding—to begin with. But the reductions in funding of SFRA during the Great Recession led to the flattening of the distribution seen in 2015. This was not because nominal spending declined in the highest-poverty districts (it did, briefly, from 2009 to 2011, but subsequently increased). Rather, in the aftermath of the Great Recession, state funding (largely directed at high-poverty districts) lagged and low-poverty districts returned to increasing their annual spending. By 2022, New Jersey school funding was less progressive than it had been in the 1990s.

Figure 4. Relationship between Child Poverty and Current Spending Across New Jersey School Districts



SFRA was established in mid-2000s to meet early 2000s goals

The School Funding Reform Act was adopted in 2008,[4] based on recommendations provided in 2007 a report from the Department of Education,[5] which was loosely based on recommendations provided by external consultants in a report released a year prior,[6] (2006) which had actually been completed 2 years before. That report relied on data and state standards from years prior; in effect, SFRA was based on analysis and data that was already out of date when the act finally passed. Furthermore, the basic structure and elements of SFRA have remained the same to this day. Academic standards, however, have changed, requiring schools to do more and achieve more for the children they serve.[7] In addition, student populations have changed, with increased concentrations of poverty and language diversity in many schools and districts across the state.[8]

[4] https://pub.njleg.gov/bills/2006/A0500/500_I2.PDF

[5] https://www.nj.gov/education/stateaid/docs/AllChildrenAllCommunities.pdf

[6] https://www.nj.gov/education/stateaid/docs/report.pdf

[7] Baker, B.D., & Weber, M.A. (2022). *New Jersey School Funding: The Higher the Goals, the Higher the Costs*. Trenton, NJ: New Jersey Policy Perspective. https://www.njpp.org/publications/report/new-jersey-school-funding-the-higher-the-goals-the-higher-the-costs/

[8] Baker, B.D., & Weber, M.A. (2021). *Separate and Unequal: Racial and Ethnic Segregation and the Case for School Funding Reparations in New Jersey*. Trenton, NJ: New Jersey Policy Perspective.

Education Adequacy Report 2026

SFRA itself requires that the Department of Education, every 3 years, revisit and evaluate specific features of the formula and provide recommendations for any adjustments that may be needed for the underlying basic level of funding, as well as adjustments to that funding to accommodate differences in student needs and costs. The Department's recommendations are published in the "Education Adequacy Reports" (EARs); to date, five EARs have been published. We discuss the recommendations of the most recent (FY2026[9]) EAR later in this report, and provide comparisons to our own findings.

This Report

This report follows several previous ones in which we urged the State of New Jersey to pursue more thorough, rigorous analyses to identify the costs associated with meeting current standards for New Jersey children.[10] In those reports, we used our National Education Cost Model (NECM) to provide some preliminary evidence regarding changes that could or should be made to SFRA need and cost weights. More importantly, we recommended that the state work with qualified outside consultants, using their own data and similar cost modeling methods to evaluate the costs of meeting current standards and use those analyses—in the context of an Education Adequacy Report—to recalibrate SFRA.

Unfortunately, the state has not taken these steps. Instead of providing a thorough, rigorous evaluation of the costs associated with meeting current standards, with current students, to guide recalibration of SFRA, the reports have, at best, included ad hoc recommendations for adjustments to specific elements of SFRA. In the end, the state is left to the task of determining the cost of providing an adequate education without a meaningful evaluation of the available data.

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https://www.njpp.org/publications/report/separate-and-unequal-racial-and-ethnic-segregation-and-the-case-for-school-funding-reparations-in-new-jersey/

[9] https://www.nj.gov/education/stateaid/docs/ear/EAR2026.pdf

[10] Baker, B.D., & Weber, M.A. (2024). *Reforming School Funding in New Jersey: Equity For Taxpayers, Excellence For Students*. Trenton, NJ: New Jersey Policy Perspective. https://www.njpp.org/publications/report/reforming-school-funding-in-new-jersey-equity-for-taxpayers-excellence-for-students/

Baker, B.D., & Weber, M.A. (2023). *Unlocking Academic Success: Revitalizing New Jersey's School Funding Formula for Student Achievement*. https://www.njpp.org/publications/report/unlocking-academic-success-revitalizing-new-jerseys-school-funding-formula-for-student-achievement/

Baker, B.D., & Weber, M.A. (2022). *New Jersey School Funding: The Higher the Goals, the Higher the Costs*. Trenton, NJ: New Jersey Policy Perspective. https://www.njpp.org/publications/report/new-jersey-school-funding-the-higher-the-goals-the-higher-the-costs/

Other states have used rigorous data analysis to inform their school funding decisions. Researchers at the American Institutes for Research, in collaboration with Bruce Baker of the University of Miami (FL), have recently conducted several such studies in Vermont, New Hampshire, Delaware, Colorado, Oregon and Texas (in a study of community colleges' funding).[11] Studies in Vermont and Texas have informed changes to formula weights to improve equal educational opportunity, with respect to specific outcome goals. Elementary and secondary school studies now use five or more years of school level data for constructing cost models, and recent studies benefit from several advancements in data quality and methodological improvements[12].

In this report, we take what we have learned from these recent studies and apply the same methods to construct a school level cost model for the State of New Jersey. First, we review the principles behind such modeling and provide an overview of the methodological framework. Next, we apply those methods to New Jersey schools data. Finally, we compare our findings to the recommendations of the FY2026 Education Adequacy Report.

Principles of School Finance Systems

The analyses that follow are informed by a set of core principles and findings from empirical research. Most notably, money matters for the quality of schooling that can be provided. A new comprehensive, deep dive review of studies completed over the past several years in particular explains that:

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[11] Atchison, D., B.D. Baker, J. Levin, S. Fatima, A. Trauth, A. Srikanth, C. Herberle, N. Gannon-Slater, L. Junk, K.: Wallace (2023) Assessment of Delaware Public School Funding. https://education.delaware.gov/wp-content/uploads/2023/12/23-22933_1_Delaware_Full_Report-FMT-ed103023-Version-2.pdf

Atchison, D., Levin, J., Baker, B.D., Kolbe, T. (2020) Equity and Adequacy of New Hampshire School Funding: A Cost Modeling Approach: https://carsey.unh.edu/sites/default/files/media/2020/09/20-12685_nh_final_report_v10.pdf.

Atchison, D., Levin, S., Levin, J., Kolar, A., Blair, D., Srikanth, A., & Salvato, B. (2024). Equity and Adequacy of Colorado School Funding: A Cost-Modeling Approach. https://air.org/sites/default/files/2025-04/Colorado-Adequacy-Study-Final-Report-December-2024.pdf.

Brooks, C. D., Levin, J., Salvato, B., & Baker, B. D. (2025). Understanding the Cost of Providing Adequate Educational Opportunity in Oregon. https://www.air.org/sites/default/files/2025-02/Task-5-Understanding-the-Cost-of-Providing-Adequate-Educational-Opportunity-in-Oregon-Jan-2025.pdf.

Kolbe, T., Baker, B.D., Atchison, D., Levin, J. "Pupil Weighting Factors Report". State of Vermont, House and Senate Committees on Education. (2019) https://legislature.vermont.gov/assets/Legislative-Reports/edu-legislative-report-pupil-weighting-factors-2019.pdf

Levin, Jesse, Bruce Baker, Jason Lee, Drew Atchison, and Robert Kelchen. "An Examination of the Costs of Texas Community Colleges. REL 2023-142. Appendixes." Regional Educational Laboratory Southwest (2022)

[12] Baker, Bruce D.. (2025). *Framework for Evaluating & Reforming Education Finance Systems.* (EdWorkingPaper: 25-1127). Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/pa0r-n548

- **Money matters whether it's going up or down:** Increases to school funding lead to improved student outcomes and decreased in funding lead to decreases in outcomes.
- **Money matters whether that money is driven into annual operating expenditures or capital investments:** Increased funding for annual operations typically leads to better teacher wages and smaller class sizes, showing positive effects on student outcomes. Increases to capital spending, from improved classroom facilities to heating/cooling system improvements, lead to improved student outcomes, but often with a lag between when the money is raised and spent and when students have access to the improved facilities.
- **Money matters more—and has a more profound impact—for children experiencing poverty and in school districts and communities in which states have historically underinvested:** Progressive funding matters, often yielding a several-fold difference in the return on investment to spending additional dollars in previously low-spending and/or higher-poverty settings than in lower-poverty settings.
- **Money matters regardless of how changes in funding come about:** That is, whether funding increases result from legislative action, fluctuations in economic conditions, federal stimulus, local voter approval, or judicial order, increases to funding yield improvements to student outcomes.[13]

In addition, a plethora of recent rigorous studies find that increased funding not only improves student academic achievement, but also educational attainment, adult income, lower mortality, and lower crime rates.

Consistent with the findings that money matters and that money matters more for some than others are two core principles of education cost analysis and school finance reform.

- Principle #1: It costs more to achieve higher outcomes than lower ones;
- Principle #2: It costs more to achieve the same outcomes in some places than others and with some populations than others.

When considering the models and findings in this report, it is important that policymakers understand that achieving more—either in terms of higher outcome goals and standards, or in terms of a wider array of outcomes—costs more, on average. Likewise, achieving less costs less. We can use the models in this report to estimate how much more it costs to achieve more, or how much less it costs to achieve less. But the two are necessarily linked, and the desire to achieve more will typically cost more. One cannot simply mandate that more should be

[13] Baker, B. D., & Knight, D. (2025). *Does money matter in education?*. Albert Shanker Institute. https://www.shankerinstitute.org/sites/default/files/2025-01/moneymatters3rdedition_final.pdf

achieved with the same or less. Many states have adopted this reasoning over the past decade, to their own demise.

Second, and already baked into the structure of SFRA, is the notion that the costs to achieve any given level and/or range of outcomes vary across settings and children. Missing in SFRA, however, is any rigorous calibration of either what the basic costs are to achieve the desired outcomes, or how those costs vary from one child to the next, or one setting to the next.

The goal of a state school finance system is to raise and distribute the funding necessary for every school in every district to provide students with the educational programs and services needed to achieve common, adequate outcome goals. The policy conversation starts with the outcome goals and standards defined by states for what children are expected to achieve. Educational equity is attained when all participants have equal opportunity to achieve a set of common outcomes. Educational adequacy is attained when the outcomes that participants are able to achieve are sufficient for them to become productive, self-determined, and civically engaged citizens. Combining the two, an education system that is equitable and adequate provides all children with equal opportunity to achieve sufficiently rigorous outcomes.

Designing and implementing a school funding system involves a) identifying the costs of providing the system in question and b) identifying the revenue sources that can consistently, stably and equitably fund those costs over time and across settings. A well-designed school funding system, therefore, must:

1) Fully, publicly finance the costs associated with providing all eligible participants with equal educational opportunity to achieve common, adequate outcomes;
2) Be based on a system of public financing and taxation that treats taxpayers equitably and yields revenue sources that can provide stable support for systemwide costs, and can be distributed equitably across institutions serving all eligible participants.

Empirical Framework for Supporting Children's Education Rights

Figure 1 provides a road map to the empirical framework which flows from the conceptual framework. The goal of a school finance system is to deliver the funding necessary for each district and school to provide children with the educational programs and services needed to achieve common outcome goals. The map starts with outcomes: setting goals and standards for all children.

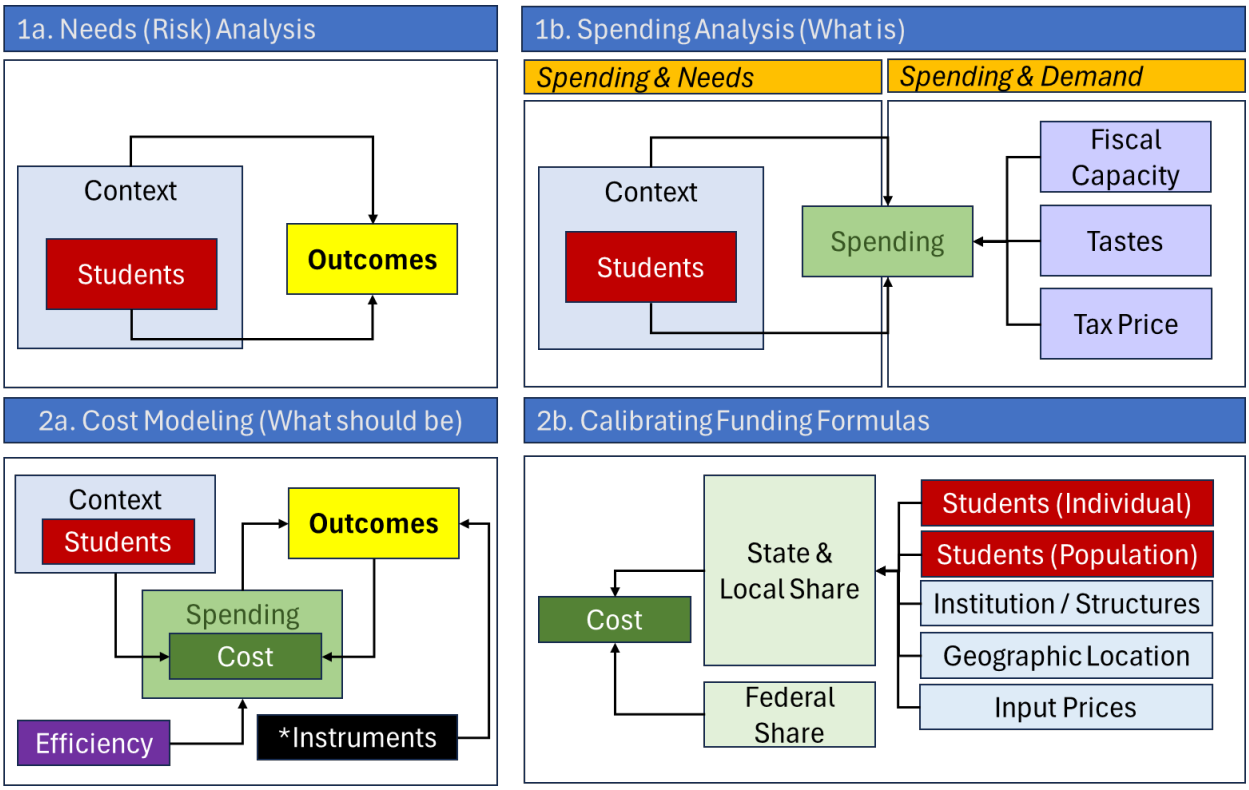
In most state school systems, and across states nationally, existing outcomes vary widely. The variation is due to vast differences in student backgrounds, the environments in which children are raised, and the settings in which they are schooled. Outcomes can also vary widely due to the failures of states to mitigate those variations. Some of these factors are within the control of public policy and schools; others are less so. The goal is to identify those factors that impede

progress on outcomes, correct those factors directly within our control, and then target resources to mitigate the adverse effects of those factors outside of our control.

Public health and public education operate similarly in this regard. Health equity is achieved when, regardless of individual backgrounds or environmental conditions, individuals have equal opportunity to live a healthy life, reducing and equalizing risks of mortality and chronic ailments that limit quality of life.[14] We can attempt to identify "risk" factors on the front end, and mitigate their effects by providing support and interventions to improve community health and wellness. Conversely, we can pay the higher price on the back end with more expensive treatments and interventions when the risk factors lead to poor health outcomes. A similar choice faces states, like New Jersey, that guarantee public education in their constitutions: states can pay for a higher-quality education up front, or suffer the negative economic and other effects that come from underfunding education later.

[14] Bernheim, B. Douglas, Daniel M. Garrett, and Dean M. Maki. "Education and saving:: The long-term effects of high school financial curriculum mandates." *Journal of public Economics* 80.3 (2001): 435-465.

Figure 5. Empirical Approach to Education Finance Analysis & Reform



1a. Needs Analysis

The first step in the process is to identify those "risk" factors, or what is more commonly referred to in education finance policy analysis as "need" factors. State school finance systems often include additional funding for three such factors:

1) Children from low-income households,
2) Children for whom English is a second language (perceived as a risk because other content delivery is primarily in English), and
3) Children with one or more learning disabilities.

Children in each of these categories tend to perform less well on commonly measured education outcomes (standardized tests, graduation rates, dropout rates). Rarely, however, is the funding that is currently attached to these categories calibrated toward equalizing their outcomes; in other words, actual outcome and spending data, employed in appropriate statistical models, are rarely used to determine how much more funding a school needs to properly serve these children.

We could simply take measures that have typically been used and apply them in the analyses (essentially skipping the first step in Figure 1). But, each of these constructs—economic disadvantage, language proficiency, and disability status—can be measured in different ways, with varied degrees of precision and accuracy. Furthermore, there may be additional measures above and beyond these (homelessness, foster care) that capture needs above and beyond

those commonly used in policy. That said, the capacity to explore possibilities under Step 1a depends on the availability of measures at the level of granularity needed (school or district). The goal in Step 1a is to identify the constructs to be addressed—the factors that most adversely affect children's educational outcomes—and the measures of those constructs that reveal the strongest relationship to those outcomes. That is, those measures that have the strongest predictive validity with respect to student outcomes. This first step, and those that follow (under 1a and 1b) use relatively simple regression models as descriptive tools to identify and illustrate the patterns of relationships in the data.[15] These models are specified as:

$$\mathbf{Outcomes_{sd} = \mathit{f}(Needs_{sd} \times Context_{sd})}$$

That is, outcomes at the school (s) level within districts (d) are determined by the need characteristics of the student population and by the context in which students are schooled, as well as the interaction between the two. Economic disadvantage, for example, might be measured at the school level by shares of children qualified for free lunch (130% family income threshold for poverty, where 100% is poverty income) or reduced priced lunch (185% threshold) under the National School Lunch Program, or at the school district level using the child poverty rate (100% income threshold) for families of children between the ages of 5 and 17 who live in the geographic school district and attend public school.[16] Economic disadvantage can also be measured by the income-to-poverty ratio of families living in the neighborhoods surrounding individual schools (though that may not track precisely with the income of families of children attending those specific schools).[17] Language proficiency might be measured either as a single category of limited English language proficiency or by levels of attainment of on proficiency standards (WIDA).[18] So too can disability status of students in schools or districts be measured at various degrees of granularity.

Constraints that guide our selection of these measures are:

- The data must be available, consistently measured, for multiple (5 or more) years;
- The data must be uniformly & consistently reported (through a centralized vetted/audited collection/source) across all entities or institutions in the analyses, ideally at the school level, but at the least, the district level;
- The data must have the potential to be used in translation to school finance policy/formula (the latter steps), which often requires that data can be made publicly available, for full transparency.

Equally important, and the starting point for this entire process, is the selection of outcome measures and setting of outcome standards. When we speak of identifying "risk" or "need"

[15] It's also important to understand that regression models here are being used as a descriptive tool with universe data (not a sample, but all actual schools and districts). The goal is simply to describe the variance explained in student outcomes, by each need factor, along with understanding the magnitude of the relationship.

[16] For documentation and data access see: https://www.census.gov/programs-surveys/saipe/data/datasets.html

[17] For documentation and data access see: https://nces.ed.gov/programs/edge/Economic/NeighborhoodPoverty

[18] For information, see: https://wida.wisc.edu/

factors, we must ask: at risk of what? In need for what, or toward what end? Ideally, we'd be able to measure the larger societal contributions—economic success and civic engagement—of those who pass through our public education systems, just as we'd like to address directly life expectancy and quality of life in health policy. In each case, there are many intervening factors affecting those longer-term outcomes, beyond and outside of our education and health systems. But, in each case, we can identify intermediate, shorter-term measures that serve as reasonable predictors, or indicators, of those longer-term goals. In education, those who perform better on assessments of academic achievement, and those who graduate high school, those with better attendance (leading to increased likelihood of success on the other two) tend to have higher educational attainment and more economic success in the years that follow. Again, we are constrained (by the first two of the three points above) in our data use and selection.[19] The goal in Step 1a is to construct a comprehensive measure of the desired outcomes and to evaluate which measures of risk or need most strongly affect, or predict, variation in that outcome measure. The measures of risk or need with the strongest predictive validity in step 1a are those that should be carried over into subsequent steps.

1b. Spending Analysis: Spending & Needs (What is)

This leads us to Step 1b. To the extent that certain factors adversely affect the outcomes of interest, more resources—more intensive programs and services—are needed to mitigate the risk posed by those factors. The specification of the model is:

$$\mathbf{Spending_{sd} = \mathit{f}(Needs_{sd}, Context_{sd})}$$

The left-hand side of Step 1b evaluates the current distributions of funding across schools (s) and districts (d) with respect to those needs – or "what is." That is, if shares of children from economically disadvantaged backgrounds are strongly negatively associated with outcomes, we should see at least some targeting of funding to schools serving more children from economically disadvantaged backgrounds. Of course, the strength of the negative effect on student outcomes might, in part, be a function of the fact that more funding is not targeted accordingly. The purposes of Step 1b is to ask this question and identify existing patterns, using regression models as a descriptive tool.

Spending at the school and/or district level in relation to both student need and contextual factors should presumably be related to spending variation, with a priori expectations regarding the direction of that relationship. Again, we recommend a simple regression approach as a descriptive tool to characterize the relationships between each need factor, and spending variation, in the context of other factors such as economies of scale, grade ranges served, and so on. This approach can be reasonably applied at the district (d) and/or school level (s), and should be similarly applied at both in order to contextualize school expenditure variation within district expenditure variation. While we typically start by looking at each need factor with respect to outcomes individually, it is important that we understand how poverty measures relate to outcomes, while controlling for other factors such as shares of children with

[19] The third constraint – potential for direct use in funding formula calculations – does not apply because the outcomes are used only for determining what factors should be used as such, and not directly included themselves.

disabilities. Other approaches comparing the average funding per child from a low-income versus non-low-income family (by calculating population specific weighted averages) are not useful in this regard and often yield misleading findings.

A school funding system where funding is higher in schools or districts with greater needs would be considered *progressive*; one where funding is lower in schools or districts with greater needs would be considered *regressive*. This step does not, however, inform us regarding how much more funding would be required to mitigate the adverse effects of each "need" factor on outcomes. That is, how progressive is progressive enough to provide equal opportunity? That comes later when we use cost models to estimate "what should be."

1b. Spending Analysis: Fiscal Neutrality & Demand (What is)

Step 1b also includes a more traditional school finance *fiscal neutrality* analysis. That is, to what extent do the spending choices and characteristics of local communities (public school districts) drive school and district spending differences, regardless of need? Literature on local public finance suggests that the demand for local public goods and services—measured by choices on how much to spend on public goods and services—is influenced by the income and preferences of the median voter and the price in taxes paid to raise an additional $1 of revenue.[20] Communities with higher income families may choose to spend more, because they can. Communities with larger shares of adults and parents with higher education may have greater preference to spend on schools. Communities with larger shares of elderly citizens without school-aged children may have less preference to spend on schools.[21] And communities where larger shares of the taxable property wealth lie in high-value commercial or industrial properties may have an easier time raising that additional $1 in revenue (because less of it falls on the median voter/homeowner). A well-designed state school finance formula should mitigate these inequities, leading to spending differences across schools and districts that are *neutral to* (or uncorrelated with) wealth and income. If children's education rights are guaranteed in state constitutions, access to those rights should not be determined by local wealth, income or preferences of local voters. Again, using a descriptive regression model:

$$\textbf{Spending (or Revenue)}_d = f(\textbf{Income}_d, \textbf{Tax Price}_d, \textbf{Tastes}_d)$$

That is, per the classic median voter model, spending or revenue at the district level is a function of income, tax prices, local voter tastes, with consideration for the role of intergovernmental aid. The right-hand side of Step 1b serves a secondary purpose for us (when estimating cost models) in identifying factors that may predict spending variation that is not

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[20] Holcombe, Randall G. "An empirical test of the median voter model." *Economic Inquiry* 18.2 (1980): 260-274.

Gramlich, Edward M., and Daniel L. Rubinfeld. "Micro estimates of public spending demand functions and tests of the Tiebout and median-voter hypotheses." *Journal of political Economy* 90.3 (1982): 536-560.

Corcoran, Sean, and William N. Evans. *Income inequality, the median voter, and the support for public education*. No. w16097. National Bureau of Economic Research, 2010.

[21] Fletcher, Deborah, and Lawrence W. Kenny. "The influence of the elderly on school spending in a median voter framework." *Education Finance and Policy* 3.3 (2008): 283-315.

associated with outcomes, or *inefficiencies*, per se. This should not necessarily be construed as "waste." Rather, some communities with high income and low tax prices may choose to spend on additional programs and services (more elaborate arts programs, electives, boutique sports like fencing, lacrosse, squash, etc.) that the community desires but may have less direct impact on the outcome measures used in our models. Because this method draws on public finance theories (and measures) applicable to local governments – or the fiscal stewards of public schooling that have taxing and budget authority – these models can only reasonably be applied at the district level. This brings us to Step 2.

2a. Cost Modeling (What should be)

Step 2 takes us from characterizing "what is" to estimating a model of "what should be." That is, cost modeling to determine the spending associated with achieving the desired outcomes for all children and across all settings. The dependent measure being modeled is spending on schools (and the children attending) which includes spending variation associated with the outcomes in question (cost) and spending variation on other community preferences and institutional choices. The goal is to determine the spending associated with achieving the desired outcomes, across all settings and children. So, in the upper left of 2a (Figure 5), we include the need or risk factors and other district characteristics like economies of scale, population sparsity, regional variation in competitive wages. These are "cost factors" in that they are a) factors outside the control of local schools or districts, that b) affect the spending needed to achieve the desired outcomes (cost).

In the lower left (purple) I include factors that might affect spending choices not directly associated with the measured outcomes, noting that the measured outcomes do not always represent the full scope of what we expect from public schooling. When making predictions of "costs" for each district, we set factors in the lower left to the state average to generate predictions of spending associated with achieving the desired outcomes, for districts of average wealth, income, tastes and tax prices, as well as additional efficiency pressures (predictors of the average mix of "other" spending). As a general model:

$$\textbf{Spending}_{sd} = f(\textbf{Outcomes}_{sd}, \textbf{Student Needs}_{sd}, \textbf{Context}_{sd}, \textbf{Input Prices}_{r}, \textbf{Inefficiency}_{d})$$

One can estimate this model both at the school (s) and district (d) level; however, one must be cognizant that school budgets, teacher salaries, and student assignment across schools within districts—as well as factors influencing taxation, state aid and revenue sources—are determined at the district level. An additional complexity in cost modeling, where spending per student is the dependent measure (the thing we are predicting) is that spending and outcomes are simultaneously determined, or exist in somewhat of a circular relationship in this complex social system. Spending affects the outcomes, but outcome goals affect the spending choices.

Researchers often attempt to evaluate how spending affects outcomes, given other intervening factors similar to ours here, in an education *production function*.[22]

One might ask, why not use such an approach here to determine how much more we'd have to increase spending to increase outcomes accordingly? While that approach seems logical, it misses one critical feature of the cost model – the importance of sorting out that portion of spending variation associated with outcome variation versus the portion driven by demand preferences and other possible determinants of *inefficiency*, including competition density and local public monitoring.[23] We can only address (and control for) that variation in our cost predictions by putting the spending measure as the dependent measure and including indirect predictors of *inefficiency* among our independent variables. When we put spending as the dependent measure and outcomes as an independent measure, we must treat outcomes as "endogenous," using what is called an instrumental variables or two-stage least squares procedure to correct for bias in the outcome measure. I follow the now standard statistical guidance across peer reviewed literature and authors over the decades.[24]

2b. Translation to Policy: Weights Modeling & Formula Calibration

My colleagues and I have learned through the process of consulting with numerous U.S. states, using cost models to inform recalibration or overhaul of state school finance formulas, that it is important that we translate the often-complex cost model into relevant, useable policy alternatives. As noted above, the cost function is a complex model that identifies the statistical relationship between spending and outcomes (at average efficiency) and can be used to predict the spending needed to achieve any given level of outcomes (at average efficiency) for each

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[22] Baker, B. D., & Knight, D. (2025). *Does money matter in education?* Washington, DC: Albert Shanker Institute. https://www.shankerinstitute.org/sites/default/files/2025-01/moneymatters3rdedition_final.pdf

[23] Duncombe, William, Jerry Miner, and John Ruggiero. "Empirical evaluation of bureaucratic models of inefficiency." *Public Choice* 93.1 (1997): 1-18.

Grosskopf, Shawna, Kathy J. Hayes, and Lori L. Taylor. "Applied efficiency analysis in education." *Economics and Business Letters* 3.1 (2014): 19-26.

[24] Duncombe, W. D., & Yinger, J. (2005). How much more does a disadvantaged student cost? *Economics of Education Review*, *24*(5), 513–532.

Gronberg, T. J., Jansen, D. W., & Taylor, L. L. (2017). Are Charters the Best Alternative? A Cost Frontier Analysis of Alternative Education Campuses in Texas. *Southern Economic Journal*, *83*(3), 721–743. https://doi.org/10.1002/soej.12173

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. https://doi.org/10.17310/ntj.2004.3.05

Zhao, B. (2023). How to Design a State Education Aid Formula Using a Regression-based Estimate of the Cost-capacity Gap: The Case of Connecticut, USA. *Journal of Educaiton Finance*, *48*(4), 349–378.

school or district in a state (or nationally) based on the children they serve and their geographic and economic context. It is possible to take the per pupil cost predictions generated by the cost model, and approximate those cost predictions with a weighted foundation aid formula. Student population and district characteristics used in weights models should be as simple as plausible, while approximating, as closely as possible, cost targets. Measures used in policy – written into state (or federal) finance formulas – should be a) publicly available via audited government sources, b) annually updated, and c) explain the vast majority of cost variation identified in the cost model. [25]

The cost predictions from the previous step include spending of revenues from state, local and federal sources. Because we are focused on state and local funding, we start by subtracting the *usual* (in non-emergency, e.g., pre-COVID times) rates of federal contribution from the cost targets. Next, we identify a set of measures (perhaps those used in the current funding formula if that formula contains the "right" factors) that may be used to approximate, or predict, our cost model estimates (with federal aid removed). This process involves estimating what we call a "weights" model which helps us determine what weight (or multiplier) would need to be applied to current (or common) factors, and with what base level of funding, in order to fund equal opportunity for all children. We can then take the weights and base funding from our weights models and construct a funding model applying those weights (and base) to each district to generate their adjusted foundation (state and local) funding targets. Finally, we can calculate the equitable state and local shares each district would be required to contribute toward their respective adjusted foundation targets.

$$(Cost_d - Federal\ Contribution_d) = f(Needs_d, Context_d, Input\ Prices)$$

Alternatively, we can, as we have recently, estimate a national model and craft a new formula for allocating federal aid across schools and districts to provide equal educational opportunity nationwide.[26]

[25] See Levin et al. 2022, who explain:

- The measures must be consistently and regularly collected on at least a biennial basis to allow for alignment with the frequency with which community college funding is determined in Texas.
- The measures must be publicly available, such that the formula built upon them is transparent and replicable.
- The measures must be understandable to policymakers.
- The measures must predict the vast majority of the explained variation in the dependent variable used in the education cost function model (spending).

[26] Baker, Bruce D., Matthew Di Carlo, and Mark Weber. "Incentivizing Equity: A New Way to Distribute Federal Aid and Spur Adequate Funding for All." *American Educator* 47.1 (2023): 26-30.

Findings

Here, we summarize the findings of the analyses outlined above. We construct a data set including over 2,400 New Jersey schools with data from 2019 through 2024. Data include school level expenditure data,[27] school level enrollments and demographics (from school report cards database),[28] district level expenditures,[29] and state aid formula allocations.[30] We also included school and district level data on economic, demographic and geographic context from the National Center for Education Statistics (NCES) Common Core of Data (CCD).[31] These include the Comparable Wage Index for Teachers[32] and Neighborhood Poverty Index[33] from the NCES EDGE system.

We start by constructing a comprehensive index of outcome measures and modeling student characteristics associated with those outcomes. Then, we construct alternative versions of school spending measures, with district expenditures allocated to schools, and evaluating current patterns of spending variation. Finally, we estimate a model for projecting the per pupil costs for all New Jersey schools to meet common goals on the comprehensive outcome measure and translate that model into a series of pupil weights which can be used in a funding formula.

Risk Modeling

Outcome Index

We begin by exploring outcome measure options across New Jersey schools and constructing an index combining various outcome measures into what we refer to as an "outcome factor score." The intent behind combining multiple outcome measures into a single score is to create a more robust measure of school performance that reflects a broader set of educational goals than any single outcome measure. To construct the outcome score, we conducted confirmatory factor analysis using a structural equation model that treats the overall outcome measure as a latent (i.e., unobserved) variable and estimates the latent variable to best fit the data. Rather than make an arbitrary decision to weight each outcome equally or choose another arbitrary weighting scheme, the model uses the existing variation in outcomes across each measure to identify the relative importance of each measure to the unobserved aggregate outcome score. Another advantage of this approach is that the statistical program used to construct the factor

[27] https://www.njschooldata.org/2022-2023/state/detail/perpupil?lang=EN

[28] https://www.njschooldata.org/2022-2023/state/detail/overview & https://rc.doe.state.nj.us/download

[29] https://www.nj.gov/education/guide/

[30] https://rc.doe.state.nj.us/download

[31] We use our previously constructed panel of these data from: schoolfinancedata.org.

[32] https://nces.ed.gov/programs/edge/Economic/TeacherWage

[33] https://nces.ed.gov/programs/edge/Economic/NeighborhoodPoverty

score can appropriately generate a factor score even when individual measures are missing for some schools. For example, only schools serving Grade 12 students would be expected to have a graduation rate reported.

We construct two alternative outcome factor indices, which use measures of: a) English Language Arts (percent met or exceeded), b) Math (percent met or exceeded), c) chronic absence rate, d) dropout rate, and e) graduation rate. One version includes, and the other excludes, dropout rates. We also construct an evenly weighted index of the average z-scores (values converted to standard deviations around the mean) for all of the same measures. For this index we flip the sign of those measures like dropout rates and chronic absence, where high is bad and low is good, so that they run in the same direction as other measures (for calculating an average).

Table 1 summarizes the correlations between each individual outcome measure and our three overall measures: 1) outcome factor, excluding dropout rates, 2) outcome factor 2, including dropout rates, 3) average z-score of all outcomes. Each of the overall indices is most strongly associated with proficiency rates in English Language Arts and Math. They are also, however, quite strongly associated with graduation rates. When dropout rates are included in the outcome factor, they are, as one would expect, more highly correlated with the outcome factor. Outcome Factor 2 and the average z-score for outcomes are most highly correlated across all outcomes (as one would expect since they include all other outcome measures).

Table 1. Correlations among Outcome Measures

	ELA (z)	Math (z)	Graduation Rate (z)	Dropout Rate (z) (-)	Chronic Absence (z) (-)	Outcome Factor 1	Outcome Factor 2
Math (z)	.88						
Graduation Rate (z)	.63	.47					
Dropout Rate (z) (-)	.47	.32	.72				
Chronic Absence (z) (-)	.61	.57	.62	.54			
Outcome Factor 1*	.99	.93	.70	.46	.68		
Outcome Factor 2**	.99	.93	.72	.61	.69	1.0	
Z_Outcomes	.97	.96	.86	.64	.64	.98	.98

*excludes dropout rate

**includes dropout rate

Economic Disadvantage Index

In recent and ongoing work, we have found it useful to construct alternative measures of economic disadvantage, in part due to irregularities in data on shares of children reported as qualifying for free or reduced priced lunch under the National School Lunch Program. Two problems commonly occur with these data, making them more difficult to use in conducting analyses of risks and costs and, as a result, making them more difficult to use in a school funding formula to drive appropriate amounts of funding to students in need. First, where the

data continue to rely on self-identification, reporting rates tend to erode in accuracy for schools where over 80 percent of students qualify for free or reduced price lunch. Second, where schools participate in community eligibility (universal enrollment for all students regardless of eligibility), data often simply report 100 percent of students as qualifying, when in fact many schools actually have only 60 to 100 percent of students who are eligible. In Appendix A, we provide technical detail on a regression-based approach we use to construct an economic disadvantage index using data on a) rates of children qualified for free lunch, b) neighborhood poverty, and c) school racial composition (percent Black and percent Hispanic).

Outcomes and Needs

Figure 6 shows the relationship between our economic disadvantage index and Outcome Factor 2 (all components), and rates of students qualified for free or reduced lunch and the same outcome factor. Visually, both relationships appear reasonably strong. Our Outcome Factor Score seems more clustered at its high end, around .7, whereas subsidized lunch rates appear more spread across the distribution.

Figure 6. School Spending and Economic Disadvantage

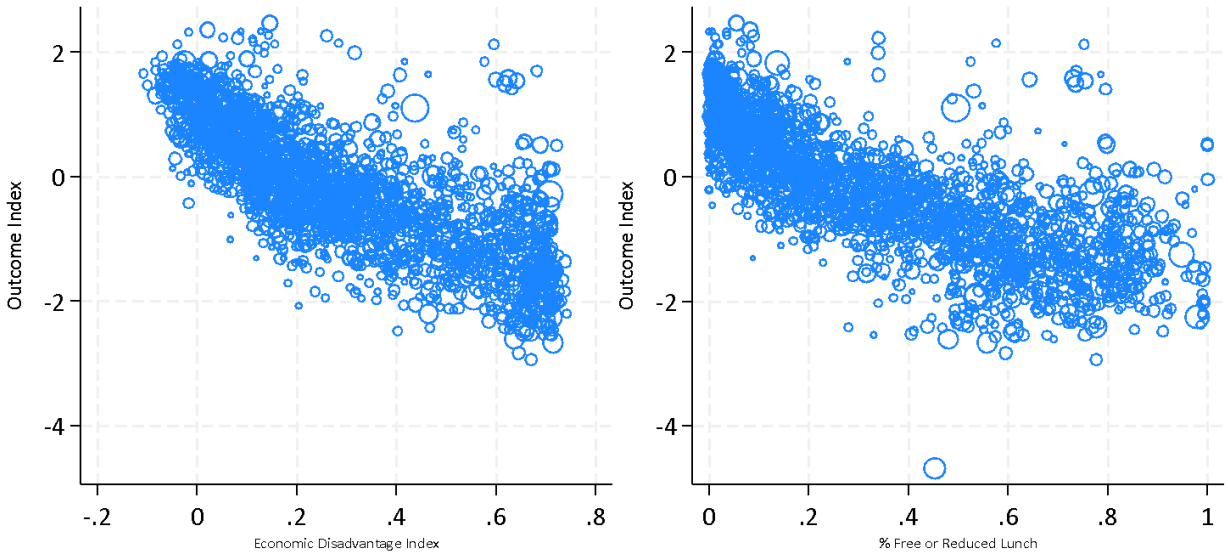


Table 2 provides our risk/need models. In the first model, we use our EDI. In the second model, we use the share of children qualified for free lunch. In the third we include racial composition. All 3 models include measures of the share of children with disabilities and share of multi-lingual learners. The models also each include the share of children in middle grades and in secondary grades, which may be associated with differences in our outcome index. The goal here is to identify which collection of measures of student needs explain the greatest amounts

of variation in our outcome measures, such that targeting resources based on those measures might mitigate outcome variation. In Table 2, the model using our EDI explains marginally more variation in the outcome factor index than either of the other two models, including the one that includes racial composition. This may be due to the inclusion of the Neighborhood Poverty Index in the construction of our EDI. Whatever the reason, these findings lead us to lean toward using the EDI in our cost models and potentially as a factor for weighting in a revised formula.

Table 2

		Model 1		Model 2		Model 3	
		coef	**se**	**coef**	**se**	**coef**	**se**
Student Characteristics							
	Economic Disadvantage Index	-2.898***	0.031				
	%Free Lunch			-2.434***	0.030	-1.476***	0.053
	%Black					-1.289***	0.048
	%Hispanic					-0.532***	0.049
	% with Disabilities	-0.460***	0.066	-0.610***	0.069	-0.556***	0.067
	%Multilingual Learners	-0.751***	0.069	-1.170***	0.071	-1.558***	0.082
Grade Distribution							
	% Grades 6 to 8	-0.098***	0.020	-0.114***	0.020	-0.130***	0.020
	% Grades 9 to 12	-0.194***	0.016	-0.282***	0.016	-0.266***	0.016
Year							
	Year=2019						
	Year=2020	-0.003	0.021	-0.000	0.022	0.002	0.021
	Year=2021	-0.076***	0.021	-0.064***	0.022	-0.038*	0.021
	Year=2022	-0.153***	0.021	-0.140***	0.022	-0.097***	0.021
	Year=2023	-0.096***	0.021	-0.083***	0.022	-0.040*	0.021
	Year=2024	-0.003	0.021	0.007	0.022	0.039*	0.021
Constant		0.889***	0.019	0.799***	0.020	0.853***	0.019
Number of observations		14,654		14,708		14,708	
R 2		0.511		0.471		0.496	
note: *** p<0.01, ** p<0.05, * p<0.1							

Spending Modeling (What is)

The next step in our process is to evaluate whether and to what extent existing spending across schools and districts varies rationally with respect to student needs. This process starts by constructing our measure of school level spending.

Measuring spending

The goal of the analyses herein is to estimate the spending levels needed to achieve desired outcomes. To do so, we must start by understanding what schools and districts are currently spending for the outcomes they are achieving, with the students they serve. The end goal is to determine what level of funding a state formula should ensure is available for all schools. For a state formula to be *adequate* it must fund all of the things a district or school needs to do in order to serve their students. Some of those expenditures occur directly at the school level

(teacher pay, materials, supplies and equipment, school administration and support staff), but others are not directly attributed to schools or support services that support children across schools (central administration, districtwide plant management, transportation, etc.).

New Jersey, like most states, has developed a school level expenditure report under federal requirements, with data starting in 2018. New Jersey's school level expenditure reports include expenditures that are "attributed" (pay directly for school site expenses) to specific school sites and district expenditures that are "allocated" to school sites (by formula). New Jersey also reports district level expenditures in a separate reporting system (the Taxpayers Guide To Education Spending[34]). These are a more inclusive, comprehensive measure of district expenditures.[35]

Figure 7 shows the average a) school level attributed expenditures (royal blue), b) school allocated district expenditures (light blue), and c) the margin of additional expenditures not included in school expenditure reports (gray), for the average of total spending per pupil in the Taxpayers' Guide. Over the years, the state has improved school expenditure reporting to attribute a larger share of school expenditure data to specific schools. However, the additional district margin (difference between school expenditure reports and taxpayers guide) has grown. Additionally, we have specific concerns that expenditure reports of charter schools, especially those operated under major management companies, fail to fully account for administrators and other employees compensated directly by the private management company, and that these expenditures are not fully captured in management fees. To reiterate, an adequate and equitable school funding formula must ensure that districts can meet all necessary costs to serve their children, with many of those costs falling in the gray portions of the bars.

[34] https://www.nj.gov/education/guide/2024tges.shtml

[35] Including: state payments on behalf of districts for pension, social security, and post-retirement medical; transportation costs (including students transported to nonpublic and charter schools); judgments against the school district; all food service expenditures (including those funded by school lunch fees); capital outlay budgeted in the general fund (facilities and equipment); special revenues supported by local, state, and federal revenues (i.e. preschool, IDEA, Title I); tuition payments by the district to other private and public school districts for the provision of regular, special, and preschool education services (charter school students and their associated costs are only included in the charter school in which they are being educated); debt service for school debt; and an estimate of the district's share of the debt service the state is paying for school construction bonds issued for school construction grants and School Development Authority projects.

Figure 7. School and District Spending

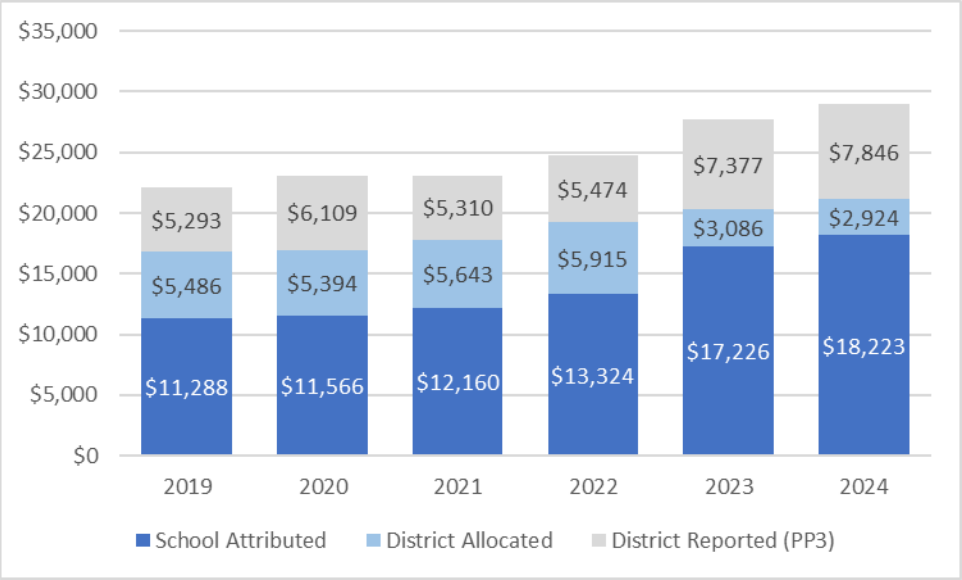


Figure 8 presents the relationship between our EDI and our school level expenditure figure (blue portions of Figure 7), next to the share of children qualified for subsidized lunch and our school level expenditure figure. What Figure 8 shows is that there is very little systematic relationship between school spending and either primary measure of student needs; however, many other factors that drive school spending (and may be correlated with student disadvantage) are excluded. The regression models that follow include some of these factors; consequently, they explore these relationships more thoroughly.

Figure 8. School Spending and Economic Disadvantage

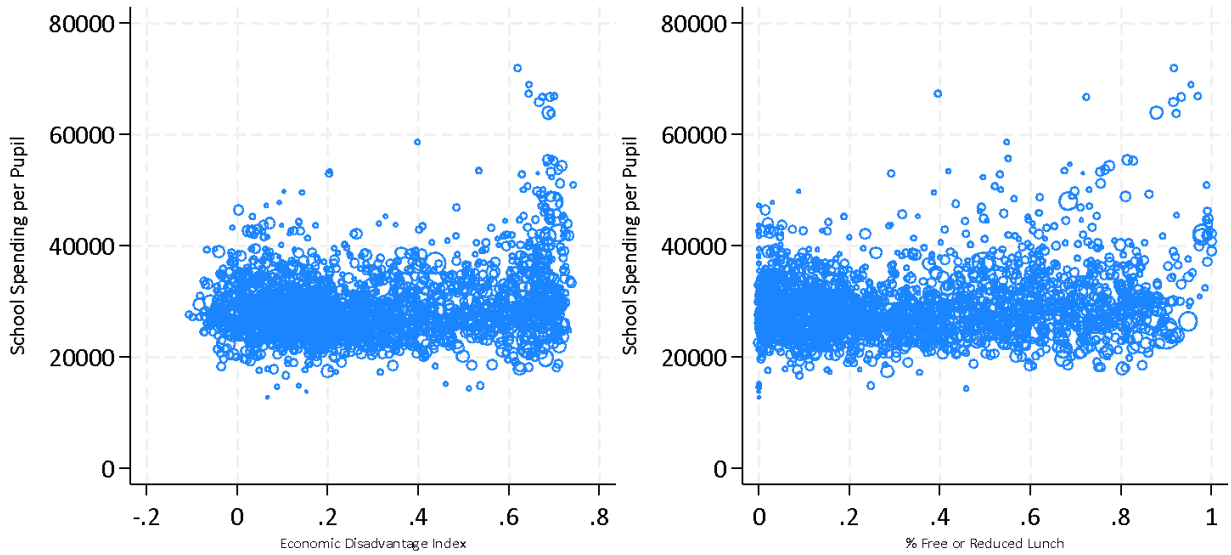


Table 3 summarizes our spending models, evaluating how existing school site spending varies with respect to a) student needs, b) grade range distributions, c) school and district size, d) population density, e) regional competitive wage variation, and f) over time. These models tell us how current spending varies with respect to needs, or *what is.* The first model suggests that a full 1 unit change in EDI is associated with just over $3000 more in per pupil spending. This is equivalent to what we call an *implicit weight* of 23% (3,253/14,090). The implicit weight on children qualified for free lunch (the second model) is slightly smaller, despite SFRA including a weight that ranges from 47% to 57%. The formula weight is being muted by the actual revenue raising and school spending behaviors of New Jersey school districts; in other words, because low-poverty districts spend more than what SFRA requires, the implicit weight for free lunch is lower than the SFRA weight. That said, at least the underlying pattern is somewhat progressive with respect to either subsidized lunch or our EDI.

The implicit weight on multilingual learners is slightly smaller than the implicit weight on EDI. But again, the relationship is positive – or in the right direction with respect to expected cost differences. The implicit weight on children with disabilities is much larger at over 2.0, which is to suggest that the average child with disabilities is receiving 3 times the base expenditure ($14,090) in this model.

Again, these are the patterns of expenditure variation that presently exist, and not necessarily what would be needed to provide equal educational opportunity for all children to achieve common outcome goals. However, it is important that existing patterns of variation generally run in the right direction, even if not large enough. This likely reduces the cost of further adjusting spending to achieve equal opportunity.

Table 3

		spend_1		spend_2		spend_3		spend_4	
		coef	**se**	**coef**	**se**	**coef**	**se**	**coef**	**se**
Student Characteristics									
	Economic Disadvantage Index	3,253.073***	234.349					3,883.600***	246.097
	% Disabilities	28,408.159***	493.572	28,549.717***	570.412	28,380.869***	569.838	24,223.009***	590.057
	%Multilingual Learners	3,022.427***	514.129	3,849.765***	588.410	4,436.053***	688.415	3,251.564***	535.750
	%Free Lunch			2,959.890***	246.698	276.143	442.967		
	%Black					3,349.255***	403.480		
	%Hispanic					1,781.803***	414.565		
Grade Distribution									
	% Grades 6 to 8	165.047	145.588	217.391	168.413	242.176	168.688	676.432***	158.230
	% Grades 9 to 12	1,380.243***	115.628	1,476.345***	133.538	1,406.287***	134.983	2,102.757***	143.240
School Size									
	Under 100							6,796.466***	955.205
	101 to 300							1,978.634***	194.814
	301 to 600							704.836***	122.997
District Size									
	Under 500							2,750.199***	271.073
	501 to 1,500							965.597***	145.679
	1,501 to 2,000							-90.817	187.560
Pop Density <500 / sq mile								184.528	162.850
CWIFT (NJ Adjusted)								5,546.357***	759.398
	Year=2019								
	Year=2020	173.731	154.997	170.071	180.283	163.417	179.879	114.970	156.848
	Year=2021	1,040.668***	155.338	1,028.996***	180.092	953.334***	180.072	1,076.371***	157.249
	Year=2022	2,497.618***	155.812	2,479.597***	180.493	2,357.067***	181.045	2,344.416***	159.212
	Year=2023	3,363.228***	156.175	3,470.889***	180.695	3,348.458***	181.167	3,488.859***	160.357
	Year=2024	4,237.965***	156.285	4,206.643***	180.824	4,116.253***	180.862	4,088.672***	156.417
Constant		14,090.094***	141.036	14,089.825***	161.648	13,934.927***	162.880	6,691.942***	897.222
Number of observations		14,687		14,741		14,741		14,369	
R2		**0.256**		0.207		0.210		**0.276**	
note: *** p<0.01, ** p<0.05, * p<0.1									

Cost Modeling (What should be)

Here, we discuss the findings of our cost modeling. Table 4 displays the results of the preferred cost model specification. Model estimates find that a) higher outcome expectations come with higher costs (the "Outcome Factor" coefficient is positive), and b) costs associated with any given outcome level are higher in schools with larger shares of low income, black or Hispanic students who are English language learners or children with disabilities (all of these coefficients are positive). We also find that costs are higher where shares of ungraded students (associated with disability placements) are greater, and there exists spending variation by grade range distribution.[36]

We also find that costs are higher in smaller schools and smaller districts, and where population density falls below 500 per square mile. Whether these findings warrant cost adjustments in a funding formula, however, depends on whether these schools and districts are small by choice or small by necessity.

[36] The grade level estimates may or may not be legitimately related to "cost," as additional spending in the upper grades may be for programs that do not directly affect the outcome measure but are still deemed important.

Table 4

DV=(ln) spending per pupil	Coefficient	r.s.e	P>t
Outcome Factor	0.188	0.025	*
Student Population			
% Free Lunch	0.267	0.048	*
% Black	0.481	0.055	*
% Hispanic	0.185	0.039	*
% ELL	0.444	0.057	*
% SWD	2.019	0.200	*
Grade Distribution			
% Ungraded	0.302	0.113	*
% Grades 6 to 8	0.083	0.012	*
% Grades 9 to 12	0.207	0.016	*
School / District Size			
School <100 Pupils	0.099	0.069	
School 101 to 300 Pupils	0.054	0.015	*
School 301 to 600 Pupils	0.030	0.009	*
District <500 Pupils	0.118	0.018	*
District 501 to 1500 Pupils	0.066	0.011	*
District 1501 to 2000 Pupils	0.047	0.015	*
Density <500 sqmile	0.082	0.013	*
Herfindahl Index	-2.757	1.398	**
Charter Share (District)	0.679	0.079	*
Private School Share (District)	0.138	0.048	*
Comparable Wage Index (NJ Based)	-0.362	0.098	*
Time	0.044	0.001	*
Constant	9.933	0.090	*
Hansen J p-value	0.199		
Partial F (instruments)	75.170		
Number of obs	13,236		
Number of clusters (schid)	2,281		

*instruments include the average of the nearest (by linear distance) 5 schools % Hispanic population and Income to Poverty Ratio (Neighborhood Poverty Index)

With our efficiency measures, we find that increased competition density of districts in a geographic space (Herfindahl index) leads to lower per pupil spending toward achieving the same outcomes: in other words, improved efficiency. We caution, however, that this fragmentation of districts in New Jersey is often coupled with racial segregation and increased costs associated with racial isolation in Black and Hispanic majority districts. An interesting, though not entirely unexpected, finding is that increased charter enrollment shares within a district lead to higher costs (decreased efficiency) toward achieving similar outcomes. Increased private school enrollment shares have similar but smaller effect. Note that when making cost predictions, these factors are held constant at statewide averages. But this may be an unfair assumption for districts where charter expansion has been imposed on them, externally inducing less efficient management and allocation of resources.

Figure 9 shows the projected linear relationships between a) current spending (per the measure used in our school spending models) alongside b) projected per pupil costs at current average outcomes (blue) and c) projected per pupil costs at an increase of 1 standard deviation above current outcomes. Recall that New Jersey's current average outcomes on national assessments are among the top states in the country. Such a standard may be reasonable to pursue for all children in the state, where approximately half already achieve or exceed that standard at current spending levels. Figure 9 indicates that higher poverty schools will likely need a substantial funding boost to achieve that standard.

Figure 9

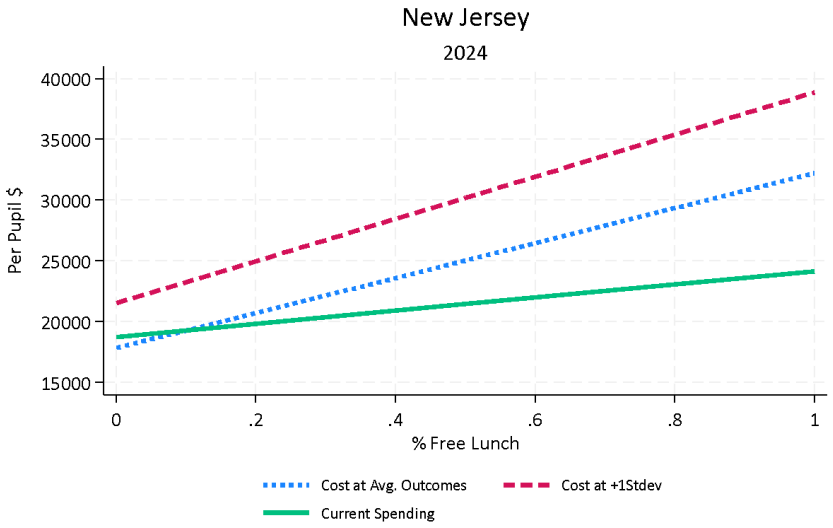
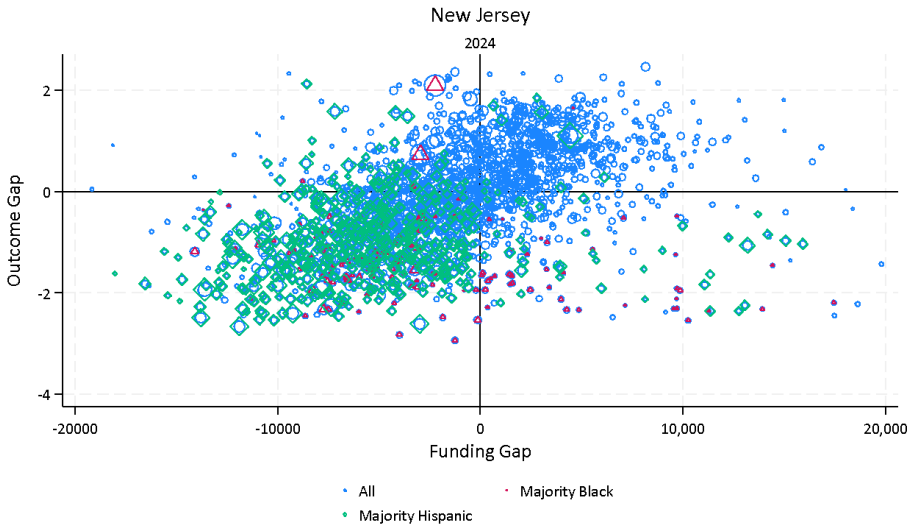


Figure 10 shows an alternative perspective: the relationship between funding gaps (with respect to the cost to achieve current average outcomes) and outcome gaps (with respect to that same standard). Schools to the right of the vertical (0) line are schools where current spending is estimated to meet or exceed spending needed to achieve average outcomes, while schools to the left of the vertical line are those where spending is less than needed to achieve current average outcomes. The horizontal line identifies current average outcomes. One notable feature of this plot is that, on average, schools with more adequate funding have higher outcomes and schools with less adequate funding have lower outcomes.

An additional feature of this graph is the highlighting of school racial composition – green identifying majority Hispanic and red identifying majority Black schools. The upper right quadrant – schools with sufficient funding and above average outcomes – includes very few majority Black or majority Hispanic schools, while the lower left quadrant includes mostly majority Black and majority Hispanic schools.

There are a number of schools in the lower left and upper right. In the lower right are schools predicted to have sufficient spending but underperforming. These schools may be truly inefficient, or our models may have not fully captured their costs. Also, we treated charter school enrollment share as a controllable "inefficiency" variable by setting it to average. As such, schools in a district where a larger charter enrollment share has been imposed upon them may appear less efficient (because they cannot, in fact, control the share of enrollments taken up by charter schools in their space, or the effects on their resource allocation). Similar anomalies appear in the upper left, which are schools projected to not have enough funding to achieve average outcomes, but still exceed those outcomes. That is, they are more efficient than average. But we note that at least for some major charter school networks, our measures of school spending are incomplete in that they fail to capture those expenses paid for by management companies, or staff allocated directly by private management companies (administrative salaries, etc.). Regardless, our model provides a relatively strong basis for understanding how funding gaps relate to outcome gaps and which schools require more resources to provide their children equal educational opportunity.

Figure 10



Weights Modeling: Translation to Policy

Here, we walk through the process we have used in our prior work with several other states to translate the cost model to a weighted student funding formula. We test a variety of options in this section. One step we have typically taken in translating the cost model to a funding formula is to assume that the state aid formula is only responsible for determining the state and local

share of funding. Federal funding contributes to the outcomes and is included in the spending in our cost models. But the state should guarantee the state and local share, to which federal can be added. Federal aid is a relatively small share in New Jersey and, as in other states, goes in larger shares to districts serving higher-poverty populations, with very little going to districts and schools with low-poverty concentrations. As such, removing federal funding from our weights models most likely has the effect of reducing the weight the state must place on measures of child poverty (because federal aid will make up the difference). Because the future of federal aid is uncertain, we run models in which we remove pre-COVID average federal aid and models in which we assume the state will have to make up the difference for lost federal aid (not removing federal aid from state responsibility).

We also note that we are concerned that the measure of school spending per pupil used in our cost models may not fully capture all of the things schools and districts must pay for to achieve their current outcomes (as evidenced in Figure 7). District total spending includes an additional >$7,000 per pupil in recent years. As such, we estimate an alternative set of weights models in which we layer on the additional district overhead (from Figure 7, gray portion).

We run the following iterations for our weights models:

- With and without school level federal funding (based on pre-COVID averages);
- With our original school level funding (plus district allocated overhead) measure vs with additional overhead to match total district per pupil spending (TGES);

Multiplicative and Additive

We have, in several other recent studies, used multiplicative weights models because they more fully predict our per pupil cost estimates. The goal in this "weights" modeling step is to identify a set of factors that can be used in a funding formula to drive the right amount of funding to each school and district to provide equal educational opportunity to all children. The weights model is intended to be simpler and more straightforward than the cost model itself. The weights model is intended to use data that can be, or already are, collected and audited regularly by the state. The goal of the weights model, then, is to emulate the cost model; therefore, the weights model selection is based on the extent to which the weighted formula can approximate the cost model predictions.

SFRA combines additive and multiplicative elements. Grade enrollment weighted pupils are calculated through an additive process. Need weighted pupils are also calculated through an additive process. The SFRA formula then multiplies these differently weighted pupils times each other and times the geographic cost adjustment (GCA) to determine the adequacy budget. We employ a similar but alternative process using our weights models. In addition, when we

estimate our weights models, we roll our school level data up to the district level, because state school funding formulas allocates aid to districts, not schools directly.

Table 5 provides our Poisson regression based multiplicative models, both including and excluding federal aid, and at both the current average performance standard and the 1 standard deviation increase performance standard. These models include a "base aid" figure and pupil weights, for which we will illustrate how they would be applied. A few general points:

- Increasing the performance standard, for the most part, increases the base funding required, but has less effect on the weights to be applied to that base.
- Excluding federal aid, for the most part, has little effect on the base, but reduces weights on factors such as child poverty or our economic disadvantage index.

The base figure represents the cost per pupil weight when all student needs are at 0 and, in this case, where all students are in elementary grades and the district is not small or in an area of low population density. Low-need districts receive very little federal aid, which is why the base is not affected much by including or excluding federal aid in the model. The base cost per pupil for current average performance, with or without federal aid included, is just over $16,000. When the outcome goal is raised, the base cost increases to over $19,000.

The weight to be applied to our economic disadvantage index is around 2.0 when including federal aid and reduced to approximately 1.90 when excluding federal aid. Other weights are less affected by removal of federal aid, as would be expected. The model does identify weights for small districts and districts in more sparsely populated areas, something not currently included in SFRA. Various model attempts did not find the comparable wage index for teachers to be a useful tool for adjusting labor market costs.

Table 6 displays the shift in base if we include a more comprehensive measure of district spending (per the TSEG total spending per pupil definition). To accommodate total spending per pupil, the base should be raised to $22,655 for current average outcomes or as high as $28,068 for a full standard deviation increase. While this value may seem high, funding the weighted formula at these levels negates the need for supplemental formulas outside of SFRA. That is, it rolls all funds into the weighted formula (or at least those included in the total expense as reported in TSEG). These figures exclude federal aid.

Table 5. Multiplicative (Poisson) District Level Weights Models

	Weights Model Avg Outcomes		Weights Model +1Stdev		Weights Model Excluding Federal Aid Avg Outcomes		Weights Model Excluding Federal Aid +1Stdev	
	IRR	se	IRR	se	IRR	se	IRR	se
Economic Disadvantage Index	2.002***	0.002	2.007***	0.001	1.895***	0.002	1.902***	0.001
% ELL	1.213***	0.003	1.212***	0.003	1.260***	0.003	1.259***	0.003
% SWD	10.861***	0.034	12.412***	0.042	12.846***	0.049	13.508***	0.046
% Ungraded	1.380***	0.003	1.346***	0.003	1.306***	0.003	1.308***	0.002
% Grades 6 to 8	1.079***	0.002	1.067***	0.001	1.083***	0.002	1.084***	0.001
% Grades 9 to 12	1.209***	0.001	1.208***	0.001	1.214***	0.001	1.218***	0.001
District Enrollment <500	1.102***	0.000	1.096***	0.000	1.080***	0.000	1.079***	0.000
District Enrollment 501 to 1500	1.054***	0.000	1.052***	0.000	1.043***	0.000	1.044***	0.000
District Enrollment 1501 to 2000	1.033***	0.000	1.032***	0.000	1.026***	0.000	1.025***	0.000
Density <500 Sq Mile	1.102***	0.000	1.102***	0.000	1.100***	0.000	1.098***	0.000
Time	1.050***	0.000	1.050***	0.000	1.051***	0.000	1.051***	0.000
Constant	16,099.828***	11.065	19,397.507***	12.228	16,002.557***	11.218	19,352.660***	12.314
Number of observations	3,494		3,476		3,476		3,478	
note: *** p<0.01, ** p<0.05, * p<0.1								

Table 6. District Level Multiplicative Weights Models at Total Cost

	Weights Model Excluding Federal Aid Avg Outcomes		Weights Model Excluding Federal Aid +1Stdev	
	IRR	**se**	**IRR**	**se**
Economic Disadvantage Index	2.134***	0.001	2.142***	0.001
% ELL	1.121***	0.002	1.119***	0.002
% SWD	9.076***	0.030	9.399***	0.028
% Ungraded	1.352***	0.003	1.353***	0.002
% Grades 6 to 8	1.056***	0.001	1.056***	0.001
% Grades 9 to 12	1.205***	0.001	1.207***	0.001
District Enrollment <500	1.042***	0.000	1.041***	0.000
District Enrollment 501 to 1500	1.030***	0.000	1.031***	0.000
District Enrollment 1501 to 2000	1.047***	0.000	1.046***	0.000
Density <500 Sq Mile	1.108***	0.000	1.107***	0.000
Time	1.061***	0.000	1.061***	0.000
Constant	22,654.713***	13.791	28,068.163***	15.259
Number of observations	3,475		3,478	
note: *** p<0.01, ** p<0.05, * p<0.1				

We also attempted linear models, with results of our district models of school expenditure and total expenditure reported in Table 7 (excluding federal aid). As will be discussed in the next section, these models were much weaker at approximating our cost model estimates. We estimated these models because the weights would be more directly comparable to weights in SFRA. But again, we are not sure these weights and models fully explain costs. They do, however, suggest that the SFRA weights on percentage free/reduced lunch and English language learners are too small. These models suggest weights (excluding federal aid) of over 60 percent for FRL and 80 to 90 percent for ELLs. Interestingly, these models (having tested numerous iterations) also show that charter schools cost over 20 percent more to yield the same outcomes. We would not recommend, however, that a funding formula include such a weight if the goal of charter schooling is to improve performance without increasing costs. But the evidence in our models thus far is that a) charter share within districts increases inefficiency, and b) charter schools, on average, cost more for the same outcomes.

Table 7. District Linear Additive Model Weights (excluding federal)

	School Expenditure		Total Expenditure	
	Current Mean	+1 Stdev	Current Mean	+1 Stdev
% Free or Reduced Lunch	0.63	0.63	0.66	0.67
% ELL	0.93	0.94	0.77	0.77
% SWD	6.39	6.90	4.70	5.00
% Ungraded	0.87	0.82	0.90	0.88
% Grades 6 to 8	0.14	0.13	0.08	0.07
% Grades 9 to 12	0.35	0.36	0.29	0.29
District Enrollment <500	0.00	-0.02	-0.03	-0.04
District Enrollment 501 to 1500	0.01	0.00	0.01	0.00
District Enrollment 1501 to 2000	-0.02	-0.03	0.01	0.01
Density <500 Sq Mile	0.13	0.12	0.13	0.13
Charter	0.22	0.24	0.21	0.22
Inflation Factor	0.0580	0.06	0.07	0.07
BASE 2026	$13,831	$16,728	$20,770	$25,726

Ranking & Selecting the Weights Models

Table 8 compares the weights models on the extent to which they capture variation in the cost estimates. The preferred weights model for approximating district costs (excluding federal aid) is the weights model in which we use our Economic Disadvantage Index, which explains nearly 80 percent of variation in our cost estimates. Linear models capture much less variation in costs.

Table 8. Comparison of Cost Approximation by Weights Models

	Current Mean	+1stdev
District Multiplicative (Excl. Federal) with EDI	0.795	0.774
District Linear (Excl. Federal) with % FRL & % Black	0.601	0.558
District Linear (Excl. Federal) with % FRL	0.552	0.514
District Linear (Excl. Federal) with EDI	0.544	0.504

Applying the Multiplicative (& exponentiated) Weights

To calculate the effective weight for a school or district in which some proportion of students is represented in a given category, the weight is exponentiated according to the student proportion as follows:

$$Effective\ Weight = Weight^{Student\ Proportion}$$

Exponentiating by the proportion of students (or index value) for which a weight applies appropriately discounts the weight. At the extremes, a proportion of 1 means that the full weight is applied, and a proportion of 0 discounts the weight to a value of 1. For a district with an Economic Disadvantage Index of .20, the effective weight for impoverished students would be:

$$Effective\ Weight = 1.90^{0.2} = 1.14$$

This means that this district would receive 14 percent more funding than a district with otherwise similar characteristics but with a 0 EDI. We apply this approach across all of our weights estimated using our district model calibrated to the state-average target outcome goal in Table 9, below. We assume a hypothetical district with a 20 percent EDI, 5 percent who are English language learners, and 15 percent who have a disability. Further, in this hypothetical district, we assume that 30 percent of students are in middle school and 30 percent in high school. Our hypothetical district is not sparsely populated, and enrolls over 2,000 students.

We use these "effective weights" to calculate an overall district needs index by calculating the product of all effective weights as an overall needs index, which is equal to 1.84 in this hypothetical district. The Cost/Needs Index (CNI) value represents the amount of funding required in this district relative to the base funding amount. The needs index multiplied by the base yields the estimated funding required for this district (excluding federal funding) equal to $29,445 for current average outcomes. This represents the foundation level required to achieve adequacy for this district.

Table 9. Application of Weights Models

	Current State Mean Outcomes Excluding pre-Covid Federal Aid Mean				+1 Stdev Outcomes Excluding pre-Covid Federal Aid Mean		
Student Needs	*Estimated Weight*	*Enroll Proportion (or Y/N)*	*Effective Weight*		*Estimated Weight*	*Enrollment Proportion (or Y/N)*	*Effective Weight*
Econ Disadvantage Index	1.90	20%	1.14		1.90	20%	1.14
% ELL	1.26	5%	1.01		1.26	5%	1.01
% SWD	12.85	15%	1.47		13.51	15%	1.48
Grade Range Distribution							
% Ungraded	1.31	2%	1.01		1.31	2%	1.01
% Grades 6 to 8	1.08	30%	1.02		1.08	30%	1.02
% Grades 9 to 12	1.21	30%	1.06		1.22	30%	1.06
Enrollment Group							
Enrollment <500	1.08	0	1.00		1.08	0	1.00
Enrollment 501 to 1500	1.04	0	1.00		1.04	0	1.00
Enrollment 1501 to 2000	1.03	0	1.00		1.03	0	1.00
Population Density							
Density <500 Sq Mile	1.10	0	1.00		1.10	0	1.00
Time (base year=fy26)	1.05	0	1.00		1.05	0	1.00
Cost/Needs Index (CNI)			**1.84**				**1.86**
BASE	**$16,003**				**$19,353**		
		Base x CNI =	**$29,445**			**Base x CNI =**	**$35,951**

Table 10 provides comparisons of a) the implicit weights, or actual patterns of variation in per pupil spending in New Jersey, b) the FY26 Education Adequacy Report recommendations, c) weights from our various district level multiplicate and additive models. The additive weights from our models, while less completely predicting costs, are most analogous for use in SFRA. The EAR suggested holding weights on FRL at .47 to .57, whereas our additive model excluding federal aid suggests that weight should be over .6 (likely much higher, based on other models). Our additive model suggests the ELL weight should closer to .90. A combination weight is not supported by the models, nor is the scaling of the weight on children from low-income families. But longer term, more substantive changes may better target funds to where they are needed most, including use of a more comprehensive Economic Disadvantage Index, and evaluation of special education service delivery and costs.

Table 10. Comparison of Weights

	Implicit Weights 2024 (EDI)	EAR 2026 (% FRL)	District Multiplicative (with Federal)	District Multiplicative (no Federal)	District Additive (no Federal)
FRL	+.21	+.47-.52-.57			**.63**
EDI	+.23		x2.0 (+1.0)	x1.9 (+.90)	
ELL	+.22	+.50	x1.21 (+.21)	x1.26 (+.26)	**.93**
Combo		+.125	x	x	x
Special Ed	+2.00	+2.60	-	-	-
Middle School	1.015 to 1.047	1.04	1.08	1.08	1.13
High School	1.105 to 1.146	1.15	1.21	1.21	1.22

Policy Recommendations

Short Term: Fy2027 Adjustments

As noted above, the short term policy recommendation that can be derived from the models herein, for consideration for FY2027 would be to adopt a uniform weight on children from low income families of 65 percent, and a weight on children who are English Language Learners of 90 percent, to replace the current weights in SFRA. The low income weight here is applicable if federal funding per pupil stays similar to pre-COVID rates. If Federal funds are cut, this weight would have to be increase to at least 70 percent.

Mid-Term: FY 2028-2029

Several judgments were made in this report by the authors to illustrate important issues in calibrating a state school funding system to provide all children with equal opportunity to achieve a common set of outcome goals. We chose to estimate costs at current state average outcomes because New Jersey has long been and remains one of the nation's top performing states. We added estimates of the costs of substantial increases to student outcomes to illustrate how the model can be used to estimate higher, or lower outcome goals. State policymakers, with input from constituents, should engage in a conversation about what they really want in terms of outcome goals for New Jersey's children at this moment in history. In collaboration with qualified experts, state policy makers should operationalize those goals into measurable outcomes that can be integrated into cost models such as the ones we present here. We suspect that these goals lie somewhere between current performance and the higher standard we estimate here. It's important to note that New Jersey can afford somewhat more than it spends now: recall that if the state had simply maintained its pre-recession "effort" levels, current funding would be 13% higher than it is today.

A second issue that must be addressed is the scope of spending that should be included as part of the formula for financing these student outcome goals. Here, we take the primary approach of focusing on spending reported in the school-level spending data, including spending reported as district spending which we spread across schools within each district. However, district total spending per pupil is over $7,000 above the underlying figure we use in our modeling. Running models separately based on our original spending measure, and then using a spending measure in which we spread that additional margin for each district across schools within the district, leads to very different base cost figures for a funding formula. It does so because we are choosing to fund more things in the general aid formula and estimating costs with a more relevant spending measure. Debt service and transportation, for example, could be pulled out of this figure and funded separately by the state. But the fact is, all of these things are required to ensure equal educational opportunity to the state's children and need to be funded one way (within the main formula) or another (as separate formulas). And all school spending, within or outside the formula, should be equalized for variations in local ability to pay. Models can be re-estimated with relevant exclusions/inclusions; however, the conversation should begin by deciding what school spending the formula should fund.

Other Issues for Further Exploration

A number of other issues emerge from the models herein. First, as we have seen in some other states with large shares of children with disabilities in restrictive placements and special schools, we find in our New Jersey models very large weights on shares of children with disabilities. One further step that should be taken in these models, pending data access and quality, is to re-estimate the models with data on children with disabilities disaggregated into at least two separate groups: 1) children with mild specific learning disabilities, behavioral disorders and other health impairment, and 2) all others. It may be that group 1 will yield a smaller weight that can be reasonably applied in a weighted foundation formula, but group 2 will require separate formula funding. A deeper exploration of service delivery models across New Jersey districts, and their related expenditures, may also be helpful.

Second, our models yield a series of interesting findings regarding charter schools and their effects on costs in context, as well as their own costs. We find that a) larger shares of enrollments attending charter schools in a geographic space, all else equal, is leading to higher costs per pupil for schools to achieve the same outcome goals, and b) that the per pupil cost to achieve any given outcome goal is higher (13 percent) in charter schools. This is despite the fact that the data sources we have used herein likely underestimate the spending at large, networked charter organizations, because they do not include employees salaried by the management organization or other resources that flow from the management organization, which is not a public entity. We included charter enrollment share as a presumptive "efficiency"

factor that, in theory, would pressure districts (and competing charters) to do more with less; however, we found the opposite. These issues require further investigation to consider the appropriate future for charter schooling in the state.

Finally, and perhaps overlapping with the charter school question, is the question of higher costs resulting from the presence of small schools or small districts. These schools and districts have higher per pupil costs to achieve common outcomes than larger schools and districts. The policy question, and determination of whether a funding adjustment for those schools is appropriate, is whether those schools are small by choice or by necessity. It does not make sense to have inefficiently small schools exist in densely populated areas, whether because those areas are carved into several tiny geographic school districts, or because we have added too many charter schools to the same space with already small public district schools. A thorough review of this issue is warranted.

Appendix

Appendix A: Constructing the Economic Disadvantage Index

EDI Construction

DV = % Free Lunch	Coefficient	Std. err.	P>t
% Black	0.4946	0.0057	0.0000
% Hispanic	0.5538	0.0049	0.0000
Neighborhood Poverty Index	-0.0004	0.0000	0.0000
year			
2020	-0.0027	0.0031	0.3800
2021	-0.0276	0.0031	0.0000
2022	-0.0436	0.0031	0.0000
2023	-0.0419	0.0031	0.0000
2024	-0.0283	0.0031	0.0000
Constant	0.2573	0.0051	0.0000
R-squared	0.8296		

Correlations with EDI

	Economic Disadvantage Index
Neighborhood Poverty Index	-.89
% Free Lunch	.91
% Free or Reduced Priced Lunch	.91
% Black	.55
% Hispanic	.82
% ELL	.59
% Migrant	.08
% Homeless	.33
% Disability	-.04

Appendix B: Additional Models

School Models (Multiplicative)

	Weights Model Avg Outcomes		Weights Model +1Stdev		Weights Model No Fed-Avg Outcomes		Weights Model No Fed-+1Stdev	
	IRR	**se**	**IRR**	**se**	**IRR**	**se**	**IRR**	**se**
Economic Disadvantage Index	2.019***	0.001	2.019***	0.001	1.914***	0.001	1.930***	0.001
% ELL	1.263***	0.001	1.263***	0.001	1.302***	0.001	1.297***	0.001
% SWD	9.915***	0.022	9.915***	0.020	9.666***	0.022	9.742***	0.020
% Ungraded	1.434***	0.002	1.434***	0.002	1.424***	0.002	1.427***	0.002
% Grades 6 to 8	1.070***	0.000	1.070***	0.000	1.076***	0.000	1.075***	0.000
% Grades 9 to 12	1.201***	0.000	1.201***	0.000	1.207***	0.000	1.206***	0.000
District Enrollment <500	1.129***	0.000	1.129***	0.000	1.119***	0.000	1.121***	0.000
District Enrollment 501 to 1500	1.069***	0.000	1.069***	0.000	1.063***	0.000	1.064***	0.000
District Enrollment 1501 to 2000	1.048***	0.000	1.048***	0.000	1.044***	0.000	1.044***	0.000
Density <500 Sq Mile	1.113***	0.000	1.113***	0.000	1.110***	0.000	1.111***	0.000
Time	1.050***	0.000	1.050***	0.000	1.051***	0.000	1.051***	0.000
Constant	15,846.998***	3.800	19,116.205***	4.174	15,803.503***	3.830	19,065.748***	4.200
Number of observations	13,726		13,726		13,725		13,726	
note: *** p<0.01, ** p<0.05, * p<0.1								

School Level Linear Model

	Current Average				+1 Stdev		
	Coefficient	Std. err.	P>t		Coefficient	Std. err.	P>t
Economic Disadvantage Index	$12,716	$70	*		$15,340	$84	*
% ELL	$6,438	$146	*		$7,767	$176	*
% SWD	$49,474	$653	*		$59,681	$787	*
% Ungraded	$8,997	$300	*		$10,853	$362	*
% Grades 6 to 8	$1,423	$41	*		$1,717	$49	*
% Grades 9 to 12	$3,705	$36	*		$4,469	$44	*
District Enrollment <500	$2,100	$75	*		$2,533	$90	*
~~**District Enrollment 501 to 1500**~~	~~$1,071~~	~~$39~~	~~*~~		~~$1,292~~	~~$47~~	~~*~~
~~**District Enrollment 1501 to 2000**~~	~~$719~~	~~$50~~	~~*~~		~~$867~~	~~$60~~	~~*~~
Density <500 Sq Mile	$2,166	$40	*		$2,613	$48	*
~~**Charter**~~	~~$1,830~~	~~$108~~	~~*~~		~~$2,208~~	~~$131~~	~~*~~
Time	$948	$7	*		$1,143	$9	*
Constant	$13,764	$43	*		$16,604	$52	*
R-squared		**0.897**				**0.897**	

Linear Model Weights

	Current Mean	+1 Stdev
Economic Disadvantage Index	0.92	0.92
% ELL	0.47	0.47
% SWD	3.59	3.59
% Ungraded	0.65	0.65
% Grades 6 to 8	0.10	0.10
% Grades 9 to 12	0.27	0.27
~~**District Enrollment <500**~~	~~0.15~~	~~0.15~~
~~**District Enrollment 501 to 1500**~~	~~0.08~~	~~0.08~~
~~**District Enrollment 1501 to 2000**~~	~~0.05~~	~~0.05~~
Density <500 Sq Mile	0.16	0.16
~~**Charter**~~	~~0.13~~	~~0.13~~
Inflation Factor	0.0688	0.07
BASE 2026	$13,764	$16,604

District Level (including federal)

	Current Average				+1 Stdev		
	Coefficient	Std. err.	P>t		Coefficient	Std. err.	P>t
% Free or Reduced Lunch	$9,618	$364	*		$11,602	$439	*
% ELL	$12,651	$1,029	*		$15,261	$1,242	*
% SWD	$91,338	$4,251	*		$110,181	$5,128	*
% Ungraded	$12,945	$2,188	*		$15,615	$2,639	*
% Grades 6 to 8	$1,815	$1,281			$2,189	$1,545	
% Grades 9 to 12	$4,942	$479	*		$5,961	$578	*
~~**District Enrollment <500**~~	~~$186~~	~~$398~~			~~$224~~	~~$480~~	
~~**District Enrollment 501 to 1500**~~	~~$267~~	~~$203~~			~~$323~~	~~$244~~	
~~**District Enrollment 1501 to 2000**~~	~~-$274~~	~~$251~~			~~-$330~~	~~$303~~	~~**~~
Density <500 Sq Mile	$1,817	$201	*		$2,192	$243	*
~~**Charter**~~	~~$3,517~~	~~$560~~	~~*~~		~~$4,242~~	~~$676~~	~~*~~
Time	$801	$36	*		$966	$44	*
BASE 2026	$13,763	$531	*		$16,602	$640	*

District weights (including federal)

	Current Mean	+1 Stdev
% Free or Reduced Lunch	0.70	0.70
% ELL	0.92	0.92
% SWD	6.64	6.64
% Ungraded	0.94	0.94
% Grades 6 to 8	0.13	0.13
% Grades 9 to 12	0.36	0.36
~~**District Enrollment <500**~~	~~0.01~~	~~0.01~~
~~**District Enrollment 501 to 1500**~~	~~0.02~~	~~0.02~~
~~**District Enrollment 1501 to 2000**~~	~~-0.02~~	~~-0.02~~
Density <500 Sq Mile	0.13	0.13
~~**Charter**~~	~~0.26~~	~~0.26~~
Inflation Factor	0.06	0.06
BASE (2024)	$13,763	$16,602