Establishing an Equilibrium of Educational Equity

by Spencer Lively

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Abstract:

Spencer Lively proposes an alternative system, the Index Model, for funding improvements to California's K-12 school facilities. By aligning funding amounts with the number of students served in each school district, he argues that the Index Model is more equitable than current funding distribution methods, which exacerbate the educational disparities between low-income districts and wealthier districts.

***Note from the Editors:** although AB 247 was proposed legislation at the time of authorship, it was approved and signed into law the summer of 2024.*

Introduction

The system used by California to distribute funding for the modernization of K-12 school facilities—the School Facilities Program (SFP)—is fundamentally inequitable. Between 1998 and 2022, the wealthiest school districts in California have received the largest amount of modernization funding, while the poorest districts have received the least. Modernization funding has the following goals:

> *"Modernization funding is designed to extend the useful life of existing facilities, or to enhance the physical environment of a school. Typical projects include, but are not limited to: structural upgrades, access compliance upgrades, air conditioning, plumbing, lighting, and electrical systems, roof replacement, fire safety improvements, and furniture and equipment." (Office of Public School Construction, 2016)*

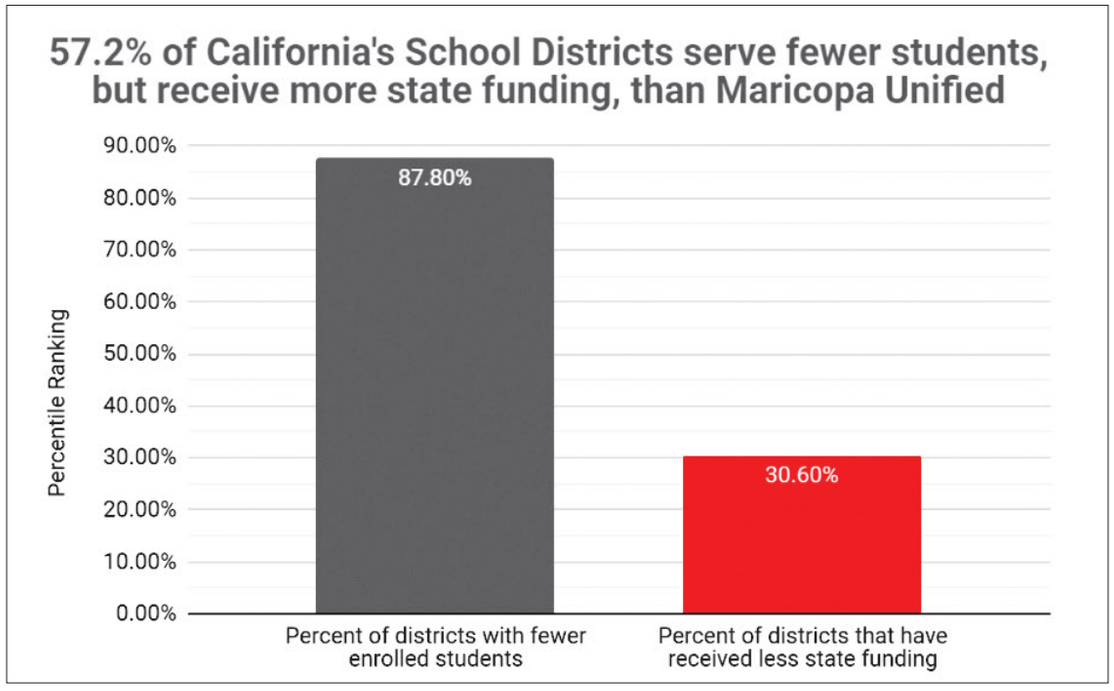
This has led to school districts with the lowest property values to face worsening facility conditions—directly impacting their students' educational outcomes. Students in substandard buildings can earn test scores 5 to 17 percent below and suspension rates up to 14 percent higher than students who receive instruction in buildings with good conditions.[1,2,3] Students from property-poor communities already face structural disadvantages limiting their intergenerational economic mobility.[4] The state of California has a moral and legal duty to equalize—not exacerbate—the opportunity of every student to succeed. However, the SFP does the opposite:

> *"Statewide, 38% of students go to schools that do not meet the minimum facility standards. 25% of students attend schools with damaged floors, walls, or ceilings, and 14% go to schools with malfunctioning electrical systems. 15% of students attend schools that have at least one extreme deficiency, with underlying issues like gas leaks, power failures, and structural damage. Districts with lower capital spending and smaller tax bases report higher levels of deficiencies." (PPIC, 2020)*

This article proposes a shift away from the district-level approach historically used to determine state funding for public school facilities to an Index Model, a system-level approach designed to more equitably prioritize funding for districts which have historically received the least. By definition, equity is relative. Much like Schrodinger's cat, the existence of equity is impossible to determine at the individual level. Therefore, it is only upon comparison of each district's funding *relative to its peers* that we can identify equity *or* inequity. California's reliance on a district-level approach to determine its funding for public school facilities is symbolic of a blindfolded child attempting to hit a mythological "equity piñata" by chance. As we have seen, *this does not work*.

Instead, California must consider the funding of these districts relative to one another—a system-level approach—in order to begin proactively, intentionally, and progressively improving the equity of its state funding. The specific approach recommended by this article is for the state to compare and prioritize access to funding for districts according to the difference between first, the number of districts compared to whom serve a greater number of enrolled students; and second, the number of districts compared to whom receive a greater amount of state modernization funding. By directly comparing these relative metrics of enrollment size and amount of funding received,

Figure 1: Maricopa Unified



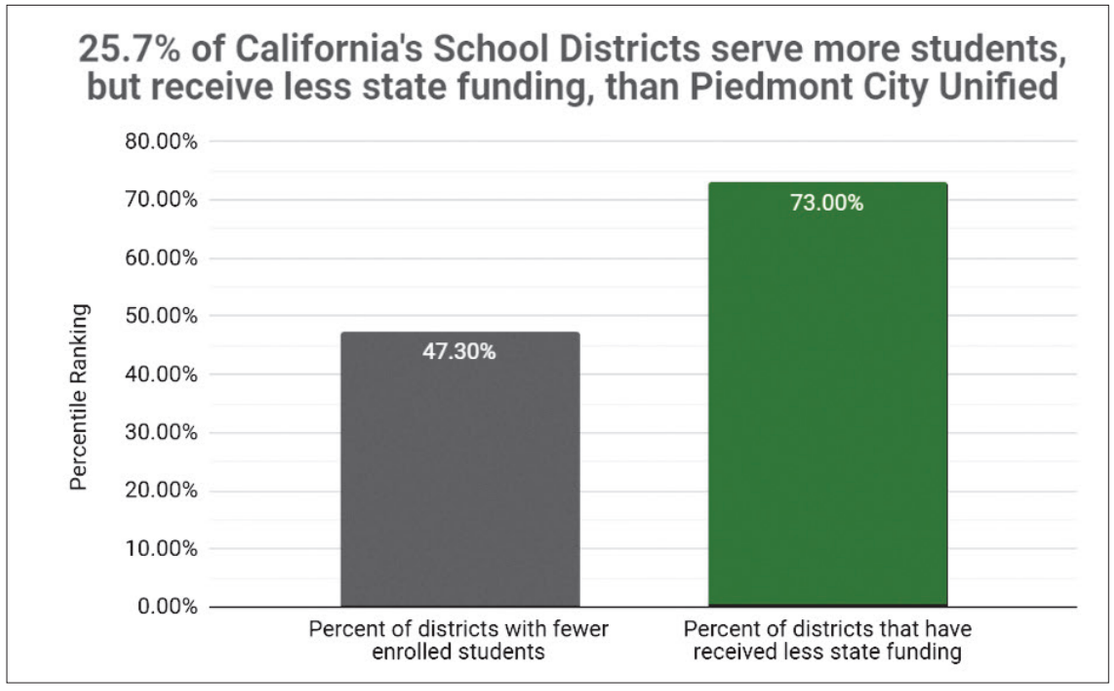
California will be able to *prioritize* funding to districts like Maricopa Unified and conversely *deprioritize* funding to districts like Piedmont City Unified—over time, bringing both districts closer to an amount of funding appropriate for their respective sizes (See Figures 1 and 2). As will be shown, this leads funding to largely be tied to the number of students each district serves and more effectively eliminates the effect of both property values and income than currently proposed legislation, such as Assembly Bill 247.[5] In short, the proposed funding model establishes an equilibrium of funding such that, over time, the funding each district receives is brought into alignment with the number of students they serve.

Background

Prominent studies have found that California's funding model for public school facilities, the School Facilities Program (SFP), greatly advantages districts in wealthier communities—particularly through its Modernization Program.[6,7,8] To fund their facility projects, school districts rely on capital revenue raised through local bond measures, funded by local property taxes. Consequently, the local property values of each district directly limit the amount they can raise for these projects. School districts in wealthier communities can raise substantially more capital revenue and this, combined with the matching system used to distribute state funding, leads these districts to receive substantially more state funding compared to districts in lower-wealth communities.

In California, the state funding available for the SFP to distribute is not refreshed each year based on the annual tax revenue generated. Instead, funding availability is conditional upon California voters approving bond proposals placed on their ballots by the legislature. One such bond proposal, AB 247, is currently in consideration by the legislature. In addition to refilling the funding available to the SFP, this proposal

Figure 2: Piedmont City Unified



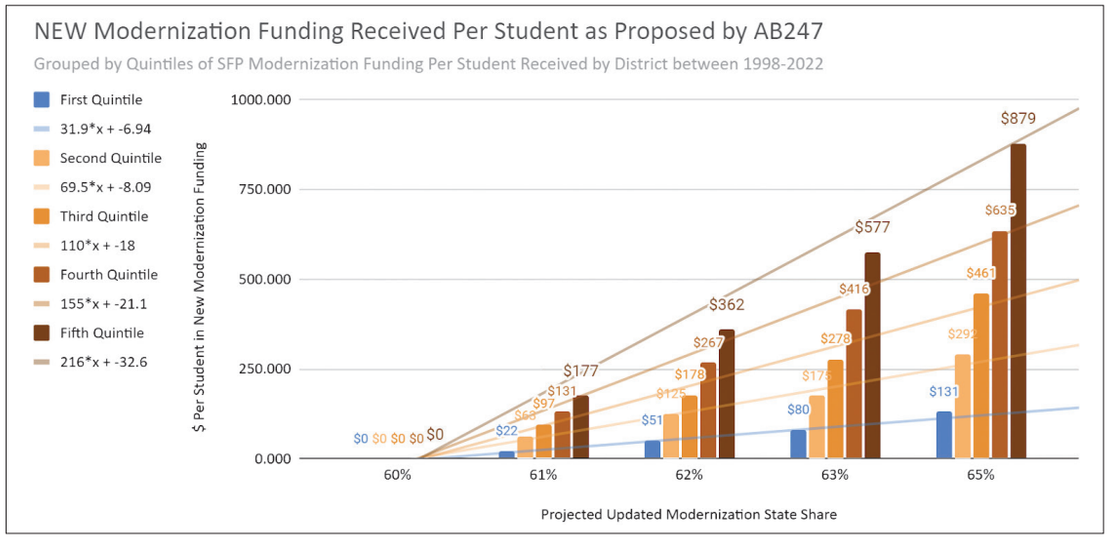
would make slight adjustments to the formula used to distribute this funding. However, as will be shown, these adjustments do not adequately reverse nor mitigate the inequitable funding distribution of the last 25 years. This has led the the nonprofit law firm and advocacy group, Public Advocates Inc., to send a letter to the Governor's office threatening legal action if their demands that California directly address these inherent inequities are not met.[9]

Assembly Bill 247 (AB 247)

Known as the "Transitional Kindergarten Through Community College Public Education Facilities Bond Act of 2024," AB 247 is a state general obligation bond act that would provide $14 billion to the state's SFP to construct and modernize education facilities. In response to concerns regarding funding disparities, AB 247 introduces a point system that would assess and modify a school district's *mandated local contribution* for each project funded by SFP. In descending order of importance, points earned are based on a district's 1) Unduplicated Pupil Percentage (UPP)[10], 2) Bonding Capacity Per Student (BCPS)[11], and 3) if a district has fewer than 200 students. However, this point system will not improve equity.

Figure 3 separates districts according to quintiles of funding received per student between 1998 and 2022 and the proportion of state funding per project each district is projected to receive under AB 247.[12] Logically, an equitable model would see the districts which have historically received the least—the 1st quintile—receive more than the 5th. That would not happen under AB 247. Instead, Figure 3 shows that those in the 5th quintile, even districts whose projected state share of project costs would only increase by 1 percent, would still receive significantly more in new funding than those in the 1st quintile—even districts whose projected state share of project costs would increase by the maximum 5 percent. Thus, the largest beneficiaries of AB 247 would be

Figure 3: Under AB 247, the smallest increase in funding (61%) to the most well-funded districts (5th) is larger than the biggest increase (65%) given to the least funded (1st).



the districts that already receive the greatest amount in funding—a result that would increase, not reduce, the disparity.[13]

Index Model

While AB 247 further increases existing disparities, the Index Model would instead establish a self-correcting equilibrium of equity. This model would ensure that as districts become overfunded over time, it gradually becomes more difficult to receive funding, and as districts become underfunded, it gradually becomes easier.

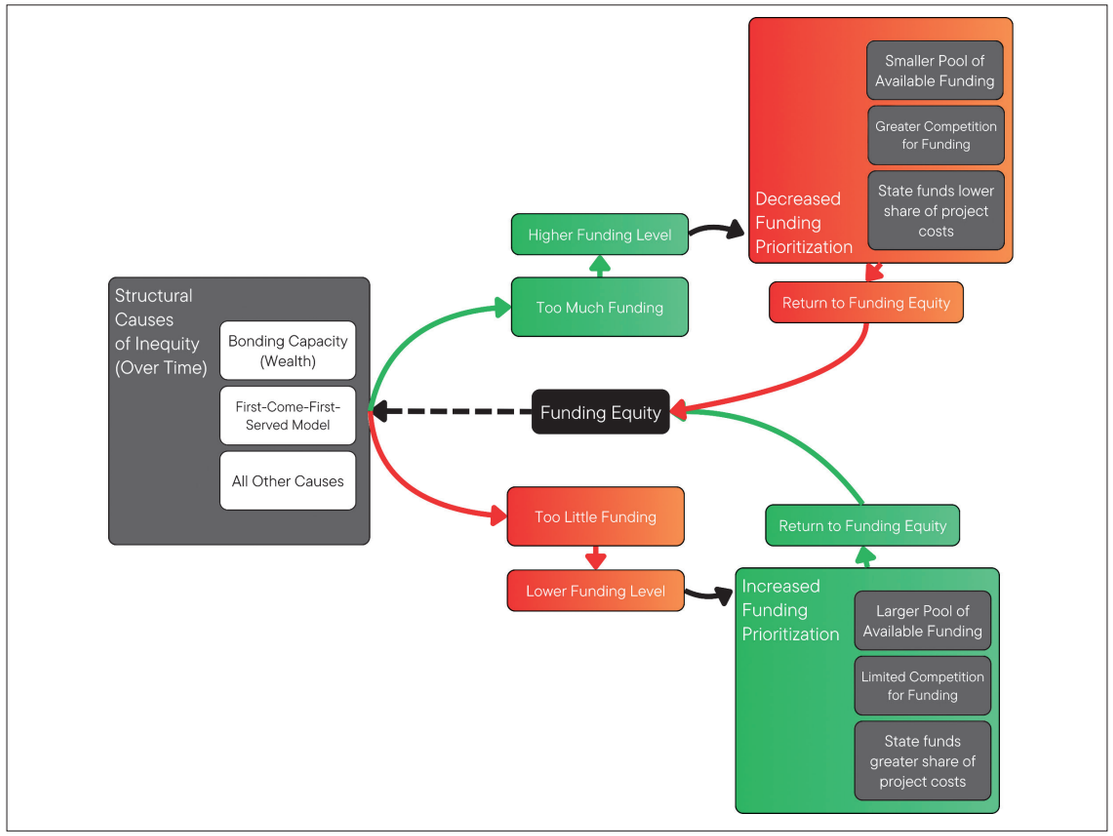
Fundamentally, the Index Model alters the financial incentives of districts on the two extremes of the funding distribution, such as Piedmont City Unified and Maricopa Unified, to bring them closer to an acceptable funding level relative to their enrollment. For example, the model would prioritize funding to Maricopa Unified until there are no more than 10 percent of school districts in California that are smaller in size yet more funded than that district.

This emulates California's Local Control Funding Formula's (LCFF) mandated funding per student formula while recognizing the inherent differences in funding for school facilities compared to its operations. Put simply, it is impossible to ensure complete equality of facilities funding per student.[14] Instead of an annual mandate, this model directly prioritizes funding opportunities until each district achieves adequate funding parity relative to their peers.

To accomplish this, the Index Model:

1. Compares the difference in percentile ranking of enrollment size to the percentile ranking of state funding for each school district in California, and sorts each district into one of five funding levels from most underfunded (e.g. Maricopa Unified) to most overfunded (e.g. Piedmont City Unified). Each funding level is then assigned a different:
    a. Amount of state funding reserved exclusively for applications by districts in that level, with the most underfunded being reserved the most funding for their applications and applications from the most overfunded limited to the smallest amount of funding.

Figure 4: Diagram of Equilibrium Effect



    b. State share of project costs, with the state covering 80 percent of the costs for each project by the most underfunded districts, but only covering 40 percent of the costs for the most overfunded.
2. Optionally, the state can decide to weigh the enrollment of certain students more heavily than others for the purposes of generating the percentile ranking of enrollment. This prioritizes the amount of funding received by districts with those students. In other words, this allows the state to shift districts with, for example, greater proportions of low-income students to the right on the X-axis of the relative enrollment distribution—otherwise, the model only adjusts the Y-axis by altering the rate of new funding received by each district relative to its peers.

Funding levels

The state can create five levels of funding, in addition to the existing Financial Hardship program, to prioritize funding to the most underfunded and deprioritize the most overfunded. Below is an example of how these levels might be assigned.

For example, the district that is more underfunded than 90 percent of other underfunded districts would be eligible for funding from Bucket A. Likewise, the district that is more overfunded than 50 percent of other overfunded districts would only be eligible to receive funding from Bucket D. Additionally, it is recommended the state continue to provide financial hardship funding to, for example, extremely small districts and the Los Angeles Unified School District (LAUSD), as both cases

Figure 5: Assignment of Funding Levels

Level	Severity	Percentile Thresholds	Percentiles Comparing:
A	Extreme	66.67%-99.99%	Underfunding
B	Moderate	33.34%-66.66%	
C	Mild	0.01%-33.33%	
	N/A (LAUSD)	Outlier	N/A
	Mild	0.01%-33.33%	Overfunding
D	Moderate	33.34%-66.66%	
E	Extreme	66.67%-99.99%	

Figure 6: Available Funding & Proportion of Project Costs Funded by State

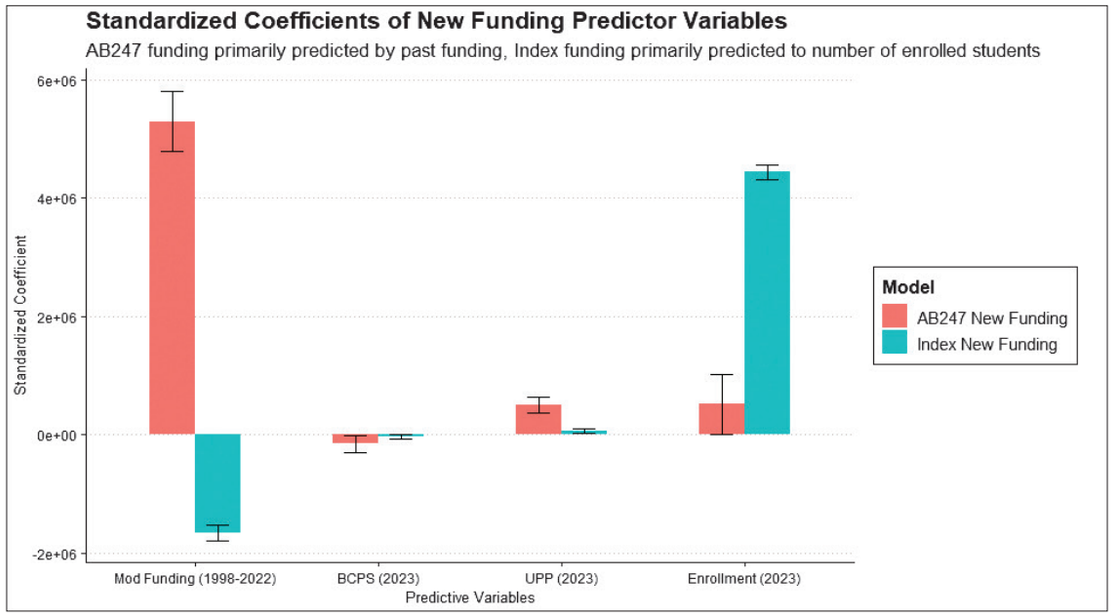
Level	Amount Allocated	Enrollment	Available $/Student	% State Share
A	$3 billion	716,162	$4,189	80%
B	$2.5 billion	817,331	$3,059	70%
C	$6 billion	3,109,795 478,721 1,176,057	$1,929	60%
D	$1 billion	613,448	$1,630	50%
E	$0.5 billion	366,734	$1,363	40%

represent extreme outliers for which their inclusion in any universal funding model would distort equity outcomes statewide.

As the thresholds are determined by the enrollment and funding of each district, relative to all other districts in the state, the state can periodically update them to reflect changes in enrollment and improvements to funding equity. Over time, by improving the funding equity across districts, the 'deviation' from zero of the entire distribution will decrease, causing the thresholds between each funding level to become more stringent over time (though the number of districts in each funding level would remain roughly the same). Rather than set a single standard in stone, this model would ensure the state's standard for equity will continue to improve over time until it can reach an eventual acceptable goal, such as the 10 percent threshold mentioned earlier.

The above distribution would cause the most historically underfunded districts to receive $4,189 in new funding per student—triple the amount made available to districts that have historically been overfunded. Notably, nothing would change for districts assigned to Level C. However, if any district currently assigned to Level C receives an inordinate amount of funding in the future, or receives an atypically low amount of funding relative to their size, then they would eventually shift up into Level D or down into Level B, respectively.

Figure 7: Comparing the Predictors of New Funding Received Under Each Model



If a district shifts from Level C to Level D, they would become restricted to a smaller funding pool, competing against better-resourced districts, and the state would only cover 50 percent of the costs for any projects. If an overfunded district in Level D *needs* more funding, they would still have access to the smaller funding pool and simply be expected to cover more of the costs themselves. However, if they only *want* a project, then it would make greater financial sense for them to wait until they shift back down into a lower funding level for the state to cover a substantial amount more of the costs.

Conversely, if a district shifts from Level C to Level B, then they would be given access to a greater funding pool, compete only against other under-resourced districts, and only be expected to cover 30 percent of the project costs until their funding reaches relative parity. These factors directly address two of the most significant reasons for districts to become underfunded:

1. the 'first-come-first-served' system disadvantaging under-resourced districts, and

2. low-wealth districts being unable to match 40 percent of the project costs given their limited bonding capacities.

Regardless of the reason for any district to become underfunded over time, simply being underfunded causes those districts to receive greater access to funding than their peers until they can reach adequate parity. Notably, while these underfunded districts are incentivized to apply for more state funding, they would still be effectively prevented from abusing this privileged access because of their limited bonding capacities, required local voter approval of General Obligation (GO) bonds, and the review of the State Allocation Board (SAB).

Enrollment Weighting

There are a number of endogenous factors that may lead some school districts to require additional funding per student relative to others. To account for these differences, the state can choose to weight the enrollment of certain groups in its calculation of the enrollment percentile rankings

Figure 8: Enrollment Pct. Rank & Past Funding Pct. Rank, grouped by Quintile of Past Funding Received Per Student

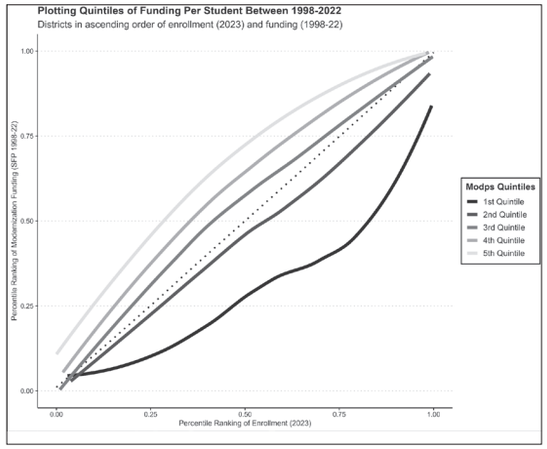


Figure 9: Enrollment Pct. Rank & Index Model Funding Pct. Rank, grouped by Quintile of Past Funding Received Per Student

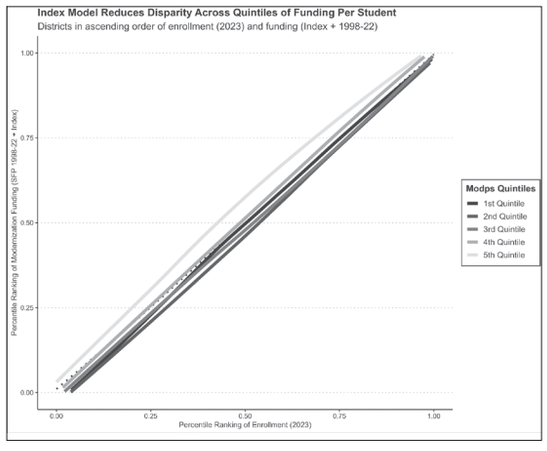
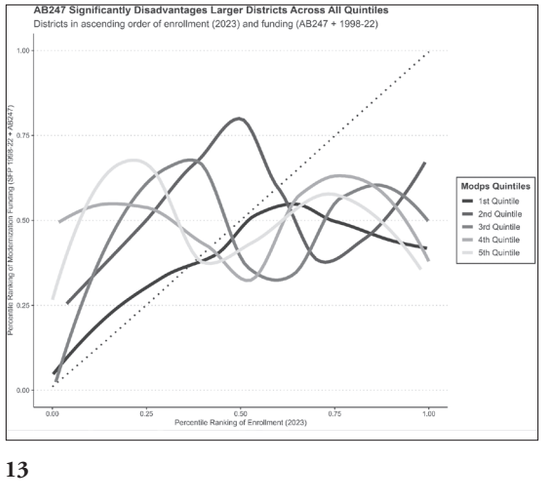


Figure 10: Enrollment Pct. Rank & AB 247 Funding Pct. Rank, grouped by Quintile of Past Funding Received Per Student



used to determine which funding level each district is assigned into. For example, similar to the LCFF, districts with higher UPP could be given greater funding priority reflective of the lack of resources available to that district. This also allows the state to better discern high-density, low-income urban districts whose high property values may lead them to appear wealthier than they are, from the suburban districts whose high property values are more reflective of their actual wealth.

An example: Unduplicated Pupil Percentage (UPP)

If District A has 90 students who are English Language Learners (ELL) and/or eligible for Free & Reduced Price Meals (FRPM) of 100 students total (90 percent UPP), and UPP is weighted an extra 10 percent, then District A would be considered as having a weighted enrollment of 109 [(90 x 1.1 = 99) + 10 = 109] for the purpose of determining their enrollment percentile relative to other districts in California. If District B has 0 ELL and/or FRPM students of 105 total (0 percent UPP), then the weighted enrollment of District B would not change from 105 total students. Consequently, the weighting would result in District B losing funding priority compared to District A, which went from 100 (unweighted) to 109 (weighted).

However, for this small nudge to result in an actual change in funding for these two districts, they would need to already straddle the border of two funding levels. This makes these weights particularly useful for more effectively sorting districts found in those gray areas without touching those that are clearly under- or over-funded.

Comparing model equity

Figure 7 compares the predictive power of each variable on the amount of new funding

Figure 11: Modernization Funding Per Student Percentile & Projected Funding Per Student for Different Enrollment Sizes

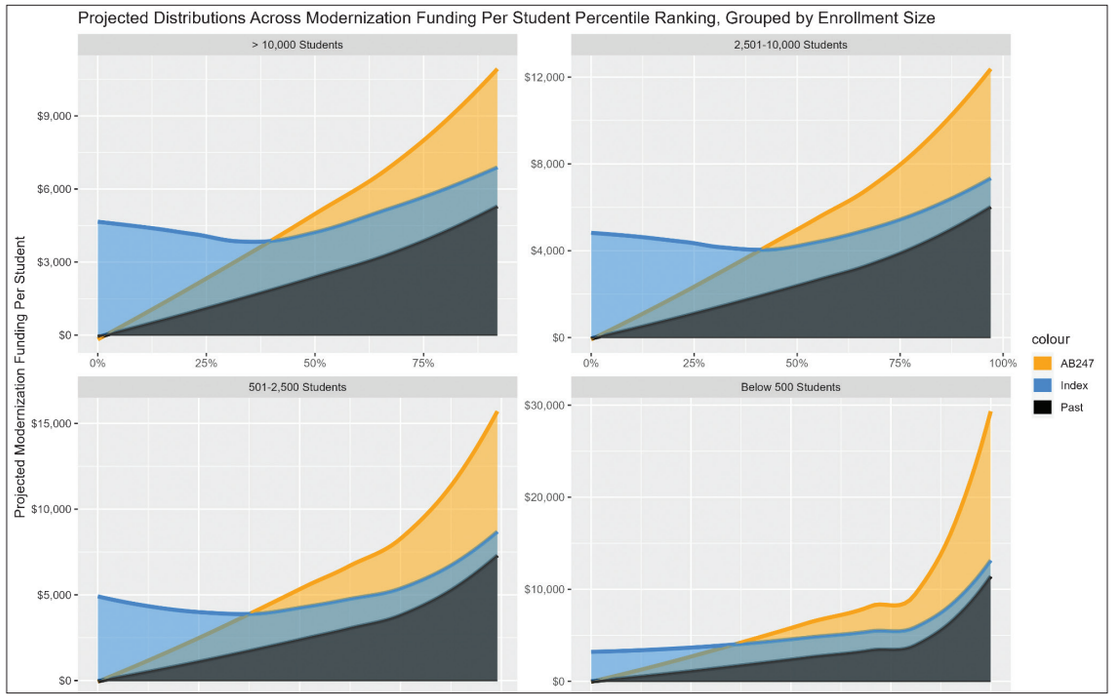


Figure 12: UPP Percentile Rank & Projected Funding Per Student for Different Enrollment Sizes

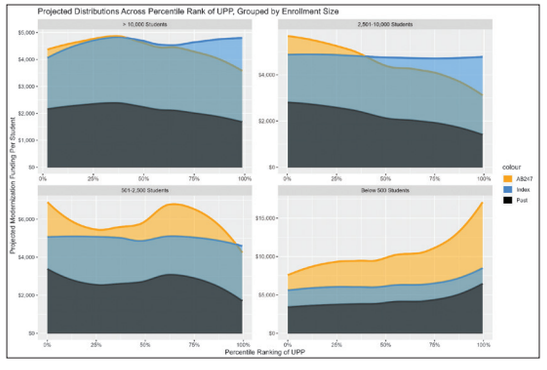
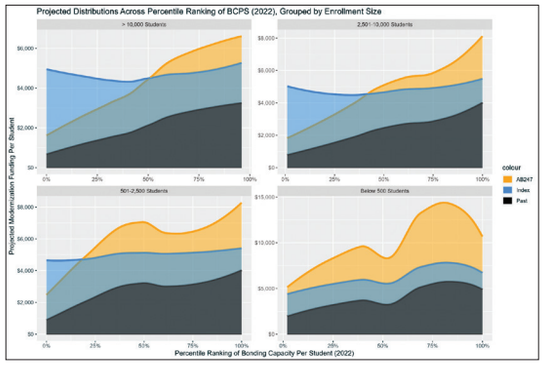


Figure 13: BCPS Percentile & Projected Funding Per Student for Various Enrollment Size



that would be distributed under AB 247 or the Index Model. This chart shows that AB 247 is largely continuing past funding trends, with very minor shifts. However, the Index Model is shown to directly reverse past funding inequities, diminish the significance of BCPS (aka wealth), and largely determine each district's funding according to the number of students they serve. In the short term, the Index Model will shift funding toward the districts that have historically received the least and, in the long-term, bring us closer to funding parity per student.

Figures 8 through 10 plot districts in each quintile of modernization funding per student received between 1998-2022, with districts ranked by enrollment (X-axis) and funding (Y-axis), and the dotted line representing "per student parity." Figure 8 shows the relationship between enrollment and funding for districts in each of the five

quintiles of funding per student since 1998, Figure 9 shows how these positions would shift after adding $13 billion in funding via the Index Model, and Figure 10 shows the same under AB 247. As can be seen, the

Index Model would dramatically reduce the disparity in funding between the quintiles of funding per student, whereas AB 247 would create a skewed funding distribution toward the smaller districts in each quintile. For the state to align its facilities funding formula with the per-student equality of the LCFF, it should adopt the Index Model.

Figures 11 through 13 show the effect of applying the new funding from the Index

Model or AB 247 across UPP (proxy for low-income) and BCPS (proxy for wealth), grouped by enrollment size. Figure 11 shows that AB 247 will only further increase the difference in Modernization Funding Per Student received by each district, whereas the Index Model would distribute more of the new funding to the districts that have historically received the least. This is represented by the flatter slope of the Index Model (blue) relative to AB 247 (orange). This is also true for UPP and BCPS, with the Index Model shown to negate (flatten) the effect of income and wealth in determining the amount of state funding each district receives.

Conclusion

California will come much closer to achieving meaningful equity through distribution of its modernization funding via the Index Model, which has been shown to 1) improve funding parity per student, 2) reverse and negate the effect of property wealth on the amount of state funding received, and 3) resolve the 'first-come-first-served' issue faced by under-resourced districts. This alternative is a more equitable approach to school funding compared to both the current SFP model and the new point model proposed by AB 247.

Endnotes

1. California Department of Education. School Facilities Improve Learning. (n.d.) https://www.cde.ca.gov/ls/fa/re/documents/learnercenter.pdf.

2. Earthman, Glen I. "School Facility Conditions and Student Academic Achievement." Los Angeles: UCLA Institute for Democracy, Education, and Access, 2002.

3. Boese, Stephen, and John Shaw. "New York State School Facilities and Student Health, Achievement, and Attendance: A Data Analysis Report." Albany, NY: Healthy Schools Network, Inc., 2005.

4. Chetty, Raj, and Nathaniel Hendren. "The Impacts of Neighborhoods on Intergenerational Mobility II: County-Level Estimates." The Quarterly Journal of Economics 133, no. 3 (August 2018): 1163-1228. https://doi.org/10.1093/qje/qjy006.

5. As of 2023, Piedmont City Unified has an enrollment size larger than 47.3 percent of other districts in California. However, between 1998 and 2022, the district has received more modernization funding from the state than 73 percent of other districts. Conversely, Maricopa Unified, which is the 87.8 percent most enrolled district in the state, has only received more funding than 30.6 percent of other districts.

6. Lafortune, Julien, and Nikolay Gao. "Improving K–12 School Facilities in California." Public Policy Institute of California, 2020. https://www.ppic.org/publication/improving-k-12-school-facilities-in-california/.

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8. Brunner, Eric J., and Jeffrey M. Vincent. "Financing School Facilities in California: A Ten-Year Perspective." Getting Down to Facts II. Stanford, CA: Stanford University, 2018. https://gettingdowntofacts.com/publications/financing-school-facilities-california-10-year-perspective.

9. Fensterwald, John. "Property-Poor Districts Demand Fairer Funding for School Facilities." EdSource, February 22, 2024. https://edsource.org/2024/property-poor-districts-demand-fairer-funding-for-school-facilities/706323.

10. UPP: Free & Reduced Price Meal eligible students and/or English Language Learning students.

11. BCPS: bonding capacity of each district is determined as a percentage of its assessed property values (2.5 percent for unified districts, 1.25 percent otherwise), which is then divided by the number of students enrolled as of 2022-23.

12. For example, the 5th quintile includes districts which received more funding than at least 80 percent of other districts in the state.

13. As the 60 percent tier is the SFP status quo of 60 percent state share for modernization projects, those districts do not receive any new funding, which is why they are shown to receive $0 in new funding.

14. For reasons such as the funding being per-project, on a match-based system, dependent on statewide bond approval and local bond approval, and the immense heterogeneity of California's 900+ school districts.