New England Public Policy Center

Federal Reserve Bank of Boston®

Reforming Connecticut's Education Aid Formula to Achieve Equity and Adequacy across School Districts

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RESEARCH REPORT 21-1

February 2021

New England Public Policy Center

www.bostonfed.org/neppc

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EXECUTIVE SUMMARY

Connecticut's public K–12 education system relies heavily on local funding, resulting in substantial disparities between affluent districts and low-income districts with a large proportion of socioeconomically disadvantaged students who are more costly to educate. Despite recent improvements, the existing state aid formula has been criticized for failing to provide sufficient funding to districts with the fewest resources and the highest education costs. To help improve state aid distribution, this report estimates a "cost-capacity gap," which measures the difference between a district's education cost and revenue capacity and uses it as an indicator of the district's need for state education aid. The report proposes a series of state aid formulas based on the gap measure that Connecticut policymakers may use to improve equity and adequacy in education funding.

Through rigorous statistical analysis of recent data, this report measures each school district's education cost and revenue capacity based on factors that are outside the direct control of local officials at any given point in time. The cost factors include, among others, the percentage of school-age children from families living in poverty and the percentage of students living in single-parent or non-family households. The revenue capacity estimate for each district is based mostly on taxable property wealth.

The analysis shows large disparities in the cost-capacity gap across the state. While districts with larger gaps, on average, receive more per-pupil state aid under the current formula compared with smaller-gap districts, the largest-gap districts still receive less aid than they need to close their cost-capacity gaps. As a result, inequity and inadequacy remain in the state's education finance system.

The policy simulations show that the gap-based formulas introduced in this report address funding inequity and inadequacy more effectively than the existing formula does. Some of these new formulas incorporate tools intended to enhance their appeal to state legislators whose communities do not have large cost-capacity gaps. These tools include minimum and maximum levels of per-pupil state aid and a hold-harmless provision. However, a gap-based formula that contains any of these tools would fail to fully eliminate funding inequity and inadequacy and require a larger state aid pool than would be needed otherwise.

I. Introduction

The funding of Connecticut's public schools concerns, among others, the state's policymakers, education advocates and practitioners, parents, and students. As a whole, the state's public schools rely heavily on local revenues—mostly property taxes; they account for more than half of total school funding.[1] However, taxable property wealth varies significantly across school districts. While the state distributes education aid in order to offset fiscal disparities among school districts, education advocates and others argue that it has failed to ensure funding equity and adequacy mandated by the state's constitution.

Connecticut has been sued over school funding multiple times since the 1970s. As recently as 2018, the state's highest court ruled in favor of the state in *Connecticut Coalition of Justice in Education Funding v. Rell*. That decision overturned a 2016 lower-court decision requiring the state to adopt a method of allocating education grants that is "rationally, substantially, and verifiably connected to creating educational opportunities for students."[2]

Partly as a result of these lawsuits, the state legislature has changed its main education aid formula—the Education Cost Sharing (ECS) formula—many times. The most recent ECS formula was adopted in 2017. Although this latest formula is arguably an improvement over the previous formulas, many policymakers, practitioners, and advocacy groups contend that it does not go far enough to achieve funding equity and adequacy (Connecticut School Finance Project 2019). Therefore, they have called for further reform of the ECS formula.[3]

Many policymakers, practitioners, and advocacy groups contend that the current education aid formula does not go far enough to achieve funding equity and adequacy.

This report contributes to the discussion about school reform efforts by developing a measure—the cost-capacity gap—that serves as an indicator of each school district's need for state aid. The cost-capacity gap is defined as the difference between education cost and revenue capacity. Using verifiable data and rigorous statistical analysis, this report estimates both education cost and revenue capacity based on factors that are outside the direct control of local officials at any given point in time. It then proposes five different gap-based aid formulas that could make state aid distributions more aligned with school districts' needs compared with the current formula. It suggests several tools that would help spread state aid more broadly and therefore could make the gap-based formulas acceptable to more school districts and their state representatives.

1 According to the U.S. Census Bureau's 2018 Annual Survey of School System Finances, Connecticut's percentage of public school funding from local revenues, at 58 percent, was the fourth highest among the 50 states.

2 See Page 28 of Memorandum of Decision, Connecticut Coalition for Justice in Education Funding, Inc. v. Rell, Superior Court, Judicial District of Hartford, Docket No. XO7 HHD-CV-14-5037565-S (September 7, 2016) at http://civilinquiry.jud.ct.gov/DocumentInquiry/DocumentInquiry.aspx?DocumentNo=11026151.

3 House Bill 7355, "An Act Concerning a Study of the Education Cost Sharing Formula," was filed in the 2019 regular session of the Connecticut General Assembly but failed to advance.

The Current ECS Formula: Elements and Issues

The current Education Cost Sharing (ECS) formula is structured as follows:

ECS target aid = *foundation* × *total need students* × *base aid ratio* + *regional bonus.*

Foundation is intended to represent the cost of educating a typical Connecticut public school student who has no additional learning needs. It is currently set at $11,525 per pupil. *Total need students* is a weighted student count. If a district's low-income students account for more than 75 percent of total enrollment, its *total need students* is calculated as:

total need students = *enrollment* + 30% × *low – income students* + 15% × *English learners* + 5% × (*low-income students* – 75% × *enrollment*).

Low-income students are defined as students who are eligible for free or reduced-priced meals or free milk. For a district where low-income students account for less than 75 percent of total enrollment, the calculation of *total need students* excludes 5% × (*low–income students* – 75% × *enrollment*).

Base aid ratio represents the share of total education cost that is funded by the ECS grants. It is calculated as:

$$\textit{base aid ratio} = 1 - \left[70\% \times \frac{\textit{town ENGL per capita}}{1.35 \times \textit{median}\,(\textit{town ENGL per capita})} + 30\% \times \frac{\textit{town median household income}}{1.35 \times \textit{median}\,(\textit{town median household income})} \right]^{a}.$$

ENGL represents equalized net grant list, which is the full fair market value of taxable properties. Finally, *regional bonus* is awarded to members of regional school districts, with $100 per regional-school student scaled by the ratio of the number of grades in the regional district to 13.

The current ECS formula suffers several shortcomings (Connecticut School Finance Project 2019). Education advocates point out that the foundation amount is not derived from verifiable school spending data and not linked to any student performance level. Instead, it is based simply on the historical levels of the foundation amount and has changed only occasionally over time. Similarly, the factors and weights used in calculating total need students and the base aid ratio are not derived from rigorous data analysis and therefore are arbitrary.

a The state gives an extra 3 to 6 percentage points to the base aid ratios of 19 cities and towns that it deems have the lowest relative wealth. In addition, there is a minimum base aid ratio, which is 10 percent for the 33 cities and towns classified as Alliance Districts and 1 percent for all other cities and towns.

II. Measuring Education Cost

Developed by Zhao (2020) and Zhao and Chiumenti (2020), the measure of education cost that this report uses is based on four student and district characteristics, or "cost factors." The calculations show large disparities in education cost across Connecticut school districts.

Education cost is the amount a district must spend to achieve a common target for student test performance given the district's cost factors.

Education cost is defined as the amount of money that a school district must spend at a state-selected common efficiency level to achieve a state-selected common target for student test performance, given the district's cost factors. By using a common efficiency level, this cost measure avoids rewarding a school district for having an efficiency level that is lower than this common level or penalizing a district for having a higher efficiency level.

The cost factors are student and district characteristics that significantly affect school spending but are outside the direct control of local officials at any given point in time. Using a regression method to analyze the 2009–2013 data, Zhao (2020) identifies four significant cost factors and quantifies the contribution of each to the education cost.[4] These identified cost factors are (1) the percentage of school-age children (aged 5 through 17) from families living in poverty, (2) the percentage of students living in single-parent or non-family households, (3) whether a school district's enrollment size is larger or smaller than 2,000 students, and (4) whether a district is a regional or local district.

The explanations for why these factors drive up the cost for achieving a given student performance level are intuitive. Students living in poverty or single-parent or non-family households often receive less time and/or financial support from their families to help with their schoolwork. They are more likely to be English learners and/or disabled. When a district is small, with fewer than 2,000 students enrolled, it does not have the economy of scale that allows fixed expenses to be spread over a large number of students. In addition, a regional school district may have additional expenses associated with coordination among its member towns, which is not the case for local school districts.

Due to the constraint on data availability, this report first calculates each district's cost measure for fiscal year 2013 and then inflates it to the fiscal year 2019 value using the Consumer Price Index for the Northeast region. It is noted that in 2015 the state switched from the Connecticut Mastery Test (for students in grades 3 through 8) and the Connecticut Academic Performance Test (for students in grade 10) to the Smarter Balanced test (for students in grades 3 through 8 and grade 11) and therefore changed the measures of student test performance. However, a statistical analysis by Zhao (forthcoming) reveals a tight, one-to-one relationship between the student performance level measured by the Smarter Balanced test and the student performance level measured previously by the Connecticut Mastery Test and the Connecticut Academic Performance Test. It suggests that the 2013 statewide average student performance level of 82.68 percent of students reaching or exceeding the proficiency level corresponds to 51.3 percent of students meeting or exceeding the achievement standard in 2019, which is almost identical to the actual 2019 statewide average level of student test performance.[5] Therefore, this 2019 cost measure—which is derived, with the inflation adjustment, from the 2013 cost measure for achieving that year's statewide average level of student test performance—can be considered roughly the cost for achieving the 2019 average level of student test performance.

4 See online Appendix for the full regression results. This report uses the estimated regression coefficient on each variable as a "weight" to indicate how much each variable contributes to the education cost.

5 In 2019, 51.9 percent of tested students in Connecticut met or exceeded the achievement standard.

Table 1

Calculating Predicted Cost for Achieving a Statewide Average Student Test Performance Level for Hartford and New Canaan

Fiscal Year 2019

	Factor Weight (1)	Hartford		New Canaan	
		Factor Value (2)	Contribution to Cost (3) = (1) x (2)	Factor Value (4)	Contribution to Cost (5) = (1) x (4)
Cost Variables:					
Percentage of School-age Children from Families Living in Poverty	0.012	40.39	0.48	3.16	0.04
Percentage of Students Living in Single-parent or Non-family Households	0.003	74.20	0.22	14.20	0.04
Dummy for Enrollment < 2,000	0.072	0.00	0.00	0.00	0.00
Dummy for Regional School District	0.077	0.00	0.00	0.00	0.00
Student Test Performance Target:					
Percentage of Students Reaching or Exceeding Proficiency in Math, Reading, and Writing	0.010	82.68	0.83	82.68	0.83
Efficiency-related Variables			1.66		1.66
Sum			3.19		2.57
Predicted Cost per Pupil in $1,000 in 2013 Dollars (= e^{sum})			24.31		12.99
Predicted Cost per Pupil in $1,000 in 2019 Dollars (= Predicted Cost per Pupil in 2013 Dollars x 1.08)			26.24		14.02

Source: Author's calculations

Notes: Factor weights are the estimated regression coefficients in Online Appendix Table 1. The values for the cost variables, the student test performance target, and the efficiency related variables are from FY2013. The statewide average percentage of students reaching or exceeding proficiency in math, reading, and writing tests in FY2013 was 82.68 percent. It corresponds to 51.3 percent of students meeting or exceeding the achievement standard in FY2019, which was about the statewide average student test performance level in that year.

Table 1 illustrates how the cost measure is calculated using Hartford and New Canaan as examples.[6] Hartford was chosen to represent large, low-income urban school districts, and New Canaan to represent wealthy suburban school districts. For the purpose of illustration, the two policy parameters—the student test performance target and the common efficiency level—are assumed to be at the statewide average levels; they are applied to all districts. As a result, differences in the education cost between school districts are due solely to differences in their cost factors.

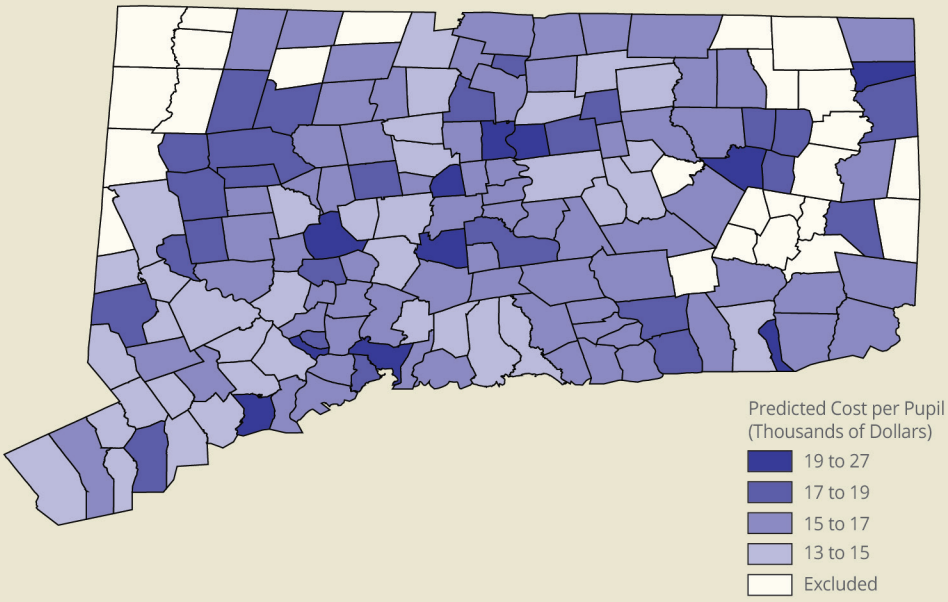
The cost factors are student and district characteristics that affect spending but are outside the direct control of local officials at any given point in time.

This table shows that to achieve the same level of student test performance, Hartford's per-pupil cost was almost 1.9 times as high as New Canaan's. This is because Hartford had significantly higher percentages of school-age children from families living in poverty and students living in single-parent or non-family households compared

6 See Online Appendix Tables 2 and 3 for other school districts' figures.

Figure 1

Predicted Cost by School District
Connecticut, Fiscal Year 2019



Source: Author's calculations

Notes: School districts are excluded due to missing data. The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard.

with New Canaan. Furthermore, Figure 1 indicates large variation in education cost across the state. The highest per-pupil costs appear among the largest school districts that are also urban and low income. The high-income suburbs tend to have the lowest per-pupil costs.

III. Measuring Revenue Capacity

This report develops a measure of each district's revenue capacity to fund its education cost. The measure is based mostly on local property wealth. The calculations show large disparities in revenue capacity among Connecticut school districts.

Revenue capacity is defined as the underlying ability of a local government to raise revenue outside of state education grants. In the Connecticut context, this measure includes three components: (1) property tax capacity, which is the ability of local government to collect property taxes; (2) federal education grants; and (3) state contributions to teachers' retirement benefits, which is a non-grant form of state revenue transfer to school districts.[7] Federal education grants and state contributions to teachers' retirement benefits make up only a small part of Connecticut school districts' revenue capacity.

To measure property tax capacity, this report uses a common approach called the Representative Tax System.[8] Under this approach, property tax capacity is estimated as the property tax amount that a government would be able to raise from its property tax base at a hypothetical "standard" tax rate. In Connecticut, the property tax base is measured by the equalized net grant list (ENGL), which is the full fair market value of taxable properties. The standard tax rate is a policy parameter; the state selects it to represent a tax effort level that it deems

7 The cost measure implicitly includes state payments for teachers' retirement benefits on behalf of each school district.
8 See Zhao (forthcoming) for a detailed discussion of this method.

Table 2

Calculating Revenue Capacity for Hartford and New Canaan

Fiscal Year 2019

	Hartford	New Canaan
"Standard" Property Tax Rate in Percentage (1)	0.86	0.86
ENGL per Pupil in $1,000 (2)	362.48	2,694.92
Revenue from Federal Sources per Pupil in $1,000 (3)	1.33	0.25
State Contributions to Teachers' Retirement Benefits per Pupil in $1,000 (4)	2.86	3.44
Revenue Capacity per Pupil in $1,000 (5) = (1) x (2) + (3) + (4)	7.30	26.77

Source: Author's calculations

Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent.

appropriate for local governments to fund public K–12 education. By using the standard tax rate, this capacity measure avoids the influence of the actual property tax rates, which are set by local officials and differ among municipalities. As a result, differences in the property tax capacity between school districts are due solely to differences in the ENGL.

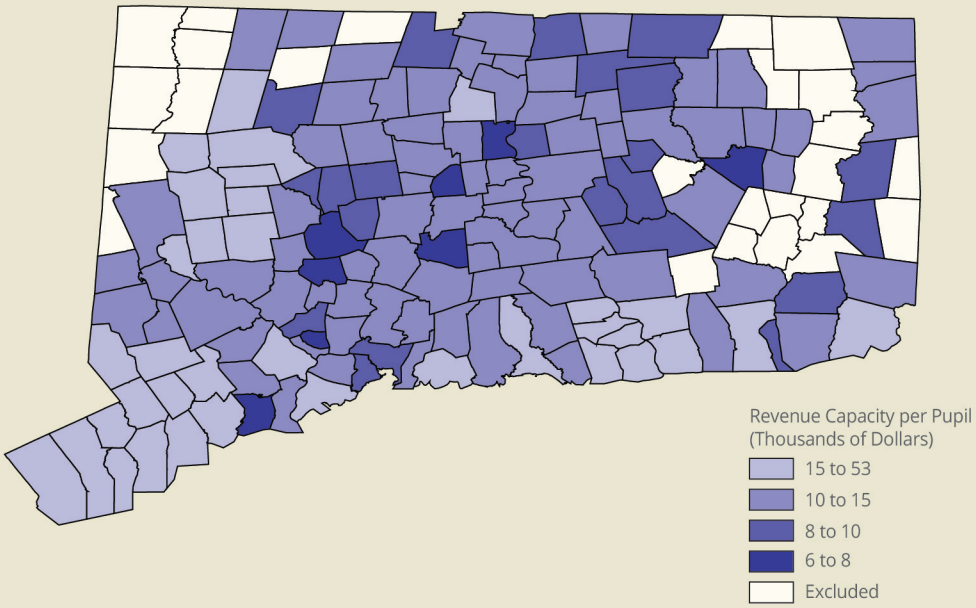
Table 2 illustrates how the measure of revenue capacity is calculated, again using Hartford and New Canaan as examples. The standard property tax rate is assumed to be 0.86 percent. At this rate, statewide property taxes could have covered 55 percent of statewide costs for achieving the average level of student test performance in fiscal year 2019.[9] The calculations show that Hartford's per-pupil revenue capacity was only 27 percent of New Canaan's. This is mostly because Hartford had a per-pupil ENGL that was significantly lower than New Canaan's.

Revenue capacity is the underlying ability of a local government to raise revenue outside of state education grants to fund its education cost.

9 Statewide, local revenues—mostly property taxes—funded about 56 percent of school districts' current spending during the 2009–2013 period.

Figure 2

Revenue Capacity by School District
Connecticut, Fiscal Year 2019



Source: Author's calculations

Notes: School districts are excluded due to missing data. The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent.

In addition, Figure 2 shows that revenue capacity is not distributed evenly across the state. The lowest per-pupil revenue capacities are concentrated among the largest urban school districts. The wealthy suburbs tend to have high per-pupil revenue capacities. Fairfield County, in the state's southwest corner, has a large cluster of the highest-capacity school districts.

IV. Measuring the Cost-capacity Gap

This report calculates the gap between education cost and revenue capacity as an indicator of each school district's need for state education aid. This measure represents the amount of aid a district requires to fully fund the education cost for reaching the student performance target. The findings show large variation in the cost-capacity gap across the state. Districts with lower socioeconomic status tend to have larger cost-capacity gaps. While more state aid, on average, is distributed to districts with larger gaps, significant post-aid funding inequity and inadequacy remain.

The gap between education cost and revenue capacity is an indicator of each school district's need for state education aid.

According to this report's calculations, some Connecticut school districts' revenue capacity is greater than their education costs, meaning that these districts already have more than enough financial resources outside of state aid to cover education costs. In arithmetical terms, these districts have a "negative cost-capacity gap."

This report also calculates each district's post-aid gap, which can reveal how well state aid addresses the cost-capacity gaps. The post-aid gap is simply the cost-capacity gap net of state education aid. If state aid fully closes the cost-capacity gap, the post-aid gap is zero. But if state aid only partially offsets the cost-capacity gap, the post-aid gap

Table 3

Calculating Cost-capacity Gap and Post-aid Gap for Hartford and New Canaan

Fiscal Year 2019, Thousands of Dollars

	Hartford	New Canaan
Predicted Cost per Pupil (1)	26.24	14.02
Revenue Capacity per Pupil (2)	7.30	26.77
Cost-capacity Gap per Pupil (3) = (1) – (2)	18.94	–12.75
Existing State Aid per Pupil (4)	14.81	0.36
Post-aid Gap per Pupil (5) = (3) – (4)	4.13	–13.11

Source: Author's calculations

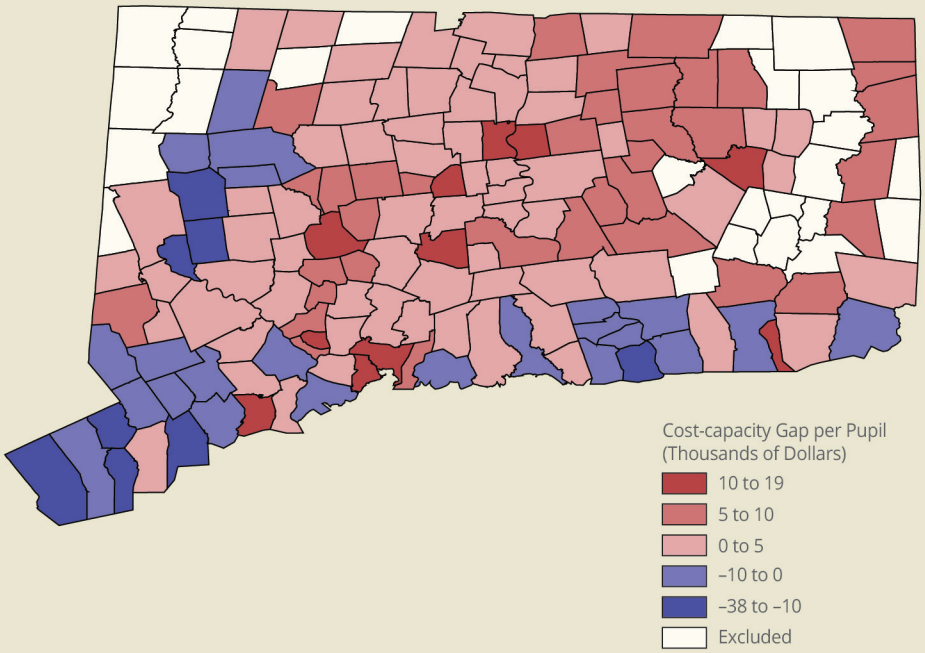
Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent.

is a positive figure. On the other hand, if a district receives more state aid than needed for closing the cost-capacity gap, its post-aid gap is a negative figure. The non-zero measures of the post-aid gaps indicate that inequity and inadequacy remain in the school finance system, even after state aid is taken into account.

Table 3 illustrates how the cost-capacity gaps and the post-aid gaps for Hartford and New Canaan are calculated. The calculations show that Hartford had a large cost-capacity gap because it had a high education cost and low revenue capacity per pupil. Even though the district received a large amount of state aid, it was not sufficient and left a considerable post-aid gap. In contrast, New Canaan's cost-capacity gap had a negative value because its high revenue capacity was more than enough to cover its low education cost. The district's post-aid gap had an even larger negative value because it received a small amount of state aid. Nonetheless, the difference between the post-aid gaps of Hartford and New Canaan is much smaller than the difference between their cost-capacity gaps, thanks to the equalizing state aid.

Figure 3

Cost-capacity Gap by School District
Connecticut, Fiscal Year 2019



Source: Author's calculations

Notes: School districts are excluded due to missing data. The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent.

Figure 3 shows that the need for state education aid to fully fund the education cost for achieving the average student test performance level is widespread but uneven across school districts. Most districts have positive cost-capacity gaps, as indicated by the shades of red. The largest and lowest-income urban districts are among the districts that have the largest cost-capacity gaps and therefore the greatest need for state education aid. Districts that have cost-capacity gaps with negative values, as indicated by the shades of blue, are concentrated in Fairfield County, Litchfield County, and the southern coastal area.

The largest and lowest-income urban districts are among the districts that have the largest cost-capacity gaps.

Furthermore, this report examines the distributions of the cost-capacity gap and the post-aid gap by District Reference Groups (DRGs). To facilitate the comparisons between school districts, the Connecticut State Department of Education (2006) categorizes districts into nine DRGs based on seven indicators of students' socioeconomic status and level of need. These indicators are (1) the median family income for households with children in public schools; (2) the percentage of parents with a bachelor's degree or higher; (3) the percentage of public school students with parents holding jobs in executive, managerial, or professional specialty occupations; (4) the percentage of public school students living in families without a spouse present or in non-family households; (5) the percentage of public school students eligible to receive free or reduced-price meals; (6) the percentage of public school students whose family members speak a language other than English at home; and (7) the district's enrollment size. DRGs are labeled in alphabetical order from A through

Table 4

Cost-capacity Gap and Post-aid Gap by District Reference Group

Connecticut, Fiscal Year 2019, Thousands of Dollars

	District Reference Groups								
	A	B	C	D	E	F	G	H	I
Predicted Cost per Pupil (1)	14.31	14.69	15.61	15.26	16.00	16.58	17.26	17.96	23.14
Revenue Capacity per Pupil (2)	21.88	16.71	12.74	13.42	13.26	10.62	10.76	13.42	7.38
Cost-capacity Gap per Pupil (3) = (1) – (2)	–7.57	–2.03	2.87	1.83	2.75	5.96	6.51	4.54	15.76
Existing State Aid per Pupil (4)	0.48	1.35	2.64	3.00	4.12	6.01	6.22	4.86	10.95
Post-aid Gap per Pupil (5) = (3) – (4)	–8.05	–3.38	0.24	–1.17	–1.38	–0.05	0.28	–0.32	4.81
Percentage of Statewide Enrollment	5.89	19.00	8.50	15.07	2.61	4.73	11.67	12.82	19.71

Source: Author's calculations

Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent. Districts in District Reference Group A (DRG-A) are considered to have the highest socioeconomic status and the lowest level of student need; DRG-I districts are considered to have the lowest socioeconomic status and the highest level of student need. Each district's enrollment is used as a weight to calculate the weighted average within each District Reference Group.

I, with DRG-A having the highest socioeconomic status and the lowest level of student need and DRG-I having the lowest socioeconomic status and the highest level of student need. In fiscal year 2019, DRG-I enrolled nearly one-fifth of the state's public school students, which was the largest share among the DRGs.

Table 4 shows that DRG-I had the largest average cost-capacity gap because it had the highest average education cost and the lowest average revenue capacity. In contrast, DRG-A had the smallest average cost-capacity gap—a negative value—because it had the lowest average cost and the highest average revenue capacity.

The table also shows that state aid plays an important equalizing role across DRGs. In fiscal year 2019, DRG-I received the largest average amount of per-pupil state aid, while DRG-A received the smallest. Nevertheless, the persistence of a considerable positive post-aid gap for DRG-I and negative-value post-aid gap for DRG-A suggests that state aid did not eliminate the inequity and inadequacy in school funding.

Table 5 Features of Five Gap-based State Aid Formulas

	Gap-based Formula with:				
	Negative Aid to Negative-gap Districts (1)	Zero Aid to Negative-gap Districts (2)	Minimum Aid (3)	Holding Existing Aid Harmless (4)	Minimum Aid and Maximum Aid (5)
Aid Floor	No	Zero aid amount	Minimum aid	Preceding year's aid amount	Minimum aid
Aid Ceiling	No	No	No	No	Maximum aid

Notes: Both the minimum and maximum aid are defined as postive fixed amounts per pupil.

V. Designing Gap-based Aid Formulas

This report introduces five different state aid formulas based on the cost-capacity gap. These formulas differ in whether they include a floor, a ceiling, or both for per-pupil state aid and how this aid floor and/or ceiling is set up. These tools help spread state aid more broadly and therefore could make the gap-based formulas acceptable to more state legislators whose communities do not have large cost-capacity gaps. The analysis shows that the gap-based formulas particularly benefit districts with the lowest socioeconomic status and the highest level of student need. But adding tools to address concerns related to political feasibility results in formulas that would fail to eliminate funding inequity and inadequacy and require a larger state aid pool than would be necessary otherwise.

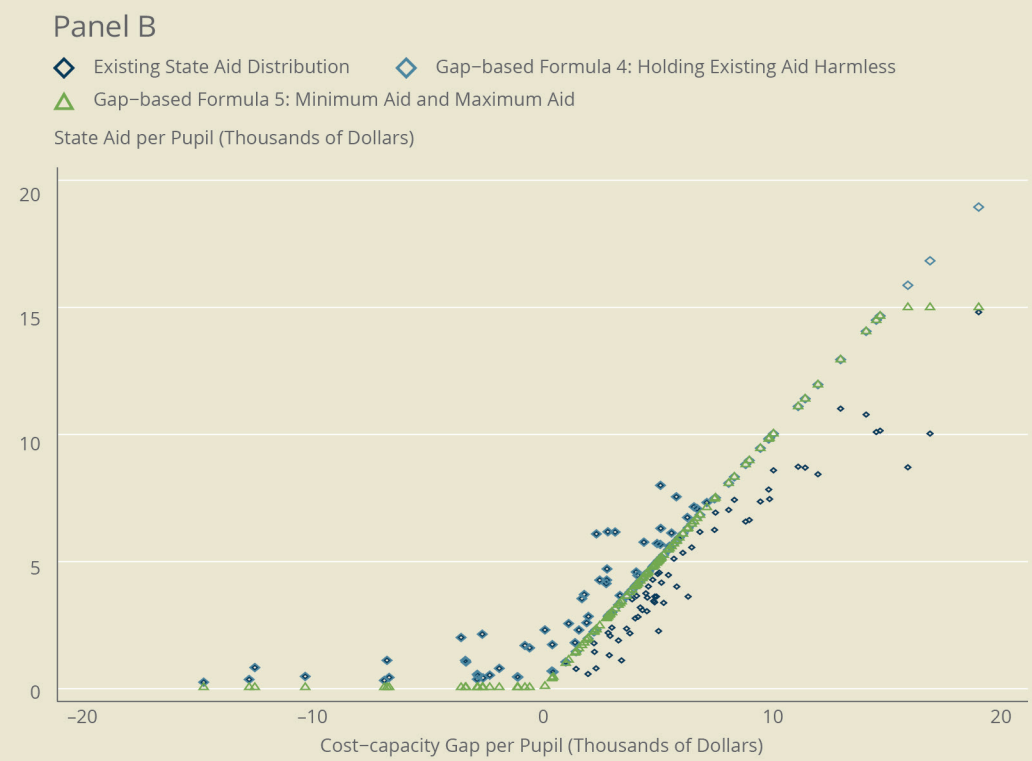
Table 5 summarizes the features of the five gap-based formulas. The first formula does not include any aid floor or ceiling; it simply gives each district just enough aid to fully close its cost-capacity gap, resulting in a post-aid gap of zero for every district. However, because some districts' revenue capacities are more than sufficient to cover education costs (giving each a "negative cost-capacity gap"), using this formula would require them to send money to the state rather than receive money from it. This outcome would be rather unpopular with these districts and their state legislators and would likely render the formula politically infeasible.

To avoid that outcome, the second formula includes a floor of a zero amount of aid for those districts whose revenue capacities are sufficient relative to education costs. The third formula raises the aid floor to a "minimum aid" level, which is a positive fixed amount of per-pupil state aid. For the purpose of illustration, the minimum aid is set at $55 per pupil, which is close to one-third of the lowest amount of per-pupil state aid among Connecticut school districts in fiscal year 2019.

Figure 4

Existing and Gap-based State Aid Distributions

117 Connecticut K-12 School Districts, Fiscal Year 2019



Source: Author's calculations

Notes: Property taxes are assumed to fund 55 percent of the statewide predicted cost. The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Greenwich School District and Regional School District 12, which have a cost-capacity gap per pupil of close to –$38,000 and –$33,000, respectively, are excluded in order to preserve the scale of this graph. The minimum aid and maximum aid are set as $55 per pupil and $15,000 per pupil, respectively.

The fourth formula includes a full hold-harmless provision, which is a common feature in state aid formulas across the country. Such a provision typically means that no district will receive less aid than it received the preceding year. In other words, the aid floor is the preceding year's aid amount. For the purpose of illustration, this report constructs the fourth formula to hold harmless the aid amount that each district received in fiscal year 2019.

The final formula includes both an aid floor and an aid ceiling. To facilitate a comparison with the third formula, the aid floor in the fifth formula is also set as $55 per pupil. The aid ceiling—that is, the maximum aid—is set at $15,000 per pupil. In fiscal year 2019, three school districts had cost-capacity gaps larger than $15,000 per pupil, and therefore their aid amounts would have reached the cap under this formula.

Figure 4 illustrates how each district would fare under the five gap-based formulas. Under the first formula, all districts receive the same aid amounts as their cost-capacity gaps, landing them on the 45-degree line. Under the other gap-based formulas, the majority of positive-gap districts remain on the 45-degree line. However, districts on the left tail of the gap distribution—those whose gap measures are negative or small positive figures—would deviate upward and away from the 45-degree line. In this case, they would benefit more from the hold-harmless provision than from the minimum aid and zero aid. Districts on the right tail of the gap distribution—those few with the largest positive gaps—would deviate downward and away from the 45-degree line under the formula with the maximum aid.

A state aid formula based on the cost-capacity gap would particularly benefit districts with the highest levels of student need.

Table 6

State Aid per Pupil under Different Aid Distributions by District Reference Group

Connecticut, Fiscal Year 2019, Thousands of Dollars

	District Reference Groups								
	A	B	C	D	E	F	G	H	I
Existing State Aid	0.48	1.35	2.64	3.00	4.12	6.01	6.22	4.86	10.95
Gap-based Formula with:									
Negative Aid to Negative-gap Districts	–7.57	–2.03	2.87	1.83	2.75	5.96	6.51	4.54	15.76
Zero Aid to Negative-gap Districts	0.00	2.00	3.76	2.56	3.62	5.96	6.51	5.43	15.76
Minimum Aid	0.06	2.01	3.77	2.58	3.63	5.96	6.51	5.45	15.76
Holding Existing Aid Harmless	0.48	2.11	3.91	2.33	4.39	6.49	7.14	6.34	15.76
Minimum Aid and Maximum Aid	0.06	2.01	3.77	2.58	3.63	5.96	6.51	5.45	14.60

Source: Author's calculations

Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent. The minimum aid and maximum aid are set as $55 per pupil and $15,000 per pupil, respectively. Districts in District Reference Group A (DRG-A) are considered to have the highest socioeconomic status and the lowest level of student need; DRG-I districts are considered to have the lowest socioeconomic status and the highest level of student need. Each district's enrollment is used as a weight to calculate the weighted average within each District Reference Group.

Table 6 examines the distributions of state aid by DRGs under the gap-based formulas. DRG-A would receive the lowest average per-pupil aid amount regardless of which gap-based formula is used. It fares best when the hold-harmless provision is in place; it fares worst under the formula with negative aid, since the cost-capacity gaps of DRG-A districts often have negative values. In addition, without the protection of the hold-harmless provision, DRG-A would lose state funding under the gap-based formulas relative to the amount it receives in the existing aid distribution.

In contrast, DRG-I would receive the largest average per-pupil aid amount under the gap-based formulas. It is the only group affected by the maximum aid, since it includes the districts with the largest cost-capacity gaps. But even with the constraint of the maximum aid, the average per-pupil aid amount received by DRG-I would still be higher than the average per-pupil aid amount that this DRG currently receives.

Inclusion of tools that spread state aid more broadly could make a gap-based formula acceptable to more state legislators.

Table 7

Post-aid Gap per Pupil under Different Aid Distributions by District Reference Group

Connecticut, Fiscal Year 2019, Thousands of Dollars

	District Reference Groups								
	A	B	C	D	E	F	G	H	I
Existing State Aid	–8.05	–3.38	0.24	–1.17	–1.38	–0.05	0.28	–0.32	4.81
Gap-based Formula with:									
Negative Aid to Negative-gap Districts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Zero Aid to Negative-gap Districts	–7.57	–4.03	–0.89	–0.73	–0.88	0.00	0.00	–0.90	0.00
Minimum Aid	–7.63	–4.04	–0.89	–0.75	–0.89	0.00	0.00	–0.91	0.00
Holding Existing Aid Harmless	–8.05	–4.14	–1.04	–1.50	–1.64	–0.54	–0.63	–1.81	0.00
Minimum Aid and Maximum Aid	–7.63	–4.04	–0.89	–0.75	–0.89	0.00	0.00	–0.91	1.16

Source: Author's calculations

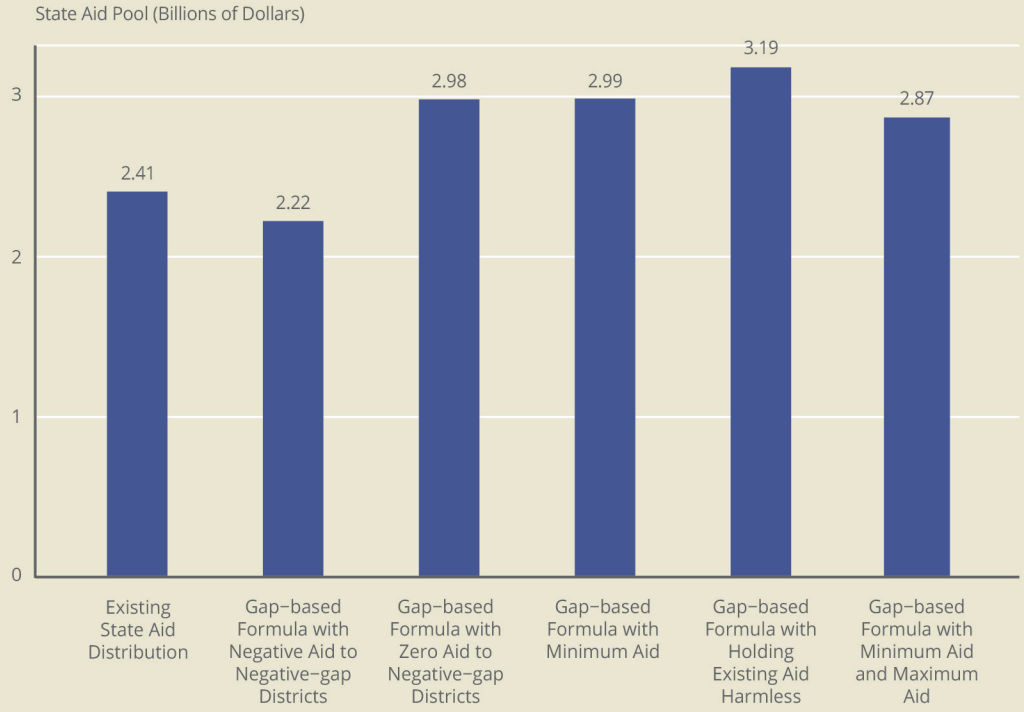
Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the "standard" property tax rate that is used to calculate property tax capacity is 0.86 percent. The minimum aid and maximum aid are set as $55 per pupil and $15,000 per pupil, respectively. Districts in District Reference Group A (DRG-A) are considered to have the highest socioeconomic status and the lowest level of student need; DRG-I districts are considered to have the lowest socioeconomic status and the highest level of student need. Each district's enrollment is used as a weight to calculate the weighted average within each District Reference Group.

Table 7 shows the distributions of the post-aid gap by DRGs under the gap-based formulas. The difference between the DRG-I gap and the DRG-A gap is significantly smaller under the gap-based formulas than under the existing aid distribution. This means that switching from the current aid formula to a gap-based formula would improve funding equity across districts. However, only the first gap-based formula (no aid floor or ceiling) would produce a zero post-aid gap for every district and hence achieve complete equity and adequacy in school funding. While other gap-based formulas are arguably more politically feasible than the first formula, they produce some non-zero post-aid gaps and therefore fail to eliminate funding inequity and inadequacy.

Figure 5

State Aid Pool Required under Different Distribution Scenarios

Connecticut, Fiscal Year 2019



Source: Author's calculations

Notes: The student test performance target for each school district is assumed to be 51.3 percent of students meeting or exceeding the achievement standard. Property taxes are assumed to fund 55 percent of the statewide predicted cost. Under these assumptions, the standard" property tax rate that is used to calculate property tax capacity is 0.86 percent. The minimum aid and maximum aid are set as $55 per pupil and $15,000 per pupil, respectively.

Each gap-based formula results in a different demand for state financial resources. Figure 5 shows that the required state aid pool under the first gap-based formula is almost 8 percent lower than the existing aid pool. This is because under the first formula, some revenues from districts whose gap measures are negative values would be transferred to the state aid pool and redistributed to other districts. However, the aid pool would have to increase under the other gap-based formulas. The required increase relative to the existing aid pool ranges from 24 percent (under the second formula) to 32 percent (under the fourth formula).[10] The need for such increases in funding would make it challenging for the state to adhere to any of these gap-based formulas over time.

10 How much the aid pool needs to increase relative to the existing aid depends on several policy parameters, including the student test performance target, the state-selected common efficiency level, the standard tax rate, and the levels of the minimum and maximum aid.

VI. Conclusion

This report develops a measure of the cost-capacity gap for each Connecticut school district based on factors that are outside the direct control of local officials at any given point in time. Education cost is estimated using actual levels of the same cost factors for each district while holding efficiency and student test performance at given common levels. The cost factors include the percentage of school-age children from families living in poverty and the percentage of students living in single-parent or non-family households. The revenue capacity estimate for each district is based mostly on taxable property wealth.

The existing state aid system does play an equalizing role. However, the largest-gap districts still receive less aid than they need.

This report shows large disparities in the cost-capacity gap among Connecticut school districts. On average, districts with the lowest socioeconomic status have the largest cost-capacity gaps, because they tend to have the highest education costs and the lowest revenue capacities. In contrast, districts with the highest socioeconomic status often have cost-capacity gaps with negative values, because their revenue capacities tend to be more than sufficient to fund their costs required to achieve the given common level of student test performance.

With different cost-capacity gaps, Connecticut school districts have different levels of need for state education aid. The existing state aid system does play an equalizing role, with more aid generally sent to larger-gap districts. However, under the current formula, the largest-gap districts still receive less aid than they need to close their cost-capacity gaps. Thus, funding inequity and inadequacy remain in Connecticut's education finance system.

To improve the state aid distribution, this report introduces five gap-based formulas. The policy simulations show that by using these gap-based formulas instead of the existing formula the state can target education aid more effectively to school districts with greater need for financial assistance.

Some of these gap-based formulas include tools such as minimum and maximum levels of per-pupil state aid and a hold-harmless provision to enhance their political feasibility. However, using these tools would provide some high-socioeconomic-status districts with more aid than they need to close their cost-capacity gap and therefore fail to fully eradicate funding inequity and inadequacy. Also, using these tools would require a larger state aid pool than would be needed otherwise.

Funding the gap-based formulas would likely require more financial resources than the state currently allocates to the education aid system. How much additional funding is needed depends on several policy parameters, including the state-selected student performance target and the levels of minimum and maximum aid.

Now is a particularly challenging time for the state government, as it is coping with a revenue decline induced by the COVID-19 pandemic. However, Connecticut should remain committed to the investment in public education, not only because the state's constitution mandates that all public school students be provided with equal and adequate educational opportunities, but also because education will affect the state's long-term economic growth and competitiveness.

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Acknowledgments

The author thanks Jeff Thompson for helpful comments and Lan Ha for excellent research assistance.

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