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How Will Implementing Class Size Caps in New York City Affect Funding Equity?

An Essay for the Learning Curve by Matthew Chingos, Ariella Meltzer, and Jay Carter

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A new law requiring New York City (NYC) to reduce class sizes across its public schools will require as much as $1.9 billion per year to hire additional teachers, raising questions about how the policy will be funded and its implications for funding equity.[1] We analyze two approaches to funding class size reductions: direct payments to schools with larger classes and increases in per student funding through NYC's student-based funding formula. We find that directly funding class size reductions would be less equitable and less expensive than increasing funding levels across all schools using NYC's formula.

The policy New York State passed in 2022 requires the city's schools to reduce classes to 20 students in grades K–3, 23 students in grades 4–8, and 25 students in grades 9–12 by the 2027–28 school year. Previous research has found that students from low-income families, Black students, and Hispanic students will see their class sizes reduced by smaller amounts when the law is implemented because they are more likely to already be enrolled in classes that comply with the mandate.[2]

But how this potentially inequitable policy plays out in practice will depend on how it is implemented, especially how it is funded. We draw on data from the 2022–23 school year to estimate the teacher salary and benefit costs of implementing the law in grades K–5.

New York City public schools have a $37.6 billion annual budget, or about $31,000 per student. Of the funds that are allocated to individual schools, about 60 percent[3] come through Fair Student Funding (FSF), a formula based on student characteristics such as grade level, special education status, and economic disadvantage. Schools also receive restricted funding streams through School Allocation Memoranda (SAMs), which must be spent on a specified purpose, such as teachers or textbooks.[4]

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[1] Tainá Guarda and Sarita Subraminian, "How Would the New Limits to Class Sizes Affect New York City Schools? Executive Summary" (New York: Independent Budget Office, 2023); and Division of Operations and Finance and Division of Family and Community Engagement and External Affairs (DOF and DFCEEA), *Class Size Working Group–Meeting #2* (New York: New York City Department of Education, DOF and DFCEEA, 2023).

[2] Matthew Chingos and Ariella Meltzer, "Class Size Reductions May Be Inequitably Distributed under a New Mandate in New York City" (Washington, DC: Urban Institute, 2023).

[3] Bureau of Budget, "Spotlight, School Budget Allocations: A Primer" (New York: Office of the Comptroller, Bureau of Budget, 2023).

[4] "Funding Our Schools," New York City Department of Education, accessed November 17, 2023, https://www.schools.nyc.gov/about-us/funding/funding-our-schools.

We estimate the teacher salary and benefits costs of different approaches to funding class size reductions in NYC and find a trade-off between cost and equity. We estimate the direct cost of funding class size reductions to be $2,625 per student in grades K–5, assuming no changes to school enrollment or programming. This is 7 percent more than what schools currently spend and would lead to modest reductions in funding equity. A more equitable approach would be to increase funding for all schools through NYC's existing formula, but doing so would either cost more money or leave many schools with funding gaps.

Reducing implementation costs could make it easier for policymakers to blunt any reductions in funding equity. Options for reducing costs include allowing for a larger cap in classrooms with two teachers, more carefully regulating school enrollments, and changing school programming.

Funding Class Size Reductions Directly Would Reduce Funding Equity

We estimate the cost of hiring teachers to reach full compliance with the class size caps in grades K–5, assuming no changes to school enrollment or programming decisions. We first calculate the number of additional classes and teachers needed, given enrollment in each school, grade, and program type. For example, if a school's first grade is currently divided into one general education class of 22 students and one integrated coteaching (ICT)[5] class of 24 students (served by two teachers), we estimate the school would have to create one new ICT class and hire two new teachers.[6]

We use the citywide average teacher salary of $97,607, use a fringe benefit rate of 44 percent, and increase the number of teachers needed by 20 percent to reflect the fact that adding classrooms will also require hiring more nonclassroom teachers (e.g., to cover art and music classes).[7] Costs will be lower to the extent that newly hired teachers have lower salaries than the district-wide average.[8]

We calculate the salary and benefit costs of implementing the class size policy by multiplying the number of needed additional teachers by the per teacher salary and benefit cost. We then calculate the

[5] ICT classes, as defined by NYC public schools, "include students with IEPs [individualized education plans] and students without IEPs. No more than 12 (or 40%) of the students in the class can have IEPs." See "Special Education in NYC," New York City Department of Education, accessed November 17, 2023, https://www.schools.nyc.gov/learning/special-education/preschool-to-age-21/special-education-in-nyc.

[6] No more than 40 percent of students in an ICT class can have an individualized education plan (IEP). Data on student enrollment by IEP status are not available at the school-by-grade level, so we assume that each ICT class has the maximum number of students with an IEP that are allowed under current policy (40 percent of enrollment in the class). Based on our estimate of the number of students with and without an IEP across all ICT and general education classrooms in each school-grade combination, we calculate the number of ICT and general education classrooms required to comply with the class size caps (still complying with the 40 percent rule). We keep gifted and talented classes separate and note there are only 571 of these classrooms in grades K–5, compared with 8,083 general education classrooms and 5,063 ICT classrooms.

[7] If we instead use school-average teacher salaries instead of a district-wide average salary, we obtain qualitatively similar results.

[8] A starting teacher in New York City with only a bachelor's degree earns $61,070. For a teacher with a master's degree, earning more than the average salary requires 15 years of experience. See "Benefits and Pay," New York City Department of Education, accessed November 17, 2023, https://www.schools.nyc.gov/careers/working-at-the-doe/benefits-and-pay.

per pupil cost by dividing by the number of K–5 students. Our estimates are based on data from the 2022–23 school year, the most recent year for which class size data were available when we conducted this analysis.[9]

An important limitation of our analysis is that we make these calculations only for K–5 classrooms, so our analysis does not capture the cost of reducing class sizes in middle school or high school. Modeling class size changes in higher grades is more complicated because students are typically enrolled in multiple courses. In addition, our focus on teacher salary and benefits costs means we do not capture other potentially important costs, such as capital costs for building expanded or new schools.

We estimate that fully implementing the class size caps in grades K–5 under current school enrollment and programming configurations would entail an added annual cost of $2,625 per student in these grades, an increase of about 9 percent over current spending on these students.[10]

We also estimate how costs would be distributed across schools serving different groups of students. We find that the school attended by the average low-income student, defined as one who qualifies for free and reduced-price lunch or is eligible for Human Resources Administration benefits,[11] would need an additional $2,500 per student to hire new teachers to reduce class sizes, compared with $2,869 for the average higher-income student (figure 1).

This would reduce funding equity as measured by the average funding of schools attended by lower-income students versus higher-income students. Under current school funding policy in NYC, the average low-income student attends a school with per pupil funding levels that are 7 percent higher than the school attended by the average higher-income student. Adding in the estimated cost of class size reductions reduces this measure of funding equity to 5 percent.

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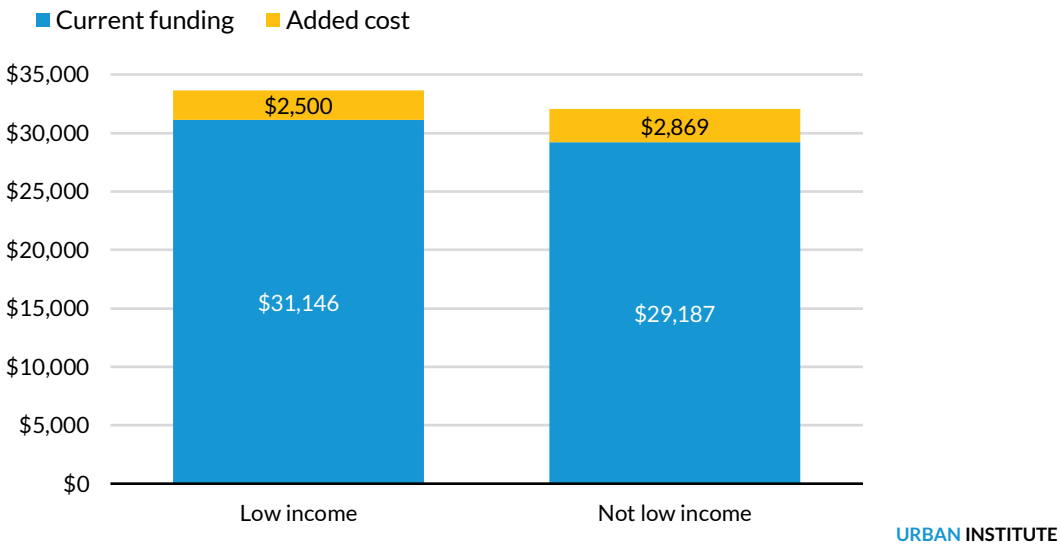
[9] Data for each school's 2022—23 FSF allocations were scraped from the NYC Galaxy Budget Allocations web pages at "Galaxy Allocations," New York City Department of Education, Division of Finance, accessed November 27, 2023, https://www.nycenet.edu/offices/d_chanc_oper/budget/dbor/galaxy/galaxyallocation/default.aspx. The 2022–23 class size report is available at New York City Department of Education, "New York City Class Size 2022–23 Report (Updated)" (New York: New York City Department of Education, 2023). See also "Demographic Snapshot—Citywide, Borough, District, and School" (New York: New York City Department of Education InfoHub, n.d). The 2022–23 class size report is available at New York City Department of Education, "New York City Class Size 2022–23 Report (Updated)" (New York: New York City Department of Education, 2023).

[10] Our data indicate there are about 310,000 students in these grades, so the total estimated cost would be $815 million. We do not focus on total cost estimates because they are limited to one category of implementation costs (teacher salary and benefits) and do not capture students in all grades.

[11] According to the New York City Department of Education, "In previous years, the poverty indicator also included students enrolled in a Universal Meal School (USM), where all students automatically qualified for free or reduced-price lunch. In 2017-18, all students in NYC schools became eligible for free lunch. In order to better reflect free and reduced-price lunch status, the poverty indicator does not include student USM status." See "Demographic Snapshot—Citywide, Borough, District, and School" (New York: New York City Department of Education InfoHub, n.d).

FIGURE 1

The Costs of Implementing Class Size Reductions Are Lower in Schools Serving Low-Income Students



Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Notes: Based only on K–5 classrooms. "Low income" includes students identified by the New York City Department of Education's "poverty" measure, which is the number of students who qualify for free and reduced-price lunch or are eligible for Human Resources Administration benefits. "Not low income" includes all other students.

The inequitable distribution of direct funding to comply with the class size law is more apparent when comparing schools based on their economic need index, an estimate of the share of students from low-income families. The cost of reducing class sizes in the quarter of schools with the least need is roughly 50 percent more than the cost of the highest-need schools: $3,015 versus $2,057 per student (appendix figure A.1).

We repeat this analysis by student race or ethnicity. We estimate that the school attended by the average white student would need an additional $2,966 per student to hire new teachers to implement the class size policy, compared with $2,801 for Asian students, $2,404 for Black students, and $2,422 for Hispanic students (figure 2).

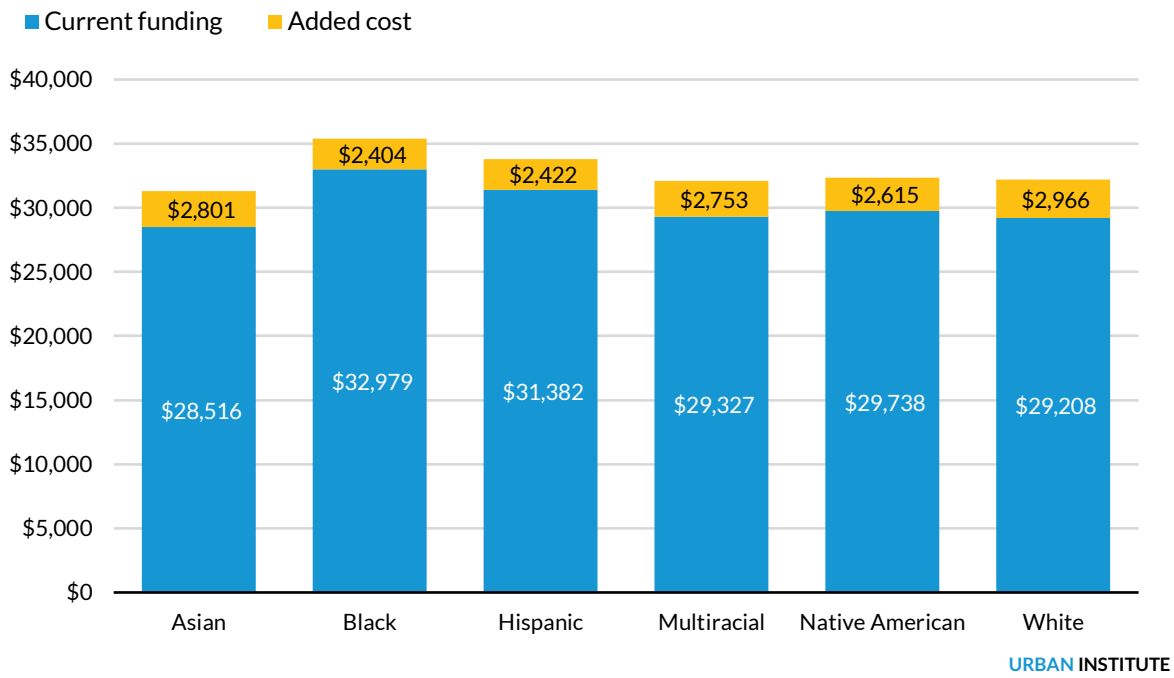
Once again, funding equity would modestly fall because of the additional funding. The average Black student's school currently has per pupil funding levels that are 13 percent higher than the average white student's school. We estimate this equity measure would fall to 10 percent. For Hispanic students, it would fall from 7 percent to 5 percent.

The inequitable distribution of funding required to reduce class sizes is consistent with the fact that schools serving low-income, Black, and Hispanic students are already more likely to meet class size caps.[12]

[12] Chingos and Meltzer, "Class Size Reductions May Be Inequitably Distributed."

FIGURE 2

Reducing Class Sizes Would Cost the Most at Schools Attended by White Students



Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Note: Based only on K–5 classrooms.

Increasing Formula-Based Funding for All Schools Would Be Costly but More Equitable

An alternative approach to directly funding schools to reduce class sizes is to increase funding levels across the board so that all schools have the necessary resources to comply with the mandate. An equitable way to do this in NYC would be to increase funding that flows through FSF, which is designed to meet student need.[13] Under this approach, schools with a greater need to reduce class sizes would spend more of the additional funds on that purpose, while schools that already have smaller classes could use the funds for other purposes.

We estimate how much additional funding each school would get under simulated scenarios where the "per capita" base amount of FSF is increased by a specific amount.[14] To simplify the calculation, we

[13] An option we do not consider is to replace the student-weighted formula with a resource-based formula (where schools are funded in part based on the number of teachers they are required to hire under the class size law). In practice, resource-based approaches tend to be less equitable than student-weighted approaches to school funding. See Hanna Jarmolowski, Chad Alderman, and Marguerite Roza, "Do Districts Using Weighted Student Funding Formulas Deliver More Dollars to Low-Income Students?" *Peabody Journal of Education* 97, no. 4 (2022): 427.

[14] We use FSF data from 2022–23 to match the class size data but note that FSF changed in 2023–24 to incorporate a poverty concentration weight. See New York City Department of Education, "School Budgets, SY 2023-2024" (New York: New York City Department of Education, 2023).

calculate each school's average weight as the ratio between its current per student FSF level and the current per capita amount ($4,197).[15] For example, if a school's current per student FSF level is $10,000, we estimate an average weight of 238 percent ($10,000 divided by $4,197). For our simulation of an increase in the FSF per capita of $1,000, we would estimate a $2,380 funding increase for that school.

Finally, we calculate how many schools would still require additional funds to reduce class sizes (using our estimates from our first analysis). Increasing the FSF per capita by $1,000 would cost $2,326 per student in grades K–5, which is similar to the cost of directly funding class size reductions we estimated above ($2,625). But schools attended by 36 percent of NYC's K–5 students would still require additional funds. If we also factor in the cost of fringe benefits (which are paid out of central district funds rather than individual school budgets), 61 percent of schools would have a funding gap.

Increasing FSF by enough to fund class size reductions in all schools would require more than double that amount (table 1). NYC could get most of the way there by increasing FSF per capita by $2,000, which would cost $4,652 per student and leave only 2 percent of schools with a funding gap (13 percent if fringe benefits are included in the calculation).

TABLE 1

Implications of Increasing FSF to Support Class Size Reductions

Increase FSF per capita by	Increase in per pupil funding	Share of schools with funding gap (with fringe benefits)	Share of schools with funding gap (no fringe benefits)
$1,000	$2,326	61%	36%
$2,000	$4,652	13%	2%
$3,000	$6,978	2%	0%

Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Notes: FSF = Fair Student Funding. Based only on K–5 classrooms. Share of schools is weighted by student enrollment.

Funding class size reductions through an FSF increase is more expensive than funding them directly because the FSF increase provides additional funding to schools regardless of whether they need to reduce class sizes. But because the schools with less need to reduce class sizes are more likely to serve low-income, Black, and Hispanic students, this approach is more equitable.

Additionally, FSF is designed to be at least somewhat equitable. The school attended by the average low-income student receives 10 percent more in FSF than the school attended by the average higher-income student. Comparing schools attended by Black and white students and Hispanic and white students, the differences are 15 and 14 percent, respectively.[16]

[15] An alternative approach, which the New York City Department of Education has modeled, is to increase the grade weights in the formula. See DOF and DFCEEA, *Class Size Working Group–Meeting #9* (New York: New York City Department of Education, DOF and DFCEEA, 2023).

[16] Authors' calculations from school-level finance and demographic data.

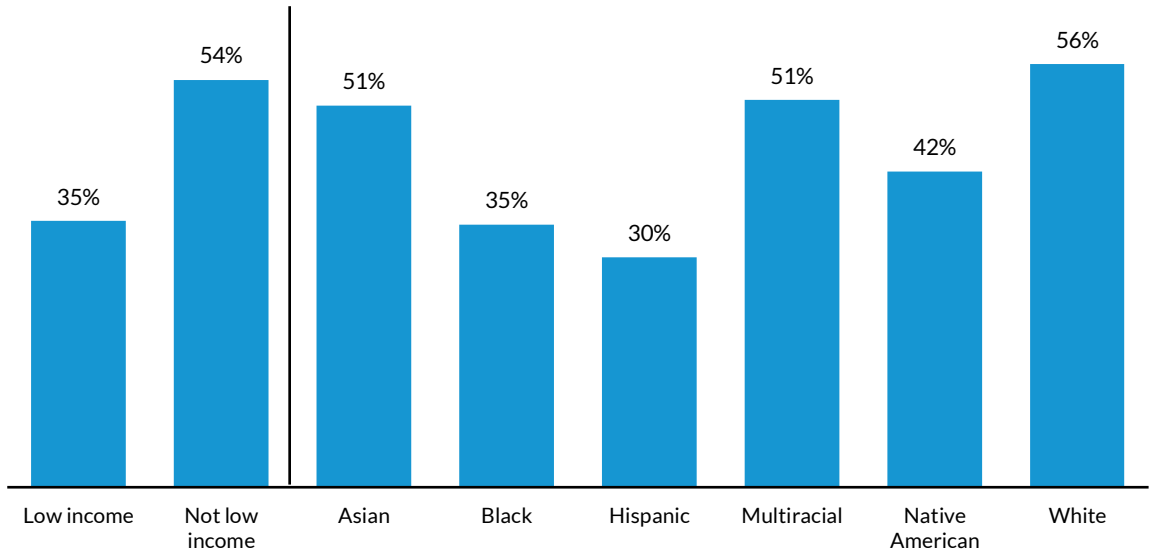
The result is that funding class size reductions through an FSF increase would leave funding gaps at fewer schools serving low-income, Black, and Hispanic students. For example, increasing the FSF per capita by $1,000 (which increases per student funding by $2,326) would leave schools attended by 35 percent of low-income students with a funding gap, compared with 54 percent of higher-income students (figure 3). Comparing schools by their economic need index, 61 percent of the lowest-need schools would have a funding gap, compared with 20 percent of the highest-need schools (appendix figure A.2).

Looking at race or ethnicity, increasing the FSF per capita by $1,000 would leave funding gaps at schools attended by 56 percent of white students, compared with 30 percent of Hispanic students and 35 percent of Black students (figure 3).

FIGURE 3

A Funding Formula Approach Would Leave Fewer Funding Gaps at Schools Serving Lower-Income Students and Black and Hispanic Students

Share of students attending a school with a funding gap under a $1,000 increase in Fair Student Funding per capita



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Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Notes: Based only on K–5 classrooms. The costs of fringe benefits are excluded from these calculations because they are borne by the district. Share of schools is weighted by student enrollment. "Low income" includes students identified by the New York City Department of Education's "poverty" measure, which is the number of students who qualify for free and reduced-price lunch or are eligible for Human Resources Administration benefits. "Not low income" includes all other students.

Implications

Our results indicate that there will be trade-offs between equity and efficiency when implementing the class size mandate for K–5 students in NYC. Increasing funding levels through the city's funding formula

would be more equitable but would be more expensive than funding only the schools with the greatest need for class size reductions (which enroll larger shares of higher-income, white, and Asian students).

A major limitation of our analysis is that it does not account for where funding for class size reductions will come from. The state legislature did not provide funding to implement the mandate, so the city will have to identify new revenue sources or repurpose existing funds. Most existing funds, including FSF, are equitably distributed, so cutting those funding streams to pay for class size reductions could compound the policy's inequitable effects.

One general strategy to mitigate the law's negative impact on funding equity is to reduce implementation costs, which would make it possible for more equitable funding mechanisms to cover a larger share of the costs. For example, policymakers could consider a hybrid approach that would increase funding levels equitably, require schools with remaining gaps to reprioritize existing funds for class size reductions, and provide a direct allocation (SAM) to schools that cannot meet the caps with existing funds.[17] The New York City Department of Education modeled such an approach using data on K–12 classrooms and found that it is more equitable and more expensive than directly funding class size reductions.[18]

A significant cost driver in our analysis is how the class size caps interact with the use of ICT classrooms in New York City, which have two teachers and serve a mix of special and regular education students. If New York State amended the class size law to increase the caps in classes with two teachers by 25 percent (e.g., from 20 to 25 students in grades K–3), we estimate the per student cost of implementation would fall by 54 percent, from $2,625 to $1,197.

Absent such a change to the caps, the district and individual schools can reduce the implementation costs by changing programming decisions. For example, a school that has different program types in the same grade (e.g., general education, ICT, and gifted and talented) could rebalance students across programs to reduce the number of additional classes that must be created. This may require revisiting existing policies, such as the maximum share of ICT students with an individualized education plan and gifted and talented placement decisions.

These kinds of programming changes could reduce the amount of "breakage," or the difference between average class size and the caps, which is a significant cost driver. The district could also seek to reduce breakage by more carefully regulating enrollment in each school. For example, a school with 41 students in second grade has a lot of breakage because the 20-student cap means they have to have three classes averaging 13.7 students. If the district were to cap enrollment in that school at 40 second-grade students, only one student would be unable to enroll, and the cost of implementing the caps would be reduced by a full teacher.

[17] An FSF increase could be accomplished through a more complex set of changes than we model here, such as increasing the base amount and altering the weights to prioritize an equitable allocation of the additional funds.

[18] DOF and DFCEEA, *Class Size Working Group–Meeting #9*.

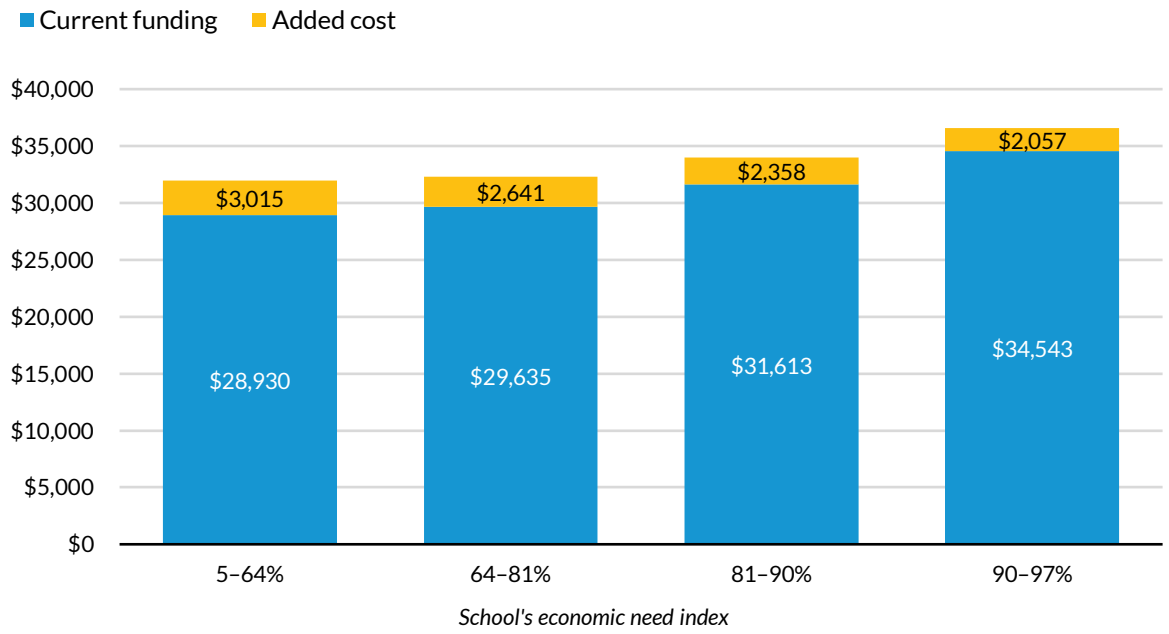
In practice, reducing breakage is difficult because of such factors as student movement between schools and the change in the class size cap from 20 students in third grade to 23 students in fourth grade. But there may be tweaks to NYC's centralized enrollment system that could better align average class sizes with the caps.

NYC funds its schools somewhat equitably; schools serving low-income and Black and Hispanic students receive more per pupil funding than other schools. Partly as a result, these schools can afford lower average class sizes than schools that serve higher-income and white and Asian students. The result is that, without an enormous infusion of new resources, implementing the uniform class size caps will require a reduction in funding equity. The challenge facing policymakers is how to minimize the inequitable impact while complying with the law.

Appendix

FIGURE A.1

Costs of Directly Implementing Class Size Reductions, by School Economic Need Index



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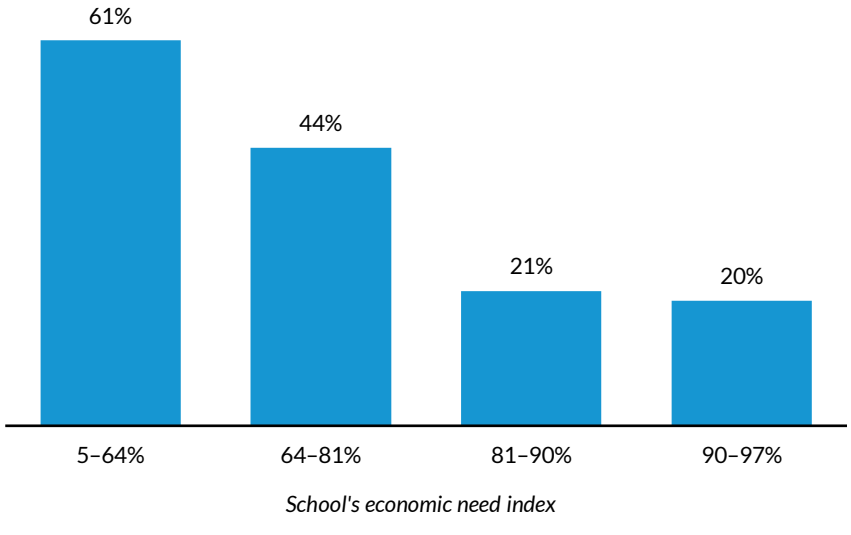
Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Notes: Based only on K–5 classrooms. Schools are grouped into quartiles based on their economic need index.

FIGURE A.2

Share of Schools with Funding Gaps under the Formula Funding Approach, by School Economic Need Index

Share of schools with funding gap



Source: Authors' calculations from 2022–23 New York City class size reports and school-level funding and demographic data.
Notes: Based only on K–5 classrooms. The costs of fringe benefits are excluded from these calculations because they are borne by the district. Share of schools is weighted by student enrollment. Schools are grouped into quartiles based on their economic need index.

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