Class Size Reductions May Be Inequitably Distributed under a New Mandate in New York City

An Essay for the Learning Curve by Matthew Chingos and Ariella Meltzer
August 2023

A new state law requires New York City to reduce class sizes in its public schools over the next five school years, at an estimated cost of billions of dollars.[1] Prior research shows that smaller classes can improve student outcomes, but the new policy raises questions about how it will be implemented and how it will affect resource equity across the city.[2] We find that this mandate would lead to smaller classes for most students in New York City. Asian, white, and higher-income students are more likely to be enrolled in larger classes and, as a result, are more likely than Black, Hispanic, and lower-income students to see their class sizes reduced when the policy is fully implemented.

The law New York governor Kathy Hochul signed in September 2022 requires schools in New York City to reduce their class sizes to no more than 20 students in grades K–3, 23 students in grades 4–8, and 25 students in high school by the 2027–28 school year.[3] New York City's Independent Budget Office (IBO) estimated that hiring enough teachers to comply with the mandate will cost $1.6 to $1.9 billion a year.[4] The costs for new school buildings to accommodate a larger number of smaller classes are more uncertain; the city's current capital cost estimate is $30 to $35 billion.[5]

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[1] Amy Zimmer and Reema Amin, "NYC Drafts Plan to Shrink Class Sizes, but Changes Won't Start Next School Year," Chalkbeat New York, May 19, 2023, https://ny.chalkbeat.org/2023/5/19/23730603/smaller-class-size-law-draft-plan-nyc-schools.

[2] Matthew M. Chingos, "Class Size and Student Outcomes: Research and Policy Implications," *Journal of Policy Analysis and Management* 32, no. 2 (Spring 2013): 411, https://www.jstor.org/stable/42001539.

[3] 2023 N.Y. Consol. Laws Adv. Legis. Serv., § 211-D, Contract for excellence. Physical education and performing arts classes are capped at 40 students. There are four major exemptions to the law: lack of space, "overenrolled" programs, a shortage of licensed teachers, and schools in severe economic distress. All exemptions must be approved by the teacher and principal unions. Charter schools are not covered by the law.

[4] 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). The district's estimate of staffing costs is somewhat lower, at $1.3 billion annually. See 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).

[5] DOF and DFCEEA, *Class Size Working Group–Meeting #2*.

Initial estimates from both the district and the IBO indicate that schools with higher proportions of students facing economic need, Black students, and Hispanic students already have smaller classes and thus are less likely to need to reduce their class sizes to comply with the new caps.[6] Conversely, schools serving larger shares of economically advantaged and white and Asian students are more likely to be overenrolled, with more classes above the new caps.

We build on these analyses by applying a new approach to data from the most recent school year (2022–23) to estimate how many students from different demographic groups would see their class sizes shrink (and by how much) if the law were fully implemented. Overall, we estimate that average class sizes would fall by four to seven students if the policy were fully implemented.

We find that these reductions would be inequitably distributed. More than 80 percent of white and Asian students would see their class sizes reduced, compared with 56 percent of Black students and 66 percent of Hispanic students. About two-thirds of students from lower-income families are in classes that would be reduced, compared with 78 percent of higher-income families. How these potential inequities play out in practice will depend on how the policy is implemented, including how it is funded and how it leads to changes in student enrollment and teacher staffing across schools.

Class Size Caps Would Reduce Average Class Size by Four to Seven Students

We use data on the number of classes and students from the New York City Department of Education's 2022–23 annual class size report to simulate what class sizes would be for each school, grade, and program type (e.g., general education, gifted and talented, and integrated coteaching[7]) once the caps are fully implemented, assuming no changes to programming or school enrollments over the course of the policy's rollout.[8] For example, if a second-grade cohort currently has 48 students divided between two classes, for an average class size of 24, we estimate that the policy would require adding a third class, reducing the average class size to 16 students.[9]

We make this calculation for every school, grade, and program type and then calculate, for the average student in New York City, what their class size currently is, what it would be if the caps were

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[6] DOF and DFCEEA, *Class Size Working Group–Meeting #1* (New York: New York City Department of Education, DOF and DFCEEA, 2023); and Guarda and Subraminian, "How Would the New Limits to Class Sizes Affect New York City Schools?"

[7] According to the district, "Classrooms with Integrated Co-Teaching (ICT) services include students with IEPs [individualized education programs] and students without IEPs. No more than 12 (or 40 percent) of the students in the class can have IEPs. There are two teachers—a general education teacher and a special education teacher. The teachers work together to adapt materials and modify instruction to make sure the entire class can participate." See "Special Education in NYC," New York City Department of Education, accessed August 1, 2023, https://www.schools.nyc.gov/learning/special-education/preschool-to-age-21/special-education-in-nyc.

[8] "Class Size Reports," New York City Department of Education InfoHub, accessed July 31, 2023, https://infohub.nyced.org/reports/government-reports/class-size-reports.

[9] We use average, not maximum, class size data to make these calculations. This assumes, for example, that a kindergarten cohort with 40 students divided between a class of 18 and a class of 22 would comply with the cap by creating two classes of 20 rather than by creating a third class.

implemented, the size of the reduction, and the share of students experiencing any reduction.[10] For students in K–5 and K–8 schools, this reflects students' primary classroom assignments. For middle schools, our estimate is averaged across data from classes in the four core subjects (English, math, science, and social studies) for which the district currently reports class size data. In practice, the law will apply to all courses (with physical education and performing groups subject to a higher cap of 40 students).

Table 1 shows that the typical student in grades K–3 has a class size of 23 students. If the cap of 20 students per class were fully implemented and enrollments stay the same, average class size would fall to 16, for a reduction of 7 students. Seventy-five percent of all students in these grades would see their class sizes fall (whereas the other 25 percent are already in classes that do not exceed the cap).

Higher grades tend to have somewhat larger classes and are subject to a higher cap. Compared with grades K–3, we estimate somewhat smaller average reductions in the higher grades. When we break the data down by individual grades for students in K–5 and K–8 schools (appendix table A.1), we find that kindergarten students are less likely to see a reduction than students in grades 1–3 because kindergarten classes are already somewhat smaller (20.9 students, on average, compared with 23.6 students in 1st grade).[11]

TABLE 1
Effects on Class Sizes If Caps Are Implemented
Average class sizes are estimated to fall by seven students in early grades and by four students in high school

Grade level	Cap on class size	Current average class size (weighted)	Average class size if caps are implemented	Estimated average class size reduction	Share of students whose class size is reduced
K–3 (in K–5 and K–8 schools)	20	23.0	16.0	7.0	75%
4–8 (in K–5 and K–8 schools)	23	25.5	19.3	6.2	73%
Middle schools (core courses)	23	24.8	20.4	4.5	73%
High schools (core courses)	25	25.4	21.3	4.1	59%

Source: Authors' calculations from New York City 2022–23 class size reports.
Notes: All statistics are student weighted, so average class sizes indicate the average class size experienced by the typical student in New York City.

An important limitation of this analysis is that we assume no changes in student enrollment across program types or schools. For example, a school with 15 kindergartners in a general education class and 25 kindergartners in an integrated coteaching class could comply with the mandate by moving 5

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[10] We weight all class size statistics by the number of students in each class, so the averages reflect the class size the typical student experiences. Because larger classes get more weight in this calculation (as they have more students), the weighted average class sizes are somewhat larger than unweighted averages.

[11] Kindergarten class sizes are currently capped at 25 under New York City's collective bargaining agreement for teachers, compared with 32 in elementary grades, 33 in intermediate schools (30 in Title I intermediate schools), and 34 in high schools. See "Know Your Rights: Class Size," United Federation of Teachers, accessed July 31, 2023, https://www.uft.org/your-rights/know-your-rights/class-size.

students from the larger class to the smaller class. Likewise, in a school with 45 kindergartners, the district could cap enrollment at 40 students going forward so that a third class would not need to be created. These kinds of implementation decisions, which we do not consider, would tend to reduce the amount by which class sizes are reduced, on average, as well as the cost of implementing the mandate.

Asian, White, and Higher-Income Students Are More Likely to Experience Class Size Reductions

We calculate how much class sizes would be reduced by student race or ethnicity and family income by linking the class size data with demographic data at the school level.[12] Instead of weighting by the total number of students in each school, grade, and program type, we weight by the estimated number of students in a given demographic group.[13] The family income measure we use in our analysis is 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.[14] For race and ethnicity, we focus on results for the four largest groupings in the data (Black, Hispanic, Asian, and white) and also report results for multiracial students (1.6 percent of students) and Native American students (1.2 percent).[15]

In K–5 and K–8 schools, we find that 82 percent of Asian students and 81 percent of white students would see their class sizes reduced under the policy, compared with 56 percent of Black students and 66 percent of Hispanic students (figure 1). Students from higher-income families are about 10 percentage points more likely to experience a class size reduction than students from lower-income families (78 percent versus 67 percent). These results reflect the fact that Asian, white, and higher-

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[12] "Demographic Snapshot: 2018–19 to 2022–23 (Public)," New York City Department of Education InfoHub, accessed July 31, 2023, https://infohub.nyced.org/docs/default-source/default-document-library/demographic-snapshot-2018-19-to-2022-23-(public).xlsx.

[13] This approach applies school-level demographic breakdowns to class size data at the school, grade, and program type level. In K–5 and K–8 schools, 57 percent of students are in general education classes, 35 percent are in integrated coteaching classes (with both a regular and special education teacher), 6 percent are in self-contained (special education) classes, and 3 percent are in gifted and talented classes. For example, if there are 50 kindergartners in a school where 40 percent of students are Black, we estimate than 20 kindergarteners are Black. In supplementary analyses (available on request), we ran our analysis again using 2021–22 class size data from New York City and 2021–22 school-by-grade race or ethnicity data from the Common Core of Data and found qualitatively similar results. But we believe our approach is less suitable for characteristics that are likely to be more correlated with program type, such as student disability and English language learner status. For that reason, we report those results in the appendix but interpret them as reflecting school-level trends only (not providing an estimate of class size reduction by student characteristics).

[14] 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: 2018–19 to 2022–23 (Public)," New York City Department of Education InfoHub.
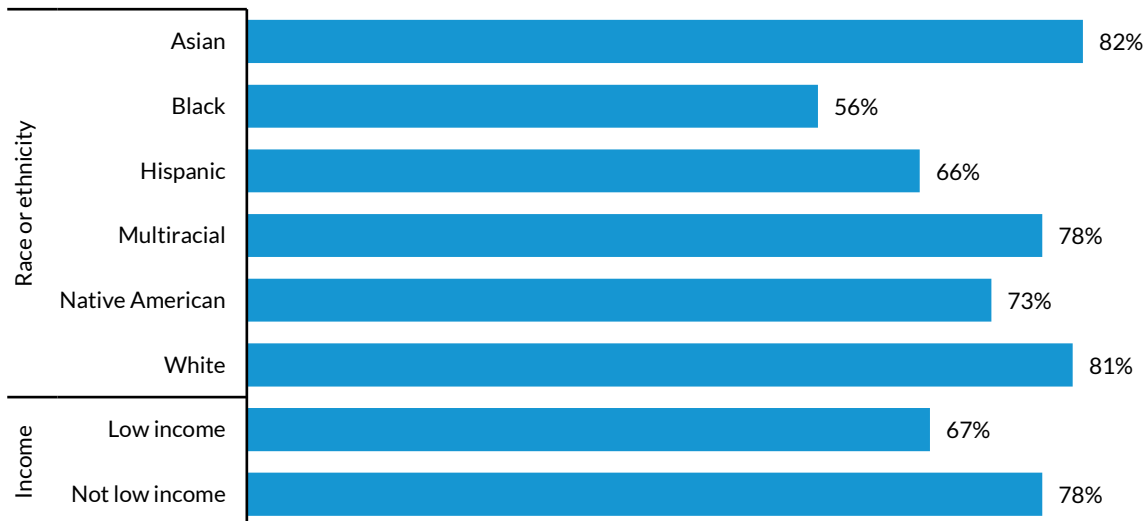
[15] Broad racial or ethnic categorizations such as Asian and Hispanic likely mask significant heterogeneity that would be useful to document if the data allowed.

income students are more likely to be in classes that are larger than the caps. We find a similar pattern of results for core courses in middle and high schools (appendix table A.2).

Share of Students in Grades K–8 Whose Class Size Would Be Reduced

Asian, white, and higher-income students are more likely to experience class size reductions if caps are fully implemented

Source: Authors' calculations from New York City 2022–23 class size reports and school-level demographic data.
**Notes:** "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.

Another way to interpret these results is to compare current average class sizes with what we estimate they would be after the caps are implemented (figure 2). For example, the average Black student in K–5 and K–8 schools currently has a class size that is about 3 students smaller than that of the average white student. Implementing the mandate would reduce this difference to 1 student. In middle and high schools, the mandate changes the Black-white difference in average class sizes from 3.1 to 1.7 students (appendix table A.2). (Hispanic-white comparisons yield a similar pattern.)

FIGURE 2

Weighted Average Class Sizes before and after Reductions

Class size reductions are larger for Asian and white students than for Black and Hispanic students

■ Before reduction   ■ After reduction

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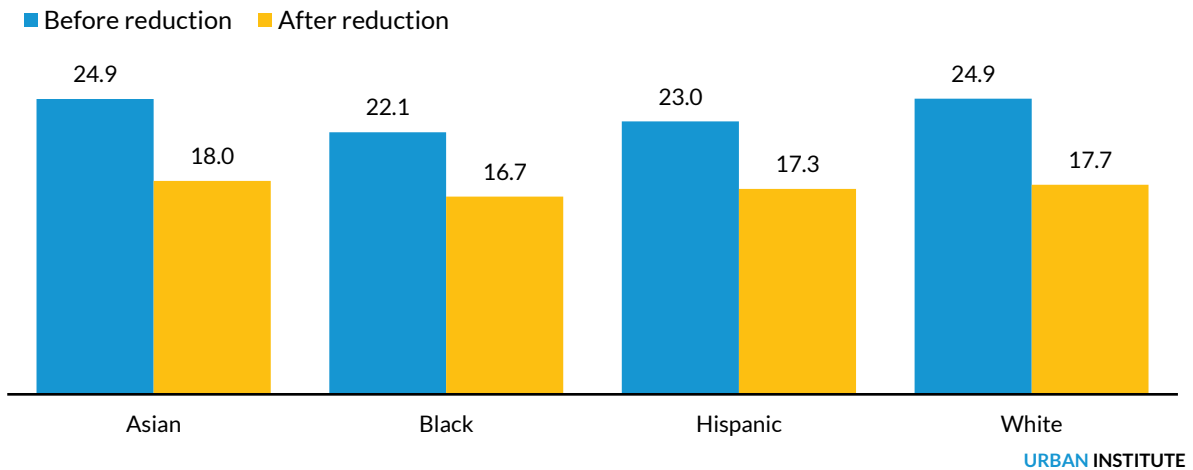
Source: Appendix table A.2.
Note: All statistics are student weighted, so average class sizes indicate the average class size experienced by the typical student (from the listed demographic group) in New York City.

We also calculate results based on the school-level share of students with disabilities and who are English language learners (appendix table A.2). Because these groups are likely clustered in program types that may already have smaller classes than the school has a whole, we interpret these results as reflecting patterns only at the school level (e.g., whether schools with a higher share of students with disabilities are more likely to have to reduce their class sizes). Students with disabilities are less likely to be enrolled in schools where the caps would lead to class size reductions, and the same is true for English language learners but only at the middle and high school level.

Finally, we estimate reductions by borough and geographic school district (appendix table A.3). Students attending schools in Queens and Staten Island are the most likely to see their class sizes reduced (80 to 81 percent of students in K–5 and K–8 schools), compared with 59 percent in Manhattan and in the Bronx. These averages mask significant differences across districts in the same borough. For example, the share of K–5 and K–8 students who would see a class size reduction in Manhattan ranges from 32 percent in district 5 to 80 percent in district 2.

Like our overall analysis of fully implementing the caps, these estimates by demographic characteristics assume no changes in school programming or enrollments. Such changes could affect how class size reductions are distributed by demographic characteristics, such as if the district were to enact policies that shift enrollment from overenrolled schools to underenrolled schools.

Policy Implications

If the New York City class size policy were a fully funded mandate that included additional resources to implement smaller classes and was implemented with no changes to school enrollments, these results indicate that these additional educational resources would be inequitably distributed in terms of both race and income. But in practice, the New York City policy is more complicated.

The legislature did not provide new funding for the city to implement the mandate, instead requiring the use of existing resources provided by the state, including recent increases in state foundation aid and "Contracts for Excellence" funding, which can be used for class size reduction and five other specified purposes.[16] This means the class size mandate's implications for resource equity will depend on how school budgets are shifted to implement the policy. For example, the district could reduce the budgets of schools that do not need to reduce class sizes by as much to fund larger reductions in other schools, or it could simply require schools to implement reductions using currently available resources (though the latter may not be feasible, especially for space-constrained schools). The former of these options would be more inequitable than the latter, as it would mean shifting resources from lower-income school communities to more affluent school communities, on average.

The policy's impact on student outcomes will also depend on other implementation decisions, such as whether enrollments are reduced in schools that exceed the class size caps and do not have space to accommodate more classrooms (and which schools should be expanded to accommodate additional students) and decisions about where to invest in building larger (or new) school buildings. Another key question connected to implementation is whether hiring many new teachers (the IBO estimates about 17,700 will be needed) will have implications for teacher quality overall and how teachers are distributed across different schools.

The district is discussing these kinds of decisions with the teachers' and supervisors' unions and with a citywide working group on class size.[17] How the law is implemented will affect resource equity for students and the total cost of implementing the law, which will have implications for the district's finances overall and the resources it has available to fund priorities other than class size reduction.

The law provides breathing room for New York City policymakers focused on equity by directing them to initially target schools with higher poverty levels for class size reductions. But our results suggest that, as the full implementation deadline of 2027–28 approaches, an across-the-board class size

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[16] Office of Governor Kathy Hochul, "Governor Hochul Announces Settlement of NYSER v. NYS Case to Fully Fund Foundation Aid in New York's Schools," news release, October 14, 2021, https://www.governor.ny.gov/news/governor-hochul-announces-settlement-nyser-v-nys-case-fully-fund-foundation-aid-new-yorks; and "Contracts for Excellence," New York City Department of Education, accessed July 31, 2023, https://www.schools.nyc.gov/about-us/funding/contracts-for-excellence.

[17] The working group includes parents, educators, advocates, and researchers with the charge of making recommendations for how the district should implement the class size policy. See "Contracts for Excellence," New York City Department of Education, accessed July 31, 2023, https://infohub.nyced.org/reports/financial/contracts-for-excellence. One of the authors of this essay (Chingos) is a member of the working group.

mandate will pose challenges to policymakers seeking to distribute education resources equitably rather than equally.

Appendix

Estimated Class Size Reductions, by Grade Level

Grade or grade level	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced
K–8 (in both K–5 and K–8 schools)	23.6	17.4	6.2	70%
Kindergarten	20.9	16.1	4.8	63%
Grade 1	23.6	16.0	7.6	80%
Grade 2	23.6	15.9	7.7	79%
Grade 3	23.8	16.0	7.8	79%
Grade 4	24.4	18.2	6.2	63%
Grade 5	24.8	18.2	6.6	65%
Grade 6	25.6	19.9	5.7	74%
Grade 7	26.3	20.1	6.2	81%
Grade 8	26.7	20.1	6.5	83%
Middle schools (core courses)	24.8	20.4	4.5	73%
High schools (core courses)	25.4	21.3	4.1	59%

Source: Authors' calculations from New York City 2022–23 class size reports.

Notes: All statistics are student weighted, so average class sizes indicate the average class size experienced by the typical student in New York City.

Estimated Class Size Reductions, by Demographic and Student Characteristics

Demographic and student characteristics	K–8 (K–5 and K–8 Schools)				Middle and High School (Core Courses)			
	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced
Asian	24.9	18.0	6.9	82%	27.0	21.9	5.1	79%
Black	22.1	16.7	5.4	56%	23.8	20.1	3.7	54%
Hispanic	23.0	17.3	5.7	66%	24.4	20.6	3.8	59%
Multiracial	24.4	17.5	7.0	78%	26.7	21.5	5.2	77%
Native American	23.9	17.6	6.2	73%	25.3	21.0	4.3	68%
White	24.9	17.7	7.3	81%	27.0	21.7	5.2	78%
Low income	23.2	17.3	5.9	67%	24.8	20.7	4.0	62%
Not low income	24.5	17.6	7.0	78%	26.3	21.4	4.9	73%
English language learner	23.4	17.4	6.0	70%	24.1	20.6	3.5	57%
Non–English language learner	23.6	17.4	6.2	70%	25.3	20.9	4.4	66%
Students with disabilities	23.2	17.3	5.9	66%	24.5	20.5	4.0	60%
Students without disabilities	23.7	17.4	6.3	71%	25.3	21.0	4.3	66%

Source: Authors' calculations from New York City 2022–23 class size reports and school-level demographic data.

Notes: All statistics are student weighted, so average class sizes indicate the average class size experienced by the typical student (from the listed demographic group) in New York City. "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.

TABLE A.3

Estimated Class Size Reductions, by Borough and District

District	K–8 (K–5 and K–8 Schools)					Middle and High School (Core Courses)				
	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced	Share of low-income students	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced	Share of low-income students
Manhattan	**22.4**	**16.7**	**5.7**	**59%**	**64%**	**24.8**	**20.6**	**4.2**	**58%**	**73%**
01	21.4	16.6	4.8	50%	74%	24.1	20.3	3.9	50%	67%
02	24.9	17.3	7.6	80%	36%	25.8	21.0	4.8	63%	68%
03	22.1	16.7	5.4	57%	51%	24.4	20.8	3.6	56%	66%
04	19.9	16.2	3.7	38%	88%	23.4	19.8	3.6	54%	85%
05	19.1	15.6	3.5	32%	89%	23.2	19.1	4.1	47%	79%
06	21.5	16.4	5.1	50%	83%	23.6	20.0	3.6	51%	88%
The Bronx	**22.3**	**16.9**	**5.4**	**59%**	**90%**	**23.4**	**20.0**	**3.4**	**49%**	**88%**
07	20.8	16.0	4.7	45%	95%	21.8	19.2	2.6	34%	92%
08	23.3	17.2	6.2	67%	87%	23.0	19.7	3.4	52%	85%
09	20.9	16.6	4.3	44%	95%	22.4	19.4	3.0	39%	92%
10	22.1	17.1	5.0	57%	89%	24.0	20.5	3.5	50%	86%
11	23.6	17.3	6.3	73%	82%	24.6	20.6	4.0	62%	82%
12	21.9	16.5	5.4	56%	94%	22.7	19.5	3.2	46%	94%
Brooklyn	**23.3**	**17.5**	**5.8**	**68%**	**76%**	**25.3**	**21.0**	**4.3**	**67%**	**80%**
13	21.8	16.2	5.6	59%	60%	27.4	22.2	5.2	71%	77%
14	21.0	17.0	4.1	48%	70%	24.8	20.4	4.4	58%	81%
15	24.0	18.1	5.9	75%	53%	26.1	21.0	5.1	75%	69%
16	18.7	15.4	3.3	28%	82%	22.6	19.3	3.3	44%	86%
17	21.9	16.8	5.1	50%	83%	23.1	19.6	3.4	48%	83%
18	21.3	16.6	4.7	47%	81%	21.5	18.8	2.7	37%	81%
19	22.2	16.7	5.4	60%	92%	23.7	19.8	3.9	53%	88%
20	24.5	18.5	6.1	84%	77%	26.3	22.3	4.0	82%	77%
21	25.8	18.3	7.6	86%	78%	26.6	21.7	4.8	76%	77%
22	23.9	17.4	6.5	75%	71%	27.1	22.0	5.1	81%	73%
23	20.4	16.0	4.4	38%	93%	19.3	17.5	1.8	26%	90%
32	20.5	17.2	3.3	34%	86%	22.1	19.2	3.0	40%	86%
Queens	**24.7**	**17.8**	**7.0**	**80%**	**70%**	**25.9**	**21.3**	**4.6**	**74%**	**72%**
24	25.1	18.4	6.7	86%	75%	25.7	21.5	4.2	73%	76%

District	K–8 (K–5 and K–8 Schools)					Middle and High School (Core Courses)				
	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced	Share of low-income students	Current average class size (weighted)	Average class size after reduction	Estimated average class size reduction	Share of students whose class size is reduced	Share of low-income students
25	25.4	18.0	7.4	84%	68%	27.1	21.7	5.4	85%	72%
26	25.7	17.6	8.0	82%	50%	25.8	21.5	4.3	69%	64%
27	24.1	17.2	6.9	75%	77%	24.9	20.7	4.2	66%	75%
28	25.4	17.6	7.8	82%	68%	27.4	21.8	5.5	82%	71%
29	23.9	16.8	7.1	72%	73%	24.7	19.6	5.1	71%	73%
30	23.7	18.1	5.6	75%	69%	25.6	21.6	4.0	70%	69%
Staten Island	**25.1**	**17.7**	**7.4**	**81%**	**63%**	**26.7**	**21.8**	**4.9**	**79%**	**65%**
31	25.1	17.7	7.4	81%	63%	26.7	21.8	4.9	79%	65%

Source: Authors' calculations from New York City 2022–23 class size reports and school-level demographic data.

Note: All statistics are student weighted, so average class sizes indicate the average class size experienced by the typical student enrolled in a school in the listed borough or district.

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