Enduring Success

Effects of New York City's Small Schools of Choice on Postsecondary Degree Attainment and Employment

JANUARY 2026

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New York City's Small Schools of Choice (SSCs) were created as part of the city's Children First Initiative to redesign students' high school experiences and increase high school graduation rates for students from low-income backgrounds who historically had limited access to small, personalized academic instruction. SSCs typically serve approximately 100 students per grade and emphasize academic rigor, the real-world relevance of learning, and personalized relationships between teachers and their students. Since 2010, MDRC researchers have used the lotteries within New York City's high school assignment process to rigorously study SSCs' effects on students and have consistently found large, positive impacts on high school graduation rates, produced year after year and at no additional cost per graduate.[1]

The positive findings on students' high school outcomes have helped provide a road map for practitioners looking to transform their city's high school landscape and increase high school completion.[2] The purpose of this brief is to explore whether students' enrollment in SSCs continues to help them advance as they move into postsecondary education and the labor market. Toward this end, the project's rich longitudinal database pro-

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vides a unique opportunity to study students who applied to attend an SSC in the 2005-2006, 2006-2007, 2007-2008, and 2008-2009 academic years. Researchers followed these students for six years after their anticipated high school graduation and measured SSC effects on their enrollment in postsecondary education, their postsecondary degree attainment, and their future employment and earnings — overall and by key student subgroups.

On average, ninth-grade enrollment in an SSC, instead of another type of New York City high school, produced the following effects:

- Large, positive effects (of 9.5 percentage points) on students' enrollment in postsecondary education immediately after graduating from high school.
- Small to moderate, positive effects (of 2.5 percentage points) on students' four-year postsecondary degree attainment rate.
- Some variation in effects across students, such as larger increases in postsecondary enrollment and degree attainment rates among students who were already proficient in math before entering high school.
- No effect on students' employment rates or earnings, despite increased rates of enrollment in postsecondary education.

The remainder of this brief describes the SSC reform effort in New York City, the study's analytic approach, and the findings in greater detail. The brief concludes with a discussion of the meaning of this work for the field of public education and the next steps to be taken in MDRC's continued research on SSCs.

What Are SSCs and How Does MDRC Study Them?

In 2002, New York City Public Schools (NYCPS) launched a bold set of reforms designed to transform the educational experiences of all high school students in the city. As part of this effort, NYCPS instituted a district-wide high school choice process that assigned all rising ninth-graders to specific high schools; closed large, low-performing high schools; and created over 100 new small schools — SSCs — focused on "rigor, relevance and relationships" to serve students in the lowest-income areas of the city.[3] Among the study's participants, about 90 percent of students attending SSCs were Black or Hispanic, 83 percent qualified for free or reduced-price lunch (indicating a low-income background), 59 percent did not fully meet eighth-grade math standards on state exams, and 67 percent did not fully meet eighth-grade reading standards on state exams.[4]

The staff, structure, and mission of each SSC were built "from scratch" as part of a competitive application process that solicited proposals from parents, community members, teachers, and administrators with a commitment to educational excellence. Each SSC planning team had the authority to

choose a school theme and a community or business partner. However, all teams were required to propose curricula and school structures that promoted academic rigor, real-world relevance, and personalized relationships. In addition, each SSC planning team was encouraged to partner with an outside intermediary organization that could provide additional support. This support ranged from program funding, to assisting with the hiring of new teachers and staff members, to providing students with opportunities to connect their schoolwork with the world of work.

Since June 2010, MDRC has used the lottery procedure embedded in the NYCPS high school assignment algorithm, which determines placement when a given school has more applicants than seats, to identify an evaluation sample of over 100 SSCs and over 16,000 students. This evaluation sample includes "SSC enrollees," who "won" the lottery and enrolled in an SSC, and "non-SSC enrollees," who "lost" the lottery and did not enroll in an SSC. MDRC researchers use statistical analyses to compare the outcomes between these two groups and estimate the effects of enrolling in an SSC as opposed to another type of New York City public school.[5]

Few studies of high school reform efforts have had the opportunity to follow students into postsecondary education *and* the labor market. This project has done so by compiling three different types of data: NYCPS high school records, National Student Clearinghouse and City University of New York (CUNY) postsecondary enrollment and degree attainment data, and New York State (NYS) employment and earning records. This comprehensive dataset enabled the research team to describe outcomes and trajectories for most students in the sample six years after high school graduation. Though earnings data are not available for the full sample of students, the sample for which earnings data are available appears representative of the overall sample of students.[6]

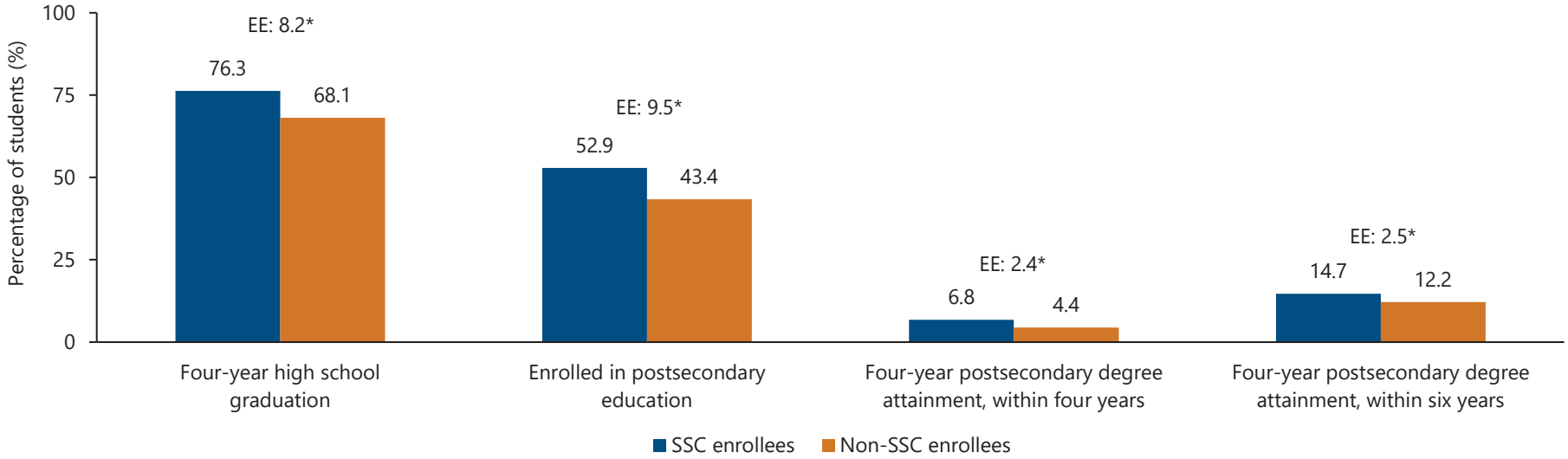
What Are the Effects of SSC Enrollment on Students' Postsecondary Outcomes?

Postsecondary Education

Figure 1 illustrates SSC effects on students' high school graduation, enrollment in postsecondary education, and postsecondary degree attainment. The data show that, on average, 76.3 percent of SSC enrollees graduated from high school within four years, versus 68.1 percent of non-SSC enrollees, for an estimated SSC effect of 8.2 percentage points. Furthermore, SSCs increased by 9.5 percentage points the rate of student enrollment in a postsecondary institution within six months of their expected four-year high school graduation date.

Although few students in the sample obtained a postsecondary degree, SSC enrollment had a positive effect on a student's probability of graduating with a four-year credential. For example, within four years after high school graduation, 6.8 percent of SSC enrollees received a four-year degree, compared with 4.4 percent of non-SSC enrollees, for an SSC impact of 2.4 percentage points. Within six years of their expected high school graduation, 14.7 percent of SSC enrollees received a four-year degree, compared with 12.2 percent of non-SSC enrollees, for an SSC impact of 2.5 percent-

Figure 1. SSC Effects on High School Graduation, Enrollment in Postsecondary Education, and Postsecondary Degree Attainment



SOURCE: Authors' calculations based on data from New York City Public Schools (NYCPS).

NOTES: Findings in this figure are based on data for 16,496 rising ninth-graders who applied to Small Schools of Choice (SSCs) in 2005, 2006, 2007, and 2008. The estimated effect (EE) of enrolling in an SSC was obtained by comparing the means for winners and losers of students' first SSC lottery using the lottery outcome interacted with a binary lottery indicator as an instrumental variable for SSC enrollment and adjusting estimated standard errors for student clustering by the first school they attended. Statistical significance at the 5 percent level is marked with an asterisk (*).

The "Enrolled in postsecondary education" columns use the most recent NYCPS data, which only include enrollment within the first six months of four-year high school graduation. This measure is more comprehensive than that used in previous MDRC studies because it incorporates data from the City University of New York, in addition to the National Student Clearinghouse.

The denominator for the postsecondary degree attainment columns is the number of students in the most recent degree attainment dataset (14,646).

age points. Notably, it appears that the SSC effect on students' four-year degree attainment was generated in the four years after students' high school graduation. SSCs had no discernable impact on the rate of students receiving postsecondary certificates or two-year degrees.

Table 1 shows the impact of SSCs on the type of postsecondary institution students attend. The SSC effect on postsecondary enrollment is driven mainly by an increase of 4.9 percentage points in the rate at which students enrolled in CUNY institutions, and an increase of 3.9 percentage points in the rate at which students enrolled in private four-year institutions in New York State.[7] In addition, there are smaller SSC effects on student enrollment in institutions in the State University of New York (SUNY) and outside of New York State. However, when looking at the distribution of student enrollment across the selectivity tiers of postsecondary institutions, SSC enrollees and non-SSC enrollees enrolled in institutions of very similar levels.[8]

Table 1. SSC Effects on Enrollment in Postsecondary Education

Outcome in the Follow-Up Period (%)	SSC Enrollees	Non-SSC Enrollees	Estimated Effect	P-Value for Estimated Effect
Enrolled in postsecondary education within six months of expected high school graduation	52.9	43.4	9.5 *	0.000
Type of postsecondary institution enrolled (within six months of expected high school graduation)				
City University of New York	26.9	22.1	4.9 *	0.001
State University of New York	8.2	7.8	0.5	0.603
Private four-year institution in New York State	11.1	7.1	3.9 *	0.000
School outside of New York State	6.7	6.5	0.3	0.725
Barron's selectivity rating				
Most competitive	1.0	0.2	0.8 *	0.001
Highly competitive	1.5	0.9	0.6	0.080
Very competitive	4.0	3.6	0.3	0.587
Competitive	9.6	8.8	0.8	0.405
Less competitive	3.1	2.1	0.9	0.078
Noncompetitive	8.8	7.5	1.3	0.113
Special/unranked/two-year institutions	21.0	19.1	2.0	0.152
Missing	12.8	10.3	2.5 *	0.018

(continued)

Table 1 (continued)

SOURCES: Authors' calculations based on data from New York City Public Schools and Barron's Profiles of American Colleges.

NOTES: Findings in this table are based on data for 16,496 rising ninth-graders who applied to Small Schools of Choice (SSCs) in 2005, 2006, 2007, and 2008. The estimated effect of enrolling in an SSC was obtained by comparing the means for winners and losers of students' first SSC lottery using the lottery outcome interacted with a binary lottery indicator as an instrumental variable for SSC enrollment and adjusting estimated standard errors for student clustering by the first school they attended. Statistical significance at the 5 percent level is marked with an asterisk (*). Rounding may cause slight discrepancies in calculating means and estimated effects.

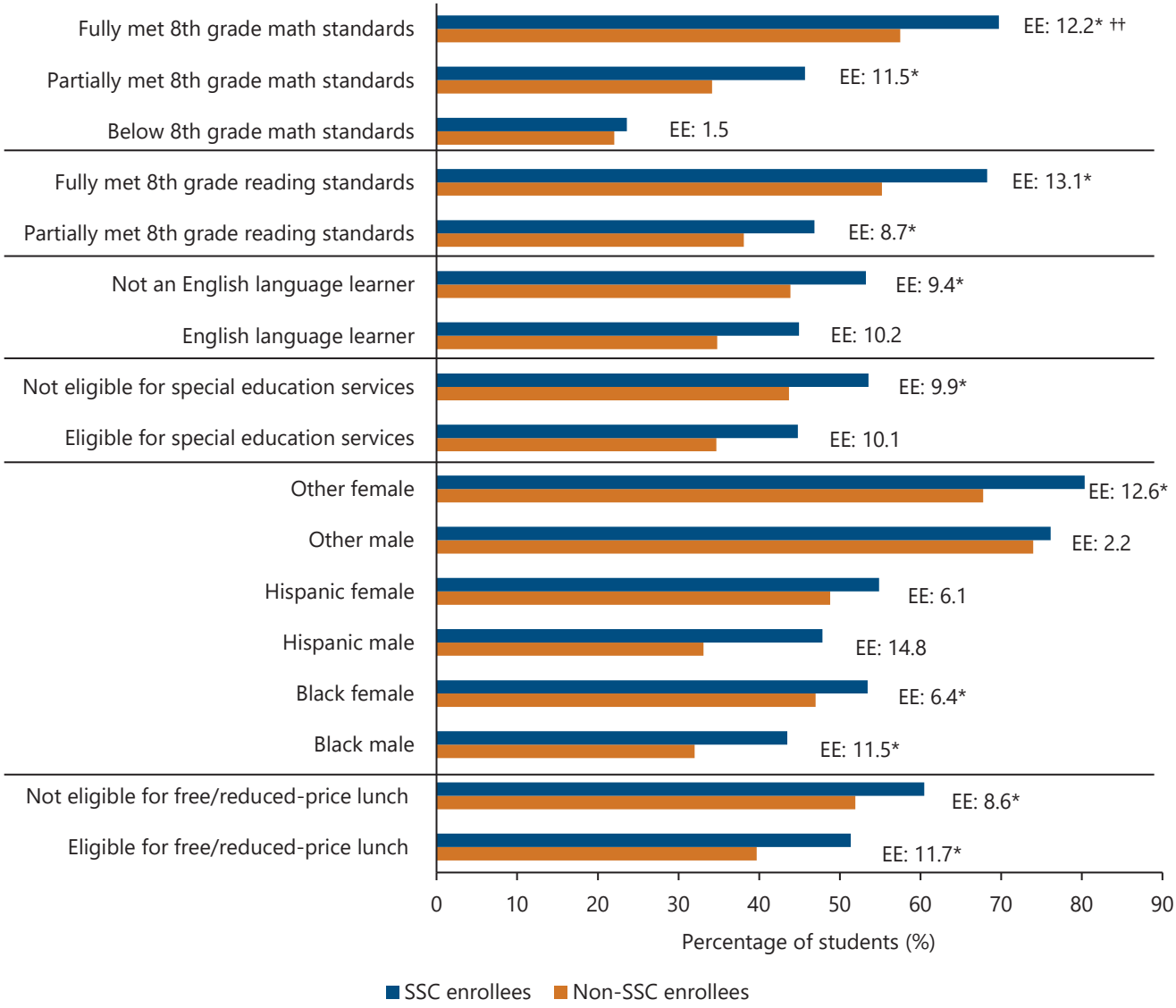
Barron's selectivity rating evaluates the competitiveness of postsecondary institutions based on several factors, including the acceptance rate, standardized test scores, and students' high school performance.

SSC Effects on Postsecondary Education Outcomes Across Student Subgroups

It is especially impressive that SSCs increased postsecondary education enrollment rates appreciably for many different types of students. Looking across the various sets of students represented in Figure 2 — students who qualified for free- or reduced-price lunch; students of different races, ethnicities, and genders; English language learners; and students who qualified for special education services — all experienced positive SSC effects. A student's eighth-grade math proficiency is the only characteristic that predicts meaningful variation. Figure 2 shows that SSCs had large effects on postsecondary education enrollment rates for students who fully met and partially met state math standards on eighth grade state exams (12.2 and 11.5 percentage points, respectively), while SSCs had close to zero effect on postsecondary education enrollment rates for students who scored below the eighth-grade math standard (only a 1.5 percentage-point increase).

Figure 3 indicates the extent to which SSCs affected the likelihood of earning a four-year postsecondary degree within six years after the students' expected high school graduation date for the same student subgroups. Overall, four-year postsecondary degree attainment rates are low for both SSC enrollees and non-SSC enrollees. Similar to the postsecondary education enrollment findings above, there are few meaningful differences across student types on this outcome, and a student's eighth-grade math proficiency is the only characteristic that predicts meaningful variation. Students who entered high school with different math proficiency levels experienced different postsecondary enrollment effects — students who fully met the state math standards on their eighth grade exams experienced the largest positive SSC effect on four-year degree attainment (4.2 percentage points), students who partially met those standards experienced an effect close to the full sample average (2.1 percentage points), and students who were below state standards experienced an effect close to zero (-1.4 percentage points).

Figure 2. Estimated Effects of SSCs on Postsecondary Enrollment for Student Subgroups



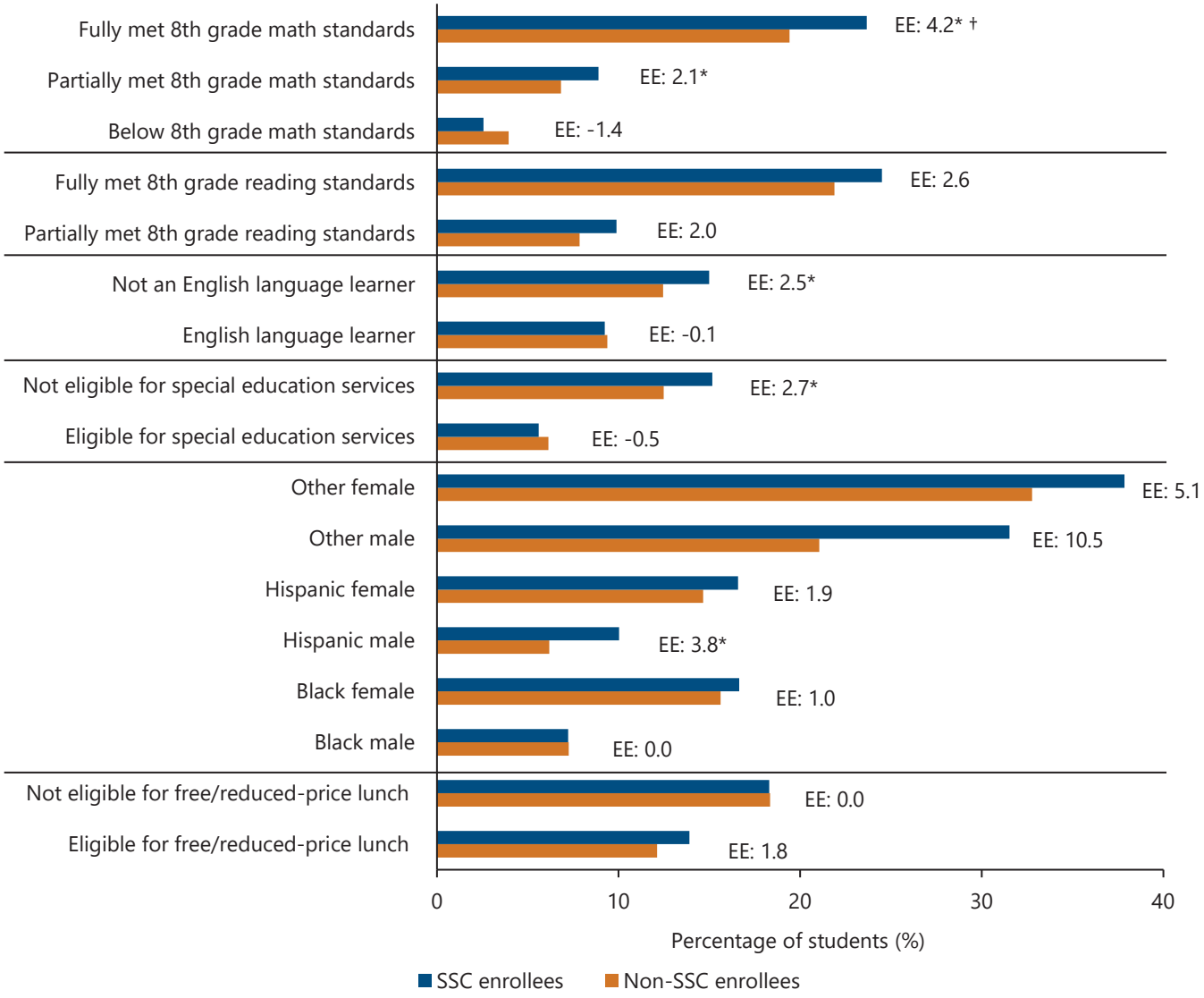
SOURCE: Authors' calculations based on data from New York City Public Schools (NYCPS).

NOTES: Findings in this figure are based on data for rising ninth-graders who applied to Small Schools of Choice (SSCs) in 2005, 2006, 2007, and 2008. The estimated effect (EE) of enrolling in an SSC was obtained by comparing the means for winners and losers of students' first SSC lottery using the lottery outcome interacted with a binary lottery indicator as an instrumental variable for SSC enrollment and adjusting estimated standard errors for student clustering by the first school they attended.

A two-tailed t-test was used to assess the statistical significance of each estimated SSC effect with significance levels indicated as * = 5 percent. A chi-square test was used to assess the statistical significance of variation in estimated SSC effects across subgroups within a given dimension, with significance levels indicated as †† = 5 percent.

This figure shows the rates of enrolling in a postsecondary institution within six months of four-year high school graduation.

Figure 3. Estimated Effects of SSCs on Four-Year Postsecondary Degree Attainment Within Six Years for Student Subgroups



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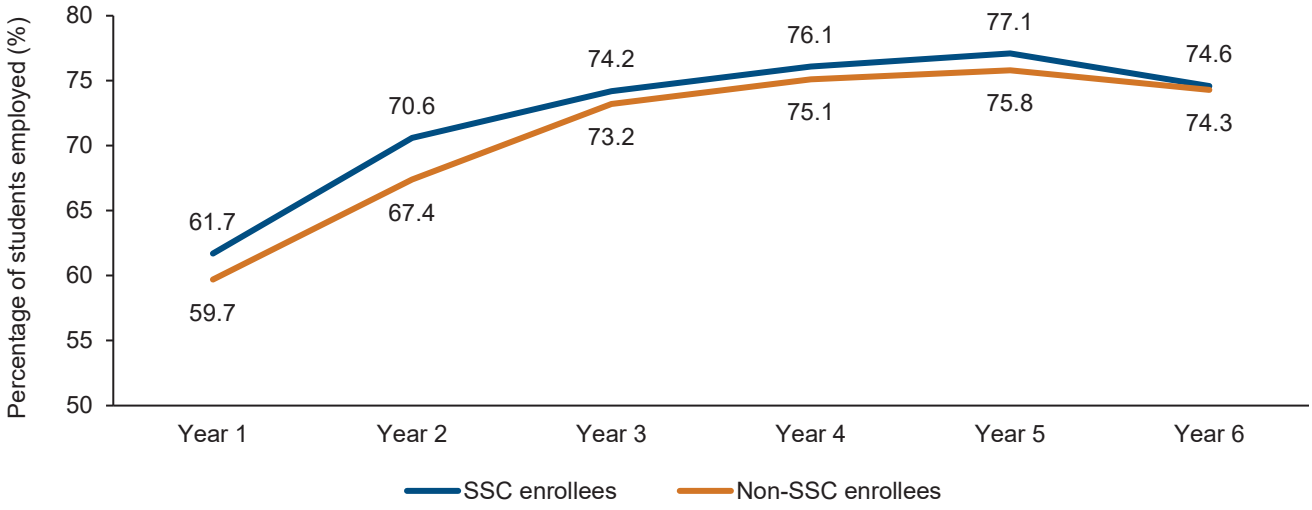
A two-tailed t-test was used to assess the statistical significance of each estimated SSC effect with significance levels indicated as * = 5 percent. A chi-square test was used to assess the statistical significance of variation in estimated SSC effects across subgroups within a given dimension, with significance levels indicated as † = 10 percent.

Employment and Earnings

Figures 4 and 5 illustrate that for the subset of students who have available employment and earnings data, SSCs do not appear to have had any impact on employment rates or earnings in the six years after expected high school graduation. As shown in the figures, the levels of students' employment and earnings are increasing over time at a markedly similar pace. However, it may be too early for a positive effect to have emerged since many sample members are still in school. When taken alongside the postsecondary education data documenting SSC enrollees attending postsecondary institutions at a greater rate than non-SSC enrollees throughout the study period, it is somewhat encouraging that there is not a negative effect on their employment and earnings levels.

Figure 4. SSC Effects on Employment



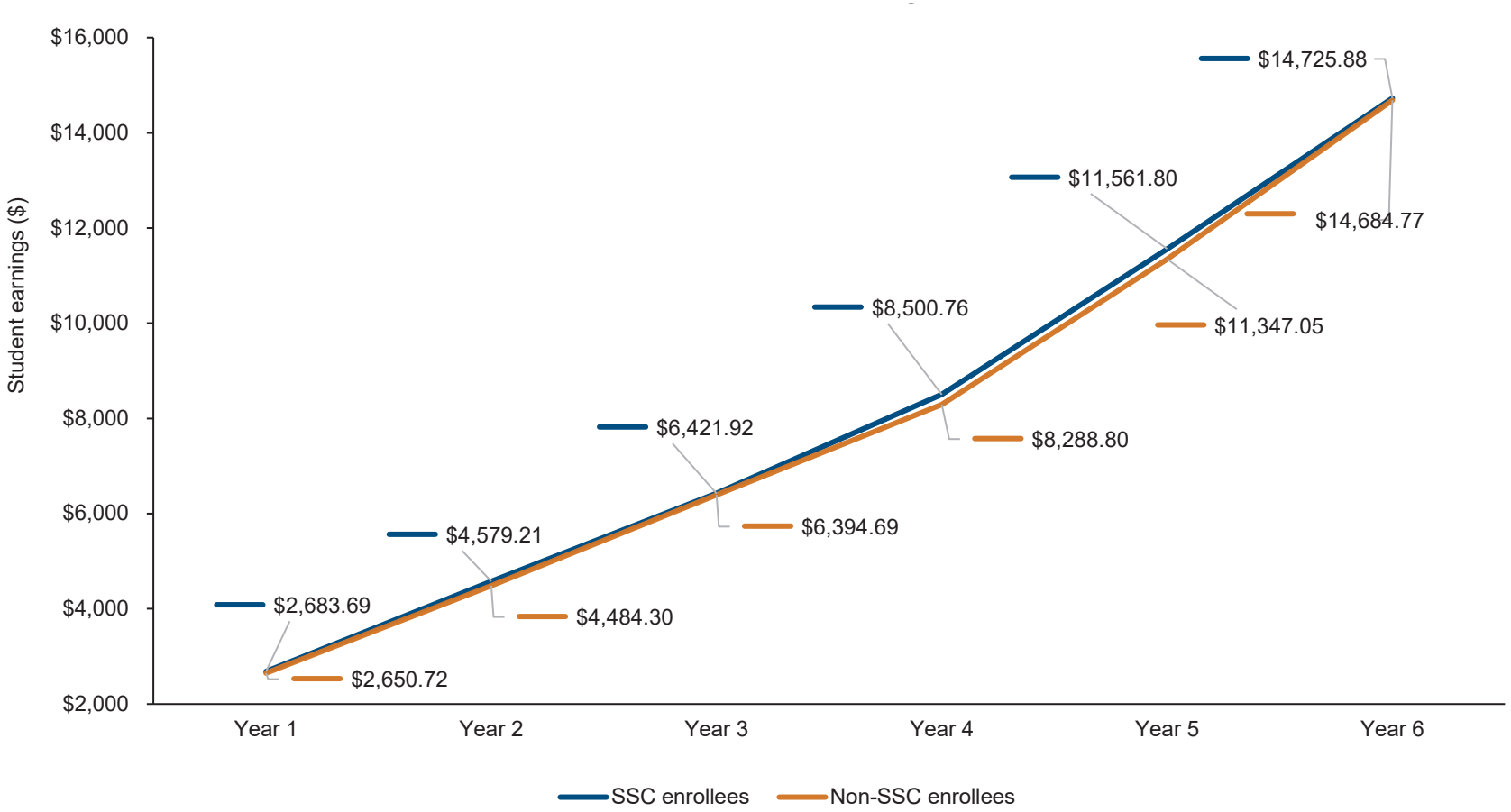
SOURCE: Authors' calculations based on data from New York City Public Schools (NYCPS).

NOTES: Findings in this figure are based on data for 9,672 rising ninth-graders who applied to Small Schools of Choice (SSCs) in 2005, 2006, 2007, and 2008, and enrolled in the NYC Department of Youth and Community Development's Summer Youth Employment Program (SYEP).

The estimated effect of enrolling in an SSC was obtained by comparing the means for winners and losers of students' first SSC lottery using the lottery outcome interacted with a binary lottery indicator as an instrumental variable for SSC enrollment and adjusting estimated standard errors for student clustering by the first school they attended.

A two-tailed t-test was used to assess the statistical significance of each SSC estimated effect and there are no significant effects.

Figure 5. SSC Effects on Earnings



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With this lens, the continued null effect on employment and earnings throughout this follow-up period may be a precursor to positive effects once SSC enrollees obtain a postsecondary degree and enter the labor market at full capacity. Evidence for this expectation is, among other things, the fact that in 2024 the median income for bachelor's degree holders between the ages of 22 and 27 was $60,000, while that for high school graduates of the same age was $40,000.[9] With a $20,000 gap in wages between those two groups, the SSC effect of 2.4 percentage points on four-year degree attainment could quickly translate into meaningful earnings differences between SSC enrollees and non-SSC enrollees.

What Do These Findings Mean and What Comes Next?

Research on why SSC impacts may be sustained over time suggests that high school interventions might improve students' long-term life outcomes by changing the environment that they move into after high school, by increasing the skills they need to be successful after high school, or both.[10] Given that SSCs did not have large effects on the selectivity of the postsecondary institutions students enrolled in immediately after high school, it is most likely that the small, personalized environments of SSCs, and their focus on academic rigor and strong relationships between students and teachers, improved the skills students need to be successful in postsecondary education.[11] For example, SSCs' increased academic rigor may have produced high school graduates with higher academic proficiency levels. Similarly, SSCs' small, personalized environments may have increased students' social and emotional learning, leading to future academic success. Building off of previous work identifying the key features of SSCs that are responsible for their effects on high school graduation rates, the research team is currently working to identify the key features of SSCs that are responsible for their effects on postsecondary degree attainment.

While high school graduation was the focus of many education reforms in the early 2000s, more recently, much of the field's attention has shifted to students' postsecondary outcomes. For example, initiatives like New York City's "The New Career and Technical Education" have pushed high schools to build pathways for students into immediate employment; and initiatives such as Chicago's "Network for College Success" attempt to integrate postsecondary education preparation and dual enrollment credits (credits earned from a postsecondary institution while in high school) into students' high school graduation requirements.

When interpreting the findings in this brief, it is important to note that SSCs were created in the early 2000s and they could not benefit from these newer models, making the pathways through which SSCs could affect students' future outcomes more limited than they are now. Thus, the findings in this brief are important for two reasons — they add to the growing body of evidence that high-quality interventions can have far-reaching effects on students, and they may underestimate the effects that current SSCs (or similar high school programs) can produce when supplemented with the most recent innovations focused on creating student pathways to postsecondary success.

Finally, the variation in postsecondary education enrollment and attainment effects by student's eighth-grade mathematics proficiency levels raises important questions: Did students with lower levels of math proficiency have a different experience at SSCs than students who were math-proficient? Is a student's eighth-grade math score correlated with other factors that are driving these effects? Does this variation in proficiency levels relate to the education literature on student incentives, which has found somewhat similar effects for students at the "threshold" of proficiency?[12] The research team is revisiting students' high school records to answer these questions. Similarly, there is more to be uncovered about students' postsecondary education experience — such as what led to the large drop-off between students enrolling in postsecondary education immediately after high school graduation and their subsequent degree attainment. Relatedly, the team is continuing to follow students in the present sample as they move through the labor market. As mentioned above, because four-year degree earners tend to earn substantially more than those with only high school degrees, it remains to be seen whether the SSC effect on postsecondary education enrollment and degree attainment will translate into improved labor market outcomes.

Notes and References

1. Howard Bloom and Rebecca Unterman, "Can Small High Schools of Choice Improve Educational Prospects for Disadvantaged Students?" *Journal of Policy Analysis and Management* 33, 2 (2014): 290–319; Rebecca Unterman and Zeest Haider, "New York City's Small Schools of Choice: A First Look at Effects on Postsecondary Persistence and Labor Market Outcomes" (MDRC, 2019).
2. Howard S. Bloom, Rebecca Unterman, Pei Zhu, and Sean F. Reardon, "Lessons from New York City's Small Schools of Choice About High School Features that Promote Graduation for Disadvantaged Students," *Journal of Policy Analysis and Management* 39, 3 (2020): 740–771.
3. Bill Gates explained "rigor, relevance, and relationships" in the context of high school reform in his remarks at the 2005 National Education Summit.
4. For a more detailed description of the SSC reform effort, please see Bloom and Unterman (2014).
5. This approach is described in greater detail in the Research Design section of Bloom and Unterman (2014).
6. Of the students in the study sample that graduated high school, the team has data on every student who attended CUNY or a postsecondary institution registered with the National Student Clearinghouse. In addition, the team has the necessary student identifiers to match roughly 60 percent of the SSC student lottery sample to their New York State unemployment insurance records (which document their taxable employment and earnings). First, the demographic characteristics of both samples are markedly similar, and there are no differences for either sample between SSC enrollees and non-SSC enrollees. Second, the estimated effect on four-year high school graduation rates is strikingly similar for both samples — 8.2 percentage points and 9.0 percentage points, respectively. For more details on how the data were compiled see Unterman and Haider (2019).
7. See also Unterman and Haider (2019).
8. Selectivity tiers are defined by the Barron's Profiles of American Colleges, which rates all accredited four-year postsecondary institutions within the United States and gives them selectivity ratings ranging from "Noncompetitive" to "Most competitive".
9. Federal Reserve Bank of New York, "The Labor Market for Recent College Graduates" (website: https://www.newyorkfed.org/research/college-labor-market#--:explore:wages, 2025).
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11. Unterman and Haider (2019).
12. James Riccio, Nadine Dechausay, Cynthia Miller, Stephen Nuñez, Nandita Verma, and Edith Yang, *Conditional Cash Transfers in New York City: The Continuing Story of the Opportunity NYC-Family Rewards Demonstration* (MDRC, 2013).

Acknowledgments

We thank the many people at New York City Public Schools who have cooperated with and supported this study – without them, it would not have been possible. In addition, the study received much helpful advice and assistance from our past and present MDRC colleagues: Alexandra Cazeils, William Corrin, Brandi Green, Zeest Haider, Aissa Heath, John Hutchins, Luisa LaFleur, Joshua Malbin, Peyton Nash, Hannah Power, Carolyn Thomas, Ali Tufel, Michael Weiss, Janey Woo, and Dijellza Zaku. Early phases of the study benefited from discussions with Atila Abdulkadiroglu, Gordon Berlin, Neil Dorosin, Jennifer Hill, Brian Jacob, Thomas Kane, James Kemple, Jeffrey Kling, Richard Murnane, Parag Pathak, Sean Reardon, Alvin Roth, and Saskia Levy Thompson. Finally, we would like to thank our MDRC colleague and collaborator Howard Bloom for his help with this brief.

This study is funded by the Gates Foundation, and has also benefitted from funding from the Walton Family Foundation and the Spencer Foundation.

The following organizations support dissemination of MDRC publications and our efforts to communicate with policymakers, practitioners, and others: Arnold Ventures, Ascendium Education Group, Yield Giving/MacKenzie Scott, and earnings from the MDRC Endowment. Contributors to the MDRC Endowment include Alcoa Foundation, The Ambrose Monell Foundation, Anheuser-Busch Foundation, Bristol-Myers Squibb Foundation, Charles Stewart Mott Foundation, Ford Foundation, The George Gund Foundation, The Grable Foundation, The Lizabeth and Frank Newman Charitable Foundation, The New York Times Company Foundation, Jan Nicholson, Paul H. O'Neill Charitable Foundation, John S. Reed, Sandler Foundation, and The Stupski Family Fund, as well as other individual contributors.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

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