

# Evaluating a Large-Scale High School Reform Using Administrative Data from a Naturally-Occurring Randomized Trial

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# New York City's Children First School Reform

In 2002, Mayor Michael Bloomberg and NYC Schools Chancellor Joel Klein launched a series of inter-related public high school reforms which included:

- A district-wide high school choice process;
- The closure of 31 very low-performing large high schools;
- The creation of more than 200 new small schools.

About 120 of these new schools, which we refer to as “small schools of choice” or SSCs, have been the subject of MDRC research funded by the Bill and Melinda Gates Foundation since 2007.

# New York City's Small Schools of Choice

## Small Schools of Choice (SSCs):

- were created between 2002 and 2008 as part of a highly competitive proposal process;
- received “special supports” during start-up from the NYCDOE and philanthropic organizations;
- are available to students of all academic backgrounds (they do not screen on academics);
- are small, personalized, and typically themed;
- are located mainly in poor communities where large, low-performing high schools had been closed; and
- serve grades 9-12 (when at full capacity) with an entering class each year of roughly 100 – 120 predominantly disadvantaged ninth-graders.

# Our Analysis to Date<sup>1</sup>

- Is based on a series of naturally-occurring lotteries (and thus RCTs);
- Is based on a large sample (up to 14,608 students from four annual cohorts);
- Provides findings for a large-scale intervention (84 of the roughly 120 SSCs);
- Reports SSC effects on a variety of student outcomes (four-year and five-year graduation rates by diploma type, college readiness in math and English language arts and post-secondary enrollment);
- Reports SSC effects for a broad range of student subgroups (by past academic achievement and socio-economic characteristics);
- Reports SSC effects on school costs per student (by year in high school and in total);
- Reports findings which indicate that SSCs:
  - Substantially increase high school graduation rates on average and for a broad range of student subgroups;
  - Cost less per graduate than their control group counterparts;
  - Substantially increase post-secondary enrollment on average and for a broad range of student subgroups.

<sup>1</sup>Bloom, Howard S. and Rebecca Unterman (2014) “Can Small High Schools of Choice Improve Educational Prospects for Disadvantaged Students?” *Journal of Policy Analysis and Management*.

Unterman, Rebecca (2014) *Headed to College: The Effects of New York City’s Small High Schools of Choice on Postsecondary Enrollment*, New York: MDRC, October.

# Our Research Design

Each year, NYC's High School Application Processing System (HSAPS) creates what are in effect, lotteries for SSCs that are "over-subscribed".

We used instrumental variables analysis to convert estimates of average effects of winning an SSC lottery (ITT effects) into estimates of average effects of enrolling in an SSC (LATEs).

We estimated these effects on student attainment, achievement and costs for the study sample overall and separately for student subgroups.

We conducted a series of sensitivity tests to assess the exposure of our findings to potential threats to their validity.

# How HSAPS Produces SSC Lotteries

- Each year, roughly 80,000 rising eighth-graders are required to submit a rank-ordered list of up to 12 high-school preferences.
- Each high school submits its student priorities. SSC priorities are based only on the location of students' homes and whether students made themselves known to the SSC (e.g. by calling it, visiting it or visiting its booth at a high school fair.).
- HSAPS gives each rising eighth-grader a random number that determines the order in which it assigns them to a school.
- HSAPS then assigns students to schools based on student preferences and school priorities.
- For SSCs that are over-subscribed, the random order in which HSAPS assigns students to schools produces a “tie-breaking” lottery within the priority group for which the school is over-subscribed.

# SSC Effects on High School Graduation, College Readiness and Postsecondary Enrollment: Cohorts 1 -4

Outcome (%)	Target SSC Enrollees	Control Group Counterparts	Estimated Effect
<b><u>High School Graduation</u></b>			
Graduated from high school	71.6	62.2	9.4**
Local diploma granted	13.2	11.4	1.8
Regents diploma granted	50.2	43.5	6.7**
Advanced Regents diploma granted	8.2	7.3	0.9
<b><u>College Readiness</u></b>			
English Regents exam score of 75 or above	42.1	35.8	6.3**
Math A Regents exam score of 75 or above	25.1	24.5	0.5
<b><u>Enrolled in Postsecondary Institution</u></b>	49.0	40.7	8.4**

## SSC Effects on Four-Year Graduation by Student Cohort: Cohorts 1 - 4

Outcome (%)	Target SSC Enrollees	Control Group Counterparts	Estimated Effect
<b><u>Graduation rate by cohort</u></b>			
Cohort 1 (2004-2005)	66.6	58.4	8.2*
Cohort 2 (2005-2006)	71.1	59.9	11.2**
Cohort 3 (2006-2007)	74.8	65.4	9.4**
Cohort 4 (2007-2008)	74.0	64.9	9.1**
Cohorts 1-4	71.6	62.2	9.4**



## SSC Effects on High School Graduation Rates For Student Subgroups: Cohorts 1 - 4

Student Characteristic (%)	Target SSC Enrollees	Control Group Counterparts	Estimated Effects
<b><u>Low-income: free/reduced-price lunch</u></b>	69.7	59.2	10.5**
<b><u>Race/ethnicity, by gender</u></b>			
Black male	67.2	55.0	12.2**
Black female	73.8	66.5	7.3*
Hispanic male	66.7	60.3	6.4
Hispanic female	72.0	62.6	9.4**
<b><u>8th-grade reading proficiency</u></b>			
Did not meet standards (level 1)	45.3	38.4	7.0
Partially met standards (level 2)	66.1	56.8	9.3**
Fully met standards (level 3)	84.2	74.2	10.1**
<b><u>Special education status</u></b>	63.4	50.1	13.4*
<b><u>English language learner</u></b>	65.0	60.4	4.6

## SSC Effects on School Cost Per Entering Student: Cohorts 1 - 2

	Target SSC Enrollees	Control Group Counterparts	Estimated Effect	Estimated Effect (%)
<b><u>Direct Service Expenditures</u></b>				
Year One	11,934	11,955	-20	-0.2
Year Two	12,708	12,962	-254	-2.0
Year Three	13,926	14,398	-472	-3.3
Year Four	14,887	15,431	-544	-3.5
Year Five	3,740	5,029	-1289	-25.6 *
Total	57,195	59,774	-2579	-4.3 *

# Administrative Data Sources Used to Date

## School assignment and enrollment for students (NYCDOE student records)

- Students' rank-ordered list of school preferences
- Schools' priority categories for students
- Students' school assignment by HSAPS
- Students' school enrollment

## Student background characteristics (NYCDOE student records)

- Demographics
- Prior academic performance

## Student outcomes

- Course credits accumulated (NYCDOE student records)
- New York State Regents exam scores (NYCDOE student records)
- High school graduation by diploma type (NYCDOE student records)
- School transfer codes (NYCDOE student records)
- Post-secondary enrollment by institution type (National Student Clearinghouse)

## Per-student school costs

- Annual NYCDOE school cost reports (publically available)

## Why Are Our SSC Findings Important?

They were obtained from a rigorous series of naturally-occurring randomized trials for a very large sample of schools and students.

They represent the impacts of an unusually large-scale high school reform.

They represent impacts on a range of important academic outcomes.

They are substantial in magnitude, robust, pervasive, sustained over time and experienced by a broad range of student subgroups.

They represent a reduction in the cost per high school graduate.

SSCs have now been included as an eligible approach for school improvement grants funded by the U.S. Department of Education.

## Current MDRC Research on SSC Impact Variation

- Our current analysis is based on follow-up data for over 24,000 sample members from seven annual cohorts of entering ninth graders,
- We are exploring potential *moderators* of SSC effects (factors that *influence* these effects)
- We are exploring potential *mediators* of SSC effects (factors that *produce* these effects)
- We are using:
  - Individual-level data on student assignment, enrollment and academic outcomes (obtained from NYCDOE administrative records),
  - School-level data from annual teacher and student surveys conducted by the NYCDOE (which are publically available)
  - Other school-level information provided by the NYCDOE

## MDRC Publications About SSCs

Quint, J., Smith J, Unterman, R. and Moedano, A. (2010) *New York City's Changing High School Landscape: High Schools and Their Characteristics, 2002 – 2008*. New York: MDRC, February.

Bloom, H.S., Levy Thompson, S. and Unterman, R. (2010) *Transforming the High School Experience: How New York City's New Small Schools Are Boosting Student Achievement and Graduation Rates*, New York: MDRC, June.

Bloom, H.S. and Unterman, R. (2012) *Sustained Positive Effects on Graduation Rates Produced by New York City's Small Public High Schools of Choice*, New York: MDRC, January.

Bloom, H.S. and Unterman, R. (2013) *Sustained Progress: New Findings About the Effectiveness and Operation of Small Public High Schools of Choice in New York City*, New York: MDRC August.

Bloom, H.S. and Unterman R. (2014) "Can Small High Schools of Choice Improve Educational Prospects for Disadvantaged Students," *Journal of Policy Analysis and Management*.

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Bifulco, R., R. Unterman, and H.S. Bloom (2014) "The Relative Costs of New York City's Small Public High Schools of Choice," working paper. New York: MDRC, October.