

## WWC Review of the Report “The Effects of School Vouchers on College Enrollment: Experimental Evidence from New York City”<sup>1,2</sup>

The findings from this review do not reflect the full body of research evidence on the New York School Choice Scholarships Foundation Program (SCSF).

### What is this study about?

The study examined the effects of the New York School Choice Scholarships Foundation Program (SCSF) on college enrollment outcomes. The program provided private school vouchers to public school students from low-income families.

A subset of the original 20,000 applicants for the program comprise the study sample examined here (see p. 2 for more details about how students were selected to participate in the study). Ultimately, approximately 2,600 first- to fifth-grade New York City public school students from low-income families were randomly assigned either to be offered the SCSF program or not.

Students in the intervention group received a school voucher of up to \$1,400 annually to attend any private school in New York City. Students in the comparison group did not receive a voucher.

Study authors assessed the effectiveness of the SCSF program on encouraging the college enrollment of participants by comparing college enrollment rates of students in the intervention and comparison groups through the fall of 2011 (within 3 years of expected high school graduation).

#### WWC Rating

***The research described in this report meets WWC evidence standards without reservations***

**Strengths:** This study is a well-implemented randomized controlled trial.

#### Features of the School Choice Scholarships Foundation Program (SCSF)

SCSF was funded by a group of private philanthropists with the goal of giving scholarships to public school elementary students in grades 1–5 from low-income families to attend any participating private school in New York City. In the spring of 1997, SCSF used a lottery to offer 3-year vouchers of up to \$1,400 annually to about 1,000 eligible families.

The original program was extended to offer vouchers to students through the eighth grade, provided that the student was enrolled continuously. In addition, a donor provided funds that allowed all students in the same family (in grades 1–5) to attend the same private school.

Altogether, 78% of students in the intervention group took advantage of the voucher offer. On average, intervention group students used the voucher for 2.6 years.

### What did the study find?

The study found that the offer of a private school voucher had no impact on college enrollment rates within 3 years of expected graduation for the sample as a whole.

However, for African-American students, there was a positive and statistically significant impact of the voucher offer on college enrollment and attending a private or selective 4-year university relative to African-American students in the comparison group.

### Appendix A: Study details

Chingos, M. M., & Peterson, P. E. (2012). *The effects of school vouchers on college enrollment: Experimental evidence from New York City*. Washington, DC: The Brown Center on Education Policy at Brookings and Harvard's Program on Education Policy and Governance.

**Setting** The study was conducted in New York City beginning in 1997, with final data collection taking place in the fall of 2011. Participating students were from low-income families, and 85% of the private school vouchers were reserved for students attending public elementary schools with average test scores below the citywide median.

**Study sample** In the spring of 1997, more than 20,000 students indicated an initial interest in receiving a private school voucher. To be eligible for a voucher, students had to be entering grades 1–5, living in New York City, attending a public school at the time of application (except students entering first grade), and be a member of a family with an income that qualified for the federal School Lunch Program.

The large number of applicants compelled the researchers to set up five separate sessions for verifying students' eligibility to participate in the study. Random assignment of students was done across two stages. In the first stage, a lottery determined which applicants were to be invited to a verification session. The session included time for students entering grades 2–5 to take a standardized test and for parents to answer questions on subjects such as school climate and demographic characteristics (note that testing data do not describe primary outcomes of interest, and therefore, are not discussed in detail here). A subsequent lottery was then conducted to assign those students who had been invited to a verification session to either the intervention group or the comparison group. Altogether, 2,666 students were randomly assigned to participate in the study, including 1,374 students assigned to receive a voucher and 1,292 students assigned to the comparison group. College enrollment data were available for 1,363 students in the intervention group and 1,279 students in the comparison group. College enrollment data were collected through 2011; as a point of reference, students who entered the first grade in 1997 would have started enrolling in college in 2008, if they had progressed through school on time.

The majority of students in the final study sample were either African American (41% of the intervention group and 42% of the comparison group) or Hispanic (47% of the intervention group and 42% of the comparison group). The average student in both study conditions scored in the 17th percentile on the mathematics section of the Iowa Test of Basic Skills (ITBS) at baseline. On average, baseline ITBS reading scores were in the 25th percentile nationwide for the intervention group and the 23rd percentile for the comparison group.

**Intervention group** Students who were randomly assigned to receive a voucher were given up to \$1,400 annually by SCSF to attend a private school in New York City. The maximum value of the vouchers represented most of the typical tuition cost of attending a Catholic school in New York City. According to SCSF records, 78% of the intervention group used the voucher at some point during the first 3 years of the intervention (school years 1997–98 to 1999–2000), and 53% of intervention group students used the voucher for 3 years.

**Comparison group**

Students randomly assigned to the comparison group did not receive a voucher. Families whose children did not win a voucher were compensated for the cost of participation in subsequent testing sessions, and their children were entered into a later voucher lottery for an additional chance to win. Winners of that later lottery were excluded from the study, and the sample sizes mentioned in the Study Sample section above do not include these students. According to SCSF records, 12% of comparison group students also attended a private school (without a voucher).

**Outcomes and measurement**

The primary outcome of interest is overall (i.e., part-time and full-time) college enrollment within 3 years of expected high school graduation. College enrollment data were obtained in the fall of 2011 from the National Student Clearinghouse (NSC). For a more detailed description of this outcome measure, see Appendix B.

**Support for implementation**

Implementation support is not relevant for this study; students could attend different schools as a result of the intervention, but those schools did not change their instructional practices.

**Reason for review**

This study was identified for review by the WWC by receiving significant media attention.

**Appendix B: Outcome measures for the college enrollment domain**

College enrollment	
<i>College enrollment within 3 years of expected graduation</i>	This outcome measured any college enrollment (2-year or 4-year, part-time or full-time) within 3 years of expected high school graduation. College enrollment data were obtained from NSC records by matching student records on Social Security number, name, and date of birth. NSC records also include data on whether institutions of higher education are 2-year or 4-year schools, whether the institution is public or private, and the intensity of the student's enrollment (full-time, part-time). If study records did not match with NSC records, a student was assumed to have not enrolled. Expected high school graduation was measured as the year in which the student would be in twelfth grade (assuming on-time progress) based on their grade when they applied for a voucher (e.g., a student entering first grade in 1997–98 would be expected to graduate from high school in 2008–09). Students whose grade in school was missing at baseline were assigned an estimated grade based on their year of birth.
<i>Full-time college enrollment within 3 years of expected graduation</i>	This outcome measured full-time college enrollment in a 2-year or 4-year school within 3 years of expected graduation. College enrollment data were obtained from the NSC, as described previously.
<i>Enrollment in any 2-year college</i>	This outcome measured full-time or part-time college enrollment in a 2-year college within 3 years of expected graduation. College enrollment data were obtained from the NSC, as described previously.
<i>Enrollment in any 4-year college</i>	This outcome measured full-time or part-time college enrollment in a 4-year college within 3 years of expected graduation. College enrollment data were obtained from the NSC, as described previously.
<i>Enrollment in a private 4-year college</i>	This outcome measured full-time or part-time college enrollment in a private 4-year college within 3 years of expected graduation. College enrollment data were obtained from the NSC, as described previously.
<i>Enrollment in a public 4-year college</i>	This outcome measured full-time or part-time college enrollment in a public 4-year college within 3 years of expected graduation. College enrollment data were obtained from the NSC, as described previously.
<i>Enrollment in a selective college</i>	This outcome measured full-time or part-time college enrollment in a selective college within 3 years of expected graduation. A “selective” college was defined as having an average SAT score of 1,100 or greater or equivalent score on the ACT. College enrollment data were obtained from the NSC, as described previously.

**Table Notes:** The study authors also presented data on the effect of a voucher offer on school climate and quality. These data were collected from adults accompanying students to the testing sessions. As specified by the single study review protocol, this review focuses on the study's student-level outcomes.

Appendix C: Study findings for the college enrollment domain

Domain and outcome measure	Study sample	Sample size	Mean		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
<b>College enrollment</b>								
<i>College enrollment (full- or part-time) within 3 years of expected graduation (%)</i>	All students	2,642 students	43	42	1	0.01	0	> 0.05
<i>Full-time college enrollment within 3 years of expected graduation (%)</i>	All students	2,642 students	30	31	-1	-0.02	-1	> 0.05
<i>Enrollment in any 2-year college (%)</i>	All students	2,642 students	20	21	-1	-0.04	-1	> 0.05
<i>Enrollment in any 4-year college (%)</i>	All students	2,642 students	27	28	-1	-0.02	-1	> 0.05
<i>Enrollment in a private 4-year college (%)</i>	All students	2,642 students	12	11	1	0.02	+1	> 0.05
<i>Enrollment in a public 4-year college (%)</i>	All students	2,642 students	18	19	-1	-0.04	-1	> 0.05
<i>Enrollment in a selective college (%)</i>	All students	2,642 students	7	7	0	0.01	0	> 0.05
<b>Domain average for college enrollment</b>						<b>-0.01</b>	<b>0</b>	<b>Not statistically significant</b>

**Table Notes:** Positive results for mean difference, effect size, and improvement index favor the intervention group; negative results favor the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the change (measured in standard deviations) in an average student's outcome that can be expected if the student is given the intervention. The improvement index is an alternate presentation of the effect size, reflecting the change in an average student's percentile rank that can be expected if the student is given the intervention. The WWC-computed average effect size is a simple average rounded to two decimal places; the average improvement index is calculated from the average effect size. The statistical significance of the study's domain average was determined by the WWC; the study is characterized as having an indeterminate effect on college enrollment outcomes because none of the outcomes are statistically significant or substantively important.

**Study Notes:** No corrections for clustering or multiple comparisons were needed because none of the results were statistically significant. Outcomes presented above were based on ordinary least squares (OLS) regressions with no controls other than randomization group dummies. Standard deviations used in effect size calculations were derived from percentages. Effect sizes for dichotomous variables were computed using the Cox Index. The p-values presented here were reported in the original study. Intervention group enrollment rates were determined by adding the estimated impacts from the study's results tables to the comparison group enrollment rates.

Appendix D: Supplemental findings by subgroup

Domain and outcome measure	Study sample	Sample size	Mean		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
<b>College enrollment</b>								
<i>College enrollment (full- or part-time) within 3 years of expected graduation (%)</i>	African-American students	1,099 students	43	36	7	0.15	+6	< 0.05
<i>Full-time college enrollment within 3 years of expected graduation (%)</i>	African-American students	1,099 students	32	26	6	0.15	+6	< 0.05
<i>Enrollment in any 2-year college (%)</i>	African-American students	1,099 students	18	18	0	0.01	0	> 0.05
<i>Enrollment in any 4-year college (%)</i>	African-American students	1,099 students	29	24	5	0.11	+5	> 0.05
<i>Enrollment in a private 4-year college (%)</i>	African-American students	1,099 students	14	9	5	0.16	+6	< 0.05
<i>Enrollment in a public 4-year college (%)</i>	African-American students	1,099 students	18	17	1	0.03	+1	> 0.05
<i>Enrollment in a selective college (%)</i>	African-American students	1,099 students	7	3	4	0.18	+7	< 0.05
<b>College enrollment</b>								
<i>College enrollment (full- or part-time) within 3 years of expected graduation (%)</i>	Hispanic students	1,220 students	47	45	2	0.03	+1	> 0.05
<i>Full-time college enrollment within 3 years of expected graduation (%)</i>	Hispanic students	1,220 students	34	34	0	-0.01	0	> 0.05
<i>Enrollment in any 2-year college (%)</i>	Hispanic students	1,220 students	23	22	1	0.01	+1	> 0.05
<i>Enrollment in any 4-year college (%)</i>	Hispanic students	1,220 students	28	30	-2	-0.04	-2	> 0.05
<i>Enrollment in a private 4-year college (%)</i>	Hispanic students	1,220 students	11	12	-1	-0.03	-1	> 0.05
<i>Enrollment in a public 4-year college (%)</i>	Hispanic students	1,220 students	18	19	-1	-0.03	-1	> 0.05
<i>Enrollment in a selective college (%)</i>	Hispanic students	1,220 students	8	8	0	-0.01	0	> 0.05

**Table Notes:** Positive results for mean difference, effect size, and improvement index favor the intervention group; negative results favor the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the change (measured in standard deviations) in an average student's outcome that can be expected if the student is given the intervention. The improvement index is an alternate presentation of the effect size, reflecting the change in an average student's percentile rank that can be expected if the student is given the intervention.

### Endnotes

<sup>1</sup> Single study reviews examine evidence published in a study (supplemented, if necessary, by information obtained directly from the author[s]) to assess whether the study design meets WWC evidence standards. The review reports the WWC's assessment of whether the study meets WWC evidence standards and summarizes the study findings following WWC conventions for reporting evidence on effectiveness. This study was reviewed using the single study review protocol, version 2.0. A quick review of this study was released on September 18, 2012, and this report is the follow-up review that replaces that initial assessment.

<sup>2</sup> Absence of conflict of interest: Although this study was conducted by staff from The Brown Center on Education Policy at Brookings and Harvard's Program on Educational Policy and Governance, Mathematica Policy Research was involved in the initial design and analysis of the SCSF evaluation through 2002. Mathematica reviewers were not involved in the review of this study.

### Recommended Citation

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### Glossary of Terms

<b>Attrition</b>	Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.
<b>Clustering adjustment</b>	If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.
<b>Confounding factor</b>	A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.
<b>Design</b>	The design of a study is the method by which intervention and comparison groups were assigned.
<b>Domain</b>	A domain is a group of closely related outcomes.
<b>Effect size</b>	The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.
<b>Eligibility</b>	A study is eligible for review if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.
<b>Equivalence</b>	A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.
<b>Improvement index</b>	Along a percentile distribution of students, the improvement index represents the gain or loss of the average student due to the intervention. As the average student starts at the 50th percentile, the measure ranges from -50 to +50.
<b>Multiple comparison adjustment</b>	When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.
<b>Quasi-experimental design (QED)</b>	A quasi-experimental design (QED) is a research design in which subjects are assigned to intervention and comparison groups through a process that is not random.
<b>Randomized controlled trial (RCT)</b>	A randomized controlled trial (RCT) is an experiment in which investigators randomly assign eligible participants into intervention and comparison groups.
<b>Single-case design (SCD)</b>	A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.
<b>Standard deviation</b>	The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample are spread out over a large range of values.
<b>Statistical significance</b>	Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ( $p < 0.05$ ).
<b>Substantively important</b>	A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Please see the [WWC Procedures and Standards Handbook \(version 2.1\)](#) for additional details.