

Impacts of Title I Supplemental Educational Services on Student Achievement

Executive Summary

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DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

The research team for this evaluation consists of a prime contractor, Mathematica Policy Research of Princeton, New Jersey. Neither the organization nor the key staff members have financial interests that could be affected by findings from the evaluation. None of the Technical Working Group, convened by the research team to provide advice and guidance, has financial interests that could be affected by findings from the study.

EXECUTIVE SUMMARY

As one of the parental choice provisions implemented with Title I funds under the No Child Left Behind Act of 2001 (NCLB), parents of low-income students in low-performing schools are offered a choice of Supplemental Educational Services for their children. Supplemental Educational Services (SES) include tutoring or other academic support services offered outside the regular school day, at no charge to students or their families, by public or private organizations that have been approved by the state as SES providers. School districts are required to offer SES to all students from low-income families attending a Title I school that for three consecutive years did not make Adequate Yearly Progress (AYP) toward meeting state standards regarding the percentage of students (or subgroups of students) who have achieved proficiency in reading and math.

Implementation of SES has grown quickly and is now widespread. The number of students participating more than doubled (to 530,000) from 2004–2005 to 2006–2007 (Stullich et al. 2009) and continued growing (to 672,101) in 2008–2009 (www.eddataexpress.ed.gov). Whether ESEA will require SES in its next reauthorization is unclear. The Department of Education’s blueprint for reauthorization of ESEA, released in March 2010, recommends that chronically low-performing schools should no longer be required to fund SES but instead should be required to implement any of a number of “data-driven interventions,” which could include “expanded learning time, supplemental education services, public school choice, or other strategies” (<http://www2.ed.gov/policy/elsec/leg/blueprint/blueprint.pdf>).

Over the years, SES funding in a few districts has fallen short of what was needed to serve all eligible youth who were interested in accessing services. Federal regulations governing the implementation of SES require prioritization of services to the lowest achieving eligible students when resources are constrained and funds are insufficient to provide SES to all eligible students who request services (Section 116[b][10][C]; 34 CFR 200.45 [d]). A few prior studies have estimated the effect of SES for students receiving services and provide some preliminary evidence of the effectiveness of these tutoring services in raising student achievement (for a summary of some of these studies, and a discussion of implementation issues, see Springer et al. 2009b).

This report presents the findings of an evaluation sponsored by the Institute of Education Sciences (IES) at the U.S. Department of Education (ED) and conducted by Mathematica Policy Research (Mathematica) that uses a regression discontinuity (RD) design to assess the potential benefits of offering SES in districts that have unmet need. Specifically, the study focuses on six school districts in which more eligible students applied for SES than could be served with available funds (i.e., oversubscribed districts), and which therefore allocated scarce SES spaces by giving priority to lower-achieving students among the eligible applicants. The current study is the first to use a research design that can directly account for selection into services and therefore (if reasonable assumptions are met) support drawing causal inferences about the impact of SES on students at the cutoff of receiving services (Hahn, Todd, & Van Der Klaauw, 2001; Shadish, Cook, & Campbell, 2002; Imbens & Lemieux, 2008). The study’s RD design estimates the impact of SES on academic achievement by comparing the post-test scores of students offered services with those for students whose prior achievement scores were slightly too high to be offered services, with the comparison adjusting for the prior achievement scores that were used to determine assignment to services. The estimates apply to students in the study’s school

districts who are on the cusp of receiving services. Because different cut points were used in different grades across the six districts, these estimates show the effect on students on the cusp of participating in the program in multiple contexts in oversubscribed districts.

Research Questions

The evaluation study's design and data collection plans were developed to provide the most methodologically rigorous answers to the study's primary research question:

1. What is the average impact of *offering* SES to eligible applicants who are on the cusp of having access to services, in school districts where services are oversubscribed?

The study also addresses an additional research question:

2. What are the characteristics of SES provided to students in oversubscribed districts? Are the characteristics of services, providers, or practices in host school districts correlated with the estimated impacts?

Key Findings

Findings from this evaluation are based on six, nonrepresentative school districts in three states (Connecticut, Ohio, and Florida) where more eligible students applied for SES than could be served with available funds. Across the six oversubscribed districts included in our study, there were 50,843 applicants to SES, of which 30,673 were in study grades (3–8). Among these applicants, 24,113 were assigned to services based on a measure of prior achievement. These 24,113 constitute the study population. Among the students in the study population, 19,750 students (82 percent of the applicants) were offered SES based on their prior scores while 4,363 students were not offered SES, and 16,954 (86 percent of those offered services) participated in SES (i.e., reported any tutoring services). Almost all participating students (98 percent) were offered services with their first choice providers, with most students being served by a few dominant providers.

The answers to the key questions addressed in the study are as follows:

- ***What is the average impact of offering SES to eligible applicants who are on the cusp of having access to services, in school districts where services are oversubscribed?*** Across the six oversubscribed districts, we find no evidence of impacts of offering SES to students near the cut point for an offer. For students in these oversubscribed districts in grades 3–8 at the cusp of receiving an offer of services, we find no statistically significant impact of *offering* SES on student achievement in reading or in mathematics.¹ The point estimate of the average impact on reading is -0.03 standard deviations, and that for mathematics is 0.05 standard deviations. Furthermore, there is no evidence of potential benefits for at-risk

¹ Note, however, that the study did not explicitly test the expansion or contraction of SES. Estimated impacts are based on the assumption that the number of students offered services would change at the cutoff while all other relevant factors are unchanged.

subgroups of students. Similarly, we find no statistically significant impact of *participating* in SES on student achievement in reading or mathematics. The estimated impact of participating (which involved an average of 21 hours of services) is -0.10 standard deviations for reading and 0.11 standard deviations for math (again estimated for students in grades 3-8 near the cutoff for an offer, in these oversubscribed districts).

- ***What are the characteristics of SES provided to students in oversubscribed districts?*** Across districts participating in this study, services averaged 21.2 hours per student for the school year (standard deviation of 8.8), with over a third of the students (36 percent) receiving tutoring in both reading and math, 55 percent receiving tutoring in only reading, and 9 percent receiving tutoring in only math. For students receiving reading services, the mean was 17.2 hours of tutoring (standard deviation of 9.2). For students receiving math services, the mean was 12.5 hours of tutoring (standard deviation of 8.2). In the study districts, most providers (70 percent) were for-profit firms. On average, 60 percent of providers' instructional staff were regular schoolteachers working in the local district. Most providers (64 percent) offered services at the schools of their students. Providers reported that group sizes of 2–5 students were most frequently used, with most other sessions provided individually (in one-on-one sessions). On average, 44 percent of provider services were in groups of 2–5 students, 34 percent in one-on-one sessions, and 21 percent in groups of 6–10.
- ***Are the characteristics of Supplemental Educational Services, providers, or practices in host school districts correlated with the estimated impacts?*** There is variation across providers in the average number of hours of math and reading services received by students, with average hours in services focused on math ranging from 0 to 27 across providers and average hours in services focused on reading ranging from 0 to 43. However, the intensity of services is not significantly related to the estimated size of impacts on math or reading achievement (for these eligible students near the cutoff for having been offered SES). We also found no evidence that any other observed provider characteristics were significantly associated with stronger impacts.

Background on Title I SES

Districts are required to offer SES to all low-income students in schools that have fallen short of Adequate Yearly Progress (AYP) proficiency standards for a third time. (After missing AYP for two consecutive years, schools receive the “identification for improvement” designation.) As one of the options available to parents under NCLB, the SES program permits eligible families to choose from a wide variety of state-approved SES providers, including national for-profit firms, local nonprofits, faith-based organizations, institutions of higher education, and local school districts. School districts are permitted to become approved providers unless they are themselves identified for improvement under NCLB. As of September 2010, more than 3,000 providers across the country had been approved to offer SES.

Federal regulations govern the funding of SES. State education agencies allocate Title I funds to districts with eligible students. Those districts are then required to make available up to 20 percent of their total Title I, Part A funds for a combination of SES and transportation for

students using NCLB’s school-choice option. In addition to regulations for district-wide SES expenditures, there is a restriction on the district’s maximum expenditures per student. NCLB requires provision of SES to all eligible students if expenditures are less than 20 percent of their Title I, Part A funds. However, if funds are insufficient to provide SES to all students who request them, non-regulatory guidance from the U.S. Department of Education (ED) indicates that priority must be given to the lowest-achieving students (*Section 1116[b][10][C]; 34 C.F.R. §200.45[d]²*) based on “fair and equitable procedures in determining which students are the lowest achieving.” This prioritization rule creates the opportunity to conduct a study using an RD design in oversubscribed school districts.

What Kinds of Districts and Students Were Included in the Study?

Oversubscription for SES is unusual among school districts. In 2008-09, when we were drawing our study sample, ED’s Office of Innovation and Improvement (OII) identified only forty school districts that might have more eligible applicants for SES than they could serve. We ultimately found only nine of these assigned districts that were actually oversubscribed and that intended to ration scarce spaces based on a “cut-off” value on students’ prior year’s test score. Eight of the nine districts agreed to participate, of which two districts were subsequently excluded from the study because assignment practices did not support the RD design.

The study’s six school districts are by no means nationally representative. They are in three states: Connecticut, Ohio, and Florida. As a result of statewide rules regarding unspent SES funds, Florida districts had a stronger incentive than districts in other states to ensure that as many students as possible were participating in SES. Unlike most other states at the time, Florida had in place funding rules that did not permit unused SES funds to be automatically returned to a school district’s overall Title I allocation (<http://www.fl DOE.org/flbpso/pdf/finalpro.pdf>). Aside from being oversubscribed for SES, the six study districts also differed from the average characteristics of all Title I school districts in having higher proportions of economically disadvantaged students. Study districts were largely comprised of urban and suburban schools (38 percent and 56 percent, respectively), with 66 percent of district students eligible for free/reduced-price lunch (as compared with 56 percent of students in all Title I schools nationally). These six districts, in comparison with Title I schools nationwide, also had higher percentages of black students (34 percent versus 20 percent) and Hispanic students (46 percent versus 28 percent).

Across the six study districts, applicants to SES numbered 50,843 students, 30,673 of whom were in study grades (3–8). Of those, 24,113 were assigned to treatment and comparison groups using a continuous measure of prior achievement (while the rest were in different categories, such as prioritized grade levels in which all eligible applicants were admitted). These 24,113 students constitute the study population. Among the study population, 19,750 students (82 percent) were offered SES based on their prior scores, 4,363 students were not offered SES, and 16,954 (86 percent of those offered services) participated in SES (i.e., reported any tutoring services) Parents of eligible students were given a choice of approved providers, and the overwhelming majority of students (98 percent) were assigned to their first choice.

² See <http://www2.ed.gov/nclb/choice/help/ses/guidance.html> for non-regulatory guidance.

Five percent of SES participants in our sample were white, 47 percent were black, and 46 percent were Hispanic. Sixteen percent of participants were English language learner (ELL) students, and 21 percent of participants were students with a disability (those in special education).

What Were the Study's Data Sources?

The data collection had two distinct sources that are integrated to answer the study's research questions. The first is student-level data on all SES applicants from the districts, including demographics, SES provider choices, number of hours of tutoring received, and standardized test scores in math and reading from 2007, 2008, and 2009. Though collected from districts, the standardized tests used as outcomes are the same tests used for state accountability purposes. The second component is a survey of SES providers in the six districts that gathered information on provider characteristics and practices.

What Is the Potential Achievement Benefit of Offering SES to Applicants at the Cusp of Eligibility in Oversubscribed Districts?

This study uses an RD analysis to assess the effectiveness of SES implemented in real-world settings among school districts that lacked the funds needed to serve all SES applicants eligible for services.

Applications for SES were received by districts in the fall of 2008 and students received services during the 2008–2009 school year. Students were offered SES based on a continuous measure of academic need (such as a state achievement test score). In each district, students with prior test scores below a specific cutoff value were offered SES (the treatment group), whereas students above the cutoff value were not offered SES (the comparison group). Under this design, estimates of the impacts of SES on students at the cutoff for being offered services can be obtained by comparing the outcomes of students just below and above the cutoff value, after adjusting for the score on the test used to assign students to treatment and comparison groups (see, for example, U.S. Department of Education 2010; Shadish, Cook, & Campbell, 2002). Cutoff scores varied across districts and often across grade levels within districts, creating 42 “mini-studies” with unique cut points. Because different cut points were used, these estimates show the effect on students in multiple contexts (assuming other factors are unchanged).

The study had an estimated 80 percent or greater chance of detecting an overall impact of SES if the true impact is 0.12 standard deviations or larger. An impact of 0.12 standard deviations is equivalent to moving from the 50th percentile to the 55th percentile on a test with normally distributed scores.

For our primary impact analysis, we found no statistically significant effect of offering SES to eligible applicants near the cutoff, either on reading scores or math scores. Point estimates were -0.03 standard deviations in reading and 0.05 standard deviations in math, but neither approached statistical significance.

Because not all students with prior scores below the relevant cutoff value actually received services (2,796 students, or 14 percent of those students offered SES, did not participate), we also estimated the impact of participation. For applicants near the cutoff, there were no statistically significant impacts of participation in SES on either subject. Other variants of the

impact of participation were estimated using alternative definitions of SES participation, including the impact on the specific subject in which services were received. We found no statistically significant impacts.

What Were the Key Characteristics of Services, and Were Any Characteristics Related to Estimated Impacts?

The study examined characteristics of SES providers and the services they provided to students. Understanding the variation in provider services and students' access to SES is important context for understanding the impact analyses. In addition, we capitalize on variation in program implementation across districts and providers to look at the relationship between such characteristics and program impacts. None of these relationships were stronger than what we would expect to see by random chance alone.

The first descriptive question of interest relates to the intensity of services. In fact, over the course of an academic year, providers reported that a complete course of services was about 28 hours, on average. This is substantially less than the 45-hour average found in a previous survey of providers in 16 districts across the country (Vernez et al. 2009). The length of a full course of services varied across providers, from 13 hours to 108 hours, with approximately 70 percent of providers reporting that a full course of services was 30 hours or less. However, there was no statistically significant relationship found between the length of the course of services and the estimated impacts of provider services on students at the cutoff for receiving SES.

Average student participation in our sample was even less—at 21.2 hours—than the average full course. Across the six districts, 36% of SES participants (6,058) received tutoring in both math and reading, 9 percent (1,560) received tutoring in only math, and 55 percent (9,336) received tutoring in only reading. For students who received tutoring in math, mean math hours were 12.5 (standard deviation of 8.2). For students who received tutoring in reading, mean reading hours were 17.2 (standard deviation of 9.2). Thus, time spent in SES was only a small fraction of the time that students typically spend in school. For example, if a student received 12.5 hours of SES math instruction (the mean hours received), it would equal approximately 7 percent of a full year of math instruction, assuming that students spend one hour a day on math as part of their regular curriculum. Likewise, if a student received 17.2 hours of reading instruction, it would equal approximately 10 percent of a full year of reading instruction. The average number of hours of services that students received was not associated with the estimated impacts of provider services on students at the cutoff for receiving SES.

Various other characteristics of services and providers were potentially relevant to their effectiveness in raising student achievement, and therefore potentially of interest to state authorizing agencies and to the Department of Education. For example, provider size varied widely. There were a few dominant providers in each district; in our sample, 9 providers served 50 percent of the students, with the remaining half of students served by the remaining 179 providers. Providers had, on average, at least two years of experience providing SES or other educational services. The majority of providers (69 percent) were for-profit organizations that relied extensively on local school teachers to serve as their SES instructors. Almost all services were provided face-to-face (92 percent of providers), most commonly in small group sessions of 2 to 5 students (44 percent in groups of 2–5; 34 percent in one-on-one sessions; and 21 percent in groups of 6–10). Larger providers were more likely to rely on slightly larger group sessions (6 to

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10 students). A majority of SES providers (63 percent) administered multiple diagnostic assessments to students. Although providers reported their programs to be aligned with state standards, they typically were unable to identify the particular instructional programs used in the schools of the local district.

We examined relationships between provider characteristics and impacts, but none of these relationships were stronger than what we would expect to see by random chance.