# The Equity and Effectiveness of a Market-based Intervention for Increasing Student Achievement under No Child Left Behind

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## Introduction

School districts across the United States are spending millions of Title I dollars on tutoring for economically and academically disadvantaged students, including large numbers of students with disabilities and English language learners. Under No Child Left Behind (NCLB), public schools that do not make adequate yearly progress for three consecutive years are required to offer children in low-income families the opportunity to receive extra academic assistance (known as supplemental educational services, or SES), consisting of tutoring offered outside regular school day hours primarily by private sector (for-profit or nonprofit) providers. Nationwide, 48 percent of schools did not make adequate yearly progress (AYP) in 2010-2011, which reflects a steady increase from 2006 in which 20 percent did not make AYP.[1] Although newly-granted federal waivers will allow many states to opt out of core tenets of NCLB, including SES, many school districts are planning to continue offering out-of-school-time (OST) tutoring interventions, likely in modified forms in terms of program design, content and administration. As school districts strive to improve tutoring services for the students who are most in need of them and/or to launch new or modified interventions, they are actively seeking information and guidance from research and their peers in other school districts.

After-school or OST tutoring programs have long been a staple intervention made available to K-12 students in need of extra academic assistance. In fact, the SES provisions of NCLB are rooted in the original conceptualization of the Elementary and Secondary Education Act (ESEA), which embodies the idea of supplemental instruction as a means to improving the quality of instruction for low-income students. Equity in access is also a primary goal of ESEA,

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[1] In 24 states, at least half of schools did not make AYP in 2011, with this percentage varying widely by state (from 11% to 89%). See the Center on Education Policy AYP Results for 2010-11, December 15, 2011. Retrieved on January 17, 2012 from http://www.cep-dc.org/index.cfm?DocumentSubTopicID=48.

[2] The guidance states (U.S. Department of Education, 2005, p. 7): [A state educational agency] that desires to set program design parameters should ensure that such parameters do not result in the inability of a wide variety of

intended to level the playing field (relative to middle- and upper class students), so that economically disadvantaged students can have access to high-quality, supplemental instruction available in the market that equalizes opportunities and counters disadvantage (Goodlad & Keating, 1990; Burch et al., 2011). NCLB goes further to require that all children, including historically under-served populations such as English language learners and students with disabilities, are considered fully in any measure of school "success" and offered these same opportunities for high-quality, extra academic assistance.

NCLB employs parental choice as a lever for improving the quality of instruction for economically disadvantaged students attending schools that are not making adequate yearly progress. Parents, rather than districts, choose a provider of supplemental educational services for their child based on the premise that parents will select a provider that offers an instructional program well suited to their child's individualized needs. The importance of parental choice in is manifested in the law's strongly worded guidance, which discourages states from taking any actions that might limit the supply of providers and range of choices available to parents.[2] The law also specifies that the options made available to parents must be "high quality, research-based and specifically designed to increase the academic achievement of eligible children on the State's academic assessments and attain proficiency in meeting the State's academic achievement standards" (U.S. Department of Education, 2005, p. 31). In other words, adequate supply of after-school programming is a necessary, but not in itself sufficient, condition for improving student performance. As described by the law, the intervention must have been shown through rigorous empirical evaluation to add value to students' academic performance. State and

[2] The guidance states (U.S. Department of Education, 2005, p. 7): [A state educational agency] that desires to set program design parameters should ensure that such parameters do not result in the inability of a wide variety of providers, including non- profits, for profits, [local educational agencies] and faith-based and community organizations, from being able to participate as eligible providers, thereby limiting parental choice.

local educational agencies have assumed the major responsibilities for approving SES providers, arranging for their services, measuring provider effectiveness in increasing student achievement and using this information to withdraw approval from ineffective providers.

The theory of action within the design of SES that puts the locus of decision-making at the parent level assumes that parents have sufficiently accurate and complete information on provider attributes and effectiveness to realize the benefits of choice in a competitive market, and that states and districts have adequate capacity or leverage for disciplining the market (i.e., sanctioning or disqualifying ineffective providers). States typically establish specifications for SES provider applications and approval, and school districts in turn rely largely on the extensive and evolving market of private sector after-school tutoring programs to offer eligible students a range of choices for SES. The law also requires states to withdraw approval from providers that fail to increase student academic achievement for two years, but states and many school districts have encountered challenges with limited resources and capacities for assessing provider effectiveness. In practice, our four years of research on SES suggests that a majority of discretion in regard to access, program design and accommodation of students' educational needs lies with providers, and a lack of readily available and accurate information on curriculum, intensity of programming, setting and adaptations for student special needs has hampered the intervention's effective functioning.

With the approval of an increasing number of waivers from NCLB, the policy context for supplemental instruction for disadvantaged students is rapidly changing. States with waivers have the authority to terminate SES in its current form and redesign and newly regulate afterschool programs. Districts with waivers to act as providers of OST tutoring have increased authority to design programs based on their own specifications and identified student needs.

Districts where SES continues to operate are to a lesser degree taking actions to guide SES programmatically within parameters of existing federal law, e.g., via decisions about prioritization of students where SES is oversubscribed, meetings with providers to discuss curriculum and support professional development, policies concerning facility access and use, and more. By design, if OST tutoring is to achieve its broader goal of reducing the academic achievement gap, after-school tutoring options must continue to be made available to parents and students in underperforming schools, and program administrators must have and use evidence generated by research to direct and support program innovations and advancements, increase provider effectiveness and guide parents' choices.

In this paper, we present findings from a four-year, multisite, mixed methods study of OST tutoring interventions implemented under NCLB (i.e., SES) with the objective of contributing to a rigorous, accessible evidence base for informing the design and implementation of "meaningful interventions and support for the lowest-performing schools," an explicit goal of accountability reforms advanced in the anticipated reauthorization of ESEA.[3] The U.S. Department of Education recommends that persistently low-performing schools should not be *required* to continue to fund SES and should be allowed to implement other data-driven interventions that could include SES, expanded learning time and other strategies. Existing research on tutoring interventions identifies some settings and specific thresholds of tutoring intensity that influence tutoring effectiveness, but it is generally limited in its systematic investigation of variables that potentially influence access to and the efficacy of OST tutoring. Our mixed-method, longitudinal investigation of SES in five large, urban public school districts probes deeper in examining the attributes of these interventions, as implemented, that influence their effectiveness, as well as sheds light on how state and district policies and practices can

[3] See http://www2.ed.gov/policy/elsec/leg/blueprint/faq/accountability.pdf.

mediate access to and the outcomes of SES/OST tutoring.

We begin with a brief review of existing literature on the efficacy of OST tutoring interventions and then describe our research design, study samples, data and integrated qualitative and quantitative methods. We follow with a presentation of our most recent study findings, which are enriched by the cross-district variation in program and policy implementation that provides important insights into observed relationships between implementation and impacts. We conclude with a discussion of how to improve OST tutoring interventions and the public policies that guide their implementation.

**Potential of OST Tutoring to Improve Student Achievement**

After-school/OST tutoring programs have long been in operation, and existing studies have explored the relationship of attributes such as program focus, duration, timeframe and student grouping to program outcomes. Lauer et al. (2006) conducted a meta-analysis of 35 peer-reviewed, published studies to estimate effect sizes (e.g., gain scores) of OST tutoring programs. They concluded that OST tutoring can have a positive effect on student achievement (in relation to at-risk students who do not participate), and that effect sizes were larger for programs that were more than 45 hours in duration (but became smaller for those longest in duration). In a random assignment study of a national afterschool program, Dynarski et al. (2004) found no effects on reading test scores or grades for elementary or middle school students, while a follow-up study using these same data (Vandell et al., 2005) reported positive effects on test scores for *elementary* school students *highly active in high quality programs*. A study by Black et al. (2008) of grade 2-5 students randomly assigned to receive either enhanced, adapted models of regular-school-day math and reading instruction in after-school settings or after-school services regularly available at their schools found positive, statistically significant impacts for the

enhanced math program on student achievement, but weak evidence of effects on reading achievement, and no effects on student engagement, behavior, or homework completion.

Very few of the earlier studies (the Black et al. study being an exception) measured program attendance or made the distinction between planned program duration and actual student attendance or engagement. In general, measurement of student contact time or intensity and the quality of instruction in these interventions has been inadequate for precisely estimating and understanding program impacts. The meta-analysis by Lauer et al. (2006) and related research (Lou et al., 1996; Elbaum et al., 2000) shows the largest average positive effects for programs that use one-on-one tutoring (for reading) and small-group instruction (for mathematics). Still, the apparent link between student motivation (and other individual and family background characteristics) and engagement in OST tutoring programs poses challenges for researchers in identifying the effects of different levels of program intensity or duration and various types and formats of instruction on student achievement.

Following nearly a decade of implementation of SES under NCLB, we have a growing, albeit mixed, evidence base on the effectiveness of these publicly funded tutoring interventions in increasing student achievement for disadvantaged and historically under-served groups. First, one challenge that SES programs have faced is low and varying attendance rates, which are influenced by state, district and provider policies and supports for registering/enrolling students (Burch et al., 2011; Heinrich et al, 2010; Zimmer et al, 2010; USDOE, 2009). A common finding is that elementary school students are more likely to attend SES (after registering for a program) and to attend more hours than middle school or high school students (Burch et al., 2011; Springer et al., 2009; Zimmer et al., 2007). We have also observed in our multisite study how district-level policies—that prioritize subgroups of students for registration, determine

whether students enroll directly with providers or through the district, and distribute information on available programs to eligible students and their parents—have influenced the composition of students attending SES over time. For example, we find across our five study districts that students with disabilities and those retained in the prior year are only more likely to participate if they are explicitly prioritized by districts during enrollment.[4]

Of foremost interest in our study and the majority of the existing literature is the impact of SES on student outcomes. A number of studies find small effects or no statistically significant effects on student achievement (Barnhart, 2011; Burch, 2009; Deke et al., 2012; Heinrich et al., 2010; Heistad, 2007; Rickles & Barnhart, 2007; Springer et al., 2009; Zimmer et al., 2007; Zimmer et al., 2010). Estimated effect sizes in these studies for students attending SES range from approximately 0.05 to 0.09 standard deviations (for reading and math achievement). Most recently, Deke et al. (2012) employed a regression discontinuity design to estimate the average impact of *offering* SES to eligible applicants who were on the cusp of having access to services in oversubscribed school districts. For students in grades 3–8 across six oversubscribed districts, they found no evidence of impacts of offering SES to students (near the cut point for an offer) on their achievement in reading or mathematics. They also found no statistically significant impact of *participating* in SES on student achievement in reading or mathematics. Across their study districts, students received an average of 21.2 hours of SES over the school year.

Although Deke et al. (2012) also concluded that the intensity of services was not significantly related to the estimated size of SES impacts in their study, our study (as we will further discuss below) and other research suggests that reaching some minimum threshold of

[4] We have also seen how well-laid plans for enrollment with clearly defined criteria can be upended by contracting and financial issues that lead to delays in SES start dates and sometimes denial of services, such as when Chicago Public Schools found out it had exceeded its budget for SES in one year (2008-09), and providers had to turn away some registered students in the following school year because anticipated funds for services were not available.

tutoring hours (i.e., approximately 40 or more hours according to the current evidence base) may be critical to producing measurable effects on students' achievement. Earlier evaluations conducted by Chicago Public Schools (CPS) and Jones (2009) reported larger gains in reading and mathematics for students receiving at least 40 hours of tutoring and for students in grades 4-8 who were not English language learners and who received at least 30 hours of SES tutoring.

**Research Design**

Our longitudinal, mixed-method design integrates rigorous, quasi-experimental analysis of OST tutoring program impacts on student achievement with an in-depth, comprehensive examination of the intervention—provider instructional practice in different program models and settings, the nature and quality of tutoring provided and district-level program administration—in and across five large, urban school districts. In 2009, we began our study in collaboration with Austin Independent School District (ISD), Chicago Public Schools, Dallas ISD, Milwaukee Public Schools and Minneapolis Public Schools. As Austin ISD reduced the number of schools not making adequate yearly progress and the number of students eligible for SES over time, sample sizes grew smaller for empirical modeling. As of August 2012, Los Angeles Unified School District has taken the place of Austin ISD in the study. Our presentation of empirical results in this paper focuses on four school districts, Chicago, Dallas, Milwaukee and Minneapolis.

Another key component of our research design is a collaborative process between school district staff, our research team and other stakeholders in OST educational interventions (e.g., tutoring providers, parents and students, community organizations, etc.) through which study findings are regularly disseminated to support their use for program improvement. This collaborative process is facilitated through: (1) ongoing, multi-directional communication and in-person research briefings that allow school district staff and others to convey important issues

and needs to the research team, as well as for researchers to respond and rapidly disseminate study findings; (2) cross-district webinars that facilitate peer-to-peer interchange among educational staff and diffusion of innovations in policy and practice; (3) public webinars for broader dissemination of research findings beyond the study participants and engagement of the interests and questions of a wider range of intervention stakeholders, and (4) reports, research and policy briefs targeted to specific stakeholders, such as parents who rely on accurate and timely research to guide choices of tutoring providers for their children.

**Study samples and data**

The student demographics in the school districts that we focus on in this paper are generally representative of the larger national (mostly urban) population that is eligible for SES or targeted for OST tutoring, that is, high concentrations of economically disadvantaged students, including subgroups with higher levels of academic need/disadvantage (e.g., students with limited English proficiency and disabilities). We use the targeting criteria determined by the school districts, which have evolved to some extent over time (as do the federal standards for making adequate yearly progress), to select our study samples each year. These criteria have typically included free-lunch eligible students, English language learners, students with disabilities and students who are lagging behind their peers academically, as measured by their scores on standardized achievement tests or grade retention. Table 1 provides descriptive statistics on SES-eligible students in the four districts that are the focus of the empirical analysis, which shows the relative stability in the study population over time (even as district targeting criteria and eligible schools have changed somewhat).

We currently have four years of data from each study district, including student record, administrative and test score data from the 2007-08, 2008-09, 2009-10 and 2010-11 school years.

Table 2 shows the variables that are commonly available across the districts. We also have data on close to 200 unique providers of SES/OST tutoring in our study sample, including some with multiple locations and/or settings/formats for tutoring; some that have offered services in more than one (or all) of our five study districts, and one district provider that has been operating throughout the study period. The data on providers from state and district sources describe the SES provider characteristics, program features and the recorded/invoiced hours of tutoring for each student and are linked to the student-level data for analysis.

The qualitative data that we collect in this study include information from focus groups with parents, interviews with the SES stakeholders described above (district and state staff, provider administrators, tutors and others involved in the implementation of SES), observations of tutors and students in SES sessions and documents on SES policy and program administration (e.g., archival data and training manuals). Tables 3-6 summarize the data that have been collected from the 2009-10 to 2011-12 school years in the qualitative component across the study sites (including Austin ISD). These data include:

- *Observations of full tutoring sessions* (n=139) using the a classroom observation instrument (described below) designed to capture key features of instructional settings;
- *Interviews with provider administrators* (n=67) about the structure of instructional programs, choice of curricula and assessments, challenges in implementation, and choices in staffing;
- *Interviews with tutoring staff* (n=82) about instructional formats, curriculum, adaptations for special student needs, staff professional background and training;
- *Interviews with district and state administrators* (n=30) involved in program implementation;
- *Parent focus groups* (n= 168) with parents of students who were eligible to receive SES, most with children currently receiving SES; two focus groups of approximately 1.5 hours

each were conducted in each site and translation was offered in Spanish, Hmong and Somali;

- *Document analysis:* formal curriculum materials from providers, diagnostic, formative, or final assessments used, policy documents on federal, state or district policies concerning the implementation of SES.

An important aim of our research has been to advance the integrated nature and scope of our qualitative and quantitative data collection and strengthen the application of mixed methods in order to increase our knowledge and understanding of the mechanisms or pathways to tutoring program impacts. One way that integration has advanced our research is in sample optimization. The quantitative data has aided in defining parameters to guide our selection of SES provider cases in the field research, including information on student market share that helped to optimize our limited resources in site selection.

We have also improved the sensitivity and appropriateness of our core instruments and measures through qualitative-quantitative integration. To measure "treatment" and student participation in SES, we rely on both large-sample, standardized measures (i.e., invoiced hours of SES) in the quantitative analysis, and observations of tutoring practice, interviews and analysis of curriculum in the qualitative work to understand what is happening in an hour of SES in practice, i.e., what is "in" an invoiced hour in terms of instruction. Underlying the invoiced hour is a much more complicated story that includes incomplete record keeping, students leaving early or arriving late, tutoring time spent on non-instructional activities, technical/materials difficulties, and other issues. The interviews and observation data also reveal important differences within online formats. This information is critical in refining both our measures and interpretations in data analysis, and accordingly, in increasing the validity of our research.

**Qualitative research methods and analysis**

The qualitative research is grounded in two key principles: 1) a sustained focus on instructional setting, where we map backward from program characteristics to classroom and school level characteristics that contribute to program impact (in particular, teacher-tutor, school leader-teacher interactions), as well as district, state and federal policy and program characteristics that are linked to these factors and mediate impacts, and 2) a sharp focus on the system of OST implementers, i.e., classroom teachers, providers, parents, tutors, school personnel, district and state staff, that enable or impede the effectiveness of OST tutoring interventions. In the context of ongoing educational reform efforts, we seek to understand the critical exchanges of information and resources between and across these stakeholders around the implementation of SES/OST programming and to illuminate perspectives of these multiple stakeholders, including classroom teachers and parents of eligible students.

A centerpiece of our qualitative work is a standardized observation instrument we developed to more accurately capture the nature of SES instruction.[5] Systematic analysis of structured observation protocols offers critical insight in the evaluation of accountability-based programs (Pianta & Hamre, 2009). The instrument has the capability of not only providing descriptive information on instructional materials and teaching methods *in use* but also detecting the effects of different kinds of formats, resources (curriculum materials, staffing, etc.), and instructional methods on students' observed levels of engagement. The observation instrument includes indicator ratings at two, 10-15 minute observation points, as well as a rich description in the form of a vignette, and follow-up information provided by the tutor(s).[6]

[5] A copy of the observation instrument is available at www.sesiq2.wceruw.org.

[6] We conduct regular reliability trainings with the qualitative research team to ensure consistency in ratings. Validity of the instrument is ensured by the development process, whereas its structure and content is based on well-

The observation data are subsequently categorized into clusters of indicators, organized by areas of OST best practice: varied, active, focused, targeted, relationships, tutor knowledge, and differentiation, and student engagement. This clustering of qualitative indicators allows us to see which best practices are predominant in observations and which are rare or missing. Although the observation instrument ratings use a number rating system, the process is fully qualitative in terms of clustering the indicators under each best practice area. OST cluster numbers are calculated by adding the total ratings for each indicator in each cluster and dividing that sum by the total possible ratings.

We use a constant comparative method (both within and across methods) to develop and refine our understanding of patterns and dissimilarities in tutoring practices across providers. The same data are analyzed and discussed simultaneously by different researchers in an effort to consider and develop multiple interpretations of events observed. Throughout the process we seek to examine potential trends in the instructional setting that may help in understanding the shortcomings and challenges faced by the policy "in action". Analytic codes are developed from these patterns and in response to the research questions, and then reapplied to interview, observation and archival data in order to establish findings. As with any qualitative study, data analysis occurs both concurrent to and after the data collection process.

**Quantitative research methods and analysis**

In evaluating OST tutoring impacts, we are faced with the classic evaluation problem that it is necessary to identify both actual participant outcomes and the outcomes that would have occurred for them absent participation. We define $Y_1$ as the test score for a student following participation in OST tutoring, and $Y_0$ as the test score for that student over the same period in the

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tested, existing observation instruments for OST, existing literature on the best practices for OST, and the theory of action in the supplemental services policy.

absence of participation. It is impossible to observe both measures for a single student. If we specify $D = 1$ for those who participate in OST tutoring and $D = 0$ for eligible students who do not participate, the outcome we observe for an individual is:

$$Y = (1- D) Y_0 + D Y_1 \quad (1).$$

Evaluations employing random assignment methods ensure that the treatment is independent of $Y_0$ and $Y_1$ and the factors influencing them.

Where $D$ is not independent of factors influencing $Y_0$, participants may differ from eligible nonparticipants in many ways (besides the effect of the program), so the simple difference in outcomes between participants and eligible nonparticipants will not necessarily identify program impacts. If we assume that given measured characteristics (a set of conditioning variables, $X$), participation is independent of the outcome that would occur in the absence of participation, $Y_0 \perp\!\!\!\perp D \mid X$, the effect of OST tutoring on participants conditional on $X$ can be written as:

$$E(Y_1 - Y_0 \mid D=1, X) = E(\Delta Y \mid D=1, X) = E(Y_1 \mid D=1, X) - E(Y_0 \mid D=0, X) \quad (2)$$

where $Y_1 - Y_0 = \Delta Y$ is estimated to be the program effect for a given student, and the expectation is across all participants with given characteristics. (This is the conditional independence assumption, or the assumption of unconfoundedness). Matching and regression adjustment methods are all based on some version of (2), but they differ in the methods used to obtain estimates of $E(Y_1|D = 1, X)$ and $E(Y_0|D = 0, X)$.

We employ three primary econometric strategies for quasi-experimental estimation of SES/OST tutoring impacts: a) value-added modeling, b) fixed effects models (student fixed effects and student plus school fixed effects), and c) generalized propensity score matching methods. Our comparison groups consist of students eligible for SES in each district (some of

whom also register for SES) who do not attend SES. We apply multiple quasi-experimental strategies to test the sensitivity or robustness of our results to alternative assumptions about selection into SES among eligible students that are made in these modeling approaches. We briefly describe the basics each strategy below.

*Value-added model*

The value-added model we employ allows us to control for other classroom and school interventions which are fixed over time, while identifying tutoring provider characteristics. For example, if there is a reading intervention at a school and those students also attend SES, failing to control for the intervention (school fixed effect) would bias the results. The outcome measure is the achievement gain made by students, which accounts for the possibility that students with similar characteristics might enter OST tutoring/SES with different underlying achievement trajectories (as reflected in their prior test scores). We estimate the equation,

$$A_{jst} - A_{jst-1} = \alpha SES_{jt} + \beta X_{jt-1} + \pi_s + \mu_{gt} + E_{jst} \quad (3)$$

where $A_{jst}$ is the achievement of student *j* attending school *s* in year *t*; SES*jt* is an indicator function if the student *j* attended SES in year *t*; $X_{jt-1}$ are student characteristics; $\pi_s$ is a school fixed effect; $\mu_{gt}$ are grade by year fixed effects, and $E_{jst}$ is the random error term. Identification in this specification comes from the average gain in student achievement after controlling for student characteristics and school and grade year effects.

*Fixed effect models*

The value-added model assumes that selection depends on observed student characteristics. However, if selection is on some unobserved or unmeasured characteristics of the students, then a value-added strategy could still lead to biased results. The student fixed-effects model controls for all time-invariant characteristics of a student, including those that are not

observed or measured. The following model differs from equation (3) in that it includes student fixed effects ($\delta_j$) instead of school fixed effects:

$$A_{jst} = \alpha SES_{jt} + \beta X_{jt-1} + \delta_j + \mu_{gt} + E_{jst}. \quad (4)$$

Taking the first difference of equation (4) eliminates the student fixed effect ($\delta_j$), and the model estimates the average difference between the gains made by students attending OST tutoring with the gains made by other eligible students who are not participating. This formulation imposes some restrictions (or assumptions): i) the impact of students' prior experience does not deteriorate over time, and ii) the unobserved effect of participating only affects the level but not the rate of growth in student achievement. A concern is that if students with lower growth are more likely to choose to participate, then this type of selection may bias the estimates obtained from a gains model. To relax this restriction, we estimate:

$$A_{jst} - A_{jst-1} = \alpha SES_{jt} + \beta X_{jt-1} + \delta_j + \mu_{gt} + E_{jst}, \quad (5)$$

which controls for any unobserved differences between students that are constant across time. The estimation of this model requires a first difference of equation (4) and therefore needs three or more observations for each student.

In addition, we can add a school fixed effect ($\pi_S$) is added to equation (4), which gives:

$$A_{jst} - A_{jst-1} = \alpha SES_{jt} + \beta X_{jt-1} + \pi_S + \delta_j + \mu_{gt} + E_{jst}. \quad (6)$$

Adding a school fixed effect controls for unmeasured, time-invariant school quality. For example, if school administrators have a role in choosing tutoring providers that deliver services on-site at their schools, estimated impacts of tutoring may be correlated with unobservable school characteristics that might affect student performance. The inclusion of school fixed effects facilitates controlling for time-invariant school characteristics as well, such as average school test scores, neighborhood attributes, parental involvement in the school and peer

composition, to the extent these are unchanging over time.

*Matching methods*

Matching methods are designed to ensure that estimates of program impacts are based on outcome differences between comparable individuals. The simplest form of statistical matching pairs each participant to a comparison group member with the same values on observed characteristics (*X)*. In most cases, there are too many observed values of *X* to make such an approach feasible. A natural alternative is to compare cases that are "close" in terms of *X*, for which several matching approaches are possible. In our analysis, we employ generalized propensity score matching, in which participants are matched with individuals in a comparison group based on an estimate of the probability that the individual receives a given dosage of treatment (the generalized propensity score or GPS).

In the sample of participants and eligible nonparticipants, *P*(*X*) is the probability that an individual with characteristics *X* is a participant. Rosenbaum and Rubin (1983) showed that $Y_0 \perp\!\!\!\perp D \mid X \Rightarrow Y_0 \perp\!\!\!\perp D \mid P(X)$, which implies that for participants and eligible nonparticipants with the same *P*(*X*), the distribution of *X* across these groups will be the same. That is, we assume *conditional independence:* there is a set X of observable covariates, such that after controlling for these covariates, potential outcomes are independent of the treatment status.

If students receive varying dosages of tutoring, as we observe, then the average treatment effect estimated by conventional estimators will not capture heterogeneity in effects that may arise. In light of this, and with sufficient data (distributed normally) on OST tutoring dosages, we estimate generalized propensity score (GPS) models of program impacts. The GPS approach assumes that selection into *levels* of treatment (tutoring) is random, conditional on a set of rich observable characteristics (conditional independence assumption). That is, the *level* of

participation is independent of the outcome that would occur in absence of participation. If the model assumptions are satisfied, it is possible to use GPS to estimate the average treatment effects of receiving different dosages of OST tutoring, thereby allowing for the construction of a "dose-response function" that shows how treatment exposure relates to outcomes.

We follow Hirano and Imbens (2004) and define $\mathcal{T}$ as the set of all treatment levels (hours of SES/OST tutoring attended); $T$ as a specific treatment (hours) level, and the treatment interval as $[t_0, t_1]$, so that $T \in [t_0, t_1]$). We calculate the average dose-response function, $\mu(t) = E[Y(t)]$, assuming unconfoundedness; that is, after controlling for $X$, mean outcomes for comparison cases are identical to outcomes of participants receiving $T$ hours of SES. The generalized propensity score (GPS), $R$, is defined as $R = r(T, X)$, so that under this assumption and within strata with the same value of $r(T, X)$, the probability that $T = t$ does not depend on the value of $X$ (Hirano and Imbens 2004, 2). We estimate values of the GPS using maximum likelihood, assuming the treatment variable is normally distributed, conditional on the covariates $X$: $g(T) \mid X \sim N\{h(\gamma, X), \sigma^2\}$: $\check{R}_i = [2\pi\sigma^2]^{(-0.5)} \exp[(-(2\sigma^2)^{-1})[g(T_i) - h(\gamma, X)]]$. The balancing properties are checked and the conditional expectation of $Y$ (the response), given $T$ and $R$, is estimated.

**Study Findings**

**Average impacts of SES/OST tutoring**

We begin our discussion of study findings with an examination of the average impacts of tutoring in SES across three years of estimation in four study sites. We present the results from the value-added models with school fixed effects, as other fixed effects estimation approaches yielded similar findings (see Table 7). The reported coefficients are effect sizes—that is, the change, measured in standard deviations from district average reading and math test scores, in an

average student's outcome (gain) that can be expected if the student participates in SES. Statistically significant coefficient estimates (at $\alpha$=0.05) are reported in bold.

The results in Table 7 indicate that only in Chicago Public Schools do we *consistently* find average impacts of SES on students' reading and math achievement (effect sizes ranging from 0.043-0.094 s.d.). We do not observe any statistically significant effects of SES in Milwaukee Public Schools, and we only observe statistically significant effects in Dallas ISD in the 2009-10 school year and in Minneapolis Public Schools in 2010-11 (along with a small impact on student math gains in 2009-10). Thus, at first glance, it might appear that there are no patterns or commonalties in our findings on the effects of these tutoring interventions *across districts,* even though the magnitude of effect sizes (where observed) are comparable to those estimated in a relatively small number of other studies that have identified impacts of SES (Heinrich et al., 2010; Springer et al., 2009; Zimmer et al., 2007).

What these average impact estimates do not reflect, however, is the considerable heterogeneity in the implementation of SES—across school districts and SES providers and even within providers via tutoring staff—in the number of hours of SES received and the quality of instruction. In practice, the number of hours students attend SES is largely influenced by the rate per hour charged by SES providers and the dollars allocated per student by districts for SES, as well as student and program characteristics. For example, one school district in our study allocated approximately $1,300 per student for SES, while over 70 percent of the participating students received SES from a provider charging $75 or more per hour. In effect, the maximum hours of tutoring a student could receive at this provider rate per hour and district per student allocation was about 18 hours over the school year. Over the study period, we have observed provider hourly rates as low as $13.25 and as high as more than $150 per hour, while district per

student allocations have varied from approximately $1,200 to $2,000 per student. Figure 1 shows the hourly rates charged by SES providers in our study districts over the 2008-09, 2009-10 and 2010-11 school years, and Table 8 shows the average number of hours of tutoring received by students who attended SES by district and school year.

In general, our empirical analyses confirm a strong, positive relationship between number of hours of tutoring received and effects on student achievement, as well as the likely existence of some minimum threshold of tutoring hours that appears to be critical to producing measurable effects of SES. In Chicago Public Schools, where a majority of students were routinely reaching thresholds of 39 hours of tutoring received (on average), we observe positive effects of SES on students' reading and math achievement every year. And in Minneapolis Public Schools, after the district introduced policies and a new program in 2010-11 that tightened oversight and compelled providers to deliver more hours of tutoring, positive effects of SES on both student math and reading achievement were found.

**Effects of varying dosages of tutoring**

To more fully explore the effects of varying hours (or dosages) of SES/OST tutoring on student achievement, we estimated generalized propensity score (GPS) models of hours tutored on students' reading and math gains. Because the number of hours tutored were generally low in the districts other than Chicago Public Schools (with a few exceptions, see again Table 8), we focus on the results from Chicago Public Schools and examine hours of tutoring accumulated over up to three school years (2008-2011), which yielded sufficient observations at higher dosages of tutoring to more precisely estimate program effects. We also present the GPS results for Minneapolis Public Schools to show the similarities in the patterns of effects across another site, albeit with wider confidence intervals due to the limited number of observations. The models

specify treatment levels from 10 to 80 hours of tutoring, and the dose-response is estimated at 5-hour increments in tutoring. Although covariates (controlling for student demographics, school attendance, past performance, grade retention and grade level) did not fully balance at each cutpoint in the distribution—particularly at the highest and lowest levels of SES where observed dosages were more sparse—the estimated (linear) dose-response functions show a clear relationship between hours tutored and increases in student achievement.

The GPS results are presented graphically in Figure 2, where hours of tutoring are measured along the horizontal axis and the estimated effect sizes for a given level of tutoring are shown on the vertical axis. The middle (solid) line in the graphs shows how effect sizes (i.e., average gains in reading or math, measured in standard deviations from district averages) change with each additional hour of SES. The dashed lines are the confidence intervals (upper and lower bounds for the effects), which are wider for Minneapolis Public Schools (and they get wider at the highest and lowest hours of SES), because those estimates are based on a smaller number of students receiving those levels of tutoring. For student achievement in *reading* (in both Minneapolis and Chicago), the gains to additional hours of tutoring appear to level off shortly after students cross the 60-hour threshold of tutoring (see the marker on the solid line in these graphs). For *math*, however, gains from tutoring continue to grow with each hour of SES attended through 80 hours of tutoring. For example, these graphs show that if students got as many hours of SES (60), average effect sizes or reading gains from tutoring would increase (potentially doubling from effect sizes at 30 hours), and math gains would be even larger for each additional hour of SES attended beyond 60 hours.

We were also able to take advantage of a "natural experiment" in Dallas ISD, in which the number of hours of tutoring that students in Dallas ISD received dramatically increased in the

2009-10 school year (for one year only), when the district used federal stimulus funds specifically to increase the number of hours of SES that enrolled students received by raising the allotted district SES expenditure per student. Figure 3 presents histograms of the number of hours of tutoring that participating students received in the 2008-09, 2009-10 and 2010-11 school years. In 2008-09 and 2010-11, the largest peaks in hours of SES attended are at approximately 20 hours, compared to large spikes in the distribution at just under 40 and 60 hours and even up to 70 hours in the 2009-10 school year. Not surprisingly, as shown in Table 7, we only observe positive effects of SES on student achievement in Dallas in 2009-10, and these effect sizes are larger than average (0.111 s.d. for reading and 0.127 s.d. for math). It is also interesting to note that the magnitude of these estimated average SES effects in Dallas ISD in 2009-10 correspond closely to the estimated effect sizes produced by the GPS analysis (albeit for Chicago and Minneapolis) for 60 hours of tutoring (i.e., around 0.10-0.11 for reading and 0.10-0.13 for math).

**Effectiveness of SES providers**

It is also possible that average impacts of SES might obscure significant differences in the effectiveness of different SES providers. That is, are there specific SES providers that consistently generate positive effects (or that have produced particularly large effects) on student achievement in their programs? We estimated provider-specific effects for each year for all participating students, as well as separately for students with disabilities and English language learners. We report the results from value added models with school fixed effects in Tables 9 and 10, again as effect sizes—the change, measured in standard deviations from district average reading and math test scores, in an average student's outcome (gain) that can be expected if the student participates *with a given SES provider*. What is perhaps most notable about the results in these tables is the number of providers that continue to operate each year, some with significant

student market shares, even though, on average, they have no effects on student achievement. In addition, the results for English language learners and those with disabilities (Table 10) are even more stark; only a handful of providers, primarily in Chicago (including the district provider, A.I.M. High), have positive effects on the achievement of students with special needs.

We also examine SES provider effectiveness in relationship to their "market shares" of all participating students in the district. In Chicago Public Schools, which distributes information on provider effectiveness to principals and parents each year, we find that the SES providers that consistently produce positive effects on student achievement are also among those with the largest and/or growing student market shares each year (e.g., Orion's Mind, SES of Illinois, Newton Learning, Brain Hurricane, School Service Systems and the district provider). In fact, 9 of the top 10 SES providers (in terms of market share) in Chicago were identified as effective in our analysis. As the study has evolved and the participating districts have learned from cross-district exchanges about how to better manage and support SES provision, other districts are also improving their use of the available information on provider effectiveness, and we are starting to see more correspondence between provider effects and student market shares in those districts as well.

**Qualitative findings**

We know from both the quantitative and qualitative research components that the correlation between hours of tutoring received and observed effects on student achievement is not perfect. In addition to hours of tutoring received, existing research, including our own, suggests other parameters or axes through which increases in academic achievement might be realized. First, a quality OST curriculum is content-rich, differentiated to student needs, and connected to students' school day (Beckett et al., 2009; Vandell et al., 2007). Second, effective instruction is

organized into small grouping patterns (no larger than 10:1 and ideally 3:1 or less) and instructional time is consistent and sustained (Beckett et al., 2009; Farkas & Durham, 2006; Lauer et al., 2006; Little et al., 2008). Furthermore, instructional strategies are varied (both structured and unstructured, independent and collective, etc.), active (not desk time, worksheets, etc.), focused (program components devoted to developing skills), sequenced (using a sequenced set of activities designed to achieve skill development objectives), and explicit (targeting specific skills) (Beckett et al., 2009; Vandell et al., 2007). And beyond elements specific to curriculum and instruction, quality OST programs not only hire and retain tutors with both content and pedagogical knowledge, but also provide instructional staff with continuous support and authentic evaluation (Little et al., 2008; Vandell et al., 2007). Lastly, research suggests the importance of OST programs actively supporting positive relationships on the classroom level among tutors and students (Durlak & Weissberg, 2007; Vandell et al., 2007), as well as between the program and the surrounding community (Little et al., 2008).

Because NCLB's intention was to facilitate as free a choice as possible for students and parents selecting SES providers, school districts cannot impose requirements on tutors, and SES tutors do not have to meet "highly qualified" standards or have specific training. Furthermore, state educational agencies have generally been lax in evaluating providers, setting minimum standards for tutoring quality (despite the strong evidence base) or requesting essential information on applications for assessing and monitoring quality, and the only authority they have in terminating a provider's contract occurs when the provider violates district policies or other such terms of a contract. As a result, with very few resources for program administration, district staff are stretched to find time to observe SES providers and better understand what is taking place in an hour of SES for which districts are invoiced.

In our in-depth qualitative study, we have focused on defining key elements of SES program models, assessing their fidelity to evidence-based best practices, and identifying how policy and implementation potentially mediate or influence SES impacts. What do we see happening in practice (at the classroom level) in an invoiced hour of SES? How does this vary across different SES provider settings, districts, formats, and approaches to tutoring? And how does it relate to program effectiveness? The results we discuss below are based on observations of 139 OST tutoring sessions across a range of providers in our study districts, including digital, in-home, in-school, and community-based tutors; for-profit, not-for-profit, district-provided, and faith-based organizations; providers with large market share (in terms of students served) and with higher-than-average levels of student attendance; and providers advertising services to students with disabilities and English language learner populations.

In general, the model of tutoring observed tended to take the form of traditional academic learning environments, with students being tutored in tested subjects—mathematics and reading—and typically instructed in a whole group format with more than one student and one focal activity. Students attending SES who might learn best via project-based learning, arts integration, or links to community-based activities encountered few opportunities of this sort in our multisite study observations. Perhaps most troubling, however, very few tutors with training or experience in working with English language learners or students with disabilities were present during tutoring, and with very few exceptions, neither curriculum nor instruction was tailored in any way to the unique needs of these students.

*Advertised versus instructional time*

In over 130 observations of tutoring sessions across districts, we frequently observed a difference between the advertised time of a tutoring session and the actual instructional time.

Providers are required to advertise the average length of their sessions. Districts are invoiced at an hourly rate, based on the time students spend in tutoring. In our sample, advertised sessions ranged from 60 to 240 minutes. Irrespective of the format, students received less instructional time than what was advertised by providers, although the magnitude of these differences varied by format. As displayed in Table 11, tutoring completed in the student's home most closely matched instructional time with advertised time (3 minutes difference on average). In school and community settings, average instructional time was often considerably less than average advertised time: approximately 19 minutes in the case of in-person school-based tutoring and approximately 29 minutes in the case of in-person community based tutoring. Digital tutoring averaged a difference of 11 minutes.[7]

Our fieldwork also offers insight into possible reasons for these discrepancies. In school-based tutoring, the format necessitates administrative tasks (e.g., rosters, snacks, transportation). In addition, tutoring sessions have to compete with other activities (such as sports activities) for time. On average, there tends to be larger numbers of students and time is needed for students to transition from school dismissal to the SES session. In some community sessions as well, logistics of transportation (e.g., handing out bus tokens, making sure that students get outside to meet the bus in time, or checking in with families as the provider picked up and dropped off students) sometimes prevented sessions from lasting for the full, advertised time. School and community settings also often include food, which is not the case in digital or in–home sessions. Regardless of the reasons, in sessions where there are demands on tutors to conduct activities other than instruction, participating students may not be getting the full instructional treatment.

[7] We define a "digital provider" as one that uses a digital platform (i.e. software or live tutor via a computer or hand-held device) as an intentional, integral part of its instructional strategy.

The observation instrument also allowed for assessment of how consistent tutors were in their tutoring practices across an entire session and how much *instructional* time students were receiving. Irrespective of the format, students received less instructional time than what was advertised or invoiced by providers, though the magnitude of these differences varied by format.

*Attendance flux*

In about 40 percent of observations with two or more students—primarily non-digital, school-based or community-based settings—students that started a session were observed missing part of the session or leaving the tutoring session altogether, or students came in late. We call this "attendance flux." Observation data indicated a large number of tutoring sessions had considerable student mobility or "attendance flux", as measured by comparing the number of students observed in Observation Point A with the number of students observed in Observation Point B. When these numbers were not the same, we counted this observation as having attendance flux. Of the 95 observations with two or more students, 39 (41%) had mobility (flux). Eight out of the 39 sessions with mobility took place in community-based settings (8 out of 17 total community-based observations with two or more students). 29 out of the 39 sessions with mobility took place in school-based settings (30 out of 72 total school-based observations with two or more students). Four out of nine digital sessions had mobility, and zero out of two home-based session with two or more students had mobility. As noted above, the higher proportion of school-based attendance flux may reflect competition with other school-based activities. Through observations as well as interviews with both tutors and provider administrators, we know that school-based SES programs often compete with other after school programs (e.g. athletics, clubs, etc.) for students' time. For example, in one school-based tutoring observation, we noted a handful of students leaving a tutoring session early to attend a school-sponsored club

that meets weekly to improve students' self-esteem. In addition to decreased instructional time during sessions, students who move frequently in and out of sessions may realize fewer benefits of the SES program.

*Variation within SES providers*

We also observed considerable variation in the "treatment" or instructional program *within* provider. The theory of action behind SES is that variation *between* providers creates a competitive marketplace from which parents can choose the most appropriate program for their students' needs. Variation *within* providers confounds the assumption that the axis of parental choice lies on the provider level and also may complicate determining effects of the program on the provider level.

For example, sessions of very different instructional styles and quality were observed from one provider who offers services both in schools and homes. In one session at a school site, the tutor worked with three students together for one hour on a variety of math activities all focused on the same concepts around long division. This tutor was also the math specialist for the school and incorporated a number of activities and strategies from her day school resources to engage students in active learning. On the other hand, a tutor from the same provider worked with one student at home for two hours. She was not a certified teacher, although had coursework and experience in tutoring. She relied exclusively on the printed worksheets from the provider and jumped from concept to concept, even from math to reading, depending on the worksheet. The student was not actively engaged.

As this example illustrates, there is intra-provider variation in both instruction and in curriculum materials, as they come from a variety of formal (website or materials directly from provider administrators) and informal sources (tutors own resources or students' work from day

school). The "in-use" curriculum often included formal materials but was supplemented by materials from the tutor, which at times may be inconsistent with the formal curriculum.

On a more encouraging note, tutors were observed engaging with students in a predominantly positive way across districts and formats. SES consistently occurred in small groups (approximately 80 percent of all sessions had a student-tutor ratio of less than 4:1) with tutoring sessions rating highly on indicators of best practices such as "Provide constructive criticism"; "Encourage participation from disengaged students"; and "Listen actively and attentively to students".

*OST tutoring for students with special needs*

In light of the quantitative findings that showed little to no effects of SES for students with special needs, we looked more closely at the nature of the intervention in practice (from identification and registration to assessment and instruction) for English language learners and student with disabilities. One of the central issues in SES for students with special needs is confusion over who is legally responsible for serving English language learners and students with disabilities. Across our study districts, there is conflicting evidence regarding how SES providers are informed of students' English language learner or disability status. Some confidential student information is voluntarily shared by the district or through a campus liaison or administrator. One district administrator stated that it is the responsibility of the provider to contact the parent to ask for confidential information such as the IEP. One provider administrator stated that these populations were not the target population of his company, reflecting the policy ambiguity around responsibility for serving these students.

Communication. Providers depend on parents, teachers, and districts to share student assessment data. Considering that most providers do not know the students prior to enrollment, it

is nearly impossible for them to know what types of students are coming their way and to have staff prepared to meet those challenges unless they specialize in services for students with disabilities or English language learners. Some districts give student IEPs to providers if the provider requests additional information regarding a student. However, other districts provide student IEPs through the district/provider SES database, which may conflict with student's confidentiality issues as governed by IDEA and FERPA. Considering the fact that parents voluntarily enroll their students in SES, it might be legally acceptable for an LEA to include a parental consent section on the application regarding educational record disclosure to providers, as several districts in our study currently do. However, it is not clear whether this level of parental consent is sufficient to meet FERPA requirements.[8]

Data sharing and communication among providers and school/district personnel is in many cases dependent on the relationship between the provider and teachers at the school level. If school-day teachers are employed by the provider as SES tutors, they can more easily negotiate access to IEPs and personally network tutors and teachers to discuss students' specific needs. If there is no existing relationship between the school and the provider, communication between school personnel and tutors is more difficult to facilitate. Further, some schools and/or districts have strained relationships with providers, which can prevent providers from receiving up-to-date information on their SES students' educational needs. The result is that in most SES tutoring sessions, tutors have little or no knowledge of their students' specific needs.

Providers and their tutors often get information about students' special needs directly from parents via phone calls, emails, or in-person meetings. However, while most parents are supportive and want their student to receive SES services, some providers do not offer such

[8] Additional regulations from IDEA regarding confidentiality include: 34 CFR § 300.123; 34 CFR § 300.622; and 34 CFR § 300.623.

services as in-person home visits or translation for parent phone calls that may be necessary for some families. Some districts offer SES provider fairs to connect parents with provider representatives and tutors; however, again, these representatives may not have the capacity to communicate with parents in their native language. Many districts try to identify the variety of languages spoken in their district and find translators for each one; however, providers in all districts—and particularly multi-district providers—have noted the difficulty of keeping translators on staff, having translators for all applicable languages, and/or finding tutoring staff who are both bilingual and have special education training.

Training. Some SES tutors with special education and/or ESL backgrounds have been trained in appropriate diagnostics to identify students' needs, but these teachers do not always get matched with students needing their particular areas of training and experience. A primary reason for this is that SES providers do not have access to school records or staff with knowledge about students' needs, and therefore cannot match students and tutors accordingly. Some tutors identify students' special needs through phone conversations with parents; others attempt to contact their students' school-day teachers in order to learn about any special needs. However, because of the decentralized, parent-choice nature of the SES program, matching students with the most appropriate tutor is not always possible.

Time, effort, and public funding are wasted when students with special needs are not placed with providers or tutors who have the capacity to serve them. Conflicting day school and after-school instructional strategies can negatively impact the student's day school instruction and hinder the capabilities of the provider to meet the student's needs. In some cases, these issues may lead to the student being transferred to another provider. However, it is often the case that the parents are not aware of the differences in curriculum and instruction and the

consequences (positive or negative) of those differences for their students' outcomes. Providers may max out their per-pupil allowance (PPA) and hours to work with a student before they ever really understand the best strategies to help that student.

In summary, the quantitative and qualitative findings of our multisite study suggest that in many publicly-funded, OST tutoring sessions, students are not getting enough hours of high-quality, differentiated SES instruction to produce significant gains in their learning. This is not a problem that will be resolved *only* by setting minimum hours standards for tutoring providers given that invoiced hours do not equal quality instructional time.

**Conclusion**

Recent reform activity suggests that while the ultimate fate of SES is still uncertain, OST tutoring programs will persist as a staple intervention in federal, state and district reforms. For instance, the 21st Century Community Learning Centers (CCLCs) remain an important source of supplementary instruction for students in need, with federal appropriations of over $1 billion (as of 2011) for providing services to over 1.6 million students (After School Alliance, 2012). In addition, districts with new freedom to design accountability programs are retaining tutoring as an important part of a systematic strategy to improve student outcomes. Tutoring also has potential to be a cornerstone in alternative models of schooling such as charter schools, where high-density tutoring has shown to generate significant gains in student achievement (Dobbie & Fryer, 2011).

This study produces evidence that can be used by school districts as they pursue a broad spectrum of approaches to structuring tutoring, either redesigning or fully replacing SES with other models of OST programming and/or identifying new policy levers for implementation. For example, some of our study districts are already using this new knowledge to improve OST

tutoring policy design and program administration and in planning for new programs that are being launched under waivers from NCLB. Chicago Public Schools and Dallas Independent School District instituted policies aimed at compelling providers to deliver more hours of tutoring (via guidelines for using district space and the use of stimulus funds). Following waiver approvals in Wisconsin and Minnesota, Milwaukee Public Schools and Minneapolis Public Schools will require tutoring providers to offer a minimum of 40 hours of tutoring, and both districts are also setting maximum hourly rates for providers. Milwaukee is also taking actions to reduce provider direct costs of delivering tutoring, and Minneapolis is establishing performance-based contracts with bonuses. And in response to the qualitative study findings that consistently showed discrepancies between providers' advertised length of tutoring sessions and actual instructional time, these school districts have developed new policies to tighten monitoring of programs and student attendance, including cross-checking student signatures on attendance records, assigning school-based coordinators responsibilities for supervision, and more regular, random monitoring of student participation in SES sessions by district staff.

School districts will also benefit from continuing opportunities to describe and share strategies for addressing challenges with intra-provider variation in tutoring instruction quality and curriculum materials. For example, Milwaukee Public Schools is now developing a standard curriculum with overarching goals and drill-down goals for students with specific needs that providers will be required to adopt. The district is also planning to experiment with provisions for class size, tutoring length, tutor recruitment strategies, professional development innovations, and provider-school matching strategies. Minneapolis Public Schools is likewise instituting more structure to ensure that OST tutoring providers will implement programming that provides Minnesota standards-based, focused and developmental instruction in its new district program

that is replacing SES. And many of the 45 states and three territories that have adopted the Common Core State Standards (CCSS) are urging OST tutoring programs in their states to align their curricula to the CCSS. Creating and/or maintaining mechanisms for cross-district communications and sharing of effective policies, strategies and practices has the potential to limit missteps or setbacks experienced with new policy development and to more rapidly improve services for students and their achievement outcomes.

For English language learners and students with disabilities, it is clear that immediate changes in policy and practice are needed. At a minimum, tutors delivering instruction to these student populations must have basic knowledge of how to effectively address students' unique needs. Under current regulations, SES providers are allowed to hire tutors who lack the basic training and qualifications needed to serve students with special needs. NCLB fails to address alignment with other relevant federal policies such as the Individuals with Disabilities Education Act (IDEA) or the Family Education Rights and Privacy Act (FERPA). Furthermore, confusion regarding responsibilities and lack of coordination around other laws that target these subgroups add to the problems, such as precluding instructors from having necessary student educational information or delaying provision of tutoring services. Whether in the context of SES or other OST tutoring that school districts facilitate, the policies that currently guide the provision of supplemental educational services to English language learners and students with disabilities should be changed without delay to address these problems and increase tutoring effectiveness for these subgroups.

Although the generalizability of these study findings are enhanced by the cross-district research design, we still have a relatively small sample of the many districts in the United States where SES and other OST tutoring interventions are being implemented, and the considerable

variation in tutoring providers and contexts may limit their applicability. Our empirical methods are also limited by the assumptions we are required to make in the absence of random assignment of students to what is a voluntary educational intervention. While we believe that the complementary findings from our qualitative and quantitative investigations and the triangulation of a number of qualitative and quantitative methods in the data analysis and interpretation of our results strengthens their credibility, we suggest that our study findings be applied with care and attention to state, district, provider and student contexts and to new developments on the OST tutoring program and research frontiers.

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**Figure 1: SES Provider Hourly Rates by District, 2008-2011**

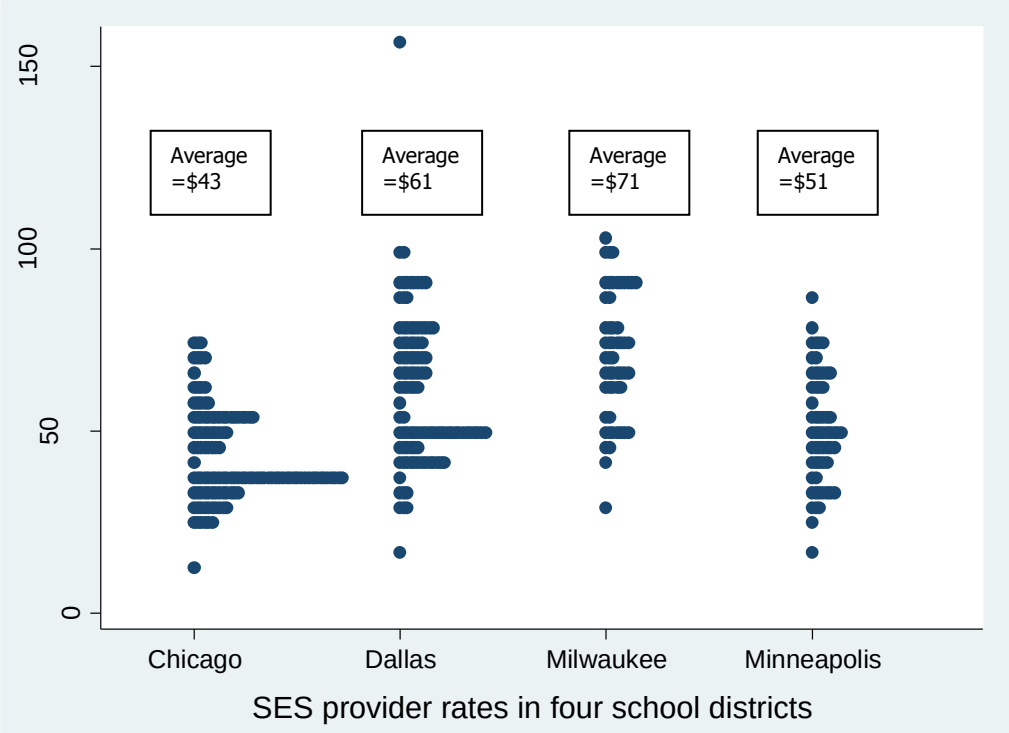
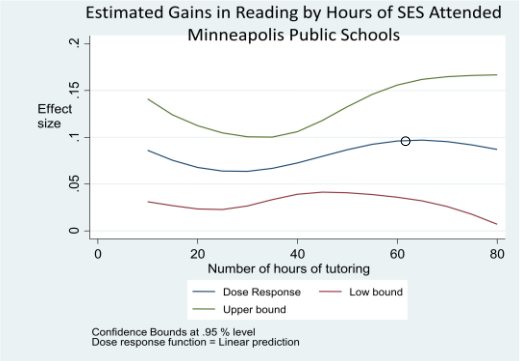
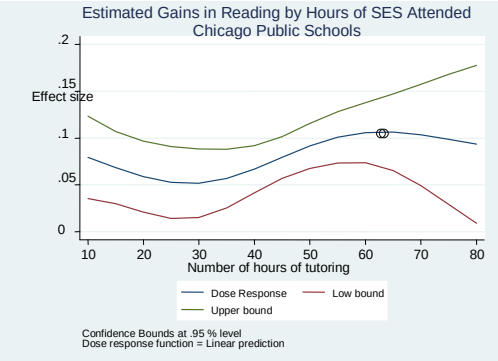
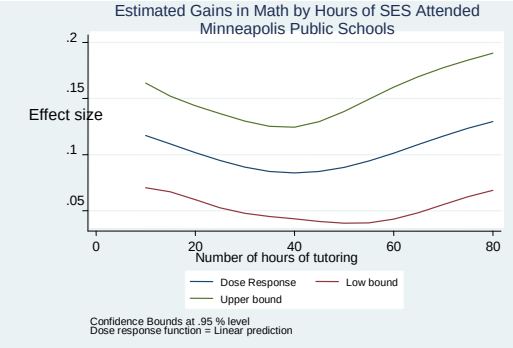
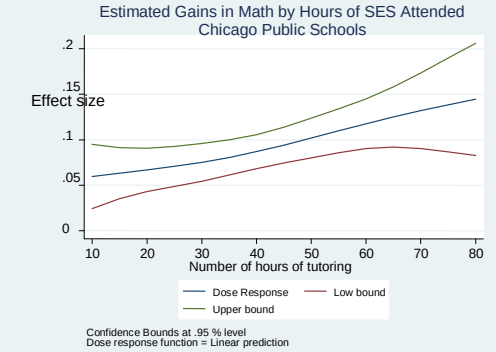


**Figure 2: Results of generalized propensity score matching analyses showing gains in student reading and math achievement associated with additional hours of tutoring**



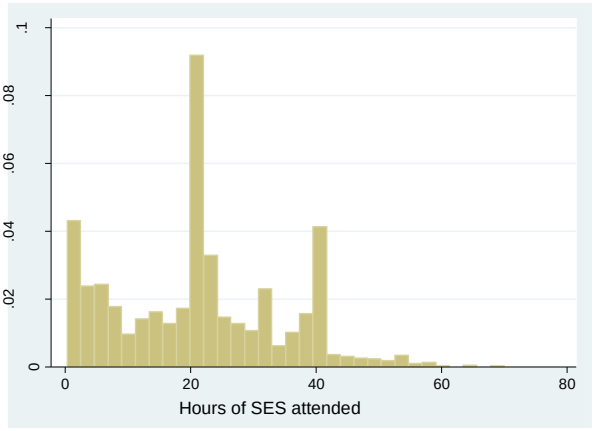



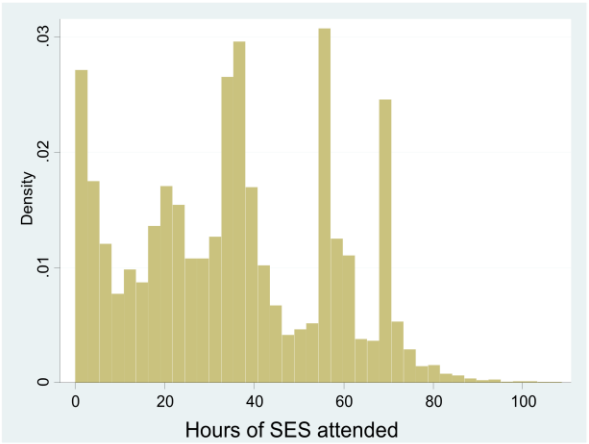

The middle line in the above graphs shows how effect sizes (i.e., average gains in reading or math) change with each additional hour of SES. The outer lines are confidence intervals (or bounds for the effects). They are wider for Minneapolis Public Schools (and they get wider at the highest and lowest hours of SES), where estimates are based on a smaller number of students receiving those levels of tutoring.

**Figure 3: Hours of SES attended by participating students in Dallas Independent School District in school years 2008-09, 2009-10 and 2010-11**

**Dallas ISD, 2008-09**




**Dallas ISD, 2009-10**




**Dallas ISD, 2010-11**

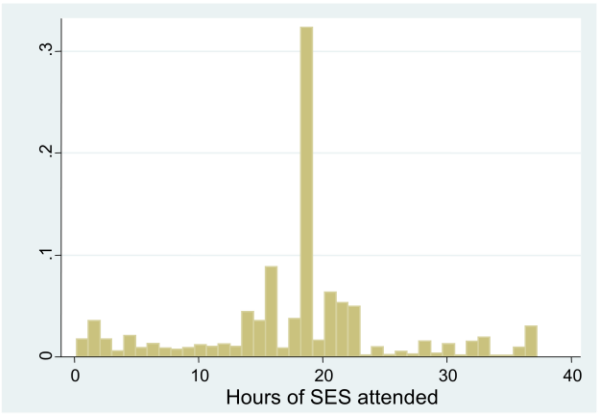


**Table 1: Summary of Students Eligible for Supplemental Educational Services/Out-of-School Time Tutoring in Proposed Study Districts**

| All Eligible Students | Chicago Public Schools | | | Dallas Ind. School District | | | Milwaukee Public Schools | | | Minneapolis Public Schools | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Student characteristics** | 2008-09 | 2009-10 | 2010-11 | 2008-09 | 2009-10 | 2010-11 | 2008-09 | 2009-10 | 2010-11 | 2008-09 | 2009-10 | 2010-11 |
| | 88,353 | 87,542 | 101,930 | 35,612 | 30,774 | 35,026 | 11,992 | 26,798 | 16,439 | 10,963 | 15,769 | 16,444 |
| Asian | 1% | 2% | 2% | 1% | 1% | 1% | 5% | 4% | 4% | 11% | 9% | 9% |
| Black | 53% | 49% | 42% | 34% | 31% | 30% | 68% | 69% | 68% | 48% | 47% | 46% |
| Hispanic | 44% | 47% | 53% | 62% | 64% | 65% | 17% | 20% | 20% | 28% | 29% | 28% |
| White | 2% | 2% | 2% | 3% | 4% | 4% | 8% | 5% | 8% | 6% | 8% | 9% |
| Other race | 0% | 0% | 1% | 0% | 0% | 0% | 3% | 3% | 0% | 6% | 7% | 7% |
| % Female | 49% | 49% | 49% | 48% | 48% | 48% | 48% | 47% | 46% | 51% | 50% | 50% |
| % ELL | 12% | 12% | 16% | 21% | 19% | 16% | 6% | 10% | 12% | 34% | 36% | 33% |
| % free lunch | 100% | 100% | 100% | 67% | 79% | 74% | 83% | 87% | 88% | 99% | 100% | 100% |
| % w/disabilities | 14% | 13% | 12% | 12% | 12% | 11% | 21% | 22% | 22% | 17% | 18% | 18% |
| Attended SES last year | 26% | 42% | 8% | 16% | 15% | 37% | 11% | 6% | 14% | 13% | 7% | 16% |
| % Absent last year | 6% | 4% | 5% | 7% | 9% | 7% | 16% | 15% | 16% | 8% | 8% | 7% |
| Retained this year | 4% | 2% | 2% | 0% | 7% | 8% | 13% | 11% | 12% | 2% | 6% | 2% |

**Table 2: Description of variables available for empirical analysis across the study sites**

| Core Control Variables | Description | Site-Specific Details |
|---|---|---|
| SES Core Controls | Eligible for SES | |
| | Registered for SES with District | |
| | Attended SES (non-zero SES hours) | |
| Student Identification and Enrollment Information | Student ID | |
| | District Code | |
| | District Assigned Local Identification Number | |
| Student Demographic Information | Student Gender | |
| | Student Ethnicity (Black, White, Hispanic, Asian, or Other) | |
| | Student Age | |
| | Limited English Proficiency/English Language Learner (ELL) Indicator | |
| | Economic Disadvantage Status (Indicated by Free or Reduced Lunch) | |
| | Enrolled in Special Education Program during School Year | |
| | Retained in the Same Grade as the Prior School Year | |
| | Period for which attendance is recorded | |
| Attendance and Absence Information | Percent of Days Absent in Prior School Year | |
| | Number of Days Absent During the Reporting Period | |
| **Basic Treatment Measures** | **Description** | **Site-Specific Details** |
| SES Treatment Information | Attended Any SES in the Prior School Year | |
| | Hours of SES Attended (Invoiced) | |
| | SES Provider Attended | |
| **Primary Outcome Measures** | **Description** | **Site-Specific Details** |
| Reading Measures | Change in Reading Scores (Standardized with District Average Test Scores) | *Dallas*: TAKS, STAAR, *Chicago*: ISAT, ITBS *Milwaukee:* WKCE *Minneapolis:* MCA-II |
| | Change in Reading Scores (Standardized with Average of SES Eligible Test Scores) | |
| Math Measures | Change in Math Scores (Standardized with District Test Score Averages) | *Dallas*: TAKS, STARR *Chicago:* ISAT, ITBS *Milwaukee:* WKCE *Minneapolis:* MCA-II, MTELL |
| | Change in Math Scores (Standardized with Average of SES Eligible Test Scores) | |

**Table 3: Sample of SES Providers (2009-2012)**

| PROVIDER | Austin | Chicago | Dallas | Milwaukee | Minneapolis | | FORMAT |
|---|---|---|---|---|---|---|---|
| A+ Tutoring Services | | X (10-12) | | | X | | School; home; community |
| A+ Markem | X (11-12) | | X (11-12) | | | | community |
| Academic Coaches | X (11-12) | | | | | | school |
| A.I.M. High | | X | | | | | Home |
| AISD SES Tutors | X (09-10) | | | | | | School, home |
| A Better Grade | | | | X (09-10) | | | Home |
| Apex Academics | X (10-11) | | | | | | School |
| ATS Project Success | | | | | X | | Digital (not live) |
| BabbageNet | | X | | | | | Digital (not live) |
| Black Star Project | | X | | | | | School |
| COMEDI | X (09-10) | | | | | | School |
| Confidence Music | | | X (11-12) | | | | School |
| Educate Online | | X | X | X | | | Digital (live) |
| Focus First | X (10-12) | | X (11-12) | | | | School |
| Group Excellence | X (10-12) | | X | | | | School, community |
| Learning Disabilities Association | | | | | X | | Home |
| Learning Exchange | | | | X (09-10) | | | School |
| Learn It Systems | X (10-11) | | | | | | Online demo |
| Mainstream Development | | | | X | | | School |
| MIGIZI Native Academy | | | | | X | | Community; home |
| Orion's Mind | | X | X (10-11) | | | | School |
| Rocket Tutoring | | | X (10-11) | | | | School |
| Salem Educational Initiative | | | | | X | | Home; community |
| SES Texas Tutors | | | X (09-10) | | | | School |
| Sparkplug | | | | X | | | School |
| Step Ahead | | | | X | | | School; home |
| TutorCo | | | | | X | | Digital (live) |
| Wisconsin Education Matters | | | | X (10-12) | | | Home |

**Unless noted, providers are in sample for 2009-10, 2010-11 and 2011-12 school years.*

**Table 4: Observations in 2009-10, 2010-11 and 2011-12 School Years**

| 2009-10 | Home | School | Community | Digital |
|---|---|---|---|---|
| Austin | 1 | 4 | 4 | 0 |
| Chicago | 0 | 8 | 1 | 0 |
| Dallas | 0 | 6 | 0 | 1 |
| Milwaukee | 6 | 9 | 0 | 2 |
| Minneapolis | 7 | 0 | 4 | 3 |
| | | | | |
| 2010-11 | Home | School | Community | Digital |
| Austin | 0 | 5 | 1 | 0 |
| Chicago | 0 | 7 | 0 | 0 |
| Dallas | 0 | 5 | 0 | 0 |
| Milwaukee | 2 | 6 | 0 | 2 |
| Minneapolis | 2 | 2 | 2 | 5 |
| | | | | |
| 2011-12 | Home | School | Community | Digital |
| Austin | 0 | 2 | 0 | 0 |
| Chicago | 0 | 7 | 0 | 1 |
| Dallas | 0 | 4 | 3 | 7 |
| Milwaukee | 2 | 7 | 0 | 2 |
| Minneapolis | 1 | 0 | 5 | 4 |
| | | | | |
| **TOTAL (139)** | **21** | **79** | **20** | **19** |

**Table 5: Interviews/Focus Groups in 2009-10, 2010-11 and 2011-12 School Years**

| 2009-10 | Provider - Admin | Provider – Tutor | District Admin | State Admin | Parent focus group |
|---|---|---|---|---|---|
| Austin | 5 | 9 | 4 | 1 | 13 |
| Chicago | 5 | 7 | 2 | 1 | 16 |
| Dallas | 5 | 7 | 3 | (1) | 45 |
| Milwaukee | 7 | 8 | 3 | 1 | 33 |
| Minneapolis | 12 | 16 | 4 | 1 | 61 |
| | | | | | |
| 2010-11 | Provider - Admin | Provider – Tutor | District Admin | State Admin | Parent focus group |
| Austin | 3 | 4 | 1 | N/A | N/A |
| Chicago | 3 | 8 | 1 | N/A | N/A |
| Dallas | 2 | 3 | 2 | N/A | N/A |
| Milwaukee | 5 | 8 | 1 | N/A | N/A |
| Minneapolis | 5 | 5 | 1 | N/A | N/A |
| | | | | | |
| 2011-12 | Provider - Admin | Provider – Tutor | District Admin | State Admin | Parent focus group |
| Austin | 4 | 0 | 0 | N/A | N/A |
| Chicago | 4 | 1 | 3 | 1 | N/A |
| Dallas | 3 | 1 | 2 | N/A | N/A |
| Milwaukee | 3 | 2 | 1 | N/A | N/A |
| Minneapolis | 1 | 3 | 2 | 1 | N/A |
| | | | | | |
| **TOTAL** | **67** | **82** | **30** | **6** | **168** |

**Table 6: Documents Collected in 2009-2012 for Fieldwork Component**

| **Policy Documents** | **Curriculum Materials/Assessments** |
|---|---|
| • State policies regarding incentives<br>• Legal complaints<br>• Internal/external evaluations<br>• Provider Contact Lists<br>• Sample Invoices<br>• Individualized learning plans (template and actual examples) required of providers by some districts<br>• State explanation of monitoring process<br>• Sample contracts<br>• Completed and evaluated applications to the state, including state rubric | • Formal curriculum<br>• Copy of lessons plans<br>• Teacher Guide<br>• Sample worksheets<br>• Power point presentations that lay out structure of on-line curriculum<br>• Home grown and commercially prepared assessments used by providers pre/post intervention<br>• Written feedback to students<br>• Software curriculum used in non-live tutoring program |
| **Other Provider Materials** | **Communication** |
| • Instructor attendance logs<br>• Marketing materials<br>• Student attendance records/log forms<br>• Research base for curriculum and/or instruction<br>• Ongoing progress monitoring results for SES students (anonymous) | • District-school<br>• District-provider correspondence<br>• Staff evaluation forms<br>• Provider-Parent communications<br>• Demo training CD Rom<br>• Tutor-parent emails and letters<br>• Tutor-School teacher emails, letters, and progress reports.<br>• SES school coordinators-Parents |

| Table 7: Average Impacts of Any SES Attendance by School District, Year and Student Group on Reading and Math Achievement (Gains) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Students attending SES compared with eligible non-participants** | 2008-09 VAM & school fixed effects model | | | | 2009-10 VAM & school fixed effects model | | | | 2010-11 VAM & school fixed effects model | | | |
| | Reading | | Math | | Reading | | Math | | Reading | | Math | |
| | # of students with gain scores | Effect size | # of students with gain scores | Effect size | # of students with gain scores | Effect size | # of students with gain scores | Effect size | # of students with gain scores | Effect size | # of students with gain scores | Effect size |
| Chicago | 61171 | **0.043** | 61464 | **0.046** | 63506 | **0.094** | 63773 | **0.053** | 205187 | **0.075** | 204094 | **0.064** |
| Minneapolis | 2511 | -0.013 | 2524 | 0.008 | 4136 | 0.012 | 4198 | **0.030** | 5025 | **0.144** | 5045 | **0.191** |
| Milwaukee | 1676 | -0.035 | 1690 | -0.015 | 4697 | -0.079 | 4772 | -0.048 | 2826 | 0.021 | 2831 | -0.043 |
| Dallas | 9294 | -0.109 | 9294 | -0.076 | 14106 | **0.111** | 13807 | **0.127** | 13428 | 0.016 | 13333 | 0.016 |

Statistically significant impacts on student achievement (at $\alpha$=0.05) are reported in bold.

| Table 8: Average hours of SES attended by participating students | | | |
|---|---|---|---|
| **District** | **2008-09** | **2009-10** | **2010-11** |
| Chicago | 38.8 | 38.7 | 39.0 |
| Dallas | 21.8 | 35.2 | 17.9 |
| Milwaukee | 25.9 | 28.2 | 28.3 |
| Minneapolis | 26.7 | 28.7 | 31.9 |

| Table 9: Effective SES providers across districts and school years | | | | | | |
|---|---|---|---|---|---|---|
| **Value-added + school fixed effects model results by SES provider (student reading and math gains)** | **All students** | | | | | |
| | **2008-09** | | **2009-10** | | **2010-11** | |
| | **Reading** | **Math** | **Reading** | **Math** | **Reading** | **Math** |
| *Small Providers* | ----- | 0.070 | ----- | ----- | 0.075 | 0.069 |
| *1 on 1 Education* | | | | | ----- | ----- |
| *A Better Grade* | 0.322 | ----- | ----- | ----- | | |
| *A+ Learning Acad.* | | | ----- | 0.196 | | |
| *A+ Tutoring Service, Ltd.* | ----- | ----- | ----- | ----- | 0.253 | 0.217 |
| *Abacus In-Home Tutoring* | | | | | 0.286 | 0.436 |
| *Academic Advantage* | | | | | 0.107 | 0.166 |
| *ABC Educate Me* | ----- | ----- | ----- | 0.176 | | |
| *ATS Project Success* | ----- | ----- | ----- | ----- | 0.187 | 0.167 |
| *Academic Solutions of Milwaukee* | 0.457 | ----- | 0.126 | ----- | | |
| *Aim High* | 0.042 | 0.068 | 0.114 | 0.070 | 0.091 | 0.092 |
| *Alternatives Unlimited, Inc.* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Apex Academics LLP* | | | | | ----- | 0.162 |
| *B.R.U. Youth Academy* | ----- | 0.113 | ----- | 0.279 | | |
| *Babbage Net School* | 0.096 | 0.072 | 0.287 | 0.192 | ----- | ----- |
| *Balser Enterprises* | ----- | 0.339 | | | | |
| *Brilliance* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Brain Hurricane* | 0.076 | 0.073 | 0.056 | ----- | 0.098 | ----- |
| *Brainfuse* | ----- | ----- | ----- | ----- | 0.256 | ----- |
| *Cambridge Educational Services* | ----- | 0.089 | 0.079 | ----- | ----- | 0.063 |
| *Cardinal Stritch University Reading Center* | | | ----- | 0.190 | | |
| *Chess Academy* | ----- | ----- | ----- | 0.061 | 0.114 | 0.102 |
| *Children's Home + Aid Society* | ----- | 0.174 | ----- | 0.088 | ----- | ----- |
| *Club Z! Tutoring Inc.* | ----- | ----- | ----- | ----- | ----- | 0.083 |
| *College Nannies & Tutors* | ----- | ----- | ----- | ----- | 0.251 | 0.393 |
| *Confidence Music* | ----- | ----- | ----- | ----- | 0.143 | ----- |
| *Cool Kids Learn, Inc.* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Cranium Maximus* | | | ----- | 0.466 | ----- | 0.440 |
| *Diverse Learning* | | | ----- | 0.275 | ----- | ----- |
| *Eager to Lrn Tutoring(E2L)/FriendshipCo* | | | | | ----- | ----- |
| *Educate Online (formerly Catapult)* | ----- | ----- | ----- | 0.099 | 0.398 | 0.410 |
| *Educate Online Learning, LLC* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Group Excellence* | ----- | ----- | ----- | 0.151 | ----- | ----- |
| *Hidden Knowledge, LLC* | | | | | ----- | ----- |
| *Huntington* | 0.044 | ----- | ----- | ----- | 0.127 | ----- |
| *IEP (Onsite)* | 0.112 | ----- | ----- | ----- | ----- | ----- |
| *Imagine Learning* | | | | | ----- | ----- |
| *Knowledge Expert* | | | ----- | ----- | | |
| *La Escuelita* | 0.130 | 0.284 | | | | |
| *Launch Lives* | 0.098 | 0.116 | | | | |
| *Learn It Systems* | | | | | 0.232 | ----- |
| *Literacy for All* | ----- | ----- | ----- | 0.094 | ----- | ----- |
| *Motivating Tomorrow's Minds* | 0.425 | 0.272 | ----- | ----- | ----- | ----- |
| *Mainstream Development* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Mary Wesley Ministries, INC* | | | | | ----- | ----- |

| *Table 9 (continued): Value-added + school fixed effects model results* | 2008-09 | | 2009-10 | | 2010-11 | |
|---|---|---|---|---|---|---|
| | Reading | Math | Reading | Math | Reading | Math |
| *Mema, Inc: Sylvan Learning Center* | | | ----- | 0.398 | | |
| *Mindful Learning* | | | ----- | 0.179 | | |
| *NESI - 116* | ----- | ----- | | | ----- | 0.118 |
| *Newton Learning* | 0.049 | 0.063 | 0.101 | | 0.069 | 0.071 |
| *Next Level Educational Programs LLC: Ne* | ----- | ----- | ----- | ----- | ----- | ----- |
| *One on One Learning* | 0.210 | 0.301 | ----- | 0.683 | | |
| *One-to-One* | 0.169 | ----- | | | | |
| *Orion's Mind* | 0.040 | 0.052 | 0.053 | 0.042 | 0.094 | 0.081 |
| *Poder Ser (ONSITE)* | 0.086 | ----- | ----- | ----- | | |
| *PMG Educational Services, Inc.* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Progressive Learning* | | ----- | 0.067 | ----- | ----- | ----- |
| *Rocket Learning Partners, LLC* | ----- | ----- | 0.061 | ----- | ----- | ----- |
| *SES Texas Tutors* | ----- | ----- | ----- | ----- | ----- | ----- |
| *SES of Illinois* | ----- | ----- | ----- | 0.088 | 0.056 | 0.053 |
| *Sheila Williams Lyons: Acknowledge Me No* | | | | | ----- | ----- |
| *Salem, Inc.* | ----- | 0.251 | ----- | 0.527 | | |
| *School Service Systems* | 0.053 | ----- | ----- | 0.107 | 0.074 | 0.051 |
| *Smart Kids* | | | | | ----- | ----- |
| *Somali Education Ctr* | 0.157 | 0.156 | | | | |
| *Spanish Learning Center, Inc.* | | | | | 0.135 | 0.079 |
| *Sparkplug Education Program-Tutoring* | ----- | ----- | ----- | ----- | ----- | 0.100 |
| *SPC Educational Solutions* | | | | | ----- | ----- |
| *Step Ahead Tutors* | ----- | ----- | ----- | ----- | ----- | ----- |
| *System Xcellence, INC: Academic Xcellenc* | | | | | ----- | ----- |
| *Sylvan Learning - Metro Centers* | | | 0.984 | 2.941 | 0.168 | ----- |
| *The Association for the People and the Community (A.P.C.)* | ----- | 0.993 | | | | |
| *Tools of Empowerment Educational Services* | ----- | ----- | ----- | ----- | ----- | ----- |
| *TutorCo* | 0.096 | ----- | ----- | ----- | 0.199 | 0.202 |
| *Tutors with Computers†* | ----- | ----- | ----- | ----- | ----- | ----- |
| *Train Up A Child* | | | 0.619 | 0.145 | 0.222 | ----- |
| *Unparalleled Solutions* | ----- | 0.077 | 0.100 | ----- | ----- | 0.096 |

*Shaded cells indicate no services provided that year; dashes in a cell indicate no statistically significant positive effects were identified for the given provider.*

| Table 10: Effective SES providers for students with disabilities and English language learners (across districts and school year) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Value-added + school fixed effects model results by SES provider (student reading and math gains)** | **ELL** | | **SWD** | | **ELL** | | **SWD** | | **ELL** | | **SWD** | |
| | **2008-09** | | | | **2009-10** | | | | **2010-11** | | | |
| | **Reading** | **Math** | **Reading** | **Math** | **Reading** | **Math** | **Reading** | **Math** | **Reading** | **Math** | **Reading** | **Math** |
| *Small Providers* | ----- | ----- | ----- | ----- | ----- | ----- | 0.183 | ----- | 0.121 | ----- | 0.072 | ----- |
| *A Better Grade* | | | | | | | ----- | ----- | | | | |
| *A+ Learning Acad.* | | | | | ----- | ----- | | | | | | |
| *A+ Tutoring Service, Ltd.* | | | | | | | | | ----- | 0.248 | ----- | ----- |
| *ABC Educate Me* | ----- | ----- | | | | | | | | | | |
| *Academic Solutions, Inc.* | | | | | | | | | 0.222 | 0.209 | ----- | ----- |
| *Apex Academics LLP* | | | | | | | | | 0.519 | ----- | ----- | ----- |
| *ATS Project Success* | | | | | ----- | | ----- | ----- | ----- | 0.187 | ----- | ----- |
| *Academic Solutions of Milwaukee* | | | | | | | | | | | | |
| *Aim High* | ----- | | ----- | 0.055 | 0.104 | ----- | ----- | ----- | 0.092 | 0.062 | ----- | 0.092 |
| *B.R.U. Youth Academy* | ----- | | | | | | | | | | | |
| *Babbage Net School* | ----- | 0.202 | ----- | | 0.712 | 0.350 | | | | | | |
| *Balser Enterprises* | | | | | | | | | | | | |
| *Brain Hurricane* | ----- | 0.106 | | ----- | ----- | ----- | ----- | ----- | 0.168 | 0.062 | ----- | 0.168 |
| *Brainfuse* | | ----- | ----- | ----- | | | | | | | | |
| *Cambridge Educational Services* | ----- | 0.135 | ----- | 0.226 | ----- | ----- | ----- | ----- | ----- | ----- | 0.152 | ----- |
| *Cardinal Stritch University Reading Center* | | | | | | | | | | | | |
| *Chess Academy* | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| *Children's Home + Aid Society* | | | | | | | ----- | ----- | | | | |
| *ClubZ! Tutoring Service* | | | | | | | | | ----- | ----- | | |
| *Confidence Music* | | | | | | | | | ----- | 0.266 | ----- | ----- |
| *Cranium Maximus* | | | | | | | | | | | | |
| *Diverse Learning* | | | | | | | | | | | | |
| *Educate Online (formerly Catapult)* | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | | | | |
| *Group Excellence* | ----- | ----- | ----- | ----- | ----- | 0.219 | ----- | ----- | ----- | ----- | ----- | ----- |
| *Huntington* | 0.116 | 0.095 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| *IEP (Onsite)* | | | | | | | | | ----- | ----- | | |
| *Knowledge Expert* | | | | | | | | | | | | |
| *La Escuelita* | | | | | | | | | | | | |
| *Launch Lives* | | | | | | | | | | | | |
| *Literacy for All* | ----- | ----- | ----- | ----- | ----- | 0.141 | ----- | ----- | ----- | ----- | ----- | ----- |
| *Motivating Tomorrow's Minds* | | | | | | | | | | | | |
| *Mainstream Development* | | | ----- | ----- | | | 0.223 | ----- | | | ----- | ----- |

| Table 10 (continued): Value-added + school fixed effects model results by SES provider | ELL | | SWD | | ELL | | SWD | | ELL | | SWD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008-09 | | | | 2009-10 | | | | 2010-11 | | | |
| | Reading | Math | Reading | Math | Reading | Math | Reading | Math | Reading | Math | Reading | Math |
| *Mema, Inc: Sylvan Learning Center* | | | | | | | | | | | | |
| *Mindful Learning* | | | | | | | | | | | | |
| *Newton Learning* | 0.090 | 0.138 | ----- | ----- | 0.123 | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| *One on One Learning* | | | | | | | | | | | | |
| *One-to-One* | | | | | | | | | | | | |
| *Orion's Mind* | ----- | 0.082 | ----- | 0.063 | ----- | ----- | ----- | ----- | ----- | 0.096 | ----- | ----- |
| *Poder Ser (ONSITE)* | | | | | | | | | | | | |
| *Princeton Review* | ----- | ----- | ----- | | | | | | | | | |
| *Progressive Learning* | ----- | ----- | ----- | ----- | 0.170 | | ----- | ----- | ----- | ----- | ----- | ----- |
| *Rocket Learning Partners, LLC* | | | ----- | ----- | ----- | | ----- | ----- | ----- | ----- | ----- | ----- |
| *SES Texas Tutors* | | ----- | | | | | | | | | | |
| *SES of Illinois* | ----- | 0.128 | ----- | ----- | 0.176 | 0.161 | ----- | ----- | ----- | ----- | ----- | ----- |
| *Salem, Inc.* | | | | | | | | | | | | |
| *School Service Systems* | | | ----- | ----- | | | | 0.140 | | | ----- | ----- |
| *Somali Education Ctr* | | | | | | | | | | | | |
| *Spanish Learning Center* | | | | | | | | | ----- | 0.094 | | |
| *Sparkplug Education Program-Tutoring* | | | | | 0.298 | ----- | ----- | ----- | | | | |
| *SPC Education* | | | | | | | | | ----- | ----- | | |
| *Step Ahead Tutors* | 0.224 | 0.170 | | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| *Sylvan Learning - Metro Centers* | | | | | | | | | | | | |
| *The Association for the People and the Community (A.P.C.)* | | | | | | | | | | | | |
| *TutorCo* | | | ----- | ----- | ----- | ----- | | | 0.179 | ----- | ----- | ----- |
| *Tutors with Computers* | | | | | | | | | ----- | ----- | | |
| *Train Up A Child* | | | | | | | | | | | | |
| *Unparalleled Solutions* | | | | ----- | | | ----- | ----- | ----- | ----- | | |

Shaded cells indicate no services provided that year; dashes in a cell indicate no statistically significant positive effects were identified for the given provider.

**Table 11: Average advertised versus instructional time (in minutes) by format (cross-site, 2009-12)**

| Format | Advertised Time | Instructional Time | Difference |
|---|---|---|---|
| Digital (N=19) | 80.3 | 64.2 | 10.7* |
| Home (N=21) | 62.9 | 59.4 | 3.4 |
| School (N=79) | 99.1 | 80.1 | 19.0 |
| Community (N=20) | 123.2 | 90.1 | 29.1** |

*The discrepancies between the calculated average difference between advertised and instructional time and the difference between average times is due to the fact that software-based digital program duration is controlled by the student alone, thus not providing an advertised time for those sessions. Calculated average differences between times only take into account sessions that have both an advertised and an instructional time, but the instructional times listed here include sessions that do not have advertised times.

**The discrepancies between the calculated average difference between advertised and instructional time and the difference between average times is due to two issues: a few sessions did not have advertised times, and one of the observed sessions did not have an precise observed instructional time. These values were not used in the calculations for average difference, but the instructional times in the first group of sessions and the advertised time in the second example were included in the calculations for average advertised and average instructional times.