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EdWorkingPaper No. 23-742

Where are the Gifted English Learners and Students with Disabilities?

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Prior research has documented substantial inequity across, racial, ethnic, and socioeconomic lines within the population of students identified as gifted. Less attention has paid to the equity of gifted identification for student learning English or those with disabilities and what effect state policies toward gifted education might have on these rates. This paper attempted to fill that void by analyzing data from the Office of Civil Rights Data Collection and Stanford Education Data Archive along with original coding of state gifted education policies. Our findings show that while both groups are substantially underrepresented, state mandates for schools to offer services, requirements for formal gifted education plans, and regular audits for compliance are correlated with much higher rates of gifted service availability and equity for English learners and students with disabilities. We also describe the location and characteristics of the top 5% most equitable schools for English learners and students with disabilities.

VERSION: March 2023

Suggested citation: Peters, Scott J., and Angela Johnson. (2023). Where are the Gifted English Learners and Students with Disabilities?. (EdWorkingPaper: 23-742). Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/hrtx-gs04

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We have no known conflicts of interest to disclose.

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Abstract

Prior research has documented substantial inequity across, racial, ethnic, and socioeconomic lines within the population of students identified as gifted. Less attention has paid to the equity of gifted identification for student learning English or those with disabilities and what effect state policies toward gifted education might have on these rates. This paper attempted to fill that void by analyzing data from the Office of Civil Rights Data Collection and Stanford Education Data Archive along with original coding of state gifted education policies. Our findings show that while both groups are substantially underrepresented, state mandates for schools to offer services, requirements for formal gifted education plans, and regular audits for compliance are correlated with much higher rates of gifted service availability and equity for English learners and students with disabilities. We also describe the location and characteristics of the top 5% most equitable schools for English learners and students with disabilities.

Keywords: Gifted education, English Learners, Students with Disabilities, Equity

Where are the Gifted English Learners and Students with Disabilities?

Despite broad, longstanding attention to gifted and talented (GT) identification policies and the equity of the populations they identify, fewer studies have examined the correlations between state policies and gifted and talented student identification rates, or the equity of students so identified. In fact, in their 2017 article, Plucker and colleagues emphasized that more research is needed on the actual effects of policies, specifically calling out the effects of identification and service mandates, and whether they serve to improve equity.

A similar gap exists regarding equity of identification for students with disabilities (SwD: for our analyses classified as served under the Individuals with Disabilities Education Act (IDEA) or under Section 504) or who are still developing English proficiency (LEP:[1]). Despite equity being the dominant topic of discussion within the field (Peters, 2022), the students receiving most of the attention are those from racial / ethnic minoritized groups or those who are from low-income families. This is understandable given the United States' long history of racism and discrimination, but it has resulted in a dearth of information on what factors, especially at the state policy level, predict lower or higher levels of identification for students who are LEP or SwD.

The Effect of State Policies Toward Gifted Education

The National Association for Gifted Children's (NAGC) biannual State of the States Report (Rinn et al., 2020) as well as other surveys and publications (e.g., Callahan et al., 2017; McClain & Pfeiffer, 2012; Plucker et al., 2015) have shown that states vary in their policies toward advanced learners. In

[1] Throughout this paper we use the term "limited English proficient (LEP)" because it is the classification used in the Civil Rights Data Collection, our main data source. We acknowledge the contributions multilingual students bring to the school system and the importance of using asset-based terminology when referring to multilingual students more broadly as a population. We also use the term "students with disabilities" most often to include students who are served under IDEA and Section 504, while elsewhere we use other terms (% in special education) based on what was used in the original data source.

some states (e.g., North Carolina, Iowa, Florida) identifying and serving gifted students in schools is legally mandated, funding is provided, and the state conducts proactive enforcement. On the other extreme are states such as New York, South Dakota, or Massachusetts where there is essentially no policy regarding or funding. In-between the two extremes are even more-diverse approaches to the education of gifted students resulting in fertile ground for an examination of what relationships different policies have on the extent to which students who are LEP or SwD have access to and receive gifted services.

Baker and Friedman-Nimz (2004) examined how state funding rates and mandates correlated with access to gifted and talented programs and identification rates for students from low-income families. First, the authors found that in states with mandates, schools were 2.0 to 2.7 times as likely to offer gifted programs, but that within those states, level of funding didn't have any additional influence on service availability. Second, the authors found that schools in states with mandates tended to serve a higher proportion of their students in gifted programs, but that the larger proportions of students from low-income families predicted a lower the probability of access. This seems to suggest that mandates do increase access, but less so when a school has a large proportion of low-income students. The one silver lining was that in a state with a mandate, a school with 100% of students from low-income families still had a 23% higher probability of offering gifted services compared to the average across all states. This suggests that state mandates for gifted services can increase identification and access rates overall, including in the schools with the largest proportions of students traditionally underrepresented. If true, this points to state mandates and as a powerful policy lever for improving equity.

The existing research findings on the effect of state mandates are complicated. For example, Peters et al. (2019) examined data from the 2015 – 2016 U.S. Office of Civil Rights Data Collection (CRDC) and compared access to services and demographic proportionality in gifted and talented

populations for states that did and did not mandate identification or services. On average, schools in states with mandates showed higher rates of access. In states coded as mandating access to gifted services, 58% of schools identified one or more students for such a service compared to 42% in states with no mandate. However, regarding equity, there were few clear patterns. Black students were more-proportionally identified in states with mandates (Representation Index (RI) of ~.60) compared to those with no mandates (RI=.48). However, for Latinx students, RIs were consistent across all types of policies (RIs ~.60) and students who were LEP or SwD (not including 504) were *less* represented in states with mandates (RIs=.23 and .25, respectively). This suggests that greater policy enforcement (in the form of a mandate) of identification and service provision is negatively correlated with equity for some student groups. However, regarding students who were LEP and SwD, it's important to note that some states include gifted students within special education regulations. Because of this, there may be additional complexity within the identification rates, especially for SwD.

Peters and Carter (2022) took a similar approach to Peters et al. (2019) and Baker and Friedman-Nimz (2004) by using multiple federal datasets in search of what school and district characteristics predicted access to gifted services at the school level and the proportion of students identified as gifted within a school or state. They also examined if these relationships remained after controlling for the average achievement. In the model that controlled for achievement, they found school proportion Asian and Hispanic students were positive predictors of access while the proportion of Black or low-income students were negative predictors. Socioeconomic (SES) factors such the average SES of the school and the percent of adults in the community who were college educated stood out as strong predictors of access even after controlling for achievement. This is concerning since it suggests some factor other than the achievement profile of the school or district is predicting where gifted services are made available and that these factors are contributors to disproportional representation. It also highlights the

importance of evaluating the relationship between policies and access and equity alongside consideration of other school and district factors.

Perhaps the best example of a study of the effects of specific state identification policies was conducted by McBee et al. (2012) on Florida state policy. Starting in 2002, Florida school districts were allowed to propose alternative identification pathways for students from low-income families or who were classified as LEP. These alternative policies are commonly known as “Plan B” pathways due to their respective location in state law. McBee et al. studied whether districts having Plan B policies in place resulted in higher identification rates for students from low-income families or those who were LEP. The authors found that if a randomly selected Florida school district were to adopt a Plan B policy, the identification rate for students from low-income families would more than double. For Black students, the increase was by two-thirds, even though the Plan B policies would not apply directly to Black students – only if they happen to also be LEP or from a low-income family. Again, this reinforces the idea that specific state policies can influence equity in terms of students identified for gifted services.

Lack of Research on Students who are English Language Learners or Twice-Exceptional

In their 2019 study referenced above, Peters et al. reported on the gifted and talented representation of various student subgroups for every state. What was unique about this study was that in addition to racial / ethnic groups, the authors also reported RI for students who were LEP or served under IDEA. Nationally across all states, these students were identified at rates of 27% and 21%, respectively, of their representation in the total K-12 student population (RIs of .27 and .21). When the authors examined these same RIs at the state level for 2012, 2014, and 2016, the only states that came close to proportional identification for these subgroups were states with small proportions of their students classified as LEP (e.g., West Virginia and Vermont) or in states where gifted is part of special education (e.g., West Virginia and Tennessee).

Regarding how to best identify SwD or those who are LEP, there is conflicting information in the scholarly literature, particularly as it relates to "nonverbal" tests of ability. In a comparison of three common nonverbal tests, Lohman et al. (2018) found that English language learners (ELLs) still scored substantially lower than their non-ELL peers on all of them (by roughly 1/3 of a standard deviation). Giessman et al. (2013) found similar mean score gaps between ELL and non-ELL students on two nonverbal tests (of approximately 2/3 of a standard deviation on both). Carmen et al. (2020) collected data from one large school district (n=15,724 for one grade) using both the Naglieri Nonverbal Test of Ability (NNAT) and the CogAT Nonverbal battery (CogAT-NV). Students with disabilities scored about 1/3 of a standard deviation lower on CogAT-NV and about 1/2 of a standard deviation lower on NNAT than their non-SwD peers. Interestingly, ELLs scored very close to their non-ELL peers on both tests. As a result, when either test was used for identification (i.e., students who scored in the top 5% of national norms on either test), ELLs and SwD were both underrepresented. This suggests that simply removing language or content knowledge from an assessment does not result in equal mean performance across student groups.

Gubbins at al. (2020) conducted site visits and in-depth evaluations of 16 schools across three states that had proportional representation of ELLs among their gifted and talented populations. All 16 schools were majority low income, equally distributed across the three states, and ranged from 384 to 1,747 students. The goal was to understand each school's identification process and how or why it appeared to be working so well. One of the first themes to emerge was that despite using common assessments for identification, all schools implemented universal screening in one or more grade levels. School-based teams then used these data to seek out students' strengths rather than focus on deficits. A second theme related to creating alternative pathways. Observed in nine of the 16 schools, this often took the form of native-language assessment or some type of pre-identification talent development programs. In practice, ELLs were more likely to be identified when there was collaboration and

communication across the gifted education team, special education teachers, and other teachers such as ELL or bilingual program teachers.

Students with dual exceptionalities (a diagnosed disability as well as a designation as gifted) are somewhat more complicated as an underrepresented group than their English learning or racial / ethnic minoritized peers. This is because the most common disability (specific learning disability) requires lower performance in an area that is substantially below expectations (McCoach et al., 2001), while giftedness most often requires advanced performance in one or more areas. Like the research by Gubbins et al. (2020), Maddocks (2018) suggested that a common barrier to SwD being identified as gifted might be a focus on the student's area of relative weakness as opposed to their area of strength. For example, traditional gifted identification criteria focus on composite ability scores inclusive of a range of domains and subscales or consistent high performance across multiple domains of achievement (Callahan et al., 2017). By definition, such approaches will identify few students with learning disabilities since they need to have an achievement-ability discrepancy or "unexpectedly" low performance in at least one area.

Despite being the group most-underrepresented compared to the overall student population, students with disabilities and those who are LEP have received less attention in gifted and talented equity discussions than have students of color or those from low-income families. To be sure, there is substantial discussion in the research community (e.g., Dai & Chen, 2011) and among practitioners on the topic of twice-exceptionality (e.g., Fugate et al., 2020; Kaufman, 2018). There has also been research on best practices for serving gifted students with specific disabilities (e.g., Foley-Nicpon et al., 2012) and similar work on how to best identify (e.g., Harris et al., 2009) and serve (e.g., Pereira & de Oliveira, 2015) gifted students who are learning English. However, to date, little is known about what school factors,

district factors, or state policies make for more equitable gifted and talented education for students who are LEP or SwD. We seek to close that gap in the present paper.

Methods

Research Questions

1. What school and district demographic or achievement characteristics are correlated with access to gifted and talented services for students who are LEP or SwD?
2. What is the relationship between state gifted education policies, access to gifted and talented services, and the equity of school populations so identified?
3. What characterizes schools that have achieved high rates of GT representation for students who are LEP or SwD?

Data and Exclusion Criteria

To answer our research questions, we merged data from three sources: (a) the 2017-18 CRDC; (b) the Stanford Education Data Archive (SEDA, Reardon et al., 2021); and (c) our own coding of individual state's polices toward gifted and talented education (see below). We retained regular public, charter, and magnet schools in the 50 states for our analyses. While they are included in the CRDC, we excluded Puerto Rico because SEDA did not include their data in the most recent release. Similarly, we excluded students in Washington D.C. because none of their schools were reported as having gifted students in the CRDC survey. Finally, we excluded vocational, alternative, and virtual schools because of likely inconsistencies over whether the same school instructional standards (like gifted education mandates) applied to them in the same ways as traditional public schools. We used unique school identification numbers from the National Center for Education Statistics (NCESID) to link datasets; as a result, a small number of schools with missing or duplicate NCESID (1%) were excluded.

We accessed the data through the Urban Institute's Education Data Portal (n.d.). Of the 97,632 schools in the CRDC database, we first filtered by those that successfully merged with the SEDA data. This reduced our samples to 66,040 for the LEP sample (Table 1) and 66,024 for our SwD sample (Table 2). Primarily, this reduction was due to SEDA including achievement data for students and schools in grades three through eight. Thus, all high schools and schools only serving primary grades (for which average achievement was not calculated by SEDA) were dropped from our analyses. This was not especially concerning since gifted services tend to start in grades two or three and are rare in high school (Callahan et al., 2017). Next, we filtered any schools that enrolled fewer than ten students who were LEP or SwD. The result was a final of 40,489 schools for our LEP (Table 1) and 63,532 schools for our SwD (Table 2) analytic samples. Not surprisingly, far more schools enroll ten or more SwD than students who are English learners. Compared to schools that did not merge with SEDA data and were excluded, the analytic sample had larger LEP enrollment (60 vs. 40 students) and smaller overall enrollment (500 vs. 600 students), and a slightly lower rate of enrollment in gifted programs for all students (6% vs. 7%). The analytic SwD sample had smaller SwD enrollment (80 vs. 100) and smaller overall enrollment (500 vs. 600), and a slightly lower rate of overall enrollment in gifted programs (6% vs. 7%) than schools that did not merge with SEDA data.

Variables used were school total enrollment, LEP/SwD enrollment, gifted program availability (GT=1 if yes, = 0 if no), and for schools with GT=1: total students in the gifted program, and LEP/SwD enrollment in the gifted program. Schools with zero total enrollment, missing total enrollment, or missing LEP/SwD enrollment, and schools with gifted enrollment counts, LEP counts, or SwD counts greater than total enrollment were dropped (<0.3%). This is reflected in the school counts presented in the prior paragraph. We also included covariates such as school proportion LEP, district proportion special education, school and district proportion receiving free or reduced-price lunch (FRPL), and

average achievement test scores. For test scores, we followed SEDA documentation recommendations and used ordinary least squares estimates of scores pooled over grades, subjects, and years.

Tables 1 and 2 show descriptive statistics for schools in the full CRDC-SEDA matched dataset by LEP (Table 1) and SwD count (Table 2). Of the approximately 66,000 regular, charter, or magnet schools with unique NCESIDs and complete data, 61% enrolled at least 10 LEP students (Table 1); of these schools with at least 10 LEP students, 72% had a gifted program. Among the schools with 10 LEP students and a gifted program, 38% enrolled at least one LEP student in their gifted program. Schools that enrolled at least one LEP student in their gifted program constituted 27% of schools that enrolled a total of 10 or more LEP students. Table 2 shows analogous data for schools for SwD: 96% schools enrolled at least 10 SwD. Schools that enrolled at least one SwD in their gifted program constituted 30% of schools that enrolled a total of 10 or more SwD. SwD enrollment counts in the school and in the gifted program were calculated by adding counts of students served under IDEA and Section 504.

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Tables 1 and 2 Here

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Calculating Enrollment and Gifted Program Participation

For each school, we calculated LEP and SwD enrollment as percentages of total enrollment, total students in gifted program as a percentage of total student enrolled, and the gifted program representation index (RI) for LEP as follows, and similarly for SwD:

$$RI_{LEP} = \frac{\left(\frac{LEP\ in\ GT}{LEP\ in\ school}\right)}{\left(\frac{All\ students\ in\ GT}{All\ students\ in\ school}\right)}$$

Note this is mathematically equivalent as the RIs calculated elsewhere (e.g., Peters et al., 2019).

Modeling State Policy

As part of this study, we hoped to understand what effect various state laws or policies might have on access to gifted services for schools with larger numbers of students who were LEP or SwD. Past reports have ranked or graded states in terms of gifted and talented policy support. For example, Plucker et al. (2015) assigned letter grades to each state based on policies (inputs) and student outcomes. Input grades were based on factors such as state mandates for identification and services, acceleration policies, and monitoring of school districts. Outcomes included factors such as excellence gaps. Similarly, past NAGC State of the States reports have included information related to state policies and requirements of schools and districts related to gifted education. Unfortunately, there was no State of the States data collection that would apply most directly to the 2017 – 2018 school year – the most recent year for which our outcome data are available. The two closest were conducted during the 2014 – 2015 and 2018 – 2019 school years. The Plucker et al. (2015) report was similarly conducted using data from prior school years.

To address this problem and best identify the state policies in place for the 2017 – 2018 school year, we started by comparing the 2014 – 2015 and 2018 – 2019 State of the State reports. For each of the variables related to state policy, we compared responses for each state from both years. If the responses agreed, we felt confident that such a policy was or was not in place for the 2017 – 2018 school year. For example, the state of Alabama was categorized as conducting audits of district compliance with gifted education policies in both the 2014 – 2015 and 2018 – 2019 school years. As such, we felt comfortable that similar audits were conducted in the 2017 – 2018 school year. Similarly, for both years, Illinois was indicated as not requiring a plan to be submitted by districts to the state regarding gifted education. Once again, we felt comfortable the same was true in 2017 – 2018.

However, for several of the states and several of the policy variables, the two years did not agree or one year was missing data. For example, in 2014 – 2015, Texas was categorized as not requiring a plan be submitted to the state while in 2018 – 2019 it was so categorized. Similarly, in one year Utah was listed as requiring districts to have formal gifted and talented plans in place while in the other year it did not.

In these cases, we first reviewed state education agency websites for additional information specifically related to the 2017 – 2018 school year. In many cases this provided clarity on which policy was in force for the 2017 – 2018 school year. For example, Wisconsin only conducts audits following a complaint or report of noncompliance. As such, we coded it as not regularly auditing districts for compliance with the state mandate. In several cases, state websites did not provide clarity. When this happened, we reached out to gifted education directors at the state education agencies (e.g., AL, NE, IN), members of the state gifted associations (e.g., NJ, PA), faculty members at universities within the state (e.g., TX, KS), or even veteran school district administrators (e.g., GA, UT).

As a result of this work, we assigned dummy codes related to gifted education policies that would have been active for the 2017 – 2018 school year for all 50 states. These can be seen in Table A1 in the appendix. Specifically, these dummy codes related to the following:

1. Did the state mandate gifted and talented student identification? Importantly, we only coded a state as mandating gifted identification if it was mandated for all school districts. For example, states like Nevada and Missouri provide guidance for gifted education, but these guidelines are only required to be followed if a district chooses to offer gifted services or apply for funds. Districts were not required to do so. In those cases, we coded the state as not having a mandate. This resulted in 36 states coded as having a mandate.
2. Did the state regularly audit school districts regarding compliance with state rules for gifted and talented education? States were coded as conducting audits of school district compliance if they

conducted proactive, regular check-ins with school districts. For example, Indiana districts were only eligible for audits if they applied for and received gifted education grant funding. Similarly, Wisconsin districts are only audited following a complaint of district noncompliance. Because these do not represent "regular" or "proactive" audits, the states were both coded as not auditing district compliance. Alternatively, Oklahoma audits 25 districts every year at random. This operational definition resulted in 21 states coded as conducting audits.

3. Were districts required to create, maintain, and/or submit gifted education program plans to the state? This code indicated if districts were required to have written plans for gifted and talented identification and/or services. We did not look for the content of such plans – only whether they were required to be on file or submitted to the state. For example, districts in Maine must have such a plan on file with the state absent an active waiver. Similarly, North Carolina requires districts to update their plans every three years. Both states were coded as mandating gifted plans for districts. A total of 26 states were rated as mandating district gifted and talented plans.
4. If districts were required to have such plans, were they required to be approved by the state? This code represented whether states exercised any kind of approval authority over district gifted and talented plans. While a state might require a plan be in place or approved by a school board, some states went further by reviewing, providing feedback on, and/or requiring changes to plan drafts. This was challenging to code as some states provide feedback even though districts were not always required to incorporate such feedback or gain the state's technical approval. Still, because there was engagement with districts by the state, we saw such actions as similar to approval. For example, Iowa districts are required to address their gifted and talented identification criteria, budget, and other factors as part of their school improvement plans. Similarly, all Florida districts have their approved gifted and talented policies and procedures

posted on a central state website, including a notation as to whether the district does or does not have an approved plan. In the end we coded 14 states as requiring district plans be approved by the state.

5. In the state, is giftedness considered an exceptionality under the state's special education laws or rules? Some states mandate gifted students to be served under the broader umbrella of special or exceptional education. We coded these separately as the systems of implementation and accountability appeared qualitatively different from other states that mandated gifted education. We coded seven states as operating gifted education within exceptional or special education. For example, in Pennsylvania, "children with exceptionalities" includes those with a disability or those who are gifted. Similarly, the section of New Mexico administrative code addressing special education (6.31.2 NMAC) also defines a gifted child and describes how an Individual Education Plan (IEP) team needs to identify such students. Of course, these states still vary in terms of how they apply federal special education law and its procedural safeguards to gifted students, but in general they all approach gifted education as a form of exceptionality alongside students with disabilities.

Of course, any time diverse state policies are distilled into dichotomous codes, the result is an imperfect approximation of reality. However, our goal here was to try and obtain a quantitative (or at least ordinal) metric of degree of gifted education within each state. In other words, if a state was coded as having a mandate, requiring plans, approving of plans, and conducting of audits, we saw that state as doing more to implement gifted education than a state that had a mandate on paper, but did little to enforce it in schools. Thus, while there is certainly variance in policy even within states similarly coded in each category, we felt comfortable that the first four codes, when included together in a model, served as a decent approximation of gifted education implementation in the state. Further, if we learn of

mistakes we made or if new information comes to light, we will update Table A1 as well as our findings on the project OSF site (XXXX).

Data Analysis

We used four stepwise 2-level linear probability models (LPM) with schools nested within districts. The dependent variables were (a) whether GT services were available at a school and (b) the gifted population RI of students who were LEP or SwD in each school. For the binary outcome variable (a), we also ran logistic regressions to verify that findings were similar to the LPM. We describe only the LPM findings in the rest of this paper for ease of interpretation.

Model 1 only included an intercept and district random effects. Model 2 added school-level covariates: mean achievement score, proportion LEP, and proportion FRPL, and codes for being a charter, magnet, urban, suburban, and town school (with rural being the omitted locale). Model 3 added district-level covariates: proportion FRPL, average SES, proportion adults with a bachelor's degree or above, proportion of students who were LEP, proportion of students who were eligible for special education services, and average achievement score. Covariates in Models 2 and 3 were grand-mean centered, and proportions were scaled to represent the association for every 10 percentage points. Finally, Model 4 (shown below for LEP) added the five state policy dummies: mandate, audit, plan required, plan approval, and GT as special education.

Model 4:

$$\begin{aligned} y_{ij} = {} & \gamma_{00} + \gamma_{10}\, schach_{ij} + \gamma_{20}\, sch\%LEP_{ij} + \gamma_{30}\, sch\%FRPL_{ij} + \gamma_{40}\, charter_{ij} + \gamma_{50}\, magnet_{ij} \\ & + \gamma_{60}\, city_{ij} + \gamma_{70}\, suburb_{ij} + \gamma_{80}\, town_{ij} \\ & + \gamma_{01}\, dist\%FRPL_j + \gamma_{02} distSES_j + \gamma_{03} dist\%BA + \gamma_{04}\, dist\%LEP_j \\ & + \gamma_{05}\, dist\%SPED_j + \gamma_{06} distach_j + \boldsymbol{\delta} + u_{0j} + \varepsilon_{ij} \end{aligned}$$

$$u_{0j} \sim N\,(0, \tau_{00})$$

where y_{ij} is the outcome for school i in district j; γ_{00} is the grand-mean of the outcome; $\boldsymbol{\delta}$ is a vector of state policy dummies, and u_{0j} allows the intercept to differ by district. All models are estimated using full-information maximum likelihood estimation in HLM Version 8 (Raudenbush et al., 2019).

Results

Table 1 presents school-level descriptive statistics for the total SEDA sample, our analytic sample of schools with 10+ LEP students, and the sample of schools that had fewer than 10 students who were LEPs. Table 2 presents the same but for our SwD analytic sample. Both tables show some clear differences between our analytic samples (10+ LEP or SwD). For example, schools with 10+ SwD are more likely to have gifted services (.68) compared to schools with fewer than 10 SwD (.26). Schools with <10 SwD are also more likely to be charters (.12 vs. .05). Our analytic sample of 10+ students who were LEP were also more likely to be suburban schools than the overall SEDA sample (.36 vs. .29) or the schools with fewer students who were LEP (.19). Additional descriptive statistics for our samples, including disaggregating schools by GT access and 10+ 10 LEP or SwD students, can be found in appendix Tables A2 and A3.

School and District Predictors of Access to Gifted Services

Research question 1 examined predictors of access to gifted services for schools with 10+ LEP or SwD. Table 3 presents the results of our four models for students who were LEP and Table 4 presents the results for SwD.

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Tables 3 and 4 Here

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LEP. The model 1 intercept shows that for this sample of schools (n=40,371), on average 59% provided access to GT. The variance for this intercept among districts was .19. Model 2, after adding school demographics, shows that school proportion LEP is negatively associated with school having GT, if weakly. For every 10 percentage point increase in school proportion LEP, there is a 1 percentage point decrease in the probability of a school providing access to GT. However, in model 4, which controls for state policy and district demographics, school proportion LEP has a near-zero estimate, and district proportion LEP is no longer a significant predictor. Table 3 also documents that charter schools with 10+ LEP are 32 percentage points less likely to offer GT compared to schools of average achievement, with an average proportion FRPL, and an average proportion LEP. Although the charter estimate might be expected given the greater flexibility charter schools often have over services and curriculum, it does also mean that students in these charter schools are less likely to receive gifted services.

Models 3 and 4 document several other notable relationships. District SES is positively associated with GT access in models 3 and 4 (.05 and .06) despite district proportion FRPL also being positively associated with GT access (.09 and .03). This translates to schools that are +1SD on the SEDA composite SES being five percentage points more likely to offer GT while schools that are +10 percentage points on the proportion of students eligible for FRPL are nine percentage points more likely to offer GT. The reason for these seemingly conflicting relationships is not clear. It's possible that the dichotomous nature of FRPL as opposed to the continuous and normative nature of SES results in these differing estimates. FRPL eligibility is based on an income eligibility threshold while the SES variable includes parental employment and education and is normed across all the SEDA districts.

SwD. Turning to the schools with 10+ SwD (Table 4: n=63,294), the model 1 intercept shows 54% provide access to GT. The variance for this intercept among districts was .19. In model 2, which added school predictors, school proportion SwD is negatively associated with GT access, with every 10

percentage point increase in school proportion SwD associated with one percentage point decrease in the probability of the school having GT. As was seen in the 10+ LEP sample, charter schools provide far less access in 10+ SwD schools (-.29).

In model 3, which added district predictors, district proportion SwD is also negatively associated with GT access (-.19). For every 10 percentage point increase in proportion of special education (SPED) at the district level, access to GT goes down by 19 percentage points. Also consistent with the 10+ LEP schools, district proportion FRPL and average district SES were positively associated with GT access (.09 and .03). Finally, models 3 and 4 also show strong relationships between achievement and GT access with both being positively associated with access (.07 and .08 in model 4). As both average school and district achievement increase by +1SD, school probability of access to GT goes up by 7 or 8 percentage points.

The Effect of State Gifted Education Policies on Access to Gifted Services

Research question 2 sought to understand what effect common state policies for gifted education had on access to gifted services in schools with 10+ students who were LEP or SWD. Model 4 in Tables 3 and 4 adds the five state policy codes to model 3. These include the effect of state mandates, plan requirements, plan approval requirements, state audits of district compliance, and whether the state was classified as housing gifted under special or exceptional education. For both LEP (Table 3) and SwD (Table 4), state mandates are positively predictive of access. For LEP, compared to the average school in states without any GT regulation, having a mandate and audit are associated with 24 and 23 percentage point increases in GT access, respectively. Estimates for 10+ SwD schools are similar in magnitude (.27 and .28). Likewise, the requirement of districts to have and maintain formal gifted plans was a positive predictor of access for both groups (.10 for LEP and .08 for SwD). Somewhat surprisingly, requiring districts to get their plans reviewed and/or approved by the state was a negative predictor of

access (-.05 for LEP and -.03 for SwD). And finally, whether a state was coded as operating gifted education under the larger umbrella of special or exceptional education appeared to have little effect. The estimate was small but positive for access in 10+ SwD schools (.03) but not significant for 10+ LEP schools. In general, greater levels of state mandate and enforcement (mandate + plan requirement + audits) appeared to greatly increase the chance that a SwD or LEP student would attend a school that offered gifted services.

Predictors of Greater Gifted Equity for Students with Disabilities and English Learners

To address research question 3, we replaced access to GT with RIs for LEP and SwD as the dependent variable and re-ran all four models. In this way we directly tested which variables predicted more-proportional enrollment of LEP students and SwD in gifted services. Tables 5 and 6 present all four models for LEP and SwD RIs, respectively.

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Tables 5 and 6 Here

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The intercepts for model 1 indicate that the average RI for schools in the samples was .16 for LEP (Table 5) and .13 for SwD (Table 6). This means both groups are represented in GT at far lower rates than they are in the larger student population. Students who were LEP were only 16% as represented in gifted services as they were in the overall student population. Similarly, SwD were only 13% as represented. Looking at model 4, standout variables include whether the school was a charter (-.05 for LEP and -.07 for SwD), state GT plan approval (-.10 for LEP and -.06 for SwD), state audits of GT (.10 for LEP and .05 for SwD), and whether the state operated GT under special or exceptional education (.11 for LEP .27 for SwD). This final point is worth emphasizing. Compared to states that do not operate gifted education as

part of special or exceptional education, those that do see far greater equity (controlling for the model 4 predictors). Schools serving 10+ SwD see an RI increase of .27 in their RI if they are in such a state.

Beyond these predictors, others were significant only for one group or the other. For example, for the 10+ LEP schools, a 10 percentage point increase in district proportion LEP was associated with a 4-percentage point drop in LEP RI. Similarly, a 10 percentage point increase in school proportion SwD was associated with a 4 percentage point drop in SwD RI. Larger numbers of the underrepresented group appeared to be negatively correlated with equity for that group. Similarly, for both groups, SES, adult education attainment, FRPL, and achievement variable estimates were small or non-significant predictors.

In addition to estimating associations between predictors and GT equity, we also wanted to better understand those schools that had seen the greatest success in identifying more-proportional numbers of LEP and SwD for gifted services. To this end we selected a subsample of schools that represented the largest 5% of RIs (meaning the highest levels of proportionality) across their respective analytic samples. For LEP RIs this represented 1452 schools and for SwD this represented 2152 schools. Tables 7 and 8 present descriptive statistics for these “top 5%” schools compared to the “bottom 95%” and the full analytic sample.

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Tables 7 and 8 Here

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The first thing to note about Tables 7 and 8 is the median RI. The median RI for 10+ LEP schools overall (n=29,051) was zero compared to 1.54 for the top 5% of RIs. For SwD schools in the top 5% the median RI was 1.31 compared to zero for the 10+ SwD sample (n=43,094). This means that in the top 5%

of the 10+ LEP and SwD schools, LEP and SwD students are more represented in GT than they are in their schools' overall student populations. But these top 5% schools differed in other ways besides on the variable by which they were selected.

Top 5% EL Schools. The schools with the greatest GT equity for students who were LEP were smaller (enrollment median=512) than the bottom 95% (580) or the average of the entire analytic sample (575). They also tended to have a similar size and proportion LEP students (median~10% of school population). However, the top 5% schools were lower achieving (median = -.21) than their bottom 95% peers (-.03) and had a larger proportion of FRPL-eligible students (.74 vs. .58). They also tended to be in districts that were lower achieving (-.16 vs. -.02) and had much lower average SES (-.02 vs. .30). In summary, despite much higher equity of LEP students identified as gifted (median of 1.54 vs. 0), the top 5% schools were relatively lower achieving and had higher enrollments of students from low-income families - two things that are (stereotypically) not typically associated with gifted education.

There is one standout finding regarding top 5% schools for LEP GT equity (see Table A2). Of the 1450 schools, 407 of them were in Texas (median RI of 1.39). One might reasonably assume that this is due to Texas having a large percentage of LEP students overall (median school proportion LEP for Texas schools enrolling at least 10 ELs = .24), but California schools with at least 10 LEP students have a similar median proportion EL (.26) as does Alaska (.29) and they only have 82 and 4 schools in the top 5% respectively. In fact, California comes second to Texas in total number of schools in the top 5% despite only having 82 to Texas's 407. New Mexico also has a similar proportion LEP students (.20) as well as a close geographic proximity to Texas, but only has 23 schools in the top 5% with a median RI of 1.72. Table A1 shows that Texas mandates gifted education in its districts, that districts create and maintain gifted plans, and audits compliance with state rules for gifted education. California has none of these requirements and while New Mexico mandates gifted education and requires plans, it does not conduct

proactive oversight in the form of audits. For these reasons, it's likely that the combination of a high average school proportion of students who are LEP and a high level of gifted education policy explains the high rate of top 5% schools for LEP students in Texas.

Top 5% SwD Schools. The schools with the greatest GT equity for SwD were slightly smaller than the bottom 95% of schools (enrollment median of 428 vs. 514), but had the same proportion of students with disabilities (.15). They were also lower achieving than the bottom 95% (-.04 vs. .01) with GT proportions only 1/3 the size (.02 vs. .06). On SES, FRL, and parental education variables, there were no obvious differences. Table A2 reports the number of top 5% schools present in each state. California has the largest number of top 5% SwD schools at 257 (median RI of 1.24). This is perhaps unsurprising given California's size. But second with 216 schools is Kansas (median RI of 1.0), a state 1/7 the size of California in terms of number of schools that also includes gifted under special education. Of the seven states coded as having GT under special education, four had more than 100 schools in the top 5%: Kansas, Pennsylvania (155 schools at a median RI of 1.93), Tennessee (119 schools with a median RI of 5.5), and West Virginia (125 schools with a median RI of 5.1). This might lead one to the conclusion that states that treating GT as a form of exceptionality results in better equity for SwD, but there were exceptions. Louisiana and New Mexico had only six and 48 schools in the top 5% despite also being coded as special education states.

In the end, there were clearer patterns for top 5% LEP schools than for top 5% SwD schools. Top 5% LEP schools enrolled fewer students, were lower achieving, and in districts with lower average achievement, higher rates of FRPL eligibility, and lower average SES than their bottom 95% peers. Conversely, top 5% SwD schools also had smaller enrollments, were slightly lower achieving, and served a gifted population only 1/3 as large as their bottom 95% peers. Given that some disability designations require students to score lower on measures of academic achievement, perhaps it is to be expected that

there are fewer clear patterns. It's also worth emphasizing that because these top 5% schools still only enrolled 9% LEP students or 15% SwD, it only required identifying three or two students, respectively, to place them in the top 5% of RI. Because of this, what makes for an atypically equitable school may be more idiosyncratic. Several the top 5% schools might only be in the top 5% because they happened to identify one additional student this year. It may also be due, in part, to data privacy practices used in the CRDC, which we discuss at greater length in the limitations section.

Discussion

Past research has reported that students who are LEP and SwD are the most-underrepresented subgroups in identified gifted populations (Peters et al., 2019). Our research confirms that these students are identified at rates of 1/8 to 1/6 of their representation in the overall student population. Part of this appears due to schools with larger populations of students who are LEP or SwD being less likely to offer gifted services in the first place (Tables 3 and 4). But even within schools that do, RIs for both groups are low.

Some of the clearest takeaways from the present study are the positive correlations between common state policies for gifted education and access to and enrollment in gifted programs for students who are LEP and SwD. Schools with 10+ students who are LEP are 24 percentage points more likely to offer gifted services if they are in a state with a mandate, 10 percentage points more likely if they are required to have formal plans, and 23 percentage points more likely if their home state audits compliance. Similarly, schools with 10+ SwD are 27 percentage points more likely to offer gifted services if they are in a state with a mandate, eight percentage points more likely if they are required to have formal plans, and 28 percentage points more likely if their home state audits compliance. Although the audits were not significant for LEP RI, they did predict 11 percentage points of improved RI for SwDs. Audits were positively predictive of equity for both groups (10 percentage points of LEP and 11

percentage points for SWD). Conceptually, this seems to support prior research by Baker and Friedman-Nimz (2004) and McBee et al. (2012) that state-level policies, even when not directly targeting improved equity as a goal, can still have that effect. For example, although auditing compliance with a state mandate does not require a state to have improved equity specifically for students who are LEP or SwD, it does appear to have that relationship.

The findings regarding the top 5% of LEP RI schools seem to challenge typical stereotypes of gifted education. On average, these schools were smaller, had lower average SES, had more students eligible for FRPL, were located in lower achieving districts, and were lower average achieving themselves. The implications are unclear. Perhaps, as Gubbins et al. (2020) found, these schools' smaller, lower-income, and lower-achieving populations required them to think more creatively about identification, including the implementation of identification procedures better targeted at their student populations. It's impossible to know without further study, and qualitative inquiry may be especially informative.

To make these top 5% schools even more complex, there were fewer clear and consistent characteristics among the top 5% of SwD RI schools. Unlike the top 5% LEP schools, they were similar in size, achievement, and SES to the overall sample of 10+ SwD schools. The only clear standouts were that they were smaller than the average school in the sample and had smaller, if more equitable, GT enrollment. If nothing else, these findings suggest there is much more that needs to be studied about how these schools found success in more equitably identifying SwD for GT.

Limitations

This study leveraged school-level CRDC and SEDA data, which present a few limitations. First, the findings may not generalize to schools that were excluded due to missing data or merge issues discussed earlier. A further limitation is the focus on schools with 10+ students who were LEP or SwD.

This leaves out many such students who were outliers in their schools (<10 LEP or SwD peers). It's possible the relationships observed here might not remain if all schools were observed.

An important caveat to and limitation of our analyses, especially of the top 5% schools, deals with the perturbation applied to the CRDC data. Past CRDC technical manuals (e.g., 2011 – 2012) stated that counts less than 10 had an approximately 5% chance of being perturbed or having one case added or subtracted from a true count value, at random. In the technical manual for the CRDC data used in our study, no specific rate was referenced aside from "low-frequency" perturbation. This makes it likely that approximately 5% of the overall GT counts and GT by LEP and SwD counts in our samples do not represent the true values reported by the districts (true zeros were maintained). However, while this perturbation does have the potential to place schools in our top 5% lists even though they don't actually belong there (e.g., by having one case added at random the schools RI reached the 95th percentile), this relatively low rate of error still left us comfortable conducting the exploratory analysis of the top 5% schools. Perturbation should have no effect on the coefficients related to RQs 1-3 – only on the identification of top 5% schools in RQ4.

Finally, our analyses were descriptive and do not speak to causal relations between state policy and access to gifted services. Future research might leverage quasi-experimental methods to provide credibly causal evidence. For example, as states implement or remove state policies, the downstream effects should be analyzed to determine actual effect (e.g., Warne & Price, 2016).

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Table 1

Descriptive Statistics for Overall SEDA Sample and LEP Subsamples

	All Schools with SEDA Data				Schools with 10 or more LEP				Schools with 9 or fewer LEP			
	Median	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**
School												
Proportion LEP	0.04	0.11	0.15	66040	0.11	0.17	0.17	40489	0	0.01	0.02	25551
N LEP	19	61.07	96.74	66040	56	98.03	108.29	40489	1	2.48	2.83	25551
N LEP in GT	0	1.01	5.04	66040	0	1.62	6.36	40489	0	0.04	0.35	25551
Rep Index	0	0.18	1.81	66040	0	0.18	0.68	40489	0	0.16	2.77	25551
Total N Enrolled	466	501.34	278.97	66040	552	593.92	273.33	40489	326	354.63	218.29	25551
Has GT	1	0.66	0.47	66040	1	0.72	0.45	40489	1	0.58	0.49	25551
Proportion GT	0.02	0.05	0.09	66040	0.03	0.06	0.09	40489	0.01	0.05	0.1	25551
Achievement Score	-0.01	-0.01	0.41	66040	-0.06	-0.05	0.43	40489	0.06	0.05	0.39	25551
Proportion FRPL	0.54	0.53	0.26	66040	0.6	0.57	0.27	40489	0.47	0.48	0.24	25551
Charter	0	0.06	0.23	66040	0	0.05	0.23	40489	0	0.06	0.24	25551
Magnet	0	0.03	0.18	66040	0	0.04	0.19	40489	0	0.02	0.15	25551
City	0	0.26	0.44	66040	0	0.35	0.48	40489	0	0.13	0.33	25551
Rural	0	0.32	0.47	66040	0	0.19	0.39	40489	1	0.53	0.5	25551
Suburb	0	0.29	0.46	66040	0	0.36	0.48	40489	0	0.19	0.39	25551
Town	0	0.12	0.33	66040	0	0.1	0.3	40489	0	0.15	0.36	25551
District												
Proportion LEP	0.04	0.08	0.09	66040	0.09	0.12	0.1	40489	0.01	0.02	0.04	25551
Proportion SPED	0.13	0.13	0.04	66040	0.12	0.12	0.04	40489	0.14	0.14	0.04	25551
Achievement Score	-0.02	-0.01	0.33	66040	-0.04	-0.04	0.34	40489	0.04	0.03	0.32	25551
Proportion FRPL	0.54	0.53	0.22	66040	0.58	0.55	0.21	40489	0.49	0.49	0.21	25551
Average SES	0.28	0.25	0.89	65575	0.26	0.26	0.88	40371	0.31	0.24	0.9	25204
Proportion BA or higher	0.25	0.27	0.13	65575	0.28	0.3	0.14	40371	0.21	0.24	0.13	25204

Notes: LEP = limited English proficient (i.e., English Learner or English Language Learner); GT = gifted and talented; SD = standard deviation; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive.

Table 2

Descriptive Statistics for Overall SEDA Sample and SWD Subsamples

	All Schools with SEDA Data				Schools with 10 or more SWD				Schools with 9 or fewer SWD			
	Median	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**
School												
Proportion SWD	0.15	0.16	0.07	66024	0.16	0.16	0.06	63532	0.05	0.07	0.09	2492
N SWD	69	78.05	50.75	66024	71	80.96	49.52	63532	4	3.92	3.19	2492
N SWD in GT	0	1	4.31	66024	0	1.04	4.39	63532	0	0.06	0.51	2492
Rep Index	0	0.16	0.65	66024	0	0.16	0.59	63532	0	0.09	1.58	2492
Total N Enrolled	466	501.38	278.99	66024	476	515.58	272.8	63532	76.5	139.48	169.84	2492
Has GT	1	0.66	0.47	66024	1	0.68	0.47	63532	0	0.26	0.44	2492
Proportion GT	0.02	0.05	0.09	66024	0.03	0.06	0.09	63532	0	0.03	0.11	2492
Achievement Score	-0.01	-0.01	0.41	66024	-0.01	-0.01	0.41	63532	-0.02	-0.06	0.41	2492
Proportion FRPL	0.54	0.53	0.26	66024	0.54	0.53	0.26	63532	0.52	0.55	0.23	2492
Charter	0	0.06	0.23	66024	0	0.05	0.23	63532	0	0.12	0.33	2492
Magnet	0	0.03	0.18	66024	0	0.03	0.18	63532	0	0.02	0.12	2492
City	0	0.26	0.44	66024	0	0.27	0.44	63532	0	0.09	0.28	2492
Rural	0	0.32	0.47	66024	0	0.31	0.46	63532	1	0.77	0.42	2492
Suburb	0	0.29	0.46	66024	0	0.3	0.46	63532	0	0.08	0.27	2492
Town	0	0.12	0.33	66024	0	0.12	0.33	63532	0	0.07	0.26	2492
District												
Proportion LEP	0.04	0.08	0.09	66024	0.04	0.08	0.09	63532	0.01	0.06	0.1	2492
Proportion SPED	0.13	0.13	0.04	66024	0.13	0.13	0.04	63532	0.13	0.13	0.05	2492
Achievement Score	-0.02	-0.01	0.33	66024	-0.02	-0.01	0.33	63532	-0.04	-0.08	0.35	2492
Proportion FRPL	0.54	0.53	0.22	66024	0.54	0.53	0.22	63532	0.53	0.55	0.2	2492
Average SES	0.28	0.25	0.89	65559	0.27	0.25	0.89	63294	0.39	0.2	0.87	2265
Proportion BA or higher	0.25	0.27	0.13	65559	0.25	0.28	0.14	63294	0.19	0.21	0.09	2265

Notes: SWD = students with disabilities and includes those served under IDEA and Section 504; GT = gifted and talented; SD = standard deviation; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; LEP = limited English proficient (i.e., English Learner or English Language Learner); SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive.

Table 3

Predicted Probabilities of 10+ LEP Schools Offering Gifted and Talented Services

	Model			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	0.59***	0.63***	0.62***	0.33***
	(0.01)	(0.01)	(0.01)	(0.01)
School Proportion LEP		-0.01***	-0.00***	-0.00**
		(0.00)	(0.00)	(0.00)
School Proportion FRPL		0.00	-0.00	-0.00
		(0.00)	(0.00)	(0.00)
School Achievement		0.08***	0.06***	0.06***
		(0.02)	(0.02)	(0.02)
Charter		-0.32***	-0.31***	-0.31***
		(0.04)	(0.04)	(0.04)
Magnet		0.02	0.02	0.02
		(0.01)	(0.01)	(0.01)
City		-0.02***	-0.00	0.01
		(0.01)	(0.01)	(0.01)
Suburb		-0.01**	0.00	0.01***
		(0.01)	(0.01)	(0.01)
Town		0.02***	0.01**	0.01**
		(0.01)	(0.01)	(0.01)
District Proportion FRPL			0.09***	0.03***
			(0.01)	(0.01)
District SES			0.05***	0.06***
			(0.01)	(0.01)
District Proportion BA +			-0.05***	-0.01
			(0.01)	(0.01)
District Proportion LEP			-0.08***	-0.01
			(0.01)	(0.01)
District Proportion SPED			-0.23***	-0.08***
			(0.01)	(0.01)
District Achievement			0.42***	0.10***
			(0.03)	(0.03)
State Mandate				0.24***
				(0.02)
State Audit				0.23***
				(0.02)
State Plan Req				0.10***
				(0.02)
State Plan Approval				-0.05***
				(0.01)
State GT as SPED				0.01

				(0.02)
Schools	40371	40371	40371	40371
Districts	6823	6823	6823	6823
Intercept-Variance	0.19	0.17	0.15	0.10

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. LEP = limited English proficient (i.e., English Learner or English Language Learner); GT = gifted and talented; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; SPED = special education; SES = socioeconomic status; BA = bachelor's degree; . School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive. State policy dummies are defined on pages 13-15.

Table 4

Predicted Probabilities of 10+ SWD Schools Offering Gifted and Talented Services

	Model			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	0.54***	0.57***	0.57***	0.24***
	(0.00)	(0.01)	(0.01)	(0.01)
School Proportion SWD		-0.01**	-0.00	-0.01*
		(0.00)	(0.00)	(0.00)
School Proportion FRPL		0.00	-0.00	-0.00*
		(0.00)	(0.00)	(0.00)
School Achievement		0.10***	0.08***	0.07***
		(0.02)	(0.02)	(0.02)
Charter		-0.29***	-0.29***	-0.31***
		(0.03)	(0.03)	(0.03)
Magnet		0.02	0.02	0.02*
		(0.01)	(0.01)	(0.01)
City		-0.01**	-0.00	0.00
		(0.01)	(0.01)	(0.01)
Suburb		-0.00	0.01***	0.02***
		(0.00)	(0.00)	(0.00)
Town		0.02***	0.02***	0.03***
		(0.01)	(0.01)	(0.00)
District Proportion FRPL			0.09***	0.02***
			(0.00)	(0.00)
District SES			0.03***	0.04***
			(0.01)	(0.01)
District Proportion BA +			-0.03***	-0.00
			(0.01)	(0.00)
District Proportion LEP			-0.03***	0.03***
			(0.01)	(0.01)
District Proportion SPED			-0.19***	-0.07***
			(0.01)	(0.01)
District Achievement			0.40***	0.08***
			(0.03)	(0.02)
State Mandate				0.27***
				(0.01)
State Audit				0.28***
				(0.01)
State Plan Req				0.08***
				(0.01)
State Plan Approval				-0.03***
				(0.01)
State GT as SPED				0.03***

				(0.01)
Schools	63294	63294	63294	63294
Districts	13360	13360	13360	13360
Intercept-Variance	0.19	0.18	0.17	0.10

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. SWD = students with disabilities and includes those served under IDEA and Section 504; GT = gifted and talented; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; LEP = limited English proficient (i.e., English Learner or English Language Learner); SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive. State policy dummies are defined on pages 13-15.

Table 5

Predicted Probabilities of LEP RI for 10+ LEP Schools

	Model			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	0.16***	0.18***	0.16***	0.08***
	(0.01)	(0.01)	(0.01)	(0.01)
School Proportion LEP		0.01*	0.01**	0.01***
		(0.00)	(0.00)	(0.00)
School Proportion FRPL		0.02***	0.01***	0.01***
		(0.00)	(0.00)	(0.00)
School Achievement		0.03*	0.03	0.03
		(0.02)	(0.02)	(0.02)
Charter		-0.06***	-0.06***	-0.05***
		(0.02)	(0.02)	(0.02)
Magnet		0.01	0.01	0.01
		(0.01)	(0.01)	(0.01)
City		-0.01	-0.00	-0.00
		(0.01)	(0.01)	(0.01)
Suburb		-0.01	-0.01	0.00
		(0.01)	(0.01)	(0.01)
Town		0.01	0.00	-0.00
		(0.02)	(0.02)	(0.02)
District Proportion FRPL			0.01	-0.00
			(0.01)	(0.01)
District SES			-0.02	-0.02
			(0.02)	(0.02)
District Proportion BA +			-0.01	0.01
			(0.01)	(0.01)
District Proportion LEP			-0.06***	-0.04***
			(0.01)	(0.01)
District Proportion SPED			-0.07***	-0.02
			(0.03)	(0.02)
District Achievement			0.07	-0.03
			(0.06)	(0.06)
State Mandate				0.04
				(0.03)
State Audit				0.10***
				(0.03)
State Plan Req				0.06
				(0.04)
State Plan Approval				-0.10***
				(0.03)
State GT as SPED				0.11*

				(0.06)
Schools	40371	40371	40371	40371
Districts	6823	6823	6823	6823
Intercept-Variance	0.47	0.47	0.46	0.45

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. LEP = limited English proficient (i.e., English Learner or English Language Learner); Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; SPED = special education; SES = socioeconomic status; BA = bachelor's degree; GT = gifted and talented. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive. State policy dummies are defined on pages 13-15.

Table 6

Predicted Probabilities of SWD RI for 10+ SWD Schools

	Model			
	(1)	**(2)**	**(3)**	**(4)**
Intercept	0.13***	0.13***	0.13***	0.05***
	(0.00)	(0.00)	(0.01)	(0.00)
School Proportion SWD		-0.03***	-0.04***	-0.04***
		(0.00)	(0.01)	(0.01)
School Proportion FRPL		0.01***	0.00	0.00
		(0.00)	(0.00)	(0.00)
School Achievement		0.06***	0.04**	0.03**
		(0.01)	(0.01)	(0.01)
Charter		-0.06***	-0.07***	-0.07***
		(0.01)	(0.02)	(0.02)
Magnet		0.02	0.02	0.02
		(0.02)	(0.02)	(0.02)
City		0.00	-0.00	0.00
		(0.01)	(0.01)	(0.01)
Suburb		-0.00	-0.00	-0.00
		(0.01)	(0.01)	(0.01)
Town		0.02**	0.02*	0.02*
		(0.01)	(0.01)	(0.01)
District Proportion FRPL			0.01***	0.01*
			(0.00)	(0.00)
District SES			-0.01	0.00
			(0.02)	(0.01)
District Proportion BA +			0.01**	0.01***
			(0.00)	(0.00)
District Proportion LEP			-0.01	0.01
			(0.00)	(0.00)
District Proportion SPED			0.03**	0.02*
			(0.01)	(0.01)
District Achievement			0.05*	-0.01
			(0.03)	(0.03)
State Mandate				0.11***
				(0.01)
State Audit				0.05***
				(0.02)
State Plan Req				-0.04***
				(0.02)
State Plan Approval				-0.06***
				(0.01)
State GT as SPED				0.27***

				(0.03)
Schools	63294	63294	63294	63294
Districts	13360	13360	13360	13360
Intercept-Variance	0.10	0.10	0.10	0.09

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. SWD = students with disabilities and includes those served under IDEA and Section 504; GT = gifted and talented; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; LEP = limited English proficient (i.e., English Learner or English Language Learner); SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive. State policy dummies are defined on pages 13-15.

Table 7

Descriptive Statistics for Top 5% of Schools with 10+ LEP and GT Compared to Bottom 95% and Full Sample

	All Schools with >=10 LEP and GT				Top 5%				Bottom 95%			
	Median	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**
School												
Proportion LEP	0.1	0.17	0.16	29051	0.09	0.17	0.17	1452	0.1	0.17	0.16	27599
N LEP	57	100.12	110.36	29051	46	92.15	106.72	1452	58	100.54	110.53	27599
N LEP in GT	0	2.25	7.41	29051	3	7.22	11.39	1452	0	1.99	7.05	27599
Rep Index	0	0.26	0.79	29051	1.54	2.27	2.6	1452	0	0.15	0.26	27599
Total N Enrolled	575	616.69	262.74	29051	512	536.3	205.11	1452	580	620.92	264.76	27599
Proportion GT	0.05	0.08	0.1	29051	0.04	0.06	0.07	1452	0.05	0.08	0.1	27599
Achievement Score	-0.04	-0.02	0.41	29051	-0.21	-0.16	0.43	1452	-0.03	-0.01	0.41	27599
Proportion FRPL	0.59	0.56	0.26	29051	0.74	0.65	0.26	1452	0.58	0.56	0.26	27599
Charter	0	0.03	0.16	29051	0	0.02	0.16	1452	0	0.03	0.16	27599
Magnet	0	0.03	0.18	29051	0	0.03	0.18	1452	0	0.03	0.18	27599
City	0	0.33	0.47	29051	0	0.43	0.5	1452	0	0.32	0.47	27599
Rural	0	0.2	0.4	29051	0	0.2	0.4	1452	0	0.2	0.4	27599
Suburb	0	0.36	0.48	29051	0	0.26	0.44	1452	0	0.37	0.48	27599
Town	0	0.11	0.31	29051	0	0.1	0.3	1452	0	0.11	0.31	27599
District												
Proportion LEP	0.09	0.12	0.1	29051	0.08	0.11	0.1	1452	0.09	0.12	0.1	27599
Proportion SPED	0.12	0.12	0.04	29051	0.11	0.11	0.04	1452	0.12	0.12	0.04	27599
Achievement Score	-0.02	-0.02	0.32	29051	-0.16	-0.12	0.31	1452	-0.02	-0.01	0.32	27599
Proportion FRPL	0.57	0.54	0.21	29051	0.62	0.6	0.2	1452	0.57	0.54	0.21	27599
Average SES	0.29	0.3	0.83	29010	-0.02	0.03	0.85	1452	0.3	0.32	0.83	27558
Proportion BA or higher	0.28	0.3	0.13	29010	0.25	0.27	0.12	1452	0.28	0.3	0.13	27558

Notes: LEP = limited English proficient (i.e., English Learner or English Language Learner); GT = gifted and talented; SD = standard deviation; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive.

Table 8

Descriptive Statistics for Top 5% of Schools with 10+ SWD and GT Compared to Bottom 95% and Full Sample

	All Schools with >=10 SWD and GT				Top 5%				Bottom 95%			
	Median	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**	**Median**	**Mean**	**SD**	**N**
School												
Proportion SWD	0.15	0.16	0.06	43094	0.15	0.15	0.06	2152	0.15	0.16	0.06	40942
N SWD	76	85.13	48.51	43094	61	66.78	38.27	2152	77	86.09	48.8	40942
N SWD in GT	0	1.54	5.26	43094	2	6.99	16.24	2152	0	1.25	3.69	40942
Rep Index	0	0.23	0.7	43094	1.31	2.26	2.18	2152	0	0.13	0.2	40942
Total N Enrolled	510	547.42	265.69	43094	428	451.68	217.04	2152	514	552.46	267.06	40942
Proportion GT	0.05	0.08	0.1	43094	0.02	0.1	0.24	2152	0.06	0.08	0.09	40942
Achievement Score	0.01	0.01	0.4	43094	-0.04	-0.03	0.41	2152	0.01	0.01	0.4	40942
Proportion FRPL	0.55	0.53	0.26	43094	0.57	0.55	0.26	2152	0.54	0.53	0.26	40942
Charter	0	0.03	0.16	43094	0	0.04	0.19	2152	0	0.03	0.16	40942
Magnet	0	0.03	0.17	43094	0	0.03	0.17	2152	0	0.03	0.17	40942
City	0	0.26	0.44	43094	0	0.29	0.45	2152	0	0.26	0.44	40942
Rural	0	0.3	0.46	43094	0	0.31	0.46	2152	0	0.3	0.46	40942
Suburb	0	0.31	0.46	43094	0	0.27	0.44	2152	0	0.31	0.46	40942
Town	0	0.13	0.33	43094	0	0.13	0.34	2152	0	0.13	0.33	40942
District												
Proportion LEP	0.05	0.08	0.09	43094	0.05	0.08	0.09	2152	0.05	0.08	0.09	40942
Proportion SPED	0.12	0.12	0.04	43094	0.13	0.13	0.04	2152	0.12	0.12	0.04	40942
Achievement Score	0	0	0.32	43094	-0.02	-0.01	0.33	2152	0.01	0	0.31	40942
Proportion FRPL	0.55	0.53	0.21	43094	0.56	0.53	0.21	2152	0.55	0.53	0.21	40942
Average SES	0.28	0.28	0.84	43003	0.29	0.27	0.87	2149	0.28	0.28	0.84	40854
Proportion BA or higher	0.25	0.28	0.13	43003	0.25	0.28	0.13	2149	0.25	0.28	0.13	40854

Notes: SWD = students with disabilities and includes those served under IDEA and Section 504; GT = gifted and talented; SD = standard deviation; Rep Index = representation index calculated using Equation (1); FRPL = free or reduced-price lunch; LEP = limited English proficient (i.e., English Learner or English Language Learner); SPED = special education; SES = socioeconomic status; BA = bachelor's degree. School enrollment and GT enrollment are the authors' calculations using Civil Rights Data Collection 2017-2018 data; other school and district characteristics are from the Stanford Education Data Archive.