

**Who's Got Talent for Identifying Talent?:
Predictors of Equitable Gifted Identification for Black and Hispanic Students**

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Preprint – Not Peer Reviewed

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We have no known conflicts of interest.

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ABSTRACT

Students who are Black or Hispanic have long been disproportionately underrepresented in K-12 gifted and talented services. However, there are schools that have diverged from this trend by identifying atypically high numbers of Black and Hispanic students. In this paper we present predictors of access to and equity within gifted and talented populations for schools that enroll ten or more Black or Hispanic students. Our results show that state policy mandates for gifted education are predictive of higher levels of access to and equity within gifted services at the school level. The average achievement and socio-economic status of the district were positive predictors of access and equity while district proportion eligible for special education services was a negative predictor of both. Finally, we end with a description of how the top 5% most-equitable schools in the country look different from their peers.

Preprint

Who's Got Talent for Identifying Talent?:

Predictors of Equitable Gifted Identification for Black and Hispanic Students

Disproportional representation in gifted and talented populations is both well-established and long-standing (Peters et al., 2019; Yoon & Gentry, 2009). According to the 2017 – 2018 Office of Civil Rights Data Collection (CRDC), Black and Hispanic students were 55% and 77% as represented within the identified gifted population as they were in the national K-12 student population. Asian American and White students were 196% and 108% as represented. Despite some movement toward proportionality for White and Hispanic recently, these rates have been fairly stable for the last 20 years (Peters et al., 2019; Yoon & Gentry, 2009).

What Predicts More-Equitable Identification Rates?

Prior research has focused on demographics and policy decisions and their relationship with identification rates. Peters and Carter (2022) explored how school, district, and state demographics, achievement, and state gifted education policies predicted access to and proportion of various demographic groups enrolled in gifted services at the school level. They found that the average achievement of the school and district were positive predictors of a school offering gifted services and the proportion of students identified. The school proportions of Black, Hispanic, and eligible for free-or-reduced price lunch (FRL) students were negative predictors of both access and enrollment at the school level. However, the degree of the relationship was greatly mitigated after controlling for school and district average achievement and whether the school was in a state that mandated gifted identification. As with identification at the student level, the probability of a school providing access to gifted services, and the proportion of the students identified for those services, was largely explained by the average

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achievement of the school and district. Finally, the average achievement of the school and district appeared to mitigate, but not fully explain, differences in rates of access to gifted services, or the proportions of schools identified as gifted.

Recently, Peters and Johnson (2023) examined the characteristics of schools that were especially effective at identifying proportional numbers of English learners (ELs) and students with disabilities (SwD) for gifted services. Using two merged national datasets and their own coding of state education policies, they investigated: A) school and district characteristics correlated with access to gifted and talented services; B) the relationship between state gifted education policies, access to gifted and talented services, and the equity of identification; and C) characteristics of schools that had achieved high rates of GT representation for ELs and SwD. Similar to past work, they found that ELs and SwD were identified at rates of 1/8 to 1/6 of their representation in the overall student population. However, hidden within this disproportionality were schools that were identifying at equitable rates. State mandates for schools to offer services, requirements for formal gifted education plans, and regular audits for compliance were all correlated with much higher rates of gifted service availability and more-equitable identification of ELs and SwD.

The goal of the present study was to conceptually replicate (Makel & Plucker, 2015) the Peters and Johnson (2023) study to identify and describe the characteristics of schools that do an atypically effective job at identifying proportional numbers of Black and Hispanic students for gifted services. Specifically, for Black and Hispanic students, we investigated: A) school and district predictors of access to gifted services; B) the effect of state policies on access to gifted services; and C) school and district predictors of greater equity of identification. Knowing more

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about schools that effectively identify Black and Hispanic students for gifted and talented service can help serve as models for other schools who are not yet as effective.

Methods

We used the same data sources and analytical approach as Peters and Johnson (2023). The sole difference is that rather than analyze representation of ELs and SwD, we analyzed representation for students who were Black or Hispanic. Because the populations of interest are so different between our study and Peters and Johnson (2023), we did not expect similar patterns of results. Rather, we applied their methods because the populations historically share disproportionately low representation in the identified gifted population. Full methodological details can be found in the online supplement.

We merged data from three sources: (a) the 2017-18 CRDC (the most recent available); (b) the Stanford Education Data Archive (SEDA, Reardon et al., 2021); and (c) Peters and Johnson's coding of individual state's policies toward gifted and talented education. We then restricted our samples to only those schools with 10+ students who were Black or Hispanic. This resulted in final analytic samples of 39,785 schools for our Black student (top panel of Table 1) and 53,762 for our Hispanic student (bottom panel of Table 1) analytic samples.

TABLE 1 HERE

For each school, we calculated Black and Hispanic enrollment as percentages of total enrollment, proportion of total school identified as gifted, and the gifted program representation index (RI) for Black and Hispanic students. To examine predictors of access (coded 0/1), we used four stepwise 2-level linear probability models (LPM) with schools nested within districts. To examine predictors of equity (RI), we used four stepwise 2-level linear

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models with schools nested within districts. The predictors included in each model can be seen in the tables below and are also described in greater detail in the appendix. The dependent variables were (a) whether GT services were available at a school and (b) the gifted RI for students who were Black/Hispanic in each school. For the binary outcome variable (a), we also ran logistic regressions to verify that findings were similar to the LPM. Additional details on the sample and data analysis are included in the methods appendix.

Results

School and District Predictors of Access to Gifted Services

Table 2 presents the relationships between our selected predictors and whether a school with 10+ Black (left-hand columns) or 10+ Hispanic (right-hand columns) students provided access to gifted services. As shown in Table 2, there was remarkable consistency in the direction and strength of association between predictors and access to gifted services for Black and Hispanic students.

TABLE 2 HERE

Model 1 was unconditional / intercept only and showed that the average school in our samples had a 57% (Black) or 58% (Hispanic) probability of offering gifted services. Model 2 added school-level predictors and Model 3 added district-level predictors. In Model 3, average district achievement was a strong predictor of access (.40 for Black and .41 for Hispanic) while the proportion eligible for SPED services was a strong negative predictor (-.26 and -.25). These parameters translate to, for example, a school with 10+ Black students located in a district whose average achievement was one standard deviation above the population mean being 40 percentage points more likely to offer gifted services, all else being equal. School achievement

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was also a positive predictor (.08 and .07), but to a lesser degree than district achievement. Charter schools were much less likely to provide access to gifted services (-.30 and -.31). All other predictors being equal, a charter school with 10+ Black students enrolled was 30 percentage-points less likely to offer gifted services than a non-charter school.

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

Model 4 in Table 2 added state policies to those predictors already included. Being in a state with a mandate for gifted identification, that required formal plans for gifted services, where “gifted” is part of special education, and in a state that conducted proactive audits were all positively associated with greater equity for Black and Hispanic students. For example, being in a state with a mandate is associated with 24 percentage-point greater probability of a school with 10+ Black or Hispanic students providing access to gifted services. Similarly, a school in a state where giftedness is considered an exceptionality under special education had a six percentage-point greater probability of providing access to gifted services. Only requiring state approval of gifted education plans had a negative effect on access.

Interestingly, in Model 4, the predictive power of average district achievement and several of the district demographic variables dropped significantly. For example, for the Hispanic student sample, in Model 3, for every 10-percentage point increase in the proportion of the district eligible for SPED services there was a 25-point drop in probability in access; in Model 4 this shrank to a 9-point decrease. Similarly, in Model 4, district proportion LEP was no longer a significant predictor of access. Together, these results suggest that state policies are associated with relatively large differences in equitable access to gifted services.

School and District Predictors of Greater Gifted Equity for Black and Hispanic Students

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The prior section focused on access to gifted services. In this section, we apply the same four models with focus on Black and Hispanic RIs. Table 3 presents the relationships between our selected predictors and the average school RIs for Black (left-hand columns) and Hispanic (right-hand columns) students.

TABLE 3 HERE

The intercept-only model showed that within our samples of schools with 10+ Black or Hispanic students, average school RI for Black students was .32 and Hispanic students was .39. This translates to Black students being 32% as represented and Hispanic students being 39% as represented in gifted services in the average school as they were in the overall student populations. Note this is substantially lower than the national average RIs for these groups of .55 and .77, likely in part because we restricted our sample to only those schools with 10+ Black or Hispanic students. Model 3 shows that again, charter schools, on average, have worse equity within their gifted services (.18 lower RI for Black and .25 lower for Hispanic students). The district proportion of special education students was also a negative predictor with a 10-point increase being associated with a .17 lower RI for Black and .24 lower RI for Hispanic students. Interestingly, unlike with access, average district achievement was not a significant predictor of Black student RI, but it was associated with a .13 higher RI for Hispanic students.

The Effect of State Gifted Education Policies on Equity for Black and Hispanic Students

Finally, Model 4 shows that state mandates for gifted identification are associated with 17- and 14-point higher RIs for Black and Hispanic students, respectively. Similarly, conducting proactive audits of compliance is associated with 9- and 14-point higher RIs for Black and Hispanic students. Policies requiring formal gifted education plans were positively associated

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with average school RIs for Hispanic students (7-point) but not for Black students. This all suggests that although the mandates are not specifically about equity, their presence is associated with higher levels of equity in the average school.

Characteristics of the Top 5% of Schools

Finally, we also examined how the top 5% of schools in terms of RIs for Black and Hispanic students compared on our predictor variables to the overall school sample and the bottom 95% of the RI distribution (Table 4). For both samples, Black and Hispanic were more than twice as represented in the schools' gifted populations as they were in the overall student population.

TABLE 4 HERE

The top 5% of schools that identify Black students (median RI of 2) had smaller Black populations than the bottom 95% of the sample (5% vs. 12%) and fewer Black students overall (28 vs. 71) despite having similar overall enrollment (558 vs. 577). These schools were in districts with similar average achievement, % FRL, % BA or higher, and % special education, but the schools themselves were slightly lower average achieving (-0.1sd vs. -0.03sd).

The top 5% of schools that identify Hispanic students (median RI of 2.14) also had smaller Hispanic populations than the bottom 95% of the sample (8% vs. 18%) and fewer Hispanic students overall (31 vs. 97). Unlike the top 5% of schools for Black students, those for Hispanic students were smaller in total enrollment (453 vs. 547). Top 5% of schools for Hispanic students were also located in districts with lower average SES (+0.05sd vs. +0.33sd above the mean) despite their tending to have slightly larger proportions of students eligible for FRPL (.66 vs. .54).

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These results show some similarities across characteristics of schools that identify Black and Hispanic students (e.g., having relatively fewer of them in their overall school populations) but also several differences.

Conclusion

There are a few general themes when it comes to what makes for a more-successful school regarding gifted education for Black and Hispanic students. First, in terms of access and equity at the school level, more-successful schools tend to be in states with mandates to identify, audits of compliance, and a requirement for formal gifted education plans. The latter two can be seen as degrees of mandate oversight and enforcement. For example, Arizona has a state mandate, but no audits, plan requirements, or plan approval requirements whereas Ohio has all the above. These are very different policy atmospheres in terms of what is required of districts. Although our analyses are purely correlational, they suggest states that are seeking better equity within gifted populations could mandate all schools conduct identification and offer gifted services, and the state itself should conduct proactive oversight. Importantly, these requirements should also apply to charter schools that tend to provide low levels of access and, in part as a result, also have low levels of equity for Black and Hispanic students. Notably, Peters and Johnson (2023) reported similar patterns between state-level policies and access to gifted services for English learners and students with disabilities. This suggests a consistency between state-level policy and representation in access to gifted services.

Second, as detailed above, schools in the top 5% of RIs for Black and Hispanic students are identifying them well above proportional representation. The schools also tend to be slightly smaller with smaller proportions of Black or Hispanic students. Even though they tended

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to identify similar numbers of Black or Hispanic students as gifted compared to the bottom 95% of RIs, because they have smaller overall populations and smaller Black and Hispanic populations, their RIs are larger (e.g., the top 5% enroll a median of 28 Black students compared to 71 for bottom 95% schools, but both identify a median of two Black students). This suggests the top RI schools are not those where Black students are the majority of the school population.

Top 5% schools for both groups also tend to have about 10 percentage points more of their students eligible for FRL than bottom 95% schools. For both Black and Hispanic students, top 5% schools also tend to be lower SES schools compared to the bottom 95% in lower SES districts. Peters and Johnson (2023) also reported relatively complicated patterns for top 5% districts for ELs and SwD. Together, these results suggest that there is not a singular representative district description that effectively identifies students from traditionally underrepresented backgrounds in gifted identification. Rather, successful identification of different groups of students may be associated with different school and district characteristics.

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Table 1*Black and Hispanic Analytic Sample Descriptive Statistics***Black Student Sample**

	All Schools with SEDA Data				Schools with 10 or more Black				Schools with 9 or Fewer Black			
	Median	Mean	SD	N	Median	Mean	SD	N	Median	Mean	SD	N
School												
% Black	0.04	0.14	0.23	66050	0.12	0.23	0.26	39785	0.01	0.01	0.02	26265
N Black	18	74.15	126.53	66050	65	121.13	144.99	39785	2	2.97	2.74	26265
N Black in GT	0	2.57	10.59	66050	0	4.21	13.39	39785	0	0.08	0.42	26265
Rep Index	0	0.34	1.38	66050	0	0.4	0.73	39785	0	0.25	1.98	26265
Total N Enrolled	466	501	279	66050	551	595	277	39785	339	360	215	26265
Has GT	1	0.66	0.47	66050	1	0.72	0.45	39785	1	0.58	0.49	26265
% Total in GT	0.02	0.05	0.09	66050	0.03	0.06	0.09	39785	0.01	0.05	0.09	26265
Achievement Score	-0.01	-0.01	0.41	66050	-0.06	-0.05	0.43	39785	0.06	0.05	0.38	26265
% FRPL	0.54	0.53	0.26	66050	0.6	0.57	0.27	39785	0.47	0.48	0.24	26265
Charter	0	0.06	0.23	66050	0	0.06	0.24	39785	0	0.05	0.21	26265
Magnet	0	0.03	0.18	66050	0	0.05	0.21	39785	0	0.01	0.1	26265
City	0	0.26	0.44	66050	0	0.36	0.48	39785	0	0.11	0.31	26265
Rural	0	0.32	0.47	66050	0	0.19	0.39	39785	1	0.53	0.5	26265
Suburb	0	0.29	0.46	66050	0	0.36	0.48	39785	0	0.19	0.39	26265
Town	0	0.12	0.33	66050	0	0.09	0.29	39785	0	0.17	0.37	26265
District												
% LEP	0.04	0.08	0.09	66050	0.06	0.09	0.08	39785	0.02	0.07	0.11	26265
% SPED	0.13	0.13	0.04	66050	0.13	0.13	0.04	39785	0.13	0.13	0.04	26265
Achievement Score	-0.02	-0.01	0.33	66050	-0.04	-0.05	0.33	39785	0.04	0.04	0.32	26265
% FRPL	0.54	0.53	0.22	66050	0.59	0.56	0.22	39785	0.48	0.48	0.21	26265
Average SES	0.28	0.25	0.89	65585	0.15	0.16	0.91	39723	0.44	0.39	0.83	25862
% BA or Higher	0.25	0.27	0.13	65585	0.28	0.29	0.13	39723	0.21	0.25	0.14	25862

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Table 1 Continued

Hispanic Student Sample

	All Schools with SEDA Data				Schools with 10 or more Hispanic				Schools with 9 or Fewer Hispanic			
	Median	Mean	SD	N	Median	Mean	SD	N	Median	Mean	SD	N
School												
% Hispanic	0.12	0.24	0.27	66050	0.17	0.29	0.28	53762	0.01	0.02	0.03	12288
N Hispanic	54	136.86	191.51	66050	83	167.29	200.21	53762	3	3.75	2.93	12288
N Hispanic in GT	0	5.61	18.65	66050	1	6.86	20.46	53762	0	0.14	0.57	12288
Rep Index	0	0.45	1.41	66050	0.29	0.47	0.77	53762	0	0.34	2.83	12288
Total N Enrolled	466	501.33	278.97	66050	515	556.15	270.3	53762	241	261.49	167.25	12288
Has GT	1	0.66	0.47	66050	1	0.7	0.46	53762	0	0.49	0.5	12288
% Total in GT	0.02	0.05	0.09	66050	0.03	0.06	0.09	53762	0	0.04	0.1	12288
Achievement Score	-0.01	-0.01	0.41	66050	-0.01	0	0.42	53762	0	-0.04	0.4	12288
% FRPL	0.54	0.53	0.26	66050	0.55	0.53	0.27	53762	0.52	0.54	0.24	12288
Charter	0	0.06	0.23	66050	0	0.06	0.23	53762	0	0.05	0.22	12288
Magnet	0	0.03	0.18	66050	0	0.03	0.18	53762	0	0.02	0.15	12288
City	0	0.26	0.44	66050	0	0.3	0.46	53762	0	0.1	0.3	12288
Rural	0	0.32	0.47	66050	0	0.24	0.43	53762	1	0.68	0.47	12288
Suburb	0	0.29	0.46	66050	0	0.34	0.47	53762	0	0.1	0.3	12288
Town	0	0.12	0.33	66050	0	0.12	0.32	53762	0	0.12	0.33	12288
District												
% LEP	0.04	0.08	0.09	66050	0.06	0.09	0.09	53762	0	0.02	0.06	12288
% SPED	0.13	0.13	0.04	66050	0.13	0.13	0.04	53762	0.14	0.15	0.04	12288
Achievement Score	-0.02	-0.01	0.33	66050	-0.02	-0.01	0.33	53762	-0.01	-0.04	0.34	12288
% FRPL	0.54	0.53	0.22	66050	0.55	0.53	0.22	53762	0.52	0.53	0.21	12288
Average SES	0.28	0.25	0.89	65585	0.31	0.3	0.87	53575	0.17	0.05	0.92	12010
% BA or Higher	0.25	0.27	0.13	65585	0.27	0.29	0.14	53575	0.18	0.21	0.11	12010

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Table 2*Probability of Black and Hispanic Student Access to Gifted Services*

Black Sample Model	Black Sample				Hispanic Sample			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Intercept	0.57*** (0.01)	0.65*** (0.01)	0.65*** (0.01)	0.36*** (0.01)	0.58*** (0.01)	0.65*** (0.01)	0.65*** (0.01)	0.36*** (0.01)
School % Black / %Hispanic ¹		-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)		0.00 (0.00)	0.00* (0.00)	0.00** (0.00)
School % FRPL		0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)		-0.00 (0.00)	-0.01 (0.00)	-0.01* (0.00)
School Achievement		0.09*** (0.02)	0.08*** (0.02)	0.08*** (0.02)		0.08*** (0.02)	0.07*** (0.02)	0.07*** (0.02)
Charter		-0.31*** (0.03)	-0.30*** (0.03)	-0.31*** (0.03)		-0.32*** (0.03)	-0.31*** (0.03)	-0.32*** (0.03)
Magnet		0.02* (0.01)	0.02* (0.01)	0.03** (0.01)		0.01 (0.01)	0.01 (0.01)	0.02 (0.01)
City		-0.04*** (0.01)	-0.02*** (0.01)	-0.02** (0.01)		-0.03*** (0.01)	-0.01 (0.01)	-0.01 (0.01)
Suburb		-0.03*** (0.00)	-0.02*** (0.00)	-0.01 (0.00)		-0.02*** (0.00)	-0.00 (0.00)	0.00 (0.00)
Town		0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)		0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
District % FRPL			0.08*** (0.01)	0.03*** (0.01)			0.09*** (0.01)	0.03*** (0.01)
District SES			0.09*** (0.01)	0.08*** (0.01)			0.08*** (0.01)	0.09*** (0.01)

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Table 2 Continued

District % BA +			-0.07***	-0.03***			-0.07***	-0.03***
			(0.01)	(0.01)			(0.01)	(0.01)
District % LEP			-0.07***	0.01*			-0.07***	0.01
			(0.01)	(0.01)			(0.01)	(0.01)
District % SPED			-0.26***	-0.12***			-0.25***	-0.09***
			(0.01)	(0.01)			(0.01)	(0.01)
District Achievement			0.40***	0.07**			0.41***	0.07**
			(0.04)	(0.03)			(0.03)	(0.03)
State Mandate				0.24***				0.24***
				(0.02)				(0.01)
State Audit				0.19***				0.20***
				(0.02)				(0.02)
State Plan Req				0.11***				0.11***
				(0.02)				(0.02)
State Plan Approval				-0.06***				-0.06***
				(0.01)				(0.01)
State GT as SPED				0.06***				0.06***
				(0.01)				(0.01)
Schools	38905	38905	38905	38905	47644	47644	47644	47644
Districts	6123	6123	6123	6123	6921	6921	6921	6921
Intercept-Variance	0.191	0.148	0.013	0.092	0.190	0.159	0.142	0.10

¹Left columns are School % Black. Right columns are school % Hispanic

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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Table 3

Predicting Black and Hispanic Student Representation Indices

Black Sample Model	Black Sample				Hispanic Sample			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Intercept	0.32*** (0.01)	0.40*** (0.01)	0.40*** (0.01)	0.23*** (0.01)	0.39*** (0.01)	0.45*** (0.01)	0.45*** (0.01)	0.26*** (0.01)
School % Black / % Hispanic ¹		0.00* (0.00)	0.01*** (0.00)	0.01** (0.00)		-0.01* (0.00)	-0.01* (0.00)	-0.00 (0.00)
School % FRPL		0.03*** (0.00)	0.03*** (0.00)	0.03*** (0.00)		0.03*** (0.00)	0.02*** (0.00)	0.02*** (0.00)
School Achievement		0.06*** (0.02)	0.07*** (0.02)	0.06*** (0.02)		0.01 (0.02)	-0.02 (0.03)	-0.03 (0.03)
Charter		-0.18*** (0.02)	-0.18*** (0.02)	-0.18*** (0.02)		-0.24*** (0.03)	-0.25*** (0.03)	-0.25*** (0.03)
Magnet		0.02 (0.02)	0.02 (0.02)	0.03* (0.02)		0.01 (0.02)	0.00 (0.02)	0.02 (0.02)
City		-0.08*** (0.01)	-0.06*** (0.02)	-0.04*** (0.01)		-0.03* (0.01)	-0.00 (0.01)	0.01 (0.01)
Suburb		-0.05*** (0.01)	-0.04*** (0.01)	-0.01 (0.01)		-0.04*** (0.01)	-0.00 (0.01)	0.02 (0.01)
Town		-0.06*** (0.02)	-0.04*** (0.02)	-0.04*** (0.01)		-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
District % FRPL			0.03*** (0.01)	0.01 (0.01)			0.06*** (0.01)	0.03*** (0.01)
District SES			0.08*** (0.02)	0.07*** (0.01)			0.04** (0.02)	0.04*** (0.02)
District % BA +			-0.02** (0.01)	0.00 (0.01)			-0.00 (0.01)	0.02** (0.01)

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Table 3 Continued

District % LEP			-0.00	0.04***			-0.05***	-0.00
			(0.01)	(0.01)			(0.01)	(0.01)
District % SPED			-0.17***	-0.10***			-0.24***	-0.13***
			(0.02)	(0.02)			(0.02)	(0.02)
District Achievement			0.03	-0.14***			0.13***	-0.10**
			(0.04)	(0.04)			(0.04)	(0.04)
State Mandate				0.17***				0.14***
				(0.02)				(0.02)
State Audit				0.09***				0.14***
				(0.02)				(0.02)
State Plan Req				0.01				0.07***
				(0.02)				(0.02)
State Plan Approval				-0.02				-0.02
				(0.02)				(0.02)
State GT as SPED				0.03				0.00
				(0.02)				(0.03)
Schools	38905	38905	38905	38905	47644	47644	47644	47644
Districts	6123	6123	6123	6123	6921	6921	6921	6921
Intercept-Variance	0.0665	0.0610	0.054	0.043	0.143	0.127	0.115	0.094

¹Left columns are School % Black. Right columns are school % Hispanic

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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Table 4*Descriptive Statistics for Top 5% of Schools with 10 Black and GT*

Black Sample	All Schools with >=10 Black and GT				Top 5%				Bottom 95%			
	Median	Mean	SD	N	Median	Mean	SD	N	Median	Mean	SD	N
School												
% Black ¹	0.12	0.21	0.24	28647	0.05	0.1	0.12	1432	0.12	0.22	0.24	27215
N Black ¹	67	120.78	138.01	28647	28	53.72	63.7	1432	71	124.31	139.95	27215
N Black in GT ¹	2	5.85	15.47	28647	2	2.97	3.35	1432	2	6	15.84	27215
Rep Index ¹	0.43	0.55	0.81	28647	2.06	2.69	2.28	1432	0.39	0.44	0.4	27215
Total N Enrolled	576	616.33	266.56	28647	557.5	590.63	257.58	1432	577	617.68	266.96	27215
% Total in GT	0.05	0.08	0.1	28647	0.03	0.04	0.04	1432	0.06	0.09	0.1	27215
Achievement Score	-0.03	-0.02	0.42	28647	-0.1	-0.09	0.38	1432	-0.03	-0.02	0.42	27215
% FRPL	0.59	0.56	0.26	28647	0.67	0.61	0.25	1432	0.58	0.56	0.26	27215
Charter	0	0.03	0.16	28647	0	0.05	0.21	1432	0	0.03	0.16	27215
Magnet	0	0.04	0.2	28647	0	0.02	0.15	1432	0	0.04	0.2	27215
City	0	0.33	0.47	28647	0	0.34	0.47	1432	0	0.33	0.47	27215
Rural	0	0.22	0.41	28647	0	0.2	0.4	1432	0	0.22	0.41	27215
Suburb	0	0.36	0.48	28647	0	0.38	0.49	1432	0	0.36	0.48	27215
Town	0	0.1	0.3	28647	0	0.08	0.28	1432	0	0.1	0.3	27215
District												
% LEP	0.06	0.09	0.08	28647	0.09	0.11	0.09	1432	0.06	0.09	0.08	27215
% SPED	0.12	0.12	0.03	28647	0.12	0.12	0.04	1432	0.12	0.12	0.03	27215
Achievement Score	-0.02	-0.02	0.32	28647	-0.04	-0.05	0.31	1432	-0.02	-0.02	0.32	27215
% FRPL	0.57	0.55	0.21	28647	0.59	0.56	0.21	1432	0.57	0.55	0.21	27215
Average SES	0.21	0.23	0.84	28604	0.14	0.21	0.81	1430	0.21	0.24	0.84	27174
% BA or higher	0.27	0.29	0.13	28604	0.26	0.27	0.12	1430	0.28	0.29	0.13	27174

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Table 4 Continued

Hispanic Sample	All Schools with >=10 Hispanic and GT				Top 5%				Bottom 95%			
	Median	Mean	SD	N	Median	Mean	SD	N	Median	Mean	SD	N
School												
% Hispanic ¹	0.18	0.29	0.28	37751	0.08	0.12	0.13	1887	0.18	0.3	0.28	35864
N Hispanic ¹	91	175.9	204.72	37751	31	58.11	71.26	1887	97	182.1	207.55	35864
N Hispanic in GT ¹	3	9.76	23.83	37751	2	3.36	4.44	1887	3	10.1	24.38	35864
Rep Index ¹	0.6	0.67	0.85	37751	2.14	2.89	2.42	1887	0.57	0.55	0.42	35864
Total N Enrolled	541	579.45	262.6	37751	453	475.89	204.88	1887	547	584.9	264.17	35864
% Total in GT	0.05	0.08	0.1	37751	0.03	0.04	0.04	1887	0.06	0.08	0.1	35864
Achievement Score	0.01	0.01	0.41	37751	-0.12	-0.11	0.43	1887	0.01	0.02	0.4	35864
% FRPL	0.55	0.53	0.26	37751	0.66	0.61	0.27	1887	0.54	0.53	0.26	35864
Charter	0	0.03	0.17	37751	0	0.03	0.18	1887	0	0.03	0.16	35864
Magnet	0	0.03	0.17	37751	0	0.03	0.18	1887	0	0.03	0.17	35864
City	0	0.29	0.45	37751	0	0.3	0.46	1887	0	0.29	0.45	35864
Rural	0	0.25	0.44	37751	0	0.3	0.46	1887	0	0.25	0.43	35864
Suburb	0	0.34	0.47	37751	0	0.26	0.44	1887	0	0.34	0.47	35864
Town	0	0.12	0.33	37751	0	0.14	0.35	1887	0	0.12	0.33	35864
District												
% LEP	0.06	0.09	0.09	37751	0.03	0.06	0.07	1887	0.06	0.1	0.09	35864
% SPED	0.12	0.12	0.04	37751	0.13	0.13	0.04	1887	0.12	0.12	0.04	35864
Achievement Score	0	0.01	0.32	37751	-0.06	-0.06	0.32	1887	0.01	0.01	0.32	35864
% FRPL	0.55	0.53	0.21	37751	0.59	0.57	0.21	1887	0.55	0.52	0.21	35864
Average SES	0.31	0.32	0.83	37670	0.05	0.07	0.86	1879	0.33	0.33	0.83	35791
% BA or higher	0.27	0.29	0.13	37670	0.24	0.26	0.12	1879	0.27	0.29	0.13	35791

¹Top panel includes Black student variables. Bottom panel includes Hispanic student variables.

Methods Appendix

To extend the inquiry in Peters and Johnson (2023) and examine gifted service access and representation for Black and Hispanic students, we used the same data sources and applied the same analytical approach as employed in their paper. The only substantive difference was the focus on Black and Hispanic students as opposed to students who were English learners or those with disabilities.

Data and Exclusion Criteria

We merged data from three sources: (a) the 2017-18 Office of Civil Rights Data Collection (CRDC); (b) the Stanford Education Data Archive (SEDA, Reardon et al., 2021); and (c) Peters and Johnson's (2023) coding of states' policies 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. 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 66,050 schools. Primarily, this reduction was due to

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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 Black for the Black analytic sample and fewer than ten Hispanic students for the Hispanic student analytic sample. We did this because of our focus on whether schools that served larger numbers of Black and Hispanic student provided access to gifted services. The result was a final of 39,785 schools for our Black (top panel of Table 1) and 53,762 schools for our Hispanic (bottom panel of Table 1) analytic samples. Compared to schools that did not merge with SEDA data and were excluded, the analytic sample had smaller Black enrollment (75 vs. 90 Black 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 Hispanic sample had smaller Hispanic enrollment (135 vs. 160) 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.

Independent variables used were school total enrollment, Black/Hispanic enrollment, gifted program availability (GT=1 if yes, = 0 if no), and for schools with GT=1: total students in the gifted program and Black/Hispanic enrollment in the gifted program. Schools with zero total enrollment, missing total enrollment, missing Black/Hispanic enrollment, and schools with gifted enrollment counts, Black student counts, or Hispanic student counts greater than total enrollment were dropped (<0.3%). This is reflected in the school counts presented in the prior

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paragraph. We also included covariates such as school proportion Black/Hispanic, 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.

Table 1 shows descriptive statistics for schools in the full CRDC-SEDA matched dataset by Black (upper panel) and Hispanic (lower panel) analytic samples. Of the 66,050 regular, charter, or magnet schools with unique NCESIDs and complete data, 60% enrolled at least 10 Black students; of these schools with at least 10 Black students, 72% had a gifted program. Among the schools with 10 Black students and a gifted program, 69% enrolled at least one Black student in their gifted program. Schools that enrolled at least one Black student in their gifted program constituted 50% of schools that enrolled a total of 10 or more Black students. The lower panel of table 1 shows analogous data for Hispanic students: 81% schools enrolled at least 10 Hispanic students. Schools that enrolled at least one Hispanic student in their gifted program constituted 54% of schools that enrolled a total of 10 or more Hispanic students.

Table 1 in Main Document

Determining Access to Gifted Services

Our first research question focused on what proportion of schools with 10+ Black or Hispanic students had access to gifted services. Answering this question was straightforward as the CRDC includes a gifted program indicator for each school that indicates whether the school

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had any students enrolled in a gifted program. Schools that responded in the affirmative were coded as providing access to gifted services.

Calculating Enrollment and Gifted Program Participation

Our second research question was interested in how well-represented Black and Hispanic students were within their schools' gifted and talented population. As is likely obvious, this question focused on only those schools that reported having a gifted program. For each school, we calculated Black and Hispanic 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 Black students as follows, and similarly for Hispanic students:

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

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

State Policy Dummies

In addition to the CRDC and SEDA variables, we also included dummy codes of five common state policies toward gifted education. Peters and Johnson (2023) included a detailed explanation of how they arrived at their coding of five state policies. Here we only provide a list of those variables:

1. Whether a school was located in a state with a legal mandate for all schools to conduct gifted and talented student identification (labeled "mandate").
2. Whether a state conducted proactive audits of school districts regarding compliance with state rules for gifted and talented education (labeled "state audit")?

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3. Whether school districts were required to create, maintain, and/or submit gifted education program plans to the state (labeled “state plan req”).
4. For those states that did require formal plans, were they required to have those plans approved by the state (labeled “state plan approval”).
5. Did the state consider and operate gifted education under the larger umbrella of special education (labeled “state GT as SPED”).

As outlined below, these five dummy codes were entered into Model 4 at the same level as the district-level predictors from CRDC or SEDA.

Data Analysis

We used four stepwise two-level linear and linear probability models (LPM) with schools nested within districts. The dependent variables were (a) whether GT services were available at a school (where we used LPM) and (b) the gifted population RI of students who were Black/Hispanic in each school (where we used linear models). 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 as the results were largely the same.

Model 1 only included an intercept and district random effects. Model 2 added school-level covariates: mean achievement score, proportion Black/Hispanic, 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 of adults with a bachelor’s degree or above, proportion of students who were labeled Limited English Proficient, proportion of students who were eligible for special

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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 Black students) added the five state policy dummies: mandate, audit, plan required, plan approval, and GT as special education.

Model 4:

$$\begin{aligned}
 y_{ij} = & \gamma_{00} + \gamma_{10} \text{schach}_{ij} + \gamma_{20} \text{sch\%Black}_{ij} + \gamma_{30} \text{sch\%FRPL}_{ij} + \gamma_{40} \text{charter}_{ij} \\
 & + \gamma_{50} \text{magnet}_{ij} + \gamma_{60} \text{city}_{ij} + \gamma_{70} \text{suburb}_{ij} + \gamma_{80} \text{town}_{ij} \\
 & + \gamma_{01} \text{dist\%FRPL}_j + \gamma_{02} \text{distSES}_j + \gamma_{03} \text{dist\%BA} + \gamma_{04} \text{dist\%LEP}_j \\
 & + \gamma_{05} \text{dist\%SPED}_j + \gamma_{06} \text{distach}_j + \delta + u_{0j} + \varepsilon_{ij} \\
 & u_{0j} \sim N(0, \tau_{00})
 \end{aligned}$$

where y_{ij} is the outcome for school i in district j ; γ_{00} is the grand-mean of the outcome; δ 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).

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