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School Finance Equity through Accountability? Exploring the Role of Federal Oversight of School Districts under the Every Student Succeeds Act

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Federal school finance policy over the past 30 years has focused on resource allocation within school districts. Regulations require equal staffing across schools, particularly Title I schools, which are designated based on the percent of low-income students enrolled. The requirement to equalize staffing levels creates a loophole where, even with equal staffing levels, differences in staff experience and salary levels across schools lead to differences in actual spending across schools. In response, recent regulatory reforms have shifted from an emphasis on equal staffing to an emphasis on equal spending. Under the federal comprehensive support and improvement (CSI) system, states are required to periodically review within-district spending gaps for any district with a significant number of identified schools. We analyze spending gaps within districts in California and assess the extent to which the CSI system targets districts with inequitable spending patterns. We find that racial and income-based spending gaps across-schools are not substantially different for districts with CSI schools and districts with no CSI schools. Importantly, many districts with large spending gaps are not included in the policy and thus do not face federal regulations to measure and address resource disparities across schools. We discuss implications for school finance research and policy moving forward, particularly as schools respond to the global pandemic and reopening process.

Public school finance in the United States is largely driven by state legislation, with federal funding accounting for less than 10% of total funds. After decades of reform, most state school finance systems still do not provide substantially greater funding to higher-need school districts (Baker et al., 2018). Studies show that about one-third of states allocate less funding to their highest-poverty districts, while fewer than one-third have substantially progressive systems that send greater funds to high-poverty districts (Baker et al., 2019). Recent reports document significant racial disparities in school funding (EdBuild, 2019; Education Trust, 2018). Finance disparities represent major barriers to an equitable education system, especially given recent research that documents the importance of additional funding for improving students' long-term outcomes (Candelaria & Shores, 2019; Jackson et al., 2015; Lafortune, Rothstein, & Schanzenbach, 2018).

Over the past three decades, federal efforts to improve school finance equity have focused primarily on school districts, requiring equal staffing levels between Title I schools (a designation assigned to higher-poverty schools) and non-Title I schools in the same district (Roza & Hill, 2004). The comparability loophole refers to the finance equity problem in which districts have equal staffing levels between Title I and non-Title I schools, but unequal spending levels (Hanna et al., 2015). This

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may happen if teachers and other staff in non-Title I schools have more experience and therefore earn higher salaries (e.g., Knight, 2019).

The reauthorization of the Elementary and Secondary Education Act as the Every Student Succeeds Act (ESSA) in 2015 included changes to Title I regulations, as well as federal accountability measures. To address the comparability loophole, the U.S. Department of Education initially used changes in the Title I regulations to require districts to equalize spending (not just staffing) across high and low-poverty schools. District leaders noted that this requirement may force districts to reassign teachers to different schools, or lower staffing ratios without addressing the underlying problems of high staff turnover, which, they argued, could undermine good faith efforts to close funding gaps (Gordon, 2016). In response to this pushback, the Department of Education is using federal accountability measures to encourage districts to address spending gaps. Under ESSA, all districts are required to track funding disparities across schools and school districts with a significant number of schools identified for "Comprehensive Support and Improvement" (CSI) have specific requirements to review resource allocation across schools (Karcher & Knight, 2021). States initially identified CSI schools in 2018–19, and some states have published lists of CSI schools for that school year. However, no existing analyses examine whether districts with CSI schools are more racially or economically segregated, have larger spending gaps, or have changed spending patterns over time, compared to districts without CSI schools. This evidence is needed as federal policymakers review improvement strategies and K-12 finance accountability policies.

More broadly, the field of school finance would benefit from greater understanding of the source of funding inequities and their relationship to accountability measures. While most studies and reports compare districts in the same state, scholars point to significant disparities across states (Baker & Corcoran, 2012), across schools in the same district (Hanna et al., 2015; Shores & Ejdemyr, 2017) and within specific metropolitan regions (Nickson & Knight, 2021). Moreover, there is limited evidence on the relationship between federal accountability pressure and changes in school district resource allocation decisions (Sun et al., 2019). This study addresses gaps in this literature by analyzing the size of spending disparities across schools, factors associated with those gaps, and the potential scope of federal accountability through the CSI system to address these gaps.[1] Specifically, we ask:

(1) To what extent do school districts in California allocate resources progressively with respect to student income and race/ethnicity and how have these patterns changed over time?
(2) What district factors are associated with intradistrict spending differences across schools?
(3) How do spending gaps in districts with CSI schools, compare to spending gaps in districts that do not have CSI schools (and therefore face less federal pressure to address those gaps)?

Policy context

The loophole in federal school finance policy

Since the initial authorization of the Elementary and Secondary Education Act in 1965, the federal government has targeted Title I funding to schools serving higher-poverty student populations.[2] As a condition of receiving Title I funds, school districts are required to have equal staffing levels between Title I and non-Title I schools, referred to as the "Comparability Rule" (Cohen Kabaker, 2011). Scholars have noted a loophole in this regulation that allows districts to allocate more dollars to non-

[1]As with prior work, the school level finance data we use for this study includes expenditures, but not funding levels. Since individual schools are limited in the amount of debt they can carry from year to year (Odden & Picus, 2019), there is likely little difference in funding and spending at the school level, on average, over time. While our interest is in how districts choose to provide funding across schools, the available data require us to consider spending (not funding) patterns.

[2]Title I represents approximately one-quarter of all federal funds, which together comprise roughly 10% of total K-12 funding. The largest federal spending category is child nutrition programs ($16.6 billion or 29%), followed by special education ($11.8 billion, 20%), with the remaining programs comprising 27% of all federal K-12 funding, which totaled $57.9 billion in 2018–19 (National Center for Education Statistics, 2020).

Title I schools, while still meeting commensurability requirements (McClure, 2008; National School Board Association, 2013; Roza, 2005; Roza, 2008). Because districts use standardized salary schedules that allocate salary increases for additional years of experience, disparities in educators' experience levels across schools create disparities in actual spending. Higher teacher turnover in schools serving greater proportions of low-income students and students of color create spending disparities that specifically disadvantage black, Indigenous, and Latinx students, other students of color, and students classified as low income (Alexander, 2013; Martínez, 2021).

Closing the loophole: The CSI system

The reauthorization of ESEA as the Every Student Succeeds Act in 2015 created an opportunity to address the loophole (Gordon, 2016; Knight, 2019). Rather than use the fiscal requirements section of Title I (Sec. 1118), which the U.S. Department of Education considered during the "Negotiated Rulemaking Process" for ESSA, federal policymakers included district spending regulations as part of its new school improvement framework (Sec. 1111 of Title 1; see, Klein, 2016; Martin, 2016; Ujifusa, 2016). The Comprehensive Support and Improvement (CSI) system is the federal government's current school improvement system, which largely replaced Race to the Top (VanGronigen & Meyers, 2019). As outlined in ESSA Section 1111(c)(4)(D), the policy requires states to identify three types of schools for improvement:

(1) CSI schools include all Title I schools scoring in the bottom 5% of a state-determined student performance measure as well as high schools with graduation rates under 67%. Schools are identified every three years.
(2) Targeted Support and Improvement (TSI) schools are "consistently underperforming" (as defined by the state) with any subgroup of students.
(3) Additional TSI (ATSI) schools meet the CSI requirement for at least one subgroup of students. Schools that do not improve subgroup move to CSI status performance (typically after 3–5 years or earlier).

States must spend 7% of their Title I funds on schools identified for improvement. States have considerable flexibility in deciding how to identify each school type and what performance measures to use, while districts typically have wide discretion in determining what improvement strategies to adopt (Karcher & Knight, 2021). However, one requirement stipulates that states must "periodically review resource allocation to support school improvement in each local educational agency in the State serving a significant number of schools identified for comprehensive support and improvement" (Sec. 1111(d)(3)(A), 2015). In other words, while CSI schools are identified based on student outcomes, states are required to assess resource allocation for districts with a significant number of CSI. ESSA also requires states to measure per-pupil expenditures at the school level and to monitor districts' school improvement plans. Together, these two provisions suggest districts with at least one CSI school will be under greater scrutiny to address within-district across-school resource disparities. Beyond Title I staffing requirements noted above, few if any other state or federal regulations hold districts accountable for across-school finance equity. In short, ESSA places greater pressure on states and districts to address economic and racial funding gaps that exist within school districts, but most of that oversight is centered on districts with CSI schools (Atchison et al., 2019; Egalite et al., 2017; Malin et al., 2017; Riley et al., 2019). An open set of questions then, which this study seeks to address, is how resources are allocated in districts with at least one CSI school, to what degree are these districts segregated racially and economically, and to what extent are resources targeted to schools serving higher-need students?

The CSI system nationally and in California

Figure 1 shows the number and percent of CSI, ATSI, and TSI schools in each state in 2018–19, the first year that states identified schools under the new policy (Ujifusa, 2019). Most states identified

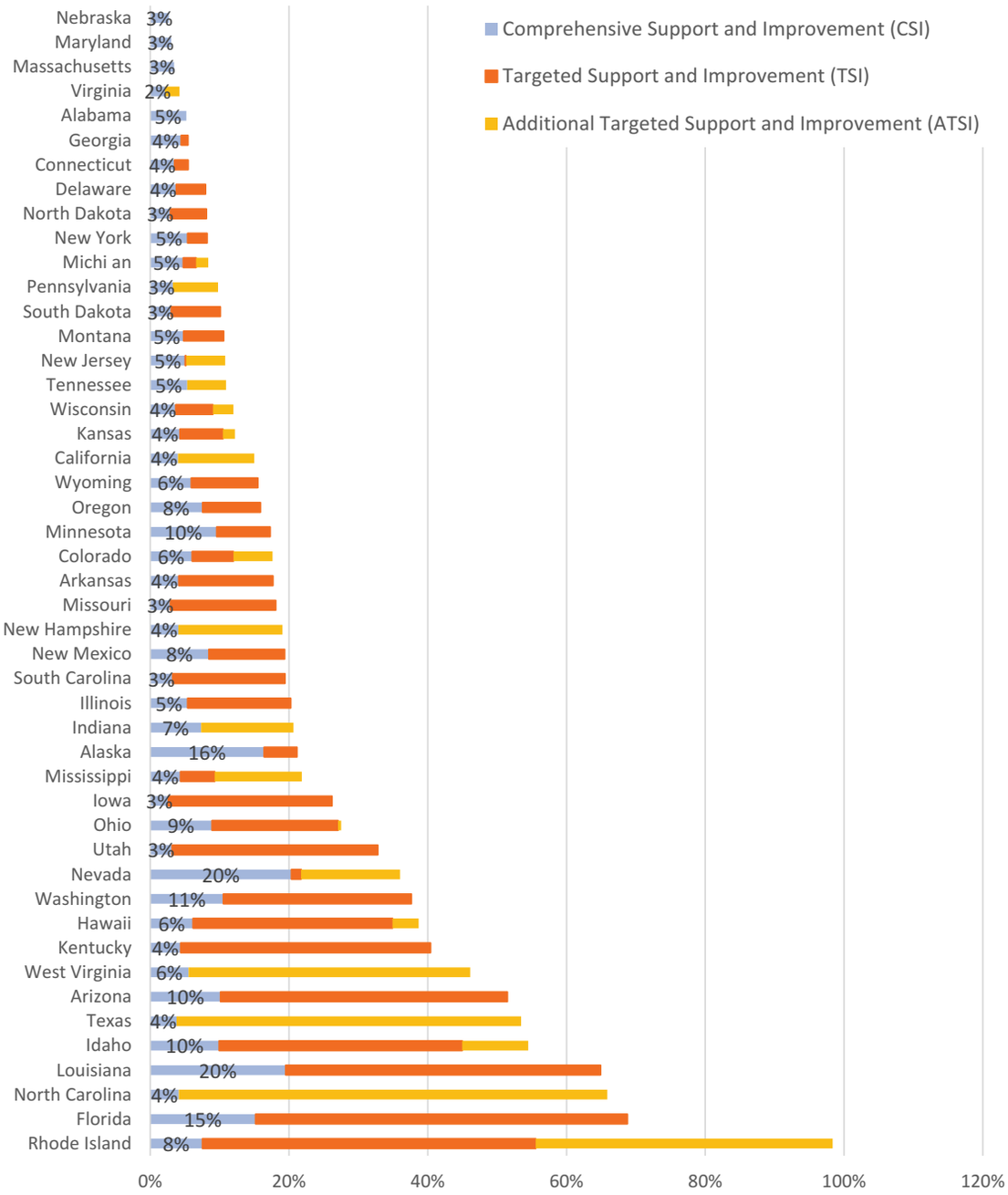

Figure 1. Percent of schools identified as CSI, TSI, and ATSI by state, 2018–19.
Note. Data for Maine, Oklahoma, and Vermont were not available at the time the survey was conducted (see, Rentner et al., 2019).

between 3% and 10% of all schools for CSI, with five identifying between 10% and 20%. The proportion of schools identified for TSI and ATSI varies considerably across states, in part because states have more leeway in designing identification criteria for those schools. Some states have not yet identified TSI or ATSI schools, either because the necessary longitudinal data were not yet available (for ATSI) or because student subgroups or performance measures had not yet been established at the time of the most recent survey (the federal government does not currently track all CSI schools across states; Rentner et al., 2019). We focus our analyses on California, which is among the few states to make publicly available school-level lists of the CSI status for all schools in the state.

Table 1 presents data specifically for California, for schools included in our analytic sample (described below). The table shows summary statistics for schools in 2017–18, disaggregated by the CSI status assigned prior to the 2018–19 school year. The state identified 245 CSI schools and 699

Table 1. Summary statistics for schools in California, 2017–18, based on 2018–19 CSI status.

	All schools	CSI	ATSI	All other schools
A. Number of schools				
Schools	6,257	245	699	5,313
	100%	4%	11%	85%
Elementary	4,585	132	349	4104
	100%	3%	8%	90%
Middle	987	87	240	660
	100%	9%	24%	67%
High	663	24	110	529
	100%	4%	17%	80%
Other	22	2	0	20
	100%	9%	0%	91%
Students	4,522,734	150,616	621,982	3,750,136
	100%	3%	14%	83%
B. Student demographics (%)				
Free/reduced price lunch	62%	83%	74%	59%
American Indian/Indigenous/Native HI	1%	2%	1%	1%
Asian	11%	6%	9%	11%
Black	5%	11%	8%	4%
Latinx	54%	60%	60%	52%
Pacific Islander	0%	1%	1%	0%
White	25%	16%	17%	26%
Two or more	5%	4%	4%	5%
Other	0%	1%	0%	0%
C. CSI outcome for 2019–20				
Exit to (or stay in) general assistance	5161	93	334	4,734
	82%	38%	48%	89%
Exit to (or stay in) CSI	255	59	59	137
	4%	24%	8%	3%
Exit to (or stay in) ATSI	841	93	306	442
	13%	38%	44%	8%

Note. CSI = comprehensive support and improvement, the federal school accountability designation that states are required to design as part of the Every Student Succeeds Act of (2015). Sample includes schools in districts with at least four elementary schools (6,257 of 7,596, 82.4%). Percentages in Panels A sum horizontally to 100%. Racial/ethnic categories in Panel B and CSI outcomes in Panel C sum to 100% vertically.

ATSI schools (4% and 11% of all schools, respectively). Compared to all schools in the state, CSI and ATSI schools serve a greater proportion of students classified as low-income and who identify as American Indian, Ingenious, or Alaskan Native, Pacific Islander or Native Hawaiian, and a lower proportion of white, Asian, and non-low-income students. Panel C of Table 1 shows how these schools were categorized the following year. Over one-third of CSI schools (n = 93, 38%) exited the program and became "general assistance" schools for the 2019–20 school year, and the same number exited to ATSI status (suggesting the school was no longer below outcome thresholds for all students but may have been for at least one subgroup of students). Among ATSI schools, roughly half exit to general assistance, 8% move to CSI, and 44% remain in ATSI. The identified 137 schools from the pool of general assistance schools to enter the CSI system in 2019–20 and 442 schools to enter ATSI.

In sum, the federal school improvement policy in California targets about 15% of schools, but many of these schools switch status at the end of their first year. While students in both CSI and ATSI schools are generally reflective of the California K-12 student population, both schools serve a more racially diverse student population that is more heavily impacted by poverty than all other schools in the state.

Background literature and conceptual framework

While most school finance literature explores funding or spending patterns across school districts, a wide array of studies examine within-district spending gaps and their correlates (Ajwad, 20062006; Baker & Weber, 2016; Baker & Welner, 2010; Burke, 1999; Hertert, 1996; Hertert et al., 1994; Heuer &

Stullich, 20112011; Iatarola & Stiefel, 2003; Nakib, 1996; Owens & Maiden, 1999; Rubenstein et al., 2007; Webb, 2017). These studies reach mixed conclusions about whether school districts have "progressive" allocation models, or models that create greater per-student spending levels in schools serving higher percentages of low-income students. Some studies, especially those based on small samples of districts, identify large spending gaps, or "regressive" allocation models, where schools serving higher percentages of non-low-income students or white students have higher per-student spending than schools serving higher-poverty or more racially diverse student populations (Haxton et al., 2012; Roza & Hill, 2004; Toenjes, 2021).

Among studies that draw on all districts nationally or in a particular state, most find that districts spend roughly evenly across schools, with minimal spending differentiation based on student characteristics (see, Dynarski & Kainz, 2016; Shores & Ejdemyr, 2017; Lee et al., in this issue). Studies that examine factors associated with within-district spending gaps find that greater student segregation and inadequate district funding levels are associated with increases in spending gaps (e.g., Knight, 2019). Weathers and Sosina (2019) reach similar conclusions, linking across-district racial segregation with across-district funding disparities. Racial and income-based segregation is a key factor driving spending gaps in part because the segregating of students across schools allows for inequitable resource disparities (whereas spending gaps across schools are not technically possible in districts with no across-school segregation).

Our study is among the first to examine a specific federal policy aimed at addressing within-district across school spending disparities, the federal CSI school accountability system. While the primary goal of the CSI system is to improve student outcomes in CSI schools, a related goal seeks to measure and address resource gaps within district that have a significant number of CSI schools (Atchison et al., 2017). Our conceptual approach posits that in order for this federal policy to have the intended impact on intradistrict resource allocation, districts with the largest spending gaps must be targeted. The purpose of our analysis, then, is to provide a better understanding of whether districts currently allocate resources equitably across schools, and which districts tend to have larger across-school spending gaps.[3] In particular, if districts with at least one CSI school are the districts with the largest spending gaps, then the CSI system is more likely to have its intended effect on within-district spending gaps. If, instead, a large number of non-CSI districts have substantial spending gaps – which we ultimately find in this study – then federal policymakers may need to rethink how best to address inequitable resource allocation within school districts.

We differentiate between student racial/ethnic categories available within our data, given prior research showing important policy-relevant distinctions among these groups (Martínez et al., 2019; Rodriguez & Rolle, 2007). Rather than making determinations about the level of spending that might be considered fair or adequate, we instead report relative spending levels across groups to demonstrate the size of current spending differences and what role current federal accountability policy might play in improving district resource allocation. We draw on Ladson-Billings's (2006) framing of "educational debt," which recognizes the importance of understanding the longstanding systems that create educational disparities, which most squarely fall on black and Latinx students and other students of color. Therefore, in our methods we compare white students with their black and Latinx peers not to use white as the "ideal," but to explicitly highlight the ways systems (even when designed with equity in mind) may not equitably serve students of color. We further recognize that material resource disparities are one part of the larger effort to promote educational justice among groups historically disadvantaged within U.S. institutions (Carter, 2016). In the subsequent section, we describe the data and methods used to explore these issues.

[3]The purpose of our analysis is not to identify a cause-and-effect relationship between districts spending gaps and CSI schools. For example, we do not believe states would be more likely to select CSI schools based on the spending gap within the school's district. CSI schools are selected specifically based on achievement. But, given (a) the statutory requirement that districts with a "significant number" of CSI schools assess resource gaps across schools, and (b) that few other state or federal school finance policies regulate within-district resource allocation beyond the CSI system, other than Title I, we argue that understanding which districts are, and are not, included in the CSI system will shed light on future efforts to address within-district spending gaps.

Data and analytic approach

Data

We combine school and district-level datasets from multiple sources. We first searched state education agency websites to identify lists of CSI schools as there is not currently a national dataset. While most states report information about the number and type of CSI schools, including a list of school names, the California Department of Education publishes lists of individual schools with unique identifiers that can be linked to other datasets (California Department of Education, 2020). California provides an ideal context as the state is the largest in terms of K-12 enrollment, serves a diverse student population reflecting national demographics, and includes a wide range of large and small districts in urban, suburban, and rural settings, reflective of districts nationally. We combine the CSI school data with school-level student demographic data from the U.S. Department of Education National Center for Education Statistics (NCES) and the U.S. Census Bureau, which provide information on residential child poverty rates, district urbanicity, and the local cost of labor (Taylor, 2006).

We draw on school-level spending data from the Civil Rights Data Collection (CRDC) project, which are available nationally for 2013–14, 2015–16, and 2017–18. While school-level spending data are available in 2018–19, as part of the Every Student Succeeds Act requirements (and available through the Edunomics Lab website), these data are not comparable to the CRDC data, and would not facilitate any longitudinal analysis, and we therefore elected to focus on CRDC data for 2013–14 to 2017–18. To measure spending levels, we use teacher salary spending from state and local sources. Although total per-pupil expenditure data are available for 2017–18 (including nonpersonnel expenditures), that variable is not available in prior years and we therefore use teacher salary spending, which is likely a more valid and reliable measure as states have reported on it for three survey waves. This approach could be limiting if higher need schools make larger investments in non-teaching staff, such as aides or tutors. Under this scenario, per-student teacher salary spending may be a poor proxy for total material resources or per-pupil current expenditures. However, our results for 2017–18 based on per-pupil expenditure are qualitatively similar (and available from the authors upon request). Following Shores and Ejdemyr (2017), we replace outliers with per-pupil expenditures greater than five times the 99th percentile with the value of five times 99th percentile.

As shown in Panel A of Table 2, our final sample includes 7,596 schools, located in 886 districts, for the 2017–18 school year. The sample includes charter schools affiliated with traditional public school districts, but not charter districts, as their spending data are less reliable. California Department of Education (2019) report a total of 944 traditional public school districts (and 8,795 schools), and the

Table 2. Number of school districts in California by district size, 2017–18.

	All locales		Urban		Suburban		Rural	
A. All districts								
Districts	886	100%	79	9%	398	45%	409	46%
Schools	7,596	100%	2,438	32%	4,088	54%	1,070	14%
Students	5,464,120	100%	1,794,781	33%	3,138,240	57%	531,099	10%
B. Districts with at least four elementary schools								
Districts	343	39%	66	84%	237	60%	40	10%
Schools	6,257	82%	2,347	96%	3,499	86%	411	38%
Students	4,522,734	83%	1,644,170	92%	2,586,784	82%	291,780	55%
C. Districts with fewer than four elementary schools								
Districts	543	61%	13	16%	161	40%	369	90%
Schools	1,339	18%	91	4%	589	14%	659	62%
Students	941,386	17%	150,611	8%	551,456	18%	239,319	45%

Note. In the first set of columns, labeled All locales, percentages in Panels B and C sum to 100% (39% of districts have at least four elementary schools and the other 61% have fewer than four; 83% of students attend districts with at least four elementary schools, while 17% attend districts with fewer than four elementary schools). In Panel A and in the next three set of columns, labeled Urban, Suburban, and Rural, percentages sum to 100% horizontally across locales (9% of all districts are categorized as urban, while 45% and 46% are categorized as suburban or rural). Urban, suburban, and rural are based on National Center for Education Statistics Common Core of Data.

discrepancy between reported numbers and our analytic sample stems primarily from nontraditional schools or districts such as juvenile justice centers, centers for special education, and schools not included in the NCES data. For reasons we describe below, our primary analytic sample is limited to schools located in districts with at least four elementary schools (n = 6,257, 82% of schools that would otherwise be in our sample).

Analytic approach

Measuring spending inequality

We use several measures to assess spending differences across schools. Our preferred measure compares per-student spending among the schools in each district that serve the highest percentages of particular student demographics, including the percent of students enrolled in free/reduced price meals (a school-level measure of student poverty) and the percent of students who identify as American Indian/Indigenous, Asian, black, Latinx, Pacific Islander/Native Hawaiian, or white. We define the highest and lowest percentage based on quartiles. For example, for a district with eight elementary schools, we compare per-student spending in the two schools serving the highest percent of FRL students to the two schools serving the fewest percent of FRL students and based on race/ethnicity. For spending differences across racial/ethnic groups, we make similar calculations, comparing each group to schools serving the highest percentages of white students, since white students have historically received greater advantages within U.S. institutions including public education. Gaps are calculated as the difference within each district between groups of schools.

Dollar values are adjusted to academic year inflation (Shores & Candelaria, 2020) and then regression-adjusted for differences in the geographic cost of labor, school size, urbanicity, and the percent of students receiving special education and bilingual services (Baker et al., 2019; Cornman et al., 2019; Taylor & Fowler, 2006). We use the following regression model, estimated separately by year, indexing to school *s*:

$$PPE_s = \beta_0 + X'\lambda + \varepsilon_s \quad (1)$$

where X includes the covariates noted above. The error term, ε_s, includes differences in per-pupil expenditures for school *s* resulting from factors other than the observed characteristics, and we assume this error term is not systematically correlated with any other variables in the model. The predicted values from this regression provide our regression-adjusted values.

We compute additional measures of spending inequality to test the sensitivity of our results and to align with past literature (e.g., Chingos & Blagg, 2017; Murray, Evans, & Schwab, 19981998; Shores & Ejdemyr, 2017). First, instead of quartiles, we use the weighted average spending rate for each school, taking the average across schools in a district, weighted by the proportion of a given student group each school represents for that district (see, e.g., Toenjes, 2021). Second, to calculate gaps, we take the log ratio of spending estimates between different groups of schools, rather than just the simple arithmetic difference. Third, we generate all the same calculations using values adjusted only for inflation, excluding other cost adjustments. Our results are generally similar for the weighted-average approach and log-ratio inequality measures, so we report results for our preferred approach and show results of our sensitivity analyses in Appendix Figure A3.

Analyzing the role of federal accountability

Data restrictions prevent us from designing the ideal analytic approach. The 2018–19 school year was the first in which states identified CSI schools. We may therefore be interested in how district spending inequality changes in the years leading up to and immediately after a district has at least one of its schools identified as a CSI school. While the policy only requires the state to "periodically review" resource allocation, this provision may still encourage districts with CSI schools to alter resource allocation patterns across schools. Tracking a comparison group of districts that never have a CSI

school but have similar pre-trends in spending inequality might allow us to estimate the causal impact of the CSI program on district spending inequality. But our school level spending data are only available every other year for the five years leading up to this policy reform, in 2013–14, 2015–16, and 2017–18. Thus, we evaluate the CSI program by assessing the extent to which the program targets districts with larger spending gaps.

On the one hand, given the importance of school resources for student outcomes and the targeting of the CSI program to lower-performing schools, one may hypothesize that CSI schools receive fewer resources than non-CSI schools, or that districts with at least one CSI school may have greater economic or racial spending gaps than districts with no CSI schools. On the other hand, California's finance system targets additional funds to higher-poverty districts, and districts may already target some of those funds to their higher need or lower-performing schools (Knight & Mendoza, 2019; LaFortune, 2019). Under this scenario, districts with at least one CSI school may have more progressive spending patterns across schools compared to districts with no CSI school. In either case, districts with no CSI schools by definition fall outside federal accountability provisions to address spending gaps. Deeper understanding is therefore needed around how districts allocate resources across schools and where new federal school finance accountability regulations may fall short. Thus, we examine district spending gaps in 2017–18 (and prior years) and compare those gaps for schools selected for the CSI program for 2018–19, to assess whether districts that tend to have larger spending gaps were targeted for school improvement and associated federal school finance accountability (through periodic review of resource allocation). We first use district-level regressions of spending gaps on district characteristics including CSI status. We then present summary statistics and distribution plots, disaggregated by district CSI status.

Omitting smaller districts from the sample

Before presenting results, we note that analyses of within-district, across-school resource allocation necessarily omit smaller districts with only one or a few elementary, middle, or high schools. Our preferred sample is limited to districts with at least four elementary schools. As shown in Table 2, this sample restriction drops the majority of school districts, but maintains most schools (82%) and students (83%). The next three set of columns in Table 2 show that larger districts are concentrated in urban settings. Among the 79 districts and 1.8 million students attending urban districts in California in 2017–18, 84% of districts have at least four elementary schools, and those districts serve 92% of all urban students. This sample restriction also keeps 82% of suburban students but keeps only 55% of rural students. School finance issues pertaining to rural districts are qualitatively different than districts in other locales, and within-districts spending equity is not as salient of a policy issue given typical district size in rural communities (Dhaliwal & Bruno, 2021; Kolbe et al., 2021).

Findings

Intradistrict spending equity

Our first two research questions examine the size of spending differences within districts across schools, the extent to which intradistrict spending differences are related to district characteristics such as racial and economic segregation, and how these patterns have changed over time. Table 3 shows summary statistics for spending inequality in 2017–18. The value $3,318 shown in the first row and column represents the average spending among elementary schools that fall in the top quartile of student poverty rate within each district (with averages weighted by district enrollment). Schools that fall in the top quartile of non-FRL students (column 2) spend virtually the same per student, $3,317. Columns 3 through 8 show spending among schools in the top quartile of each racial/ethnic group. While districts on average allocate slightly more dollars per student to their schools serving the highest percent of white students compared to schools grouped by other racial/ethnic categories, all values fall within $3,306 and $3,343, and no gap is larger than approximately $40 (about 1%). Although average spending is similar

Table 3. Measures of within-district per-pupil spending equity among California school districts with at least four elementary schools, 2017–18.

	FRL	Non-FRL	Am. In./Indig.	Asian	Black	Latinx	Pac. Is./Na. HI	White
A. Highest quartile within district								
Avg. per-pupil expend.	$3,318	$3,317	$3,321	$3,307	$3,306	$3,350	$3,316	$3,343
Avg. student demog.	80.0%	60.1%	0.7%	21.1%	11.1%	73.5%	1.0%	35.7%
B. Lowest quartile within district								
Avg. per-pupil expend.	$3,317	$3,318	$3,338	$3,362	$3,361	$3,321	$3,346	$3,331
Avg. student demog.	39.9%	20.0%	0.0%	4.4%	1.7%	35.2%	0.0%	9.1%
C. Inequality measures (and standard deviation)								
Difference	$0.68	–	−$22.23	−$36.41	−$37.39	$6.90	−$26.77	–
	(317.65)		(248.07)	(192.82)	(220.88)	(216.24)	(307.39)	
Log ratio	0.000	–	−0.010	−0.011	−0.013	−0.002	−0.008	–
	(0.112)		(0.078)	(0.064)	(0.081)	(0.071)	(0.095)	

Note. FRL = free or reduced price lunch, an indicator of student poverty. Am. In./Indig. refers to students who identify as American Indian, Alaskan Native, or Indigenous and Pac. Is./Na HI refers to students who identify as Pacific Islander or Native Hawaiian. Per-student expend. refers to spending per student on teacher salaries in 2017–18 dollars, adjusted for geographic differences in the cost of labor, district size, urbanicity, and the percentage of students receiving special education services and classified as a multi-language learner. We use teacher salary spending, rather than overall per-student expenditures, because teacher salary spending is available in prior years of Office of Civil Rights data. Results based on per-student expenditures are qualitatively similar. Inequality measures are relative to schools that in the highest quarter non-FRL (for FRL) or white (for racial/ethnic groups). Sample is limited to districts with at least four elementary schools (n = 343 districts), which captures 83% of all students (see, Table 2).

within the quartiles of schools, average student demographics differ markedly (row 2 of Panels A and B). The highest-quartile FRL school serve 80% students, compared to 38.9% in the lowest quartile and racial segregation is even larger according to this measure.

Panel C shows average gaps. Because district means in Table 3 are weighted by district enrollment, values are interpreted as the average spending gap for the typical student. Thus, the first row of Panel C shows the typical student in California attended a district that sent $0.68 more per student to its lowest poverty schools (essentially the same). District racial/ethnic spending gaps are also close to zero, ranging from –$37.39 (−1.1%) to $6.90 (0.2%) per student, despite sizeable differences in mean student demographics, suggesting districts do not have meaningfully different levels of spending across schools serving student populations that differ widely by income and race/ethnicity. While these difference measures are consistently close to zero, they mask substantial variation across districts. The standard deviation of $317.65 in column 1 implies that while 68% of students attend districts with a gap less than $317.65, about 16% attend districts with regressive allocation patterns that disadvantage low-income students by at least this amount per student (and another 16% have progressive allocations, assuming a normal distribution where one-standard deviation accounts for 68% of a distribution).

Overall, we find that approximately 1 in 10 districts have a substantially regressive spending allocation along race and class lines, defined as spending at least 10% more in schools enrolling fewer historically underserved students (discussed below in Table 5). Results are similar for middle and high schools; districts have slightly more regressive spending across middle schools and slightly more progressive spending across high schools, compared to elementary schools, but differences in spending gaps are larger across districts than across particular grade levels, on average. Thus, the key takeaway from Table 3, consistent with prior analyses (e.g., Knight, 2019, 2020; Knight & Hoang, 2022; Shores & Ejdemyr, 2017), is that while districts allocate resources evenly across schools on average, many have large racial/ethnic and income-based spending gaps, while many others allocate resources significantly more progressively.[4] Given this wide variation in spending equity, we next turn to

[4]Drawing on OCR data for 2013–14 for all districts nationally (not just California), Knight (2019) found that one in five districts have substantially regressive teacher salary spending allocation along race and class lines, defined the same way as in the current study (spending at least 10% more in schools enrolling fewer historically underserved students). Shores and Ejdemyr (2017) also use 2013–14 OCR data and find that the decile of districts with the most regressive spending patterns allocate between $400 and $500 less per student (about 10–14%) in their schools enrolling fewer historically underserved students (see, Table 2 of Shores & Ejdemyr, 2017). Knight and Hoang (2022) and Lee et al. (from this themed issue) use more recent data and reach similar conclusions.

Table 4. Regression coefficients showing district factors associated with within-district spending equity, 2017–18.

	FRL – non-FRL	Black – White	Latinx – White
At least one CSI school	33.39	−2.12	−36.75
	(44.41)	(30.03)	(43.78)
Student segregation	−17.48	32.49**	58.71**
	(27.36)	(16.17)	(24.25)
Suburban	−122.38***	−60.07*	−90.31**
	(44.90)	(30.61)	(44.32)
Rural (ref. urban)	−129.74	−123.04**	−20.56
	(80.65)	(54.65)	(80.24)
Poverty rate	−751.51**	−75.78	−237.32
	(304.52)	(206.69)	(299.08)
Per-pupil expenditures	3.31	−11.49	−6.59
	(13.08)	(8.85)	(12.83)
Log enrollment	−21.71	−15.59	−15.32
	(18.69)	(12.11)	(18.96)
Constant	398.10*	274.26*	270.31
	(223.66)	(151.40)	(227.41)
N	343	343	343
R^2	0.042	0.047	0.046

Note. Positive values for within-district spending equity measures imply a progressive allocation (FRL, black, and Latinx students receive greater per-student salary spending compared to their comparison groups). Regressions are weighted by district enrollment size. Student segregation is measured as the dissimilarity index within school districts across elementary schools for 2017–18. Spending gaps are based on the difference in average teacher salary spending per-student between elementary schools in the highest and lowest quartile of each student demographic, calculated separately for each district (see, Table 2). The sample is limited to districts in California with at least four elementary schools. Results for middle and high schools and for prior years are shown in the Appendix.

*$p < .05$, **$p < .01$, ***$p < .001$.

identifying district factors associated with differences in within-district spending equity and changes over time.

Table 4 displays regression coefficients showing district factors associated with within-district spending equity for 2017–18. Based on prior literature (e.g., Iatarola & Stiefel, 2003; Knight, 2017, 2019; Shores & Ejdemyr, 2017; Toenjes, 2021), the model includes covariates that capture student racial or economic segregation (depending on the outcome measure), indicators for urbanicity, district poverty rate, per-student expenditures adjusted for geographic cost differences, log enrollment, and whether the district has at least one CSI school, which we discuss in the next section. A few patterns emerge across models. Greater student segregation is associated with more progressive spending in the models shown, but with more regressive spending in some models for middle and high schools and for prior years (not shown here); and the relationship is generally mixed across all models. Suburban schools tend to have larger economic and racial/ethnic gaps compared to urban and, in some cases, rural districts. The coefficients in columns 2 and 3, for example, suggest that spending gaps between black and white students within districts, and Latinx and white students, are $59.88 and $87.26 per student larger in suburban districts than in urban districts. Across a majority of models, high poverty school districts have larger spending gaps, while district size and overall spending level is not consistently correlated with spending gaps.

While not shown, we find that factors associated with spending gaps do not considerably change from one year to another (based on *t*-tests of regression coefficients from models with separate school year subsamples). Further, spending gaps for a given district are relatively consistent over time. Of the 20% of districts with the largest FRL spending gap in 2013–14, most (61%) remain within the bottom two quintiles in terms of regressive spending allocation. Ranking all districts in 2013–14 by FRL spending progressivity, 64% remain in the same quintile or move to one adjacent quintile by 2017–18 and these results largely match those based on racial/ethnic groups and for middle and high schools.

Spending equity for CSI and non-CSI districts

Finally, we examine spending gaps for districts with at least one CSI school and compare those spending gaps to districts with no CSI schools. The first row of coefficients in Table 4 shows that spending gaps among districts with at least one CSI school (n = 96) are not statistically significantly different from spending gaps for districts with no CSI schools (n = 247). In Table 5, we provide additional summary statistics for CSI districts. As noted earlier, among the 886 districts in our sample for 2017–18, 543 have fewer than four elementary schools, and interdistrict spending disparities are of less concern, while 343 have four or more elementary schools. While CSI schools make up only 245

Table 5. Summary statistics for districts in California with at least one CSI school and with no CSI schools, 2017–18.

			Districts with four or more elem. schools		
	All districts	Districts with fewer than four elementary schools	Districts with no CSI schools	Districts with at least one CSI school	Difference
A. Number and size of districts					
N (state share)	886	543 61%	247 28%	96 11%	–
Total enr. (state share)	5,980,063	1,040,954 17%	2,511,393 42%	2,427,716 41%	–
Mean enrollment	6,750	1,917	10,168	25,289	15,121*
B. Student demographics					
Amer. Ind./ Indig.	0%	1%	0%	0%	0.001
Asian	12%	9%	16%	9%	−0.075*
Black	6%	3%	4%	8%	0.048*
Latinx	55%	50%	46%	63%	0.176*
Pac. Is./H. Native	1%	0%	0%	1%	0.001*
Low-income	61%	54%	48%	73%	0.251*
Resid. Pov.	19%	18%	14%	24%	0.093*
Engl. learner	22%	16%	20%	24%	0.041*
Spec. Educ./IEP	12%	11%	11%	12%	0.008*
C. Student segregation					
Dissimilarity (B-W)	0.405	0.146	0.322	0.482	0.160*
Dissimilarity (L-W)	0.408	0.092	0.315	0.494	0.179*
Dissimilarity (econ.)	0.372	0.093	0.323	0.416	0.093*
D. Spending differences (n = 347 districts)					
Average gap between top quartile schools (mean = $3,318)					
Black – white	−$25.52	–	−$19.27	−$31.24	−11.96
Latinx – white	$26.64	–	$22.80	$30.15	7.35
FRL – non-FRL	$32.67	–	$29.75	$35.34	5.59
Percent with > 10% regressivity					
Black vs white	10%	–	10%	11%	0.014
Latinx vs white	9%	–	6%	12%	0.065*
FRL v. non-FRL	9%	–	8%	11%	0.03
Percent with > 10% progressivity					
Black vs white	8%	–	10%	7%	−0.032
Latinx vs white	12%	–	16%	8%	−0.074*
FRL vs non-FRL	14%	–	14%	13%	−0.015

Note. Means are weighted by district enrollment size. Student segregation is measured as the dissimilarity index within school districts across elementary schools for 2017–18. Spending gaps are based on the difference in average teacher salary spending per-student between elementary schools in the highest and lowest quartile of each student demographic, calculated separately for each district.

*$p < .05$.

schools statewide (4%) and only 3% of students, row 1 of Table 5 shows 11% of districts (which serve 41% of students) have at least one CSI school.

Panel B of Table 5 shows that districts with at least one CSI school have greater percentages of students of color, aligning with school-level statistics shown in Table 1, and a higher proportion of students classified as low-income, in poverty, English learner, and receiving special education service (all means are weighted by district enrollment). Panel B shows overall average segregation, based on the dissimilarity index between black and white students, Latinx and white students and low-income and non-low-income students The value of 0.405 suggest that the typical students in California attends a district where 40.5% of black and white students would need to switch schools within their districts to achieve equal percentages across schools. Columns 3 to 5 show districts with CSI schools are generally more segregated. Panel D shows CSI districts tend to have slightly more regressive spending patterns between black and white students, but slightly more progressive spending patterns for Latinx and low-income students (positive implies more progressive). Latinx-white spending gaps in particular are larger in CSI districts, yet roughly double the number of CSI districts have substantially regressive spending patterns (more than 10%) compared to non-CSI districts.

The key takeaway from Table 5 is that while the federal CSI program targets districts with larger spending gaps, at least for FRL and Latinx students, many districts with large spending gaps are left out of the program. This finding is further highlighted in Figure 2, which shows the distribution of within-district spending gaps for districts with no CSI schools (dashed black line) and districts with at least one CSI school (solid gray line). While there is some differences in average inequality measures between CSI and non-CSI districts, Figure 2 lays bare the substantial overlap. In particular, the figure helps demonstrate that a large number of students attend districts with large spending gaps that are not covered through the federal CSI program.

Implications for education finance policy

We study spending inequality within school districts, using three waves of the Office of Civil Rights, Civil Rights Data Collection Project. Given new federal regulations pertaining to within-district spending equity, districts may now face increased pressure to address within-district spending gaps. The purpose of our analysis therefore was to further understand the size of within-district spending gaps, factors associated with larger gaps, and the extent to which this new federal policy targets school districts with regressive spending patterns. Consistent with prior studies, we found that while districts maintain substantial racial and economic segregation across schools, district leaders on average do not adopt progressive resource allocation structures and instead maintain approximately the same level of per-student spending across schools, on average. Roughly one in ten school districts in California is substantially regressive, with at least 10% or greater spending in schools serving the highest percent of white and non-low-income students, while a slightly larger number is substantially progressive (Panel C of Table 5). Districts with CSI schools tend to have slightly larger spending gaps in some cases, but many districts with large spending gaps are not included in the policy and thus do not face federal regulations to measure and address resource disparities across schools.

These findings suggest that federal efforts to improve resource equity within school districts should not be limited to the CSI program. Relatedly, Title I – which includes requirements for equal staffing levels across schools – is not likely to address resource gaps in all districts. Instead, districts, states, and the federal government will need to continue examining school spending disparities by race and class and consider additional, complimentary strategies for closing these gaps. While the CSI program will likely encourage many districts address this issue, the program should be viewed as one part of a larger goal to improve resource equity within school districts.

Consistent with recent work on racial disparities in school resources (Baker et al., 2020; Martínez et al., 2019; Sosina & Weathers, 2019; Weathers & Sosina, 2019), we find slightly larger spending gaps for black and Latinx students compared to white students. While state and district finance policies often include explicit funding weights for poverty, weights based on race are less common. Studies

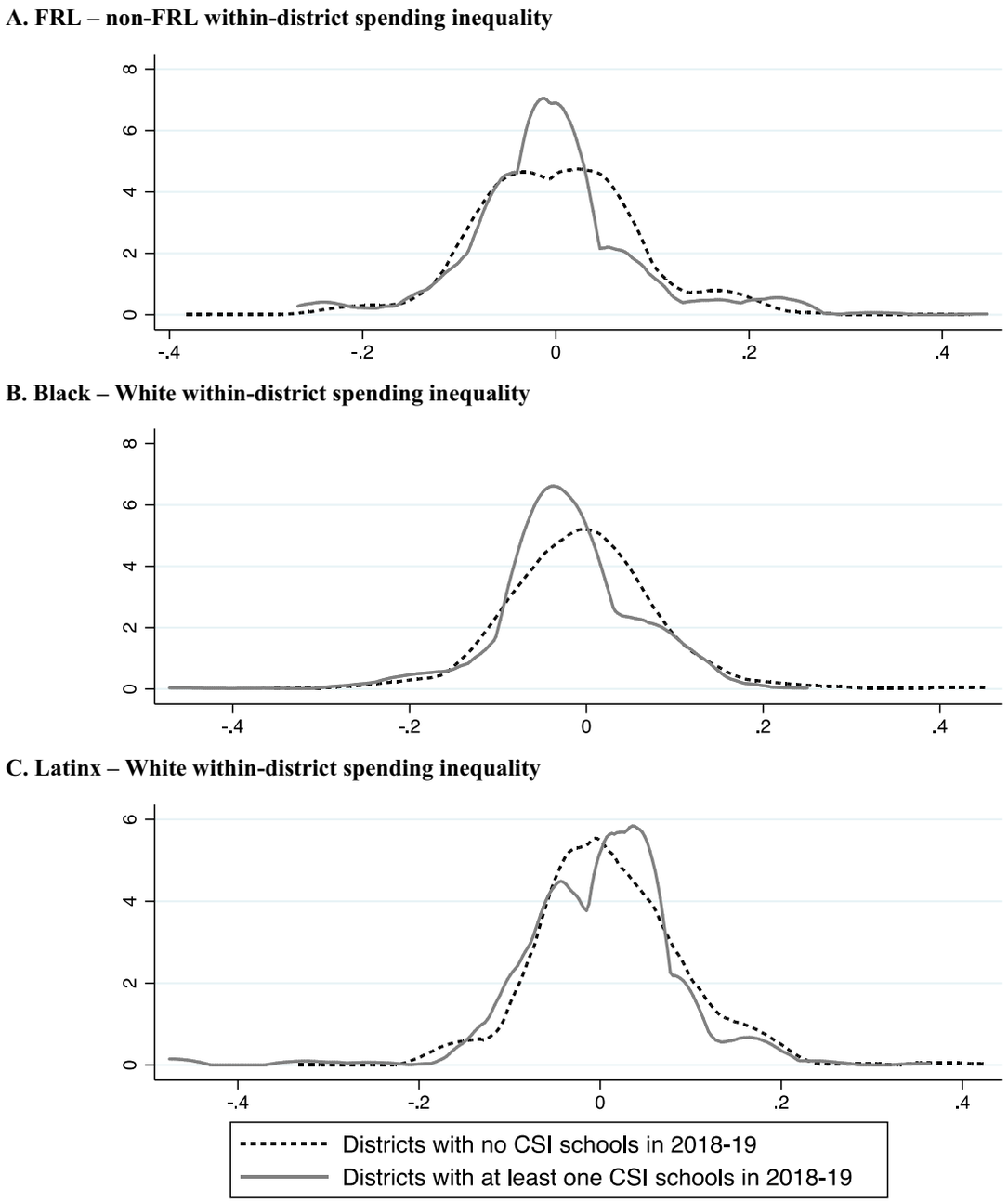

Figure 2. Distribution of within-district spending inequality (percent spending gap) in 2017–18, by comprehensive support and improvement status in 2018–19. **A**. FRL – non-FRL within-district spending inequality. **B**. Black – white within-district spending inequality. **C**. Latinx – white within-district spending inequality. Note: The x-axis measures the percent difference in spending between the highest and lowest quartile of schools within each district (see, Table 3). Appendix Figures A1 shows dollar values and A2 further disaggregates district CSI status by exit status. Plots are weighted by district enrollment and limited to districts with at least four elementary schools.

show black, Indigenous, and Latinx communities have historically faced different forms of housing discrimination and school segregation, which has reduced access to school resources for these groups (Powell, 2012; Trounstine, 2018). Despite progress in finance equity over the past three decades, extant literature documents resource advantages for white students in the U.S. public education system and our study adds to this literature.

Our findings generate important new questions for future research. We did not examine whether CSI schools receive additional funding compared to otherwise similar non-CSI schools in the same district. These schools may be underperforming in part because they are underfunded. Alternatively,

districts may already be targeting additional resources to CSI schools, but the additional funds are not sufficiently impacting student outcomes. Finally, as noted earlier, longitudinal analyses of how districts reallocate resources across schools to support school improvement will inform future school finance policy. Such research will be increasingly possible as states continue to release school-level spending data as required under ESSA.

In the meantime, the school re-opening process and federal stimulus funds provide unique opportunities to redesign district budgeting practices in ways that improve resource equity. One key provision within the American Rescue Plan requires districts to engage in meaningful consultation with local stakeholders in designing and implementing stimulus spending plans (Roza, 2021). As districts have not traditionally engaged in participatory budgeting methods, this new requirement could change the way district budget decisions are made moving forward, which could alter spending patterns across schools. Whether the CSI program itself will cause districts to increase spending equity across schools is an open question that should be addressed in future research.

The Biden Administration has signaled interest in addressing state and local spending disparities (Carey, 2021). This study highlights gaps in current federal policy, which focuses primarily on spending within school districts and on districts with at least one CSI school, omitting a large number of low-income students and students of color who attend districts that do not have a CSI school and are thus not covered by this particular federal accountability initiative. Moving forward, districts may benefit from additional finance equity safeguards through federal regulation. Additional federal school finance oversight and accountability measures may help districts allocate resources more effectively by targeting resources to where they are needed most.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix

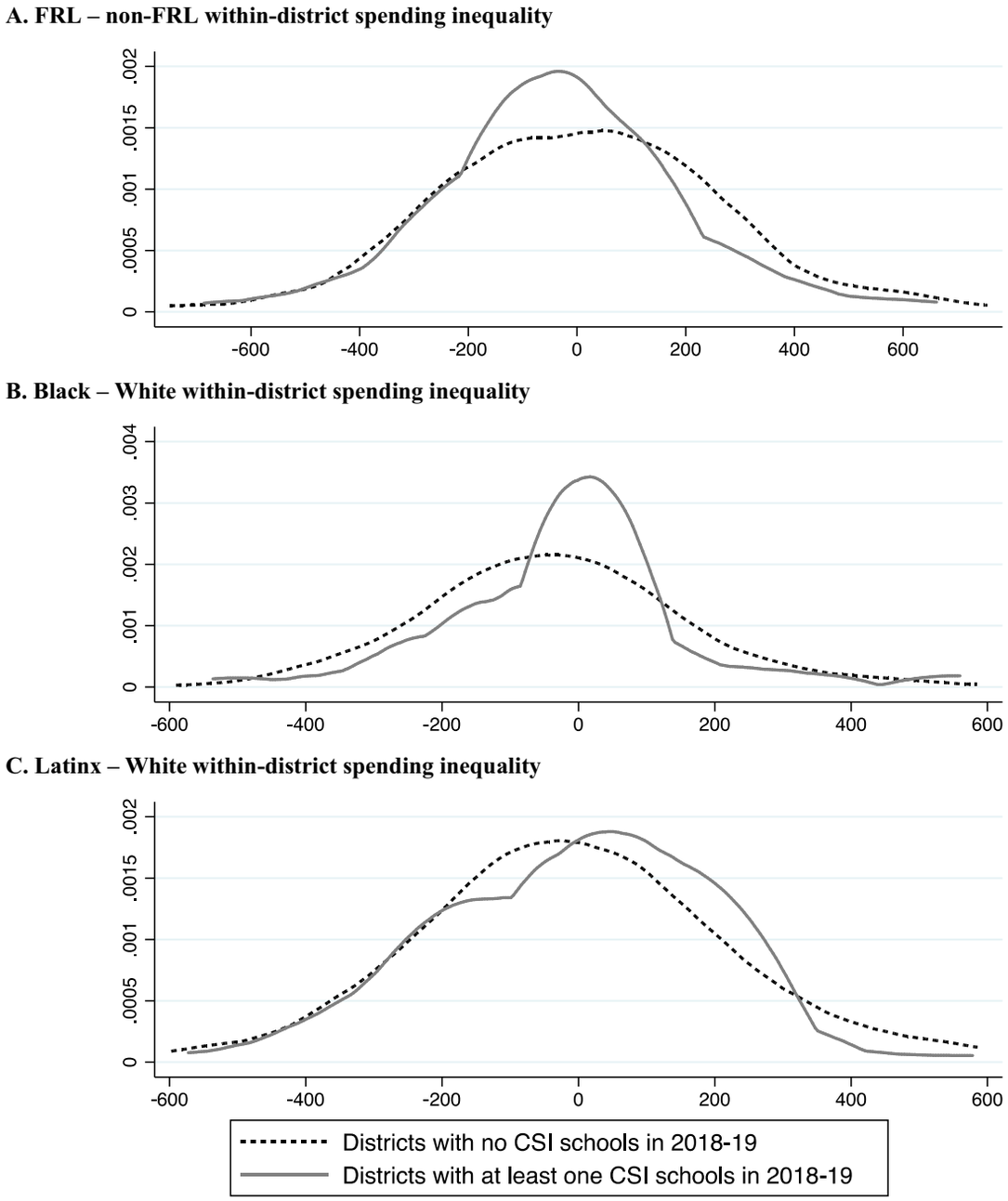

Figure A1. Distribution of within-district spending inequality in 2017–18, by comprehensive support and improvement status in 2018–19.
Note: The x-axis measures the difference in spending between the highest and lowest quartile of schools within each district (see, Table 3).

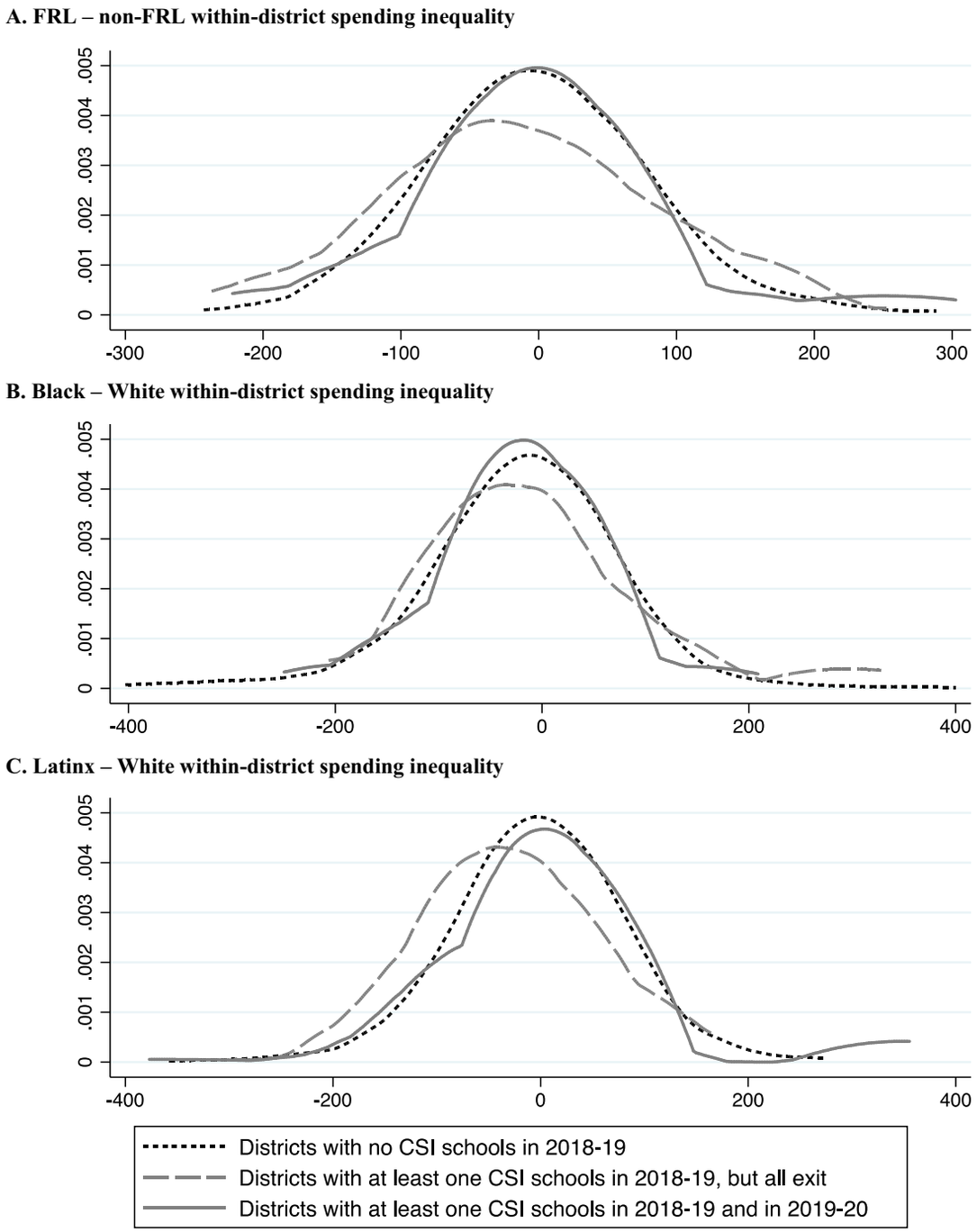

Figure A2. Distribution of within-district spending inequality measures in 2017–18, by Comprehensive Support and Improvement status in 2018–19, disaggregated by exit status. **A**. FRL – non-FRL within-district spending inequality. **B**. Black – white within-district spending inequality. **C**. Latinx – white within-district spending inequality.
Note: The x-axis measures the difference in spending between the highest and lowest quartile of schools within each district (see, Table 3).

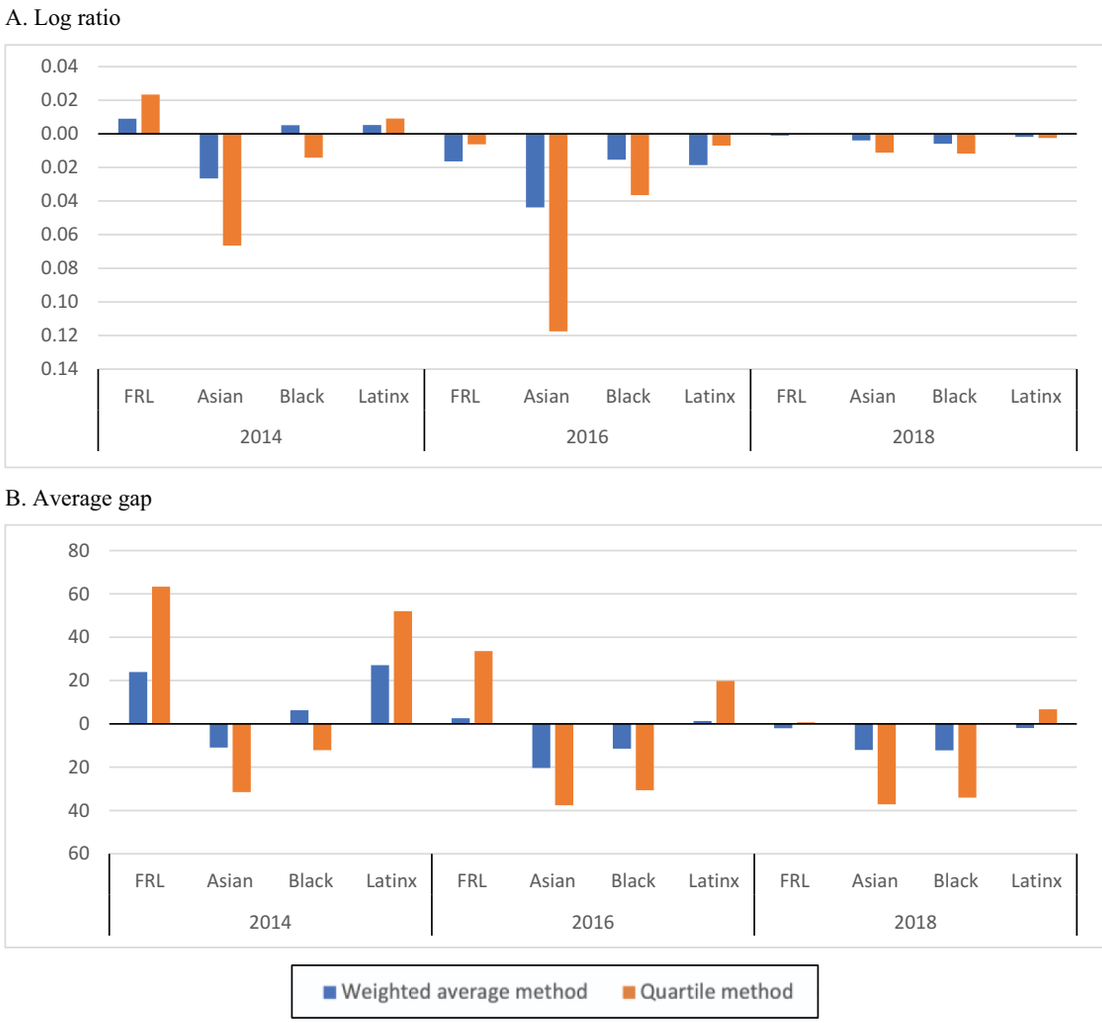

Figure A3. Specification checks for inequality measures. Note. The weighted average method refers to an approach for estimating school spending inequality, where the average funding rate for a given group of students (e.g., low-income students) is determined by calculating the mean per-student funding across schools in a district, weighted by the share of a district's particular student demographic for that school (see text or Toenjes, 2021 for further description). The quartile method involves comparing the mean per-student spending between the highest and lowest quartile of schools within each district, for each student demographic. For each inequality measure, we compare either the weighted average or highest quartile for FRL students, American Indian/Indigenous, Asian, black, Latinx, and Pacific Islander/Hawaiian Native to non-low-income or white students (only the three racial/ethnic categories with the highest percent of population are displayed in the figure). For log ratio, shown in Panel A, we take the log of the ratio of these two values; for average gap, shown in Panel B, we use the simple arithmetic difference. Our preferred measure, used throughout the analysis, is the average gap using the quartile method, and this figure demonstrates that results are mostly consistent across different measures and methods.