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School Resources and the Local Control Funding Formula

Is Increased Spending Reaching High-Need Students?



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SUMMARY

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Technical appendices to this report are available on the PPIC website.

California enacted the Local Control Funding Formula (LCFF) in 2013–14 in an effort to simplify school finance, revamp accountability, and increase funding for high-need students—those who are low income, English Learners, homeless, and/or foster youth. The LCFF represents an overhaul of the previous system of K–12 school finance that had been in place for nearly four decades. Under the LCFF, extra funding is allocated to districts with more high-need students. The LCFF also gives districts greater spending flexibility, with the consolidation of many categorical aid programs—which fund specific areas or services—into unrestricted block grants.

Given these historic increases in spending and flexibility, there are concerns that additional funding may not be reaching the highest-need students; these concerns are driven in part by arguably underwhelming progress in student achievement in recent years. And yet, our current knowledge of how LCFF funding has been spent is limited, and we have little knowledge beyond case studies of individual districts about how resources are allocated across schools in the same district.

This report provides new evidence on the effects of LCFF on the distribution of educational resources across districts and schools. Using data on district spending and school staffing, I find:

- **The LCFF led to more equitable school district spending.** Spending has increased substantially across all school districts. Some of this increase is due to the improved economic situation in the state and additional Proposition 98 dollars. Much of the increased funding was spent on salaries and benefits for teachers and other staff. Between 2013–14 and 2017–18, student spending in high-need districts rose by over \$500 more per pupil than in low-need districts. Class sizes decreased in high-need districts more than in low-need districts.
- **Allocating LCFF funding by district-level need may imperfectly target high-need students.** Many high-need students reside in higher-income districts that do not receive as much LCFF funding. Unless these districts allocate additional resources to their highest-need students, the progressivity of LCFF funding is attenuated by hundreds of dollars per student: I estimate that spending on the typical high-need student in any district across the state increased by roughly \$350 relative to the typical non-high-need student. Notably, the LCFF intentionally directs more money to the highest-need districts on the grounds that it costs more to educate high-need students in areas with higher concentrations of student need.

- **As they did before the LCFF, districts are spending (slightly) more on teachers in their highest-poverty schools.** Districts with differences in student need across schools typically spend more on instruction and have smaller class sizes in their higher-need schools. This pattern of spending has been relatively constant over time, and has not changed since the LCFF was implemented.
- **High-need schools and districts rely increasingly on less-experienced (and lower-paid) teachers.** While districts do spend more on teachers in their highest-need schools, these schools are staffed with teachers who have less experience and lower salaries. This staffing pattern predates the LCFF, but it has become more pronounced across districts under the new funding formula. Between 2013–14 and 2017–18, the share of novice teachers increased more in high-need than in low-need districts.

Overall, the data show that LCFF funding is, for the most part, reaching the high-need students for whom it was intended. Yet greater reliance on novice and less-qualified staff means that it may take time for gains from LCFF to accumulate in high-need schools and districts. In addition, rising pension costs, declining enrollments, and teacher shortages are placing constraints on districts' spending options. Ensuring and improving the equitable distribution of LCFF funding may require policies that track funding within districts and hold districts accountable for the allocation of resources for high-need students.

Introduction

California’s public schools serve 6.2 million K–12 students, spread across roughly 10,000 schools in 1,000 public school districts. In 2018–19, California’s public schools received \$97.2 billion in funding, 59 percent of which came from the state (Murphy and Paluch 2018).¹ Property taxes and other local revenue sources provide roughly 32 percent of the funding, with the remaining 9 percent coming from the federal government. A small number of districts receive nearly all of their funding from local property tax revenues—these are often referred to as “basic aid” districts—while many districts with smaller local property tax bases get most of their funding from the state.

For most of California’s history, public schools were locally funded—primarily through property taxes—with some supplemental aid from state and federal governments. Given large differences in property wealth and revenue-raising capacity across local districts, lower-income areas generally spent less on public education than wealthier areas. This school funding system was found to be unconstitutional by the California Supreme Court in 1971 in *Serrano v. Priest*.² The court ordered the state legislature to devise a system that would equalize funding across districts. The state responded by capping the amount of per pupil revenue each district could receive, effectively equalizing funding across districts.³

After Proposition 13 (1978) capped local property tax rates and significantly reduced the funding available for local public schools,⁴ the burden of school funding shifted to the state government. In 1988, Proposition 98 set minimum state spending requirements for K–12 education; the state must spend roughly 40 percent of General Fund revenues in its public schools.

Most school district funding came through Prop 98 in the form of “revenue limits”—a base amount of per pupil funding needed for school operations—for each district. Districts with local revenues that fell short of their limits received additional state funding to fill the gap. In addition, the state and federal governments provided a significant amount of funding through what were called categorical programs. These programs supported services such as teacher professional development or special education. By the onset of the Great Recession, roughly 20 percent of state revenues were allocated through dozens of categorical programs, which placed restrictions on how the money was to be spent.

The Local Control Funding Formula (LCFF), adopted in 2013–14, represented a dramatic overhaul of California’s school finance system. The LCFF aimed to simplify school finance, revamp accountability, and increase funding for students defined as high need—those who are low income, English Learners, homeless, and/or foster youth. The LCFF distributes a base grant to every district; districts get supplemental grants for each high-need student, and districts with particularly large shares of high-need students get concentration grants. In addition, many categorical aid programs have been eliminated, giving districts much more spending flexibility.

The question now is how districts are using additional funds for high-need students, and whether this extra funding will improve educational outcomes. Early returns for high school students are promising (Johnson and Tanner 2018), and national research on similar reforms in other states has shown that targeted spending increases

¹ Nearly all of this is through state tax revenues, with a small share (1%) coming from the California State Lottery.

² *Serrano v Priest* is often regarded as the first of many court-ordered school finance equalizations. Over the following four decades, nearly every state has enacted some sort of major reform to their systems of school finance, shifting the burden from local to state governments in an effort to more progressively fund education. For a national overview of these reforms and their effects on education finance, see Corcoran and Evans (2015).

³ There was not a complete equalization, as the court specified that wealth-related differences in funding had to be within a “band” within \$100 per pupil above and below the state average per pupil spending. For more information, see LAO (1999).

⁴ There has been debate as to whether the equalization of school finances resulting from *Serrano v Priest* led to the passage of Prop 13, due to the decoupling of local property tax burdens and local school spending. See, for example, Fischel (1996), Martin (2006), and Kirk and Zasloff (2003).

to low-income school districts are productive, although gains take time to accumulate.⁵ Notably, reforms that have targeted district-level disadvantage have narrowed gaps in student achievement between high- and low-income *districts* but not between high- and low-income *students* (Lafortune, Rothstein, and Schanzenbach 2018). And in some states, research has found that districts distributed additional funding disproportionately across schools, with the richest schools in the low-income districts gaining the most (Hyman 2017).

There is growing pressure to revisit aspects of the LCFF; stakeholders and policymakers have called for reduced flexibility and for changes to the funding formula. But evidence on the various effects of LCFF is limited. Much of our existing knowledge is drawn from case studies of individual districts in the early years of implementation, before the LCFF was fully funded.⁶ Moreover, due to a lack of comprehensive school-level financial data, it is difficult to measure spending within districts or determine whether funds are reaching the students and schools with the highest need. It is important to note that LCFF funding levels are based on the share of high-need students in a district in order to provide additional funding for high-need students and to account for the additional challenges faced by districts with concentrations of high-need students. However, there are substantial differences in need across schools within most districts. An understanding of how money has been spent across schools, and what tangible school and classroom resources have been most affected, is essential to a complete picture of the impact of LCFF so far—and to any discussion of future reforms.

This report provides new statewide evidence on how school resources have been affected by LCFF; it also examines the extent to which these additional resources are reaching the highest-need students. Because school-level financial data is not reported by the CDE and is not consistently available for most California K–12 districts,⁷ I rely on public school financial and staffing records from the California Department of Education (CDE) to measure the resources available to school districts. I use these staffing records to document *school-level* changes in the educational environment, such as teacher-pupil ratios, teacher credentials and experience, and the availability of support staff. Finally, using staff demographic records and district-level salary schedules, I estimate salaries for individual teachers to generate estimates of school-level instructional expenditures.

I begin with an overview of the LCFF and a look at how school district spending was affected by the LCFF. I then examine the implications of the distribution of high-need students across schools and districts for the progressivity of LCFF supplemental and concentration funding. I follow this with an examination of educational resources at the school level, to shed light on how gaps in resources within districts have changed since the implementation of the LCFF. Importantly, these school-level measures provide new evidence on how school districts allocate resources across schools within the same district. Finally, I discuss some implications of these findings for K–12 finance policy in California going forward.

⁵For example, Jackson, Johnson, and Persico (2016) find that school finance reforms that increased spending in low-income school districts led to increases in education attainment and adult earnings; Lafortune, Rothstein, and Schanzenbach (2018) find that similar school finance reforms led to large but gradual increases in student achievement.

⁶ For example, see Roza, Coughlin, and Anderson (2017) and Alejandre and Massaro (2016) for studies of the within-district spending patterns in a handful of districts. Bruno (2018) and Johnson and Tanner (2018) also examine district spending outcomes over time, and how they have been affected by LCFF. Lee and Fuller (2019) examine staffing and other organizational changes in high- and low-poverty schools in response to LCFF.

⁷ The federal Every Student Succeeds Act (ESSA) requires California to maintain and submit school-level financial data as of the 2018–19 fiscal year. This new level of district accounting will generate more granular data, although it remains to be seen how useful these data will be for tracking sub-district spending.

Data sources and school-level spending limitations

This report uses a variety of data sources publicly provided by the California Department of Education (CDE). Financial data are reported at the district level through the Standardized Account Code Structure (SACS). The CDE maintains unaudited databases of district finances using this accounting system. These data allow for detailed accounting of revenue streams (e.g., federal, state General Fund, other state, and local) and spending categories (e.g., instructional, administrative, capital outlay).

While it can be helpful to understand changes in the various federal, state, and local revenue sources over time, this report focuses on educational expenditures to more concretely measure changes under the LCFF.

For all district-level financial outcomes I rely on the CDE SACS files. Annual average daily attendance (ADA) totals for each district are also included in the SACS files, which are used to construct per pupil measures.

In lieu of actual school-level spending data, I use publicly available staff files from the CDE to measure the staffing resources and corresponding costs at the school level. I then merge each certificated teacher record to her district's salary schedule, and estimate the salary of each teacher based on their education, credentials, and years of experience. For more information on the estimation of teacher salaries, see [Technical Appendix B](#).

Data sources and years of availability:

- District-level financial records:
 - SACS (2003–2017)
 - J-90 district salary schedules (1999–2017)
- Staffing datasets:
 - Staff FTE, demographics, and credentials files (2013–2017)
 - Professional Assignment Information Form (PAIF) records (1997–2012)
 - Staff assignment records (1997–2017)
- School-level demographic records:
 - Enrollment and racial/ethnic demographics (1982–2017)
 - School poverty: AFDC files (1988–2003), FRPM files (2004–2017), and UPC files (2013–2017)

Understanding School District Spending

The LCFF resulted in greater levels of funding, especially in districts with greater shares of high-need students, and gave districts increased flexibility in allocating these funds.⁸ In exchange for this flexibility, districts are required to adopt Local Control and Accountability Plans (LCAPs), in which they set goals and outline specific actions and funding that will help them achieve these goals.

Determining the extent to which spending increased in districts serving higher-need students is crucial to understanding the impact the LCFF. In this section, I examine district-level spending and staffing changes over the past 15 years to answer three questions: How are districts spending additional LCFF funding? Is district spending linked to the shares of high-need students? How has increased spending affected staffing resources districtwide?

⁸ Some of the categorical programs that have been eliminated under the LCFF were earmarked for the same high-need students targeted by LCFF supplemental and concentration grants.

The LCFF Provides Base, Supplemental, and Concentration Grants

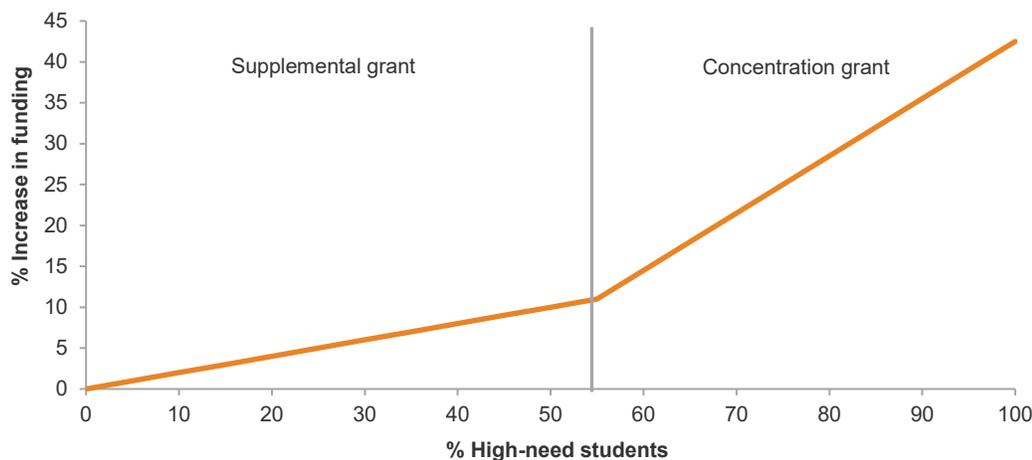
Under the LCFF, every district receives a base grant per unit of average daily attendance (ADA). Generally, these base grants increase in value for students in higher grades, though the K–3 base grant has been increased by 10.4 percent to allow districts to maintain (or make progress toward) average class sizes of 24 students or fewer per teacher in those grades.⁹ The base amount plus these adjustments and annual cost of living increases determine each district’s “adjusted base grant.”

Districts receive supplemental and concentration grants based on their shares of high-need students. These shares are determined by an “unduplicated pupil count” (UPC), which avoids double-counting students who fall into more than one high-need group (e.g., a low-income English Learner student). For every high-need student, a district receives 20 percent more than the adjusted base grant. This is the supplemental grant. Districts in which the total share of high-need students is above 55 percent receive an additional 50 percent of the base grant for each student above the 55 percent threshold. This is the concentration grant. Figure 1 shows these percentage increases in funding, relative to a district’s adjusted base grant.

For example, consider three hypothetical districts with different shares of high-need students. District A has a student body that is 25 percent high need. In District B the share of high-need students is 50 percent, and in District C it is 75 percent. Each district receives an adjusted base grant for each student. District A receives a supplemental grant that is 5 percent on top of the adjusted base grant, while District B, with double the share of high-need students, receives an additional 10 percent. District C, with a much larger share high-need students, gets both supplemental and concentration grants; the total amount of additional funding is 25 percent of the adjusted base grant.

FIGURE 1

Percent increase in funding provided by supplemental and concentration grants



SOURCE: California Department of Education; Author’s calculations.

NOTE: Figure shows the percent increase in base grant funding given a district’s unduplicated share of economically disadvantaged, English Learner, foster youth, and homeless students.

Districts are required to spend supplemental and concentration grants on services for their high-need students. However, this requirement is not without ambiguity. For example, it was initially determined that this funding

⁹ There are some exceptions to this if different class size targets are collectively bargained upon. See LAO (2013) for a detailed overview of the LCFF.

could not be used for across-the-board teacher salary increases; this rule was later reinterpreted and relaxed by the state superintendent of public instruction (Fensterwald 2015).

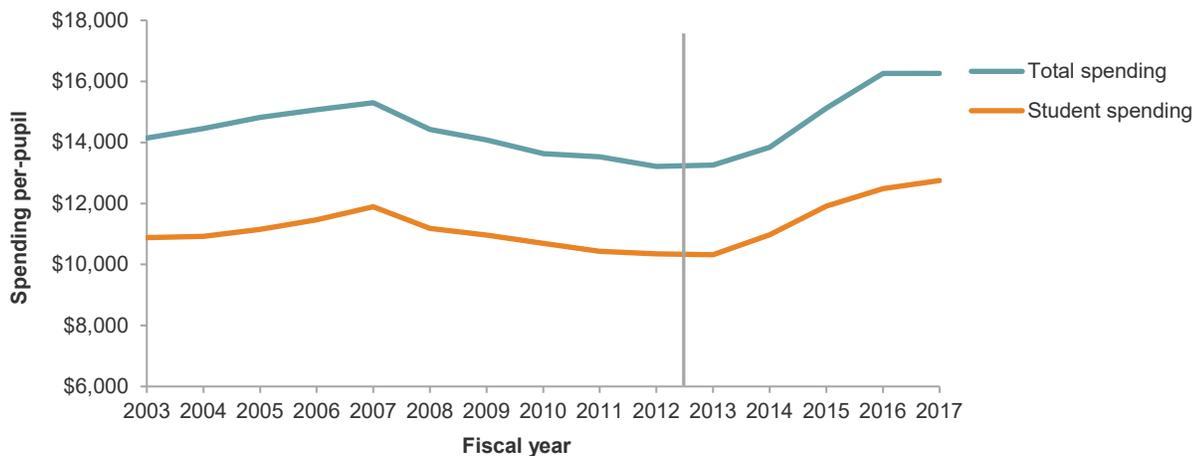
Spending Has Risen under the LCFF—Especially in High-Need Districts

Per pupil expenditures¹⁰ in California rose gradually in the early 2000s, but fell significantly during and after the Great Recession (Figure 2). Average spending was slightly below its 2003 level immediately prior to the introduction of LCFF in 2013–14; at that point, average spending rose quickly, surpassing its prerecession peak by 2016–17. In 2017–18, the average California district was spending more than \$16,000 per student. Roughly \$13,000 of that was student spending, which makes up about 80 percent of total district expenditures and excludes spending on capital construction and facilities, debt service, pre-K and adult education services, retiree benefits, and other non-agency expenditures.¹¹

Spending continued to increase following the introduction of the LCFF, as its funding formula was gradually implemented.¹² The California Department of Finance (DOF) originally estimated that an additional \$18 billion dollars would be needed to fully fund the LCFF. In the first year of LCFF implementation, the 2013–14 fiscal year, only \$2.1 billion was funded—12 percent of the pre-LCFF funding gap—and total funding was at 72 percent. Funding reached 90 percent of the targeted amount by 2015–16, 96 percent by 2016–17, and was fully funded as of 2018–19 (California Department of Education 2019).

FIGURE 2

Total and student spending increased following introduction of the LCFF



SOURCES: California Department of Education, SACS district finance data; Author’s calculations.

NOTES: Figure plots the yearly average total and student spending per pupil, in inflation-adjusted 2017 dollars. Averages are weighted by average daily attendance (ADA). Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

¹⁰ All expenditure data are reported on a per pupil basis, in order to facilitate comparisons between districts of different sizes.

¹¹ This definition of student spending follows the conventions of Bruno (2018).

¹² Prior to full implementation, districts received roughly the same amount of funding as they did prior to the LCFF, with an additional annual increase to close the gap with LCFF funding targets.

Some of the total increase in spending is attributable to Prop 98 and to increases in state revenues. To assess the impact of the LCFF, we need to understand the extent to which spending increases vary according to district need. It is helpful to split districts into three broad groups: those who receive little additional LCFF funding because they have low shares of high-need students (0%–30%), districts with higher shares of high-need students (30%–55%) that receive supplemental but not concentration grant funding, and districts with large shares of high-need students (>55%) that receive concentration grant funding.¹³ Statewide, the typical California student attends a district that is roughly 65 percent high need. Following the passage of the LCFF, average spending increased for all three district types, but it rose more sharply in the highest-need districts that received concentration grants (Figure 3).

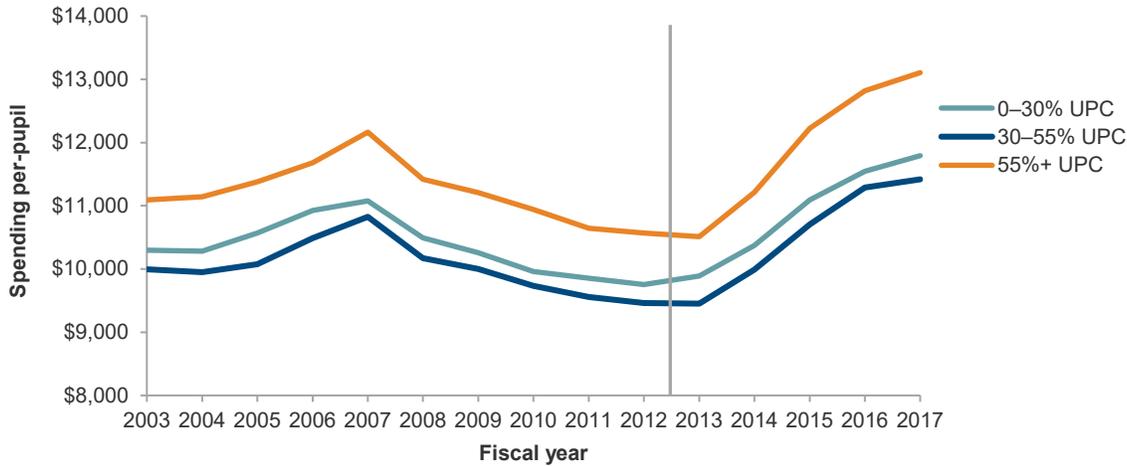
In the ten years before the LCFF was implemented, trends in student spending were very similar across all three types of districts. Notably, the highest-need districts spent about \$1,000 more per pupil than lower-need districts.¹⁴ But by 2017–18, after the LCFF was nearly fully funded, spending in the highest-need districts increased significantly more than it did in lower-need districts. The bottom panel of Figure 3 makes these patterns more visually apparent by comparing the average change in spending compared to a district’s level of per pupil student spending in 2012–13. Positive numbers indicate greater levels of spending than in 2012–13, while negative numbers indicate spending that was lower than in 2012–13.

¹³ While the 55 percent cutoff is explicitly included in the LCFF, the 30 percent threshold was chosen to separately examine spending changes between districts with very low shares of high-need students, and those with more moderate shares. Qualitative conclusions are very similar with different choices of cutoffs between the two groups of “lower-need” districts.

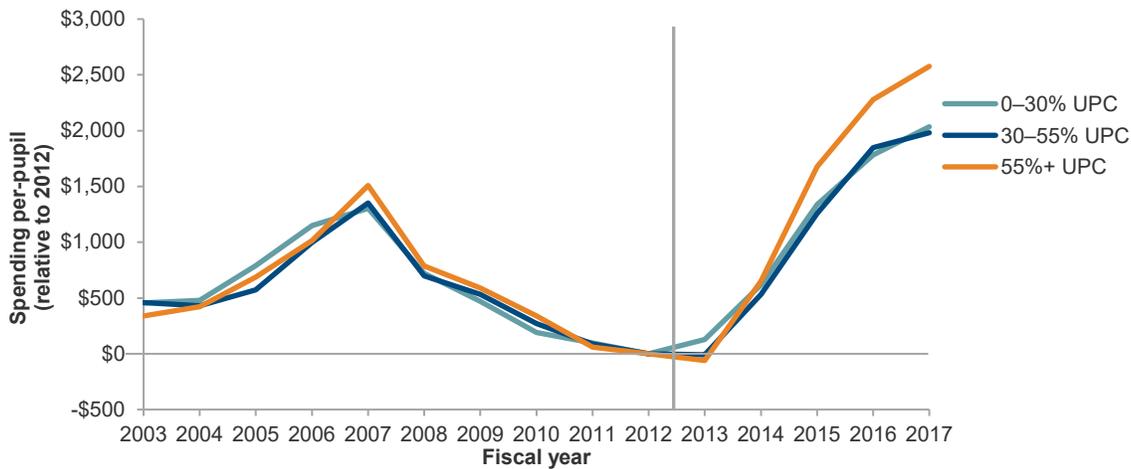
¹⁴ Many of the state categorical programs supported services for lower-income students. Federal categorical aid also targeted lower-income students and schools.

FIGURE 3

Under the LCFF, spending has increased in districts with all levels of need



Spending has increased more in higher-need districts relative to 2012–13 levels



SOURCES: California Department of Education, SACS district finance data; Author's calculations.

NOTES: Figure plots the yearly average student spending per pupil, in inflation-adjusted 2017 dollars. The top panel shows average spending, while the bottom panel shows average spending relative to districts' 2012 per pupil spending level. UPC refers to the "unduplicated pupil count" of economically disadvantaged, English Learner, foster youth, and homeless students in a district. Averages are weighted by average daily attendance (ADA). Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

We can distinguish the LCFF's effect on spending in higher-need districts from Prop 98 increases due to the improved state budget situation by comparing high- and low-need districts. On average, the share of high-need students in a typical low-need district (0–30% high need) is 20 percent, resulting in a 4 percent funding increase through supplemental grants. In contrast, the average high-need district serves a student body that is 72 percent high need, which results in a 23 percent funding increase through a combination of supplemental and concentration grants. Table 1 reports estimates of the average changes in spending in 2017-18, relative to district spending levels in 2012–13, before the passage of the LCFF.¹⁵

Between 2012–13 and 2017–18, total per pupil spending increased by \$3,202 in the highest-need districts, compared to \$2,629 in the lowest-need districts. In districts with more moderate shares of high-need students,

¹⁵ Estimates come from linear regression models that net out fixed differences between districts and years. [Appendix Table D1](#) reports analogous estimates in percentage terms, from regression models where dependent variables are in logs instead of levels. See [Technical Appendix C](#) for further detail on the empirical specifications.

spending increased by \$2,747. The difference between the increases in high- and low-need districts corresponds to increases directly attributable to the funding formula: the LCFF led to \$530 more in per pupil student spending in high-need districts.¹⁶ The estimated difference for moderate-need districts (30–55% high need) is slightly negative (-\$39), and is not statistically significant. Importantly, starting from an assumption of parallel trends in spending allows us to interpret these estimated relative changes as the *causal* effect of the funding formula.¹⁷

TABLE 1

Spending changes have been greatest for high-need districts, 2012–13 to 2017–18 (per pupil)

	Spending increase			Relative change	
	(1) Low need (0–30% UPC)	(2) Moderate need (30–55% UPC)	(3) High need (55%+ UPC)	(4) Moderate vs low need (30–55% vs 0–30%)	(5) High vs low need (55%+ vs 0–30%)
Total spending	\$2,629	\$2,747	\$3,202	\$118	\$573
Student spending	\$2,043	\$2,005	\$2,573	-\$39	\$530
Instructional salaries	\$691	\$626	\$658	-\$65	-\$32
Pupil services and support staff salaries	\$205	\$189	\$265	-\$16	\$60
Admin salaries	\$128	\$121	\$156	-\$7	\$28
Other staff salaries	\$112	\$93	\$129	-\$19	\$17
Staff benefits	\$572	\$579	\$763	\$7	\$191
Other student spending	\$336	\$397	\$601	\$61	\$266
Non-student spending	\$586	\$742	\$629	\$156	\$43

SOURCES: California Department of Education, SACS district finance data; Author’s calculations.

NOTES: Coefficients in bold are significant at the 5% level; those bold and italicized are significant at the 10% level. Table reports linear regression coefficients from equations (1) and (2) in [Technical Appendix C](#). UPC refers to the “unduplicated pupil count” of economically disadvantaged, English Learner, foster youth, and homeless students in a district. Averages are weighted by average daily attendance (ADA). Districts with ADA less than 250 are excluded. Districts with more than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions. See [appendix Table D1](#) for changes in percentage terms.

There were large increases in spending on instructional salaries across all districts, with small and insignificant differences between districts of differing need. On the other hand, there were statistically significant increases in pupil services and support staff salaries in all districts, with greater relative increases in high-need districts (\$60/student). Spending on school administration also increased in all districts, but it increased more in high-need districts (\$28/student). Benefits spending increased significantly in all districts, driven by increased staff expenditures and higher benefit costs. Other forms of student spending (such as professional development, instructional materials, and equipment replacement) also increased more in higher-need districts (\$266/student).

Taken together, these findings indicate that much of the increase in spending has been directed toward teachers and other staff, and that high-need districts increased their spending on instructional salaries by roughly as much as low-need districts: about \$658 per student versus \$690 per student. The data show that much of the *additional*

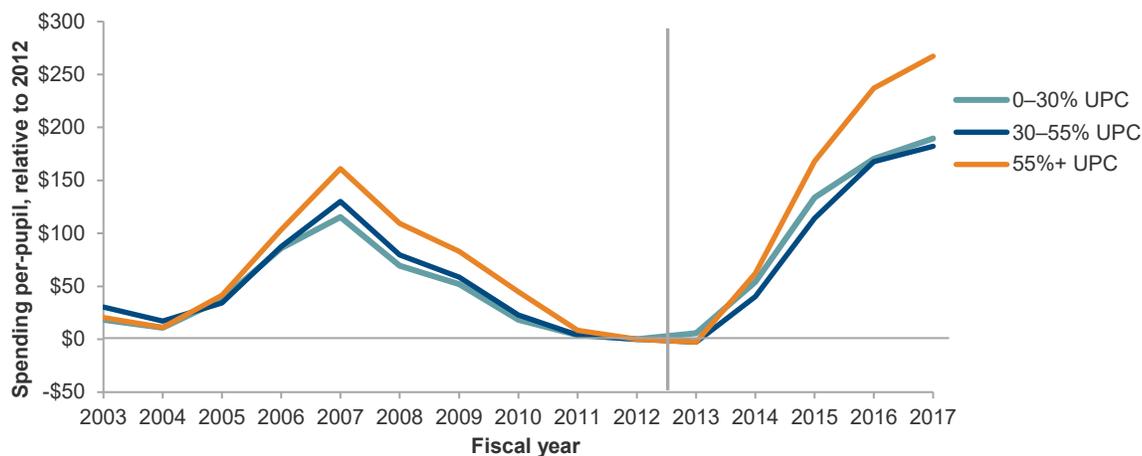
¹⁶ These comparisons of relative changes in the spending increases in high- and low-need (column 5), and moderate- and low-need (column 4) districts are what are often called difference-in-differences estimates of the effect of the LCFF on spending. Johnson and Tanner (2018) and Lee and Fuller (2019) employ a more generalized approach that relies on variation across the entire distribution of the funding formula. This empirical method, often referred to as “simulated instruments,” estimates the causal effect of an additional dollar of funding formula-induced spending. I focus here on the more straightforward difference-in-differences estimates for two reasons: first, this method produces more easily interpretable measures of spending changes that are allowed to differ between districts of different levels of need; second, this methodology requires no assumptions about the counterfactual evolution of K–12 revenues in the absence of the LCFF, which is complicated by the convoluted pre-LCFF system of school finance in California.

¹⁷ The near-perfectly aligned pre-LCFF spending trends previously shown in the bottom panel of Figure 3 provide strong evidence for the assumption of parallel trends.

LCFF funding received by high-need districts went toward salaries for pupil services and support staff (e.g., counselors, nurses, librarians, psychologists, and teachers’ aides), and other non-student expenditures (e.g., instructional materials). High- and moderate-need districts also saw larger increases in non-student spending, although these estimates are imprecise and not statistically significant.¹⁸

From 2011–12 to 2013–14, the level of spending on pupil services did not change much, and then increased significantly under the LCFF. The highest-need districts saw the largest increase: roughly \$270 per student. This increase is especially apparent in Figure 4, which plots the change in pupil services spending relative to 2012–13, the year before LCFF adoption. In districts with shares of high-need students under 55 percent, the increase was notable, but smaller: these districts saw an average increase of roughly \$180 per student. Prior to the LCFF, the ratio of students to pupil services staff members was similar in high-need and other districts. The decision by districts with more high-need students to spend more of their additional LCFF funding on pupil services and other support services probably reflects the differences in these students’ outside-of-the-classroom environment.¹⁹

FIGURE 4
Pupil services spending increased substantially in high-need districts



SOURCES: California Department of Education, SACS district finance data; Author’s calculations.

NOTES: Figure plots the yearly average pupil services salaries spending per pupil, relative to their 2012 spending levels, in inflation-adjusted 2017 dollars. Figure D1 in [Technical Appendix D](#) reports non-relative pupil services spending totals, by district UPC. UPC refers to the “unduplicated pupil count” of economically disadvantaged, English Learner, foster youth, and homeless students in a district. Averages are weighted by average daily attendance (ADA). Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

¹⁸ Non-student spending varies considerably across districts and within districts across years, affecting the statistical precision of regression estimates.

¹⁹ Indeed, staffing for support services like counselors, nurses, and psychologists was an issue in recent teachers’ strikes in Los Angeles and Oakland.

How Did Increased Spending Affect Staffing Resources?

In the decade prior to the LCFF, the pupil-teacher ratio actually increased, largely as a result of layoffs and a slowdown in teacher hiring during the recession.²⁰ In 2003, the highest-need districts had 19 students per teacher on average; the pupil-teacher ratio decreased to roughly 18.5 by 2007 and then rose above 20 by 2013, the first year of LCFF implementation. After 2013, the additional funding led to notable decreases in pupil-teacher ratios, with larger decreases in higher-need districts that received greater funding under LCFF.

The share of novice teachers (those with no more than three years of experience) in a district has also increased under the LCFF. Prior to the recession, 15 to 20 percent of teachers in a district were in their first three years of teaching, with slightly higher shares in higher-need districts. This share decreased substantially during and in the aftermath of the recession, as many districts slowed or ceased hiring and (mainly) laid off less-experienced teachers.²¹ Between 2012–13 and 2017–18, this share increased from just under 10 percent to 14 percent, 16 percent, and 18 percent in the low-, medium-, and high-need districts, respectively. Even if districts might prefer to hire more-experienced teachers,²² they are constrained by teacher shortages in many fields. Given these shortages, spending on teachers and improving pupil-teacher ratios often involves hiring new or inexperienced educators. Insofar as novice teachers are initially less effective, improvements in academic outcomes due to these expenditures may take time to materialize. Figure 5 illustrates the changes in the average number of pupils per teacher (top panel) and the average share of novice teachers (bottom panel) over this time period.

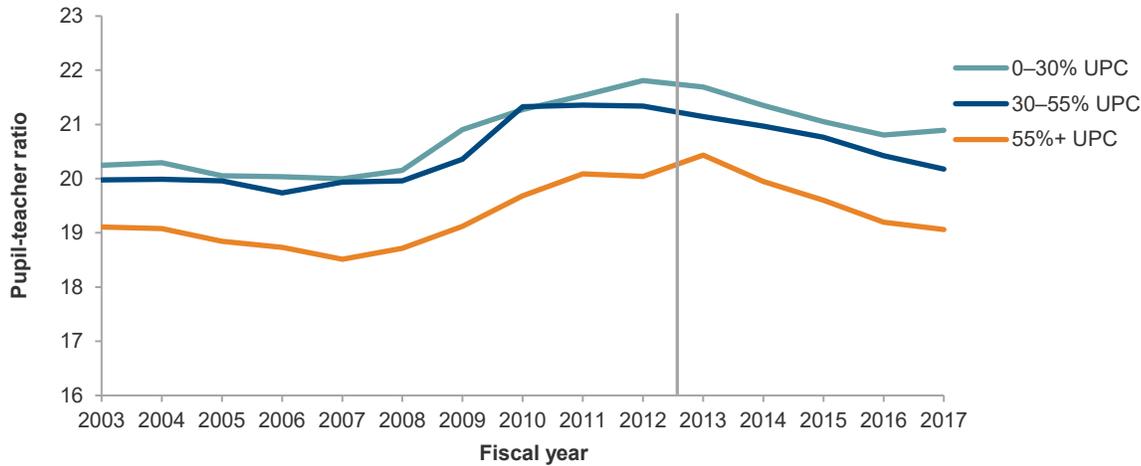
²⁰ The pupil-teacher ratio is computed as the number of students per FTE teacher unit at a district. It is a good proxy of class size, but it is not strictly equivalent to the average class size in a district.

²¹ District layoff decisions are based on a “first in last out” rule that protect teachers with greater seniority during times of financial hardship. This statewide rule was recently challenged in state court in *Vergara v. California*, but was not overturned.

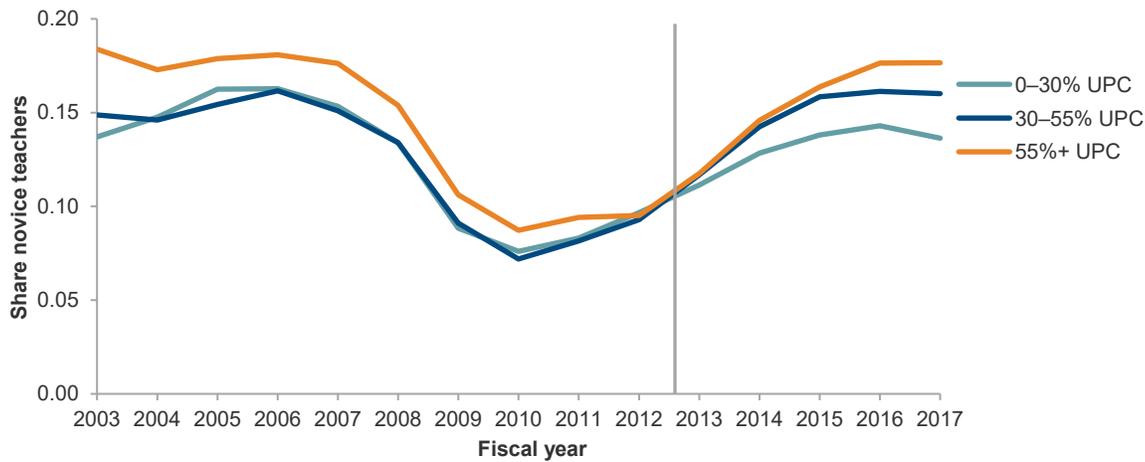
²² While we might expect that a district would prefer to hire the most experienced and qualified teachers, this is not always the case, especially when districts’ budgets are constrained: less-experienced teachers are less expensive to the district, and they often also easier to let go in times of economic difficulties.

FIGURE 5

Pupil-teacher ratios have decreased to pre-recession levels under the LCFF



The share of novice teachers has increased, particularly in high-need districts



SOURCES: California Department of Education, staff demographics and PAIF data files; Author’s calculations.

NOTES: Figure plots the yearly average pupil-teacher ratio and the average share of novice teachers in a district. The top panel shows mean pupil-teacher ratios, while the bottom panel the mean share of novice teachers, defined as teachers with no more than three years of experience. UPC refers to the “unduplicated pupil count” of economically disadvantaged, English Learner, foster youth, and homeless students in a district. Averages are weighted by average daily attendance. Districts with average daily attendance under 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

As can be seen in Table 2, pupil-teacher ratios decreased by just over 0.7 in districts that serve fewer than 30 percent high-need students, while these ratios decreased by 1.2 students per teacher in the highest-need districts. This translates to a decline of roughly 6 percent—a small but potentially meaningful change.²³ Estimates point to a slightly higher increase in the share of novice teachers (2 percentage points) and pupil support services staff (4 percentage points) in high-need districts, although only the former is statistically significant (at the 10% level). The share of certified teachers declined slightly in all districts. The number of students per pupil services staff member²⁴ also declined in both higher- and lower-need districts.

²³ For comparison, the Tennessee STAR experiment, the most highly studied class-size reduction policy, compared classrooms of 24 students per teacher to those with 16 students per teacher, an 8-student or 33% reduction in class size. Evaluations of the experiment found large effects on student test scores, see, for example, Krueger (1999). The change measured here is roughly 1/6 the size.

²⁴ This ratio defines “staff member” as full-time equivalent (FTE).

TABLE 2

District-level resource changes under the LCFF have been greater in high-need districts, 2012–13 to 2017–18

Staff resources	LCFF increase			Relative change	
	(1) 0-30% UPC	(2) 30-55% UPC	(3) 55%+ UPC	(4) 30-55% vs 0-30%	(5) 55%+ vs 0-30%
Pupil-teacher ratio	-0.7	-1.0	-1.2	-0.3	-0.5
Pupil-support FTE ratio	-56.9	-71.5	-56.6	-14.6	0.3
Mean teacher experience	-0.4	-1.0	-0.1	-0.6	0.2
Share certified teachers	-0.02	-0.02	-0.02	0.00	0.00
Share teachers with MAs+	0.03	0.00	0.01	-0.03	-0.02
Share novice teachers	0.05	0.08	0.08	0.02	0.02
Share novice support staff	0.06	0.10	0.09	0.04	0.04

SOURCES: California Department of Education, staff demographics and PAIF data files; Author’s calculations.

NOTES: Coefficients in bold are significant at the 5% level; those bold and italicized are significant at the 10% level. Table reports linear regression coefficients from equations (1) and (2) in [Technical Appendix C](#). UPC refers to the “unduplicated pupil count” of economically disadvantaged, English Learner, foster youth, and homeless students in a district. Averages are weighted by average daily attendance (ADA). Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

Notably, low-need districts saw a 3.2 percentage point (7%) increase in the share of teachers with a master’s or higher degree, while there was a less than 1 percentage point increase in the share of teachers with at least a master’s in higher-need districts. This relative decline in teacher education levels helps explain why high- and low-need districts have seen similar spending increases even though pupil-teacher ratios decreased more in higher-need districts. Along with the relative declines in the share of teachers with advanced degrees and increases in the share of novices, it implies that the newly hired teachers in high-need districts were slightly less educated and less experienced—and were therefore paid less—than the new teachers in lower-need districts. Higher-need districts may have spent more of their instructional dollars to hire a greater number of lower-paid staff because they had difficulties in recruiting experienced educators; or they may have a preference for lower-salaried educators.

Most of the increases in student spending under the LCFF have gone toward staffing—mainly instructional and support services. Comparing high-need and low-need districts provides evidence that the LCFF led to increases in district spending on support services that are proportionally greater than increases in instructional spending in high-need districts. Whether this is the best way to improve student outcomes and narrow achievement gaps will be an important question for future research. It will also be important to monitor the way LCFF grants are distributed across schools within districts, given that not all high-need students attend schools in high-need districts. In the next section, I look at the distribution of high-need students across and within districts and examine its implications for LCFF funding.

Targeting Student-, School-, and District-Level Need

As we have seen, LCFF supplemental and concentration grant funding is distributed at the district level: the overall level of district disadvantage—and not the student- or school-level disadvantage—is the sole determinant. However, while the typical California student attends school in a high-need district, there are many high-need students in low-need districts. Conversely, nearly half of the state’s non-high-need students are in high-need districts that receive concentration grants. To get a sense of whether LCFF funding is reaching all of the highest-

need students in the state, it is important to examine the distribution of high-need students across schools and districts of varying need. If we assume that districts spend roughly equally on their students, LCFF-induced spending increases are smaller for the average high-need student than the average high-need school or district. Of course, districts may be allocating additional funding to their highest-need students, as is required under the LCFF. Thus, these comparisons only serve as a baseline. Later on in the report, I will specifically examine the distribution of funding across schools within the same district.

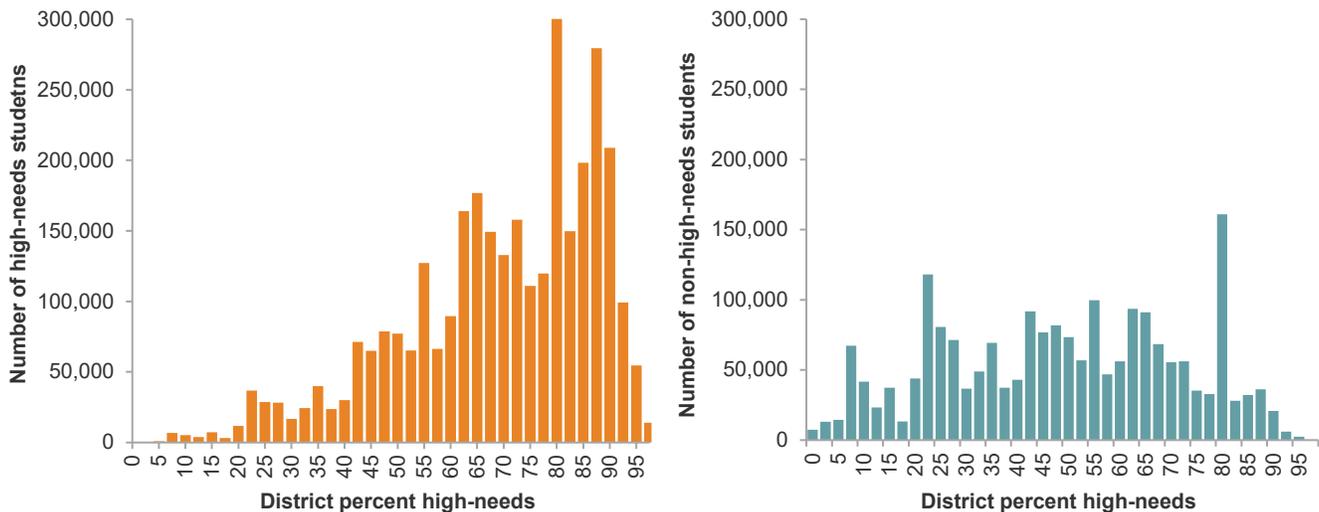
In this section I also examine gaps in the shares of low-income students in the highest- and lowest-income schools within a district. This echoes work from Hill and Ugo (2015), who identified many districts with large differences in student socioeconomic status across schools. These differences suggest that to fully understand the effects of LCFF on resources for the typical high-need student, we need to look at how districts—particularly those with higher levels of socioeconomic segregation—allocate resources across schools.

LCFF Increases Are Smaller for the Average High-Need Student than for the Average High-Need District

The question of school- and student-level need arises because there are tens of thousands of high-need students in low-need districts, and hundreds of thousands in moderate-need districts (Figure 6). In fact, while roughly 80 percent of the students in LAUSD are classified as high need, the district also has the largest total number of non-high-need students in the state.

FIGURE 6

Many high-need students are not in high-need districts, and high-need districts enroll many students who are not high-need



SOURCE: California Department of Education, Student UPC data; Author’s calculations.

NOTES: Enrollment is censored at 300,000 in the left panel; this only affects the bin that includes LAUSD (at 80%). Figure plots the distribution of high-need (left panel) and non-high-need (right panel) students by district share high-need. Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

To understand how LCFF supplemental and concentration grant funding targets student- and school-level need, we can examine the difference in spending between high- and low-need districts, schools, and students. To facilitate comparison over time, I use student eligibility for free or reduced price meals (FRPMs) in place of the

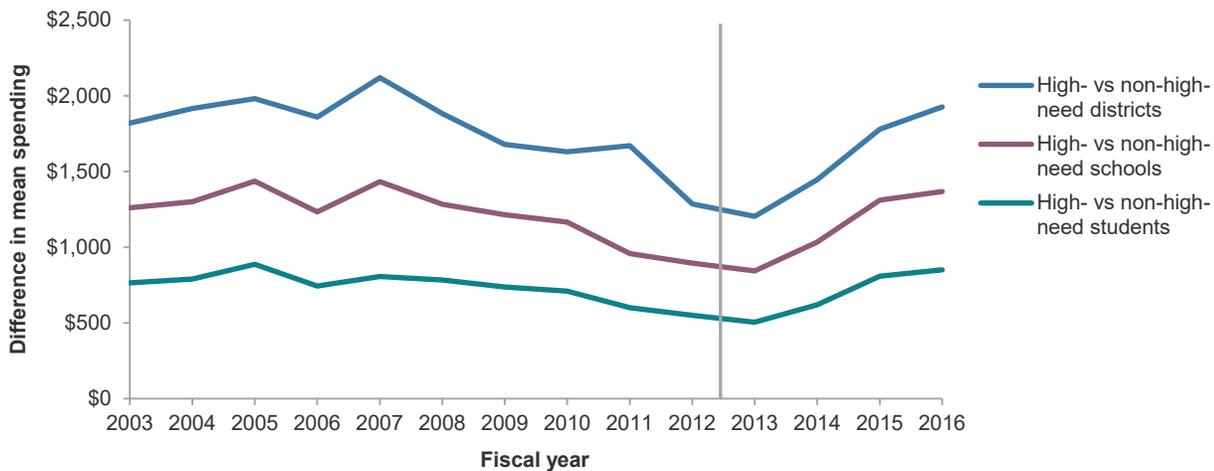
unduplicated share of high-need students, which was not measured prior to LCFF.²⁵ Because it is drawn from district-level spending data, the average difference in spending between high- and low-need schools, and high- and low-need students is *based on the spending levels in the district in which that school or student is located*. As noted above, this comparison is predicated on the assumption that districts spend a roughly equal amount on each student; it is a useful point of comparison as we examine the way districts actually allocate resources.

These spending differences are positive for all years, indicating that spending is generally higher in higher-need districts (Figure 7).²⁶ Notably, this difference fell by roughly 40 percent in the aftermath of the Great Recession: spending cuts were greater in more disadvantaged districts. In 2012–13 and 2013–14 high-need districts spent about \$1,250 more per student per year than low-need districts. By the 2017–18 fiscal year, this difference had grown by more than \$700 per student, to \$1,984. This relative increase is the direct result of the funding formula’s targeting of districts with greater student need.

However, spending increases are smaller for the typical high-need school and high-need student. For the typical high-need school, this relative increase is just over \$500, and for the typical high-need student it is only \$350. The reason for this attenuation of progressivity is that there are many high-need students in lower-need districts, and vice versa. It is important to note that this is an intentional feature of LCFF, partly meant to acknowledge that high-need students may be more costly to educate where there are greater concentrations of poverty. Thus, it may be more desirable to provide greater funding to districts with many high-need students, as opposed to districts with relatively few.

FIGURE 7

Spending differences are greater between high- and low-need districts than between high- and low-need schools or students



SOURCES: California Department of Education, SACS district finance data and Student Poverty FRPM data; Author’s calculations.

NOTES: Figure plots the difference in mean student spending between high- and low- need districts, schools, and students over time. District means are weighted by ADA, and student and school means are weighted by enrollment. Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

Socioeconomic Segregation within Districts Creates Poverty Gaps across Schools

Patterns of residential segregation often lead to notable differences in the income levels of different neighborhoods within the same school district. In turn, these result in differences in the socioeconomic makeup of

²⁵ The overwhelming majority of students classified as high-need under LCFF are eligible for free or reduced price meals, so this has little impact on the overall findings.

²⁶ Note that a positive difference indicates that high-need districts (or schools or students) have greater spending than low-need districts (or schools or students) in that year. A negative difference would indicate the opposite: that low-need districts are spending more than high-need districts.

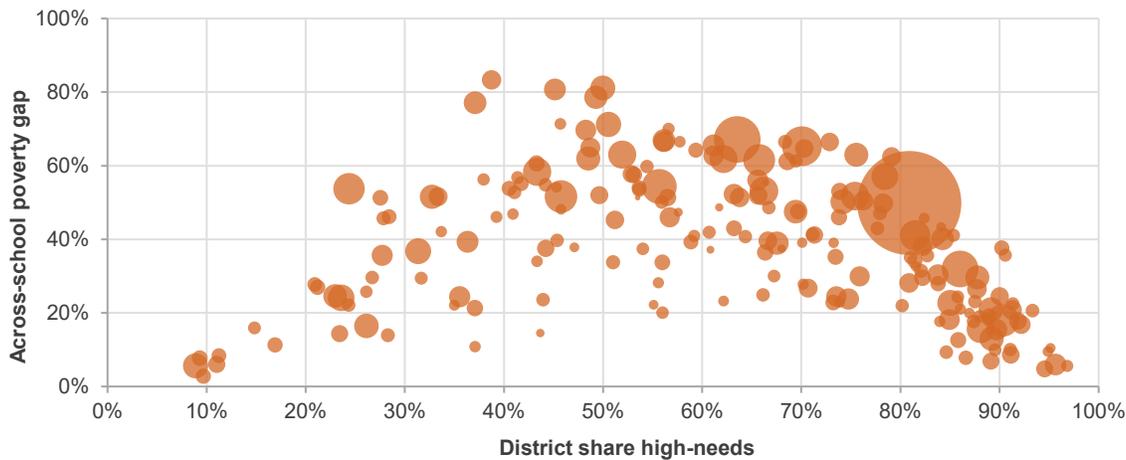
students at different schools in the same districts. To quantify the extent of these differences in districts with different levels of need, I compute the average difference in the school share of economically disadvantaged students²⁷ between the highest-poverty and lowest-poverty quartile schools in a district. Districts with very few schools will generally have low (or no) socioeconomic segregation, so I focus only those districts with at least 10 schools. In addition, because high schools serve student populations that are more representative of the district as a whole, I focus only on K–8 schools, so as not to compute gaps based on differences that are attributable to the size of the school.²⁸

In a district with 20 schools, this amounts to the difference between the five highest-poverty schools and the five lowest-poverty schools. A poverty gap of 0.5, for example, would indicate that the richest quarter of schools in a district have poverty levels that are 50 percentage points lower than the poverty levels in the poorest quarter of schools in that same district. Similarly, in a district with a poverty gap of 0.2, the richest quarter of schools have average rates of student poverty that are 20 percentage points lower than in the poorest quarter of schools in that same district.

Across all districts, the average gap is 43 percentage points, while the average is 51 percentage points for districts between 20 percent and 80 percent high-need, with many above 60 and even 70 percentage points. The “inverted U” shape in Figure 8 is partially driven by the fact that it is numerically impossible for districts with very large or very small shares of high-need students to have large gaps in poverty across schools. However, these gaps need not be large for districts with more moderate concentrations of student need. In the absence of socioeconomic segregation, a district with a 50 percent share of high-need students could have a gap of zero, with every school enrolling the same 50 percent share. In reality, no district with a share of high-need students between 20 percent and 80 percent has a poverty gap under 10 percentage points, and only a handful have gaps under 20 percentage points.

FIGURE 8

There are large income gaps between highest- and lowest-poverty schools in most districts



SOURCES: California Department of Education, Student FRPM and UPC data; Author’s calculations.

NOTES: Figure plots the gap in mean school share FRPM between the fourth and first quartiles of school FRPM within a district. District data points are weighted by ADA, with larger bubbles indicating greater ADA. Quartile means are weighted by enrollment. Districts with fewer than 10 schools are excluded. Quartile gaps are only computed for the schools serving grades K–8 in a district. Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. See [Technical Appendix A](#) for further detail on sample restrictions.

²⁷ Defined using the share of students eligible for free or reduced price meals.

²⁸ Results are very similar when high schools are included, as school grade spans are, on average, similar between the highest and lowest income quartiles in a district. See [Appendix Figure D2](#) for additional results where high schools are included.

Do districts with larger poverty gaps allocate resources differently across schools? Is LCFF supplemental and concentration funding going to the highest-need schools within districts, especially in more segregated districts? In the next section I grapple with these questions and provide new evidence on the distribution of school resources within districts using school-level staffing records.

How Are Districts Allocating Resources across Schools?

We have seen that basing LCFF funding on overall district need imperfectly targets high-need students. However, districts are required to “increase services or improve services for [high-need] students in proportion to the increase in supplemental and concentration funds” (LAO 2013, p. 6). Are districts progressively increasing spending across schools with different concentrations of student need?

The lack of comprehensive school-level spending data means we cannot answer this question using the typical financial information reported by districts. However, staff records can give us a partial picture of school-level spending. In a typical district, staffing makes up nearly 80 percent of student spending, and staff demographic records—including experience, education, and credentials—are available at the school level. I use these records, along with annual district salary schedules collected by the CDE, to estimate teacher-salary spending at the school level. I include only the districts in which salaries can be reliably estimated for more than 95 percent of the teachers.²⁹ Only 72 percent of districts meet this criteria; these districts serve 61 percent of the students in the state.³⁰

While teacher salaries are the largest single component of spending, they only account for roughly 35 percent of student spending in the average district.³¹ To get a more complete view of school resources, I also look at other staffing patterns, including teacher-pupil ratios, teacher experience and education, and pupil services support staffing levels. Together, these data provide new insights on how LCFF has affected spending and resources at the school level, and whether additional resources are reaching the highest-need students and schools.

Resource Gaps Are Larger in Districts with Greater Socioeconomic Segregation

Both high-need and low-need districts spend relatively more on teachers in their higher-need schools.³² But only about 13 percent of students statewide attend either low-need schools in high-need districts or high-need schools in low-need districts. Moreover, the magnitude of school-level poverty differences varies across districts.

To gain a more complete understanding of how resources are distributed across schools in the same district, we need to look at how poverty differences affect a district’s spending patterns. In other words, are gaps in spending and resources between high- and low-need schools in the same district linked to the level of socioeconomic segregation in a district?

²⁹ I cannot reliably estimate salaries for all teachers or all districts due to incomplete data and other limitations. These are detailed in [Technical Appendix A](#).

³⁰ The discrepancy between the number of districts in the salary sample and the share of student enrollment covered is partly explained by the exclusion of LAUSD due to its low match rate. For more information on this process, see [Technical Appendix B](#).

³¹ Other staff salaries, such as support staff and administrators, make up another 24 percent of student spending. Employee benefits comprise roughly 20 percent.

³² See [technical appendix Figure D6](#) for teacher spending per pupil over time in high- and low-need schools and districts.

To address this question, we can compare the pupil-teacher ratios, average teacher salaries, and per pupil teacher-salary spending of the highest- and lowest-poverty schools in a district. We can then compare districts with larger or smaller across-school poverty gaps to see how differences in school resources within a district are related to the socioeconomic segregation of students. For example, a gap of 0 indicates no difference in the pupil-teacher ratios at the highest- and lowest-poverty schools in a district, while a gap of -1 indicates that pupil-teacher ratios are, on average, 1 point lower in the highest-poverty schools than in the lowest-poverty schools.

There is a strong relationship between socioeconomic segregation across schools and differences in average teacher salaries and pupil-teacher ratios: the more segregated a district's schools, the larger the differences (Figure 9). Districts with more segregation tend to have much lower pupil-teacher ratios in their highest-poverty schools. In contrast, in districts with small poverty gaps—that is, a similar share of disadvantaged students across most schools—there is essentially no difference in pupil-teacher ratios.

The same is true for teacher salaries. The gap in average salaries between the highest- and lowest-poverty schools is linked to the difference in poverty across a district's schools. In districts with poverty gaps of 50 percentage points, the average teacher in the highest-poverty schools has roughly two fewer years of experience and is paid nearly \$2,000 less than the average teacher in the lowest-poverty schools. At the same time, there are two fewer students per teacher in the highest-poverty schools than in the lowest-poverty schools. This combination of lower student-teacher ratios and lower pay suggests that districts face a quantity vs. quality tradeoff, especially where there are large differences in poverty across schools.

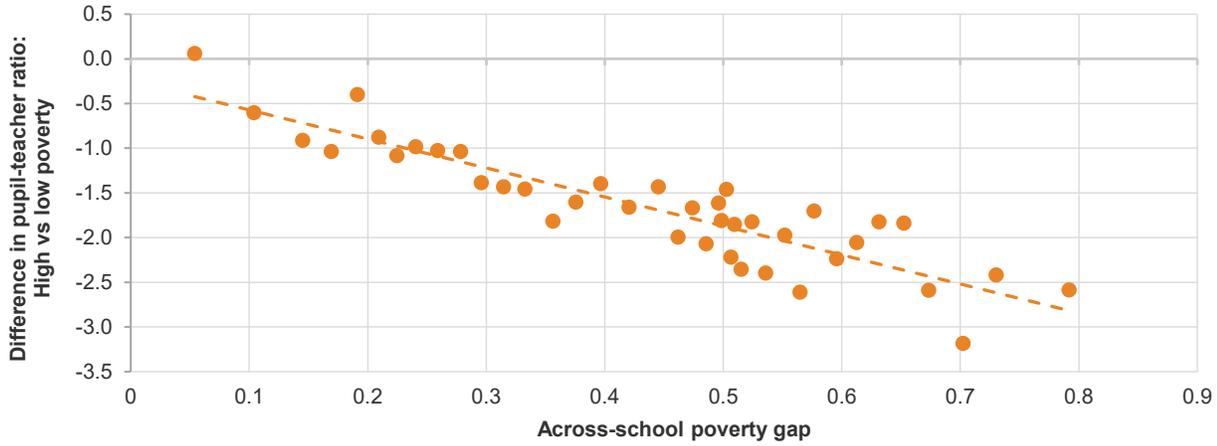
How does this play out in terms of overall per student spending on teacher salaries? Spending on teachers is roughly equivalent in non-segregated districts, while districts with large poverty gaps of 50 percentage points spend about \$250 more on teachers per student (Figure 9).

Overall, districts with large differences in socioeconomic status across schools spend slightly more on teachers in schools with higher shares of high-need students. Importantly, this spending comparison obscures differences in the average pay of teachers and the number of students per teacher in these schools. Higher-poverty schools have more teachers, but these teachers are paid less than their counterparts in the wealthier schools in the same district. These gaps are driven primarily by differences in experience and education, which are the primary determinants of teacher salaries in almost every school district. Pupil services staff are more equally distributed, even in highly segregated school districts.³³

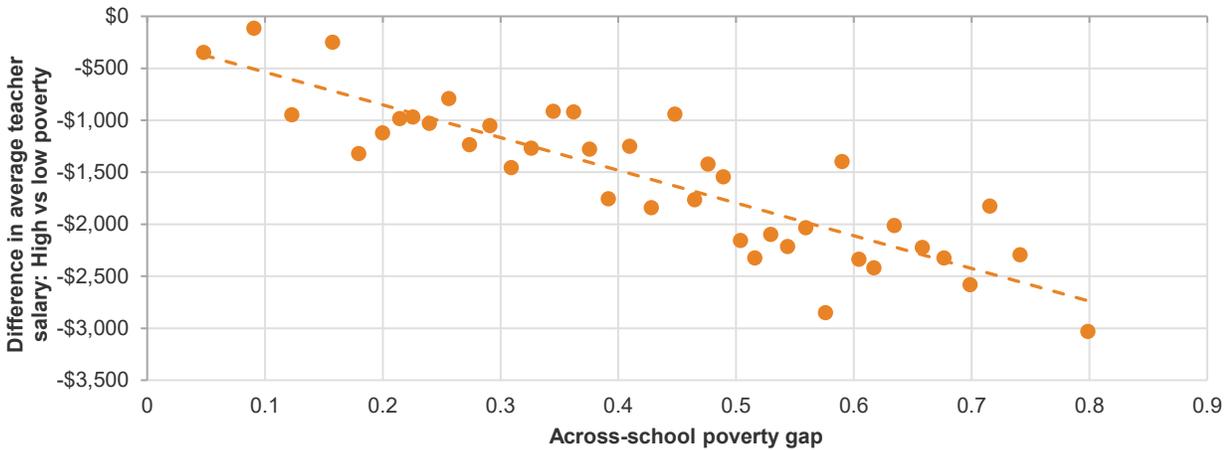
³³ See [Technical Appendix D](#) for these additional results.

FIGURE 9

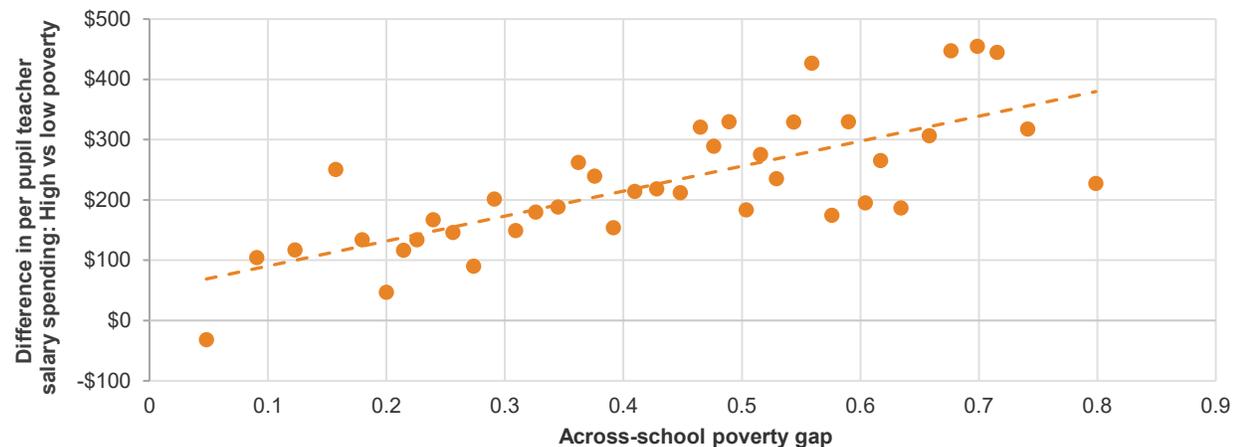
Pupil-teacher ratios are lower in higher-poverty schools in districts with more socioeconomic segregation



Mean teacher salaries are lower in higher-poverty schools in more-segregated districts



Districts with larger poverty gaps progressively allocate total teacher spending across schools



SOURCES: California Department of Education, staff demographics files, PAIF data files, student FRPM and UPC files, and J-90 files; Author's calculations.

NOTES: Each dot includes multiple districts and represents an equal number of students. Dashed lines show the best linear fit. Figure plots the difference in pupil-teacher ratio (top panel), mean teacher salary (middle panel), and per pupil teacher salary spending (bottom panel), between in the highest- and lowest-poverty quartile schools in a district, relative to the mean difference in school poverty between the highest- and lowest-poverty quartile schools in a district. Quartile means are weighted by enrollment. Districts with fewer than 10 schools are excluded. Quartile gaps are only computed for the schools serving grades K-8 in a district. Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. In panel C, districts with a salary match less than 95% are excluded. See [Technical Appendix A](#) for further detail on sample restrictions, and [Technical Appendix B](#) for detail on the estimation of teacher salaries.

The LCFF Has Not Changed the Distribution of Funding within Districts

Most districts have a moderate degree of socioeconomic segregation across schools,³⁴ including many of the districts that receive substantial funding increases under LCFF: districts with student populations that are between 30 percent and 55 percent high-need have an average poverty gap of 51 percentage points, while districts in which more than 55 percent of students are high need have an average poverty gap of 44 percentage points. In this section I examine how resource gaps within districts (defined in the previous section) have changed over time, and whether these gaps have changed under the LCFF. I first compare these trends for districts with different levels of student poverty, which experienced varying changes in funding due to LCFF. I also compare poverty gaps over time across districts with varying levels of socioeconomic segregation.

In 2017, per student spending on teacher salaries was about \$200 higher in the highest-poverty schools than in the lowest-poverty schools in both high- and low-need districts (Figure 10). In districts with more moderate shares of high-need students (between 30% and 55%) the difference is larger: these districts spend nearly \$400 more per student in their highest-poverty schools. These larger differences are due to larger gaps in poverty across schools in these districts. In other words, districts spend more (per pupil) on teacher salaries in their highest-poverty schools if there are larger gaps in student poverty across schools.

Whether we look at district-level student need or district-level socioeconomic segregation, there is little meaningful change under the LCFF in the distribution of teacher spending across schools of differing need in a given district (Figure 10). This does not mean that districts are not spending LCFF funding on their highest-need students, or that they are spending this money equally across schools with different levels of student need. What it does mean is that districts with poverty gaps across schools spend more on the schools that serve the most high-need students.

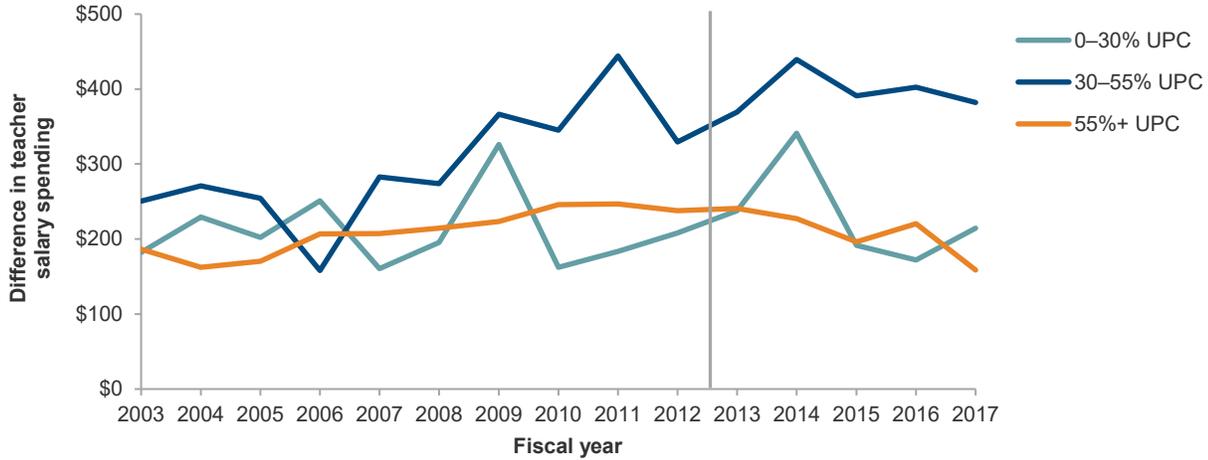
And yet, this progressivity is small in scope—the difference is only around \$200-300 per student. Are districts spending more LCFF funding in their highest-need schools on other services? In terms of pupil services and other support staff, this does not appear to be the case: there are more pupil services and other support staff in the highest-poverty schools but this was also true prior to the LCFF, and the distribution of support staff across schools has changed little since the last recession (See [technical appendix Figure D5](#)).³⁵ Moreover, these distributions have not changed much over time. Overall, I find that districts are staffing schools virtually the same way they did before the LCFF: higher-poverty schools get more teachers who are lower paid, resulting in only slightly higher teacher spending (per student) in higher-poverty schools.

³⁴ Recall that here we are only focusing on districts with 10 or more schools; districts with few schools tend to have more homogeneous demographics across schools.

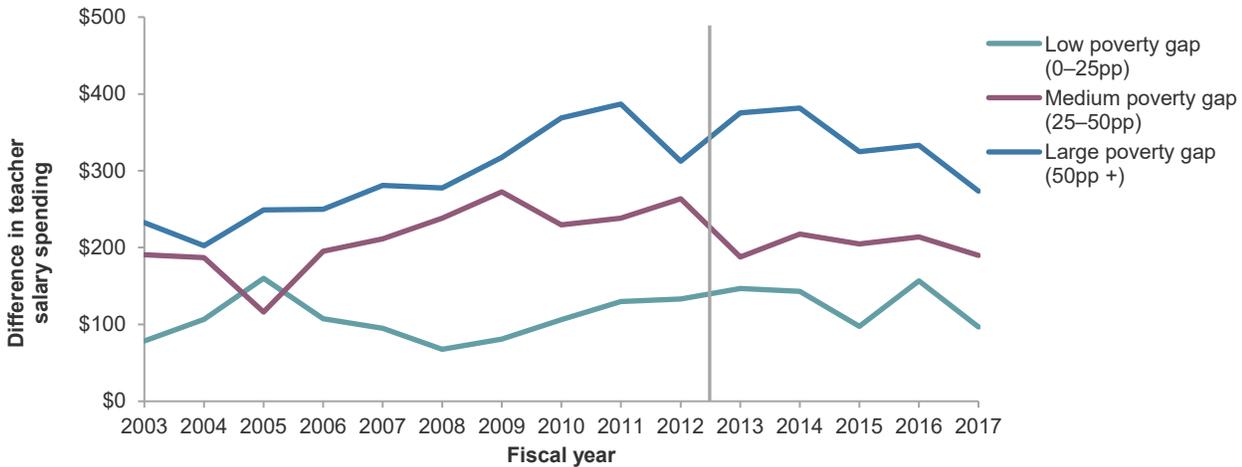
³⁵ Analogous figures for pupil-teacher ratios and average teacher salaries are also included in [Technical Appendix D](#) and show similar patterns as in Figures 9 and 10: higher-poverty schools in a district have lower paid teachers, but higher staffing and smaller class sizes.

FIGURE 10

Within-district teacher spending differences are similar over time in high-need and non-high-need districts



Within-district teacher spending differences are similar over time in more- and less-segregated districts



SOURCES: California Department of Education, staff demographics files, PAIF data files, student FRPM and UPC files, and J-90 files; Author's calculations.

NOTES: Figure plots the difference in mean per pupil teacher salary spending between the highest- and lowest-poverty quartile schools in a district, by district share high-need (top panel) or by district across-school poverty gap (bottom panel). Quartile means are weighted by enrollment. Mean district differences are weighted by ADA. Districts with fewer than 10 schools are excluded. Quartile gaps are only computed for the schools serving grades K-8 in a district. Districts with ADA less than 250 are excluded. Districts with greater than 500% or less than 20% of California mean spending per pupil are excluded. Districts with a salary match less than 95% are excluded. See [Technical Appendix A](#) for further detail on sample restrictions, and [Technical Appendix B](#) for detail on the estimation of teacher salaries.

The fact that this distribution hasn't changed much over the past 15 years suggests that, at least when it comes to instructional and support staffing, districts may be constrained in their ability to distribute resources across schools. Attracting and retaining highly qualified educators remains a challenge, and schools serving more disadvantaged students report greater difficulties in adequately staffing classrooms (Darling-Hammond et al. 2018). In addition, if teachers can easily move from school to school within a district and tend to prefer lower-poverty schools, staffing challenges at high-poverty schools may be exacerbated.

Policy Takeaways

Since the introduction of the LCFF in 2013–14, student spending has increased substantially across California's K–12 districts. High-need districts received the greatest increase in revenues due to the more progressive state funding formula. This led to higher staffing expenditures and lower pupil-teacher ratios in these districts, relative to districts with fewer high-need students.

However, because LCFF funding is based on overall district-level need, it imperfectly targets high-need students statewide. While the LCFF led to roughly \$700 more in per pupil student spending in high-poverty relative to low-poverty districts, this relative increase was only one-half as large at the student level: the increase in student spending per disadvantaged student was roughly \$350 higher than the increase for each non-disadvantaged student. Nevertheless, such targeting may still be preferred if policymakers wish to target high-need students in districts with more concentrated poverty.

Importantly, most districts also have large gaps in the levels of student poverty across schools. While the LCFF requires that districts allocate this funding based on student need, there are no clear standards and little to no regulation of districts' spending choices. Concerns that districts, particularly those with larger gaps in poverty across schools, are not distributing LCFF dollars where they are most needed underlie recent calls to reform the LCFF's accountability policy.

More money is reaching high-need districts due to LCFF, and those districts spend slightly more of that funding in schools with greater need. While the distribution of spending within districts has not gotten more progressive, the districts most affected by LCFF increases spend about \$250 more per student on teachers in their highest-need schools, relative to their lowest-need schools. High-need schools have smaller pupil-teacher ratios, but they also have lower-paid, less experienced teachers; the impact of this approach on student outcomes remains to be seen. Future policies that help to alleviate teacher shortages or provide additional funding and incentives for districts to hire and retain qualified staff in their highest-need schools may help districts better spend educational resources where they are needed the most.

It is crucial to note that districts are constrained in their choices; hiring and retaining high-quality staff is difficult, especially in schools with more disadvantaged students. Staff salaries and benefits account for about 80 percent of student spending, on average, leaving few other spending levers districts can pull. Rising pension costs and pressure from teachers' unions to make up for salary stagnation mean that districts' budgets will face growing constraints on their ability to provide resources for high-need students.³⁶ Declining enrollments will also create new costs and challenges in districts that will be forced to downsize.

³⁶ See Koedel and Gassmann (2018) for a recent overview of the issues surrounding pension costs in California's public schools.

The LCFF is now fully funded, and interest in its effects on student outcomes and achievement gaps continues to grow. The findings in this report suggest that it may take time for returns to fully materialize, as newly hired staff gain experience and become more productive.³⁷ In the meantime, we need a better understanding of the ways funding has been used to effect changes in the educational environment of high-need students. Looking forward, new school-level spending data required under the federal Every Student Succeeds Act (ESSA) will provide important new information and suggest avenues of inquiry. But it is unclear whether these new data will be accurate enough to provide a complete picture of whether spending is reaching the students and classrooms intended by LCFF.

The analyses here have shown that districts generally do provide additional resources to their higher-need schools, although these differences are relatively modest. More importantly, this is only true *on average*; it need not be the case across all districts. Future efforts to collect and combine new and existing data to continuously monitor how districts allocate resources could go a long way to improve the efficacy of California's system of school funding.

³⁷ Some recent research has argued that funding in California's schools is still inadequate, and far below estimates of the cost of providing all students an adequate education (Levin et al. 2018). To the extent that this is true, LCFF funding increases may not fully deliver on expectations.

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