



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

Funding California Schools When Budgets Fall Short

Technical Appendices

CONTENTS

Appendix A. Supplemental Tables and Figures

Appendix B. Reserves Regression Estimates

Appendix C. Data Sources

Appendix D. Selected Results Excluding LAUSD

Julien Lafortune, Radhika Mehlotra, and Jennifer Paluch

Supported with funding from the Dirk and Charlene Kabcenell Foundation

Appendix A. Supplemental Tables and Figures

TABLE A1

Large differences occur across districts in Great Recession spending declines

	Quartile 1 (least affected)	Quartile 2	Quartile 3	Quartile 4 (most affected)	Overall
Student spending pp, 2007–08	\$11,226	\$11,021	\$11,087	\$13,294	\$11,834
GR Spending cut ('07 vs '12)	-\$629	-\$1,349	-\$1,709	-\$2,095	-\$1,477
GR Spending cut (cumulative, '08 thru '12)	-\$2,817	-\$5,251	-\$6,026	-\$7,975	-\$5,676
Percent Free/ Reduced Price Meals	44.7%	44.1%	50.8%	60.3%	50.7%
Percent Asian	8.8%	10.9%	8.3%	7.1%	8.7%
Percent African American	6.4%	6.6%	6.8%	8.8%	7.3%
Percent Hispanic/Latino	43.0%	44.9%	48.8%	57.2%	49.1%
Percent White	34.4%	30.0%	28.5%	21.4%	28.0%
Percent English Learner	21.4%	22.9%	23.6%	29.7%	24.9%
Enrollment	16,671	21,827	24,123	257,342	98,714

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTES: Weighted averages shown for all districts and for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources. See Technical Appendix D for analogous tables excluding LAUSD.

TABLE A2

Pre-recession reserve levels varied considerably and were lower in more disadvantaged districts

	Q4 (highest reserves)	Q3	Q2	Q1 (lowest reserves)	Overall
Student spending pp, 2007–08	\$11,542	\$11,142	\$11,389	\$13,257	\$11,838
GR Spending cut ('07 vs '12)	–\$1,174	–\$1,440	–\$1,558	–\$1,728	–\$1,477
GR Spending cut (cumulative, '07 to '12)	–\$4,285	–\$5,302	–\$6,079	–\$6,855	–\$5,639
Total GF reserves	\$2,650	\$1,737	\$1,378	\$1,130	\$1,719
Unrestricted GF reserves	\$2,174	\$1,205	\$768	\$465	\$1,148
ARRA funding, pp (5-year total)	\$782	\$791	\$867	\$1,156	\$901
Percent Free/ Reduced Price Meals	50.7%	48.5%	47.8%	56.2%	50.8%
Percent Asian	5.8%	9.5%	11.8%	7.7%	8.7%
Percent African American	7.6%	6.7%	6.6%	8.5%	7.3%
Percent Hispanic/Latino	47.5%	47.3%	42.8%	58.4%	49.1%
Percent White	32.0%	28.7%	30.9%	20.7%	28.0%
Percent English Learner	23.2%	24.2%	24.5%	27.7%	24.9%
Enrollment	15,358	20,331	32,944	320,176	98,121

SOURCES: SACS district financial data, CDE school enrollment files; authors' calculations.

NOTES: Averages are weighted by district average daily attendance (ADA). Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources. See Technical Appendix D for analogous tables excluding LAUSD.

TABLE A3

Great Recession effects and 2007–08 reserve levels, by student demographics

	Low-income	Non-low-income	Asian	African American	Latino	White	EL
Student spending pp, 2007–08	\$12,251	\$11,493	\$11,679	\$12,414	\$12,192	\$11,371	\$12,222
GR Spending Loss, 2007-08 vs 2012–13	–\$1,551	–\$1,406	–\$1,419	–\$1,535	–\$1,536	–\$1,399	–\$1,550
Total GF reserves, 2007-08	\$1,766	\$1,680	\$1,570	\$1,720	\$1,748	\$1,731	\$1,772
Unrestricted GF reserves, 2007–08	\$1,139	\$1,160	\$1,050	\$1,106	\$1,119	\$1,237	\$1,130
District Enrollment	133,543	68,693	65,980	145,897	140,143	46,668	133,004
N Districts	699	690	701	701	701	701	699

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTE: Weighted averages for each student demographic group are based on district enrollment. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

TABLE A4

Great Recession spending cuts, reserves, and ARRA funding, by district ADA

	ADA<250	ADA 250–500	ADA 500–1K	ADA 1K+
Student spending pp, 2007–08	\$17,757	\$13,152	\$12,315	\$11,207
GR Spending cut ('07 vs '12)	\$353	–\$1,735	–\$1,604	–\$1,383
Total GF reserves	\$13,157	\$3,900	\$3,363	\$1,967
Unrestricted GF reserves	\$12,003	\$3,453	\$2,977	\$1,481
ARRA funding, pp (5-year total)	\$1,143	\$951	\$710	\$722
Percent Free/ Reduced Price Meals	52.2%	53.6%	50.4%	46.9%
Percent Asian	2.5%	2.2%	2.8%	7.3%
Percent African American	3.2%	1.9%	2.7%	4.7%
Percent Hispanic/Latino	25.9%	36.8%	32.5%	43.2%
Percent White	64.1%	52.6%	54.5%	37.1%
Percent EL	16.6%	21.5%	18.5%	22.5%
Enrollment	168	437	816	10,899

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTES: Unweighted averages are reported in inflation-adjusted 2018 dollars. Districts with zero ADA are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

TABLE A5

Reserves and spending by student demographic group, 2018–19

	Low-income	Non-low-income	Asian	African American	Latino	White	EL
Student spending pp, 2018–19	\$14,109	\$13,067	\$13,289	\$14,335	\$14,083	\$12,954	\$14,000
Total GF reserves, 2018–19	\$3,008	\$2,681	\$2,672	\$2,912	\$3,017	\$2,704	\$2,927
Unrestricted GF reserves, 2018–19	\$2,556	\$2,242	\$2,169	\$2,429	\$2,576	\$2,282	\$2,469
District Enrollment	105,104	53,500	57,159	124,588	105,211	50,979	87,216
N Districts	691	691	691	691	691	691	691

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTE: Weighted averages for each student demographic group are based on district enrollment. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

TABLE A6

Additional financial and enrollment characteristics, by Great Recession spending cut

	Q1 (Least affected)	Q2	Q3	Q4 (Most affected)	Overall
GR Spending cut, in % ('07 vs '12)	–5.8%	–12.4%	–15.6%	–16.2%	–12.5%
GR Revenue cut, in % ('07 vs '12)	–10.1%	–13.4%	–15.2%	–14.3%	–13.2%
GR Revenue cut, in \$ ('07 vs '12)	–\$1,228	–\$1,630	–\$1,772	–\$1,948	–\$1,659

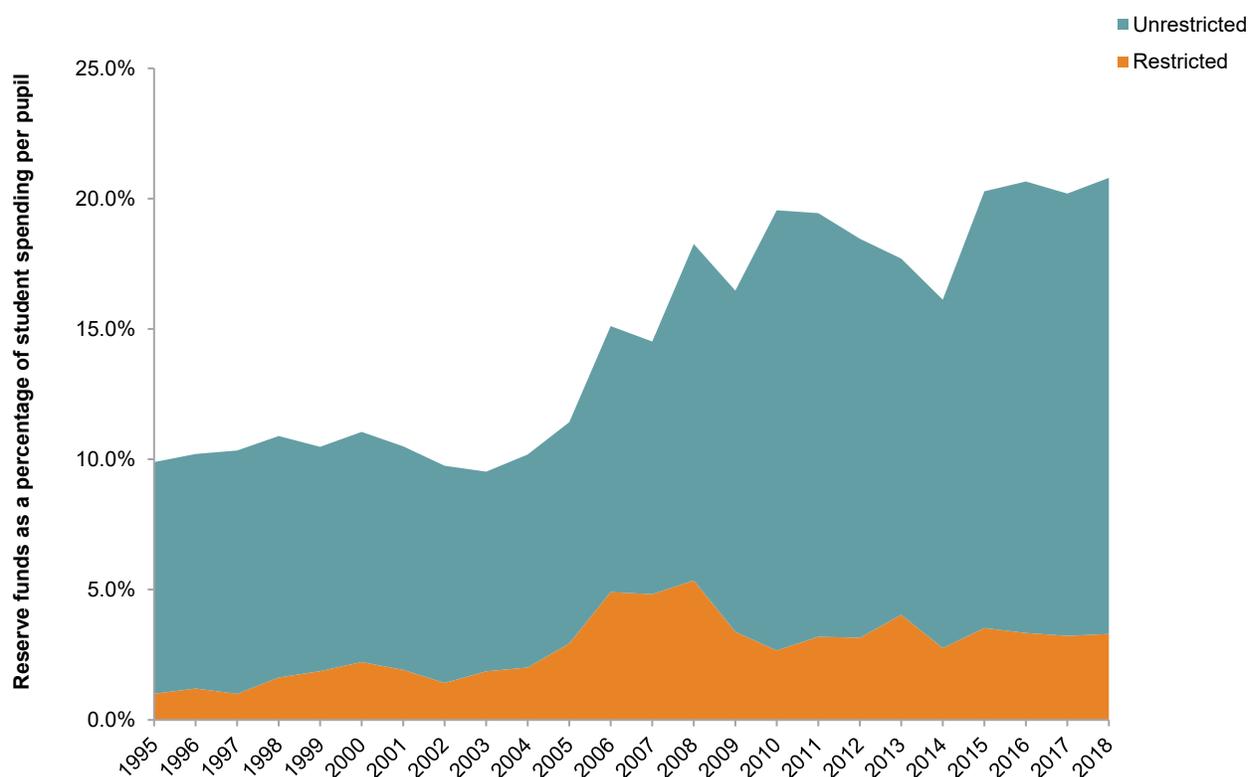
GR Revenue cut (cumulative, '07 to '12)	-\$4,038	-\$5,146	-\$6,071	-\$6,159	-\$5,362
Share of funding restricted (from state)	21%	21%	21%	26%	23%
Share of funding restricted (all)	34%	34%	35%	41%	36%
Whether declining enrollment (2002–2007)	52%	50%	33%	75%	56%

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTES: Weighted averages shown for all districts and for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A1

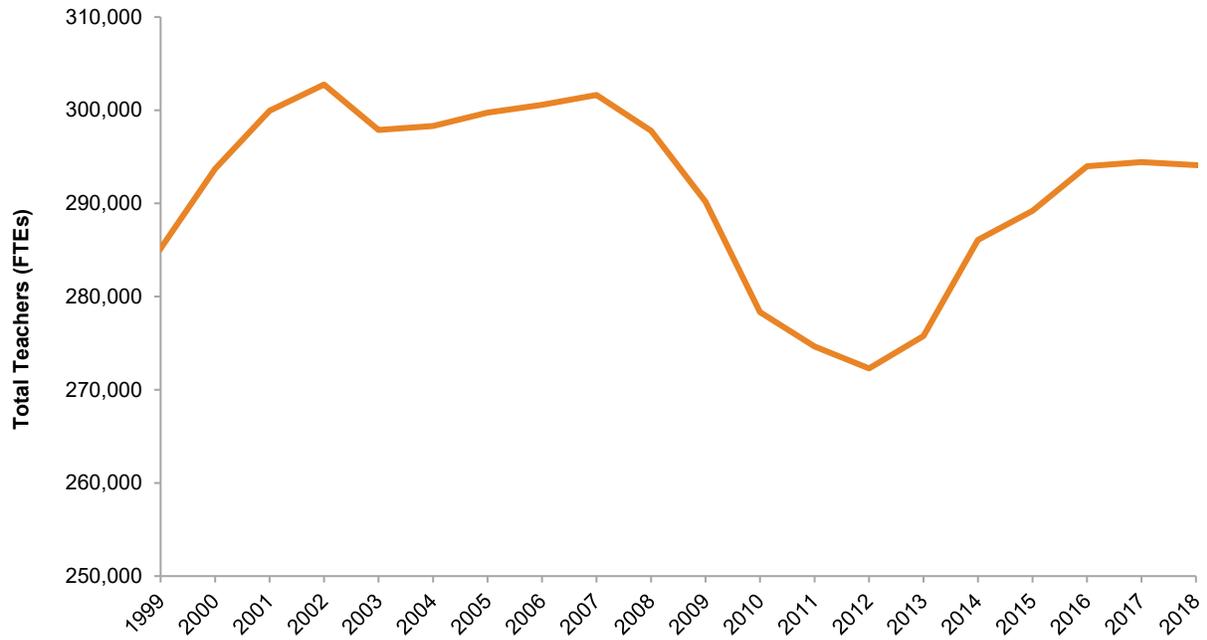
District reserves time series, by share of general fund expenditures



SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Only reserves in a district's general fund or special fund for non-capital projects are included. Averages are weighted by district average daily attendance (ADA). Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A2
Teaching FTEs time series

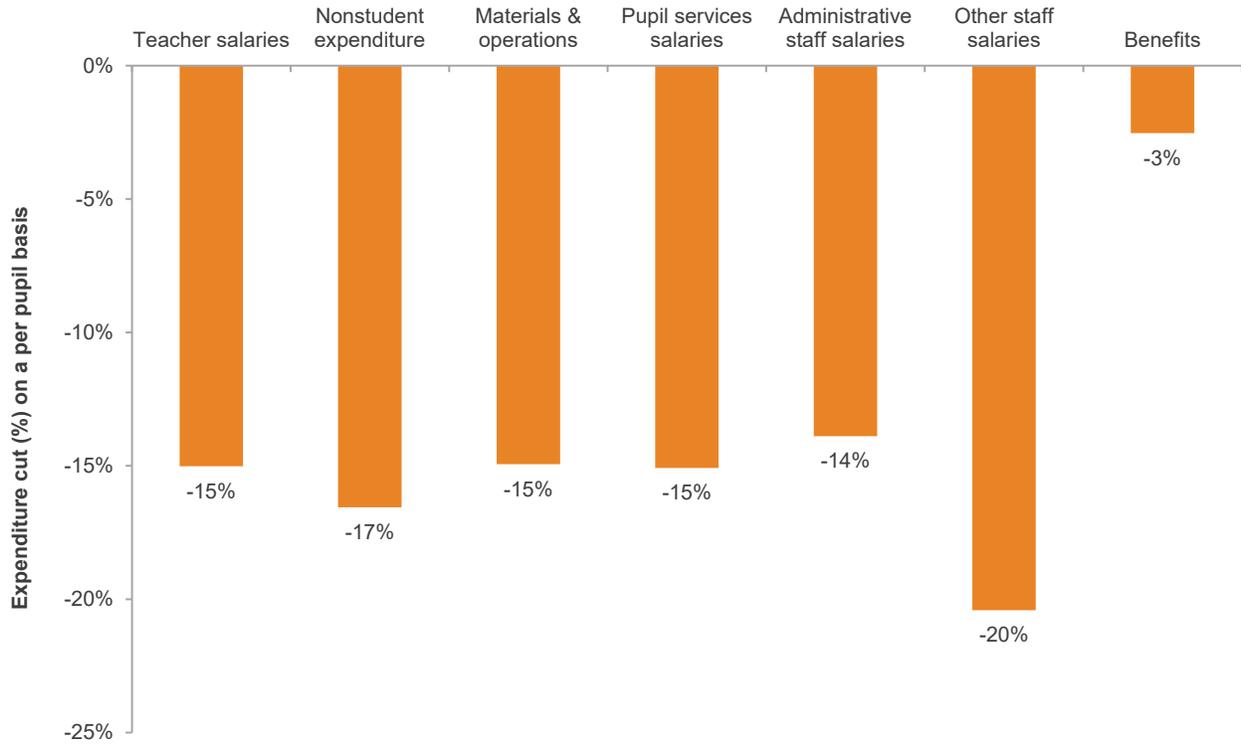


SOURCE: California Department of Education, staffing files; authors' calculations.

NOTE: FTEs are aggregated from staff-level files and include only those with teaching assignments. A small number of teachers with large FTEs (greater than 200 percent) are excluded.

FIGURE A3

Expenditure cuts, 2007–08 to 2012–13, in percentages

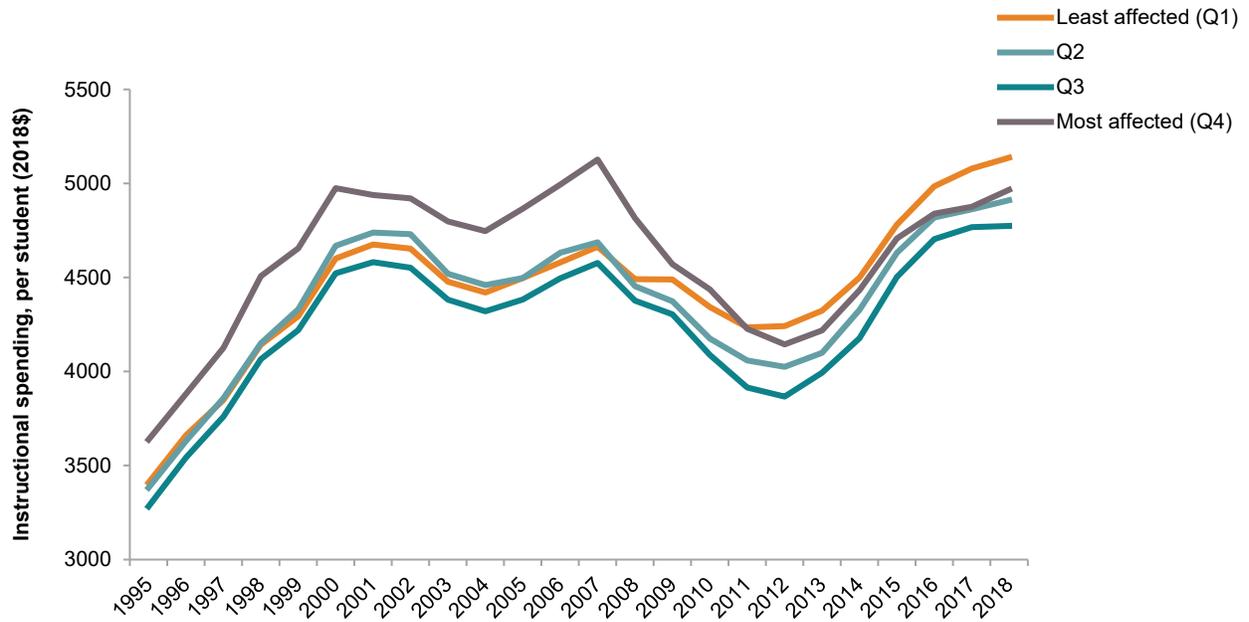


SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Average percentage changes in expenditures between 2007–08 and 2012–13 are shown. Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A4

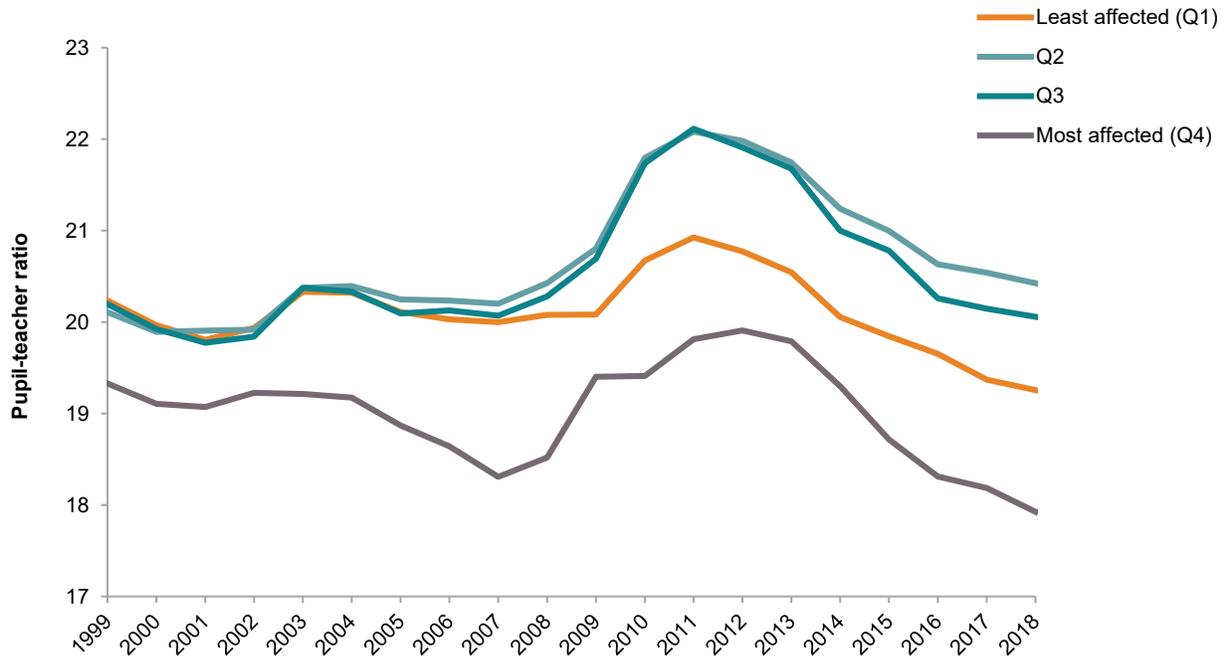
Significant declines in teacher spending per pupil during Great Recession



SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Weighted averages are shown for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A5
Heterogeneity in GR effect on pupil-teacher ratios

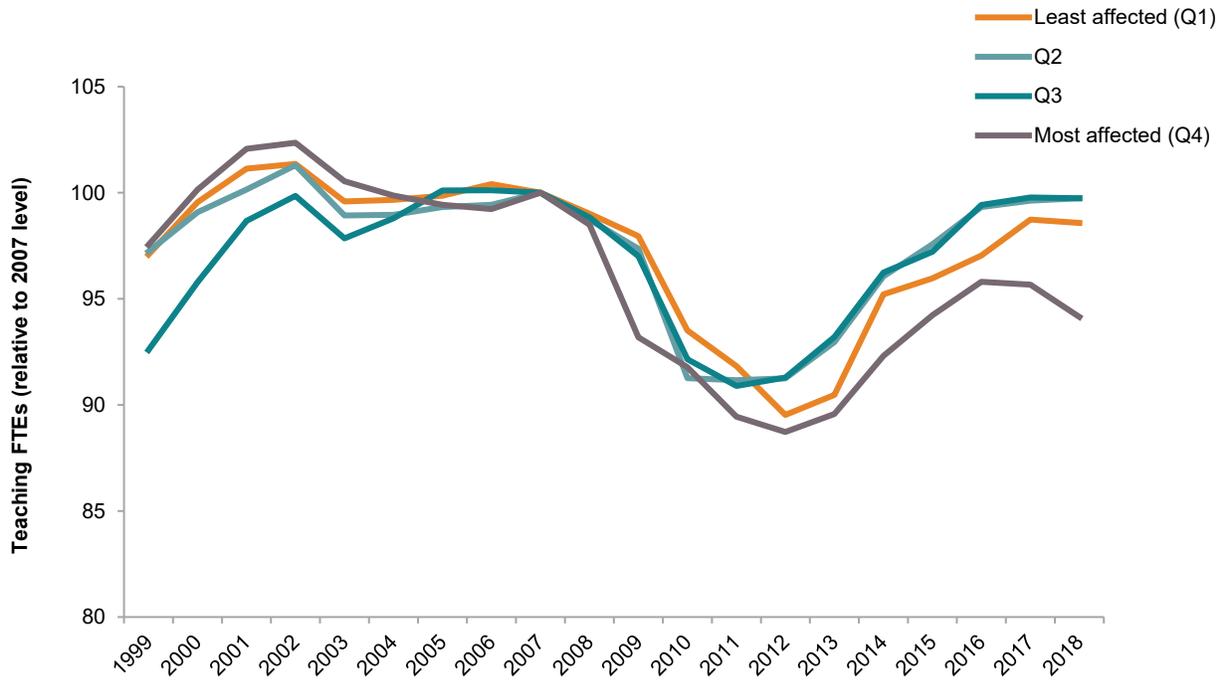


SOURCE: California Department of Education: SACS district financial data, enrollment files, staffing files; authors' calculations.

NOTE: Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Weighted averages are shown for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A6

Total Teaching FTEs have yet to recover to pre-recession highs in most districts

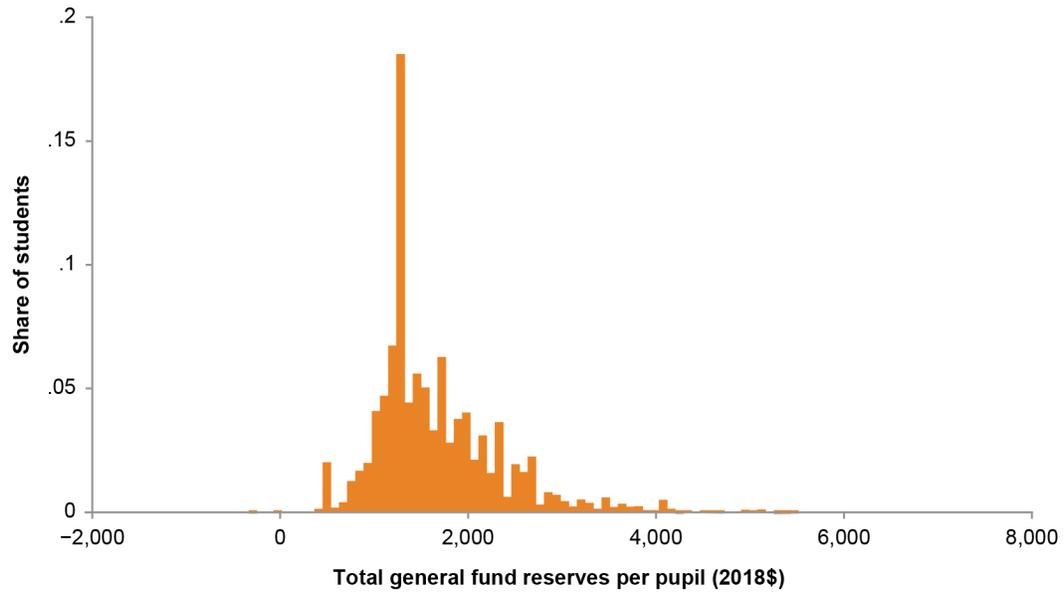


SOURCE: California Department of Education: SACS district financial data, enrollment files, staffing files; authors' calculations.

NOTE: Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Weighted averages are shown for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A7

Distribution of unrestricted reserves held, 2007–08

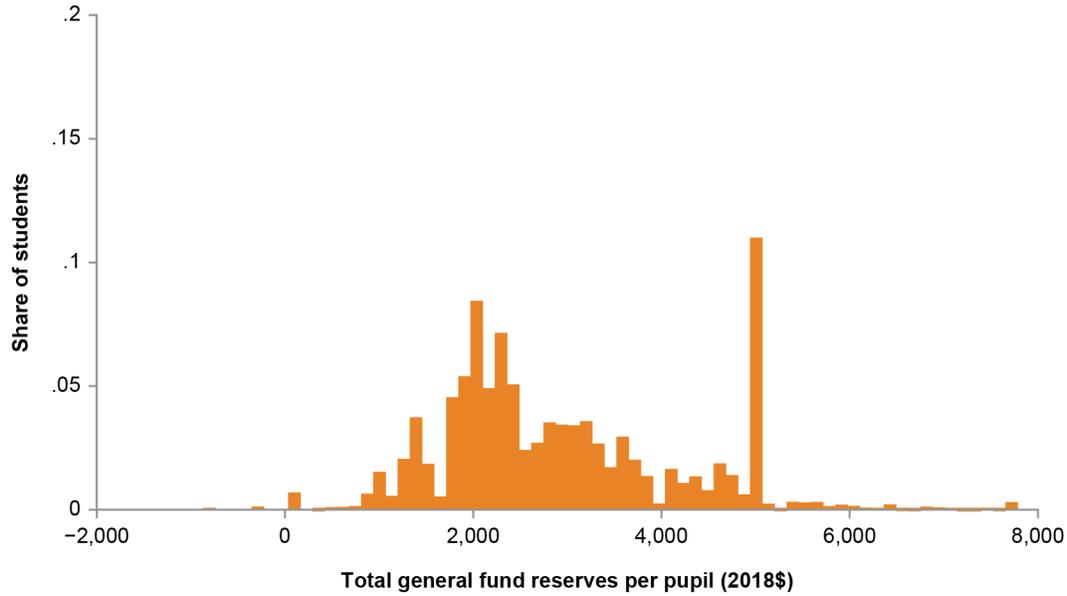


SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Weighted by district enrollment. The y-axis therefore shows the overall share of students in the state attending a district within a given range of general fund reserves per student. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A8

Distribution of general fund reserves held, 2018–19

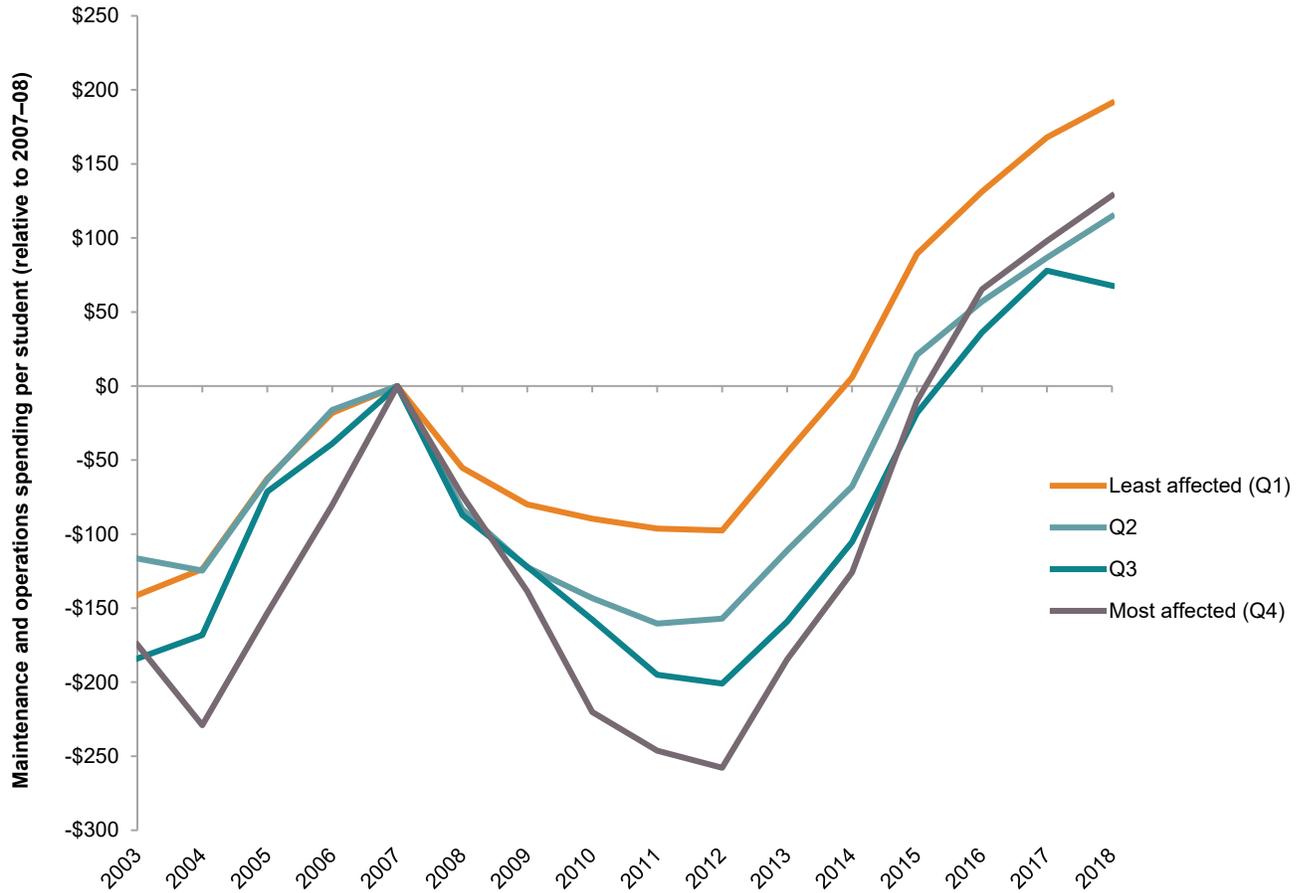


SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Weighted by district enrollment. The y-axis therefore shows the overall share of students in the state attending a district within a given range of general fund reserves per student. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

FIGURE A9

Maintenance and operations expenditures declined significantly in the most affected districts



SOURCE: California Department of Education, SACS district financial data; authors' calculations.

NOTE: Maintenance and operations spending is determined through resource codes in the SACS data. Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Weighted averages are shown for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded. See Technical Appendix C for further detail on sample restrictions and data sources.

Appendix B. Reserves Regression Estimates

To document the role of reserves in mitigating spending declines during the recession, we want to consider how the reserve levels prior to the recession are correlated with observed spending declines, conditional on a district’s actual revenue loss. Specifically, we regress changes in spending (the 2007–2012 difference or the cumulative change, relative to the 2007 level) on prior reserve levels and analogous changes in revenue:

$$(1) \Delta Spend_{d,2007-12} = \alpha + \beta_1 Res_{d,2007}^{Restricted} + \beta_2 Res_{d,2007}^{Unrestricted} + \beta_3 \Delta Rev_{d,2007-12} + X'_d \gamma + \epsilon_d$$

Here $\Delta Spend_{d,2007-12}$ is the observed spending change for district d between 2007 and 2012. $Res_{d,2007}^{Restricted}$ and $Res_{d,2007}^{Unrestricted}$ are the restricted and unrestricted reserve levels in a district prior to the recession. $\Delta Rev_{d,2007-12}$ is the corresponding change in revenue between 2007 and 2012 for a given district. X'_d are district-level demographic controls, including enrollment, share low-income, and racial composition.

Results are reported in Table B1 below. Regressions are weighted by district ADA in 2007–08 and only districts with revenue losses during the recession are included. In columns (1) through (4), the dependent variable and corresponding revenue variable are computed as the difference between 2007–08 and 2012–13 levels. In columns (5) through (8), we instead use the cumulative difference, summing the total change between 2007–08 and 2012–13, relative to the counterfactual where 2007-08 spending and revenue levels per student stayed constant in real dollars. Columns (1) and (5) report estimates where only restricted and unrestricted reserves are included in the model; columns (2) and (6) add revenue changes, columns (3) and (7) add in district-level demographic controls, and columns (4) and (8) repeat the specifications of columns (3) and (7), excluding LAUSD. Results from the preferred specifications indicate that an additional dollar of unrestricted reserves held in 2007–08 is associated with a 0.21 dollar lower spending decline per student in 2012–13 (Column 3), or a total cumulative spending decline that is \$1.07 dollars lower over the entire 5-year period (Column 7). Coefficients on restricted reserves are significant in columns (7) and (8), providing some suggestive evidence of the fungibility of these funds. However, these coefficients are small and insignificant when district demographics are excluded from the model. Coefficients from models excluding LAUSD are very similar.

TABLE B1
Regression estimates, reserves and spending declines

	Delta (2007–08 vs 2012–13)				Cumulative (2008–09 through 2012–13)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unrestricted reserves pp (07)	0.17*** (0.038)	0.23*** (0.043)	0.21*** (0.029)	0.20*** (0.032)	0.98*** (0.197)	1.22*** (0.219)	1.07*** (0.139)	1.03*** (0.139)
Restricted reserves pp (07)	-0.02 (0.102)	-0.04 (0.104)	0.10 (0.083)	0.10 (0.085)	0.22 (0.440)	0.03 (0.461)	0.63** (0.307)	0.63** (0.313)

GR Revenue Loss: Delta (12-07)		0.30***	0.32***	0.31***				
		(0.064)	(0.051)	(0.056)				
GR Revenue Loss: Cumulative (08-12)						0.39***	0.44***	0.42***
						(0.095)	(0.068)	(0.059)
Observations	627	627	589	585	640	640	592	586
Demographic Controls			X	X			X	X
Exclude LAUSD				X				X

SOURCES: SACS district financial data, CDE school enrollment files; authors' calculations.

NOTES: Coefficients are estimated via equation (1). Standard errors are clustered by district. Regressions are weighted by district ADA. Districts with revenue losses during the recession are excluded, as are districts with ADA less than 250. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded.

Next, to determine the potential correlates of growth in reserves, we estimate panel regressions with unrestricted reserves levels as the dependent variable, separately for the 2002–03 to 2007–08 and 2013–14 to 2018–19 periods. Models include district and year fixed effects, and therefore estimate changes within district over time, netting out any common effects on all California districts in a given year. Specifically, we estimate versions of equation (2):

$$(2) Y_{d,y} = \alpha_d + \gamma_y + X'B + \epsilon_{d,y}$$

Where $Y_{d,y}$ are the unrestricted reserves for district d in year y . Fixed effects for district, α_d , and fixed effects for year, γ_y , mean that estimates net out any fixed differences across districts and years.

Explanatory variables of interest, included in the matrix X , include enrollment changes, district percent low income, and district revenue subcategories. We allow for a separate slope on enrollment for districts that were declining during the period considered.

Estimates are reported in Table B2. Columns (1) through (3) report estimates for the period prior to the Great Recession and after the dot-com crash, from 2002–03 to 2007–08. Columns (4) through (6) report estimates for the years following the recession, up to the most current year of data, 2013–14 to 2018–19. Columns (1) and (3) only include enrollment variables, columns (2) and (5) add the district share of students eligible for free and/or reduced price meals, and columns (3) and (6) add district revenue categories. We separately consider revenues from the revenue limit/LCFF (including both state and local sources), revenues from the federal government, revenues from other local sources (e.g. parcel taxes), revenues from other state sources (e.g. state lottery), and revenues from other “financing” (e.g. locally issued bond revenues). Results in column (3) indicate that increases in revenue limit funding in the 2002–2007 period are highly correlated with having higher reserves – for each dollar of increase in these revenues, unrestricted reserves increased by 34 cents (in per student terms). Federal and other local sources are also correlated, though the coefficients are much smaller. Enrollment growth, but not decline, is also correlated, but the relative effect is small: conditional on revenue changes, a growth in enrollment of 100 students is associated with an additional 80 cents per student in unrestricted reserves.

Results for 2013–18 show a different set of patterns. The coefficient on LCFF revenues is remarkably similar to the revenue limit one for 2002–2007 (0.341 vs 0.342), providing additional evidence that baseline revenue growth is a key correlate of growth in reserve balances. Unlike in the pre-recession period, there is no association with federal or other local revenues; other state revenues, however, show a correlation of small magnitude (8 cents per dollar increase in other state revenues). Notably, the coefficient on enrollment is negative and nearly an order of magnitude larger in absolute value: for example, an enrollment increase of 100 students is associated with a \$6.40 decline in reserve balances, per student. It is worth noting that these are meant only as simple conditional descriptives and not causal analyses; a quantitative analysis of the exact causes of growth in district reserves is worthwhile but beyond the scope of this report.

TABLE B2

Regression estimates of correlates of reserve changes, 2002–03 to 2007–08 and 2013–14 to 2018–19

	2002–2007			2013–2018		
	(1)	(2)	(3)	(4)	(5)	(6)
Enrollment	0.004 (0.004)	0.004 (0.004)	0.008** (0.004)	-0.070*** (0.002)	-0.070*** (0.002)	-0.064*** (0.003)
Enrollment x decline	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.002)	0.000 (0.002)	-0.000 (0.002)
Percent FRPM		-213.429 (250.223)	-326.495 (247.749)		74.057 (668.016)	427.680 (608.099)
Revenue: Rev Lim / LCFF			0.341*** (0.100)			0.342*** (0.069)

Revenue: Federal			0.218***			0.015
			(0.084)			(0.053)
Revenue: Other Local			0.068**			0.020
			(0.030)			(0.035)
Revenue: Other Financing			0.008			-0.001
			(0.010)			(0.005)
Revenue: Other State			-0.007			0.082**
			(0.008)			(0.040)
Observations	4193	4193	4193	4083	4083	4083
Dist FEs	X	X	X	X	X	X
Year FEs	X	X	X	X	X	X

SOURCES: SACS district financial data, CDE school enrollment files; authors' calculations.

NOTES: Coefficients are estimated via equation (2). Standard errors are clustered by district. Regressions are weighted by district ADA. Districts with ADA less than 250. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded.

Appendix C. Data Sources

Data Sources

This report uses a variety of data sources publicly provided by the California Department of Education (CDE). There are three main types of data: district-level financial data; staff-level demographic and assignment data; and school-level enrollment and demographic records. We describe each below:

District-level financial data: For 2003–onwards, 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, spending categories, and fund balances. Prior to the SACS system, district-level financial data are available through the J-200 Unaudited Actual Financial Reports, back to 1995. As is the case in the SACS data, the J-200 data allow for detailed accounting of spending, revenues, and fund balances by district. In this report, we rely on the CDE SACS and J-200 files for all district-level financial outcomes. Annual average daily attendance (ADA) totals for each district are also included in both, which are used to construct per pupil spending measures.

To construct measures of district-level per pupil expenditures we follow the conventions of Bruno (2018) in aggregating categories in the financial data.¹ We exclude all district revenue sources, transfers between districts, and net pension liabilities. We also exclude charter schools filing independently of their affiliated district’s general fund, as well as charter-specific funds that account for operations of charters filing through an affiliated district, but outside of its general fund. A small share of charter schools report financial information through an affiliated district’s general fund; we therefore include ADA for these schools in the ADA of the affiliated district.²

We then aggregate to the district-year level to construct district-year total expenditures. Student spending is a subset of total expenditures that excludes pre-K and adult education, Public Employees' Retirement System (PERS) reductions, capital expenditures (minus equipment replacement), retiree benefits, non-agency spending, and debt service. Other expenditures subcategories are defined based on the relevant SACS “object” codes.

Staff-level demographic and assignment data: The CDE also maintains databases of staff-level data. These data give characteristics of individual “certificated”³ staff member in each year. Crucially, these records contain school codes that make it possible to identify where a given staff member was assigned in a given year. However, it is not possible to link these data across time, meaning one cannot follow individual staff members longitudinally. For the 2012–2018 fiscal years, we merge staff records from the Staff FTE files, Staff Demographics files, and Staff Credentials files. For the years prior to 2012, we use the PAIF files, which contain roughly similar, but less comprehensive information. These are available

¹ Despite minor differences in sample construction from Bruno (2018) (detailed below), my calculations of mean total and student expenditures per pupil are within \$40 (0.25%) and \$65 (0.5%) of his calculations for 2016–17, respectively. Notably, student expenditures are defined somewhat differently in the J-200 data, and are less comparable over time.

² Charter school ADA is not available in the SACS data in 2008 and earlier. Fortunately, the charter share in the early 2000s was small, and most still reported financial information independently of the general fund of an affiliated district, meaning this limitation has a negligible impact on overall results.

³ Certificated staff include teachers, pupil support services (e.g., counselors, nurses, psychologists, social workers), and administrators.

back to 1997, but we only use records back to 2003 to maintain consistency with the sample window for the district financial records.

Together, these files contain data on the staff FTEs, school assignment(s), education, experience (both overall and within district), and credentials. Depending on the outcome, we either compute school- and district-level averages or totals. Averages are used for outcomes like experience, education, and credentials, and are weighted by FTE. Total FTEs for each school and district, by staff type (e.g., teacher, pupil support services, or administrator) are used to compute school and district-level measures of average pupil-staff ratios. For example, school-level pupil-teacher ratios are computed by dividing total school enrollment in a year by the total teacher FTEs in that school year.

School-level enrollment and demographic records: Data on school and district enrollment, English Learner (EL) status, and student socio-demographic characteristics are also maintained by the CDE. Data on the “unduplicated” count of students, relevant for LCFF supplemental and concentration grant calculations, are available beginning in 2013, the first year of LCFF. School-by-grade enrollment, both overall and broken down by race/ethnicity/gender, as well as by EL status, is available going back to 1982. We collect school and district-level free and reduced price lunch meal (FRPM) totals from three different files: for 2004–2018, we use the FRPM files, while for 2003, we use the AFDC files, which are available back to 1988.

Sample Restrictions

In order to reduce the impact of measurement error and extreme outliers on the analyses in this report, we restrict the sample in the following ways, depending on the level of analysis and outcome under consideration.

All outcomes: Across most analyses, we restrict attention only to those districts with an average daily attendance (ADA) of at least 250 in every year. While small districts are an important and often understudied population, district financial operations and staffing patterns are often quite different from larger districts, making it difficult to compare.⁴ The 250 ADA cutoff is fairly common in the literature comparing finances of districts across the state; it is used by Bruno (2018) and others in earlier work. We also exclude districts that have atypically high or low per pupil student expenditures in a given year. District-years where per pupil student spending is above 500 percent or below 20 percent of the California mean in that year are excluded. There are very few such spending outliers (less than 0.1% of observations).⁵

Taken together, these are not trivial restrictions. 37 percent of district-years are excluded, most of them from very small districts: in total, these districts enroll only 2 percent of the state’s public K–12 students. Thus, the main analysis sample covers 98 percent of students in the state.

School-level staffing outcomes: When measuring school-level outcomes, we exclude small schools with fewer than 40 students in a given year. These schools likely have very different staffing patterns and staffing ratios. This drops an additional 14 percent of schools, but only 0.2 percent of student enrollment.

⁴ These small districts are most often rural or remote districts, which generally have very different cost structures than the typical district. See Table A4 for a comparison of spending levels, cuts, and reserves for smaller districts.

⁵ Some of these appear to be coding errors, although it is difficult to verify or correct these, and thus we exclude these observations.

Within-district, across school comparisons: For outcomes that rely on comparisons across schools in a district, it is necessary that there be enough schools in a district to facilitate a meaningful comparison. We choose a cutoff of 10 schools and exclude district-years with fewer than 10 schools. Roughly 60 percent of districts have fewer than 10 schools, representing 23 percent of schools. However, the districts with more than 10 schools serve 84 percent of the students in the school sample.

Teacher salary sample: Teacher salary data are not collected by CDE, and we therefore estimate these data using salary schedules and teacher demographics (see Lafortune (2019) for more detail on this process). We include only district-years where we can reasonably estimate salaries for 95 percent or more of a districts' teachers. This excludes 28 percent of districts, and 39 percent of students in the state. Notably, Los Angeles Unified is one of the excluded districts due to a poor salary estimation rate.

Appendix D. Selected Results Excluding LAUSD

TABLE D1

Large differences across districts in Great Recession spending declines (no LAUSD)

	Q1 (least affected)	Q2	Q3	Q4 (most affected)	Overall
Student spending pp, 2007–08	\$11,301	\$10,834	\$11,205	\$12,096	\$11,363
GR Spending cut ('07 vs '12)	-\$573	-\$1,281	-\$1,649	-\$2,199	-\$1,429
GR Spending cut (cumulative, '08 thru '12)	-\$2,650	-\$4,934	-\$5,948	-\$8,109	-\$5,422
Percent Free/ Reduced Price Meals	45.3%	44.2%	47.9%	55.4%	48.2%
Percent Asian	8.9%	9.3%	10.5%	8.4%	9.3%
Percent African American	6.5%	5.9%	7.3%	7.7%	6.8%
Percent Hispanic/Latino	43.5%	45.3%	45.5%	50.1%	46.1%
Percent White	33.8%	31.7%	28.9%	27.0%	30.3%
Percent English Learner	21.8%	22.4%	22.8%	27.7%	23.7%
Enrollment	17,639	19,212	23,974	37,851	24,741

SOURCES: SACS district financial files, enrollment files, FRPM files; authors' calculations.

NOTES: LAUSD is excluded from this analysis. Weighted averages shown for all other districts in the sample and for each quartile of Great Recession impact, which is determined by the peak to trough spending change (2007–08 vs 2012–13). Each quartile contains equivalent number of students, but different numbers of districts. Averages are weighted by district average daily attendance (ADA) and shown in inflation adjusted 2018 dollars. Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded.

TABLE D2

Pre-recession reserve levels varied considerably and were lower in more disadvantaged districts (no LAUSD)

	Q4 (highest reserves)	Q3	Q2	Q1 (lowest Reserves)	Overall
Student spending pp, 2007–08	\$11,780	\$11,210	\$11,284	\$11,176	\$11,372
GR Spending cut ('07 vs '12)	-\$1,238	-\$1,440	-\$1,616	-\$1,503	-\$1,429
GR Spending cut (cumulative, '07 to '12)	-\$4,480	-\$5,244	-\$6,337	-\$5,888	-\$5,382
Total GF reserves	\$2,804	\$1,724	\$1,362	\$1,015	\$1,770
Unrestricted GF reserves	\$2,039	\$1,235	\$866	\$614	\$1,227
ARRA funding, pp (5-year total)	\$825	\$857	\$782	\$766	\$811
Percent Free/ Reduced Price Meals	52.7%	54.1%	44.9%	40.3%	48.4%
Percent Asian	6.6%	8.6%	9.8%	12.2%	9.2%
Percent African American	6.8%	7.0%	7.9%	6.3%	6.9%
Percent Hispanic/Latino	50.5%	50.7%	42.2%	39.1%	46.1%
Percent White	29.2%	26.7%	31.1%	34.8%	30.4%
Percent English Learner	25.8%	26.1%	23.2%	19.6%	23.7%
Enrollment	15,416	24,076	37,086	27,390	24,617

SOURCES: SACS district financial data, CDE school enrollment files; authors' calculations.

NOTES: LAUSD is excluded from this analysis. Averages are weighted by district average daily attendance (ADA). Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded.

TABLE D3

Larger, more disadvantaged districts now hold higher reserves (no LAUSD)

	Q4 (highest reserves)	Q3	Q2	Q1 (lowest Reserves)	Overall
Student spending pp, 2018-19	\$13,706	\$12,862	\$13,211	\$12,491	\$13,064
Total GF reserves	\$4,349	\$2,760	\$2,058	\$1,365	\$2,618
Unrestricted GF reserves	\$3,708	\$2,371	\$1,587	\$1,031	\$2,160
Percent Free/ Reduced Price Meals	63.8%	57.2%	56.4%	50.9%	57.0%
Percent Asian	8.8%	10.3%	12.9%	10.2%	10.6%
Percent African American	4.7%	4.0%	6.2%	4.9%	5.0%
Percent Hispanic/Latino	60.8%	54.4%	47.7%	48.0%	52.6%
Percent White	18.6%	24.2%	24.1%	27.6%	23.7%
Percent English Learner	21.7%	18.6%	18.6%	18.6%	19.4%
Enrollment	18,234	17,147	30,054	28,859	23,647

SOURCES: SACS district financial data, CDE school enrollment files; authors' calculations.

NOTES: LAUSD is excluded from this analysis. Averages are weighted by district average daily attendance (ADA). Districts with ADA less than 250 are excluded. A small number of districts with more than 500 percent or less than 20 percent of the California mean spending per pupil in a given year are also excluded.



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

The Public Policy Institute of California is dedicated to informing and improving public policy in California through independent, objective, nonpartisan research.

Public Policy Institute of California
500 Washington Street, Suite 600
San Francisco, CA 94111
T: 415.291.4400
F: 415.291.4401
PPIC.ORG

PPIC Sacramento Center
Senator Office Building
1121 L Street, Suite 801
Sacramento, CA 95814
T: 916.440.1120
F: 916.440.1121