PPIC | PUBLIC POLICY INSTITUTE OF CALIFORNIA

California's K–12 Test Scores

What Can the Available Data Tell Us?

Technical Appendices

CONTENTS

Paul Warren

Appendix A: PPIC's Cohort Growth Indicator

Our 4–8 cohort growth measure takes advantage of the common scale used to score SBAC tests so that we can compute the amount students learn from one grade to the next. The table below illustrates how we calculate this measure. First, we compute the scale score growth students make from one grade to the next—that is, from 3rd to 4th grade, 4th to 5th. In the table, we shifted the 2015–16 scores to the right so that the 2015–16 scores are placed directly below the 2016–17 scores of the same group of students. For instance, the 2015–16 3rd grade score of 2414 is directly below that group's 2016–17 score for 4th grade (2455). The change in these two scores yields a raw growth figure of 41.7. We standardize these growth numbers using the change in the Met Standard level from one grade to the next. For the 2016–17 4th grade group, we divide the raw growth number by 41, generating a cohort growth estimate of 1.02. This summary number is a weighted average of the standardized growth scores in each grade. Growth of 1, therefore, indicates average growth in grades 4–8 is equal to the increase in standards over those grades. Or, to say it another way, students are learning at a rate expected of students in those grades.

TABLE A1

How we calculate our 2016–17 grade 4–8 cohort growth indicator

	Three	Four	Five	Six	Seven	Eight	
2016–17 score	2415	2455	2489	2518	2542	2558	
2015–16 score (shifted one column)		2414	2454	2495	2519	2541	2559
Raw growth		41.7	35.1	23.4	23	17	
Growth in Met Standard		41	29	29	21	15	
Standardized growth		1.02	1.21	0.81	1.10	1.13	
Weighted average, grades 4–8		1.053					

SOURCES: California Department of Education and author's calculations. Data reflect actual scores and growth in standards for the SBAC English test.

NOTES: 2015–16 scores are shifted to the right to illustrate that the calculation is obtaining the change in performance from one grade to the next for the same group of students. 2015–16 and 2016–17 scores were rounded, but the resulting changes were not.

Appendix B: Additional Data on Selected Topics

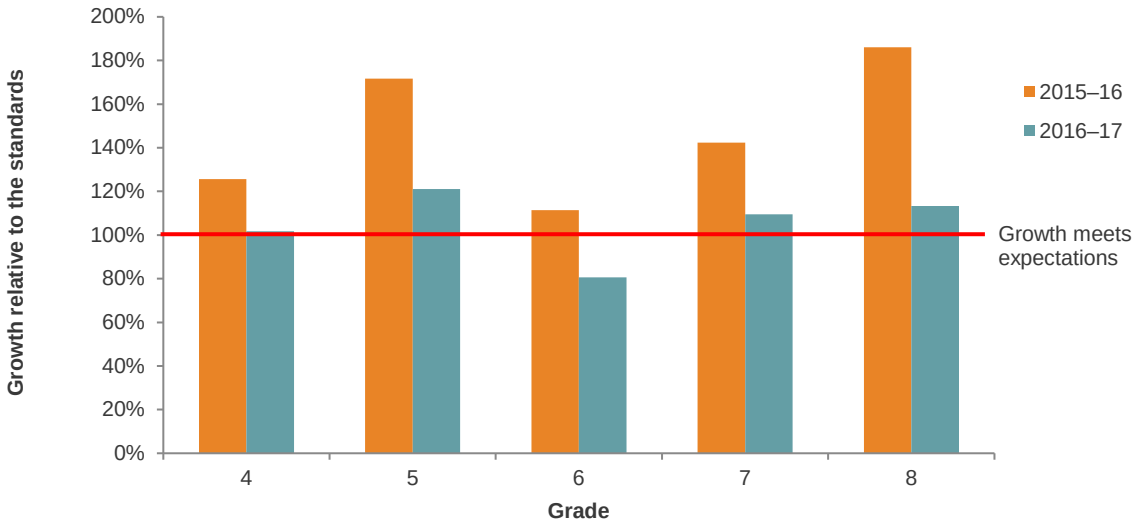
In this appendix, we provide additional data on the topics discussed in the report. The first section shows growth data for each grade, 4 through 8, for mathematics and English in 2015–16 and 2016–17. The second section displays trend data for grades 3 and 11. While these data are not strictly comparable, they provide a sense of the gains students in these grades are making towards meeting the standards.

Growth by grade

Figures B1 and B2 display growth data by grade. Growth is calculated by measuring the growth in average scale scores for the same group of students from one year to the next. This change is reported as a proportion of the increase in the "met standard" level from one grade to the next. A growth path of 1 means students in a grade learned the same amount as needed to stay at the met standard performance level. The red line indicates a growth path of 1.0.

FIGURE B1

Growth path scores by grade, English

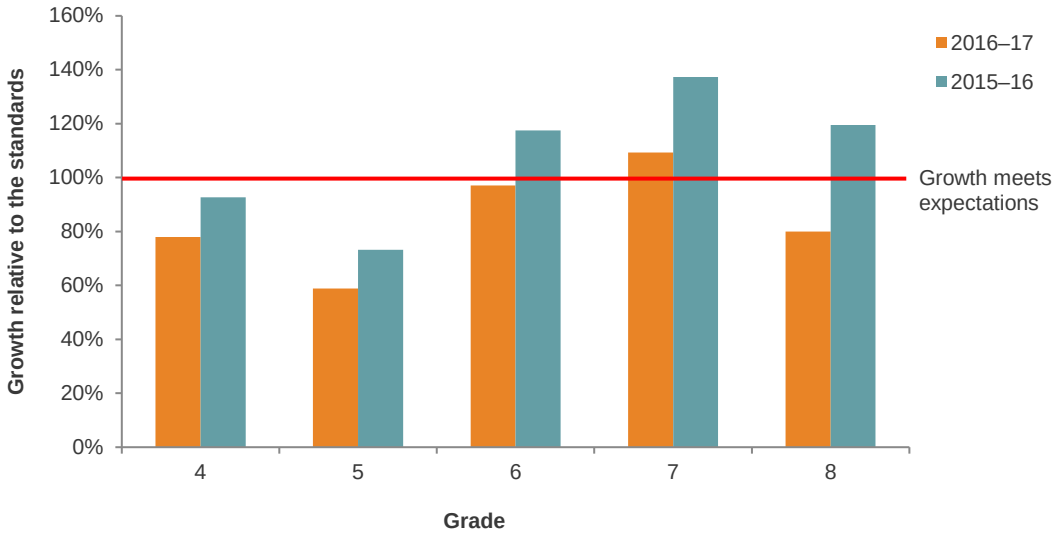


SOURCE: California Department of Education and author's calculations.

NOTE: : Adjacent-grade growth in grades 4–8 (i.e., grade 3 in 2015 to grade 4 in 2016 and grade 3 in 2016 to grade 4 in 2017) as a percentage of the change in lowest score in "Met Standards" level for that grade. A growth path of 1.0 (indicated by the red line) means student scores increased the same amount as the minimum proficient level grew in grades 4 through 8.

FIGURE B2

Growth path scores by grade, Mathematics



SOURCE: California Department of Education and author's calculations.

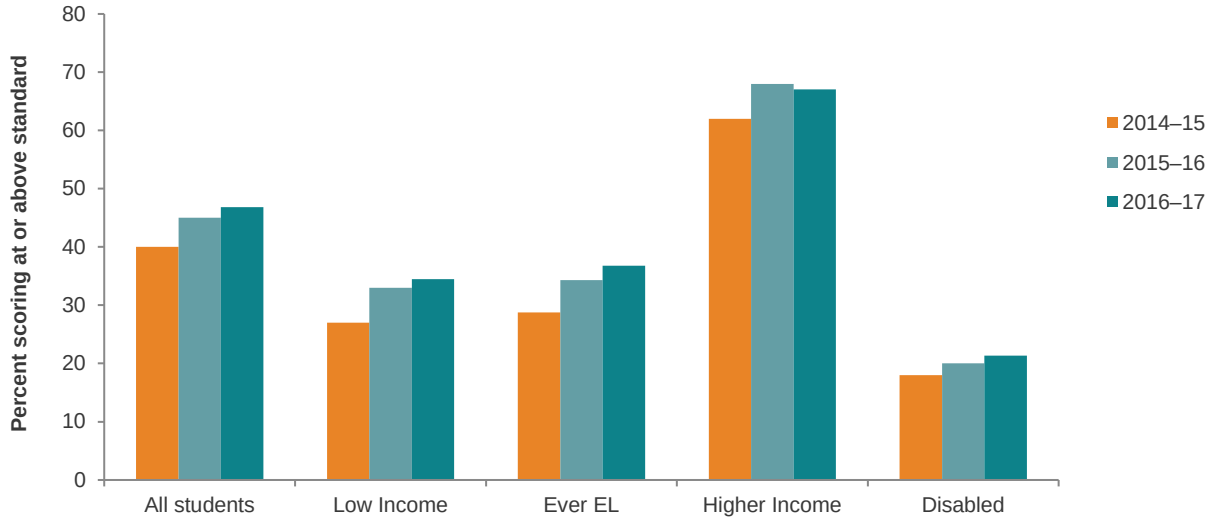
NOTE: Adjacent-grade growth in grades 4–8 (i.e., grade 3 in 2015 to grade 4 in 2016 and grade 3 in 2016 to grade 4 in 2017) as a percentage of the change in lowest score in "Met Standards" level for that grade. A growth path of 1.0 (indicated by the red line) means student scores increased the same amount as the minimum proficient level grew in grades 4 through 8.

Grade 3 and 11 trend data

We cannot generate growth data for grades 3 and 11 as there is no 2nd grade or 10th grade data for comparison. Instead, we can look at the trend of scores in these grades over time, and sustained gains over several years may indicate real improvement in achievement. Figure B3 shows the proportion of students that score at or above the standard in 3rd grade. For all students, scores increased 5 percentage points in 2015–16 in the share of students scoring at the proficient level (please see the appendix for similar data by race and ethnicity). Increases for the EL and low-income groups are similar to those for all students. Gains for 3rd grade special education students are considerably smaller. It is important to remember, however, that the 2014– 5, 2015–16, and 2016–17 scores are not strictly comparable. Each year of data represents a new cohort of students who may be different in significant ways that affect the groups' performance. The number of students with disabilities tested in third grade, for instance, increased about 10 percent from the first year of SBAC testing to the third year. The reasons for this increase and how it affects the average score for special education is unknown. The general trend of annual increases for these young students is encouraging, however.

FIGURE B3

3rd grade scores have increased each year in mathematics



SOURCE: California Department of Education.

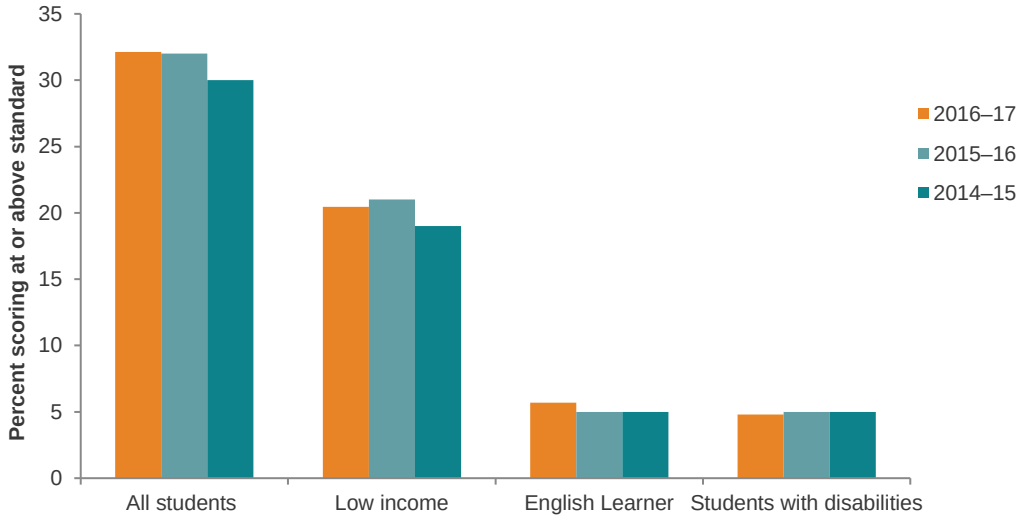
NOTE: Percent of students scoring in the Met Standards or Exceeded Standards performance level. Scores are for the test in mathematics.

Figure B4 displays mathematics data for 11th graders in the three years of testing. The proportion that met standard is low, and does not seem to be improving. Only about 30 percent of All Students, 20 percent for low-income students, and 5 percent for EL students and students with disabilities scored at or above standard. All students and low-income students made small gains in 2015–16, but then fell back somewhat in 2016–17. Scores for EL students and students with disabilities have been essentially flat (please see the appendix for comparable data by race and ethnicity).

These relatively small proportion of students scoring at proficient levels suggests that students do not have the mathematics skills consistent with college readiness. SBAC proficiency levels in 11th grade are designed to evaluate whether 11th graders are prepared to do college-level work. Only 20 percent of low-income students, representing 56 percent of 11th graders, scored at the level indicating college readiness in 2017. Mathematics skill deficits are, in fact, a barrier to success in college for many high school graduates in California. PPIC's research on higher education, for instance, indicates that two-thirds of students enrolling in community college are required to take at least one precollegiate mathematics course and these students are much less likely to transfer to a four-year college or earn a community college degree or certificate (Rodriguez et al. 2017).

FIGURE B4

11th grade mathematics scores have stayed fairly flat over the first three years of testing



SOURCE: California Department of Education.

NOTE: Percent of students scoring in the Met Standards or Exceeded Standards performance level. Scores are for the test in mathematics.

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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