Innovate Public Schools

Supplemental Technical Guide

Struggling Schools, Promising Solutions: Silicon Valley's Lowest-Performing Schools and What Can Be Done for Students Who Attend Them

November 2014

Table of Contents

Purpose and Background 2

Data Sources 2

School Sample 2

Academic Performance Indicators 3

Identifying Silicon Valley's Lowest-Performing Schools: Criteria and Three-Step Approach 6

- **1. Absolute Performance: Schools in Bottom 10 Percent in Santa Clara and San Mateo Counties** 7
- **2. Improvement: Cumulative API Gains for Greater Than 59 Points** 7
- **3. Comparative Performance: Schools Performing Above Predicted Performance on the SAI Are Not Identified as Lowest-Performing** 7
- **Final Identification of Low-Performing Schools** 8

Identification of High-Need, High-Performing Schools 9

Limitations 10

Appendix 12

- **Appendix 1. API Cut Points for Elementary, Middle and High Schools in Santa Clara and San Mateo Counties** 12
- **Appendix 2. Key Statistics for Regression Model** 13

Purpose and Background

The focus of "Struggling Schools, Promising Solutions: Silicon Valley's Lowest-Performing Schools and What Can Be Done for Students Who Attend Them" is to shed light on the schools in our region that have been persistently underperforming for several years, with the goal of finding immediate and lasting solutions for the students attending these schools.

The full report can be found at www.innovateschools.org/turnaround.

The 28 schools identified in the report are all performing at the bottom when compared to other same grade-level schools in San Mateo and Santa Clara counties on California's primary measure of school performance for three out of the last five years, and have not significantly improved the academic performance of their school in the past five years. They consistently underperform when compared to schools serving similar students throughout the state.

The purpose of this technical guide is to provide a more detailed view of the analytical approaches and data used to examine the performance of public schools and districts in the Silicon Valley region. For questions on any of the approaches or data used, please contact Jeimee Estrada, Director of Research and Policy for Innovate Public Schools, at jestrada@innovateschools.org.

Data Sources

The following publicly available data files were obtained from the California Department of Education (CDE) for the 2008-09 to 2012-13 school years:

- Public Schools and Districts Directory
- Standardized Testing and Reporting (STAR)
- California High School Exit Exam (CAHSEE)
- Growth Academic Performance Index (API)
- Enrollment by School

School Sample

The analysis included all traditional and charter public schools in California and excluded schools with the characteristics described below.

- Alternative Schools Accountability Model (ASAM) and separate special education schools, as defined by CDE for accountability purposes. Schools that serve high-risk students and are one of the following school types are eligible to participate in ASAM:

continuation, county or district community day, opportunity, county community, juvenile court, and Division of Juvenile Justice.[1]

- Non-traditional schools, as defined in the Public Schools and Districts' Directory. This additional exclusion criterion serves to capture schools that were not already designated as ASAM or special education schools, but still serve student populations not appropriate for this analysis. These school types include: adult education centers, the majority of alternative schools of choice, continuation, county community, district community day, juvenile court, opportunity, ROC/ROP, special education, state special, and youth authority facilities.

Schools may also be excluded from the analysis because of the CDE's rules for reporting performance data described below. The rules apply on a year-to-year basis because of changes in the number of students tested each year.

- For analyses using STAR and CAHSEE results, schools with less than 11 valid test scores in all tested grades in English Language Arts (ELA) and math. To protect student confidentiality, CDE does not report results for grade-levels with less than 11 students with valid scores. Schools needed at least 11 valid test scores in at least one grade.

- For analyses using the API, schools with less than 11 valid test scores overall. CDE only calculates API score for schools with at least 11 valid tests scores.

Although all schools with data meeting the above criteria were included in the analysis to determine yearly cut points, low performance can only be determined among schools with at least three years of performance data.

Academic Performance Indicators

Multiple performance indicators were used to define the absolute performance, absolute growth, and comparative performance of low-performing schools.

Academic Performance Index (API)
The API was developed by CDE for state and federal accountability purposes to measure district, school, and student group performance and improvement on statewide assessments. The API is calculated by averaging student test scores on the California Standards Tests (CSTs) in ELA, mathematics, history-social science, and science; the California Modified Assessment (CMA) in ELA, mathematics and science; the California Alternative Performance Assessment

[1] For more information about ASAM and Special Education designation, see: http://www.cde.ca.gov/ta/ac/am/

(CAPA) in ELA and mathematics; and the California High School Exit Examination (CAHSEE)[2] in grade 10 ELA and mathematics. Various weights apply to each exam. API score range from 200 to 1,000, with a state set target of 800. [3]

Academic Performance Index Growth (APIG)
The APIG is calculated by the CDE to measure year-to-year improvement on statewide assessments. The APIG is the difference between the API based on prior year assessment results and the API based on current year assessment results (e.g. growth from 2012 Base API to 2013 Growth).[4]

School Achievement Index (SAI)
We also used a comparative perspective on school performance developed by the American Institutes for Research (AIR) through the California Comprehensive Center (CA CC) to support the CDE in its effort to monitor and improve the quality of schools in California. Students enter school at different levels of preparation and with different challenges – whether they are living in poverty, learning English, or have special learning needs. Many different factors have an impact on students and schools; so the addition of the CA CC's measure enables us to paint a broader picture of school performance. The CA CC's SAI is a measure that demonstrates a school's performance relative to its student population, indicating whether it is over- or under-performing compared to other schools serving similar students across the state. This gives credit to schools that are beating the odds for high-need students and identifies schools that should be doing much better.

The following describes the steps taken to replicate the CA CC's SAI for each school year.[5]

Standardization of Mean Scale Scores. The SAI uses grade-level mean scale scores for each grade tested in the CSTs in ELA and mathematics, and CAHSEE grade 10 mathematics. In order to create comparable test scores across tests, grades, and school years, and to later average each grade-level score into one school-level score, all scores were standardized (or normalized) within year, test, and grade, with a mean of zero and standard deviation of one.

Standardizing is also done to prevent bias with respect to the grades a school serves. For example, statewide proficiency rates can often be much lower for certain tested grades when compared with others, and schools serving these grades would be unfairly ranked lower than schools serving grades with higher statewide proficiency rates using a simple average without standardization. Data is typically standardized to ensure the analysis performed captures differences in the performance of schools, rather than the range of difference in proficiency

[2] CAHSEE grade 10 mathematics results were used because no other standardized test is required of all high school students.
[3] For more information about the API, see: http://www.cde.ca.gov/ta/ac/ap/
[4] More information about the APIG can also be found at: http://www.cde.ca.gov/ta/ac/ap/
[5] For more information about the CA CC's calculation and use of the SAI, see the reported posted here: http://cacompcenter.org/resources/school-district-improvement/

rates across grade levels. In this case, an ordinary least squares regression-based analysis was applied.

Regression Models. Linear regression models were estimated for each standardized grade-level mean scale score to determine schools' predicted performance, as compared to other schools in California with similar student populations. Each grade-level standardized mean scale scores were dependent variables and control variables. For example, student demographic percentages were added to the model as the independent variable: Black/African American, Asian, Hispanic/Latino, English learners, students who are economically disadvantaged, and students with disabilities. Parent education level was also included as a control variable in a previous iteration of the SAI regression model, but AIR found that it is aligned with the variable included to control for a student's economic status and thus accounted for in the current model.

The student demographic percentages were calculated within each grade, test, and year. That is, the number of students tested in a particular grade, test, year, and subgroup were divided by the total number of students tested in that same grade, test, and year. The descriptive statistics for these demographics are presented in aggregate at the school-level for the 2012-13 school year in table 2 given that variation did not exist across grades, tests, and years.

The difference between schools' statistically-predicted performance and actual performance at the test and grade-level, also called the residual, represents the degree to which schools are performing lower or higher than statistically predicted in standard deviations. A negative residual means the school is performing lower than statistically predicted, given the schools' student demographics. A positive residual above the thresholds specified means the school is performing much better than statistically predicted. To obtain an overall school-level measure of schools' residual performance during each school year, all grade-level tests were weighted by the relative number of students tested, and then averaged.

See Appendix 2 for the regression model results for the 2012-13 school year.

Table 1. Schools with Necessary Data for School Achievement Index (SAI) Analysis
Data available for schools in statewide sample

	2012-13	2011-12	2010-11	2009-10	2008-09
Schools with mean scaled scores (for any grade)	9,263	9,225	9,203	9,145	9,135
Schools after only elementary, middle, high and K-12 schools kept	8,601	8,528	8,446	8,362	8,329
School with SAI (for any grade)	8,519	8,450	8,371	8,288	8,262

Table 2. Descriptive Statistics of Independent Variables Included in the Model, 2012-13[6]
Aggregated school-level descriptive statistics of independent variables

Variable	Mean Percent of Student Population, Statewide schools included in analysis	Standard Deviation	Minimum	Maximum
% Black/African American	6%	10%	0%	99%
% Asian	8%	13%	0%	97%
% Hispanic/Latino	51%	30%	0%	100%
% English learners	6%	4%	0%	100%
% Economically disadvantaged	61%	30%	0%	100%
% Students with disabilities	22%	19%	0%	100%

For more details regarding the statistical model, see pages 13 through 29 of Appendix 2.

Identifying Silicon Valley's Lowest-Performing Schools: Criteria and Three-Step Approach

Schools identified as lowest-performing in Silicon Valley are those that have been performing in the bottom 10 percent over the last five years; have not been significantly improving; and are not doing well when compared to schools serving similar students. The three-part methodology described below details exactly how schools are identified using state-provided academic performance and demographic data.

All traditional public and charter schools were included in the analysis. Schools were compared to one another by grade level—elementary (kindergarten through 5th grade), middle (6th through 8th grade), and high school (9th through 12th grade)—to ensure fair comparisons by school type. Schools that serve K-12 populations were held to the lowest performance thresholds of the three grade spans, which is the high school performance thresholds.[7] Not only were schools compared by grade level to adequately compare each school's performance to similar schools, the SAI accounts for performance down to the grade level and makes comparisons statewide at the grade level. This allows us to account for any differences in performance across grade spans.

[6] Identical models used for each year of the analysis, from 2008-09 to 2012-13.
[7] CDE's approach to making reasonable performance comparisons for K-12 schools involves holding the K-12 school accountable under performance thresholds for whatever grade span the majority of students are enrolled in.[7] While the approach is certainly reasonable, the research team decided to place all K-12 schools under the high-school performance threshold for the API threshold (the lowest threshold of all three grade spans) to ensure K-12 schools' were not held at a disadvantage in comparing their 9-12 students to students in elementary or middle schools.

The following three-part methodology was used to identify the lowest-performing schools across San Mateo and Santa Clara counties.

1. Absolute Performance: Schools in Bottom 10 Percent in Santa Clara and San Mateo Counties

Starting with the API, are schools performing in the bottom 10th percentile in three out of five years compared to schools in their own grade span (i.e., elementary schools are compared to elementary schools, middle schools to middle schools, etc.)?

A school is first identified as persistently lowest performing if it falls in the bottom 10th percentile compared to schools in the same grade span for three out of the most recent five years of API data (2008-09 through 2012-13) in Santa Clara and San Mateo counties.

These API cut points represent the API points of the schools at the 10th percentile in each year among all Santa Clara and San Mateo schools. For full tables of API cut points by each grade level from percentiles 1 – 99 percent, see Appendix 1.

Table 3. API at the 10th Percentile from 2008-09 to 2012-13

	2012-13	2011-12	2010-11	2009-10	2008-09
Elementary	754	764	759	741	729
Middle school	735	732	719	706	688
High school	675	683	682	668	657

2. Improvement: Cumulative API Gains for Greater Than 59 Points

Schools that have improved at a high rate are on the right path. The schools that have demonstrated significant growth over five years - more than 59 points from 2008-09 to 2012-13 - ***are not identified as lowest-performing in our report.***

High improvement defined: Schools that have grown more than 75 percent of schools in the state using cumulative API gains over the last five years.

Table 4. Statewide API Gains Percentiles

Percentile	5-Year API Point Gain
1%	-74
5%	-31
10%	-12
25%	12
50%	34
75%	**59**
90%	87
95%	108
99%	155

3. Comparative Performance: Schools Performing Above Predicted Performance on the SAI Are Not Identified as Lowest-Performing

How are schools performing with the specific demographic of students they serve compared to schools in the state?

Schools that are previously identified as low-performing under the API approach, and have not grown 59 points or more, can be removed from being identified as lowest-performing by being one standard deviation above predicted performance in three out of the five years of the analysis.

Lowest-performing schools that have an SAI indicating they are performing at a better level than most schools with similar demographics in California were excluded from this report.

In other words, the schools included in this report are not only in the lowest 10th percentile, but are also low-performing in comparison to schools serving similar students. This gives credit to schools that are beating the odds for high-need students and identifies schools that should be doing much better.

The table below details the thresholds each school must meet or exceed in order not to be identified as one of the lowest-performing schools in the report. Performing below this thresholds means a school is performing as predicted or underperforming with the specific student population they serve. When a school's SAI score is below these thresholds, the school's data indicates they fall "below positive predicted performance threshold."

Table 5. Annual School Achievement Performance Index (SAI) thresholds

Schools falling below positive SAI threshold in three out of five years of analysis are identified as persistently lowest-performing schools

Year	**2012-13**	**2011-12**	**2010-11**	**2009-10**	**2008-09**
One standard deviation above predicted performance	0.5240648	0.5230334	0.5260307	0.5174598	0.5036939
Number of schools with an SAI (schools in sample)	8,519	8,450	8,371	8,288	8,262

Final Identification of Low-Performing Schools

28 schools were identified as persistently lowest-performing among the 526 open, traditional and charter public schools in Silicon Valley included in the analysis.

Table 6. Number of schools falling below thresholds in each criterion

Low-performing schools criteria	**Elementary**	**Middle**	**High**	**K-12***	**Total**
Total number of schools in the sample	357	91	74	4	**526**
1. Absolute performance (API)	28	9	6	1	**44**
2. Absolute Growth (59 API gains or less)	19	6	3	1	**29**
3. Comparative performance (SAI)	19	6	2	1	**28**

*K-12 schools are held under high school thresholds.

Identification of High-Need, High-Performing Schools

The high-need, high-performing schools included in the report (pages 12 -13) were identified using the AIR-developed SAI and demographic data (percent of students that qualify for free or reduced price meals and ELs). The analytical approach used is called beating-the-odds analysis, which involves identifying schools that are substantially performing higher than predicted given their student population, and based on a predicted-performance model. This analytical approach identifies schools that have been dramatically over-performing, taking into account the specific population of students they serve. Many researchers use this approach to identify schools that have standout results for the particular students they serve. [8]

Defining High-Need

Schools that serve students in areas with high levels of poverty and with limited or no proficiency in English face significant challenges that typically require more resources, particularly effective approaches in all aspects of instruction and operations at a school, and very dedicated and experienced staff. The high-need schools in our area are those that meet California's threshold for concentration funding under the Local Control Funding Formula. These schools must have 55 percent or more of students qualify for reduced price meals, or 55 percent or more of students identified as English learners.

Defining High-Performing

The schools showcased in Figure 5 of the report, "Five Schools in Silicon Valley Beating the Odds for High-Need Students," must be performing significantly above predicted (two standard deviations above on the SAI) for more than three out of the five years of analysis). This means they have been consistently beating the odds for their specific student population for sustained periods of time. Schools identified as high-performing through this approach have roughly *70 percent or more of their students at grade level in both reading and math—with some of these schools even achieving 100 percent proficiency at various grade levels.* The schools highlighted in Figures 8 and 9 are those that have been over performing for three or more years, and the rising stars are getting close, by being high-performing in 2011-12 or 2012-13, the last years of CST data.

Table 7. Annual School Achievement Performance Index (SAI) Thresholds to be Identified as a High-Performing, Beating-the-Odds School

Schools with SAI's that are two standard deviations above predicted performance

Year	2012-13	2011-12	2010-11	2009-10	2008-09
Two standard deviations above predicted performance	1.0481296	1.0460668	1.0520614	1.0349196	1.0073878
Number of schools with an SAI (schools in sample)	8,519	8,450	8,371	8,288	8,262

[8] Beating-the-odds analysis used

Limitations

Innovate Public Schools presents this model for identifying low-performing schools as an improvement over the state's current approach to identifying struggling schools that need major improvement. In the 2013-14 school year, 193 schools (among almost 700 schools across San Mateo and Santa Clara counties) are identified as being in program improvement under the Elementary and Secondary Education Act. Our approach identifies a small subset of schools that have been persistently struggling and are performing at the bottom, compared to all schools in the region.

We recommend education stakeholders and the broader community use our approach for identifying low-performing schools because it is a strong model for evaluating school performance. However, we recognize there are limitations to any approach to evaluating school performance using only statewide standardized test information. This following are limitations of our approach:

- ***Our approach does not include data from the most recent school year given limitations in statewide standardized testing data due to the transition to the new assessment system under the Common Core Standards***, called California Assessment of Student Performance and Progress. All schools in California do not have ELA or math results for the CSTs in the 2013-14 school year. We used data from 2008-09 to 2012-13 to get a long-term perspective on the performance of schools, but recognize our approach misses the results, potentially better or worse, that these schools achieve in the most recent year.

- ***Our approach does not include student-level growth data, which is an important component of evaluating school performance.*** We don't have access to student-level data statewide for this report, nor is it possible to create accurate student-growth estimates given limitations in California's prior testing system. Given these limitations, our approach is strong in identifying schools that have persistently struggled to get their students to grade level in core subjects.

- ***API is limited in that it changes year-to-year, and thus making multi-year assessments of schools based on the API challenging.*** We accounted for this by applying our criteria for being a low-performing school in each year of the analysis.

- ***The AIR regression models reach high levels of validity and are reliable, but regression analysis is limited to being a statistical estimate of relationship among variables.*** While the approach is very strong in that it is a strong model for isolating school impact by controlling for other variables that typically impact performance, as a statistical model, it is susceptible to statistical imprecision. We account for this by using the SAI over three years to identify schools that are not doing well with the specific student population that they serve.

- ***Our definition for high-need, high-performing schools is limited to schools' performance in ELA and math on the CSTs.*** Beating-the-odds analysis is a strong method for the identification of high- and low-performing schools. Nevertheless, we believe there are other important factors that must be reviewed to ensure schools are indeed serving students at very high levels and preparing them for college. We plan to incorporate college readiness measures into high school performance in future reports.

Appendix

Appendix 1. API Cut Points for Elementary, Middle and High Schools in Santa Clara and San Mateo Counties

Highlighted 10th percentile cut-points represent the thresholds used to identify Silicon Valley's lowest-performing schools

Elementary Schools

Percentile	2012-13	2011-12	2010-11	2009-10	2008-09
1%	662	695	693	662	645
5%	728	741	738	724	702
10%	**754**	**764**	**759**	**741**	**729**
25%	803	803	796	782	767
50%	855	859	853	837	823
75%	927	928	917	916	905
90%	958	960	960	956	952
95%	976	978	974	974	970
99%	993	995	995	990	989

Middle Schools

Percentile	2012-13	2011-12	2010-11	2009-10	2008-09
1%	621	552	631	647	621
5%	708	698	693	671	662
10%	**735**	**732**	**719**	**706**	**688**
25%	783	770	754	757	737
50%	840	832	824	806	806
75%	907	911	908	900	894
90%	950	948	957	949	941
95%	968	978	976	970	971
99%	987	987	983	986	982

High Schools*

Percentile	2012-13	2011-12	2010-11	2009-10	2008-09
1%	481	527	515	476	542
5%	610	659	649	648	625
10%	**675**	**683**	**682**	**668**	**657**
25%	737	744	740	716	699
50%	793	790	784	776	763.5
75%	846.5	853.5	853	833	827
90%	895	900	895	891	881
95%	924.5	930	926	917	915
99%	956	956	949	943	935

*K-12 schools were identified using high-school API cut points.

Appendix 2. Key Statistics for Regression Model

Model 1: Grade 2 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	5553
F(6, 5546)	1143.420
Sig.	0.000
R-squared	0.553
Adj R-squared	0.553
Root MSE	0.669

ANOVA

Source	Sum of Squares	Degrees of freedom	Mean Squares
Model	3070.123	6	511.687
Residual	2481.877	5546	0.448
Total	5552.000	5552	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	0.001	0.096	0.01	0.989	-0.187	0.189
% Asian	2.157	0.082	26.29	0.000	1.996	2.318
% Hispanic/Latino	0.813	0.065	12.43	0.000	0.684	0.941
% English learners	-0.812	0.066	-12.39	0.000	-0.941	-0.684
% Economically disadvantaged	-2.035	0.055	-36.96	0.000	-2.143	-1.927
% of Students with disabilities	-1.099	0.188	-5.83	0.000	-1.468	-0.729
(Constant)	1.049	0.030	34.58	0.000	0.990	1.109

Model 2: Grade 3 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	5534
F (6,5527)	1731.030
Prob > F	0.000
R-squared	0.653
Adj R-squared	0.652
Root MSE	0.590

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	3611.267	6	601.878
Residual	1921.733	5527	0.348
Total	5533.000	5533	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.462	0.086	-5.38	0.000	-0.631	-0.294
% Asian	1.750	0.067	26.08	0.000	1.618	1.881
% Hispanic/Latino	0.478	0.054	8.79	0.000	0.371	0.585
% English learners	-1.042	0.056	-18.51	0.000	-1.153	-0.932
% Economically disadvantaged	-1.984	0.048	-40.93	0.000	-2.080	-1.889
% of Students with disabilities	-0.379	0.197	-1.92	0.055	-0.766	0.008
(Constant)	1.205	0.027	44.53	0.000	1.152	1.258

Model 3: Grade 4 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	5506
F(6,5499)	2006.130
Prob > F	0.000
R-squared	0.686
Adj R-squared	0.686
Root MSE	0.560

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	3778.703	6	629.784
Residual	1726.297	5499	0.314
Total	5505.000	5505	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.525	0.081	-6.52	0.000	-0.683	-0.367
% Asian	1.682	0.062	26.96	0.000	1.560	1.804
% Hispanic/Latino	0.588	0.053	11.15	0.000	0.484	0.691
% English learners	-1.316	0.060	-21.83	0.000	-1.435	-1.198
% Economically disadvantaged	-2.100	0.046	-45.27	0.000	-2.191	-2.009
% of Students with disabilities	-0.519	0.205	-2.54	0.011	-0.920	-0.118
(Constant)	1.239	0.026	48.00	0.000	1.188	1.289

Model 4: Grade 5 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	5512
F(6,5505)	2247.310
Prob > F	0.000
R-squared	0.710
Adj R-squared	0.710
Root MSE	0.539

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	3913.326	6	652.221
Residual	1597.674	5505	0.290
Total	5511.000	5511	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.728	0.075	-9.65	0.000	-0.876	-0.580
% Asian	1.552	0.060	25.95	0.000	1.435	1.670
% Hispanic/Latino	0.359	0.050	7.19	0.000	0.261	0.457
% English learners	-1.279	0.061	-20.96	0.000	-1.398	-1.159
% Economically disadvantaged	-2.105	0.045	-47.19	0.000	-2.192	-2.017
% of Students with disabilities	-0.470	0.198	-2.38	0.017	-0.858	-0.083
(Constant)	1.322	0.025	52.72	0.000	1.273	1.371

Model 5: Grade 6 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	3958
F(6,3951)	1410.650
Prob > F	0.000
R-squared	0.682
Adj R-squared	0.681
Root MSE	0.565

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2697.701	6	449.617
Residual	1259.299	3951	0.319
Total	3957.000	3957	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.736	0.097	-7.60	0.000	-0.926	-0.546
% Asian	1.825	0.076	23.91	0.000	1.676	1.975
% Hispanic/Latino	0.527	0.060	8.79	0.000	0.410	0.645
% English learners	-1.453	0.083	-17.41	0.000	-1.616	-1.289
% Economically disadvantaged	-2.283	0.054	-42.28	0.000	-2.388	-2.177
% of Students with disabilities	-0.861	0.229	-3.75	0.000	-1.310	-0.411
(Constant)	1.349	0.030	44.29	0.000	1.289	1.408

Model 6: Grade 7 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	2305
F(6,2298)	780.330
Prob > F	0.000
R-squared	0.671
Adj R-squared	0.670
Root MSE	0.575

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	1545.462	6	257.577
Residual	758.538	2298	0.330
Total	2304.000	2304	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.776	0.124	-6.27	0.000	-1.019	-0.533
% Asian	2.088	0.106	19.79	0.000	1.881	2.295
% Hispanic/Latino	0.287	0.076	3.78	0.000	0.138	0.436
% English learners	-1.428	0.126	-11.36	0.000	-1.674	-1.181
% Economically disadvantaged	-2.147	0.071	-30.07	0.000	-2.287	-2.007
% of Students with disabilities	-1.402	0.333	-4.21	0.000	-2.055	-0.749
(Constant)	1.299	0.038	33.92	0.000	1.224	1.375

Model 7: Grade 8 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	2279
F(6,2272)	640.790
Prob > F	0.000
R-squared	0.629
Adj R-squared	0.628
Root MSE	0.610

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	1431.858	6	238.643
Residual	846.142	2272	0.372
Total	2278.000	2278	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.067	0.133	-8.05	0.000	-1.327	-0.807
% Asian	2.019	0.116	17.42	0.000	1.792	2.247
% Hispanic/Latino	0.253	0.080	3.17	0.002	0.096	0.409
% English learners	-1.755	0.143	-12.31	0.000	-2.035	-1.476
% Economically disadvantaged	-2.002	0.076	-26.26	0.000	-2.151	-1.852
% of Students with disabilities	-0.985	0.338	-2.91	0.004	-1.649	-0.321
(Constant)	1.231	0.041	30.34	0.000	1.152	1.311

Model 8: Grade 9 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	1478
F(6,1471)	424.910
Prob > F	0.000
R-squared	0.634
Adj R-squared	0.633
Root MSE	0.606

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	936.600	6	156.100
Residual	540.400	1471	0.367
Total	1477.000	1477	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.487	0.170	-8.75	0.000	-1.821	-1.154
% Asian	2.367	0.152	15.59	0.000	2.069	2.664
% Hispanic/Latino	0.430	0.099	4.33	0.000	0.236	0.625
% English learners	-3.053	0.185	-16.47	0.000	-3.417	-2.690
% Economically disadvantaged	-1.786	0.096	-18.63	0.000	-1.974	-1.598
% of Students with disabilities	-2.553	0.430	-5.94	0.000	-3.396	-1.710
(Constant)	1.241	0.052	24.01	0.000	1.140	1.343

Model 9: Grade 10 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	1496
F(6,1489)	277.540
Prob > F	0.000
R-squared	0.528
Adj R-squared	0.526
Root MSE	0.688

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	789.269	6	131.545
Residual	705.731	1489	0.474
Total	1495.000	1495	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.451	0.202	-7.18	0.000	-1.848	-1.055
% Asian	2.640	0.165	15.97	0.000	2.316	2.964
% Hispanic/Latino	0.509	0.114	4.46	0.000	0.286	0.733
% English learners	-3.323	0.205	-16.22	0.000	-3.725	-2.921
% Economically disadvantaged	-1.391	0.110	-12.62	0.000	-1.607	-1.175
% of Students with disabilities	-1.840	0.405	-4.54	0.000	-2.635	-1.045
(Constant)	0.902	0.054	16.63	0.000	0.796	1.008

Model 10: Grade 11 with 2013 standardized CSTs scores in ELA as the dependent variable

Model Summary

Number of obs	1496
F(6,1489)	273.100
Prob > F	0.000
R-squared	0.524
Adj R-squared	0.522
Root MSE	0.691

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	783.249	6	130.542
Residual	711.751	1489	0.478
Total	1495.000	1495	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.253	0.200	-6.27	0.000	-1.644	-0.861
% Asian	2.721	0.158	17.18	0.000	2.411	3.032
% Hispanic/Latino	0.553	0.115	4.82	0.000	0.328	0.778
% English learners	-3.383	0.223	-15.20	0.000	-3.819	-2.946
% Economically disadvantaged	-1.543	0.110	-14.06	0.000	-1.759	-1.328
% of Students with disabilities	-2.214	0.459	-4.82	0.000	-3.115	-1.313
(Constant)	0.896	0.054	16.60	0.000	0.791	1.002

Model 11: Grade 2 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	5553
F(6,5546)	954.500
Prob > F	0.000
R-squared	0.508
Adj R-squared	0.508
Root MSE	0.702

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2820.565	6	470.094
Residual	2731.435	5546	0.493
Total	5552.000	5552	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.553	0.101	-5.50	0.000	-0.750	-0.356
% Asian	1.986	0.086	23.07	0.000	1.817	2.154
% Hispanic/Latino	0.548	0.069	7.99	0.000	0.413	0.682
% English learners	-0.469	0.069	-6.82	0.000	-0.604	-0.334
% Economically disadvantaged	-1.905	0.058	-32.98	0.000	-2.018	-1.792
% of Students with disabilities	-1.689	0.198	-8.52	0.000	-2.077	-1.300
(Constant)	1.078	0.032	33.87	0.000	1.016	1.141

Model 12: Grade 3 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	5535
F(6,5528)	1027.150
Prob > F	0.000
R-squared	0.527
Adj R-squared	0.527
Root MSE	0.688

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2917.267	6	486.211
Residual	2616.733	5528	0.473
Total	5534.000	5534	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.468	0.100	-4.65	0.000	-0.665	-0.271
% Asian	2.337	0.079	29.74	0.000	2.183	2.491
% Hispanic/Latino	0.706	0.064	11.10	0.000	0.581	0.831
% English learners	-0.759	0.066	-11.56	0.000	-0.888	-0.631
% Economically disadvantaged	-1.876	0.057	-33.16	0.000	-1.987	-1.765
% of Students with disabilities	-0.681	0.224	-3.04	0.002	-1.121	-0.242
(Constant)	0.907	0.032	28.20	0.000	0.844	0.970

Model 13: Grade 4 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	5507
F(6,5500)	749.490
Prob > F	0.000
R-squared	0.450
Adj R-squared	0.449
Root MSE	0.742

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2476.767	6	412.794
Residual	3029.233	5500	0.551
Total	5506.000	5506	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.364	0.108	-3.38	0.001	-0.575	-0.153
% Asian	2.561	0.083	30.91	0.000	2.399	2.723
% Hispanic/Latino	1.037	0.070	14.86	0.000	0.900	1.173
% English learners	-1.152	0.080	-14.38	0.000	-1.309	-0.995
% Economically disadvantaged	-1.741	0.061	-28.41	0.000	-1.861	-1.621
% of Students with disabilities	-0.548	0.252	-2.17	0.030	-1.042	-0.053
(Constant)	0.670	0.035	19.41	0.000	0.602	0.738

Model 14: Grade 5 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	5512
F(6,5505)	865.250
Prob > F	0.000
R-squared	0.485
Adj R-squared	0.485
Root MSE	0.718

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2674.736	6	445.789
Residual	2836.264	5505	0.515
Total	5511.000	5511	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.574	0.101	-5.69	0.000	-0.772	-0.376
% Asian	2.451	0.080	30.71	0.000	2.295	2.608
% Hispanic/Latino	0.817	0.067	12.23	0.000	0.686	0.947
% English learners	-0.902	0.082	-11.07	0.000	-1.062	-0.742
% Economically disadvantaged	-1.859	0.059	-31.31	0.000	-1.976	-1.743
% of Students with disabilities	-0.073	0.251	-0.29	0.770	-0.565	0.418
(Constant)	0.755	0.033	22.59	0.000	0.689	0.821

Model 15: Grade 6 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	3959
F (6,3952)	785.430
Prob > F	0.000
R-squared	0.544
Adj R-squared	0.543
Root MSE	0.676

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	2152.716	6	358.786
Residual	1805.284	3952	0.457
Total	3958.000	3958	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-0.801	0.116	-6.89	0.000	-1.029	-0.573
% Asian	2.745	0.091	30.08	0.000	2.566	2.924
% Hispanic/Latino	0.753	0.072	10.48	0.000	0.612	0.894
% English learners	-1.024	0.100	-10.28	0.000	-1.219	-0.828
% Economically disadvantaged	-2.018	0.065	-31.26	0.000	-2.145	-1.891
% of Students with disabilities	-0.886	0.266	-3.33	0.001	-1.408	-0.364
(Constant)	0.931	0.036	25.79	0.000	0.861	1.002

Model 16: Grade 7 with 2013 standardized CSTs scores in mathematics as the dependent variable

Model Summary

Number of obs	2297
F(6,2290)	273.760
Prob > F	0.000
R-squared	0.418
Adj R-squared	0.416
Root MSE	0.764

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	958.997	6	159.833
Residual	1337.003	2290	0.584
Total	2296.000	2296	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.124	0.163	-6.91	0.000	-1.443	-0.805
% Asian	3.054	0.153	19.98	0.000	2.754	3.353
% Hispanic/Latino	0.425	0.100	4.23	0.000	0.228	0.622
% English learners	-1.140	0.162	-7.05	0.000	-1.457	-0.823
% Economically disadvantaged	-1.504	0.095	-15.89	0.000	-1.690	-1.319
% of Students with disabilities	-1.624	0.418	-3.89	0.000	-2.443	-0.805
(Constant)	0.831	0.051	16.22	0.000	0.731	0.932

Model 17: Grade 10 with 2013 standardized CAHSEE scores in mathematics as the dependent variable

Model Summary

Number of obs	1478
F(6,1471)	212.230
Prob > F	0.000
R-squared	0.464
Adj R-squared	0.462
Root MSE	0.734

ANOVA

Source	Sum of Squares	df	Mean Squares
Model	685.321	6	114.220
Residual	791.679	1471	0.538
Total	1477.000	1477	1.000

Coefficients

	Coefficients	Std. Err.	t	Sig.	95% Conf. Interval	
% Black/African American	-1.742	0.216	-8.09	0.000	-2.165	-1.320
% Asian	3.579	0.180	19.91	0.000	3.226	3.931
% Hispanic/Latino	0.524	0.124	4.23	0.000	0.281	0.767
% English learners	-2.729	0.213	-12.81	0.000	-3.147	-2.311
% Economically disadvantaged	-0.885	0.116	-7.62	0.000	-1.113	-0.657
% of Students with disabilities	-1.828	0.380	-4.81	0.000	-2.575	-1.082
(Constant)	0.576	0.059	9.71	0.000	0.460	0.693