

# Predicting Success, Preventing Failure: An Investigation of the California High School Exit Exam Technical Appendix

**Andrew C. Zau**  
**Julian R. Betts**

## **Description**

This appendix contains tables that show the results of each regression mentioned in the main report. These tables closely follow the order in which they are mentioned in the report. Results for passage of the individual components of the CAHSEE – the math and English Language Arts (ELA) portions – are included in this appendix, along with results for overall passage of the exam.



**PPIC**

PUBLIC POLICY  
INSTITUTE OF CALIFORNIA

In each regression of this appendix, we estimated linear probability models. That is, we ran ordinary least squares (OLS) models with the dependent variable being a binary variable equal to 1 if the student had passed the stipulated CAHSEE component by the given grade.

Tables A.1 to A.10 together provide the background to Chapter 4. Table A.10 shows means and standard deviations of key variables used in the models in that chapter. The results reported in Chapter 5 can be found in Tables A.11 to A.16. The models including teacher qualifications discussed in Chapter 6 appear in Table A.17.

The models that follow also contain dummy variables indicating whether given variables (or sets of variables) were missing. We set missing values to zero but added dummy variables to control for their average effect on the outcome variable.

Occasionally, we add notes to the tables below to explain better their relevance to the main text.

**Table A.1. CAHSEE results using standardized test scores and grade 9 data for descriptions of students and schools**

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Student is female	-0.0384	0.0207	-0.0524	0.0048	0.0159	-0.0165
	(0.0083)**	(0.0076)**	(0.0086)**	(0.0079)	(0.0063)*	(0.0069)*
Student is African American	-0.1110	-0.0584	-0.1474	-0.0418	-0.0243	-0.0762
	(0.0144)**	(0.0132)**	(0.0148)**	(0.0137)**	(0.0109)*	(0.0119)**
Student is Asian	0.0063	0.0111	-0.0131	0.0189	0.0120	-0.0006
	(0.0132)	(0.0122)	(0.0137)	(0.0126)	(0.0100)	(0.0110)
Student is Hispanic	-0.0227	0.0122	-0.0540	0.0106	0.0226	-0.0052
	(0.0126)	(0.0115)	(0.0130)**	(0.0119)	(0.0095)*	(0.0104)
Student is other race	-0.0361	-0.0059	-0.0724	-0.0102	-0.0231	-0.0334
	(0.0431)	(0.0397)	(0.0447)	(0.0408)	(0.0327)	(0.0358)
Student was an English learner	-0.2018	-0.2719	-0.1973	-0.1864	-0.1948	-0.1411
	(0.0128)**	(0.0118)**	(0.0127)**	(0.0122)**	(0.0097)**	(0.0101)**
Parental education less than high school	-0.0183	-0.0083	-0.0319	-0.0233	-0.0122	-0.0267
	(0.0134)	(0.0124)	(0.0139)*	(0.0127)	(0.0102)	(0.0112)*
Average GPA	0.0728	0.0214	0.1057	0.0685	0.0241	0.0677
	(0.0066)**	(0.0058)**	(0.0068)**	(0.0063)**	(0.0048)**	(0.0054)**
ELA standardized score on CST	0.1565	0.1640		0.1053	0.0730	
	(0.0067)**	(0.0054)**		(0.0063)**	(0.0045)**	
Math standardized score on CST	0.0314		0.0758	0.0006		0.0259
	(0.0059)**		(0.0056)**	(0.0056)		(0.0045)**
Algebra 1 CST taken	0.1013		0.1645	0.2253		0.2055
	(0.0277)**		(0.0287)**	(0.0263)**		(0.0231)**
Algebra 2 CST taken	0.0754		0.1880	0.0914		0.1657
	(0.0372)*		(0.0383)**	(0.0352)**		(0.0307)**
8th/9th grade math CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)
Geometry CST taken	0.1625		0.2606	0.1840		0.2164
	(0.0289)**		(0.0298)**	(0.0274)**		(0.0239)**
General high school math CST taken	-0.1141		-0.0525	0.0137		0.1085
	(0.0748)		(0.0775)	(0.0709)		(0.0622)
Integrated math 1 CST taken	0.1471		0.1926	0.3189		0.3825
	(0.2005)		(0.2080)	(0.1902)		(0.1669)*
Integrated math 2 CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Integrated math 3 CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)
Percent of time absent from school	-0.0020	-0.0027	-0.0024	-0.0078	-0.0037	-0.0048
	(0.0009)*	(0.0008)**	(0.0009)**	(0.0008)**	(0.0007)**	(0.0007)**
School percent Native American	0.0093	0.0350	0.0007	0.0473	0.0277	0.0242
	(0.0151)	(0.0137)*	(0.0156)	(0.0143)**	(0.0113)*	(0.0125)
School percent African American	-0.0005	0.0004	-0.0028	-0.0035	-0.0002	-0.0005
	(0.0008)	(0.0007)	(0.0008)**	(0.0008)**	(0.0006)	(0.0007)
School percent Hispanic	-0.0001	-0.0008	-0.0015	-0.0044	-0.0017	-0.0013
	(0.0006)	(0.0006)	(0.0006)*	(0.0006)**	(0.0005)**	(0.0005)*
School percent Asian	0.0018	0.0014	0.0013	-0.0006	-0.0001	-0.0000
	(0.0005)**	(0.0005)**	(0.0006)*	(0.0005)	(0.0004)	(0.0004)
School percent Pacific Islander	-0.0070	0.0009	-0.0068	0.0258	0.0042	-0.0131
	(0.0079)	(0.0072)	(0.0082)	(0.0074)**	(0.0060)	(0.0065)*
Percent of school on lunch subsidy	-0.0010	-0.0003	0.0002	0.0019	0.0008	0.0001
	(0.0004)*	(0.0004)	(0.0004)	(0.0004)**	(0.0003)*	(0.0003)
Special ed student	-0.1625	-0.1856	-0.2087	-0.1990	-0.1669	-0.1859
	(0.0141)**	(0.0126)**	(0.0142)**	(0.0133)**	(0.0104)**	(0.0114)**
Missing parental education less than high school	-0.0070	-0.0120	-0.0186	-0.0143	-0.0134	-0.0230
	(0.0108)	(0.0099)	(0.0110)	(0.0102)	(0.0082)	(0.0088)**
Missing GPA	0.1634	0.0242	0.2930	0.1659	0.0567	0.1982
	(0.0361)**	(0.0329)	(0.0372)**	(0.0342)**	(0.0272)*	(0.0299)**
Missing ELA CST	-0.0657	-0.1130		-0.1597	-0.0892	
	(0.0241)**	(0.0197)**		(0.0227)**	(0.0163)**	
Missing math CST	0.0751		0.1448	0.1075		0.1506
	(0.0318)*		(0.0319)**	(0.0301)**		(0.0256)**
Missing CAHSEE score in 10th grade	-0.3316					
	(0.0175)**					
Missing ELA CAHSEE score in 2004		-0.4656				
		(0.0160)**				
Missing math CAHSEE score in 2004			-0.4403			
			(0.0180)**			

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Missing 12th grade CAHSEE scores for math						-0.6778
						(0.0145)**
Missing 12th grade CAHSEE scores for ELA					-0.6886	
					(0.0132)**	
Constant	0.4396	0.7441	0.4275	0.5931	0.8813	0.6184
	(0.0435)**	(0.0312)**	(0.0451)**	(0.0413)**	(0.0257)**	(0.0362)**
Observations	7259	7259	7259	7259	7259	7259
R-squared	0.51	0.52	0.44	0.39	0.53	0.47

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.2. CAHSEE passage by grade 10 using data from past grades**

	Passed CAHSEE by end of 10th grade				
	8th grade data	7th grade data	6th grade data	5th grade data	4th grade data
Student is female	-0.0250 (0.0085)**	-0.0217 (0.0089)*	0.0067 (0.0090)	-0.0108 (0.0090)	-0.0048 (0.0095)
Student is African American	-0.0713 (0.0150)**	-0.0590 (0.0158)**	-0.0810 (0.0168)**	-0.0802 (0.0170)**	-0.0765 (0.0180)**
Student is Asian	0.0272 (0.0135)*	0.0335 (0.0142)*	0.0306 (0.0149)*	0.0431 (0.0151)**	0.0478 (0.0163)**
Student is Hispanic	-0.0042 (0.0126)	0.0151 (0.0134)	-0.0078 (0.0145)	-0.0147 (0.0147)	-0.0186 (0.0158)
Student is other race	-0.0318 (0.0428)	-0.0104 (0.0436)	-0.0012 (0.0473)	0.0180 (0.0476)	-0.0239 (0.0513)
Student was an English learner	-0.1424 (0.0127)**	-0.1044 (0.0130)**	-0.0776 (0.0135)**	-0.0471 (0.0134)**	-0.0258 (0.0137)
Parental education less than high school	0.0250 (0.0153)	0.0308 (0.0158)	-0.0074 (0.0147)	-0.0256 (0.0139)	0.0000 (0.0000)
Average GPA	0.0819 (0.0063)**	0.0942 (0.0073)**			
Elementary GPA in grade 6			0.1008 (0.0127)**		
Elementary GPA in grade 5				0.1137 (0.0085)**	
Elementary GPA in grade 4					0.1320 (0.0089)**
Grade 8 ELA score for CST	0.1311 (0.0072)**				
Grade 8 math score for CST	0.0831 (0.0067)**				
Grade 7 ELA score for SAT9		0.1315 (0.0077)**			
Grade 7 math score for SAT9		0.0906 (0.0074)**			
Grade 6 ELA score for SAT9			0.0808 (0.0082)**		
Grade 6 math score for SAT9			0.1609 (0.0078)**		
Grade 5 ELA score for SAT9				0.0563 (0.0084)**	
Grade 5 math score for SAT9				0.1180 (0.0080)**	
Grade 4 ELA score for SAT9					0.0390 (0.0093)**
Grade 4 math score for SAT9					0.1353 (0.0088)**
Percent of time absent from school	-0.0014 (0.0008)	-0.0020 (0.0010)*	-0.0036 (0.0011)**	-0.0038 (0.0012)**	-0.0022 (0.0012)
School percent Native American	0.0478 (0.0125)**	0.0457 (0.0138)**	0.0003 (0.0096)	0.0000 (0.0068)	0.0005 (0.0077)

Continued on next page

Continued:

	8th grade data	7th grade data	6th grade data	5th grade data	4th grade data
School percent African American	-0.0005 (0.0006)	0.0011 (0.0008)	-0.0001 (0.0007)	-0.0006 (0.0006)	-0.0007 (0.0007)
School percent Hispanic	0.0011 (0.0007)	0.0020 (0.0009)*	-0.0004 (0.0008)	-0.0011 (0.0006)	-0.0008 (0.0006)
School percent Asian	0.0028 (0.0005)**	0.0029 (0.0006)**	0.0005 (0.0006)	0.0008 (0.0004)*	0.0008 (0.0004)
School percent Pacific Islander	-0.0052 (0.0080)	-0.0164 (0.0104)	-0.0090 (0.0078)	0.0011 (0.0070)	0.0096 (0.0076)
Percent of school on lunch subsidy	-0.0011 (0.0004)**	-0.0020 (0.0006)**	-0.0006 (0.0006)	-0.0003 (0.0005)	-0.0004 (0.0005)
Special ed student	-0.1518 (0.0137)**	-0.1211 (0.0808)	0.0483 (0.0762)	-0.0341 (0.0826)	0.0000 (0.0000)
Missing parental education less than high school	-0.0151 (0.0097)	-0.0145 (0.0109)	0.0066 (0.0119)	0.0157 (0.0125)	0.0000 (0.0000)
Missing GPA	0.1833 (0.0470)**	0.1429 (0.0520)**			
Missing grade 8 ELA score for CST	-0.1040 (0.0318)**				
Missing grade 8 math score for CST	-0.0660 (0.0362)				
Missing CAHSEE score for 10th grade	-0.3342 (0.0181)**	-0.3365 (0.0192)**	-0.3721 (0.0194)**	-0.3469 (0.0216)**	-0.3820 (0.0203)**
Missing grade 7 ELA score for SAT9		-0.1330 (0.0340)**			
Missing grade 7 math score for SAT9		-0.0768 (0.0345)*			
Missing grade 4 GPA					0.2965 (0.0605)**
Missing grade 4 ELA score for SAT9					-0.0170 (0.0223)
Missing grade 4 math score for SAT9					-0.1784 (0.0252)**
Constant	0.4464 (0.0326)**	0.3705 (0.0380)**	0.4691 (0.0438)**	0.4614 (0.0310)**	0.3827 (0.0311)**
Missing grade 5 GPA				0.1496 (0.0303)**	
Missing grade 5 ELA score for SAT9				-0.1059 (0.0274)**	
Missing grade 5 math score for SAT9				-0.1478 (0.0300)**	
Missing grade 6 GPA			0.2774 (0.0355)**		
Missing grade 6 ELA score for SAT9			-0.1479 (0.0298)**		
Missing grade 6 math score for SAT9			-0.1998 (0.0316)**		

Continued on next page

Continued:

	8th grade data	7th grade data	6th grade data	5th grade data	4th grade data
Observations	7146	6727	6340	6612	6063
R-squared	0.51	0.49	0.48	0.46	0.45

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.3. CAHSEE passage by grade 12 using data from past grades**

	Passed CAHSEE by end of 12th grade				
	8th grade data	7th grade data	6th grade data	5th grade data	4th grade data
Student is female	0.0068 (0.0081)	0.0114 (0.0085)	0.0411 (0.0086)**	0.0149 (0.0083)	0.0346 (0.0091)**
Student is African American	-0.0370 (0.0143)**	-0.0243 (0.0151)	-0.0661 (0.0162)**	-0.0627 (0.0156)**	-0.0511 (0.0172)**
Student is Asian	0.0253 (0.0128)*	0.0315 (0.0135)*	0.0186 (0.0143)	0.0177 (0.0139)	0.0136 (0.0156)
Student is Hispanic	0.0268 (0.0120)*	0.0478 (0.0127)**	0.0052 (0.0139)	0.0064 (0.0135)	-0.0093 (0.0151)
Student is other race	-0.0390 (0.0408)	-0.0026 (0.0415)	0.0154 (0.0454)	0.0032 (0.0437)	0.0091 (0.0491)
Student was an English learner	-0.1363 (0.0121)**	-0.0681 (0.0124)**	-0.0317 (0.0130)*	-0.0215 (0.0123)	0.0171 (0.0131)
Parental education less than high school	0.0148 (0.0146)	0.0247 (0.0151)	0.0010 (0.0141)	-0.0307 (0.0128)*	0.0000 (0.0000)
Average GPA	0.0545 (0.0060)**	0.0854 (0.0069)**			
Elementary GPA in grade 6			0.0605 (0.0122)**		
Elementary GPA in grade 5				0.0934 (0.0079)**	
Elementary GPA in grade 4					0.1162 (0.0085)**
Grade 8 ELA score for CST	0.0878 (0.0069)**				
Grade 8 math score for CST	0.0191 (0.0064)**				
Grade 7 ELA score for SAT9		0.1143 (0.0073)**			
Grade 7 math score for SAT9		0.0093 (0.0071)			
Grade 6 ELA score for SAT9			0.0719 (0.0079)**		
Grade 6 math score for SAT9			0.0706 (0.0075)**		
Grade 5 ELA score for SAT9				0.0262 (0.0077)**	
Grade 5 math score for SAT9				0.0508 (0.0074)**	
Grade 4 ELA score for SAT9					0.0146 (0.0089)
Grade 4 math score for SAT9					0.0749 (0.0084)**
Percent of time absent from school	-0.0082 (0.0008)**	-0.0080 (0.0009)**	-0.0112 (0.0010)**	-0.0073 (0.0011)**	-0.0078 (0.0012)**
School percent Native American	0.0179 (0.0119)	0.0573 (0.0131)**	0.0186 (0.0093)*	0.0082 (0.0063)	0.0050 (0.0073)

Continued on next page

Continued:

	8th grade data	7th grade data	6th grade data	5th grade data	4th grade data
School percent African American	-0.0026 (0.0006)**	0.0001 (0.0008)	-0.0003 (0.0007)	-0.0008 (0.0006)	-0.0007 (0.0006)
School percent Hispanic	-0.0035 (0.0007)**	-0.0005 (0.0008)	-0.0020 (0.0008)*	-0.0014 (0.0006)*	-0.0013 (0.0006)*
School percent Asian	-0.0012 (0.0005)*	0.0011 (0.0006)	-0.0006 (0.0005)	0.0005 (0.0004)	0.0003 (0.0004)
School percent Pacific Islander	0.0163 (0.0076)*	-0.0137 (0.0099)	-0.0023 (0.0075)	-0.0023 (0.0064)	0.0097 (0.0073)
Percent of school on lunch subsidy	0.0014 (0.0004)**	-0.0006 (0.0005)	0.0001 (0.0006)	0.0001 (0.0004)	-0.0001 (0.0005)
Special ed student	-0.2148 (0.0131)**	-0.4552 (0.0763)**	-0.3426 (0.0724)**	-0.3956 (0.0750)**	0.0000 (0.0000)
Missing parental education less than high school	-0.0287 (0.0093)**	-0.0195 (0.0104)	-0.0116 (0.0114)	-0.0149 (0.0114)	0.0000 (0.0000)
Missing GPA	0.0694 (0.0448)	-0.0097 (0.0495)			
Missing grade 8 ELA score for CST	-0.1339 (0.0303)**				
Missing grade 8 math score for CST	-0.1338 (0.0344)**				
Missing grade 7 ELA score for SAT9		-0.1848 (0.0324)**			
Missing grade 7 math score for SAT9		-0.0767 (0.0328)*			
Missing grade 4 GPA					-0.1970 (0.0567)**
Missing grade 4 ELA score for SAT9					-0.0088 (0.0213)
Missing grade 4 math score for SAT9					-0.1868 (0.0241)**
Constant	0.8419 (0.0311)**	0.6111 (0.0362)**	0.8084 (0.0420)**	0.6743 (0.0285)**	0.5745 (0.0297)**
Missing grade 5 GPA				-0.2345 (0.0263)**	
Missing grade 5 ELA score for SAT9				-0.0057 (0.0252)	
Missing grade 5 math score for SAT9				-0.2328 (0.0275)**	
Missing grade 6 GPA			0.1042 (0.0340)**		
Missing grade 6 ELA score for SAT9			-0.1571 (0.0285)**		
Missing grade 6 math score for SAT9			-0.2306 (0.0303)**		
Observations	7146	6727	6340	6612	6063
R-squared	0.36	0.33	0.31	0.34	0.28

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.4. CAHSEE passage with interaction of English Learners with language spoken at home**

Notes: The comparison language group is Spanish. A number of relatively rare languages including Hmong are included in the category “other languages.”

	Passed CAHSEE by end of 10th	Passed CAHSEE by end of 12th
Student was an English learner	-0.1867 (0.0150)**	-0.2126 (0.0142)**
Tagalog	0.0520 (0.0300)	0.0290 (0.0284)
Vietnamese	0.0623 (0.0327)	0.0087 (0.0310)
Lao	0.0053 (0.0449)	-0.0152 (0.0425)
Khmer	0.0080 (0.0474)	0.0471 (0.0449)
Chinese	0.0048 (0.0442)	-0.0498 (0.0419)
Other language	0.0036 (0.0186)	-0.0163 (0.0176)
EL interacted with Tagalog	-0.1515 (0.0545)**	0.0159 (0.0516)
EL interacted with Vietnamese	-0.0462 (0.0524)	0.2597 (0.0496)**
EL interacted with Lao	-0.0983 (0.0907)	0.0256 (0.0859)
EL interacted with Khmer	-0.1936 (0.0901)*	-0.1344 (0.0853)
EL interacted with Chinese	-0.0165 (0.0927)	0.0804 (0.0877)
EL interacted with other language	-0.0265 (0.0439)	0.0930 (0.0416)*
Constant	0.4402 (0.0478)**	0.6124 (0.0453)**
Observations	7259	7259
R-squared	0.51	0.39

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.5. CAHSEE passage for students who were English Learners in grade 9, with an additional indicator for having been English Learners in an earlier grade**

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Student was an English learner	-0.2072	-0.2917	-0.1927	-0.2118	-0.2182	-0.1497
	(0.0136)**	(0.0124)**	(0.0135)**	(0.0128)**	(0.0102)**	(0.0108)**
Was student EL prior to 9th grade?	0.0141	0.0529	-0.0116	0.0675	0.0625	0.0217
	(0.0116)	(0.0106)**	(0.0120)	(0.0110)**	(0.0088)**	(0.0096)*
Constant	0.4396	0.7391	0.4275	0.5931	0.8754	0.6183
	(0.0435)**	(0.0312)**	(0.0451)**	(0.0412)**	(0.0257)**	(0.0362)**
Observations	7259	7259	7259	7259	7259	7259
R-squared	0.51	0.52	0.44	0.39	0.53	0.48

**Table A.6. CAHSEE passage for English Learners after accounting for number of years they have been in the district as of grade 9**

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Student was an English learner	-0.1927	-0.2492	-0.2063	-0.1674	-0.1747	-0.1386
	(0.0139)**	(0.0127)**	(0.0140)**	(0.0131)**	(0.0105)**	(0.0112)**
EL second year	-0.0107	-0.0580	0.0799	-0.0604	-0.0417	0.0079
	(0.0328)	(0.0301)	(0.0339)*	(0.0310)	(0.0248)	(0.0272)
EL first year	-0.0600	-0.1233	0.0054	-0.0968	-0.1161	-0.0216
	(0.0273)*	(0.0250)**	(0.0281)	(0.0259)**	(0.0207)**	(0.0226)
Constant	0.4403	0.7381	0.4304	0.5924	0.8759	0.6192
	(0.0435)**	(0.0312)**	(0.0451)**	(0.0412)**	(0.0257)**	(0.0362)**
Observations	7259	7259	7259	7259	7259	7259
R-squared	0.51	0.52	0.44	0.39	0.53	0.47

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.7. Comparison of CAHSEE results using the overall sample, the English Learner subsample and the non-English Learner sample**

	Passed CAHSEE by end of 10th	Passed CAHSEE ever	Passed CAHSEE by end of 10th – EL only	Passed CAHSEE ever – EL only	Passed CAHSEE by end of 10th, non-EL only	Passed CAHSEE ever, non-EL only
Student is female	-0.0384 (0.0083)**	0.0048 (0.0079)	-0.0249 (0.0181)	0.0495 (0.0245)*	-0.0420 (0.0092)**	-0.0064 (0.0079)
Student is African American	-0.1110 (0.0144)**	-0.0418 (0.0137)**	-0.1479 (0.0936)	-0.1322 (0.1266)	-0.1164 (0.0149)**	-0.0541 (0.0127)**
Student is Asian	0.0063 (0.0132)	0.0189 (0.0126)	-0.1618 (0.0883)	-0.1039 (0.1194)	0.0132 (0.0139)	0.0037 (0.0119)
Student is Hispanic	-0.0227 (0.0126)	0.0106 (0.0119)	-0.1330 (0.0860)	-0.1485 (0.1163)	-0.0257 (0.0133)	0.0111 (0.0114)
Student is other race	-0.0361 (0.0431)	-0.0102 (0.0408)	-0.4383 (0.2383)	-0.3131 (0.3222)	-0.0264 (0.0438)	-0.0063 (0.0375)
Student was an English learner	-0.2018 (0.0128)**	-0.1864 (0.0122)**	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Parental education less than high school	-0.0183 (0.0134)	-0.0233 (0.0127)	0.0127 (0.0231)	-0.0342 (0.0312)	-0.0312 (0.0164)	-0.0218 (0.0140)
Average GPA	0.0728 (0.0066)**	0.0685 (0.0063)**	0.0490 (0.0126)**	0.0921 (0.0170)**	0.0814 (0.0076)**	0.0569 (0.0065)**
ELA standardized score on CST	0.1565 (0.0067)**	0.1053 (0.0063)**	0.2149 (0.0167)**	0.2443 (0.0225)**	0.1472 (0.0074)**	0.0932 (0.0063)**
Math standardized score on CST	0.0314 (0.0059)**	0.0006 (0.0056)	0.1085 (0.0164)**	0.0809 (0.0222)**	0.0235 (0.0063)**	-0.0030 (0.0054)
Algebra 1 CST taken	0.1013 (0.0277)**	0.2253 (0.0263)**	0.0573 (0.0406)	0.1565 (0.0550)**	0.1196 (0.0359)**	0.2592 (0.0307)**
Algebra 2 CST taken	0.0754 (0.0372)*	0.0914 (0.0352)**	0.1401 (0.1473)	0.0025 (0.1988)	0.0921 (0.0439)*	0.1463 (0.0376)**
8th/9th grade math CST taken	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)
Geometry CST taken	0.1625 (0.0289)**	0.1840 (0.0274)**	0.1296 (0.0468)**	0.1405 (0.0631)*	0.1760 (0.0370)**	0.2267 (0.0316)**
General high school math CST taken	-0.1141 (0.0748)	0.0137 (0.0709)	0.0979 (0.1461)	0.0385 (0.1976)	-0.1321 (0.0863)	0.0721 (0.0738)
Integrated math 1 CST taken	0.1471 (0.2005)	0.3189 (0.1902)	0.3883 (0.3186)	0.2874 (0.4304)	-0.0112 (0.2467)	0.5010 (0.2109)*
Integrated math 2 CST taken	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed CAHSEE ever	Passed CAHSEE by end of 10th – EL only	Passed CAHSEE ever – EL only	Passed CAHSEE by end of 10th, non-EL only	Passed CAHSEE ever, non-EL only
Integrated math 3 CST taken	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Percent of time absent from school	-0.0020	-0.0078	0.0011	-0.0033	-0.0031	-0.0094
	(0.0009)*	(0.0008)**	(0.0015)	(0.0020)	(0.0010)**	(0.0009)**
School percent Native American	0.0093	0.0473	-0.0477	-0.0471	0.0211	0.0577
	(0.0151)	(0.0143)**	(0.0366)	(0.0495)	(0.0167)	(0.0142)**
School percent African American	-0.0005	-0.0035	-0.0042	-0.0093	0.0006	-0.0020
	(0.0008)	(0.0008)**	(0.0018)*	(0.0024)**	(0.0009)	(0.0008)*
School percent Hispanic	-0.0001	-0.0044	0.0001	-0.0053	0.0001	-0.0039
	(0.0006)	(0.0006)**	(0.0012)	(0.0016)**	(0.0008)	(0.0006)**
School percent Asian	0.0018	-0.0006	0.0023	-0.0022	0.0018	-0.0002
	(0.0005)**	(0.0005)	(0.0013)	(0.0018)	(0.0006)**	(0.0005)
School percent Pacific Islander	-0.0070	0.0258	0.0093	0.0503	-0.0069	0.0148
	(0.0079)	(0.0074)**	(0.0158)	(0.0211)*	(0.0091)	(0.0077)
Percent of school on lunch subsidy	-0.0010	0.0019	-0.0002	0.0028	-0.0015	0.0013
	(0.0004)*	(0.0004)**	(0.0007)	(0.0009)**	(0.0005)**	(0.0004)**
Special ed student	-0.1625	-0.1990	-0.0640	-0.1342	-0.1798	-0.2155
	(0.0141)**	(0.0133)**	(0.0269)*	(0.0364)**	(0.0162)**	(0.0138)**
Constant	0.4396	0.5931	0.4748	0.8367	0.4077	0.5865
	(0.0435)**	(0.0413)**	(0.1232)**	(0.1666)**	(0.0517)**	(0.0442)**
Observations	7259	7259	1310	1310	5949	5949
R-squared	0.51	0.39	0.30	0.29	0.44	0.32

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.8. CAHSEE results using average test scores in math and ELA in prior year of classroom peer groups**

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE ever	Passed ELA CAHSEE ever	Passed math CAHSEE ever
Student is female	-0.0408 (0.0079)**	0.0121 (0.0072)	-0.0528 (0.0081)**	0.0000 (0.0070)	0.0108 (0.0059)	-0.0154 (0.0064)*
Student is African American	-0.0965 (0.0136)**	-0.0787 (0.0126)**	-0.1170 (0.0141)**	-0.0650 (0.0121)**	-0.0485 (0.0102)**	-0.0735 (0.0112)**
Student is Asian	0.0086 (0.0126)	-0.0111 (0.0116)	-0.0058 (0.0130)	-0.0080 (0.0111)	-0.0129 (0.0094)	-0.0064 (0.0104)
Student is Hispanic	-0.0207 (0.0120)	-0.0074 (0.0111)	-0.0303 (0.0124)*	-0.0013 (0.0106)	0.0053 (0.0090)	-0.0045 (0.0099)
Student is other race	-0.0217 (0.0404)	0.0157 (0.0373)	-0.0474 (0.0420)	-0.0217 (0.0357)	-0.0149 (0.0304)	-0.0333 (0.0333)
Student was an English learner	-0.2190 (0.0129)**	-0.3191 (0.0119)**	-0.1887 (0.0132)**	-0.2270 (0.0114)**	-0.2459 (0.0097)**	-0.1633 (0.0105)**
Parental education less than high school	0.0070 (0.0131)	-0.0053 (0.0121)	0.0041 (0.0136)	-0.0061 (0.0116)	-0.0180 (0.0099)	-0.0014 (0.0108)
Average GPA	0.0571 (0.0060)**	0.0318 (0.0054)**	0.0756 (0.0062)**	0.0627 (0.0053)**	0.0331 (0.0044)**	0.0598 (0.0049)**
ELA standardized score on CST	0.0028 (0.0001)**	0.0027 (0.0001)**		0.0015 (0.0001)**	0.0012 (0.0001)**	
Math standardized score on CST	0.0002 (0.0001)		0.0011 (0.0001)**	-0.0002 (0.0001)		0.0003 (0.0001)**
Algebra 1 CST taken	-0.0600 (0.1283)		0.0992 (0.1331)	0.2457 (0.1134)*		0.4000 (0.1058)**
Algebra 2 CST taken	0.1623 (0.1281)		0.4229 (0.1327)**	0.3689 (0.1133)**		0.5658 (0.1055)**
8th/9th grade math CST taken	0.0000 (0.0000)		0.0000 (0.0000)	0.0000 (0.0000)		0.0000 (0.0000)
Geometry CST taken	0.0702 (0.1276)		0.2767 (0.1324)*	0.3822 (0.1128)**		0.5451 (0.1052)**
General high school math CST taken	0.0258 (0.1302)		0.2937 (0.1349)*	0.2920 (0.1151)*		0.5032 (0.1072)**
Integrated math 1 CST taken	0.1835 (0.1302)		0.4004 (0.1350)**	0.3993 (0.1151)**		0.5930 (0.1073)**
Integrated math 2 CST taken	0.2599 (0.1797)		0.4823 (0.1864)**	0.3408 (0.1588)*		0.5887 (0.1481)**
Integrated math 3 CST taken	0.0000 (0.0000)		0.0000 (0.0000)	0.0000 (0.0000)		0.0000 (0.0000)

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE ever	Passed ELA CAHSEE ever	Passed math CAHSEE ever
Peer groups in 4th grade, ELA	-0.0007	-0.2341	-0.1005	-0.0475	0.1881	-0.2090
	(0.5488)	(0.5071)	(0.5699)	(0.4852)	(0.4126)	(0.4528)
Peer groups in 5th grade, ELA	-0.0573	-0.0544	-0.0088	-0.0075	-0.0094	0.0119
	(0.0195)**	(0.0180)**	(0.0203)	(0.0173)	(0.0147)	(0.0161)
Peer groups in 6th grade, ELA	0.0016	0.0045	0.0054	-0.0169	-0.0078	-0.0069
	(0.0101)	(0.0094)	(0.0105)	(0.0090)	(0.0076)	(0.0084)
Peer groups in 7th grade, ELA	0.0028	0.0018	0.0172	-0.0098	-0.0062	0.0024
	(0.0102)	(0.0094)	(0.0105)	(0.0090)	(0.0076)	(0.0084)
Peer groups in 8th grade, ELA	0.0237	0.0138	0.0294	-0.0033	-0.0118	0.0010
	(0.0095)*	(0.0088)	(0.0098)**	(0.0084)	(0.0072)	(0.0078)
Peer groups in 4th grade, math	0.1925	0.3921	0.3180	0.3275	-0.1965	0.4232
	(0.4482)	(0.4142)	(0.4654)	(0.3962)	(0.3370)	(0.3698)
Peer groups in 5th grade, math	0.0742	0.0467	0.0406	0.0072	0.0065	-0.0008
	(0.0197)**	(0.0181)**	(0.0204)*	(0.0174)	(0.0148)	(0.0162)
Peer groups in 6th grade, math	0.0430	0.0412	0.0609	0.0446	0.0100	0.0340
	(0.0143)**	(0.0132)**	(0.0149)**	(0.0127)**	(0.0108)	(0.0118)**
Peer groups in 7th grade, math	0.0160	-0.0112	0.0176	-0.0146	-0.0116	0.0012
	(0.0107)	(0.0098)	(0.0111)	(0.0094)	(0.0079)	(0.0088)
Peer groups in 8th grade, math	-0.0177	-0.0349	-0.0245	-0.0048	-0.0210	-0.0099
	(0.0095)	(0.0084)**	(0.0099)*	(0.0084)	(0.0068)**	(0.0078)
Percent of time absent from school	-0.0015	-0.0026	-0.0013	-0.0055	-0.0039	-0.0044
	(0.0007)*	(0.0007)**	(0.0007)	(0.0006)**	(0.0005)**	(0.0006)**
School percent Native American	0.0060	0.0215	0.0001	0.0193	0.0124	0.0195
	(0.0139)	(0.0128)	(0.0144)	(0.0122)	(0.0104)	(0.0114)
School percent African American	-0.0021	-0.0009	-0.0028	-0.0019	-0.0007	-0.0015
	(0.0008)**	(0.0007)	(0.0008)**	(0.0007)**	(0.0006)	(0.0006)*
School percent Hispanic	-0.0014	-0.0017	-0.0004	-0.0029	-0.0022	-0.0017
	(0.0005)**	(0.0004)**	(0.0005)	(0.0004)**	(0.0004)**	(0.0004)**
School percent Asian	0.0006	0.0003	0.0013	-0.0010	-0.0007	-0.0003
	(0.0005)	(0.0004)	(0.0005)**	(0.0004)*	(0.0003)*	(0.0004)

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE ever	Passed ELA CAHSEE ever	Passed math CAHSEE ever
School percent Pacific Islander	-0.0007	0.0188	-0.0115	0.0063	0.0089	-0.0059
	(0.0084)	(0.0077)*	(0.0087)	(0.0074)	(0.0063)	(0.0069)
Percent of school on lunch subsidy	0.0000	0.0002	-0.0001	0.0007	0.0007	0.0005
	(0.0003)	(0.0003)	(0.0003)	(0.0002)**	(0.0002)**	(0.0002)*
Special Education student	-0.1597	-0.1826	-0.2250	-0.2039	-0.1733	-0.2046
	(0.0137)**	(0.0126)**	(0.0140)**	(0.0121)**	(0.0103)**	(0.0111)**
Constant	-0.6784	-0.6524	-0.4640	0.4088	0.8219	0.3966
	(0.4031)	(0.3527)	(0.4185)	(0.3563)	(0.2870)**	(0.3325)
Observations	7793	7793	7793	7793	7793	7793
R-squared	0.53	0.54	0.46	0.48	0.55	0.50

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.9. CAHSEE results using behavior grades**

	Passed by end of 10th grade					
	4th grade data	4th grade data	4th grade data	4th grade data	4th grade data	4th grade data
Begins promptly	0.0326 (0.0074)**				0.0172 (0.0113)	
Follows directions		0.0320 (0.0073)**			0.0123 (0.0128)	
Classroom behavior			0.0244 (0.0067)**		-0.0022 (0.0127)	
Self discipline				0.0250 (0.0063)**	0.0110 (0.0118)	
Behavior GPA						0.0366 (0.0079)**
Observations	6063	6063	6063	6063	6063	6063
R-squared	0.44	0.44	0.44	0.44	0.44	0.44

	Passed by end of 10th grade					
	5th grade data	5th grade data	5th grade data	5th grade data	5th grade data	5th grade data
Begins promptly	0.0376 (0.0073)**				0.0050 (0.0113)	
Follows directions		0.0464 (0.0073)**			0.0396 (0.0129)**	
Classroom behavior			0.0303 (0.0064)**		0.0005 (0.0115)	
Self discipline				0.0299 (0.0061)**	0.0032 (0.0112)	
Behavior GPA						0.0454 (0.0076)**
Observations	6612	6612	6612	6612	6612	6612
R-squared	0.46	0.46	0.46	0.46	0.46	0.46

	Passed by end of 10th grade					
	6th grade data	6th grade data	6th grade data	6th grade data	6th grade data	6th grade data
Begins promptly	0.0355 (0.0109)**				0.0243 (0.0186)	
Follows directions		0.0321 (0.0107)**			0.0089 (0.0204)	
Classroom behavior			0.0224 (0.0098)*		-0.0226 (0.0211)	
Self discipline				0.0274 (0.0093)**	0.0262 (0.0197)	
Behavior GPA						0.0357 (0.0112)**
Observations	6340	6340	6340	6340	6340	6340
R-squared	0.47	0.47	0.47	0.47	0.47	0.47

Standard errors in parentheses  
 \* significant at 5%; \*\* significant at 1%

Continued on next page

Continued:

	Passed by end of 12th grade					
	4th grade data	4th grade data	4th grade data	4th grade data	4th grade data	4th grade data
Begins promptly	0.0411				0.0193	
	(0.0071)**				(0.0108)	
Follows directions		0.0410			0.0116	
		(0.0070)**			(0.0123)	
Classroom behavior			0.0332		-0.0075	
			(0.0064)**		(0.0122)	
Self discipline				0.0369	0.0264	
				(0.0060)**	(0.0113)*	
Behavior GPA						0.0493
						(0.0075)**
Observations	6063	6063	6063	6063	6063	6063
R-squared	0.27	0.27	0.27	0.27	0.27	0.27

	Passed by end of 12th grade					
	5th grade data	5th grade data	5th grade data	5th grade data	5th grade data	5th grade data
Begins promptly	0.0431				0.0108	
	(0.0067)**				(0.0104)	
Follows directions		0.0486			0.0269	
		(0.0067)**			(0.0118)*	
Classroom behavior			0.0391		0.0157	
			(0.0059)**		(0.0106)	
Self discipline				0.0351	0.0012	
				(0.0056)**	(0.0103)	
Behavior GPA						0.0527
						(0.0070)**
Observations	6612	6612	6612	6612	6612	6612
R-squared	0.34	0.34	0.34	0.34	0.34	0.34

	Passed by end of 12th grade					
	6th grade data	6th grade data	6th grade data	6th grade data	6th grade data	6th grade data
Begins promptly	0.0446				-0.0027	
	(0.0105)**				(0.0178)	
Follows directions		0.0515			0.0233	
		(0.0103)**			(0.0196)	
Classroom behavior			0.0456		-0.0030	
			(0.0094)**		(0.0203)	
Self discipline				0.0485	0.0377	
				(0.0090)**	(0.0189)*	
Behavior GPA						0.0587
						(0.0108)**
Observations	6340	6340	6340	6340	6340	6340
R-squared	0.31	0.31	0.31	0.31	0.31	0.31

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.10. Summary statistics for main regression models**

<b>Dependent Variables</b>	<b>Mean</b>	<b>SD</b>
Passed CAHSEE by end of 10th grade	0.60	0.49
Passed CAHSEE math by end of 10th grade	0.66	0.47
Passed CAHSEE ELA by end of 10th grade	0.71	0.46
Passed CAHSEE by end of 12th grade	0.78	0.41
Passed CAHSEE math by end of 12th grade	0.81	0.39
Passed CAHSEE ELA by end of 12th grade	0.82	0.38
<b>Independent Variables</b>	<b>Mean</b>	<b>SD</b>
Student is female	0.49	0.50
Student is African American	0.15	0.35
Student is Asian	0.21	0.40
Student is Hispanic	0.37	0.48
Student is other race	0.01	0.10
Student was an English learner	0.18	0.38
Parental education less than high school	0.14	0.35
ELA standardized score on CST	0.05	0.97
Math standardized score on CST	0.04	0.96
Algebra 1 math subtest taken	0.54	0.50
Algebra 2 math subtest taken	0.03	0.17
Math 8th/9th grade subtest taken	n/a	n/a
Geometry math subtest taken	0.33	0.47
High school math subtest taken	0.00	0.06
Intermediate math subtest taken	0.15	0.20
Average GPA	2.63	0.88
Percent of time absent from school	4.30	5.37
School percent African American	14.92	7.60
School percent Hispanic	35.30	18.08
School percent Asian	19.89	13.64
School percent Pacific Islander	0.75	0.36
Percent of school Pacific Islander	0.75	0.62
Percent of school on lunch subsidy	42.46	25.99
Special ed student	0.12	0.32
Missing parental education less than high school	0.24	0.43
Missing GPA	0.02	0.13
Missing ELA CST	0.05	0.21
Missing math CST	0.08	0.27
Missing CAHSEE score in 10th grade	0.07	0.25

Continued on next page

Continued:

Missing ELA CAHSEE score in 2004	0.07	0.25
Missing math CAHSEE score in 2004	0.07	0.25
Missing 12th grade CAHSEE scores for math	0.07	0.25
Missing 12th grade CAHSEE scores for ELA	0.07	0.25
Sample size	7259	

The next few tables assess the relative effects of the two types of tutoring – Kaplan and Princeton Review – offered to students in the class of 2006 who had yet to pass the CAHSEE as of fall 2005. We estimate the *relative* effect of the programs, an effect known to social scientists as estimation of the “intent to treat.” We know that students whose highest score by the start of grade 12 was in the range 320-349 were offered Princeton Review, while those below that range were offered Kaplan. (Remember, 350 is the score needed to pass.) So we can estimate the *relative* effect of *offering* these two programs by comparing the passage rates of students in these two groups.

Of course, we would expect that a student whose highest score on the math CAHSEE by the start of grade 12 was 349 was quite likely to pass by the end of grade 12, relative to a student with a score of only 310, as the former student was only one point shy of passing. To take into account student’s initial scores, we regressed passage on each of the CAHSEE components in the 2005-2006 school year on the highest score prior to that school year in that section of the CAHSEE, its square, and a dummy variable indicating that the highest score was below 320. The coefficient on the last of these variables will be positive/negative if students offered Kaplan had a higher/lower probability of passing than those offered Princeton Review. We estimated four models for passing the math portion and four for passing the ELA portion. In this method, known as regression discontinuity, the goal is to focus on students in a fairly narrow “window” or band around the score of 320, because those above this score were offered tutoring from Princeton Review and those below were offered Kaplan. The four windows used in our models are 0-350, 300-340, 310-330, and 315-325.

In seven of eight models, the coefficient on the indicator for highest score of less than 320 was larger than zero, but it never becomes statistically significant. The coefficients were quite small for math, ranging from -0.004 to 0.01. But the range was larger for ELA: 0.02 to 0.06.

These latter coefficients are quite large, hinting that those offered Kaplan may have had 2 to 6 percent higher probability of passing the CAHSEE ELA section, but none of the effects is statistically significant. So although our models hint that the more intensive Kaplan program may have done more to help students pass the CAHSEE, especially on ELA, the differences are not statistically significant.<sup>1</sup> We also estimated the highest math and ELA scores recorded in 2005-2006 for these students, using the same set of regressors. For the smallest window, 315-325, we found statistically significant evidence that the highest ELA score recorded in grade 12 by those in the Kaplan group exceeded that of those in the Princeton Review group. This provides more direct evidence that the more intensive program may have produced bigger gains. However, we need to be cautious as this result is based on a sample of only 79 students.<sup>2</sup>

---

<sup>1</sup> We also re-estimated these models after allowing for a school fixed effect. The results were similar in that no statistically significant differences emerged, and that more often than not the Kaplan effect, although insignificant, was positive.

<sup>2</sup> We found some evidence in the opposite direction, that is, favoring Princeton Review, in the models of math scores, but this evidence is less convincing because the results were statistically significant only when the largest window is used.

**Table A.11. CAHSEE pass results in math by end of grade 12 using regression discontinuity**

Notes: In this and Tables A.12 through A.14, the column headings indicate the CAHSEE subject tested as well as the test-score range from which students were drawn in the given test, based on highest CAHSEE score before the start of grade 12. Other regressors include a constant, the highest score in the given CAHSEE test obtained prior to starting grade 12, and its square.

	Math CAHSEE 0-350 scaled score	Math CAHSEE 300-340 scaled score	Math CAHSEE 310-330 scaled score	Math CAHSEE 315-325
Less than 320 scaled score	0.0028	-0.0039	0.0060	0.0108
	(0.02764)	(0.03004)	(0.02925)	(0.03075)
R-squared	0.03	0.02	0.02	0.02

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.12. CAHSEE pass results in ELA by end of grade 12 using regression discontinuity**

	ELA CAHSEE 0-350 scaled score	ELA CAHSEE 300-340 scaled score	ELA CAHSEE 310-330 scaled score	ELA CAHSEE 315-325
Less than 320 scaled score	0.0323	0.0257	0.0170	0.0574
	(0.0250)	(0.0272)	(0.0306)	(0.0426)
R-squared	0.04	0.02	0.01	0.02

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.13. Highest math CAHSEE score in 2005-2006 using regression discontinuity**

	Math CAHSEE 0-350 scaled score	Math CAHSEE 300-340 scaled score	Math CAHSEE 310-330 scaled score	Math CAHSEE 315-325
Less than 320 scaled score	-5.7103	-3.3068	-1.2050	0.1078
	(2.8136)*	(3.4895)	(4.8140)	(7.0915)
R-squared	0.3	0.24	0.12	0.09

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.14. Highest ELA CAHSEE score in 2005-2006 using regression discontinuity**

	ELA CAHSEE 0-350 scaled score	ELA CAHSEE 300-340 scaled score	ELA CAHSEE 310-330 scaled score	ELA CAHSEE 315-325
Less than 320 scaled score	-1.37333	2.86248	3.76704	14.22461
	(2.9434)	(3.6943)	(5.3988)	(7.0341)*
R-squared	0.31	0.23	0.08	0.09

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.15. CAHSEE results using Blueprint variables**

Note: These regressions do not include controls for students who were “below grade level” or “significantly below grade level” in reading in grade 9. The main text discusses these results briefly but focuses on the more rigorous models in Table A.10 that do include these controls.

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Ever in Blueprint summer	-0.0417 (0.0110)**	-0.0011 (0.0102)	-0.0459 (0.0114)**	0.0149 (0.0105)	0.0332 (0.0084)**	-0.0052 (0.0092)
Ever in EDRP	-0.0179 (0.0128)	-0.0232 (0.0118)*	-0.0023 (0.0132)	0.0449 (0.0122)**	0.0228 (0.0098)*	0.0212 (0.0107)*
Ever in intersession	-0.0167 (0.0173)	0.0005 (0.0161)	-0.0303 (0.0179)	-0.0238 (0.0166)	-0.0210 (0.0133)	-0.0296 (0.0146)*
Ever in literacy block	-0.0550 (0.0114)**	0.0299 (0.0105)**	-0.0686 (0.0116)**	0.0321 (0.0109)**	0.0524 (0.0087)**	-0.0055 (0.0094)
Ever in literacy core	-0.2180 (0.0194)**	-0.2117 (0.0180)**	-0.2079 (0.0200)**	-0.1303 (0.0186)**	-0.0743 (0.0149)**	-0.1222 (0.0162)**
Ever in genre studies	-0.0388 (0.0305)	-0.0404 (0.0282)	-0.0450 (0.0316)	-0.0554 (0.0292)	-0.0298 (0.0234)	-0.0731 (0.0257)**
Ever in EL block/core	-0.0422 (0.0161)**	-0.0177 (0.0149)	-0.0510 (0.0166)**	-0.0067 (0.0154)	-0.0052 (0.0123)	-0.0097 (0.0135)
Peer coach as percent of enrollment of school	0.0813 (0.0171)**	0.0610 (0.0158)**	0.0855 (0.0175)**	0.0943 (0.0163)**	0.0264 (0.0131)*	0.0547 (0.0142)**
Student is female	-0.0373 (0.0082)**	0.0207 (0.0076)**	-0.0548 (0.0085)**	0.0000 (0.0079)	0.0141 (0.0063)*	-0.0180 (0.0069)**
Student is African American	-0.0941 (0.0143)**	-0.0544 (0.0132)**	-0.1199 (0.0147)**	-0.0456 (0.0136)**	-0.0325 (0.0109)**	-0.0694 (0.0119)**
Student is Asian	0.0153 (0.0131)	0.0109 (0.0121)	0.0030 (0.0135)	0.0150 (0.0125)	0.0068 (0.0100)	0.0026 (0.0110)
Student is Hispanic	0.0016 (0.0125)	0.0208 (0.0116)	-0.0210 (0.0130)	0.0083 (0.0120)	0.0146 (0.0096)	0.0027 (0.0105)
Student is other race	-0.0337 (0.0424)	-0.0054 (0.0392)	-0.0645 (0.0439)	-0.0119 (0.0405)	-0.0243 (0.0325)	-0.0318 (0.0356)
Student was an English learner	-0.2402 (0.0172)**	-0.2787 (0.0159)**	-0.2150 (0.0172)**	-0.1852 (0.0165)**	-0.1744 (0.0132)**	-0.1525 (0.0140)**
Parental education less than high school	-0.0002 (0.0134)	-0.0002 (0.0124)	-0.0064 (0.0138)	-0.0204 (0.0128)	-0.0135 (0.0102)	-0.0182 (0.0112)
Average GPA	0.0707 (0.0065)**	0.0248 (0.0058)**	0.0977 (0.0067)**	0.0736 (0.0062)**	0.0306 (0.0048)**	0.0671 (0.0054)**
ELA standardized score on CST	0.1245 (0.0070)**	0.1522 (0.0058)**		0.1034 (0.0066)**	0.0834 (0.0048)**	
Math standardized score on CST	0.0313 (0.0058)**		0.0637 (0.0056)**	0.0034 (0.0056)		0.0237 (0.0045)**
Algebra 1 CST taken	0.1137 (0.0274)**		0.1725 (0.0283)**	0.2182 (0.0262)**		0.2045 (0.0230)**

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Algebra 2 CST taken	0.0733		0.1644	0.0913		0.1581
	(0.0366)*		(0.0376)**	(0.0350)**		(0.0306)**
8th/9th grade math CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)
Geometry CST taken	0.1542		0.2365	0.1799		0.2076
	(0.0285)**		(0.0293)**	(0.0272)**		(0.0238)**
General high school math CST taken	-0.1050		-0.0599	0.0001		0.1005
	(0.0736)		(0.0761)	(0.0704)		(0.0618)
Integrated math 1 CST taken	0.1345		0.1667	0.3029		0.3658
	(0.1973)		(0.2044)	(0.1887)		(0.1660)*
Integrated math 2 CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)
Integrated math 3 CST taken	0.0000		0.0000	0.0000		0.0000
	(0.0000)		(0.0000)	(0.0000)		(0.0000)
Percent of time absent from school	-0.0021	-0.0026	-0.0027	-0.0076	-0.0034	-0.0048
	(0.0009)*	(0.0008)**	(0.0009)**	(0.0008)**	(0.0007)**	(0.0007)**
School percent Native American	0.0154	0.0361	0.0053	0.0375	0.0183	0.0220
	(0.0150)	(0.0137)**	(0.0155)	(0.0143)**	(0.0114)	(0.0126)
School percent African American	0.0002	0.0000	-0.0019	-0.0047	-0.0011	-0.0007
	(0.0008)	(0.0007)	(0.0008)*	(0.0008)**	(0.0006)	(0.0007)
School percent Hispanic	-0.0009	-0.0016	-0.0022	-0.0053	-0.0020	-0.0019
	(0.0006)	(0.0006)**	(0.0007)**	(0.0006)**	(0.0005)**	(0.0005)**
School percent Asian	0.0015	0.0011	0.0010	-0.0009	-0.0003	-0.0003
	(0.0005)**	(0.0005)*	(0.0006)	(0.0005)	(0.0004)	(0.0004)
School percent Pacific Islander	0.0010	0.0062	0.0022	0.0293	0.0039	-0.0086
	(0.0078)	(0.0072)	(0.0081)	(0.0074)**	(0.0060)	(0.0066)
Percent of school on lunch subsidy	-0.0005	0.0003	0.0007	0.0029	0.0013	0.0008
	(0.0004)	(0.0004)	(0.0005)	(0.0004)**	(0.0003)**	(0.0004)*
Special Education student	-0.2054	-0.1878	-0.2411	-0.1664	-0.1369	-0.1832
	(0.0152)**	(0.0138)**	(0.0153)**	(0.0146)**	(0.0114)**	(0.0125)**
Constant	0.4106	0.6931	0.4036	0.4999	0.8312	0.5826
	(0.0459)**	(0.0343)**	(0.0474)**	(0.0439)**	(0.0284)**	(0.0385)**
Observations	7259	7259	7259	7259	7259	7259
R-squared	0.52	0.53	0.46	0.40	0.54	0.48

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

**Table A.16. CAHSEE results using Blueprint variables. Includes controls for below and significantly below grade level students on the SDRT**

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
Ever in Blueprint summer	-0.0799 (0.0114)**	-0.0383 (0.0105)**	-0.0604 (0.0114)**	-0.0120 (0.0108)	0.0071 (0.0085)	-0.0121 (0.0093)
Ever in EDRP	-0.0146 (0.0134)	-0.0221 (0.0124)	0.0056 (0.0134)	0.0424 (0.0128)**	0.0188 (0.0101)	0.0241 (0.0108)*
Ever in intersession	-0.0017 (0.0180)	0.0164 (0.0166)	-0.0325 (0.0182)	-0.0147 (0.0172)	-0.0118 (0.0136)	-0.0316 (0.0147)*
Ever in literacy block	-0.1082 (0.0122)**	-0.0233 (0.0113)*	-0.0802 (0.0117)**	-0.0066 (0.0117)	0.0126 (0.0092)	-0.0078 (0.0094)
Ever in literacy core	-0.2257 (0.0204)**	-0.2154 (0.0189)**	-0.1943 (0.0203)**	-0.1383 (0.0195)**	-0.0790 (0.0154)**	-0.1141 (0.0164)**
Ever in genre studies	-0.0352 (0.0318)	-0.0235 (0.0293)	-0.0509 (0.0320)	-0.0550 (0.0303)	-0.0250 (0.0240)	-0.0762 (0.0259)**
Ever in EL block/core	-0.0679 (0.0169)**	-0.0491 (0.0156)**	-0.0328 (0.0169)	-0.0131 (0.0162)	-0.0169 (0.0128)	0.0060 (0.0137)
Peer coach as percent of enrollment of school	0.1221 (0.0176)**	0.1143 (0.0163)**	0.0760 (0.0178)**	0.1318 (0.0167)**	0.0553 (0.0133)**	0.0439 (0.0144)**
Below grade level on 6th grade SDRT	-0.0119 (0.0142)	0.0066 (0.0131)		0.0243 (0.0135)	0.0235 (0.0107)*	
Significantly below grade level on 6th grade SDRT	-0.1700 (0.0179)**	-0.2145 (0.0165)**		-0.1121 (0.0171)**	-0.0927 (0.0135)**	
Math CST between -1 and -2 standard deviations			-0.1634 (0.0146)**			-0.1115 (0.0118)**
Math CST less than -2 standard deviations			-0.2015 (0.0798)*			-0.1048 (0.0645)
Student is female	-0.0066 (0.0084)	0.0406 (0.0077)**	-0.0336 (0.0085)**	0.0000 (0.0080)**	0.0288 (0.0063)**	-0.0039 (0.0068)
Student is African American	-0.1209 (0.0148)**	-0.0816 (0.0137)**	-0.1242 (0.0149)**	-0.0703 (0.0142)**	-0.0549 (0.0112)**	-0.0724 (0.0121)**
Student is Asian	0.0152 (0.0136)	0.0095 (0.0125)	0.0224 (0.0137)	0.0118 (0.0130)	0.0064 (0.0103)	0.0100 (0.0111)
Student is Hispanic	-0.0281 (0.0131)*	-0.0051 (0.0121)	-0.0263 (0.0132)*	-0.0150 (0.0125)	-0.0038 (0.0099)	-0.0028 (0.0106)
Student is other race	-0.0359 (0.0441)	-0.0162 (0.0407)	-0.0396 (0.0445)	-0.0280 (0.0421)	-0.0315 (0.0333)	-0.0228 (0.0360)
Student was an English learner	-0.3534 (0.0173)**	-0.3923 (0.0159)**	-0.2477 (0.0174)**	-0.2779 (0.0165)**	-0.2411 (0.0130)**	-0.1697 (0.0141)**
Parental education less than high school	-0.0145 (0.0139)	-0.0072 (0.0128)	-0.0065 (0.0140)	-0.0325 (0.0133)*	-0.0188 (0.0105)	-0.0188 (0.0113)

Continued on next page

Continued:

	Passed CAHSEE by end of 10th	Passed ELA by end of 10th	Passed math by end of 10th	Passed CAHSEE by end of 12th	Passed ELA by end of 12th	Passed math by end of 12th
ELA standardized score on SAT9 in grade 4	-0.0258	0.0448		-0.0093	0.0229	
	(0.0093)**	(0.0061)**		(0.0089)	(0.0050)**	
Math standardized score on SAT9 in grade 4	0.1162		0.1086	0.0653		0.0477
	(0.0090)**		(0.0064)**	(0.0086)**		(0.0051)**
Percent of time absent from school	-0.0066	-0.0051	-0.0079	-0.0130	-0.0059	-0.0081
	(0.0008)**	(0.0008)**	(0.0008)**	(0.0008)**	(0.0006)**	(0.0007)**
School percent Native American	-0.0174	0.0138	-0.0208	0.0332	0.0064	0.0152
	(0.0154)	(0.0142)	(0.0155)	(0.0147)*	(0.0116)	(0.0126)
School percent African American	-0.0005	-0.0013	-0.0018	-0.0054	-0.0016	-0.0007
	(0.0008)	(0.0008)	(0.0008)*	(0.0008)**	(0.0006)*	(0.0007)
School percent Hispanic	-0.0024	-0.0032	-0.0028	-0.0073	-0.0030	-0.0025
	(0.0007)**	(0.0006)**	(0.0007)**	(0.0006)**	(0.0005)**	(0.0005)**
School percent Asian	-0.0004	-0.0004	-0.0004	-0.0022	-0.0013	-0.0010
	(0.0005)	(0.0005)	(0.0005)	(0.0005)**	(0.0004)**	(0.0004)*
School percent Pacific Islander	0.0014	0.0104	0.0017	0.0381	0.0061	-0.0057
	(0.0081)	(0.0075)	(0.0082)	(0.0077)**	(0.0061)	(0.0066)
Percent of school on lunch subsidy	-0.0002	0.0008	0.0008	0.0041	0.0015	0.0011
	(0.0005)	(0.0004)*	(0.0005)	(0.0004)**	(0.0003)**	(0.0004)**
Special Education student	-0.2844	-0.2598	-0.2558	-0.2496	-0.1870	-0.1997
	(0.0152)**	(0.0140)**	(0.0153)**	(0.0145)**	(0.0114)**	(0.0123)**
Constant	0.8998	0.9153	0.9614	1.0006	1.0142	1.0217
	(0.0325)**	(0.0299)**	(0.0327)**	(0.0310)**	(0.0244)**	(0.0264)**
Observations	7259	7259	7259	7259	7259	7259
R-squared	0.49	0.49	0.44	0.35	0.52	0.47

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

The next page shows regression models in which we control for the average characteristics of each student's math and English teachers between grades 9 and 12. We average over the characteristics for all years in which the given student took the given type of class.

Some of the measures of teacher qualifications require explanation. A full credential is intended to denote mastery of basic pedagogical skills. Emergency and intern credentials are given to beginning teachers who have yet to complete the required set of coursework and practical training in classroom management. In high school, teachers in subjects such as ELA and math are strongly encouraged to obtain full subject authorizations, which indicate that teachers have taken the set of university courses in those subject areas that the California Commission on Teacher Credentialing (CCTC) recommends. Thus, subject authorizations are meant to denote content mastery, as opposed to pedagogical skills per se.

There are also various levels of partial subject authorizations. In declining order of subject mastery, they are supplemental, Board Resolution, and limited assignment emergency. The last of these should not be confused with an emergency credential. A teacher holding an emergency credential has yet to obtain a full credential. A teacher with a limited assignment emergency authorization in math, in contrast, is likely to be a fully credentialed teacher who is teaching out of his or her normal subject area, and thus lacks most or all of the college math classes recommended by the CCTC for math teachers.

Finally, we include controls for language credentials. The Crosscultural Language and Academic Development (CLAD) certificate prepares teachers to teach students who are English Learners. A closely related credential is the Bilingual CLAD (BCLAD) certificate, which certifies that a teacher is equipped to teach EL students in a language other than English. At SDUSD almost all holders of the BCLAD certificate hold a Spanish BCLAD. We also include controls for various alternatives to the CLAD and BCLAD certificates. See Betts, Zau, and Rice (2003) for a fuller description.

**Table A.17. CAHSEE outcomes by end of 12th grade including average teacher variables for grade levels 9-12**

	Passed CAHSEE by end of 12th	Passed ELA CAHSEE by end of 12th	Passed math CAHSEE by end of 12th
Student is female	0.0022 (0.0077)	0.0157 (0.0062)*	-0.0185 (0.0069)**
Student is African American	-0.0422 (0.0133)**	-0.0236 (0.0107)*	-0.0718 (0.0118)**
Student is Asian	0.0159 (0.0122)	0.0123 (0.0099)	-0.0017 (0.0109)
Student is Hispanic	0.0120 (0.0116)	0.0224 (0.0094)*	-0.0033 (0.0103)
Student is other race	-0.0141 (0.0395)	-0.0279 (0.0322)	-0.0273 (0.0355)
Student was an English learner	-0.1623 (0.0122)**	-0.1828 (0.0097)**	-0.1214 (0.0104)**
Parental education less than high school	-0.0184 (0.0124)	-0.0122 (0.0100)	-0.0255 (0.0111)*
Average GPA	0.0647 (0.0062)**	0.0265 (0.0048)**	0.0661 (0.0054)**
ELA standardized score on CST	0.0920 (0.0062)**	0.0690 (0.0044)**	
Math standardized score on CST	-0.0044 (0.0055)		0.0236 (0.0045)**
Algebra 1 CST taken	0.1721 (0.0263)**		0.1982 (0.0234)**
Algebra 2 CST taken	0.0232 (0.0349)		0.1467 (0.0310)**
8th/9th grade math CST taken	0.0000 (0.0000)		0.0000 (0.0000)
Geometry CST taken	0.1219 (0.0275)**		0.2056 (0.0243)**
General high school math CST taken	-0.0497 (0.0691)		0.0971 (0.0619)
Integrated math 1 CST taken	0.2909 (0.1843)		0.3690 (0.1655)*
Integrated math 2 CST taken	0.0000 (0.0000)		0.0000 (0.0000)
Integrated math 3 CST taken	0.0000 (0.0000)		0.0000 (0.0000)
Percent of time absent from school	-0.0062 (0.0008)**	-0.0032 (0.0007)**	-0.0043 (0.0007)**
School percent Native American	0.0471 (0.0155)**	0.0151 (0.0119)	0.0305 (0.0133)*
School percent African American	-0.0027 (0.0008)**	-0.0004 (0.0006)	0.0004 (0.0007)
School percent Hispanic	-0.0035 (0.0006)**	-0.0009 (0.0005)	-0.0009 (0.0005)

Continued on next page

Continued:

	Passed CAHSEE by end of 12th	Passed ELA CAHSEE by end of 12th	Passed math CAHSEE by end of 12th
School percent Asian	-0.0010 (0.0005)	-0.0001 (0.0004)	0.0000 (0.0005)
School percent Pacific Islander	0.0330 (0.0083)**	0.0034 (0.0063)	-0.0176 (0.0071)*
Percent of school on lunch subsidy	0.0018 (0.0004)**	0.0004 (0.0003)	0.0001 (0.0004)
Special ed student	-0.1500 (0.0144)**	-0.1160 (0.0112)**	-0.1614 (0.0123)**
Average of full credential English teachers with 0-2 years experience	-0.0005 (0.0002)*	0.0000 (0.0002)	
Average of full credential English teachers with 3-5 years experience	0.0004 (0.0002)*	0.0007 (0.0002)**	
Average of full credential English teachers with 6-9 years experience	0.0005 (0.0002)*	0.0004 (0.0002)	
Average of BCLAD alternative English teachers	0.0014 (0.0009)	0.0009 (0.0007)	
Average of BCLAD English teachers	-0.0008 (0.0004)	-0.0008 (0.0003)*	
Average of CLAD alternative English teachers	0.0001 (0.0002)	0.0003 (0.0002)	
Average of CLAD English teachers	-0.0004 (0.0002)**	-0.0002 (0.0001)	
Average of English teachers with full authorization	0.0019 (0.0004)**	0.0020 (0.0003)**	
Average of English teachers with supplemental authorization	0.0007 (0.0004)	0.0016 (0.0004)**	
Average of English teachers with a Board Resolution authorization	0.0010 (0.0004)*	0.0010 (0.0003)**	
Average of English teachers with a limited assignment emergency authorization	0.0017 (0.0003)**	0.0013 (0.0002)**	
Average of English teachers with an emergency credential	0.0013 (0.0005)**	0.0006 (0.0004)	
Average of English teachers with an intern credential	0.0002 (0.0005)	0.0012 (0.0004)**	
Average of English teachers with any masters degree	0.0005 (0.0001)**	-0.0000 (0.0001)	

Continued on next page

Continued:

	Passed CAHSEE by end of 12th	Passed ELA CAHSEE by end of 12th	Passed math CAHSEE by end of 12th
Average of English teachers with any doctorate degree	0.0005	0.0005	
	(0.0005)	(0.0004)	
Average of English teachers who are female	0.0002	-0.0002	
	(0.0001)	(0.0001)	
Average of English teachers who are Asian	0.0013	0.0003	
	(0.0003)**	(0.0003)	
Average of English teachers who are black	-0.0008	-0.0005	
	(0.0003)*	(0.0002)*	
Average of English teachers who are Hispanic	-0.0019	-0.0010	
	(0.0003)**	(0.0002)**	
Average of English teachers who are other races	-0.0001	-0.0009	
	(0.0007)	(0.0006)	
Average of English teachers with a bachelors in English	0.0001	0.0002	
	(0.0002)	(0.0001)	
Average of full credential math teachers with 0-2 years experience	-0.0010		-0.0005
	(0.0003)**		(0.0002)
Average of full credential math teachers with 3-5 years experience	-0.0006		-0.0006
	(0.0002)**		(0.0002)**
Average of full credential math teachers with 6-9 years experience	0.0003		0.0001
	(0.0002)		(0.0002)
Average of BCLAD alternative math teachers	0.0000		0.0000
	(0.0000)		(0.0000)
Average of BCLAD math teachers	-0.0001		-0.0006
	(0.0004)		(0.0003)
Average of CLAD alternative math teachers	0.0001		0.0001
	(0.0002)		(0.0002)
Average of CLAD math teachers	-0.0000		0.0001
	(0.0002)		(0.0001)
Average of math teachers with full authorization	0.0004		0.0008
	(0.0002)		(0.0002)**
Average of math teachers with supplemental authorization	-0.0010		0.0004
	(0.0003)**		(0.0003)

Continued on next page

Continued:

	Passed CAHSEE by end of 12th	Passed ELA CAHSEE by end of 12th	Passed math CAHSEE by end of 12th
Average of math teachers with a Board Resolution authorization	0.0004		0.0011
	(0.0005)		(0.0005)*
Average of math teachers with a limited assignment emergency authorization	-0.0006		-0.0009
	(0.0004)		(0.0003)**
Average of math teachers with an emergency credential	-0.0006		-0.0013
	(0.0004)		(0.0003)**
Average of math teachers with an intern credential	-0.0003		0.0002
	(0.0004)		(0.0003)
Average of math teachers with any masters degree	0.0004		0.0004
	(0.0001)**		(0.0001)**
Average of math teachers with any doctorate degree	-0.0008		-0.0005
	(0.0005)		(0.0004)
Average of math teachers who are female	-0.0000		-0.0001
	(0.0001)		(0.0001)
Average of math teachers who are Asian	0.0005		0.0007
	(0.0002)*		(0.0002)**
Average of math teachers who are black	-0.0003		-0.0003
	(0.0003)		(0.0002)
Average of math teachers who are Hispanic	-0.0013		-0.0009
	(0.0003)**		(0.0002)**
Average of math teachers who are other races	0.0019		0.0013
	(0.0004)**		(0.0003)**
Average of math teachers with a bachelors in math	-0.0004		-0.0002
	(0.0001)*		(0.0001)
Constant	0.3998	0.6765	0.5293
	(0.0639)**	(0.0416)**	(0.0436)**
Observations	7259	7259	7259
R-squared	0.43	0.55	0.49

Standard errors in parentheses

\* significant at 5%; \*\* significant at 1%