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APPENDIX

The “College Prep for All” Mandate – An Examination of New Graduation Requirements in the Context Of San Diego: Part I

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APPENDIX

Appendix Table 1 shows a pair of regression models for cumulative a-g semesters completed by the end of grade 9 (models 1 and 2) and the number of subject areas in which the a-g requirements had been completed by the end of grade 9 (models 3 and 4). Model 2 extends model 1 by adding a predicted probability that the student would complete a-g course requirements with grades of D or higher by the end of grade 12, using data for the student available at the end of grade 6. Similarly, for the outcome on the number of subject areas completed, model 4 adds this explanatory model to model 3. In these models, the variable for graduating class estimates a linear trend, while the variable “Class of 2016” allows for a break from trend for the class of 2016.

Appendix Table 1: Main Outcomes From Linear Regression of Semester Courses and Subject Areas Completed with Grades of D or Higher

VARIABLES	(1) Cumulative Semesters	(2) Cumulative Semesters	(3) Subject Areas	(4) Subject Areas
Class of 2016	0.481*** (0.177)	0.357** (0.146)	-0.009 (0.043)	-0.029 (0.042)
Graduating Class of (Year)	0.157** (0.071)	-0.042 (0.064)	0.067*** (0.015)	0.042*** (0.014)
Grade 6 Predicted Probability of Completing a-g		11.311*** (0.343)		1.321*** (0.165)
Predicted Probability Missing		3.866*** (0.310)		0.380*** (0.068)
Constant	-306.752** (141.927)	87.965 (129.316)	-133.447*** (30.050)	-84.745*** (28.993)
Observations	62,503	62,503	62,503	62,503
R-squared	0.009	0.354	0.019	0.145

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Outcomes are measured at the end of grade 9.

Appendix Table 2: Main Outcomes From Linear Regression of Semester Courses and Subject Areas Completed Based on Completion of Coursework with Grades of C or Better

VARIABLES	(1) Cumulative Semesters	(2) Cumulative Semesters	(3) Subject Areas	(4) Subject Areas
Class of 2016	0.473*** (0.171)	0.304** (0.130)	-0.003 (0.041)	-0.028 (0.039)
Graduating Class of (Year)	0.187*** (0.067)	-0.006 (0.059)	0.065*** (0.014)	0.041*** (0.013)
Grade 6 Predicted Probability of Completing a-g (Grades of C or Higher)		12.360*** (0.336)		1.460*** (0.165)
Predicted Probability Missing		2.928*** (0.302)		0.281*** (0.052)
Constant	-367.797*** (134.586)	16.183 (119.476)	-130.415*** (27.810)	-82.726*** (26.200)
Observations	62,503	62,503	62,503	62,503
R-squared	0.010	0.390	0.019	0.176

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Outcomes are measured at the end of grade 9.

Appendix Table 3 models the cumulative number of Career and Technical Education (CTE) year-long courses, the percentage of days absent, and annual Grade Point Average (GPA), all measured in grade 9. The key question is whether the class of 2016 shows a break from any pre-existing trends in these outcomes. If the coefficient on the variable “Class of 2016” is significantly different from zero, it would indicate such a break from trend. In no case does it become significant.

Appendix Table 3: Side Effects

VARIABLES	(1) Cumulative CTE Years	(2) Cumulative CTE Years	(3) Absent Percent	(4) Absent Percent	(5) Annual GPA	(6) Annual GPA
Class of 2016	0.040 (0.039)	0.029 (0.039)	-0.040 (0.212)	-0.003 (0.209)	-0.011 (0.022)	-0.005 (0.022)
Graduating Class of (Year)	-0.010 (0.011)	-0.014 (0.011)	-0.224*** (0.064)	-0.111* (0.056)	0.022*** (0.007)	-0.001 (0.006)
Grade 6 Predicted Probability of Completing a-g		0.095 (0.094)		-6.948*** (0.494)		1.638*** (0.060)
Predicted Probability Missing		-0.090 (0.058)		-2.856*** (0.268)		0.863*** (0.058)
Constant	20.973 (22.025)	28.681 (21.357)	456.123*** (129.585)	230.998** (113.589)	-42.455*** (14.392)	3.030 (12.714)
Observations	62,462	62,462	62,513	62,513	60,955	60,955
R-squared	0.001	0.012	0.004	0.051	0.003	0.240

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Outcomes are measured at the end of grade 9.

Appendix Table 4: Regression Models by Language and Special Education Status of the Average Number of a-g Semester Courses and Subject Areas Completed with Grades of D or Higher by the end of Grade 9

VARIABLES	(1) Cumulative Semesters	(2) Cumulative Semesters	(3) Subject Areas	(4) Subject Areas	(5) Cumulative Semesters	(6) Cumulative Semesters	(7) Subject Areas	(8) Subject Areas
EL	412.192*** (113.039)	156.453 (114.591)	79.133*** (27.396)	43.756 (29.837)				
Class of 2016*Non-EL	0.443*** (0.162)	0.322** (0.146)	-0.011 (0.046)	-0.029 (0.045)				
Class of 2016*EL	0.204 (0.256)	0.442 (0.268)	-0.075 (0.056)	-0.059 (0.054)				
Graduation Year*Non-EL	0.138** (0.063)	-0.036 (0.062)	0.068*** (0.015)	0.045*** (0.015)				
Graduation Year*EL	-0.070 (0.076)	-0.115 (0.075)	0.029* (0.016)	0.024 (0.016)				
Grade 6 Predicted Probability of Completing a-g		9.975*** (0.349)		1.217*** (0.166)		10.477*** (0.393)		1.257*** (0.168)
Predicted Probability Missing		3.336*** (0.285)		0.339*** (0.068)		3.486*** (0.297)		0.350*** (0.069)
Special Ed					295.073** (125.878)	-33.573 (129.030)	59.071** (25.705)	15.808 (26.170)
Class of 2016*Non-Special Ed					0.534*** (0.174)	0.395*** (0.147)	-0.001 (0.045)	-0.023 (0.044)

Appendix Table 4, Continued

VARIABLES	(1) Cumulative Semesters	(2) Cumulative Semesters	(3) Subject Areas	(4) Subject Areas	(5) Cumulative Semesters	(6) Cumulative Semesters	(7) Subject Areas	(8) Subject Areas
Class of 2016*Special Ed					0.395 (0.259)	0.220 (0.231)	-0.033 (0.043)	-0.064 (0.039)
Graduation Year*Non-Special Ed					0.166** (0.075)	-0.034 (0.070)	0.069*** (0.016)	0.044*** (0.015)
Graduation Year*Special Ed					0.018 (0.063)	-0.019 (0.065)	0.040*** (0.013)	0.036*** (0.013)
Constant	-267.142** (127.312)	77.014 (124.739)	-135.939*** (30.401)	-91.049*** (30.440)	-325.235** (151.171)	73.605 (139.853)	-138.686*** (31.662)	-87.991*** (30.894)
Observations	62,307	62,307	62,307	62,307	62,503	62,503	62,503	62,503
R-squared	0.144	0.383	0.053	0.148	0.094	0.373	0.040	0.148
p-value on F test of equal breaks	0.377	0.636	0.283	0.584	0.563	0.417	0.463	0.296
p-value on F test of equal pre-trends	0.000	0.170	0.005	0.146	0.020	0.808	0.023	0.544

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Outcomes are measured at the end of grade 9.

In Appendix Tables 5 and 6 on the following pages, we shorten column headings to preserve space. In those tables, “Cum Sem” refers to Cumulative Semesters, and “Subj Areas” refers to Subject Areas, as in Appendix Table 4 above.

Appendix Table 5: Regression Models by Race/Ethnicity of the Average Number of a-g Semester Courses Completed, and of Subject Areas Completed, with Grades of D or Higher by the End of Grade 9

VARIABLES	(1)	(2)	(3)	(4)
	Cum Sem	Cum Sem	Subj Areas	Subj Areas
African-American	57.005 (165.578)	-78.035 (161.257)	3.564 (43.806)	-10.966 (40.172)
Asian/Pacific Islander	99.687 (148.426)	132.363 (134.490)	-77.347** (35.992)	-71.563** (31.800)
Hispanic	34.696 (182.707)	-104.387 (166.024)	13.551 (37.680)	-5.136 (32.969)
Class of 2016*White	0.492*** (0.147)	0.364*** (0.094)	0.074 (0.055)	0.054 (0.047)
Class of 2016*African-American	0.859*** (0.306)	0.446* (0.262)	-0.040 (0.069)	-0.097 (0.070)
Class of 2016*Asian/Pacific Islander	0.695** (0.265)	0.583*** (0.203)	-0.094* (0.049)	-0.112** (0.044)
Class of 2016*Hispanic	0.292 (0.229)	0.247 (0.231)	-0.014 (0.054)	-0.025 (0.055)
Graduation Year*White	0.164*** (0.061)	-0.044 (0.060)	0.062*** (0.018)	0.035** (0.017)

Graduation Year*African-American	0.134*	-0.006	0.060***	0.041**
	(0.073)	(0.068)	(0.017)	(0.016)
Graduation Year*Asian/Pacific Islander	0.114**	-0.110*	0.100***	0.071***
	(0.057)	(0.059)	(0.016)	(0.017)
Graduation Year*Hispanic	0.145	0.007	0.055***	0.038**
	(0.095)	(0.087)	(0.017)	(0.016)
Grade 6 Predicted Probability of Completing a-g		9.938***		1.217***
		(0.303)		(0.144)
Predicted Probability Missing		3.200***		0.332***
		(0.271)		(0.063)
Constant	-319.475**	94.358	-123.789***	-70.799**
	(123.164)	(121.761)	(36.748)	(34.751)
Observations	62,022	62,022	62,022	62,022
R-squared	0.139	0.381	0.054	0.151
p-value on F test of equal breaks	0.304	0.638	0.012	0.004
p-value on F test of equal pre-trends	0.914	0.366	0.013	0.077

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Main indicator for white race is omitted to avoid collinearity.

Outcomes are measured at the end of grade 9.

Appendix Table 6: Regression Models by Parental Education of the Average Number of a-g Semester Courses Completed, and of Subject Areas Completed, with Grades of D or Higher by the End of Grade 9

VARIABLES	(1) Cum Sem	(2) Cum Sem	(3) Subj Areas	(4) Subj Areas
High School Graduate	-180.399* (102.316)	-150.309 (97.969)	-42.875* (22.141)	-36.539* (21.062)
Some College	-66.481 (154.439)	-119.218 (138.374)	-28.290 (29.340)	-31.519 (27.857)
College Graduate	-441.061** (174.721)	-217.438 (165.041)	-89.965** (34.125)	-58.619* (30.868)
Graduate School	-125.772 (216.435)	-15.746 (186.521)	-23.143 (58.103)	-6.483 (47.723)
Class of 2016*Less Than High School Diploma	0.370 (0.255)	0.553** (0.235)	-0.053 (0.073)	-0.038 (0.073)
Class of 2016*High School Graduate	0.085 (0.226)	0.143 (0.214)	-0.087 (0.056)	-0.083 (0.057)
Class of 2016*Some College	0.603*** (0.193)	0.484*** (0.179)	-0.015 (0.049)	-0.033 (0.050)
Class of 2016*College Graduate	0.092 (0.204)	0.095 (0.186)	-0.060 (0.071)	-0.063 (0.065)
Class of 2016*Graduate School	0.697*** (0.191)	0.402*** (0.134)	0.068 (0.052)	0.028 (0.039)
Graduation Year*Less Than High School Diploma	-0.038 (0.098)	-0.138 (0.086)	0.042** (0.018)	0.031* (0.017)
Graduation Year*High School Graduate	0.052 (0.081)	-0.063 (0.077)	0.064*** (0.016)	0.049*** (0.015)
Graduation Year*Some College	-0.003 (0.069)	-0.078 (0.066)	0.056*** (0.016)	0.047*** (0.016)
Graduation Year*College Graduate	0.183*** (0.058)	-0.029 (0.065)	0.087*** (0.017)	0.060*** (0.017)
Graduation Year*Graduate School	0.027 (0.064)	-0.129** (0.060)	0.054** (0.027)	0.034 (0.024)
Grade 6 Predicted Probability of Completing a-g		9.648*** (0.284)		1.137*** (0.159)
Predicted Probability Missing		3.524*** (0.256)		0.350*** (0.072)
Constant	83.293 (197.241)	281.263 (172.815)	-84.197** (37.177)	-61.867* (34.466)
Observations	45,423	45,423	45,423	45,423
R-squared	0.145	0.391	0.060	0.143
p-value on F test of equal breaks	0.018	0.052	0.075	0.228
p-value on F test of equal pre-trends	0.003	0.058	0.001	0.002

Robust standard errors, clustered by school, in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Main indicator for 'less than high school diploma' is omitted to avoid collinearity.

Note: "Graduate School" refers to students with a parent who attended graduate school or received other postgraduate training.

Appendix Table 7: A Comparison by Language and Special Education Status of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
All Students										
Successful Students in Classes of 2011- 2013	0.5	2.0	3.9	1.3	2.7	0.9	0.7	12.0		100.0%
Class of 2016	0.4	1.6	3.2	1.0	2.2	1.1	0.6	9.9	100.0%	
<i>Difference</i>	0.1	0.4	0.8	0.3	0.5	-0.2	0.2	2.1		
Non-EL Students										
Successful Students in Classes of 2011- 2013	0.5	2.0	4.0	1.4	2.8	0.9	0.7	12.2		94.4%
Class of 2016	0.4	1.6	3.4	1.1	2.4	1.1	0.6	10.6	87.5%	
<i>Difference</i>	0.1	0.4	0.6	0.2	0.4	-0.2	0.1	1.6		
EL students										
Successful Students in Classes of 2011- 2013	0.2	1.9	3.1	0.5	1.1	0.8	1.4	9.0		5.6%
Class of 2016	0.2	1.0	1.6	0.3	0.8	0.7	0.6	5.1	12.5%	
<i>Difference</i>	0.0	0.9	1.6	0.2	0.3	0.1	0.7	3.9		

Appendix Table 7, Continued: A Comparison by Language and Special Education Status of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
Non-Special Ed Students										
Successful Students in Classes of 2011- 2013	0.5	2.0	3.9	1.3	2.7	0.9	0.7	12.1		96.1%
Class of 2016	0.4	1.6	3.4	1.1	2.3	1.1	0.5	10.4	88.2%	
<i>Difference</i>	0.1	0.4	0.6	0.2	0.4	-0.2	0.2	1.7		
Special Ed Students										
Successful Students in Classes of 2011- 2013	0.3	2.0	3.4	0.9	1.7	1.0	1.1	10.3		3.9%
Class of 2016	0.2	1.1	1.6	0.3	0.9	0.8	0.7	5.7	11.8%	
<i>Difference</i>	0.1	0.8	1.8	0.6	0.8	0.2	0.4	4.6		

Appendix Table 8: A Comparison by Race/Ethnicity of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
White										
Successful Students in Classes of 2011- 2013	0.6	2.0	4.2	1.6	3.3	0.9	0.4	13.1		33.4%
Class of 2016	0.5	1.8	3.8	1.5	3.0	1.2	0.4	12.2	24.7%	
<i>Difference</i>	<i>0.1</i>	<i>0.2</i>	<i>0.3</i>	<i>0.2</i>	<i>0.3</i>	<i>-0.3</i>	<i>0.0</i>	<i>0.9</i>		
African-American										
Successful Students in Classes of 2011- 2013	0.3	2.0	3.6	0.9	1.9	0.8	1.1	10.6		9.8%
Class of 2016	0.3	1.5	2.8	0.8	1.7	1.0	0.6	8.8	10.3%	
<i>Difference</i>	<i>0.0</i>	<i>0.5</i>	<i>0.7</i>	<i>0.1</i>	<i>0.2</i>	<i>-0.2</i>	<i>0.4</i>	<i>1.8</i>		

Appendix Table 8, Continued: A Comparison by Race/Ethnicity of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District's New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
Asian/Pacific Islander										
Successful Students in Classes of 2011- 2013	0.6	2.0	4.0	1.4	2.7	0.8	0.7	12.2		
Class of 2016	0.5	1.8	3.8	1.3	2.5	1.1	0.6	11.5	17.9%	24.6%
<i>Difference</i>	<i>0.1</i>	<i>0.2</i>	<i>0.3</i>	<i>0.2</i>	<i>0.2</i>	<i>-0.4</i>	<i>0.1</i>	<i>0.7</i>		
Hispanic										
Successful Students in Classes of 2011- 2013	0.3	2.0	3.7	1.0	2.3	0.9	1.0	11.2		
Class of 2016	0.3	1.4	2.7	0.7	1.7	0.9	0.6	8.3	46.1%	31.5%
<i>Difference</i>	<i>0.0</i>	<i>0.6</i>	<i>1.0</i>	<i>0.3</i>	<i>0.6</i>	<i>0.0</i>	<i>0.4</i>	<i>2.9</i>		

Appendix Table 9: A Comparison by Parental Education of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
Less Than High School Diploma										
Successful Students in Classes of 2011- 2013	0.3	2.0	3.7	0.9	2.1	0.9	1.0	10.9		
Class of 2016	0.3	1.3	2.5	0.6	1.4	0.9	0.6	7.6	15.8%	11.9%
<i>Difference</i>	0.0	0.7	1.2	0.3	0.7	0.0	0.4	3.3		
High School Graduate										
Successful Students in Classes of 2011- 2013	0.4	2.0	3.8	1.1	2.4	0.8	0.9	11.4		
Class of 2016	0.3	1.4	2.8	0.7	1.7	0.9	0.7	8.6	21.2%	18.6%
<i>Difference</i>	0.1	0.6	1.0	0.3	0.7	-0.1	0.3	2.8		

Appendix Table 9, Continued: A Comparison by Parental Education of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
Less Than High School Diploma										
Successful Students in Classes of 2011- 2013	0.3	2.0	3.7	0.9	2.1	0.9	1.0	10.9		
Class of 2016	0.3	1.3	2.5	0.6	1.4	0.9	0.6	7.6	15.8%	11.9%
<i>Difference</i>	<i>0.0</i>	<i>0.7</i>	<i>1.2</i>	<i>0.3</i>	<i>0.7</i>	<i>0.0</i>	<i>0.4</i>	<i>3.3</i>		
High School Graduate										
Successful Students in Classes of 2011- 2013	0.4	2.0	3.8	1.1	2.4	0.8	0.9	11.4		
Class of 2016	0.3	1.4	2.8	0.7	1.7	0.9	0.7	8.6	21.2%	18.6%
<i>Difference</i>	<i>0.1</i>	<i>0.6</i>	<i>1.0</i>	<i>0.3</i>	<i>0.7</i>	<i>-0.1</i>	<i>0.3</i>	<i>2.8</i>		

Appendix Table 9, Continued: A Comparison by Parental Education of the Average Number of a-g Semester Courses Completed with Grades of D or Higher by the End of Grade 9, Among Students in the Classes of 2011-2013 Who Met the District’s New a-g Requirement and Students in the Class of 2016

Subject	History / Social Studies	English Language Arts	Math	Lab Sciences	World Languages	Visual and Performing Arts	College Preparatory Elective	Total	% of Class of 2016	% of Completers from Classes of 2011-2013
Some College										
Successful Students in Classes of 2011- 2013	0.5	2.0	3.9	1.3	2.8	0.9	0.7	12.1		
Class of 2016	0.4	1.7	3.3	1.0	2.3	1.1	0.7	10.4	23.4%	24.7%
<i>Difference</i>	0.1	0.3	0.6	0.3	0.5	-0.3	0.0	1.7		
College Graduate										
Successful Students in Classes of 2011- 2013	0.6	2.0	4.0	1.6	3.2	0.8	0.5	12.8		
Class of 2016	0.5	1.8	3.7	1.3	2.8	1.2	0.5	11.8	23.2%	27.1%
<i>Difference</i>	0.2	0.2	0.3	0.2	0.4	-0.4	0.0	1.0		

Appendix Table 10: For Student Subgroups in the Classes of 2011-2013, Average a-g Semester Courses Completed among Completers, and Percentage Completing, with D or Higher

	Average Semester Courses among Completers (2011-2013)	Percent Completing
All students	42.0	56.7%
Not English learner	42.2	62.8%
English learner	39.3	21.7%
Not in special education	42.1	61.5%
In special education	40.3	19.4%
White	42.4	74.0%
African-American	40.7	48.0%
Asian/Pacific Islander	42.3	71.2%
Hispanic	41.6	41.8%
Not high school graduate	41.5	41.9%
High school graduate	41.6	50.0%
Some college	41.9	61.8%
College graduate	42.3	75.6%
Post graduate school	43.1	77.9%