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Low-Income Students and School Meal Programs in California

Technical Appendices

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Appendix A

In this report we use aggregated state administrative counts of students and nationally representative household survey data from the American Community Survey (ACS) fielded by the U.S. Census Bureau. Generally speaking, these data pertain to the 2012–2013 school year. Below we describe the different data sources in greater detail.

CDE FRPM (www.cde.ca.gov/ds/sd/sd/filesfp.asp). Data on Student Free and Reduced Price Meal (FRPM) enrollment were gathered from the California Department of Education (CDE) for SFY 2012–13. FRPM data were used in order to measure the number of students enrolled in the free and reduced price meals programs by school.

CDE STAR (<http://star.cde.ca.gov/>). Information on Standardized Testing and Reporting (STAR) results were obtained from the STAR website within the CDE for SFY 2011–12. The counts represent numbers of students tested by characteristics that include “economically disadvantaged,” (a close synonym for enrollment in free and reduced price meals) and also grade and race/ethnicity. The entries for “economically disadvantaged” subgroups were used to generate the number of students enrolled in the free and reduced price meals programs by grade and race-ethnicity. Likewise, the entries for “not economically disadvantaged” subgroups were used to generate numbers of students not enrolled in free and reduced price meals.

CDE CNIPS (www.cde.ca.gov/ls/nu/cn/). Data from the Child Nutrition Information and Payment System were obtained from CDE for SFY 2012–13. Daily average counts of free and reduced price meals served by school were constructed from these counts.

CDE California Public Schools Database (www.cde.ca.gov/ds/si/ds/pubschls.asp). The public schools database is a downloadable file—available through CDE—containing general characteristic information about public schools and districts within California for SFY 2012–13. The database and its characteristic data were utilized to identify and categorize schools and districts of interest.

CDE California school dropout rates (www.cde.ca.gov/ds/sd/sd/filesdropouts.asp). Dropout rates for 2012 were obtained from CDE. The dataset includes grade- and school-level counts of drop-outs and enrollments. Dropout rates by grade and means across grades 9 through 12 were calculated using this numerator and denominator. We recode rates to 0 if the drop-out rate is not computed (for example, because the school does not enroll middle or high school students).

American Community Survey (ACS) (www.census.gov/acs/www/). Data were obtained from the ACS five year summary files (representing an average of 2007–2012) for several demographic breakdowns by school district: child poverty, race and ethnicity (four categories), and nativity.

Table A1 lists the variables included in the main models and the datasets(s) used to construct each.

TABLE A1
Model variables

Description	Date	Source
I. Dependent variables		
Count of students certified to participate in free and reduced price meals / total student enrollment	2012*	CDE – FRPM (numerator and denominator)
Daily average free and reduced price meals served / students certified to participate in free and reduced price meals	2012*	CDE – CNIPS (numerator) / CDE – FRPM (denominator)
Count of students disadvantaged students tested / total students tested	2012	CDE – STAR (numerator and denominator)
II. Independent variables		
Percentage of children ages 6–17 under 185 percent of the federal poverty guidelines in school district	2007–2012	ACS – Census
Percentage of population by race-ethnic group in school district	2007–2012	ACS – Census
Percentage of population foreign born in school district	2007–2012	ACS – Census
School – grades served (Elementary, Middle, High School, Other)	2012	CDE – SOC
District – type (categorized into: Elementary, Middle, High School, K–12)	2012	CDE – SOC
School size – quintiles by enrollment	2012	CDE – FRPM
District size – quintiles by enrollment	2012	CDE – FRPM
Provision status (none, 1–3)	2012	CDE – FRPM
Charter school	2012	CDE – SOC
County in which school district located	2012	CDE – SOC
Dropout rates	2012	CDE

*These are measured for October.

The final analysis datasets contain a subset of the observations in each individual dataset. Table A2 list initial and observations in each dataset and categorize them into public schools, charter schools and “other.” Other schools include group homes and day cares.

TABLE A2
Number of records, SY 2012–2013

Dataset	Total	Public schools	Charter schools	Other schools
CDE - FRPM	10,366	9,622	744	–
STAR	9,799	8,166	888	745
CNIPS	8,810	8,064	543	203
SOC	15,863	10,310	1,540	4,013
ACS (District-level)	984	–	–	–

NOTE: All table entries indicate numbers of schools with the exception of the last row of the table.

Merging across the datasets and dropping Provision 2 and Provision 3 schools, along with 4 observations on schools that had reported low-income school meals participation but no reported low-income enrolled students, results in a final analysis sample for our preferred models that includes 6,263 observations.

Table A3 and Table A4 display descriptive statistics for the continuous and categorical variables, respectively. These descriptive statistics are computed using the analysis sample for our preferred models. The first section of Table A4 provides the means and three points in the distribution of the dependent

variables. The first three rows show these statistics for the outcomes presented in Table B1, while the next set of rows shows these statistics for the outcome presented in Table B6. We note that the descriptive statistics for FRPM / Total enrollment are very similar to the school-level Disadvantaged tested / Tested statistics. This similarity reassures us that the two datasets are measuring similar concepts, even though they are constructed for different purposes.

The second section of Table A3 provides descriptive statistics for the continuous variables included in our main models.

TABLE A3
Descriptive statistics, continuous variables

	Mean	25 th percentile	50 th percentile	75 th percentile
I. Dependent variables (%)				
FRPM / Total enrollment	55.1	31.8	58.6	79.3
Free and reduced price meals served / FRPM	72.7	62.0	74.2	85.3
All meals served / Total enrollment	54.2	35.0	53.8	73.0
Disadvantaged tested / tested				
All grades (school-level)	55.5	31.3	58.9	80.9
Second grade	55.7	28.9	60.5	83.3
Third grade	55.6	28.6	59.7	82.8
Fourth grade	55.6	29.2	60.0	83.2
Fifth grade	55.3	29.1	59.4	82.1
Sixth grade	57.1	33.3	60.4	82.7
Seventh grade	56.1	33.3	57.7	81.3
Eighth grade	55.2	32.8	57.1	79.7
Ninth grade	54.8	33.2	57.4	77.6
Tenth grade	54.0	32.9	56.9	75.9
Eleventh grade	52.4	30.1	53.6	74.9
II. Independent variables, ACS (%)				
School age children under 185% FPL	34.9	23.4	34.8	47.8
Hispanic	35.5	18.8	31.3	52.0
White, non-Hispanic	43.4	25.6	41.7	59.8
Black, non-Hispanic	4.9	1.3	3.1	7.1
Asian/Pacific Islander, non-Hispanic	13.2	4.7	9.6	16.1
Other, non-Hispanic	2.9	2.0	2.7	3.8
Foreign born	24.5	16.3	23.7	31.8

NOTE: Descriptive statistics are not weighted by school size and are computed excluding schools with current Provision 2/3 status.

Table A4 provides descriptive counts of the categorical variables included in our preferred models.

TABLE A4
Descriptive statistics, categorical variables

Details of categorization		Number of schools
Charter school		
Yes	–	268
No	–	5,995
Grades served		
Elementary	K–5, 1, 1–2, 1–5, 2–3, 2–5, 3–4, 3–5, 3–6, 4–5, 5, K, 1–4, K–1, K–2, K–3, K–4, K–5	1,996
Middle	6–8, 5–6, 5–7, 5–8, 6, 6–7, 6–9, 7, 7–11, 7–12, 7–8, 7–9, 8–10, 8–12	1,174
High school	9–12, 9, 9–10, 9–11, 10–12, 11, 11–12	715
K–12 and other	1–6, 1–7, 1–8, 1–9, 2–6, 2–8, 3–12, 3–8, 4–12, 4–6, 4–8, K–6, K–7, K–8, K–9, K–10, 5–10, 5–11, 5–12, 6–10, 6–11, 1–12, 2–12, K–11, 6–12, 7–10, 5–9, K–12, 4–7	2,378
District type		
Elementary	SOC 60, 61 (Elementary and 1 District Elementary)	4,297
Middle	SOC 62, 64 (Middle and Junior High)	1,002
High school	SOC 66 (High Schools)	930
K–12	SOC 65 (K–12)	34
School size – total enrolled students		
Lowest quintile	Enrollment: 1–391	1,252
Second quintile	Enrollment: 392–526	1,257
Middle quintile	Enrollment: 527–663	1,240
Fourth quintile	Enrollment: 664–893	1,208
Highest quintile	Enrollment: 895–4881	1,306
District size – total enrolled students		
Lowest quintile	Enrollment: 8–4,021	1,316
Second quintile	Enrollment: 4,044–10,855	1,363
Middle quintile	Enrollment: 11,045–20,700	1,417
Fourth quintile	Enrollment: 20,819–41,611	1,333
Highest quintile	Enrollment: 44,430–526,950	834

NOTE: Sample excludes schools with current Provision 2/3 status.

Table A5 provide correlations between poverty and other demographic, school and district characteristics. These correlations are substantial for the race-ethnic population shares, ranging between -0.29 (Asian/Pacific Islander) and 0.65 (Hispanic). The remaining correlations are smaller—0.21 or less (in absolute value).

TABLE A5
Correlations between district poverty and other model covariates

Variables	Child poverty below 185% FPL
Hispanic (%)	0.65
African American (%)	0.30
Asian or Pacific Islander (%)	-0.29
White (%)	-0.49
Other (%)	-0.35
Foreign born (%)	0.21
District size (quintiles)	0.16
District type	0.027
School size (quintiles)	-0.029
Grades served	0.13
High School Dropout Rate	0.046
Charter school	0.14

SOURCE: Authors' calculations from administrative and survey data sources described in this appendix. Sample excludes schools with current Provision 2 or Provision 3 status.

Table A6 cross-tabulates quintiles of school enrollment and district enrollment. It makes clear that there is substantial variation in school size across all district sizes, and that when we find significant correlations between school size and enrollment and participation outcomes these estimates are not simply proxying for district size.

TABLE A6
Distribution of school and district total student enrollments

School enrollment (quintiles)	District enrollment (quintiles)					Total
	1st	2nd	3rd	4th	5th	
1st	627	157	142	129	197	1,252
2nd	288	354	217	225	173	1,257
3rd	184	311	318	289	138	1,240
4th	131	293	372	298	114	1,208
5th	86	248	368	392	212	1,306
Total	1,316	1,363	1,417	1,333	834	6,263

SOURCE: Authors' calculations from administrative data sources described in this appendix. Sample excludes schools with current Provision 2 or Provision 3 status.

Appendix B

We use linear regression to assess systematic associations between poverty, as well as other district-level and school-level, characteristics and two main outcomes: The share of all students, by school, who were certified to receive free or reduced price meals as of October 2012 and the share of such certified students who obtained a lunch on an average day in October 2012. A third outcome is the share of *all* students who obtained a lunch on an average day in October 2012.

The model covariates include estimated poverty among children ages 5–17 in the district, the grade range of the school, the type of district, the relative sizes of the school and the district, the shares of the local population in different race-ethnic groups, the share of the local population that is foreign-born, the drop-out rate among students in grades 9–12 (set to be zero for schools with no students in those grades), and a vector of indicator variables for the county in which the school is located. The coefficients on these dummy variables adjust for county-level characteristics, including the economy and enrollment in means-tested cash and food assistance programs, that are related to eligibility, certification, and participation in school meals. All continuous variables (both dependent and independent) are expressed as percentages multiplied by 100. This implies that the coefficients are interpreted as the percentage point difference for every one percentage point difference in the outcome variable.

Three caveats are in order. First, these regressions do not provide an indication of levels of enrollment that are too low in an absolute sense. Rather, they provide a relative assessment of characteristics associated with *relatively* lower or higher enrollment. Second, they are not designed to pinpoint causal mechanisms for relatively lower enrollment. Rather, the regressions provide an indication of factors that could be used in targeting outreach to support appropriate school meals enrollment. Finally, data at the small geographic level of a school district are not readily available. The U.S. Census Bureau computes estimates of low-income children and other demographic characteristics of populations that live within school districts, but they provide these for 3-year or 5-year time periods, depending on the population size of the district. We use characteristics averaged over the period 2007–2012. Because community characteristics do change over time, this averaging over multiple years implies some mismeasurement of the concepts of poverty and of demographic characteristics.

Table B1 shows estimates from our preferred models. All columns include identical sets of independent variables. Column 1 shows estimates where the dependent variable is the share of students certified eligible, which we term “low-income enrollment” in this section. The model shown in column 2 is estimated on free and reduced price participation as a share of certified students (“low-income participation”), and column 3 shows estimates for total participation as a share of all students (“participation”). The school-aged children’s poverty rate is positively and significantly correlated with all three outcomes. For every percentage point higher the poverty rate is in the district, a school sees a 0.78 percentage point higher low-income enrollment and a 0.20 percentage point higher low-income participation. Race-ethnic population shares are also often significant. In comparison with Hispanics, districts with higher shares of Whites have smaller low-income enrollment (-0.19 percentage points) and low-income participation (-0.48 percentage points). The same is true for low-income enrollment among Asian or Pacific Islanders (-0.29 percentage points), and other racial groups (-1.09 percentage points). However, low-income participation is not significantly lower for either of these groups. The opposite is true for African-Americans, where significantly higher shares are not associated with higher low-income enrollment, but are associated with significantly decreased low-income

participation (-0.35 percentage points). Table A5 shows that poverty is substantially correlated with the district-level racial-ethnic makeup, and so we treat this group of variables as controls for poverty levels. The estimated associations for the participation outcome (column 3) are generally similar to those for low-income population. These controls, averaged over the period 2007–2012, are also likely underestimates of the true relationships between poverty and school meals enrollment and participation. For both reasons, we interpret the individual coefficients cautiously. Two other controls—whether a school is a charter and the dropout rate for grades 9 through 12—are generally not significant.

We turn next to the focal variables discussed in the text of the report. The share of the district’s population estimated to be foreign-born is not significantly associated with low-income enrollment, but is significant and negatively associated with low-income participation (-0.28 percentage points). (It is also negative for participation, but does not reach the conventional level of statistical significance.) As discussed below, this estimate is not sensitive to the model specification or to the choice of analysis sample.

Across the columns of Table B1 school size is significantly associated with all three outcomes: schools with larger student populations have lower low-income meals enrollment, low-income participation, and overall participation. The estimates are quite large relative to most of the other covariates in the model. (As discussed below, they are also robust to different specifications of the enrollment variable and to dropping the largest and the smallest schools from the analysis sample). The estimates in Table B1 indicate that the smallest schools (those with total enrollments up to 391) have low-income enrollments that are 11.48 percentage points higher than the largest schools (those with enrollments between 895 and 4,881). The smallest schools also have low-income participation that is 8.70 percentage points higher than the largest schools and overall participation that is 13.93 percentage points higher than the largest schools. Schools of intermediate size also see a negative, although smaller, association across the three outcomes.

The relationships between district size and low-income enrollment, low-income participation, and overall participation are less clear. There is an indication across the outcomes that the relationship between district size and the outcomes we consider is again negative, but the estimates are positive and sometimes significant for the first through third quintiles of districts. For the largest districts in the fourth and fifth quintiles (those with student populations of between about 21,000 and 42,000 and between about 44,000 and 527,000, respectively) the relationships are consistently negative, but significance is mixed.

Turning to the grade range of the school, we find modest evidence of systematic associations between low-income enrollment, low-income participation, and overall participation and schools that serve younger as compared with older students. The estimates for low income participation and overall participation are both negative (-4.18 percentage points and -4.52 percentage points) in the case of middle schools as compared with elementary schools.

Finally, as compared with elementary school districts, high school and unified (K–12) districts see lower low-income and overall participation in schools meals. For high school districts, low-income participation is 18.20 percentage points lower and for unified districts low-income participation is 13.23 percentage points lower. The estimates are quite similar for overall participation. There is mixed evidence of correlations between low-income enrollment and district type: Only middle school districts have a significant, 5.14 percentage point higher enrollment among low-income students as compared with elementary districts.

In order to test the sensitivity of our main estimates to the model specification, in Table B2 and Table B3 we run variants of the preferred models shown in columns 1 and 2 of Table B1. The rightmost column of both

Table B2 and Table B3 show the preferred model (column 11) for comparison purposes. Columns 1 and 2 include only the control variables. The reduction in the size of the poverty estimate when the racial-ethnic makeup of the district is included is consistent with the positive correlation between these two demographic characteristics of districts. Adding each of the focal variables separately to the controls does not alter the pattern of significance of the focal variables in most cases (column 3 through column 7). However, the estimates are generally larger when included separately as compared with the preferred specification. The exception is school size, which is mostly little altered when additional covariates are included.

We further examine the sensitivity of the school size estimates by specifying the variable as deciles of school size rather than quintiles and also by using a quadratic specification (column 8 and column 9). The estimates are consistent with the main specification, although they are roughly 50 percent larger in absolute magnitude.

Finally column 10 of Table B2 and Table B3 shows estimates from a model specification that excludes county dummies. These dummies capture unobserved differences in economic climate and means-tested program enrollments, among other factors, that could affect school meals eligibility, enrollment, and participation. When we exclude this vector of controls, the estimates are substantively quite similar in size and the pattern of significance is nearly identical.

In order to test the sensitivity of our main estimates to the sample selection, in Table B4 and Table B5 we estimate the preferred specification on all possible observations and then on various subsets of the preferred specification. Column 1 of both tables repeats the preferred sample for comparison purposes. This sample excludes schools with current Provision 2 or Provision 3 status. Across the remaining columns of the table, the estimates are very similar in magnitude and significance. In other words, they are robust to our sample selection. Column 2 adds 1,199 observations on Provision 2 or Provision 3 schools, which serve free meals to their entire student populations. Estimates for low-income participation are very similar when these observations are added. The same is true for overall participation (estimates not shown).

Column 3 of Table B4 and Table B5 keeps Provision 2 and Provision 3 schools, but drops charter schools, which do not have the same requirements for school nutrition programs that other public schools have. Column 4 drops both charter schools and Provision 2/3 schools. Columns 5 through 7 drop the smallest 1 percent of schools, the largest 1 percent of schools, and finally both the smallest and the largest schools. We do this in order to test the robustness of the school size estimates to the choice of analysis sample. The estimates are identical in significance, but modestly smaller in substantive magnitude when we limit the analysis sample in these ways. Finally, in Table B5 we drop 316 schools whose reported low-income participation rates were greater than 100 percent. (We recode these rates to 100 percent in our main estimates.) Doing so once again makes no difference to the observed pattern of statistical significance and modestly lowers the estimated magnitudes of the coefficients (in absolute value).

We turn, finally, to Table B6 which shows estimates for shares of disadvantaged students disaggregated by grade and race-ethnic group. Using these data, which appear to be comparable to the CDE free and reduced price meal enrollment dataset, allows us to compare low-income enrollments by grade and race-ethnic group. We include school-level dummy variables across the columns of the table to adjust for factors that vary by school and affect low-income enrollment. Column 1 pools all observations, and columns 2 through 6 stratify the sample by race-ethnic group.

With the exception of column 2, which uses a sample of only African-American students, we find mixed evidence of systematically different low-income enrollments among high school students as compared with younger students. The estimates are insignificant for 9th through 11th graders in the pooled sample presented in column 1. We do see several significant, positive estimates for Hispanic and Asian 9th and 10th grade students. This is surprising because we might expect that drop-out rates are higher among disadvantaged students, leading to lower low-income enrollments among high school students simply because the resulting student body is more economically advantaged. (We do include overall drop-out rates by grade in the models presented in Table B6 to help adjust for differences across school districts in drop-out rates. We lack data on drop-out rates by students' economic status.)

For African-Americans, the estimates are relatively large and negative for 9th through 11th graders, ranging between roughly -5.4 percentage points and -6.5 percentage points. Again, it is difficult to know the extent to which these negative coefficients are due to higher drop-out rates among low-income students as compared with higher-income students.

We also see some evidence that low-income enrollments are higher for 2nd graders as compared with older elementary and middle school students, but these estimates are small in magnitude, ranging between -1 percentage point and -2 percentage points for all but African-American students. Estimates for African-American students are consistently significant and negative, and range between -2 percentage points and -5 percentage points for 3rd through 8th grade students (as compared with 2nd graders). However, this evidence is consistent with the interpretation that relatively older African-American students are less likely to certify for free and reduced price meals than are the youngest students.

The evidence presented in Table B6 is largely consistent with the main estimates (Table B1). These indicate little systematic associations between of middle or high school grade ranges and low-income enrollment. However, additional analysis of differential patterns by the race-ethnicity of students appears to be an important direction for future research.

TABLE B1
Preferred model estimates

	(1) Free and reduced price certification	(2) Free and reduced price participation	(3) All participation
Poverty ages 5–17 under 185% FPL	0.780** (0.0569)	0.204** (0.0449)	0.528** (0.0520)
Charter school	1.261 (7.140)	-3.997 (4.719)	-2.741 (7.369)
Drop-out rate, grades 9–12	0.367** (0.138)	0.0225 (0.217)	0.160 (0.217)
Hispanic, any race (%)	Omitted category		
Black, non-Hispanic (%)	-0.0389 (0.134)	-0.349** (0.121)	-0.365** (0.133)
White, non-Hispanic (%)	-0.483** (0.0781)	-0.190** (0.0500)	-0.446** (0.0896)
Asian or Pacific Islander, non-Hispanic (%)	-0.292** (0.0876)	0.0403 (0.0743)	-0.0527 (0.0923)
All other race/ethnicity (%)	-1.092** (0.420)	-0.274 (0.329)	-0.732* (0.354)
Foreign-born (%)	-0.127 (0.173)	-0.278* (0.111)	-0.223 (0.194)
School size: 1 st quintile of enrollment	Omitted category		
School size: 2 nd quintile of enrollment	-0.669 (0.921)	-2.022** (0.673)	-3.182** (0.869)
School size: 3 rd quintile of enrollment	-4.410** (1.147)	-4.910** (0.715)	-6.957** (0.963)
School size: 4 th quintile of enrollment	-5.756** (1.315)	-6.298** (0.883)	-8.750** (1.163)
School size: 5 th quintile of enrollment	-11.48** (1.382)	-8.703** (1.298)	-13.93** (1.420)
District size: 1st quintile of enrollment	Omitted category		
District size: 2 nd quintile of enrollment	2.529* (1.287)	-1.578 (1.031)	0.507 (1.059)
District size: 3 rd quintile of enrollment	3.982** (1.481)	0.104 (1.151)	1.641 (1.283)
District size: 4 th quintile of enrollment	-0.0780 (1.859)	-2.503 (1.429)	-2.652 (1.673)
District size: 5 th quintile of enrollment	-5.810 (3.610)	-7.019* (3.073)	-10.02* (4.299)
Grade range of school: Elementary	Omitted category		
Grade range of school: Middle or junior high	-0.0997 (2.043)	-4.178* (2.009)	-4.523* (2.257)
Grade range of school: High school	2.373 (2.431)	-3.868 (2.197)	-2.306 (2.451)
Grade range of school: K–12 and other	0.832 (1.091)	-0.224 (0.850)	0.476 (0.934)
District type: Elementary	Omitted category		
District type: Middle or junior high	5.141* (2.042)	-7.119** (1.934)	-3.962 (2.185)

TABLE B1 (continued)

	(1) Free and reduced price certification	(2) Free and reduced price participation	(3) All participation
District type: High school	-0.427 (3.963)	-18.20** (4.324)	-15.90** (4.193)
District type: K–12	-1.095 (2.076)	-13.23** (2.046)	-14.66** (2.381)
County dummies	Yes	Yes	Yes
Observations	6,263	6,263	6,263
R-squared	0.514	0.370	0.524

NOTE: Observations on schools with current Provision 2 or Provision 3 status are excluded. Standard errors clustered on school district in parentheses. ** p<0.01, * p<0.05

TABLE B2
Model selection, share of students certified for free and reduced price meals

	(1) (2)		(3)	(4)	(5)	(6)	(7)	(8) (9)		(10)	(11)
	Controls							Controls + groups of focal covariates			
	Basic controls	Expanded controls	Foreign-born	School size	District size	School grade range	District type	Deciles	Quadratic	Omit county dummies	Preferred
Child poverty under 185% FPL	1.181** (0.0759)	0.751** (0.0881)	0.788** (0.0680)	0.717** (0.0858)	0.805** (0.0600)	0.753** (0.0880)	0.754** (0.0880)	0.779** (0.0569)	0.775** (0.0566)	0.886** (0.0505)	0.780** (0.0569)
Charter school	1.642 (5.329)	2.313 (5.869)	2.955 (6.445)	-0.323 (6.123)	4.757 (7.260)	2.451 (5.872)	2.944 (5.872)	0.916 (7.074)	0.411 (7.115)	-0.512 (6.631)	1.261 (7.140)
Drop-out rate, grades 9–12	0.205* (0.0812)	0.177* (0.0847)	0.174* (0.0840)	0.317** (0.0961)	0.190* (0.0809)	0.351** (0.105)	0.435** (0.146)	0.356** (0.138)	0.311* (0.131)	0.356* (0.142)	0.367** (0.138)
Hispanic, any race	Omitted category										
Black, non-Hispanic (%)		-0.0286 (0.146)	-0.143 (0.194)	-0.0448 (0.146)	0.0492 (0.113)	-0.0270 (0.146)	-0.0307 (0.146)	-0.0403 (0.134)	-0.0408 (0.133)	-0.115 (0.164)	-0.0389 (0.134)
White, non-Hispanic (%)		-0.434** (0.0504)	-0.520** (0.109)	-0.471** (0.0485)	-0.415** (0.0443)	-0.432** (0.0490)	-0.432** (0.0502)	-0.483** (0.0782)	-0.483** (0.0771)	-0.435** (0.0741)	-0.483** (0.0781)
Asian or Pacific Islander, non-Hispanic (%)		-0.328** (0.0718)	-0.241* (0.100)	-0.348** (0.0695)	-0.300** (0.0749)	-0.330** (0.0708)	-0.331** (0.0714)	-0.291** (0.0875)	-0.292** (0.0874)	-0.186 (0.105)	-0.292** (0.0876)
All other race/ethnicity (%)		-1.251** (0.420)	-1.428** (0.446)	-1.110** (0.409)	-1.136** (0.424)	-1.266** (0.419)	-1.259** (0.421)	-1.094** (0.420)	-1.111** (0.419)	-0.785* (0.380)	-1.092** (0.420)
Foreign-born (%)			-0.291 (0.243)					-0.127 (0.173)	-0.114 (0.170)	-0.288 (0.179)	-0.127 (0.173)
School size: 1 st quintile	Omitted category										
School size: 2 nd quintile				-0.398 (0.910)						-1.636 (1.107)	-0.669 (0.921)
School size: 3 rd quintile				-3.526** (1.168)						-5.028** (1.340)	-4.410** (1.147)
School size: 4 th quintile				-3.900** (1.423)						-6.450** (1.578)	-5.756** (1.315)
School size: 5 th quintile				-9.736** (1.215)						-12.46** (1.738)	-11.48** (1.382)
School size: 1 st decile	Omitted category										

TABLE B2 (continued)

	(1) (2)		(3)	(4)	(5)	(6)	(7)	(8) (9)		(10)	(11)
	Controls							Controls + groups of focal covariates			
	Basic controls	Expanded controls	Foreign-born	School size	District size	School grade range	District type	Deciles	Quadratic	Omit county dummies	Preferred
School size: 2 nd decile								0.232			
								(1.373)			
School size: 3 rd decile								0.0397			
								(1.453)			
School size: 4 th decile								-1.161			
								(1.564)			
School size: 5 th decile								-4.413**			
								(1.608)			
School size: 6 th decile								-4.247*			
								(1.658)			
School size: 7 th decile								-4.759**			
								(1.709)			
School size: 8 th decile								-6.686**			
								(1.759)			
School size: 9 th decile								-10.67**			
								(1.677)			
School size: 10 th decile								-13.22**			
								(2.098)			
School enrollment									-0.0161**		
									(0.00208)		
Sch. enrollment squared									2.98e-06**		
									(5.28e-07)		
District size: 1 st quintile	Omitted category										
District size: 2 nd quintile					0.789			2.694*	3.124*	0.803	2.529*
					(1.280)			(1.304)	(1.308)	(1.274)	(1.287)
District size: 3 rd quintile					1.127			4.178**	4.517**	3.081*	3.982**
					(1.475)			(1.506)	(1.494)	(1.416)	(1.481)
District size: 4 th quintile					-3.021			0.126	0.579	0.0223	-0.0780
					(1.860)			(1.866)	(1.873)	(1.707)	(1.859)
District size: 5 th quintile					-8.923*			-5.581	-5.253	-3.395	-5.810
					(3.719)			(3.596)	(3.546)	(4.516)	(3.610)

TABLE B2 (continued)

	(1) Controls		(3) Foreign-born	(4) School size	(5) District size	(6) School grade range	(7) District type	(8) Sensitivity to specification of school size		(10) Omit county dummies	(11) Preferred
	Basic controls	Expanded controls						Deciles	Quadratic		
Grade range : Elementary	Omitted category										
Grade range : Middle						-0.282 (1.331)		0.0985 (2.048)	-0.0389 (2.070)	-1.206 (2.320)	-0.0997 (2.043)
Grade range : High school						-5.272** (1.901)		2.508 (2.456)	1.927 (2.520)	1.239 (2.787)	2.373 (2.431)
Grade range : K–12, other						0.475 (1.333)		0.875 (1.090)	0.560 (1.105)	1.030 (1.182)	0.832 (1.091)
District type: Elementary	Omitted category										
District type: Middle							0.839 (0.820)	5.073* (2.016)	4.376* (1.966)	6.453** (2.249)	5.141* (2.042)
District type: High school							-2.600 (3.759)	0.0344 (3.995)	0.0796 (3.881)	-0.877 (3.946)	-0.427 (3.963)
District type: K–12							-6.097** (1.285)	-0.0561 (2.255)	1.322 (2.260)	0.377 (2.428)	-1.095 (2.076)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Observations	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263
R-squared	0.451	0.487	0.489	0.501	0.496	0.490	0.493	0.515	0.514	0.483	0.514

NOTE: Observations on schools with current Provision 2 or Provision 3 status are excluded. Standard errors clustered on school district in parentheses. ** p<0.01, * p<0.05

TABLE B3
Model selection, lunch participation among low-income, certified students

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Controls		Controls + groups of focal covariates					Sensitivity to specification of school size		Omit county dummies	Preferred
	Basic controls	Expanded controls	Foreign-born	School size	District size	School grade range	District type	Deciles	Quadratic		
Child poverty under 185% FPL	0.218** (0.0554)	0.172* (0.0734)	0.222** (0.0556)	0.104 (0.0746)	0.212** (0.0488)	0.169* (0.0707)	0.169* (0.0713)	0.199** (0.0454)	0.200** (0.0452)	0.207** (0.0391)	0.204** (0.0449)
Charter school	-6.162* (2.872)	-5.482 (2.981)	-4.615 (3.473)	-10.91** (2.863)	-3.340 (4.101)	-4.804 (3.820)	-2.543 (3.650)	-4.486 (4.530)	-4.517 (4.353)	-4.061 (4.460)	-3.997 (4.719)
Drop-out rate, grades 9–12	-0.721 (0.582)	-0.727 (0.578)	-0.732 (0.573)	-0.437 (0.404)	-0.715 (0.576)	-0.0725 (0.282)	0.0753 (0.204)	-0.00263 (0.230)	-0.0173 (0.228)	0.0484 (0.217)	0.0225 (0.217)
Hispanic, any race	Omitted category										
Black, non-Hispanic (%)		-0.247* (0.102)	-0.402** (0.134)	-0.281* (0.113)	-0.170 (0.121)	-0.265** (0.0931)	-0.272** (0.0952)	-0.348** (0.122)	-0.348** (0.121)	-0.374** (0.140)	-0.349** (0.121)
White, non-Hispanic (%)		-0.0744 (0.0441)	-0.191* (0.0761)	-0.151** (0.0426)	-0.0797* (0.0385)	-0.0788* (0.0386)	-0.0742 (0.0387)	-0.194** (0.0501)	-0.187** (0.0499)	-0.202** (0.0510)	-0.190** (0.0500)
Asian or Pacific Islander, non-Hispanic (%)		-0.0340 (0.0643)	0.0843 (0.0830)	-0.0757 (0.0587)	-0.00671 (0.0677)	-0.0416 (0.0616)	-0.0484 (0.0614)	0.0395 (0.0741)	0.0395 (0.0734)	0.0464 (0.0702)	0.0403 (0.0743)
All other race/ethnicity (%)		-0.314 (0.351)	-0.553 (0.366)	-0.00724 (0.332)	-0.109 (0.369)	-0.396 (0.324)	-0.380 (0.321)	-0.271 (0.328)	-0.287 (0.327)	-0.268 (0.348)	-0.274 (0.329)
Foreign-born (%)			-0.393* (0.165)					-0.276* (0.110)	-0.265* (0.107)	-0.315** (0.117)	-0.278* (0.111)
School size: 1 st quintile	Omitted category										
School size: 2 nd quintile				-2.200** (0.735)						-1.576* (0.727)	-2.022** (0.673)
School size: 3 rd quintile				-5.589** (0.776)						-4.183** (0.786)	-4.910** (0.715)
School size: 4 th quintile				-8.666** (0.926)						-5.077** (0.932)	-6.298** (0.883)
School size: 5 th quintile				-20.21** (1.158)						-7.152** (1.315)	-8.703** (1.298)
School size: 1 st decile	Omitted category										

TABLE B3 (continued)

	(1) (2)		(3)	(4) (5) (6) (7)				(8) (9)		(10)	(11)	
	Controls			Controls + groups of focal covariates				Sensitivity to specification of school size				
	Basic controls	Expanded controls	Foreign-born	School size	District size	School grade range	District type	Deciles	Quadratic	Omit county dummies	Preferred	
School size: 2 nd decile								-4.081**				
								(1.103)				
School size: 3 rd decile								-3.990**				
								(1.058)				
School size: 4 th decile								-4.752**				
								(1.072)				
School size: 5 th decile								-6.548**				
								(1.177)				
School size: 6 th decile								-8.113**				
								(1.126)				
School size: 7 th decile								-8.030**				
								(1.242)				
School size: 8 th decile								-9.502**				
								(1.185)				
School size: 9 th decile								-11.11**				
								(1.405)				
School size: 10 th decile								-11.48**				
								(2.746)				
School enrollment									-0.0146**			
									(0.00249)			
Sch. enrollment squared									3.28e-06**			
									(6.91e-07)			
District size: 1 st quintile	Omitted category											
District size: 2 nd quintile								-3.060**	-1.218	-1.220	-1.147	-1.578
								(1.113)	(1.044)	(1.056)	(1.072)	(1.031)
District size: 3 rd quintile								-2.861*	0.442	0.447	0.514	0.104
								(1.270)	(1.195)	(1.193)	(1.252)	(1.151)
District size: 4 th quintile								-6.126**	-2.144	-2.036	-0.354	-2.503
								(1.653)	(1.422)	(1.421)	(1.427)	(1.429)
District size: 5 th quintile								-10.99**	-6.636*	-6.559*	-5.332*	-7.019*
								(3.318)	(2.955)	(2.892)	(2.582)	(3.073)

TABLE B3 (continued)

	(1) Controls		(3) Foreign-born	(4) School size	(5) District size	(6) School grade range	(7) District type	(8) Sensitivity to specification of school size		(10) Omit county dummies	(11) Preferred
	Basic controls	Expanded controls						Deciles	Quadratic		
Grade range : Elementary	Omitted category										
Grade range : Middle						-14.84** (0.747)		-4.366* (2.029)	-3.856 (2.004)	-4.032 (2.138)	-4.178* (2.009)
Grade range : High school						-20.88** (1.039)		-4.067 (2.196)	-3.838 (2.201)	-4.048 (2.288)	-3.868 (2.197)
Grade range : K–12, other						-0.765 (0.849)		-0.285 (0.861)	-0.341 (0.834)	-0.514 (0.863)	-0.224 (0.850)
District type: Elementary	Omitted category										
District type: Middle							-13.61** (0.659)	-6.837** (1.955)	-7.390** (1.938)	-7.775** (2.028)	-7.119** (1.934)
District type: High school							-20.37** (4.217)	-18.15** (4.487)	-17.60** (4.353)	-18.95** (4.459)	-18.20** (4.324)
District type: K–12							-20.88** (0.805)	-12.82** (2.162)	-11.30** (2.161)	-14.08** (2.119)	-13.23** (2.046)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Observations	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263	6,263
R-squared	0.105	0.111	0.120	0.266	0.133	0.315	0.330	0.374	0.372	0.327	0.370

NOTE: Observations on schools with current Provision 2 or Provision 3 status are excluded. Standard errors clustered on school district in parentheses. ** p<0.01, * p<0.05

TABLE B4

Sample selection, share of students certified for free and reduced price meals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Preferred	All obs.	Drop charters	Drop Prov. 2/3, charters	Drop Prov. 2/3, small schools	Drop Prov. 2/3, large schools	Drop Prov. 2/3, small, large schools
Child poverty under 185% FPL	0.780** (0.0569)	0.771** (0.0585)	0.776** (0.0599)	0.785** (0.0582)	0.819** (0.0599)	0.778** (0.0571)	0.817** (0.0600)
Provision 2/3 school		23.07** (4.406)	23.56** (5.019)				
Charter school	1.261 (7.140)	1.291 (4.900)			1.554 (7.108)	1.486 (7.323)	1.787 (7.295)
Drop-out rate, grades 9–12	0.367** (0.138)	0.347** (0.110)	1.192** (0.436)	1.037 (0.546)	0.402** (0.155)	0.339** (0.131)	0.375* (0.147)
Hispanic, any race	Omitted category						
Black, non-Hispanic (%)	-0.0389 (0.134)	-0.125 (0.167)	-0.152 (0.186)	-0.0583 (0.151)	-0.0494 (0.138)	-0.0378 (0.135)	-0.0481 (0.139)
White, non-Hispanic (%)	-0.483** (0.0781)	-0.445** (0.0698)	-0.453** (0.0750)	-0.504** (0.0910)	-0.468** (0.0805)	-0.483** (0.0796)	-0.468** (0.0821)
Asian or Pacific Islander, non-Hispanic (%)	-0.292** (0.0876)	-0.182* (0.0803)	-0.157 (0.0853)	-0.252** (0.0959)	-0.270** (0.0897)	-0.288** (0.0876)	-0.265** (0.0897)
All other race/ethnicity (%)	-1.092** (0.420)	-1.027* (0.441)	-1.047* (0.457)	-1.138** (0.435)	-1.176* (0.468)	-1.090** (0.419)	-1.175* (0.467)
Foreign-born (%)	-0.127 (0.173)	-0.281 (0.148)	-0.326* (0.164)	-0.202 (0.204)	-0.148 (0.178)	-0.128 (0.176)	-0.148 (0.181)
School size: 1 st quintile	Omitted category						
School size: 2 nd quintile	-0.669 (0.921)	-0.0266 (0.810)	-0.389 (0.888)	-1.180 (1.031)	-0.117 (0.914)	-0.678 (0.923)	-0.125 (0.916)
School size: 3 rd quintile	-4.410** (1.147)	-3.573** (1.145)	-4.050** (1.129)	-5.059** (1.183)	-3.839** (1.143)	-4.445** (1.151)	-3.872** (1.146)
School size: 4 th quintile	-5.756** (1.315)	-4.051** (1.472)	-4.188** (1.500)	-6.051** (1.310)	-5.165** (1.315)	-5.799** (1.321)	-5.206** (1.321)
School size: 5 th quintile	-11.48** (1.382)	-9.355** (1.476)	-8.586** (1.800)	-10.69** (1.508)	-10.80** (1.397)	-11.42** (1.380)	-10.75** (1.394)
District size: 1 st quintile	Omitted category						
District size: 2 nd quintile	2.529* (1.287)	3.671** (1.323)	3.855** (1.347)	2.699* (1.311)	2.525* (1.280)	2.496 (1.290)	2.491 (1.282)
District size: 3 rd quintile	3.982** (1.481)	6.274** (1.525)	6.670** (1.573)	4.325** (1.527)	4.014** (1.475)	4.041** (1.486)	4.073** (1.480)
District size: 4 th quintile	-0.0780 (1.859)	1.966 (1.752)	2.076 (1.792)	-0.0663 (1.874)	0.0276 (1.861)	-0.0244 (1.875)	0.0819 (1.877)
District size: 5 th quintile	-5.810 (3.610)	3.039 (2.605)	2.290 (2.897)	-7.439 (4.425)	-5.948 (3.631)	-5.984 (3.652)	-6.128 (3.673)
Grade range : Elementary	Omitted category						
Grade range : Middle	-0.0997 (2.043)	-0.975 (2.021)	-1.965 (2.204)	-2.960 (2.162)	0.438 (2.044)	-0.205 (2.057)	0.352 (2.062)

TABLE B4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Preferred	All obs.	Drop charters	Drop Prov. 2/3, charters	Drop Prov. 2/3, small schools	Drop Prov. 2/3, large schools	Drop Prov. 2/3, small, large schools
Grade range : High school	2.373	1.038	-0.289	-0.987	2.790	3.394	3.834
	(2.431)	(2.200)	(2.347)	(2.392)	(2.419)	(2.542)	(2.528)
Grade range : K–12, other	0.832	0.299	0.228	0.728	0.775	0.806	0.747
	(1.091)	(0.942)	(0.955)	(1.089)	(1.092)	(1.085)	(1.086)
District type: Elementary	Omitted category						
District type: Middle	5.141*	4.405*	4.620*	7.079**	4.559*	5.200*	4.599*
	(2.042)	(2.113)	(2.184)	(2.129)	(2.071)	(2.101)	(2.133)
District type: High school	-0.427	-1.090	-2.172	-1.955	-2.780	-0.469	-2.835
	(3.963)	(3.918)	(4.773)	(5.117)	(3.835)	(3.940)	(3.796)
District type: K–12	-1.095	-1.222	-3.021	-0.586	-1.780	-1.589	-2.299
	(2.076)	(2.124)	(2.444)	(2.358)	(2.112)	(2.121)	(2.154)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,263	7,462	7,151	5,995	6,196	6,192	6,125
Charter schools excluded			X	X			
Provision 2/3 schools excluded	X			X			
Largest 1% of schools excluded						X	X
Smallest 1% of schools excluded					X		X
R-squared	0.514	0.598	0.610	0.526	0.521	0.514	0.520

Standard errors clustered on school district in parentheses. ** p<0.01, * p<0.05

TABLE B5
Sample selection, lunch participation among low-income, certified students

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Preferred	All obs.	Drop charters	Drop Prov. 2/3, charters	Drop Prov. 2/3, small schools	Drop Prov. 2/3, large schools	Drop Prov. 2/3, small, large schools	Drop Prov. 2/3, capped obs.
Child poverty under 185% FPL	0.204** (0.0449)	0.195** (0.0452)	0.203** (0.0453)	0.213** (0.0452)	0.202** (0.0485)	0.208** (0.0443)	0.207** (0.0479)	0.194** (0.0463)
Charter school		2.082 (1.865)	2.084 (2.125)					
Provision 2/3 school	-3.997 (4.719)	-3.163 (4.439)			-3.459 (4.543)	-4.199 (4.627)	-3.656 (4.450)	-3.887 (4.848)
Drop-out rate, grades 9–12	0.0225 (0.217)	0.0444 (0.197)	-0.990** (0.321)	-0.962* (0.409)	0.0357 (0.213)	0.0332 (0.211)	0.0468 (0.206)	-0.317 (0.285)
Hispanic, any race								
Black, non-Hispanic (%)	-0.349** (0.121)	-0.182 (0.127)	-0.165 (0.115)	-0.342** (0.118)	-0.340** (0.125)	-0.351** (0.121)	-0.343** (0.125)	-0.381** (0.115)
White, non-Hispanic (%)	-0.190** (0.0500)	-0.148** (0.0457)	-0.147** (0.0467)	-0.192** (0.0542)	-0.185** (0.0520)	-0.188** (0.0495)	-0.182** (0.0515)	-0.197** (0.0517)
Asian or Pacific Islander, non-Hispanic (%)	0.0403 (0.0743)	0.0560 (0.0689)	0.0694 (0.0728)	0.0558 (0.0785)	0.0486 (0.0767)	0.0360 (0.0745)	0.0444 (0.0769)	0.0416 (0.0754)
All other race/ethnicity (%)	-0.274 (0.329)	-0.384 (0.341)	-0.446 (0.341)	-0.337 (0.331)	-0.500 (0.382)	-0.241 (0.328)	-0.462 (0.381)	-0.360 (0.337)
Foreign-born (%)	-0.278* (0.111)	-0.265** (0.0995)	-0.284** (0.106)	-0.303* (0.122)	-0.283* (0.115)	-0.278* (0.111)	-0.283* (0.116)	-0.287* (0.114)
School size: 1 st quintile	Omitted category							
School size: 2 nd quintile	-2.022** (0.673)	-2.282** (0.531)	-2.475** (0.640)	-2.017** (0.760)	-1.727* (0.671)	-2.029** (0.674)	-1.735* (0.672)	-1.419* (0.637)
School size: 3 rd quintile	-4.910** (0.715)	-4.702** (0.574)	-4.763** (0.628)	-4.807** (0.812)	-4.615** (0.710)	-4.909** (0.720)	-4.614** (0.715)	-3.729** (0.720)
School size: 4 th quintile	-6.298** (0.883)	-5.609** (0.824)	-5.459** (0.846)	-5.979** (0.935)	-5.983** (0.877)	-6.295** (0.887)	-5.980** (0.881)	-5.312** (0.826)
School size: 5 th quintile	-8.703** (1.298)	-8.939** (1.200)	-8.388** (1.044)	-7.833** (1.171)	-8.247** (1.286)	-8.658** (1.319)	-8.205** (1.306)	-7.040** (1.368)
District size: 1 st quintile	Omitted category							
District size: 2 nd quintile	-1.578 (1.031)	-1.464 (1.033)	-1.574 (1.035)	-1.726 (1.037)	-1.473 (1.036)	-1.546 (1.030)	-1.441 (1.035)	-0.609 (0.969)
District size: 3 rd quintile	0.104 (1.151)	0.714 (1.131)	0.739 (1.163)	-0.0113 (1.183)	0.186 (1.149)	0.129 (1.157)	0.210 (1.155)	1.380 (1.090)
District size: 4 th quintile	-2.503 (1.429)	-1.852 (1.344)	-2.022 (1.367)	-2.738 (1.455)	-2.448 (1.423)	-2.433 (1.430)	-2.380 (1.423)	-1.737 (1.304)

TABLE B5 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Preferred	All obs.	Drop charters	Drop Prov. 2/3, charters	Drop Prov. 2/3, small schools	Drop Prov. 2/3, large schools	Drop Prov. 2/3, small, large schools	Drop Prov. 2/3, capped obs.
District size: 5 th quintile	-7.019*	-5.768*	-6.331*	-8.061*	-7.030*	-7.063*	-7.082*	-5.660
	(3.073)	(2.338)	(2.519)	(3.587)	(3.085)	(3.105)	(3.117)	(2.900)
Grade range : Elementary	Omitted category							
Grade range : Middle	-4.178*	-3.307	-4.473	-5.471*	-3.968*	-4.183*	-3.966*	-4.254*
	(2.009)	(2.036)	(2.334)	(2.290)	(1.986)	(2.016)	(1.993)	(1.835)
Grade range : High school	-3.868	-3.325	-5.949*	-6.477*	-3.566	-3.710	-3.394	-3.993*
	(2.197)	(2.112)	(2.634)	(2.659)	(2.179)	(2.239)	(2.218)	(1.989)
Grade range : K–12, other	-0.224	-0.470	-0.462	-0.227	-0.197	-0.199	-0.172	-0.402
	(0.850)	(0.825)	(0.770)	(0.832)	(0.860)	(0.847)	(0.856)	(0.810)
District type: Elementary	Omitted category							
District type: Middle	-7.119**	-9.716**	-9.350**	-6.760**	-7.416**	-7.113**	-7.417**	-6.893**
	(1.934)	(2.293)	(2.572)	(2.240)	(1.918)	(1.945)	(1.928)	(1.742)
District type: High school	-18.20**	-19.54**	-19.87**	-18.80**	-20.62**	-18.21**	-20.64**	-15.45**
	(4.324)	(3.723)	(5.131)	(5.863)	(4.084)	(4.325)	(4.084)	(4.070)
District type: K–12	-13.23**	-15.06**	-11.66**	-10.31**	-13.77**	-13.25**	-13.81**	-12.87**
	(2.046)	(2.181)	(2.693)	(2.684)	(2.019)	(2.066)	(2.035)	(1.960)
County dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,263	7,462	7,151	5,995	6,196	6,192	6,125	5,947
Charter schools excluded			X	X				
Provision 2/3 schools excluded	X			X	X	X	X	X
Largest 1% of schools excluded						X	X	
Smallest 1% of schools excluded					X		X	
Schools with capped participation ratios excluded								X
R-squared	0.370	0.370	0.393	0.396	0.374	0.364	0.368	0.379

Standard errors clustered on school district in parentheses. ** p<0.01, * p<0.05

TABLE B6
Grade-level models, share disadvantaged students

	(1)	(2)	(3)	(4)	(5)	(6)
	All	African-American	White	Hispanic	Asian	All other
Dropout rate (grade-level)	-0.0363 (0.0219)	-0.0483 (0.0404)	-0.0708 (0.0511)	-0.0435 (0.0829)	0.0211 (0.0381)	-0.205** (0.0745)
Hispanic, any race	Omitted category					
African-American, non-Hispanic	-7.830** (0.278)					
White, non-Hispanic	-27.89** (0.248)					
Asian, Pacific Islander, Hawaiian, Alaskan Native, Filipino, non-Hispanic	-19.33** (0.237)					
All other race/ethnicity	-22.09** (0.320)					
Second grade	Omitted category					
Third grade	-0.684** (0.255)	-1.864* (0.726)	-0.335 (0.373)	-0.699* (0.276)	-0.745 (0.524)	-0.155 (0.828)
Fourth grade	-0.727** (0.255)	-1.921** (0.732)	-0.340 (0.378)	-0.435 (0.282)	-0.513 (0.521)	-0.467 (0.843)
Fifth grade	-0.813** (0.254)	-2.255** (0.710)	-1.006** (0.389)	-0.115 (0.281)	-0.682 (0.517)	-0.455 (0.843)
Sixth grade	-1.467** (0.313)	-2.722** (0.898)	-1.002* (0.460)	-0.877* (0.349)	-1.685** (0.629)	-0.861 (1.103)
Seventh grade	-1.261** (0.449)	-3.610** (1.264)	-1.512* (0.657)	-0.429 (0.582)	-0.807 (0.853)	-0.332 (1.496)
Eighth grade	-1.980** (0.461)	-4.697** (1.209)	-1.739** (0.651)	-1.036 (0.606)	-1.613 (0.856)	-0.712 (1.493)
Ninth grade	2.018 (1.139)	-5.434* (2.520)	0.611 (1.397)	3.543* (1.481)	4.765* (2.241)	3.714 (2.927)
Tenth grade	0.916 (1.126)	-5.830* (2.599)	-0.829 (1.376)	3.534* (1.422)	3.562 (2.197)	-0.451 (2.922)
Eleventh grade	0.0305 (1.153)	-6.472* (2.522)	-2.099 (1.468)	2.342 (1.456)	2.224 (2.230)	1.247 (2.998)
School dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	137,451	18,889	24,754	25,500	52,147	16,161
Number of schools	6,647	5,979	6,521	6,605	6,396	5,484
R-squared	0.115	0.002	0.002	0.002	0.001	0.001

Standard errors clustered on school in parentheses. ** p<0.01, * p<0.05

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