

No Spending without Representation: School Boards and the  
Racial Gap in Education Finance

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Online Appendix

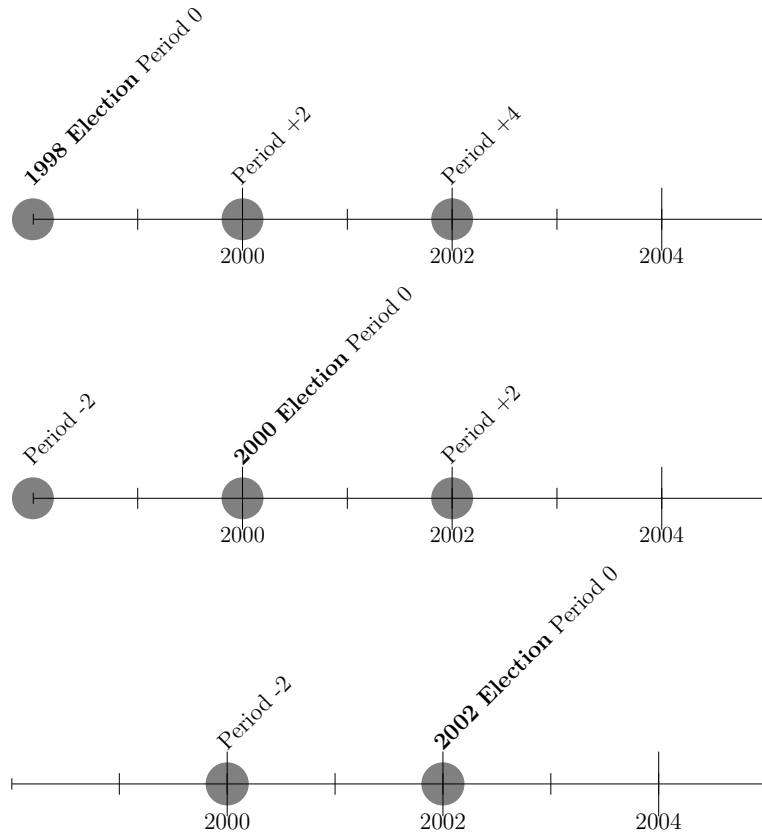


Figure A1: The diagram describes the overlapping panel structure I construct. Data from 2000 appear alternately as post-1998 election period 2 data; the 2000 election period 0 data; and pre-2002 election period -2 data.

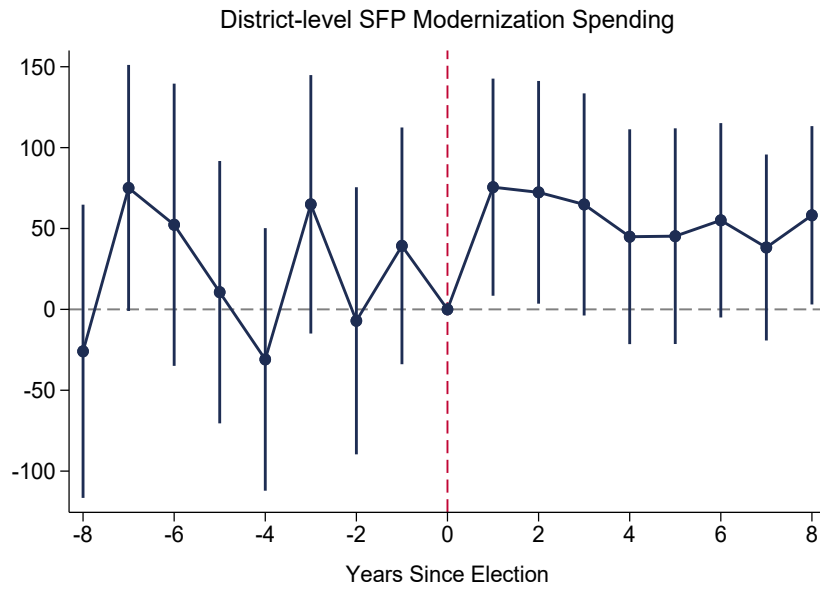


Figure A2: The figure plots event-study estimates of the top-tier Hispanic treatment effect on district-wide SFP modernization spending per pupil by year relative to the election. The specification is Equation 5. All coefficients are relative to the election year (period 0). Vertical bars denote 95 percent confidence intervals using robust standard errors clustered at the district level. The sample includes 14,834 district-by-election-period observations.

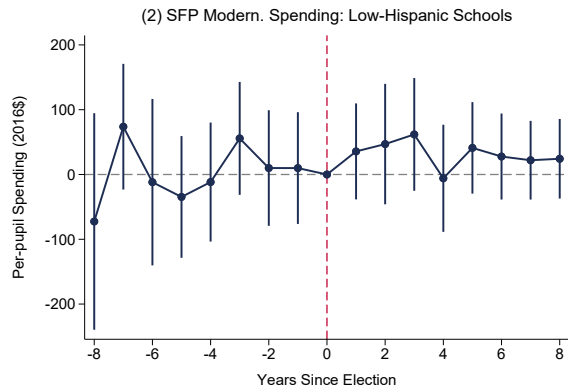
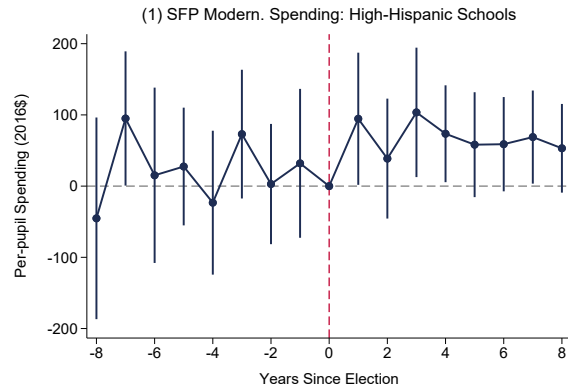


Figure A3: The specification is Equation 5. All coefficients are relative to the election year (period 0). Vertical bars denote 95 percent confidence intervals using robust standard errors clustered at the district level. The sample size is  $N=87,042$  for panel 1 and 87,030 for panel 2.

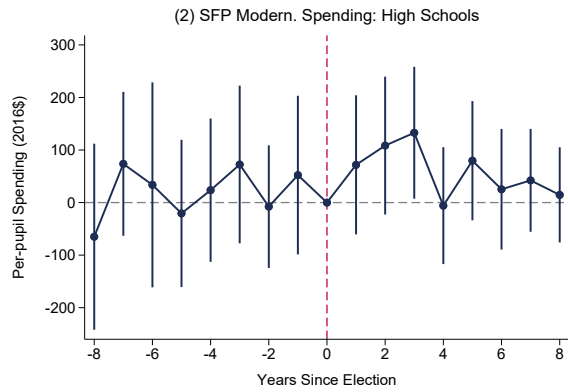
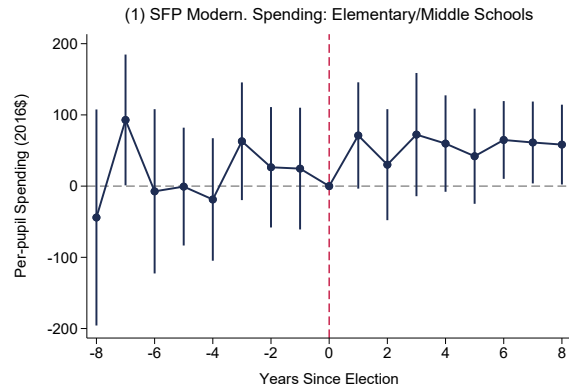


Figure A4: The specification is Equation 5. All coefficients are relative to the election year (period 0). Vertical bars denote 95 percent confidence intervals using robust standard errors clustered at the district level. The sample size is  $N=158,107$  for panel 1 and 22,300 for panel 2.

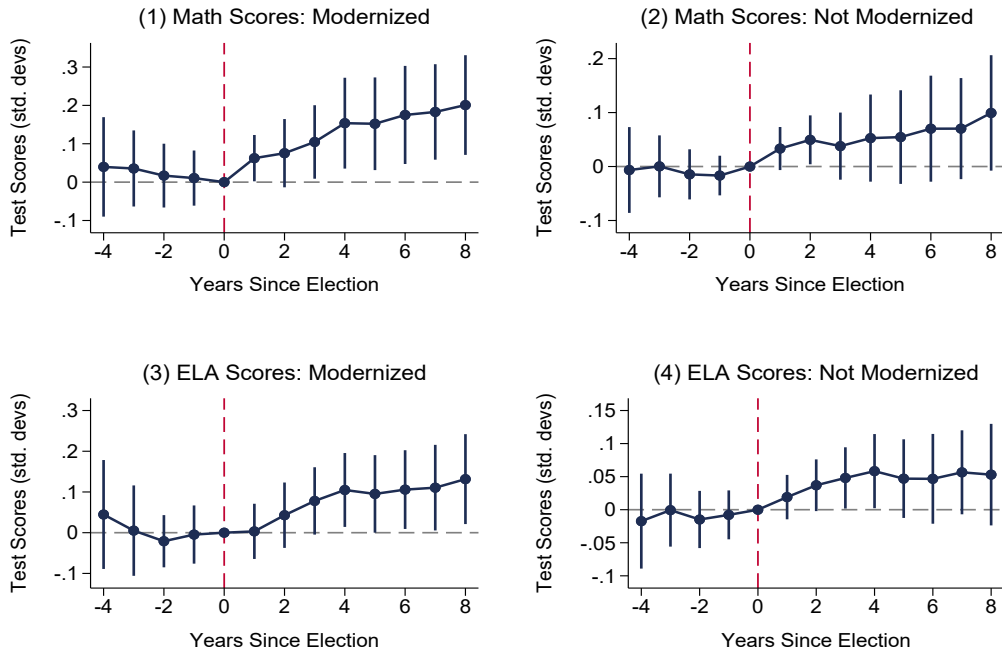


Figure A5: The figure shows event study plots depicting the estimated effect of a top-tier Hispanic candidate on test scores by year relative to the election. The sample is broken down into schools that did and did not initiate an SFP modernization project after the given election. The specification is Equation 5. All coefficients are relative to the election year (period 0). Vertical bars denote 95 percent confidence intervals using robust standard errors clustered at the district level.

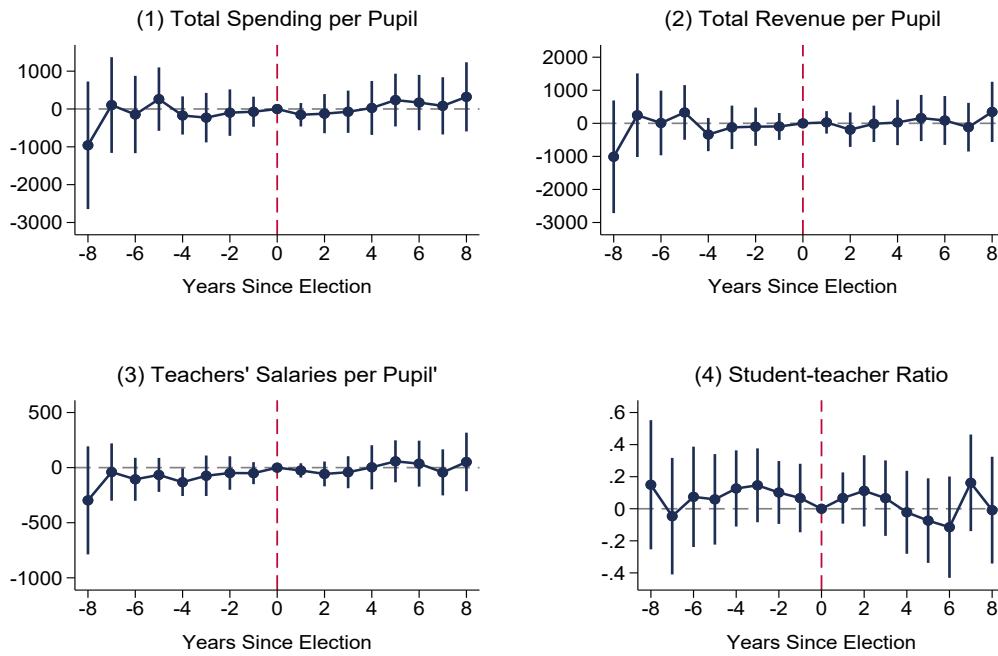


Figure A6: The figure shows event study plots depicting the estimated effect of a top-tier Hispanic candidate on non-SFP budget outcomes by year relative to the election. The data come from the Census of Governments. The specification is Equation 5 with district-level, rather than school-level, data. All coefficients are relative to the election year (period 0). Vertical bars denote 95 percent confidence intervals using robust standard errors clustered at the district level.

Table A1: Summary of School Facility Program (SFP) Projects

	N	Mean	Median	Std Dev	Min	Max
<b>I. All Projects</b>						
Project Involves New Construction?	7,648	0.27	0	0.44	0	1
Project Involves Modernization?	7,648	0.75	1	0.43	0	1
Year Construction Began	7,648	2005	2004	4.18	1999	2017
Total Funds ('000s)	7,648	4212	2381	6427	4.6	128470
Funds from State ('000s)	7,648	2131	1648	3910	3.7	73102
Funds from District ('000s)	7,648	1480	621	2941	0	64235
Modernization Spending ('000s)	7,648	1299	786	1876	0	18823
New Construction Spending ('000s)	7,648	587	0	1890	0	34142
Supplemental SFP Grants ('000s)	7,648	2326	1031	4541	0	97104
<b>II. Projects w/ Enrollment Data</b>						
Total Funds per Pupil	7,362	5093	3699	7887	5.1	219253
School Enrollment	7,362	956	700	738	0	5213
School Share FRL	7,362	0.52	0.53	0.30	0	1
School Share White	7,362	0.33	0.27	0.28	0	0.99
School Share Hispanic	7,362	0.46	0.43	0.30	0	1
School Share Other Minority	7,362	0.20	0.15	0.18	0	1

The table reports summary data from all 7,648 SFP projects begun by 2017. All SFP data come from California's Bond Accountability program. Note that a project can have both modernization and new construction components. All enrollment data come from the Common Core of Data. There are 286 new construction projects that I cannot match to enrollment data because the OPSC only assigns temporary identifying information. I report all costs in 2016 dollars.



Table A2: Summary of Name Matching in California School Board Races

	All Candidates	All Hispanic Candidates	NALEO Match	Hispanic Surname	NALEO and Hispanic Surname
N	11,062	2,032	990	1,914	872
Avg Name Hisp Share	0.17 (0.33)	0.84 (0.20)	0.80 (0.27)	0.89 (0.08)	0.90 (0.06)

The elections sample is identical to the one used in Table 1 and contains 11,062 candidates across 3,070 school board elections that I successfully match to the Census data. The first panel describes the candidate-level data I obtain from matching my list of candidates to the list of most common Census surnames by race and to the NALEO directory of Latino officials. Standard deviations appear in parentheses. “Name Hispanic Share” refers to the share of Census respondents with a given surname who self-identify as Hispanic.

Table A3: Reduced-form Results Using Only Census Data to Identify Hispanics

	(1) NALEO + Census Name Matching	(2) Only Census Name Matching
<b>I. First Stage</b>		
Hisp. Board Share	0.075*** (0.016) <i>179,318</i>	0.084*** (0.018) <i>174,706</i>
<b>II. Reduced-Form Estimates Among High-Hispanic Schools</b>		
Modernization Spending per Pupil	41.7*** (13.8) <i>61,405</i>	30.4** (13.8) <i>59,880</i>
Total SFP Spending per Pupil	49.3 (30.9) <i>61,405</i>	32.7 (31.0) <i>59,880</i>
Composite Math Scores	0.038** (0.019) <i>55,427</i>	0.031 (0.020) <i>53,753</i>
Composite ELA Scores	0.035** (0.017) <i>55,420</i>	0.028* (0.017) <i>53,746</i>
FTE Experience	0.23*** (0.08)	0.20** (0.08)
FTE Tenure	0.27*** (0.07) <i>75,088</i>	0.23*** (0.08) <i>73,142</i>

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The specification is Equation 4 with controls for the share of Hispanic candidates, the number of contested seats, and school-level fixed effects, as well as additional election and demographic covariates, which appear below Table 6. Sample sizes appear in italics. The first column presents point estimates that appear in the main text of the paper and use my preferred definition of Hispanic candidates. The second column identifies Hispanic candidates using only Census name-matching. Robust standard errors clustered at the district level appear in parentheses. Sample sizes vary within columns because of missing enrollment and student performance data. Note that the first stage outcome in both columns is measured using NALEO data, whereas only the first column uses NALEO data to identify candidate ethnicities.

Table A4: Relevance and Excludability of Ballot Order, without Fixed Effects

	All Candidates		Hispanic Candidates	
	(1) Control Mean	(2) Top-tier Effect	(3) Control Mean	(4) Top-tier Effect
<b>I. Impact of Top-tier Assignment on Candidate Performance</b>				
Vote Share	0.188 (0.117)	0.038*** (0.003)	0.208 (0.129)	0.034*** (0.006)
Wins?	0.405 (0.491)	0.152*** (0.015)	0.404 (0.491)	0.184*** (0.024)
<i>N:</i>	<i>2,793</i>	<i>5,337</i>	<i>902</i>	<i>1,795</i>
<b>II. Correlation of Top-tier Assignment with Candidate Traits</b>				
Democrat?	0.483 (0.500)	-0.014 (0.020)	0.609 (0.491)	-0.007 (0.038)
Republican?	0.368 (0.482)	0.021 (0.019)	0.220 (0.415)	0.041 (0.031)
<i>N:</i>	<i>1,229</i>	<i>2,308</i>	<i>368</i>	<i>735</i>
Hispanic?	0.367 (0.482)	0.025* (0.015)	—	—
<i>N:</i>	<i>2,455</i>	<i>4,728</i>		
Incumbent?	0.324 (0.047)	0.083*** (4)	0.324 (0.047)	0.094*** (0.021)
Missing Ethnicity?	0.121 (0.326)	-0.015* (0.009)	—	—
Missing Party?	0.560 (0.496)	0.016 (0.013)	0.592 (0.491)	-0.003 (0.021)
<i>N:</i>	<i>2,793</i>	<i>5,337</i>	<i>902</i>	<i>1,795</i>

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ 

The table is identical to Table 4, except that the specification used does *not* include election fixed effects. Otherwise, the specification is Equation 1, including controls for the share of Hispanic candidates and the number of contested seats in the election. Robust standard errors are clustered at the district level.

Table A5: Robustness of Top-tier Hispanic IV to Controlling for Election Competitiveness

	Post-Election Control Mean	Preferred Model		+Control for Election Competitiveness	
		Top-tier Hispanic Effect	F-stat	Top-tier Hispanic Effect	F-stat
	(1)	(2)	(3)	(4)	(5)
Hispanic Board Share	0.200 (0.236)	0.078*** (0.014)	16.44	0.081*** (0.014)	19.00
Any Hispanic on Board?	0.542 (0.498)	0.095*** (0.030)	37.58	0.101*** (0.030)	40.61
Hispanic Majority?	0.125 (0.331)	0.097*** (0.021)	2.55	0.100*** (0.022)	2.79
<i>N:</i>	<i>41,901</i>	<i>179,318</i>		<i>179,318</i>	
<b>School FEs</b>		Y	Y	Y	Y
<b>Control for Share Hispanic Cand</b>		Y	Y	Y	Y
<b>Control for # Seats</b>		Y	Y	Y	Y
<b>Election/Academic Yr, Period FEs</b>		Y	Y	Y	Y
<b>Other Election Controls</b>		Y	Y	Y	Y
<b>Demographic Controls</b>		Y	Y	Y	Y

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The sample includes school-period observations from pre-election period -8 through post-election period +8. Columns 1, 2, and 3 are identical to columns 1, 4, and 5, respectively, in Table 6. Election and school demographic controls are described below Table 6. In Column 4, I add a control for election competitiveness equal to the number of seats up for a vote in the race divided by the number of candidates. Robust standard errors clustered at the district level appear in parentheses.

Table A6: Excludability of Top-tier Hispanic IV, without Fixed Effects

	(1) Control Mean	(2) Top-tier Hispanic Effect
Hispanic Board Share, Outgoing Board	0.14 (0.21)	0.02 (0.01)
<i>N:</i>	<i>392</i>	<i>1,097</i>
Total Enrollment	11,517 (12,784)	-592 (791)
Share White	0.35 (0.23)	-0.01 (0.02)
Share Hispanic	0.48 (0.24)	0.00 (0.02)
Share Asian	0.09 (0.11)	0.00 (0.01)
Share Black	0.05 (0.06)	0.01 (0.00)
Share FRL-eligible	0.51 (0.23)	0.02 (0.02)
<i>N:</i>	<i>367</i>	<i>1,044</i>
Math Composite Scores	-0.24 (0.77)	-0.01 (0.05)
ELA Composite Scores	-0.29 (0.78)	-0.03 (0.05)
<i>N:</i>	<i>351</i>	<i>986</i>

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The table is identical to Table 5, except that the specification does not include any year or district fixed effects. Otherwise, the specification is Equation 2 with controls for the share of Hispanic candidates and the number of contested seats in the election. Robust standard errors are clustered at the district level.

Table A7: Exploring Sensitivity of First Stage to “Top-of-the-ticket” Candidates

	Top-tier Effect (1)	“Top-of-the-Ticket” Effect (2)	Top-tier Effect, Excl. Top-of-the-Ticket (3)	At-large Elections (4)	At-large Elections (5)
Hisp Board Share	0.078*** (0.014)	0.085*** (0.016)	0.046 (0.028)	0.045 (0.028)	0.114*** (0.021)
<i>N:</i>	<i>183,512</i>	<i>183,512</i>	<i>141,963</i>	<i>141,963</i>	<i>125,578</i>
<b>School FEs</b>	Y	Y	Y	Y	Y
<b>Control for Share Hisp Cand</b>	Y	Y	Y	Y	Y
<b>Control for # Seats</b>	Y	Y	Y	Y	Y
<b>Election/Academic Yr, Period FEs</b>	Y	Y	Y	Y	Y
<b>Control for Competitiveness</b>	N	N	N	Y	Y

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The data consist of school-period observations. The specification follows the first stage of Equation 3, with modifications as indicated in column headers. Column 1 is identical to the second column in Table 6. Column 2 uses as an instrument an indicator for whether a Hispanic candidate appeared in the first ballot position (the “top of the ticket”). Column 3 uses the top-tier Hispanic indicator, but excludes top-of-the-ticket Hispanic candidates (that is, the sample only includes elections with no top-tier Hispanic candidates and those with a top-tier Hispanic candidate who was not in the first ballot position). Column 4 again only includes top-tier candidates who do not appear in the very top spot, but includes a control for election competitiveness. Column 5 includes only “at-large” elections. Robust standard errors clustered at the district level appear in parentheses.

Table A8: Correlation of Hispanic Top-Tier Indicator with SFP Outcomes, Election Characteristics

	(1) Control Mean	(2) Hisp Top tier Effect
<b>I. Election Year SFP Outcomes</b>		
Total SFP Spending per Pupil	369 (1,014)	112 (115)
Modernization Spending per Pupil	148 (429)	8 (42)
New Constr. Spending per Pupil	52 (224)	27 (31)
Supplemental SFP Grants per Pupil	164 (513)	61 (64)
<i>N:</i>	367	1,044
<b>II. Election Year SFP Eligibility Proxies</b>		
Cum. SFP Spending per Pupil	2,303 (2,970)	174 (302)
Total Enrollment	11,554 (12,831)	91 (119)
# FTE Teachers	531 (590)	5 (6)
Student-FTE Teacher Ratio	21.0 (2.31)	0.01 (0.13)
<i>N:</i>	367	1,044
Avg. Age of Schools	22.08 (7.40)	0.11 (0.14)
<i>N:</i>	367	1,040
Share of Schools Opened 1980	0.80 (0.24)	0.01 (0.01)
<i>N:</i>	367	1,044
<b>III. Election Candidate Composition, Results</b>		
Top-Tier Democrat?	0.30 (0.46)	0.06 (0.05)
Top-Tier Incumbent?	0.57 (0.50)	0.01 (0.06)
Share Missing Ethnicity	0.12 (0.15)	0.01 (0.02)
# Democrat Wins	0.41 (0.65)	0.02 (0.07)
# Incumbent Wins	1.15 (0.90)	-0.05 (0.09)
	392	1,097

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The specification is Equation 2 with controls for the share of Hispanic candidates, the number of contested seats, as well as election-year and district-level fixed effects. Robust standard errors clustered at the district level appear in parentheses. Sample sizes vary within columns because of missing enrollment data.

Table A9: District-level SFP Spending Effects, 4 and 8 Years Post-Election

	Four-year Effects			Eight-year Effects		
	Control Mean (1)	Reduced Form (2)	2SLS (3)	Control Mean (4)	Reduced Form (5)	2SLS (6)
Modernization Spending per Pupil	115.1 (362.9)	32.4*** (11.4)	352.3*** (132.9)	82.2 (305.3)	21.3*** (7.8)	287.8*** (109.7)
Total SFP Spending per Pupil	404.4 (1,106.3)	28.2 (32.1)	306.9 (344.8)	324.1 (1,012.1)	28.1 (22.4)	379.3 (300.2)
<i>N</i> :	4,179	10,650	10,650	8,358	14,820	14,820
<b>District FEs</b>	–	Y	Y	–	Y	Y
<b>Control for Share Hisp Cand</b>	–	Y	Y	–	Y	Y
<b>Control for # Seats</b>	–	Y	Y	–	Y	Y
<b>Election /Academic Yr, Period FEs</b>	–	Y	Y	–	Y	Y
<b>Other Election Controls</b>	–	Y	Y	–	Y	Y
<b>Demographic Controls</b>	–	Y	Y	–	Y	Y
<b>First Stage</b>	–	–	0.09 (0.01)	–	–	0.07 (0.01)

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The reduced form specification is Equation 4, while the 2SLS specification is Equation 3. All specifications include the full set of controls described below Table 7. Columns 1, 2, and 3 are identical to columns 1, 3, and 5 of Table 7, respectively. Columns 1-3 include data from the eight years prior to four years after each election. Columns 4-6 use eight years of pre-election and eight years of post-election outcome data. Robust standard errors clustered at the district level appear in parentheses.

Table A10: School-level SFP Spending Effects, 4 and 8 Years Post-Election

	Four-year Effects			Eight-year Effects		
	Control Mean (1)	Reduced Form (2)	2SLS (3)	Control Mean (4)	Reduced Form (5)	2SLS (6)
Modernization Spending per Pupil	115.9 (548.8)	33.7*** (12/7)	362.8** (153.3)	79.1 (454.8)	22.4*** (8.0)	302.2** (116.4)
Total SFP Spending per Pupil	289.6 (1,180.8)	39.8 (27.8)	428.2 (303.3)	218.7 (1,044.2)	25.6 (17.8)	346.1 (239.5)
<i>N</i> :	51,971	128,464	128,464	105,054	179,318	179,318
<b>School FEs</b>	–	Y	Y	–	Y	Y
<b>Control for Share Hisp Cand</b>	–	Y	Y	–	Y	Y
<b>Control for # Seats</b>	–	Y	Y	–	Y	Y
<b>Election /Academic Yr, Period FEs</b>	–	Y	Y	–	Y	Y
<b>Other Election Controls</b>	–	Y	Y	–	Y	Y
<b>Demographic Controls</b>	–	Y	Y	–	Y	Y
<b>First Stage</b>	–	–	0.09 (0.02)	–	–	0.07 (0.02)

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The reduced form specification is Equation 4, while the 2SLS specification is Equation 3. All specifications include the full set of controls described below Table 6. Columns 1, 2, and 3 present the same results as appear column 1 of Table 8. Columns 1-3 include data from the eight years prior to four years after each election. Columns 4-6 use eight years of pre-election and eight years of post-election outcome data. Robust standard errors clustered at the district level appear in parentheses.

Table A11: Reduced-form Spending Effects on Elementary/Middle and High Schools: School-level Analysis

	Post-Election Mean	All Schools	By School Type	
			Elementary/Middle Schools	High Schools
	(1)	(2)	(3)	(4)
<b>Reduced-Form Estimates of Top-tier Hispanic Effect</b>				
Modernization Spending per Pupil	115.9 (548.8)	33.7*** (12.7)	32.9*** (13.8)	41.0** (18.9)
Total SFP Spending per Pupil	289.6 (1,180.8)	49.3 (30.9)	42.9 (28.9)	50.0 (45.5)
<i>N</i>	<i>51,971</i>	<i>128,464</i>	<i>111,904</i>	<i>15,467</i>
<b>Election/Academic Yr, Period FEs</b>		Y	Y	Y
<b>School FEs</b>		Y	Y	Y
<b>Control for Share Hisp Cand</b>		Y	Y	Y
<b>Control for # Seats</b>		Y	Y	Y
<b>Other Election Controls</b>		Y	Y	Y
<b>School Demographic Controls</b>		Y	Y	Y

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The sample includes school-period observations from pre-election period -8 through post-election period +4. The first column shows the mean of the two outcome variables in the left-hand column over the eight post-election periods. Estimates in the remaining cells comes from separate OLS regressions on the samples of elementary/middle and high schools, following Equation 4. I define “elementary schools to be those whose highest grade is grade 8 and “high schools as all schools whose lowest grade is grade 9. Additional controls are described below Table 6. All specifications use school enrollment weights. Robust standard errors are clustered at the district level.



Table A12: Comparing Definitions of “High-Hispanic” Schools: School-level Analysis

	Academic-year Definition		Election-year Definition	
	High-Hispanic (1)	Low-Hispanic (2)	High-Hispanic (3)	Low-Hispanic (4)
SFP Modern. Spending per Pupil	41.7*** (13.8) <i>61,405</i>	21.6 (13.9) <i>61,408</i>	45.7*** (14.4) <i>60,874</i>	22.3 (14.1) <i>59,986</i>
Math Scores	0.038** (0.019) <i>55,427</i>	0.041** (0.020) <i>46,336</i>	0.038* (0.022) <i>54,458</i>	0.044** (0.022) <i>44,425</i>
ELA Scores	0.035** (0.017) <i>55,420</i>	0.034** (0.017) <i>46,340</i>	0.035* (0.018) <i>54,456</i>	0.038** (0.018) <i>44,425</i>
FTE Experience	0.227*** (0.083) <i>75,088</i>	0.168*** (0.064) <i>74,681</i>	0.262*** (0.093) <i>72,785</i>	0.184*** (0.070) <i>72,494</i>
FTE Tenure	0.269*** (0.074) <i>75,088</i>	0.205*** (0.067) <i>74,681</i>	0.301*** (0.084) <i>72,785</i>	0.219*** (0.074) <i>72,494</i>
<b>School FEs</b>	Y	Y	Y	Y
<b>Control for Share Hisp Cand</b>	Y	Y	Y	Y
<b>Control for # Seats</b>	Y	Y	Y	Y
<b>Election /Academic Yr, Period FEs</b>	Y	Y	Y	Y
<b>Other Election Controls</b>	Y	Y	Y	Y
<b>Demographic Controls</b>	Y	Y	Y	Y

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

This table compares results using two definitions of high- and low-Hispanic schools. Each cell reports a reduced form estimate, following Equation 4. All estimates include the full set of controls described below Table 6. Columns 1 and 2 present results that appear in Tables 8, 9, and 10. In these specifications, I define “high-Hispanic” and “low-Hispanic” schools by comparing current Hispanic enrollment to the current district median. In columns 3 and 4, I present comparable results where I instead define high-Hispanic schools to be those schools that had above-median Hispanic enrollment in the election year, and low-Hispanic schools to be those that had below-median Hispanic enrollment in the election year. Sample sizes vary within row due to missing enrollment data and omission of exactly-median schools, as discussed in the text. Robust standard errors clustered at the district level appear in parentheses.

Table A13: Specification Robustness: School-level Reduced-form Estimates

	(1) No FEs	(2) +Elec Yr FEs	(3) +Academic Yr FEs	(4) +Period FEs	(5) +Period 0 Obs	(6) + Periods -1 thru -8 Obs	(7) +School FEs	(8) + Elec Covars	(9) Preferred Model	(10) + Flexible Elec Covars
<b>I. Student Achievement at High-Hispanic Schools</b>										
ELA Composite Score	0.06 (0.06)	0.03 (0.06)	0.03 (0.06)	0.03 (0.06)	0.04 (0.06)	0.08 (0.06)	0.05** (0.02)	0.05** (0.02)	0.04** (0.02)	0.03** (0.02)
<i>N</i>	31,200	31,200	31,200	31,200	35,334	56,369	56,369	56,369	55,420	55,420
Math Composite Score	0.06 (0.06)	0.02 (0.06)	0.02 (0.06)	0.02 (0.06)	0.03 (0.05)	0.08 (0.05)	0.06** (0.03)	0.06** (0.03)	0.04** (0.02)	0.04* (0.02)
<i>N</i>	31,201	31,201	31,201	31,201	35,336	56,376	56,376	56,376	55,427	55,427
<b>II. SFP Spending at High-Hispanic Schools</b>										
Total SFP Spending per Pupil (School-level)	36.33 (39.31)	27.72 (37.08)	27.62 (37.03)	28.83 (37.29)	31.64 (36.18)	34.18 (33.56)	50.93* (30.11)	50.93* (30.11)	49.30 (30.90)	50.88 (31.09)
Modernization Spending per Pupil (School-level)	25.58 (17.16)	22.23 (15.56)	22.23 (15.55)	22.76 (15.64)	25.75* (15.14)	29.98** (13.99)	43.25*** (13.22)	43.25*** (13.22)	41.67*** (13.77)	42.21*** (13.85)
<i>N</i>	24,876	24,876	24,876	24,876	30,957	61,603	61,603	61,603	61,405	61,405
<b>III. FTE Tenure and Experience at High-Hispanic Schools</b>										
FTE Mean Experience	0.03 (0.17)	0.03 (0.17)	0.04 (0.17)	0.04 (0.17)	0.05 (0.16)	0.07 (0.15)	0.24*** (0.09)	0.24*** (0.09)	0.23*** (0.08)	0.29*** (0.08)
FTE Mean Tenure	-0.07 (0.15)	-0.05 (0.15)	-0.04 (0.15)	-0.04 (0.15)	-0.02 (0.15)	0.02 (0.14)	0.29*** (0.08)	0.29*** (0.08)	0.27*** (0.07)	0.26*** (0.08)
<i>N</i>	49,851	49,851	49,851	49,851	55,382	76,379	76,379	76,379	75,088	75,088

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Each cell comes from a separate regression. The sample consist of school-period observations. All samples include only high-Hispanic schools (the subsample of greatest interest in this paper). The base specification in column 1 regresses the outcome on the top-tier Hispanic indicator and controls for the share of Hispanic candidates and number of contested seats. The sample only includes post-election outcomes. Subsequent columns add additional controls and pre-election observations as indicated. Column 9 reports results that appear in the main paper, with full demographic and election controls, which are described below Table 6. Note that sample sizes decline across columns 8 and 9 because of missing demographic variables. Column 10 presents a specification based on the preferred model which adds a quadratic term in the share of Hispanic candidates and uses a fixed effect for the number of contested seats (instead of a linear control as in the remaining columns). Standard errors in parentheses are clustered at the district level.

Table A14: Specification Robustness: Comparing Fixed Effect Choice

	School-level Regression Estimates						
	All Schools	By Share Hispanic		By Share FRL		By Title I	
		Above Median	Below Median	Above Median	Below Median	Title I Eligible	Not Title I Eligible
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<b>I. School-by-Election Fixed Effects</b>							
Modernization Spending per Pupil	46.06** (18.08)	57.54*** (20.61)	32.32 (20.70)	59.99*** (21.74)	31.04 (19.92)	60.81*** (21.45)	27.78 (32.28)
Total SFP Spending per Pupil	54.49 (39.46)	63.86 (46.00)	37.10 (45.42)	61.23 (45.71)	33.65 (44.56)	88.64* (48.44)	3.89 (64.33)
N	128,464	61,405	61,408	61,179	61,172	75,855	37,382
Math Composite Score	0.07* (0.03)	0.06* (0.04)	0.08** (0.04)	0.07* (0.04)	0.06 (0.04)	0.05 (0.04)	0.04 (0.06)
N	104,490	55,427	46,336	58,154	42,899	68,127	26,028
ELA Composite Score	0.06* (0.03)	0.06* (0.03)	0.06** (0.03)	0.06* (0.03)	0.05* (0.03)	0.05* (0.03)	0.04 (0.05)
N	104,487	55,420	46,340	58,150	42,900	68,127	26,026
Mean FTE Experience	0.40*** (0.13)	0.52*** (0.18)	0.33** (0.13)	0.58*** (0.19)	0.28** (0.13)	0.36** (0.16)	0.27 (0.19)
Mean FTE Tenure	0.45*** (0.13)	0.57*** (0.16)	0.37** (0.15)	0.62*** (0.18)	0.32** (0.14)	0.40** (0.17)	0.26 (0.19)
N	156,453	75,088	74,681	74,877	74,317	102,566	43,106
<b>II. District Fixed Effects</b>							
Modernization Spending per Pupil	22.24*** (7.92)	29.33*** (8.66)	15.67* (8.75)	30.16*** (9.12)	16.56* (8.54)	23.21*** (8.71)	22.49* (13.08)
Total SFP Spending per Pupil	24.72 (17.67)	29.47 (20.48)	20.68 (19.21)	31.55 (20.19)	17.66 (20.00)	29.56 (20.84)	16.12 (26.14)
N	179,318	85,727	85,838	85,477	85,469	109,910	48,459
Math Composite Score	0.05** (0.02)	0.05** (0.02)	0.05** (0.02)	0.05** (0.02)	0.04** (0.02)	0.03 (0.02)	0.05* (0.03)
N	104,490	55,427	46,336	58,154	42,899	68,127	26,028
ELA Composite Score	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.04** (0.02)	0.05** (0.02)	0.02* (0.01)	0.05* (0.03)
N	104,487	55,420	46,340	58,150	42,900	68,127	26,026
Mean FTE Experience	0.20*** (0.07)	0.25*** (0.08)	0.18** (0.07)	0.27*** (0.09)	0.15** (0.07)	0.14* (0.08)	0.24** (0.10)
Mean FTE Tenure	0.24*** (0.07)	0.29*** (0.08)	0.22*** (0.08)	0.31*** (0.08)	0.19*** (0.07)	0.17** (0.08)	0.26*** (0.09)
N	156,453	75,088	74,681	74,877	74,317	102,566	43,106
<b>III. Neither District Nor School Effects</b>							
Modernization Spending per Pupil	15.06* (8.67)	20.69** (8.88)	9.84 (9.79)	21.39** (8.82)	9.69 (9.58)	20.47** (9.23)	4.74 (13.69)
Total SFP Spending per Pupil	16.37 (20.78)	17.29 (23.71)	13.82 (22.68)	23.21 (23.50)	8.75 (23.62)	35.98 (24.32)	-4.29 (30.67)
N	179,318	85,727	85,838	85,477	85,469	109,910	48,459
Math Composite Score	0.05* (0.03)	0.05* (0.03)	0.06** (0.03)	0.05* (0.03)	0.05* (0.03)	0.02 (0.03)	0.06 (0.04)
N	104,490	55,427	46,336	58,154	42,899	68,127	26,028
ELA Composite Score	0.05* (0.02)	0.04 (0.03)	0.06** (0.02)	0.04 (0.03)	0.05** (0.02)	0.02 (0.02)	0.06* (0.03)
N	104,487	55,420	46,340	58,150	42,900	68,127	26,026
Mean FTE Experience	-0.01 (0.12)	0.01 (0.13)	0.02 (0.14)	0.05 (0.13)	-0.07 (0.14)	-0.03 (0.13)	0.07 (0.19)
Mean FTE Tenure	-0.02 (0.12)	-0.01 (0.12)	0.00 (0.14)	0.03 (0.11)	-0.08 (0.14)	-0.04 (0.13)	0.01 (0.17)
N	156,453	75,088	74,681	74,877	74,317	102,566	43,106
Election and Academic Yr FEs	Y	Y	Y	Y	Y	Y	Y
Control for Share Hisp Cand	Y	Y	Y	Y	Y	Y	Y
Control for # Seats	Y	Y	Y	Y	Y	Y	Y
School Demographic Controls	Y	Y	Y	Y	Y	Y	Y
Other Election Controls	Y	Y	Y	Y	Y	Y	Y

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The sample includes school-period observations. Each cell comes from a separate reduced-form regression, following Equation 4, with modifications as indicated in the panel headers. Note that the first panel—using school-by-election effects—does not include any election-level covariates, which are collinear with the fixed effects. See the footnote below Table 6 for descriptions of the election and demographic controls used. All specifications use school enrollment weights. Sample sizes vary within columns due to missing enrollment data and exclusion of schools with exactly median enrollment by category. Robust standard errors are clustered at the district level.

Table A15: Are the Treatment Effects Across Schools Statistically Different?

	High/low Hispanic		High/low FRL		Title I Status	
	Top-tier	Interaction	Top-tier	Interaction	Top-tier	Interaction
	Effect	Effect	Effect	Effect	Effect	Effect
	(1)	(2)	(3)	(4)	(5)	(6)
Total SFP Spending per Pupil	25.28 (30.83)	29.34 (22.60)	28.42 (30.62)	22.52 (25.76)	-13.35 (37.37)	89.63** (39.92)
Modernization Spending per Pupil	22.67 (13.89)	23.52** (9.60)	23.69* (13.54)	23.56** (10.99)	12.90 (18.62)	37.11** (18.12)
<i>N</i>	123,197		113,622		77,654	
Math Composite Score	0.06** (0.03)	0.00 (0.02)	0.04* (0.03)	0.03 (0.02)	0.04 (0.03)	-0.01 (0.03)
<i>N</i>	103,454		101,053		95,839	
ELA Composite Score	0.05** (0.02)	0.00 (0.02)	0.04 (0.02)	0.02 (0.02)	0.04 (0.02)	-0.01 (0.02)
<i>N</i>	103,451		101,050		95,837	
FTE Mean Experience	0.15** (0.07)	0.14* (0.08)	0.13** (0.06)	0.18** (0.08)	0.16* (0.08)	0.02 (0.10)
FTE Mean Tenure	0.19*** (0.07)	0.13* (0.07)	0.16** (0.06)	0.18** (0.07)	0.21** (0.09)	0.01 (0.10)
<i>N</i>	152,235		149,194		148,161	

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The data consist of school-period observations. Each row within grouping (high/low Hispanic, high/low FRL, and Title I status) comes from a single regression. The reduced-form specification is analogous to Equation 4, but includes a fixed effect for whether the school has above-median Hispanic enrollment, above-median FRL enrollment, or Title I status (“high Hispanic”) and interacts this dummy with my main treatment variable ( $TopTierHisp \times post \times HighHisp$ ) as well as the “post” indicator. The interaction effects estimates measure the treatment effect on high-Hispanic, high-FRL, and Title I-eligible schools, relative to the effect on schools that do not fall into these categories, given by the “top-tier effect.” Sample sizes vary due to missing test score data and different post-election time frames. All specifications include school, election year, academic year, and period fixed effects, as well as controls for the share of Hispanic candidates and the number of contested seats, as discussed in the text. All specifications also include other election controls and demographic controls, as described below Table 6. Sample sizes vary across columns due to missing student demographic data. Standard errors are clustered at the district level.

Table A16: Pre-election Placebo and Balance Estimates, by School Type

	Sample			Share Hispanic			Share FRL			Title I		
	Mean (1)	All Schools (2)	Above Median (3)	Below Median (4)	p-value (5)	Above Median (6)	Below Median (7)	p-value (8)	Title I Eligible (9)	Not Title I Eligible (10)	p-value (11)	
Total SFP Spending per Pupil	300.4 (1164.68)	-17.27 (45.92)	-15.43 (55.00)	-20.88 (45.98)	0.885	7.14 (54.68)	-2.78 (40.16)	0.290	-15.59 (58.98)	11.50 (72.06)	0.752	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
Modernization Spending per Pupil	138.2 (597.1)	-7.13 (20.67)	-8.27 (22.70)	-8.10 (22.36)	0.992	-8.10 (23.92)	-0.30 (20.98)	0.538	-5.38 (22.97)	11.72 (36.97)	0.734	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
Cum. SFP Spending per Pupil	1697.3 (3314.4)	-44.44 (90.62)	-28.20 (102.44)	-78.84 (102.29)	0.576	8.00 (101.07)	-29.87 (97.31)	0.287	24.97 (107.97)	-107.96 (158.52)	0.477	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
Total Enrollment	884.6 (645.1)	1.7 (6.3)	-3.8 (21.7)	14.6 (17.2)	0.520	-7.5 (18.6)	-3.2 (8.5)	0.973	7.5 (21.2)	-48.8 (36.1)	0.231	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
Total FTE Teachers	39.72 (23.51)	-0.05 (0.35)	-0.57 (0.42)	0.10 (0.53)	0.309	-0.58 (0.43)	0.03 (0.26)	0.255	0.23 (0.63)	-0.64 (0.86)	0.478	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
Student-FTE Ratio	21.41 (9.09)	0.07 (0.09)	0.03 (0.09)	0.11 (0.12)	0.332	0.02 (0.09)	0.01 (0.14)	0.587	0.18 (0.14)	-0.08 (0.19)	0.253	
<i>N</i>	36678	36678	17,526	17,523		17,439	17,436		21,828	11,182		
School Age	21.0 (8.6)	-0.00 (0.07)	-0.00 (0.09)	0.09 (0.12)	0.538	0.04 (0.07)	0.04 (0.10)	0.947	-0.10 (0.12)	0.27 (0.23)	0.215	
<i>N</i>	36862	36608	17497	17496		17403	17417		21787	11166		
School Opened in 1980?	0.801 (0.399)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.01)	0.525	0.00 (0.00)	0.00 (0.00)	0.659	-0.00 (0.00)	0.01 (0.01)	0.431	
<i>N</i>	36,678	36,678	17,526	17,523		17,439	17,436		21,828	11,182		
Share Hispanic	0.539 (0.275)	0.00 (0.00)	0.01** (0.00)	0.00 (0.00)	0.051	0.01** (0.00)	-0.00 (0.00)	0.111	0.00 (0.00)	0.00 (0.00)	0.462	
<i>N</i>	36,678	36,678	17,526	17,523		17,439	17,436		21,828	11,182		
Share White	0.261 (0.237)	-0.00** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	0.393	-0.01*** (0.00)	-0.00 (0.00)	0.187	-0.00 (0.00)	-0.00 (0.00)	0.535	
<i>N</i>	36,678	36,678	17,526	17,523		17,439	17,436		21,828	11,182		
Share FRL	0.576 (0.290)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	0.188	0.00 (0.00)	-0.00 (0.00)	0.260	-0.00 (0.01)	0.00 (0.01)	0.745	
Observations	36,646	36,646	17,515	17,508		17,439	17,436		21,820	11,164		
Elec Yr FEs	—	Y	Y	Y		Y	Y		Y	Y		
District FEs	—	Y	Y	Y		Y	Y		Y	Y		

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The table presents placebo and robustness results for my school-level SFP analysis. The sample contains school-period observations. Column 1 reports the sample mean of each variable in the election year. The remaining columns report OLS coefficients from separate regressions. The specification employs district and election year fixed effects and controls for the share of Hispanic candidates and the number of contested seats. The first panel uses data from the three periods prior to the election. All other models use data from only the election year. All specifications use school enrollment weights. Sample sizes vary within columns due to missing data, as discussed in the text. Robust standard errors are clustered at the district level.

Table A17: Reduced-form Achievement Effects on Modernized and Non-modernized Schools

	Post-Election Mean	All Schools	By School Type	
			Modernized Schools	Non-modernized Schools
	(1)	(2)	(3)	(4)
<b>Reduced-Form Estimates of Top-tier Hispanic Effect</b>				
Composite Math Score	0.022 (1.028)	0.038** (0.019)	0.042 (0.030)	0.039* (0.022)
<i>N</i>	58,948	104,490	25,767	78,723
Composite ELA Score	-0.287 (0.994)	0.033** (0.016)	0.025 (0.024)	0.037** (0.019)
<i>N</i>	58,947	104,487	25,767	78,720
<b>Election/Academic Yr, Period FEs</b>		Y	Y	Y
<b>School FEs</b>		Y	Y	Y
<b>Control for Share Hisp Cand</b>		Y	Y	Y
<b>Control for # Seats</b>		Y	Y	Y
<b>Other Election Controls</b>		Y	Y	Y
<b>School Demographic Controls</b>		Y	Y	Y

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The sample includes school-period observations from pre-election period -8 through post-election period +8. The first column shows the mean of the two outcome variables in the left-hand column over the eight post-election periods. Estimates in the remaining cells comes from separate OLS regressions, following Equation 4. “Modernized” schools are those that begin any modernization project after the focal election. Additional controls are described below Table 6. All specifications use school enrollment weights. Robust standard errors are clustered at the district level.

Table A18: Reduced Form Effect on School Demographics, 4 and 8 Years Post-election

	Sample Mean	All Schools		High-Hispanic		Low-Hispanic	
	8 Year	4 Year	8 Year	4 Year	8 Year	4 Year	8 Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total Enrollment	845.2 (594.6)	-8.0 (6.0)	-12.7** (5.9)	-9.2 (6.2)	-10.6* (5.8)	-8.2 (7.7)	-12.5* (7.1)
Share White	0.208 (0.215)	0.003 (0.003)	0.005 (0.003)	0.003 (0.003)	0.005 (0.003)	0.003 (0.003)	0.004 (0.003)
Share Hisp	0.594 (0.272)	-0.002 (0.002)	-0.004 (0.003)	-0.003 (0.002)	-0.005* (0.003)	-0.001 (0.002)	-0.001 (0.002)
<i>N</i>	<i>105,027</i>	<i>128,887</i>	<i>181,934</i>	<i>61,603</i>	<i>87,042</i>	<i>61,594</i>	<i>87,030</i>
Share FRL-eligible	0.612 (0.285)	0.003 (0.003)	0.002 (0.003)	0.003 (0.003)	0.001 (0.004)	0.003 (0.003)	0.001 (0.003)
<i>N</i>	<i>102,447</i>	<i>128,465</i>	<i>179,319</i>	<i>61,405</i>	<i>85,727</i>	<i>61,408</i>	<i>85,838</i>

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

The sample mean consists of data from years 1-8 after the election. The regression specification follows Equation 4 with school, election year, and test year fixed effects, as well as the same election covariates described below Table 7. I do not include demographic covariates, which are the outcome variables. Columns 2, 4, and 6 include data spanning periods -8 through +4. Columns 3, 5, and 7 include data spanning periods -8 through +8. Sample sizes appear in italics. Sample sizes vary due to missing data. Robust standard errors are clustered at the district level.

Table A19: School-level Reduced-form Results Including Ethnically Noncompetitive Elections

	Research Sample			All-election Sample		
	All Schools (1)	High-Hispanic Schools (2)	Low-Hispanic Schools (3)	All Schools (4)	High-Hispanic Schools (5)	Low-Hispanic Schools (6)
SFP Modern. Spending per Pupil	33.68*** (12.69)	22.10** (9.61)	41.67*** (13.77)	29.01*** (9.51)	21.62 (13.90)	15.61 (10.55)
Math Scores	128,464 0.04** (0.02)	309,514 0.07*** (0.02)	61,405 0.04** (0.02)	146,919 0.05*** (0.02)	61,408 0.04** (0.02)	146,772 0.07*** (0.02)
ELA Scores	104,490 0.03** (0.02)	253,841 0.05*** (0.02)	55,427 0.04** (0.02)	131,834 0.05*** (0.02)	46,336 0.03** (0.02)	114,870 0.04** (0.02)
FTE Experience	104,487 0.20*** (0.07)	253,846 0.16* (0.09)	55,420 0.23*** (0.08)	131,827 0.21* (0.11)	46,340 0.17*** (0.06)	114,882 0.11 (0.09)
FTE Tenure	156,453 0.24*** (0.06)	376,535 0.20** (0.08)	75,088 0.27*** (0.07)	179,351 0.24** (0.09)	74,681 0.20*** (0.07)	178,483 0.15* (0.08)
	156,453	376,535	75,088	179,351	74,681	178,483
<b>School FEs</b>	Y	Y	Y	Y	Y	Y
<b>Control for Share Hisp Cand</b>	Y	Y	Y	Y	Y	Y
<b>Control for # Seats</b>	Y	Y	Y	Y	Y	Y
<b>Election /Academic Yr, Period FEs</b>	Y	Y	Y	Y	Y	Y
<b>Other Election Controls</b>	Y	Y	Y	Y	Y	Y
<b>Demographic Controls</b>	Y	Y	Y	Y	Y	Y

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

This table compares results using my preferred research sample with those using the full sample of elections, including those that do not have any Hispanic candidates and those that have only Hispanic candidates. Each cell reports a reduced form estimate, following Equation 6. All estimates include the full set of controls described below Table 6. Columns 1, 2, and 3 present results that appear in Tables 8, 9, and 10. In columns 4, 5, and 6, I present comparable results where I include ethnically noncompetitive elections. Sample sizes vary within row due to missing enrollment data and omission of exactly-median schools, as discussed in the text. Robust standard errors clustered at the district level appear in parentheses.