Online Appendix for "Dressed for Success? The Effect of School Uniforms on Student Achievement and Behavior"

Not for Publication

Appendix Table 1: Main Regressions Weighted by Inverse Probability of School Being Included In Sample

	Attendance (1)	Discipline (2)	A. Females Math (3)	Reading (4)	Language (5)
			i. Elementary		
Uniform Required	0.033	0.004	-0.061	-0.038	0.032
	(0.051)	(0.008)	(0.054)	(0.031)	(0.039)
Observations	418,569	425,820	112,930	112,740	113,001
			ii. Middle/High		
Uniform Required	0.353**	-0.009	-0.013	-0.017	0.014
	(0.148)	(0.052)	(0.037)	(0.016)	(0.016)
Observations	517,640	526,301	173,996	174,026	173,664
			B. Males		
			i. Elementary		
Uniform Required	-0.091	0.030	-0.013	0.010	-0.006
	(0.058)	(0.027)	(0.051)	(0.031)	(0.041)
Observations	437,191	445,197	116,952	116,676	116,962
			ii. Middle/High		
Uniform Required	0.233	0.048	-0.022	-0.025	0.014
	(0.165)	(0.091)	(0.030)	(0.020)	(0.023)
Observations	522,073	531,164	170,346	170,084	3

Standard errors clustered by school in parentheses. Regressions are weighted by the inverse of predicted values from a probit regression conducted at the school level. See text for list of variables included. Each regression includes student and school fixed-effects, a lagged dependent variable, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 2A: Number of Fixed Effects in Regressions of Uniform Effect on Discipline, and Attendance (Tables 4)

		A. Attendance		B. Infractions		C. In-School Suspensions		D. Out-of-School Suspensions	
		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
						i. Elementary			
All	School Fixed Effects	154	106	155	108	154	105	154	105
	Grade Fixed Effects	4	4	4	4	4	4	4	4
	Year Fixed Effects	13	13	13	13	11	11	11	11
	Grade-by-Year Fixed Effects	52	52	52	52	44	44	44	44
	Student Fixed Effects	304,644	300,162	310,871	306,227	299,077	294,606	299,077	294,606
	Principal Fixed Effects	-	279	-	277	-	273	-	273
Female	School Fixed Effects	155	104	154	103	155	110	155	110
	Grade Fixed Effects	4	4	4	4	4	4	4	4
	Year Fixed Effects	13	13	13	13	11	11	11	11
	Grade-by-Year Fixed Effects	52	52	52	52	44	44	44	44
	Student Fixed Effects	149,891	147,625	152,817	150,479	146,954	144,707	146,954	144,707
	Principal Fixed Effects	-	281	-	282	-	268	-	268
Male	School Fixed Effects	152	102	152	108	153	105	153	105
	Grade Fixed Effects	4	4	4	4	4	4	4	4
	Year Fixed Effects	13	13	13	13	11	11	11	11
	Grade-by-Year Fixed Effects	52	52	52	52	44	44	44	44
	Student Fixed Effects	156,510	154,238	159,856	157,492	153,647	151,375	153,647	151,375
	Principal Fixed Effects	-	280	-	275	-	271	-	271
						ii. Middle / High			
All	School Fixed Effects	136	103	136	104	136	99	136	99
	Grade Fixed Effects	6	6	6	6	6	6	6	6
	Year Fixed Effects	12	13	12	12	11	11	11	11
	Grade-by-Year Fixed Effects	79	78	79	79	66	66	66	66
	Student Fixed Effects	326,527	320,047	333,581	326,608	322,669	315,965	322,669	315,965
	Principal Fixed Effects	-	199	-	198	-	194	-	194
Female	School Fixed Effects	132	97	132	94	132	96	132	96
	Grade Fixed Effects	6	6	6	6	6	6	6	6
	Year Fixed Effects	12	13	13	12	11	11	11	11
	Grade-by-Year Fixed Effects	79	78	78	79	66	66	66	66
	Student Fixed Effects	161,936	158,742	165,381	161,964	159,943	156,636	159,943	156,636
	Principal Fixed Effects	-	197	-	200	-	187	-	187
Male	School Fixed Effects	132	86	132	94	132	95	132	95
	Grade Fixed Effects	6	6	6	6	6	6	6	6
	Year Fixed Effects	12	13	13	13	11	10	11	10
	Grade-by-Year Fixed Effects	79	78	78	78	66	67	66	67
	Student Fixed Effects	166,620	163,284	170,290	166,682	164,408	160,971	164,408	160,971
	Principal Fixed Effects	-	211	-	203	-	193	-	193

Appendix Table 2B: Number of Fixed Effects in Regressions of Uniform Effect on Achievement Gains, Student Movements, Grade Retention, and Teacher Attrition (Tables 7 and 8)

		A. Math		B. Reading		C. Language		D. Grade Retention		E. Leaving		F. Switching		G. Teacher Attrition	
		(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
All	School Fixed Effects	148	71	147	74	148	67	153	106	154	100	154	100	144	140
	Grade Fixed Effects	4	4	4	4	4	4	4	4	4	4	4	4	-	-
	Year Fixed Effects	7	7	7	7	7	7	12	12	12	12	12	12	8	8
	Grade-by-Year Fixed Effects	28	28	28	28	28	28	48	48	48	48	48	48	-	-
	Student Fixed Effects	106,765	104,682	106,708	104,635	106,798	104,715	224,720	221,632	270,916	266,810	270,916	266,810	-	-
	Principal Fixed Effects	-	211	-	208	-	215	-	265	-	259	-	259	-	141
Female	School Fixed Effects	148	80	147	82	147	78	154	104	152	103	152	103		
	Grade Fixed Effects	4	4	4	4	4	4	4	4	4	4	4	4		
	Year Fixed Effects	7	7	7	7	7	7	12	12	12	12	12	12		
	Grade-by-Year Fixed Effects	28	28	28	28	28	28	48	48	48	48	48	48		
	Student Fixed Effects	52,666	51,605	52,630	51,569	52,668	51,605	110,849	109,270	133,218	131,167	133,218	131,167		
	Principal Fixed Effects	-	202	-	200	-	204	-	267	-	254	-	254		
Male	School Fixed Effects	147	74	147	75	148	72	151	104	150	110	150	110		
	Grade Fixed Effects	4	4	4	4	4	4	4	4	4	4	4	4		
	Year Fixed Effects	7	7	7	7	7	7	12	12	12	12	12	12		
	Grade-by-Year Fixed Effects	28	28	28	28	28	28	48	48	48	48	48	48		
	Student Fixed Effects	54,454	53,420	54,429	53,405	54,487	53,455	115,018	113,472	139,084	136,976	139,084	136,976		
	Principal Fixed Effects	-	208	-	207	-	210	-	264	-	246	-	246		
All	School Fixed Effects	109	76	109	72	108	71	129	87	79	55	79	55	114	103
	Grade Fixed Effects	5	5	5	5	5	5	6	6	5	5	5	5	-	-
	Year Fixed Effects	7	6	7	7	7	7	11	11	12	12	12	12	8	8
	Grade-by-Year Fixed Effects	36	37	36	36	36	36	74	74	60	60	60	60	-	-
	Student Fixed Effects	158,310	156,453	158,266	156,406	158,064	156,185	270,108	266,364	293,650	287,915	293,650	287,915	-	-
	Principal Fixed Effects	-	120	-	124	-	125	-	197	-	142	-	142	-	103
Female	School Fixed Effects	107	75	106	66	107	69	124	97	77	57	77	57		
	Grade Fixed Effects	5	5	5	5	5	5	6	6	5	5	5	5		
	Year Fixed Effects	7	7	6	7	7	7	11	12	12	12	12	12		
	Grade-by-Year Fixed Effects	36	36	37	36	36	35	74	73	60	60	60	60		
	Student Fixed Effects	79,627	78,666	79,648	78,694	79,563	78,588	134,912	132,962	145,061	142,306	145,061	142,306		
	Principal Fixed Effects	-	118	-	127	-	126	-	178	-	138	-	138		
Male	School Fixed Effects	108	72	108	71	107	77	126	87	79	54	79	54		
	Grade Fixed Effects	5	5	5	5	5	5	6	6	5	5	5	5		
	Year Fixed Effects	7	7	7	7	7	7	11	11	12	12	12	12		
	Grade-by-Year Fixed Effects	36	36	36	35	36	36	74	73	60	60	60	60		
	Student Fixed Effects	79,158	78,253	79,086	78,171	78,970	78,056	136,848	135,016	150,046	147,027	150,046	147,027		
	Principal Fixed Effects	-	123	-	124	-	117	-	194	-	142	-	142		

Appendix Table 3: Gains Models

	Attendance (1)	Discipline (2)
	A. Females	
	i. Elementary	
Uniform Required	-0.026	0.002
	(0.063)	(0.006)
Observations	284,986	289,434
	ii. Middle/High	
Uniform Required	0.271*	-0.025
	(0.160)	(0.048)
Observations	374,033	379,259
	B. Males	
	i. Elementary	
Uniform Required	-0.126**	0.004
	(0.059)	(0.019)
Observations	297,571	302,393
	ii. Middle/High	
Uniform Required	0.120	-0.002
	(0.143)	(0.078)
Observations	373,362	378,821

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status and an indicator for whether the current principal is a new principal. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 4: School-Level Estimates Effect of Uniforms on Disciplinary Infraction Rates

	Infractions Per-Pupil (1)	In-School Suspensions Per-Pupil (2)	Out-of-School Suspensions Per Pupil (3)	Other Infractions Per-Pupil (4)	Percent of Infractions That Result in In-School Suspensions (5)
			A. Elementary		
Uniform Required	0.019	0.006	0.012	0.001	0.000
	(0.017)	(0.005)	(0.016)	(0.002)	(0.029)
Observations	1,903	1,647	1,647	1,647	1,552
			B. Middle/High		
Uniform Required	0.089	0.093*	0.006	0.008	0.052
	(0.058)	(0.051)	(0.033)	(0.005)	(0.037)
Observations	1,299	1,114	1,114	1,114	1,085

Standard errors clustered by school in parentheses. Data only includes infractions that result in a suspension or more severe punishment. Less severe infractions such as those that result in detention are not observed. Each regression includes school fixed-effects along with shares of the school in each grade, female, black, Hispanic, Asian, White, Native American, eligible for free lunch, reduced-price lunch, otherwise economically disadvantaged, and year indicators. Elementary include anys chool with students in grades 1 - 5, while middle/high includes any school with grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

Appendix Table 5: Interactions of Uniform Status With Whether Uniform Was Adopted During First Two Years of a Principal's Term

	Attendance (1)	Discipline (2)	Math (3)	Reading (4)	Language (5)
			A. Females		
			i. Elementary		
Uniform Required	0.029	-0.003	-0.042	-0.068**	0.025
	(0.045)	(0.004)	(0.032)	(0.027)	(0.030)
Uniform*New Principal	0.027	0.017	0.001	0.072	-0.015
	(0.082)	(0.017)	(0.074)	(0.048)	(0.058)
Observations	429,626	436,940	117,244	117,036	117,311
			ii. Middle/High		
Uniform Required	0.344*	-0.056	0.002	-0.008	0.012
	(0.186)	(0.047)	(0.024)	(0.012)	(0.014)
Uniform*New Principal	-0.093	0.154**	-0.080	-0.039	0.003
	(0.230)	(0.075)	(0.087)	(0.037)	(0.028)
Observations	525,447	534,135	177,220	177,252	176,858
			B. Males		
			i. Elementary		
Uniform Required	-0.072	-0.002	-0.012	-0.003	-0.018
	(0.048)	(0.013)	(0.025)	(0.030)	(0.037)
Uniform*New Principal	0.031	0.091*	-0.033	0.057	0.026
	(0.074)	(0.054)	(0.074)	(0.044)	(0.056)
Observations	448,505	1,456,590	121,261	120,964	121,266
			ii. Middle/High		
Uniform Required	0.292	-0.031	-0.022	-0.017	0.016
	(0.188)	(0.088)	(0.018)	(0.018)	(0.021)
Uniform*New Principal	-0.345	0.296**	-0.018	-0.039	-0.010
	(0.251)	(0.137)	(0.075)	(0.029)	(0.026)
Observations	530,281	539,398	173,582	173,323	172,972

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status and an indicator for whether the current principal is a new principal. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 6: Event Study on Discipline & Attendance - Elementary

	Disciplinary Infractions (1)	In-School Suspensions (2)	Out-of-School Suspensions (3)	Attendance (4)
6 or More Years Prior	-0.080***	-0.010	-0.060***	-0.107
	(0.021)	(0.007)	(0.023)	(0.139)
5 Years Prior	-0.053***	-0.011*	-0.042**	-0.016
	(0.017)	(0.006)	(0.019)	(0.106)
4 Years Prior	-0.010	-0.010*	-0.020	0.042
	(0.017)	(0.006)	(0.016)	(0.076)
3 Years Prior	-0.022*	-0.007	-0.018	-0.034
	(0.012)	(0.006)	(0.014)	(0.059)
2 Years Prior	-0.002	0.006	-0.001	0.005
	(0.008)	(0.005)	(0.008)	(0.042)
Year of Adoption	0.010	0.004	0.005	-0.016
	(0.012)	(0.006)	(0.012)	(0.036)
1 Year After Adoption	0.020	0.008	0.015	0.003
	(0.013)	(0.007)	(0.013)	(0.050)
2 Years After Adoption	0.025	0.019*	0.014	0.102
	(0.016)	(0.011)	(0.012)	(0.065)
3 Years After Adoption	0.011	0.015*	0.002	0.094
	(0.015)	(0.008)	(0.014)	(0.079)
4 Years After Adoption	0.017	0.014*	0.006	0.094
	(0.018)	(0.008)	(0.016)	(0.091)
5 or More Years After Adoption	0.017	0.027**	-0.002	0.174
	(0.022)	(0.013)	(0.017)	(0.108)
Observations	893,530	768,016	768,016	878,131
Student fixed-effects	X	X	X	X
School fixed-effects	X	X	X	X

Standard errors clustered by school in parentheses. Covers grades 1 - 5. Each regression includes grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 7: Event Study on Discipline & Attendance - Middle/High

	Disciplinary Infractions (1)	In-School Suspensions (2)	Out-of-School Suspensions (3)	Attendance (4)
6 or More Years Prior	-0.023	0.048	-0.115**	0.125
	(0.104)	(0.106)	(0.050)	(0.338)
5 Years Prior	-0.056	0.052	-0.120**	0.008
	(0.086)	(0.074)	(0.047)	(0.361)
4 Years Prior	0.019	0.116	-0.086*	0.091
	(0.081)	(0.075)	(0.046)	(0.275)
3 Years Prior	0.020	0.078	-0.061	-0.074
	(0.067)	(0.068)	(0.038)	(0.189)
2 Years Prior	-0.010	-0.000	-0.029	0.051
	(0.058)	(0.053)	(0.028)	(0.150)
Year of Adoption	0.035	0.071	-0.030	0.335**
	(0.046)	(0.045)	(0.023)	(0.138)
1 Year After Adoption	0.030	0.097	-0.058**	0.002
	(0.067)	(0.067)	(0.026)	(0.166)
2 Years After Adoption	-0.039	0.000	-0.065*	0.239
	(0.075)	(0.079)	(0.034)	(0.247)
3 Years After Adoption	-0.086	-0.032	-0.070*	0.209
	(0.089)	(0.094)	(0.037)	(0.250)
4 Years After Adoption	-0.104	-0.070	-0.063	0.259
	(0.096)	(0.105)	(0.038)	(0.271)
5 or More Years After Adoption	-0.140	-0.131	-0.043	-0.044
	(0.129)	(0.134)	(0.046)	(0.342)
Observations	1,073,533	919,504	919,504	1,055,728
Student fixed-effects	X	X	X	X
School fixed-effects	X	X	X	X

Standard errors clustered by school in parentheses. Covers grades 1 - 5. Each regression includes grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 8: Exclude Early (Pre 1997) and Late (Post 2004) Adoopters

	Attendance (1)	Discipline (2)	A. Females Math (3)	Reading (4)	Language (5)
			i. Elementary		
Uniform Required	0.012	0.001	-0.047	-0.060**	0.059*
	(0.041)	(0.006)	(0.038)	(0.027)	(0.032)
Observations	286,183	291,007	71,590	71,454	71,659
			ii. Middle/High		
Uniform Required	0.277	-0.018	-0.048	-0.021	0.017
	(0.198)	(0.054)	(0.035)	(0.017)	(0.018)
Observations	302,410	306,975	91,542	91,688	91,516
			B. Males		
			i. Elementary		
Uniform Required	-0.117***	0.011	0.001	0.020	0.021
	(0.044)	(0.021)	(0.034)	(0.028)	(0.033)
Observations	298,455	303,853	73,797	73,559	73,768
			ii. Middle/High		
Uniform Required	0.112	0.048	-0.050*	-0.024	0.014
	(0.157)	(0.085)	(0.026)	(0.022)	(0.024)
Observations	308,946	313,760	90,738	90,759	90,565

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects along with grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 9: Effect of Uniforms on Outcomes Excluding All Students Who At Any Time Are Enrolled
But Do Not Take Stanford Math, Reading, & Language Exams

	Attendance (1)	Discipline (2)	A. Females Math (3)	Reading (4)	Language (5)
			i. Elementary		
Uniform Required	0.093	0.017	-0.046	-0.041	0.031
	(0.069)	(0.017)	(0.031)	(0.025)	(0.028)
Observations	165,939	165,963	104,054	104,054	104,054
			ii. Middle/High		
Uniform Required	0.178**	0.037	-0.016	-0.021*	0.003
	(0.088)	(0.039)	(0.029)	(0.011)	(0.013)
Observations	219,238	219,250	147,029	147,029	147,029
			B. Males		
			i. Elementary		
Uniform Required	-0.053	0.079*	-0.015	0.012	-0.019
	(0.055)	(0.046)	(0.030)	(0.025)	(0.032)
Observations	168,863	168,893	105,785	105,785	105,785
			ii. Middle/High		
Uniform Required	0.165*	0.122*	-0.014	-0.021	0.022
	(0.087)	(0.069)	(0.024)	(0.015)	(0.018)
Observations	202,385	202,413	134,908	134,908	134,908

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects along with grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 10: Separate Estimates by Grade Level

	Attendance (1)	Discipline (2)	A. Females Math (3)	Reading (4)	Language (5)
			i. Elementary		
Uniform Required*Grades 1 - 3	0.026	0.005	-0.023	-0.047*	0.043
	(0.046)	(0.006)	(0.035)	(0.025)	(0.028)
Uniform Required*Grades 4 - 5	0.054	-0.003	-0.077*	-0.040	0.003
	(0.055)	(0.006)	(0.043)	(0.030)	(0.040)
Observations	429,626	436,940	117,551	117,338	117,619
			ii. Middle/High		
Uniform Required*Grades 6 - 8	0.393***	-0.016	-0.019	-0.013	0.024
	(0.143)	(0.052)	(0.028)	(0.013)	(0.020)
Uniform Required*Grades 9 - 12	0.242	-0.010	-0.019	-0.024	0.004
	(0.272)	(0.052)	(0.055)	(0.021)	(0.018)
Observations	525,447	534,135	177,584	177,612	177,218
			B. Males		
			i. Elementary		
Uniform Required*Grades 1 - 3	-0.082*	0.029	0.027	0.025	0.013
	(0.048)	(0.019)	(0.034)	(0.026)	(0.032)
Uniform Required*Grades 4 - 5	-0.034	0.014	-0.055	0.002	-0.055
	(0.058)	(0.021)	(0.042)	(0.030)	(0.039)
Observations	448,505	456,590	121,720	121,420	121,728
			ii. Middle/High		
Uniform Required*Grades 6 - 8	0.303**	0.007	-0.040*	-0.027	0.030
	(0.135)	(0.085)	(0.021)	(0.024)	(0.027)
Uniform Required*Grades 9 - 12	0.120	-0.024	-0.015	-0.028	-0.002
	(0.224)	(0.087)	(0.043)	(0.021)	(0.023)
Observations	749,979	760,728	174,043	173,782	173,430

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects along with grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 11: Effect of Uniforms Interacted with Student and School Economic Disadvantage Status

	A. Elementary		B. Middle/High	
	Females	Males	Females	Males
	(1)	(2)	(3)	(4)
	i. Attendance			
Uniform Required	-0.139*	-0.137*	0.256	0.046
	(0.077)	(0.082)	(0.216)	(0.225)
Uniform Required X Disadvantaged	0.222***	0.140**	0.087	0.216*
	(0.063)	(0.063)	(0.126)	(0.111)
Uniform Required X Disadvantaged X Above Median Disadv	0.023	-0.030	0.275	0.621***
	(0.089)	(0.068)	(0.176)	(0.197)
Uniform Required X Above Median Disadv	-0.033	-0.034	-0.222	-0.586*
	(0.104)	(0.094)	(0.234)	(0.344)
Above Median Disadv	0.051	0.065	0.116	0.157
	(0.084)	(0.084)	(0.174)	(0.226)
Observations	429,626	448,505	525,447	530,281
	ii. Discipline			
Uniform Required	-0.005	-0.027*	-0.001	0.051
	(0.005)	(0.016)	(0.039)	(0.057)
Uniform Required X Disadvantaged	0.003	0.024**	0.014	0.029
	(0.004)	(0.011)	(0.017)	(0.032)
Uniform Required X Disadvantaged X Above Median Disadv	-0.001	-0.005	-0.089*	-0.131**
	(0.005)	(0.011)	(0.046)	(0.051)
Uniform Required X Above Median Disadv	0.007	0.050**	-0.052	-0.015
	(0.007)	(0.022)	(0.081)	(0.155)
Above Median Disadv	-0.001	-0.033*	-0.006	-0.078
	(0.007)	(0.019)	(0.048)	(0.086)
Observations	436,940	456,590	534,135	539,398
	iii. Math			
Uniform Required	-0.032	0.027	-0.000	-0.017
	(0.048)	(0.039)	(0.021)	(0.021)
Uniform Required X Disadvantaged	-0.006	-0.004	-0.012	0.003
	(0.032)	(0.031)	(0.010)	(0.010)
Uniform Required X Disadvantaged X Above Median Disadv	-0.042	-0.018	0.036*	-0.000
	(0.034)	(0.027)	(0.019)	(0.033)
Uniform Required X Above Median Disadv	0.006	-0.058	-0.036	-0.044
	(0.057)	(0.060)	(0.039)	(0.051)
Above Median Disadv	0.031	0.091	-0.040	-0.015
	(0.051)	(0.061)	(0.037)	(0.033)
Observations	133,007	137,250	237,012	232,491

	iv. Reading			
Uniform Required	-0.096***	0.036	-0.019	-0.021*
	(0.028)	(0.030)	(0.016)	(0.011)
Uniform Required X Disadvantaged	0.053**	-0.005	0.005	0.014
	(0.025)	(0.027)	(0.010)	(0.010)
Uniform Required X Disadvantaged X Above Median Disadv	-0.042	-0.002	-0.013	-0.017
	(0.028)	(0.023)	(0.023)	(0.024)
Uniform Required X Above Median Disadv	0.028	-0.057	0.020	0.006
	(0.049)	(0.045)	(0.028)	(0.036)
Above Median Disadv	0.026	0.064	0.001	0.001
	(0.045)	(0.041)	(0.024)	(0.020)
Observations	132,670	136,813	237,076	232,172
	v. Language			
Uniform Required	0.087**	0.066*	0.037**	0.031*
	(0.037)	(0.039)	(0.016)	(0.017)
Uniform Required X Disadvantaged	-0.062*	-0.021	-0.020*	-0.009
	(0.037)	(0.028)	(0.010)	(0.014)
Uniform Required X Disadvantaged X Above Median Disadv	0.025	-0.034	-0.028	-0.027
	(0.027)	(0.032)	(0.022)	(0.020)
Uniform Required X Above Median Disadv	-0.069*	-0.088*	0.017	0.004
	(0.035)	(0.050)	(0.034)	(0.036)
Above Median Disadv	0.064***	0.141***	-0.014	-0.002
	(0.023)	(0.042)	(0.010)	(0.014)
Observations	129,281	133,381	236,660	231,850

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 12: Interactions of Uniform Status in Middle/High with 5th Grade Math Quartile on
Achievment Gains, Attendance and Discipline

	Attendance (1)	Discipline (2)	Math (3)	Reading (4)	Language (5)
			A. All		
Uniform Required	0.450*	0.211***	-0.009	-0.006	0.013
	(0.247)	(0.065)	(0.029)	(0.015)	(0.017)
Uniform*2nd Quartile	-0.130	-0.047	0.010	0.016	-0.001
	(0.144)	(0.038)	(0.021)	(0.012)	(0.014)
Uniform*3rd Quartile	-0.327*	-0.038	0.014	0.019	-0.003
	(0.166)	(0.051)	(0.025)	(0.013)	(0.013)
Uniform*4th Quartile	-0.312	-0.010	0.033	0.011	-0.018
	(0.190)	(0.059)	(0.028)	(0.015)	(0.016)
Observations	267,207	267,339	228,771	228,820	228,418
			B. Females		
Uniform Required	0.405	0.079	0.004	-0.002	0.010
	(0.288)	(0.065)	(0.029)	(0.017)	(0.018)
Uniform*2nd Quartile	-0.092	0.077	0.024	0.029**	0.001
	(0.169)	(0.050)	(0.021)	(0.014)	(0.015)
Uniform*3rd Quartile	-0.426**	0.052	0.015	0.013	0.002
	(0.201)	(0.060)	(0.024)	(0.017)	(0.018)
Uniform*4th Quartile	-0.300	0.078	0.044*	0.018	-0.004
	(0.223)	(0.067)	(0.026)	(0.016)	(0.018)
Observations	134,068	134,139	115,846	115,860	115,698
			C. Males		
Uniform Required	0.481*	0.316***	-0.018	-0.008	0.015
	(0.251)	(0.079)	(0.034)	(0.019)	(0.022)
Uniform*2nd Quartile	-0.152	-0.161***	-0.007	-0.000	-0.001
	(0.197)	(0.053)	(0.026)	(0.017)	(0.018)
Uniform*3rd Quartile	-0.213	-0.121**	0.011	0.023	-0.011
	(0.183)	(0.053)	(0.031)	(0.015)	(0.017)
Uniform*4th Quartile	-0.305	-0.086	0.017	-0.002	-0.034
	(0.214)	(0.068)	(0.035)	(0.019)	(0.021)
Observations	133,139	133,200	112,925	112,960	112,720

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Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 11. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 13: Interactions of Uniform Status in Middle/High with Within-School 5th Grade Math Quartile on Achievment Gains, Attendance and Discipline

	Attendance (1)	Discipline (2)	Math (3)	Reading (4)	Language (5)
			A. All		
Uniform Required	0.298***	0.096	0.022	-0.016	0.015
	(0.113)	(0.075)	(0.027)	(0.015)	(0.014)
Uniform*2nd Quartile	-0.067	-0.027	-0.040**	0.011	0.011
	(0.071)	(0.020)	(0.016)	(0.010)	(0.011)
Uniform*3rd Quartile	-0.108	-0.047	-0.038	0.008	0.011
	(0.086)	(0.029)	(0.023)	(0.013)	(0.013)
Uniform*4th Quartile	-0.191	-0.065	-0.069**	-0.008	0.003
	(0.125)	(0.040)	(0.034)	(0.014)	(0.014)
Observations	562,230	562,286	435,162	430,703	429,964
			B. Females		
Uniform Required	0.240**	0.024	0.025	-0.024	0.013
	(0.116)	(0.056)	(0.031)	(0.015)	(0.013)
Uniform*2nd Quartile	-0.070	-0.003	-0.037**	0.009	0.005
	(0.069)	(0.021)	(0.015)	(0.012)	(0.012)
Uniform*3rd Quartile	-0.066	-0.006	-0.035	0.011	0.020
	(0.090)	(0.024)	(0.024)	(0.014)	(0.015)
Uniform*4th Quartile	-0.156	-0.018	-0.057	0.005	0.015
	(0.124)	(0.031)	(0.037)	(0.015)	(0.015)
Observations	282,915	282,937	219,737	217,883	217,510
			C. Males		
Uniform Required	0.338***	0.161	0.019	-0.009	0.018
	(0.129)	(0.099)	(0.026)	(0.018)	(0.018)
Uniform*2nd Quartile	-0.052	-0.047*	-0.042**	0.015	0.019
	(0.095)	(0.027)	(0.019)	(0.013)	(0.014)
Uniform*3rd Quartile	-0.139	-0.085**	-0.042*	0.006	0.001
	(0.100)	(0.041)	(0.025)	(0.015)	(0.016)
Uniform*4th Quartile	-0.215	-0.110**	-0.080**	-0.019	-0.009
	(0.143)	(0.053)	(0.034)	(0.015)	(0.017)
Observations	279,315	279,349	215,425	212,820	212,454

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 11. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 14: Levels Models

	Math (1)	Reading (2)	Language (3)
	A. Females		
	i. Elementary		
Uniform Required	-0.067**	-0.043**	-0.013
	(0.026)	(0.018)	(0.018)
Observations	199,569	199,382	199,601
	ii. Middle/High		
Uniform Required	-0.025**	-0.022**	0.001
	(0.012)	(0.010)	(0.010)
Observations	271,401	271,429	271,009
	B. Males		
	i. Elementary		
Uniform Required	-0.046*	-0.038*	-0.015
	(0.027)	(0.020)	(0.023)
Observations	206,713	206,483	206,721
	ii. Middle/High		
Uniform Required	-0.033***	-0.021**	0.005
	(0.011)	(0.010)	(0.011)
Observations	268,158	267,942	267,359

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects, grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status and an indicator for whether the current principal is a new principal. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 15: Event Study on Achievement Gains - Elementary

	Math (1)	Reading (2)	Language (3)
6 or More Years Prior	0.155	0.160**	0.180**
	(0.117)	(0.079)	(0.075)
5 Years Prior	0.124	0.141	0.107
	(0.110)	(0.098)	(0.078)
4 Years Prior	0.053	0.055	0.126**
	(0.075)	(0.074)	(0.054)
3 Years Prior	-0.048	-0.039	-0.034
	(0.069)	(0.042)	(0.048)
2 Years Prior	0.002	0.043	0.031
	(0.045)	(0.046)	(0.037)
Year of Adoption	-0.022	-0.000	0.020
	(0.028)	(0.027)	(0.028)
1 Year After Adoption	-0.016	-0.016	-0.022
	(0.034)	(0.029)	(0.033)
2 Years After Adoption	-0.049	-0.037	-0.075**
	(0.043)	(0.031)	(0.035)
3 Years After Adoption	-0.051	-0.023	-0.062
	(0.051)	(0.034)	(0.045)
4 Years After Adoption	-0.078	-0.036	-0.091*
	(0.057)	(0.040)	(0.053)
5 or More Years After Adoption	-0.037	-0.025	-0.118*
	(0.068)	(0.048)	(0.063)
Observations	239,272	238,759	239,348
Student fixed-effects	X	X	X
School fixed-effects	X	X	X

Standard errors clustered by school in parentheses. Covers grades 1 - 5. Each regression includes grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 16: Event Study on Achievement Gains - Middle/High

	Math (1)	Reading (2)	Language (3)
6 or More Years Prior	0.097**	0.030	0.095***
	(0.046)	(0.030)	(0.027)
5 Years Prior	0.029	0.020	0.061*
	(0.049)	(0.032)	(0.032)
4 Years Prior	0.037	0.052*	0.020
	(0.039)	(0.030)	(0.024)
3 Years Prior	0.019	0.032*	0.060**
	(0.026)	(0.019)	(0.027)
2 Years Prior	0.030*	0.026	0.038**
	(0.017)	(0.016)	(0.014)
Year of Adoption	-0.016	-0.023	0.011
	(0.026)	(0.014)	(0.017)
1 Year After Adoption	-0.003	0.013	0.019
	(0.041)	(0.027)	(0.021)
2 Years After Adoption	-0.004	-0.017	-0.009
	(0.043)	(0.026)	(0.021)
3 Years After Adoption	-0.007	-0.007	-0.029
	(0.053)	(0.031)	(0.023)
4 Years After Adoption	0.017	-0.024	-0.066**
	(0.063)	(0.038)	(0.029)
5 or More Years After Adoption	0.017	-0.050	-0.041
	(0.092)	(0.058)	(0.042)
Observations	420,165	420,058	419,229
Student fixed-effects	X	X	X
School fixed-effects	X	X	X

Standard errors clustered by school in parentheses. Covers grades 1 - 5. Each regression includes grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 17: Effect of Uniforms on Achievement Gains
Drop Observations More than 3 Years Prior to Uniform Adoption

		Math (1)	Reading (2)	Language (3)
		A. Elementary		
All	Uniform Required	-0.038	-0.033	-0.011
		(0.027)	(0.022)	(0.026)
	Observations	255,707	255,015	249,405
Females	Uniform Required	-0.058*	-0.064***	0.006
		(0.029)	(0.022)	(0.027)
	Observations	125,908	125,617	122,835
Males	Uniform Required	-0.022	-0.002	-0.023
		(0.029)	(0.025)	(0.029)
	Observations	129,799	129,398	126,570
		B. Middle/High		
All	Uniform Required	-0.016	-0.011	0.020
		(0.021)	(0.010)	(0.013)
	Observations	407,025	406,930	406,066
Females	Uniform Required	-0.011	-0.012	0.020
		(0.024)	(0.012)	(0.013)
	Observations	205,955	205,979	205,536
Males	Uniform Required	-0.023	-0.011	0.019
		(0.019)	(0.012)	(0.015)
	Observations	201,070	200,951	200,530
Student fixed-effects		X	X	X
School fixed-effects		X	X	X

Standard errors clustered by school in parentheses. Covers grades 6 - 11. Each regression includes grade indicators, a lagged dependent variable, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. *, **, and *** denote staistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 18: Effect of Uniforms Interacted with Student and School Ethnicity on Text Score Gains

	A. Math			B. Reading			C. Language		
	All	Females	Males	All	Females	Males	All	Females	Males
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					i. Elementary				
Uniform Required	-0.108	-0.094	-0.115	-0.070	-0.137***	-0.004	0.029	0.032	0.032
	(0.081)	(0.099)	(0.073)	(0.043)	(0.043)	(0.051)	(0.055)	(0.061)	(0.062)
Uniform Required X Above-Median African-American X African-American	0.075**	0.131***	0.029	0.040*	0.057*	0.024	0.074**	0.131***	0.017
	(0.031)	(0.036)	(0.042)	(0.023)	(0.031)	(0.030)	(0.029)	(0.046)	(0.034)
Uniform Required X Above-Median Hispanic X Hispanic	-0.082**	-0.042	-0.120**	-0.053	-0.012	-0.089**	-0.029	0.007	-0.055
	(0.040)	(0.043)	(0.047)	(0.035)	(0.036)	(0.045)	(0.032)	(0.042)	(0.044)
Uniform Required X Above-Median African-American	0.041	0.026	0.053	-0.004	0.004	-0.011	0.012	0.028	-0.001
	(0.064)	(0.075)	(0.061)	(0.048)	(0.047)	(0.057)	(0.059)	(0.066)	(0.061)
Uniform Required X Above-Median Hispanic	0.124**	0.109*	0.134**	0.027	0.059	-0.002	0.010	0.055	-0.029
	(0.058)	(0.061)	(0.060)	(0.044)	(0.040)	(0.053)	(0.049)	(0.051)	(0.057)
Uniform Required X African-American	-0.053	-0.123**	-0.000	0.012	0.024	0.001	-0.109***	-0.167***	-0.057
	(0.045)	(0.060)	(0.047)	(0.030)	(0.037)	(0.042)	(0.037)	(0.044)	(0.056)
Uniform Required X Hispanic	0.017	-0.026	0.054	0.054	0.046	0.059	-0.045	-0.101**	-0.006
	(0.054)	(0.068)	(0.053)	(0.036)	(0.044)	(0.040)	(0.044)	(0.051)	(0.058)
Above-Median African-American	-0.024	-0.025	-0.023	0.003	0.001	0.000	-0.028	-0.074	0.011
	(0.062)	(0.078)	(0.059)	(0.049)	(0.050)	(0.057)	(0.055)	(0.067)	(0.056)
Above-Median Hispanic	-0.135**	-0.147***	-0.121**	-0.014	-0.028	-0.006	0.003	-0.050	0.049
	(0.056)	(0.056)	(0.060)	(0.046)	(0.039)	(0.055)	(0.047)	(0.051)	(0.052)
Observations	270,257	133,007	137,250	269,483	132,670	136,813	262,662	129,281	133,381

	ii. Middle/High								
Uniform Required	0.036	0.047	0.026	-0.016	-0.017	-0.017	0.072**	0.087***	0.056
	(0.036)	(0.034)	(0.042)	(0.025)	(0.039)	(0.023)	(0.030)	(0.027)	(0.043)
Uniform Required X Above-Median African-American X African-American	0.004	-0.008	0.018	0.007	0.032**	-0.025*	0.023*	0.040**	0.006
	(0.014)	(0.014)	(0.021)	(0.011)	(0.015)	(0.014)	(0.012)	(0.018)	(0.016)
Uniform Required X Above-Median Hispanic X Hispanic	0.006	0.007	-0.000	-0.020	-0.027*	-0.014	-0.009	-0.014	-0.010
	(0.015)	(0.015)	(0.020)	(0.013)	(0.015)	(0.019)	(0.013)	(0.017)	(0.018)
Uniform Required X Above-Median African-American	0.003	0.007	-0.005	-0.008	-0.008	-0.008	-0.033	-0.048*	-0.021
	(0.029)	(0.031)	(0.032)	(0.022)	(0.028)	(0.026)	(0.027)	(0.027)	(0.036)
Uniform Required X Above-Median Hispanic	-0.080**	-0.091***	-0.071*	-0.021	-0.013	-0.028	-0.064**	-0.086***	-0.040
	(0.033)	(0.034)	(0.036)	(0.021)	(0.028)	(0.025)	(0.026)	(0.030)	(0.033)
Uniform Required X African-American	-0.005	0.005	-0.014	0.030*	0.014	0.051***	-0.026*	-0.039**	-0.013
	(0.018)	(0.020)	(0.022)	(0.015)	(0.021)	(0.015)	(0.014)	(0.016)	(0.017)
Uniform Required X Hispanic	-0.011	-0.010	-0.007	0.032**	0.028*	0.036**	0.007	0.014	0.003
	(0.021)	(0.022)	(0.023)	(0.015)	(0.017)	(0.016)	(0.012)	(0.012)	(0.018)
Above-Median African-American	-0.012	-0.013	-0.010	0.005	-0.010	0.021	0.050*	0.061**	0.041
	(0.022)	(0.028)	(0.022)	(0.017)	(0.025)	(0.014)	(0.029)	(0.024)	(0.037)
Above-Median Hispanic	0.010	0.020	0.007	-0.002	0.014	-0.019	-0.015	-0.003	-0.025
	(0.029)	(0.027)	(0.034)	(0.019)	(0.020)	(0.025)	(0.025)	(0.026)	(0.029)
Observations	469,503	237,012	232,491	469,248	237,076	232,172	468,510	236,660	231,850

Standard errors clustered by school in parentheses. Each regression includes student and school fixed-effects along with grade indicators, year indicators, interactions of grade and year indicators, and the student's free-lunch, reduced-price lunch, or other economic disadvantage status. Elementary includes students in grades 1 - 5, while middle/high includes grades 6 - 12. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table 19: Event Study on Teacher Attrition

	Elementary (1)	Middle/High (2)
6 or More Years Prior	-0.051**	-0.040
	(0.025)	(0.038)
5 Years Prior	0.010	-0.021
	(0.034)	(0.029)
4 Years Prior	0.001	-0.029
	(0.024)	(0.027)
3 Years Prior	0.009	0.009
	(0.024)	(0.029)
2 Years Prior	-0.010	0.023
	(0.020)	(0.024)
Year of Adoption	-0.041**	-0.004
	(0.020)	(0.018)
1 Year After Adoption	-0.034*	-0.004
	(0.020)	(0.023)
2 Years After Adoption	-0.045*	-0.001
	(0.023)	(0.027)
3 Years After Adoption	-0.045*	-0.005
	(0.023)	(0.030)
4 Years After Adoption	-0.032	-0.007
	(0.028)	(0.033)
5 or More Years After Adoption	-0.024	0.022
	(0.032)	(0.040)
Observations	1,213	811

Standard errors clustered by school in parentheses. Elementary includes any school that has students in grades 1 - 5 and middle high covers grades 6 - 12. Data on teacher attrition covers 1996-07 through 2004-05. Attrition is calculated by matching teacher names within a school across years. Counts for the number of student, school and principal fixed-effects in each regression are provided in Online Appendix Table 2