

Supplementary Tables for
“Snooze or Lose: High School Start Times and Academic Achievement”
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Jeffrey A. Groen
U.S. Bureau of Labor Statistics
2 Massachusetts Ave. NE, Rm. 4945
Washington, DC 20212
E-mail: Groen.Jeffrey@bls.gov

Corresponding Author: Sabrina Wulff Pabilonia
U.S. Bureau of Labor Statistics
2 Massachusetts Ave. NE, Rm. 2180
Washington, DC 20212
E-mail: Pabilonia.Sabrina@bls.gov

Section 1: Full Results for Tables 5, 9, 10

Table 5a. Effects of School Start Time on Test Scores (SDs) (Full Results)

VARIABLES	Female (N = 600)		Male (N = 600)	
	Broad-reading score	Applied-problems score	Broad-reading score	Applied-problems score
School start time	0.156*	-0.056	0.003	0.049
	(0.082)	(0.098)	(0.097)	(0.097)
Lagged broad-reading score	0.433***	0.032	0.542***	-0.033
	(0.062)	(0.058)	(0.051)	(0.050)
Lagged applied-problems score	0.097**	0.445***	0.080*	0.496***
	(0.047)	(0.063)	(0.044)	(0.057)
Missing a lagged score	-0.076	-0.001	-0.075	-0.051
	(0.112)	(0.130)	(0.141)	(0.138)
School day length	0.008	0.086	0.015	-0.100
	(0.083)	(0.086)	(0.107)	(0.105)
Black, non-Hispanic	-0.297**	-0.199	-0.062	-0.154
	(0.121)	(0.149)	(0.134)	(0.138)
Hispanic	-0.186	-0.415**	-0.044	-0.129
	(0.159)	(0.183)	(0.151)	(0.194)
Lives in East region	0.208	0.117	-0.056	-0.100
	(0.138)	(0.178)	(0.164)	(0.177)
Lives in Midwest region	-0.027	-0.073	-0.174	-0.223*
	(0.100)	(0.111)	(0.125)	(0.122)
Lives in West region	0.005	0.202	-0.075	-0.397***
	(0.143)	(0.159)	(0.144)	(0.149)
Grade 9	-0.138	0.092	-0.044	-0.208*
	(0.085)	(0.102)	(0.111)	(0.114)
Grade 10	-0.166*	-0.036	0.041	-0.129
	(0.091)	(0.098)	(0.120)	(0.123)
Grade 11	-0.117	-0.112	-0.010	-0.072
	(0.095)	(0.094)	(0.102)	(0.137)
Interviewed in 2007-2008	-0.025	-0.072	0.117	0.110
	(0.075)	(0.079)	(0.075)	(0.081)
Ever in special education	-0.526***	-0.570**	-0.355***	-0.584***
	(0.140)	(0.249)	(0.115)	(0.123)
October interview	0.047	-0.098	-0.188*	-0.011
	(0.093)	(0.132)	(0.103)	(0.119)
November interview	0.007	-0.298**	0.238	0.326*
	(0.122)	(0.138)	(0.190)	(0.186)
December interview	0.017	-0.117	-0.019	0.036
	(0.111)	(0.130)	(0.112)	(0.134)
January interview	-0.007	-0.076	0.092	-0.085
	(0.098)	(0.148)	(0.110)	(0.137)
February interview	-0.015	-0.086	0.001	0.014
	(0.132)	(0.167)	(0.117)	(0.171)

March interview	0.314 (0.302)	-0.312** (0.151)	0.390 (0.271)	-0.431** (0.179)
Lives with step mom and biological father	-0.539*** (0.188)	-0.597*** (0.225)	0.367* (0.216)	0.124 (0.354)
Lives with step dad and biological mother	-0.132 (0.112)	-0.065 (0.131)	0.223 (0.196)	0.227 (0.223)
Lives with single parent	0.055 (0.151)	0.339 (0.239)	-0.170 (0.143)	-0.007 (0.209)
Lives in other family arrangement	0.635* (0.363)	0.605 (0.519)	-0.061 (0.333)	0.713 (0.446)
Number of other children in family unit under age 19	0.069** (0.035)	0.002 (0.044)	-0.057** (0.028)	-0.019 (0.033)
Mother college degree	0.262*** (0.098)	0.177* (0.103)	0.232 (0.143)	0.236* (0.139)
Mother education missing	-0.292 (0.265)	-0.329 (0.418)	0.231 (0.201)	-0.331 (0.232)
Father college degree	0.141 (0.100)	0.113 (0.106)	0.100 (0.128)	-0.010 (0.141)
Father education missing	-0.154 (0.158)	-0.371 (0.259)	0.163 (0.146)	-0.177 (0.203)
Free or reduced-price lunch recipient	-0.176** (0.080)	-0.076 (0.091)	0.016 (0.090)	-0.043 (0.109)
Student-teacher ratio	-0.016 (0.015)	-0.009 (0.016)	-0.002 (0.007)	-0.005 (0.008)
Percent black	0.313 (0.225)	0.131 (0.288)	0.094 (0.277)	-0.030 (0.254)
Percent Asian	0.728 (0.707)	1.342* (0.731)	0.269 (0.551)	0.086 (0.690)
Percent Hispanic	0.127 (0.235)	0.127 (0.276)	-0.031 (0.292)	0.384 (0.338)
Percent free/reduced-price lunch	-0.188 (0.240)	-0.757** (0.321)	-0.981*** (0.310)	-0.293 (0.340)
Magnet or charter school	0.099 (0.141)	-0.005 (0.173)	0.075 (0.176)	-0.312** (0.145)
Suburban school	0.205** (0.096)	-0.144 (0.120)	-0.144 (0.104)	-0.015 (0.124)
Town school	0.299** (0.118)	0.181 (0.141)	0.075 (0.147)	-0.017 (0.138)
Rural school	0.021 (0.097)	-0.125 (0.143)	-0.091 (0.114)	-0.103 (0.145)
Log (number of students in high school)	-0.050 (0.080)	-0.126 (0.096)	-0.046 (0.067)	-0.077 (0.079)
Log (median household income in school district)	0.172 (0.177)	-0.082 (0.216)	0.034 (0.218)	0.515*** (0.180)
Log(number of students in district)	0.035 (0.038)	0.037 (0.041)	-0.022 (0.041)	0.023 (0.052)
Log(district expenditure per pupil)	-0.528*** (0.182)	-0.136 (0.241)	-0.205 (0.193)	-0.145 (0.219)

Log (population density in county)	0.007 (0.042)	0.039 (0.054)	0.025 (0.040)	-0.066 (0.048)
Missing school-level, county, or district variable	0.001 (0.150)	-0.273 (0.213)	0.040 (0.197)	0.365 (0.236)
State compulsory schooling until age 17–18	0.038 (0.072)	-0.002 (0.079)	0.016 (0.076)	0.019 (0.083)
Constant	-1.648 (2.149)	1.855 (2.705)	0.753 (2.712)	-3.533 (2.500)
R-squared	0.613	0.547	0.652	0.566

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table 9a. Effects of School Start Time on Sleep (Females – Full Results)

VARIABLES	All diary sleep (M-TH)	Nighttime diary sleep (M-TH)	Usual night sleep	Napping (M-TH)	Wake-up time (M-TH)	Bedtime (M-TH)
School start time	0.636*** (0.232)	0.601*** (0.229)	0.383** (0.171)	0.036 (0.082)	0.583*** (0.187)	-0.044 (0.156)
Lagged broad-reading score	0.155 (0.118)	0.139 (0.116)	-0.061 (0.083)	0.017 (0.061)	0.078 (0.109)	-0.142* (0.082)
Lagged applied-problems score	-0.134 (0.111)	-0.070 (0.102)	0.013 (0.081)	-0.064 (0.079)	0.023 (0.099)	0.170** (0.081)
Missing a lagged score	-0.246 (0.209)	-0.173 (0.200)	-0.231 (0.185)	-0.073 (0.105)	-0.058 (0.189)	0.052 (0.151)
School day length	-0.246 (0.257)	-0.236 (0.254)	0.044 (0.169)	-0.010 (0.071)	-0.364 (0.253)	-0.027 (0.150)
Black, non-Hispanic	-0.012 (0.373)	-0.368 (0.354)	-0.459* (0.241)	0.356** (0.160)	-0.076 (0.334)	0.207 (0.228)
Hispanic	1.529** (0.600)	1.198** (0.574)	-0.066 (0.264)	0.331** (0.167)	2.086*** (0.641)	0.760** (0.322)
Lives in East region	0.721* (0.420)	0.569 (0.389)	0.505* (0.268)	0.152 (0.188)	0.246 (0.366)	-0.179 (0.241)
Lives in Midwest region	0.337 (0.301)	0.268 (0.291)	0.185 (0.213)	0.069 (0.111)	0.204 (0.267)	0.010 (0.192)
Lives in West region	0.153 (0.375)	0.204 (0.353)	0.075 (0.301)	-0.051 (0.121)	-0.155 (0.339)	-0.192 (0.262)
Grade 9	0.008 (0.253)	0.070 (0.249)	0.292 (0.180)	-0.062 (0.089)	-0.268 (0.264)	-0.395** (0.177)
Grade 10	0.357 (0.280)	0.299 (0.262)	0.070 (0.172)	0.058 (0.119)	0.122 (0.245)	-0.257 (0.187)
Grade 11	-0.081 (0.230)	-0.031 (0.232)	-0.031 (0.181)	-0.050 (0.097)	-0.180 (0.217)	-0.116 (0.167)
Interviewed in 2007-2008	0.053 (0.194)	-0.017 (0.185)	0.122 (0.144)	0.070 (0.082)	-0.195 (0.151)	-0.177 (0.135)
Ever in special education	0.050 (0.315)	-0.053 (0.286)	-0.481 (0.439)	0.104 (0.168)	-0.192 (0.204)	-0.101 (0.302)
October interview	-0.007 (0.282)	-0.028 (0.283)	-0.252 (0.228)	0.020 (0.107)	-0.059 (0.246)	-0.133 (0.222)
November interview	0.320 (0.306)	0.377 (0.299)	-0.289 (0.248)	-0.056 (0.128)	0.191 (0.279)	-0.131 (0.234)
December interview	-0.164 (0.258)	-0.085 (0.252)	-0.067 (0.227)	-0.079 (0.104)	0.066 (0.230)	0.104 (0.232)
January interview	-0.105 (0.302)	-0.120 (0.288)	-0.460** (0.220)	0.015 (0.149)	-0.394 (0.271)	-0.320 (0.274)
February interview	0.573* (0.333)	0.531 (0.340)	-0.055 (0.319)	0.042 (0.181)	-0.005 (0.286)	-0.494* (0.288)
March interview	0.324 (0.684)	0.385 (0.715)	-0.361 (0.409)	-0.061 (0.196)	-0.175 (0.310)	-0.569 (0.584)
Lives with step mom and biological father	-0.992*** (0.297)	-0.807*** (0.297)	-0.817*** (0.290)	-0.185 (0.114)	-0.264 (0.556)	0.628 (0.517)
Lives with step dad and biological mother	-0.445 (0.298)	-0.380 (0.290)	0.337 (0.205)	-0.065 (0.138)	-0.297 (0.275)	0.137 (0.184)
Lives with single parent	-0.386 (0.352)	-0.333 (0.315)	-0.214 (0.510)	-0.053 (0.102)	-0.859*** (0.250)	-0.464* (0.279)

Lives in other family arrangement	-2.214**	-2.321**	-0.006	0.107	-2.415***	0.141
	(0.948)	(0.915)	(0.948)	(0.302)	(0.882)	(0.595)
Number of other children in family unit under age 19	-0.093	-0.088	0.077	-0.005	-0.228***	-0.099
	(0.095)	(0.092)	(0.066)	(0.038)	(0.088)	(0.074)
Mother college degree	-0.064	-0.024	-0.014	-0.040	0.089	-0.041
	(0.218)	(0.215)	(0.176)	(0.079)	(0.196)	(0.161)
Mother education missing	1.546*	1.629*	-0.064	-0.083	1.717**	-0.107
	(0.821)	(0.850)	(0.553)	(0.167)	(0.842)	(0.428)
Father college degree	0.146	0.124	-0.026	0.023	-0.120	-0.188
	(0.262)	(0.257)	(0.188)	(0.099)	(0.243)	(0.165)
Father education missing	0.645*	0.532	0.259	0.113	0.536*	0.098
	(0.383)	(0.340)	(0.514)	(0.142)	(0.282)	(0.297)
Free or reduced-price lunch recipient	-0.291	-0.122	-0.127	-0.168	-0.018	0.121
	(0.243)	(0.207)	(0.185)	(0.128)	(0.198)	(0.166)
Student-teacher ratio	-0.036	-0.035	0.003	-0.001	0.009	0.019
	(0.043)	(0.042)	(0.029)	(0.013)	(0.038)	(0.030)
Percent black	-0.289	-0.253	0.727	-0.035	0.104	0.245
	(0.745)	(0.757)	(0.500)	(0.355)	(0.658)	(0.416)
Percent Asian	-0.409	-0.361	-0.675	-0.048	-1.112	-0.846
	(1.244)	(1.311)	(1.225)	(0.615)	(1.473)	(0.809)
Percent Hispanic	-1.032	-1.089	0.274	0.057	-1.257	-0.176
	(0.796)	(0.793)	(0.466)	(0.254)	(0.798)	(0.478)
Percent free/reduced-price lunch	1.213	1.340*	0.100	-0.127	0.823	-0.560
	(0.802)	(0.777)	(0.517)	(0.287)	(0.745)	(0.489)
Magnet or charter school	-0.287	-0.305	0.081	0.018	-0.254	0.134
	(0.279)	(0.329)	(0.303)	(0.175)	(0.282)	(0.275)
Suburban school	-0.252	-0.245	-0.325*	-0.006	-0.310	-0.139
	(0.270)	(0.248)	(0.181)	(0.120)	(0.246)	(0.158)
Town school	0.020	-0.105	0.246	0.125	-0.357	-0.275
	(0.276)	(0.251)	(0.231)	(0.135)	(0.245)	(0.206)
Rural school	-0.259	-0.149	0.194	-0.109	-0.293	-0.221
	(0.307)	(0.294)	(0.218)	(0.103)	(0.250)	(0.216)
Log (number of students in high school)	-0.234	-0.207	-0.178	-0.027	-0.186	0.020
	(0.223)	(0.224)	(0.158)	(0.073)	(0.201)	(0.145)
Log (median household income in school district)	0.230	0.135	-0.387	0.096	0.157	0.069
	(0.416)	(0.431)	(0.282)	(0.180)	(0.374)	(0.294)
Log(number of students in district)	0.039	0.011	0.036	0.029	-0.022	0.016
	(0.111)	(0.112)	(0.084)	(0.041)	(0.104)	(0.083)
Log(district expenditure per pupil)	-1.198**	-0.959*	-0.649	-0.238	-0.173	0.700*
	(0.543)	(0.550)	(0.434)	(0.205)	(0.485)	(0.372)
Log (population density in county)	0.053	0.064	0.208**	-0.010	-0.025	-0.081
	(0.106)	(0.108)	(0.085)	(0.029)	(0.088)	(0.073)
Missing school-level, county, or district variable	0.069	0.004	0.222	0.065	-0.108	-0.211
	(0.434)	(0.487)	(0.273)	(0.188)	(0.540)	(0.305)
State compulsory schooling until age 17–18	0.061	0.104	0.090	-0.043	-0.017	-0.020
	(0.194)	(0.183)	(0.129)	(0.082)	(0.173)	(0.139)
Constant	6.728	7.198	9.097**	-0.470	5.455	21.328***
	(5.468)	(5.313)	(3.741)	(1.855)	(4.713)	(3.600)
Number of observations	450	450	550	450	450	450
R-squared	0.193	0.191	0.182	0.087	0.231	0.147

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table 9b. Effects of School Start Time on Sleep (Males – Full Results)

VARIABLES	All diary sleep (M-TH)	Nighttime diary sleep (M-TH)	Usual night sleep	Napping (M-TH)	Wake-up time (M-TH)	Bedtime (M-TH)
School start time	-0.141 (0.382)	0.324 (0.228)	0.212 (0.169)	-0.466 (0.283)	0.575*** (0.205)	0.270 (0.191)
Lagged broad-reading score	0.114 (0.127)	0.102 (0.108)	0.110 (0.087)	0.012 (0.080)	0.165* (0.095)	0.019 (0.080)
Lagged applied-problems score	-0.070 (0.128)	-0.125 (0.114)	-0.137 (0.099)	0.055 (0.066)	-0.253** (0.099)	-0.115 (0.082)
Missing a lagged score	0.669** (0.312)	0.254 (0.286)	-0.267 (0.195)	0.416** (0.194)	0.176 (0.238)	-0.008 (0.174)
School day length	0.560 (0.381)	0.382* (0.231)	0.141 (0.199)	0.179 (0.287)	-0.073 (0.198)	-0.366** (0.185)
Black, non-Hispanic	-0.456 (0.417)	-0.503* (0.268)	0.086 (0.214)	0.047 (0.314)	-0.422* (0.228)	0.103 (0.258)
Hispanic	0.586 (0.629)	0.595 (0.513)	0.888*** (0.326)	-0.009 (0.346)	-0.219 (0.299)	-0.701 (0.493)
Lives in East region	-0.411 (0.521)	-0.258 (0.377)	0.498 (0.318)	-0.153 (0.362)	-0.654* (0.357)	-0.287 (0.250)
Lives in Midwest region	-0.684 (0.482)	-0.418 (0.318)	0.192 (0.244)	-0.266 (0.342)	-0.466 (0.287)	0.040 (0.216)
Lives in West region	-0.697 (0.436)	-0.383 (0.367)	0.247 (0.255)	-0.313 (0.203)	-0.349 (0.307)	0.112 (0.283)
Grade 9	0.402 (0.362)	0.578** (0.226)	0.091 (0.169)	-0.176 (0.274)	0.501** (0.204)	-0.159 (0.171)
Grade 10	0.071 (0.405)	0.444* (0.268)	0.301 (0.196)	-0.373 (0.277)	0.438* (0.243)	-0.019 (0.197)
Grade 11	-0.130 (0.311)	0.042 (0.227)	-0.060 (0.180)	-0.173 (0.202)	-0.020 (0.169)	-0.052 (0.187)
Interviewed in 2007-2008	0.285 (0.279)	-0.150 (0.200)	-0.108 (0.153)	0.435** (0.210)	-0.240 (0.181)	-0.138 (0.140)
Ever in special education	1.046*** (0.355)	0.825** (0.367)	0.093 (0.223)	0.221 (0.227)	0.599 (0.375)	-0.254 (0.204)
October interview	0.730 (0.540)	0.251 (0.241)	-0.013 (0.227)	0.479 (0.455)	0.162 (0.201)	-0.157 (0.229)
November interview	0.237 (0.389)	0.229 (0.319)	0.061 (0.248)	0.008 (0.187)	0.171 (0.261)	-0.158 (0.232)
December interview	0.328 (0.283)	0.274 (0.273)	-0.125 (0.219)	0.054 (0.171)	0.435* (0.229)	-0.067 (0.191)
January interview	0.078 (0.332)	0.222 (0.319)	0.067 (0.279)	-0.144 (0.198)	0.213 (0.292)	-0.186 (0.225)
February interview	0.651 (0.444)	0.531 (0.429)	-0.576* (0.310)	0.120 (0.278)	0.244 (0.285)	-0.426 (0.428)
March interview	0.358 (0.440)	-0.290 (0.312)	-0.183 (0.316)	0.648* (0.370)	-0.041 (0.257)	0.085 (0.263)
Lives with step mom and biological father	-0.745 (0.584)	-0.773 (0.597)	0.179 (0.483)	0.027 (0.239)	-0.508* (0.291)	0.308 (0.465)
Lives with step dad and biological mother	-0.379 (0.359)	-0.693** (0.317)	-0.400 (0.273)	0.314 (0.210)	-0.638** (0.289)	0.170 (0.224)
Lives with single parent	1.038 (0.767)	0.436 (0.724)	-0.497 (0.542)	0.603 (0.566)	-0.086 (0.629)	-0.568* (0.341)

Lives in other family arrangement	2.631*	1.428	-0.598	1.203	0.092	-1.377**
	(1.549)	(1.478)	(1.097)	(1.137)	(1.290)	(0.691)
Number of other children in family unit under age 19	-0.126	-0.131*	-0.018	0.005	-0.012	0.132*
	(0.083)	(0.070)	(0.051)	(0.060)	(0.068)	(0.079)
Mother college degree	-0.531	-0.130	0.131	-0.401	-0.014	0.170
	(0.332)	(0.214)	(0.166)	(0.255)	(0.180)	(0.155)
Mother education missing	-1.493*	-0.650	0.305	-0.843	-0.169	0.548
	(0.781)	(0.799)	(0.605)	(0.514)	(0.650)	(0.399)
Father college degree	0.287	-0.193	-0.187	0.480	-0.316	-0.017
	(0.426)	(0.236)	(0.163)	(0.347)	(0.210)	(0.186)
Father education missing	-0.687	-0.390	0.356	-0.297	-0.155	0.400
	(0.813)	(0.762)	(0.519)	(0.588)	(0.621)	(0.348)
Free-reduced price lunch recipient	-0.321	-0.209	0.161	-0.112	-0.319*	-0.072
	(0.304)	(0.231)	(0.183)	(0.200)	(0.186)	(0.198)
Student-teacher ratio	0.050**	0.027	0.005	0.022**	0.023	-0.011
	(0.022)	(0.019)	(0.011)	(0.009)	(0.016)	(0.029)
Percent black	0.170	-0.826	0.503	0.996	-0.012	0.853
	(0.963)	(0.608)	(0.523)	(0.679)	(0.455)	(0.559)
Percent Asian	0.854	0.614	-0.858	0.240	1.956	1.188
	(1.675)	(1.545)	(0.726)	(0.780)	(1.499)	(0.859)
Percent Hispanic	-0.229	-1.084	0.654	0.854*	-0.143	0.992
	(0.949)	(0.823)	(0.634)	(0.492)	(0.554)	(0.784)
Percent free/reduced-price lunch	-0.638	0.927	-1.273**	-1.565*	0.572	-0.630
	(1.143)	(0.772)	(0.572)	(0.797)	(0.647)	(0.633)
Magnet or charter school	-0.573	-0.280	0.062	-0.293*	0.217	0.126
	(0.381)	(0.323)	(0.277)	(0.154)	(0.349)	(0.279)
Suburban school	-0.016	-0.053	-0.762***	0.036	0.199	0.201
	(0.327)	(0.258)	(0.204)	(0.190)	(0.231)	(0.194)
Town school	-0.208	-0.519**	-0.228	0.311	-0.492**	-0.033
	(0.557)	(0.261)	(0.241)	(0.424)	(0.223)	(0.225)
Rural school	-1.030***	-0.696***	-0.553**	-0.334*	-0.286	0.368**
	(0.343)	(0.245)	(0.241)	(0.199)	(0.180)	(0.186)
Log (number of students in high school)	-0.171	-0.162	-0.387***	-0.009	-0.224	-0.060
	(0.221)	(0.179)	(0.127)	(0.112)	(0.181)	(0.141)
Log (median household income in school district)	-1.449	-0.044	0.033	-1.405	0.470	0.348
	(1.072)	(0.398)	(0.420)	(0.925)	(0.366)	(0.474)
Log(number of students in district)	-0.487**	-0.289***	-0.060	-0.197	-0.210**	0.069
	(0.197)	(0.109)	(0.079)	(0.153)	(0.093)	(0.093)
Log(district expenditure per pupil)	-0.066	-0.245	-0.343	0.179	0.526	0.651**
	(0.487)	(0.393)	(0.356)	(0.280)	(0.369)	(0.314)
Log (population density in county)	0.242	0.151	0.076	0.091	0.050	-0.083
	(0.179)	(0.101)	(0.074)	(0.137)	(0.092)	(0.079)
Missing school-level, county, or district variable	-0.727	-0.613	-0.198	-0.114	0.022	0.662
	(0.704)	(0.625)	(0.339)	(0.218)	(0.298)	(0.499)
State compulsory schooling until age 17–18	-0.199	0.093	0.290**	-0.292	0.008	-0.144
	(0.287)	(0.161)	(0.145)	(0.215)	(0.143)	(0.135)
Constant	25.369**	6.861	8.437	18.508*	-0.598	18.064***
	(12.629)	(4.981)	(5.192)	(10.628)	(4.711)	(5.446)
Number of observations	460	460	550	460	460	460
R-squared	0.245	0.244	0.216	0.242	0.248	0.205

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table 10a. Effects of School Start Time on Time-Diary Outcomes (Females – Full Results) (N = 550)

VARIABLES	Sleep	Market work	Nonmarket work	Care activities	Class time	Other schooling	Homework	Extra-curricular activities/sports	Screen time and other leisure	Personal care	Missing activities
School start time	0.591*** (0.175)	0.097 (0.193)	0.072 (0.133)	0.023 (0.076)	-0.192 (0.273)	-0.128* (0.065)	-0.188 (0.139)	0.277 (0.211)	-0.628* (0.335)	0.015 (0.080)	0.061 (0.039)
Lagged broad-reading score	0.101 (0.091)	-0.228 (0.141)	0.042 (0.068)	-0.002 (0.030)	0.071 (0.141)	-0.088* (0.047)	0.035 (0.075)	0.034 (0.086)	0.082 (0.189)	-0.036 (0.042)	-0.011 (0.022)
Lagged applied-problems score	-0.045 (0.085)	0.186** (0.092)	-0.006 (0.054)	-0.033 (0.026)	-0.147 (0.127)	0.115* (0.063)	0.027 (0.071)	0.038 (0.083)	-0.217 (0.153)	0.075 (0.049)	0.006 (0.019)
Missing a lagged score	-0.045 (0.176)	-0.137 (0.173)	0.068 (0.132)	0.096 (0.092)	0.583** (0.245)	-0.002 (0.081)	0.305* (0.163)	-0.459** (0.180)	-0.318 (0.317)	-0.086 (0.085)	-0.006 (0.057)
School day length	-0.126 (0.170)	0.235 (0.176)	-0.072 (0.190)	0.047 (0.069)	0.392 (0.280)	0.181 (0.119)	-0.003 (0.141)	-0.013 (0.202)	-0.639** (0.288)	0.040 (0.065)	-0.041 (0.050)
Black, non-Hispanic	0.186 (0.300)	0.110 (0.225)	0.246 (0.220)	-0.024 (0.093)	-0.581 (0.460)	-0.252** (0.119)	-0.205 (0.220)	0.329 (0.267)	0.245 (0.431)	-0.111 (0.106)	0.057 (0.057)
Hispanic	0.378 (0.445)	0.010 (0.243)	0.814** (0.323)	0.189 (0.241)	-2.100*** (0.621)	-0.011 (0.169)	-0.580** (0.235)	-0.585* (0.313)	1.896*** (0.617)	-0.017 (0.125)	0.007 (0.081)
Lives in East region	0.351 (0.292)	-0.074 (0.321)	0.090 (0.335)	0.379 (0.292)	-0.714 (0.577)	0.082 (0.216)	-0.054 (0.225)	-0.268 (0.312)	0.280 (0.519)	-0.075 (0.127)	0.004 (0.061)
Lives in Midwest region	0.204 (0.231)	0.200 (0.240)	0.059 (0.198)	0.093 (0.096)	-0.369 (0.404)	-0.044 (0.093)	0.035 (0.159)	-0.214 (0.244)	-0.092 (0.452)	0.022 (0.092)	0.105* (0.060)
Lives in West region	0.058 (0.283)	0.086 (0.272)	0.319 (0.204)	0.053 (0.101)	-0.063 (0.440)	-0.177* (0.100)	0.492** (0.229)	-0.299 (0.385)	-0.586 (0.552)	0.074 (0.112)	0.044 (0.070)
Grade 9	0.019 (0.184)	-0.839*** (0.182)	0.031 (0.200)	-0.257* (0.148)	0.900*** (0.316)	-0.045 (0.065)	0.008 (0.143)	0.048 (0.232)	0.234 (0.328)	-0.049 (0.097)	-0.050 (0.047)
Grade 10	0.280 (0.191)	-0.735*** (0.200)	-0.055 (0.156)	-0.178 (0.132)	0.548* (0.323)	-0.157* (0.092)	-0.117 (0.136)	-0.357* (0.201)	0.786** (0.334)	0.022 (0.104)	-0.038 (0.039)
Grade 11	-0.001 (0.178)	-0.261 (0.243)	-0.275 (0.179)	-0.132 (0.148)	0.706** (0.290)	-0.029 (0.071)	0.306* (0.172)	-0.275 (0.209)	0.008 (0.312)	-0.117 (0.090)	0.069 (0.072)
Interviewed in 2007-2008	0.092 (0.146)	0.012 (0.143)	-0.161 (0.101)	-0.063 (0.087)	0.211 (0.208)	0.131** (0.051)	-0.092 (0.122)	0.096 (0.147)	-0.098 (0.255)	-0.116* (0.065)	-0.012 (0.033)
Ever in special education	0.444* (0.230)	-0.072 (0.256)	-0.079 (0.179)	-0.194** (0.076)	0.373 (0.330)	0.012 (0.079)	-0.186 (0.221)	-0.307** (0.154)	-0.174 (0.387)	0.007 (0.115)	0.177 (0.158)
October interview	-0.053 (0.210)	0.258 (0.237)	0.097 (0.177)	-0.115 (0.198)	-0.223 (0.320)	-0.061 (0.082)	-0.116 (0.158)	-0.303 (0.272)	0.676* (0.389)	-0.025 (0.085)	-0.135** (0.055)
November interview	0.084 (0.249)	-0.057 (0.270)	0.260 (0.185)	-0.263 (0.214)	-0.714* (0.404)	-0.122 (0.120)	-0.089 (0.199)	0.018 (0.307)	1.053** (0.510)	-0.065 (0.103)	-0.106* (0.061)

December interview	0.002 (0.195)	0.124 (0.223)	-0.001 (0.173)	-0.281 (0.246)	-0.050 (0.354)	-0.069 (0.086)	0.137 (0.179)	0.074 (0.268)	0.169 (0.402)	0.009 (0.083)	-0.115* (0.062)
January interview	-0.144 (0.229)	0.162 (0.241)	-0.163 (0.163)	-0.332 (0.318)	0.261 (0.404)	-0.001 (0.113)	0.161 (0.191)	0.098 (0.309)	-0.032 (0.447)	0.083 (0.113)	-0.092 (0.068)
February interview	0.424* (0.233)	-0.078 (0.315)	-0.206 (0.176)	-0.220 (0.216)	-0.248 (0.439)	-0.084 (0.108)	-0.075 (0.187)	-0.050 (0.277)	0.662 (0.475)	-0.017 (0.160)	-0.109 (0.078)
March interview	-0.044 (0.423)	0.456 (0.674)	0.155 (0.300)	-0.389* (0.224)	-0.444 (0.492)	-0.268** (0.127)	-0.464 (0.311)	0.121 (0.434)	0.361 (0.637)	0.455* (0.269)	0.060 (0.180)
Lives with step mom and biological father	-0.472 (0.337)	-0.935*** (0.342)	0.198 (0.737)	-0.173 (0.138)	0.673 (0.578)	0.003 (0.150)	1.270 (0.800)	-0.044 (0.590)	-0.234 (0.575)	-0.197 (0.206)	-0.090 (0.159)
Lives with step dad and biological mother	-0.136 (0.237)	0.132 (0.316)	0.273* (0.156)	-0.098* (0.058)	0.236 (0.416)	-0.111 (0.074)	0.138 (0.187)	-0.288 (0.273)	-0.063 (0.455)	-0.016 (0.138)	-0.065 (0.056)
Lives with single parent	-0.209 (0.364)	-0.484 (0.580)	0.532 (0.396)	-0.176* (0.101)	0.777 (0.477)	0.301** (0.144)	1.112* (0.582)	-0.044 (0.274)	-1.717** (0.799)	-0.034 (0.272)	-0.057 (0.066)
Lives in other family arrangement	-1.505 (0.935)	0.333 (1.548)	0.630 (0.931)	-0.358 (0.274)	2.636* (1.386)	0.483 (0.357)	1.163 (1.079)	0.306 (0.816)	-3.703** (1.647)	0.148 (0.521)	-0.133 (0.171)
Number of other children in family unit under age 19	-0.120* (0.072)	-0.034 (0.062)	-0.008 (0.082)	-0.009 (0.057)	0.085 (0.108)	0.059* (0.032)	-0.010 (0.059)	0.059 (0.103)	-0.064 (0.137)	0.006 (0.033)	0.035 (0.028)
Mother college degree	-0.189 (0.156)	-0.300 (0.187)	-0.078 (0.135)	0.027 (0.077)	0.175 (0.250)	0.009 (0.086)	0.381** (0.165)	-0.184 (0.222)	0.136 (0.320)	0.027 (0.073)	-0.003 (0.040)
Mother education missing	1.197 (0.731)	-0.118 (0.943)	-0.176 (0.575)	0.347* (0.180)	-1.920 (1.282)	-0.316 (0.206)	-0.596 (0.577)	-0.608 (0.510)	2.277** (1.069)	-0.076 (0.273)	-0.012 (0.126)
Father college degree	-0.123 (0.176)	-0.293 (0.202)	-0.110 (0.151)	0.078 (0.093)	0.047 (0.299)	-0.057 (0.068)	0.139 (0.172)	0.436* (0.254)	-0.205 (0.339)	0.032 (0.083)	0.055 (0.039)
Father education missing	0.441 (0.374)	0.268 (0.620)	-0.435 (0.382)	0.095 (0.105)	-0.193 (0.496)	-0.004 (0.142)	-0.939 (0.577)	-0.154 (0.269)	0.916 (0.851)	-0.003 (0.267)	0.009 (0.076)
Free-reduced price lunch recipient	-0.072 (0.202)	-0.052 (0.174)	0.075 (0.147)	-0.005 (0.064)	0.062 (0.359)	-0.085 (0.084)	0.019 (0.150)	-0.022 (0.209)	-0.033 (0.390)	-0.010 (0.075)	0.123** (0.061)
Student-teacher ratio	-0.003 (0.031)	0.001 (0.027)	-0.025 (0.025)	0.005 (0.011)	-0.037 (0.046)	0.009 (0.011)	-0.035 (0.023)	0.009 (0.031)	0.087* (0.052)	-0.004 (0.013)	-0.007 (0.009)
Percent black	-0.756 (0.579)	-0.957** (0.468)	-0.241 (0.361)	0.109 (0.209)	0.931 (0.918)	0.453 (0.285)	0.612* (0.358)	0.202 (0.715)	-1.017 (0.835)	0.466** (0.226)	0.198 (0.158)
Percent Asian	1.098 (0.958)	0.064 (1.244)	-0.591 (0.687)	-0.351 (0.476)	-1.585 (1.998)	0.562 (0.728)	1.320 (0.869)	2.505 (1.798)	-3.451* (1.838)	0.291 (0.389)	0.138 (0.184)
Percent Hispanic	-0.561 (0.629)	-1.801*** (0.513)	-0.537 (0.432)	0.003 (0.164)	2.386*** (0.852)	-0.027 (0.297)	0.848** (0.353)	1.117* (0.640)	-1.822* (1.023)	0.201 (0.256)	0.194* (0.102)
Percent free/reduced-price lunch	1.779*** (0.685)	0.474 (0.568)	-0.531 (0.513)	-0.146 (0.165)	-0.608 (0.889)	-0.127 (0.277)	-0.502 (0.413)	-0.452 (0.722)	0.436 (1.134)	-0.023 (0.320)	-0.300** (0.129)
Magnet or charter school	-0.396** (0.183)	0.024 (0.332)	0.301 (0.211)	0.125 (0.084)	-0.107 (0.360)	0.120 (0.130)	0.043 (0.258)	-0.416* (0.231)	0.230 (0.568)	0.085 (0.116)	-0.011 (0.052)

Suburban school	-0.231 (0.199)	0.374 (0.230)	-0.181 (0.145)	-0.248** (0.122)	-0.043 (0.305)	-0.089 (0.072)	0.333** (0.157)	0.304 (0.257)	-0.238 (0.360)	-0.011 (0.090)	0.031 (0.060)
Town school	0.117 (0.221)	-0.093 (0.232)	0.055 (0.244)	-0.239 (0.172)	0.094 (0.380)	0.040 (0.099)	0.103 (0.195)	-0.182 (0.239)	-0.031 (0.384)	0.102 (0.101)	0.036 (0.063)
Rural school	0.068 (0.216)	-0.248 (0.197)	-0.091 (0.213)	-0.062 (0.138)	0.262 (0.350)	0.126 (0.105)	0.199 (0.177)	0.096 (0.237)	-0.347 (0.398)	-0.065 (0.096)	0.063 (0.047)
Log (number of students in high school)	-0.062 (0.171)	-0.072 (0.168)	0.059 (0.125)	0.046 (0.070)	-0.021 (0.250)	0.029 (0.067)	-0.011 (0.132)	0.072 (0.172)	-0.149 (0.266)	0.021 (0.057)	0.085* (0.046)
Log (median household income in school district)	0.338 (0.320)	-0.179 (0.346)	-0.229 (0.297)	-0.003 (0.174)	0.541 (0.569)	0.044 (0.198)	0.262 (0.286)	-0.125 (0.470)	-0.761 (0.713)	0.090 (0.183)	0.023 (0.073)
Log(number of students in district)	-0.045 (0.082)	0.158* (0.095)	-0.063 (0.060)	-0.013 (0.042)	0.020 (0.116)	-0.047 (0.030)	0.040 (0.061)	-0.082 (0.094)	0.053 (0.152)	-0.008 (0.030)	-0.014 (0.015)
Log(district expenditure per pupil)	-0.895** (0.403)	-0.429 (0.443)	-0.210 (0.363)	-0.221 (0.272)	0.079 (0.634)	-0.104 (0.225)	-0.216 (0.306)	-0.231 (0.518)	2.260*** (0.648)	-0.135 (0.153)	0.102 (0.100)
Log (population density in county)	0.116 (0.078)	0.039 (0.070)	0.019 (0.066)	-0.027 (0.036)	0.106 (0.108)	0.040 (0.041)	-0.048 (0.064)	-0.019 (0.111)	-0.190 (0.137)	-0.012 (0.032)	-0.024 (0.020)
Missing school-level, county, or district variable	0.169 (0.356)	-0.067 (0.337)	-0.487* (0.283)	-0.181 (0.230)	-0.499 (0.730)	0.472 (0.324)	0.287 (0.308)	-0.091 (0.413)	0.238 (0.753)	0.127 (0.161)	0.031 (0.059)
State compulsory schooling until age 17–18	-0.062 (0.153)	0.124 (0.160)	0.099 (0.146)	0.009 (0.068)	-0.174 (0.270)	-0.015 (0.050)	0.016 (0.120)	-0.160 (0.168)	0.171 (0.294)	-0.047 (0.062)	0.038 (0.028)
Constant	3.501 (3.762)	0.675 (4.434)	4.376 (4.491)	0.557 (1.665)	-3.402 (7.551)	-0.468 (1.880)	0.152 (3.717)	1.210 (6.403)	17.997** (8.892)	0.239 (2.215)	-0.838 (0.967)
R-squared	0.171	0.172	0.142	0.119	0.198	0.290	0.267	0.164	0.216	0.109	0.121

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table 10b. Effects of School Start Time on Time-Diary Outcomes (Males – Full Results) (N = 550)

VARIABLES	Sleep	Market work	Nonmarket work	Care activities	Class time	Other schooling	Homework	Extra-curricular activities/sports	Screen time and other leisure	Personal care	Missing activities
School start time	0.128 (0.250)	-0.052 (0.258)	-0.058 (0.123)	-0.007 (0.042)	0.283 (0.246)	-0.035 (0.046)	0.025 (0.106)	0.289 (0.188)	-0.774** (0.390)	0.111* (0.064)	0.090** (0.043)
Lagged broad-reading score	0.035 (0.105)	-0.141 (0.098)	0.171** (0.082)	0.033* (0.018)	-0.103 (0.120)	0.071** (0.034)	0.074 (0.058)	-0.140 (0.093)	-0.022 (0.156)	-0.006 (0.035)	0.028 (0.018)
Lagged applied-problems score	0.023 (0.095)	0.030 (0.119)	-0.072 (0.060)	-0.016 (0.018)	0.287** (0.123)	-0.003 (0.033)	0.089 (0.078)	0.107 (0.112)	-0.410** (0.182)	0.007 (0.036)	-0.041** (0.020)
Missing a lagged score	0.307 (0.268)	-0.045 (0.180)	-0.163 (0.106)	0.155** (0.061)	-0.404 (0.290)	-0.016 (0.052)	-0.245** (0.116)	-0.321* (0.194)	0.627 (0.384)	0.121 (0.077)	-0.017 (0.031)
School day length	0.279 (0.252)	-0.395** (0.174)	0.070 (0.118)	0.054 (0.046)	0.060 (0.256)	0.033 (0.055)	-0.043 (0.131)	0.053 (0.205)	-0.111 (0.357)	0.017 (0.080)	-0.018 (0.036)
Black, non-Hispanic	-0.434 (0.341)	0.166 (0.255)	-0.034 (0.141)	-0.037 (0.063)	0.091 (0.316)	0.135 (0.098)	0.264** (0.129)	0.265 (0.253)	-0.591 (0.548)	0.227** (0.104)	-0.053 (0.037)
Hispanic	0.646 (0.420)	0.120 (0.301)	-0.067 (0.202)	-0.105 (0.110)	-0.686 (0.664)	-0.083 (0.091)	-0.014 (0.226)	0.859 (0.617)	-0.596 (0.491)	-0.029 (0.140)	-0.045 (0.047)
Lives in East region	-0.044 (0.355)	-0.573* (0.302)	0.340* (0.176)	-0.088 (0.055)	0.764* (0.456)	-0.002 (0.068)	0.244 (0.221)	-0.138 (0.300)	-0.610 (0.545)	0.021 (0.121)	0.089* (0.052)
Lives in Midwest region	-0.190 (0.333)	-0.221 (0.236)	0.340** (0.161)	-0.039 (0.064)	0.322 (0.327)	0.122* (0.063)	0.310** (0.153)	-0.077 (0.260)	-0.523 (0.391)	-0.050 (0.095)	0.006 (0.039)
Lives in West region	-0.110 (0.320)	-0.781*** (0.248)	0.241 (0.147)	-0.009 (0.066)	0.038 (0.390)	-0.070 (0.073)	0.513** (0.247)	-0.440 (0.297)	0.556 (0.542)	0.020 (0.115)	0.043 (0.075)
Grade 9	0.725*** (0.242)	-1.113*** (0.259)	0.002 (0.097)	-0.033 (0.046)	-0.194 (0.250)	-0.080 (0.057)	0.097 (0.130)	0.051 (0.223)	0.659* (0.351)	-0.207*** (0.079)	0.092* (0.051)
Grade 10	0.084 (0.292)	-1.274*** (0.246)	0.011 (0.103)	-0.007 (0.068)	-0.006 (0.294)	-0.084 (0.058)	0.219 (0.161)	0.075 (0.227)	1.002*** (0.374)	-0.084 (0.084)	0.064** (0.029)
Grade 11	0.050 (0.227)	-0.613** (0.255)	-0.023 (0.113)	-0.002 (0.067)	0.196 (0.225)	0.010 (0.066)	0.135 (0.143)	0.106 (0.243)	0.221 (0.390)	-0.129 (0.087)	0.048* (0.029)
Interviewed in 2007-2008	0.003 (0.203)	0.222 (0.186)	-0.285*** (0.101)	-0.090** (0.036)	0.290 (0.214)	0.073 (0.045)	0.029 (0.134)	-0.126 (0.167)	-0.073 (0.262)	-0.065 (0.059)	0.022 (0.038)
Ever in special education	0.910*** (0.282)	-0.177 (0.212)	-0.097 (0.093)	-0.045 (0.044)	-0.165 (0.367)	0.108 (0.068)	-0.036 (0.154)	-0.310 (0.223)	-0.115 (0.322)	-0.081 (0.084)	0.007 (0.040)
October interview	0.153 (0.326)	-0.269 (0.238)	-0.321** (0.145)	-0.013 (0.047)	-0.153 (0.280)	-0.115 (0.078)	0.118 (0.171)	0.103 (0.300)	0.470 (0.438)	-0.014 (0.083)	0.041 (0.060)
November interview	0.126 (0.298)	0.085 (0.259)	-0.121 (0.182)	-0.127** (0.058)	-0.314 (0.378)	-0.168** (0.075)	0.223 (0.259)	-0.118 (0.318)	0.466 (0.558)	-0.013 (0.112)	-0.039 (0.036)

December interview	0.159 (0.253)	0.002 (0.261)	-0.297** (0.150)	0.031 (0.070)	-0.221 (0.285)	-0.141* (0.079)	0.215 (0.153)	-0.170 (0.286)	0.302 (0.453)	0.102 (0.085)	0.018 (0.041)
January interview	0.146 (0.264)	-0.211 (0.267)	-0.116 (0.161)	0.025 (0.062)	0.109 (0.293)	-0.151* (0.080)	0.203 (0.202)	-0.308 (0.305)	0.135 (0.428)	0.120 (0.095)	0.046 (0.049)
February interview	0.217 (0.369)	-0.075 (0.387)	-0.428*** (0.162)	0.071 (0.097)	0.230 (0.312)	-0.136* (0.081)	-0.022 (0.262)	-0.349 (0.372)	0.538 (0.587)	-0.025 (0.131)	-0.020 (0.042)
March interview	0.260 (0.360)	0.471 (1.027)	-0.072 (0.195)	0.210 (0.260)	-0.320 (0.476)	-0.114 (0.087)	0.068 (0.228)	-0.540 (0.468)	0.309 (0.844)	-0.229* (0.118)	-0.045 (0.049)
Lives with step mom and biological father	-0.117 (0.379)	0.662 (0.429)	-0.072 (0.260)	0.097 (0.136)	0.541* (0.277)	0.102 (0.111)	-0.675*** (0.220)	-0.713** (0.280)	0.307 (0.489)	-0.049 (0.117)	-0.083 (0.052)
Lives with step dad and biological mother	-0.074 (0.284)	0.899** (0.408)	-0.033 (0.159)	-0.022 (0.061)	0.332 (0.347)	0.027 (0.070)	-0.114 (0.127)	-0.443* (0.226)	-0.570 (0.511)	0.001 (0.115)	-0.003 (0.040)
Lives with single parent	-0.977 (0.832)	0.992*** (0.360)	-0.335 (0.205)	0.079 (0.075)	-0.405 (0.535)	-0.027 (0.073)	-0.567* (0.310)	-0.139 (0.449)	0.215 (0.758)	1.073* (0.627)	0.090 (0.088)
Lives in other family arrangement	-1.370 (1.695)	1.726** (0.799)	-1.068** (0.440)	0.169 (0.156)	-1.656 (1.246)	-0.065 (0.197)	-1.169* (0.628)	0.887 (0.992)	0.288 (1.735)	2.201* (1.169)	0.056 (0.155)
Number of other children in family unit under age 19	-0.119* (0.064)	0.170** (0.076)	-0.003 (0.038)	0.015 (0.016)	-0.050 (0.082)	-0.018 (0.016)	0.030 (0.047)	0.041 (0.086)	-0.042 (0.115)	-0.029 (0.029)	0.005 (0.013)
Mother college degree	-0.068 (0.219)	0.053 (0.170)	0.015 (0.104)	-0.117** (0.045)	0.118 (0.247)	-0.028 (0.055)	0.296* (0.172)	0.479** (0.199)	-0.823** (0.342)	0.103 (0.079)	-0.027 (0.033)
Mother education missing	0.403 (0.868)	-0.216 (0.402)	0.598* (0.333)	-0.134* (0.070)	0.402 (0.621)	-0.067 (0.072)	0.340 (0.320)	-0.313 (0.506)	-0.069 (0.936)	-0.915* (0.553)	-0.028 (0.092)
Father college degree	0.077 (0.291)	-0.026 (0.193)	-0.071 (0.097)	0.044 (0.054)	-0.231 (0.285)	0.051 (0.076)	0.126 (0.155)	-0.022 (0.206)	0.089 (0.359)	-0.066 (0.071)	0.029 (0.039)
Father education missing	1.176 (0.857)	-0.849** (0.357)	0.356* (0.206)	-0.065 (0.065)	0.637 (0.533)	0.020 (0.073)	0.679** (0.343)	-0.174 (0.409)	-0.616 (0.801)	-1.046* (0.601)	-0.118 (0.083)
Free-reduced price lunch recipient	0.160 (0.228)	-0.387* (0.211)	-0.077 (0.100)	-0.054 (0.061)	0.500* (0.273)	0.210*** (0.061)	-0.033 (0.117)	-0.306 (0.231)	-0.086 (0.386)	-0.000 (0.079)	0.075 (0.047)
Student-teacher ratio	0.042** (0.016)	0.010 (0.013)	-0.012* (0.006)	-0.001 (0.004)	-0.016 (0.022)	0.009 (0.006)	-0.002 (0.008)	0.001 (0.014)	-0.035 (0.036)	0.004 (0.007)	0.001 (0.002)
Percent black	0.459 (0.720)	-0.358 (0.701)	0.462 (0.293)	-0.044 (0.134)	0.102 (0.672)	-0.149 (0.181)	-0.296 (0.261)	-0.492 (0.534)	0.173 (1.063)	0.017 (0.214)	0.127 (0.088)
Percent Asian	0.714 (1.214)	-1.111* (0.619)	0.609 (0.526)	-0.286 (0.240)	-1.875 (1.364)	0.317 (0.274)	2.762*** (0.585)	0.208 (1.278)	-1.145 (1.623)	-0.380 (0.335)	0.187 (0.236)
Percent Hispanic	-0.586 (0.684)	0.883 (0.841)	0.442 (0.366)	-0.016 (0.204)	0.854 (0.814)	0.181 (0.192)	-0.292 (0.364)	-0.173 (0.733)	-1.517 (1.092)	0.247 (0.287)	-0.023 (0.089)
Percent free/reduced-price lunch	-0.125 (0.671)	-0.469 (1.114)	-0.134 (0.313)	0.079 (0.214)	-0.077 (0.697)	0.030 (0.178)	0.344 (0.333)	0.775 (0.543)	-0.281 (1.270)	-0.037 (0.263)	-0.105 (0.094)
Magnet or charter school	-0.539 (0.338)	0.050 (0.323)	0.115 (0.160)	-0.013 (0.056)	-0.246 (0.303)	0.053 (0.091)	0.022 (0.189)	-0.394 (0.288)	1.058 (0.747)	-0.079 (0.104)	-0.027 (0.035)

Suburban school	0.034	-0.485**	0.003	-0.042	-0.696***	0.150**	-0.145	-0.150	1.235***	0.003	0.093***
	(0.251)	(0.240)	(0.120)	(0.050)	(0.250)	(0.062)	(0.153)	(0.231)	(0.362)	(0.077)	(0.033)
Town school	-0.176	-0.705***	-0.105	-0.070	-0.075	0.063	-0.199	-0.099	1.344***	-0.080	0.102***
	(0.367)	(0.258)	(0.141)	(0.062)	(0.330)	(0.054)	(0.181)	(0.244)	(0.493)	(0.101)	(0.037)
Rural school	-0.559**	-0.560*	0.312*	-0.070	-0.110	0.173**	0.212	0.021	0.497	-0.051	0.134**
	(0.274)	(0.300)	(0.160)	(0.058)	(0.238)	(0.069)	(0.193)	(0.248)	(0.410)	(0.077)	(0.054)
Log (number of students in high school)	-0.235	-0.181	-0.016	-0.002	0.181	0.022	0.028	-0.203	0.463	-0.073	0.016
	(0.160)	(0.201)	(0.101)	(0.045)	(0.174)	(0.050)	(0.170)	(0.154)	(0.296)	(0.066)	(0.027)
Log (median household income in school district)	-0.842	-0.204	-0.029	0.154*	0.319	-0.034	0.205	0.933**	-0.449	-0.039	-0.013
	(0.630)	(0.451)	(0.231)	(0.088)	(0.544)	(0.100)	(0.290)	(0.393)	(0.709)	(0.159)	(0.092)
Log(number of students in district)	-0.240*	0.049	0.016	-0.012	0.132	0.032	0.112	0.056	-0.153	0.004	0.005
	(0.127)	(0.086)	(0.053)	(0.018)	(0.121)	(0.029)	(0.087)	(0.091)	(0.164)	(0.037)	(0.019)
Log(district expenditure per pupil)	0.221	1.020*	-0.342	0.054	-0.829*	0.090	-0.318	-0.712*	0.885	0.002	-0.069
	(0.367)	(0.562)	(0.243)	(0.072)	(0.498)	(0.095)	(0.314)	(0.379)	(0.778)	(0.187)	(0.070)
Log (population density in county)	0.157	-0.062	0.001	-0.018	-0.012	-0.035	-0.078	0.023	0.015	0.009	-0.000
	(0.121)	(0.070)	(0.041)	(0.019)	(0.117)	(0.023)	(0.058)	(0.091)	(0.137)	(0.032)	(0.013)
Missing school-level, county, or district variable	-0.588	-0.356*	-0.126	-0.039	0.210	-0.044	0.261	-0.174	0.737	0.160	-0.043
	(0.486)	(0.204)	(0.161)	(0.105)	(0.431)	(0.054)	(0.170)	(0.314)	(0.549)	(0.207)	(0.033)
State compulsory schooling until age 17–18	-0.086	-0.182	0.004	-0.021	0.338*	-0.023	0.051	-0.193	0.064	0.034	0.015
	(0.189)	(0.158)	(0.092)	(0.037)	(0.196)	(0.040)	(0.114)	(0.149)	(0.289)	(0.062)	(0.041)
Constant	16.645**	6.007	1.829	-1.549	-1.644	-0.107	-2.264	-8.550	13.507	0.670	-0.545
	(7.181)	(6.197)	(2.994)	(1.295)	(6.444)	(1.281)	(3.411)	(5.238)	(8.671)	(1.961)	(1.276)
R-squared	0.206	0.276	0.131	0.154	0.149	0.194	0.245	0.138	0.210	0.205	0.055

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

**Table 10c. Effects of School Start Time on Attendance, Participation, and Health Outcomes
(Females – Full Results)**

VARIABLES	Tardy to school	Employed	Sports team	Fair/poor health	Overweight/obese	Depressive symptoms
School start time	-0.073 (0.064)	-0.043 (0.063)	0.205** (0.081)	0.036 (0.035)	-0.025 (0.051)	-0.071 (0.073)
Lagged broad-reading score	-0.031 (0.029)	-0.059* (0.035)	0.007 (0.033)	-0.026 (0.022)	0.051 (0.034)	-0.000 (0.036)
Lagged applied-problems score	0.040 (0.027)	0.055* (0.029)	0.061* (0.037)	0.029 (0.025)	-0.064** (0.028)	0.006 (0.035)
Missing a lagged score	0.042 (0.060)	0.058 (0.058)	-0.054 (0.054)	0.032 (0.045)	-0.000 (0.060)	-0.107* (0.065)
School day length	0.115* (0.065)	-0.012 (0.060)	0.084 (0.080)	-0.012 (0.053)	-0.143** (0.058)	-0.067 (0.070)
Black, non-Hispanic	-0.120 (0.085)	0.008 (0.073)	-0.033 (0.093)	0.081 (0.073)	0.169* (0.087)	-0.035 (0.104)
Hispanic	0.076 (0.119)	-0.078 (0.086)	-0.068 (0.119)	0.280*** (0.100)	0.146 (0.117)	-0.024 (0.130)
Lives in East region	0.155 (0.140)	-0.025 (0.109)	0.153 (0.165)	-0.024 (0.071)	-0.002 (0.106)	0.095 (0.128)
Lives in Midwest region	-0.047 (0.081)	0.072 (0.070)	0.088 (0.092)	-0.025 (0.054)	-0.044 (0.076)	0.102 (0.088)
Lives in West region	-0.051 (0.089)	0.029 (0.089)	0.123 (0.113)	-0.132* (0.079)	-0.170* (0.092)	-0.021 (0.116)
Grade 9	-0.141** (0.059)	-0.249*** (0.060)	0.105 (0.083)	0.062* (0.036)	-0.010 (0.071)	0.039 (0.078)
Grade 10	-0.076 (0.060)	-0.229*** (0.060)	0.002 (0.060)	0.033 (0.044)	-0.065 (0.068)	0.088 (0.073)
Grade 11	-0.077 (0.068)	-0.027 (0.068)	0.060 (0.072)	0.047 (0.039)	-0.033 (0.070)	0.042 (0.073)
Interviewed in 2007-2008	0.018 (0.043)	0.033 (0.046)	0.080 (0.052)	0.039 (0.035)	0.097* (0.050)	-0.159*** (0.058)
Ever in special education	0.074 (0.091)	0.108 (0.088)	-0.097 (0.067)	0.091 (0.070)	-0.027 (0.105)	0.154* (0.090)
October interview	-0.109 (0.076)	0.026 (0.079)	-0.066 (0.084)	0.073 (0.049)	0.074 (0.091)	0.139 (0.096)
November interview	-0.163* (0.087)	0.029 (0.089)	0.041 (0.095)	0.026 (0.054)	-0.012 (0.097)	0.125 (0.108)
December interview	-0.125* (0.074)	-0.043 (0.081)	0.079 (0.086)	-0.005 (0.044)	-0.032 (0.085)	0.111 (0.095)
January interview	-0.124 (0.078)	-0.044 (0.075)	-0.031 (0.085)	0.047 (0.058)	-0.111 (0.096)	0.194** (0.091)
February interview	-0.051 (0.112)	-0.127 (0.096)	-0.099 (0.098)	0.048 (0.064)	0.083 (0.130)	0.124 (0.127)
March interview	-0.003 (0.130)	-0.076 (0.154)	-0.271** (0.115)	0.198 (0.159)	0.198 (0.195)	0.464*** (0.115)
Lives with step mom and biological father	0.068 (0.099)	0.057 (0.127)	-0.051 (0.121)	0.238* (0.121)	0.071 (0.126)	0.396*** (0.118)
Lives with step dad and biological mother	0.048 (0.098)	0.070 (0.092)	-0.067 (0.077)	-0.035 (0.043)	-0.098 (0.095)	0.095 (0.096)
Lives with single parent	-0.115 (0.082)	-0.154 (0.120)	-0.106 (0.175)	-0.100 (0.091)	-0.003 (0.163)	0.316* (0.183)
Lives in other family arrangement	-0.292 (0.181)	-0.187 (0.379)	0.022 (0.358)	-0.165 (0.187)	-0.140 (0.329)	0.492 (0.384)

Number of other children in family unit under age 19	-0.000 (0.027)	0.023 (0.020)	0.014 (0.033)	-0.014 (0.022)	0.001 (0.031)	-0.003 (0.029)
Mother college degree	-0.049 (0.050)	-0.070 (0.058)	0.057 (0.060)	-0.039 (0.039)	-0.030 (0.067)	-0.029 (0.074)
Mother education missing	0.111 (0.126)	0.056 (0.250)	-0.346* (0.199)	-0.029 (0.107)	0.558*** (0.197)	-0.377 (0.248)
Father college degree	-0.018 (0.059)	-0.009 (0.064)	0.131* (0.068)	0.028 (0.039)	-0.079 (0.073)	0.021 (0.078)
Father education missing	0.089 (0.097)	0.130 (0.128)	0.139 (0.179)	0.139 (0.097)	-0.104 (0.161)	-0.171 (0.185)
Free-reduced price lunch recipient	-0.019 (0.060)	-0.062 (0.055)	-0.006 (0.069)	-0.007 (0.045)	0.030 (0.065)	0.031 (0.075)
Student-teacher ratio	0.025*** (0.009)	-0.008 (0.009)	0.010 (0.012)	0.003 (0.007)	0.014 (0.009)	-0.019* (0.011)
Percent black	0.488*** (0.183)	-0.212 (0.151)	-0.124 (0.185)	-0.198 (0.146)	-0.006 (0.198)	-0.332 (0.212)
Percent Asian	-0.413 (0.327)	-0.226 (0.300)	-0.500 (0.472)	0.182 (0.268)	-0.106 (0.325)	-0.067 (0.437)
Percent Hispanic	0.131 (0.162)	-0.243* (0.138)	-0.131 (0.239)	-0.222 (0.151)	-0.021 (0.180)	0.090 (0.192)
Percent free/reduced-price lunch	-0.321* (0.179)	-0.173 (0.167)	0.177 (0.268)	-0.030 (0.160)	0.164 (0.192)	0.152 (0.221)
Magnet or charter school	0.053 (0.105)	-0.014 (0.087)	-0.078 (0.096)	-0.012 (0.078)	-0.263*** (0.096)	-0.148 (0.124)
Suburban school	-0.120* (0.066)	0.080 (0.075)	0.004 (0.076)	0.020 (0.048)	0.101 (0.067)	0.042 (0.080)
Town school	0.028 (0.091)	0.008 (0.072)	-0.195** (0.095)	-0.068 (0.051)	0.127 (0.081)	0.067 (0.105)
Rural school	-0.006 (0.083)	0.058 (0.076)	-0.036 (0.084)	-0.004 (0.051)	0.100 (0.074)	0.026 (0.094)
Log (number of students in high school)	-0.067 (0.050)	-0.037 (0.051)	-0.088 (0.059)	-0.029 (0.036)	-0.092* (0.051)	-0.036 (0.063)
Log (median household income in school district)	0.010 (0.118)	-0.093 (0.126)	-0.104 (0.148)	-0.095 (0.091)	0.049 (0.117)	0.033 (0.151)
Log(number of students in district)	-0.022 (0.026)	0.069*** (0.025)	0.043 (0.034)	0.022 (0.018)	-0.027 (0.029)	0.046 (0.032)
Log(district expenditure per pupil)	-0.094 (0.151)	0.042 (0.135)	0.168 (0.147)	0.069 (0.079)	-0.339** (0.140)	-0.295* (0.163)
Log (population density in county)	0.023 (0.024)	-0.003 (0.026)	0.007 (0.033)	-0.019 (0.022)	0.048* (0.027)	0.012 (0.035)
Missing school-level, county, or district variable	-0.039 (0.152)	0.047 (0.122)	-0.204* (0.110)	0.030 (0.084)	-0.095 (0.110)	0.082 (0.160)
State compulsory schooling until age 17–18	-0.004 (0.052)	0.028 (0.047)	0.043 (0.051)	0.034 (0.030)	0.019 (0.052)	-0.013 (0.056)
Constant	0.413 (1.580)	1.535 (1.499)	-1.357 (1.840)	0.784 (0.887)	2.078 (1.336)	1.883 (1.866)
R-squared	0.154	0.202	0.171	0.155	0.220	0.146
Number of observations	480	550	550	550	530	550

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table 10d. Effects of School Start Time on Attendance, Participation, and Health Outcomes (Males – Full Results)

VARIABLES	Tardy to school	Employed	Sports team	Fair/poor health	Overweight/obese	Depressive symptoms
School start time	-0.053 (0.050)	0.089 (0.057)	0.035 (0.063)	-0.010 (0.033)	-0.029 (0.071)	-0.037 (0.068)
Lagged broad-reading score	-0.023 (0.026)	-0.017 (0.030)	-0.034 (0.033)	-0.022 (0.019)	0.010 (0.036)	0.008 (0.035)
Lagged applied-problems score	0.030 (0.025)	0.057* (0.032)	0.014 (0.035)	-0.001 (0.020)	-0.019 (0.035)	0.006 (0.038)
Missing a lagged score	-0.048 (0.054)	0.045 (0.062)	-0.037 (0.069)	0.017 (0.037)	-0.039 (0.076)	0.047 (0.079)
School day length	0.004 (0.048)	0.041 (0.056)	0.018 (0.078)	-0.086** (0.040)	-0.068 (0.078)	0.083 (0.073)
Black, non-Hispanic	0.062 (0.062)	0.062 (0.080)	0.056 (0.084)	-0.010 (0.049)	0.185* (0.096)	0.098 (0.108)
Hispanic	0.032 (0.099)	0.061 (0.134)	-0.080 (0.135)	-0.103 (0.066)	0.097 (0.163)	-0.160 (0.146)
Lives in East region	0.057 (0.083)	0.146 (0.105)	0.367*** (0.118)	-0.081* (0.048)	-0.007 (0.119)	0.009 (0.132)
Lives in Midwest region	0.046 (0.064)	0.138** (0.067)	0.120 (0.087)	0.013 (0.042)	0.093 (0.089)	-0.062 (0.092)
Lives in West region	0.060 (0.074)	-0.048 (0.077)	-0.003 (0.096)	-0.008 (0.063)	0.178 (0.108)	0.079 (0.108)
Grade 9	-0.030 (0.060)	-0.261*** (0.073)	-0.019 (0.071)	0.030 (0.041)	0.026 (0.074)	0.255*** (0.081)
Grade 10	-0.054 (0.058)	-0.264*** (0.067)	0.023 (0.076)	-0.003 (0.032)	-0.003 (0.083)	0.186** (0.078)
Grade 11	-0.005 (0.067)	-0.034 (0.075)	-0.033 (0.079)	-0.034 (0.032)	-0.047 (0.076)	0.092 (0.083)
Interviewed in 2007-2008	-0.019 (0.043)	-0.066 (0.049)	0.132** (0.059)	0.065** (0.028)	0.101 (0.063)	0.041 (0.066)
Ever in special education	0.051 (0.051)	-0.048 (0.053)	-0.229*** (0.072)	0.038 (0.041)	-0.046 (0.088)	0.226*** (0.077)
October interview	0.121* (0.066)	-0.080 (0.079)	0.002 (0.089)	0.005 (0.043)	0.148* (0.082)	-0.045 (0.099)
November interview	0.140* (0.075)	-0.050 (0.086)	-0.145 (0.100)	0.090* (0.053)	0.220** (0.106)	0.036 (0.118)
December interview	0.057 (0.059)	-0.067 (0.081)	0.014 (0.087)	0.025 (0.043)	0.201** (0.086)	0.083 (0.109)
January interview	0.045 (0.072)	-0.030 (0.090)	-0.141 (0.098)	-0.011 (0.045)	0.143 (0.096)	0.091 (0.108)
February interview	0.135 (0.094)	-0.083 (0.102)	0.062 (0.124)	0.119* (0.067)	0.232* (0.128)	0.289** (0.127)
March interview	0.085 (0.097)	-0.052 (0.185)	-0.186 (0.180)	0.029 (0.079)	0.267* (0.154)	-0.042 (0.191)
Lives with step mom and biological father	-0.139** (0.068)	-0.099 (0.099)	-0.178 (0.159)	-0.033 (0.053)	-0.061 (0.165)	0.203 (0.169)
Lives with step dad and biological mother	-0.105* (0.053)	0.028 (0.082)	-0.184** (0.085)	-0.055** (0.028)	0.052 (0.111)	0.109 (0.089)
Lives with single parent	0.273 (0.202)	0.385*** (0.108)	0.169 (0.170)	0.126 (0.094)	-0.211 (0.146)	-0.080 (0.138)
Lives in other family arrangement	0.376 (0.398)	0.520** (0.234)	0.501 (0.356)	0.194 (0.191)	-0.068 (0.332)	-0.212 (0.328)

Number of other children in family unit under age 19	0.037*	0.008	-0.013	0.001	0.013	0.016
	(0.022)	(0.016)	(0.025)	(0.017)	(0.026)	(0.025)
Mother college degree	-0.047	0.049	0.111*	-0.044	-0.102	-0.186**
	(0.049)	(0.055)	(0.063)	(0.034)	(0.065)	(0.076)
Mother education missing	-0.096	-0.117	-0.234	-0.174*	0.066	-0.015
	(0.222)	(0.136)	(0.184)	(0.103)	(0.164)	(0.183)
Father college degree	0.087	-0.019	-0.014	0.037	0.011	0.153*
	(0.054)	(0.062)	(0.071)	(0.036)	(0.073)	(0.079)
Father education missing	-0.260	-0.411***	-0.365**	-0.038	0.081	0.247*
	(0.192)	(0.107)	(0.162)	(0.090)	(0.152)	(0.132)
Free-reduced price lunch recipient	-0.071*	-0.042	-0.113	-0.004	-0.044	-0.110
	(0.041)	(0.059)	(0.071)	(0.034)	(0.074)	(0.081)
Student-teacher ratio	0.005	0.003	0.009**	-0.003	-0.001	0.001
	(0.009)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
Percent black	-0.032	-0.406***	-0.047	0.023	-0.094	-0.100
	(0.115)	(0.150)	(0.184)	(0.084)	(0.200)	(0.184)
Percent Asian	-0.173	-0.650**	-0.322	0.019	-0.646	0.216
	(0.195)	(0.257)	(0.301)	(0.118)	(0.464)	(0.407)
Percent Hispanic	0.066	-0.138	-0.059	0.391***	0.130	0.288
	(0.182)	(0.191)	(0.200)	(0.130)	(0.251)	(0.237)
Percent free/reduced-price lunch	0.321**	0.342**	0.395**	-0.023	0.060	-0.661***
	(0.150)	(0.166)	(0.196)	(0.105)	(0.242)	(0.227)
Magnet or charter school	0.082	-0.037	-0.047	-0.083	0.023	-0.186*
	(0.066)	(0.076)	(0.102)	(0.058)	(0.105)	(0.095)
Suburban school	-0.009	0.036	-0.088	0.004	0.198**	-0.004
	(0.058)	(0.063)	(0.072)	(0.046)	(0.082)	(0.082)
Town school	0.022	0.045	0.071	-0.063	0.173	-0.004
	(0.078)	(0.086)	(0.099)	(0.051)	(0.124)	(0.122)
Rural school	0.044	0.089	-0.051	-0.007	0.262***	-0.079
	(0.058)	(0.073)	(0.079)	(0.050)	(0.096)	(0.108)
Log (number of students in high school)	0.032	0.027	-0.063	-0.016	0.034	-0.048
	(0.034)	(0.040)	(0.053)	(0.032)	(0.066)	(0.055)
Log (median household income in school district)	0.056	-0.090	0.419***	0.080	-0.144	-0.376**
	(0.109)	(0.126)	(0.132)	(0.079)	(0.150)	(0.160)
Log(number of students in district)	-0.048*	0.022	0.039	0.024	0.018	0.015
	(0.026)	(0.024)	(0.030)	(0.021)	(0.039)	(0.034)
Log(district expenditure per pupil)	0.092	0.075	-0.261*	-0.027	0.034	-0.009
	(0.114)	(0.108)	(0.140)	(0.057)	(0.142)	(0.138)
Log (population density in county)	0.029	0.010	-0.047	-0.027	0.034	0.041
	(0.026)	(0.025)	(0.029)	(0.017)	(0.032)	(0.030)
Missing school-level, county, or district variable	0.118	0.071	-0.139	0.180	-0.044	0.188
	(0.127)	(0.126)	(0.123)	(0.120)	(0.116)	(0.120)
State compulsory schooling until age 17–18	-0.042	-0.055	0.018	0.011	0.060	-0.028
	(0.043)	(0.047)	(0.054)	(0.029)	(0.060)	(0.062)
Constant	-0.567	-0.330	-3.726**	-0.032	1.480	4.116**
	(1.278)	(1.369)	(1.702)	(0.881)	(1.918)	(1.768)
R-squared	0.158	0.228	0.212	0.231	0.158	0.197
Number of observations	490	550	550	550	540	520

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Section 2: Heterogeneous Effects by FRL Status

Table S1. Effects of School Start Time on Sleep, by FRL Status

Variables	All diary sleep (M–TH)	Nighttime diary sleep (M–TH)	Usual night sleep	Napping (M–TH)	Wake-up time (M–TH)	Bedtime (M–TH)
<i>Panel 1. Females</i>						
School start time	0.405 (0.272)	0.308 (0.248)	0.353* (0.194)	0.097 (0.124)	0.424* (0.227)	0.137 (0.167)
School start time*FRL	0.421 (0.649)	0.483 (0.611)	-0.350 (0.407)	-0.062 (0.230)	0.282 (0.465)	-0.206 (0.423)
[School start time + school start time*FRL]	0.826 (0.582)	0.791 (0.551)	0.003 (0.359)	0.035 (0.195)	0.706* (0.339)	-0.068 (0.389)
Number of observations	450	450	550	450	450	450
R-squared	0.193	0.191	0.182	0.087	0.231	0.147
<i>Panel 2. Males</i>						
School start time	-0.029 (0.439)	0.411 (0.277)	0.206 (0.217)	-0.440 (0.311)	0.519** (0.205)	0.182 (0.220)
School start time*FRL	-0.576 (0.729)	-0.664 (0.529)	-0.453 (0.361)	0.088 (0.465)	0.223 (0.358)	0.789* (0.471)
[School start time + school start time*FRL]	-0.605 (0.580)	-0.253 (0.449)	0.247 (0.291)	-0.352 (0.347)	0.741*** (0.258)	0.970** (0.413)
Number of observations	460	460	550	460	460	460
R-squared	0.245	0.244	0.216	0.242	0.248	0.205

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses. See Table 5 specification 4 for control variables.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table S2. Effects of School Start Time on Time-use Activities and Health, by FRL Status (All-days Female Sample) (N=550)

Dependent Variable	School start time	School start time*FRL	[School start time + school start time*FRL]
<i>Time-Diary Outcomes</i>			
Sleep	0.549*** (0.216)	0.033 (0.441)	0.581 (0.384)
Market work	0.003 (0.267)	0.573 (0.389)	0.576** (0.284)
Nonmarket work	0.214 (0.171)	-0.493* (0.281)	-0.279 (0.222)
Care activities	0.101 (0.089)	-0.277 (0.207)	-0.175 (0.187)
Class time	-0.222 (0.323)	-0.156 (0.602)	-0.378 (0.503)
Other schooling	-0.145* (0.085)	0.145 (0.116)	0.000 (0.081)
Homework	-0.290 (0.185)	0.164 (0.247)	-0.126 (0.162)
Extracurricular activities/ sports	0.516** (0.244)	-0.567 (0.425)	-0.051 (0.347)
Screen time and other leisure	-0.812** (0.335)	0.513 (0.628)	-0.299 (0.487)
Subcategories:			
Screen time	-0.377 (0.344)	-0.387 (0.571)	-0.764* (0.457)
Other leisure	-0.435 (0.275)	0.900** (0.397)	0.465 (0.295)
Personal care	-0.003 (0.093)	0.066 (0.172)	0.063 (0.149)
Missing activities	0.090 (0.047)	-0.001 (0.103)	0.089 (0.092)

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses. See Table 5 specification 4 for control variables.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table S2 Continued. Effects of School Start Time on Time-use Activities and Health, by FRL Status (All-days Female Sample) (N = 550)

Dependent Variable	School start time	School start time*FRL	[School start time + school start time*FRL]
<i>Attendance and Participation Outcomes</i>			
Tardy to school ^a	-0.087 (0.076)	-0.110 (0.139)	-0.197* (0.116)
Employed	-0.052 (0.079)	0.168 (0.105)	0.116* (0.070)
Sports team	0.124 (0.088)	0.319 (0.221)	0.443** (0.202)
<i>Health-Indicator Outcomes</i>			
Fair/poor health	-0.035 (0.039)	0.240*** (0.033)	0.204*** (0.072)
Overweight/Obese ^b	0.038 (0.062)	-0.231* (0.132)	-0.193* (0.117)
Depressive Symptoms ^c	-0.119 (0.084)	0.233 (0.153)	0.114 (0.128)

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses. See Table 5 specification 4 for control variables.

^a For the tardy-to-school variable, the number of observations was 480 for females and 490 for males due to some students not attending school on their weekday diary.

^b For the overweight variable, the number of observations was 530 for females and 540 for males due to missing information.

^c For the depressive symptoms variable, the number of observations was 520 for males due to missing information.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table S3. Effects of School Start Time on Time-use Activities and Health, by FRL Status (All-days Male Sample) (N = 550)

Dependent Variable	School start time	School start time*FRL	[School start time + school start time*FRL]
<i>Time-Diary Outcomes</i>			
Sleep	0.148 (0.314)	-0.374 (0.606)	-0.225 (0.517)
Market work	0.084 (0.275)	-0.666 (0.446)	-0.581* (0.350)
Nonmarket work	-0.054 (0.174)	0.015 (0.232)	-0.040 (0.153)
Care activities	-0.021 (0.065)	-0.100 (0.095)	-0.121* (0.070)
Class time	0.502* (0.304)	-1.420** (0.583)	-0.918* (0.494)
Other schooling	-0.056 (0.045)	0.391* (0.202)	0.334* (0.197)
Homework	0.073 (0.139)	0.143 (0.224)	0.216 (0.176)
Extracurricular activities/ sports	0.273 (0.246)	-0.157 (0.367)	0.116 (0.270)
Screen time and other leisure	-1.176** (0.479)	2.377*** (0.760)	1.200** (0.583)
Subcategories:			
Screen time	-1.391*** (0.440)	2.035*** (0.775)	0.644* (0.632)
Other leisure	0.214 (0.265)	0.341 (0.494)	0.557 (0.418)
Personal care	0.179** (0.076)	-0.284 (0.207)	-0.105 (0.192)
Missing activities	0.047 (0.039)	0.075 (0.112)	0.123 (0.105)

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses. See Table 5 specification 4 for control variables.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.

Table S3 Continued. Effects of School Start Time on Time-use Activities and Health, by FRL Status (All-days Male Sample) (N = 550)

Dependent Variable	School start time	School start time*FRL	[School start time + school start time*FRL]
<i>Attendance and Participation Outcomes</i>			
Tardy to school ^a	-0.069 (0.063)	0.011 (0.107)	-0.058 (0.088)
Employed	0.110* (0.066)	-0.058 (0.118)	0.051 (0.098)
Sports team	-0.015 (0.077)	0.319 (0.221)	0.443** (0.202)
<i>Health-Indicator Outcomes</i>			
Fair/poor health	-0.026 (0.034)	0.118 (0.080)	0.091 (0.073)
Overweight/Obese ^b	-0.051 (0.085)	0.093 (0.167)	0.042 (0.142)
Depressive Symptoms ^c	-0.014 (0.075)	-0.086 (0.134)	-0.100 (0.110)
Number of observations	550	550	1,100

Notes: CDS child weights used. Standard errors clustered by high school are in parentheses. See Table 5 specification 4 for control variables.

^a For the tardy-to-school variable, the number of observations was 480 for females and 490 for males due to some students not attending school on their weekday diary.

^b For the overweight variable, the number of observations was 530 for females and 540 for males due to missing information.

^c For the depressive symptoms variable, the number of observations was 520 for males due to missing information.

***indicates significant at the 0.01 level, **at the 0.05 level, and *at the 0.10 level.