

## Supplementary Information for

### Disruption to Test Scores after Hurricanes in the United States

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Table S1  
Table S2

State	Grade	2009 percentiles					2018 percentiles					
		5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>	5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>	
Florida	Mean Standardized Math Score	3	2.71	3.08	3.33	3.67	4.14	2.84	3.50	3.82	4.13	4.50
		4	2.93	3.87	4.11	4.51	4.81	3.68	4.08	4.48	4.81	5.46
		5	3.71	4.60	4.89	5.25	5.70	3.88	4.63	5.15	5.49	6.12
		6	4.88	5.34	5.83	6.31	6.93	4.91	5.53	6.17	6.73	7.37
		7	5.54	6.28	6.65	7.17	7.84	5.15	5.93	6.75	7.37	8.18
		8	6.21	7.21	7.65	8.12	8.79	5.70	6.78	7.39	8.12	9.20
	Mean Standardized RLA Score	3	3.04	3.52	3.90	4.35	4.95	2.46	3.31	3.69	4.13	4.58
		4	3.15	4.15	4.58	4.91	5.51	3.36	3.92	4.43	4.86	5.28
		5	4.29	4.76	5.25	5.56	6.20	3.67	4.73	5.21	5.63	6.22
		6	5.16	5.66	6.14	6.52	7.30	4.86	5.70	6.22	6.72	7.15
		7	5.70	6.64	6.96	7.33	8.02	5.71	6.45	6.97	7.47	7.90
		8	6.43	7.55	7.96	8.23	8.88	6.67	7.54	7.93	8.46	9.07
Louisiana	Mean Standardized Math Score	3	0.80	1.35	1.88	2.33	2.89	-	-	-	-	-
		4	2.17	2.50	2.96	3.34	3.97	-	-	-	-	-
		5	2.74	3.39	3.78	4.25	4.91	1.68	3.34	3.90	4.40	5.12
		6	3.94	4.47	4.92	5.47	6.14	2.48	4.15	4.78	5.52	6.11
		7	4.60	5.34	5.95	6.49	7.39	3.97	5.01	5.80	6.32	7.04
		8	5.56	6.60	7.15	7.61	8.29	4.32	6.02	6.72	7.30	8.25
	Mean Standardized RLA Score	3	0.67	1.22	1.97	2.27	3.05	-	-	-	-	-
		4	1.95	2.33	2.98	3.41	4.00	-	-	-	-	-
		5	2.67	3.35	3.82	4.38	4.92	2.08	3.51	4.11	4.73	5.41
		6	4.04	4.54	4.99	5.41	6.10	2.62	4.56	5.06	5.69	6.36
		7	4.63	5.53	6.12	6.48	7.08	4.20	5.52	6.28	6.74	7.46
		8	5.65	6.59	7.17	7.48	7.98	5.76	6.64	7.13	7.72	8.74
New Jersey	Mean Standardized Math Score	3	2.50	3.03	3.51	3.82	4.19	2.82	3.14	3.43	3.99	4.48
		4	3.78	4.07	4.54	4.94	5.50	3.72	4.01	4.51	5.10	5.73
		5	4.46	5.08	5.64	5.93	6.93	4.61	5.26	5.54	6.29	6.82
		6	5.63	6.14	6.81	7.31	8.14	5.60	6.17	6.68	7.28	8.06
		7	6.63	7.19	7.91	8.33	9.21	6.68	7.05	7.55	8.37	9.33
		8	7.92	8.43	9.00	9.48	10.23	7.64	8.15	8.62	9.34	10.50
	Mean Standardized RLA Score	3	2.16	2.85	3.65	4.04	4.56	2.98	3.48	3.86	4.34	5.11
		4	3.39	3.41	3.93	4.62	5.03	3.92	4.45	4.75	5.29	6.24
		5	4.25	4.97	5.57	6.09	6.97	4.73	5.29	5.64	6.36	7.20
		6	5.41	5.95	6.66	7.07	7.85	5.78	6.37	6.52	7.27	7.99
		7	6.50	6.95	7.56	8.11	8.93	6.51	6.96	7.49	8.12	8.97
		8	7.48	8.11	8.64	9.15	9.91	7.73	7.92	8.49	9.01	10.11
North Carolina	Mean Standardized Math Score	3	2.11	2.78	3.37	3.61	4.13	1.96	2.63	3.05	3.42	3.82
		4	2.96	3.73	4.20	4.63	5.12	2.65	3.45	3.98	4.49	5.05
		5	3.66	4.55	5.05	5.60	6.23	3.29	4.47	4.93	5.51	5.95
		6	4.75	5.64	6.15	6.59	7.33	4.75	5.64	6.15	6.59	7.33
		7	5.54	6.44	7.02	7.64	8.28	5.12	6.12	6.84	7.34	8.25
		8	6.10	7.32	8.15	8.83	9.62	5.69	7.20	7.67	8.43	9.35
	Mean Standardized RLA Score	3	1.49	2.40	2.93	3.40	3.92	1.97	2.80	3.28	3.64	4.35
		4	2.29	3.36	3.86	4.28	5.00	3.03	3.67	4.17	4.63	5.40
		5	3.13	4.18	4.62	5.13	5.87	3.75	3.99	4.56	5.09	5.63
		6	4.16	5.04	5.68	6.18	6.79	4.41	5.28	5.88	6.40	7.14
		7	4.90	5.95	6.50	7.04	7.78	5.57	6.37	6.82	7.29	8.04
		8	5.79	6.95	7.44	8.11	8.73	6.24	7.01	7.58	8.15	8.79
South Carolina	Mean Standardized Math Score	3	0.37	1.59	2.22	2.59	3.15	0.79	1.71	2.07	2.62	3.30
		4	1.49	2.39	3.31	3.71	4.19	1.37	2.35	2.94	3.57	4.39
		5	1.95	3.19	4.24	4.82	5.26	2.21	3.40	3.76	4.50	5.43
		6	3.38	5.00	5.37	5.81	6.36	3.08	4.32	4.84	5.56	6.64
		7	4.35	5.50	6.18	6.80	7.29	3.85	5.19	6.03	6.61	7.26
		8	5.90	6.55	7.33	7.77	8.55	5.01	6.10	7.03	7.58	8.36
	Mean Standardized RLA Score	3	0.59	1.51	2.12	2.71	3.32	0.06	1.31	1.85	2.47	3.41
		4	1.29	2.30	3.03	3.68	4.22	1.12	1.99	2.76	3.69	4.36
		5	2.38	3.01	3.93	4.63	4.99	2.08	3.14	3.62	4.53	5.41

State	Grade	2009 percentiles					2018 percentiles				
		5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>	5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>
Texas	6	2.95	4.11	4.96	5.48	5.94	3.64	4.30	4.97	5.77	6.28
	7	3.93	5.10	5.83	6.45	6.94	4.53	5.50	6.02	6.66	7.22
	8	5.47	5.97	6.58	7.39	7.91	5.81	6.43	7.05	7.66	8.22
	3	1.47	2.27	2.68	3.01	3.65	1.80	2.47	2.98	3.33	4.08
	4	2.34	3.22	3.67	4.04	4.68	2.31	3.15	3.73	4.25	5.06
	5	3.66	4.31	4.81	5.19	5.91	3.14	4.11	4.73	5.16	6.24
	6	4.57	5.45	5.85	6.33	7.08	4.13	5.02	5.63	6.13	7.43
	7	5.55	6.47	6.96	7.40	8.21	-	-	-	-	-
	8	6.63	7.50	8.05	8.51	9.44	-	-	-	-	-
	3	1.25	2.09	2.63	3.02	3.86	0.93	1.80	2.33	2.76	3.60
	4	2.08	2.89	3.28	3.68	4.47	1.81	2.78	3.25	3.71	4.53
	5	3.02	3.96	4.44	4.84	5.54	2.88	3.60	4.13	4.52	5.43
	6	4.09	5.08	5.45	5.90	6.55	3.76	4.65	5.06	5.43	6.54
	7	5.17	5.85	6.34	6.75	7.45	4.86	5.61	6.14	6.64	7.53
	8	6.19	6.91	7.34	7.70	8.39	6.02	6.75	7.18	7.63	8.55

**Table S1.** State-specific mean standardized test scores in math and reading and language arts in 2009 and 2018

<i>Variable</i>	<b>Math</b> ( $\beta$ , 95% CrI, probability)	<b>Reading/Language Arts</b> ( $\beta$ , 95% CrI, probability)
Storm Exposure Nationally and by State		
National	-0.04 (-0.11, 0.03), 85.0%	0.00 (-0.06, 0.07), 55.5%
Florida	0.14 (0.02, 0.26), 99.0%	0.11 (0.02, 0.22), 99.2%
Louisiana	-0.05 (-0.30, 0.15), 69.9%	0.00 (-0.15, 0.16), 50.2%
New Jersey	-0.11 (-0.31, 0.06), 88.7%	-0.04 (-0.18, 0.09), 71.1%
North Carolina	-0.16 (-0.29, -0.03), 99.4%	-0.05 (-0.15, 0.05), 82.4%
South Carolina	-0.12 (-0.35, 0.06), 90.0%	-0.01 (-0.15, 0.12), 54.5%
Texas	0.03 (-0.09, 0.16), 66.0%	-0.04 (-0.14, 0.05), 81.2%
Grade-Cohort Percent Race/Ethnicity		
American Indian/Alaska Native	-1.45 (-2.38, -0.51), 99.9%	-2.02 (-2.84, -1.19), 99.9%
Asian	1.78 (0.70, 2.86), 99.9%	1.79 (0.86, 2.71), 99.9%
Black	-1.71 (-1.93, -1.48), 99.9%	-2.27 (-2.46, -2.07), 99.9%
Hispanic	-0.96 (-1.14, -0.78), 99.9%	-1.66 (-1.81, -1.51), 99.9%
Percent Grade-Cohort Economically Disadvantaged	-0.49 (-0.59, -0.38), 99.9%	-0.98 (-1.06, -0.89), 99.9%
Percent Grade-Cohort Receiving Free Lunch	-0.45 (-0.53, -0.37), 99.9%	0.02 (-0.05, 0.09), 71.6%
Percent County English Language Learners	0.66 (0.14, 1.19), 99.2%	-1.61 (-2.05, -1.18), 99.9%
Percent County Special Education Students	-1.73 (-2.25, -1.20), 99.9%	0.37 (-0.09, 0.82), 94.6%
Percent County College-Educated Adults	1.64 (1.25, 2.03), 99.9%	1.44 (1.12, 1.77), 99.9%
County Poverty Rate	-0.75 (-1.08, -0.42), 99.9%	0.33 (0.06, 0.60), 99.4%
Percent County Single Mother Households	-0.12 (-0.50, 0.25), 73.5%	-0.27 (-0.57, 0.03), 96.1%
Percent County Urban Schools	0.16 (0.00, 0.32), 97.8%	0.24 (0.10, 0.38), 99.9%

**Table S2.** National and State-Specific Associations between Hurricane-Force Tropical Cyclones and Standardized Test Scores; 95% CrI = 95% credible interval, probability = Posterior probability of positive/negative association