

PNAS Supporting Information

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5/11/2018

The OSF page for this project (<https://osf.io/pu79a/>) hosts many additional details. These include interactive maps for all disciplinary outcomes, information for a preregistered version of these analyses, explanations for departures from these plans, code, and aggregated data.

Table 1: Regression coefficient estimates for the population-level (i.e. fixed) effects, along with 95% uncertainty intervals for each of the disciplinary metrics. Bias estimates are from race data.

	Out-of-School Suspension	In-School Suspension	Law Enf. Referral	Expulsion	School-Related Arrest
Intercept	-2.31 [-2.34,-2.28]	-2.23 [-2.27,-2.2]	-5.77 [-5.87,-5.67]	-6.54 [-6.67,-6.41]	-7.97 [-8.18,-7.76]
black-white ratio	-0.15 [-0.21,-0.1]	-0.32 [-0.4,-0.24]	0.13 [-0.03,0.3]	-0.09 [-0.29,0.11]	0.16 [-0.17,0.48]
proportion black	0.22 [0.14,0.31]	0.16 [0.05,0.27]	-0.36 [-0.62,-0.12]	-0.23 [-0.52,0.07]	-0.37 [-0.81,0.06]
college grads	0.08 [0.04,0.12]	-0.06 [-0.1,-0.01]	0.15 [0.05,0.26]	-0.03 [-0.16,0.1]	0.22 [0.03,0.4]
crime	0.04 [0.01,0.07]	0.05 [0.01,0.09]	0.04 [-0.05,0.12]	0.12 [0.02,0.22]	0.02 [-0.12,0.16]
housing density	-0.05 [-0.07,-0.02]	-0.03 [-0.07,0]	0.01 [-0.06,0.08]	-0.05 [-0.12,0.03]	-0.13 [-0.23,-0.03]
dissimilarity	0.2 [0.17,0.23]	0.09 [0.05,0.13]	0.19 [0.1,0.29]	0.3 [0.18,0.42]	0.48 [0.31,0.65]
income	-0.08 [-0.13,-0.03]	-0.07 [-0.13,0]	-0.05 [-0.19,0.09]	-0.29 [-0.46,-0.12]	0.03 [-0.2,0.27]
mobility	-0.03 [-0.07,0.01]	0 [-0.05,0.04]	0.09 [-0.02,0.2]	0.01 [-0.14,0.15]	0.01 [-0.2,0.21]
poverty	-0.09 [-0.17,-0.01]	0.11 [0.01,0.21]	-0.58 [-0.81,-0.34]	-0.42 [-0.69,-0.15]	-0.35 [-0.75,0.05]
total population	0 [-0.03,0.02]	-0.04 [-0.08,0]	-0.01 [-0.09,0.07]	0 [-0.09,0.07]	0.12 [0.01,0.23]
unemployment	0.22 [0.17,0.26]	0.02 [-0.03,0.07]	0.16 [0.04,0.28]	0.22 [0.08,0.35]	0.25 [0.05,0.45]
proportion white	-0.03 [-0.11,0.04]	-0.02 [-0.11,0.07]	-0.25 [-0.46,-0.05]	-0.27 [-0.52,-0.03]	-0.15 [-0.48,0.17]
race: white	-1.06 [-1.08,-1.03]	-0.91 [-0.93,-0.88]	-0.84 [-0.92,-0.76]	-0.89 [-1,-0.77]	-0.89 [-1.06,-0.7]
implicit bias	0.12 [0.07,0.17]	0.17 [0.11,0.24]	-0.05 [-0.18,0.08]	0.06 [-0.11,0.22]	-0.17 [-0.4,0.05]
explicit bias	-0.05 [-0.1,-0.01]	0.12 [0.06,0.17]	-0.04 [-0.16,0.08]	0.04 [-0.1,0.19]	0.36 [0.15,0.57]
black-white ratio*race: white	0.1 [0.05,0.16]	0.05 [-0.01,0.11]	-0.26 [-0.47,-0.04]	0.13 [-0.1,0.34]	-0.29 [-0.7,0.12]
proportion black*race: white	-0.02 [-0.09,0.05]	-0.01 [-0.08,0.07]	0.2 [-0.01,0.4]	0.04 [-0.2,0.29]	0.27 [-0.1,0.64]
college grads*race: white	-0.12 [-0.15,-0.09]	-0.06 [-0.09,-0.03]	-0.15 [-0.22,-0.08]	-0.14 [-0.24,-0.04]	-0.08 [-0.21,0.04]
crime*race: white	-0.02 [-0.04,0]	0 [-0.02,0.03]	0.03 [-0.02,0.08]	-0.05 [-0.12,0.01]	0.05 [-0.04,0.13]
housing density*race: white	-0.03 [-0.04,-0.01]	-0.01 [-0.03,0]	-0.02 [-0.05,0.02]	-0.03 [-0.08,0.01]	-0.06 [-0.22,0.07]
dissimilarity*race: white	-0.11 [-0.14,-0.08]	-0.05 [-0.07,-0.02]	-0.09 [-0.16,-0.02]	-0.04 [-0.13,0.05]	-0.22 [-0.35,-0.09]
income*race: white	-0.05 [-0.09,-0.01]	-0.09 [-0.12,-0.05]	-0.04 [-0.13,0.04]	0.03 [-0.1,0.16]	-0.09 [-0.25,0.06]
mobility*race: white	0.03 [-0.01,0.06]	0 [-0.03,0.03]	-0.04 [-0.12,0.05]	-0.01 [-0.14,0.11]	0.04 [-0.13,0.21]
poverty*race: white	0.05 [-0.01,0.12]	0 [-0.06,0.06]	-0.04 [-0.2,0.12]	0.01 [-0.21,0.22]	0 [-0.29,0.29]
total population*race: white	-0.03 [-0.05,-0.01]	-0.01 [-0.03,0.01]	0 [-0.04,0.03]	-0.02 [-0.06,0.03]	-0.01 [-0.05,0.03]
unemployment*race: white	-0.02 [-0.05,0.01]	0 [-0.04,0.03]	-0.02 [-0.11,0.06]	0.03 [-0.07,0.14]	-0.03 [-0.18,0.11]
proportion white*race: white	0.03 [-0.03,0.09]	0.02 [-0.03,0.08]	-0.07 [-0.2,0.06]	0.09 [-0.09,0.27]	-0.03 [-0.22,0.17]
implicit bias*race: white	0.03 [0,0.07]	0.05 [0.01,0.08]	0.01 [-0.08,0.09]	0.06 [-0.05,0.18]	0.04 [-0.1,0.17]
explicit bias*race: white	-0.11 [-0.14,-0.08]	-0.1 [-0.13,-0.06]	-0.09 [-0.17,-0.02]	-0.12 [-0.22,-0.01]	-0.16 [-0.28,-0.03]

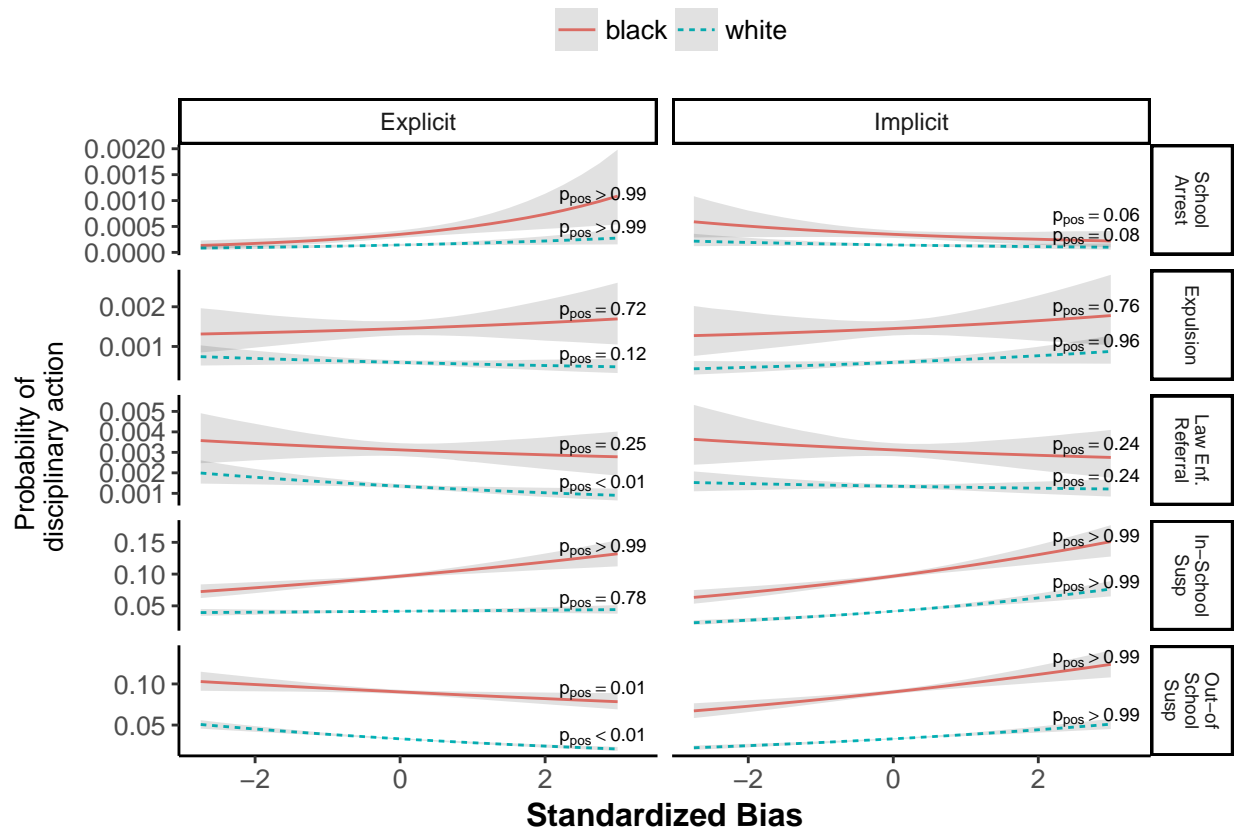


Figure 1: Association between bias and the probability of receiving discipline for black and white students. Lines represent the mean of the posterior. Bands indicate 95% uncertainty intervals. Printed p_{pos} represents the posterior probability that the association is positive.

Table 2: Regression coefficient estimates for the population-level (i.e. fixed) effects, along with 95% uncertainty intervals for each of the disciplinary metrics. Bias estimates are from sexuality data.

	Out-of-School Suspension	In-School Suspension	Law Enf. Referral	Expulsion	School-Related Arrest
Intercept	-2.29 [-2.33,-2.26]	-2.23 [-2.27,-2.19]	-5.72 [-5.83,-5.62]	-6.54 [-6.67,-6.41]	-7.98 [-8.2,-7.77]
black-white ratio	-0.19 [-0.25,-0.14]	-0.43 [-0.51,-0.36]	0.18 [0.03,0.34]	-0.11 [-0.32,0.08]	0.11 [-0.2,0.44]
proportion black	0.33 [0.26,0.41]	0.44 [0.34,0.54]	-0.42 [-0.62,-0.2]	-0.16 [-0.42,0.09]	-0.29 [-0.67,0.08]
college grads	0.05 [0.01,0.09]	-0.05 [-0.1,0]	0.14 [0.02,0.25]	-0.01 [-0.14,0.12]	0.23 [0.04,0.43]
crime	0.03 [0,0.06]	0.06 [0.02,0.1]	0.03 [-0.05,0.12]	0.14 [0.04,0.23]	0.03 [-0.11,0.18]
housing density	-0.04 [-0.07,-0.02]	-0.03 [-0.06,0.01]	0 [-0.07,0.06]	-0.05 [-0.13,0.03]	-0.14 [-0.24,-0.04]
dissimilarity	0.17 [0.14,0.21]	0.09 [0.05,0.13]	0.17 [0.08,0.27]	0.29 [0.17,0.41]	0.48 [0.31,0.66]
income	-0.08 [-0.13,-0.03]	-0.03 [-0.09,0.04]	-0.07 [-0.2,0.07]	-0.27 [-0.45,-0.09]	0.01 [-0.23,0.24]
mobility	-0.05 [-0.1,-0.02]	-0.03 [-0.08,0.02]	0.09 [-0.02,0.2]	-0.01 [-0.16,0.13]	0 [-0.21,0.21]
poverty	-0.02 [-0.1,0.06]	0.15 [0.05,0.25]	-0.46 [-0.69,-0.24]	-0.38 [-0.66,-0.1]	-0.3 [-0.69,0.08]
total population	-0.01 [-0.04,0.02]	-0.02 [-0.06,0.01]	-0.03 [-0.11,0.04]	0 [-0.08,0.08]	0.11 [0.01,0.22]
unemployment	0.2 [0.15,0.24]	0.04 [-0.01,0.09]	0.09 [-0.02,0.21]	0.21 [0.07,0.35]	0.15 [-0.06,0.36]
proportion white	0.03 [-0.04,0.1]	0.09 [0,0.18]	-0.23 [-0.43,-0.03]	-0.23 [-0.47,0.01]	-0.15 [-0.47,0.17]
race: white	-1.06 [-1.09,-1.04]	-0.91 [-0.93,-0.88]	-0.86 [-0.94,-0.77]	-0.88 [-0.99,-0.76]	-0.89 [-1.07,-0.7]
implicit bias	0.05 [0,0.09]	0.13 [0.08,0.19]	0.02 [-0.1,0.14]	0.2 [0.06,0.35]	0.4 [0.18,0.61]
explicit bias	-0.14 [-0.18,-0.1]	-0.03 [-0.08,0.03]	-0.26 [-0.38,-0.14]	-0.15 [-0.29,0]	-0.36 [-0.57,-0.14]
black-white ratio*race: white	0.13 [0.08,0.18]	0.06 [0,0.12]	-0.22 [-0.42,-0.03]	0.16 [-0.05,0.37]	-0.2 [-0.6,0.18]
proportion black*race: white	-0.09 [-0.16,-0.03]	-0.05 [-0.12,0.01]	0.13 [-0.05,0.31]	-0.06 [-0.28,0.16]	0.12 [-0.21,0.46]
college grads*race: white	-0.12 [-0.15,-0.09]	-0.06 [-0.09,-0.02]	-0.18 [-0.25,-0.1]	-0.13 [-0.23,-0.02]	-0.09 [-0.22,0.05]
crime*race: white	-0.02 [-0.04,0]	0.01 [-0.02,0.03]	0.02 [-0.03,0.07]	-0.04 [-0.11,0.03]	0.05 [-0.04,0.14]
housing density*race: white	-0.02 [-0.04,0]	-0.01 [-0.03,0]	-0.01 [-0.04,0.02]	-0.03 [-0.08,0.02]	-0.06 [-0.22,0.09]
dissimilarity*race: white	-0.11 [-0.14,-0.08]	-0.05 [-0.07,-0.02]	-0.09 [-0.15,-0.02]	-0.04 [-0.13,0.05]	-0.2 [-0.33,-0.08]
income*race: white	-0.06 [-0.09,-0.02]	-0.09 [-0.13,-0.05]	-0.06 [-0.15,0.02]	0.03 [-0.1,0.16]	-0.1 [-0.25,0.05]
mobility*race: white	0.03 [0,0.07]	0.01 [-0.03,0.04]	-0.04 [-0.13,0.05]	-0.01 [-0.13,0.12]	0.05 [-0.12,0.22]
poverty*race: white	0.05 [-0.01,0.11]	0 [-0.06,0.06]	-0.09 [-0.24,0.07]	0.02 [-0.2,0.24]	-0.05 [-0.32,0.23]
total population*race: white	-0.03 [-0.05,-0.01]	-0.01 [-0.03,0.01]	0 [-0.04,0.03]	-0.02 [-0.06,0.03]	-0.01 [-0.05,0.04]
unemployment*race: white	0 [-0.03,0.03]	0.01 [-0.02,0.04]	-0.02 [-0.1,0.06]	0.04 [-0.06,0.15]	-0.01 [-0.16,0.13]
proportion white*race: white	0.01 [-0.05,0.07]	0.01 [-0.05,0.07]	-0.1 [-0.23,0.03]	0.06 [-0.12,0.25]	-0.07 [-0.28,0.14]
implicit bias*race: white	-0.01 [-0.05,0.02]	-0.01 [-0.04,0.02]	-0.11 [-0.19,-0.03]	0.05 [-0.06,0.16]	-0.1 [-0.24,0.03]
explicit bias*race: white	0 [-0.03,0.03]	-0.01 [-0.04,0.02]	0.08 [0,0.16]	-0.03 [-0.14,0.07]	0.08 [-0.07,0.22]

Table 3: Correlation matrix for all county-level predictor variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1) Implicit Race																		
2) Explicit Race	0.79																	
3) Implicit Sex	0.51	0.58																
4) Explicit Sex	0.3	0.44	0.76															
5) Population Size	0.02	-0.04	-0.23	-0.24														
6) White Population	0.01	-0.05	-0.25	-0.26	0.98													
7) Black Population	0.11	0.06	-0.13	-0.16	0.78	0.71												
8) College Grads	-0.11	-0.09	-0.33	-0.29	0.22	0.24	0.19											
9) Unemployment	0.28	0.13	0.07	-0.02	0.14	0.13	0.18	-0.19										
10) Income	-0.21	-0.18	-0.38	-0.36	0.24	0.28	0.11	0.43	-0.24									
11) Poverty	0.34	0.26	0.33	0.29	-0.04	-0.07	0.05	-0.37	0.51	-0.71								
12) Crime	0.12	0.05	-0.08	-0.08	0.13	0.11	0.15	-0.07	0.31	-0.1	0.26							
13) Housing Density	0	-0.06	-0.18	-0.16	0.3	0.25	0.39	0.23	0.06	0.13	0.01	0.1						
14) Mobility	-0.25	-0.19	-0.1	-0.06	-0.1	-0.1	-0.11	-0.03	-0.14	0.03	-0.12	-0.09	-0.05					
15) Proportion White	-0.37	-0.32	-0.13	-0.07	-0.19	-0.14	-0.3	0.08	-0.5	0.14	-0.53	-0.38	-0.15	0.21				
16) Proportion Black	0.58	0.52	0.32	0.2	0.08	0.04	0.26	-0.08	0.4	-0.26	0.5	0.28	0.09	-0.24	-0.81			
17) Black-White Ratio	0.42	0.38	0.27	0.17	0.04	0	0.21	-0.07	0.36	-0.25	0.48	0.24	0.07	-0.17	-0.73	0.89		
18) Segregation	-0.04	-0.07	-0.13	-0.15	0.18	0.2	0.17	0.05	0.16	0.07	-0.02	0.06	0.1	0.09	0.08	-0.1	-0.09	
Mean	0.4	0.83	0.38	1.65	99.93	73.75	12.6	6.08	4.94	46.55	12.35	1.1	113.43	14.89	0.84	0.09	0.17	0.38
SD	0.02	0.17	0.05	0.49	319.97	200.81	54.76	4.87	1.99	12.08	5.68	0.94	823.84	17.69	0.17	0.14	0.42	0.19

¹ Crime rate is scaled to rate per 1000 people² Total population, black population, and white population are in 1000's of people³ Income is in 1000's of dollars