

Lecture 11: Racial Achievement Gap

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Racial Gaps in U.S.

- Blacks earn 24 percent less on average than whites
- Blacks live 5 fewer years on average than whites
- On a given day, blacks are 6 times more likely to be incarcerated than whites
- Studies have shown that large portions of racial outcome gaps are explained by racial achievement gaps

↳ ↓ Racial achievement gaps ⇒ ↓ Racial inequality

Fryer and Levitt Model

Standardized Test Score μ = $\frac{T_{ig} - \bar{T}_g}{SP(T_{ig})}$ used to convert test score to common scale

- $A_{ig} = \beta_0 + \beta_1 \text{Black}_i + \beta_2 \text{Hispanic}_i + \beta_3 \text{Asian}_i + \beta_4 X_{ig} + \epsilon_{ig}$

$$I(i \text{ is Black}) = \begin{cases} 1, & i \text{ black} \\ 0, & i \text{ not black} \end{cases}$$

- White_i indicator is omitted from the regression

$$\begin{cases} \beta_1 = \text{black-white gap} \\ \beta_2 = \text{hispanic-white gap} \end{cases}$$

- X_{ig} contains student and parent characteristics

↳ Family SES, books at home

Note: 0.20 is considered decent size
 Fryer and Levitt Kindergarten Gap

(1) show raw gaps
 ↳ Huge

Racial gaps in stdev.

Student and parent controls

(5) shows Covariate adjusted gap

Variables	Math				
	(1)	(2)	(3)	(4)	(5)
Black	-.638 (.022)	-.368 (.022)	-.238 (.023)	-.094 (.023)	-.102 (.026)
Hispanic	-.722 (.022)	-.429 (.023)	-.302 (.024)	-.203 (.022)	-.171 (.028)
Asian	.150 (.056)	.070 (.051)	.190 (.051)	.265 (.048)	.274 (.050)
Other race	-.503 (.041)	-.329 (.037)	-.253 (.036)	-.158 (.035)	-.113 (.035)
Socioeconomic status composite measure	—	.456 (.014)	.389 (.014)	.302 (.014)	.072 (.024)
Number of children's books	—	—	.007 (.001)	.006 (.001)	.005 (.001)
(Number of children's books) ² (×1000)	—	—	-.023 (.003)	-.020 (.002)	-.027 (.016)
Female	—	—	—	.010 (.015)	.00 (.015)
Age at kindergarten fall (in months)	—	—	—	.056 (.002)	-2.680 (.542)
Birth weight (ounces) (× 10)	—	—	—	.029 (.004)	.030 (.004)
Teenage mother at time of first birth	—	—	—	-.109 (.018)	-.029 (.021)
Mother at least 30 at time of first birth	—	—	—	.182 (.025)	.11 (.028)
WIC participant	—	—	—	-.211 (.019)	-.120 (.020)
R ²	0.108	0.223	0.239	0.317	0.354
Number of observations	13,290				

Fryer and Levitt Evolution of Gap

Covariate adjusted black-white gap ↑ over time

Variable	Math		
	Fall Kindergarten	Spring Kindergarten	Spring First Grade
Black	-.094 (.023)	-.201 (.025)	-.250 (.028)
Hispanic	-.203 (.022)	-.187 (.024)	-.120 (.026)
Asian	.265 (.048)	.221 (.049)	.115 (.044)
Other race	-.158 (.035)	-.166 (.039)	-.195 (.042)
SES composite measure	.302 (.014)	.284 (.014)	.263 (.014)
Number of books	.006 (.001)	.006 (.001)	.005 (.001)
(Number of books) ² × 1000	.020 (.002)	-.019 (.003)	-.019 (.003)
Female	.010 (.015)	.003 (.016)	-.033 (.017)
Age at kindergarten fall (in months)	.056 (.002)	.051 (.002)	.036 (.002)
Birth weight (ounces) × 100	.029 (.004)	.003 (.000)	.029 (.004)
Teenage mother at time of first birth	-.109 (.018)	-.112 (.021)	-.111 (.022)
Mother in 30s at time of first birth	.182 (.025)	.127 (.024)	.093 (.022)
WIC participant	-.211 (.019)	-.195 (.020)	-.201 (.021)
R ²	0.317	0.282	0.240
Number of obs.	13,290	13,290	13,290

Summary of Fryer and Levitt (2004)

- Black and Hispanics have lower achievement than Whites and Asians on average
- Large raw racial gaps at kindergarten entry
 - Raw Black-White math gap = -0.64σ
 - Raw Hispanic-White math gap = -0.72σ
 - Can be mostly explained by student and parent characteristics
 - ↳ Minority students have less educ. resources
- Covariate adjusted racial gaps increase across grades
 - Black-white math gap increases from -0.1σ in kindergarten to -0.25σ in grade 1