



## Lecture 11: Girls' Education

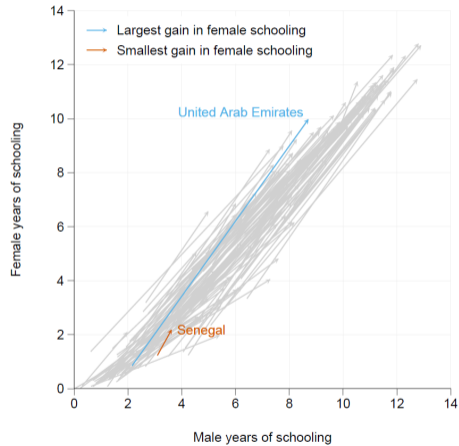
Williams College ECON 204:  
Global Poverty and Economic Development  
Professor: Pamela Jakiela

photo: Per Gunvall / World Bank

# Investments in Education

$$\text{monetary costs} + \text{opportunity costs} \leq d \times \text{future benefits}$$

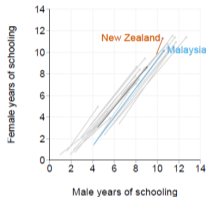
# Educational Attainment Has Increased Everywhere



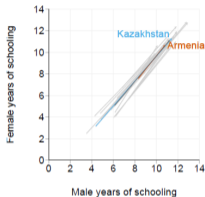
source: Evans, Akmal, and Jakiela (2020)

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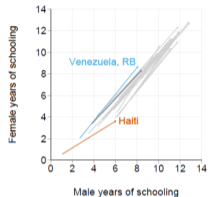
East Asia & Pacific



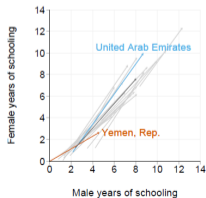
Europe & Central Asia



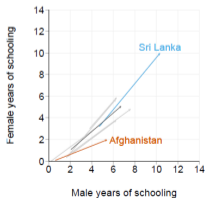
Latin America & Caribbean



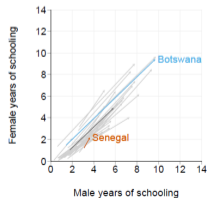
Middle East & North Africa



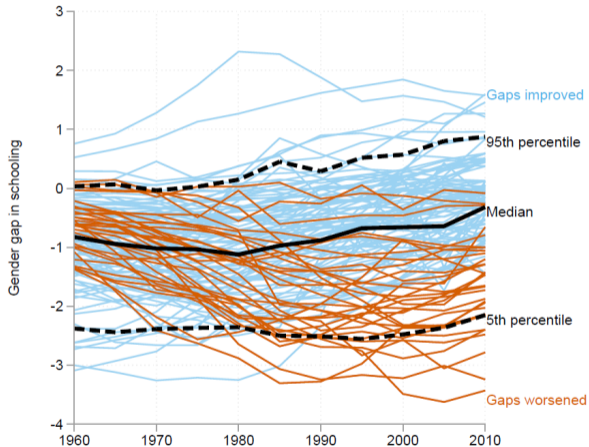
South Asia



Sub-Saharan Africa



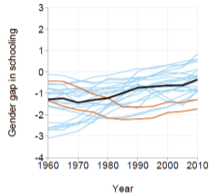
# Gender Gaps Have Diminished Almost Everywhere



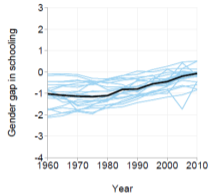
source: Evans, Akmal, and Jakiela (2020)

# Gender Gaps Have Diminished Almost Everywhere

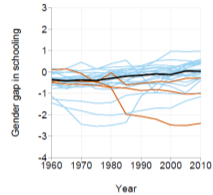
East Asia & Pacific



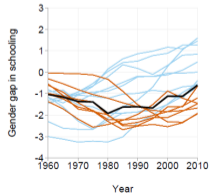
Europe & Central Asia



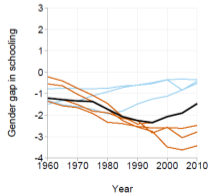
Latin America & Caribbean



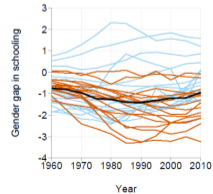
Middle East & North Africa



South Asia



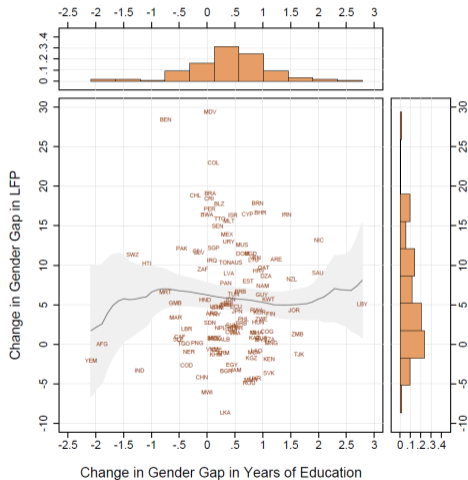
Sub-Saharan Africa



# Educational Attainment Has Increased Everywhere

Country	2010 Gap	Male Ed.	Bottom Quartile			
			Life Exp.	GDP	CPI	Fragile
Afghanistan	-3.43	5.40	✓	✓	✓	✓
Togo	-3.24	7.29	✓	✓		✓
India	-2.78	7.59				
Pakistan	-2.48	6.24				
Haiti	-2.40	6.06	✓	✓	✓	✓
Liberia	-2.40	5.45	✓	✓		✓
Dem. Rep. of Congo	-2.15	4.73	✓	✓	✓	✓
Benin	-2.15	5.46	✓	✓		
Central African Rep.	-2.13	4.85	✓	✓	✓	✓
Ghana	-2.03	8.18	✓			
Yemen	-1.94	4.60		✓	✓	✓
Iraq	-1.92	8.09			✓	✓

# ↑ Girls' Education $\Rightarrow$ ↑ Women's Labor Force Participation



## 3 Facts About Education

1. Girls' and boys' educational attainment has increased dramatically since 1960
  - ▶ Governments have invested in school construction, eliminated school fees, etc.
2. Gender gaps in educational attainment have diminished in most stable countries
  - ▶ Gaps persist in many poor, fragile states where boys' schooling attainment is also low
3. Eliminating gender gaps in educational attainment is not enough to eliminate gender gaps in labor force participation and other limitations on women's economic activities

# Investments in Education

$$\text{monetary costs} + \text{opportunity costs} \leq d \times \text{future benefits}$$

↑  
chores, etc.

↑  
perceived returns to education

# Randomized Trial Questions

1. What is the main economic/development question that the paper is exploring?
2. What is the context? Where does the study take place?
3. What is the intervention being studied? Who or what is being intervened upon?
4. At what level is treatment assigned?
5. What types of data are collected, and from whom? What are the main outcome variables?
6. Is the main point of the paper to estimate the impact of the treatment, or the authors primarily interested in leveraging the experimental treatment to test a specific hypothesis?

# Impacts on Employment

TABLE II  
EFFECT OF THE INTERVENTION ON EMPLOYMENT, BY AGE AT ROUND 2

	BPO employment			Works for pay away from home		
	(1) 18-24	(2) 25-44	(3) 45-60	(4) 18-24	(5) 25-44	(6) 45-60
<i>Panel A: Women</i>						
Treatment	0.046*** (0.008)	0.003 (0.003)	~	0.024** (0.011)	0.0029 (0.0089)	-0.006 (0.014)
Observations	1,278	2,233	1,029	1,278	2,233	1,029
Control group mean	0.004	0.002	0.00	0.21	0.24	0.22
R <sup>2</sup>	0.022	0.000	~	0.054	0.001	0.000
<i>Panel B: Men</i>						
Treatment	-0.007 (0.005)	0.002 (0.004)	~	0.003 (0.011)	0.007 (0.024)	-0.004 (0.035)
Observations	1,442	2,469	1,104	1,442	2,469	1,104
Control group mean	0.008	0.003	0.00	0.47	0.56	0.52
R <sup>2</sup>	0.001	0.000	~	0.000	0.001	0.000

*Notes:* Heteroskedasticity-consistent standard errors accounting for clustering at the village level in parentheses. Age ranges are for age at round 2. The dependent variable is an indicator for whether an individual in round 2 had a job in the BPO sector in columns (1)-(3), and whether they worked for pay away from home in round 2 in columns (4)-(6). ~ indicates that the coefficient could not be estimated because no one in the age\*sex category had a BPO job. \*Significant at 10% level; \*\*significant at 5% level; \*\*\* significant at 1% level.

source: Jensen (2012)

# Estimating Treatment Effects in Randomized Trials

- Typical regression specification:  $Y = \alpha + \beta \textit{Treatment}$ 
  - ▶ Estimated  $\hat{\alpha}$  (i.e. the constant) indicates the mean (of  $Y$ ) in the control group
  - ▶ Estimated  $\hat{\beta}$  is the difference between the treatment group mean and the control group mean
- Treatment effect is statistically significant at the 95 percent confidence level when:

$$\left| \frac{\hat{\beta}}{SE(\hat{\beta})} \right| > 1.96$$

- 95 percent confidence interval:

$$\left[ \hat{\beta} - 1.96 \times SE(\hat{\beta}), \hat{\beta} + 1.96 \times SE(\hat{\beta}) \right]$$