

AREC 345: Global Poverty & Economic Development

Lecture 17:

Education: Supply and Demand

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Supply Constraints in Education

When Will Parents Send Children to School?

When will parents send their children to school?

$$\text{costs} < \text{inherent benefits} + \text{increased income}$$

Costs:

- Monetary costs: school fees, uniforms, supplies, transportation, etc.
- Opportunity costs: forgone (child) labor, associated loss of income

Benefits:

- Inherent benefits of being educated (e.g. prestige, reading the Bible)
- Increased job opportunities and income later in life
- Marriage market benefits?

When Will Parents Send Children to School?

Fact: governments can lower the cost of schooling by building schools

In Indonesia, the gov't constructed over 62,000 new primary schools

- Resulting increase in years of education: 0.12 to 0.19
- Resulting increase in adult wages: 1.5 to 2.7 percent

Implied return to education: 6.8 to 10.6 percent

What else can the gov't do to lower the cost of education?

Lowering the Cost of Going to School



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Lowering the Cost of Going to School



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Lowering the Cost of Going to School

Bicycle program introduced throughout Bihar in 2006

How can we measure the impacts on school enrollment?

1. Compare girls' enrollment before vs. after start of the program?
 - ▶ No!
2. Use boys as a comparison group in a diff-in-diff framework?
 - ▶ Maybe.
3. Answer: **difference-in-difference-in-difference estimation!**

▶ The researchers talking about their study.

Summary: Supply Constraints in Education

Gov't policies intended to improve school enrollment can work

- Increasing educational attainment increases adult wages!

Is this the whole picture?

- Are demand constraints important, too?
 - ▶ Do parents' know the return to education?
 - ▶ Are households choosing the "right" level of education?
- What about school quality?

Perceived Returns to Education

Perceived Returns to Education

We've seen that the return to primary education is large

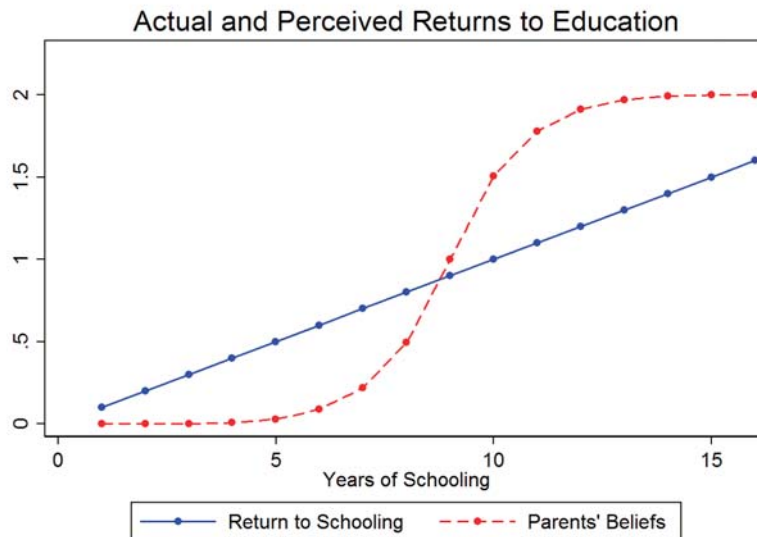
- Evidence suggests returns to schooling fairly linear

However, many parents believe that the return to primary school is low, while the return to higher levels of education is much larger

- In Madagascar, 70 percent of parents thought that going to secondary school would mean their children got a government job
 - ▶ Only about a third of secondary school grads get such positions
- Perceived return to year of primary school is 6 percent, vs. 12 percent for secondary school and 20 percent for tertiary education

Parents may believe that a bit more education is not worth it

Perceived Returns to Education



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Perceived Returns to Education

When will parents send their children to school?

$$\text{costs} < \text{inherent benefits} + \text{increased income}$$

Costs:

- Monetary costs: school fees, uniforms, supplies, transportation, etc.
- Opportunity costs: forgone child labor, associated income
- Opportunity cost inherent in choosing which children to educate

Benefits:

- Inherent benefits of being educated (e.g. prestige, reading the Bible)
- Increased job opportunities and income later on in life

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Perceived Returns to Education

Consequences of (mis)perceiving returns to education

- Underestimate benefits of primary schooling: parents may decide not to bother educating those unlikely to make it to secondary school
 - ▶ Girls, less intelligent, those who can't afford secondary school
- Creates incentive to educate only one's most able children
 - ▶ **Elite bias**

Empirical evidence that parents discriminate between children

- In Burkina Faso, children with smarter siblings get less education
- In Colombia, conditional cash transfers aimed at keeping children in school decreased the likelihood that siblings were still in school

Overcoming Elite Bias in Parents

The good news: parents' beliefs are malleable

- Business Process Outsourcing (BPO) (for example, call centers) accounts for 1 percent of India's GDP, employs 3 million people
 - ▶ Importantly, sector employs both men and women
- Economist Robert Jensen worked with an Indian BPO firm to recruit young women with English language skills from rural villages
 - ▶ Evaluation focused on villages 50–150 km from Delhi
 - ▶ BPO sector fairly new, most villagers unaware of it
 - ▶ Recruiters made visits to randomly-selected villages: explained wages (high), educational requirements (secondary school, English skills)
 - ▶ Recruitment sessions only open to women

Overcoming Elite Bias in Parents: BPO Case Study

THE INTERVENTION

- Paid recruiters made one prescheduled half-day visit in the treatment villages each year for three years in a row.
- At each of these three visits, the recruiters held an information session explaining the types of BPO jobs available in the city, compensation levels, necessary qualifications, and how to apply. Only women were allowed to attend.
- The recruiters left their contact information and agreed to provide free job placement assistance to any qualified women who proactively followed up with them.

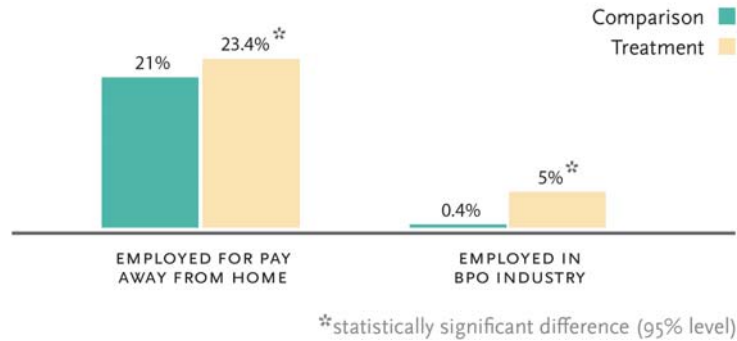


Overcoming Elite Bias in Parents: BPO Case Study



BPO Case Study: Impacts on Employment

Result 1:



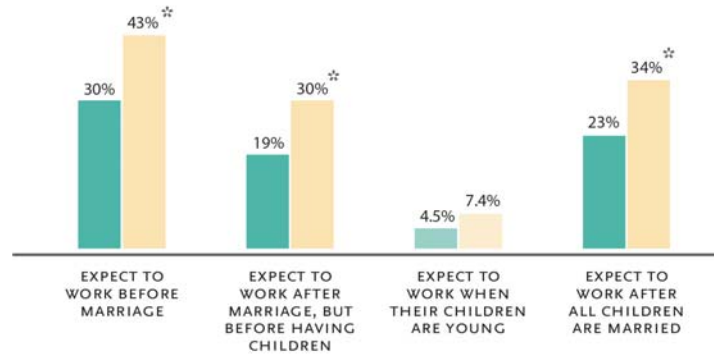
BPO Case Study: Impacts on Employment

	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 ²	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 ²	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.

BPO Case Study: Aspirations

Result 2:



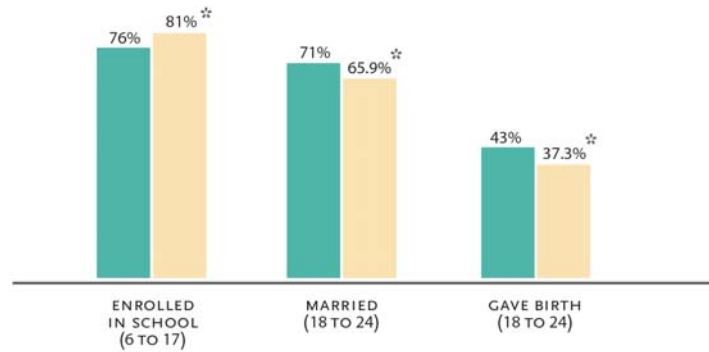
BPO Case Study: Impacts on Aspirations

	(1) Control	(2) Treatment	(3) Difference (2) – (1)
Do you expect to work for pay (nonfamily) away from home . . .			
before you get married?	0.30 [0.46]	0.43 [0.49]	0.13** (0.051)
after marriage, but before you have children?	0.19 [0.40]	0.30 [0.46]	0.10** (0.048)
when your children are still young?	0.045 [0.21]	0.074 [0.27]	0.029 (0.026)
after all children have left school and are married?	0.23 [0.42]	0.34 [0.47]	0.11** (0.049)

Notes: Data are from round 2. Standard deviations in brackets in columns (1)–(2); heteroskedasticity-consistent standard errors accounting for clustering in parentheses in column (3). The last column contains the coefficient from a regression of the outcome on an indicator for being from a treatment village at baseline, as well as an indicator for whether the woman was living at home (versus the interview being conducted by phone). Number of observations: 344 in row 1; 360 in row 2; 397 in row 3; and 432 in row 4. ** Significant at 5% level.

BPO Case Study: Impacts on Education, Fertility

Result 3:



BPO Case Study: Impacts on Education, Fertility

	(1) Enrolled in training (18–24)	(2) Enrolled in school (6–17)	(3) BMI for age (5–15)	(4) Height for age (5–15)
<i>Panel A: Women</i>				
Treatment	0.028*** (0.008)	0.050*** (0.015)	0.24*** (0.070)	0.063 (0.066)
R ²	0.010	0.004	0.007	0.001
Observations	1,278	2,264	2,031	2,031
Control group mean	0.005	0.76	-1.25	-2.02
<i>Panel B: Men</i>				
Treatment	0.003 (0.004)	0.010 (0.011)	-0.020 (0.076)	0.005 (0.052)
R ²	0.000	0.001	0.000	0.000
Observations	1,442	2,511	2,295	2,295
Control group mean	0.004	0.81	-1.29	-1.99

Notes: Heteroskedasticity-consistent standard errors accounting for clustering at the village level in parentheses. All dependent variables measured in round 2; the number ranges in parentheses indicate the (round 2) age range over which the regression is estimated. The regressions contain only an indicator for coming from a treatment village, with no additional covariates. BMI for age and Height for age are z-scores. *** Significant at 1% level.

BPO Case Study: Impacts on Education, Fertility

	(1) Married	(2) Had child	(3) Desired fertility
<i>Panel A: Women</i>			
Treatment	-0.051** (0.024)	-0.057** (0.026)	-0.35*** (0.078)
R^2	0.003	0.003	0.018
Observations	1,278	1,278	1,226
Control group mean	0.71	0.43	3.0
<i>Panel B: Men</i>			
Treatment	-0.002 (0.025)	-0.009 (0.018)	0.027 (0.066)
R^2	0.000	0.000	0.000
Observations	1,442	1,442	1,437
Control group mean	0.44	0.15	3.3

Notes: Heteroskedasticity-consistent standard errors accounting for clustering at the village level in parentheses. All dependent variables measured in round 2. The regressions contain only an indicator for coming from a treatment village, with no additional covariates. *Significant at 10% level; **significant at 5% level; ***significant at 1% level.

Overcoming Elite Bias in Parents

Takeaway: providing students and parents with information about the return to education to costs very little and can have very large impacts

- Of course, it's not really that easy
 - ▶ Step 1: create a booming BPO industry
- Related studies of information provision suggest similar effects
 - ▶ In the Dominican Republic, students randomly selected to receive information about the returns to completing secondary school eventually obtained between 0.25 and 0.3 more years of education
 - ▶ In Madagascar, providing Grade 4 students with information on the return to schooling increased test scores by 0.2 standard deviations
- Conclusion: demand wallahs 1, supply wallahs 1

Study Guide: Key Terms

- supply vs. demand constraints (in education)
- triple-difference estimation
- elite bias