Economics 172
Issues in African Economic Development

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Lecture 15 – March 6, 2007

A model of within-HH resource allocation

- Imagine there are N household members, $i=1, 2, \ldots N$
- Biologically all people need to consume at least C^* to survive (think of a minimal caloric requirement)

- In good rainfall years household income is $Y_{HI} > NC^*$ → everyone has enough to eat

- But in bad rainfall years (drought, flood), household income falls below this line $Y_{LO} < NC^*$

  → Equal division of income means everyone starves

- Unequal division, with resources directed to the most productive household members (Y_i high) is a option

Main patterns in the data from Meatu

- Data (some retrospective) for 1992-2002

- Years with extreme rainfall shocks (e.g., droughts, flooding) lead to sharp drops in household consumption and often to famine. Recall the major difficulties households have with saving in this district!

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- There are large increases in witch murders and attacks in these years with extreme rainfall (Table 4), but no impact on non-witch murders (Table 6)

- Villages with more adherents of traditional religions also have more witch murders in extreme rainfall years

Lessons from witch killings in Tanzania

- Income shocks lead to violence against elderly women "witches" in rural Tanzania
  - Within-household resource conflicts may lie at the heart of this violence
  - Similar finding for medieval European witch killings!

- The lack of savings options, credit, and insurance are probably key to explaining the huge consumption fluctuations experienced by households in Meatu

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- What are some possible solutions?
  - Formal insurance against weather shocks?
  - Old age pensions for women?
  - Others?

Outline:

New topic: Education and economic development

(1) Models of household educational investment

(2) The Girls Scholarship Program (GSP) in Kenya

Education and economic development

- Does education lead to higher income? OR does higher income lead to more educational investment?

Education and economic development

- Does education lead to higher income? OR does higher income lead to more educational investment?
- Unclear macroeconomic evidence on education and growth (e.g., the case of Kenya)
- Why do people invest in education?

Education benefits beyond wages

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(3) Educated people may make better citizens in a democracy and be more active in civil society

A model of educational investment

- Inputs into household utility include current consumption in period $t=1$ (C_1), and the future earnings of the two children – one girl (Y_g) and one boy (Y_b)
- Girl, boy amounts (years) of schooling are S_g and S_b

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- Key assumption 1: there is no old-age saving in the model, other than through investments in children

  -- Keep in mind the case of Meatu district, Tanzania, where households had very limited savings options (even saving grain was challenging)

The model solution

- Children's total time "budget" T (i.e., the total years in their childhood) are divided between studying (S) and working. The wage for child labor is $W > 0$.

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  (1) Households need to consume in period $t=1$:

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  (1) Households need to consume in period $t=1$:

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  (2) Income in old age is increasing in child education:

  $$Y = Y_g(S_g) + Y_b(S_b)$$

The model solution

- Key assumption 2: the marginal return to schooling is assumed to be larger for boys than for girls at all schooling levels: $Y_b'(S) > Y_g'(S)$ for all S

  -- In other words, even if there diminishing returns to years of schooling, each additional year still provides a larger return for boys than girls.

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- Equating marginal returns to investment across boys and girls leads the household to invest more in boys under this assumption
- How realistic is this model?

Other issues in educational investment

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(2) Even children may choose to invest less in schooling even for themselves, due to high time discount rates during their youth. Imagine a schooling investment needs to be made for a distant future return

Other issues in educational investment

(1) Parents everywhere may be only partially altruistic towards their children

(2) Even children may choose to invest less in schooling even for themselves, due to high time discount rates during their youth. Imagine a schooling investment needs to be made for a future return, and the future is highly discounted

→ "Too little" educational investment

The Girls Scholarship Program (GSP)

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- 64 Treatment schools, 63 comparison schools
- The top 15% of girls in program schools (by district) received a $38 prize for school fees and supplies over two years, and a public awards ceremony

Two GSP research questions

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- Two different methodological approaches to answer our two research questions:
  (1) Randomized evaluation methods
  (2) Regression discontinuity methods ☆

The Girls Scholarship Program (GSP)

- The randomization “worked”: treatment and comparison group schools are similar at baseline (Table 3, Figure 5)

	---------Girls---------		
Panel A: Busia District	Program	Comparison	Difference (s.e.)
Age in 2001	13.5	13.4	0.0
			(0.1)
Father's education (years)	5.2	5.2	0.2
			(0.5)
Mother's education (years)	4.6	4.6	0.1
			(0.4)
Total children in household	7.0	6.5	0.5
			(0.5)
Proportion ethnic Luhya	0.49	0.47	0.03
			(0.05)
Latrine ownership	0.96	0.94	0.02
			(0.01)
Iron roof ownership	0.77	0.77	0.00
			(0.03)
Mosquito net ownership	0.33	0.33	0.00
			(0.03)
Test Score 2000–Baseline sample (cohort 1 only)	-0.05	-0.12	0.07
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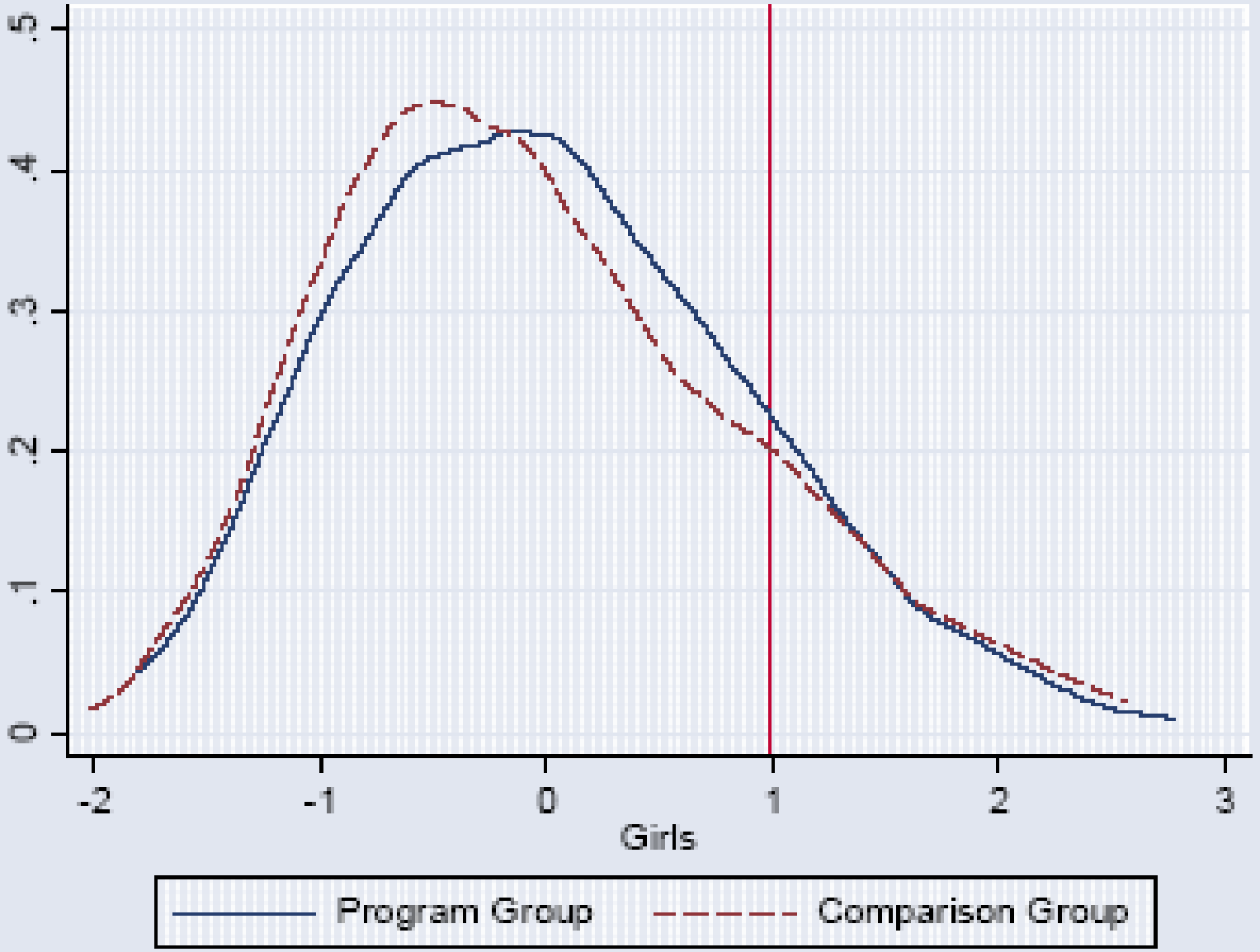
Panel (A)



- For next time: Continue readings on education

Whiteboard #1

Whiteboard #2

Whiteboard #3

Whiteboard #4

Whiteboard #5


Map of Africa
TUNISIA
Mediterranean Sea
MOROCCO
IRAQ
IRAN
Canary Islands (SPAIN)
ALGERIA
LIBYA
EGYPT
Persian Gulf
WESTERN SAHARA
SAUDI ARABIA
MAURITANIA
MALI
NIGER
Red Sea
CHAD
ERITREA
SENEGAL
GAMBIA
Lake Chad
BURKINA
SUDAN
DJIBOUTI
GUINEA BISSAU
GUINEA
GHANA
BENIN
SOMALIA
NIGERIA
SIERRA LEONE
IVORY COAST
Lake Volta
TOGO
ETHIOPIA
CENTRAL AFRICAN REPUBLIC
LIBERIA
CAMEROON
Lake Rudolf
EQUATORIAL GUINEA
UGANDA
KENYA
SAO TOME & PRINCIPE
GABON
CONGO
ZAIRE
RWANDA
Lake Victoria
BURUNDI
TANZANIA
Lake Tanganyika
ANGOLA (Cabinda)
MALAWI
Lake Nyasa
ANGOLA
ZAMBIA
Lake Kariba
MOZAMBIQUE
MADAGASCAR
ZIMBABWE
NAMIBIA
BOTSWANA
SOUTH AFRICA (Walvis Bay)
SWAZILAND
LESOTHO
SOUTH AFRICA

Map of Africa