

# **The role of culture, tradition, and social norms in determining nutritional outcomes**

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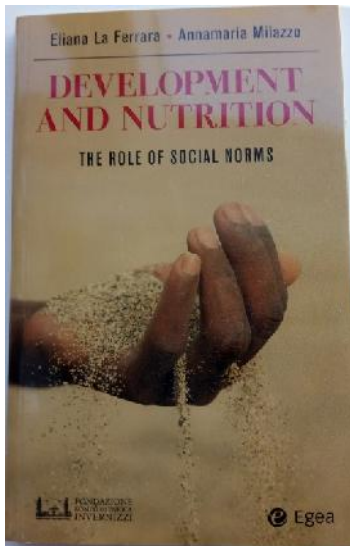
**CENTER FOR CHILD WELL-BEING AND DEVELOPMENT**

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## This presentation draws on...



La Ferrara, Eliana and Annamaria Milazzo. 2015.  
“*Development and Nutrition. The Role of Social Norms*”, EGEA Publishing (Bocconi University Press), Milan

- » Review of the evidence on how culture, tradition, and social norms affect nutritional outcomes in developing countries
- » Case study from Ghana: impact of a change in customary inheritance practices on children’s nutrition

## Starting point

### Some disturbing facts:

- 12.5% of the world's population undernourished (of which 98% in developing countries)
- 26% of children are stunted (40% in Sub-Saharan Africa, 48% in India)

### Why?

- Inadequate global food production? Unequal distribution
- Many proposed explanations: low agricultural productivity in developing countries, volatility international prices, climate change, desertification, sanitation, disease environment, biological, etc

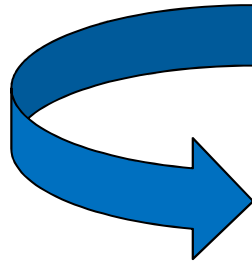
### This presentation:

- Do social & customary norms play a role?

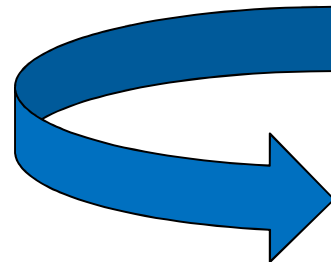
# Why are so many people undernourished?

## The role of social & customary norms at different levels

1. Food production



2. Food consumption  
& caloric intake (for a  
given food production)



3. Distribution of  
resources within the hh

# 1. Is agricultural productivity as high as it can be?

- Agricultural yield gap in developing countries
- Reasons for low yields
  - Customary systems related to ownership and inheritance of land:  
low security of tenure → incentives to make productive investments
    - Land titling programs (co-titling in Ethiopia, Tanzania, Rwanda); reforms of the inheritance systems (India, Ghana)
  - The inefficiency of gender bias: women achieve lower yields on their plots, gender-biased access to inputs & weak property rights
    - European settlers in Africa taught new agricultural methods to male cultivators (Boserup, 1970)

# 1. Is agricultural productivity as high as it can be? (cont'd)

- Technology exists but **low adoption**
  - 20-30% of farmers report using fertilizers in past year in Kenya, Ethiopia, Mali → Rational response to low returns to inputs? NO, returns of 69% per year
  - **Strong ties with extended family** may prevent farmers from investing in technology because of the (informal) obligation to help and share risk with needy family members
  - **Social learning & information networks**
  - Lack of information
  - Risk aversion, yet rainfall insurance take up low
  - Credit constraints, time-inconsistent preferences

## 2. For given food production, is individual caloric intake as high as it can be?

- The **expenditure choices** of poor people on the edge of malnutrition do not always translate into **max caloric intake**
  - Spending on **religious festivals, funerals, weddings** is an important part of the budget for many extremely poor hhs
  - ‘Even the extremely poor do not seem to be as hungry for additional calories as one might expect’ (Banerjee and Duflo 2011, p. 147)

## 2. For given food production, is individual caloric intake as high as it can be? (cont'd)

- Food cultures (Atkin, 2013)
  - When migrating to a different state with different prices, people on the edge of malnutrition do not fully adapt their diet to get max caloric intake given local prices
  - Instead they make nutritionally suboptimal choices due to preference for traditional food
- Yet assimilation into new culture can have negative effects on nutrition
  - Evidence on migrants in the United States (McDonald and Kennedy 2005, Giuntella 2014)
- Religious norms: dietary restrictions among Buddhists, Hindus, Muslims, fasting during Ramadan



### 3. Is food distributed equally within the household?

- In many **patriarchal** cultures women typically have weaker access to resources
  - **Gender roles/customary practices**, 'male' & 'female' crops (Hoddinott & Haddad, 1995; Duflo & Udry, 2004)
  - Large evidence that mother's control of resources impacts child's health and schooling more than father's (Thomas, 1990, 1994, 1997; Haddad et al, 1997; Duflo, 2003)
- Highly **context-dependent**: local cultural norms
  - RCT in Burkina Faso: transfer to fathers lead to better nutritional outcomes for children especially during years with low rainfall: **cultural norms prescribing that fathers responsible** for feeding the family (Akresh et al, 2016)
- Cultural norms leading to **son preference** in some contexts → health disparities within a hh...

### 3. Is food distributed equally within the household? (cont'd)

- Son preference
  - Unequal **breastfeeding**: boys breastfed longer (Jayachandran and Kuziemko, 2011)
  - Women with first-born daughters have **more children and shorter birth spacing** (Clark, 2000; Milazzo, 2014)
    - Low birthweight and pre-term deliveries (King, 2003)
    - Less resources to share within the hh (Jensen, 2005; Barcellos et al, 2014)
  - **Controlling** for the effect on family size, **boys receive more** childcare time than girls, they are breastfed longer and get more vitamin suppl. (Barcellos et al, 2014)

### 3. Is food distributed equally within the household? (cont'd)

- Son preference (cont'd)
  - Two well-known puzzles possibly explained by son preference
    - Hindu-Muslim nutritional & mortality gap in India (Bhalotra et al, 2010; Iyer and Joshi, 2013)
    - India-Africa child height gap (Jayachandran and Pande, 2013)
  - Increased access to technologies for fetal sex determination associated with better nutritional outcomes for surviving girls (Hu and Schlosser, 2015)
  - Among adult women, having a first-born daughter significantly increases the probability of being moderately or severely anemic by 4.8% (Milazzo, 2014)
    - The effect of a second and third-born girl (conditional on previous female births) is to 7.8 and 17%
    - Closely spaced pregnancies are associated with higher risk of maternal mortality and morbidity (Conde-Agudelo, and Belizan, 2000)

# Main messages from Part 1

- Culture and social norms matter!
- Norms and traditions can affect food **production**, food **consumption**, **caloric intake** and **distribution** of resources *within* the household through a variety of channels




## **Example:** Inheritance reform and investments in children's health and nutrition in Ghana

Empirical analysis:

- **Customary norm:** traditional inheritance rules
- **Outcome:** children's nutrition

- Descent systems and inheritance
  - **Patrilineal**: man's property goes to the son
  - **Matrilineal**: man's property goes to other males members of his kin group (typically the brother or sister's son)
  - Common to both: rights are **gender-linked**
- **Policy experiment: 1985 Intestate Succession Law** in Ghana
  - Aimed to 'modernize' the country, give protection to the nuclear family
- The Law significantly changed practices for **matrilineal groups**, i.e. the **Akan**, while patrilineal (**non-Akan**) unaffected
  - **Before** the reform Akan men could not bequeath land to their sons
  - **After** the reform they can

## Expected impacts on children's nutrition

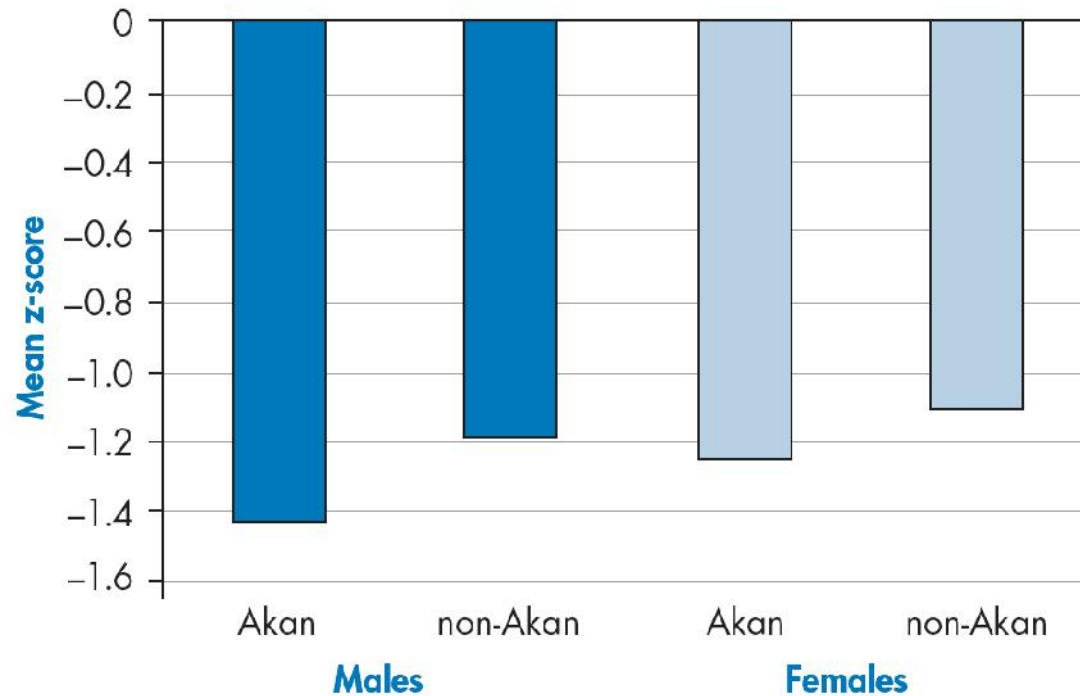
- Inheritance reform:  land to sons,  land to kin group
  - Reduction uncertainty over sons' future inheritance
- After the reform: if land and nutrition **complementary** inputs, expect **increased** investment in **nutrition**
  - Consistent with the nature of activities on the farm
  - Possibly an incentive to nourish children to become strong farmers
- Predictions:
  -  nutrition for **Akan** (vs non-Akan)
  - Only for Akan **boys**
  - Only in households with **land**

# Data

- 2 rounds of the Ghana Living Standards Measurement Survey: 1987-88, with anthropometrics
- Children aged 0 to 60 months in rural Ghana
- **Height-for-age z-score** our indicator of a child's long-term nutritional status
  - Indicates by how many standard deviations the height of a child deviates from the average height of a child of the same age and gender in the reference population of (well-nourished) children in the United States
  - The more negative the more undernourished the child is compared to the reference



## Average height-for-age z-scores, by ethnicity and gender



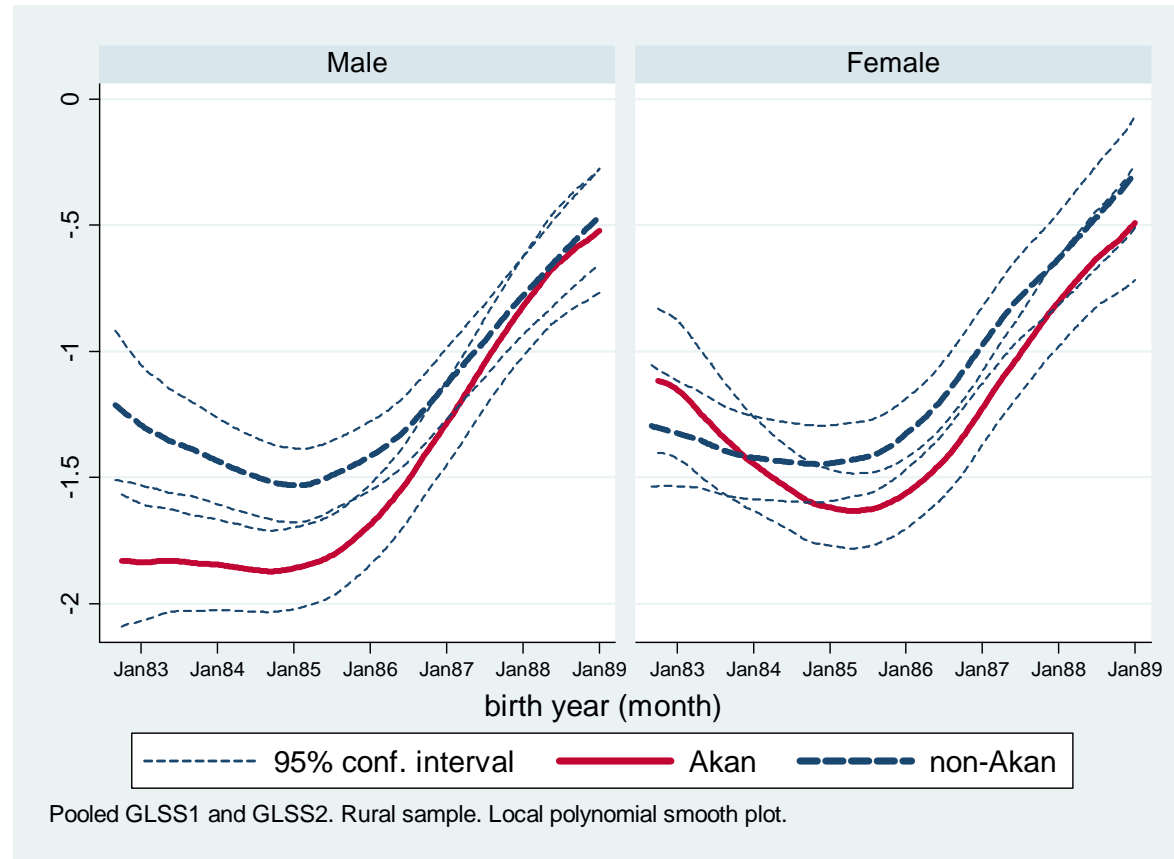
# Methodology

- Overcome the lack of before & after data, all children exposed to the law
- Focus on height-for-age, most affected in the first years of life
- **Difference-in-difference** strategy
  - More affected (born after 1985) vs less affected (born before 1985) by the Law
  - Akan vs non-Akan (to account for secular trends)
  - **PLACEBOS**: Boys vs girls, landed vs landless households

$$haz_{i,t,k,r} = c + \beta_1 (akan_i * youngi_t) + \beta_2 akan_i + \beta_3 X_{i,t,k,r} + \varphi_t + \mu_k + \alpha_r + \varepsilon_{i,t,k,r}$$

- $\varphi_t, \mu_k, \alpha_r$  are birth year, wave, and region fixed effects
- $X_{i,t,k,r}$  is a vector of individual covariates that includes age and age squared (in months), household size, parental education (number of years of education completed by mother and father, included separately), whether the child lives in a female-headed household, religion of the household head, age and height of the mother (the latter to capture the influence of genetics)
- **$\beta_1 > 0$**  implies that, compared to non-Akan children, Akan children born after 1985 have experienced larger gains in nutritional status relative to older children

# Height-for-age z-scores by year of birth, gender, and ethnicity



## Effect of the Intestate Law on children's nutrition by gender and land ownership

Dep. variable: height-for-age z-scores

			MALES		FEMALES	
	MALES (1)	FEMALES (2)	LANDED (1)	LANDLESS (2)	LANDED (3)	LANDLESS (4)
Akan * Young	0.338*	-0.237	0.446**	-0.232	-0.225	-0.375
Akan	-0.432**	-0.196	-0.587***	0.101	-0.291	0.202
Age in months	-0.118***	-0.129***	-0.120***	-0.114***	-0.122***	-0.130***
Age in months square	0.001***	0.001***	0.002***	0.002***	0.001***	0.001**
Household size	-0.004	-0.011	-0.026	0.012	-0.031*	0.052*
Female headed hh	0.087	-0.054	-0.122	0.658***	-0.129	0.056
Durables index	0.150**	0.060	0.128	0.066	0.039	0.093
Mother's height	0.027***	0.032***	0.023**	0.054***	0.040***	0.040**
Mother's years of education	0.005	-0.010	0.006	-0.009	-0.015	-0.021
Father's years of education	-0.008	-0.002	-0.001	-0.041**	0.004	-0.016
Mother's age	0.008	0.012*	0.010	0.021	0.019**	-0.005
Observations	1080	1040	833	197	811	178
R-squared	0.224	0.241	0.232	0.428	0.247	0.345

Robust standard errors in parentheses

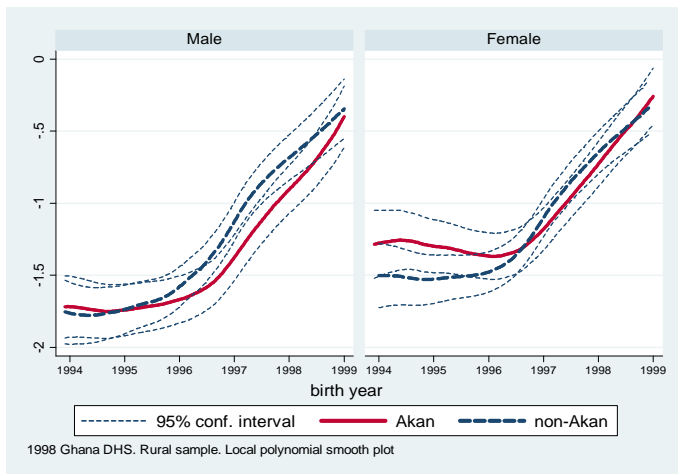
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: OLS estimates. Standard errors are adjusted for clustering at the household level. Pooled GLSSI and GLSSII. Rural sample. Children aged 0 to 60 months. Young is defined as born in 1985 or after. Each regression also includes birth year fixed effects, region of residence fixed effects, a wave dummy, and dummies for religion of the household head.

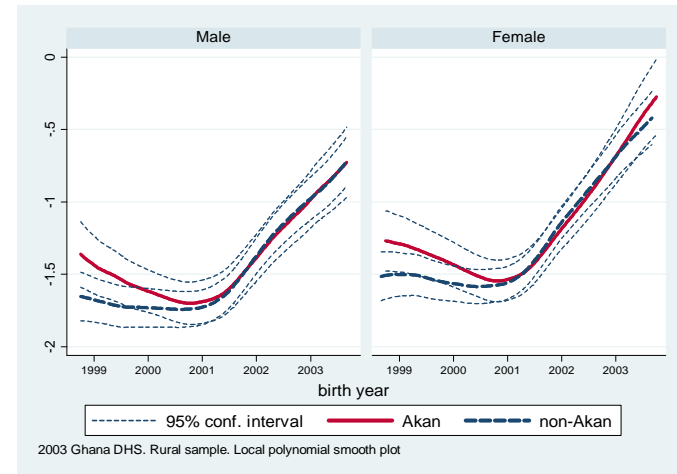
- Are our results driven by **ethnic differences in growth patterns**?
- Use data from the Demographic Health Surveys (DHS)
  - 1998, 2003, and 2008 DHS, several years after the reform
  - Check if the same “convergence” is observed for younger cohorts

# Height-for-age z-scores by year of birth, gender, and ethnicity, DHS data

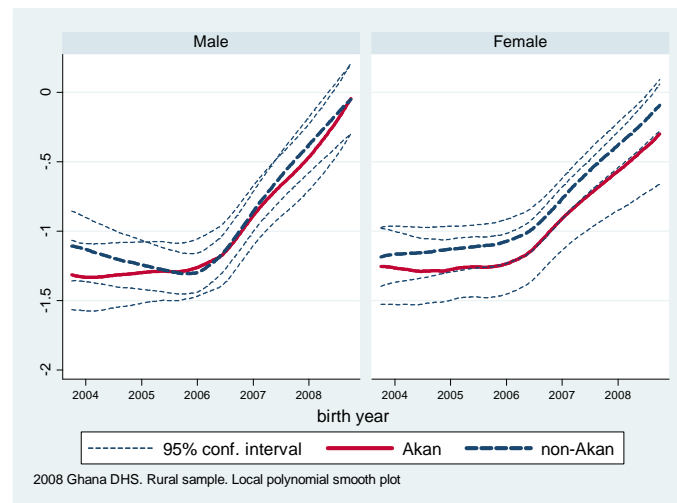
DHS 1998



DHS 2003



DHS 2008



# Main messages from empirical analysis

- Traditional inheritance practices matter for the **intergenerational transmission of human capital**
- **Nutrition** considered **complementary** to **land** inheritance
  - In a separate paper (La Ferrara and Milazzo, forthcoming), we find that **education is a substitute for land inheritance**
    - On average, Akan boys exposed to the reform received **0.9 less years of education** (only among **landed** households and no effect among girls)

# Final messages

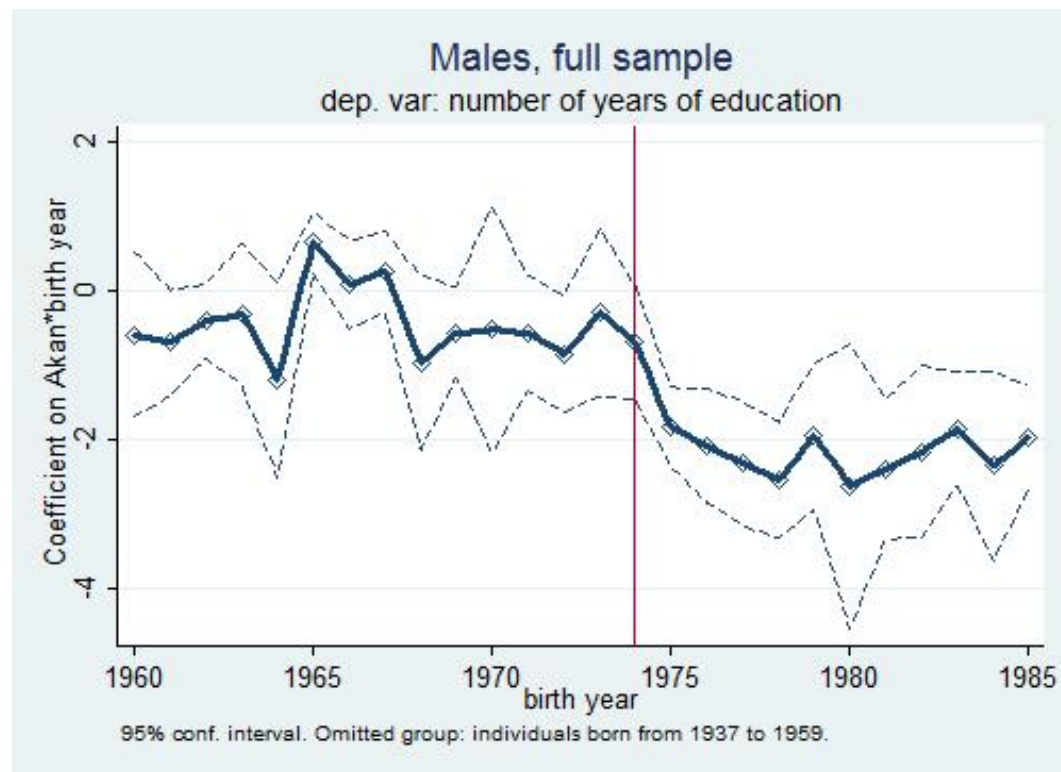
- Traditions, custom, social norms affect the people's behavior, decisions, nutrition
  - Interventions may have unintended effects bc of the **social context**
  - Evidence that norms can change rapidly: the **media** (La Ferrara, 2016), **role models** (India pradhan, Beaman et al, 2010, 12), availability of **job opportunities** (Jensen, 2012; Heath and Mobarak, 2015; others)
  - More rigorous evidence needed specifically on how to change norms leading to undernutrition
- Nutritional interventions
  - Mixed results of different interventions: Bhutta (2013), Galasso and Wagstaff (2016)
  - Intervene early (first 1000 days from conception) and for prolonged periods



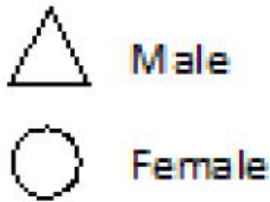
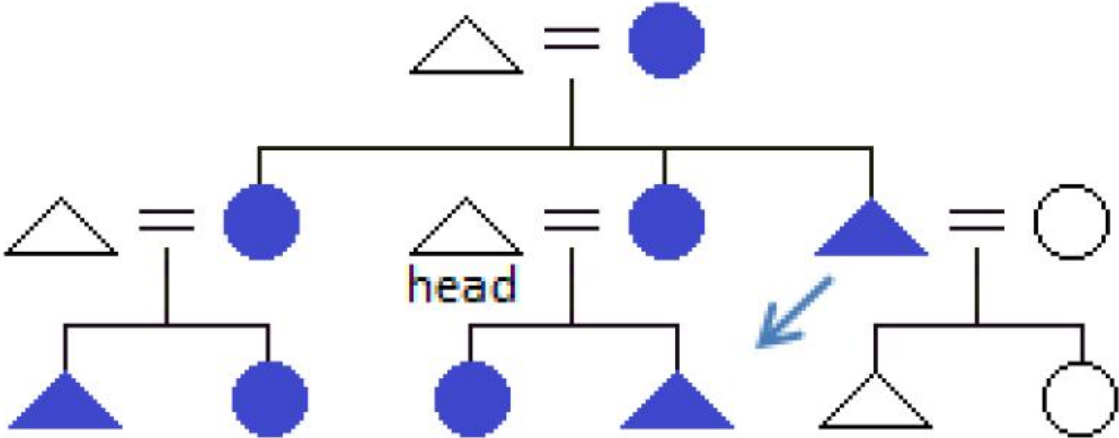
...Thank you!

# Appendix slides

- We focus on **adults** and estimate the **year to year difference in education across ethnicities**
- Parallel trend for those born before 1974, reduction in education among **Akan boys born after 1974**, who were starting secondary education at the time of the reform
- On average, Akan boys exposed to the reform received **0.9 less years of education**
  - only among **landed** households and no effect among girls



# Matrilineal system and inheritance



**Table A.3** Summary statistics, children aged 0-60 months by gender and ethnicity

	All			Males						Females					
				Akan			Non-Akan			Akan			Non-Akan		
	<i>Mean</i>	<i>St. dev.</i>	<i>N.</i>	<i>Mean</i>	<i>St. dev.</i>	<i>N.</i>	<i>Mean</i>	<i>St. dev.</i>	<i>N.</i>	<i>Mean</i>	<i>St. dev.</i>	<i>N.</i>	<i>Mean</i>	<i>St. dev.</i>	<i>N.</i>
Akan	0.39	0.49	2261	1.00	0.00	436	0.00	0.00	725	1.00	0.00	457	0.00	0.00	643
Haz	-1.22	1.51	2261	-1.43	1.45	436	-1.18	1.58	725	-1.25	1.39	457	-1.10	1.55	643
Height	84.97	14.15	2261	84.47	13.24	436	85.89	14.66	725	83.90	13.45	457	85.04	14.60	643
Mother's height	157.84	7.00	2161	157.33	6.86	412	158.40	7.37	694	156.80	6.03	433	158.29	7.21	622
Father's height	168.61	6.74	1875	167.80	6.40	314	169.05	6.79	641	167.60	6.92	351	169.18	6.65	569
HH head's height	167.00	7.75	2175	165.14	7.80	422	167.93	7.65	700	165.52	7.75	440	168.27	7.41	613
Female	0.49	0.50	2261	0.00	0.00	436	0.00	0.00	725	1.00	0.00	457	1.00	0.00	643
Age in months	32.84	18.97	2261	32.26	18.97	436	33.16	19.29	725	32.07	17.88	457	33.41	19.38	643
Age in years	2.46	1.67	2261	2.35	1.66	436	2.53	1.70	725	2.33	1.57	457	2.53	1.72	643
Father is farmer	0.77	0.42	2253	0.70	0.46	434	0.82	0.38	723	0.70	0.46	456	0.80	0.40	640
HH owns land	0.81	0.39	2149	0.79	0.41	427	0.81	0.39	677	0.78	0.42	447	0.84	0.37	598
HH size	7.07	3.63	2228	6.28	3.03	429	7.53	3.91	711	6.36	3.02	452	7.59	3.89	636

(continues)

(continued)

	All			Males						Females					
				Akan			Non-Akan			Akan			Non-Akan		
	Mean	St. dev.	N.	Mean	St. dev.	N.	Mean	St. dev.	N.	Mean	St. dev.	N.	Mean	St. dev.	N.
Female-headed HH	0.13	0.34	2228	0.25	0.43	429	0.08	0.27	711	0.19	0.39	452	0.07	0.26	636
Mother's age	31.07	7.90	2206	30.55	7.42	421	31.40	8.13	705	30.40	7.54	442	31.50	8.16	638
Father's age	40.70	12.20	1957	38.34	10.80	327	42.19	12.93	665	38.45	11.01	368	41.72	12.41	597
HH head's age	39.69	12.11	2228	36.81	10.57	429	41.74	12.84	711	36.95	10.91	452	41.29	12.32	636
Durables index	-0.34	0.67	2228	-0.27	0.63	429	-0.39	0.64	711	-0.27	0.70	452	-0.36	0.70	636
Mother's eduys	2.07	3.72	2255	3.41	4.27	434	1.20	3.04	724	3.57	4.23	456	1.10	2.93	641
Father's eduys	4.37	5.08	2250	6.78	4.82	433	2.63	4.47	721	6.91	4.79	455	2.88	4.69	641
HH head's eduys	3.87	4.81	2261	5.85	4.77	436	2.34	4.24	725	6.16	4.65	457	2.61	4.45	643
Muslim	0.12	0.32	2261	0.08	0.27	436	0.15	0.36	725	0.08	0.27	457	0.14	0.34	643
Christian	0.49	0.50	2261	0.68	0.47	436	0.35	0.48	725	0.72	0.45	457	0.36	0.48	643
Animist	0.32	0.47	2261	0.14	0.35	436	0.45	0.50	725	0.12	0.33	457	0.44	0.50	643

Note: Pooled GLSSI and GLSS II. Rural sample.