BHP Billiton Sustainable Communities/UCL Grand Challenge Symposium Series
Global Food Security: Adaptation, Resilience and Risk
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Are boys eating better than girls in India? Gender bias over the lifecourse of children and adolescents

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No gender inequalities in U-5 malnutrition

- Despite sustained economic growth, **malnutrition is still widespread in India**
  - 39% stunted U5 children in 2013/2014 (≈44 mil.) (IFPRI 2014)
- **No sex-based bias** in anthropometric status and anaemia (IIPS 2007, Tarozzi 2012)
- Contrast with **pro-boy bias** in mortality, education, access to care... (Jha et al 2011; Tarozzi & Muhadan 2007; Tarozzi 2012; Jayachandran & Kuziembo 2012Dercon & Singh 2013)
- Inequalities **usually start early and tend to widen** as children grow older

How about adults?


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BENGALURU CHENNAI DELHI HYDERABAD KOCHI KOLKATA MUMBAI PUDUCHERRY THIRUVANAN

"Official data indicate that anaemia in women is

ASIA PACIFIC

Study Says Pregnant Women in India Are Gravely Underweight

By GARDINER HARRIS MARCH 2, 2015

The New York Times

Stark gender disparities in diets & anaemia in adults (15-49 yrs) from national data (IIPS 2007)

At what stage of the lifecourse gender-based disparities in diets emerge?

This paper uses **3 rounds** of data on two **cohorts** of children from the Young Lives study in order to analyse **gender-based disparities over their lifecourse** in a specific nutrition indicator, **dietary diversity**, in Andhra Pradesh and Telangana, India

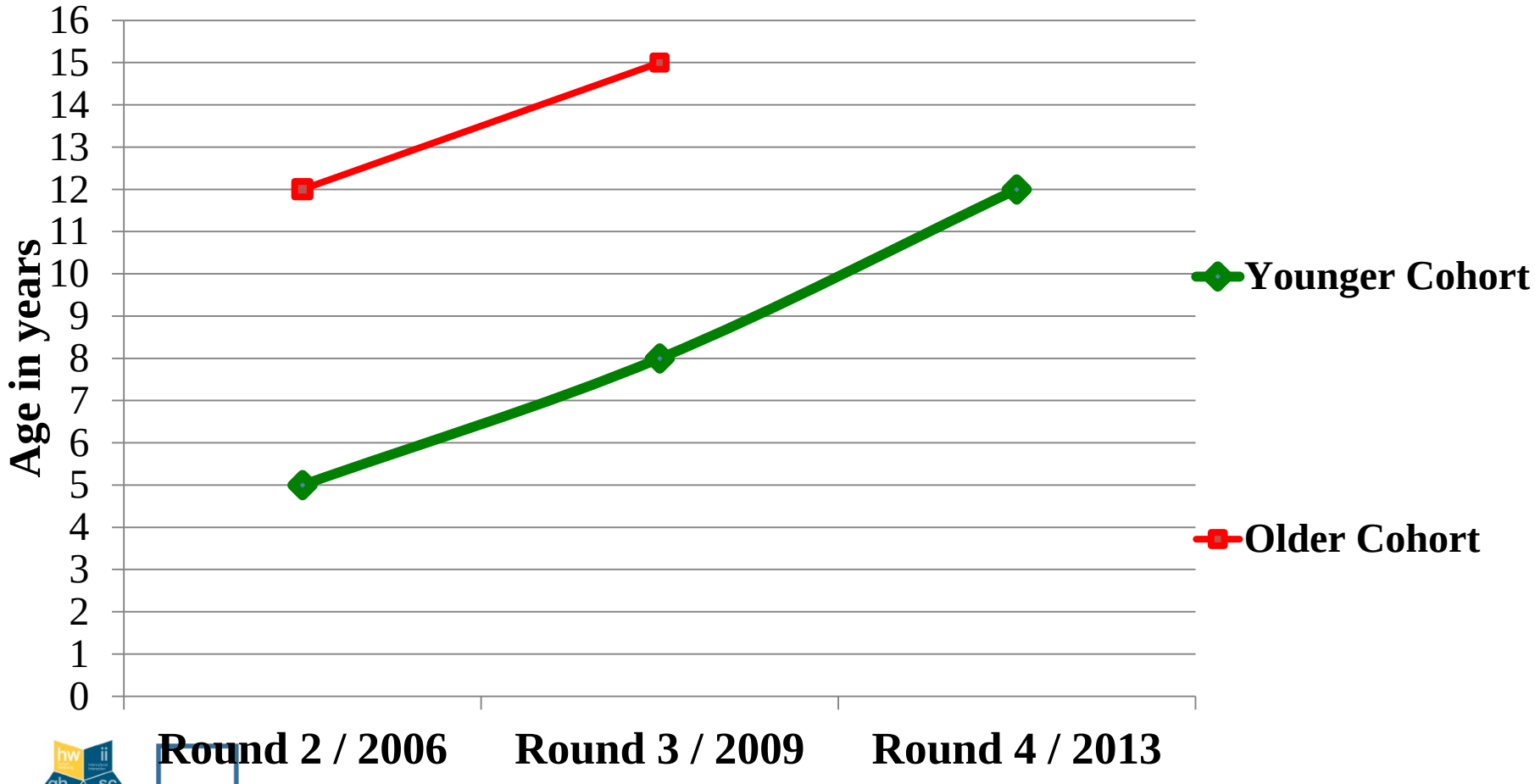
Why should it matter?

- Almost half on Indian women during adolescence / early adulthood are malnourished (as opposed to 18% in SSA)
- Very high rates of early marriage & child-rearing
  - 40% girls in the YL sample already married in R4, half of them already had a child
- Investing in improving adolescent girls nutrition
  - Policy objective per se
  - Break the malnutrition cycle
- Evidence on intrahousehold allocation of resources is critical in order to improve targeting of policies

The data: the YL study

- **Longitudinal survey** of children, their households, schools and communities running for 15 years over 5 rounds (2002, 2006, 2009, 2013, 2017)
- **12,000 children in four countries** – Ethiopia, India (Andhra Pradesh & Telangana), Peru, Vietnam
- **Pro-poor sample**: 20 sentinel sites in each country selected to reflect country diversity, rural-urban, livelihoods, ethnicity
- **Two age cohorts** in each country:
  - **Younger Cohort**: 2,000 children born in 2001-02
  - **Older Cohort**: 1,000 children born in 1994-95

Data Structure



Dietary diversity: what, why, how?

- **Number of food groups** consumed in a determined time period (Ruel 2002)
- A **balanced diet** is fundamental for the proper physical and cognitive development of children and adolescents (Steyn et al 2006).
- Swindale & Bilinski (2006): Number of **food groups** consumed by the child in the previous 24 hours:

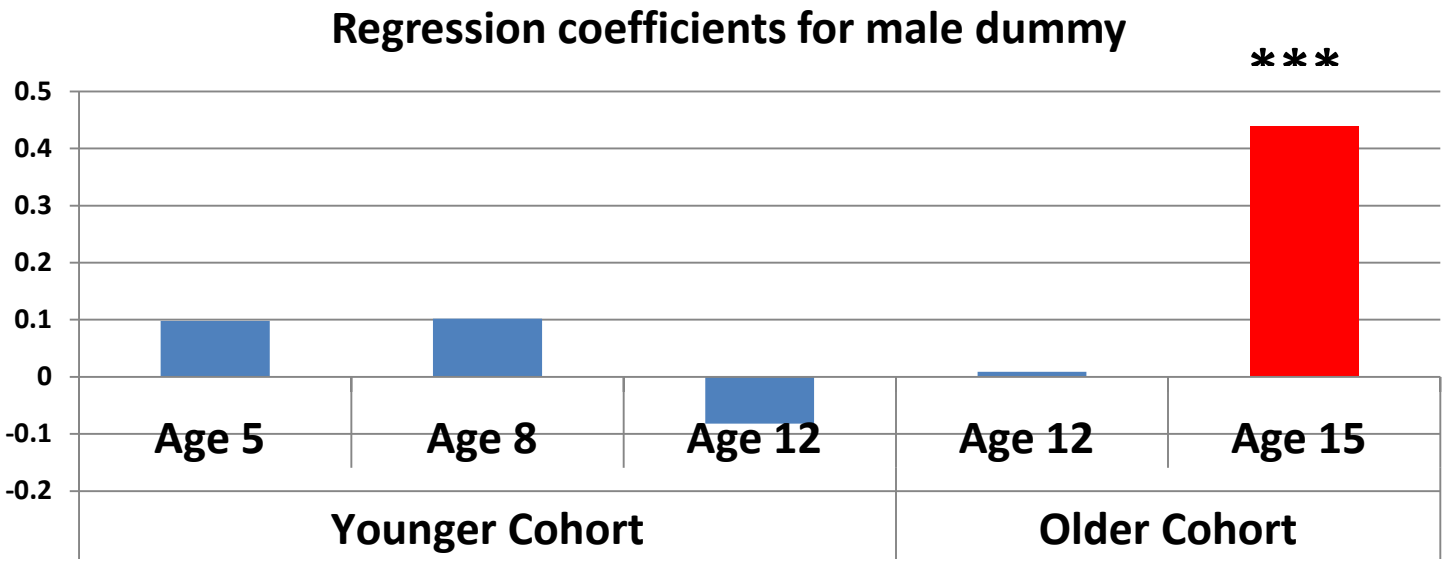
(i) grains, roots or tubers; (ii) fruits and vegetables; (iii) meat, offal and fish; (iv) eggs; (v) pulses and legumes; (vi) milk and milk products; (vii) food cooked in oil or fat.

- This measure has been **validated** in the context of low- and middle-income countries as a **good proxy for individual nutritional status in children / adolescents**

Empirical results

Key Message #1:

Pro-boys gap emerges at 15 years old



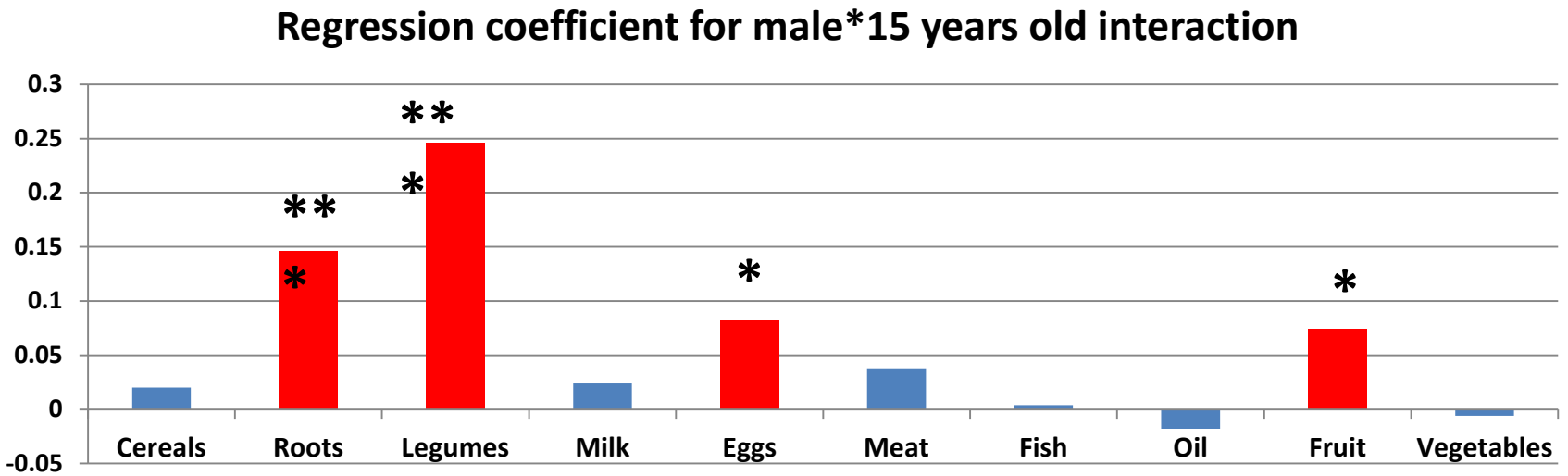
Cross-sectional estimates , by round and cohort, cluster fixed effects

****** p<0.01***

Estimates adjusted for: caste, birth order, interaction sex*older brother, maternal education, parental education, sex of head of the household, household size, log household consumption expenditure per capita.

Key Message #2:

Gap at 15 years driven by highly nutritional quality foods



Pooled sample estimates, cluster fixed effects

****** p<0.01, * p<0.1***

Estimates adjusted for: caste, birth order, interaction sex*older brother, maternal education, parental education, sex of head of the household, household size, log household consumption expenditure per capita, male*age interactions,

Cohort dummy

Key Message #3:

Gap persists even by controlling for puberty, time use, shocks and different dietary behaviours between adolescent boys / girls

Cross-sectional estimates , 15-year-olds

	Dietary Diversity	Dietary Diversity	Dietary Diversity	Number of Meals	Physical activity
Controlling for:	**PUBERTY**	**TIME USE**	**SHOCKS**		
Male	**0.429*** **	**0.409*** **	**0.435*** **	**0.120**	**-0.534**
	(0.105)	**(0.112)**	**(0.106)**	**(0.111)**	**(0.520)**
Constant	2.967***	2.917***	3.078***	3.041***	4.272***
	(0.383)	(0.511)	(0.366)	(0.544)	(1.042)
Observations	923	937	937	937	937
Other controls?	YES	YES	YES	YES	YES
Cluster fixed effects?	YES	YES	YES	YES	YES
Adj. R-squared	0.0685	0.0673	0.0799	0.0455	0.0215

Key Message #4:

Gap may be driven by varying status of Indian women over their lifecourse

Cross-sectional estimates, all rounds and cohorts, controlling for index of parental aspirations and their interaction with child gender

(TO ADD)

Conclusions

- Wide gap emerges at 15 years old
- Protein & vitamin-rich foods
- Nutrition policies probably not effective alone: need for awareness / behavioural changes of broader communities
- Further (mixed-methods) research needed to understand drivers of gap at 15 years

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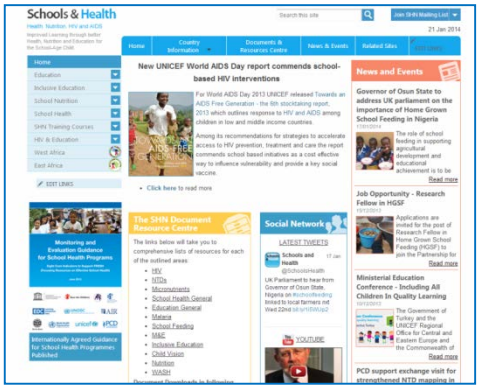

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