What am I proposing?

“Food prices were high, and the dal became watery”
Mixed-method evidence on household food insecurity and children’s diets in India

Elisabetta Aurino (Imperial College London & University of Oxford)
& Virginia Morrow (University of Oxford)

International Workshop on Poverty, Inequality Dynamics, and Economic Development, London, 8 September 2018
Sustainable Development Goal 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
Indian food security challenge

1 out of 9 undernourished globally (94 million\textsuperscript{a})

38% of children under 5 are chronically malnourished\textsuperscript{b}

~60% children under-5 year anaemic\textsuperscript{b} and with vitamin-A deficiency\textsuperscript{c}

2018 National Nutrition Mission
2013 National Food Security Act

Source: \textsuperscript{a} FAO FAOSTAT (http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.Wa0ns4qQy18)
\textsuperscript{b} International Institute for Population Studies,
\textsuperscript{c} WHO Global Database on Vitamin A deficiency (http://apps.who.int/iris/bitstream/10665/44110/1/9789241598019_eng.pdf)
\textsuperscript{d} NCD risk collaboration (http://www.ncdrisc.org/index.html)
Food insecurity and child development

• 41% of children below 15 years globally live in a household where an adult member is food insecure (Pereira et al 2017)

• Literature (most from the US) has shown that household food security critical for healthy child development (Belachew et al 2011, 2013; Fram et al 2015; Jyoti et al 2005)
What do we know about children’s experiences of food insecurity in LMICs?

- Very little!
  - Evidence disproportionally focused on the US, little literature focusing on low- and middle-income countries
  - Lack of mixed method studies
  - Existing literature has focused either on mothers and young children, or adults

- Older children and adolescents defined as the “forgotten population” in food security literature (Hadley et al 2009)
Why we should care?

- School-age children and adolescents experiences of food insecurity may differ from those of young children or adults given:
  - Different needs and agency, time use, exposure to public programmes
  - Status within the household
  - In turn, all these factors may vary by age & gender

- Also, evidence gap with regards to children’s mechanisms to manage food insecurity, as well as perception of public programmes

- Experience of food insecurity at home during school-age and adolescence, and related coping strategies to food insecurity, can shape their health, education, labour and fertility transitions

- Particularly relevant for India
  - Median age is 27 years, largest youth population globally
  - Investing in youth critical for “demographic dividend”
What do we do in this paper?

Use longitudinal mixed methods to investigate the relationship between household food insecurity and child dietary quality among two cohorts of children and adolescents in Andhra Pradesh and Telangana (India).
Young Lives data

- Longitudinal mixed method study of child poverty
- Ethiopia, India (Andhra Pradesh and Telangana), Peru, Vietnam
- Pro-poor sample
  - 20 sentinel sites in each country
  - Selected to reflect country diversity
- Attrition: 5% YC up to Round 4
Young Lives longitudinal data collected in 4 countries: Ethiopia, India (Andhra Pradesh and Telangana), Peru, Vietnam

**OLDER COHORT**
- Age: 8
- Age: 12
- Age: 15
- Age: 19
- Age: 22
- Following 1,000 children

**YOUNGER COHORT**
- Age: 1
- Age: 5
- Age: 8
- Age: 12
- Age: 15
- Following 2,000 children

Household and child survey
- Round 1 2002
- Round 2 2006
- Round 3 2009
- Round 4 2013
- Round 5 2016

Qualitative data collection
- Qual 1 2007
- Qual 2 2008
- Qual 3 2011
- Qual 4 2014

Children at same age at different time points
Conceptual framework

Household level
- Livelihoods (Food production, incomes from labour, remittances etc.)
- Economic, environmental and social context
- Household characteristics (Maternal education, place of residence, size)
- Food security programmes & other social protection

Household Food Security
Stable, sufficient and acceptable availability, access or utilisation of food

Individual Dietary Quality

Nutritional Status

Well-being

Child characteristics (Age, sex, caste, first born)
Methodology

- Secondary data analysis of both datasets

- Iterative approach to link quant and qual (Morrow et al 2014, Moran-Ellis et al 2006) in light of a conceptual framework we developed

- Examined the two datasets separately and realised that food insecurity and dietary quality were key sources of variation
  - Two-way process where both methodologies informed each other

- Both components make equal and independent contributions to the understanding of the role of food insecurity on child dietary quality
Methods: quantitative data

- Only **household food access** measured:
  - Experiential scales of insecurity
  - Household **categorised as food secure/ food insecure** in each round

- Child **dietary quality** in each round measured with:
  - Indicators of individual dietary diversity in previous 24 hours (ranging 0-7)
  - Dichotomous variables of consumption of animal-source foods/fruit in previous 24 hours
  - Those indicators chosen for their correlations with child health and nutrient adequacy

- Investigate **“food insecurity gaps”** in child dietary quality in standard multivariate setup:
  \[
  \gamma_{ij,t} = \beta_0 + \beta_1 F_{ij,t} + X_{ij,t}\beta_2 + \beta_3 \text{Cohort}_{ij} + \beta_4 \text{Age}_{ij,t} + \gamma_j + \varepsilon_{ij,t}
  \]
Methods: qualitative data

- Food security and diets were not the focus of the qualitative interviews, but they were spontaneously mentioned by the children very frequently.

- Data were analysed by coding them under meta-themes (e.g. diet, food, school meals, etc) to enable consistency and comparability across rounds.

- Information on the context of the interview was provided by fieldworkers.
Key message #1
Inequalities in children’s dietary quality by food insecurity at home

<table>
<thead>
<tr>
<th></th>
<th>Household food secure (N=6,118) Mean (SD)</th>
<th>Household food insecure (N=1,514) Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary diversity</td>
<td>4.35 (0.92)</td>
<td>4.18 (0.89)</td>
</tr>
<tr>
<td>Child has consumed any fruits</td>
<td>42% (0.49)</td>
<td>26% (0.44)</td>
</tr>
<tr>
<td>Child has consumed any animal-source foods</td>
<td>82% (0.38)</td>
<td>76% (0.43)</td>
</tr>
</tbody>
</table>

Mean dietary diversity, fruit consumption and animal-source foods consumption by household food insecurity, all rounds and cohorts

Coefficients associated with household food insecurity in separate regression models for dietary diversity, fruit consumption and animal-source foods consumption. All models control for child and household covariates, cohort, age and cluster fixed effects.
Key message #2
Younger children’s dietary quality tends to be more affected by household food insecurity as compared to older children.

Notes: This graph plots the predicted values of dietary diversity by child age and household food insecurity. These values were obtained as the interaction of food insecurity and child age in a multivariate regression model, controlling for child and household controls, age, cohort, community fixed effects.
Key message #3
Food security and healthy diets considered as key to a “good life”

- Dietary quality and household food security emerged as a **critical dimension of well-being for children**

- Varied diets were often mentioned as a **marker of social status** and **ability to participate** in the community life
  - “Rich people eat by cooking different varieties of foods every day” (Boy, 11 years old)
  - “Those who have money cook delicious foods during festivals, while the poor not so” (Girl, 15 years old)

- Children mentioned clearly the **linkages between dietary quality and health or education**
  - “If we eat well, we can study” (Boy, 9 years old)
  - “My health is not well, I should take proper food. Food alone can do me good” (Girl, 9 years old)
Key message #4
Children understand their household food security challenges and act upon it

- Children spontaneously referred to the food security situation at home and how it changed over time
  
  “Seeds did not grow in the first year, and the second year rains have not come . . . so we didn’t harvest. . . . We did not have money to buy vegetables and other things to celebrate festivals, so it was not well at home.” (Boy, 17y)

- They clearly described the strategies undertaken by the household in face of food insecurity
  
  “Mother provides food for the children by fasting herself” (Girl, 15y)

- Older children were often part of those strategies
  
  E.g. enrolling in MNREGS, dropping out from school

Source: Young Lives/Sarika Gulati
Key message #5
Children valued social protection, but sometimes criticised implementation

- Social protection (e.g. school meals, public distribution system (PDS), and employment guarantee scheme (MNREGS)) was generally perceived as **protective** in face of shocks and as a vehicle for better diets
  
  "We did not have good-quality rice, we only had inferior-quality rice prior to the commencement of this relief work [MGNREGS]", Boy, 17 years old

  [The PDS allowed ] “to lead life without starvation and children are able to eat full meals regularly” (Girl, 15 years old)

- Implementation issues (e.g. food safety and quality, corruption) were however often flagged by children

Source: Young Lives/Sarika Gulati
Lesson learnt

- **Mixed methods** and a **lifecourse** perspective uncover **valuable insights** on children’s experiences of food insecurity, their strategies to manage it and their perception of public programmes in different contexts and at different ages.

- In turn this evidence can **support implementation** of existing social protection to increase its “child-sensitivity”
Thanks for listening! Questions?

- e.aurino@imperial.ac.uk

- Special thanks to my funders:
  - Imperial College Research Fellowship
  - Guido Cazzavillan Research Fellowship

- Also thanks to the Young Lives team in Oxford/India and to the children and families participating to the study

Source: Young Lives