

Food insecurity among young children:  
An analysis of intra-household allocation of food  
in rural Bihar, India

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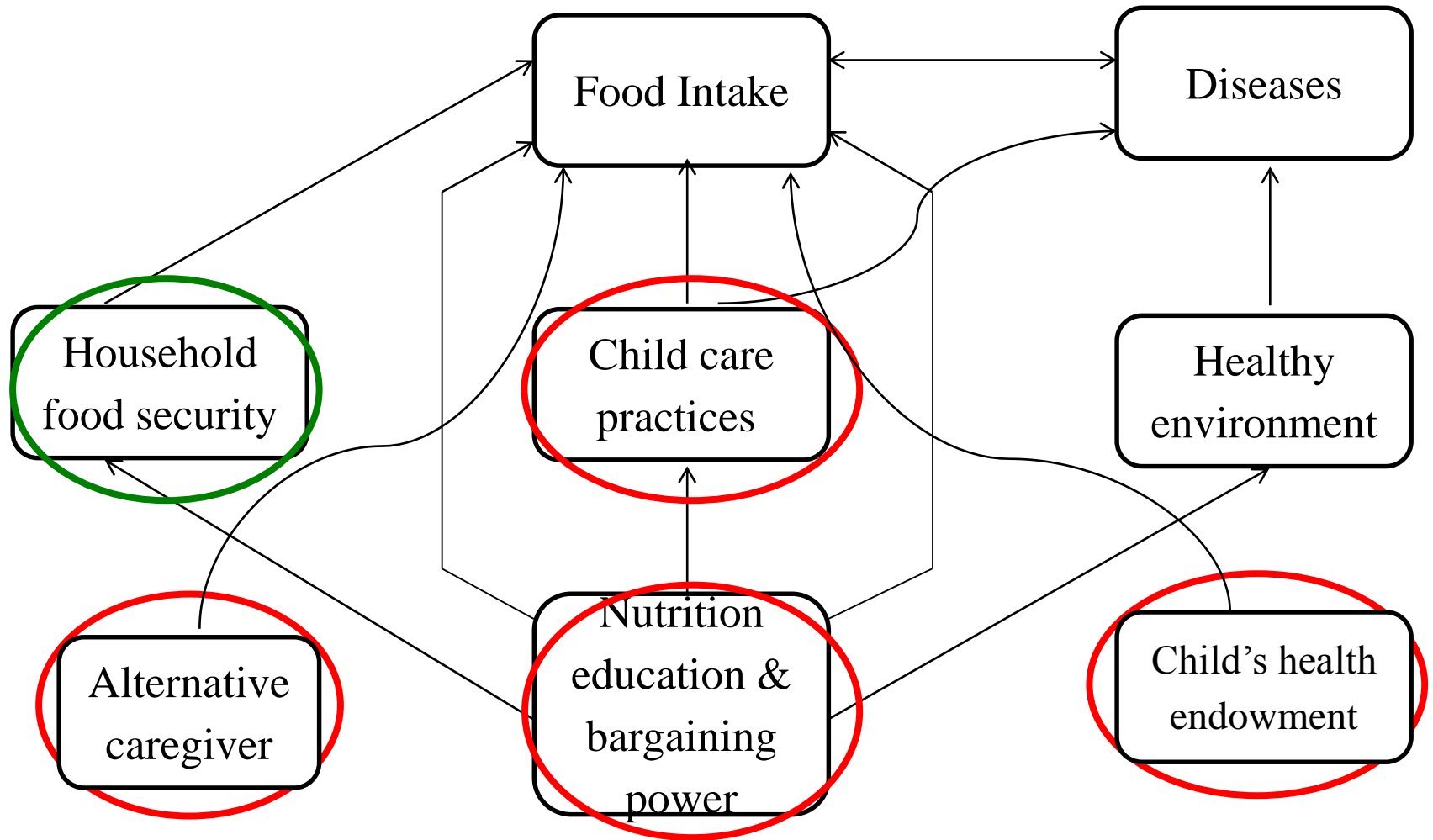
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# Motivation

- Widespread undernutrition among young children is well known; not surprising if undernourished children reflected resource constraints of parents.
- However, undernourished children found not just in households with inadequate food, but also in households with adequate access to food in India and elsewhere in the world.
- Our survey in Bihar, India shows that while 65 percent of the children belonging to food inadequate households have lower than required energy intakes, this is also true of more than one third of children living in calorie adequate households
- Important then to understand if pathways by which (and other factors that influence the way that) food is allocated to young children may differ systematically among food-sufficient and food-insufficient households.
- Also, patterns of intra-household allocation of calories may differ from those of micronutrients; not yet well-understood in the literature

# A conceptual framework to analyze food allocation to children



# Objectives

1. To examine the relative roles played by nutrition knowledge and practice, mother's bargaining power, and a child's health endowments in influencing the diet quantity and quality of young children.
2. To assess whether the importance of these channels varies depending on whether the child lives in a calorie-adequate or a calorie-inadequate household.

# Data and Methods

- Survey conducted in 4 villages in Bihar in 2013, villages part of the VDSA sample. Study funded by ICRISAT
- Stratified (by land-holding size) sampling design within each village; sampling frame: households with children in the age-group 1-6 years
- Sample size of 320 households, (80 households in each village), reference child selected randomly within each household
- 24-hour dietary recall survey for child ('gold standard') and total food intake of the households, factors that affect allocation of food to children and other household socio-economic characteristics.
- Use endogenous switching regression models to assess if pathways vary across households that are calorie sufficient, versus those that are not

# Construction of key variables

*Diet quantity*—Calorie intake of reference child

*Diet quality*—Share of non-staples in caloric intakes of reference child

*Nutritional knowledge* – index constructed using PCA on answers to multiple questions about micronutrients and treatment of diarrhea

*Mother's bargaining power* – an index constructed using PCA, includes mother's rank in the household and difference between the age of the parents

- Other factors such as ability to make decisions and independence in mobility also represent higher bargaining power, but are endogenous. Therefore, we construct another broader measure of bargaining power using all these variables to test robustness of results.

*Child care practices adopted* – index of infant and child feeding practices constructed using Principal Component Analysis (PCA)

*Alternative caregivers* – presence of female members who report spending time in child care

*Health endowment of the child* – size at birth

# Results

| Dependant variable:               | Diet quantity                   |                               | Diet quality                    |                               |
|-----------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|
|                                   | Calorie insufficient households | Calorie sufficient households | Calorie insufficient households | Calorie sufficient households |
| Mother's nutritional Knowledge    | No                              | Yes                           | No                              | No                            |
| Mother's bargaining power         | No                              | No                            | No                              | No                            |
| Child care practices              | Yes                             | No                            | Yes                             | No                            |
| Presence of alternative caregiver | Yes                             | No                            | No                              | No                            |
| Low birth size                    | Yes                             | No                            | Yes                             | No                            |
| Economic status                   | -                               | -                             | Yes                             | Yes                           |

# Take away so far

Intra-household allocation mechanisms appear to vary by the availability of resources at the household level.

Low birth size affects both quantity and quality of diet for insufficient households but not sufficient households

Economic status matters more for diet quality than diet quantity

Insignificance of some pathways may reflect existence of threshold effects



# Future work

Estimate threshold levels for each of the key pathways above which calorie intakes by young children move from insufficiency to sufficiency.

Develop a formal model that can help explain why pathways may vary by type of household