Farm-level pathways to improved nutritional status

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Outline

- Background and motivation
- Conceptual framework
- Data
  - National surveys vs impact evaluations???
- Results
- Methods
- Challenges for data, policy and research

Background and motivation

- Synthesis of 8 papers under revision for special issue of the *Journal of Development Studies*
- Policies, international initiatives to improve nutritional status via promotion of agriculture, despite lack of robust empirical evidence on direct linkages between agriculture and nutrition
- Objective: Inform the debate by assembling new evidence based on good, recent data, from different settings

Conceptual framework: Linking agriculture to nutrition

- Channels (Ruel and Alderman, *The Lancet*, 2013)
  - Food prices
  - Income from agriculture
  - Consumption of home production
  - Women's social status and empowerment
  - Women's time allocation
  - Women's health
  - Value chains
  - Biofortification
- Market failures: Non-separable hh model
- Mental accounting
- Intra-household allocation

The data challenge

- Complex inter-related factors, complex data requirements
  - Detailed ag information
  - Reliable nutritional outcome indicators
  - Rich set of controls
  - Identification of causal pathways (?)
- National level data vs. case study, RCT's trade-offs (external validity)

What agriculture?

- Production diversity: Number of crops, ag activities, food groups produced
- Ag production, revenues or income
- Intensity of participation in bio-fortification program
- Yields
- Farm size
- Own consumption/sales ratio
- Cow ownership
- Livestock ownership, by species

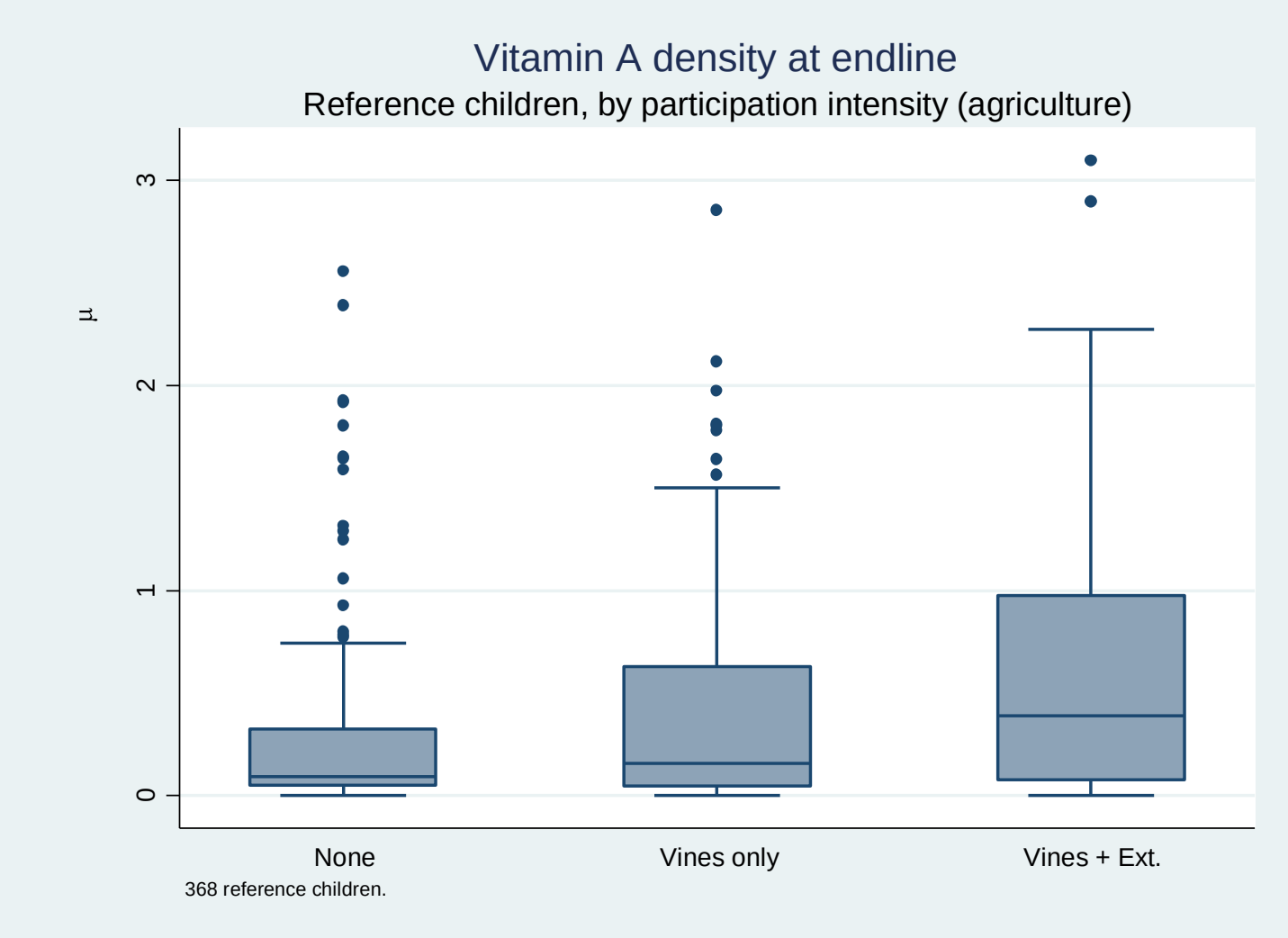
What outcomes?

- Dietary Diversity (HH and individual for 6-23)
- Anthropometrics (wasting, stunting, underweight)
- Vitamin A density
- Micronutrient adequacy
- Consumption of individual food groups (ancillary to DD)
- Milk intake for children under 2
- Consumption expenditure of specific livestock products

Results/1

SCALE	HH & Child?	FINDINGS
1 district (Zambia)	hh AND Child (DD, anthro)	Dietary diversity: up for 6-23; stunting down for 24-59
36 village organizations in 4 districts (Mozambique)	HH	Positive; stronger on Vitamin A density, weaker on others, but higher with participation intensity
National (Nigeria)	HH	Positive for ag revenues. Positive but biased for crop diversity
National (Nepal)	Child (anthro)	Positive association between ag and nutrition for all children. Small, positive association for commercialization, only for younger children

Mozambique, bio-fortification and vitamin A intake density



De Brauw et al., forthcoming

Results/2

SCALE	HH & Child?	FINDINGS
93 woredas (Ethiopia)	Child (both anthro and dd)	Positive, quite large effects on both intake and nutrition
Impact evaluation baseline (Nepal)	Child and maternal	Positive but small, with nuances
Uganda, national	HH (consumption) and child (anthro)	Positive (with nuances) on consumption, little on nutrition

Cow ownership and milk consumption, Ethiopia

Table 3: Association between child height and ownership of cows by age groups

	(1)	(2)	(3)	(4)	(5)	(6)
			Age range (months)			
	6 - 24	24 - 60	6 -12	12 - 18	18 - 24	12 - 24
			Outcome variable: Child is stunted			
Household owns cow	-0.055*	-0.018	-0.058*	-0.133***	-0.041	-0.099***
	(0.028)	(0.020)	(0.034)	(0.036)	(0.047)	(0.028)
Observations	1,590	3,092	1,124	642	586	1,108

Hoddinott et al., forthcoming

Methods

- OLS, logits on a X-Section, no causal claims (sometimes with ‘robustness‘, placebo)
- OLS, IV (often exploiting geo-referencing): Causality
- Experimental design with IV; non-separable hh model

Findings and Challenges

- Generally positive impacts
- Information on intensity and magnitude of impacts
- Randomize agriculture?
- “If ag important for nutrition, DHS should include more ag…”
- If market imperfections are the premise, policy is not only ag programming, but also removing those imperfections
- Panel, Geo-referencing for causal inference
- Despite the new, better data much can still not be assessed: What qualifies as a ‘contribution to knowledge’?