What works where for which farm household: Estimated effects of different interventions on food availability across household distributions in East and West Africa

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International Conference on Integrated Systems –
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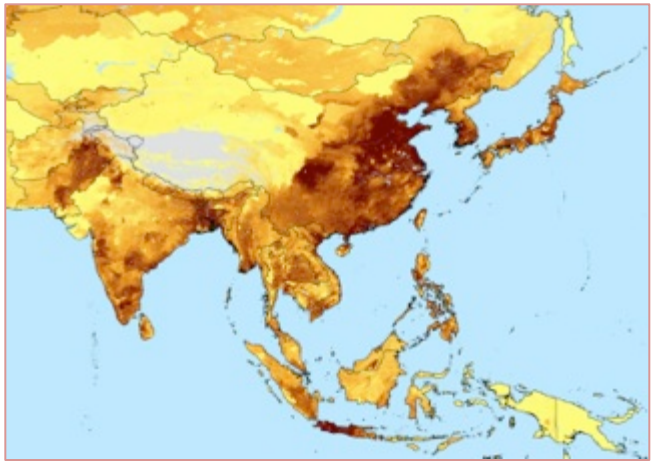
IITA Headquarters in Ibadan, Nigeria, 3-6 March 2015



CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

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Background Ideas from Humidtropics IDO's

- Humidtropics has quantified targets in its Intermediate Development Outcomes
- Assessments of sustainable intensification options benefit from quantitative analysis

Quantitative methods (modeling) can play a key role in research targeting and evaluation.

Background Ideas from Humidtropics IDO's

- Humidtropics has quantified targets in its Intermediate Development Outcomes
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Quantitative methods (modeling) can play a key role in research targeting and evaluation.

- People-focused IDO's are household-based

Household-level perspective is central for analysis, planning, and eventual impact.

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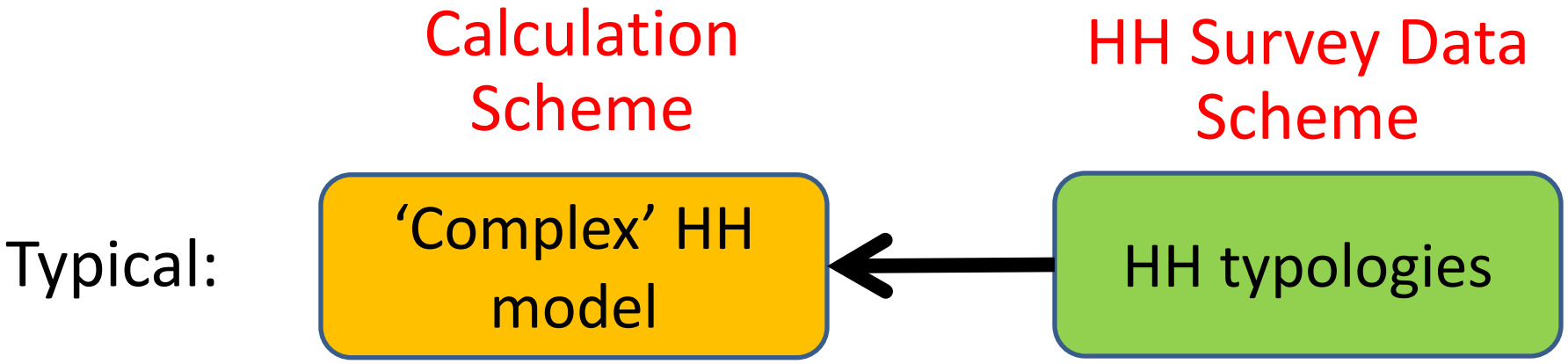
HH Analysis Framework

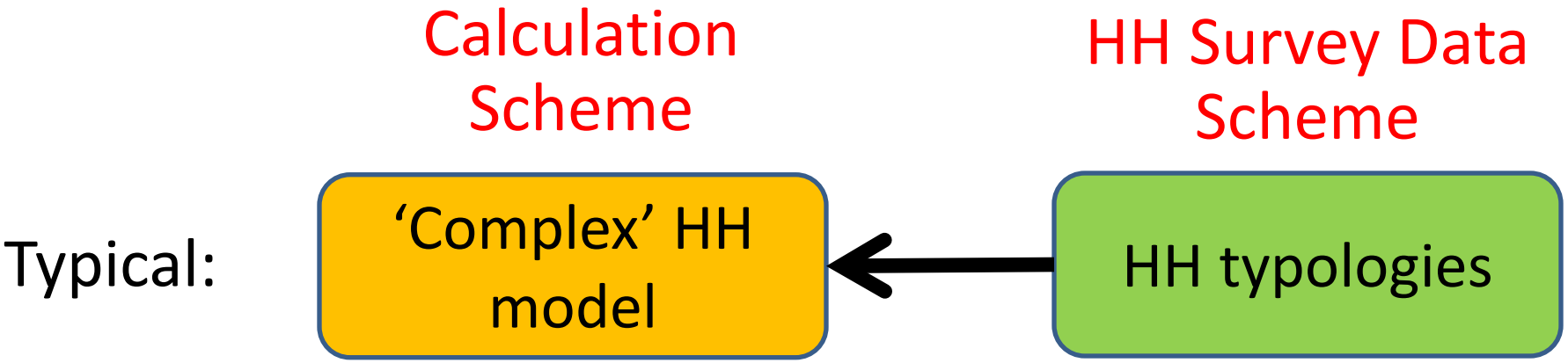
Calculation Scheme

HH Survey Data Scheme

HH Analysis Framework



HH Analysis Framework



Captures HH-level processes:

- Decision-making
- Resource re-allocation

However:

- Loss of nuance in HH characteristics
- Change in HH type membership
- Site-specific model → often doesn't deliver results!

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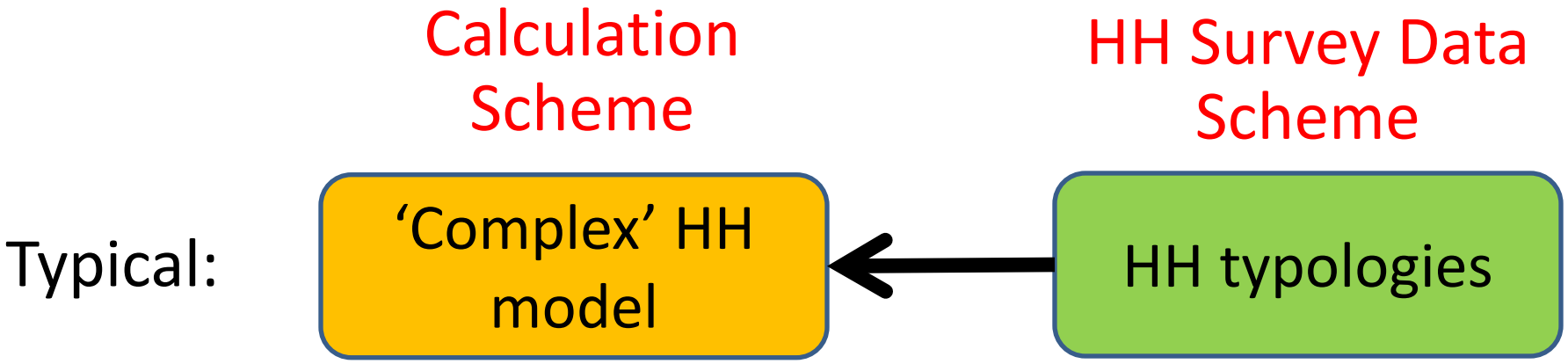
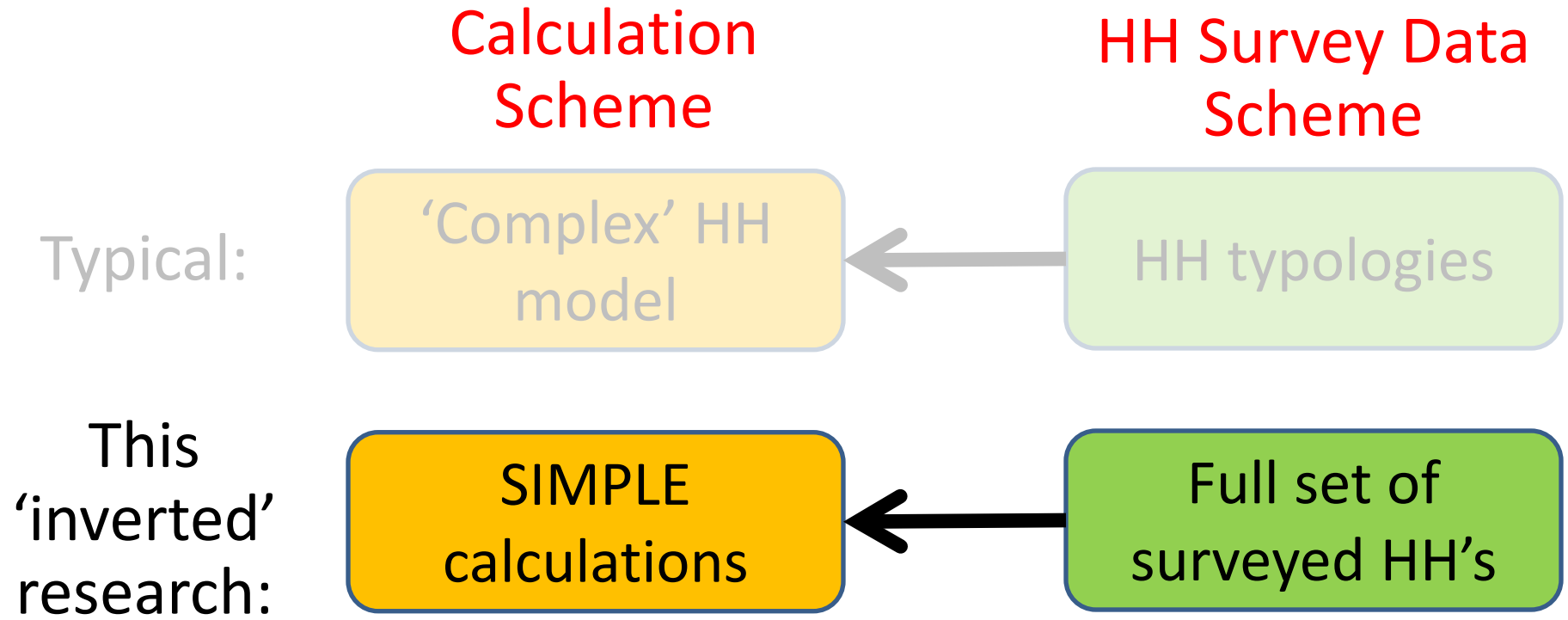
HH Analysis Framework



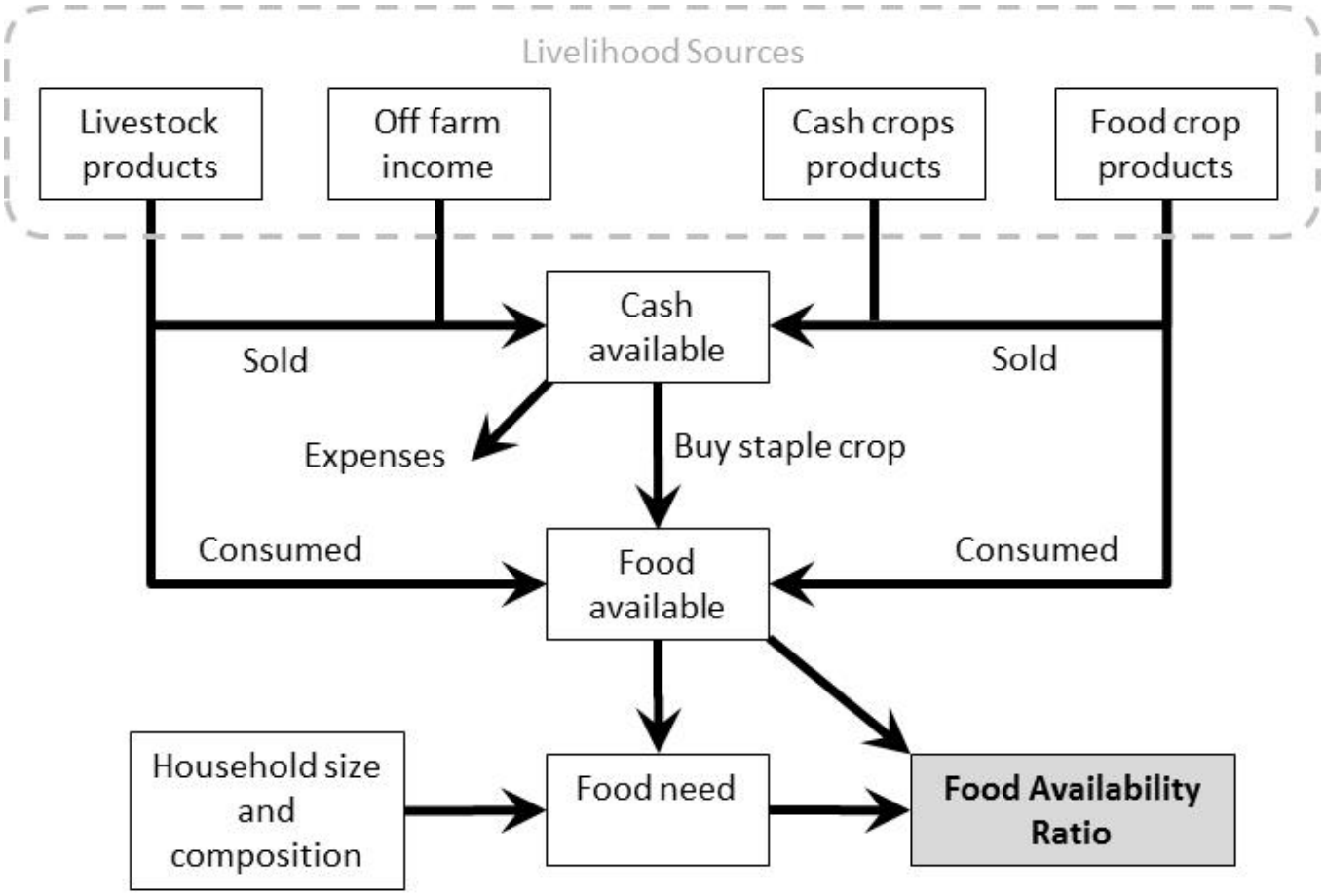
HH Analysis Framework



HH Analysis Framework…

- Some loss of precision, but gives an INITIAL and RELATIVE INDICATION of which farm HH's will be affected and by how much
- Results generate rich HH distributions of livelihood characteristics, poverty levels, etc.
- Simple calculation scheme has 2 further advantages:
  - Rapid deployment of analyses
  - Can be applied across data sets, regions, systems- useful for large-scale analysis and trend identification

Example: Simple Method…



$$\text{Food Availability Ratio (FAR)} = \frac{\text{Amount of food energy available to HH}}{\text{Food energy requirements of HH}}$$

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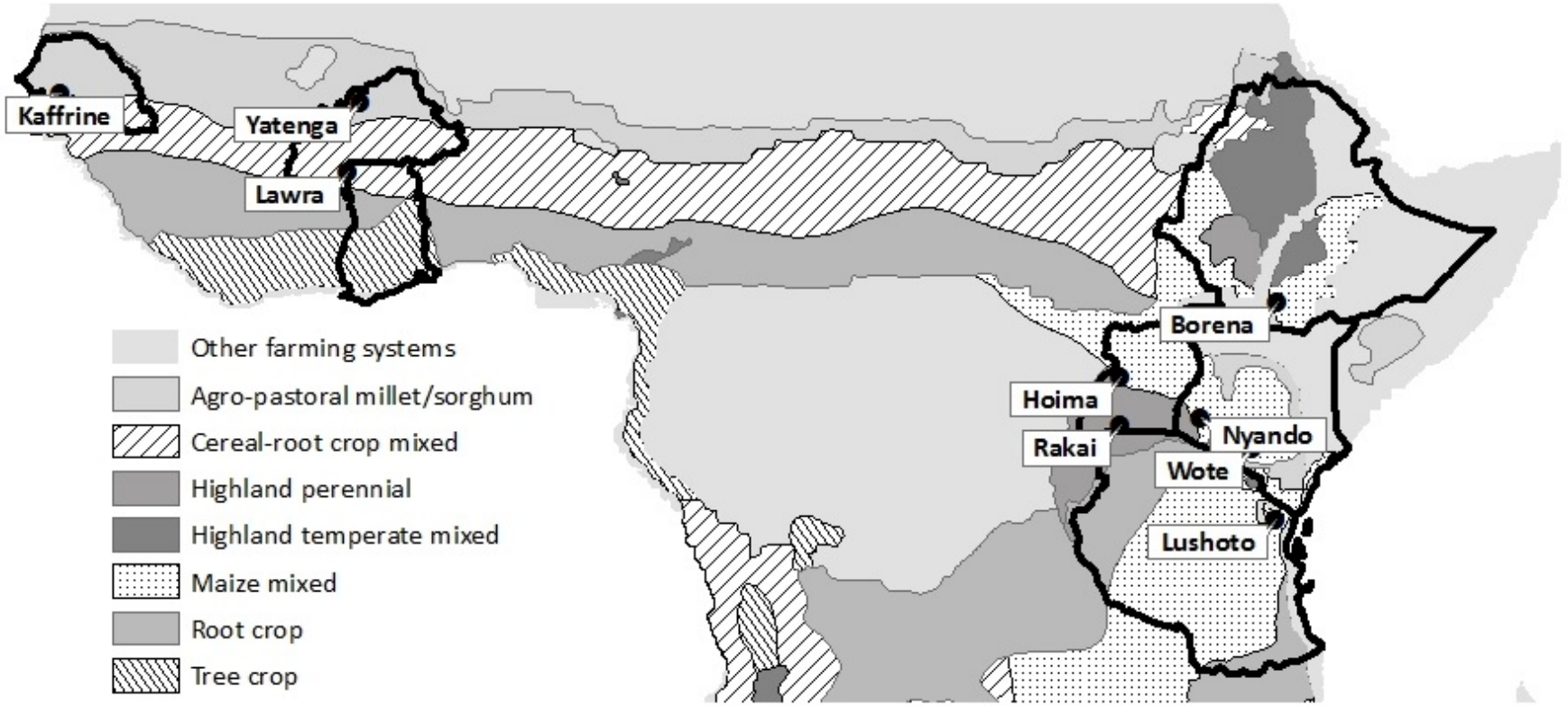
Example: Simple Method…

Data set:



ImpactLite survey implemented on 9 CCAFS research sites (200 HH's each)

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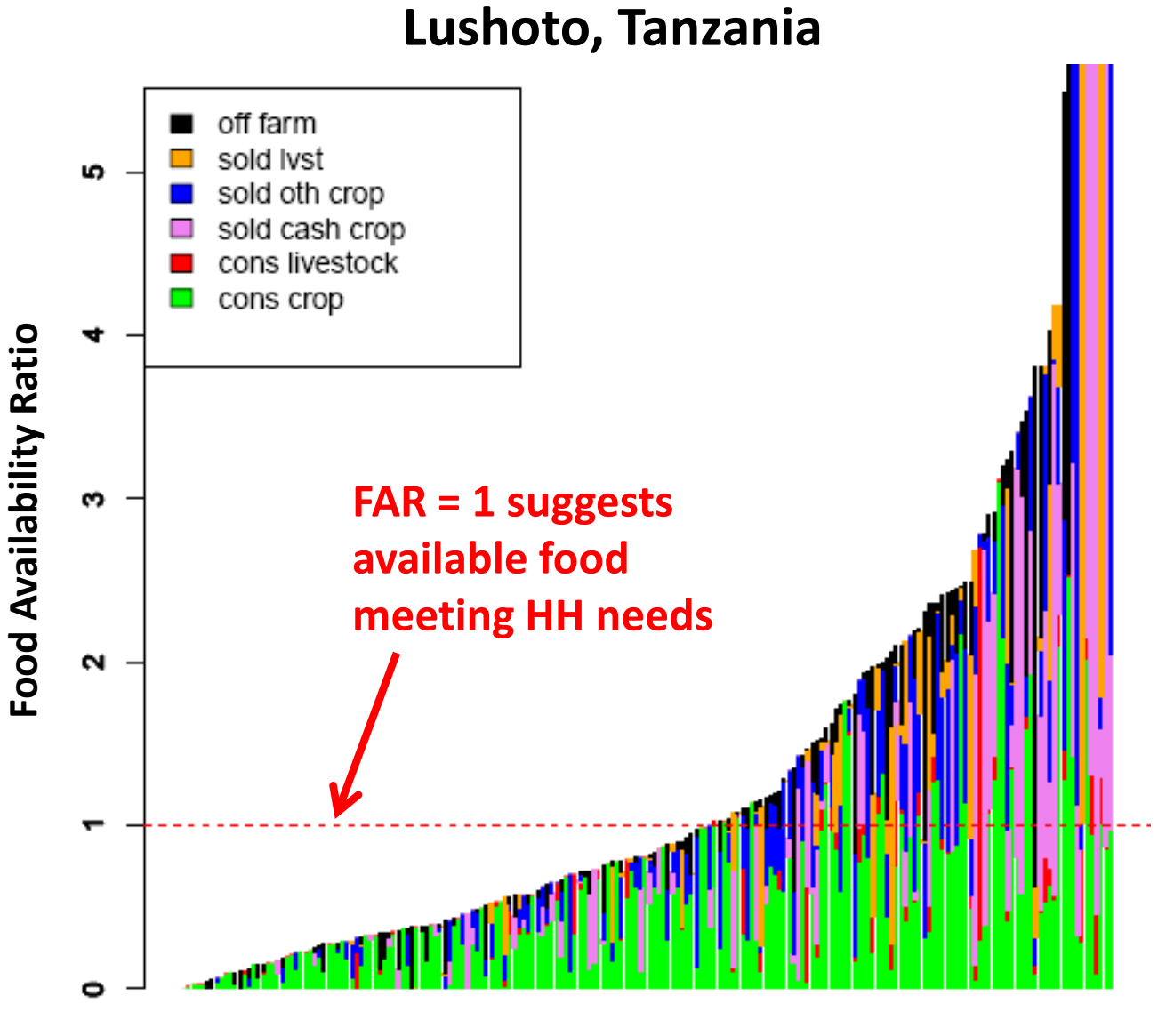
Example: … Applied Across Households

- 57% of HHs have FAR < 1



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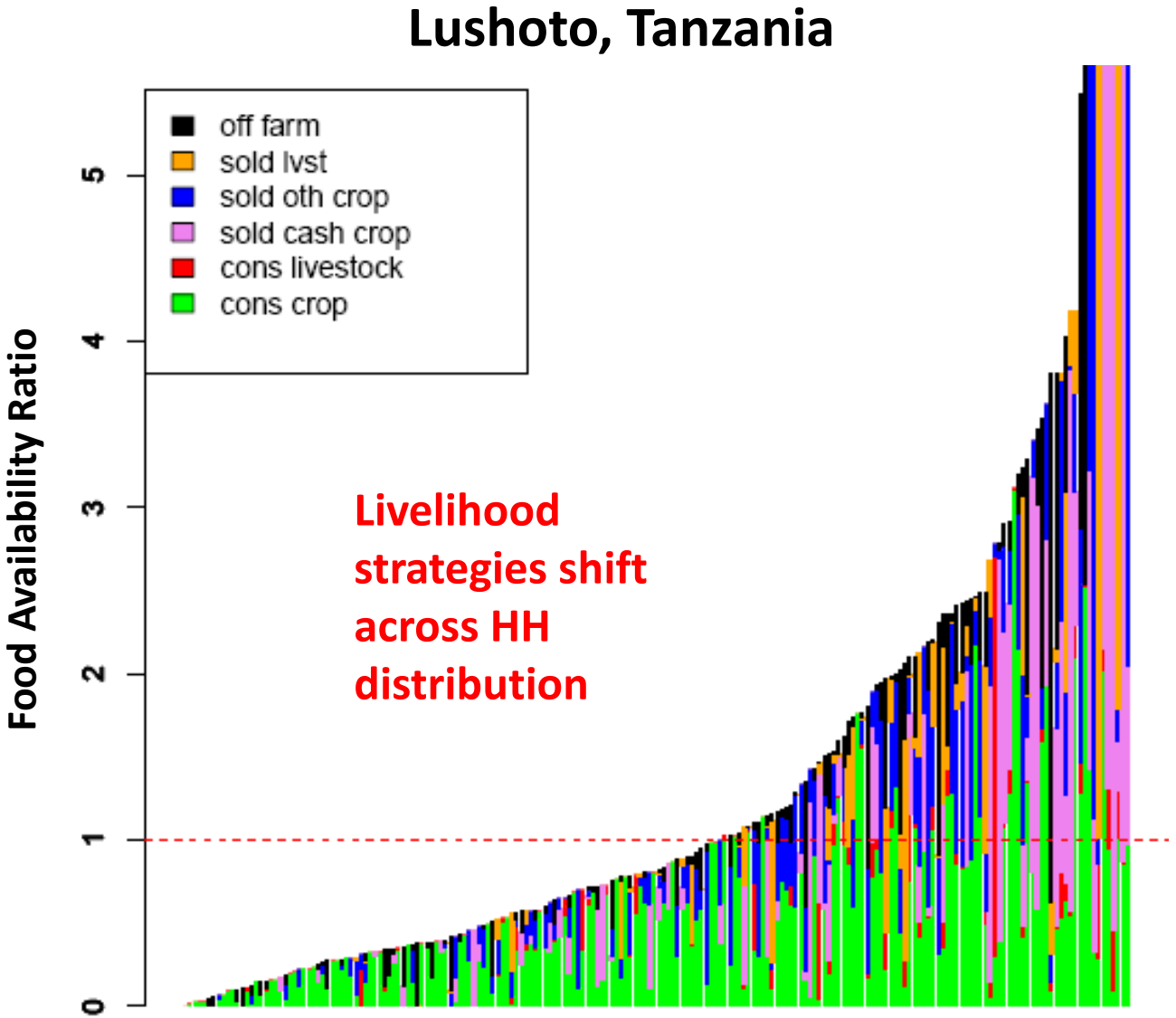
Example: … Applied Across Households

- 57% of HHs have FAR < 1
- Distributions retain detail on HH livelihoods



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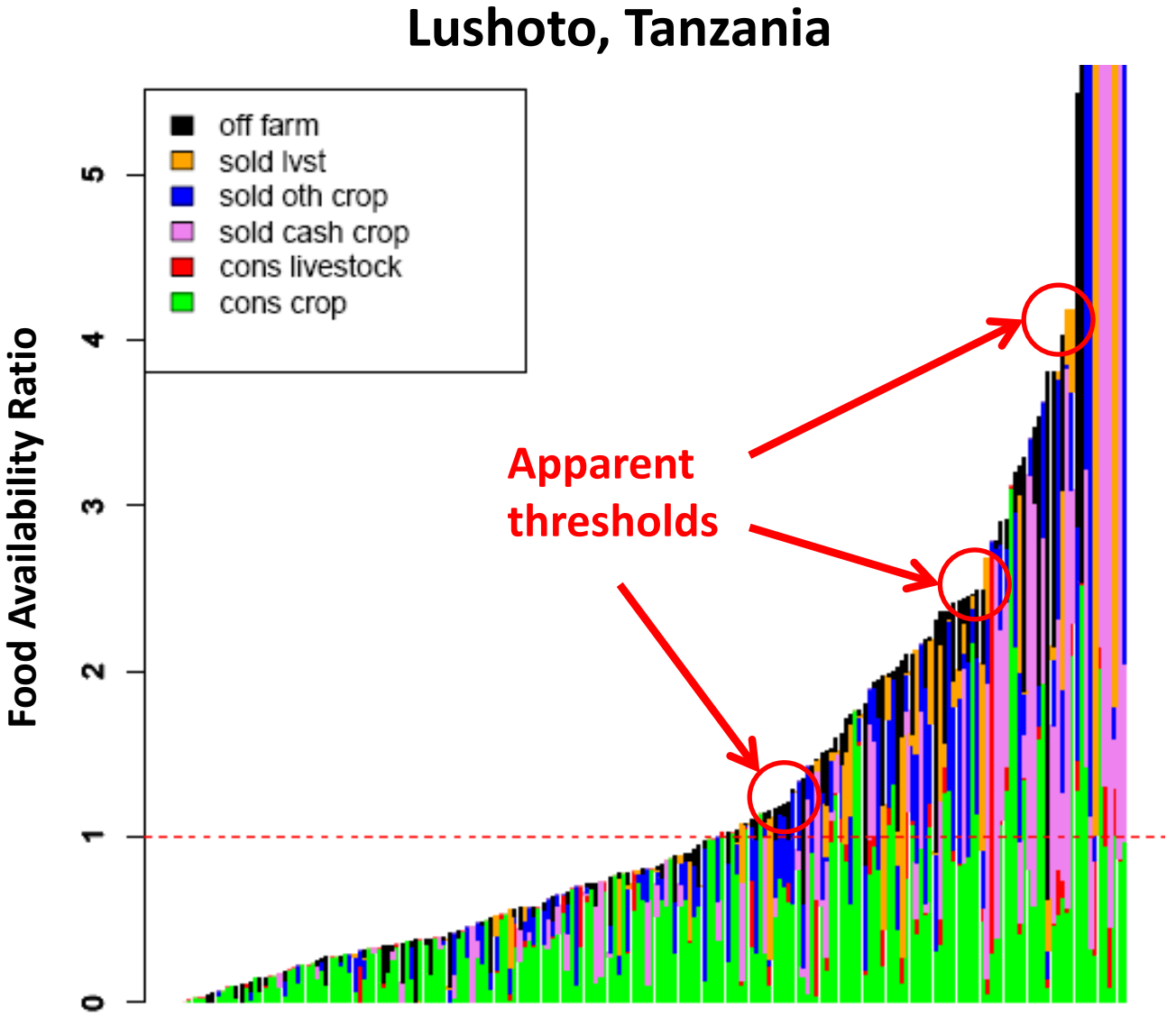
Example: … Applied Across Households

- 57% of HHs have FAR < 1
- Distributions retain detail on HH livelihoods
- Thresholds accompany shifts in livelihood strategies



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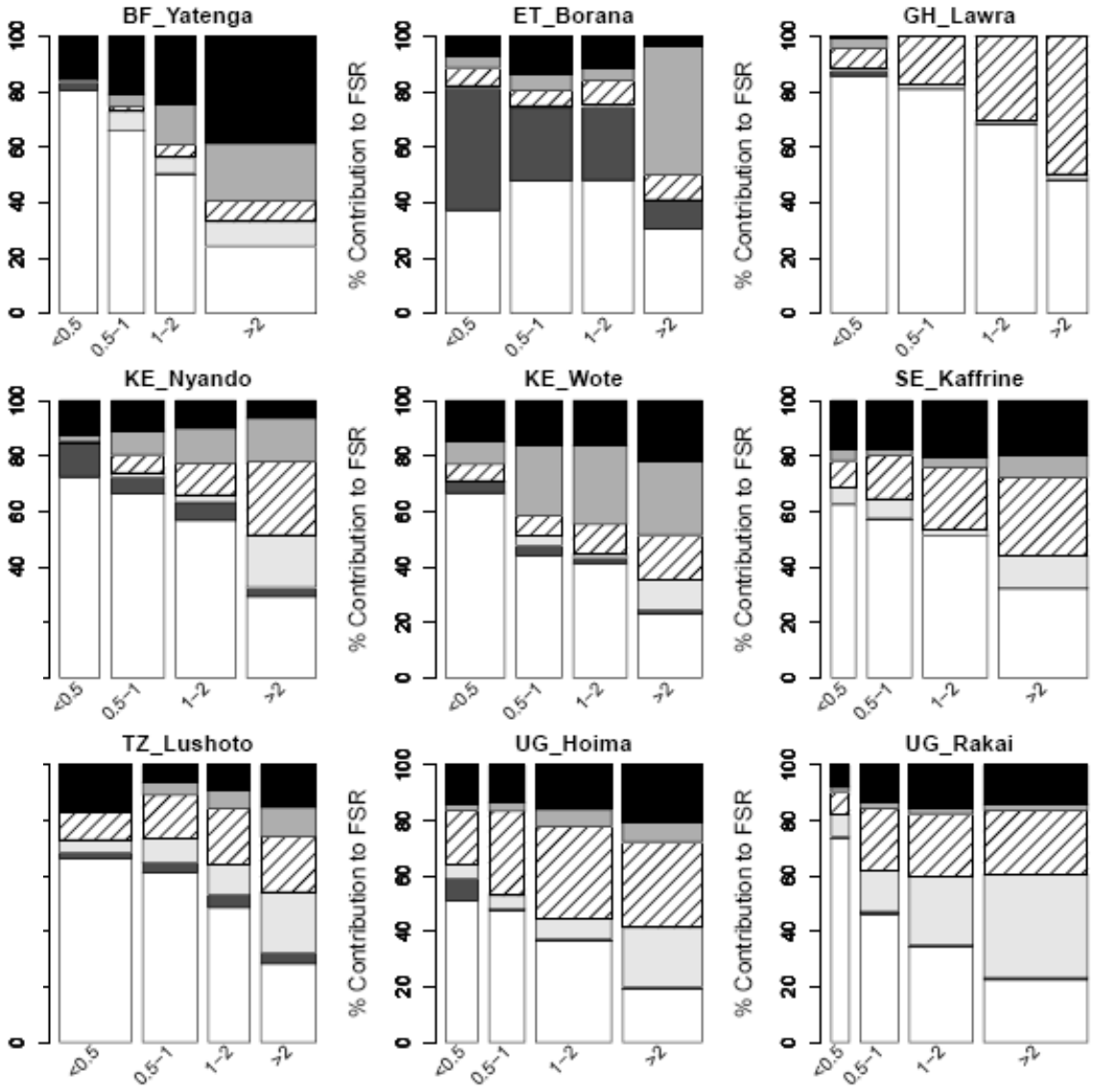
Example: … Applied Across Households

Livelihood strategies differ significantly across sites and the FAR gradient.



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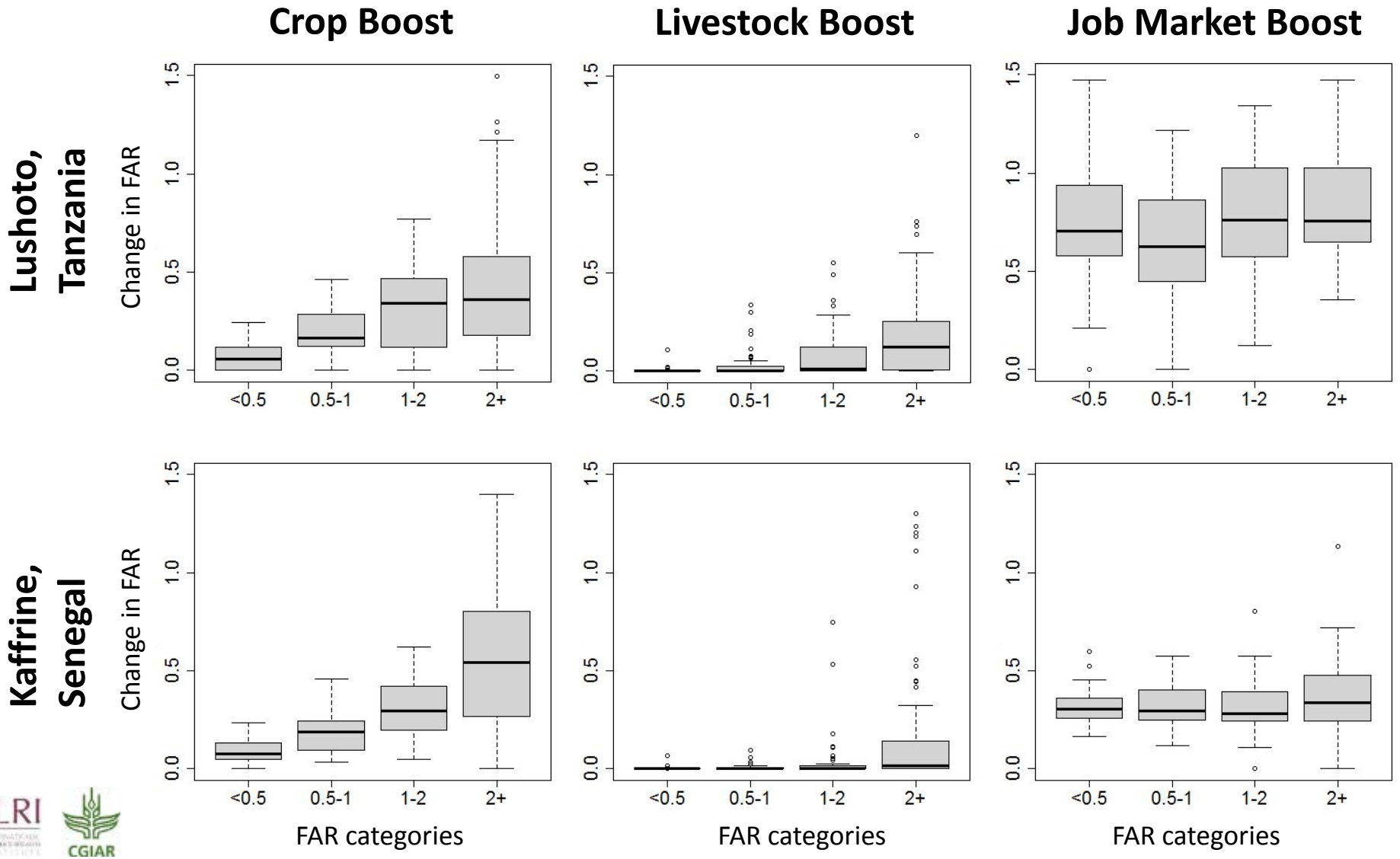
Intervention Analysis

- 3 scenarios (broadly defined)
  - ‘Crop Boost’: a 50% increase in staple crop yield
  - ‘Livestock Boost’: a 50% increase in all livestock products
  - ‘Job Market Boost’: a 200 USD increase in off-farm income

Intervention Analysis



Some Findings (regarding the Results)

- Crop / livestock intensification options, while primarily benefitting the most well-off farm HHs and perhaps supporting a transition to a market orientation for marginal HHs, have little effect on the poorest farm HHs.
- Wage/labor options need to be explored to reach the poorest HHs.
- Results from 9 research sites both (1) identify these big-picture trends, but (2) also show that variability in responses are evident across sites and between HHs.
- Results sharpen the questions regarding targeting: Whom along the FAR (or poverty, or food security) gradient should be the focus of interventions?

Some Findings (regarding the Approach)

- Represents a ‘bottom-up’ perspective that informs large-scale intervention strategy.
- Gives an initial indication of who (farm HHs) might benefit from interventions, where that benefit might be realized (site context), and to what extent.
- Though representing some loss in ‘precision’, the approach enables rapid deployment of analysis across disparate datasets, regions, and projects.
- The approach can be adapted to other research questions easily, e.g. nutrition, gender, etc.
- **It aligns with, and therefore can support, the need for large-scale quantitative analysis at the household level, as expressed in the Humidtropics IDOs.**

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Directions for Further Research

- Broadening the analysis
  - Incorporating more African datasets
  - Expansion into Southeast Asia in 2015
  - Inclusion of Humidtropics ImpactLite datasets as available
- Deepening the analysis
  - Development of a simple optimization-based calculation scheme
    - To incorporate some level of decision-making and resource allocation
    - Still to be implemented on individual HHs
  - Does the question of “Who benefits?” matter?

Thank you!

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