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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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
- Assessments of sustainable intensification options benefit from quantitative analysis

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.
HH Analysis Framework

Calculation Scheme

HH Survey Data Scheme
HH Analysis Framework

Typical:

- Calculation Scheme
  - ‘Complex’ HH model

- HH Survey Data Scheme
  - HH typologies
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!*
HH Analysis Framework

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HH Analysis Framework

Typical:
- ‘Complex’ HH model
- Calculation Scheme
- HH Survey Data Scheme

This ‘inverted’ research:
- SIMPLE calculations
- Full set of surveyed HH’s
• 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...

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

ImpactLite survey implemented on 9 CCAFS research sites (200 HH’s each)
57% of HHs have FAR < 1

Example: ... Applied Across Households

Lushoto, Tanzania

FAR = 1 suggests available food meeting HH needs
Example: ... Applied Across Households

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

Livelihood strategies shift across HH distribution
Example: ... Applied Across Households

- 57% of HHs have FAR < 1
- Distributions retain detail on HH livelihoods
- Thresholds accompany shifts in livelihood strategies
Livelihood strategies differ significantly across sites and the FAR gradient.
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

**Lushoto, Tanzania**

**Crop Boost**

**Livestock Boost**

**Job Market Boost**

**Kaffrine, Senegal**

**Change in FAR**

**FAR categories**

**FAR categories**

**FAR categories**
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.
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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