Issues and Methods in Livelihoods Analysis

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Livelihoods Concepts

- Objectives
- Resources
  - Labor
  - Land
  - Capital
- Technologies
- Constraints
  - Tenure
  - Credit
Primary research concern

Describing behavior is good

Explaining behavior is better

Understanding why behaviors differ across households is best

We want to understand not only WHAT... but WHY
Objectives

• What does the household desire?
  ◦ Profit maximization
  ◦ Food security
  ◦ Risk avoidance
  ◦ Wealth accumulation
  ◦ Food sales
  ◦ Food purchases

The answer has implications for models, prescriptions and predictions
What can households allocate?

- Land
- Labor
- Working capital

Why focus on allocation?

This is a zero-sum prospect:

*allocating a resource to one activity precludes allocating it to another*

Most economic activities have substitutes
Households also choose technologies

- Traditional vs. modern
- Embedded vs. disembodied

- Does it work?
- How well does it work?
- Is it available?
- Is it adaptable?
- Is it divisible?
- Is it biased?

- Technical vs. economic considerations
Heterogeneity is your friend

Differences are good
Variance in the data is good

This variance is what allows one to understand why different situations, motivations, and constraints lead to different outcomes.
Diagnostic/Heuristic Approach (Ashley 2000; Raintree/NAFRI 2005)

Good place to begin
Identify “Basic Needs” vs. “Supply Systems”

- Direct linkages
  crops + livestock + cash $\Rightarrow$ food

- Indirect linkages
  crops + forests + labor $\Rightarrow$ cash

Analytical focus:
  objectives; means; performance; problems; solutions
Asset/Vulnerability Approach (Castro 2002; DIFD 1999)

More formal approach
Identify inputs, processes, and outcomes

- Capital and assets
- Transforming structures and processes (including policies and institutions)
- Outcomes
Econometric approach

Typically has a guiding structure, but often specified as a reduced form: \( y = f(x) \)

- **Dependent (lhs) variables**
  - outcomes (income, expenditures)
  - choices (labor allocation, land use, technology)

- **Independent (rhs) variables**
  - exogenous variables
  - resources, parameters, constraints
Example: Agricultural Yield

Let's assume that yield depends on labor input and technology.

\[
\text{Yield (kg/ha)} = b_0 + b_1 \times \text{labor input (days/ha)} + b_2 \times \text{technology indicator}
\]

Let indicator for the new technology be 0/1. In the regression, \(b_2\) will measure the average impact of the new technology on yield.
Some difficulties

Does $b_2$ really measure the impact of the new technology on agricultural yield?

Where does labor come from? Do some uses of labor displace other uses (e.g. competition between off-farm & forest)?

- Correlation vs. causation
- Omitted variables
- Hidden causes
- Endogenous regressors
Potential solutions

- Instrumental variable techniques
  - 2 stages, 2\textsuperscript{nd} relies on results from 1\textsuperscript{st}

- Seemingly Unrelated Regressions (SUR)

- Structural systems of equations
  - use obvious constraints to shape regressions

- Natural experiments
Examples

- **2SLS**
  - 1st stage: technology choice depends on ???
  - 2nd stage: yield depends on technology choice

- **Seemingly Unrelated Regressions (SUR)**
  - Technology choice and labor allocation in parallel regressions

- **Structural systems of equations**
  - Labor shares, each with its own regression

- **Natural experiment**
  - Exogenous random assignment of new technology
Measurement of variables and choice of technique

- $-\infty \leq y \leq +\infty$  \quad \text{linear regression}

0$ \leq y \leq +\infty$ \quad \text{OLS or 1-tail Tobit}

0$ \leq y \leq 1$ \quad \text{2-tail Tobit}

0 or 1 \quad \text{Probit or logit}
References


