Aligning agriculture and nutrition: Can understanding our differences help us meet common goals?

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ICAE Symposium on Undernutrition and Poverty
10 August 2015
Aligning agriculture and nutrition: Can understanding our differences help us meet common goals?

To help frame the discussion:

- Context
- Differences
- Goals
Everything is connected

**Development outcomes**

- Food composition
- Food supplementation and assistance

**Context**

- Food availability

**Differences**

**Goals**

- Agriculture and food systems
- Technological change
- Education and behavior change

**Nutrition**

**Agriculture**
Aid priorities have cycled
ODA commitments for health, agriculture and in total, 1967-2012

Note: Health includes nutrition. Agriculture includes forestry and fisheries.
Values are billions of constant US dollars at 2012 prices (both axes).
The two sectors approach food from different angles

Some stylized differences between agriculture and nutrition

<table>
<thead>
<tr>
<th></th>
<th>Agriculture (food production)</th>
<th>Nutrition (food utilization)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical intermediate results and primary outcomes</td>
<td>Productivity, income and ending poverty</td>
<td>Diets, disease and ending malnutrition</td>
</tr>
<tr>
<td>Typical assessment and evaluation methods</td>
<td>RCTs on stations &amp; farms, then economics of adoption and impact</td>
<td>RCTs in communities, then epidemiology of prevalence and status</td>
</tr>
<tr>
<td>Typical targeting of interventions</td>
<td>Public investment for specific locations</td>
<td>Service delivery to specific beneficiaries</td>
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Main focus: places people

...but don’t forget the many similarities, and variation within the sectors!
The two sectors have different market structures

<table>
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<th>Public domain knowledge, common property resources and other social structures</th>
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<tbody>
<tr>
<td>Funders, farm input and service providers</td>
</tr>
<tr>
<td>Many diverse farmers</td>
</tr>
<tr>
<td>Food provision and sale</td>
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</tbody>
</table>

...this is another reason for the high location-specificity of agriculture

| Funders, nutritional product and health service providers                  |
| Product and service delivery                                              |
| Many diverse food consumers and service beneficiaries                      |
The two sectors have different theories of change
And economics brings a whole other perspective

**Economic model**

*From Wikipedia, the free encyclopedia*

*This article is about theoretical modelling. For the overall economic structure of a society, see Economic system.*

In economics, a **model** is a theoretical construct representing economic processes by a set of **variables** and a set of **logical** and/or quantitative relationships between them. The economic **model** is a simplified framework designed to illustrate complex processes, often but not always using **mathematical techniques**. Frequently, economic models posit structural parameters. Structural parameters are underlying **parameters** in a model or class of models. A model may have various parameters and those parameters may change to create various properties. Methodological uses of models include investigation, theorizing, and fitting theories to the world.

**Contents** [hide]

1 Overview
2 Types of models
3 Pitfalls
   3.1 Restrictive, unrealistic assumptions
   3.2 Omitted details
The two sectors have inter-related goals

Percent of energy from non-staple foods and total dietary energy by region, 1961-2011
(FAO Food Balance Sheet estimates)
The two sectors face similar scientific challenges

- Limited validity, no general theory
  - many effect modifiers, too few randomized trials
  - many behavioral responses, almost no *controlled* trials
- Limited independence, strong interest groups
  - farmers, agribusiness, government agencies and NGOs
  - nutritionists, food businesses, govt agencies and NGOs
- Economics can bring a useful perspective
  - No grand theory; a few first principles, lots of little models
  - Little sponsored research; fund research by teaching?
Conclusions

Agriculture ♥ Nutrition?

A complicated relationship, but three big changes ahead could help the marriage work:

—Tailoring research to time- and location-specific questions
  • Heterogeneity in effects by season, year, age etc.
  • Taking account of effect modifiers, such as separability due to local markets

—Diversifying agriculture, to meet dietary needs
  • Beyond starchy staples to more diverse vegetal and animal sourced foods
  • Beyond value chains to more diverse local vendors, marketplaces and retailers

—Diversifying nutrition, to use agricultural potential
  • Beyond service delivery to markets for nutritious and convenient foods
  • Beyond single nutrients to foods, including packaged foods