Market Access and Value Chain Development

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Learning event on evaluating the support to pro-poor value chain development
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Let’s think differently.
Randomized Controlled Trials (RCTs)

- External validity
- Heterogeneous effects
- Heterogeneous treatment
- Difficult to implement in demand-driven designs

Quasi-Experimental Methods

- Concerns over proper identification strategies and econometric analysis
  - Jacob and Zhu (2012)
  - Bloom (2012)
  - Imbens and T. Lemieux (2008)

- “Fuzzy” regression discontinuity
  - Jacob and Zhu (2012)

- Concerns over assumption of program placement’s conditional exogeneity

1. Find Better Ways to Measure the Impact and Scalability of What We Do
1. **Find Better Ways to Measure the Impact and Scalability of What We Do**

**Scaling Up**

<table>
<thead>
<tr>
<th>Recommendations are based on implicit extrapolation from a small number of experiments to a wide variety of dissimilar contexts</th>
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<tbody>
<tr>
<td>• Huge gap on research</td>
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<td>• Issues of external validity of RCTs</td>
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<table>
<thead>
<tr>
<th>Identical policies have different effects among individuals due to unobserved differences between populations</th>
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<td>Need a method that accounts for heterogeneity across locations; or an evaluation that takes the issues into account</td>
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| Allcott (2012) |
| Pritchett and Sandefur (2013) |
| Athey and Imbens (2006) derives an estimator to extrapolate results, overcoming this |
| Gechter (2014) improves a method for predicting the Average Treatment Effect |
2. Move Away from the Farmer to Value-Chain Level Analysis

**Inputs**
- Seeds, fertilizers, irrigation, crop protection, etc.

**Primary production**
- Staple crops, cash crops, horticulture, animal protein, etc.

**Commodity processing**
- Crushing, milling, cold storage, packaging, etc.

**Secondary processing**
- Processed foods & beverages, meat & dairy products, etc.

**Distribution/retail**
- Infrastructure, logistics, food wholesalers, etc.

**Policy and regulation**
- Tariffs, import/export restrictions, taxes, subsidies
- Non-tariff trade barriers (e.g. food safety standards)
- Third party support services (R&D, farmer extension, etc.)

**Infrastructure**

**Financing**

Source: IFC
3. Identify Bottlenecks

- Significant losses, but they vary based on methods
- The aggregate “self-reported method” yields less losses systematically
- Losses are larger at the farmer level

Food Losses (% of total production value)

3. Identify Bottlenecks

Causes of Pre-Harvest Losses for Selected Crops

3. Identify Bottlenecks and Implement Interventions: Honduras

Bean producers in baseline

External arms
- Input provision
- Market-based contractual arrangements
- Control

Treatment
- Improved seeds & fertilizer
- Quality-contingent price premium

Partners
- Department of Ag & Livestock
- Honduran Institute of Agricultural Marketing

Source: Delgado, Nakasone and Torero (2019), forthcoming
Identify Bottlenecks and Implement Interventions: Results

Market-Based Incentives Treatment Works Better

- Direct incentives to farmers
- Links farmers with corporate buyers
- Price premium for high-quality beans
- 7% improvement in reducing loss of quality

Source: Delgado, Nakasone and Torero (2019), forthcoming
Integrate Smallholders into Dynamic Value chains

We need to

• learn from all the ineffectual policies and solutions
• find best ways to aggregate — horizontal and vertical coordination
• innovate standards to differentiate staple products and high-value commodities
4. **Integrate Smallholders into Dynamic Value Chains**

- There are barriers to vertical integration that makes it desirable to contract out  
  e.g. Land laws and need for flexibility
- Product differentiation makes contracting an attractive option
- Being a price taker and facing price variability puts significant pressure on contracts
- Exploitation is possible when firms have monopsonistic power
4. Integrate Smallholders into Dynamic Value chains

Smallholders’ tendency to get away from contractors (high monitoring costs)

- Cash-constrained farmers sell directly to middlemen (Wibonpoongse et al., 1998)
- Small producers don’t have resources to meet the quality specifications (Boselie et al., 2003)
- Standards in modern value chain are more sophisticated (Reardon and Berdegué, 2002, etc.)
- Small growers may divert inputs, such as feeds in contracts involving livestock products (Delgado, et al., 2003)

Problems for the producer that accepts the contract

- Monopsonistic power of contractor (Schrader, 1986, etc.)
- Increase in specific production risk (Featherstone and Sherrick, 1992, etc.)
- Higher costs (Runsten & Key, 1996, etc.)
- Contractor defaults (Glover, 1987, etc.)
Contract Farming: 2 Extreme Modes

Dynamic Markets (exports, supermarkets, etc.)

- Food processor
  - Big producer
  - Medium
  - Medium
  - Medium
- Small
  - Small
  - Small
  - Small
  - Small

Dynamic Markets (exports, supermarkets, etc.)

- Cooperatives of associations
  - Association 1
    - Small
    - Small
    - Small
    - Small
  - Association 2
    - Small
    - Small
    - Small
    - Small
  - Association 3
    - Small
    - Small
    - Small
    - Small
    - Small
    - Small
    - Small
    - Small
    - Small
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## Incentive-Compatible Contracts

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<tr>
<th>Cost of monitoring</th>
<th>Club formation</th>
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<tbody>
<tr>
<td>Abuse of monopsony power</td>
<td>Developing strong rural farmer associations and tied products</td>
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<tr>
<td>Price schemes</td>
<td>Price schemes with incentives on productivity and quality</td>
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<tr>
<td>Quality standards</td>
<td>Joint definition of quality</td>
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<tr>
<td>Access to credit</td>
<td>Double ransom model</td>
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<tr>
<td>Productivity</td>
<td>Clear price incentives</td>
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5. **Huge Innovation on Extension**

- Previous research has questioned its effectiveness (Gautam 2000, Evenson 2001, Anderson and Feder 2007)

- Areas are scattered and can be hard to reach

- Agency problem: hard to monitor extension agents’ efforts and performance

- Emerging idea: Use IT for agricultural extension
5. Huge Innovation on Extension

Kids to Parents: Extension

- Traditional Agricultural Extension: costly, hard to reach out in remote areas and hold extension workers accountable (e.g., Cole and Fernando 2012)
- ICTs can solve these shortcomings
- Challenge: Computer-illiterate adult population in rural areas
Kids and ICTs for Extension

Example: molasses trap to catch corn earworm

How to identify the problem?

Explain the problem

Simple Solution (Molasses Trap)

How does the solution work?
Kids to Parents: Results

• Implemented field experiment to teach agricultural practices to high school students

• Information appears to be transmitted to farm managers in the household

• When the student is taught an agricultural practice, farm manager's knowledge of that practice increases by 6-9 percentage point (20%-30%)

• Adoption of the practice increases by 3-5 percentage point (16%-23%)
6. Better Targeting and Sequencing

The Concept of (Stochastic) Profit Frontier

- Based on a simple economic concept: the Production Possibility Frontier (PPF)
- All the possible production combinations are found within the PPF
- Outside of the boundary are combinations, which are not achievable under current conditions
- The efficient use of resources is along the boundary
Advantages of Micro-Region Typology

Typology

Diagnostic from poverty map

High-potential and low-average efficiency

Principal differences between high- and low-efficiency households

High-poverty areas

Productive projects differentiated to meet local needs

Conditional cash transfers & nutritional programs

Low-potential and low-average efficiency

High-poverty areas

The inclusion of socioeconomic characteristics and access allows the identification of bottlenecks in high-potential areas, but with low or medium efficiency.

Productive and efficiency potential based on market, socioeconomic, bio-physical and access characteristics.
Grouping Diverse Criteria into 7 Micro-Regions: Burkina Faso
Market Segmentation Model for Identifying Interventions

- Globally competitive production
- Little government distortion
- Finance needs to adapt to agribusiness requirements

- Globally competitive production
- Existing policy distortions
- Players along the value chain have integrated operations

- Sector competitive on import parity basis
- Functioning domestic value chain
- Local processing to meet market conditions

- Limited infrastructure
- Unreliable links to the value chain
- Significant challenges accessing finance

- Challenging environment for value chain to develop
Thank you.