Subsidizing the way to a Green Revolution and less rural poverty in Africa?

The effects of Zambia’s input subsidy program on smallholder behavior and economic well-being

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AFRE Graduate Program Orientation

Ag input subsidy programs (ISPs) in Africa

- Inorganic fertilizer, hybrid seed
- Cornerstone of many countries’ agricultural sector & poverty reduction strategies

EX) 2011: 10 SSA countries ≈ US$1 billion
(29% of public spending on ag; 60% of pop.)
(Jayne & Rashid, 2013)
Zambia & its input subsidy program

**Zambia**
- 14.6 million people (area ≈ Texas)
- 61% rural
- Rural poverty rate ≈ 80% for 20 years
- Mostly smallholder farms; avg. ≈ 2 ha cult.
- Maize = dominant crop

**Input subsidy program**
- Farmer Input Support Program (FISP)
- 2002-present
- Large program
  - 2013 goal: 900,000 of 1.47 mil smallholder HHs (61%)

**How FISP works**

**Input pack**
- 200 kg inorg. fertilizer (50% sub.)
- 10 kg hybrid maize seed (free)
- 0.5 ha of maize

**Steps**
1. Farmers apply & pay ($67 - 2013)
2. Local committee selects farmers
3. Inputs delivered to farmer coop
4. Farmer picks up inputs from coop
What is FISP trying to achieve?

Objectives

- Increase small-scale farmers’ access to inputs
- Raise incomes and reduce poverty
- Improve household and national food security
- Build private sector capacity

Source: MACO (2008); statements by Min. of Ag. And Livestock

Why study FISP?

- Big bucks!
  - ≈ 40% of total ag $$
  - ≈ 50% of ag Poverty Reduction Program $$
- Given:
  - High rural poverty
  - Heavy spending
  - High opportunity cost
- It’s important to know:
  - if and how FISP is working
  - how it can be improved
- Consider alternative ways to achieve its objectives
What we’ve studied so far

1. **Targeting:**
   - Who gets FISP?
   - Is there a political dimension?

2. **What are the impacts of FISP on:**
   - Use of inorganic fertilizer and hybrid maize seed?
   - Crop production?
   - Maize market prices?
   - Incomes & poverty? (in progress)
   - Soil fertility mgmt (SFM) practices? (in progress – Kendra Levine MS)

3. **Do the benefits outweigh the costs?**

How we’ve studied it

- HH surveys covering all provinces (“nationally representative”)
- Revisit HHs every few years (“panel data”)
- Regression analysis (panel & IV methods)
What we’ve learned so far

1. **Targeting:**
   - Who gets FISP? Relatively better off HHs (land, livestock)
   - Political dimension? Yes! Areas won by ruling party get more

2. **What are the impacts of FISP on:**
   - Inorganic fertilizer & hybrid maize seed? ↑s use but not 1:1
   - Crop production? ↑s maize output but yield response to fert low
   - Maize market prices? ↓s retail maize prices by ≈ 2-3%
   - Incomes & poverty? ↑s incomes but poverty impacts small
   - SFM practices? ↑s manure, rotation w/ legumes but ↓s fallowing

3. **Do the benefits outweigh the costs?**
   - No, not as currently designed (economic BCR ≈ 0.9)

We still have a lot to learn!

For example …

1. **How has FISP affected:**
   - Food security and nutrition?
   - Labor supply/demand, wages?
   - Extension?
   - “Private sector capacity”?

2. **More on political economy of FISP**

3. **Cost-effective alternatives to achieve FISP goals?**

   *If you have an interest in these or related issues, let’s talk!*

Thanks & welcome to MSU/AFRE!

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Courses  
AEC 802 (MS Statistics)  
AEC 861 (Ag in Econ. Dev.)

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