Current thinking on “strategy”

- Strong consensus about need for greater investment in public goods (infrastructure, crop science) and certain policy reforms
- Major debate with regard to what constitutes the right “enabling environment”
  - Input subsidies
  - Food price support/stabilization
  - The role of regional trade
Many of these debates can be informed by a solid empirical understanding of farmer behavior.

Organization of presentation:

1. Underappreciated “empirical regularities” of small farm agriculture in Africa
2. Discuss the implications of these findings for current policy debates on
   - input promotion / productivity strategies
   - regional trade
Five underappreciated facts about African agriculture:

1. Farm sizes are declining → major land disparities → affects the % of farmers capable of producing a surplus and participating in markets
2. Most smallholder farmers are buyers of staple food → directly hurt by higher grain prices
3. Retail food prices are trending downward in most of the region
4. Countries adopting a relatively open approach to regional trade are experiencing lower price volatility and fewer food crises than those controlling prices and trade flows.
5. Targeting difficulties impede the potential of fertilizer subsidy programs to contribute to productivity and poverty reduction objectives

Fact #1

• Emerging land pressures are generating fundamental challenges for strategies to link farmers to markets and reduce poverty
### Cultivated land per agricultural person (hectares per capita)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
<td>0.508</td>
<td>0.450</td>
<td>0.363</td>
<td>0.252</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.459</td>
<td>0.350</td>
<td>0.280</td>
<td>0.229</td>
</tr>
<tr>
<td>Mozambique</td>
<td>0.389</td>
<td>0.367</td>
<td>0.298</td>
<td>0.249</td>
</tr>
<tr>
<td>Rwanda</td>
<td>0.215</td>
<td>0.211</td>
<td>0.197</td>
<td>0.161</td>
</tr>
<tr>
<td>Zambia</td>
<td>1.367</td>
<td>1.073</td>
<td>0.896</td>
<td>0.779</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>0.726</td>
<td>0.664</td>
<td>0.583</td>
<td>0.525</td>
</tr>
</tbody>
</table>


### Farm size distribution:

Small farm sector

![Farm size distribution chart](image)
Characteristics of smallholder farmers, Zambia 2003/04

<table>
<thead>
<tr>
<th></th>
<th>N=</th>
<th>Farm size (ha)</th>
<th>Asset values (US$)</th>
<th>Gr. Rev., maize sales (US$)</th>
<th>Gr. Rev., crop sales (US$)</th>
<th>Total hh income (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 50% of maize sales</td>
<td>31,320 (2%)</td>
<td>4.3</td>
<td>1,132</td>
<td>720</td>
<td>1163</td>
<td>2,932</td>
</tr>
<tr>
<td>Rest of maize sellers</td>
<td>328,561 (26%)</td>
<td>1.6</td>
<td>316</td>
<td>88</td>
<td>193</td>
<td>634</td>
</tr>
<tr>
<td>Households not selling maize</td>
<td>907,255 (72%)</td>
<td>0.9</td>
<td>231</td>
<td>0</td>
<td>97</td>
<td>415</td>
</tr>
</tbody>
</table>

Upshot

- New technology can help
- But given plausible assumptions about the extent to which technical innovation can raise grain yields, farm sizes are becoming too small for most smallholders to produce a grain surplus (and participate in markets)
- Hence, diversification into higher-return activities will be crucial
- This transition is already occurring
Role of maize in farm sales revenue is declining (share of gross sales revenue)

<table>
<thead>
<tr>
<th></th>
<th>Maize</th>
<th>Other grains/beans/oilseeds</th>
<th>Non-food cash crops</th>
<th>Fruits - veges</th>
<th>Animal products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>13.3</td>
<td>7.9</td>
<td>34.0</td>
<td>14.7</td>
<td>26.7</td>
</tr>
<tr>
<td>Malawi</td>
<td>32.3</td>
<td>11.8</td>
<td>44.9</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Mozam</td>
<td>13.8</td>
<td>9.3</td>
<td>16.9</td>
<td>30.4</td>
<td>23.4</td>
</tr>
<tr>
<td>Zambia</td>
<td>28.2</td>
<td>7.7</td>
<td>16.7</td>
<td>27.5</td>
<td>14.7</td>
</tr>
</tbody>
</table>

Fact #2

- Most rural farm households are buyers of maize (or net buyers)
Smallholder Households’ Position in the Maize Market

Fact #2

- Most rural farm households are buyers of maize (or net buyers)
- 2% of households account for 50% of marketed grain surplus
- Crop price supports:
  - highly concentrated benefits
  - anti-poor
  - Most likely impede small farm diversification into higher-valued activities
Fact #3

- Retail maize meal prices are trending downward

[D] Nairobi: Price trends

Linear trend (meal): -0.572***
Linear trend (grain): -0.1060

*** 1% level of significance
Lusaka: Price trends

Year/Month
Wholesale grain
Breakfast meal
Linear-trend-grain
Linear-trend-meal

Lusaka: wholesale-retail margin

Year/Month
Fact #3

- Retail maize meal prices are trending downward
- Why?
  - Food market reform has encouraged rapid investment in informal, small-scale milling and trading networks
  - The informal channel exerts competitive pressure on commercial millers/retailers
  - Exception: South Africa

![Graph showing trend of producer maize, wholesale maize, and retail maize meal prices](chart.png)
Fact #4

- Maize grain prices are generally more unstable in countries that restrict grain trade than in countries having open borders.

- Compute two measures
  - Unconditional CV: measure of price variability
  - Conditional CV: measure of price unpredictability
    - After accounting for available information on rainfall, normal seasonality, exchange rates, and last month’s price.
Both unconditional and conditional CVs:
- Highest in Malawi and Zambia
- Moderately high in Mozambique and Mali (maize)
- Lowest in Mali (rice) and Kenya
Conclusions:

• Despite compelling rationale for price stabilization and controlling trade to stabilize food supplies, countries that rely on “maize without borders” generally have
  – more stable prices
  – higher cereal production growth

than countries actively intervening to stabilize prices

Why Does this Conclusion Hold?

1. Cutting off trade depresses the long-term development of commercial markets
2. Private trade and investment develop more slowly and more tentatively where government policy is unpredictable
3. “Self-fulfilling prophesies” – if governments intervenes too heavily, then markets will not develop
4. Many governments’ well-meaning attempts to stabilize prices actually destabilize them because they
   • cannot mobilize forex quickly enough
   • over-release supplies onto markets
   • buy too much from the market, etc.
Example: the Malawi famine of 2002

While private trading systems will always result in some price variation, they tend not to cause the frequent food crises due to policy mistakes and inaction that are commonly seen in the region
Fact #5

- Recent impact assessments of fertilizer subsidy programs (e.g., Zambia) are showing relatively limited impacts on agricultural productivity and poverty reduction
- Why?
Two reasons for low returns to fertilizer subsidy programs:

1. Poor targeting

<table>
<thead>
<tr>
<th>Fertilizer source:</th>
<th>Total Income</th>
<th>Assets</th>
<th>Landholding size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households not acquiring fertilizer:</td>
<td>266</td>
<td>173</td>
<td>.15</td>
</tr>
</tbody>
</table>

Source: Govere et al, 2006
<table>
<thead>
<tr>
<th>Zambia</th>
<th>Total Income</th>
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</tr>
<tr>
<td>Households not acquiring fertilizer:</td>
<td>266</td>
<td>173</td>
<td>.15</td>
</tr>
<tr>
<td>Cash purchases from private retailers:</td>
<td>774</td>
<td>342</td>
<td>.20</td>
</tr>
</tbody>
</table>

Source: Govereh et al, 2006
Three reasons for low returns to fertilizer subsidy programs:

1. Poor targeting
2. Crowding out of commercial sales → limited overall additional fertilizer use

Malawi

* The additional 129,247 mt subsidized fertilizer only raised total use by 63,541 mt
* Preliminary figures subject to updating
IFPRI review of rate of return studies:

<table>
<thead>
<tr>
<th>Investments</th>
<th>Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidies</td>
<td>Negative – 12%</td>
</tr>
<tr>
<td>Investments</td>
<td></td>
</tr>
<tr>
<td>- research &amp; extension</td>
<td>35% to 70%</td>
</tr>
<tr>
<td>- roads</td>
<td>20% to 30%</td>
</tr>
<tr>
<td>- education</td>
<td>15% to 25%</td>
</tr>
<tr>
<td>- communications</td>
<td>10% to 15%</td>
</tr>
<tr>
<td>- irrigation</td>
<td>10% to 15%</td>
</tr>
</tbody>
</table>

If we believe these findings, they have major implications

Budget allocation to Agricultural Sector in Zambia: ZMK465 million in 2005
As massive as the poverty problems are now, they will be much greater unless budgets are re-allocated sooner or later to investments that will make the economy productive in the long-term:

- Population growth w/o productivity growth → civil strife
- Not a viable option to have more and more “fragile” or “failed” states

Policy response (cont.)

- Lobby forcefully for more level playing field in international trade
  - OECD support for Africa: $50 bill./yr
  - OECD ag. subsidies: $350 bill./yr
Summary of Policy Implications

1. Incentives for government to reallocate expenditure patterns toward those that best contribute to *sustained* productivity and poverty reduction
2. More selective and more sustained donor support for growth-promoting investments – move away from budget support
3. Policy stability and predictability – don’t constantly change trade policies and the nature of government participation in input and output markets.
4. Food self-reliance, not food self-sufficiency – adopt a more open borders approach to regional trade
5. Some protection from world markets may be justified
6. If input subsidies are to be used, do it in ways that don’t undermine commercial markets – targeting!
7. Implicit in all the above are thorny political economy issues that must be addressed

thank you