Agricultural Data and Policy Implications in Zambia

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Outline of Presentation

1. Background
2. Review of data sources
3. What do these data tell us about rural poverty and public spending?
4. Understanding high maize meal prices in Zambia
5. Conclusion
Background: Who are we?

- Indaba Agricultural Policy Research Institute (IAPRI)
  - Zambia’s first institute dedicated to agricultural policy research and advocacy
  - Emerged from USAID-funded Food Security Research Project (FSRP)
  - IAPRI core funding from USAID and SIDA
  - Links empirical evidence to pro-poor policy reform in the agricultural sector
Data Sources

- Zambia has a long-term commitment to generating robust data:
  - Surveys focus on “smallholder” households (hh): Defined as cultivating >0 and <20 ha.
  - These include:
    - Annual Crop Forecast Survey (CFS)
    - Annual Post-Harvest Survey (PHS)
  - These surveys exclude important livelihoods variables
Data Sources

- Supplement to the Post-Harvest (SS)
  - ~5000 HH
  - Nationally representative
  - Provides important livelihoods data not captured in normal agricultural statistics:
    - HH income, demographics, marketing, land ownership
Data Sources

- Rural Agricultural Livelihoods Survey 2012 (RALS)
  - >8,000 smallholder hhs
  - Nationally representative
  - First wave of new panel following 2010 Census
  - Like the SS provides unique rural livelihoods data:
    - The survey captures crop and hh member level data related to all farm and off-farm activities
Example of analysis from RALS

Average yield (MT/ha) by crop by sex of hh head, 2012

Source: RALS 2012
Unique Attributes of the RALS

- HH member-level disaggregation of farm production practices, marketing, and off-farm income:
  - Enables gender disaggregated analysis

- USAID/FtF anthropometric and women’s empowerment data collected on RALS hhs in Eastern Province
  - Enables analysis of livelihoods data to anthropometric outcomes
What can all these data tell us?

To advocate for pro-poor policy we must understand the characteristics of rural poverty and their relationships to Zambian agricultural policies.
### Understanding rural poverty in Zambia

<table>
<thead>
<tr>
<th>Province</th>
<th>Mean</th>
<th>Median</th>
<th>Percentile 25</th>
<th>Percentile 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>455</td>
<td>224</td>
<td>111</td>
<td>451</td>
</tr>
<tr>
<td>Copperbelt</td>
<td>568</td>
<td>224</td>
<td>118</td>
<td>460</td>
</tr>
<tr>
<td>Eastern</td>
<td>390</td>
<td>217</td>
<td>119</td>
<td>388</td>
</tr>
<tr>
<td>Luapula</td>
<td>664</td>
<td>286</td>
<td>159</td>
<td>514</td>
</tr>
<tr>
<td>Lusaka</td>
<td>1352</td>
<td>320</td>
<td>122</td>
<td>816</td>
</tr>
<tr>
<td>Muchinga</td>
<td>447</td>
<td>212</td>
<td>111</td>
<td>474</td>
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<tr>
<td>Northern</td>
<td>469</td>
<td>315</td>
<td>185</td>
<td>548</td>
</tr>
<tr>
<td>NorthWestern</td>
<td>442</td>
<td>203</td>
<td>115</td>
<td>421</td>
</tr>
<tr>
<td>Southern</td>
<td>694</td>
<td>203</td>
<td>109</td>
<td>424</td>
</tr>
<tr>
<td>Western</td>
<td>302</td>
<td>163</td>
<td>77</td>
<td>320</td>
</tr>
<tr>
<td>Zambia</td>
<td>514</td>
<td>231</td>
<td>120</td>
<td>449</td>
</tr>
</tbody>
</table>

Source: RALS 2012
Average per capita income among smallholder households by sex of hh head

<table>
<thead>
<tr>
<th>Sex of Household Head</th>
<th>Mean</th>
<th>25th percentile</th>
<th>Median</th>
<th>75th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>882.05</td>
<td>126.76</td>
<td>238.98</td>
<td>455.10</td>
</tr>
<tr>
<td>Female</td>
<td>413.83</td>
<td>90.69</td>
<td>174.97</td>
<td>362.79</td>
</tr>
<tr>
<td>Child-headed</td>
<td>387.57</td>
<td>196.45</td>
<td>196.45</td>
<td>271.91</td>
</tr>
<tr>
<td>All households</td>
<td>741.35</td>
<td>120.04</td>
<td>230.87</td>
<td>448.67</td>
</tr>
</tbody>
</table>

Source: RALS 2012
### Land Size and Poverty in Zambia, 2011/12

<table>
<thead>
<tr>
<th>Total area cultivated</th>
<th>Number of farms (A)</th>
<th>% of farms (B)</th>
<th>Poverty Rate (%) (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.99 ha</td>
<td>596,334</td>
<td>39.60%</td>
<td>81%</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>499,026</td>
<td>33.10%</td>
<td>81%</td>
</tr>
<tr>
<td>2-4.99 ha</td>
<td>354,116</td>
<td>23.50%</td>
<td>66%</td>
</tr>
<tr>
<td>5-9.99 ha</td>
<td>49,410</td>
<td>3.30%</td>
<td>38%</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>6,999</td>
<td>0.50%</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>1,505,885</td>
<td>100%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Source: RALS 2012
Understanding rural poverty in Zambia

Percentage share of FISP/FSP and FRA of the total MAL budget, 2003-2011

* Note: 2012 and 2013 are budget allocations, actual spending likely varies
### Understanding rural poverty in Zambia

<table>
<thead>
<tr>
<th>Total area cultivated</th>
<th>Number of farms</th>
<th>% of farms</th>
<th>Poverty Rate (%)</th>
<th>% of farmers receiving FISP fertilizer</th>
<th>kg of FISP fertilizer received per farm household</th>
<th>% of farmers expecting to sell maize</th>
<th>Expected maize sales (kg/hh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.99 ha</td>
<td>596,334</td>
<td>39.6</td>
<td>81</td>
<td>14</td>
<td>24.1</td>
<td>22.2</td>
<td>135</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>499,026</td>
<td>33.1</td>
<td>81</td>
<td>31</td>
<td>69.3</td>
<td>47.7</td>
<td>609</td>
</tr>
<tr>
<td>2-4.99 ha</td>
<td>354,116</td>
<td>23.5</td>
<td>66</td>
<td>45</td>
<td>139.7</td>
<td>64</td>
<td>1,729</td>
</tr>
<tr>
<td>5-9.99 ha</td>
<td>49,410</td>
<td>3.3</td>
<td>38</td>
<td>59</td>
<td>309.7</td>
<td>82.1</td>
<td>6,613</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>6,999</td>
<td>0.5</td>
<td>15</td>
<td>53</td>
<td>345.6</td>
<td>86.8</td>
<td>15,144</td>
</tr>
<tr>
<td>Total</td>
<td>1,505,885</td>
<td>100</td>
<td>76</td>
<td>29</td>
<td>77.1</td>
<td>42.7</td>
<td>950</td>
</tr>
</tbody>
</table>

Source: RALS 2012
Summary of Policy Impacts on Rural Poverty

- Current public spending focus on maize input and output subsidies:
  - Disproportionately captured by larger, already better-off farmers
    - May help to explain why spending increases on agriculture have not led to a decline in rural poverty
  - Comes at a major opportunity cost to investment in public goods
  - Output market subsidies through the FRA may also be implicated in high maize meal prices since November 2012
High maize meal prices and changing maize market

Maize Sales and FRA Purchases in Zambia
(2002/03 to 2011/12)

FRA Regime 1: Minority market

FRA Regime 2: Majority market role
Organization of Zambia’s Maize Market under FRA Regime 1
Outcome of Regime 1

![Graph showing the outcome of Regime 1 with data points for Wholesale maize grain and Retail breakfast meal. The graph plots the price per kg over years from 2000 to 2011. The prices are in constant 2011 kwacha.]
Zambia’s Maize Market Structure under FRA Regime 2

Informal Market Channels
- Smallholder farmers
  - Small-Scale assemblers
    - Rural consumers
      - Hammer millers
    - Informal retail markets
- Urban consumers

Formal Market Channels
- Commercial farmers
  - World Market
- Food Reserve Agency
- Commercial Wholesale traders
- Supermarkets
- Commercial millers/ feed processors
  - Informal Market Channels

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Overall Effect on Market

- Less competition in the market
- Greater uncertainty over prices
- Greater advocacy power by millers
- Less overall maize supplies than would have been the case otherwise
- Elevated risk of supply bottlenecks around FRA depots
- Decreased market flexibility and greater vulnerability to unanticipated changes in supply and demand
Structural Shift in South African Trade

Trends of South Africa’s White Maize Grain Exports to Africa and Overseas

*2012 (28 Apr 2012 - 8 Mar 2013)
Summary

- High regional demand coupled with extensive interventions in the market contribute to elevated maize meal prices despite high production levels.

- High wholesale prices should be viewed as a positive development for surplus maize producers.
  - However, trade restrictions and FRA procurement limit this effect.
    - Commercial farms willing to return to market under more predictable circumstances.
    - Smallholder response limited by delayed payments from FRA and uncertainty over input access.
Conclusion

- Current agricultural development approach in Zambia is not yielding optimal outcomes:
  - Stagnant rural poverty and widening income gap
  - Stagnant yields
  - High food prices

- A redirection of spending is critical
  - Policy-makers must begin to make use of the wealth of empirical data they have to make policy decisions
Ways forward

- Regional demand likely to remain high in the medium-term:
  - Opportunity to redirect spending toward more pro-poor spending, without undermining producer prices
  - Private-sector wholesalers willing to move toward maize contracts if trade is freed
    - Can hedge positions on SAFEX or better yet on ZAMACE
    - Cargill example
Ways forward

- Yet current signals are worrying:
  - Increased spending on FRA
  - Significant spending on new public grain silos
  - Revamping of Nitrogen Company of Zambia (NCZ)
  - Continued capacity of MAL to unilaterally impose trade restrictions
    - Unwilling to support Agricultural Marketing Act

- If Zambia wants to use agriculture as a growth engine and become the breadbasket of the region a new policy approach must be pursued.
Key recommendations

- Encourage the passage of the Agricultural Marketing Act:
  - Unilateral capacity to impose import and export bans must be limited in order to encourage investment in agricultural markets

- Revise FRA Act to limit its market function:
  - Should return to being a strategic reserve
  - Can manage strategic reserves in alternative ways

- Encourage the adoption of the e-voucher for input distribution:
  - This should be in areas with sufficient private sector capacity - NOT PAN-TERRITORIAL
  - Need clarification from government on how market an e-voucher and NCZ can co-exist
Key recommendations

- Cost savings from limited FRA and greater reliance on private sector to handle input subsides can create budget space to:
  - Expand and improve extension service
  - Develop improved seed varieties and farm and animal husbandry practices
  - Invest in testing and compliance to enable Zambian products to meet sanitary and phytosanitary standards
  - Rural electrification, irrigation, education, and roads
Thank You

For more information see our websites at:
http://fsg.afre.msu.edu/zambia/index.htm

Or

http://www.iapri.org.zm/

Or contact me directly at:
Email: njsitko@gmail.com

Cell: 0979109790
Additional Slides
Zambia’s formal maize exports 2010-2012

Zimbabwe received 61% of Zambia’s formal maize exports during this timeframe.
Effects of a reorganized maize market

Constant prices of wholesale maize grain and retail breakfast meal per kg in Lusaka

- Wholesale maize grain
- Retail breakfast meal

Month (year)

2011 | 2012

M1 M2 M3 M4 M5 M6 M7 M8 M9 M10 M11

K0 K400 K800 K1,200 K1,600 K2,000 K2,400 K2,800

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DRC received 83% of formal mealie meal exports during this timeframe.
Effects of a reorganized maize market

- Steep decline in maize production by commercial farms

Commercial Farm Maize Production Trends 2003/04-2012/13
Intra-Household Crop Decision-Making: Male and Female Adult HH Composition percent distribution of decision to sell by sex of decision maker, 2011