Lessons from Zambia's 2010 Maize Marketing Experience


Food Security Research Project, Lusaka
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3 March 2011, Lusaka
Collaborating institutions involved in this study:

- Food Security Research Project
- Agricultural Consultative Forum
- Ministry of Agriculture and Cooperatives
- Central Statistical Office

Disclaimer: The views expressed here are those of the authors and do not represent those of any particular agency, including FSRP, ACF, MACO, CSO or our funding partners, USAID or SIDA.
Objectives of this presentation

1. Lessons learned from 2010
   – What were the specific policy actions taken in 2010
   – What were their impacts
   – Distributional effects: winners and losers
     • large-scale farmers
     • three categories of smallholder households:
       – net sellers of maize
       – net buyers of maize
       – those that neither buy nor sell maize
     • urban consumers
     • millers
     • traders
     • government
2. Implications for 2011 and beyond
   – Concrete proposals for what could be done if 2011 should turn out to be another maize bumper crop
   – What else is different in 2011 vs. 2010 that would need to be considered
Main features of GRZ’s response to 2010 maize bumper harvest:

1. FRA producer price of 65,000 kw/50kg (~ US$275 per mt)
2. FRA maize purchase targets continuously revised upward as it became clear that original purchase targets would not be sufficient to absorb the marketed surplus – 878,570 MT purchased by FRA by 31 October 2010
3. Implicit restrictions on exports
2010 Maize prices: Lusaka wholesale, FRA Purchase Price, and c.i.f. from South Africa

![Graph showing maize prices from May to September 2010. The graph compares Lusaka wholesale price, FRA purchase price, and South African maize landed in Lusaka. The prices are represented in ZMK/kg.](image-url)
5 Main Outcomes:

1. Accumulation of massive maize stocks
   – Kw 1.5 trillion (a 15-fold cost overrun)

2. Despite the record harvest, most smallholders did not produce a maize surplus in 2010.
   – Only 36% of smallholder farmers were expected to sell maize in 2010/11
   – extremely concentrated marketed surplus: About 49,000 farmers, or 3.3% of the total smallholder population, accounted for 50% of sales
## Disparities within smallholder agriculture, Zambia - 2008

<table>
<thead>
<tr>
<th></th>
<th>N=</th>
<th>Farm size (ha)</th>
<th>Asset values (US$)</th>
<th>Gross rev., maize sales (US$)</th>
<th>Gross rev., crop sales (US$)</th>
<th>Total hh income (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 50% of maize sales</td>
<td>30,150</td>
<td>7.2</td>
<td>3,703</td>
<td>3,199</td>
<td>3,354</td>
<td>7,624</td>
</tr>
<tr>
<td></td>
<td>30,150 (2%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of maize sellers</td>
<td>467,320</td>
<td>1.9</td>
<td>257</td>
<td>172</td>
<td>252</td>
<td>1,272</td>
</tr>
<tr>
<td></td>
<td>467,320 (30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Households not selling maize</td>
<td>1,010,014</td>
<td>1.1</td>
<td>129</td>
<td>0</td>
<td>57</td>
<td>756</td>
</tr>
<tr>
<td></td>
<td>1,010,014 (67%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: CSO Supplemental surveys, 2008
3. After adding FRA marketing costs, millers could obtain maize more cheaply local markets (and from South Africa!) than from the FRA, unless it relied on the Zambian Treasury to subsidize the FRA’s sale price
4. The upward pressure that FRA’s activities exerted on maize market prices made maize meal more expensive for urban and rural consumers than otherwise would have been the case.

- the FRA’s activities effectively transferred income from rural and urban maize purchasing households to a small minority of surplus-producing farmers
5. FRA maize was also not competitive in regional export markets. FRA exports in 2010/11 have entailed a loss of US$91-177 per ton exported.

   - In this way, government has private discouraged exportation that otherwise could have relieved the national surplus without imposing major financial losses on the Treasury.
Winners:

1. Large-scale commercial maize producers
2. 36% of smallholder farmers who sell maize
   - Recall 3.3% account for 50% of maize sales from smallholder sector
3. Government (at least in some ways)
Losers

• Urban consumers (38% of total population)
• Rural grain-deficit consumers (≈ 41% of rural farm population)
• the Treasury: estimated financial loss on 2010/11 FRA maize trading account: $1.2 trillion
2010 Allocation of Public Budget to Agriculture

- Poverty reduction Program (FRA), 8.2%
- Poverty reduction Program (FSP), 35.3%
- Poverty reduction Program (All Other), 1.8%
- Agricultural development Programs, 20.3%
- Recurrent Departmental Charges, 10.8%
- Personal Emoluments, 12.7%
- Allocation via other ministries, 6.9%
- Other MACO expenditures including capital expenditure, 4.0%
- Other MACO expenditures including capital expenditure, 4.0%

Total: 100%
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- Poverty reduction Program (FSP), 35.3%
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Actual 2010 FRA allocation: 57%
## Distributional Effects of the 2010 GRZ Maize Marketing Policies

<table>
<thead>
<tr>
<th>Stakeholder group:</th>
<th>Immediate</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-scale farmers</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Smallholders:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net maize sellers</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Neither buy nor sell maize</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Net maize buyers</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Urban consumers</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Millers</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Traders</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Government</td>
<td>+</td>
<td>~</td>
</tr>
</tbody>
</table>

+ : positively affected  
- : adversely affected  
~ : neutral effect
Alternative proposals for dealing with future bumper crop seasons:

1. FRA maize purchases and sales to be triggered when market prices fall below and rise above pre-established floor and ceiling prices

2. FRA prices to be set with reference to production and cost of production estimates
   - Requires capacity building at MACO and CSO
Results from MACO/CSO 2010 Cost of Production Exercise
# Results (3)

## Table 2: Cost and Share of Total Production by Province and AEZ

<table>
<thead>
<tr>
<th>Province</th>
<th>Share of Total Production</th>
<th>Total Cash Expenditures</th>
<th>Expenditures plus household labor and assets (excl. land)</th>
<th>Total Cost of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>0.21</td>
<td>23,237</td>
<td>43,958</td>
<td>47,785</td>
</tr>
<tr>
<td>Copperbelt</td>
<td>0.07</td>
<td>26,099</td>
<td>53,143</td>
<td>58,500</td>
</tr>
<tr>
<td>Eastern</td>
<td>0.22</td>
<td>13,925</td>
<td>34,096</td>
<td>38,569</td>
</tr>
<tr>
<td>Luapula</td>
<td>0.03</td>
<td>16,203</td>
<td>38,531</td>
<td>41,374</td>
</tr>
<tr>
<td>Lusaka</td>
<td>0.04</td>
<td>22,174</td>
<td>44,279</td>
<td>50,470</td>
</tr>
<tr>
<td>Northern</td>
<td>0.13</td>
<td>20,370</td>
<td>34,197</td>
<td>37,615</td>
</tr>
<tr>
<td>North Western</td>
<td>0.05</td>
<td>17,833</td>
<td>42,801</td>
<td>48,166</td>
</tr>
<tr>
<td>Southern</td>
<td>0.22</td>
<td>16,243</td>
<td>41,320</td>
<td>46,630</td>
</tr>
<tr>
<td>Western</td>
<td>0.03</td>
<td>12,654</td>
<td>53,018</td>
<td>63,688</td>
</tr>
<tr>
<td>All Zambia</td>
<td>1.00</td>
<td>18,630</td>
<td>40,739</td>
<td>45,459</td>
</tr>
</tbody>
</table>

### Agro-ecological Zone

<table>
<thead>
<tr>
<th>AEZ</th>
<th>Share of Total Production</th>
<th>Total Cash Expenditures</th>
<th>Expenditures plus household labor and assets (excl. land)</th>
<th>Total Cost of Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>I -Marginally Suitable</td>
<td>0.06</td>
<td>17,145</td>
<td>51,128</td>
<td>59,454</td>
</tr>
<tr>
<td>IIa -Suitable</td>
<td>0.64</td>
<td>17,893</td>
<td>39,305</td>
<td>43,682</td>
</tr>
<tr>
<td>IIb -Marginally Suitable</td>
<td>0.02</td>
<td>14,835</td>
<td>47,279</td>
<td>57,702</td>
</tr>
<tr>
<td>III -Moderately Suitable</td>
<td>0.28</td>
<td>20,956</td>
<td>41,129</td>
<td>45,357</td>
</tr>
<tr>
<td>All Zambia</td>
<td>1.00</td>
<td>18,630</td>
<td>40,739</td>
<td>45,459</td>
</tr>
</tbody>
</table>

Source: CSO/MACO Crop Forecast Survey, 2010
## Table: Costs of production by 2009 Market Position and Expected 2010 Market Position

<table>
<thead>
<tr>
<th>Market Position 2009</th>
<th>Production Costs</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cash expenditures</td>
<td>All non-land costs</td>
<td>Total Cost</td>
<td>Household mean (ZMK/50kg)</td>
</tr>
<tr>
<td>Did not sell</td>
<td>13,991</td>
<td>57,155</td>
<td>66,076</td>
<td></td>
</tr>
<tr>
<td>Sold to FRA only</td>
<td>22,935</td>
<td>43,245</td>
<td>47,403</td>
<td></td>
</tr>
<tr>
<td>Sold to private buyer only</td>
<td>18,745</td>
<td>50,568</td>
<td>57,006</td>
<td></td>
</tr>
<tr>
<td>Sold to FRA and Private buyer</td>
<td>24,919</td>
<td>44,942</td>
<td>48,734</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected Market Position 2010</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not expect to sell</td>
<td>13,714</td>
<td>62,875</td>
<td>73,075</td>
</tr>
<tr>
<td>Expect to Sell</td>
<td>18,624</td>
<td>45,551</td>
<td>50,943</td>
</tr>
</tbody>
</table>

| All Zambia                          | 16,139   | 54,318   | 62,143   |

Source: MACO/CSO Crop Forecast Survey, 2010
What’s different in 2011 than in 2010?

- Another bumper harvest is on its way
- Roughly 700,000 mt from last year’s harvest are still in FRA storage → reduces capacity for FRA to buy and store in 2011 like it did in 2010
- Transport capacity limits private exportation to 80,000 mt between now and June
- Bottom line: prices will be lower in 2011 than in 2010
Alternative proposals for dealing with future bumper crop seasons:

1. FRA purchase price to be set with reference to production and cost of production estimates
   – MACO/CSO are now institutionalizing the capacity to do this on annual basis
2. Facilitate private sector exports
3. Enter into storage contracts early with private sector (bunkers can be put up quickly)
4. Re-allocating public funds on proven measures to promote on-farm productivity
5. Creating a more predictable, rules-based policy environment
Competing models of the role of state and private sector in food markets:

**Model 1**
- Rely on markets; state role limited to:
  - Public goods investment
  - Regulatory framework
  - Strengthening of institutions / property rights

**Model 2**
- Primary reliance on markets
  - but role for *rules-based state operations*
    - e.g., buffer stock release to defend stated ceiling price
    - Marketing board purchases at stated price announced in advance
    - Transparent rules for initiating state imports

**Model 3**
- Role for markets and *discretionary state intervention*
  - Trade policies and marketing board activities change unpredictably
  - Justification for unconstrained role for state interventions to correct for market failures
• Ultimately, Zambian farmers should be congratulated for their accomplishments this year.

• There are alternative strategies that government could use to ensure that Zambians reap the full benefits of bumper crops in the future.
Thank You