The effects of the Food Reserve Agency on smallholder production patterns and maize market prices

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FRA = cornerstone of GRZ ag sector strategy

FRA share (%) of total ag sector expenditures

> 60% of ag sector Poverty Reduction Programmes spending 2010 & 2011

Source: Yellow Book
What does GRZ hope to achieve?

- **FRA strategic mission:** Efficiently manage sustainable national strategic food reserves, ensuring national food security and income
- **FRA strategic goal:** Stabilize national food security and market prices

Source: http://www.fra.org.zm/

Main questions

1. How do FRA activities affect market prices?
2. Have FRA activities increased maize production?
3. If so, how?
   a. ↑ maize area?
   b. ↑ fertilizer use?
   c. ↑ maize yields?
4. Effects on other crops?
Lusaka wholesale prices: with & without FRA

Source: Mason & Myers (2011)


Source: Mason & Myers (2011)
Who wins & who loses from higher maize prices?

- **Winners**: maize net sellers
- **Losers**: maize net buyers
- **Not directly affected**: neither buy nor sell

Maize market position: 2007/08 and 2011/12 marketing years

<table>
<thead>
<tr>
<th></th>
<th>2007/08 (good year)</th>
<th>2011/12 (bumper harvest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net buyers</td>
<td>49%</td>
<td>28%</td>
</tr>
<tr>
<td>Neither buys nor sells</td>
<td>23%</td>
<td>30%</td>
</tr>
<tr>
<td>Net sellers</td>
<td>28%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Source: 2008 CSO/MACO/FSRP Supplemental Survey
Source: 2012 CSO/MAL/IAPRI Rural Agricultural Livelihoods Survey
FRA effects on smallholder production

- ↑ in last year’s FRA price
- ↑ maize kg harvested
  - ↑ maize area & fertilizer
  - Little effect on maize yield (high soil acidity)
  - Little effect on other crops

Source: Mason, Jayne, & Myers (2012)

HHs with more land are more responsive to FRA price increase

- Increase in maize kg harvested when last year’s FRA price increases by K5,000 per 50-kg bag

<table>
<thead>
<tr>
<th>Landholding size (cultivated + fallow)</th>
<th>0-0.99 ha</th>
<th>1-1.99 ha</th>
<th>2-4.99 ha</th>
<th>5+ ha</th>
<th>All HHs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilograms</td>
<td>4</td>
<td>8</td>
<td>19</td>
<td>41</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Mason, Jayne, & Myers (2012)
Most smallholder HHs have < 2 ha

- % of HHs in category in 2007/08
- Maize kg increase when FRA price increases by K5,000 per 50-kg bag

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<th>Landholding size (cultivated + fallow)</th>
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<tbody>
<tr>
<td>0-0.99 ha</td>
<td>38</td>
<td>4</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>33</td>
<td>8</td>
</tr>
<tr>
<td>2-4.99 ha</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
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<td>41</td>
<td>5</td>
</tr>
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<td>All HHs</td>
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Source: Mason, Jayne, & Myers (2012)

HHs w/ < 2 ha unlikely to sell to FRA & don’t sell very much (2007/08)

- % selling to FRA
- % of total sales to FRA

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<th>Landholding size (cultivated + fallow)</th>
<th>% selling to FRA</th>
<th>% of total sales to FRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-0.99 ha</td>
<td>2</td>
<td>53</td>
</tr>
<tr>
<td>1-1.99 ha</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>2-2.99 ha</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>5+ ha</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: 2008 CSO/MACO FSRP Supplemental Survey
Most smallholder HHs have < 2 ha

Source: 2008 CSO/MACO FSRP Supplemental Survey

Distribution of FRA benefits may explain stagnant rural poverty
Bringing it all together

- FRA activities mainly benefit larger farmers
  - Better able to \textbf{\textit{\up}} maize production when FRA price \textbf{\textit{\up}}s
  - Account for most sales to FRA
  - Net sellers
  - Small \% of smallholder HHs; relatively better off
- FRA activities \textbf{\textit{\textit{\textbf{harm}} the urban and rural poor}}
  - Net buyers
  - Majority of smallholders have < 2 ha & aren’t able to take advantage of high FRA price
- FRA a \textbf{\textit{\textit{\textbf{huge}} drain on the treasury; little effect on rural poverty}}

Ideas on the way forward

1. \textbf{\textit{Reduce scale of FRA purchases}}
   - Enough for strategic reserves
   - Invest savings in known drivers of pro-poor ag growth
     - Rural roads
     - Irrigation
     - Ag R&D, Extension
     - Market information system
2. \textbf{\textit{Set FRA buy \& sell prices closer to market prices}}
   - Reduce unintended consequences
   - Promote private sector participation
Thank you!

- **For further details:**
  - Contact me ([masonn@msu.edu](mailto:masonn@msu.edu))
  - **FRA effects on maize market prices**
    - Policy brief: [http://www.aec.msu.edu/fs2/zambia/ps_50.pdf](http://www.aec.msu.edu/fs2/zambia/ps_50.pdf)
    - Working paper: [http://www.aec.msu.edu/fs2/zambia/wp60.pdf](http://www.aec.msu.edu/fs2/zambia/wp60.pdf)
  - **FRA effects on smallholder production**
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    - Working paper: [http://ageconsearch.umn.edu/handle/126927](http://ageconsearch.umn.edu/handle/126927)