Global Food Price Volatility: Responses by Developing Countries and Donor Community

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THE WORLD BANK
Outline

1. Global food price volatility
2. Impacts on the low income developing countries
3. Responses
I. Global Food Price Volatility
Food prices spiked twice since 2004: they have become higher and more volatile.
Drivers of level vs. volatility of prices

- **Determinants of the price levels:**
  - Supply (land, labor, capital, tradable inputs, TFP)
  - Demand (population, income, diet preferences, biofuels)

- **Drivers of the price volatility:**
  - Weather
  - Low stocks
  - Protectionist trade measures
  - Macroeconomic policies
  - Inelastic demands from biofuel industry
  - Stronger links with more volatile oil prices
  - Surge of financial investments in agricultural commodities
## Changes that affected commodity prices during the 2006-2010 boom

<table>
<thead>
<tr>
<th></th>
<th>2001-05</th>
<th>2006-10</th>
<th>Change, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil prices (US$/barrel)</td>
<td>33</td>
<td>75</td>
<td>+130</td>
</tr>
<tr>
<td>Exchange rate (US$ against a broad index of currencies)</td>
<td>119</td>
<td>104</td>
<td>-13</td>
</tr>
<tr>
<td>Interest rate (10-year US Treasury bills)</td>
<td>4.7</td>
<td>4.1</td>
<td>-14</td>
</tr>
<tr>
<td>Funds invested in commodities (US$ billion)</td>
<td>30</td>
<td>250</td>
<td>+730</td>
</tr>
<tr>
<td>GDP growth, low and middle income countries, annual</td>
<td>5.0</td>
<td>5.8</td>
<td>+16</td>
</tr>
<tr>
<td>Industrial production, low and middle income countries, annual</td>
<td>6.3</td>
<td>7.1</td>
<td>+13</td>
</tr>
<tr>
<td>Stocks-to-use ratio of maize, wheat, and rice (months of consumption)</td>
<td>3.2</td>
<td>2.5</td>
<td>-20</td>
</tr>
<tr>
<td>Biofuels production (million of barrels per day equivalent)</td>
<td>0.4</td>
<td>1.3</td>
<td>+200</td>
</tr>
<tr>
<td>Average yields of wheat, maize and rice (tons/hectare)</td>
<td>3.8</td>
<td>4.0</td>
<td>+7</td>
</tr>
<tr>
<td>Growth in yields (percentage change per year)</td>
<td>1.4</td>
<td>1.0</td>
<td>-32</td>
</tr>
<tr>
<td>Natural disasters (droughts, floods, and extreme temperatures)</td>
<td>374</td>
<td>441</td>
<td>+18</td>
</tr>
</tbody>
</table>

Source: John Baffes, World Bank.
The key problem is that supply does not catch up with the rising demand

Source: Data from USDA PSD.
Price volatility is likely to continue in the foreseeable future

- Largely due to the persistent uncertainty on the supply side against the projected rising demand

- In the long run, the prices will be influenced by:
  - Crude oil prices will exert upward pressure, due to increased costs of energy-based inputs, transport and biofuels
  - Increases in total factor productivity will exert downward pressure on food prices, but require good business policies, open trade for both exports and imports, and greater investments in agricultural public goods

- Short-term price spikes are likely to be more frequent and profound than in the recent past, putting the pressure on timely supply response, including through economically irrational policy responses
II. Impacts on the Low-Income Developing Countries
Major impacts of higher and more volatile food prices are:

- Diminished ability of individuals to access food when they need it, having a lasting effect on undernourishment:
  - The 2008 food price spike increased no. of undernourished by 63m people, in particular women and children
  - The 2010/11 price increase was more broad-based than in 2008, options to shift to lower-priced food were even more limited

- Lower incentives to producers to invest and respond to higher food prices

- Threatened macroeconomic stability:
  - Higher inflation
  - Larger import bills
  - Larger fiscal outlays on safety nets and agricultural supply response
Local price volatility in many countries is still above world market volatility, implying that local situations matter.

Maize Price Volatility (%): Standard Deviation of Monthly Percent Returns between 2008 and 2010

Many studies find very low immediate link between local food prices in AFR and world markets

### Summary of price transmission for 9 countries

<table>
<thead>
<tr>
<th></th>
<th>Total number of price series</th>
<th>Prices with co-integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Rice</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Sorghum</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Wheat</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td><strong>13 (21%)</strong></td>
</tr>
</tbody>
</table>

Higher price volatility in AFR, for example, is a result of volatile local production and the large wedge between export and import parity prices.

<table>
<thead>
<tr>
<th></th>
<th>Instability in production (coefficient of variation)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maize</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>19%</td>
</tr>
<tr>
<td>Uganda</td>
<td>12%</td>
</tr>
<tr>
<td>Kenya</td>
<td>14%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>22%</td>
</tr>
<tr>
<td>Malawi</td>
<td>26%</td>
</tr>
<tr>
<td>Zambia</td>
<td>32%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>26%</td>
</tr>
<tr>
<td>Avg of 7 countries</td>
<td>22%</td>
</tr>
<tr>
<td>Avg for southern and eastern Africa</td>
<td>30%</td>
</tr>
</tbody>
</table>


* Cassava is a minor crop in Ethiopia, so FAO does not report any cassava statistics.
III. Responses
OUTLOOK

World food prices are expected to remain higher and more volatile than their pre-2007 levels.

Short-term price volatility is increasingly becoming a long term phenomenon.

RESPONSE

Low and Middle Income Countries

Exploit Opportunities
- Productivity growth
- Link farmers to markets

Manage risks
- Coping strategies for most vulnerable
- Short-term measures should not undermine long-term growth
- Climate smart

World food prices are expected to remain higher and more volatile than their pre-2007 levels.

Short-term price volatility is increasingly becoming a long term phenomenon.
Long-term response

- Invest more in agriculture:
  - Agricultural productivity
  - Market access and connectivity
  - Risk management
  - Non-agricultural investments in rural areas
Long-term response (contd.)

- Invest not only more, but also better:
  - Design demand-driven research linked with extension
  - Ensure cost-recovery in managing irrigation systems
  - Strengthen land tenure and markets
  - Facilitate trade
  - Improve market integration, for both input and output markets
  - Invest in feeder roads and cross-border trade, not only connection of administrative centers
  - Deregulate trucking industry along with investments in roads
  - Use emergency stocks and safety nets, not price-affecting/buffer stocks and export bans
  - Promote smart input programs to build long-term markets
More elastic supply accelerates supply response and moderates price volatility

Low elasticity of food supply results in very large changes in prices (volatility) to match supply with demand after either positive ($S_2$) or negative ($S_3$) supply shock.

An increase in supply elasticity (supply curve moves from $S_1$ to $S_1^*$) reduces price adjustment required, and thus price volatility, to match supply with demand after supply shock.
Short-term responses are necessary but have to support long-term objectives

(observed in 2008 and 2010 given in increasing order of possible negative impact on long-run policy options)

1. Reduce food grain taxes/tariffs
2. School feeding programs
3. Conditional cash transfers to the poor
4. Targeted food subsidies
5. Food for work
6. Food aid

Good

Still good, but more difficult to avoid operational problems or negative impact on incentives
Worse short-term options (all observed in 2008)

(given in increasing order of likely negative impact on long-run policy objectives)

7. **Build-up of public stocks for distribution** (governance and economic costs are issues)
8. **Food rationing** (not sustainable over time)
9. **Price controls** (bad other than in very short term special circumstances)
10. **Ad hoc and temporary reductions in tariffs** (the equivalent for net importers of export taxes for net exporters)
10. **Export restrictions/Taxes**
11. **Inflexible export bans**

(Not Good)
World Bank Group Responses

IMPLEMENTING AGRICULTURE FOR DEVELOPMENT

WORLD BANK GROUP
AGRICULTURE
ACTION PLAN
2010 - 2012
World Bank Group: Scaled Up Agriculture and Related Sector Financing, US$ billion

- Long-term investments: 85%
- Short-term response: 15%

Focus:
Disbursement Focus of Agriculture and Related Sector

**FY06-08**
- Productivity: 71%
- Markets: 18%
- Non-Farm: 11%

**FY10-11**
- Productivity: 76%
- Markets: 15%
- Non-Farm: 9%
Global Agriculture and Food Security Program

- Provides finance for quality country-led plans with long-run targets resulting from existing aid effectiveness processes such as CAADP
- Strong and independent assessment of whether countries are ready, proposals good, show real need, and have high chance of success
- Seven donors: Australia, Gates Foundation, Canada, Ireland, Republic of Korea, Spain and the United States
- Under governance of donors and recipients, with full representation of CSOs, MDBs and UN food agencies
- Scale Good Practice Up and Out! --strong processes in place for learning by doing and independent results assessment and monitoring
- $925 m pledged, $531 m received so far (public window), $511 m committed to date
- Twelve country allocations to date

www.GAFSPFund.org
US$1.5b Global Food Price Crisis Response Program (GFRP) in Poorest Countries

Created May 2008, GFRP expedited processing extended to June 2012

44 countries, most in AFR
38 million beneficiaries
Very rapid for recipient executed projects

Focus:
• Fiscal space to deal with shock
• Safety nets to ease humanitarian burden and ease tension
• Rapid agric support to promote rapid supply response

Major donors: Canada, Australia, Spain, EU, Russia, in addition to IBRD and IDA
Work with G20 to Make Global Actions (Ministers of Agriculture June 23, 2011 Paris)

- **Transparency: Agricultural Market Info System (AMIS)**
  - Launched in Sept. 16, 2011
  - G20 + 7 countries that account for 90% of world food provide rapid info on production, stocks and trade
  - To know how much food the world actually has
  - Rapid Response Forum of senior policy makers, to prevent repeat of 2008 policy-induced crisis, using AMIS data
Enhanced ag. risk management toolbox for MDBs

- MDBs and bilaterals to set up ag. risk management advisory system
- Consideration of counter-cyclical mechanisms in development finance
- International Finance Corporation’s Agricultural Price Risk Management (APRM) product.

Agricultural Pool Mechanism (Canada)
Thank you!