AGRICULTURAL PRICE VOLATILITY: CAUSES, IMPACTS & POLICY IMPLICATIONS

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4th International Disaster and Risk Conference IDRC Davos 2012
26 -30 August 2012 – Davos, Switzerland
Outline of presentation

- What is agricultural price volatility and why is it a concern?
- Overview of current situation
- Causes of price volatility
  - The theory
  - The current situation
- Actions to reduce and manage price volatility
What is agricultural price volatility & why is it a concern?

- Volatility = high variability in prices, both on the high-side and on the low-side
- Most serious when the changes are not fully predictable.
- Impacts:
  - On consumers, especially the poor
  - On farmers
  - On political stability
  - On pace and pattern of economic growth

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Farm and Retail Maize Prices in Mali

Evolution des prix du maïs à MPessoba et Bamako

Source: Diarra and Traoré (2010)
The current situation: real food prices are hitting all-time highs... or are they?

Indices of Real Food Prices

MONTHLY REAL FOOD PRICE INDICES (2002-2004=100)

Sources: FAO and World Bank
Causes of volatility

In the simplest sense, price changes result from shifts in supply and demand.

These price changes will be most severe & erratic when:

- Shock to demand or supply is large
- There is little scope in the short-run of adjusting to the shocks through:
  - Augmenting supply through drawing on or adding to carryover stocks, increasing production, or adjusting trade
  - Adjusting consumption ("inelastic demand")
- There is uncertainty with respect to:
  - The magnitude of the shocks
  - The size of the carryover stocks
  - How governments will react
Causes of recent global price volatility: What’s been happening on the supply side?

- Weather shocks
- Climate change – models predict more extreme events
- Energy shocks
- Exchange rate fluctuations
- Concerns about slowing agricultural productivity growth, especially in developing countries
Supply side: critical role of carryover stocks

Total world grain & oilseeds
Stocks-to-use ratio

Maize: Real prices v Stock-to-use ratios w/o China

Source: USDA/ERS calculations based on USDA WASDE and PS&D Database: Feb 2012

Source: Schmidhuber (2012)/FAO
Supply side: Trade disruptions and the “thinning” of the international market

- Government actions have exacerbated the global price volatility through their trade policies:
  - **When prices are high**: exporters tax/restrict exports and importers subsidize imports.
  - **When prices are low**: Exporters subsidize exports and importers tax/restrict imports

- These opposite actions (“globalization in reverse”):
  - Make international prices more volatile by moving supply and demand in opposite directions and reducing the volume in international markets
  - Tend to offset each other in terms of domestic prices
  - Reduce incentives to farmers to produce more when prices are high
  - Reduce government revenues in periods of high prices that could finance agricultural expansion.
Supply-side conclusions

- Annual supply shocks are necessary but not sufficient conditions for price volatility
- Level of carryover stocks are critical. Crop shortfall + low stocks = high prices
- Trade policy reactions of both importing and exporting countries have exacerbated the situation
Demand side: Impact of Elasticity of Demand on Price Volatility

Inelastic demand

[Diagram showing price and quantity for inelastic demand]

Elastic demand

[Diagram showing price and quantity for elastic demand]

Inelastic demand:
- Price: \( P_0 \), \( P_1 \), \( P_2 \)
- Quantity: \( Q_0 \), \( Q_1 \), \( Q_2 \)

Elastic demand:
- Price: \( p_0 \), \( p_1 \), \( p_2 \)
- Quantity: \( q_0 \), \( q_1 \), \( q_2 \)
What’s been happening on the demand side?

- Demand becoming more inelastic because of:
  - Higher incomes in Asia and Latin America
  - Biofuels mandate; [Linking energy and food markets](#)
- What about speculation?
  - Economists’ traditional view: speculation has a stabilizing effect
  - More recent concerns about “financialization” of market:
    - Greater integration of commodity and financial markets can lead to spillover of instability in one market to another, especially in conditions of poor information and loose regulation of other markets
    - Mixed empirical evidence about possible impact of financial speculation on food prices.
- Question for the future: What if China enters the world maize market in a big way?
Actions to reduce and manage volatility

- **Reducing volatility**
  - Reducing barriers to trade ➔ Strengthen WTO disciplines on export restrictions
  - More flexible biofuels mandates
  - Better information on production and stocks
  - More “weather-proofing” of production
  - Regulatory oversight on speculation?
  - Stocks?

- **Managing volatility**
  - Weather-based insurance
  - Financial reserves and lending facilities
  - More targeted, market-compatible social safety nets rather than using trade policy as a social safety net
Thank you!
Strengthening the links between food and energy markets

Food Price Index (2005 = 100) – Source: IMF
Strengthening the links between food and energy markets

Fuel Price Index (2005 = 100) – Source: IMF
Strengthening the links between food and energy markets