Food Commodity Prices: Past Developments and Future Prospects

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USDA Outlook Forum
February 23, 2012
Food commodity prices since January 1980:
Reversal of a 22-year downward trend

Index: January 2002 = 100

Down 1/3 in 22 years
Doubled in 10 years

Source: International Monetary Fund: International Financial Statistics
Food-commodity prices since January 2002: an upward trend and two spikes

Index: January 2002 = 100

- Up 130% →
- Down 33% →
- Up 60% →
- Down 15% →

Source: International Monetary Fund, International Financial Statistics
Price indices:
Food commodities and 4 crops

Index: January 2002 = 100

Food commodities
4 Crops

Crops: index of IMF wheat, rice, corn, & soybean prices, weighted by trade shares.

Source: USDA/ERS calculations based on IMF: International Financial Statistics
6 price spikes since 1970

Weighted average of 4 crops (wheat, soybeans, corn & rice) 1/

Index: January 2002 = 100

Source: International Monetary Fund: International Financial Statistics, Jan 2012
Non-food commodity prices have risen even more

Index: January 2002 = 100

- **Crude oil**
- **All commodities**
- **Food commodities**

Source: International Monetary Fund: International Financial Statistics
Factors contributing to higher food commodity prices

<table>
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<tr>
<th>Economic growth</th>
<th>Meat &amp; dairy consumption</th>
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<td>Increasing population</td>
<td>Global biofuel production</td>
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<td>Cost of energy</td>
<td>Productivity growth</td>
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<td>Exchange rate (LT &amp; ST)</td>
<td>Natural resource constraints</td>
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Long-term trends

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<th>Exchange rate (LT &amp; ST)</th>
<th>Weather ➔ production</th>
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<td>Oil price</td>
<td>Stock-to-use ratio</td>
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</table>

Short-term disruptions

| Exporters’ policy response | Importers’ policy response |
Global supply and demand pushed up prices

Long-term trends & short-term shocks contributed in different ways:

• Long-term trends in supply and demand have led to gradually tightening world markets since late 1990s
• – and to upward trending prices since 2002.

The resulting reduced global stocks and stocks-to-use ratios set the stage for:

• Short-term shocks & disruptions to further restrict world food commodity supplies leading to policy responses that raised short term demand—
• – and led to price spikes in 2007/08 and 2010/11.
Total world grain & oilseeds\(^1\)
Stocks-to-use ratio

Stocks / Use

1 Oilseeds = soybeans + rapeseed + sunflowers

Source: ERS calculations based on USDA WASDE and PS&D Database: Feb 2012
Evolution of long-term trends contributing to higher prices

- Developing country economic and population growth led to increased food demand
  - Growing middle class, increased urbanization, diet diversification
- Slower growth in ag productivity
- Depreciating U.S. dollar
- Higher crude oil prices
- Biofuel production: USA, EU, BRA, ARG, CAN, et.al.
- Increased demand for biofuel feedstocks
- Above factors led to an upward trend in food commodity prices, but did not directly cause the price spikes
Evolution of short term shocks that resulted in the price spikes (2007/08 & 2010/11)

- Adverse weather reduced world crop production – and further reduced world stocks and stocks-to-use ratios

- Sharp changes in macroeconomic factors
  - dollar dropped quickly – then recovered quickly
  - Sharp spike in crude oil prices (up, then down)

- Some exporting countries restricted shipments (export quotas and export bans), further reducing importer’s access to food commodities

- Anxious importers facilitated consumption (lowered tariffs, raised food subsidies), and increased forward contracting of their import needs. These actions increased short-term demand.
Primary factors affecting crop prices

Index: January 2002 = 100

- Crude oil price, $ depreciation
- Biofuels
- Economic & population growth, percap meat consumption
- Weather
- Large production. World recession
- Resurgent econ growth
- Policies
- Increasing stock:use ratio
- Declining global stocks:use ratio
- Declining S:U ratio

14-crop monthly price index: Wheat, rice, corn, & soybean prices; based on IMF price and trade share data.
Primary factors affecting crop prices\(^1\) (June 2010 – Jan 2012)

Index: January 2002 = 100

- Strong LDC economic growth.
- Rising oil price. U.S. $ depreciates
- Importers aggressively buying
- U.S. $ appreciates
- EU suspends barley & feed wheat import levies
- Russia stops grain import duty
- Russia ends export ban
- Favorable weather in Europe & FSU
- China dryness
- E. Africa drought
- Argentina & Brazil drought
- Argentina drought
- Russia drought
- U.S. HRW drought
- Higher estimated global grain stocks
- Reductions in estimated global ending grain stocks
- Canada & NW Europe: rain damages wheat crop
- Russia wheat export ban
- U.S. corn yields drop (high temps)
- Aust. rain damages wheat crop

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\(^{1}\)4-crop monthly price index: Wheat, rice, corn, & soybean prices; based on IMF price and trade share data.
Livestock prices have become a significant factor 1/

1/ Meat: index of beef, pork & chicken prices; weighted by world consumption.
Crops: index of wheat, rice, corn, & soybeans prices, weighted by trade shares.

Source: International Monetary Fund: International Financial Statistics
Future prospects: Corn, wheat, rice, and soybean prices projected to remain historically high

$ per bushel (per cwt for rice)

Source: USDA Agricultural Projections to 2021, February 2012.
Future prospects: Livestock prices

$ per hundredweight, nominal, U.S. markets

Beef cattle: Steers, 5-area
Broilers: 12-city market price
Hogs: National base

Source: USDA Agricultural Projections to 2021, February 2012.
Near-term factors that may influence future ag prices

- Weather
- Stock levels (Supply & demand balances; stocks policies; self-sufficiency policies)
- Policy changes by food commodity exporters & importers
- Exchange rates (Esp. for commodities denominated in dollars)
- Energy & other non ag prices / Ag production costs
- Extent of global economic recovery
- Import demand: Who will be the importers? (Role of foreign exchange reserves)
Longer-term factors expected to influence future ag prices

- Biofuels production (Influence of oil prices; Role of policies)
- Food consumption patterns (Continued income-driven increase in per capita meat consumption?)
- Technology advancements
  - Continued slowing of growth in productivity?
  - R&D investments.
  - Role/acceptance of GMO products.
- Natural resource constraints
  - Land: Ability to expand cultivated area; productive capacity of new land
  - Water: Ability to continue rate of growth in irrigated areas
- Climate change
  - Impact of temperature, precip, and seasonal changes in cropping patterns & productivity. Variability.
Conclusions

- Expect prices to fall from recent peak, but to remain historically high
  - Global economic recovery and renewed growth in demand for crops, animal products, and energy
  - Some additional growth in global biofuels output
  - Slower productivity growth
  - Declining value of the dollar

- World ag production can keep pace with demand
  - In short-run: Production can respond to higher prices within 4 months to 2 years – if the weather cooperates.
  - Over next 10 years, global production growth rates projected to be sufficient
  - Longer-term brings increased uncertainty?
Related reports and contact

Why Have Food Commodity Prices Risen Again?

USDA Agricultural Projections to 2021
http://www.ers.usda.gov/publications/oce121/

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