The State of Global Food Markets

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Global Food Prices

◊ Commodity prices increased rapidly in 2021:
  • Increased global demand for feed/food grains
  • Drought in South America
  • Supply chain disruptions
  • Higher energy/fertilizer prices

◊ Price increases of wheat, coarse grains, and vegetable oils intensified in 2022 following Russian invasion of Ukraine

◊ North Africa, Middle East and Asia most affected regions – highly dependent on Russia and Ukraine for grain imports
Global Food Prices

- Commodity prices have corrected to pre-invasion levels due to improved supply conditions, Ukrainian grain export deal, and macroeconomic factors.

- Outlook uncertain – price risk still on upside:
  - Stability of Ukrainian grain export deal
  - Potential for export restrictions
  - Continued drought/weather conditions
  - Tight stocks
Global Food Price Correction

World Food Prices End 2022 Just Below Where They Started
UN commodity index fell for a ninth straight month in December

Source: UN’s FAO

Bloomberg
Grain Export Deal

Ukraine Crop Exports Have Plateaued
Volumes have held about steady since September

- Grain corridor
- Rail
- Danube ports
- Trucks
- Ferry

Source: UkrAgroConsult
Long-Run Food Prices

- 1900-2010, real food prices fell on average by 1%/year while population increased by 5.3 billion

- Pressure on food supplies did not materialize due to:
  - Demand for food rising more slowly than income
  - Improved agricultural productivity

- Since 2001, real food prices have been rising, with two major spikes prior to 2021/22

- Renewed concerns about pace of agricultural productivity growth relative to demand for food
Long-Run Food Prices

2014-16 = 100

Source: FAO
Consumption-Yield Gap

- Demand forecast to rise 60% by 2050 (FAO, 2012)
- Increasing gap between consumption growth and yield of feed/food grains and oilseeds (Zulauf, 2022)
- 16 million acres/year required to satisfy consumption (Zulauf, 2022)
- Increased supply likely to come at intensive (yield/cropping intensity) not extensive margin (land expansion)
- Without increased land conversion, and stable yield growth – higher food prices will be needed to ration supply
Required Yield Increase

Figure 3. Yield Comparison, World Feed Grains, 1982-2022

- needed yield increase
- trend yield growth
Global agricultural output growth fell in 2010s, likewise in US

Total factor productivity (TFP) growth also declined – TFP is overall efficiency with which agricultural inputs are combined

In developing countries, output has also declined, Brazil is key exception where production and acreage have increased

Several factors linked to slowdown: (i) weather shocks associated with climate change; (ii) emergence of new/resistant crop diseases/pests; (iii) insufficient investment in agricultural R&D
US Agricultural Output/Productivity Growth

Total factor productivity was the leading contributor to U.S. agricultural output growth from 1948 to 2019

Contribution to annual output growth rate (percentage point)

Note: Economic business cycles are measured from cyclical peak to peak in aggregate economic activity.
Brazilian Competition

- Brazilian soybean production has been larger than US since 2019
- Brazilian corn production much smaller than US but growing fast
- Critically, Brazilian crops are replacing demand for US crops
Brazilian Competition: Soybeans

Brazilian Competition: Corn

Annual Corn Exports: Top 4 Global Suppliers
(millions of tonnes; October-September trade year shown)

Data source: U.S. Department of Agriculture as of January 2023
Conclusions

- 2021/22 - combination of events caused intense food price spike
- Raised concerns about future global agricultural output growth and productivity relative to forecast food demand
- Significantly, rate of output and productivity growth has also slowed down in US in past decade
- Brazil becoming key competitor to US in export markets
- Can Brazil close consumption growth – yield gap?