

# **The Food vs. Fuel Controversy**

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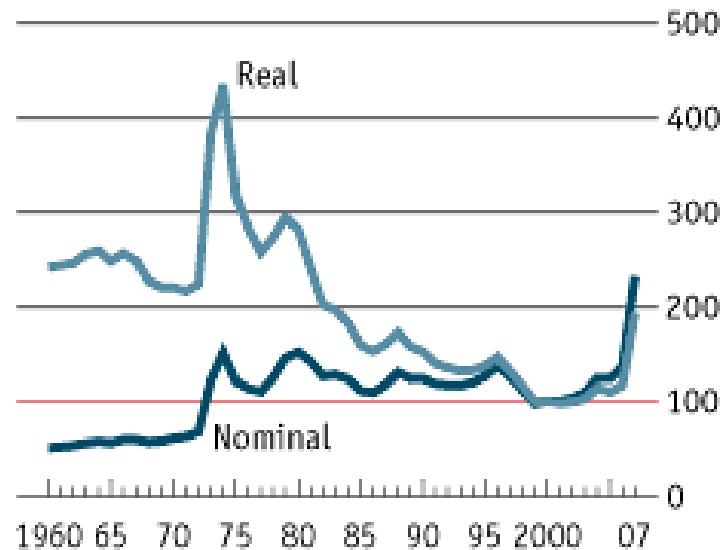
# World Food Prices



## A real turn-up

2

IMF food prices, 2000=100

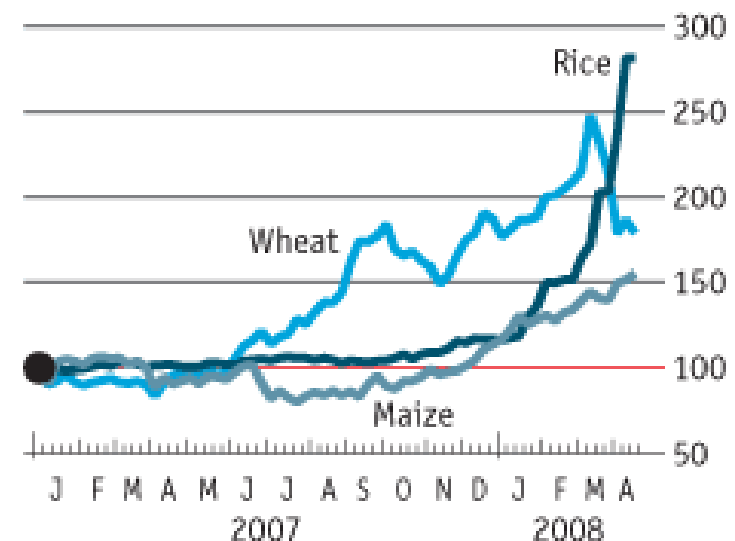


Sources: IMF; US Bureau of Economic Analysis

## Shooting up

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Grain prices, \$ terms, January 2nd 2007=100



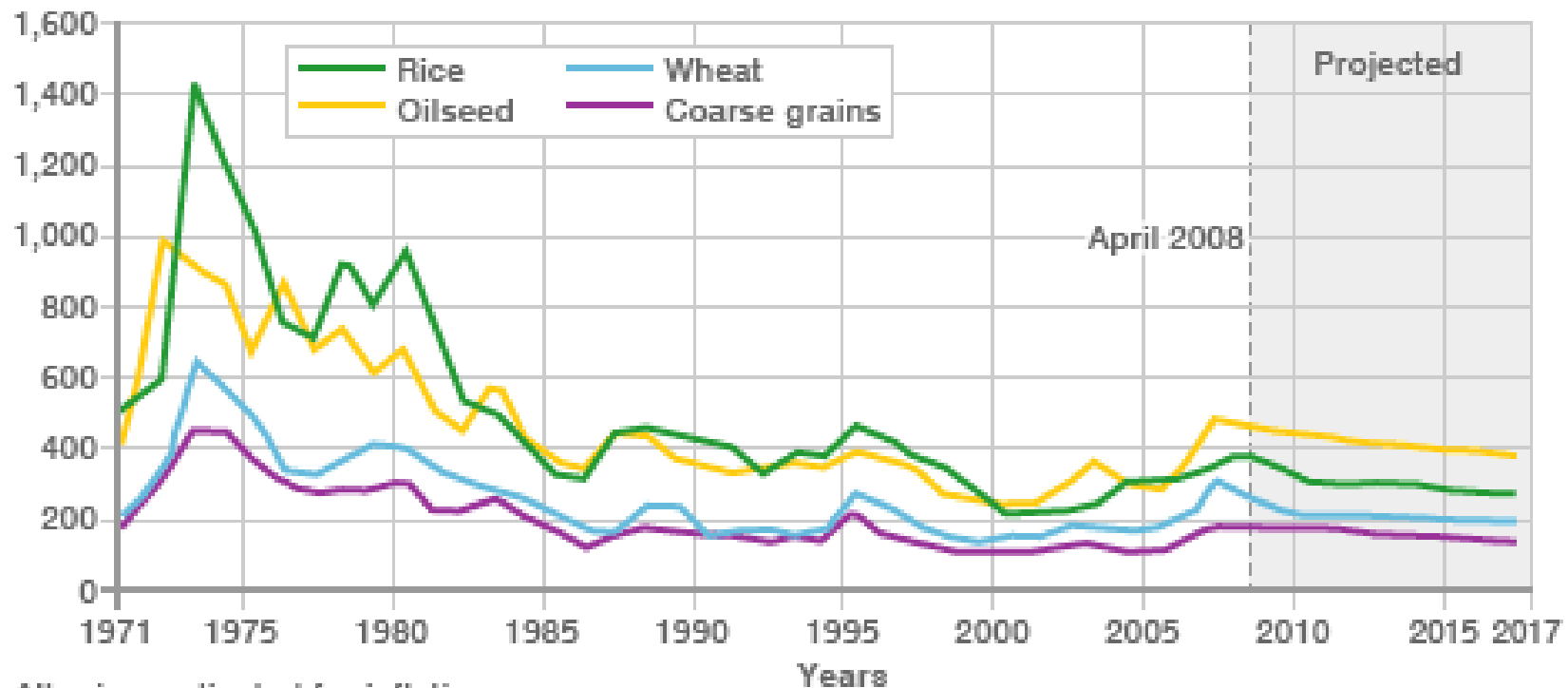
Sources: Chicago Board of Trade; Jacksons

# World Food Prices



## WORLD FOOD COMMODITY PRICES

\$US/tonne



All prices adjusted for inflation

SOURCE: FAO/OECD

# World Food Prices



## Increases in Food and Oil Prices (%)

<b>2002 to March 2008</b>	<b>Corn</b>	<b>Wheat</b>	<b>Rice</b>	<b>Soybeans</b>	<b>Oil</b>
<b>Nominal \$</b>	<b>143</b>	<b>217</b>	<b>199</b>	<b>171</b>	<b>308</b>
<b>Real \$</b>	<b>46</b>	<b>91</b>	<b>80</b>	<b>63</b>	<b>145</b>
<b>Real Euros</b>	<b>37</b>	<b>79</b>	<b>69</b>	<b>53</b>	<b>130</b>

Source: Farm Foundation, 2008

# World Food Prices



## Food Price Inflation 2007-08

Country	Food Price Inflation	Expenditure Share on Food
US	5.1	10
China	23.3	28
India	5.8	33
Egypt	13.5	42
Haiti	11.8	50
Sri Lanka	25.6	62
Bangladesh	14.2	65

Source: OECD and FAO, 2008

# World Food Prices

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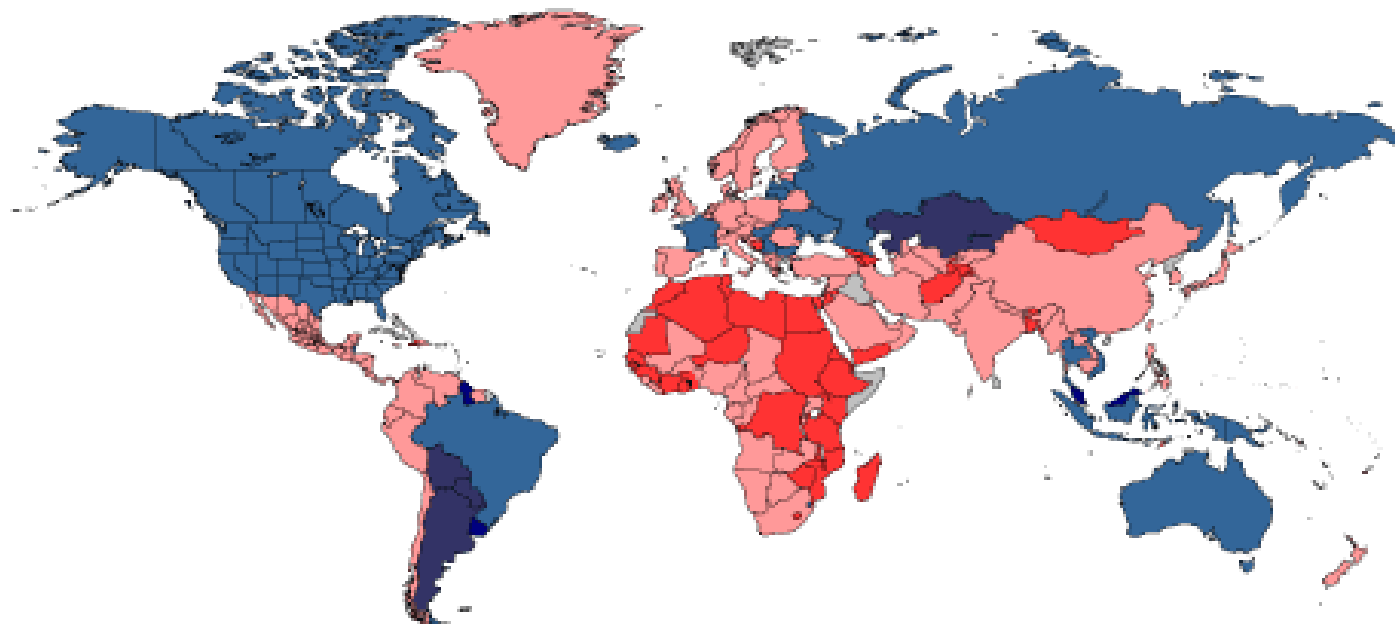


- ❖ **Food crisis occurred in many countries simultaneously – political protests in 30**
- ❖ **May have reduced purchasing power of urban and rural poor by 20%**
- ❖ **1.5 billion on 1-2\$/day – World Bank estimated food price increases would push another 100 million in poverty**

# World Food Prices



2007 - 2008 IMPACT OF PROJECTED FOOD PRICE INCREASES ON  
TRADE BALANCES



- Large losers (trade balance worsening  $> 1\%$  2005 GDP)
- Moderate losers (trade balance worsening  $< 1\%$  2005 GDP)
- Moderate gainers (trade balance improving  $< 1\%$  2005 GDP)
- Large gainers (trade balance improving  $> 1\%$  2005 GDP)
- No data

SOURCE: The World Bank

# Key Drivers of Food Prices

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- ◆ **Complex set of forces combined to push up prices:**
  - **Global changes in demand and supply**
  - **Depreciation of US \$**
  - **Growth in production of biofuels**



# Demand and Supply

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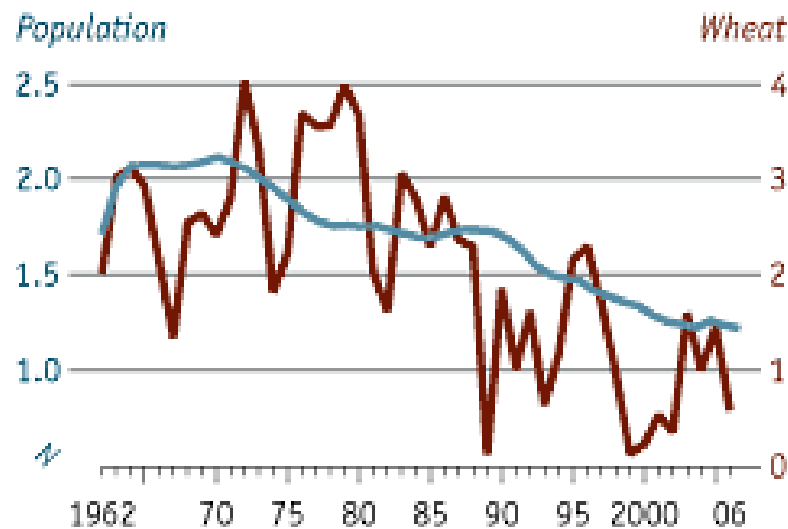
- ❖ **Rapid growth in developing countries – shift from cereals to animal protein**
- ❖ **Slowdown in agricultural productivity growth – change from surplus to shortage, stocks tight**
- ❖ **Weather shocks (Australia) in 2006/07 exacerbated price impact of low stocks**
- ❖ **Export policies also made situation worse (Argentina, China, India, Ukraine, Vietnam)**

# Changing food demand



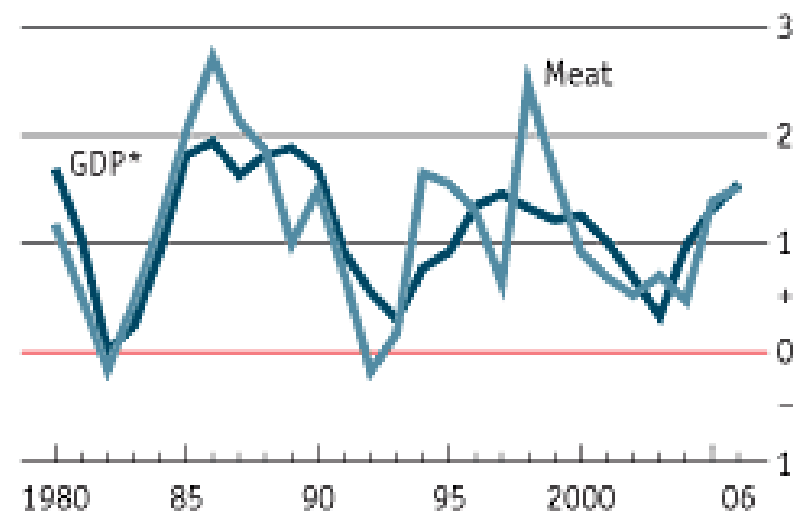
## More people, more grain; more money, more meat

World wheat demand and population growth  
% increase on previous year



Source: Goldman Sachs

World meat consumption and GDP growth\*  
% change on previous year



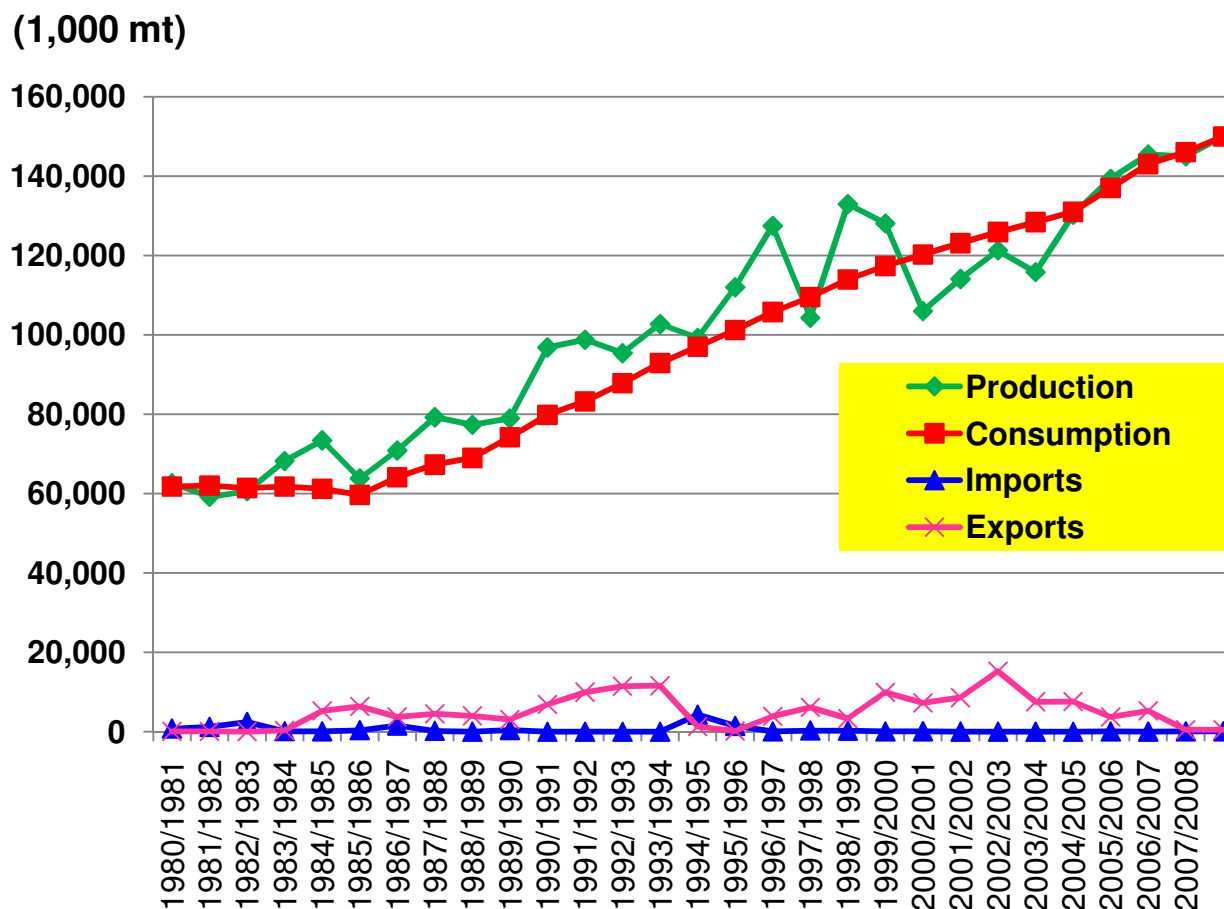
\*Estimates based on GDP per person

# Demand



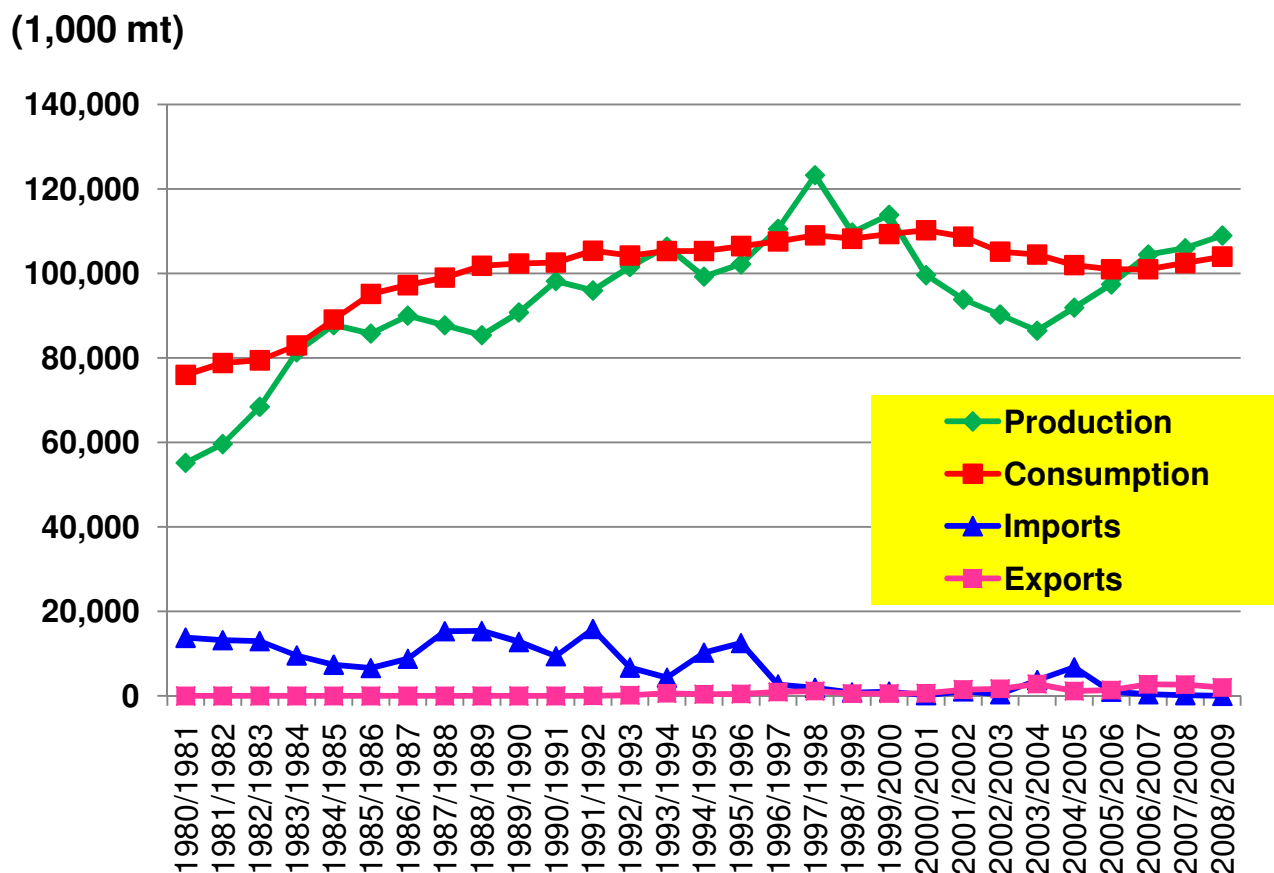
- ◆ **In developing countries, real GDP grew on average by 7.3% over period 2003-07**
- ◆ **High income elasticities for food contributed to strong demand for meats and grains**
- ◆ **China and India have *not* impacted world prices as much as might be expected:**
  - both following policies to be self-sufficient**
  - neither are major traders of *most* commodities**

# China: Corn Market



Source: Farm Foundation, 2008

# China: Wheat Market

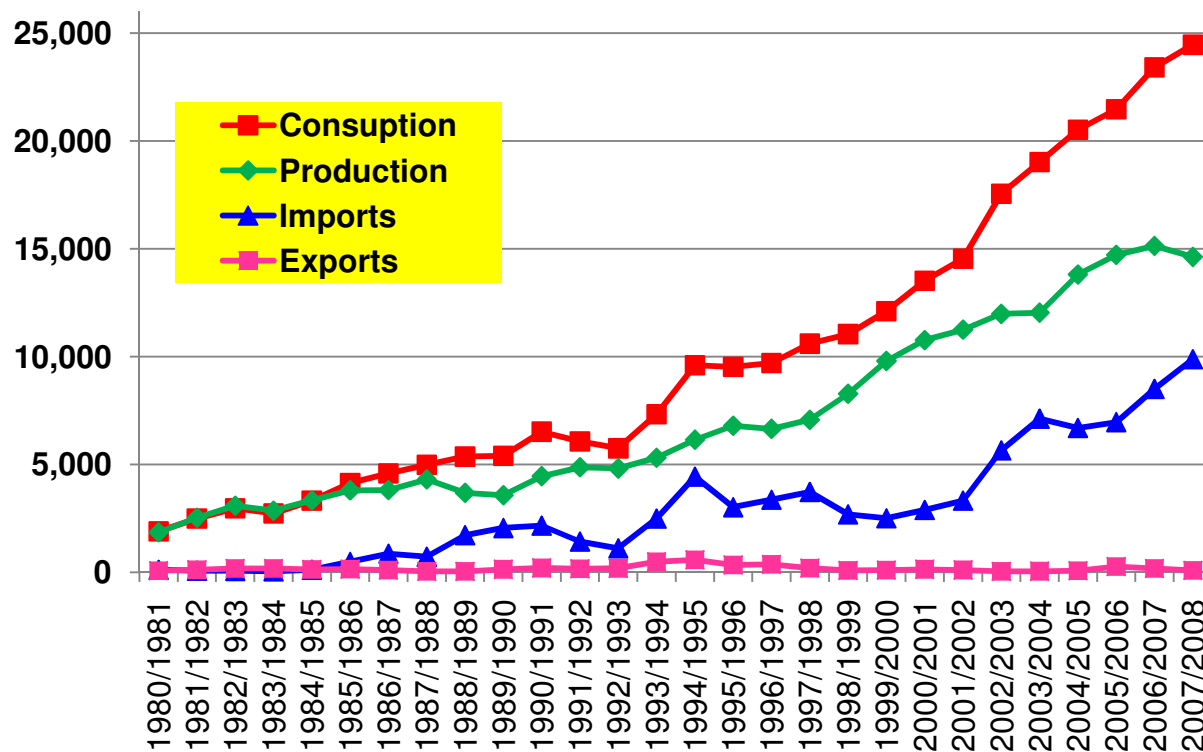


Source: Farm Foundation, 2008

# China: All Oils



(1,000 mt)

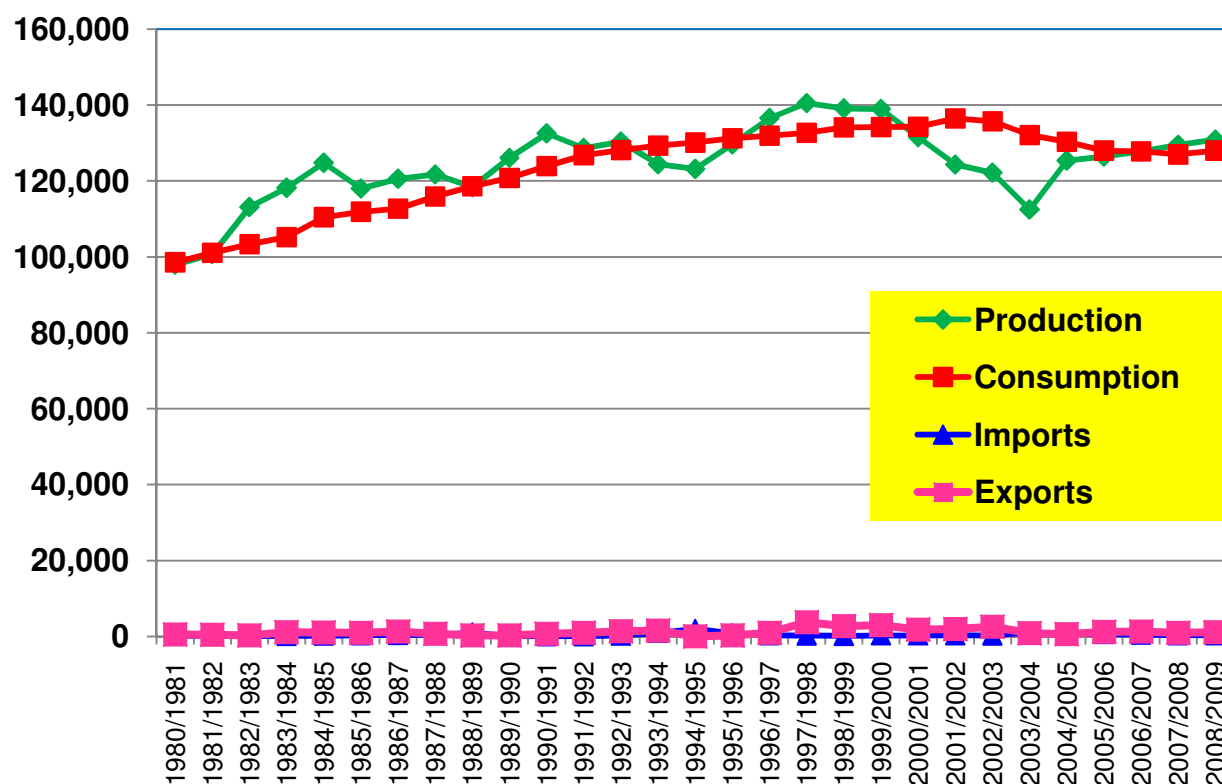


Source: Farm Foundation, 2008

# China: Rice



(1,000 mt)



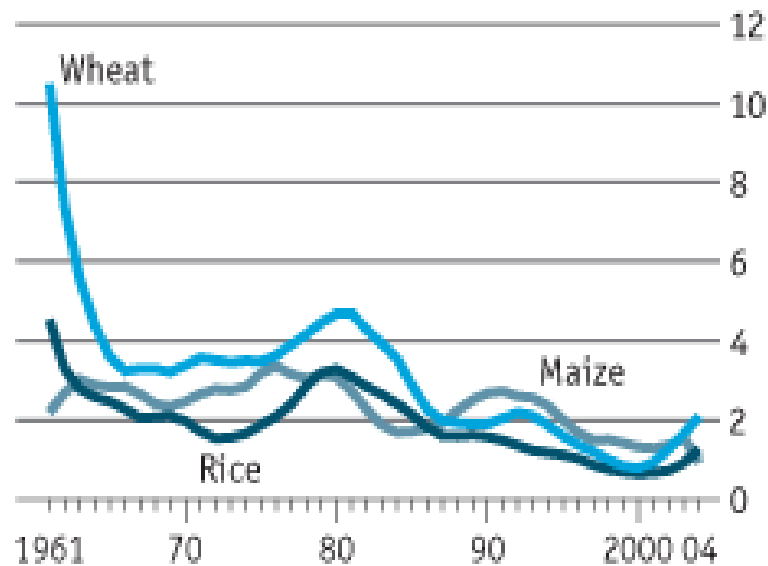
Source: Farm Foundation, 2008

# Agricultural productivity



## Diminishing returns

Crop yields in developing countries  
Annual average growth rate, %



Source: World Bank

- Investment in agricultural research in developing countries has fallen since 1980s
- New investment will only generate payoffs through higher yields after 5-10 years
- Policies to allow adoption of existing technologies may have a more rapid payoff, i.e. GM crops

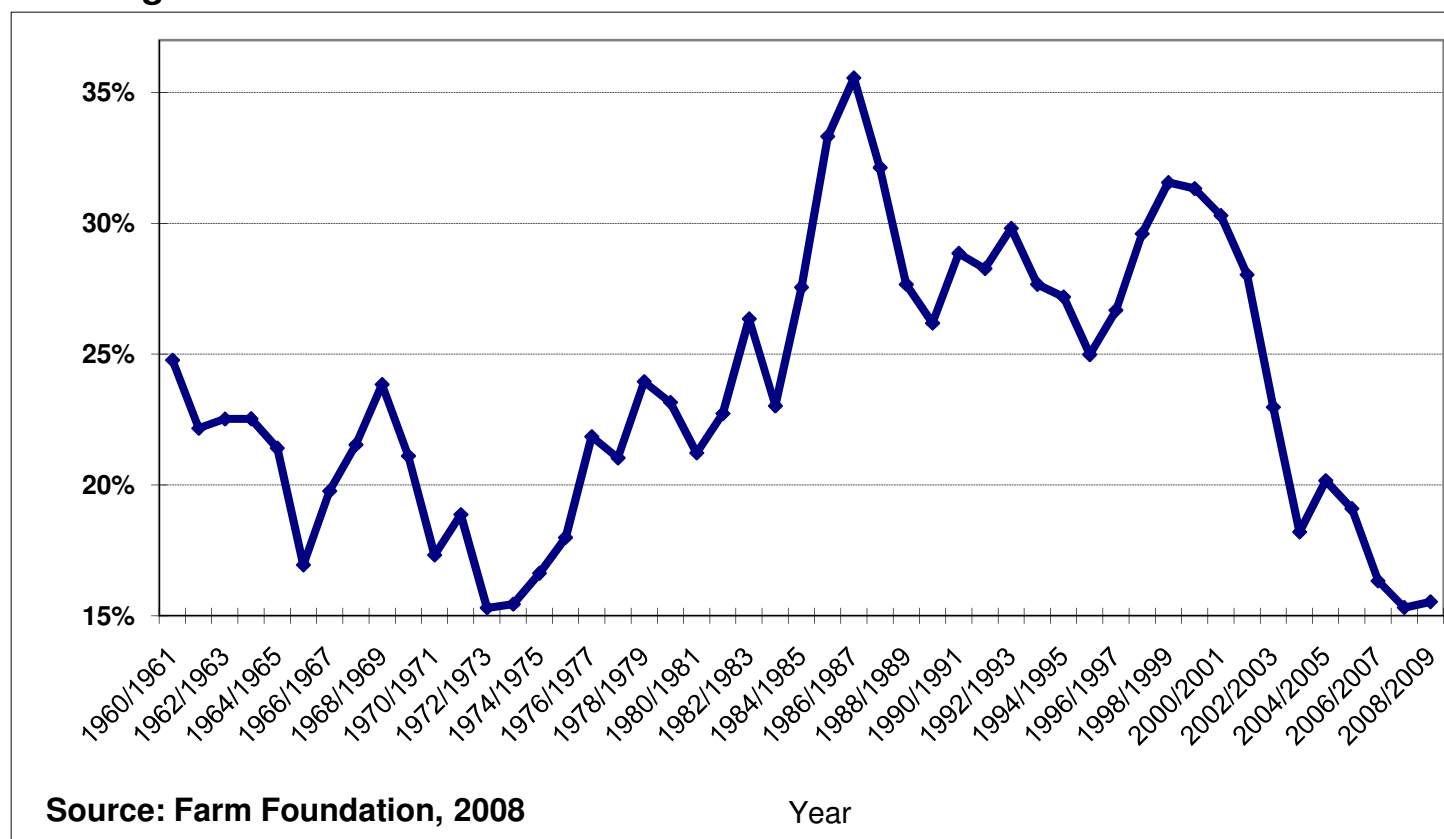


# Declining Stocks



## Stocks-to-Use Ratio for Total Grains\* in World (1960-2009)

\*Feed grains + wheat + rice



# Declining Stocks



Chart 4

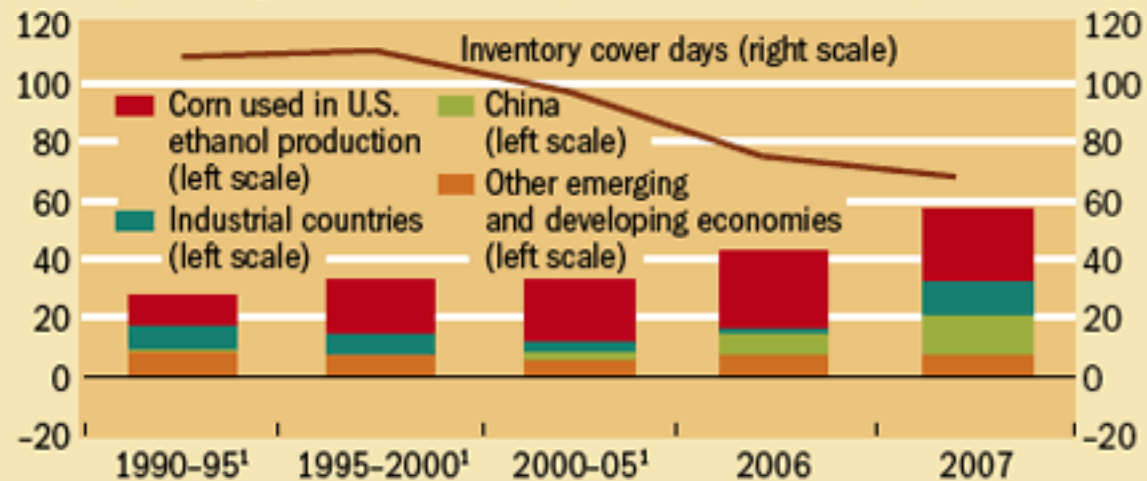
## Falling inventories

Strong demand has been a key factor underlying dwindling inventories of major food crops.

(demand for major food crops;

year-on-year changes; million metric tons)

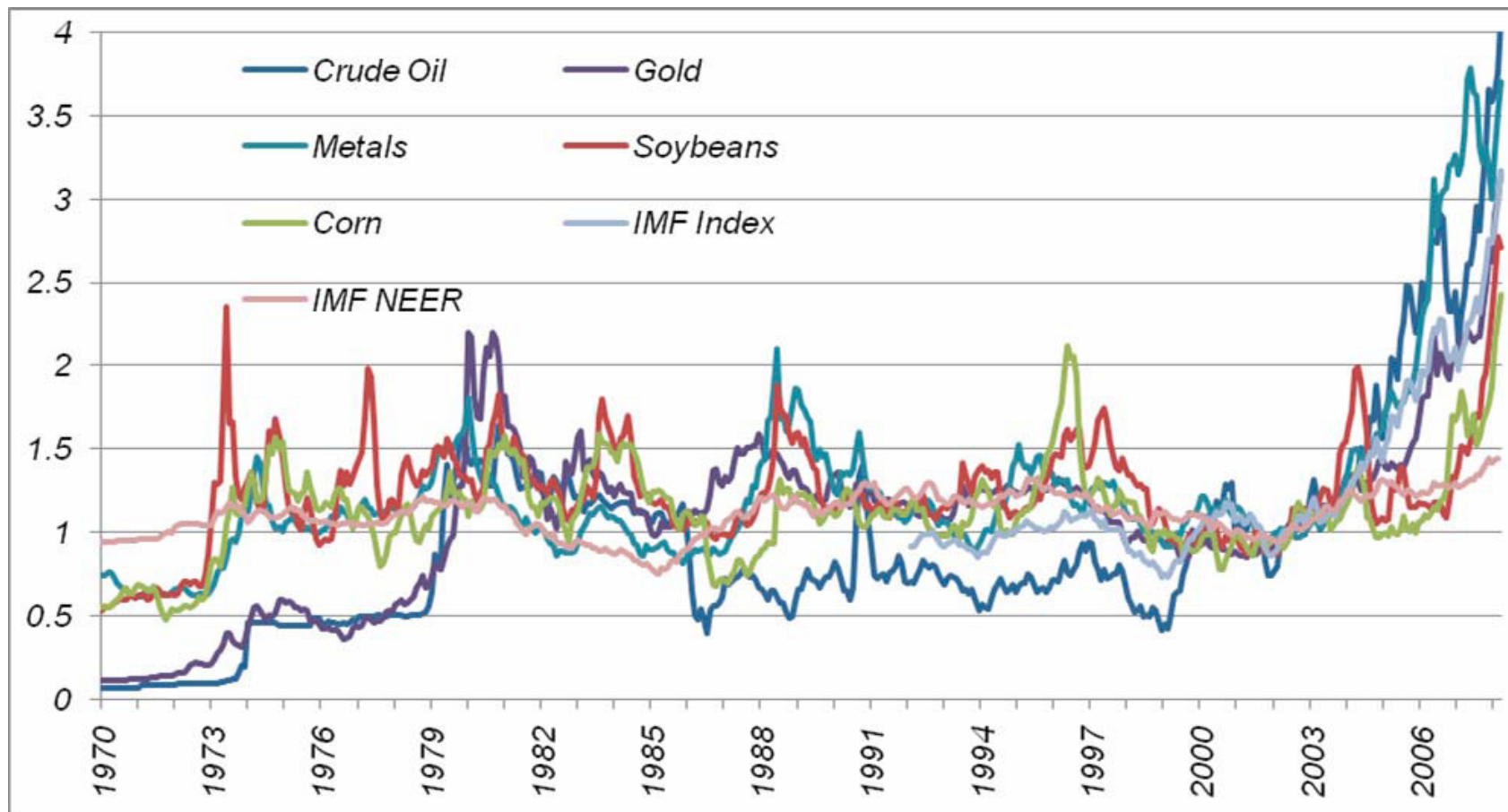
(number of days)



Source: U.S. Department of Agriculture.

<sup>1</sup>Period average.

# US \$ and Commodity Prices



Source: Farm Foundation, 2008

# US \$ and Commodity Prices



- ◆ **What is causation – does low US \$ drive up commodity prices, or do high commodity prices drive US \$ down?**
- ◆ **Some analysts argue high oil prices drive US \$ down:**
  - **oil exporters import more from Europe than US, and hold less oil revenues in US \$**
  - **US Federal Reserve targets *core* (excludes oil and food prices) not *overall* inflation, pushing down US \$ due to “looser” monetary policy**
- ◆ **However, there are channels through which a fall in nominal US \$ can raise commodity prices in US \$**

# US \$ and Commodity Prices



## ◆ Purchasing power and cost channel:

- most commodities priced in US \$, so depreciation makes commodities less expensive, thereby stimulating demand

## Asset channel:

- falling US \$ reduces returns on US \$-denominated assets in foreign currencies, making commodities more attractive asset
- US \$ depreciation risks US inflation, prompting move to commodities as hedge against inflation

# Biofuels and Food Prices

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- ◆ **Brazil and US leading producers of ethanol**
- ◆ **Recent surge in US ethanol production set in context of Federal biofuels mandate, ethanol blending subsidy and import tariff**
- ◆ **2004-07, most of increase in global corn production (55 million tons) went into US ethanol production (50 million tons)**
- ◆ **Growing demand for ethanol driven by high oil prices, which then affects corn prices: \$2.26/ bushel at \$40/barrel → \$6.33/bushel at \$120/barrel (Farm Foundation, 2008)**

# Biofuels and Food Prices



- ◆ **Various estimates of impact of biofuels on food prices: (i) USDA, 2-3%, (ii) IMF, 20-30%, (iii) World Bank, 65%**
- ◆ **Wide range of conclusions reflects different prices being measured (farm, wholesale, retail) and different time periods for data analyzed**
- ◆ **World Bank (2008) estimate: 140% increase in food price index (2002-08): 15% (energy/fertilizer prices), 20% (US\$), 105% (biofuels *and* related effects of stocks, land-use, speculation, and export controls )**
- ◆ **While cause(s) of increase in food prices is complex, appears to be a connection between food and fuel**