

# Agriculture in These Uncertain Times

Neil Conklin



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# Farm Foundation Role

*Farm Foundation: over 75 years serving as a catalyst for sound public policy by providing objective information to foster deeper understanding of issues shaping the future for agriculture, food systems and rural regions.*

# Uncertainty

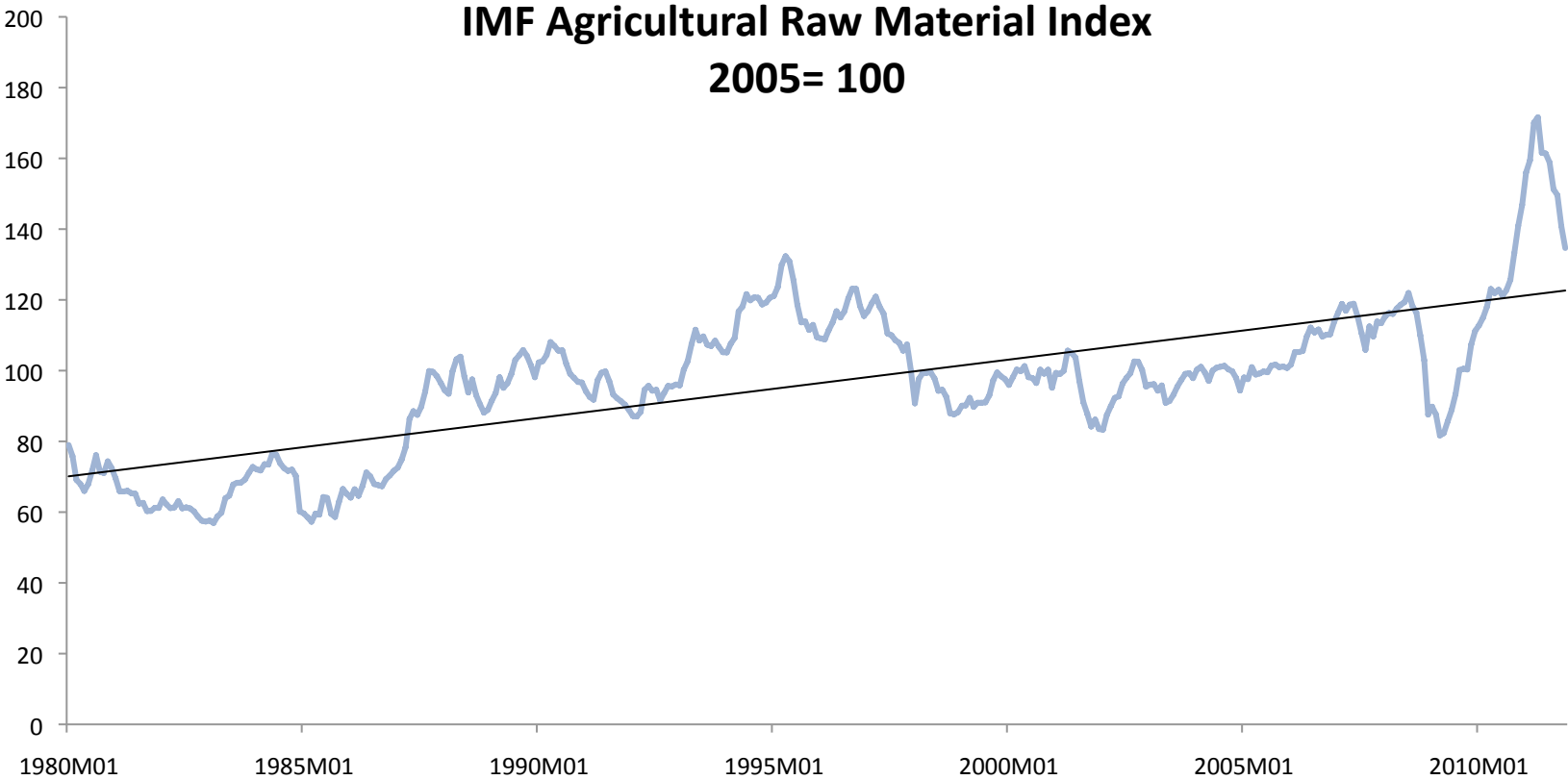
In real life you do not know the odds; you need to discover them, and the sources of uncertainty are not defined. ... "computable" risks are largely absent from real life! They are laboratory contraptions.

Nassim Nicholas Taleb, *The Black Swan*

# Sources of Uncertainty

- Commodity Markets: have we reached a turning point?
  - Sources of growth
- Global Economy
  - Europe
  - China
- Climate Change

# Is the Era of Declining Real Agricultural Prices at an End?

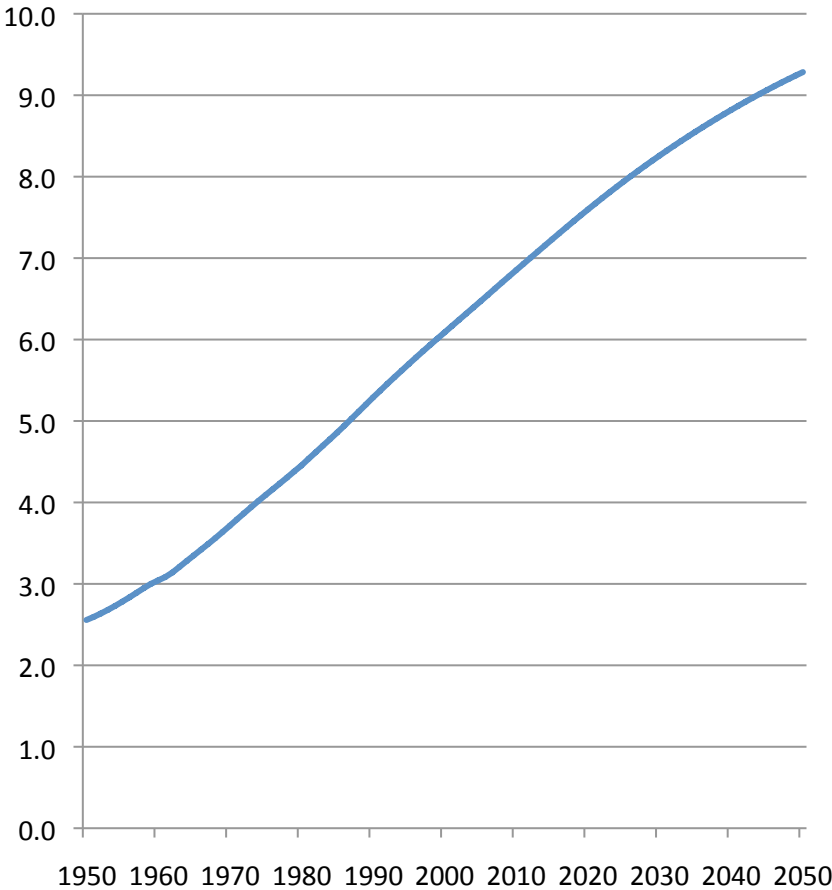


Source: International Monetary Fund, Dec 2011  
<http://www.imf.org/external/np/res/commod/index.aspx>

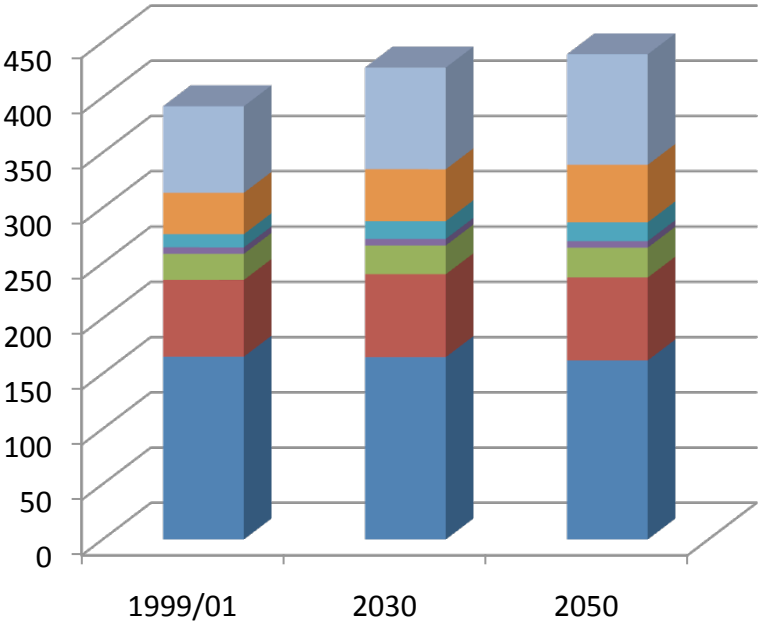


# Growing Populations and Changing Diets

Population in Billions

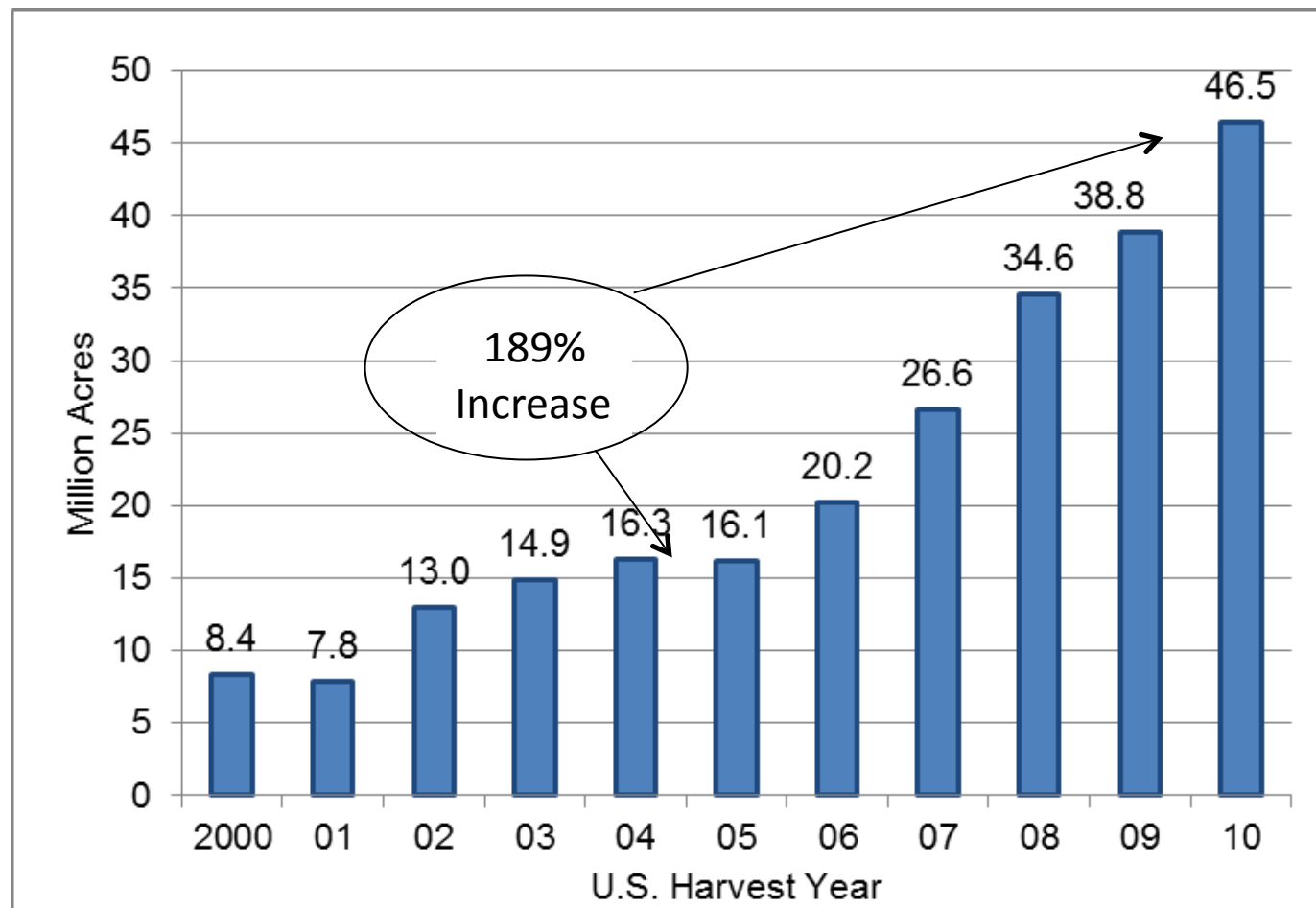


KG/Capita/Annum



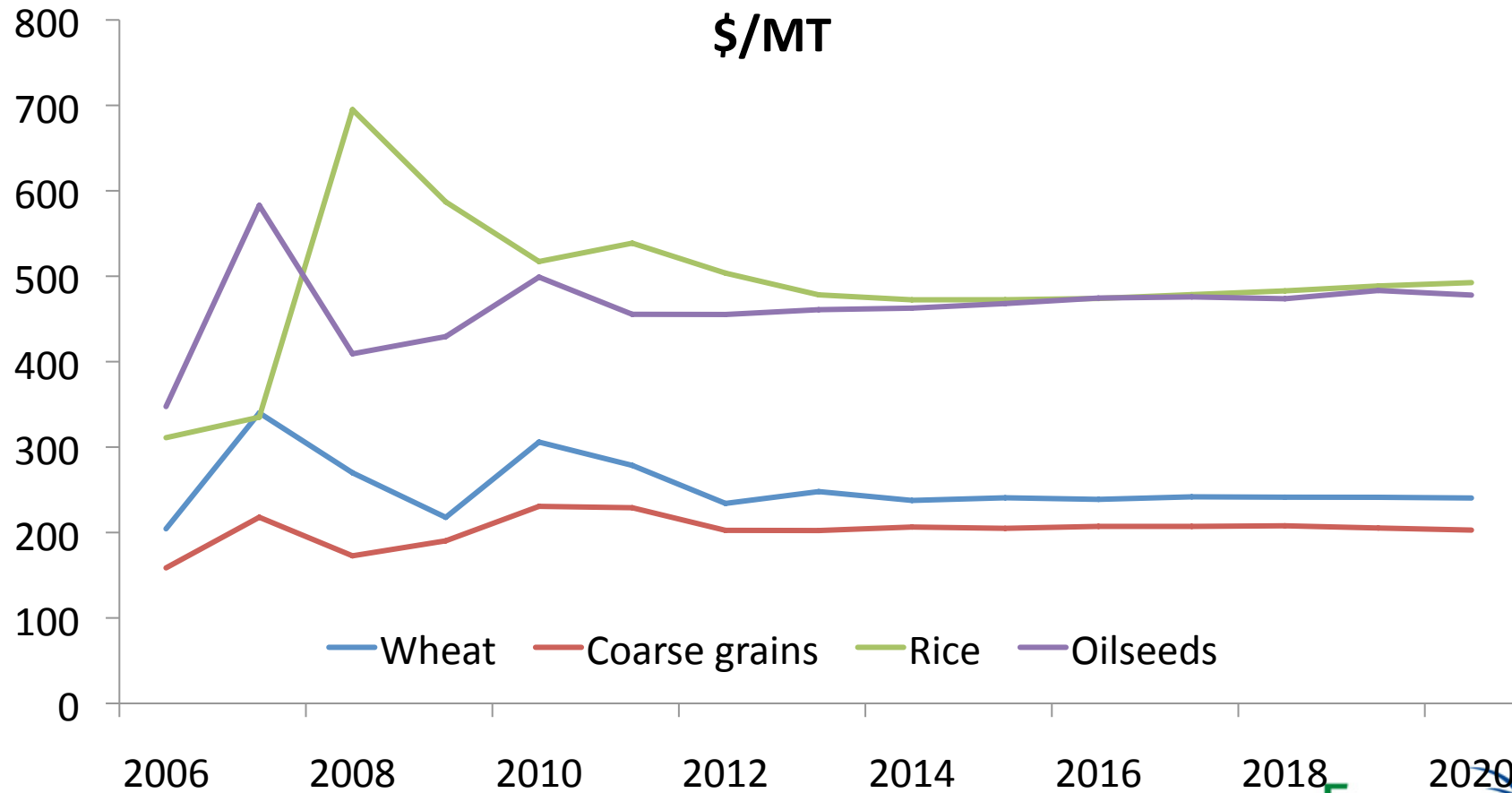
- Cereals, food
- Roots and tubers
- Sugar (raw sugar eq.)
- Pulses, dry
- Vegetable oils, oilseeds and products (oil eq.)
- Meat (carcass weight)
- Milk and dairy, excl. butter (fresh milk eq.)

# Acres Needed for Ethanol & Chinese Soybean Exports



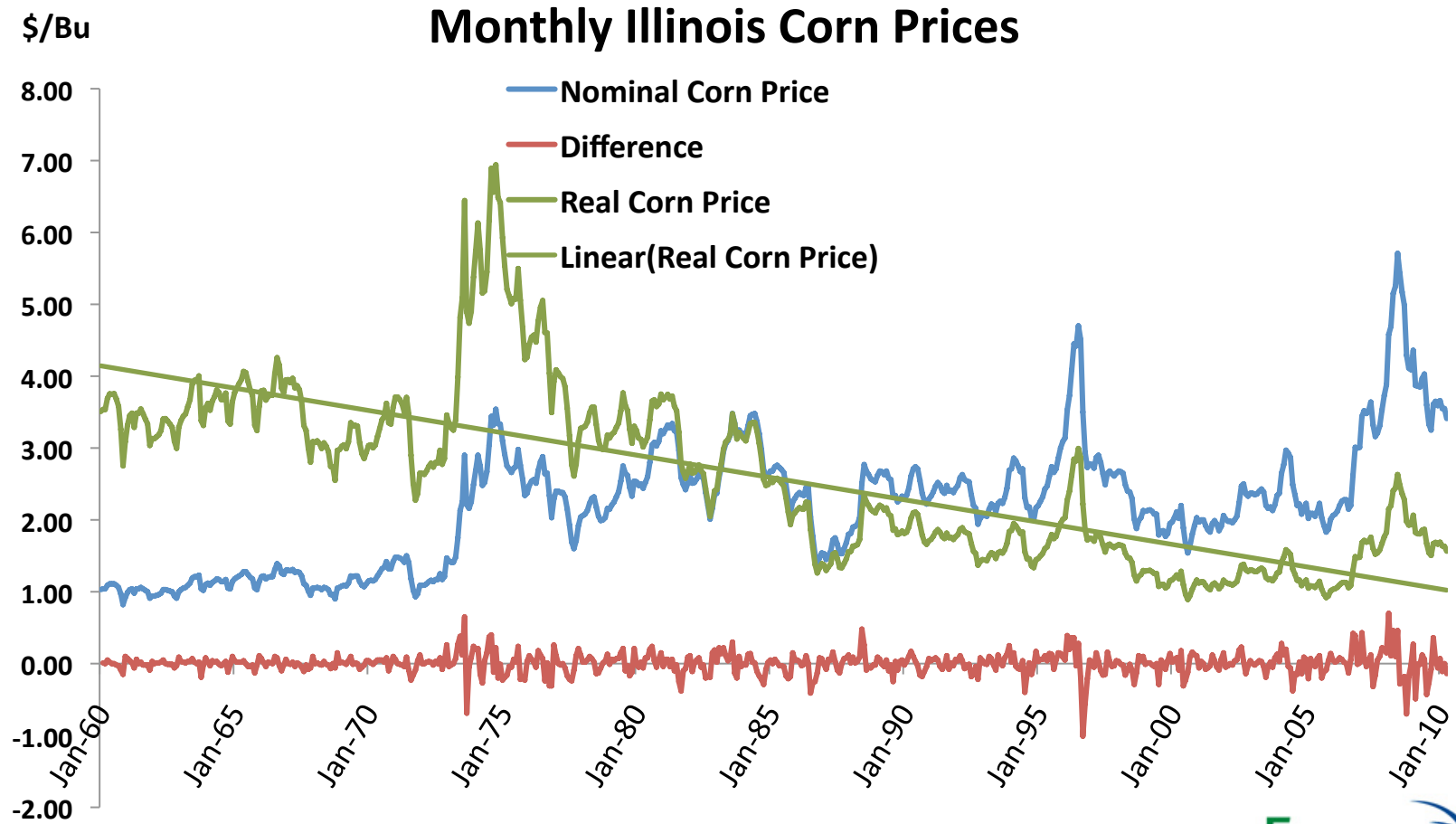
Source: Abbott, Hurt and Tyner, *What's Driving Food Prices 2011*

# What Will the Future Hold?

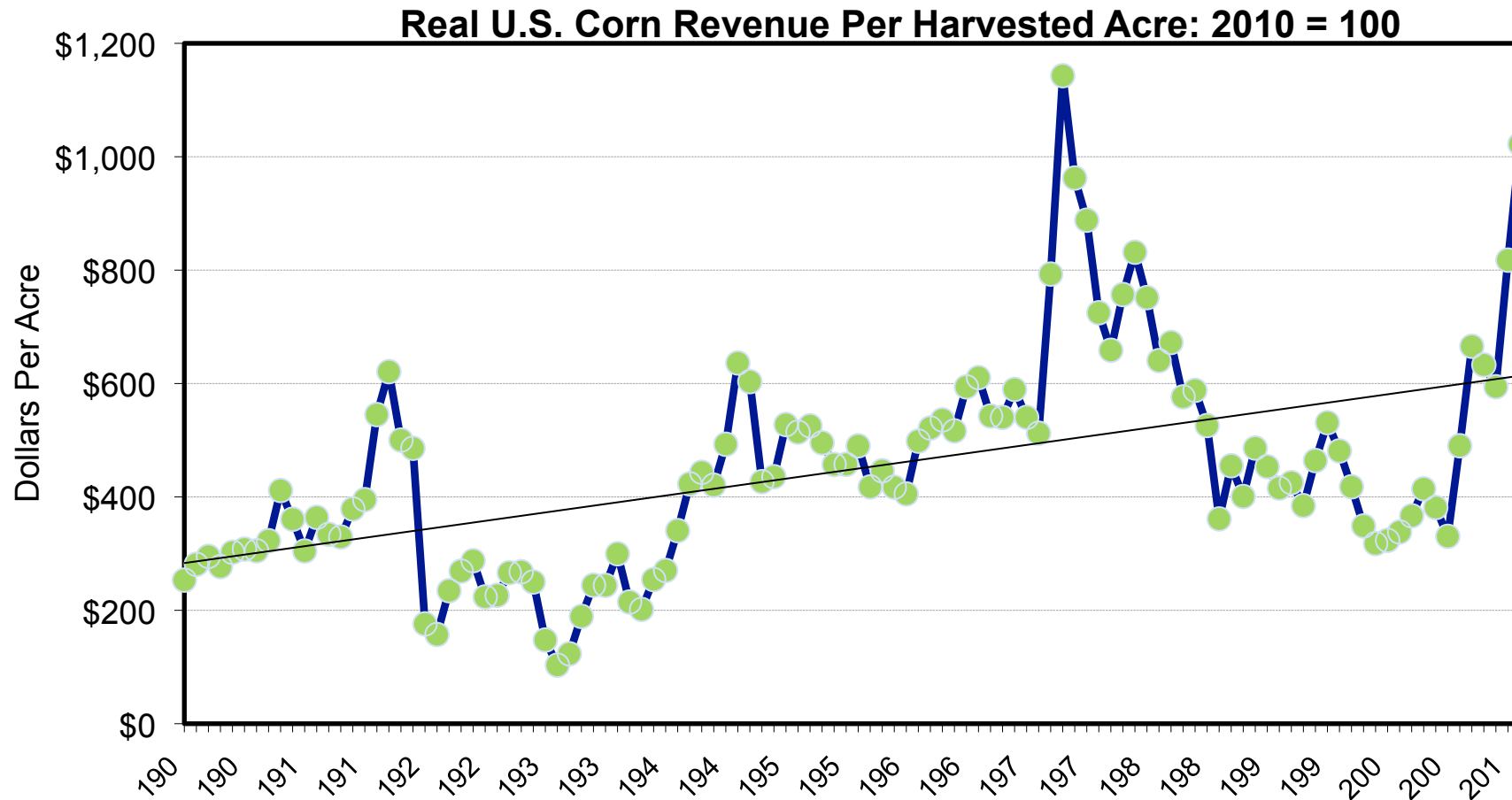


Source: OECD-FAO Agricultural Outlook 2011-20

# Market Uncertainties



# An Alternative Perspective



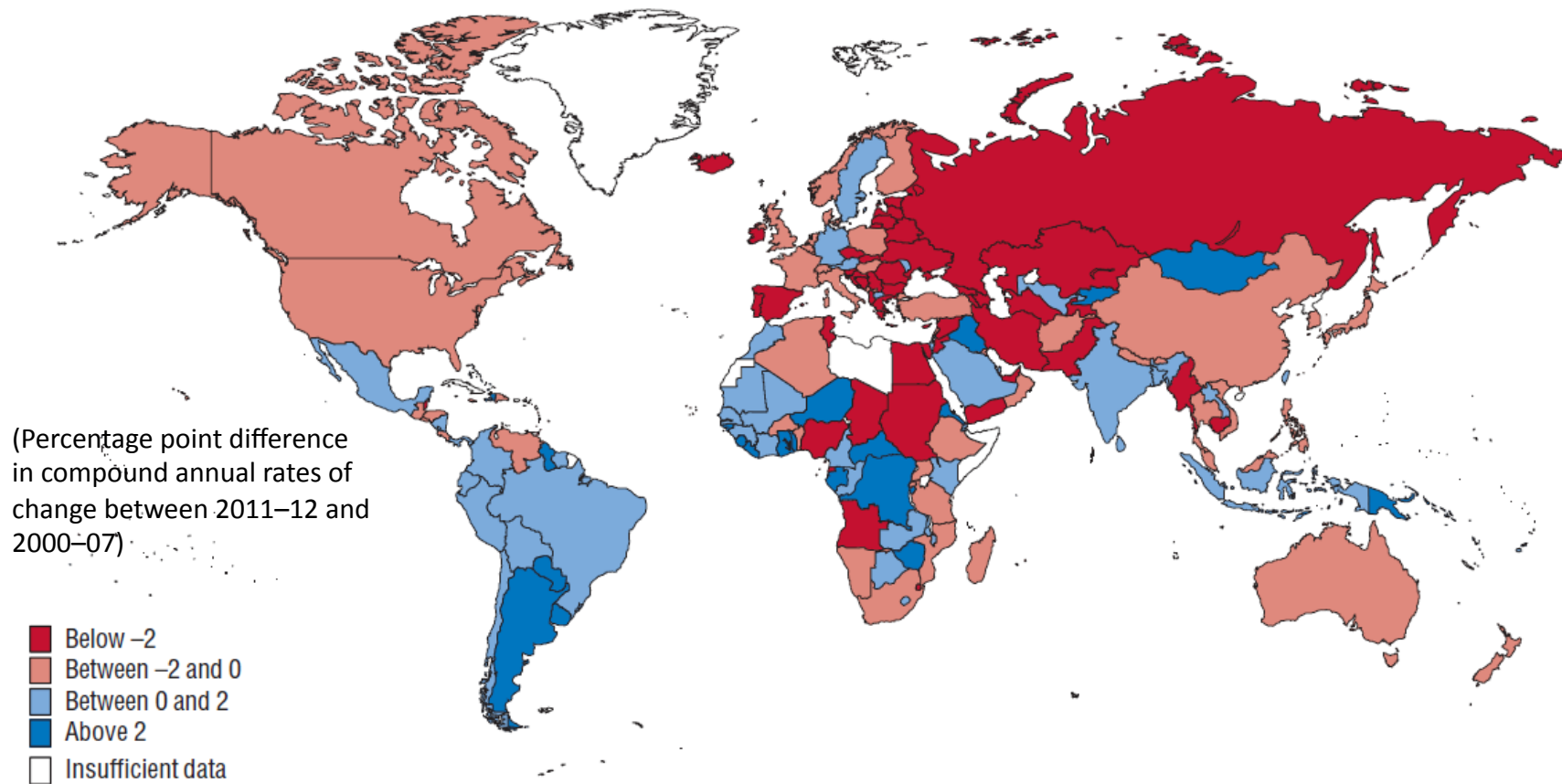
Source: Abbott, Hurt and Tyner, *What's Driving Food Prices 2011*



# The Global Economy

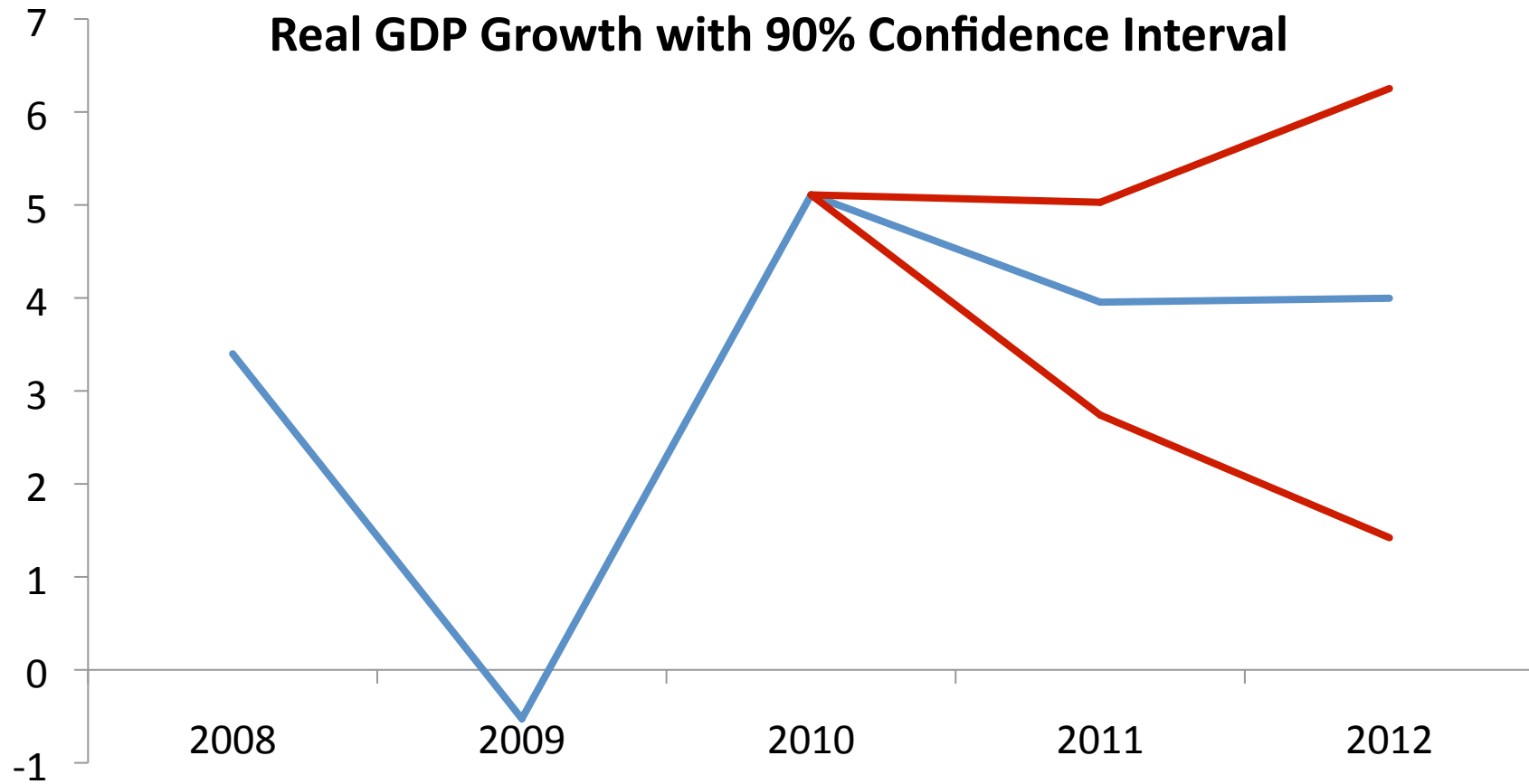


# Current Global Growth VS Pre-Crisis Average



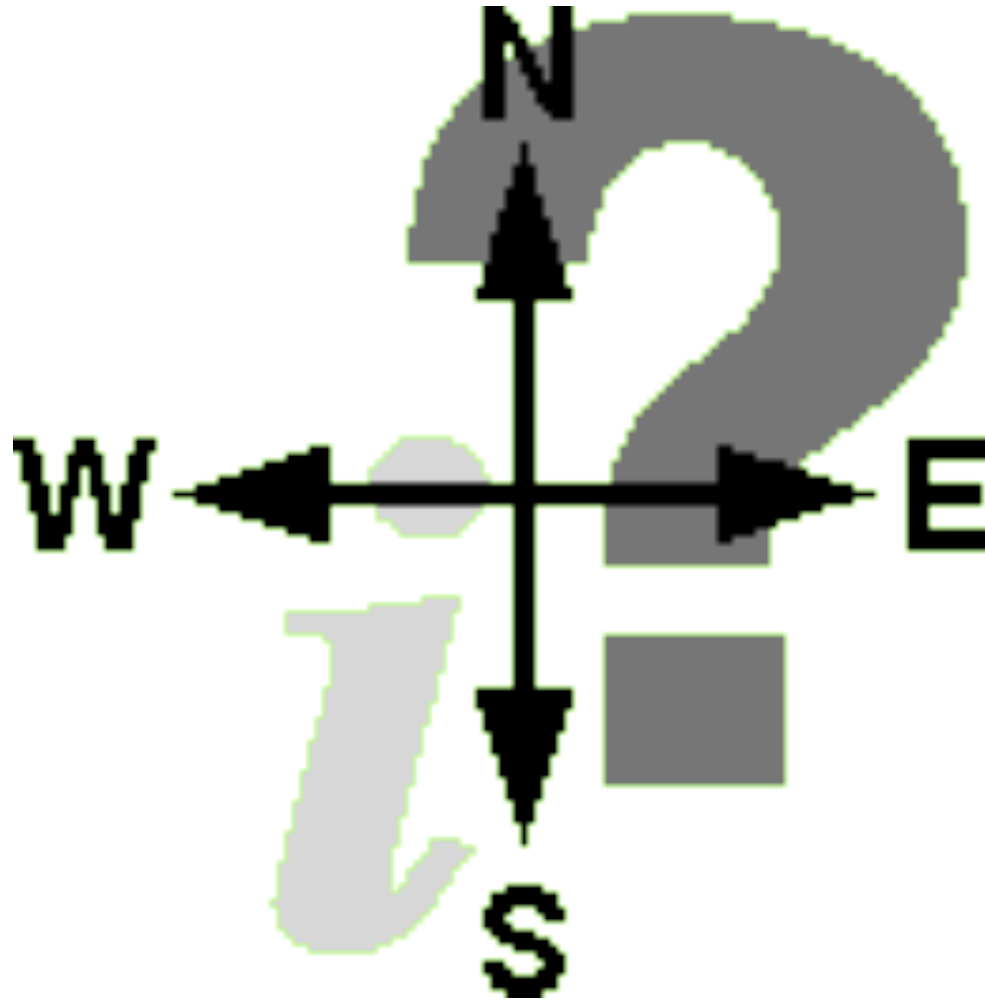
Source: IMF World Economic Outlook Update [http://www.imf.org/external/pubs/ft/weo/2011/02/c2/fig2\\_1.pdf](http://www.imf.org/external/pubs/ft/weo/2011/02/c2/fig2_1.pdf)

# Global Economy: The Baseline

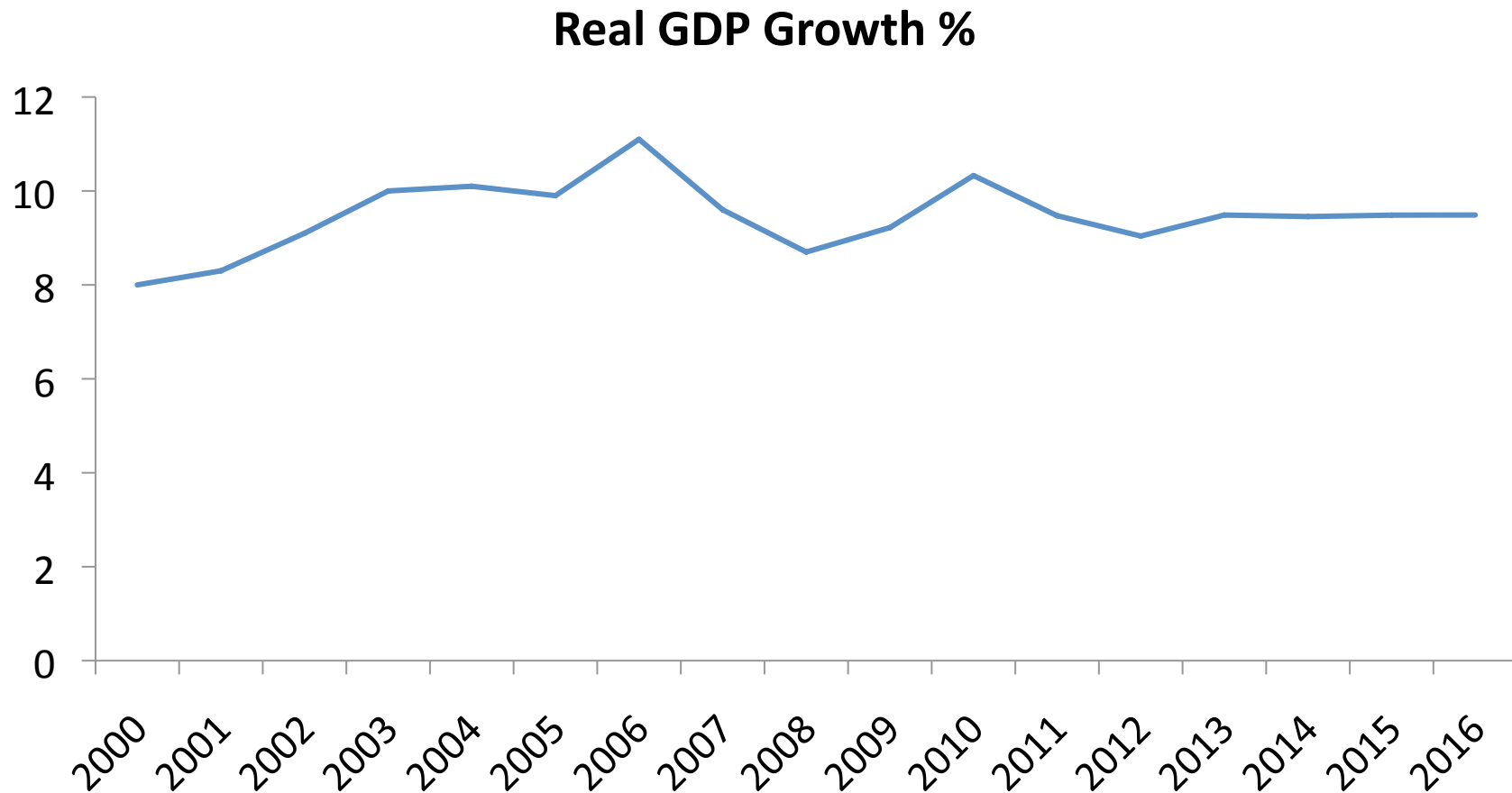


Source: IMF World Economic Outlook Update [http://www.imf.org/external/pubs/ft/weo/2011/02/c1/fig1\\_15.pdf](http://www.imf.org/external/pubs/ft/weo/2011/02/c1/fig1_15.pdf)

# Future of the Euro and Europe



# China: The Next Bubble?



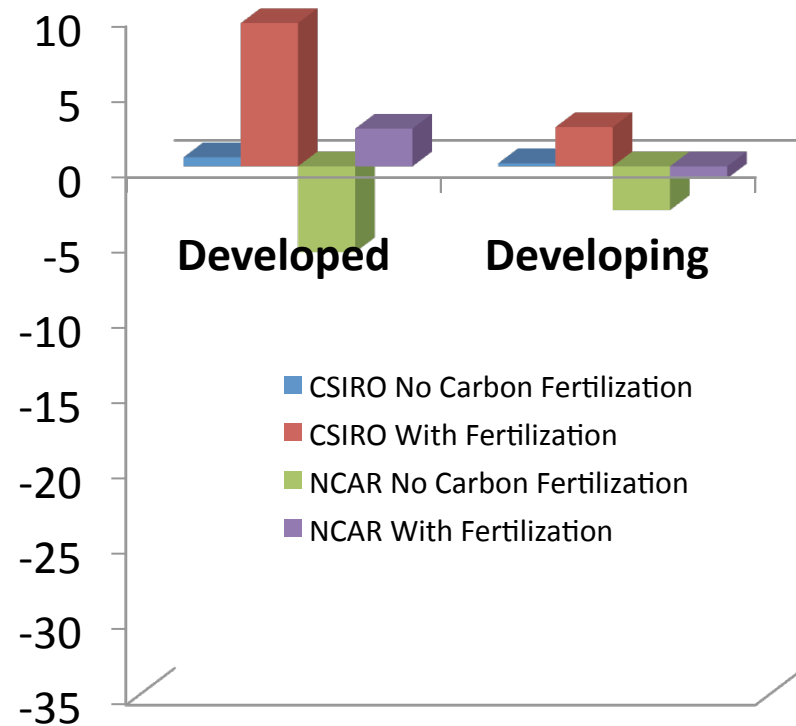
Source: International Monetary Fund, World Economic Outlook Database, September 2011

# Climate Change

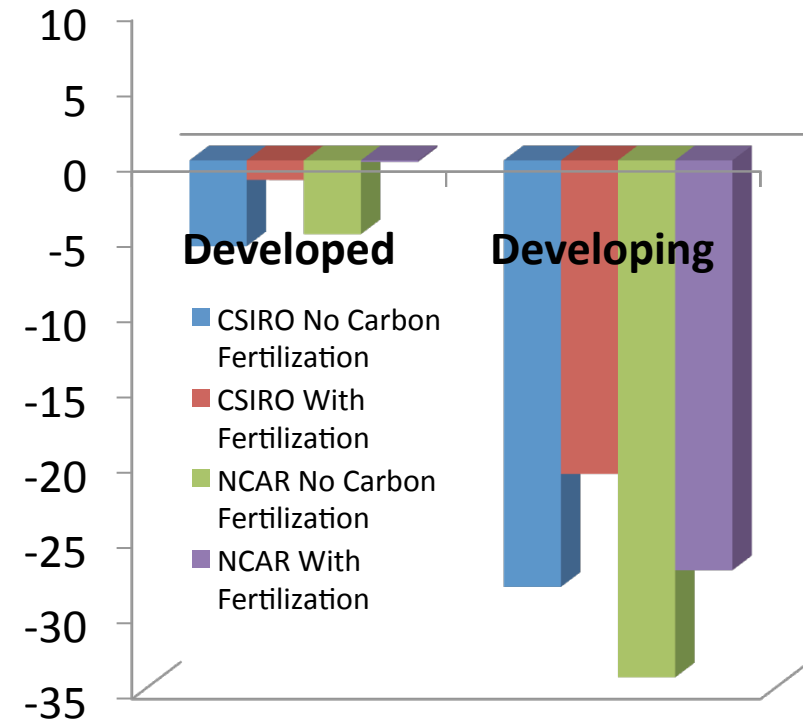


# The Yield Effects of Climate Change

## Percent Change in Rainfed Corn Yield by 2050



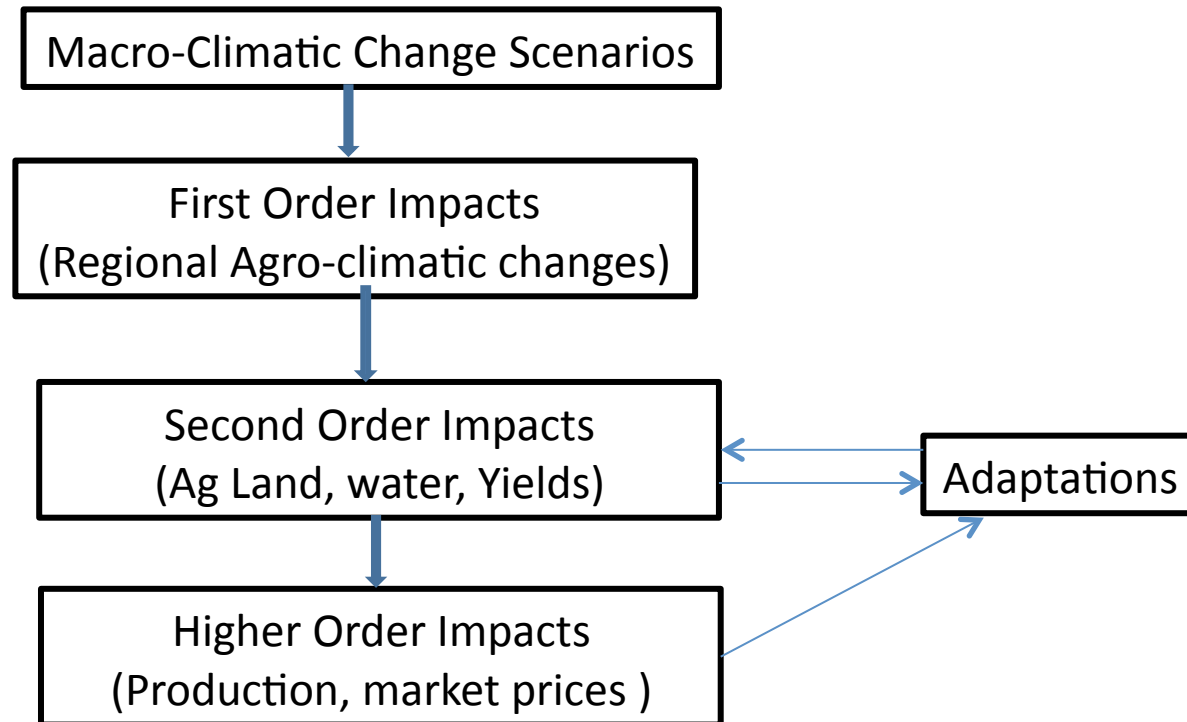
## Percent Change in Irrigated Wheat Yield by 2050



# North America

- Yield effects generally expected to be positive but not large
- Shifts in land use patterns
  - Corn and soybeans continue to shift north
  - Marginal areas with low rainfall may shift out of crops to pasture or completely out of production
- Potential declines in irrigated acreage, especially in California
- Increased variability and risk may be biggest problem

# Sources of Uncertainty



Source: Based on Figure 2.1 Wall, Smit and Wandel (eds). 2007. Farming in a changing climate: agricultural adaptation in Canada.

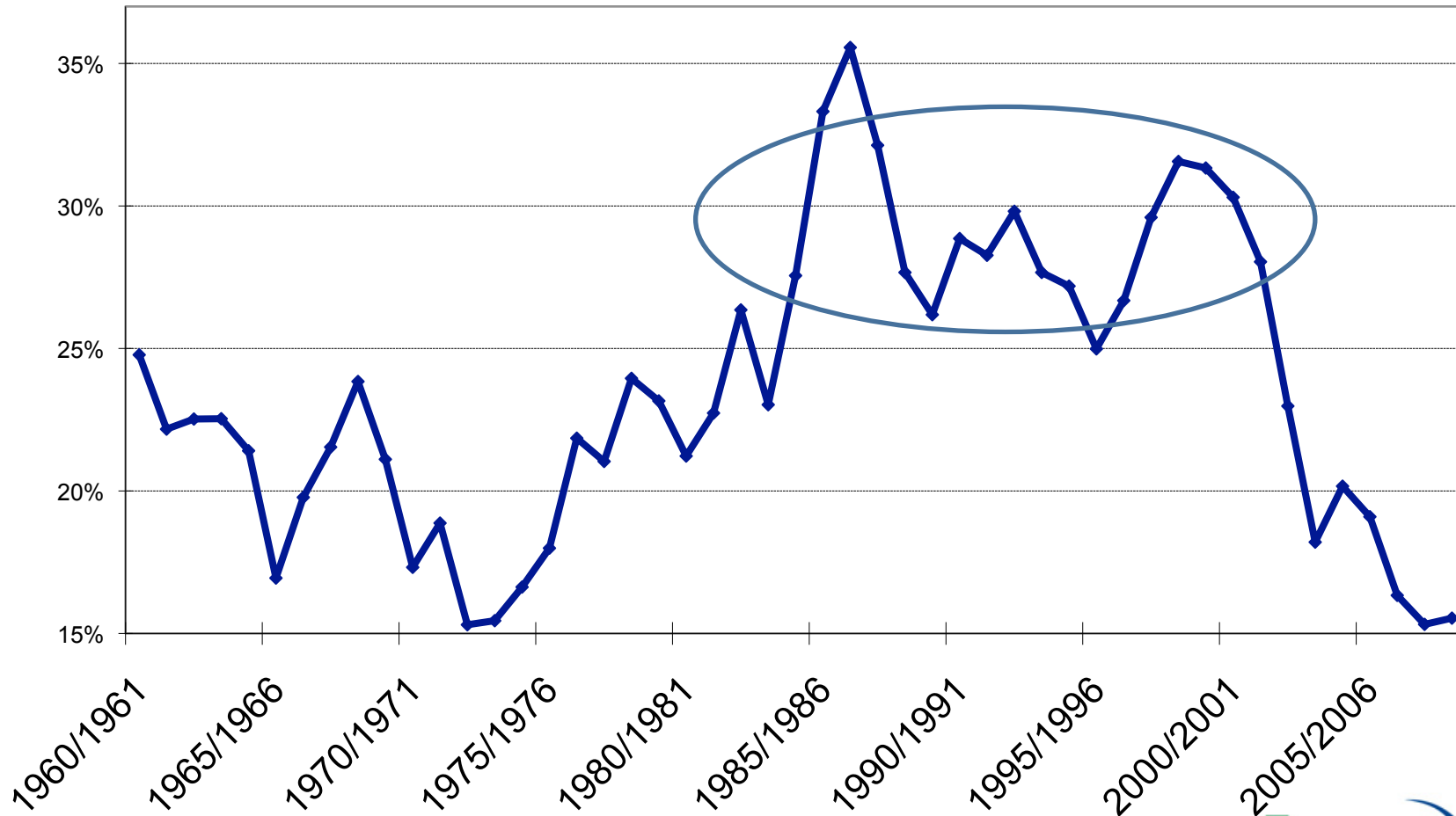
# Adaptation to Climate Change

- Maximizing profit given uncertainty about climate change is equivalent to maximizing profit given certainty that the future climate will be more variable but have the same mean temperature and precipitation.
- Farmers are constantly adapting to change.

Will policy respond to these uncertainties or will it be a source of even greater uncertainty?

# Policies Shaped by Abundance

Stocks-to-Use Ratio for Total Grains in the World (1960-2009)



“The future ain’t what it used to be.”\*

- Agricultural Markets
  - Will declining real agricultural commodity prices return?
- The Economy
  - Will the Eurozone collapse?
  - Will a bubble burst in China?
- Climate Change
  - Farmers will adapt but even the qualitative (directional) impact at regional and global levels are unknown.
- Policy
  - More a source of uncertainty than a response to it?

\*Yogi Berra

[www.farmfoundation.org](http://www.farmfoundation.org)

