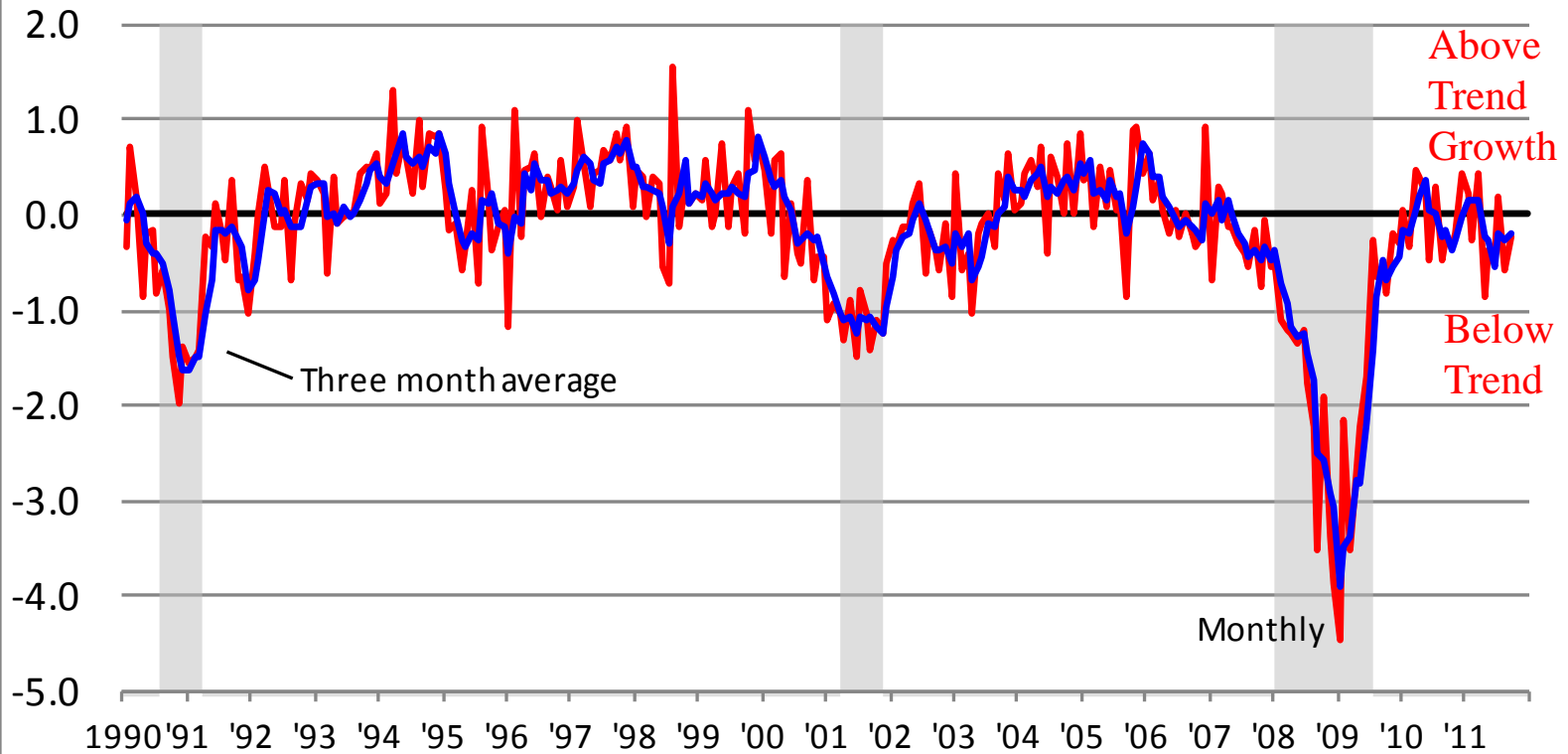

A Primer on Factors Affecting Farmland Values

**Federal Reserve Bank
of Chicago**

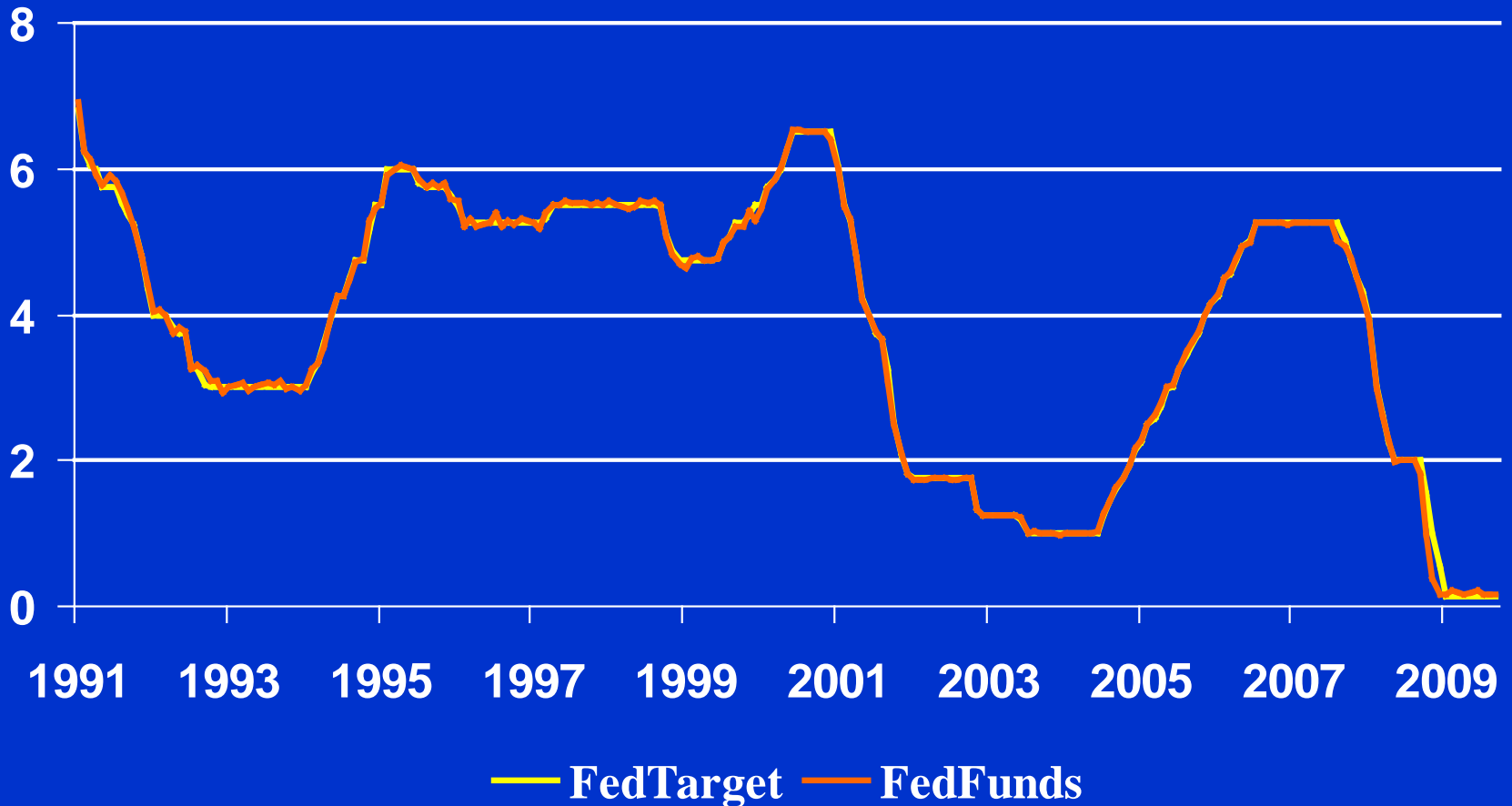
**David Oppedahl
Business Economist
312-322-6122
david.oppedahl@chi.frb.org**

*The economy hit bottom in June 2009,
with hesitant growth since then*

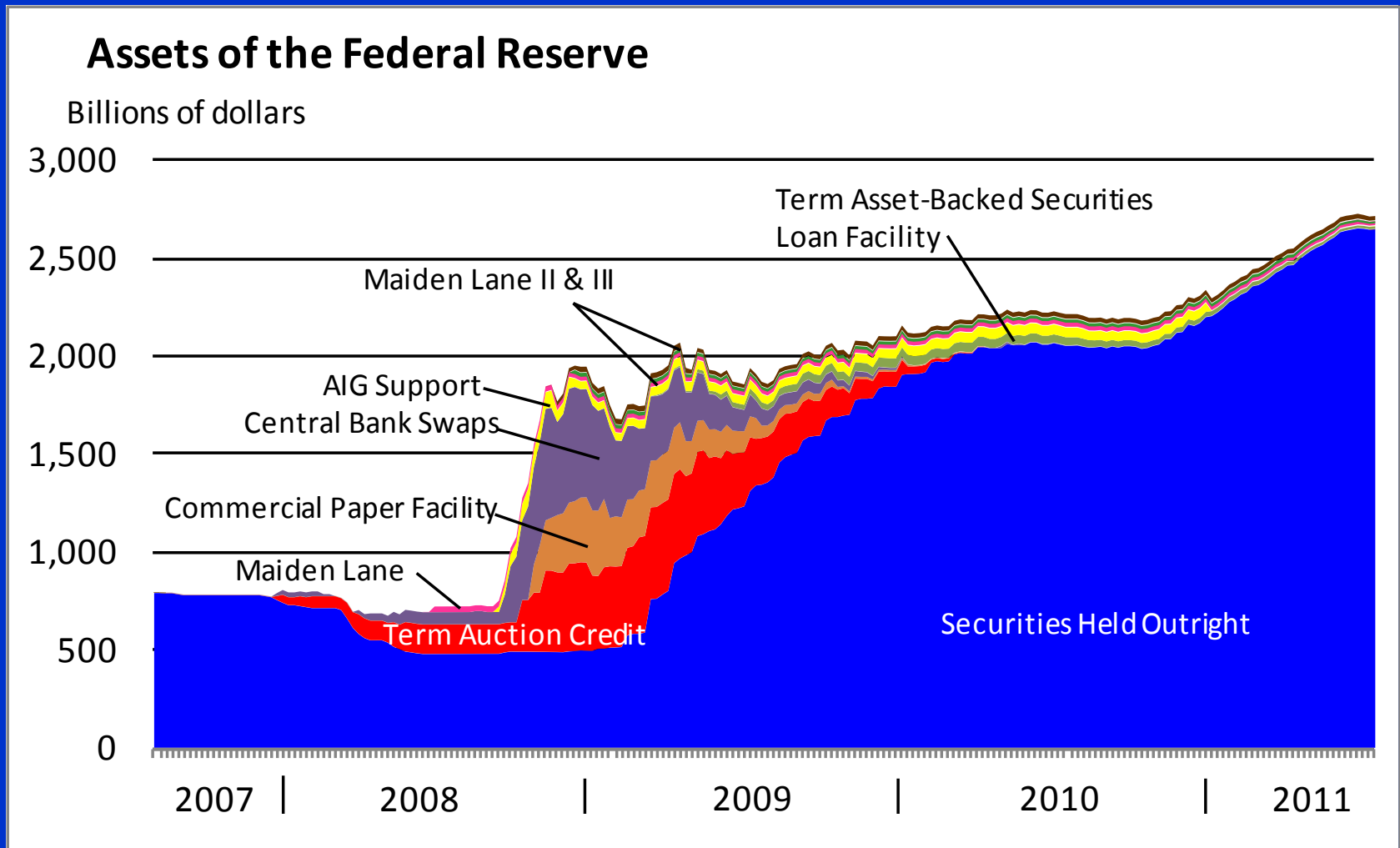
Chicago Fed National Activity Index



In December 2008, the Federal Open Market Committee lowered its Fed Funds rate target to a range from 0 to 0.25%



Quantitative easing was necessary



Food price increases again rising faster than core inflation (less food and energy)

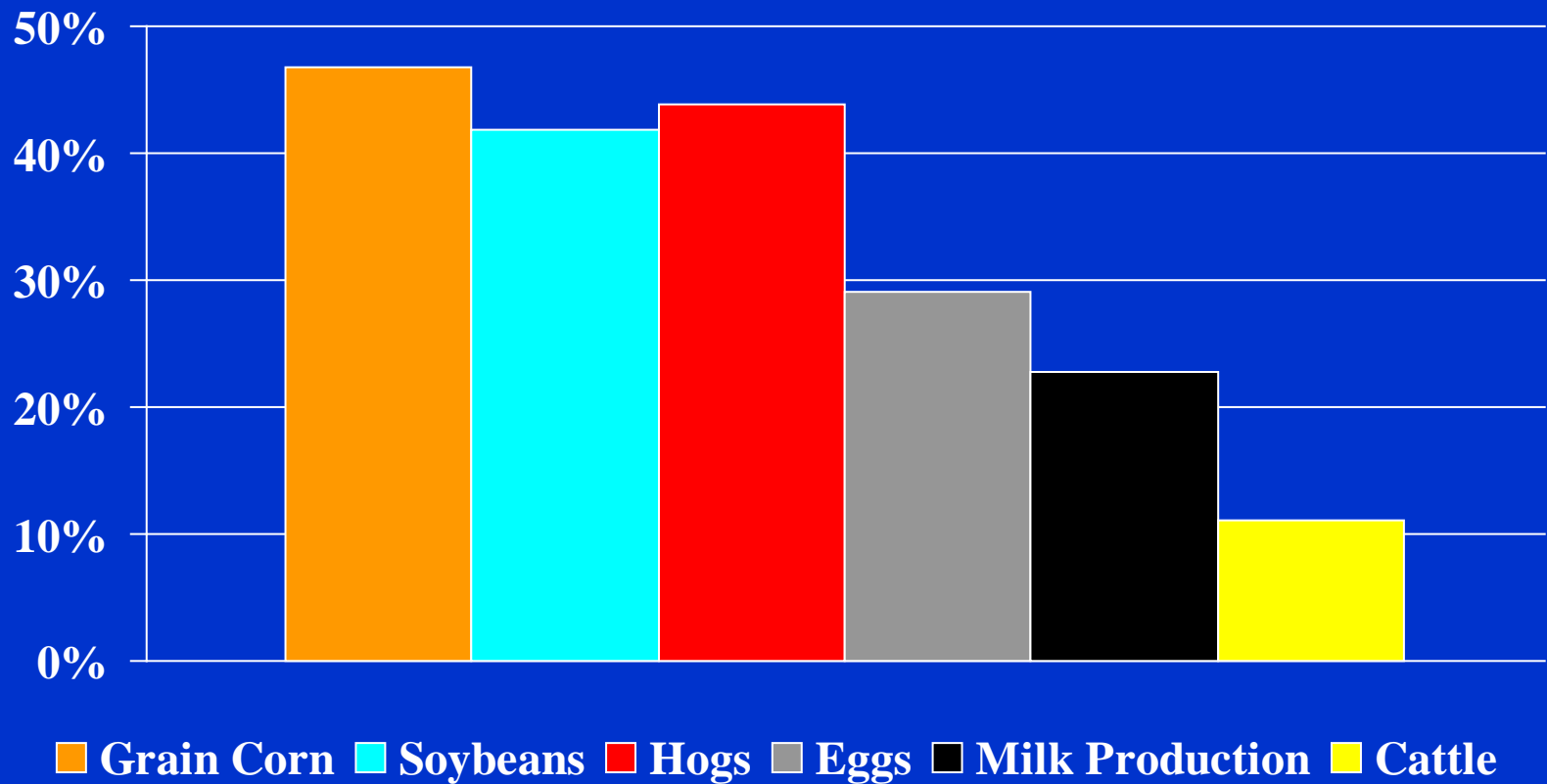
(Consumer price index, percent change from year ago)



Why is the Chicago Fed interested in Agriculture?

- **Important portion of District economy**
 - Wide geographic impact
 - “Backbone” of economy
- **Leading farm states**
- **Food manufacturing**
 - Jobs
 - Income
- **Impact on commercial banks**
- **Response to stakeholders**

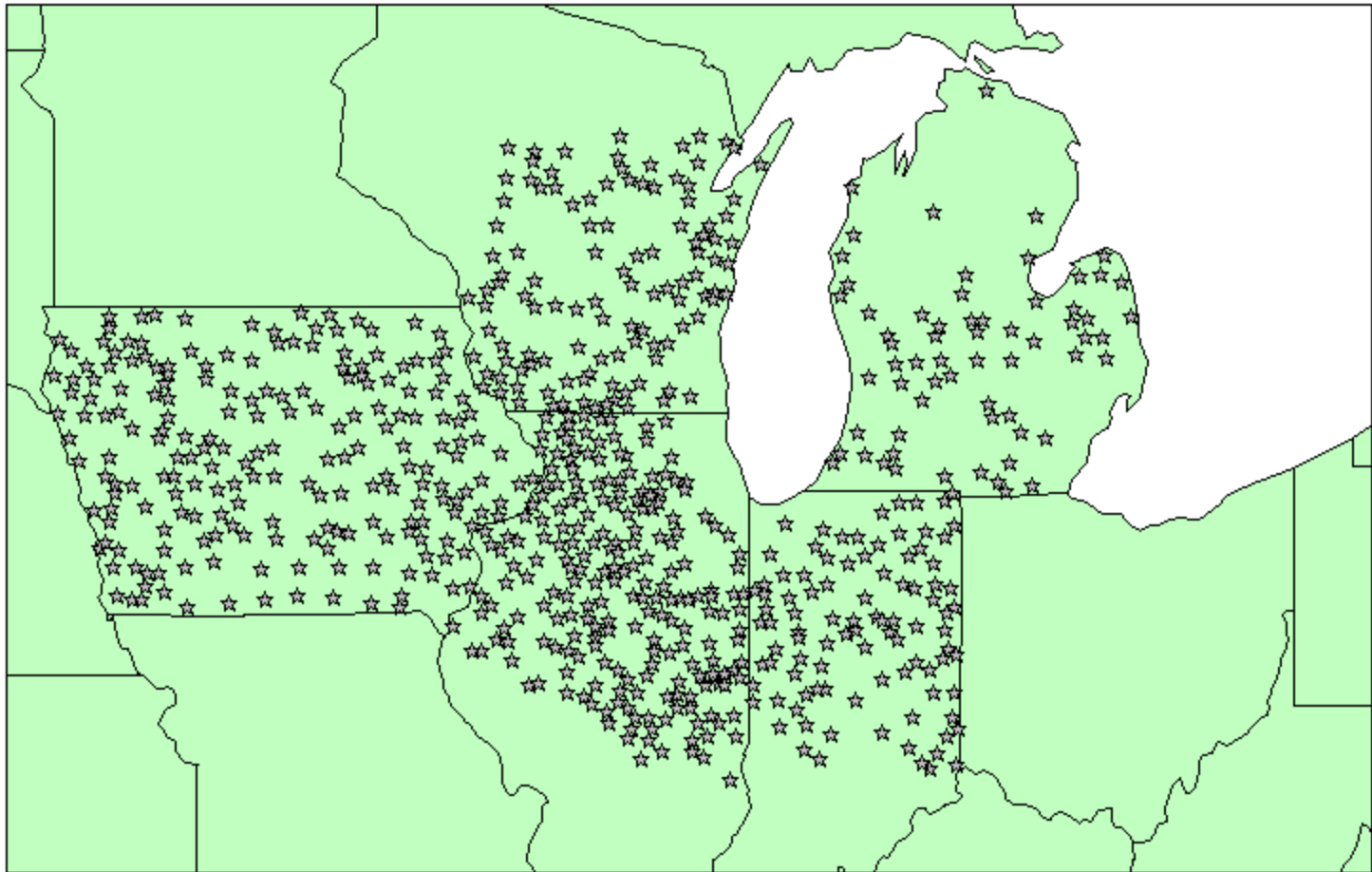
7th District Agriculture Products (as % of U.S. total, 2010)



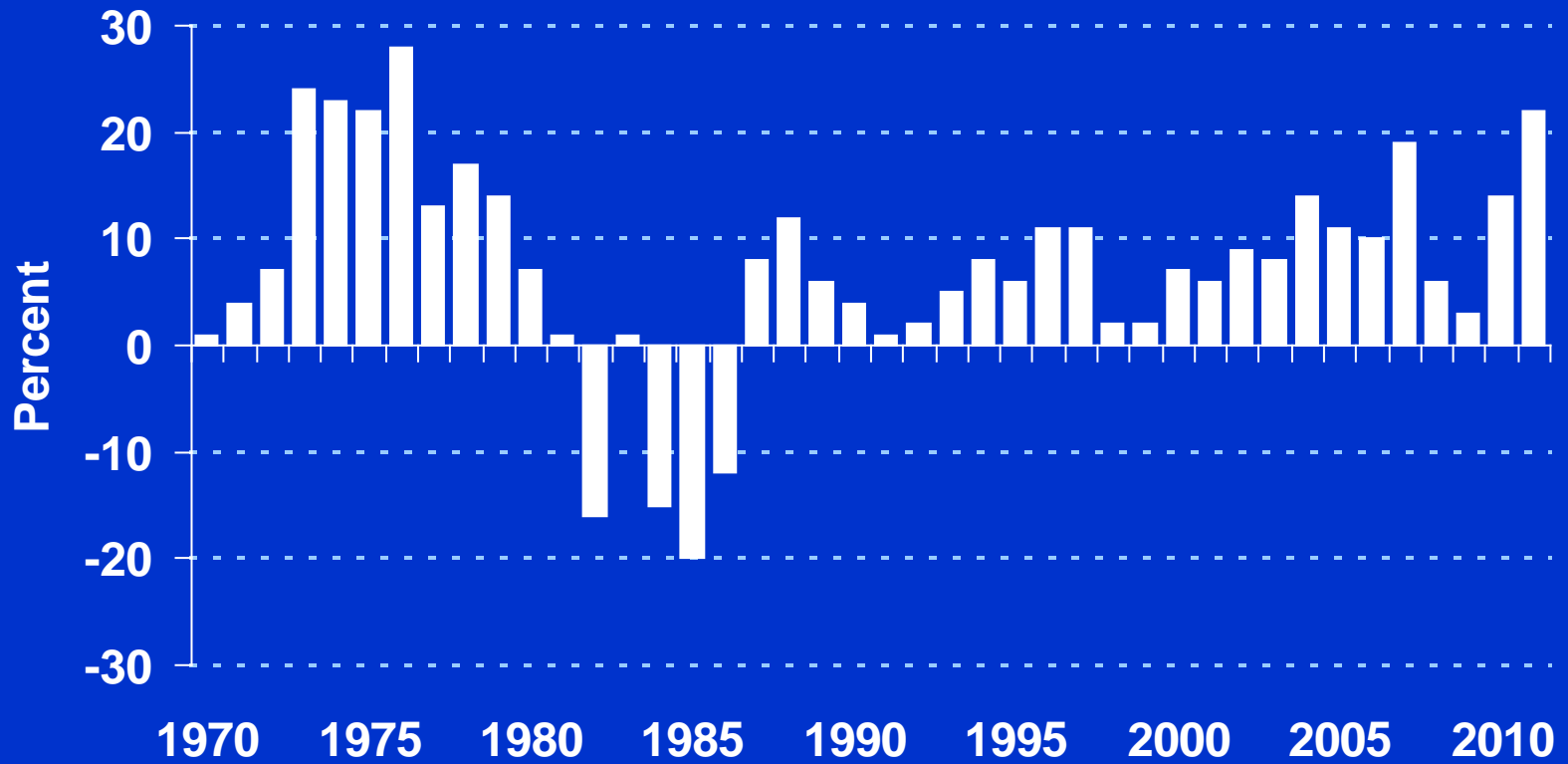
Why the interest in farmland values?

- **Accounts for huge portion of sector asset value**
- **An indicator of agriculture's health**
- **Affects collateral values & portfolio quality**
- **Impact on lending institutions**
- **A factor in the 1980's farm crisis**

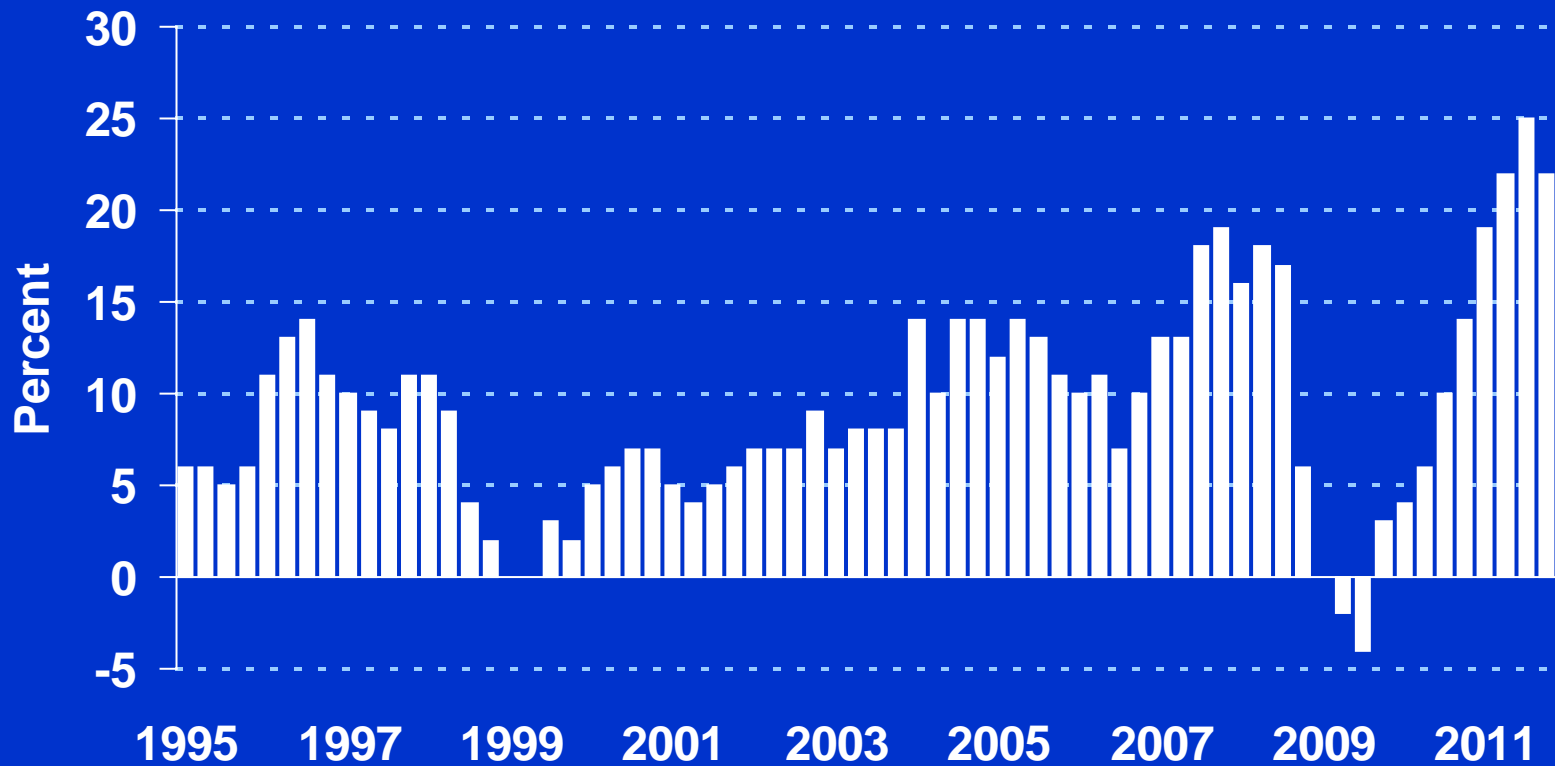
Banks in 7th District Land Value and Credit Conditions Survey



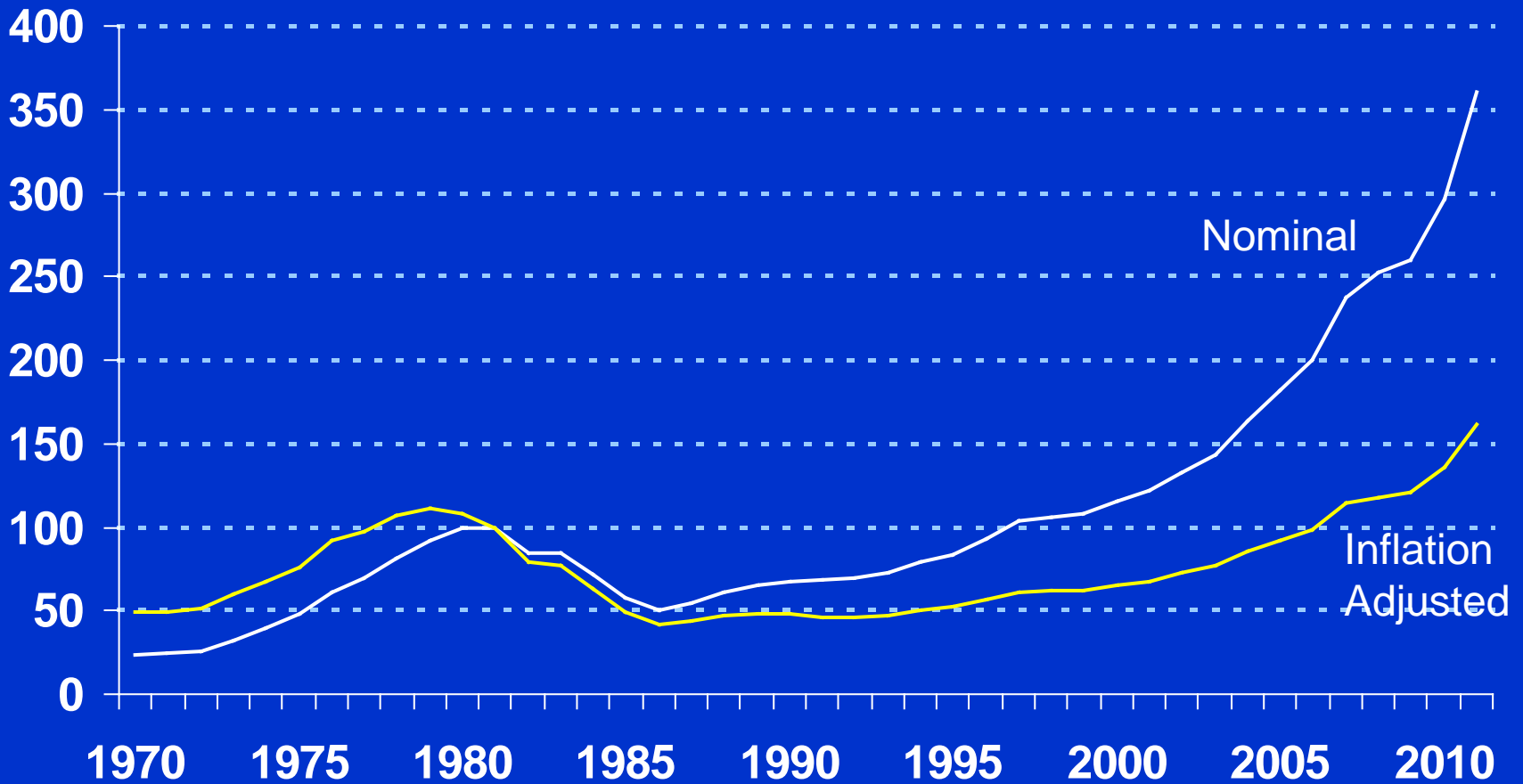
Annual change in farmland values in Seventh Federal Reserve District



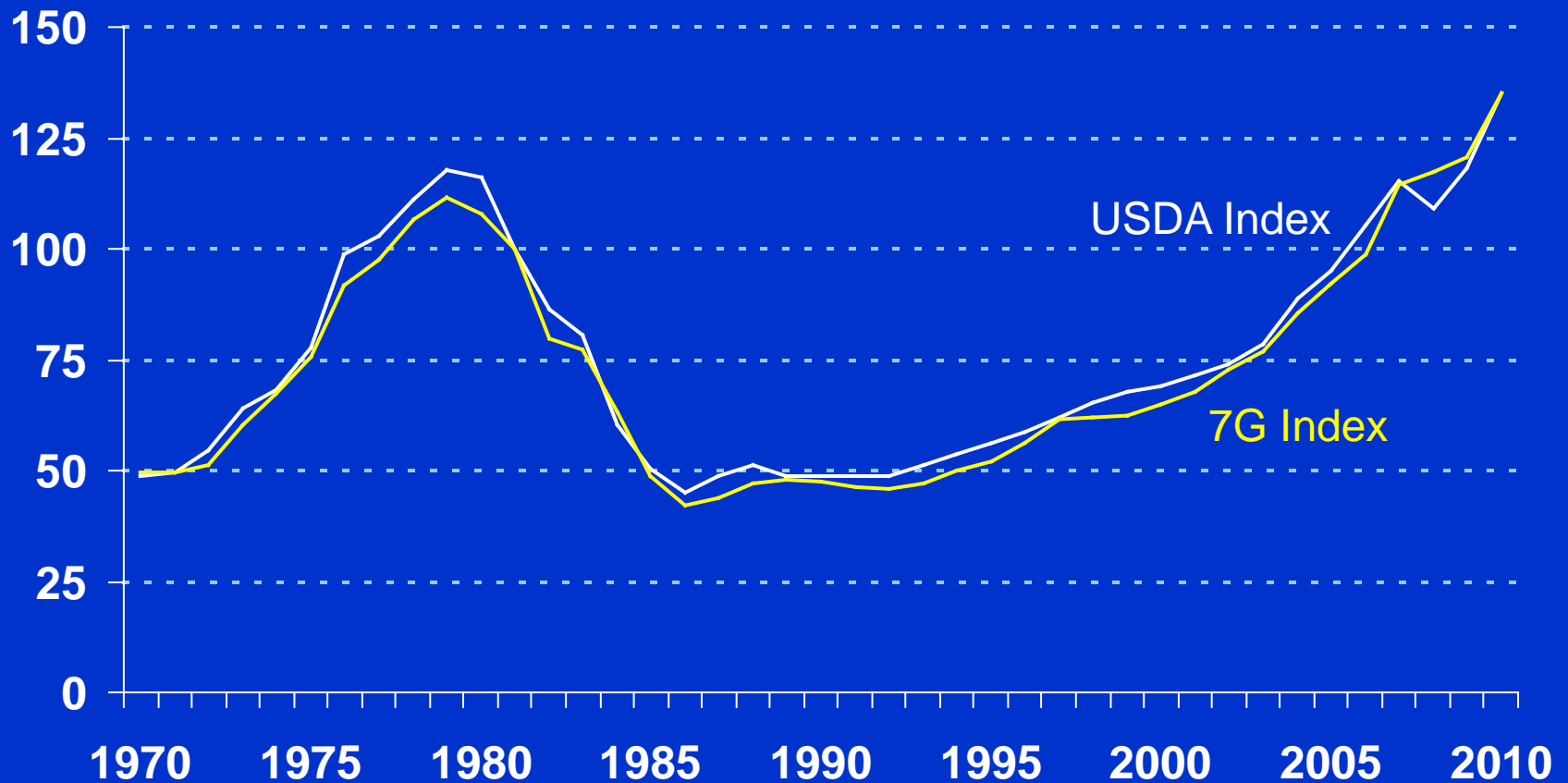
Year over year changes by quarter in farmland values in the Seventh Federal Reserve District



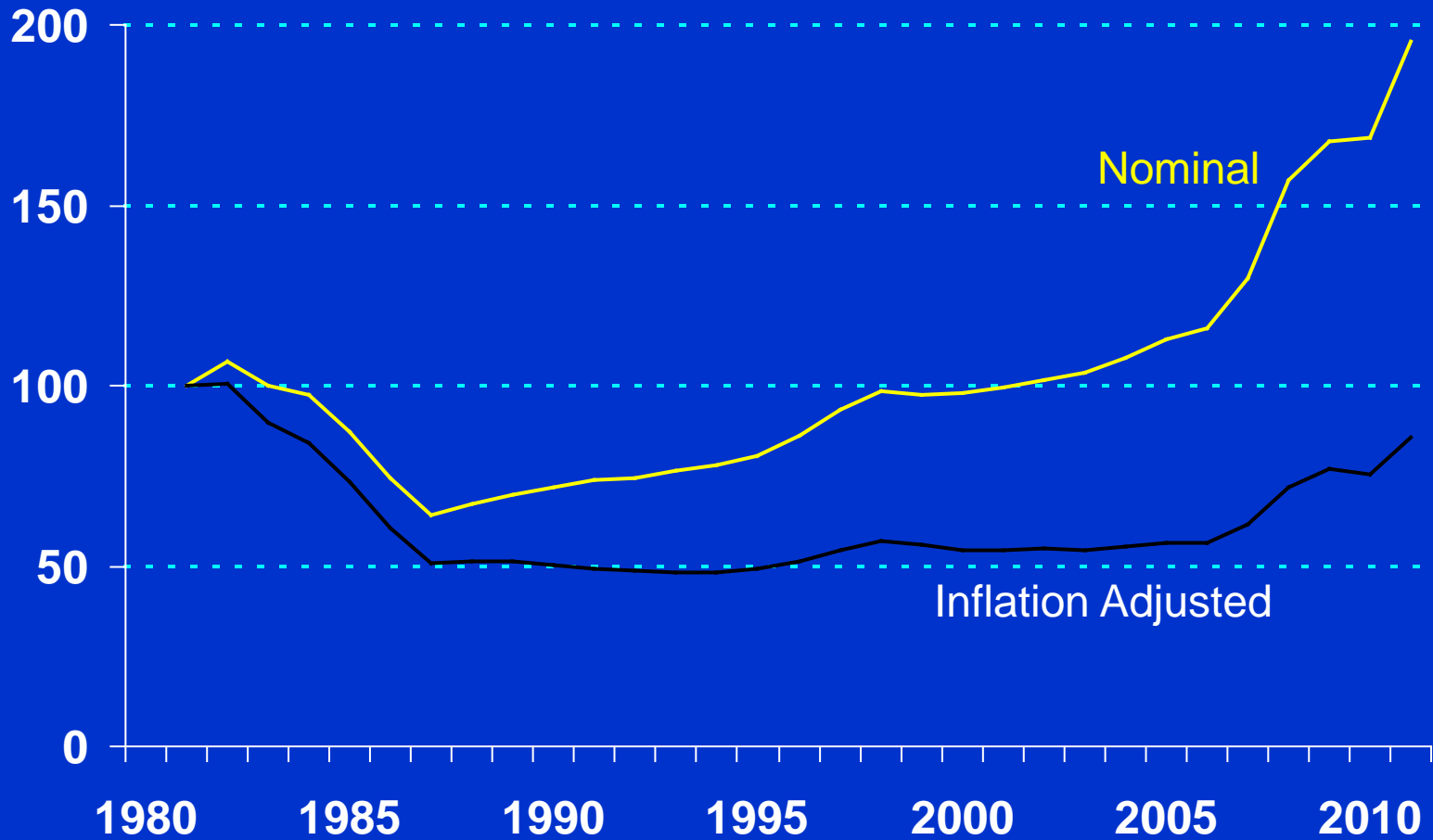
Index of Seventh District farmland values (1981=100)



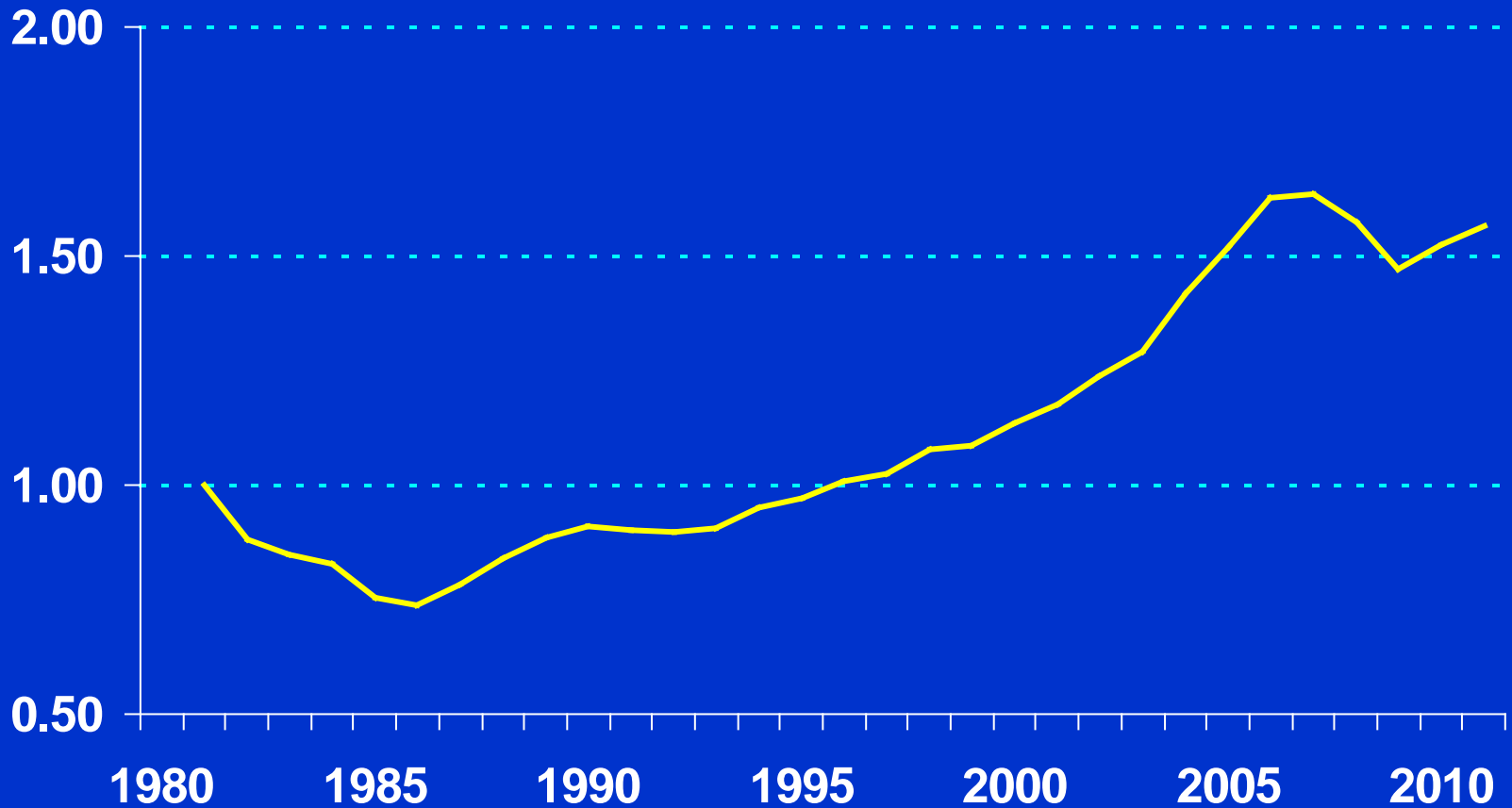
Indices of Seventh District farmland values and USDA farm real estate (1981=100, adjusted by PCE)



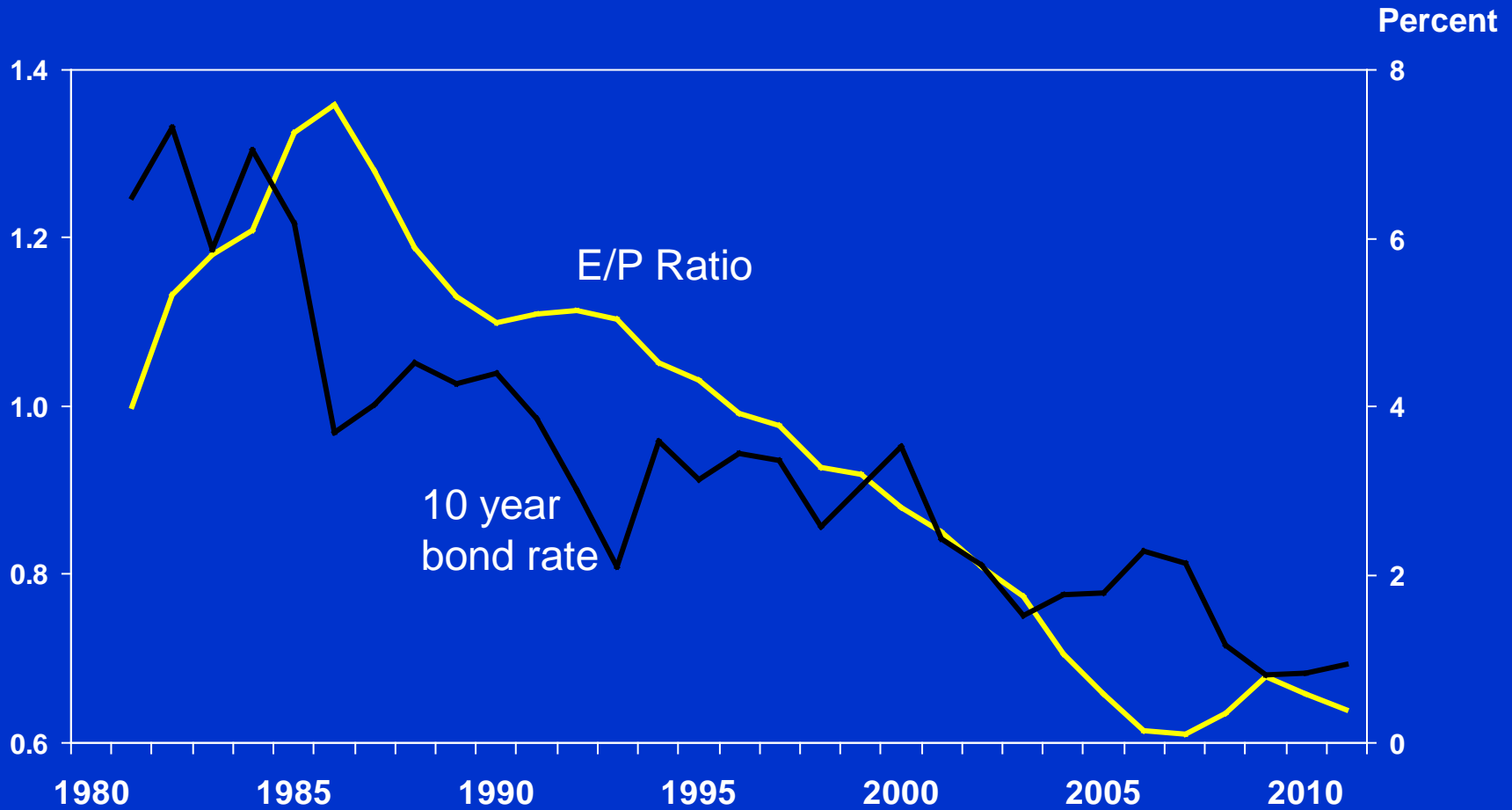
Index of Seventh District Cash Rents Nominal vs. Inflation Adjusted (1981=100)



***Farmland Price to Earnings Ratio
for the Seventh District (1981=1)***



7th District Earnings to Price Ratio (left axis, 1981=1) vs. Real Return on 10 Year Treasury Bonds



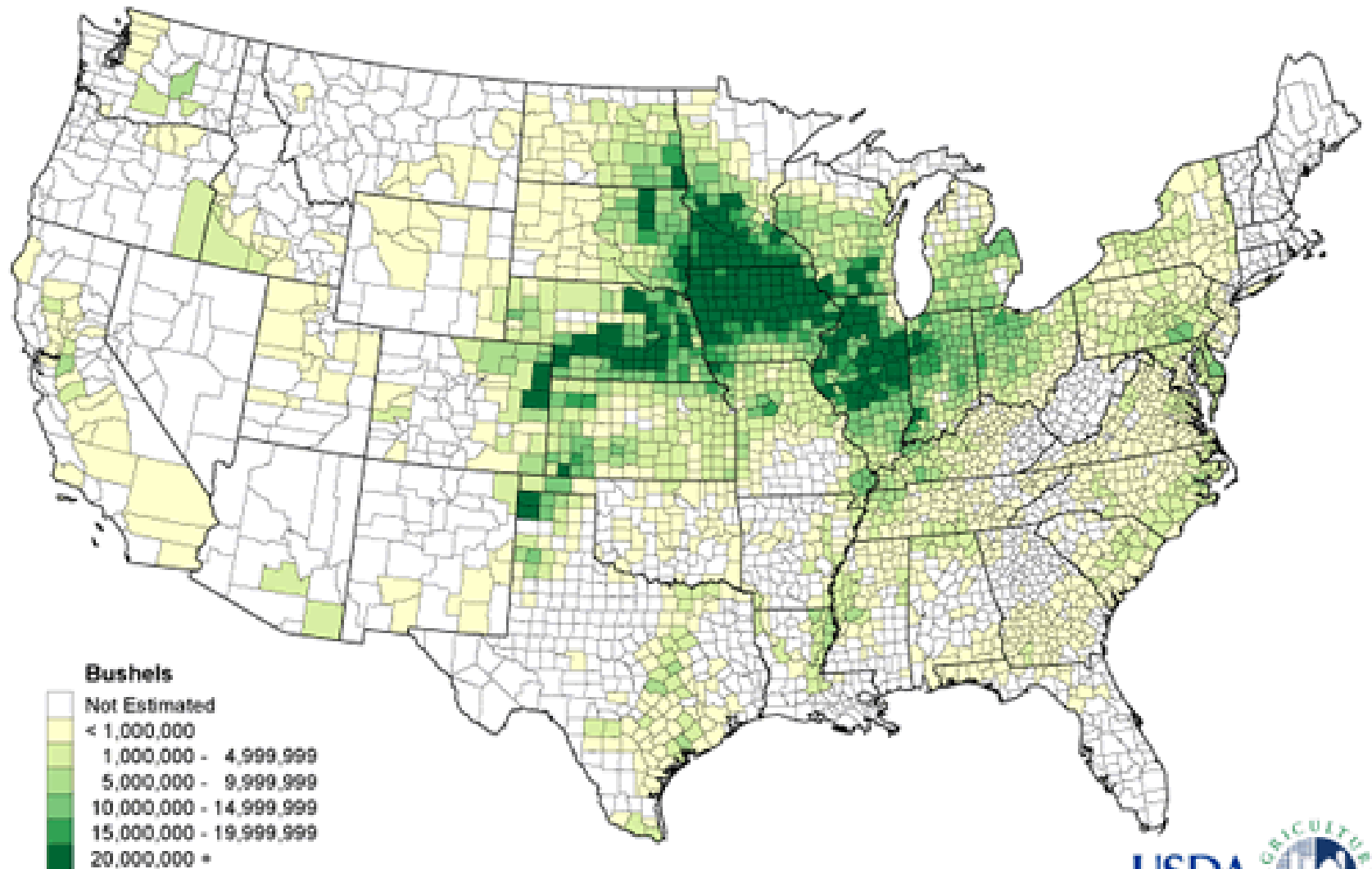
What factors affect farmland values?

- **Expected net returns**
- **Interest rates**

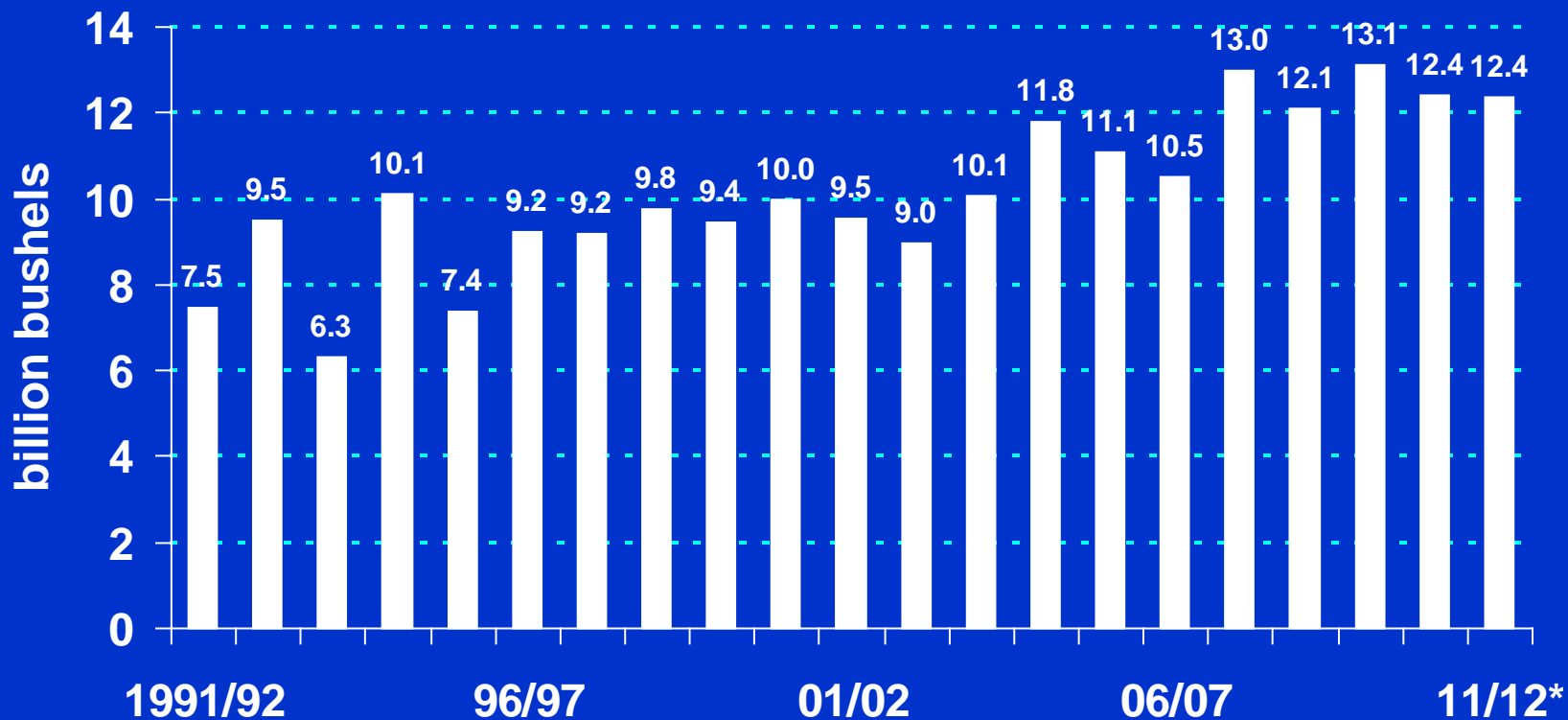
- **Government programs**
- **Capital investment in structures**
- **Non-farm demand**

- **Inflation, lending policies, other investments, speculation, technology, trade, site characteristics, environmental issues**

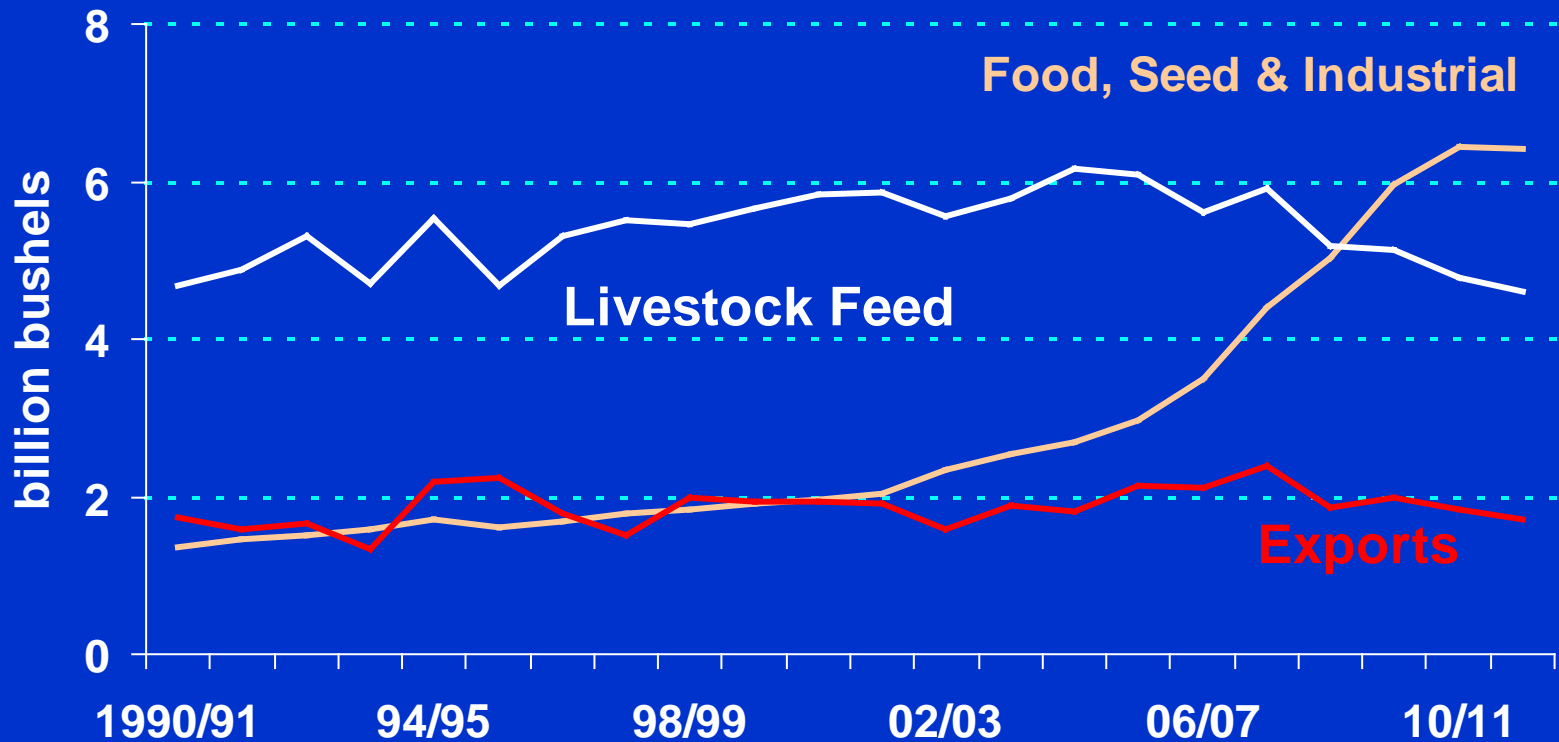
Corn for Grain 2005 Production by County



Corn production a bit smaller than last year



Growth in industrial demand (especially for ethanol production) surpassed feed demand for corn



Lower corn stocks and higher prices in 2010/11 and beyond





U.S. ETHANOL BIOREFINERY LOCATIONS

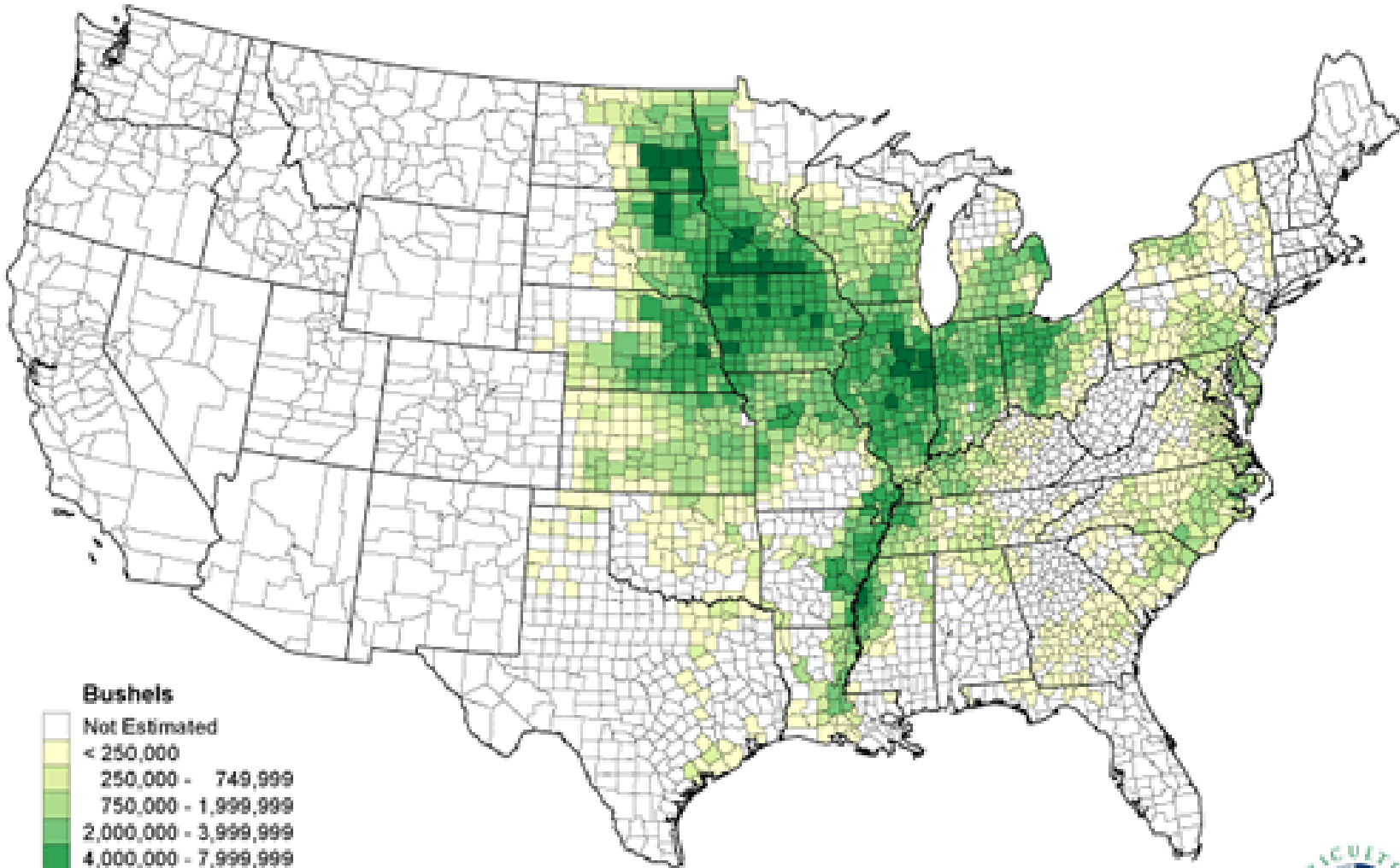


Biorefineries (204)

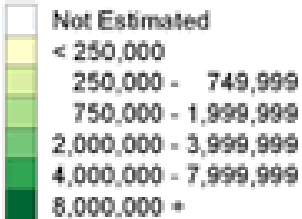
Biorefineries under construction (9)

Source: Renewable Fuels Association,
January 2011

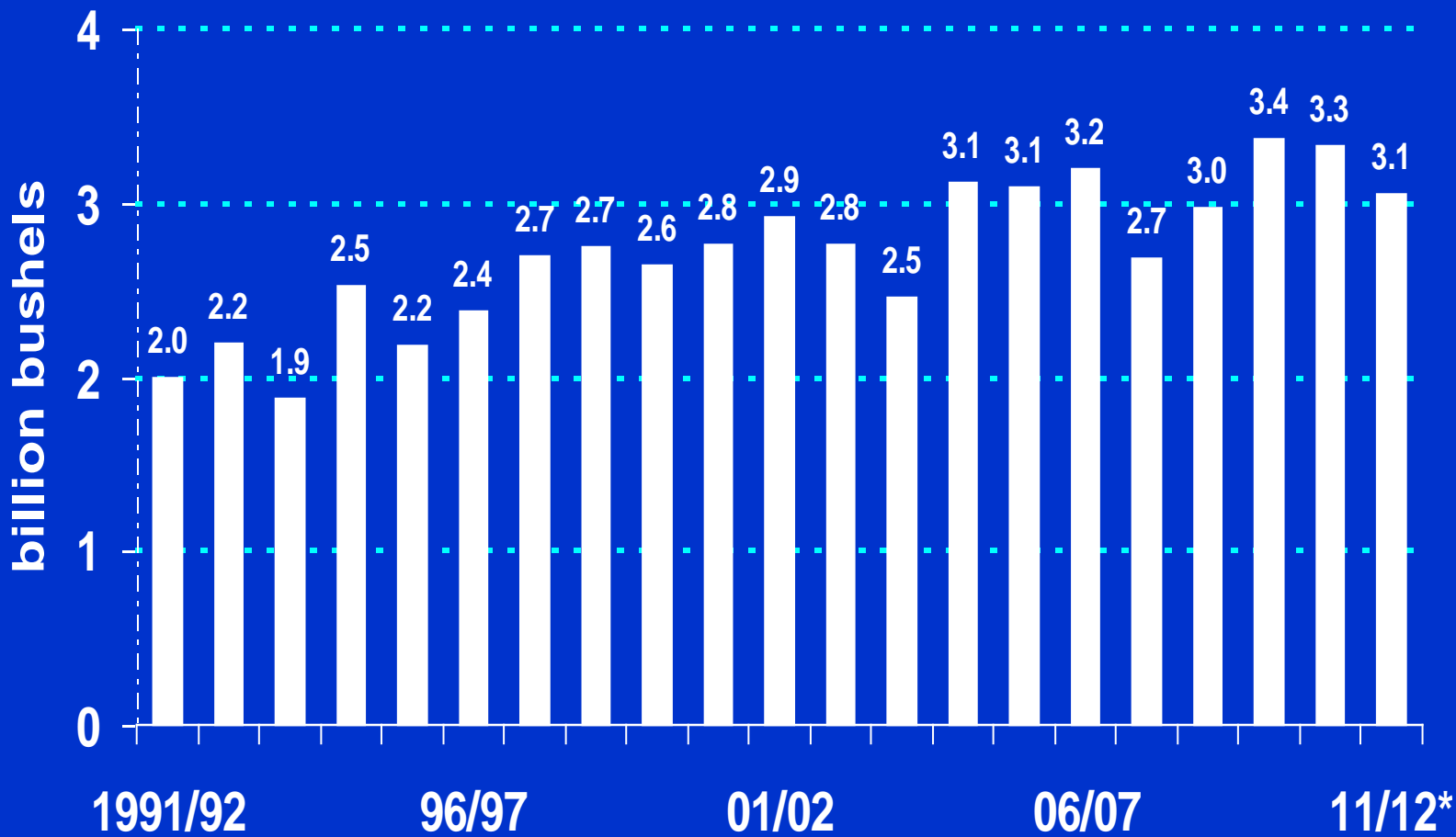
Soybeans 2005 Production by County



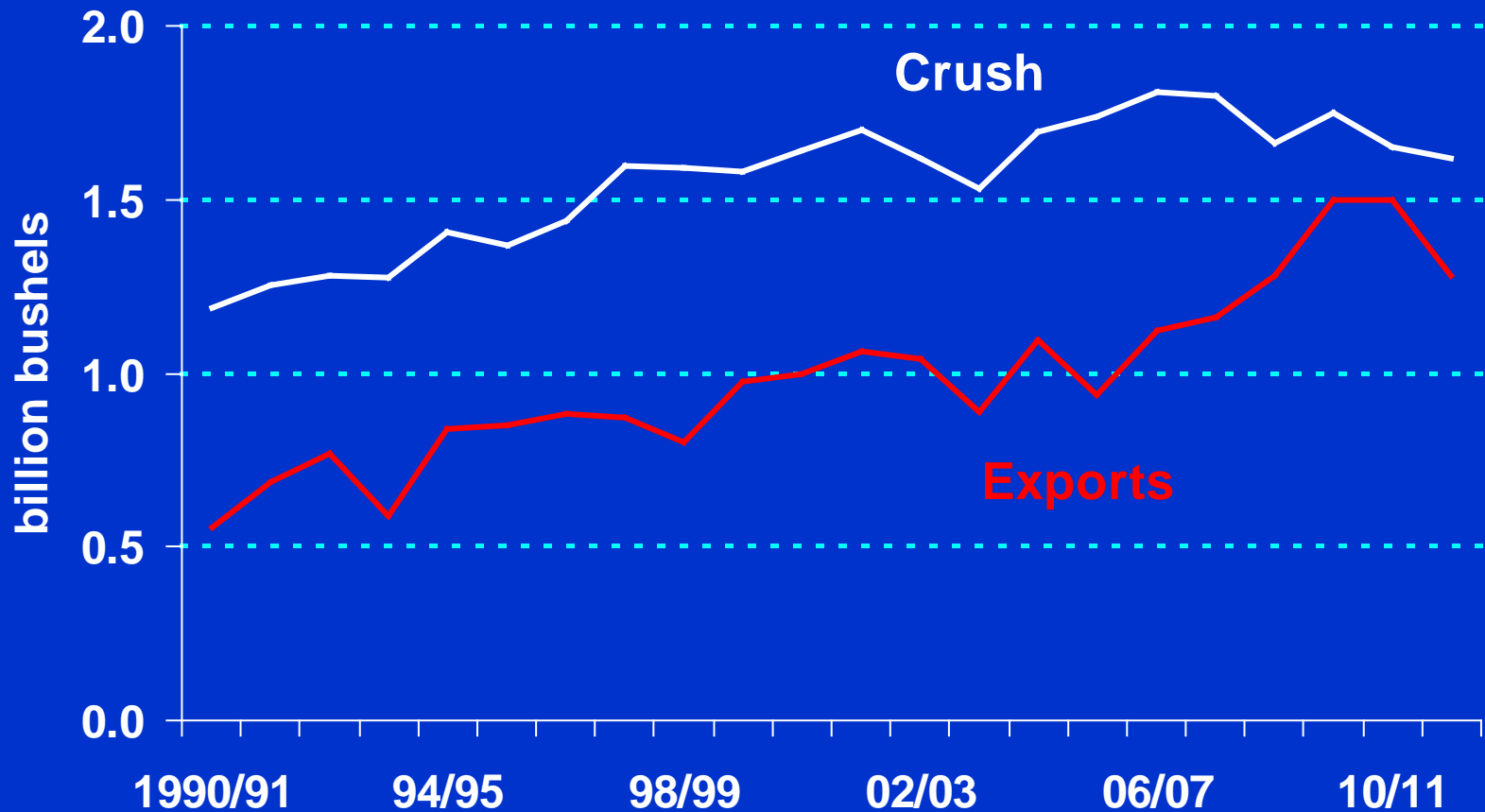
Bushels



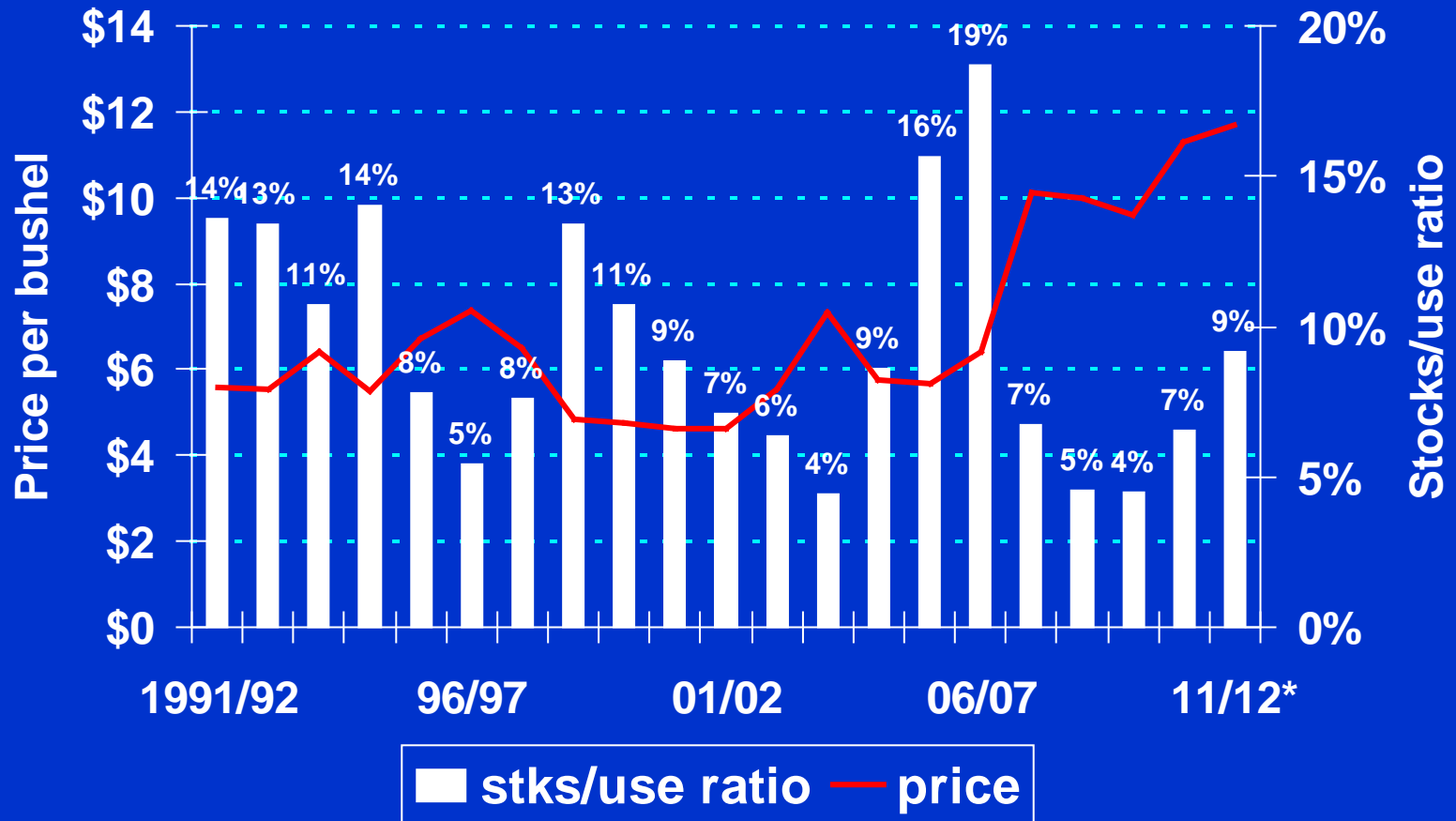
Soybean production expected to be down...



Crushings are stalling while soybean exports have climbed in the last decade

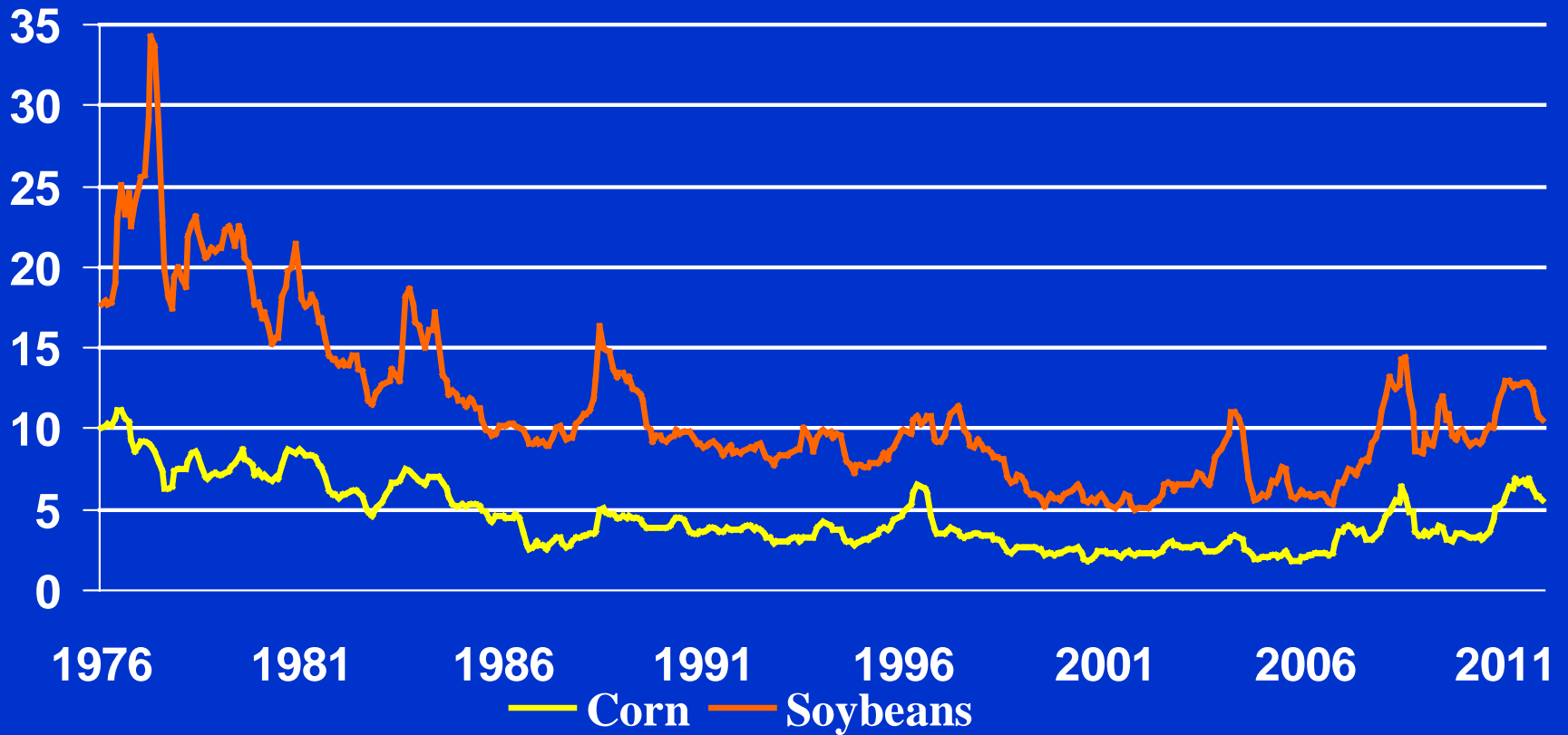


Prices moving higher as soybean constraints ease

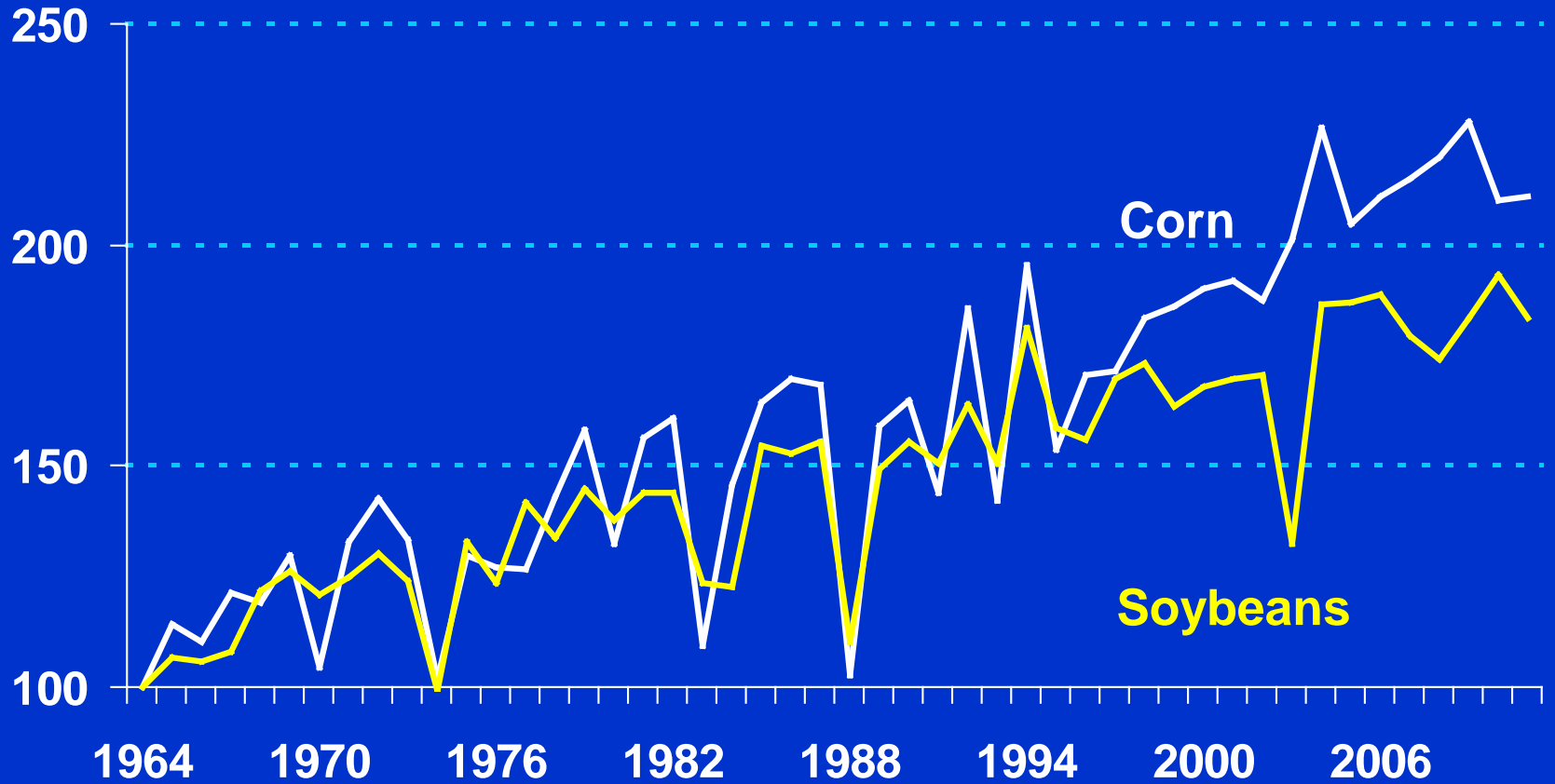


Real Crop Prices

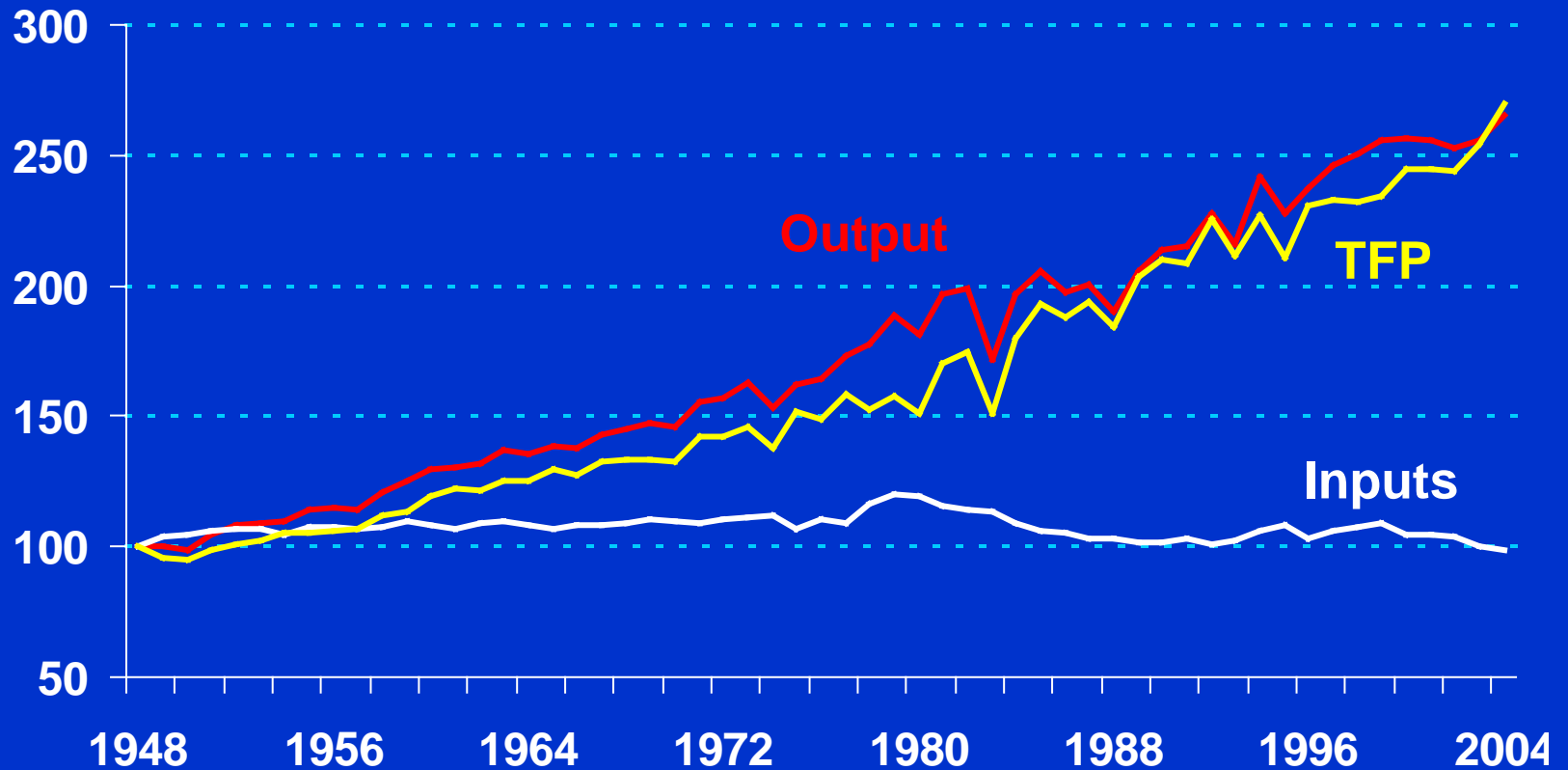
(\$/bushel, adjusted by CPI-U for January 2008)



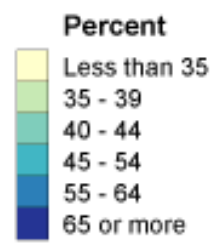
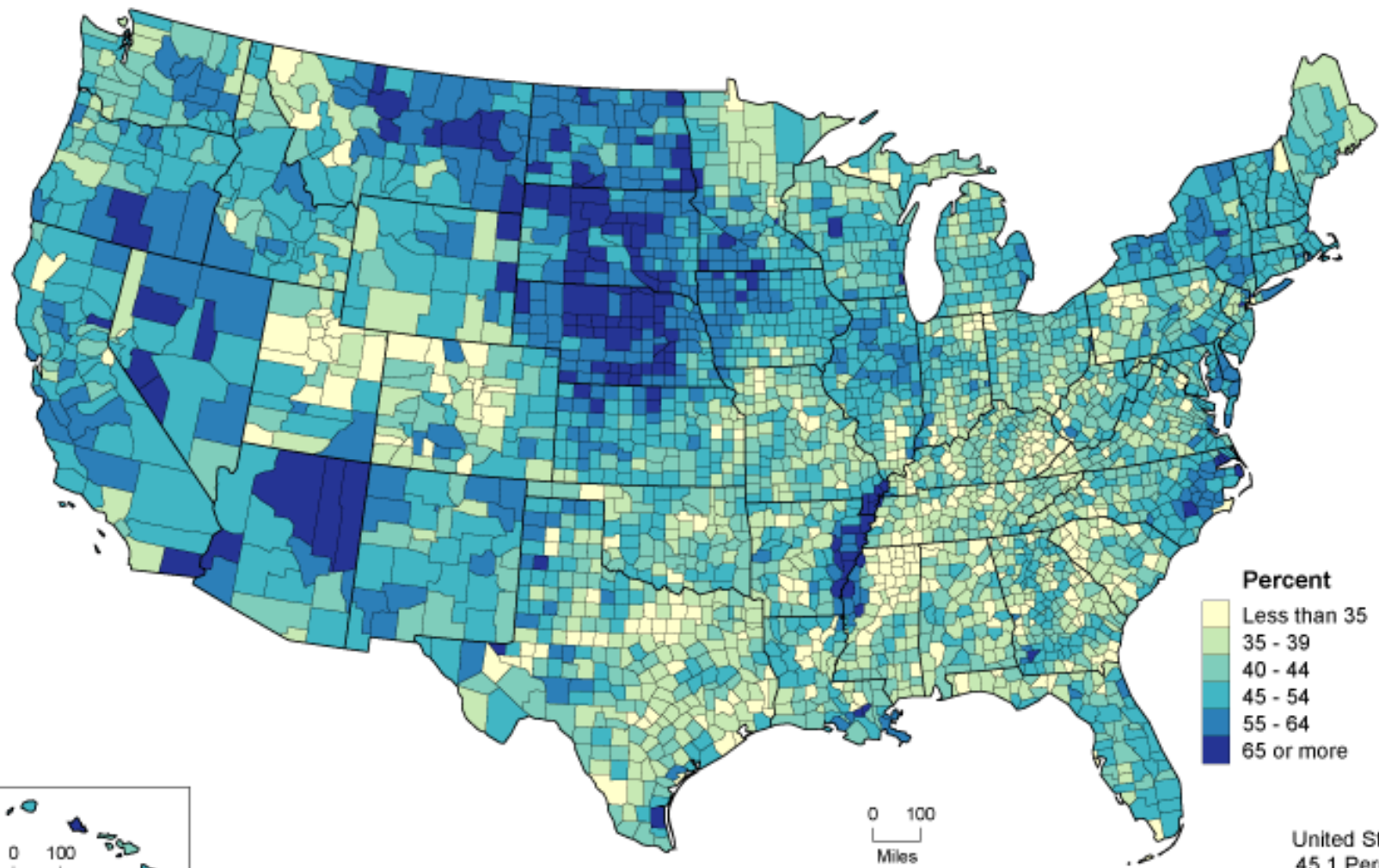
7th District Crop Yield Indexes (1964=100)



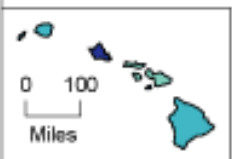
U.S. agricultural output, inputs, and total factor productivity (TFP) (1948=100)



Percent of Principal Farm Operators Reporting Primary Occupation as Farming: 2007



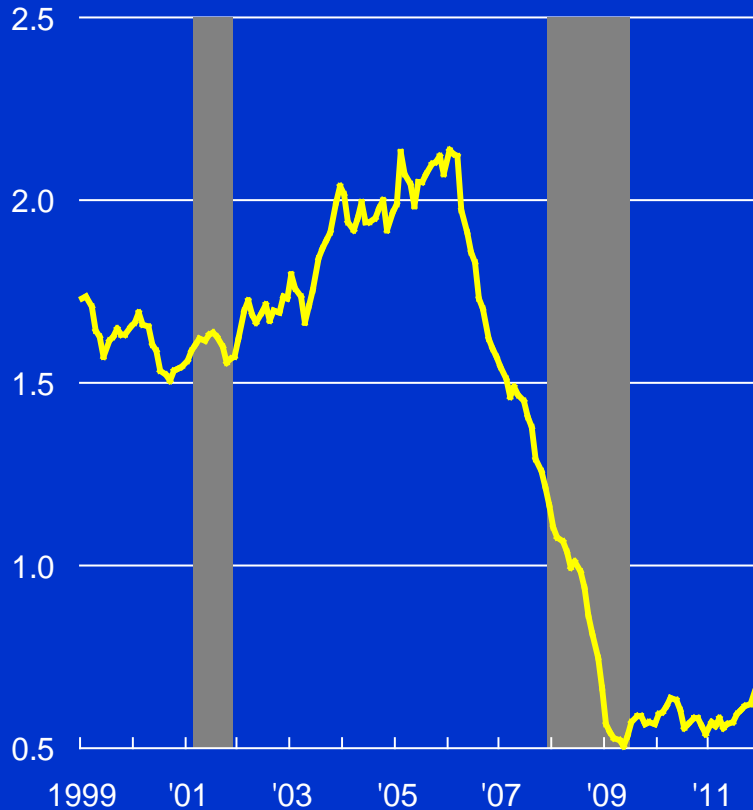
United States
45.1 Percent



Housing market tanked and bounced along bottom

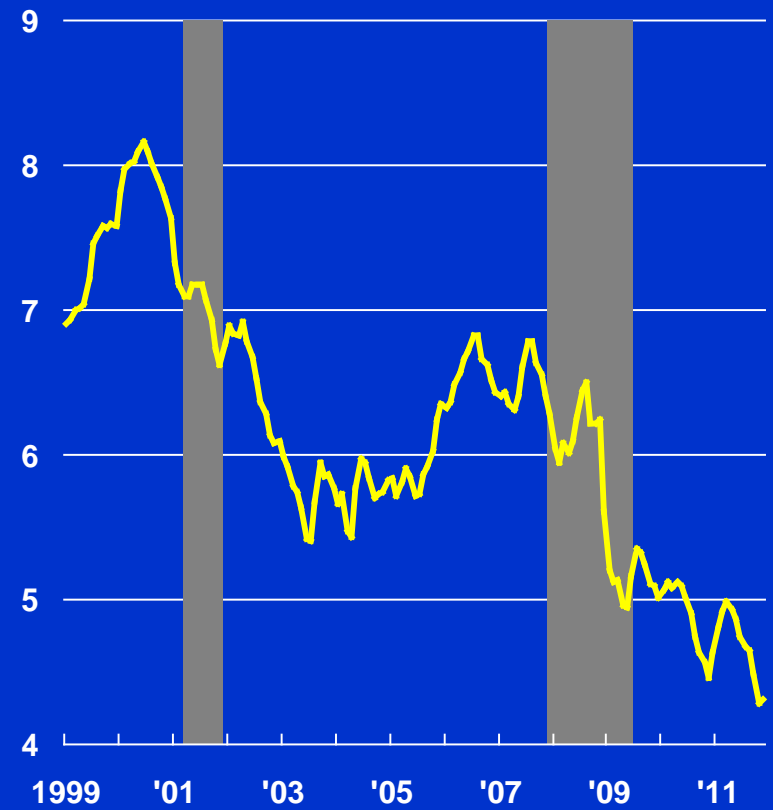
Housing starts

(thousands of units, 3-month moving average, SAAR)



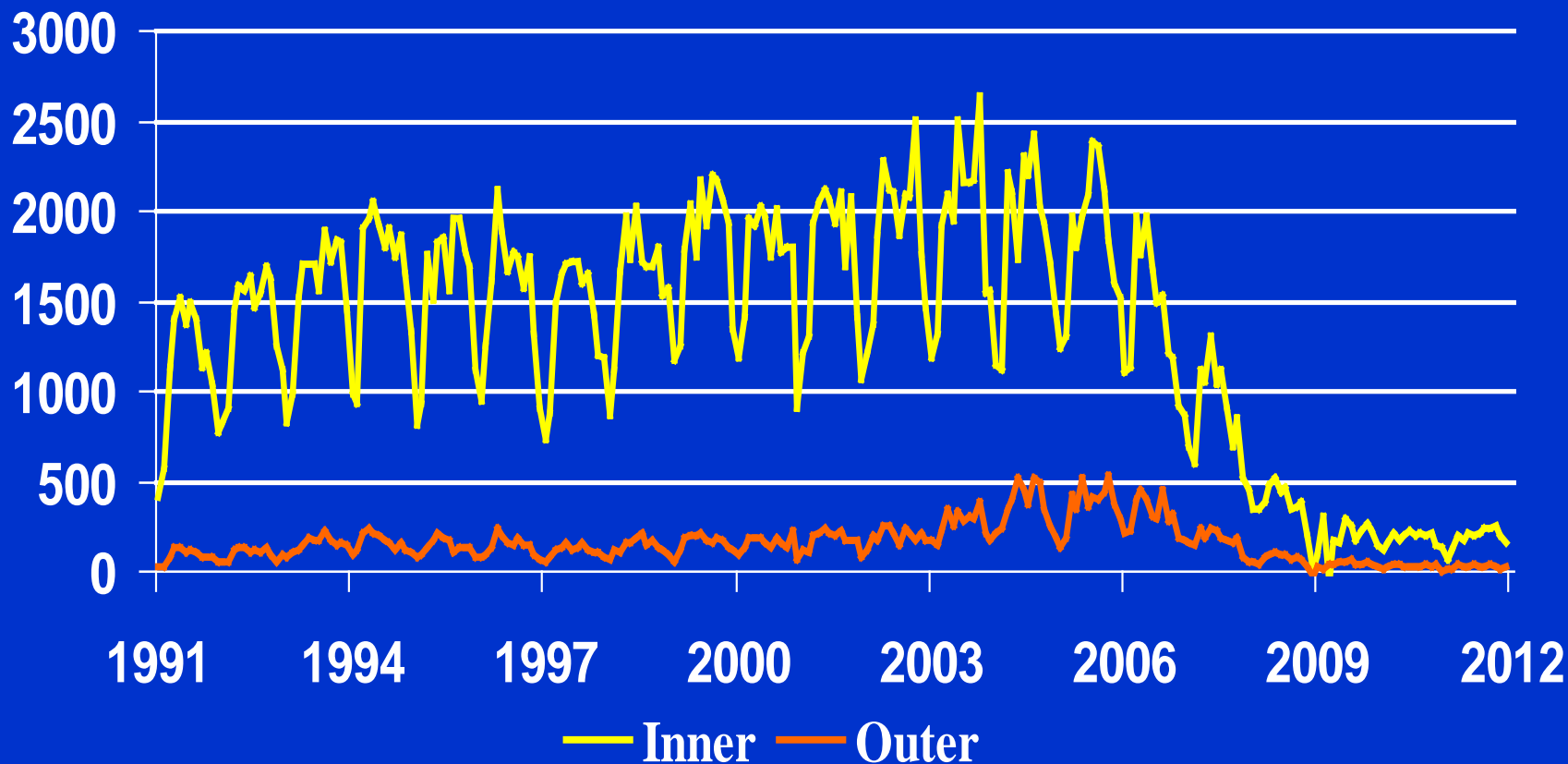
Home mortgage rate

(percent, effective rate for all loans closed)



Building Permits for Single-family Houses in Chicago Collar Counties

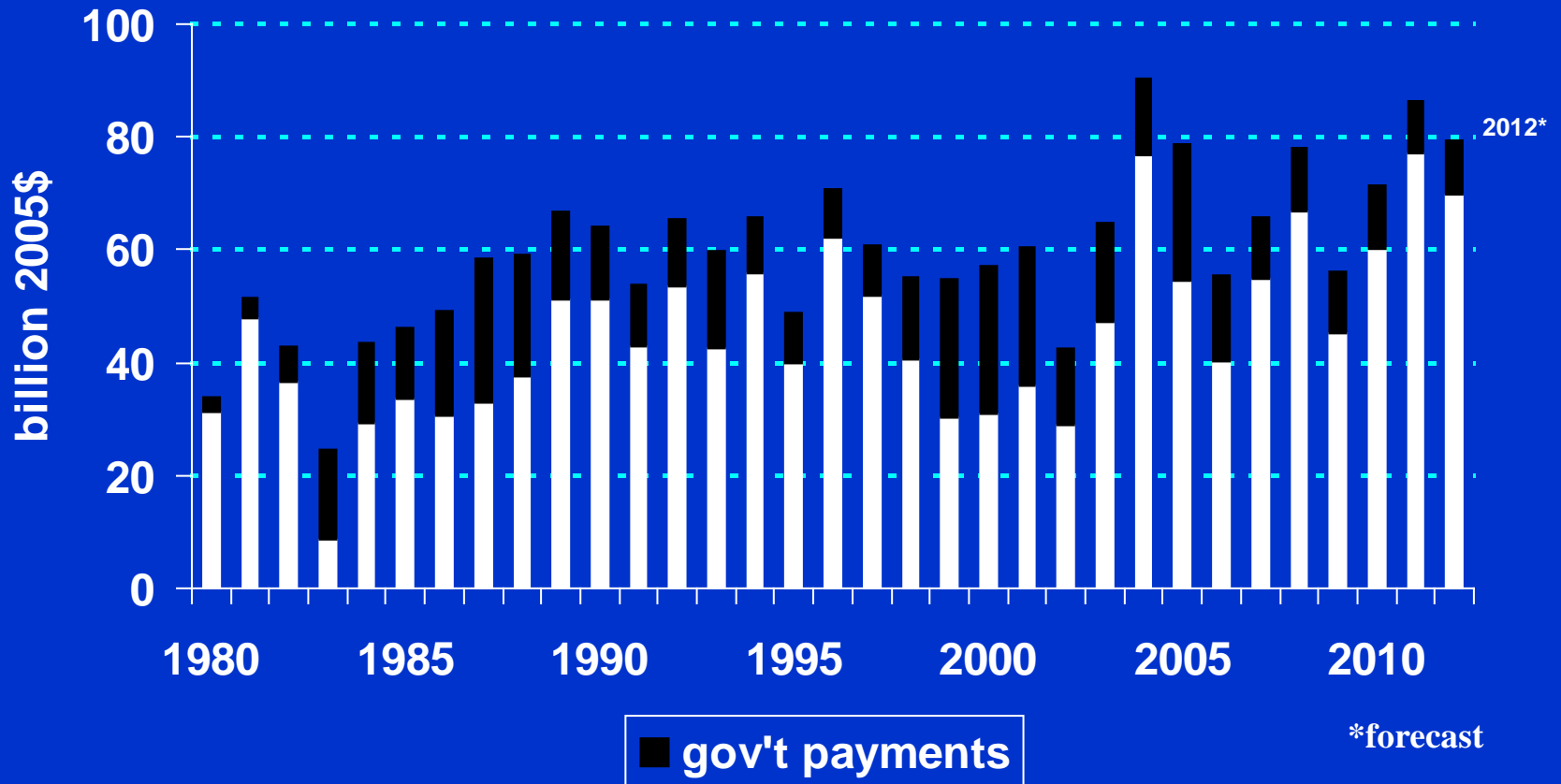
(not seasonally adjusted)



Financial indicators for the farm sector

- **Net farm income**
- **Farm program spending**
- **Farm balance sheet**
- **Interest rates are still relatively low**
- **Credit conditions improved in recent years**
 - **Fewer loan renewals and extensions**
 - **Less than 2% of agricultural loans with “major” or “severe” repayment problems**

Real net farm income boosted by direct government payments to farmers, but the regional impact varies

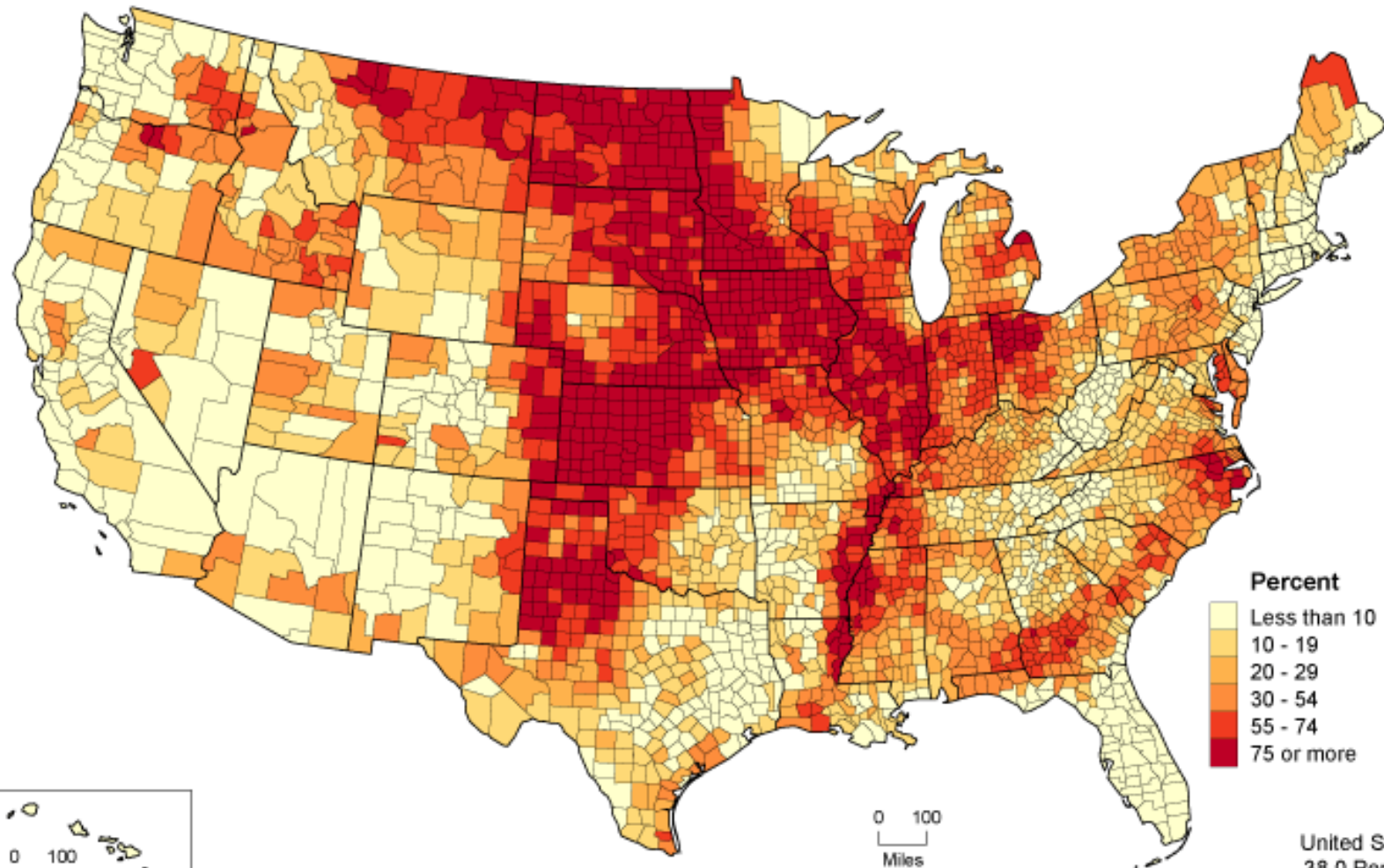


0 200

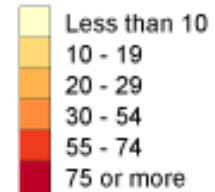
Miles



Percent of Farms Receiving Government Payments: 2007

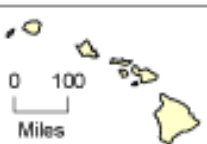


Percent



0 100

Miles



07-M040

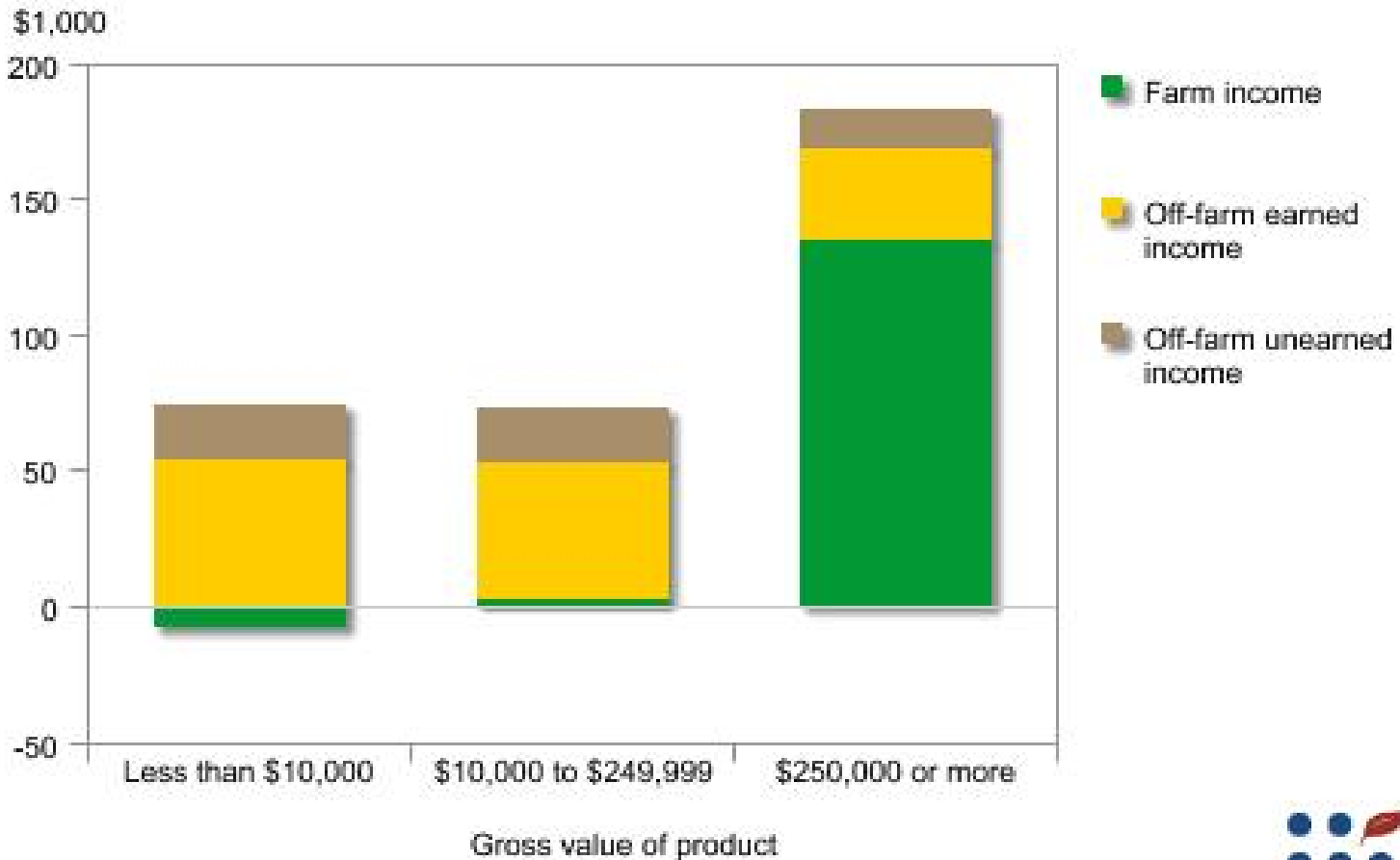
U.S. Department of Agriculture, National Agricultural Statistics Service

0 100

Miles

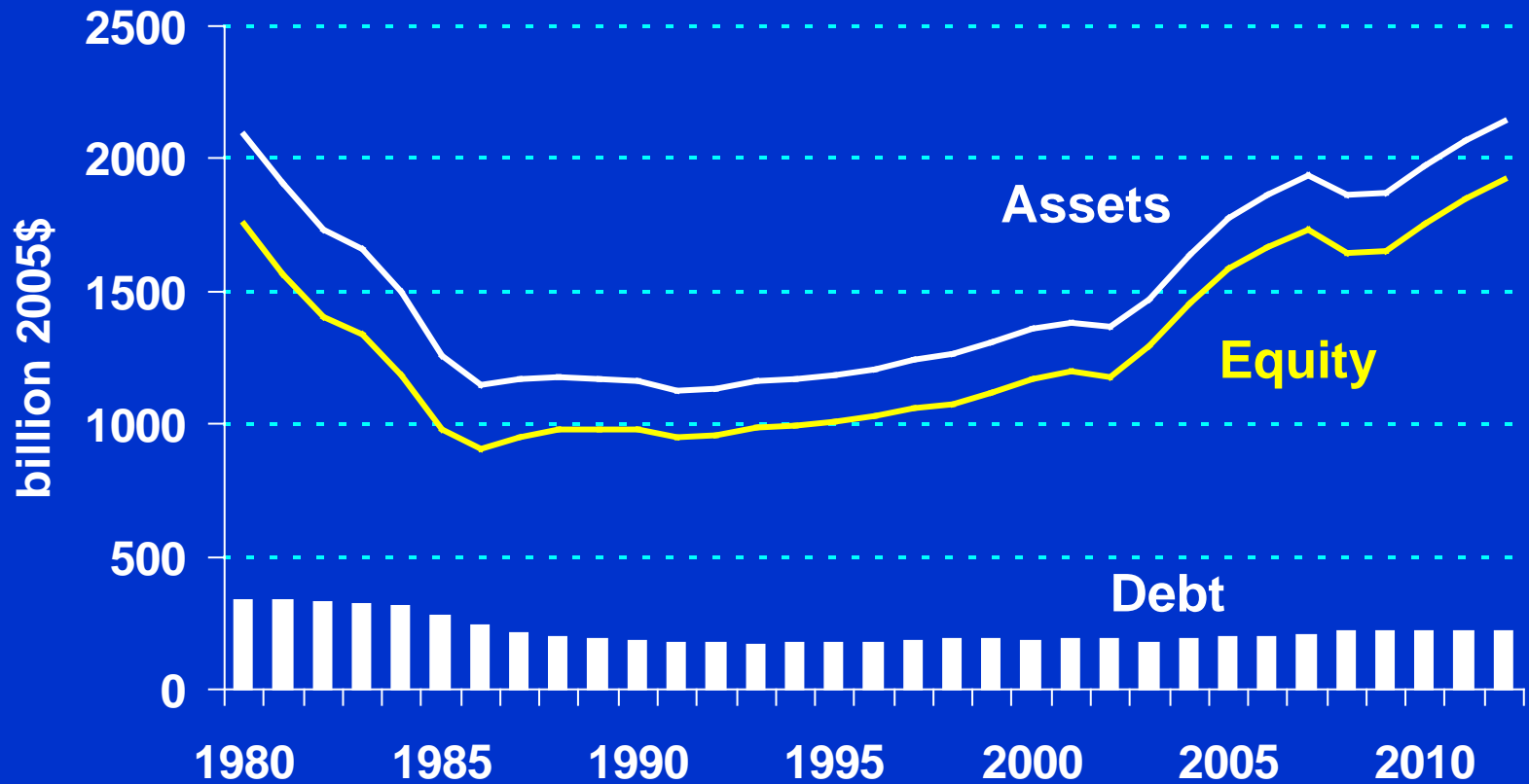
United States
38.0 Percent

Farm operator household income, by size of farm, 2008

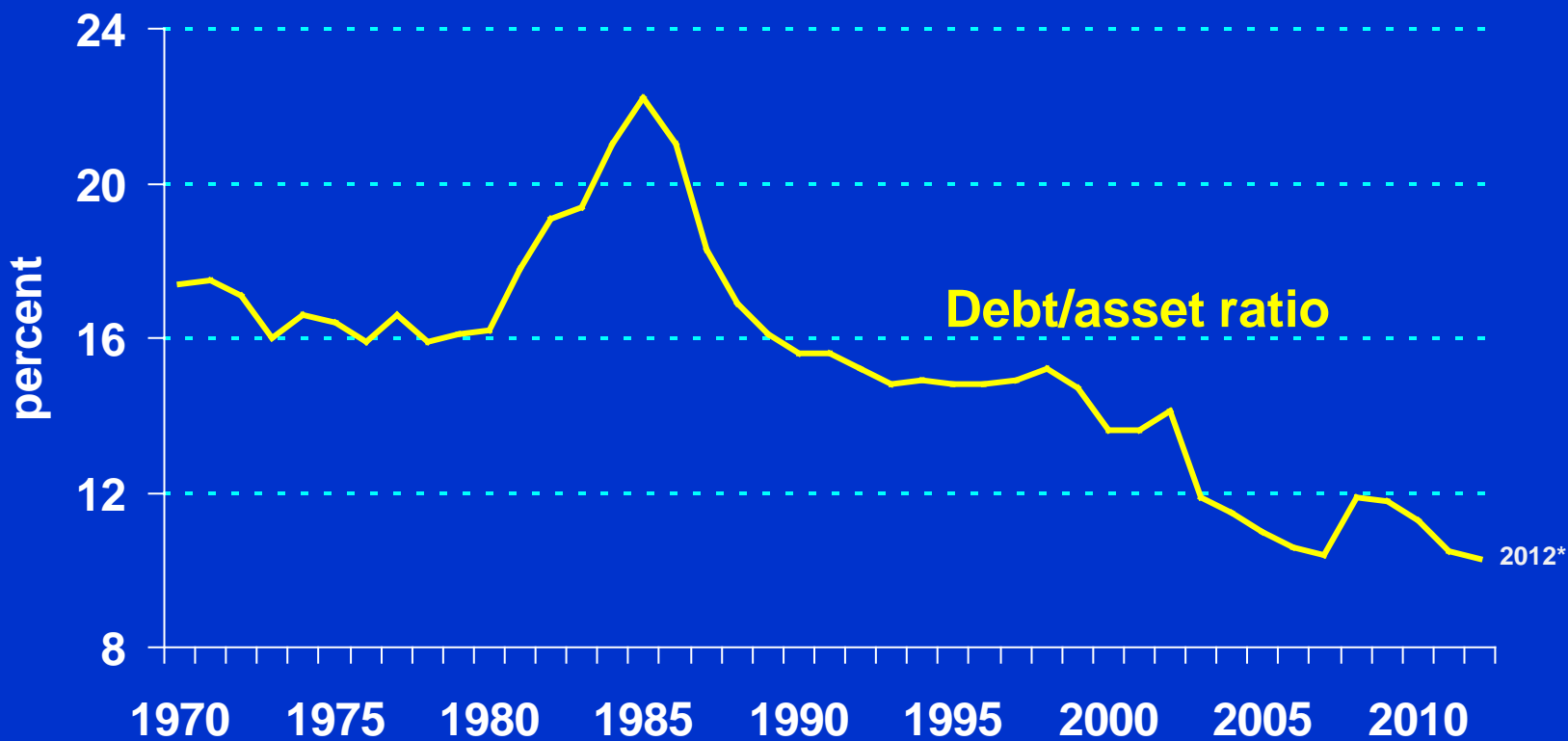


Source: Agricultural Resource Management Survey, ERS and NASS, USDA.

Real growth in farm sector assets and equity until the recession, as debt remained more level

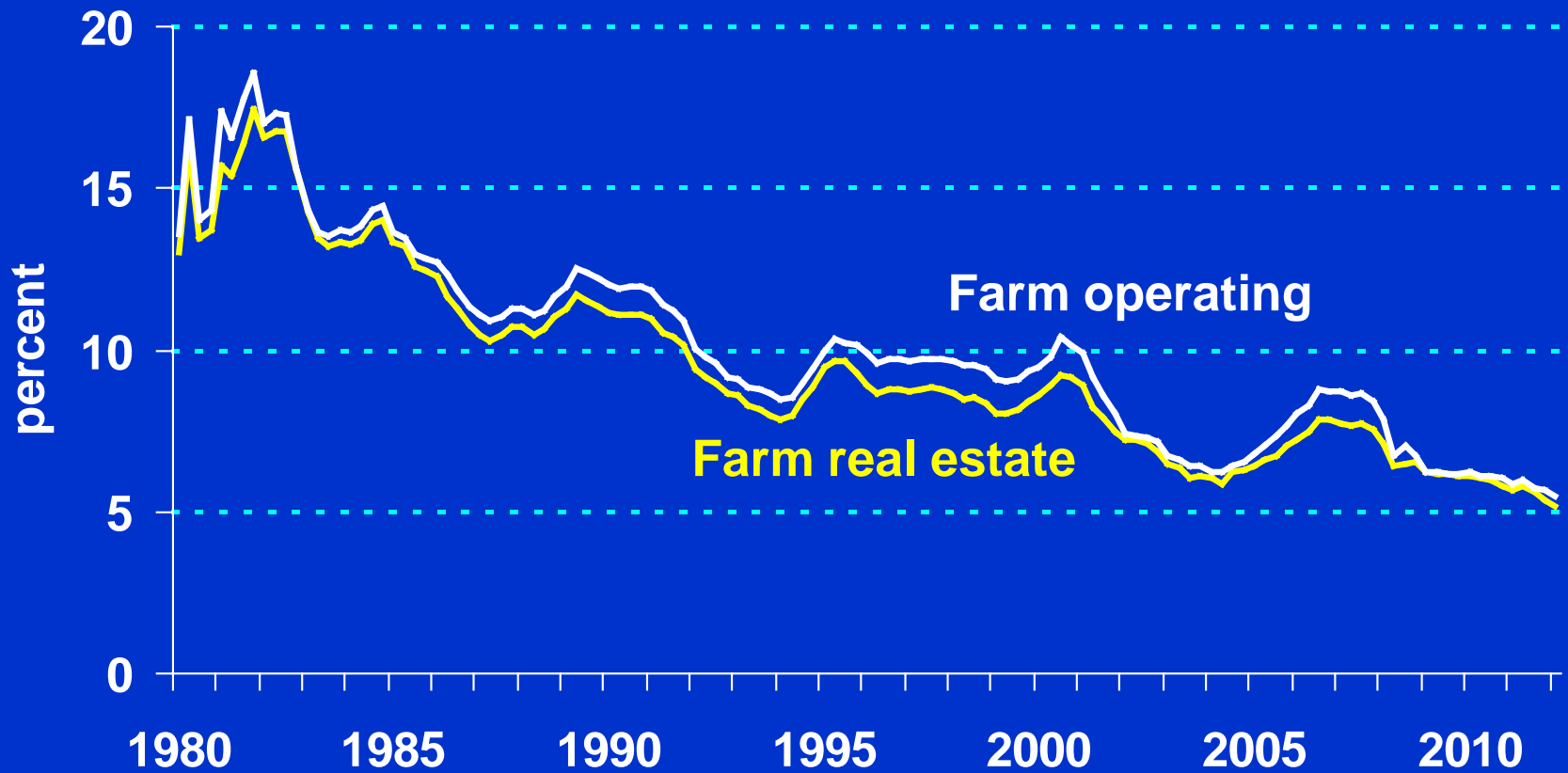


Farm financial ratios improved following the '80s crisis

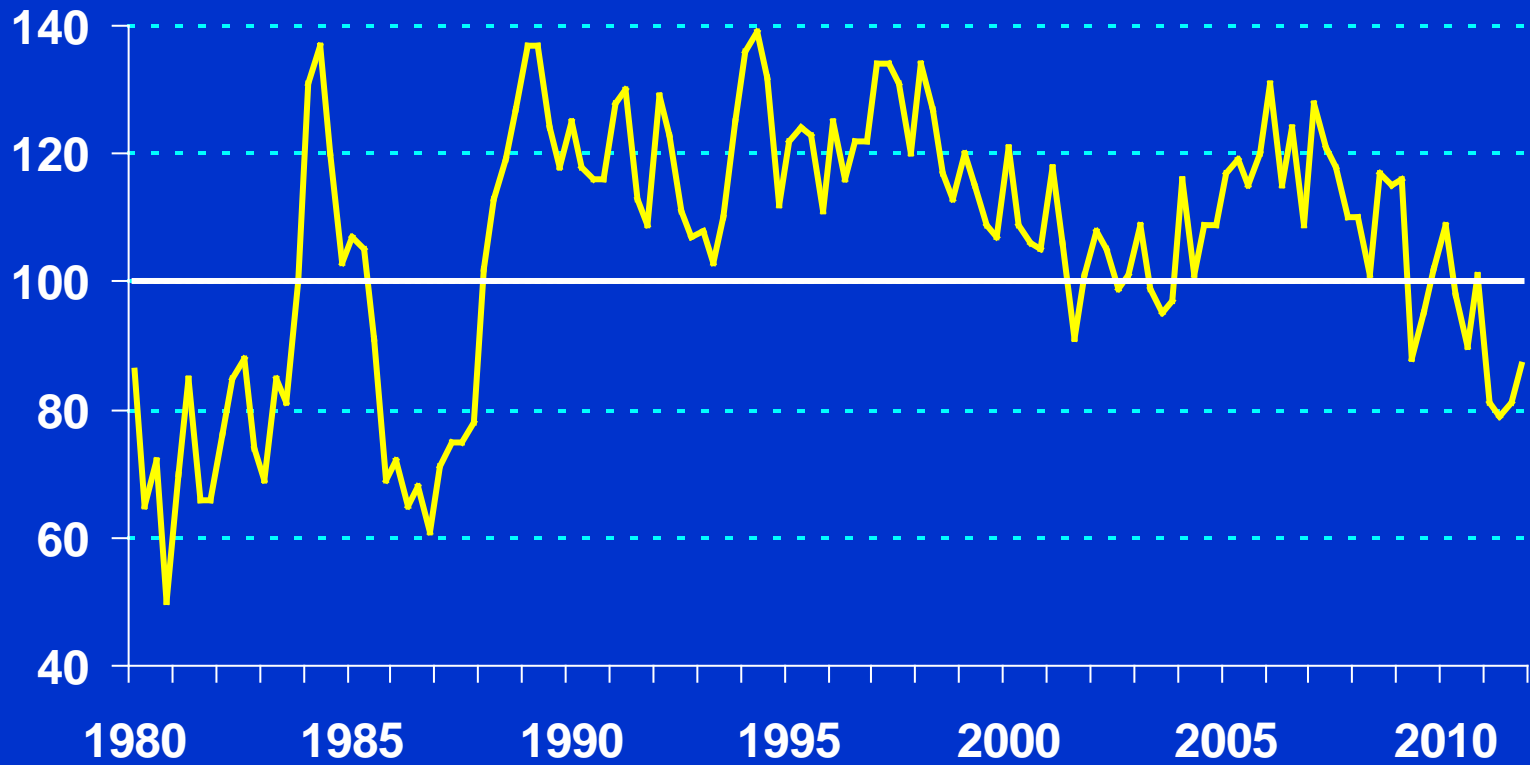


*forecast

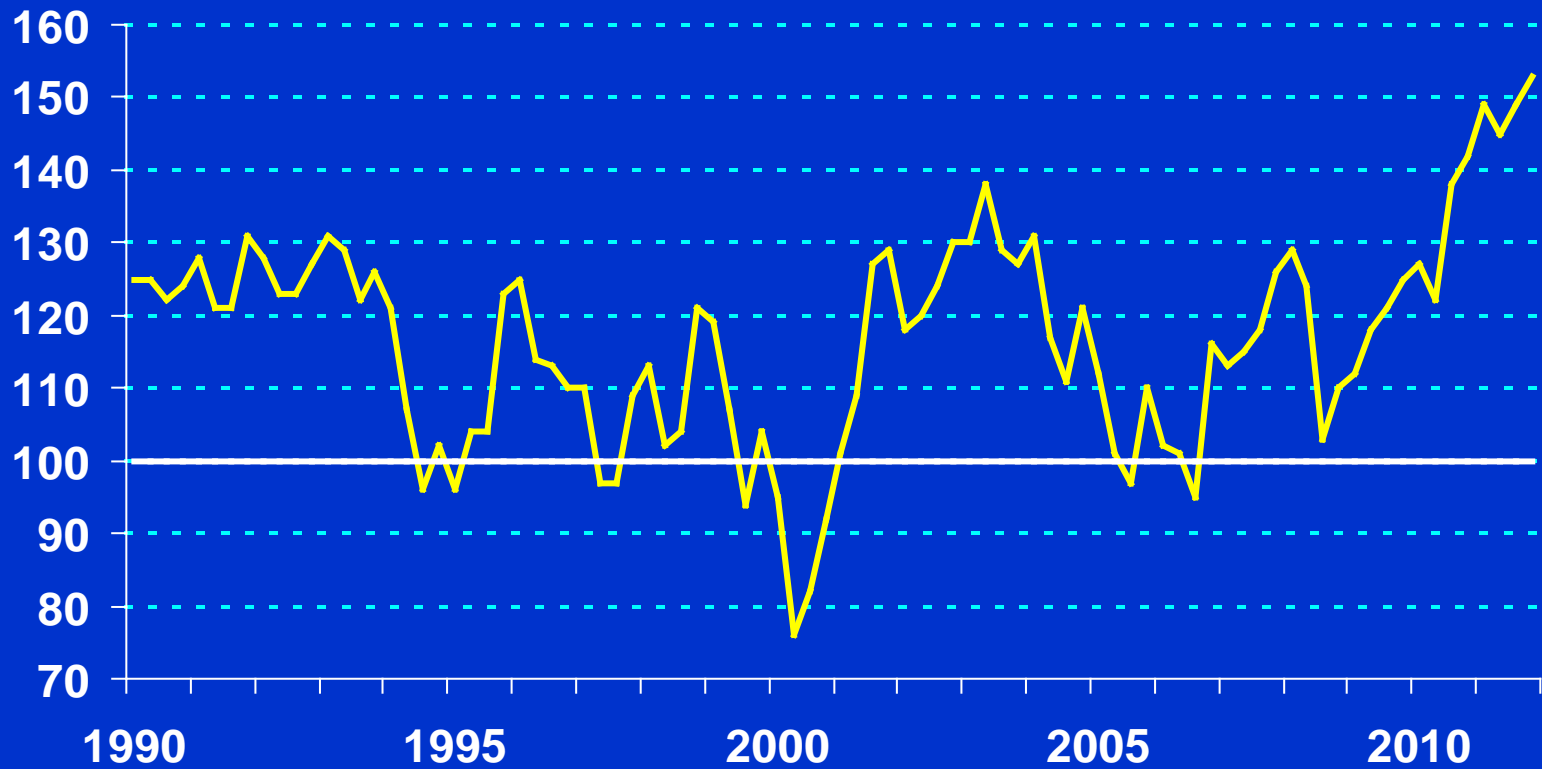
Interest rates charged on new farm loans in the Seventh Federal Reserve District



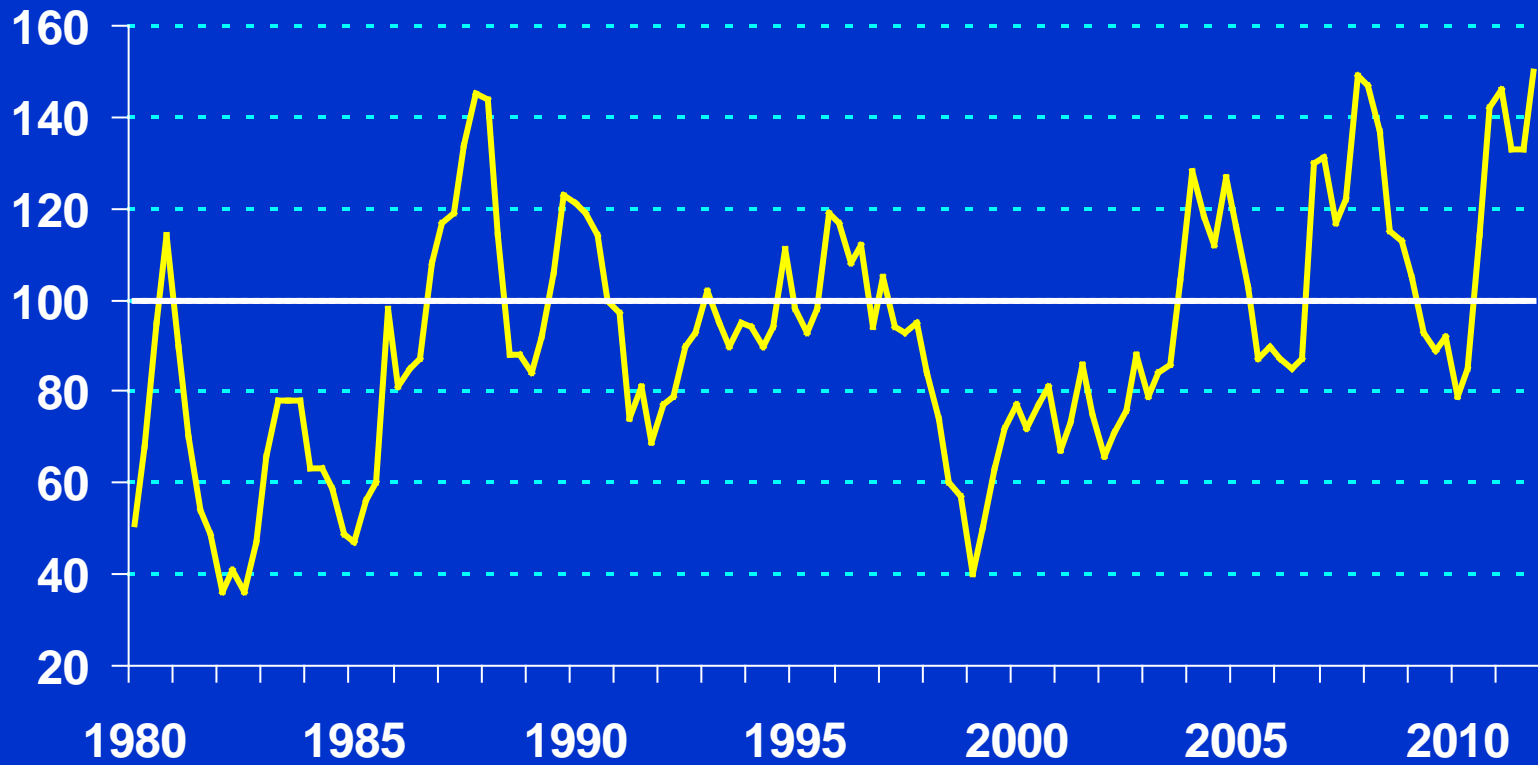
Index of agricultural loan demand for the Seventh Federal Reserve District (excluding real estate)



Index of funds availability for the Seventh Federal Reserve District



Index of agricultural loan repayment rates for the Seventh Federal Reserve District

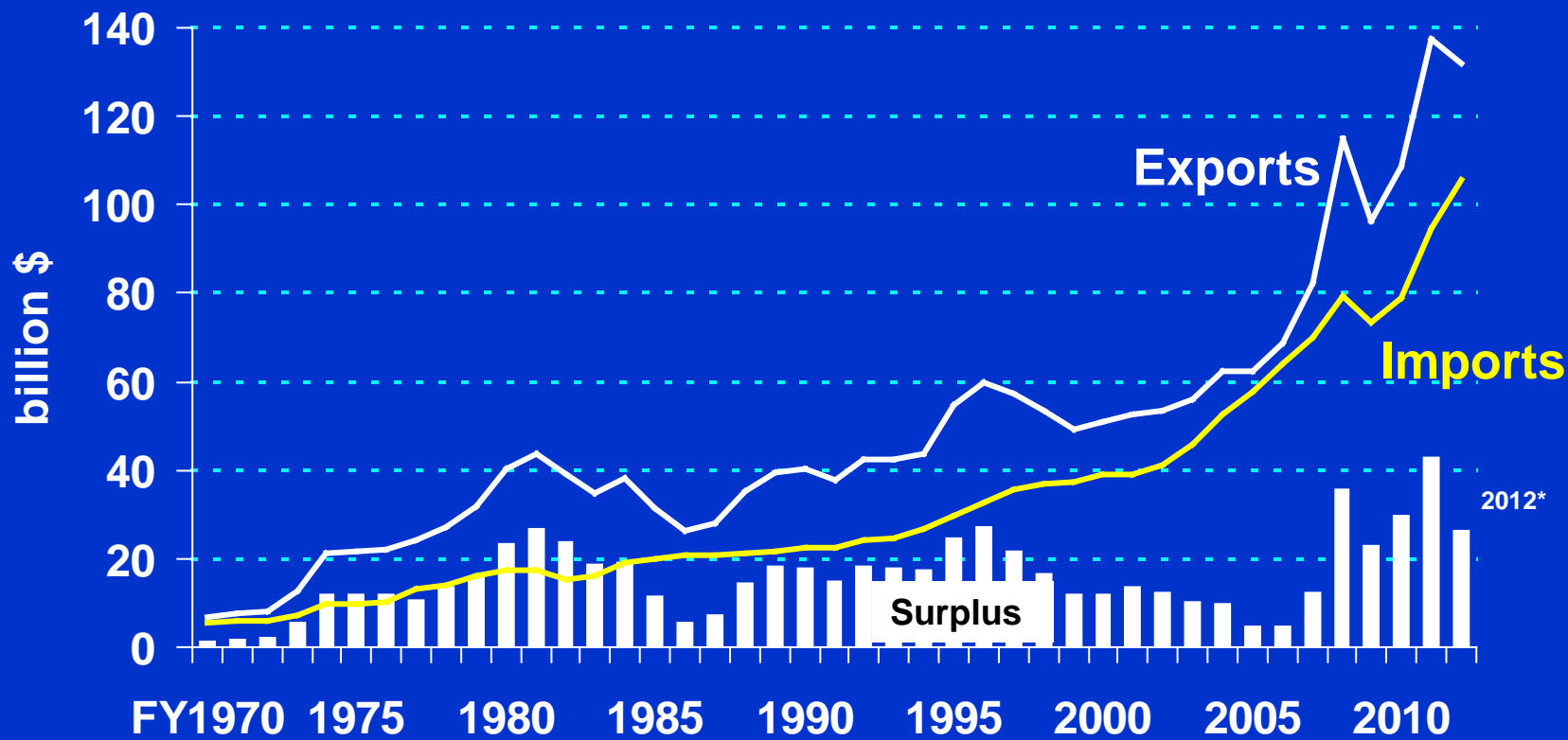


Global Trade in Action

9.1% of U.S.
Exports in
2009 were
Food and
Agricultural
Products



Value of agricultural exports surging again



(*projected)

The dollar's exchange value peaked in 2002, before falling below earlier range

(Real Broad Trade-Weighted Exchange Value of the US\$)
{March 1973=100}



Supporting factors for farmland values?

1. Higher expected stream of farm income
2. Productivity and yield trends
3. Mix of investors has broadened
(more diversifiers; fewer recreational buyers)
4. Off-farm income growth is uncertain
5. Government payments are lower, but strong support for crop insurance persists
6. Low interest rates for agriculture
7. Limited availability of farmland
8. Opportunism

Where do farmland values go next?

- **Supply of farmland (limited)**
- **Demand for farmland (strong)**
- **Farmland values increasing rapidly**
- **Uncertain future, but it's not the 1980's**
- **Fundamentals favor further increases in farmland values, although not as rapidly**

<http://www.chicagofed.org>