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Factors in the Hog Market

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System analysis: new linkages

- **No more domestic markets**
 - ◆ No market will be “purely” domestic
 - ◆ New secondary drivers
 - ◆ Global volatility
- **Zero predictability ≠ Zero control**
 - ◆ Margin management
 - ◆ Reading the blitzes
- **Land as an asset**

Global factors – specific implications

■ Growth drivers

- ◆ Population – minor
- ◆ Income – major
- ◆ Policy – wildcard

■ Suppliers

- ◆ Interconnected markets
- ◆ Opportunity costs

■ Implications

The role of population

■ Divergent

- ◆ Growth rates falling
- ◆ Median age rising

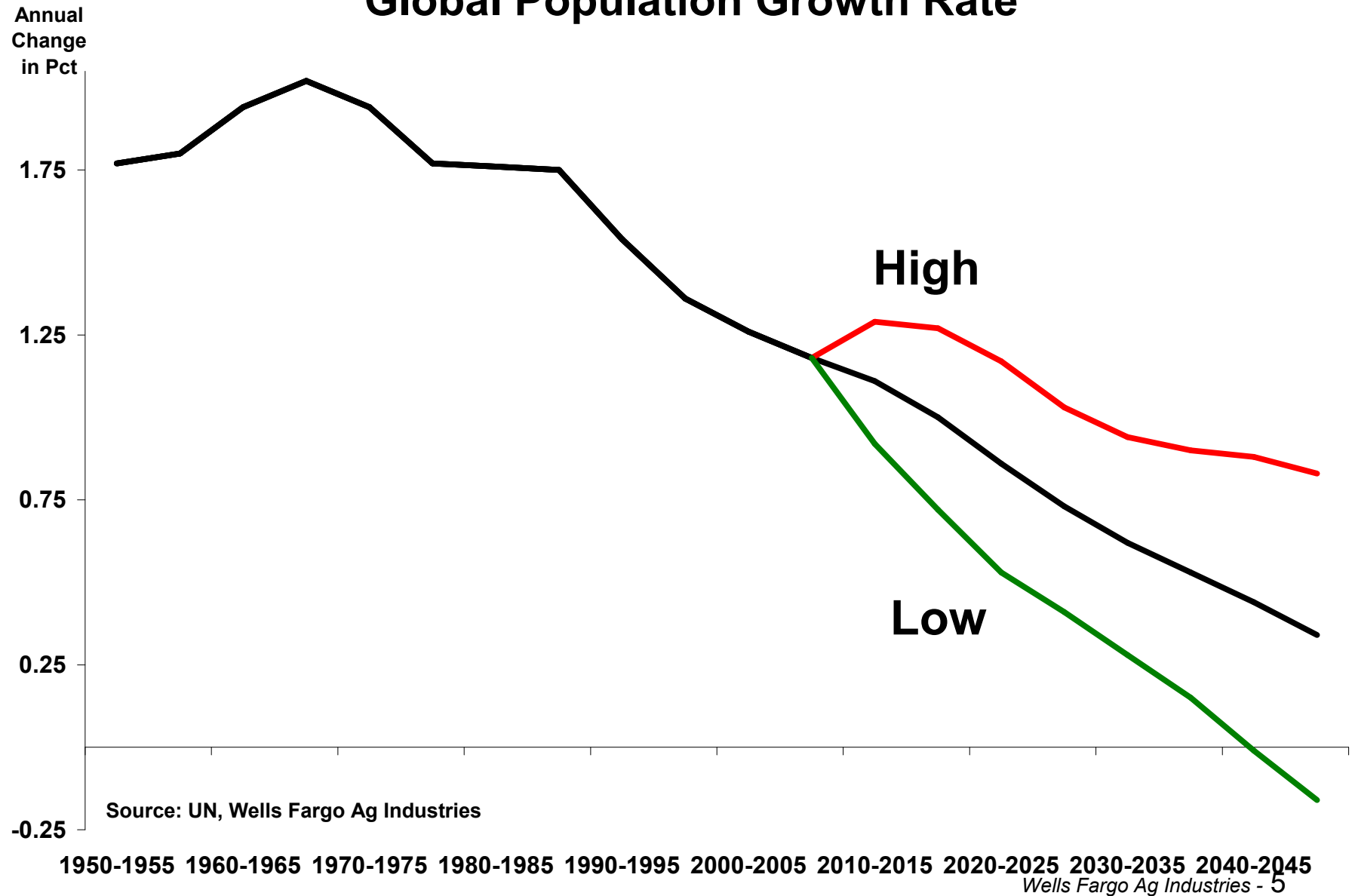
■ Demographic politics

- ◆ Who is generating the numbers?
- ◆ Are they good numbers?
- ◆ What agendas do they have?
- ◆ Why does it matter?

The most “predictable” factor

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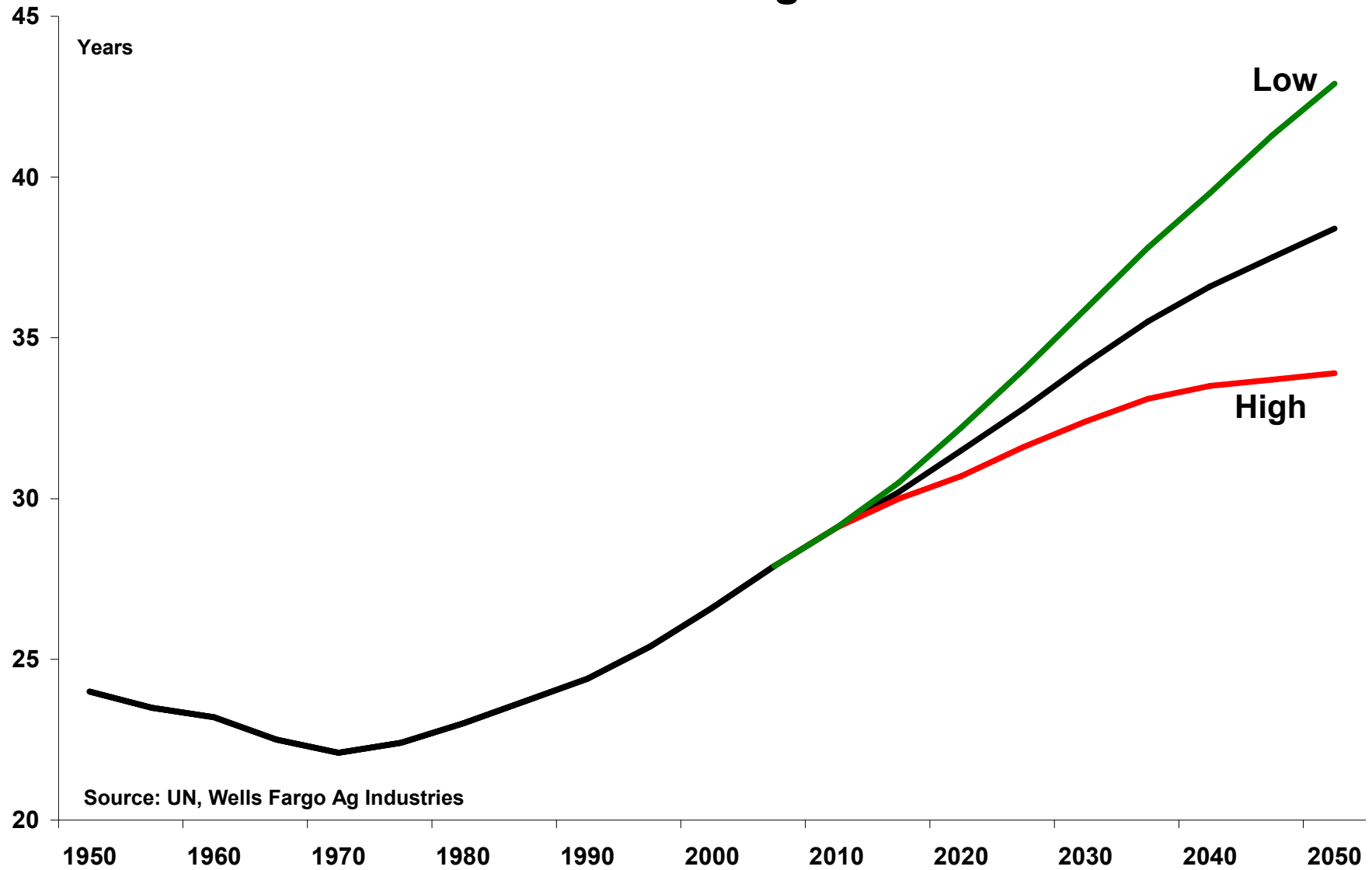
Global Population Growth Rate



A dependent factor

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Median Age



Source: UN, Wells Fargo Ag Industries

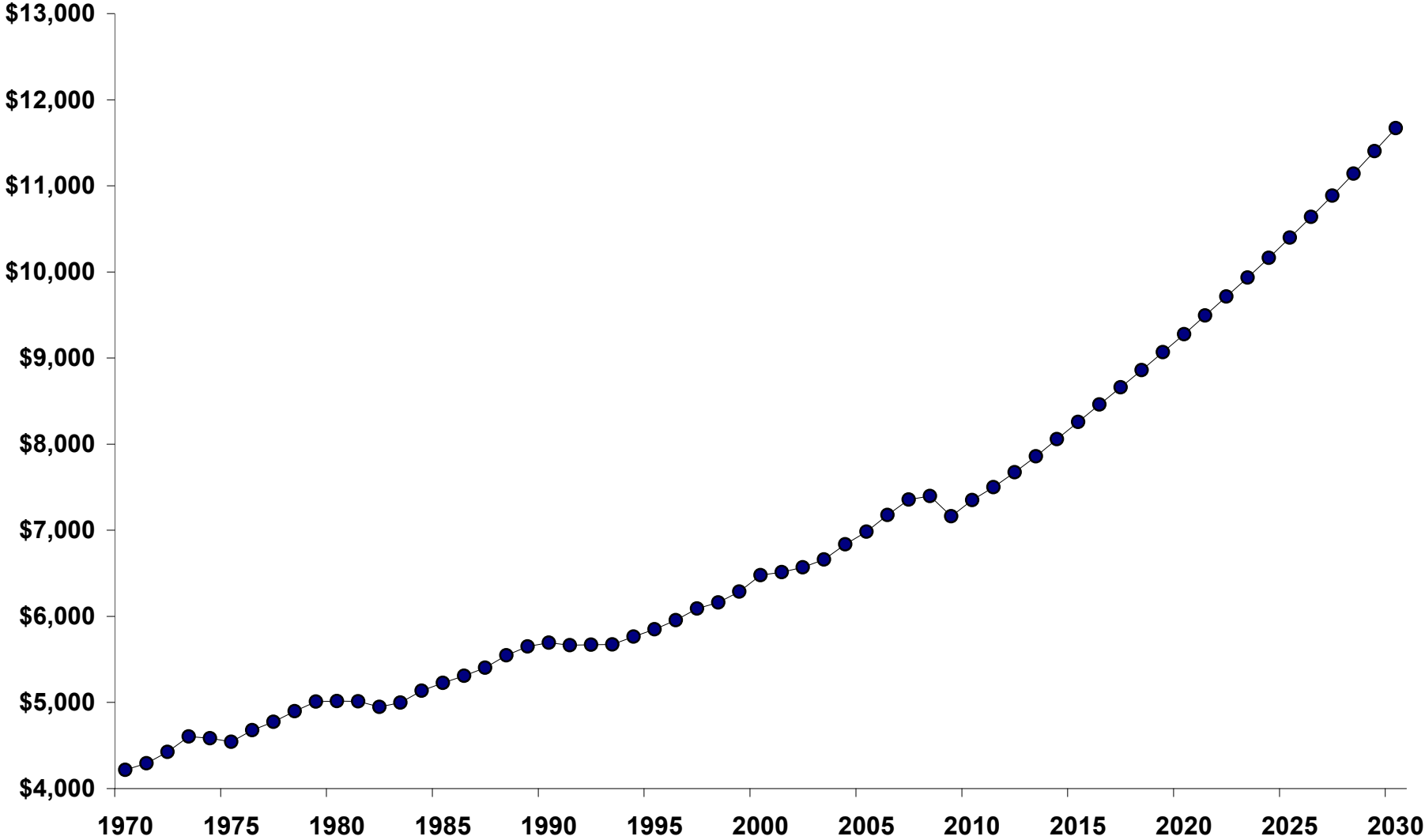
The role of income

- **Primary factor**
 - ◆ **Price**
 - ◆ **Volatility**
- **China versus the world**
 - ◆ **Predictability**
 - ◆ **Weighting**
 - ◆ **Transition**

Easy to assume



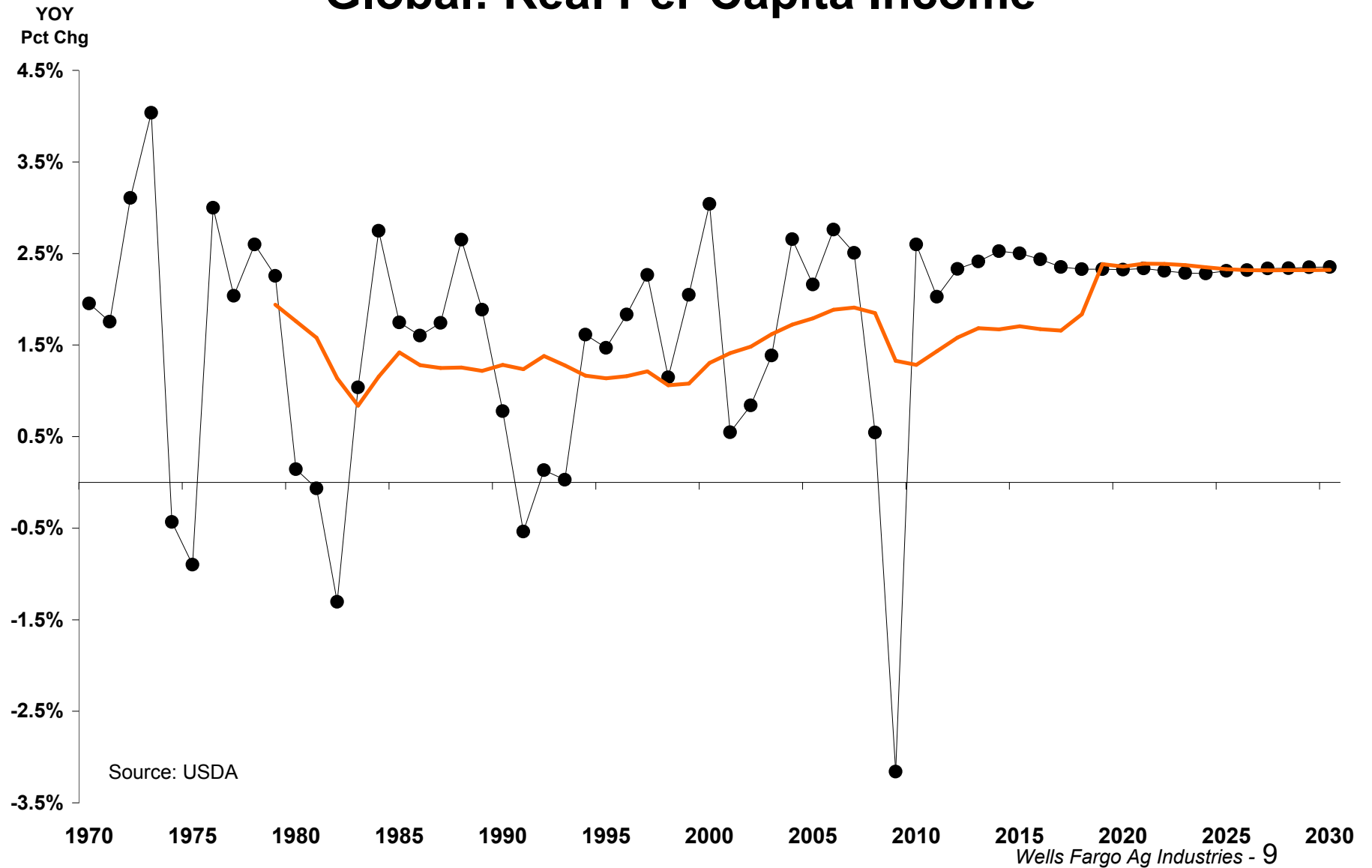
Global: Real Per Capita Income



A very naïve forecast

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Global: Real Per Capita Income



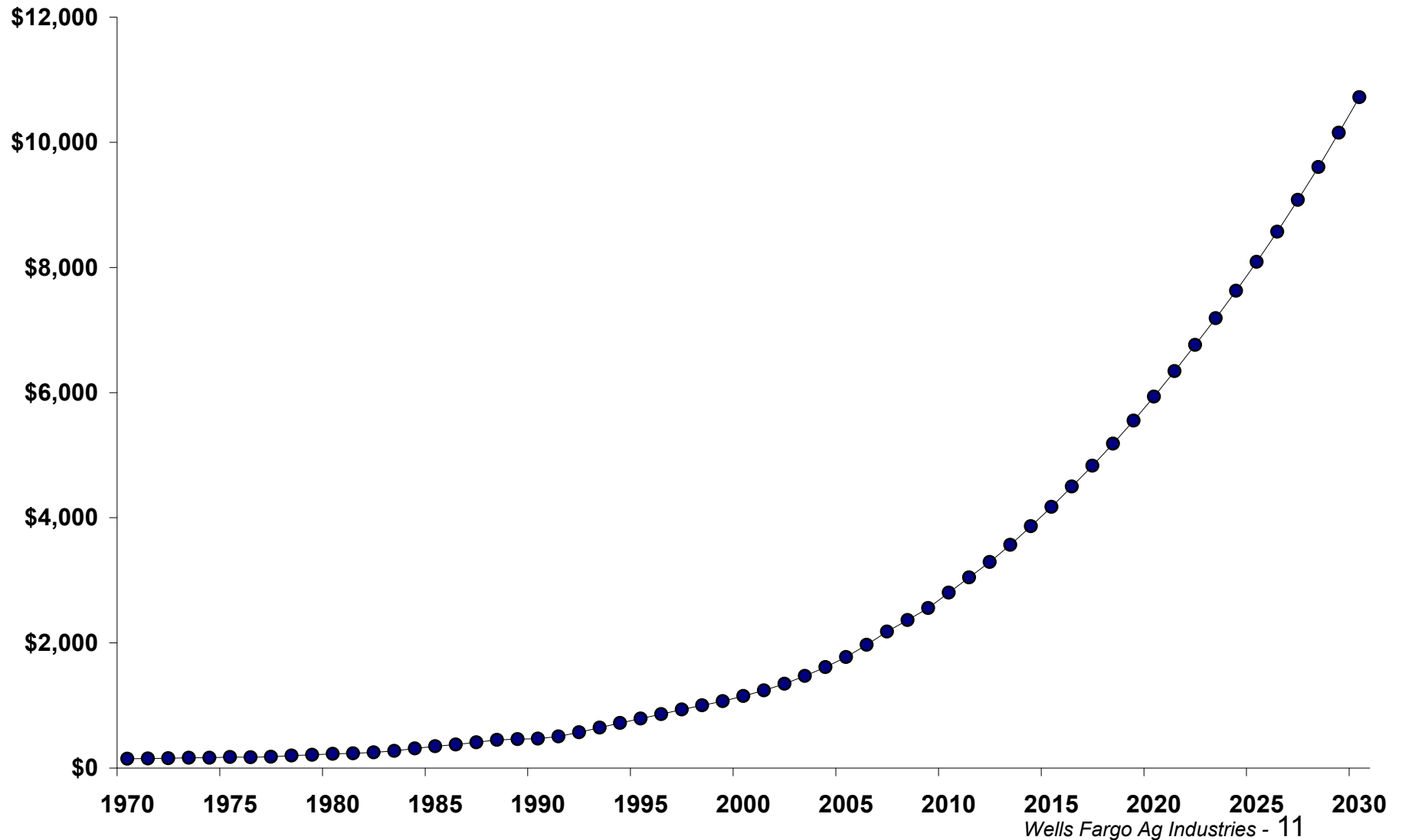
The China question:

You will be wrong

This is a bad forecast

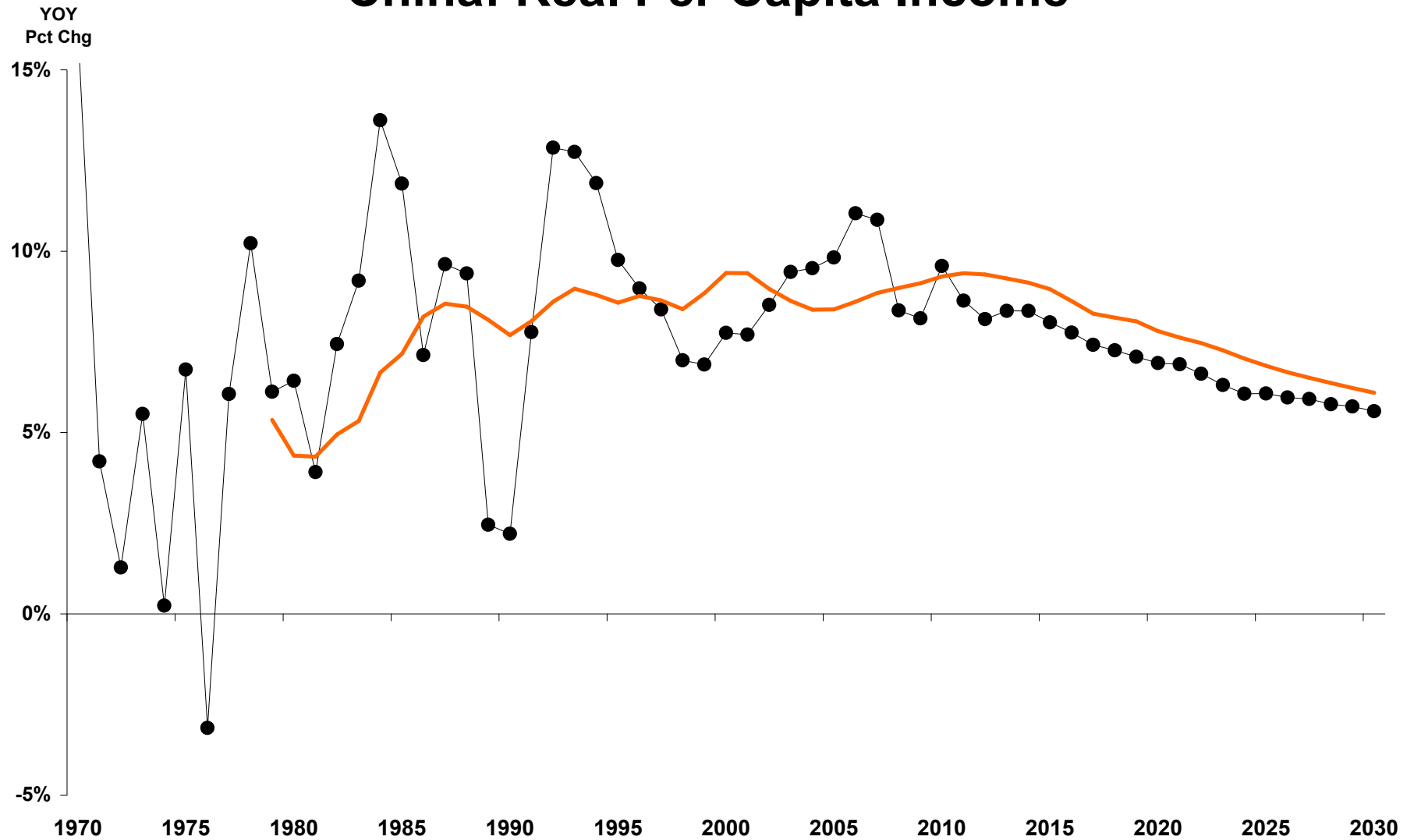
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China: Real Per Capita Income



Why so little volatility?

China: Real Per Capita Income



Source: USDA

Have you tried the “Chinese Black Swan”?

■ Black Swan

- ◆ Low probability
- ◆ High impact

■ A multiplicity of confusions

- ◆ Possible ≠ probable
- ◆ A snowflake versus snow storm

■ You have:

- ◆ Underestimated volatility
- ◆ Overestimated liquidity

The role of biofuels policy

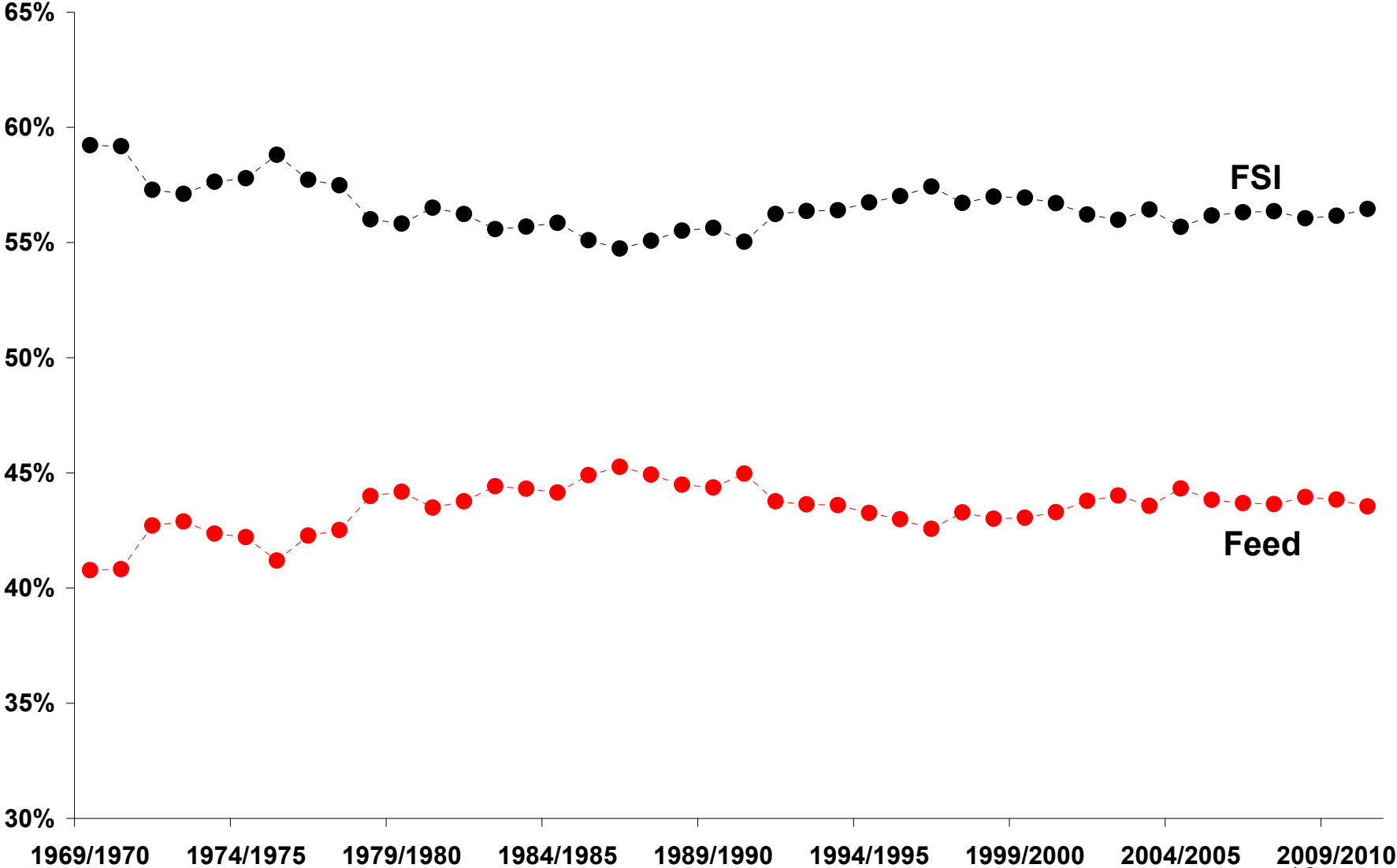
- **Policy is political**
 - ◆ Institutional capture
 - ◆ Small becomes big
- **What numbers are right?**
- **Follow the money**
 - ◆ Agricultural budget
 - ◆ Transportation budget

**Without US ethanol policy
row crop prices would be
significantly lower**

Biofuels outside the US



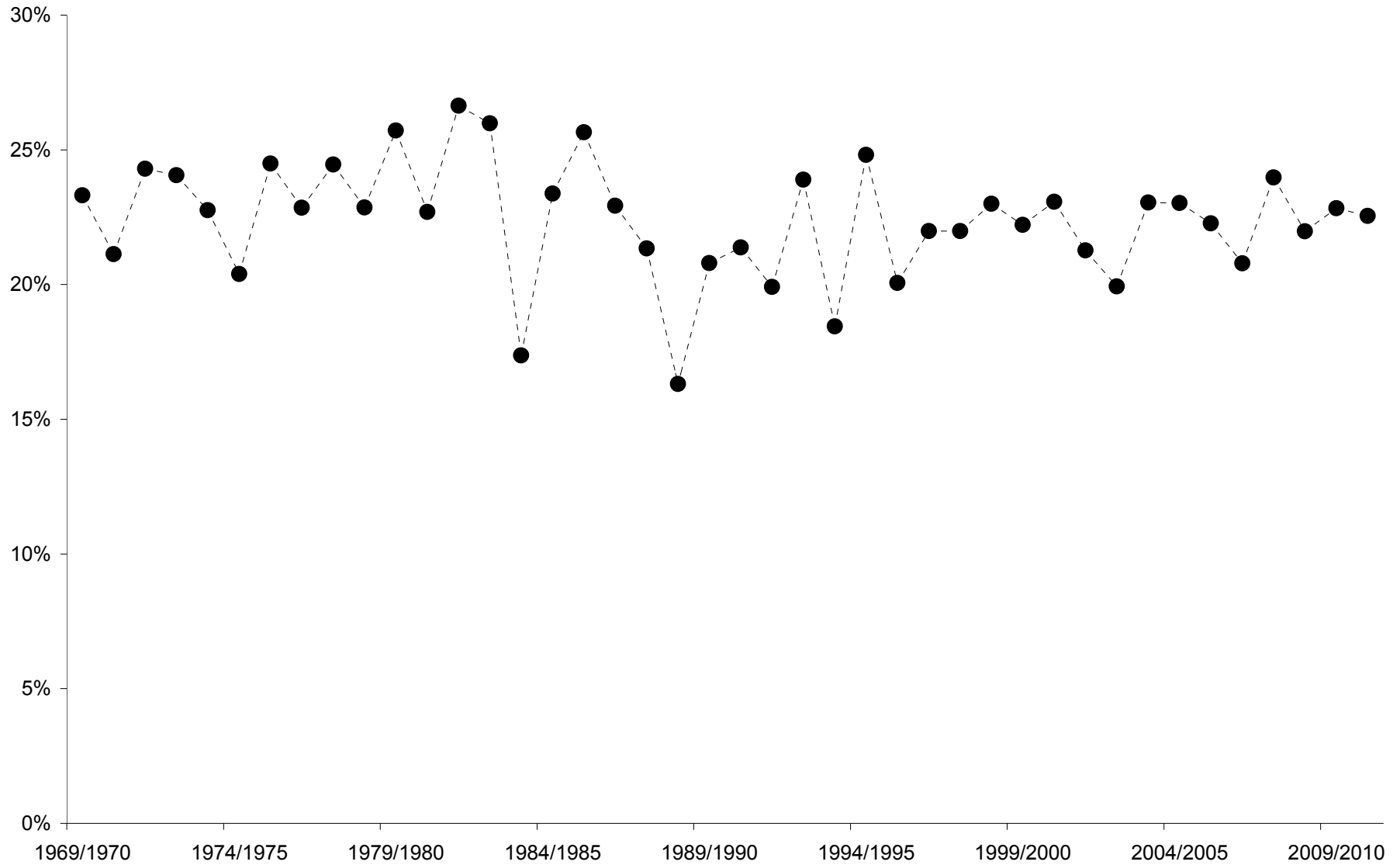
Global Grain Usage (Excl. US)



The US is the market maker for grain

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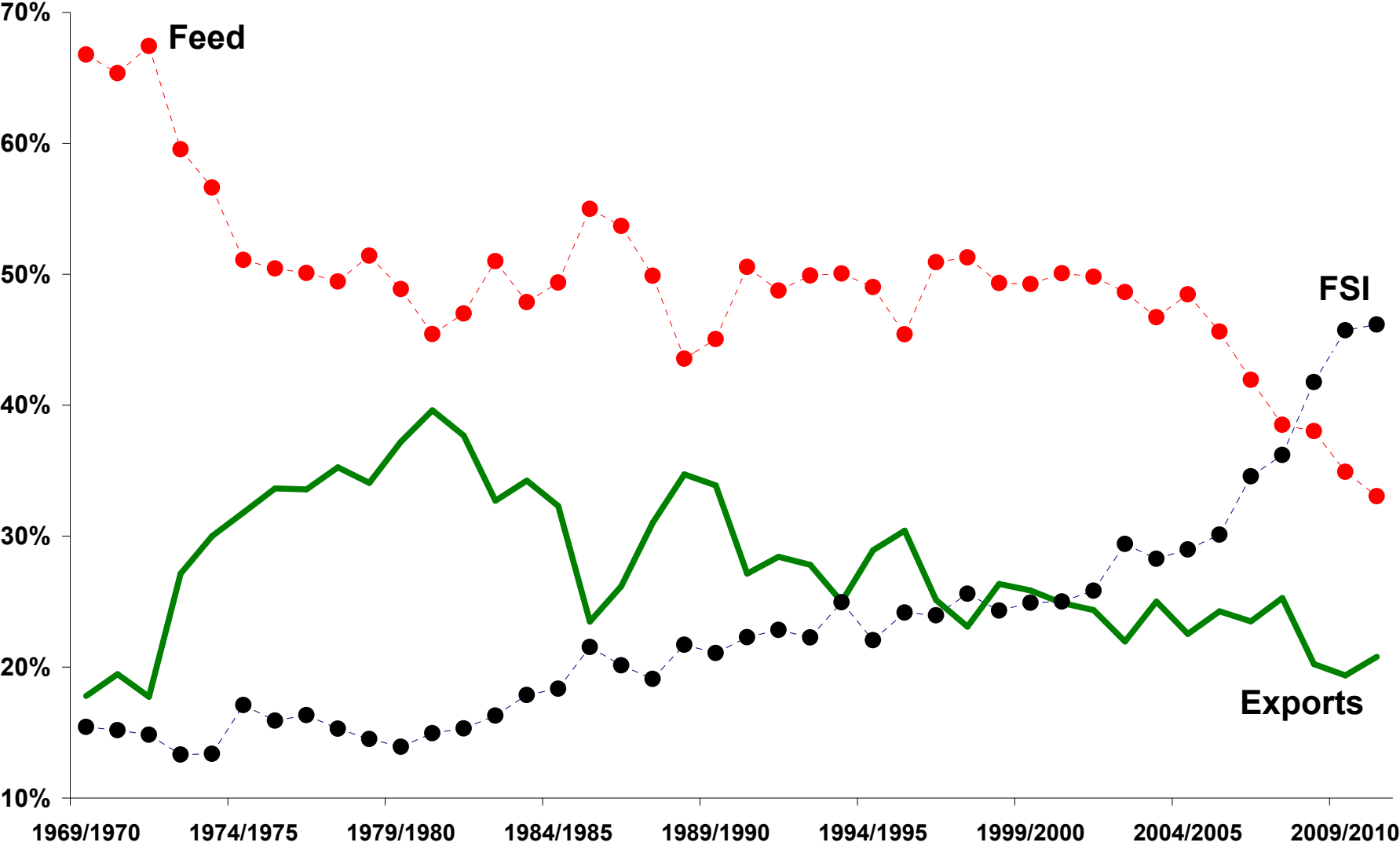
US Share of Global Grain Production



Biofuels inside the US



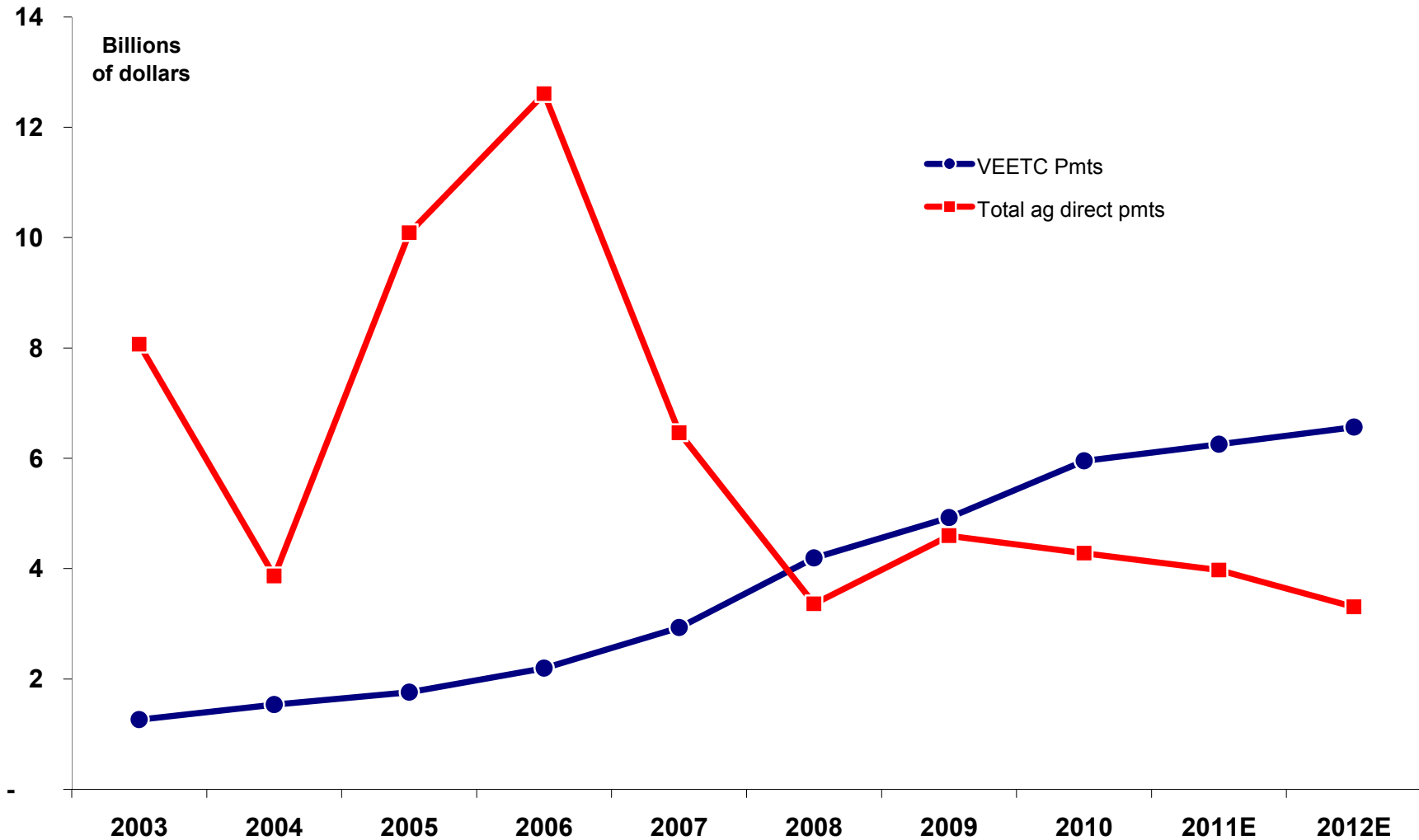
US Domestic Grain Usage



Ag payments are now routed thru transportation



Government Payments



New Rules = New Game

■ Energy

- ◆ Major cost
 - ☒ Crop producers
 - ☒ Food manufacturers
- ◆ Major price setter
- ◆ Geopolitical volatility + weather volatility

■ Volatility feedback loop

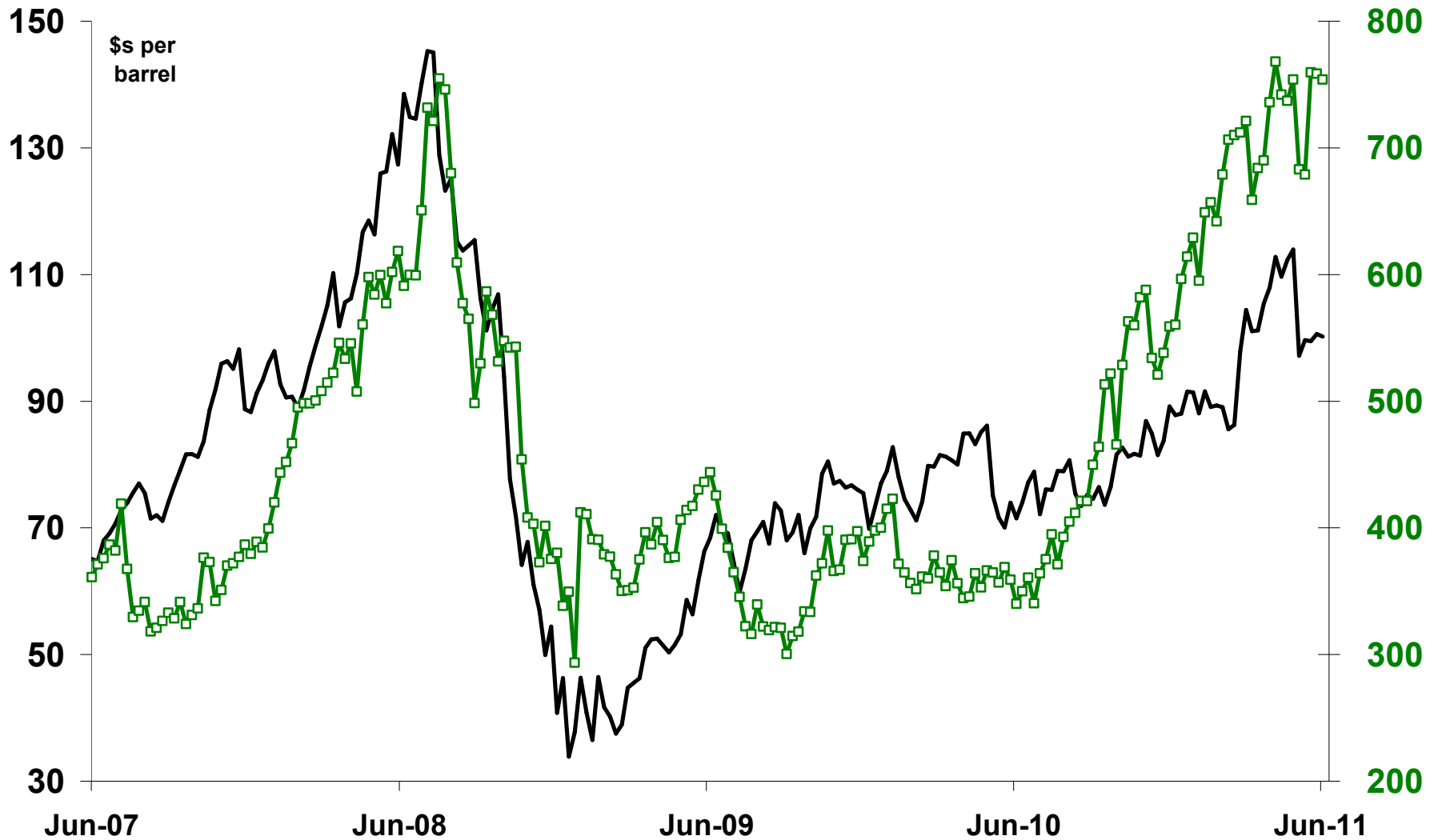
- ◆ Portfolio trades
- ◆ Volatility attracts traders

■ China “globalizes” domestic markets

This drives: food + packaging + transportation ...

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Nearby Crude Oil v Corn



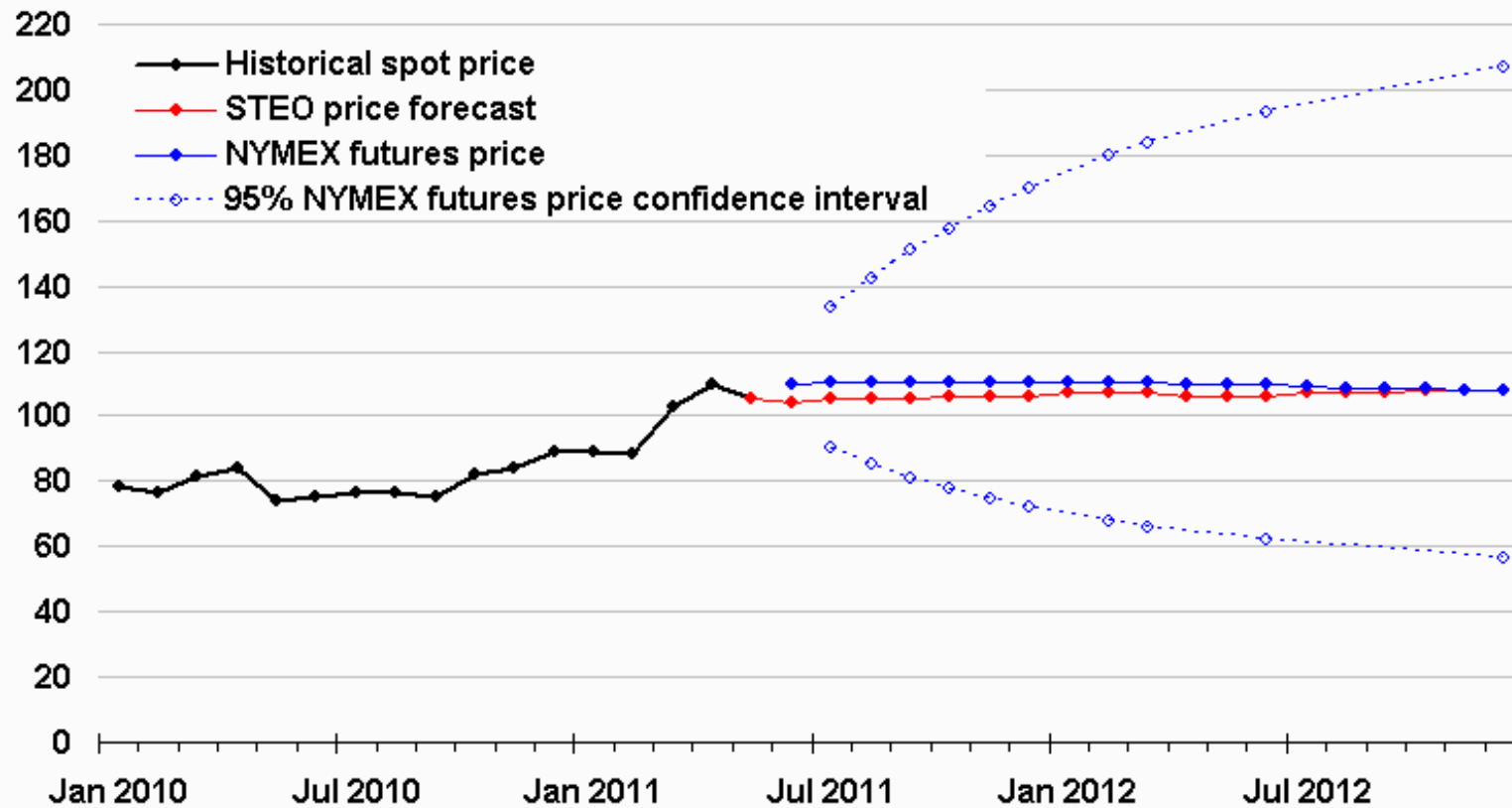
Source: NYMEX, Wells Fargo Economics

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What's the point of predicting?

West Texas Intermediate (WTI) Crude Oil Price

dollars per barrel



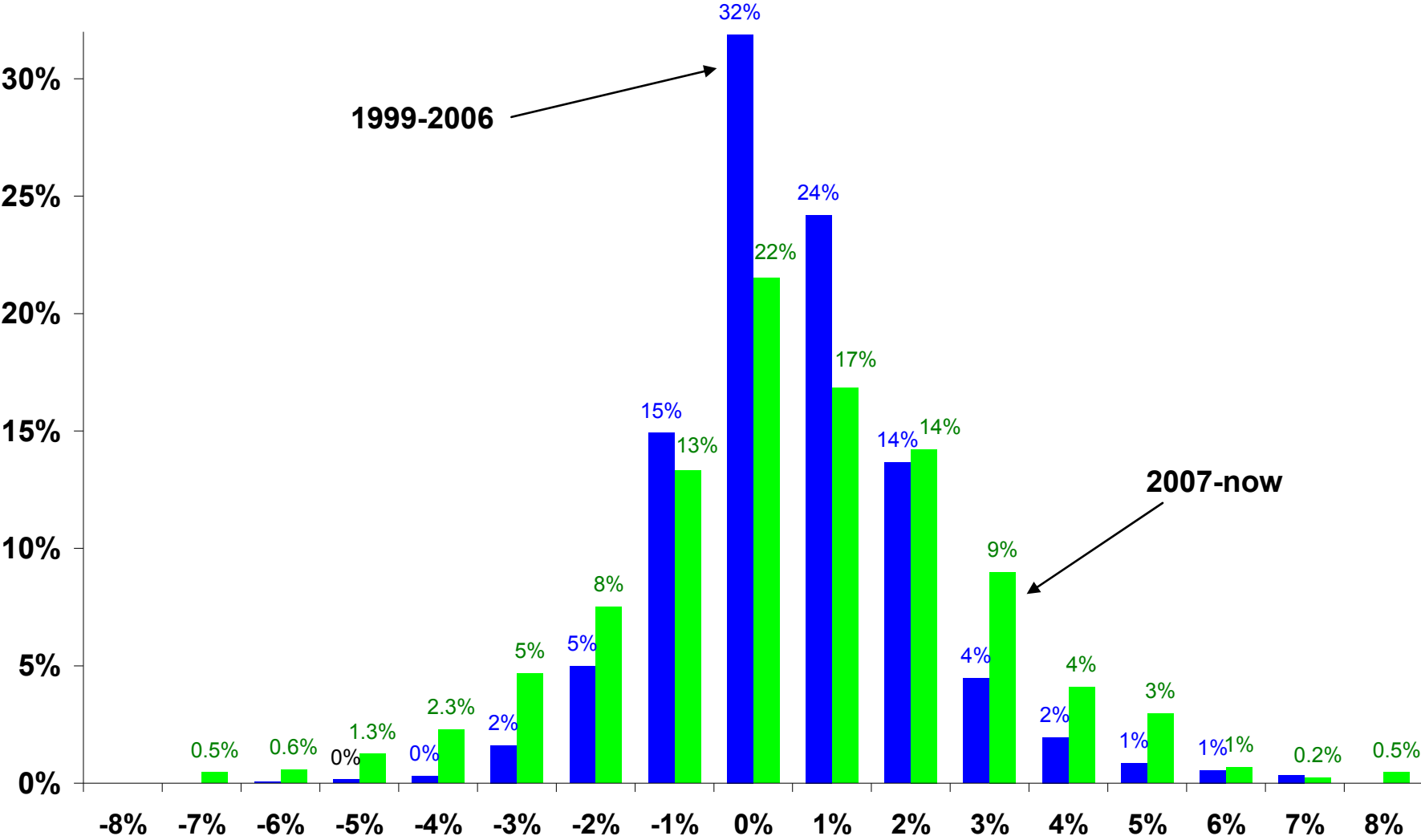
Note: Confidence interval derived from options market information for the 5 trading days ending May 5, 2011
Intervals not calculated for months with sparse trading in "near-the-money" options contracts

Source: Short-Term Energy Outlook, May 2011

How it entered your world



Daily Corn Price Volatility



Source: Wells Fargo Ag Industries

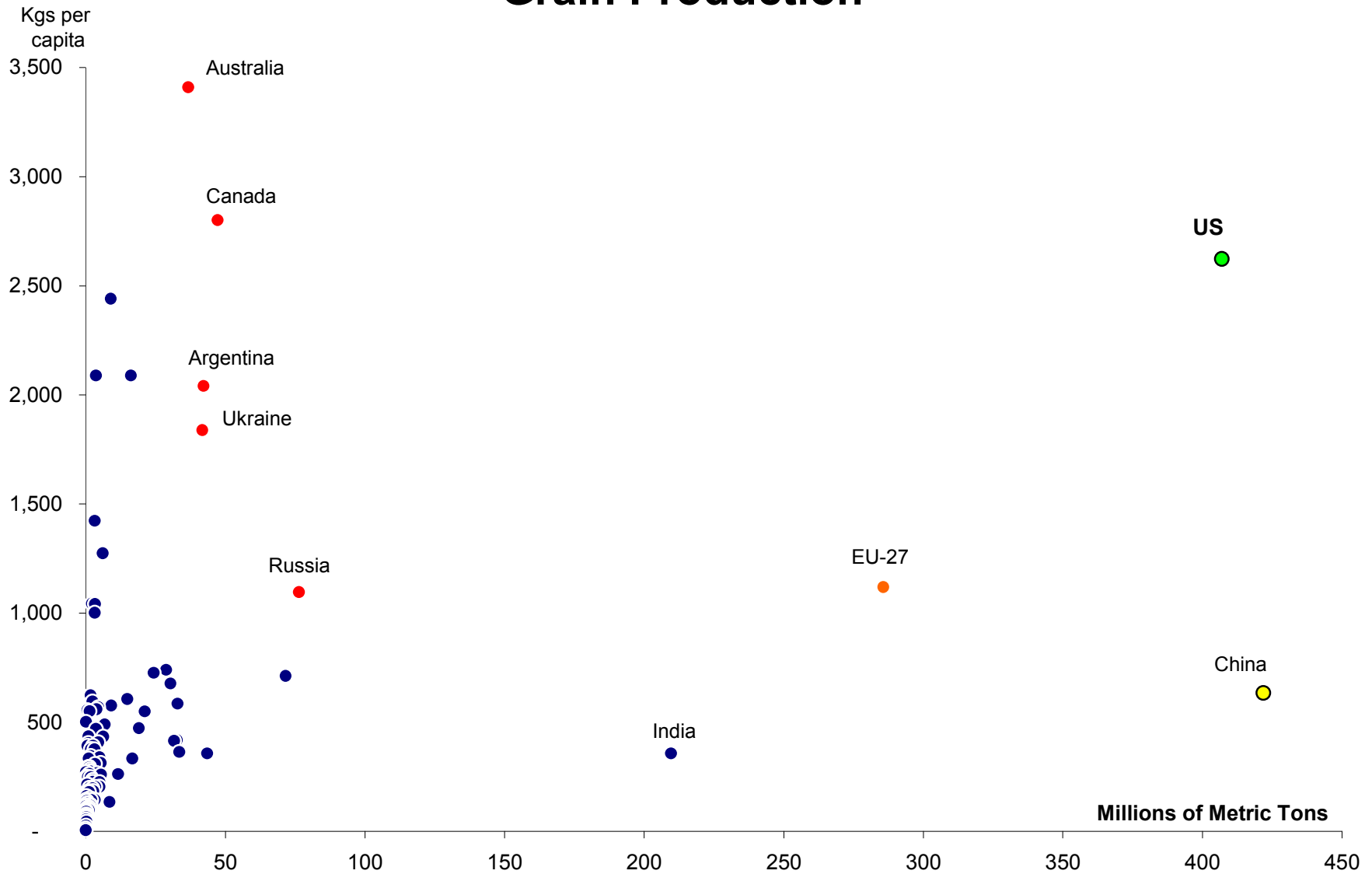
The US remains key exporter

- **Dominant**
 - ◆ Large producer
 - ◆ High per capita supply
- **Productivity**
- **Under-priced on land**
 - ◆ Historical
 - ◆ International

There's no one to turn to for grain

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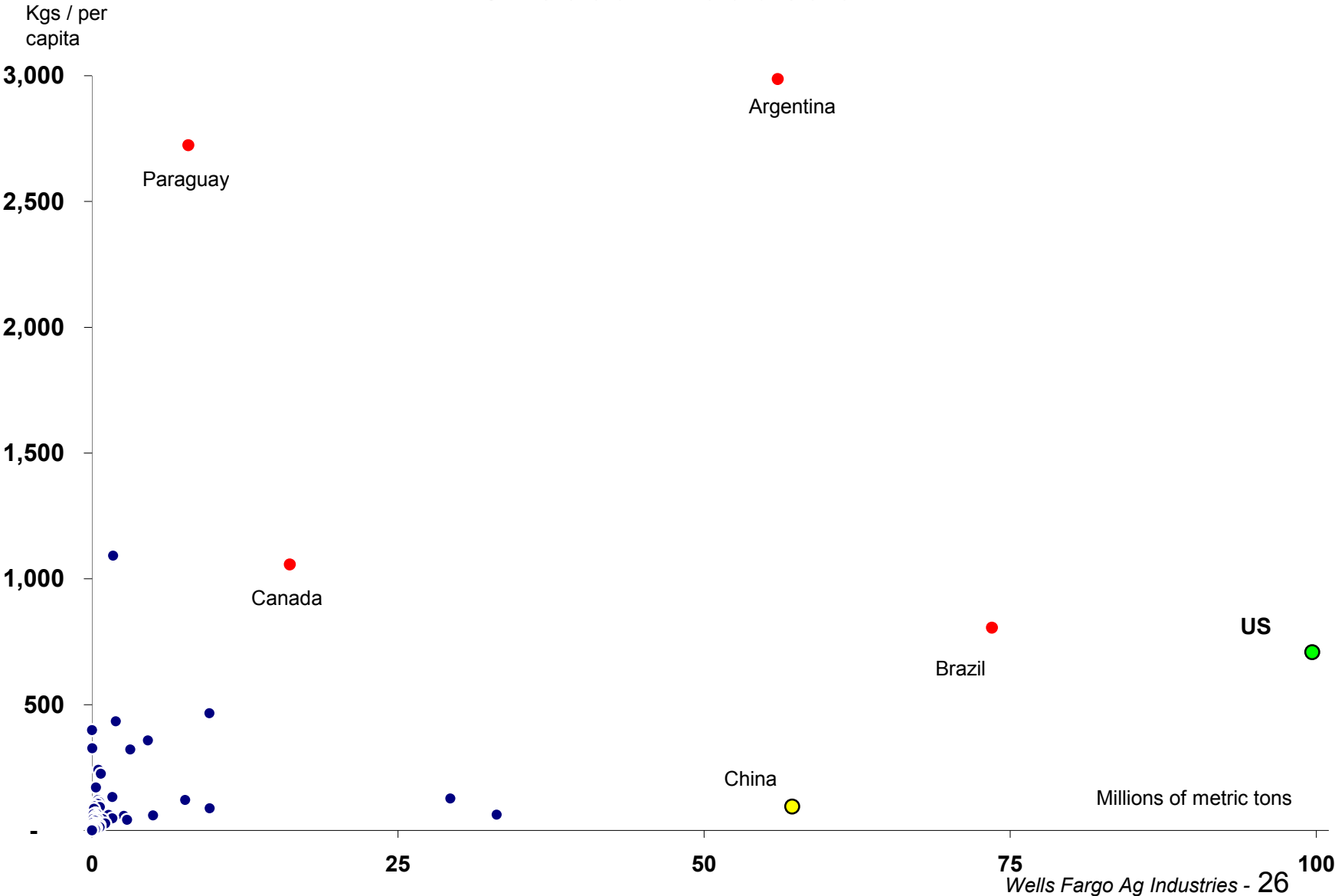
Grain Production



In oilseeds we matter too



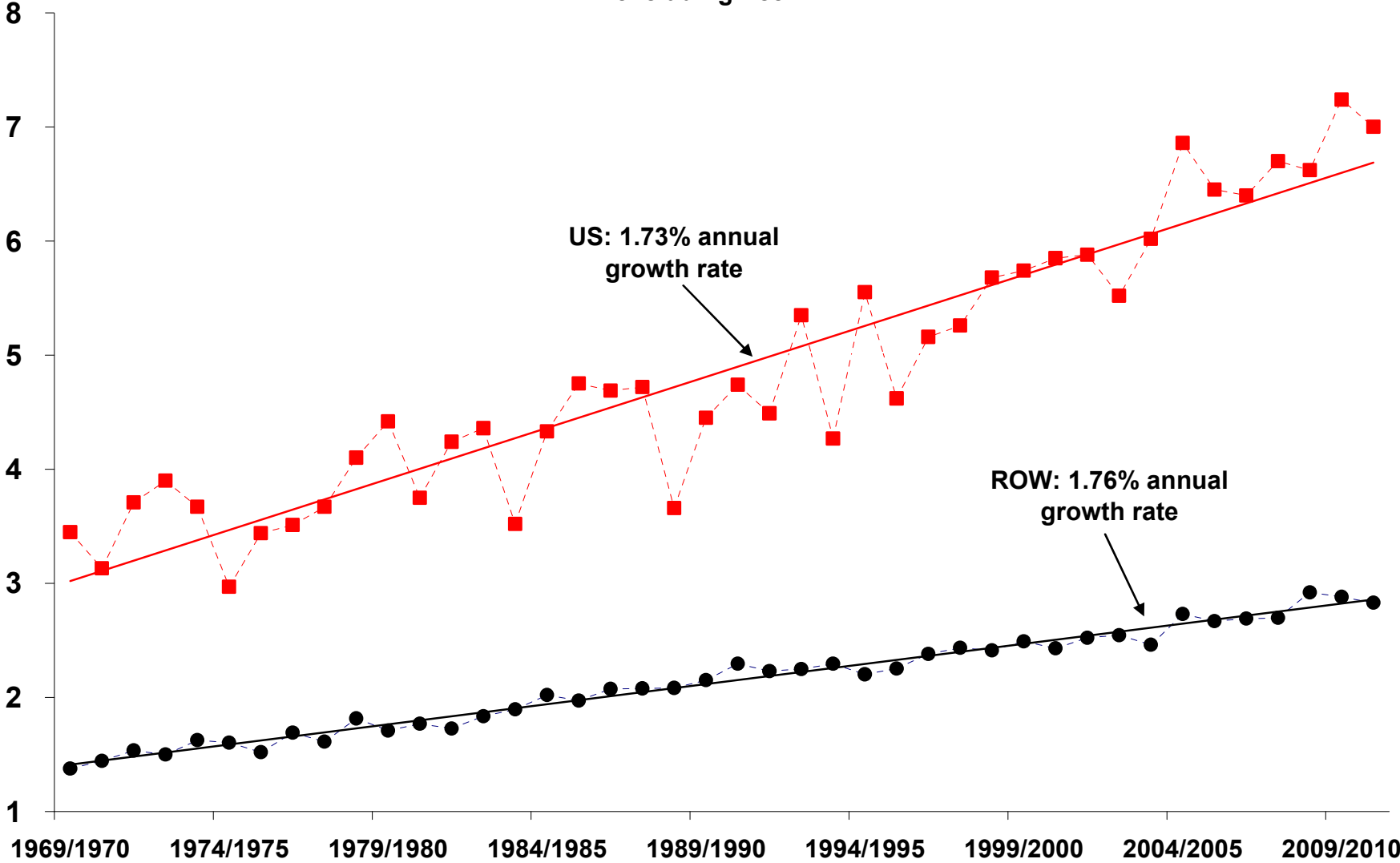
Oilseed Production



Beyond climate and soil



Grain Yield: Metric Tons per Hectare excluding rice



Where is protein demand headed?

■ Protein

- ◆ China is 54% lower in per capita demand
- ◆ Hong Kong distorts the statistics

■ Quality issues

- ◆ US maintains a “safe source” image
- ◆ What the US market wants – foreign markets do to

■ Bottlenecks

- ◆ Grain/silage production
- ◆ Yields/irrigation
- ◆ Socio-economic

There's no one to turn to for grain

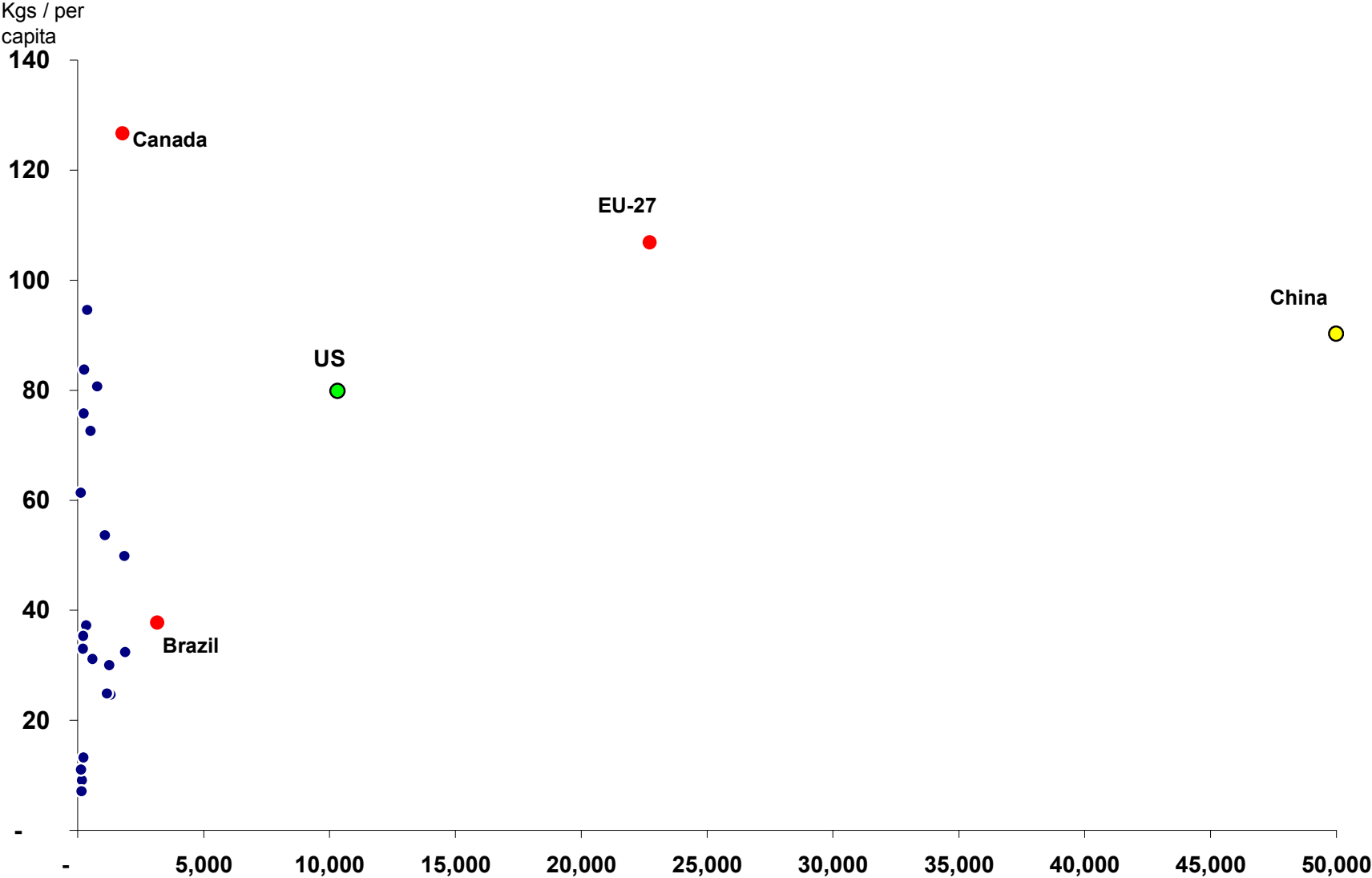


Kgs.	Commodity			
	Meat, Beef and Veal	Meat, Swine (KG)	Poultry, Meat, Broiler	Grand Total
Country				
Hong Kong	23.9	67.3	40.1	131.3
United States	39.3	28.6	42.8	110.7
Argentina	61.3	6.5	33.1	100.8
Kuwait	26.6		67.7	94.3
Brazil	37.5	12.5	42.9	92.8
Australia	35.2	22.3	35.2	92.6
Qatar			88.4	88.4
Canada	30.0	24.7	29.7	84.4
United Arab Emirates	16.8		61.1	77.9
EU-27	16.7	43.0	17.8	77.5
Chile	23.1	22.6	30.1	75.7
Belarus	29.6	44.8		74.4
Uruguay	60.3	10.9		71.1
Singapore	6.4	26.9	36.1	69.4
Taiwan	5.6	36.4	26.6	68.5
Mexico	17.4	15.9	29.5	62.8
Korea, South	11.9	31.1	14.7	57.6
Russia	16.7	19.6	21.1	57.4
Kazakhstan	26.8	14.6	13.8	55.1
Switzerland	20.7	33.2		53.9
Venezuela	18.5	4.9	29.9	53.3
Jamaica	5.1	3.3	44.6	53.1
Bahrain			52.5	52.5
China	4.2	37.2	9.2	50.6

China already has the pork

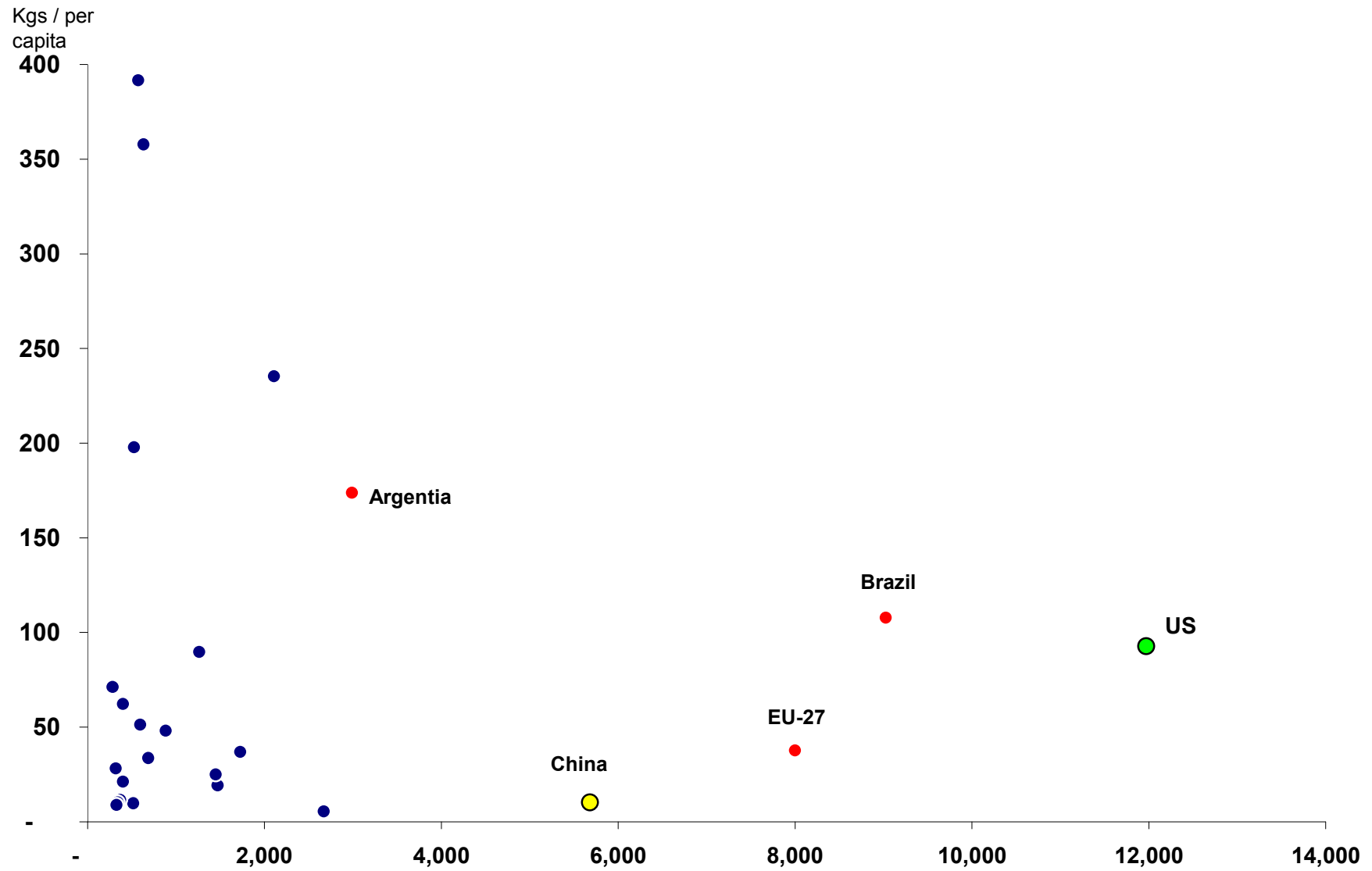


Meat Production: Pork



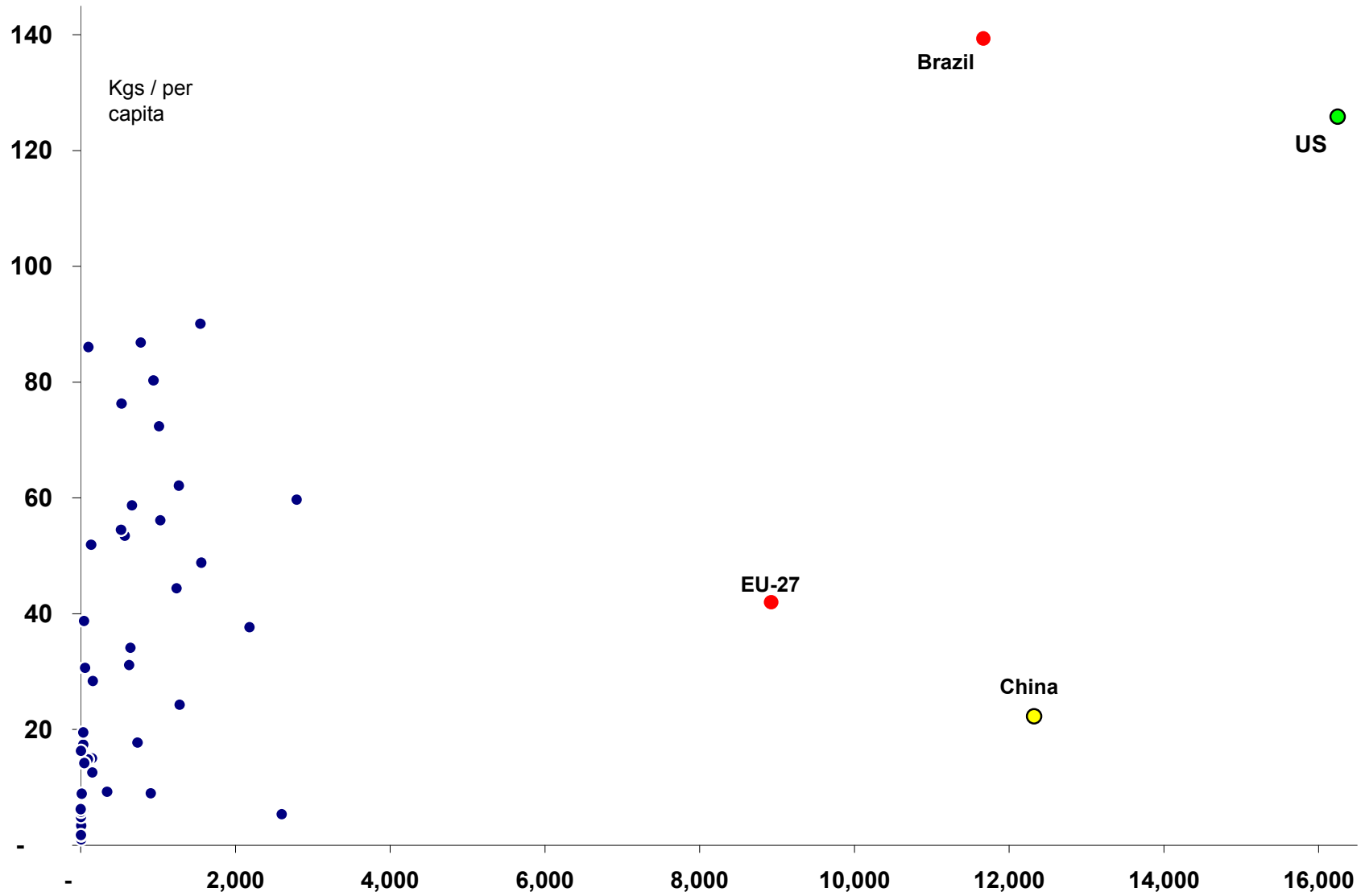
They need beef

Meat Production: Beef



And, they need broilers

Meat Production: Broilers



What about land values?

Is US ground cheap?

Land prices factor into equation

■ Row crop cash rentals

- ◆ CA open crop ground \$150-\$250 / acre
- ◆ Chinese open crop ground \$800 / acre

■ Tree nut standing orchards

- ◆ CA almond groves \$16,000 / acre
- ◆ Indian almond groves \$30,000 / acre

☒ Adjusted for productivity

■ US ground is “cheap”

- ◆ Adjusted for exchange rate
- ◆ Adjusted for productivity

The important drivers

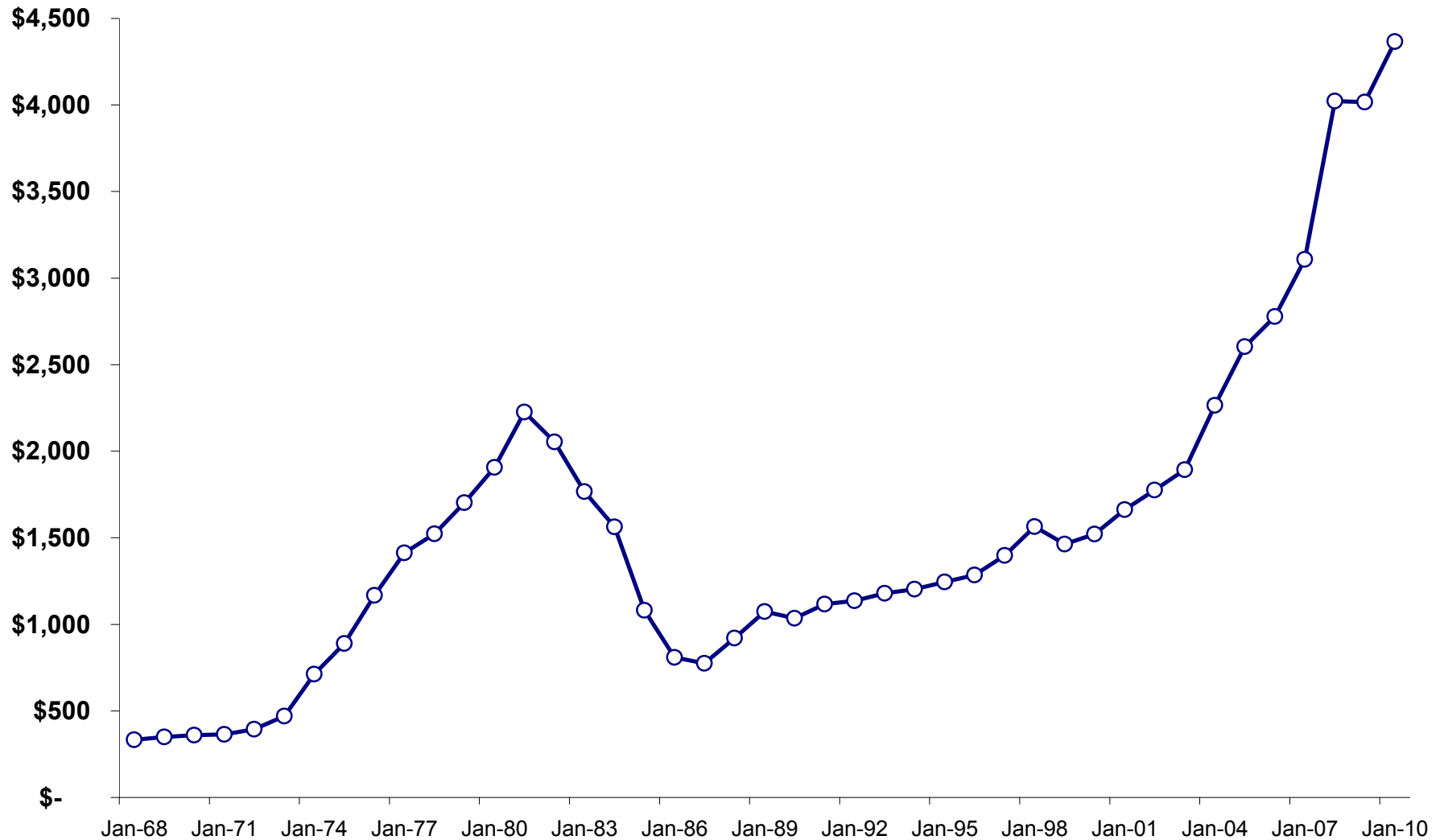
- **Row crop prices**
 - ◆ **Biofuels**
 - ◆ **Global income**
 - ◆ **Global competition**
- **Interest rates**
 - ◆ **US dollar strength**
 - ◆ **Alternative investments**
 - ◆ **Home building – 1031 transfers**

The wrong way to look at land

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Land Price in Dollars

SW Minnesota



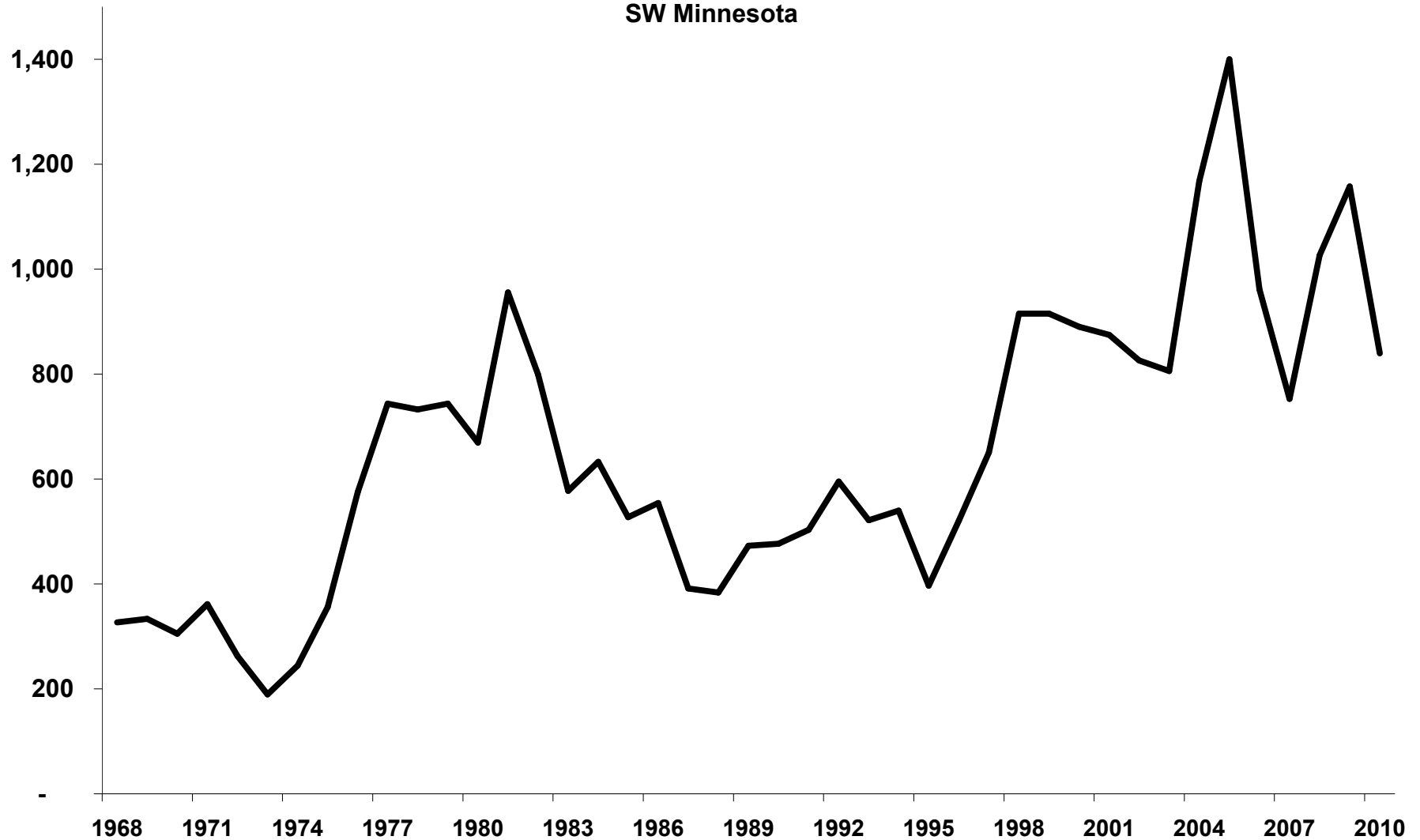
unpublished land market data from UofM Dept. of App. Econ

Trading corn for corn

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Price of Land: Bushels of Corn per Acre

SW Minnesota



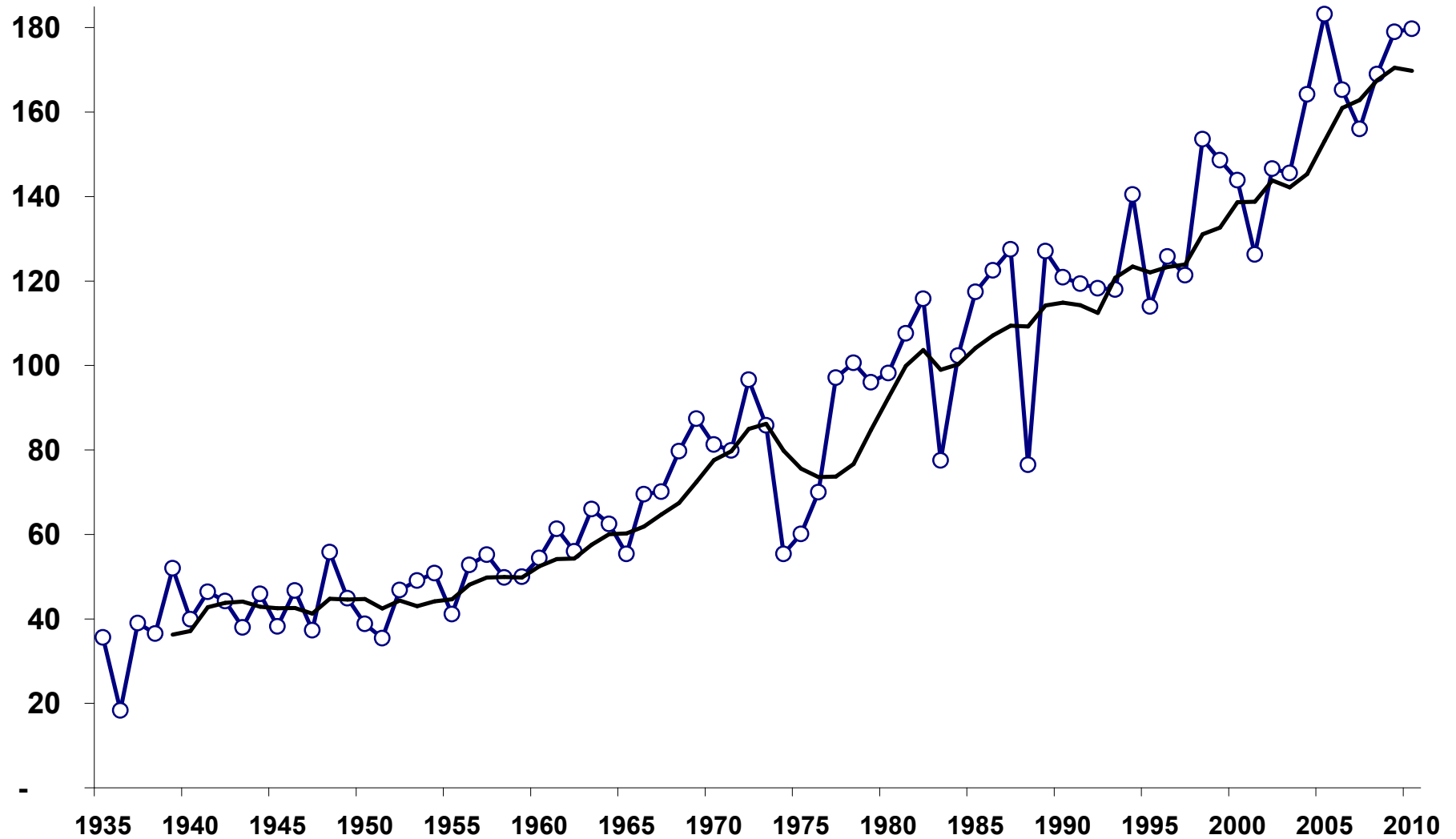
Data: Raup et al., forthcoming 2011: Analysis Wells Fargo

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Yield doesn't stand still

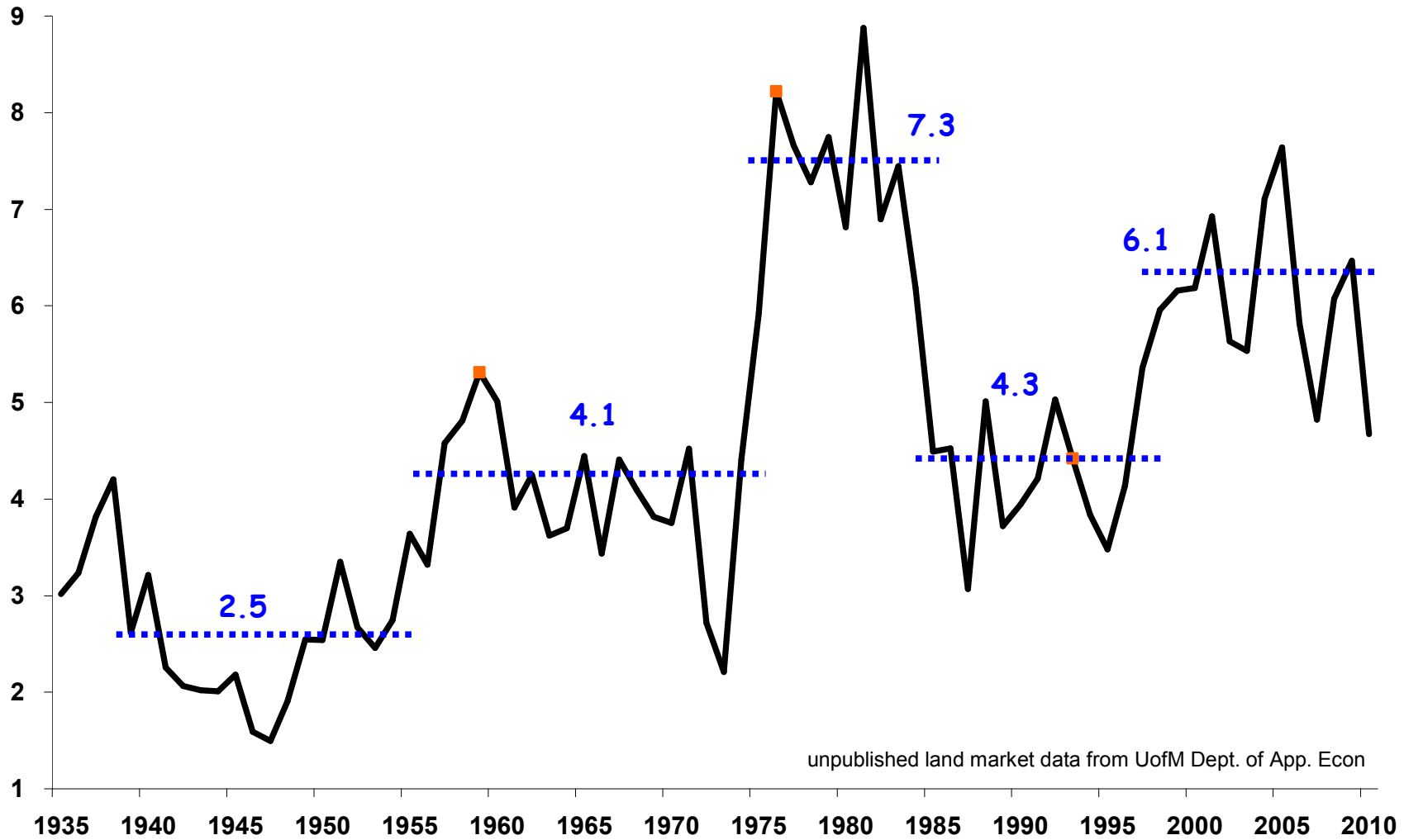


Corn Yields Bushels Per Acre SW Minnesota



Yield and price adjusted

Years of Yield Traded per Acre SW MN



unpublished land market data from UofM Dept. of App. Econ

The takeaways

Great future if you can take the heat

- **Plan don't predict**
 - ◆ Scenarios are better
 - ◆ Snowflakes versus snowstorms
- **The volatility will be extreme**
 - ◆ Buy or sell: "Smart" insurance
 - ◆ Leverage and risk management are key
- **Don't get blinded by the dollars**
- **The greatest asset: discipline**