

Oil and the Economy

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Disclaimer

The views expressed are my own and do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis, or the Federal Reserve System.

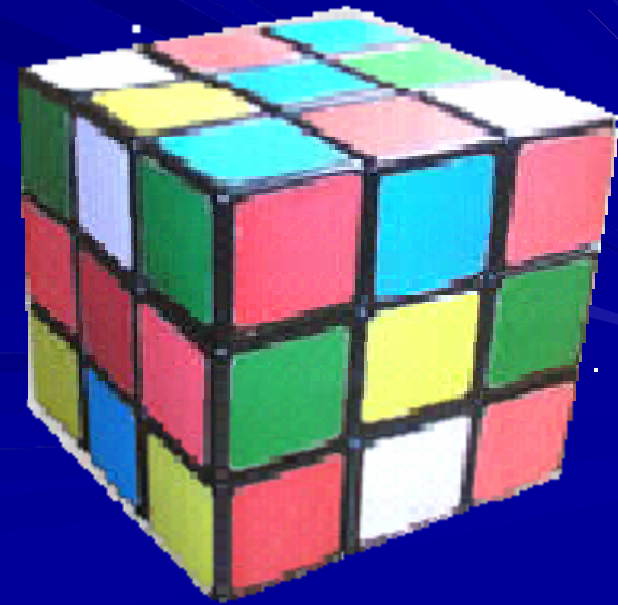
What to talk about today?

- Current events
- Oil and the real economy
- Oil and gasoline prices
- Lessons for the climate change debate

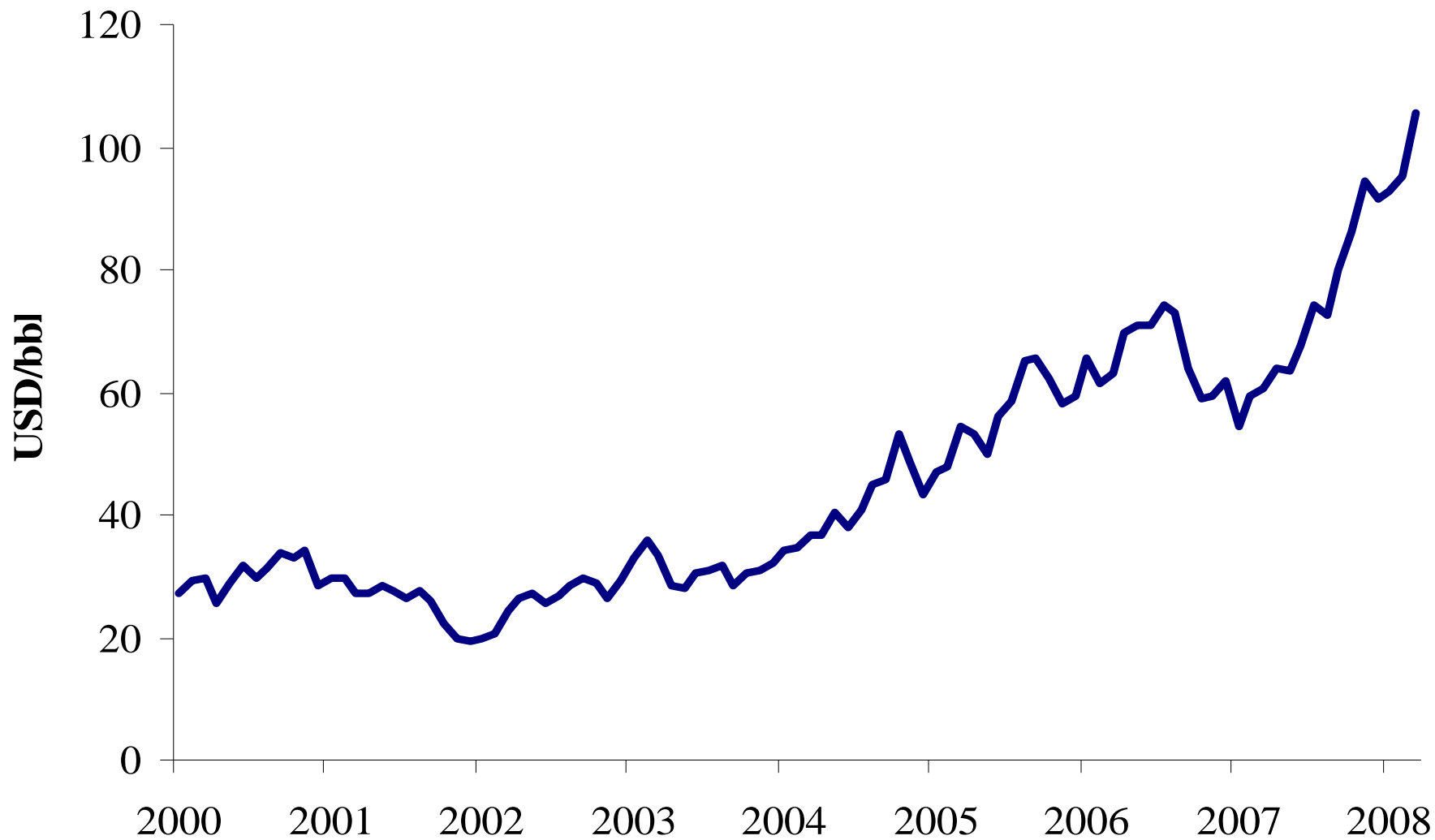
Current Events

- Oil Prices have risen since 2002.
 - The international security situation
 - Growth in global, primarily Asian, economies.

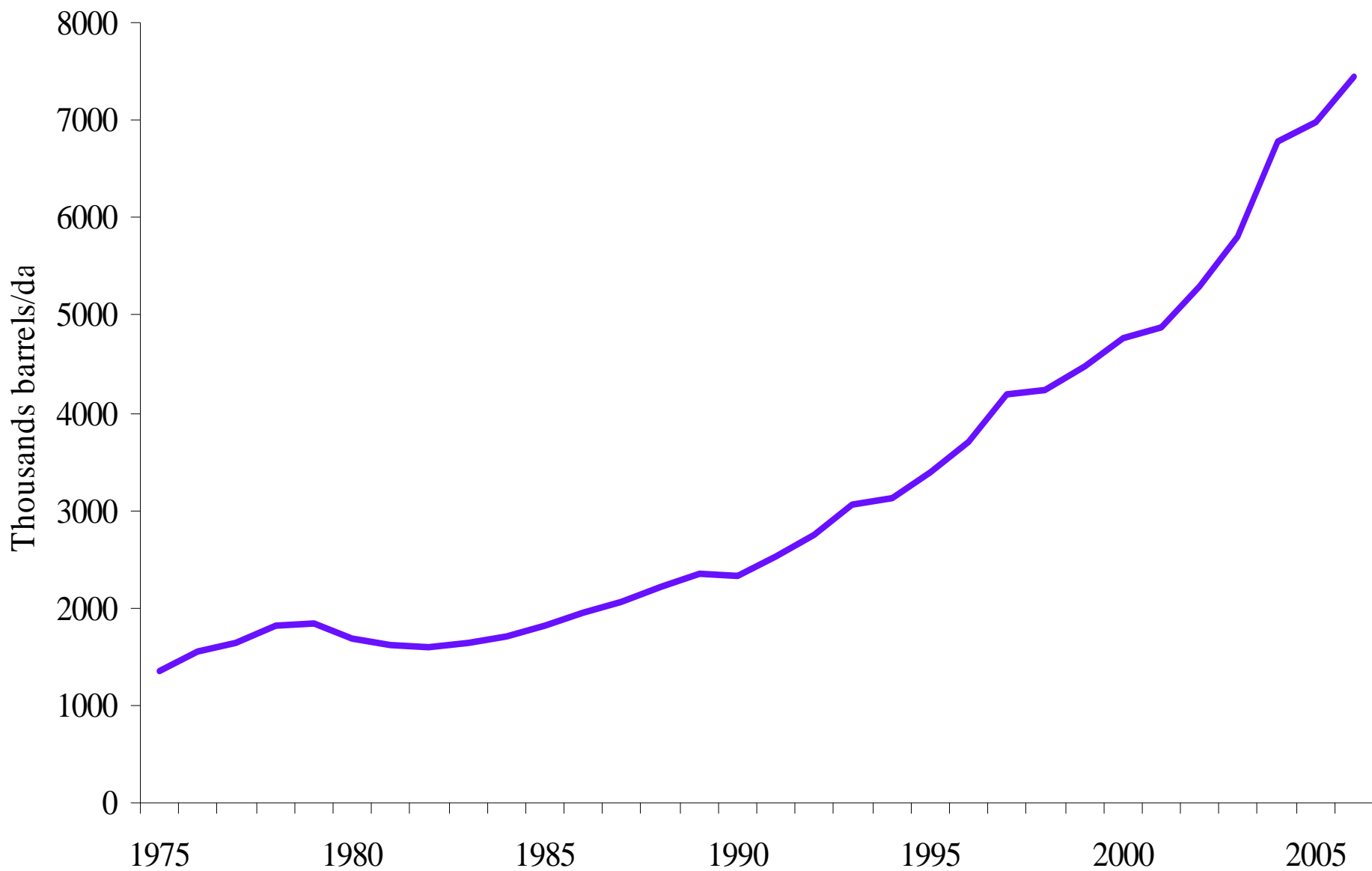
http://stlouisfed.org/publications/re/2007/b/pages/oil_prices.html



Spot Oil Price: West Texas Intermediate (\$/Barrel): 2000-2008:03



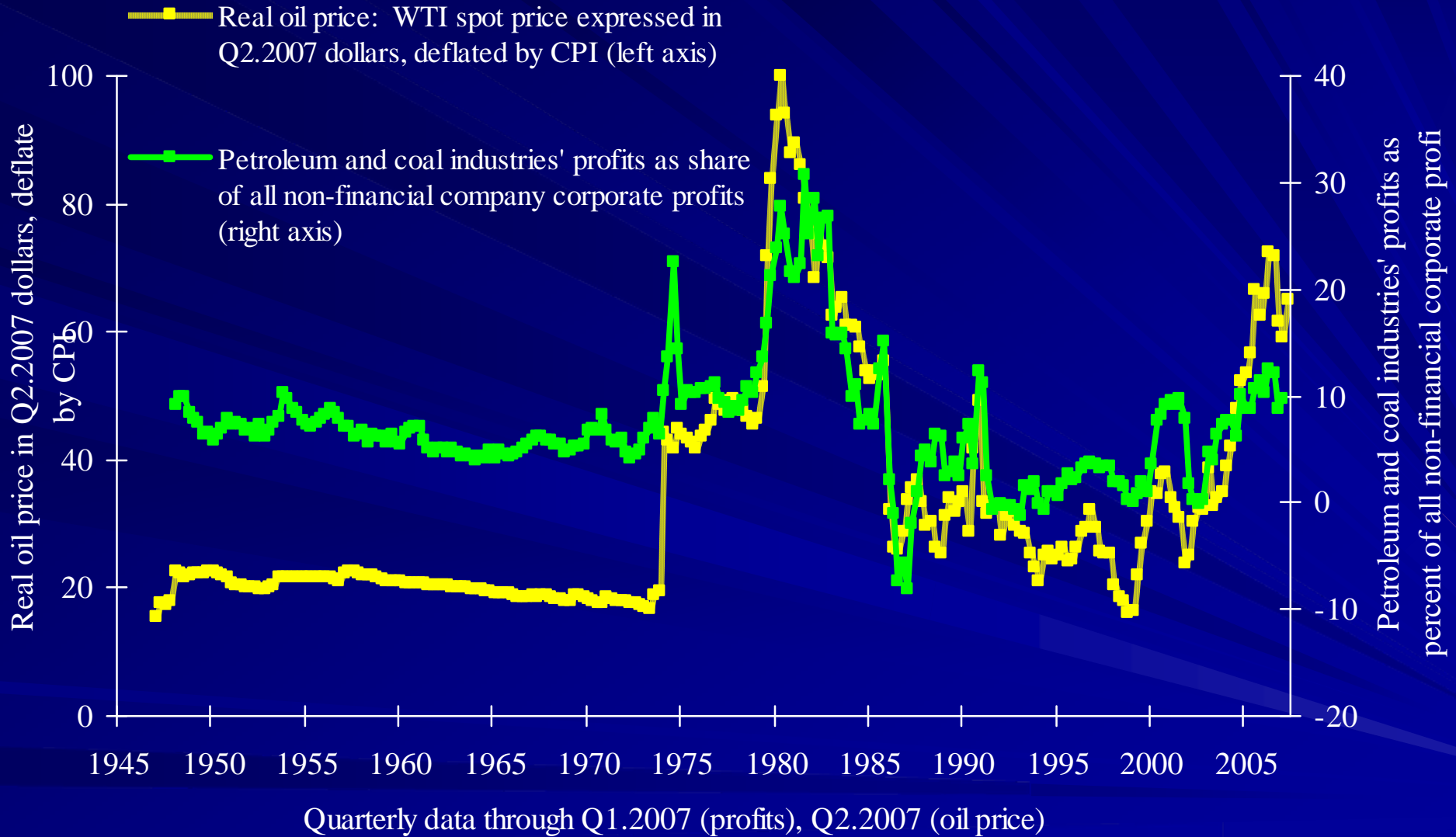
Chinese Oil consumption (Thousands of barrels/day)



Current Events

- Oil companies make money when oil prices rise.
- Oil is their major asset.

Real Oil Prices and Petroleum Industry Profits

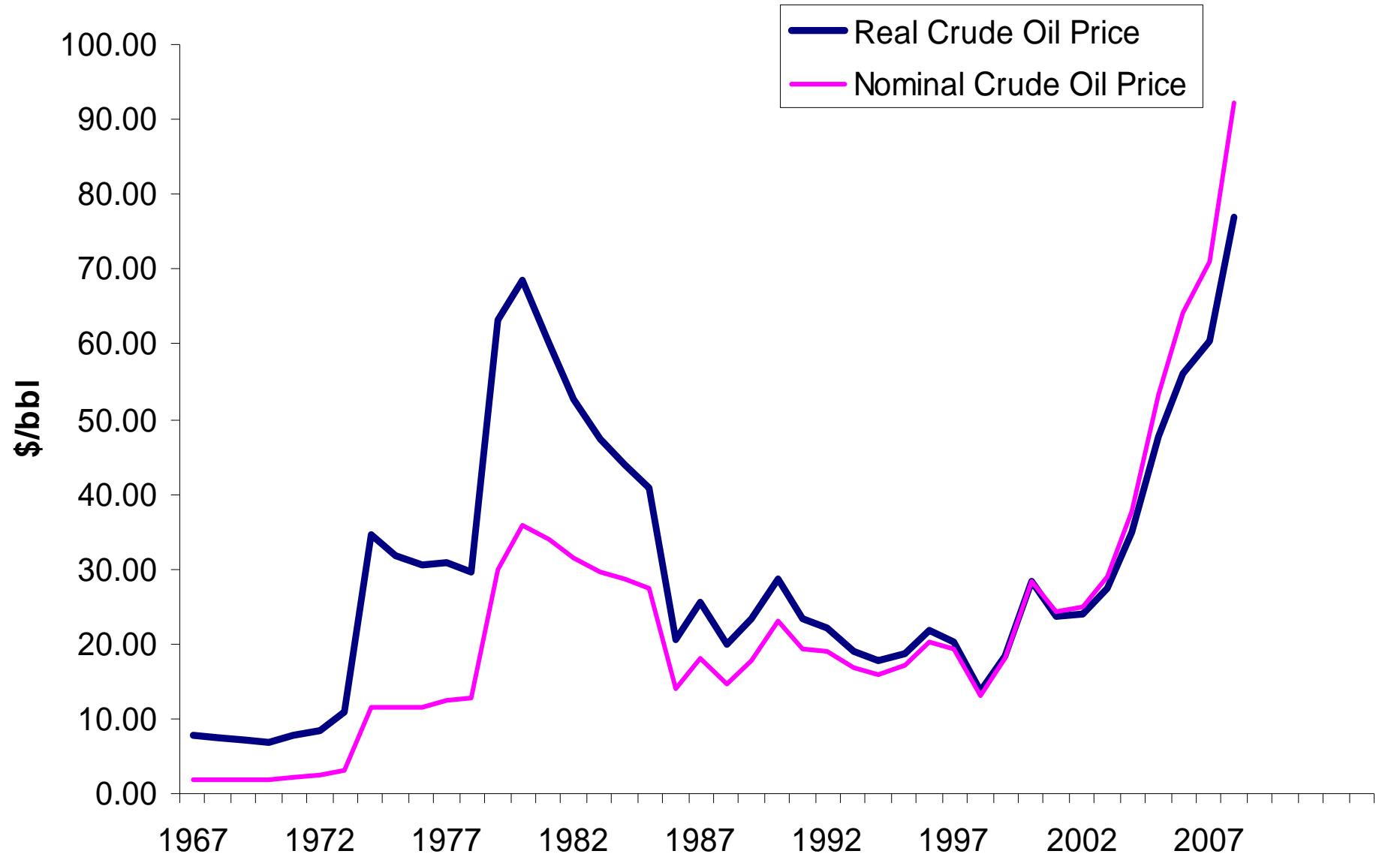


Current Events

- Inflation-adjusted oil prices are now just a little higher than in 1981.

Yearly World Oil Prices (\$/bb)

World: Avg. Crude Price of UK Brent/Dubai/Alaska



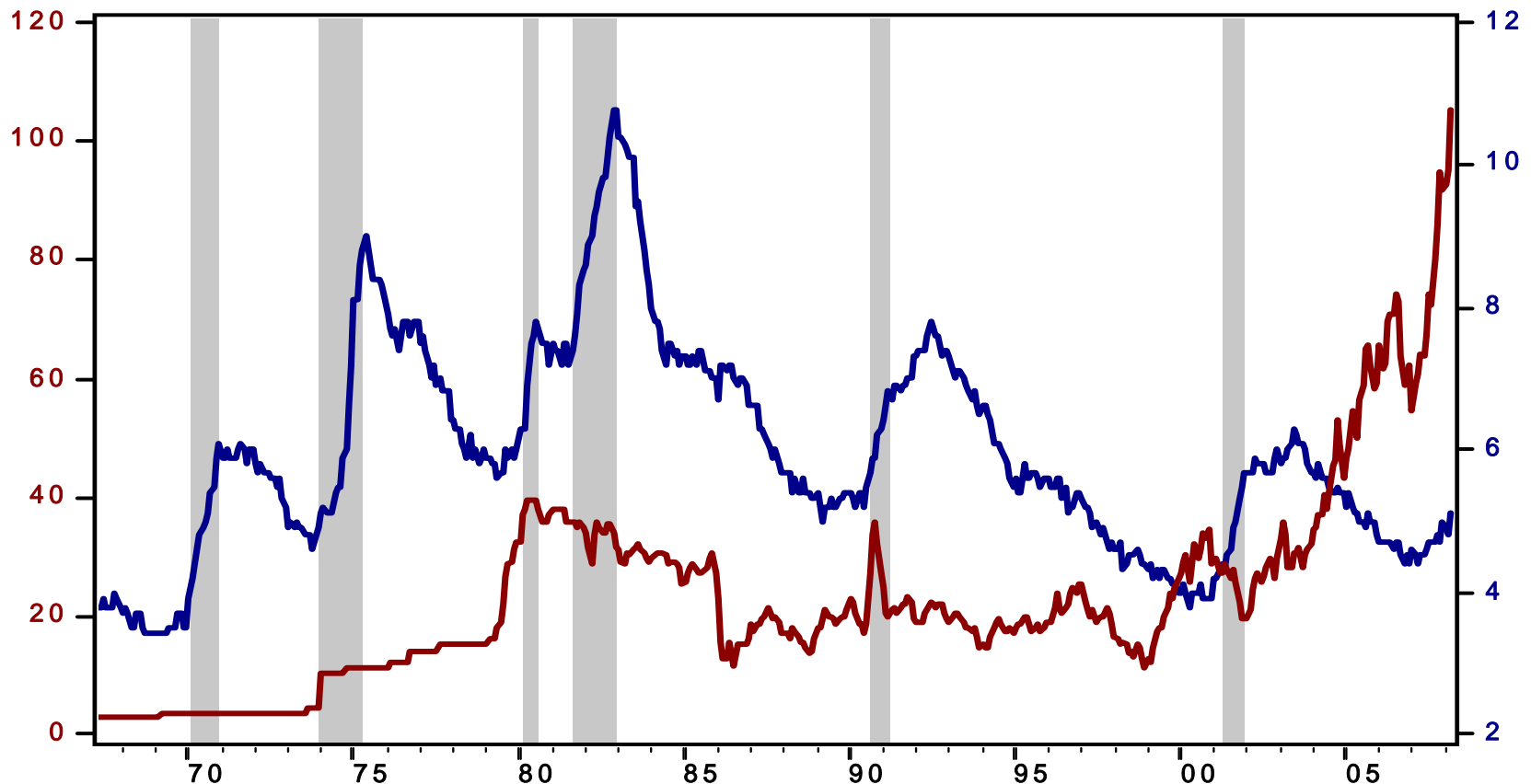
Oil and the real economy

- **Rising oil prices often are associated with recessions.**
- **James Hamilton (UCSD) has shown a strong relationship between oil and recessions.**

Oil and the real economy

Spot Oil Price: West Texas Intermediate [Prior'82=Posted Price]
\$/Barrel

Civilian Unemployment Rate: 16 yr +
SA, %

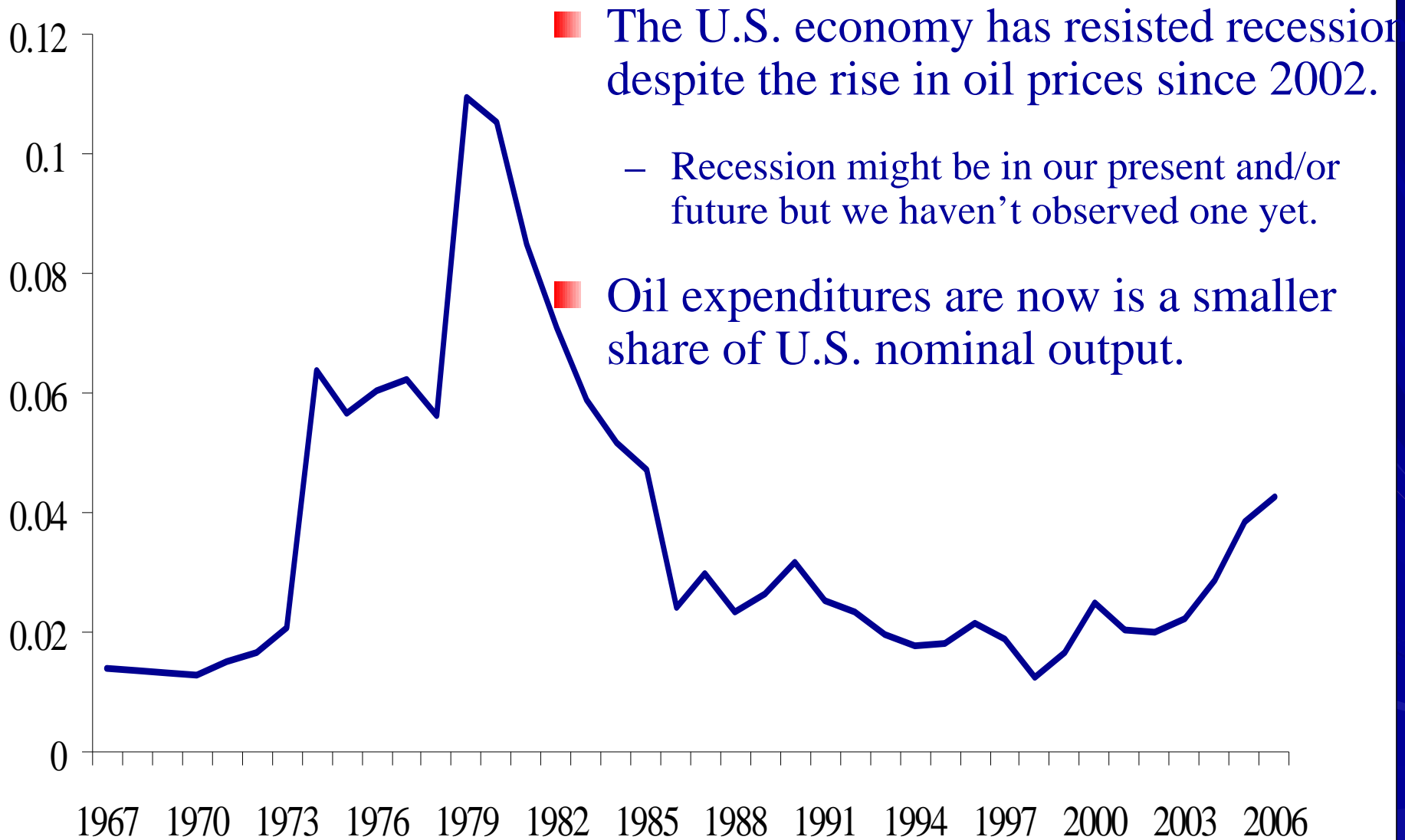


Sources: Wall Street Journal, Bureau of Labor Statistics /Haver Analytics

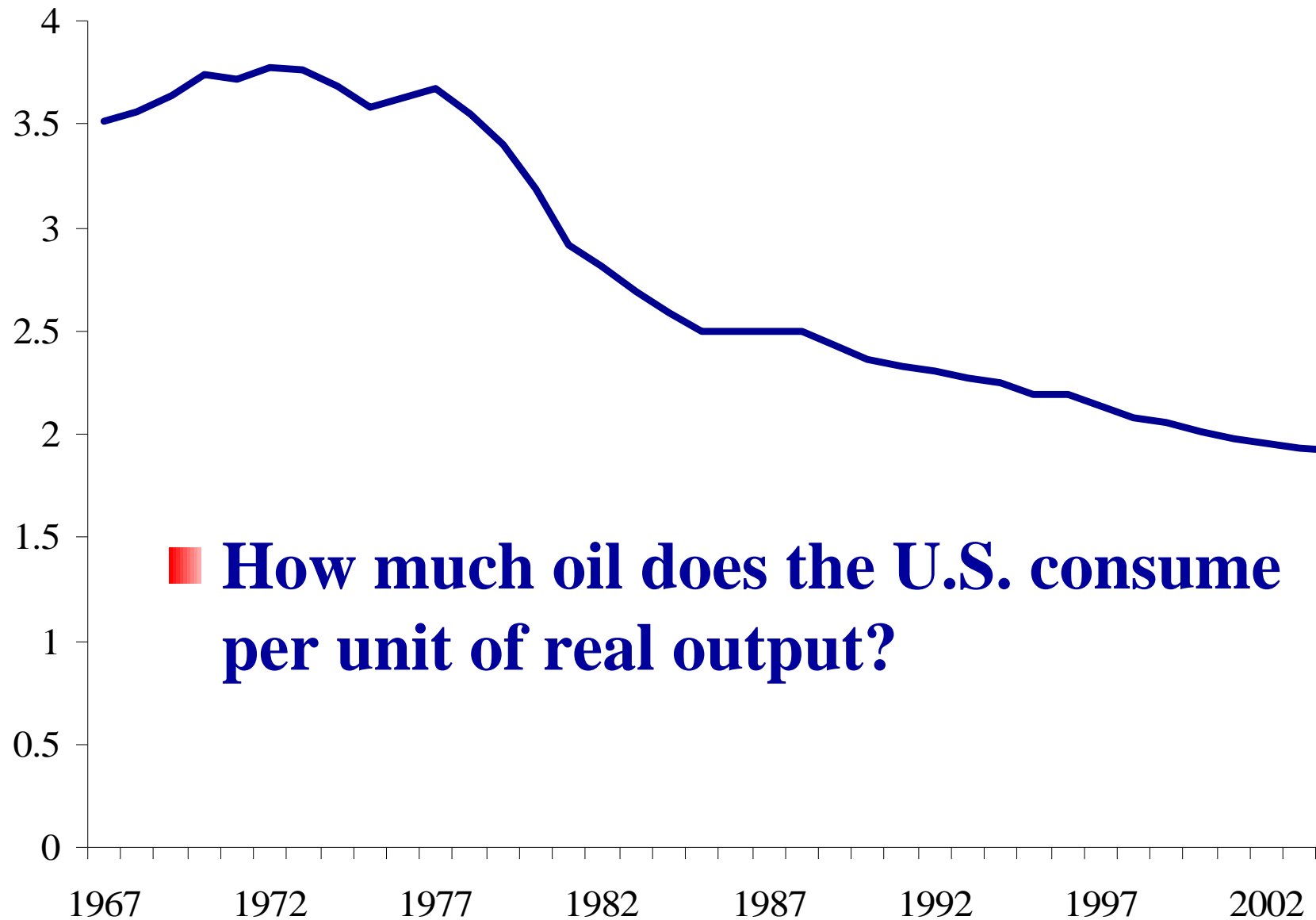
Oil and the real economy

- Why have rising oil prices caused recessions?
 - If input prices change, then
 - firms change the types of capital and labor employed
 - and consumers will change their consumption bundles.
- Rising oil prices will also redistribute wealth from oil consumers, to oil producers.

U.S. consumption as a proportion of GDP



Oil Consumption per Unit of Real GDP

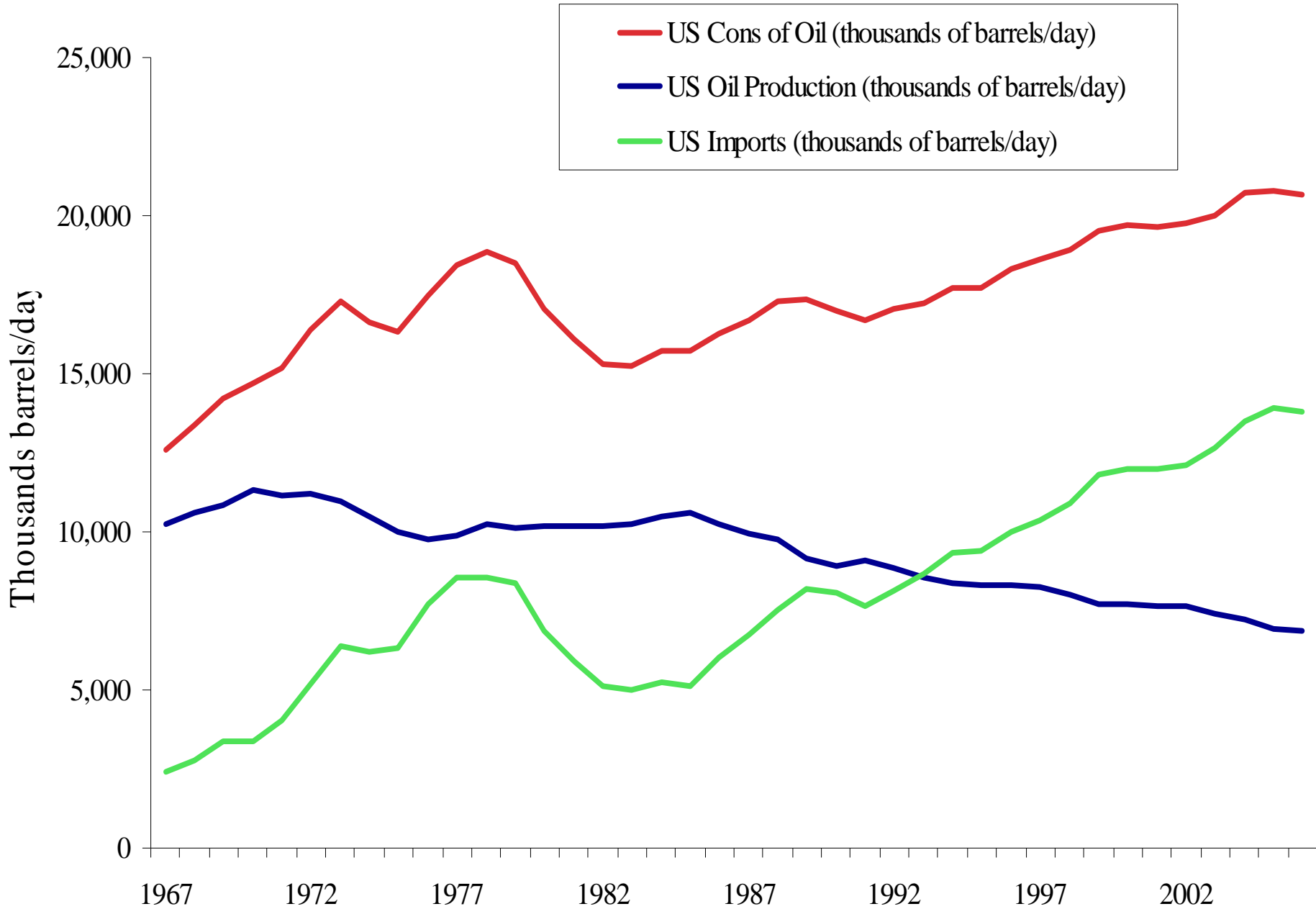


■ **How much oil does the U.S. consume per unit of real output?**

Oil and the real economy

- Oil imports have become an even more important share of U.S. consumption since the first calls for “energy independence” in the 1970s.
- U.S. producers are relatively high cost producers.
- We could produce more oil domestically, but at a higher cost than we could import it.

US Production, Imports and Consumption



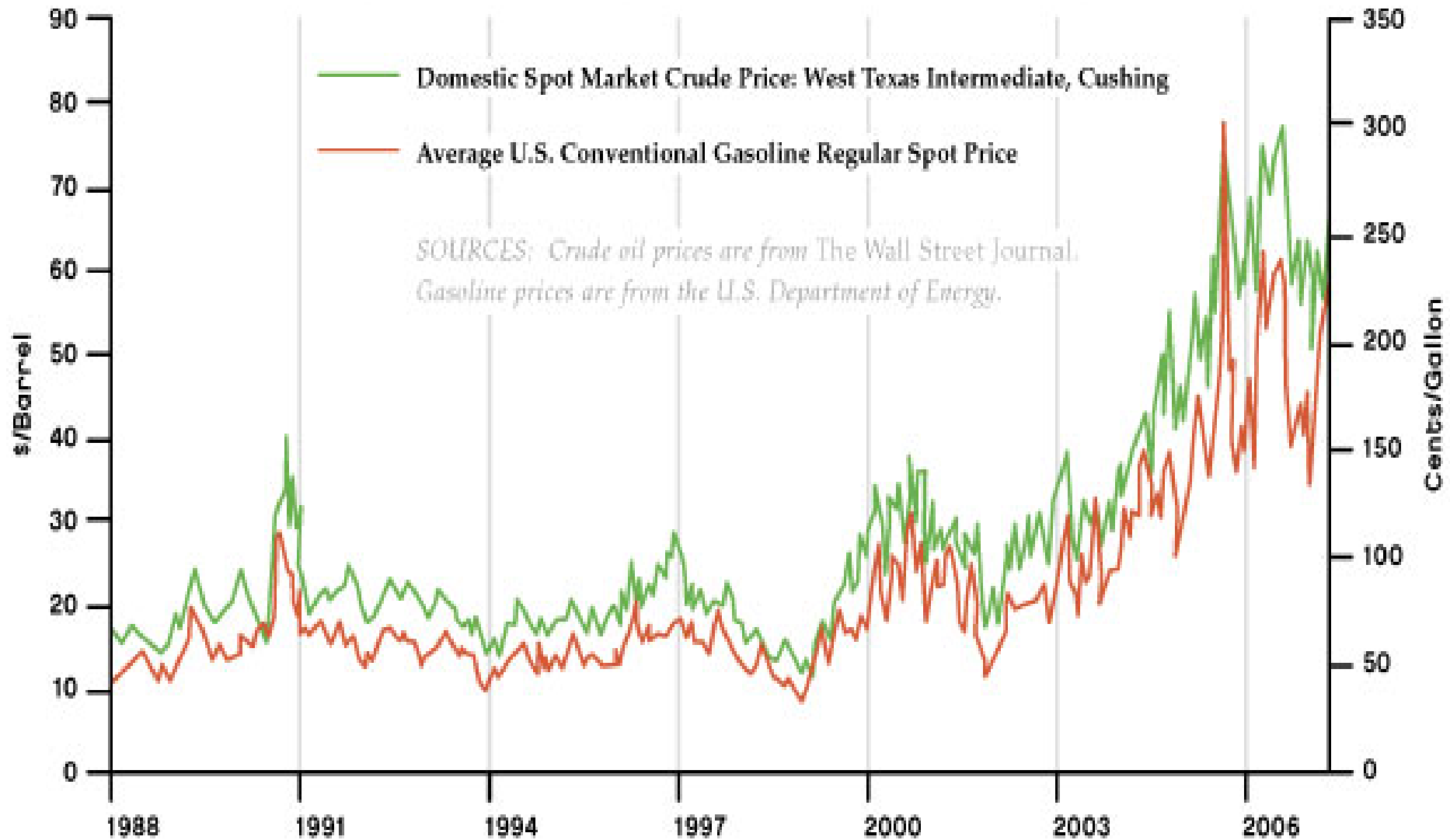
Oil and gasoline prices

- Why do gas prices change when oil prices change?
 - Crude oil is a major (and volatile) component of gasoline prices.

<http://stlouisfed.org/publications/re/2007/c/pages/gas-prices.html>

- If oil prices rise, the cost of producing gasoline rises and so does its price.

Oil and gasoline prices move together



Oil and gasoline prices

■ Why do expectations change gas prices?

(The oil in the tanks has been already purchased.)

– Oil is a storable commodity: Spot and futures prices are linked.

■ Higher expected prices cause sellers to sell less today and store more for tomorrow.

■ This is good! It enables smoother consumption during disruptions.

■ <http://stlouisfed.org/publications/re/2007/c/pages/gas-prices.html>

Oil and gasoline prices

- An implication for forecasters:

Futures price contain no information about expected future spot prices that isn't in current spot prices, interest rates and storage costs.

Prices are signals

- Rising prices indicate either rising demand or falling supply (or both).
- High prices encourage more production and less consumption, preventing shortages.
- Prices are usually the best way to ration scarce goods and services.
 - Buyers are the most willing (and able) to pay.
- Redistribution of initial wealth can achieve “fairness” goals within a price system.

Lessons for global warming

- Let's stipulate—without debating—the following:
 - Climate change is happening.
 - Human CO₂ emissions are substantially responsible.
 - The increase in temperature/ CO₂ is a bad thing, on balance.
 - Reducing CO₂ emissions is desirable.

Lessons for global warming

- Conventional price theory would support taxes on CO₂ production/emission.
- Taxes should be introduced gradually.
- We can use the CO₂ tax revenue to reduce other taxes that distort behavior, like income taxes.
- A tax will discourage consumption and encourage alternative sources of energy.

Lessons for global warming

- Rationing/mandates are very costly & often ineffective.
 - Lines for concert tickets are wasteful.
 - CAFÉ standards spawned the SUV industry.
- CO₂ cap-and-trade systems amount to gifts to the polluters.
 - One could auction off permits to create CO₂. That would produce effects similar to a tax.

The End