



BAUER

COLLEGE OF BUSINESS

UNIVERSITY of HOUSTON

INSTITUTE FOR
REGIONAL FORECASTING

www.bauer.uh.edu/irf

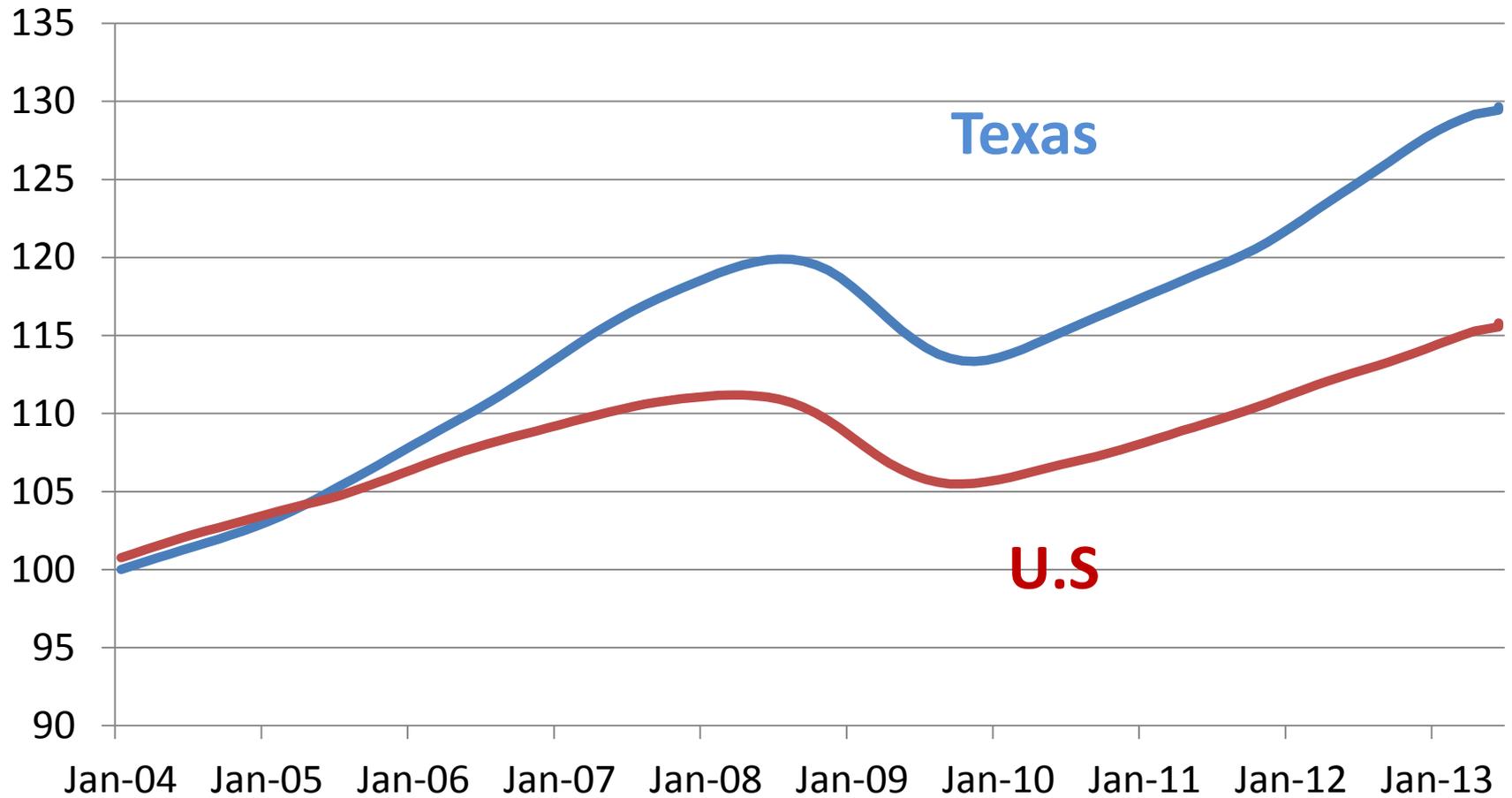


Houston Job Growth Takes a Mid-Year Breather

Robert W. Gilmer
Institute for Regional Forecasting
C.T. Bauer College of Business
University of Houston

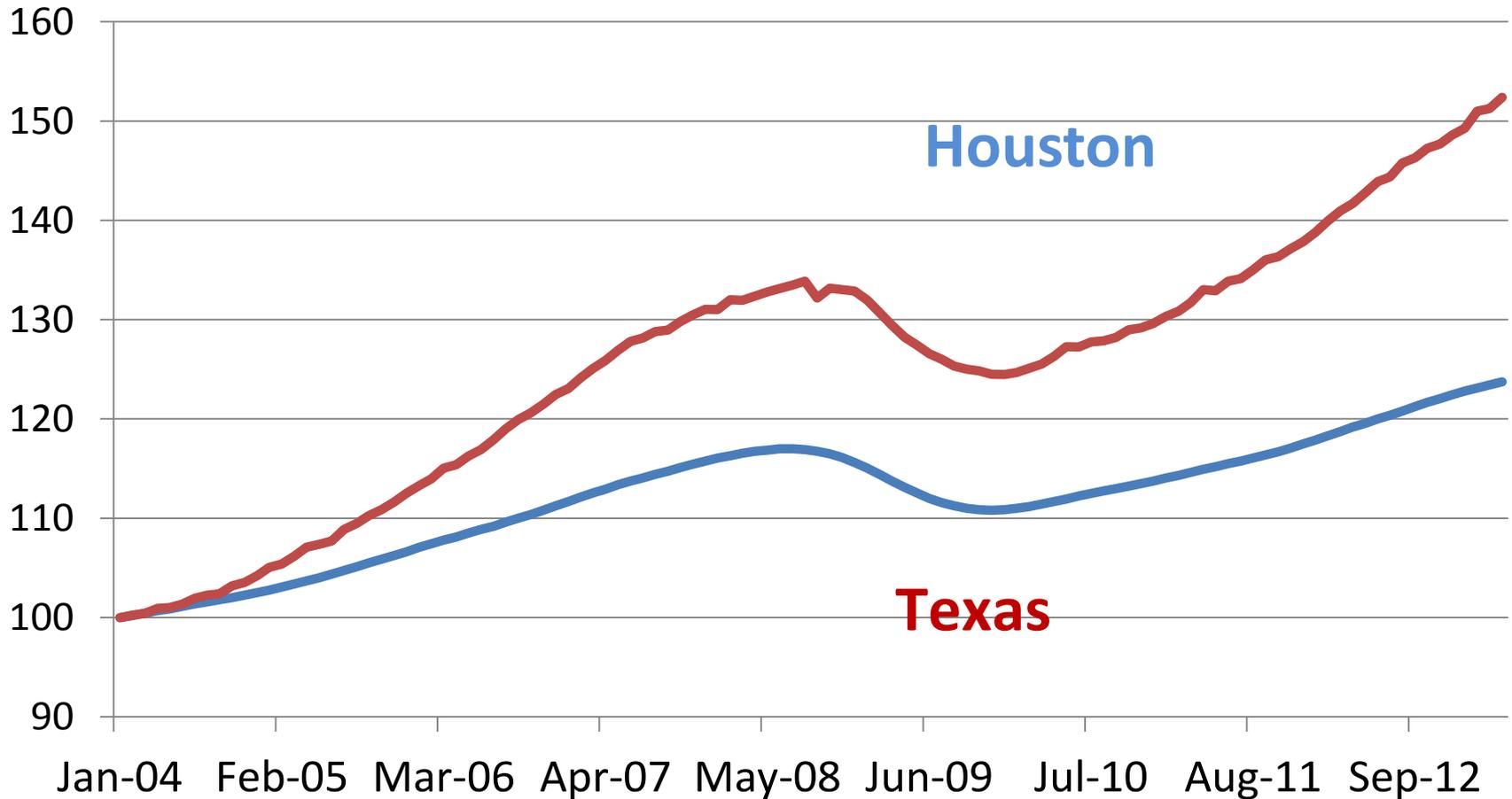


Since the financial crisis the Texas economy has pulled away from the U.S.

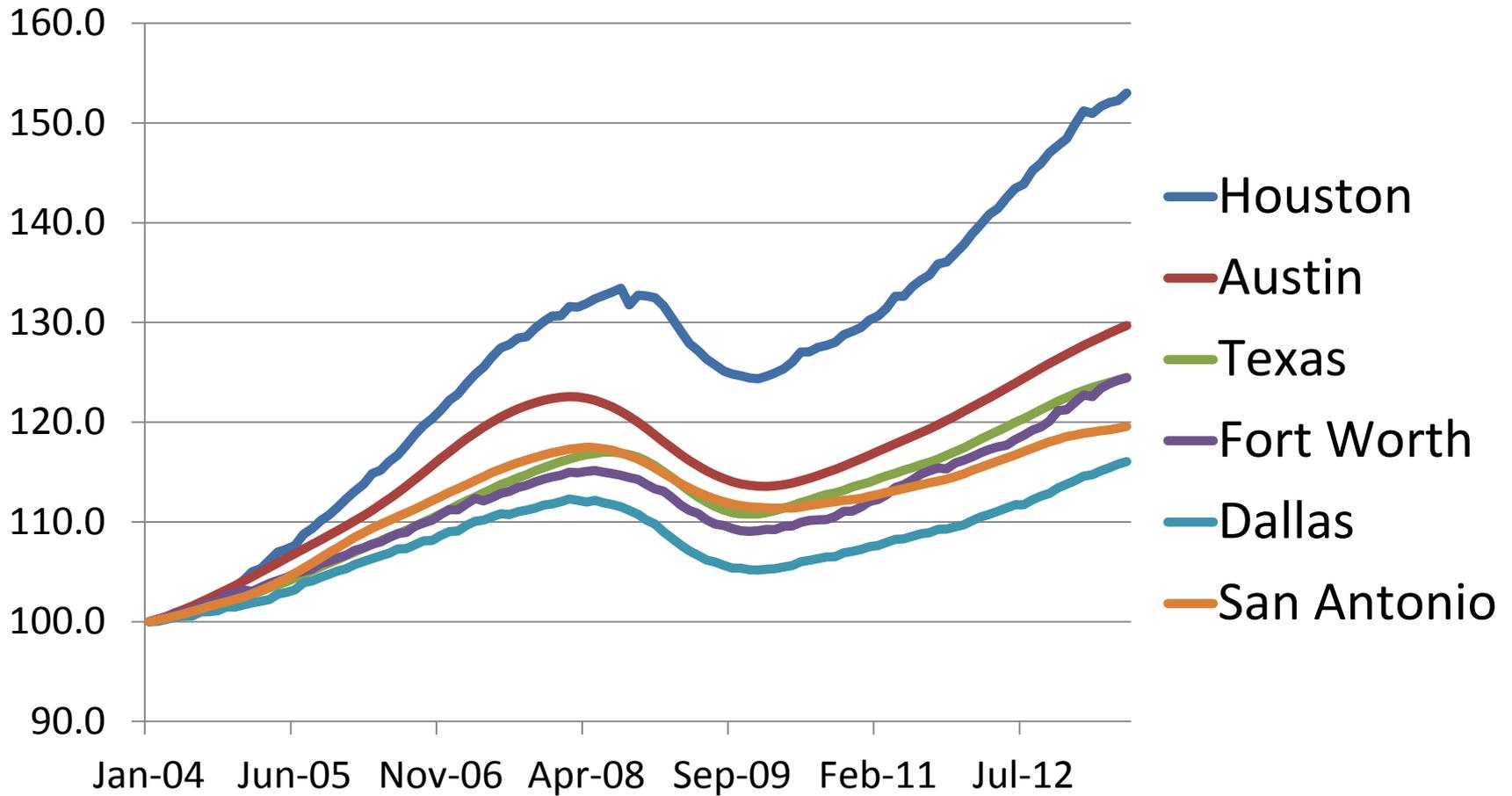


Federal Reserve Bank of Philadelphia

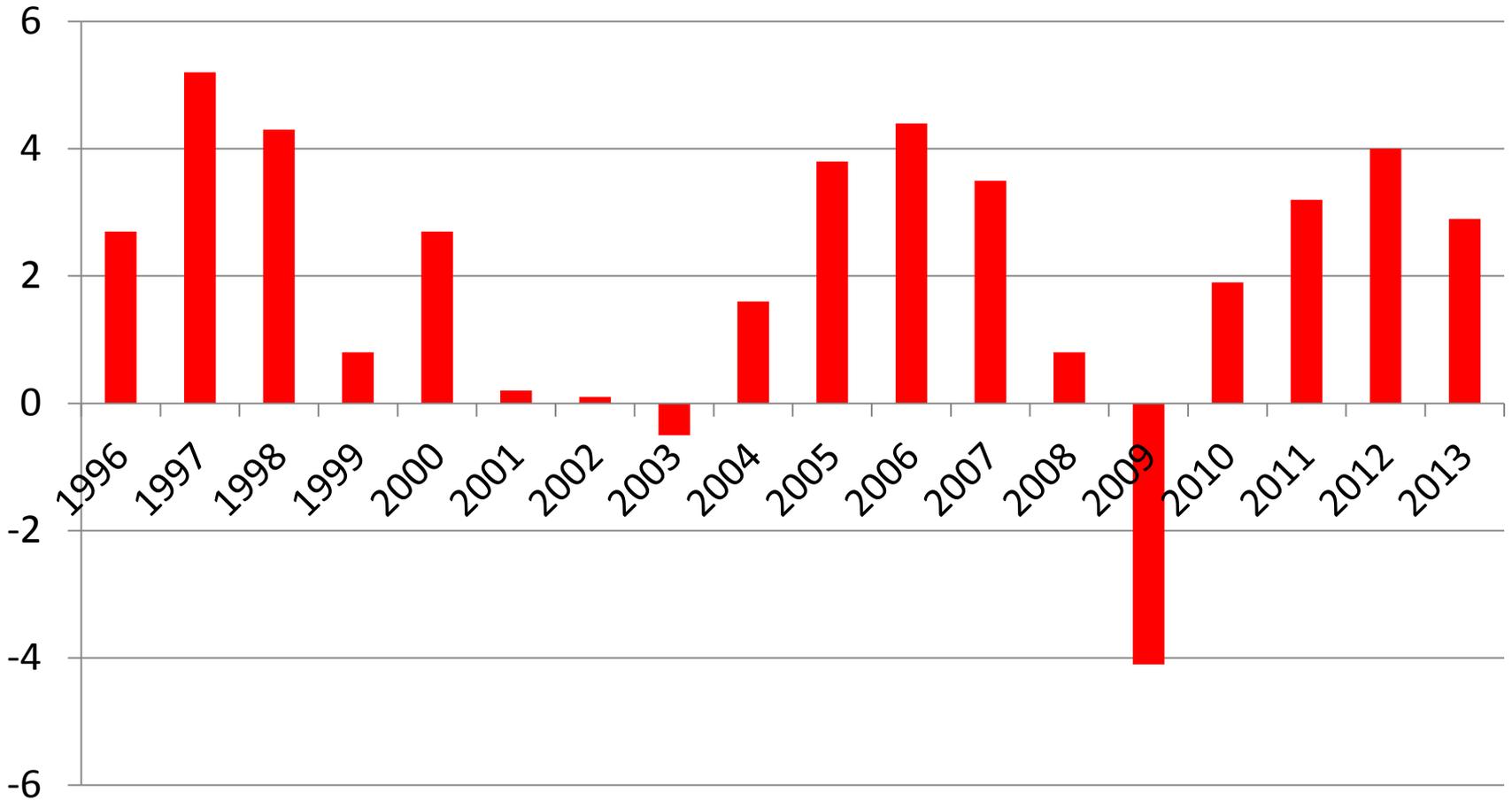
... and Houston has pulled away from Texas



Houston is by far the fastest growing major metro in Texas since 2004

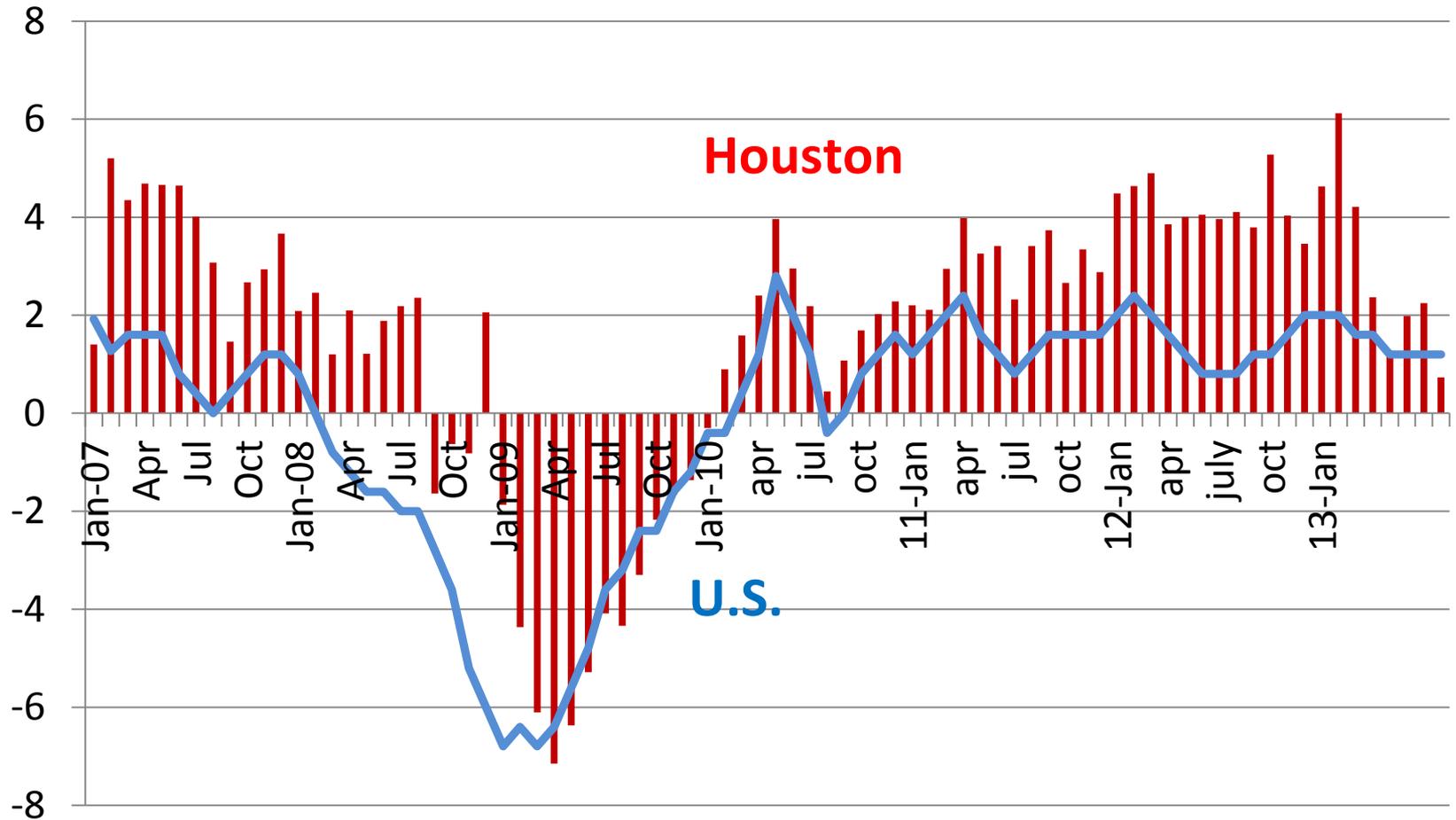


Year-to-date Houston job growth is running at 2.8 percent



Note: December to December changes, except 2013 which is annualized year-to-date

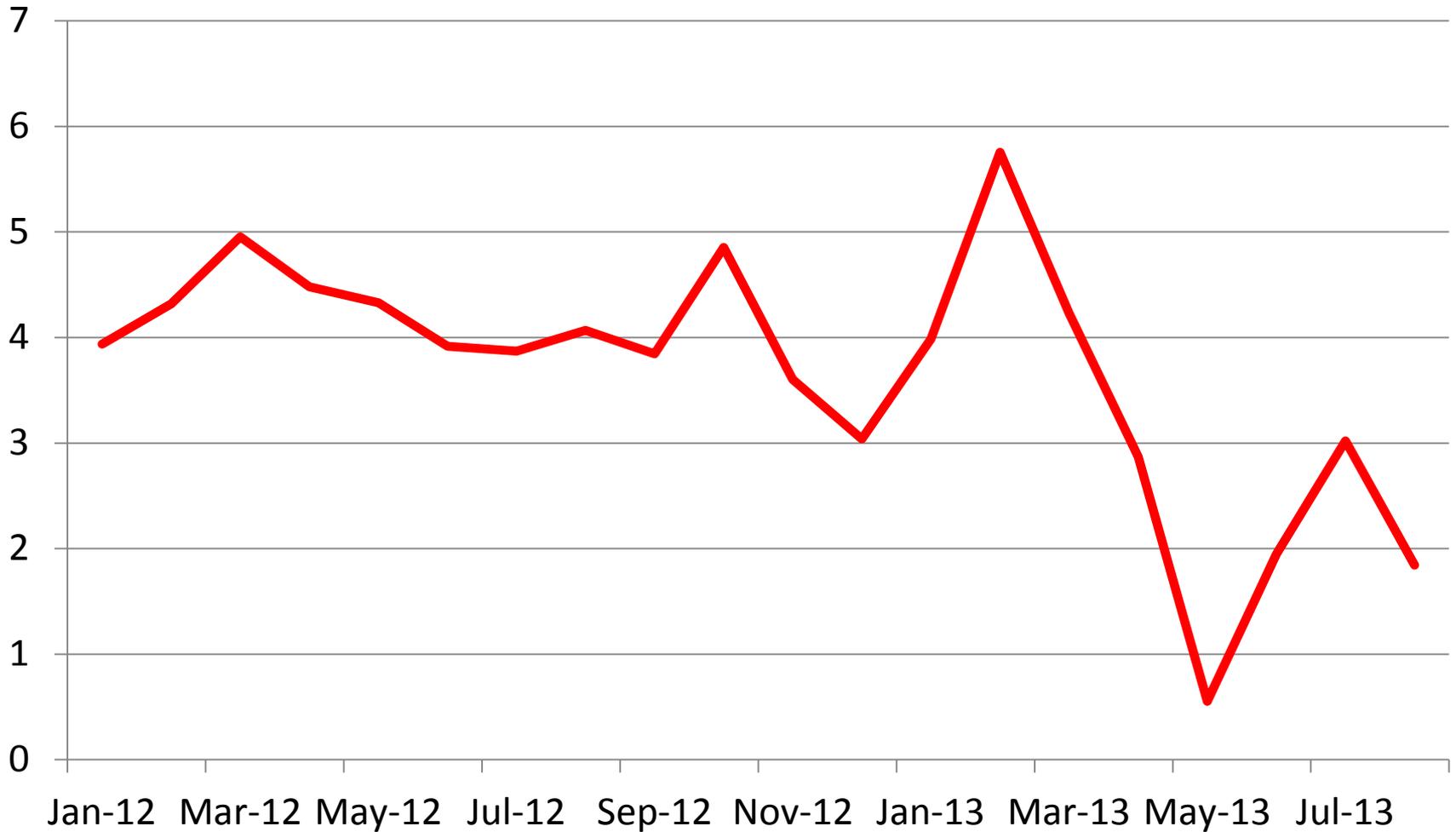
Houston employment shows strength in recovery (3-month percent change at annual rates)



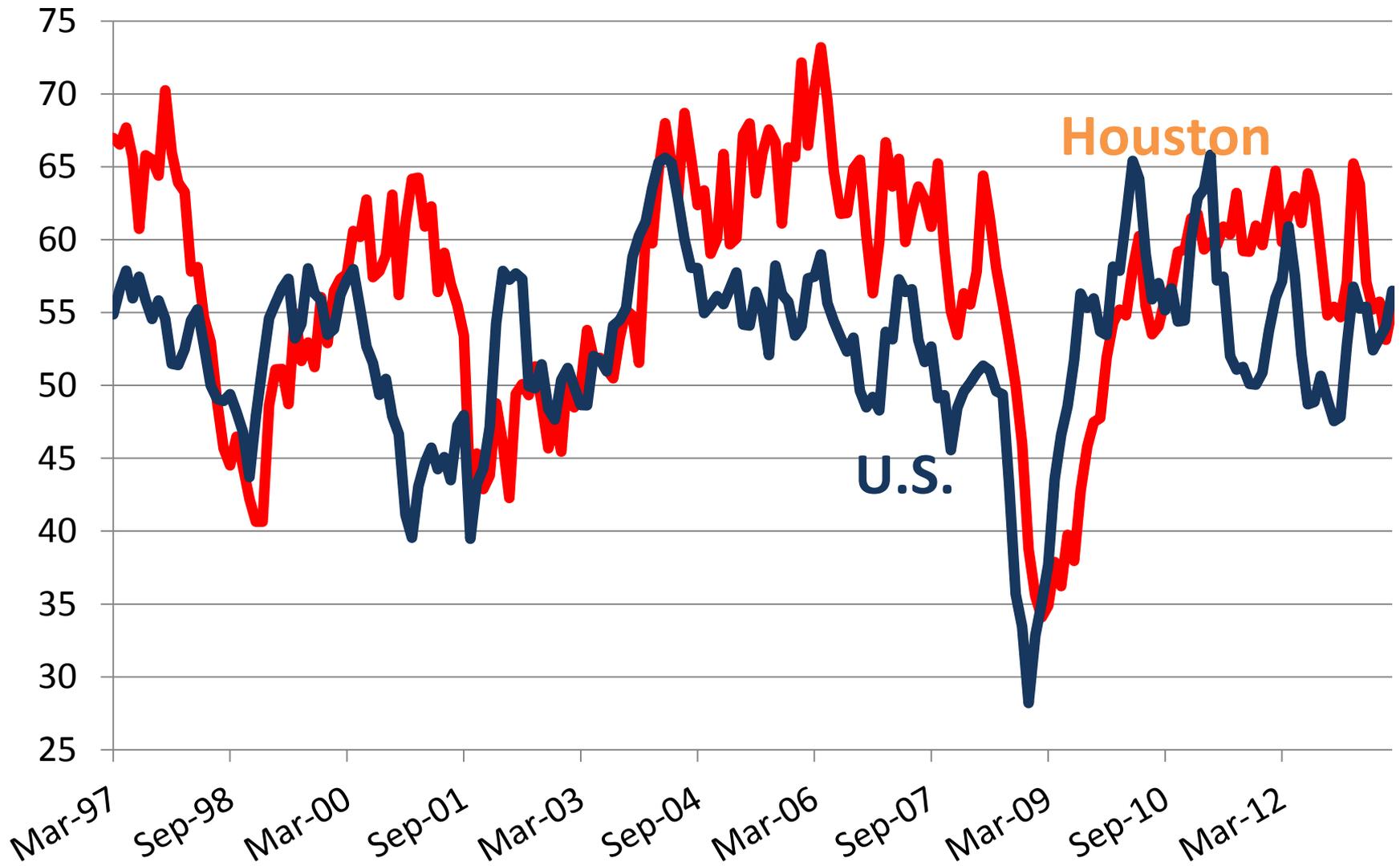
Bureau of Labor Statistics

Job growth slowed beginning mid-year

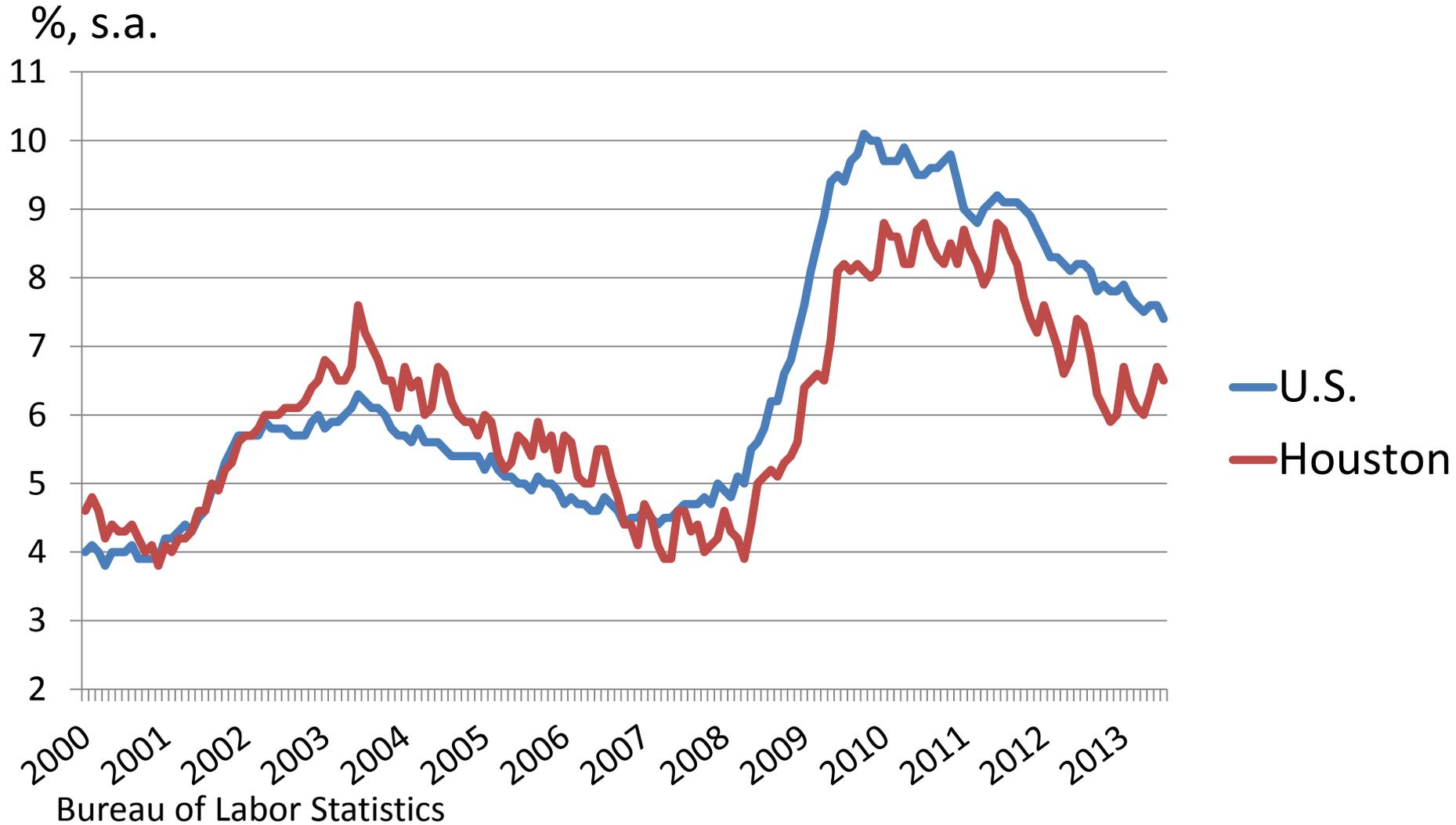
(3-mo percent change, annual rates, s.a.)



Purchasing managers' index U.S. and Houston compared (s.a.)



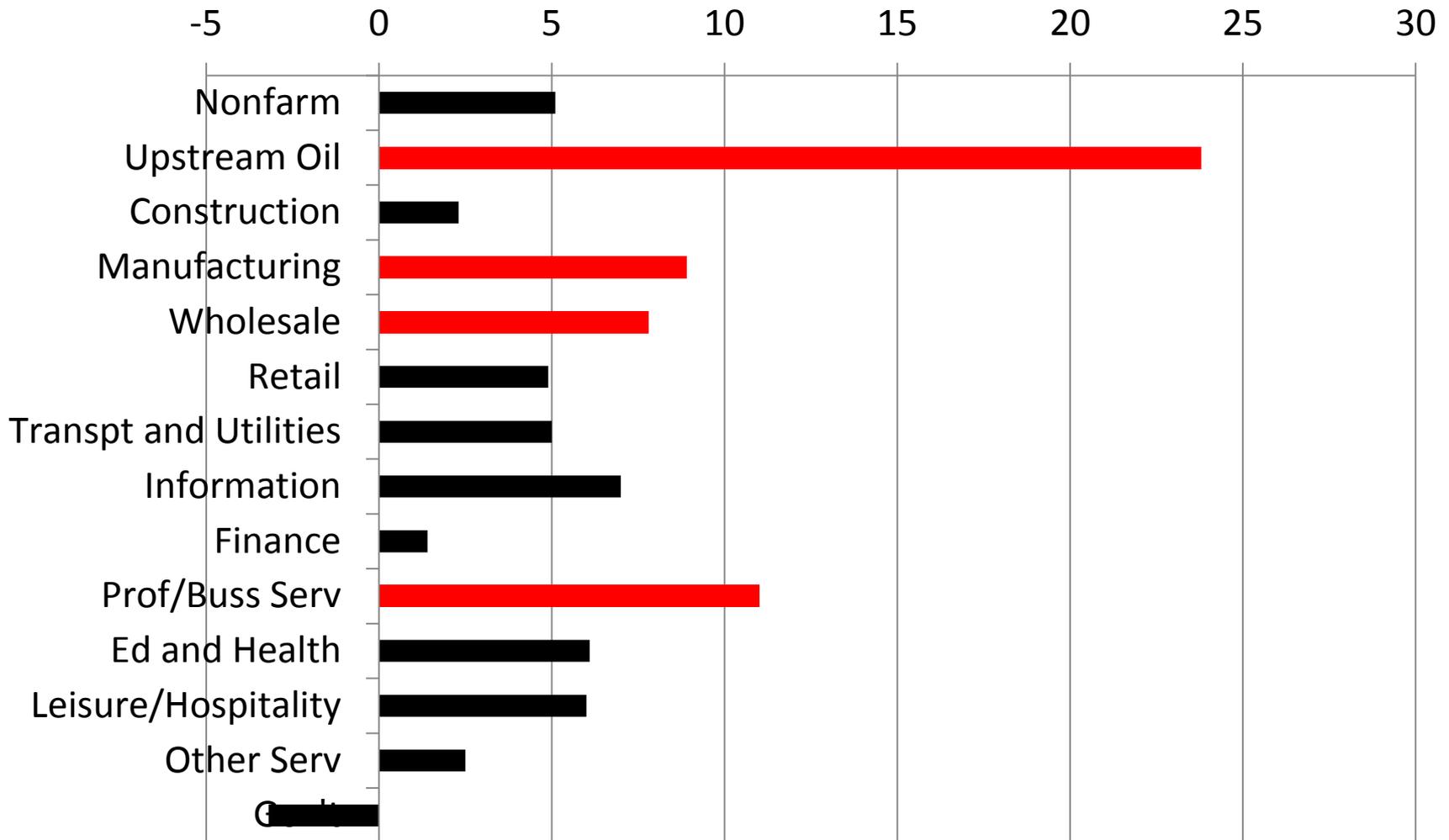
Houston unemployment rate falls on strong job growth



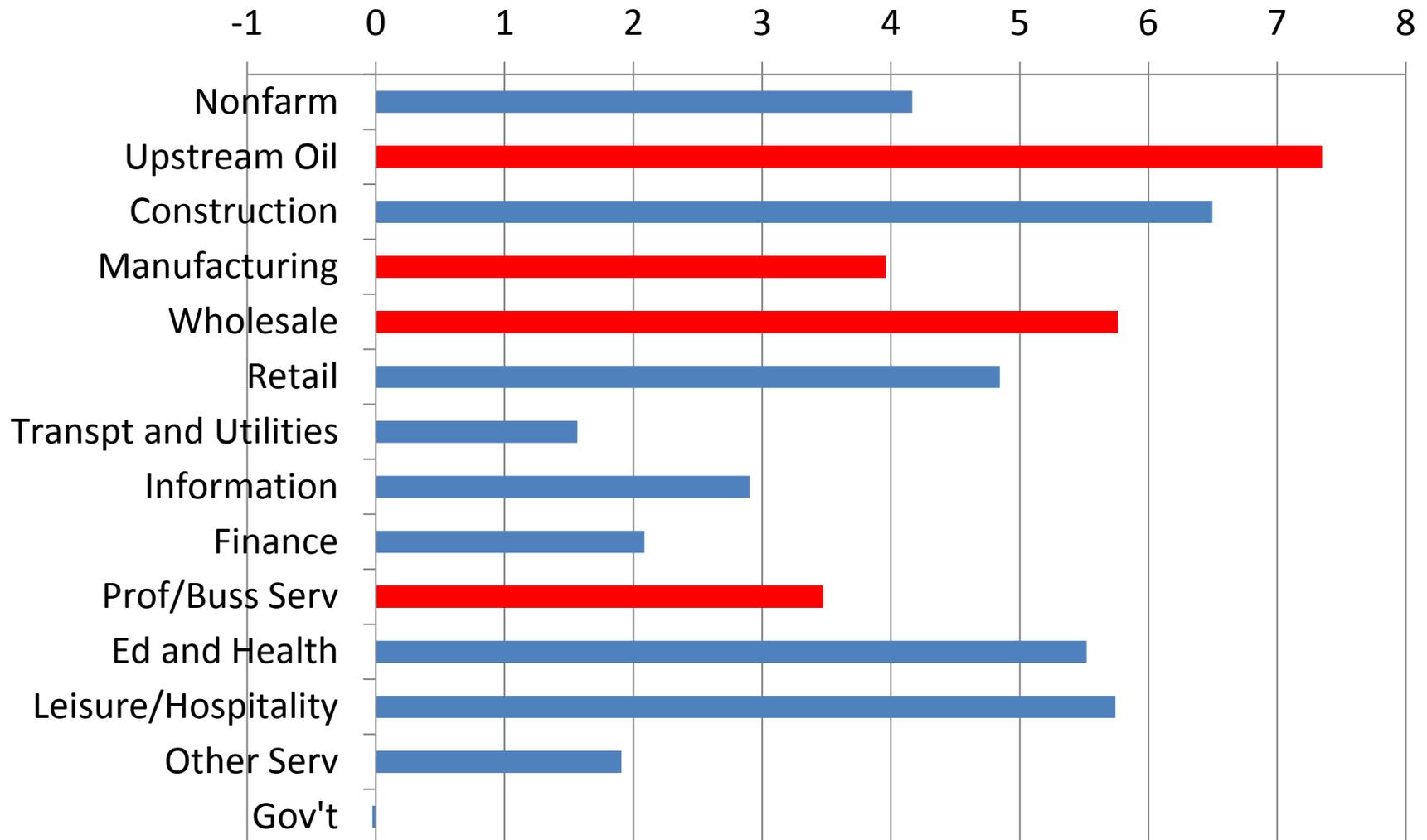
Is too much good news now driving
Houston's economy?
Basic v non-basic industries

Since 2010, Houston, growth led by mining, manufacturing, prof services

(% change Dec 2009 – Dec 2011)

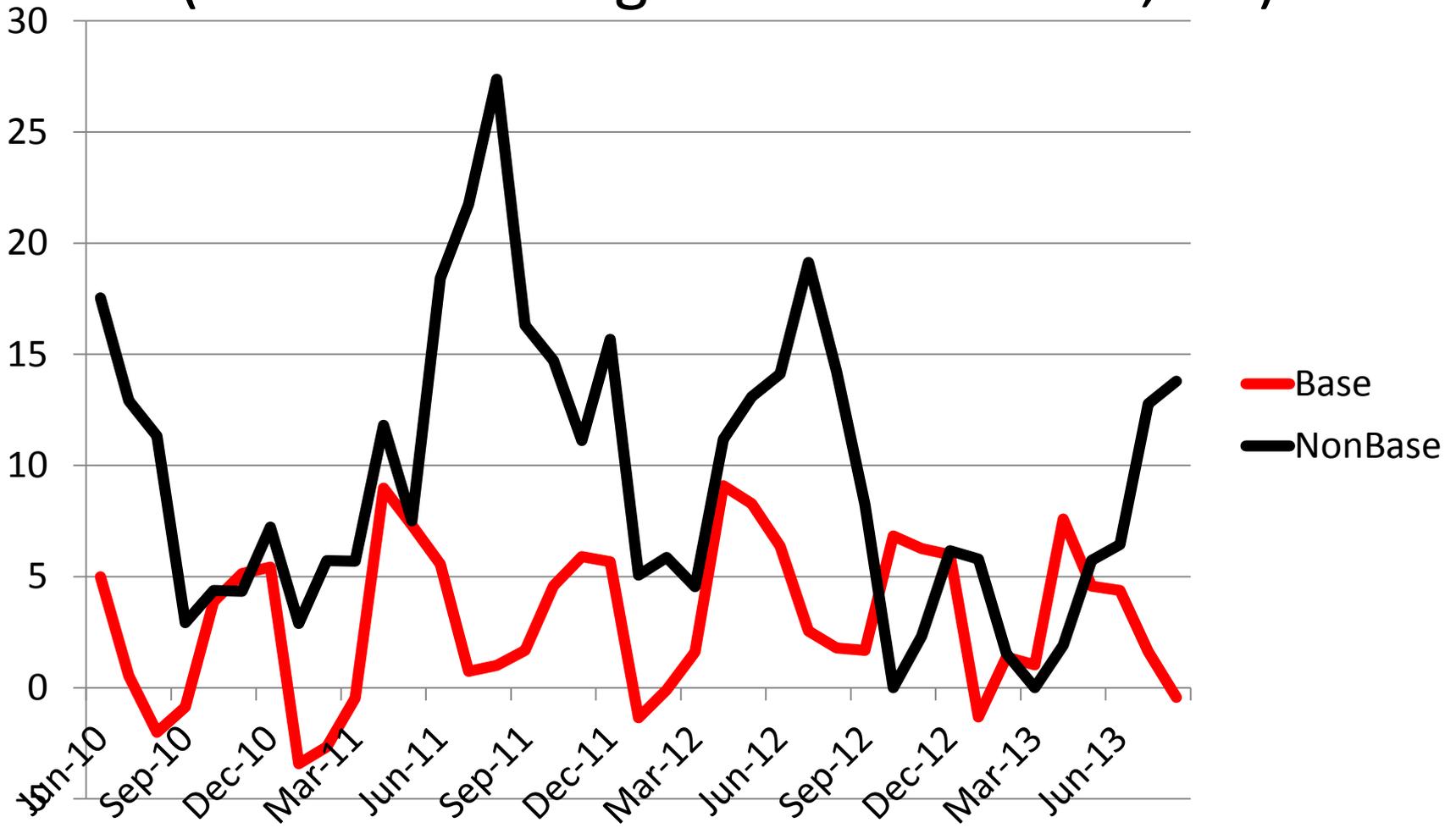


Since Dec 2011 growth is much more broadly based



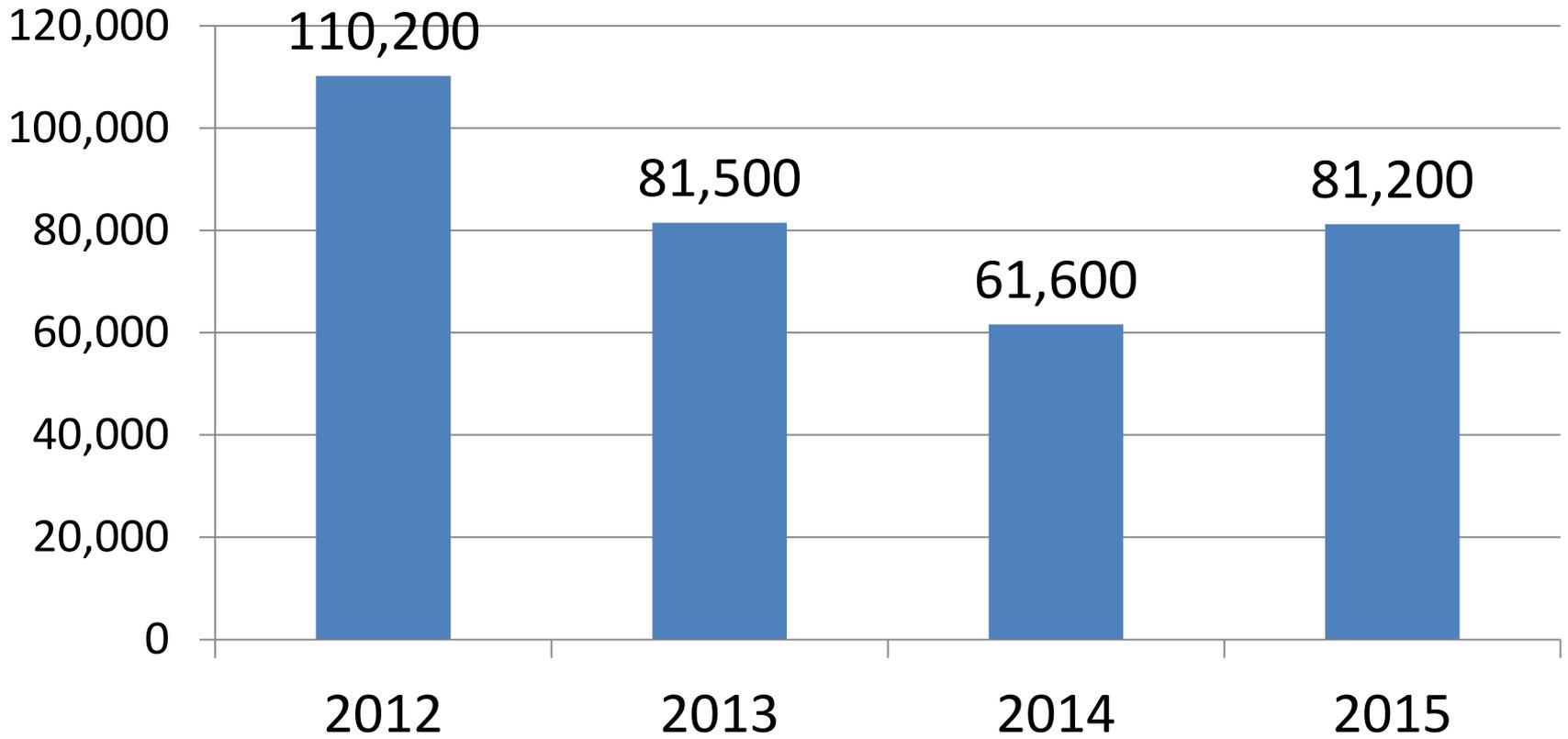
Too much good news? Economic base slows, non-basic growth accelerates

(3-month change at annual rates, s.a)



Slowdown? Yes ... but healthy growth still likely for Houston

Houston Annual Job Growth Q4/Q4





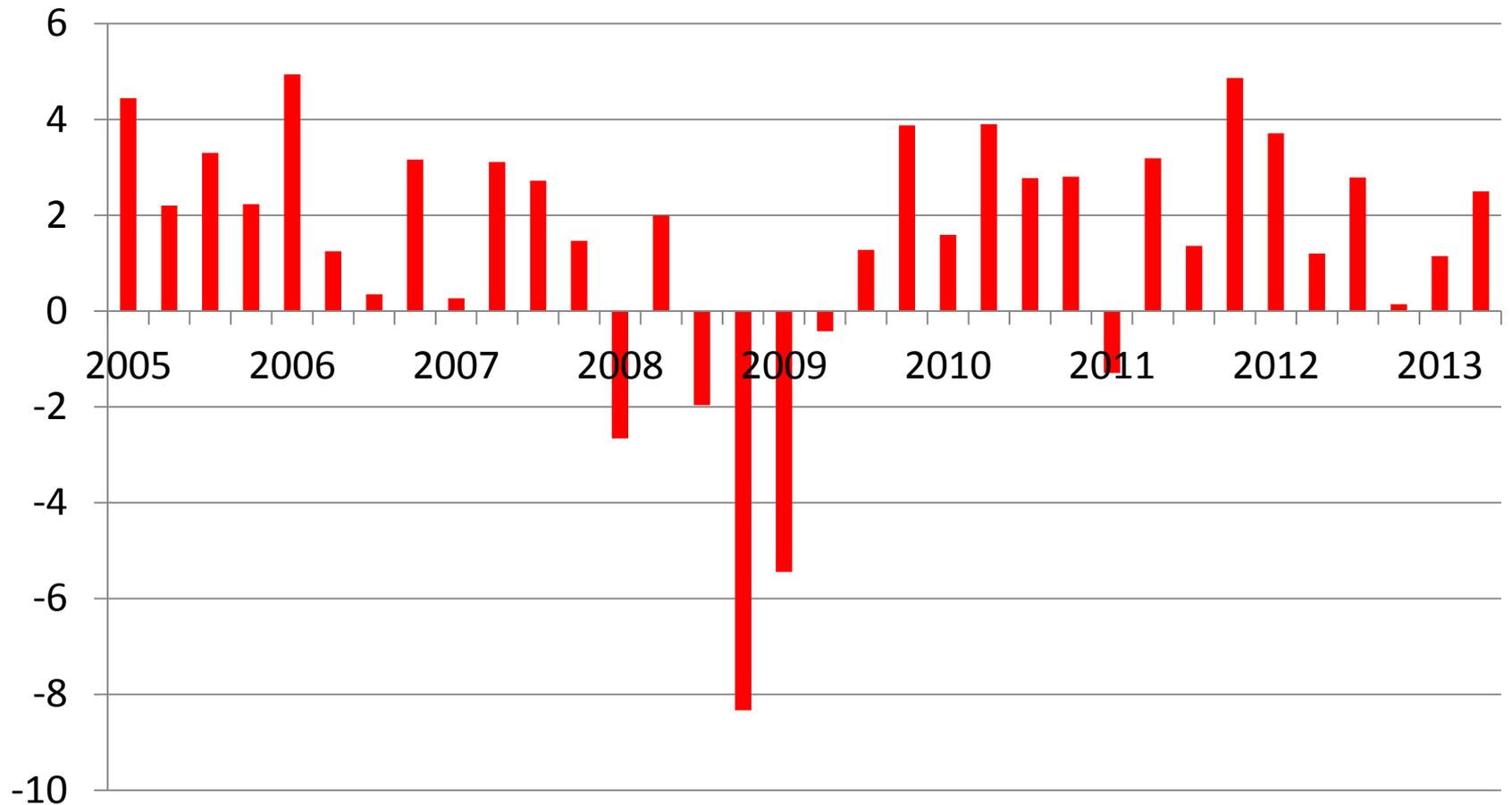
What makes Houston grow?

- U.S. economic growth
- Global growth drives local exports, keeps oil prices high
- Energy upstream and downstream



The U.S. economy has provided little support for Houston

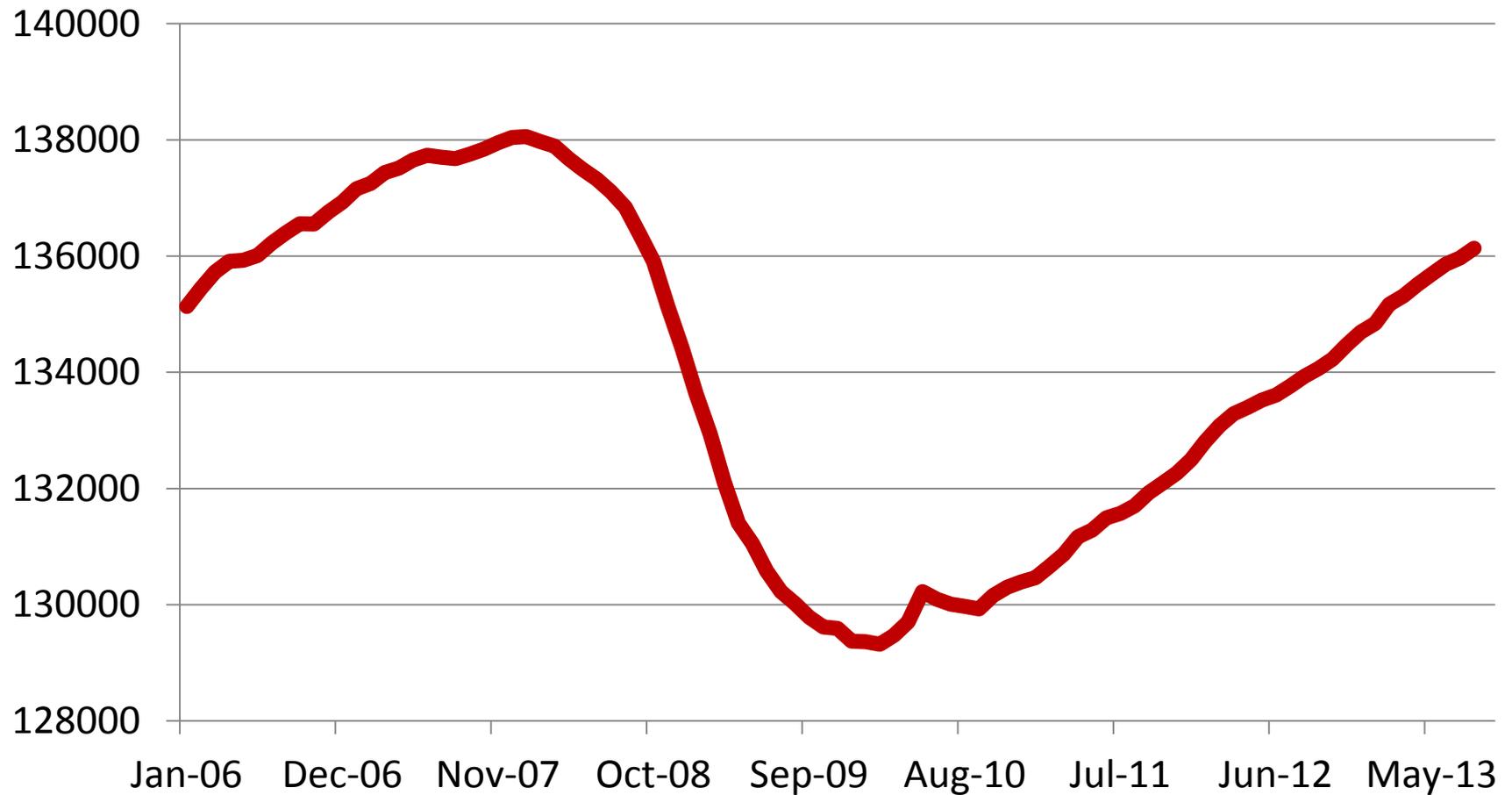
Gross domestic product (%-change, annual rates)





Job Market Improves Too Slowly,
Employment Growth Lags Recovery

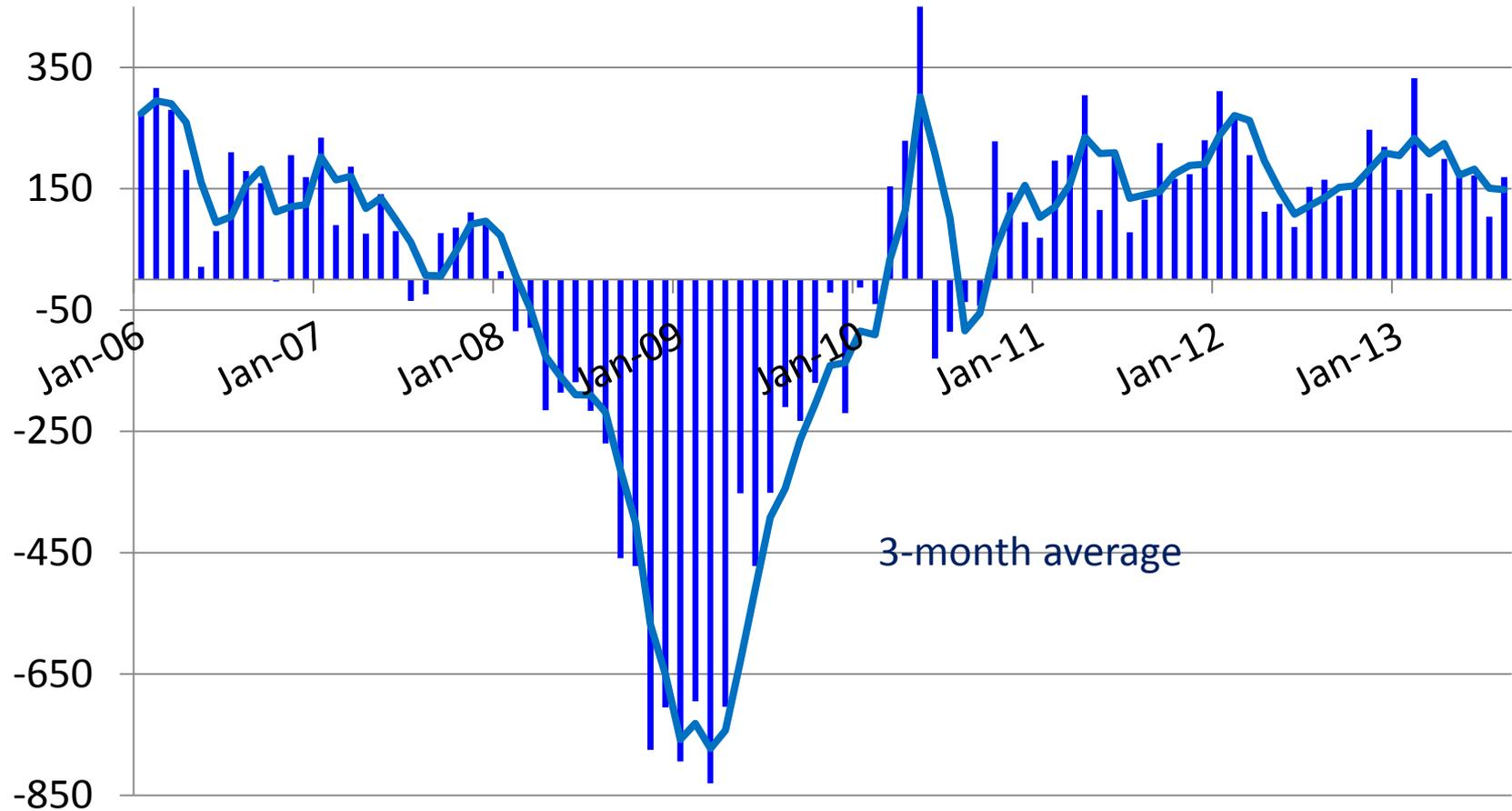
U.S. payroll jobs still 2.0 million short of prior peak in 2007





U.S. Employment Growth

In Thousands of New Jobs per Month, 1990 to 2011

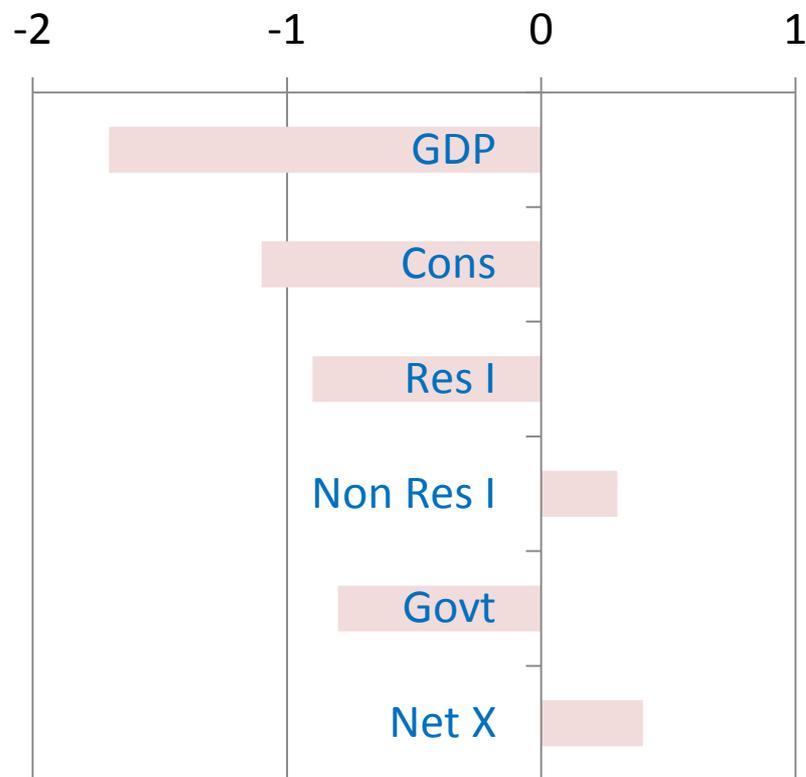


What is missing from growth at 15 quarters after the trough?

Contribution to GDP (%)

	3 Recent Recoveries	This Recovery
GDP	3.9	2.2
Cons	2.6	1.5
Res Inv	0.5	-0.4
Fixed Inv	0.9	1.2
Net Exports	-0.6	-0.20
Gov't	0.50	-0.3

Consumption, housing, and state/local gov't all a drag (%)

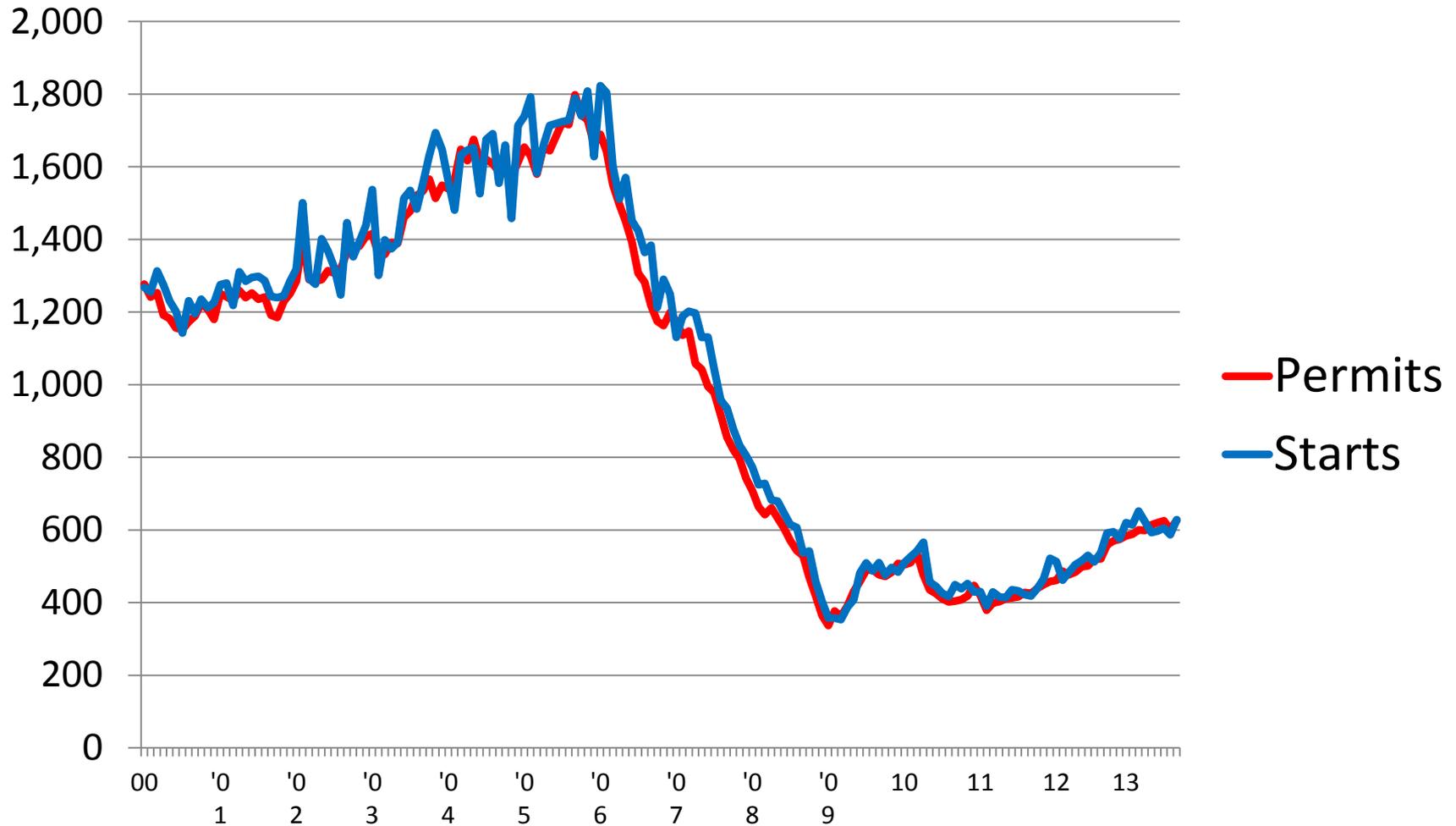




Expect improvements in 2013?

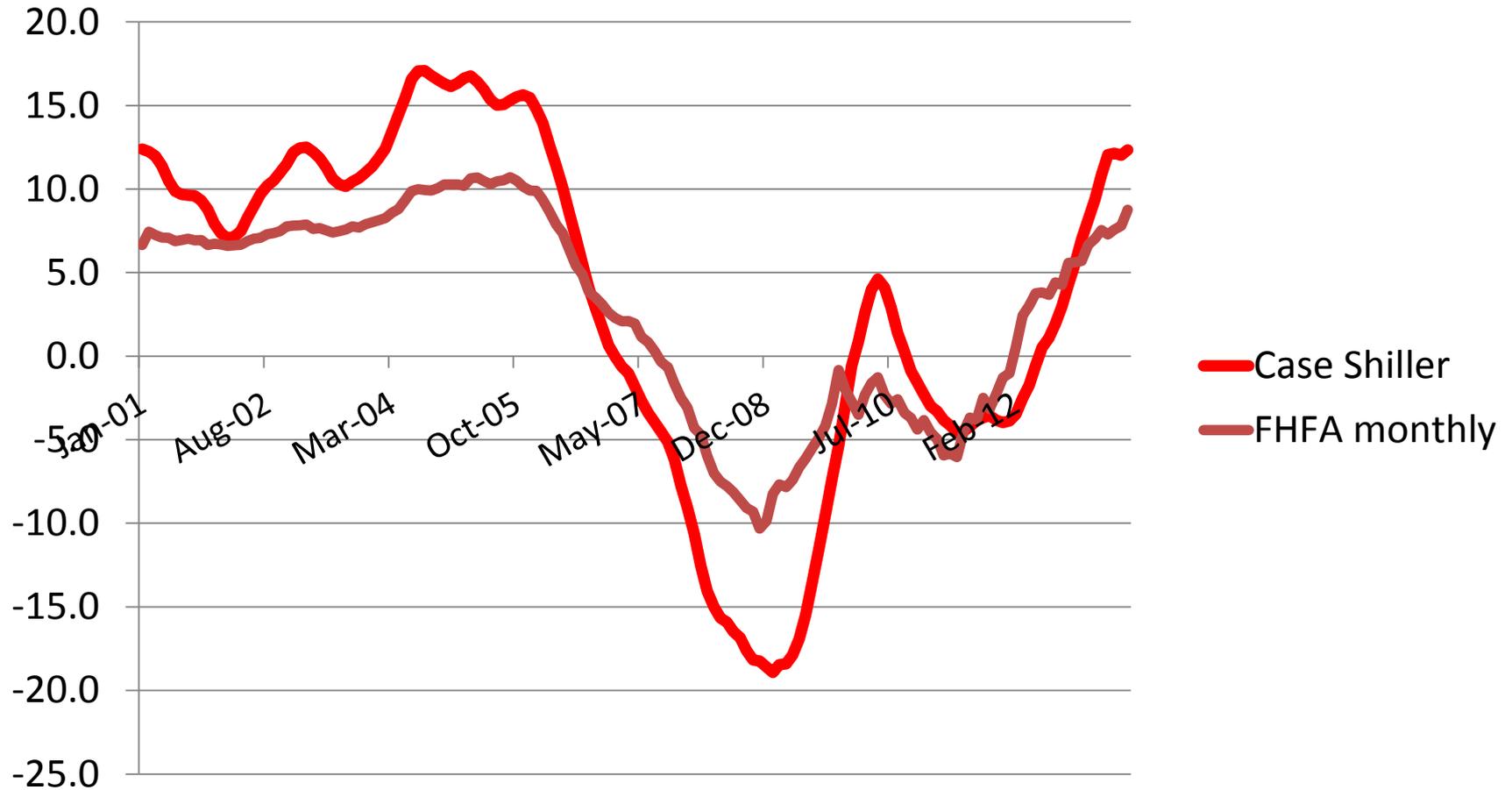
- Housing market will start to add to GDP
- State and local government revenues allow them to grow
- The consumer would have made substantial progress on deleveraging – except for \$200 billion in new taxes

Is the housing upturn finally here?



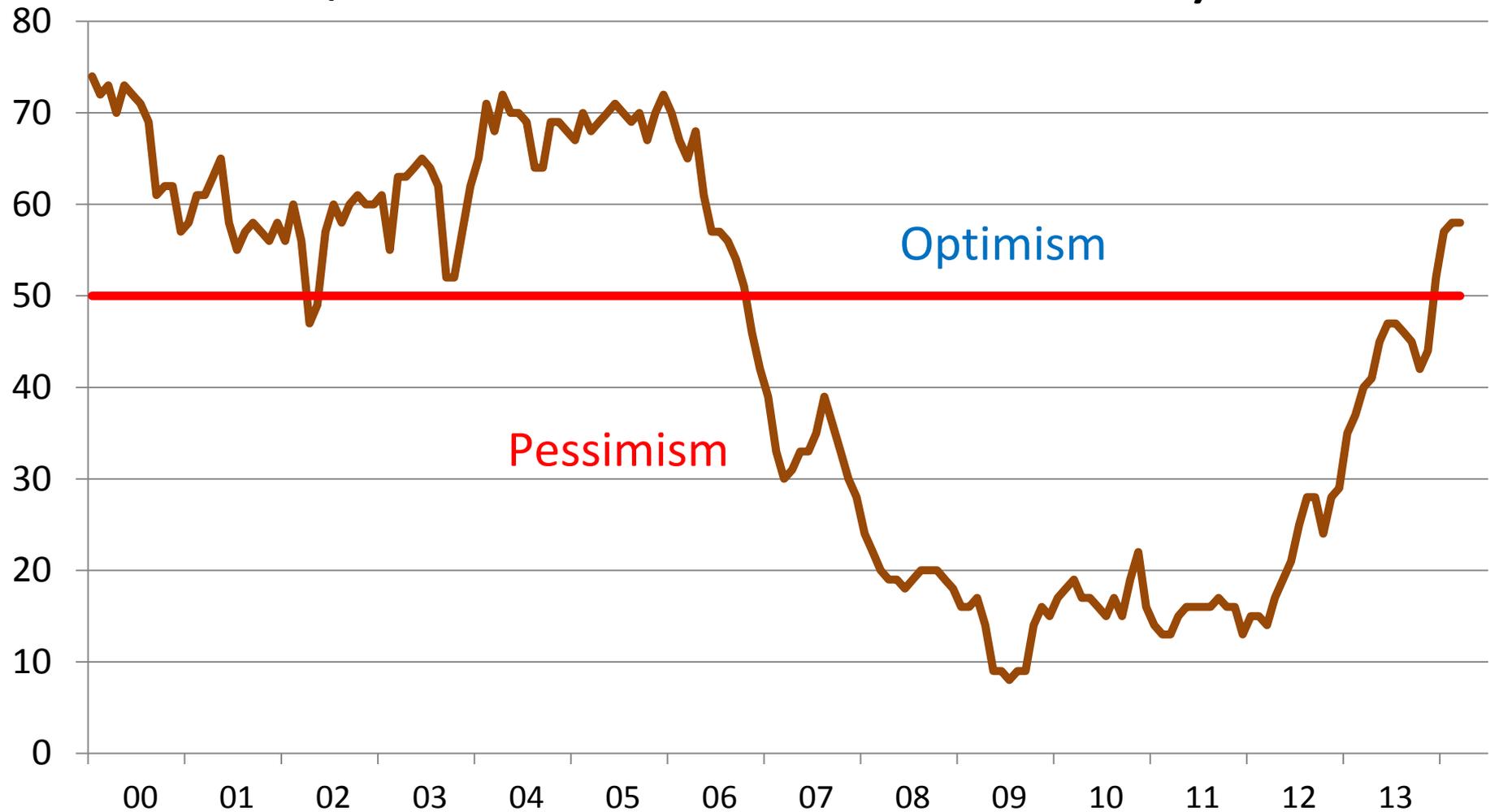
Housing prices stabilized and turned up over last summer of 2012

(index: 12-mo percent change)



Pessimism quickly recedes in new home market

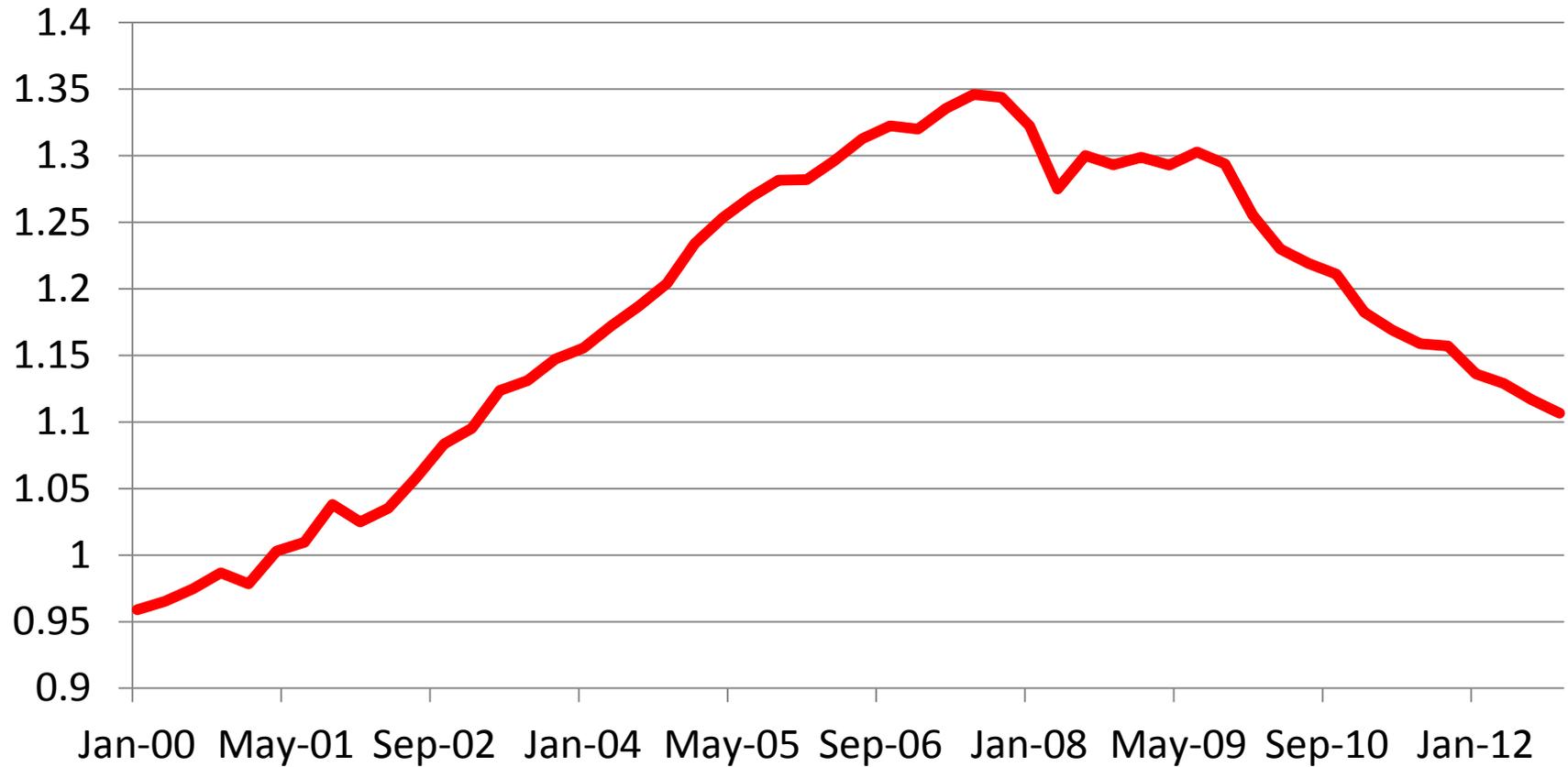
(NAHB homebuilder sentiment)





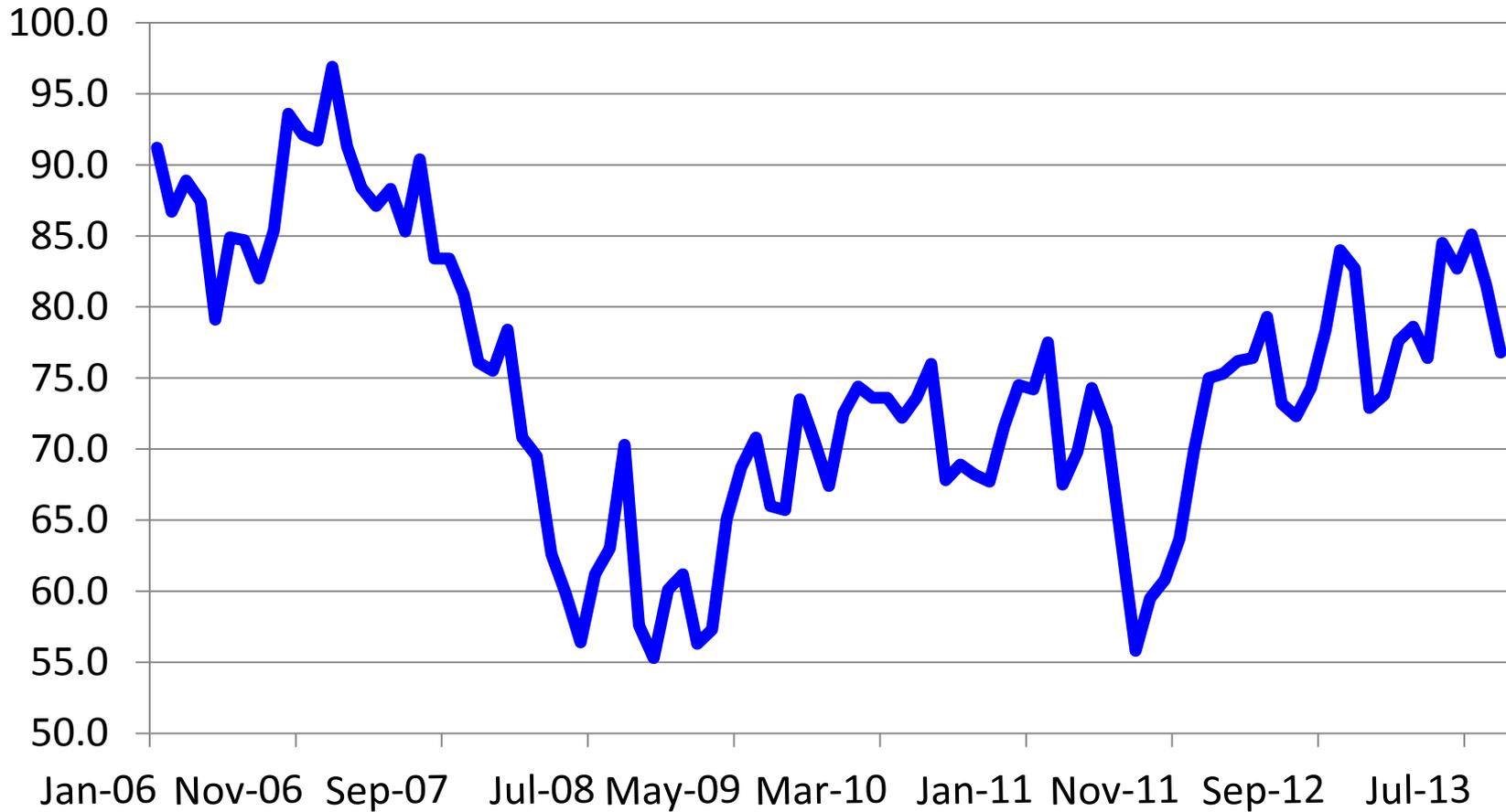
Consumer still working to deleverage after housing debt build-up

(Ratio of debt to disposable personal income)

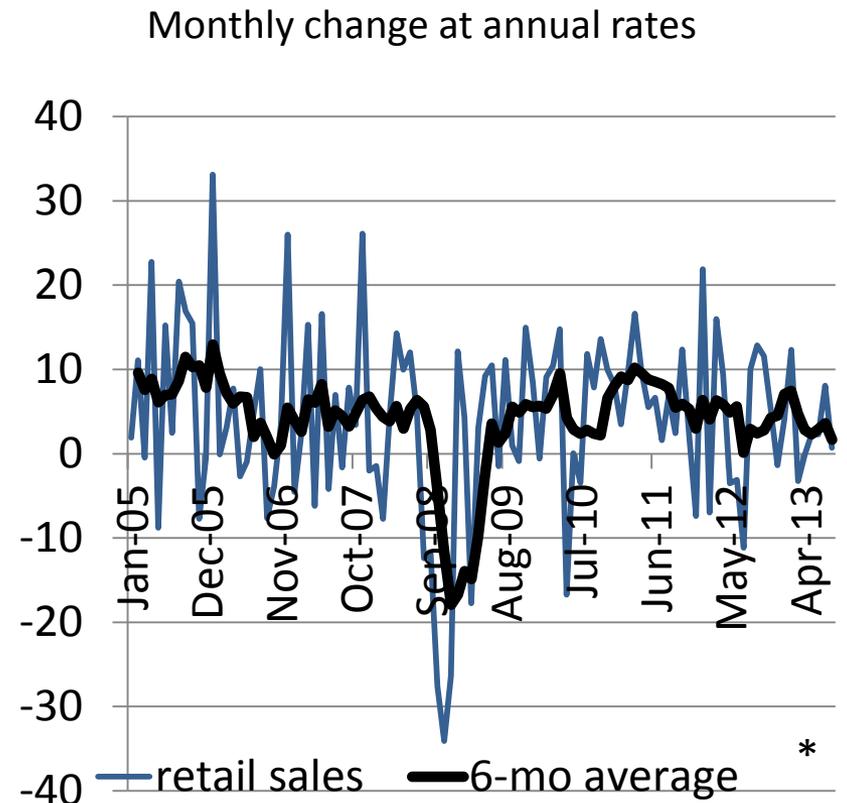
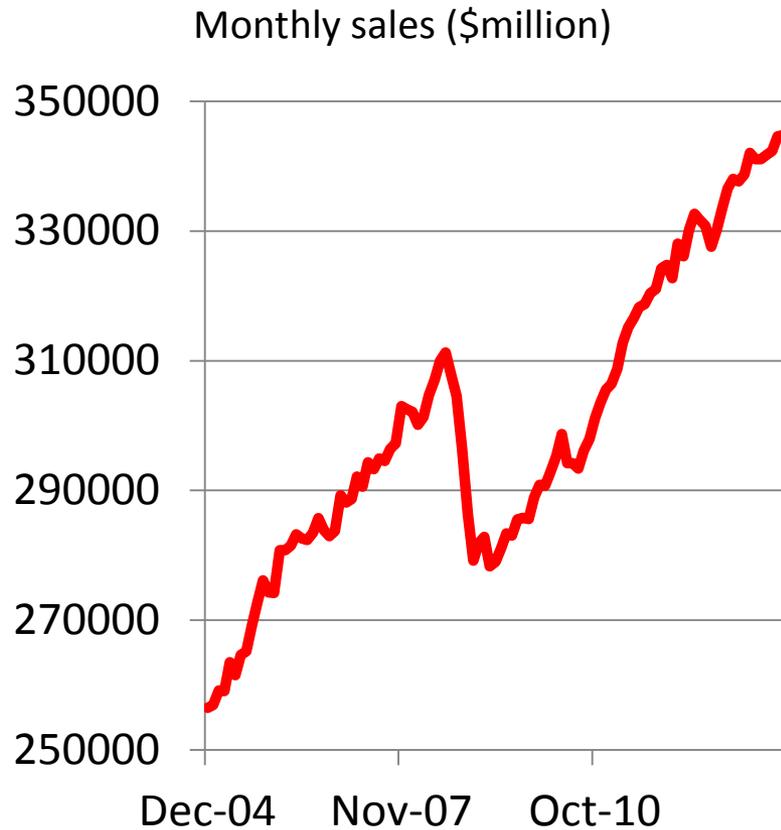


Federal Reserve Board, BEA

University of Michigan Consumer Sentiment Data

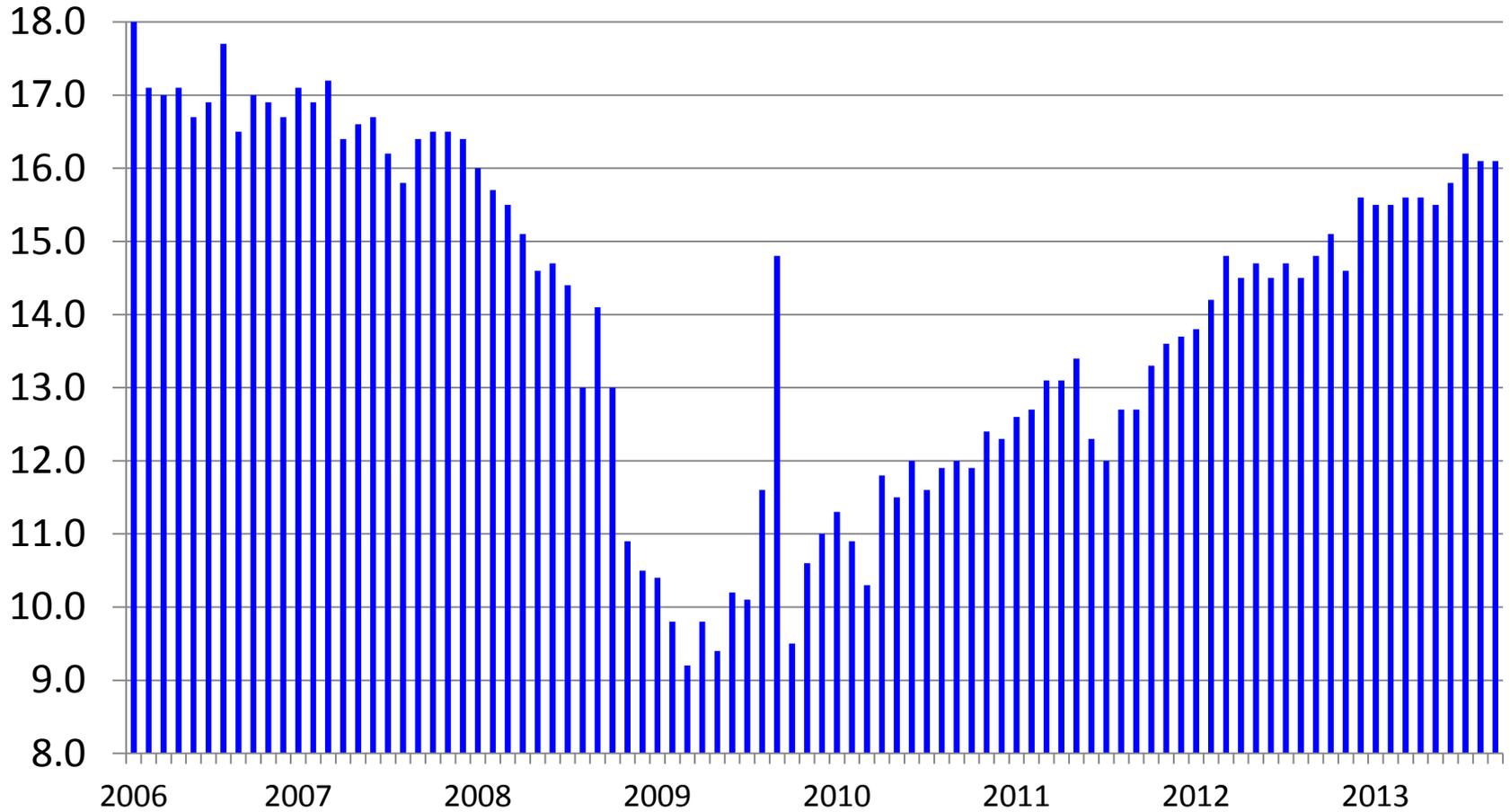


Retail sales, ex. Autos, 2005-2012



Auto Sales Still In Recovery

Million units, annual rate

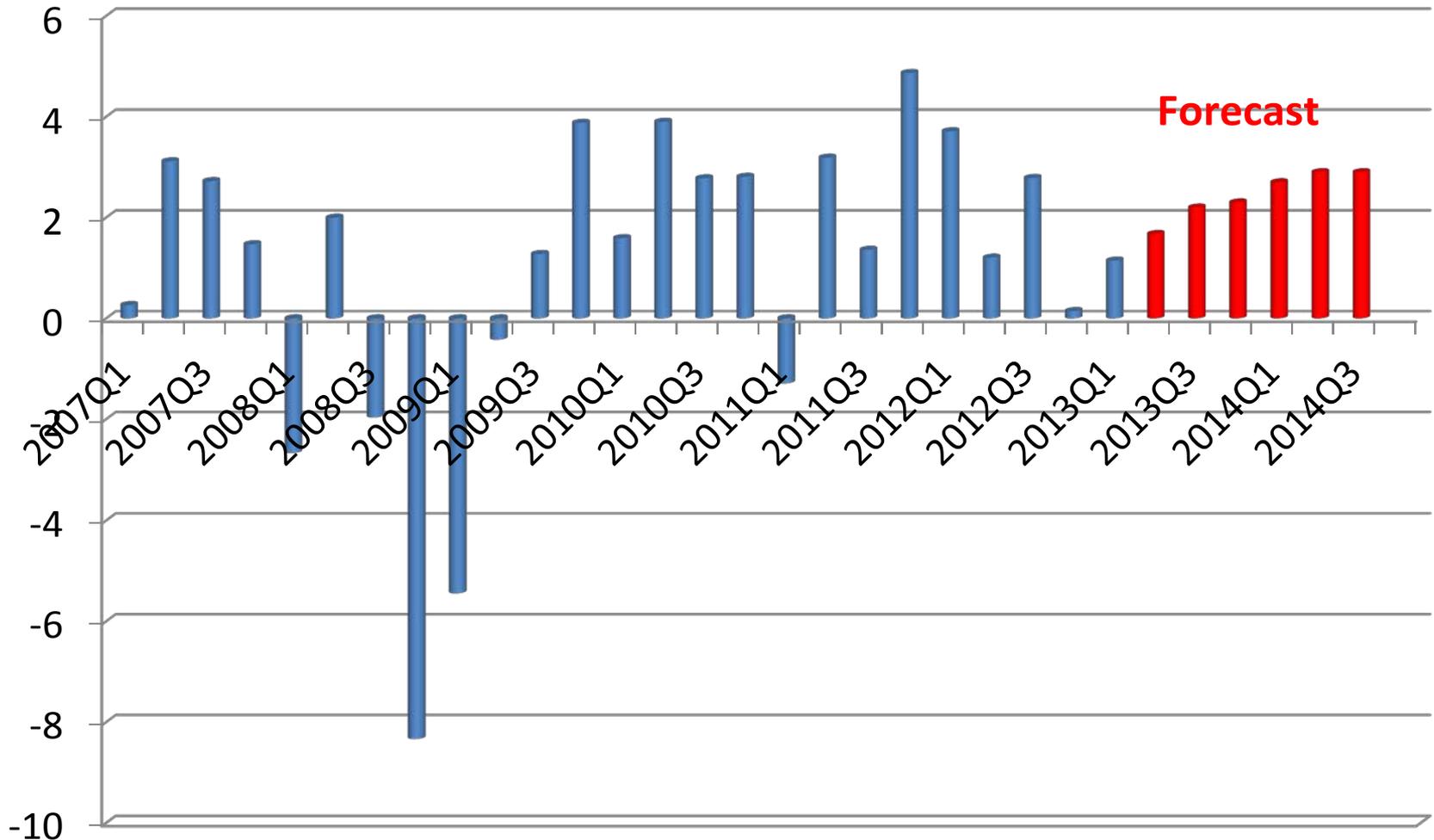


New taxes in 2013 finally catching up with the consumer

- Payroll taxes rise \$126 billion, Bush-era tax cut loss to high-income earners will be \$50 billion, and Affordable Care Act adds \$24 billion.
- Total tax increase is \$200 billion or 1.6 percent of disposable personal income.
- Expected real consumer spending to drop by one percent or more in the first half of 2013, but delayed a quarter

U.S. GDP growth muddles through at 2.0-2.5 percent in 2013

(Percent change 2007 to 2014)





Houston real estate is in trying to catch up with past economic growth

Existing homes sales in Houston are back on a strong track (monthly MLS, s.a.)



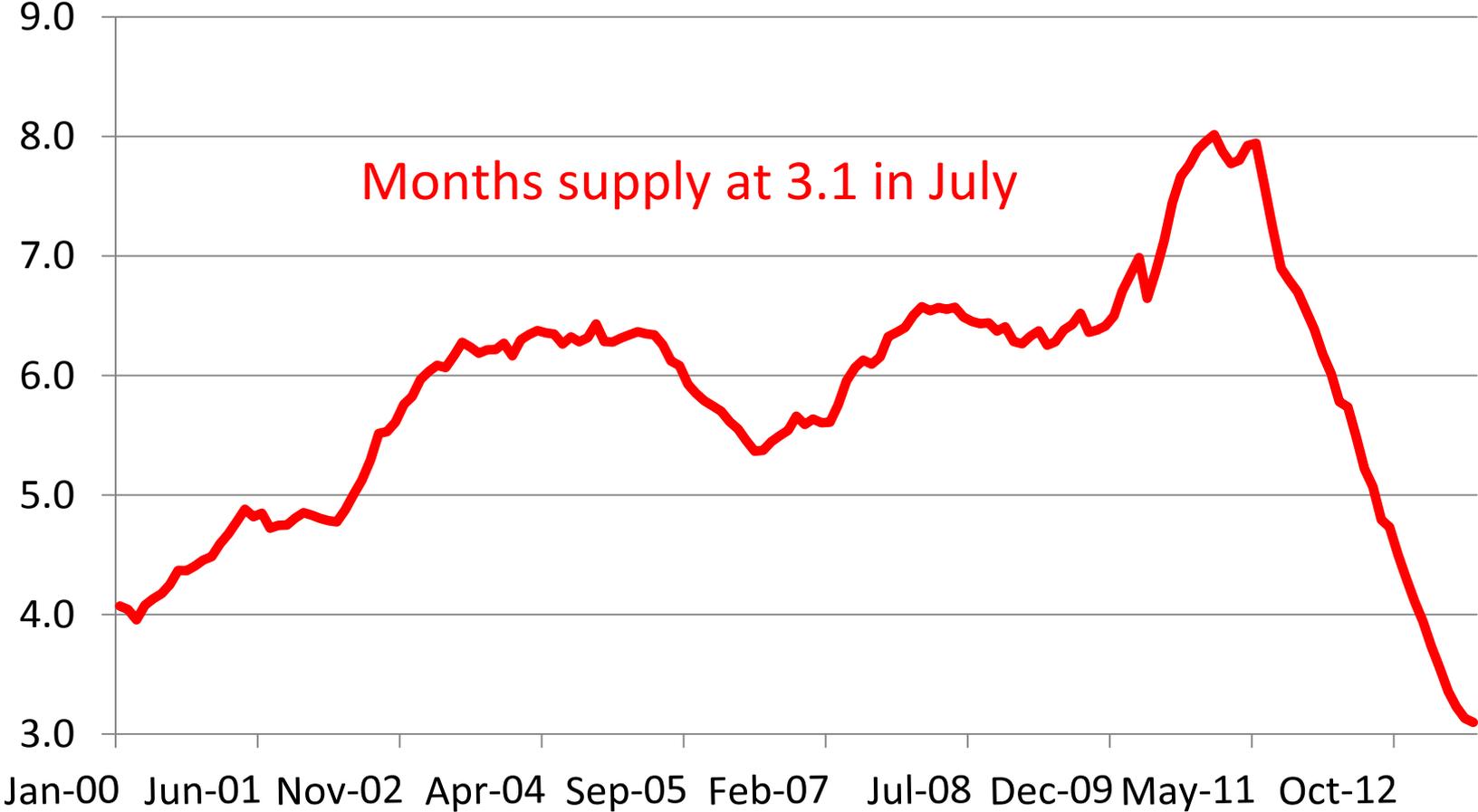
Home prices did not fall in Houston like elsewhere in U.S.

(median price, s.a.)

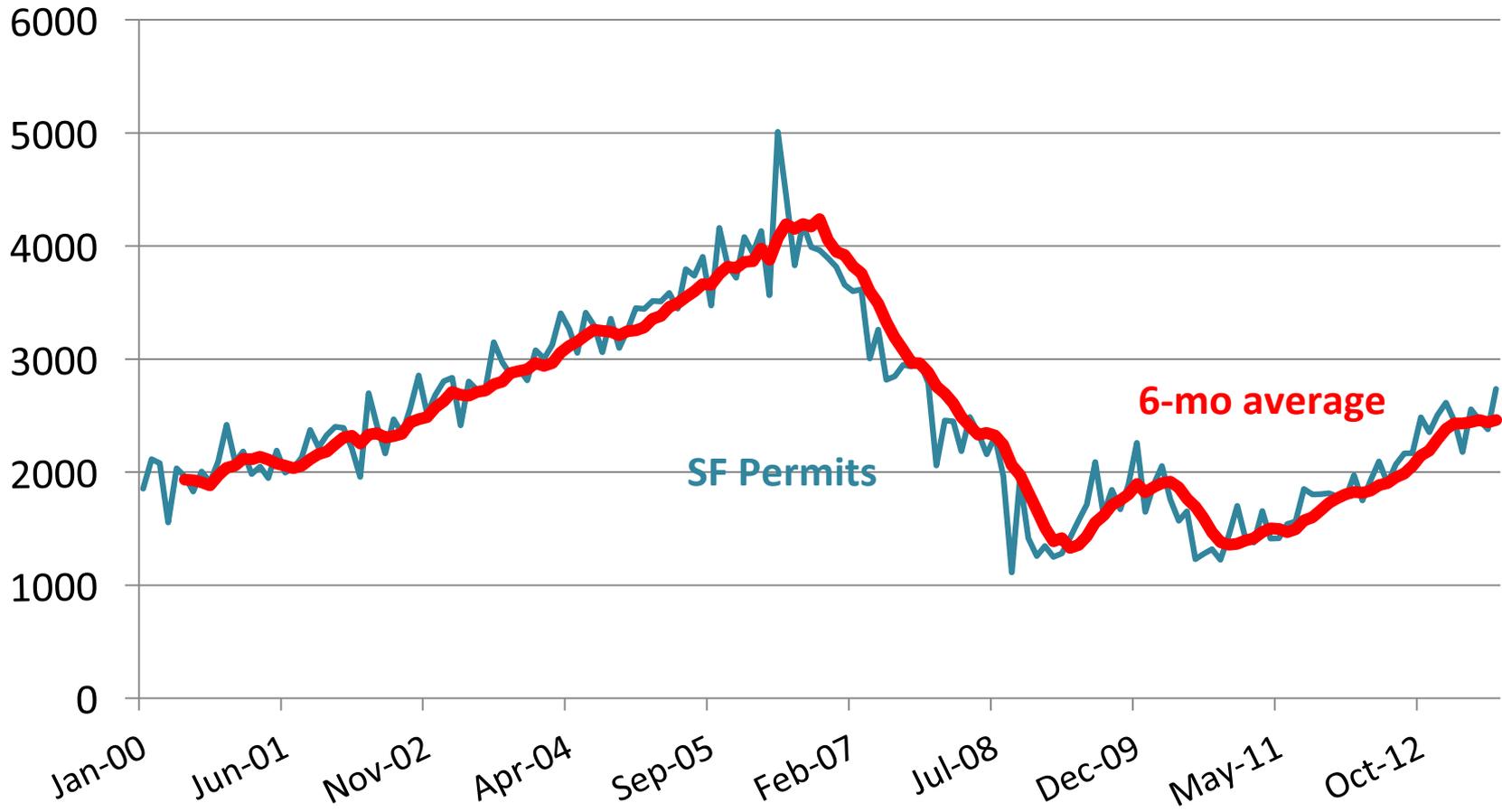




Houston single-family inventory falling sharply



Houston single-family permits began to pick up in 2012





Local Real Estate Development Moving Very Quickly to Catch Up With Past Growth

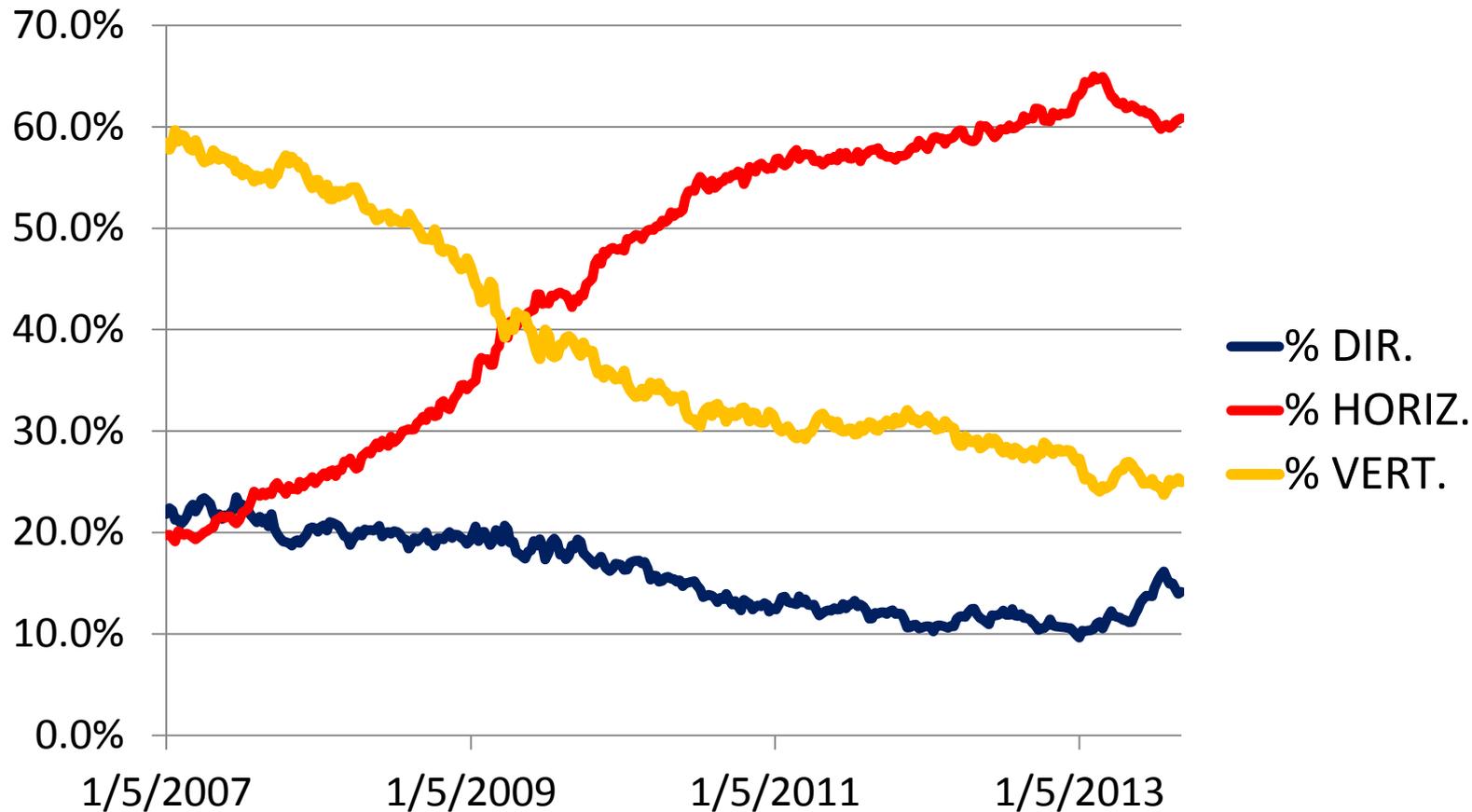
- All markets see rent and construction rising, vacancy rates and cap rates falling
- Apartment construction is focused inside the Loop, but Woodlands/Montgomery County is leading an acceleration in the suburbs
- Large blocks of office space have disappeared in hottest markets like the Energy Corridor, West Sam Houston, and Woodlands.
- Retail led by suburbs, especially grocery-anchored strip malls
- Industrial has lowest vacancy rate in decades

Domestic drilling pulls back in 2012-2013

North American shale plays (as of May 2011)



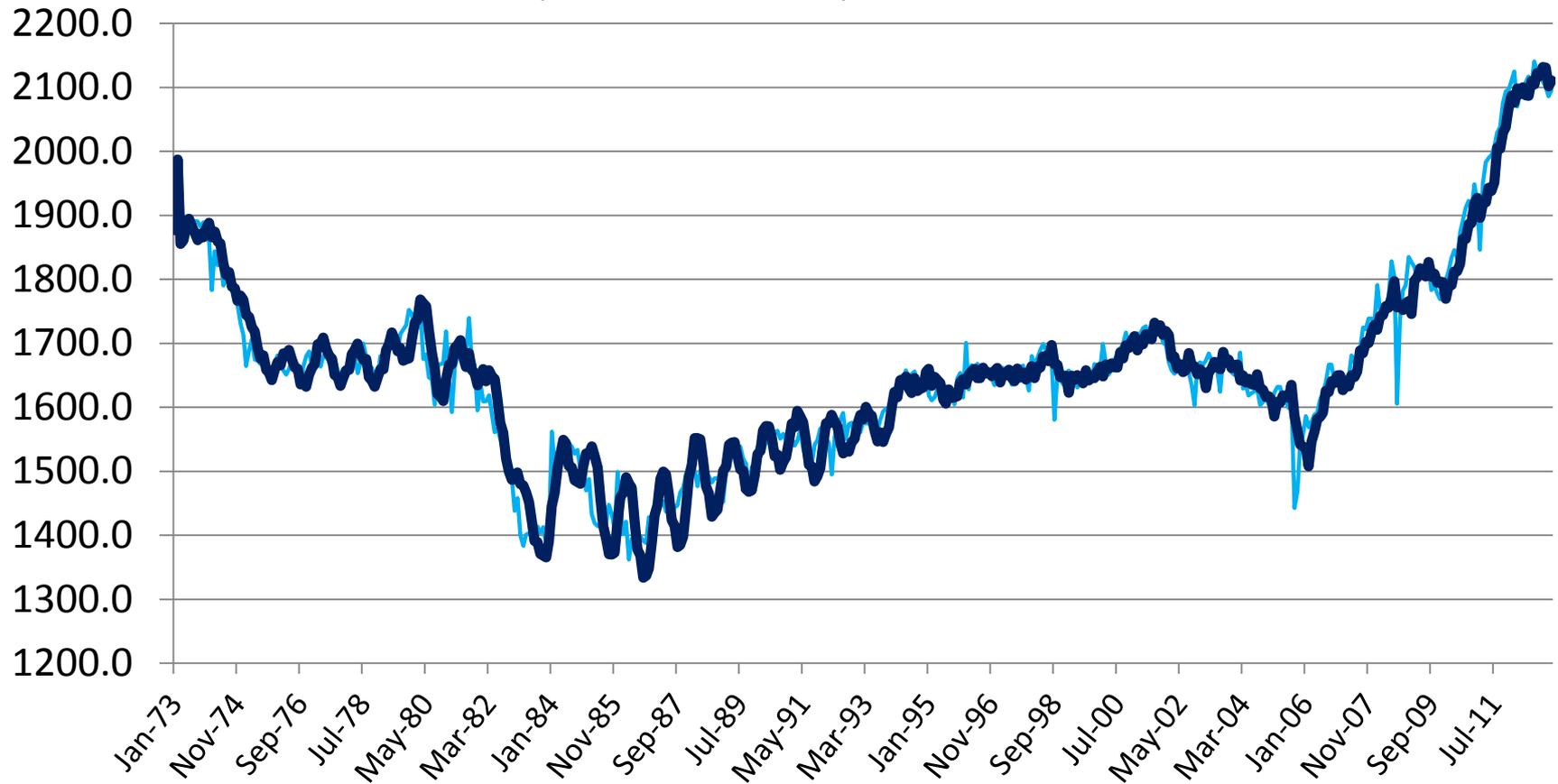
Horizontal Drilling Grows with Shale Gas, Complex Oil Projects



Baker Hughes

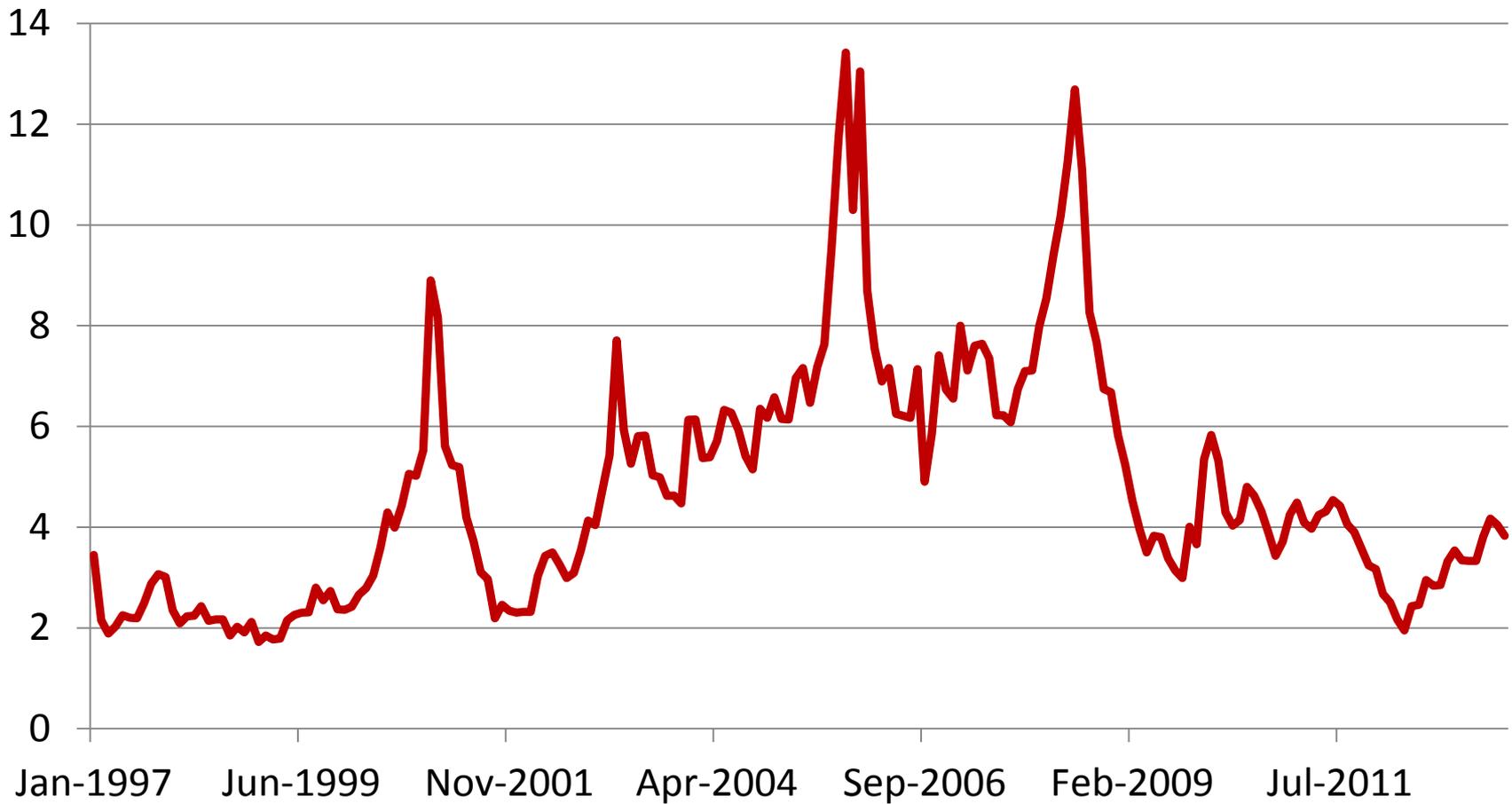
Since 2005 U.S. Marketed Natural Gas Production Has Grown Rapidly

(Billion cubic feet)



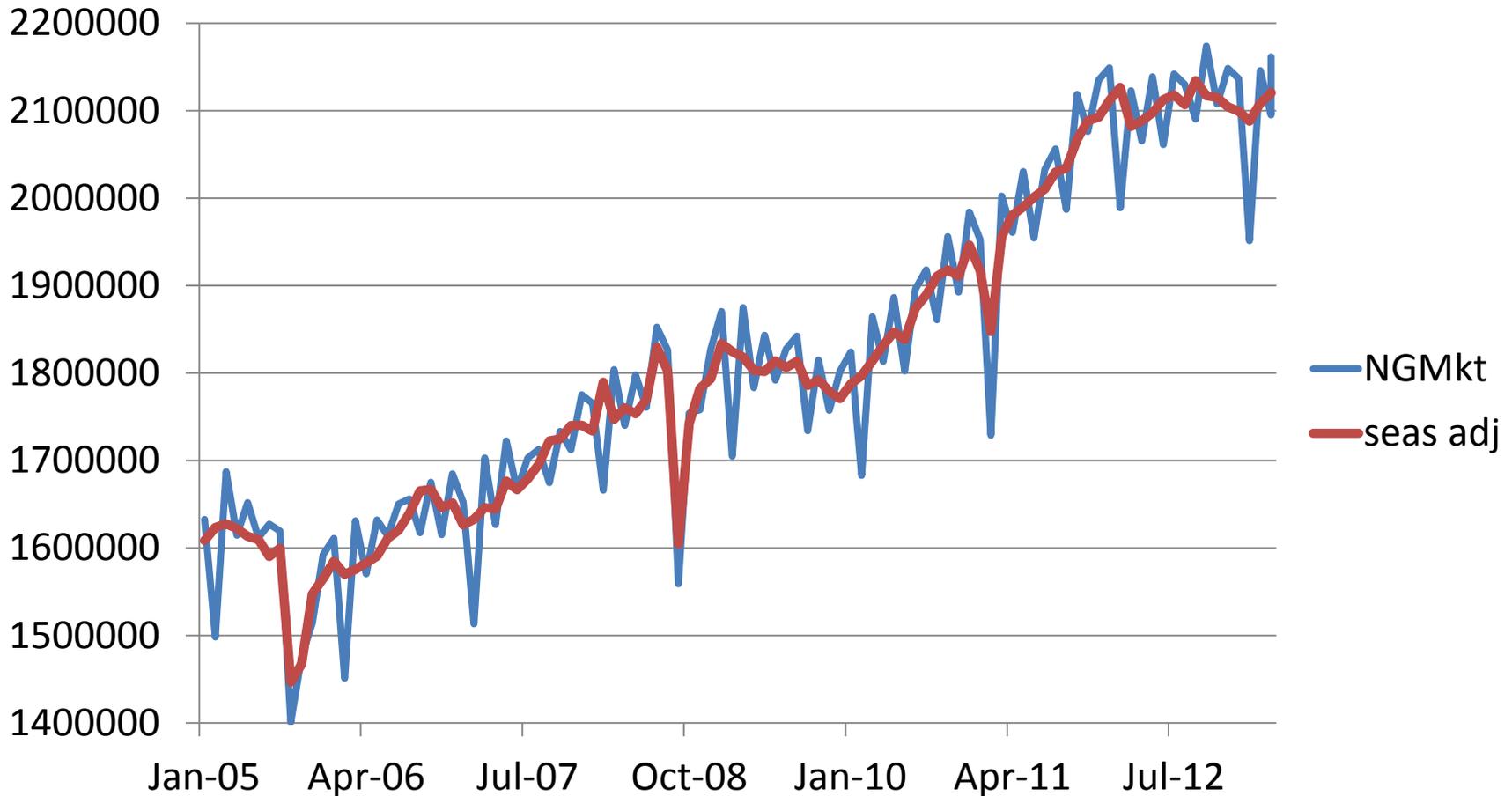
DOE/EIA, six month average, seasonally adjusted

Natural gas price, 1997-present (\$/mcf)



DOE/EIA

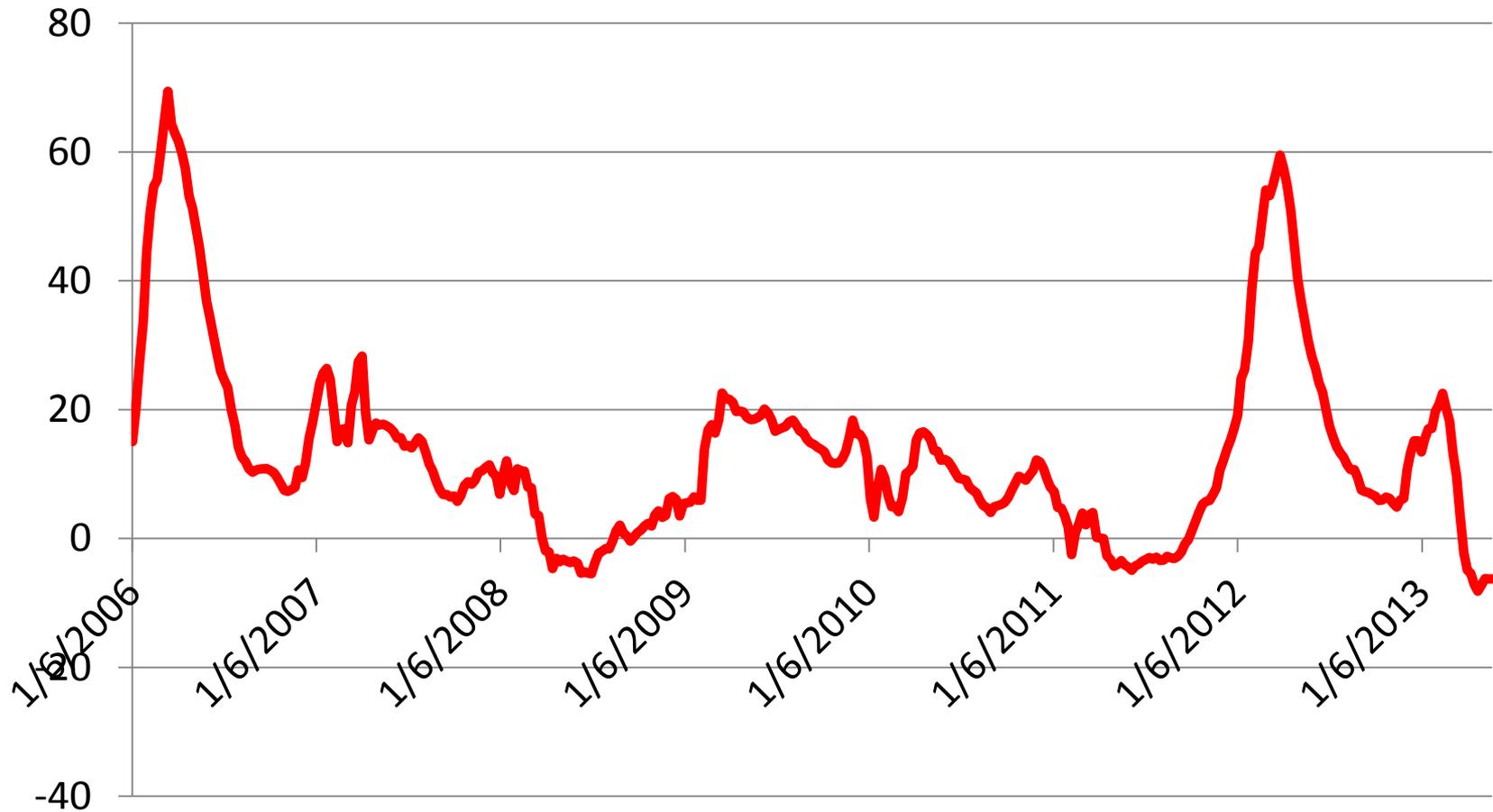
Is marketed production of natural gas finally peaking?



DOE/EIA

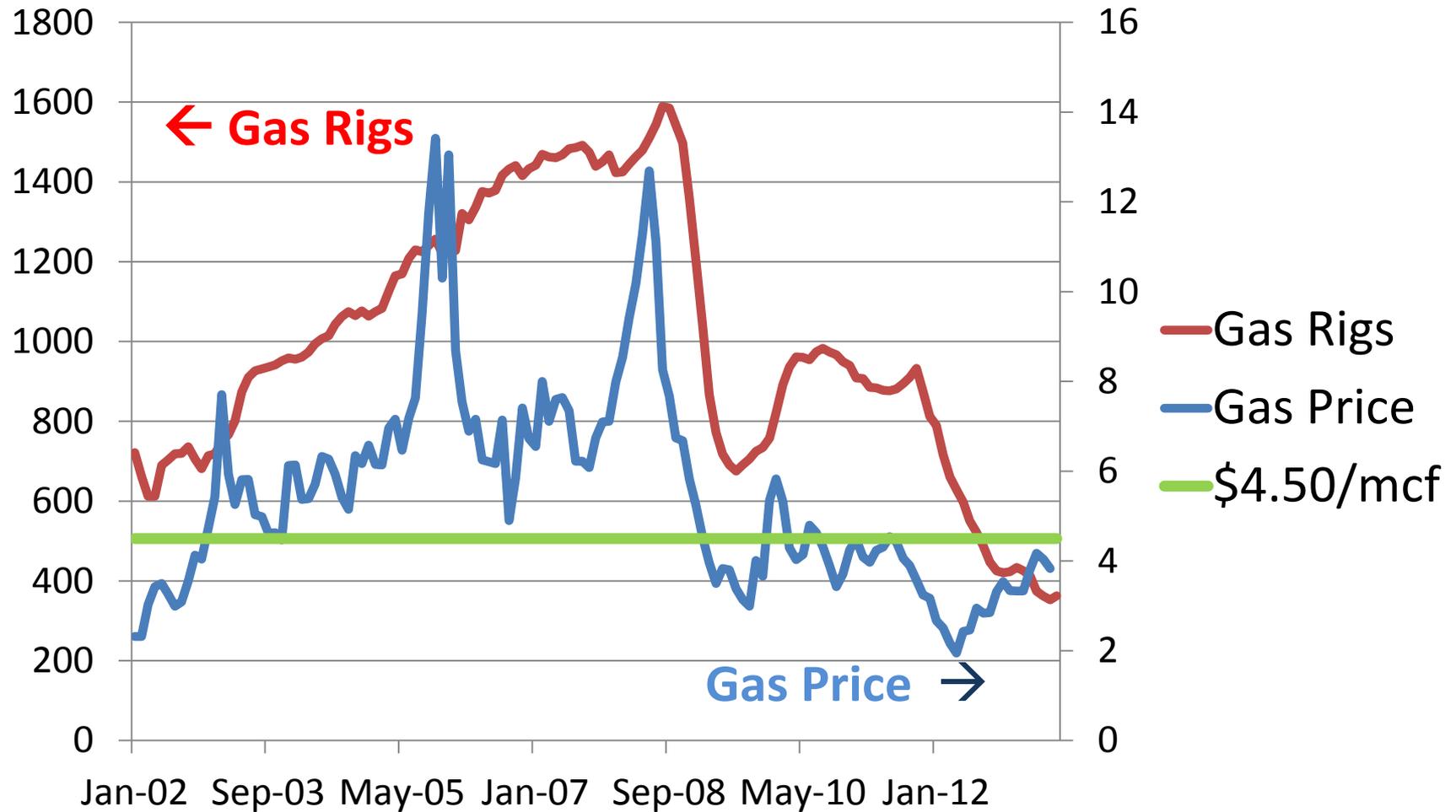


Natural gas inventories return to normal – with help from cold spring? (percent above or below 5-year average)

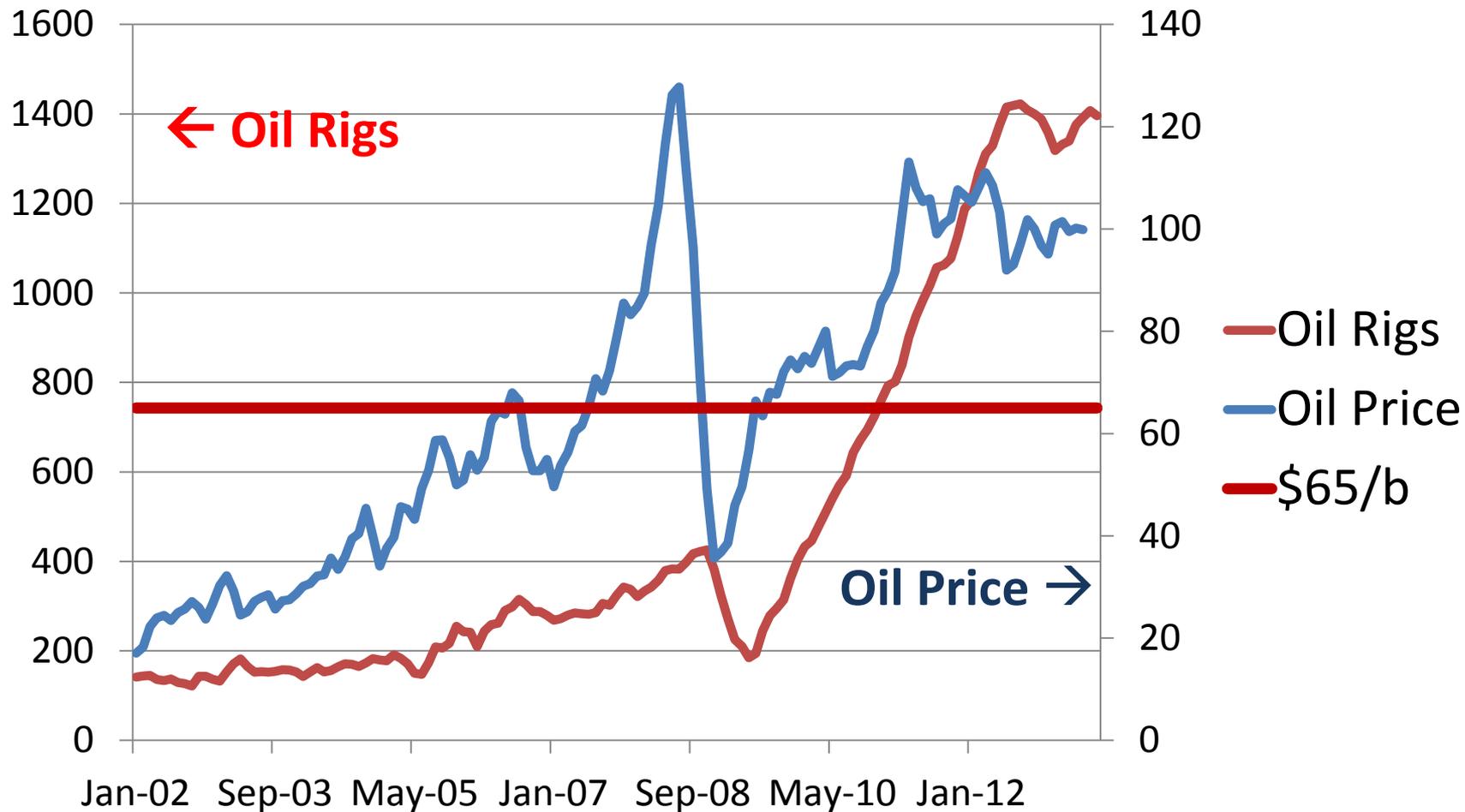


DOE/EIA

Natural gas price below \$4.50 keeps takes out gas-directed rigs

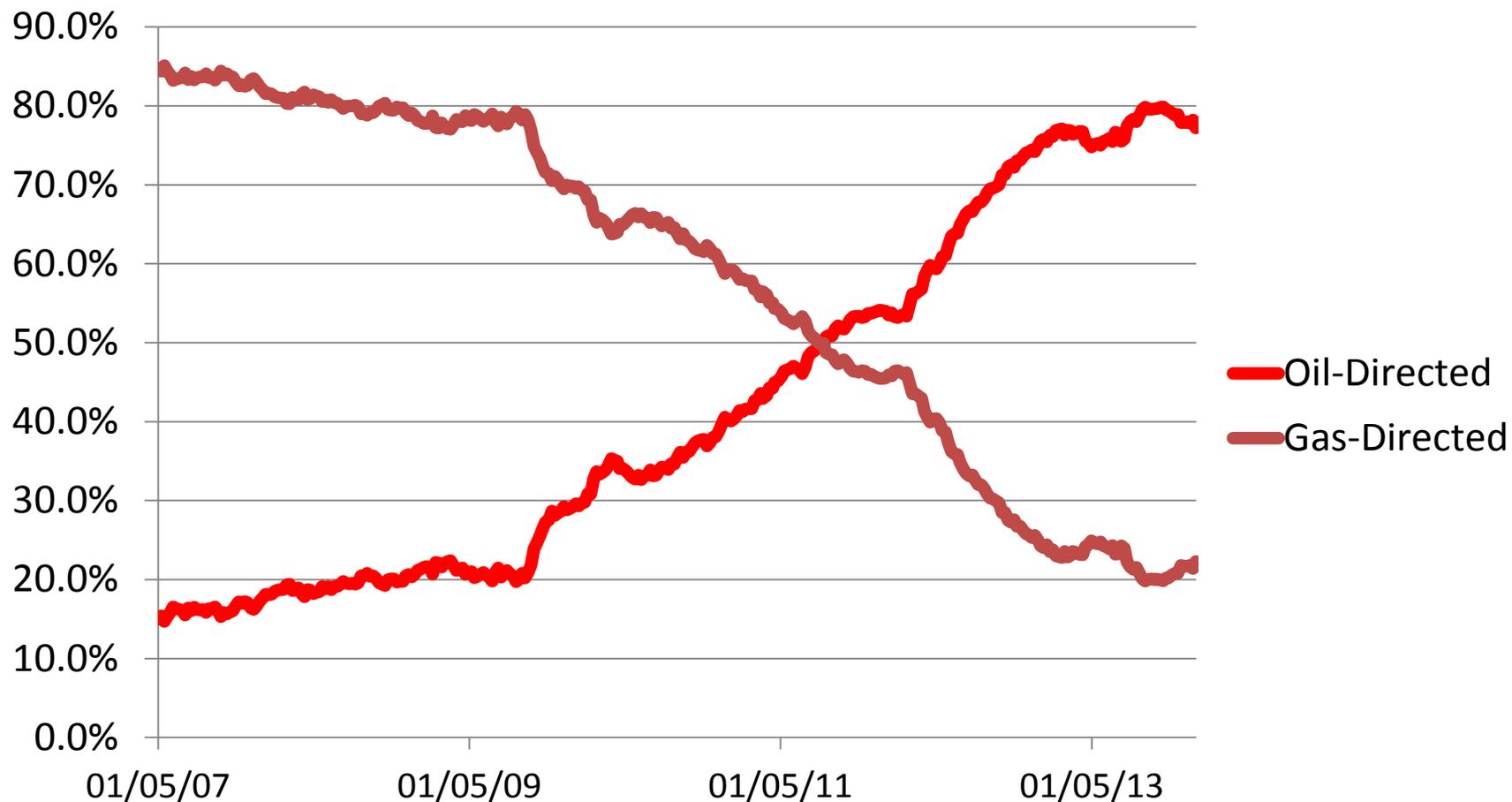


Oil price above \$65/b keeps oil-directed rigs busy





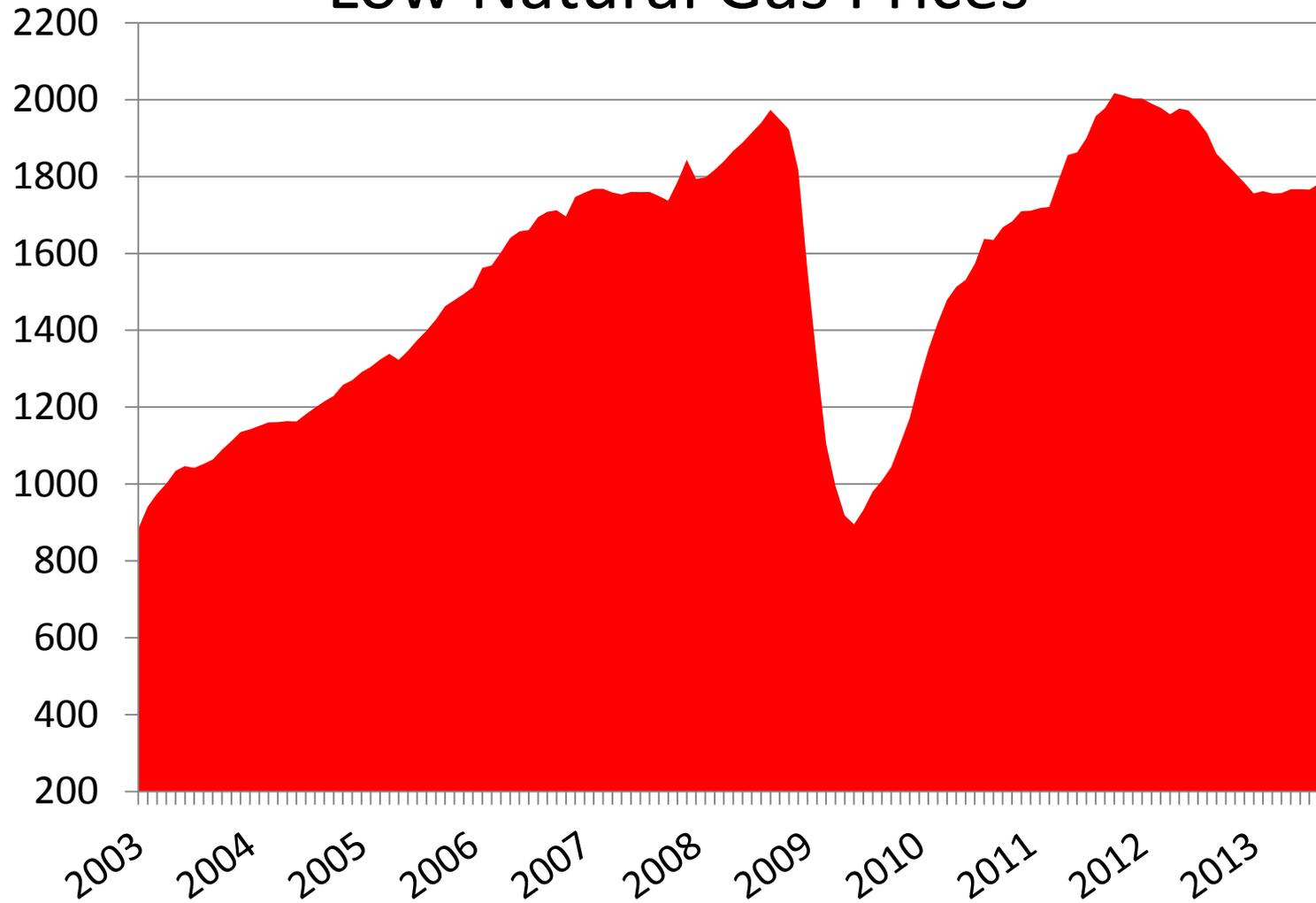
High Oil/Low Gas Price Push Drilling Toward Oil-Directed Activity



Baker Hughes



U.S. Rig Count Weakens on Low Natural Gas Prices



Baker Hughes



The frantic edge is off domestic oil exploration and production

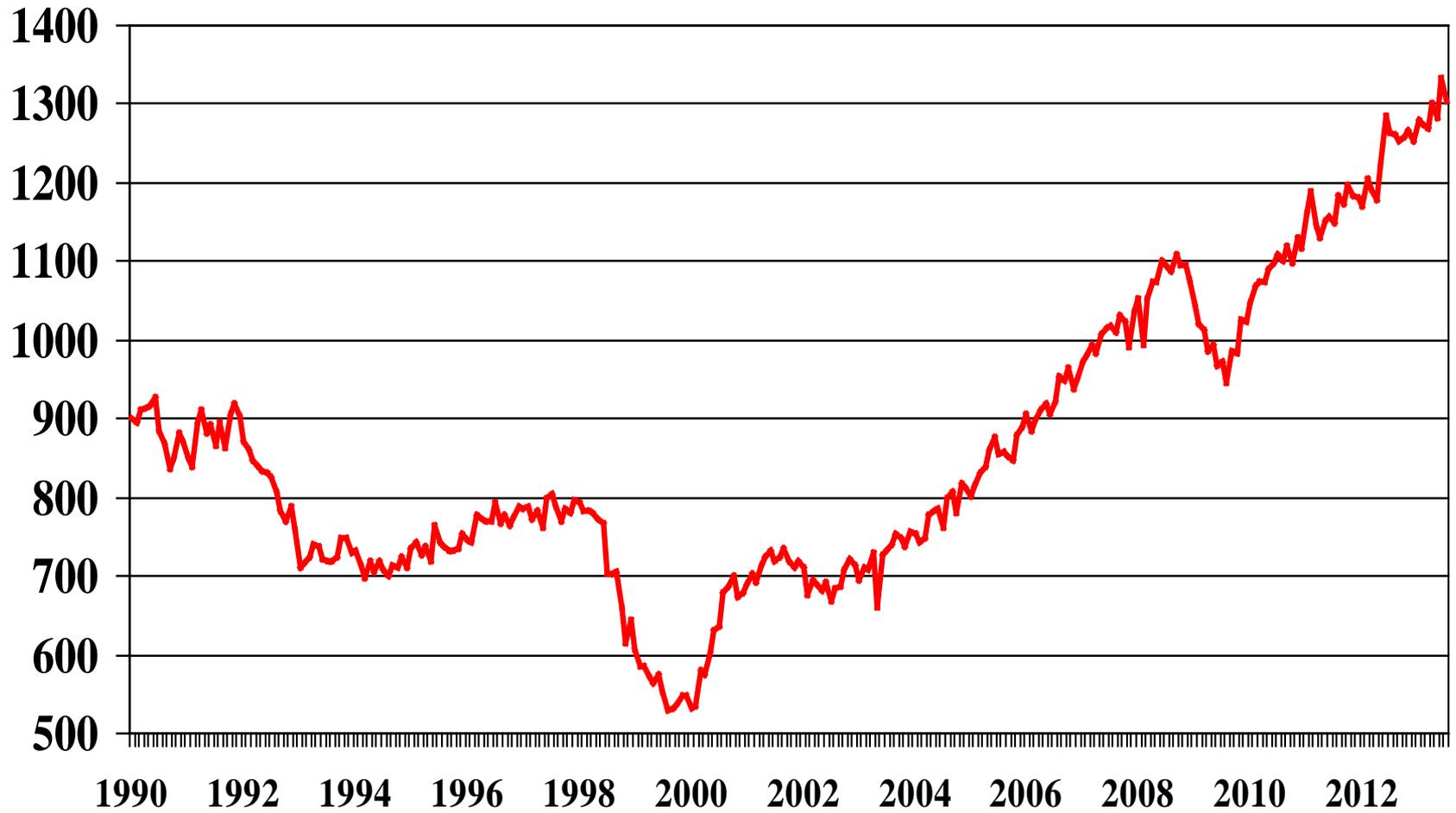
- Capital spending will be flat in 2013, margins squeezed, local hiring has already slowed
- There is good news offshore, where deep-water drilling continues to improve
- There is a lot of catch-up on infrastructure – on land and offshore – that won't show up in the rig count
- Oil-directed activity now dominates U.S. drilling activity



Global drilling is healthy

- Oil is a global product, easily transported and sold around world
- Drilling outside North America bounced back strongly after the financial crisis, should be strong in 2013
- These markets are important for Houston-based producers and oil-service firms. It is high revenue, high margin work for service companies.
- Like the U.S., these markets are 80 percent dependent on oil-directed activity

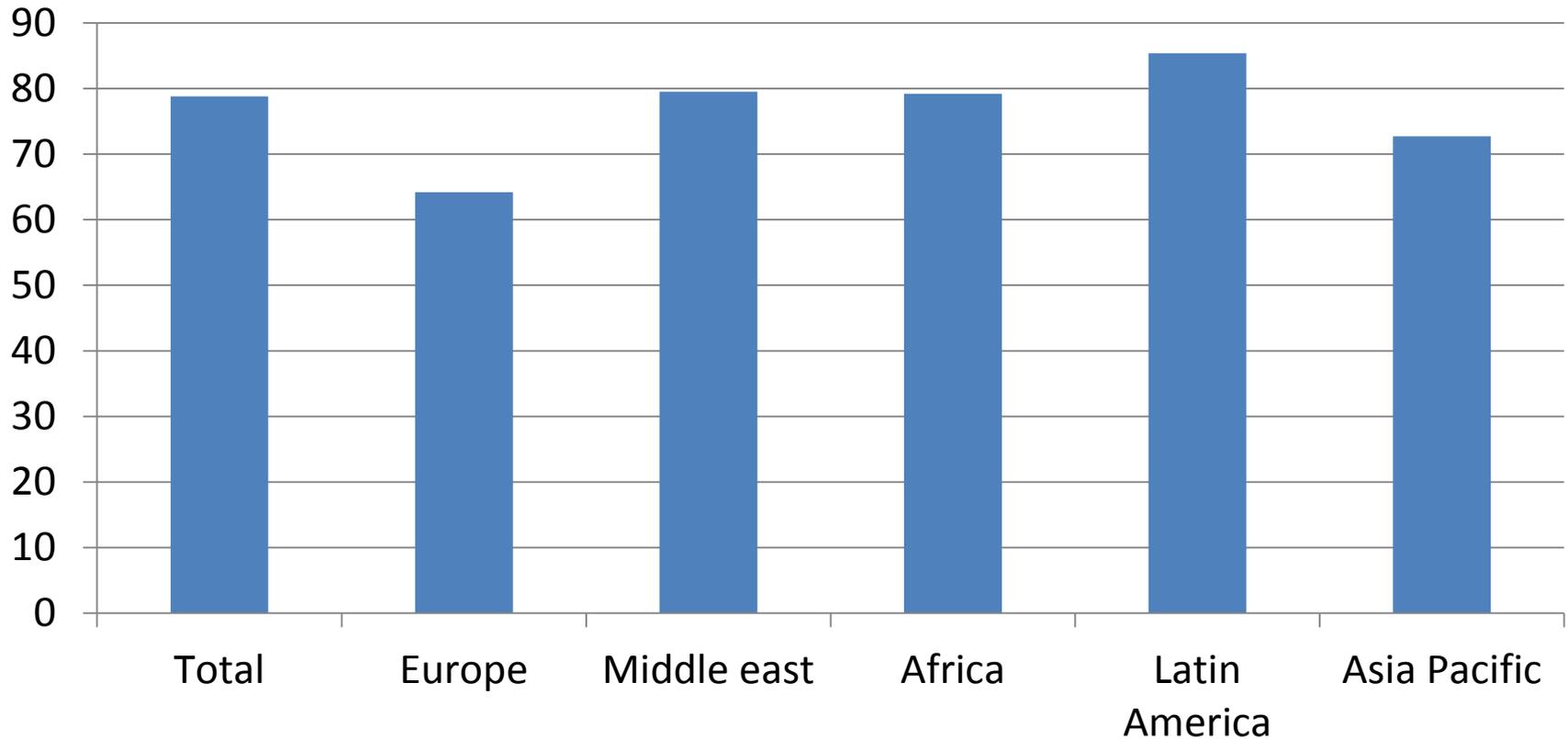
International Rig Count Rises Steadily



Baker Hughes Excludes Iran and the Sudan

Share of foreign oil-directed activity today – by region

Percent Drilling Activity 2013 Q2



Baker Hughes



Technology + High Oil Prices Unlock Oil Reserves – at a price

	Dollars/Barrel	Where?
Deep-water Drilling	\$50-\$85	Gulf of Mexico, West Africa, Brazil
Tar Sands	\$65-\$75	Alberta, Venezuela, Russia, Congo
Shale Oil	\$65-\$75	North Dakota, Permian Basin, Eagle Ford



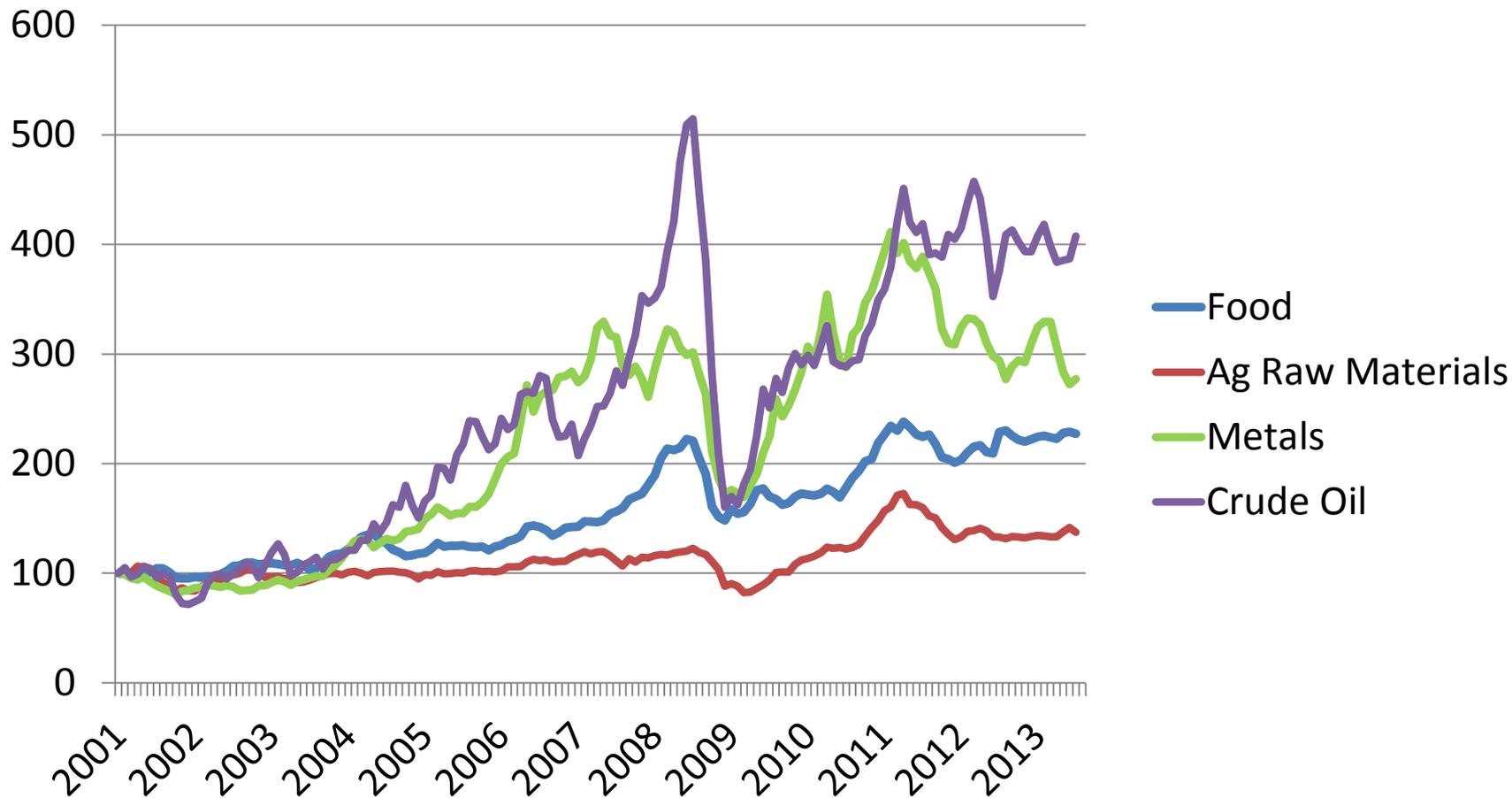
Who sets the price of oil: Exxon?,
the Federal Reserve? the Illuminati?



For the last decade world oil prices have been driven by emerging markets

- Since 2003, all the growth in the global demand for oil has come from emerging markets, especially Brazil, China, and India
- It has not just been oil, but food, agricultural products, and metals that have seen prices soar
- China alone accounts for one-third of increased oil demand since 2003. China and other Asia are nearly 60 percent.

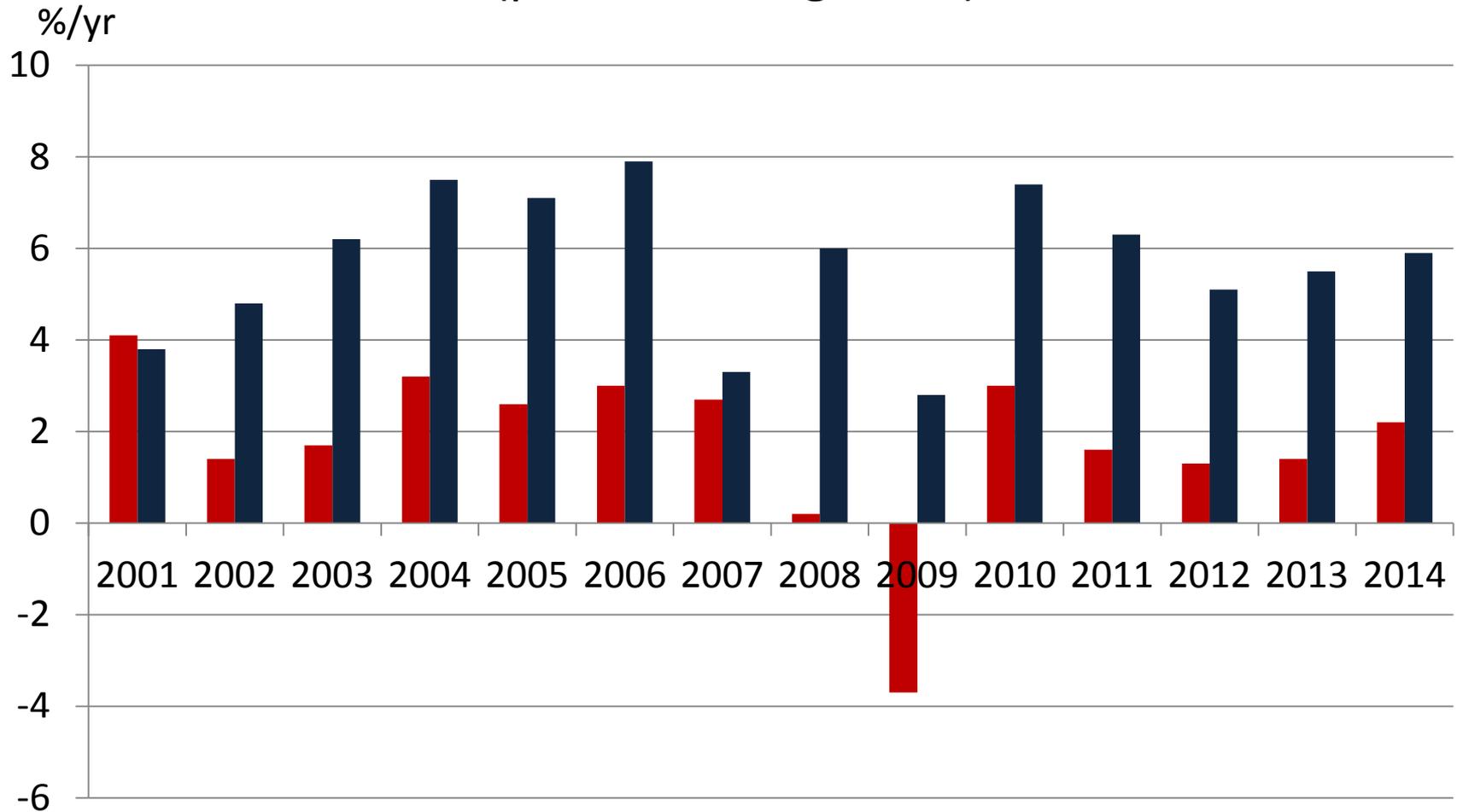
Oil part of a wider commodity price boom since 2003



International Monetary Fund

The developing world has been the global engine of growth since 2008

(percent GDP growth)



IMF World Economic Outlook update, January 2013



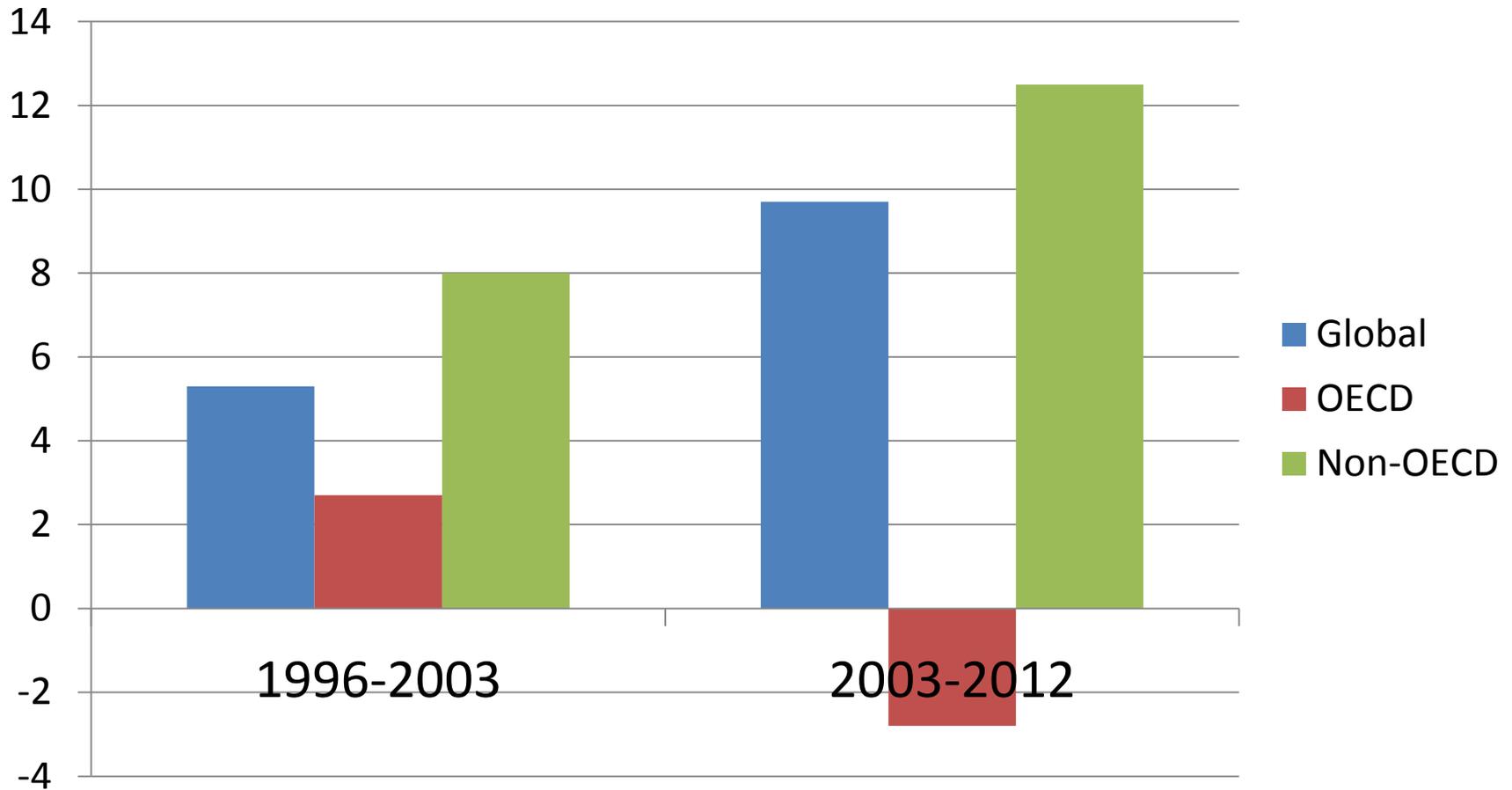
Where has the emerging market growth come from?

- They have developed deep and rapidly growing domestic markets
- They have been good policy actors – balanced fiscal budgets, independent central banks, and enormous foreign exchange reserves
- They are now large markets, this year passing the developed nations in total GDP



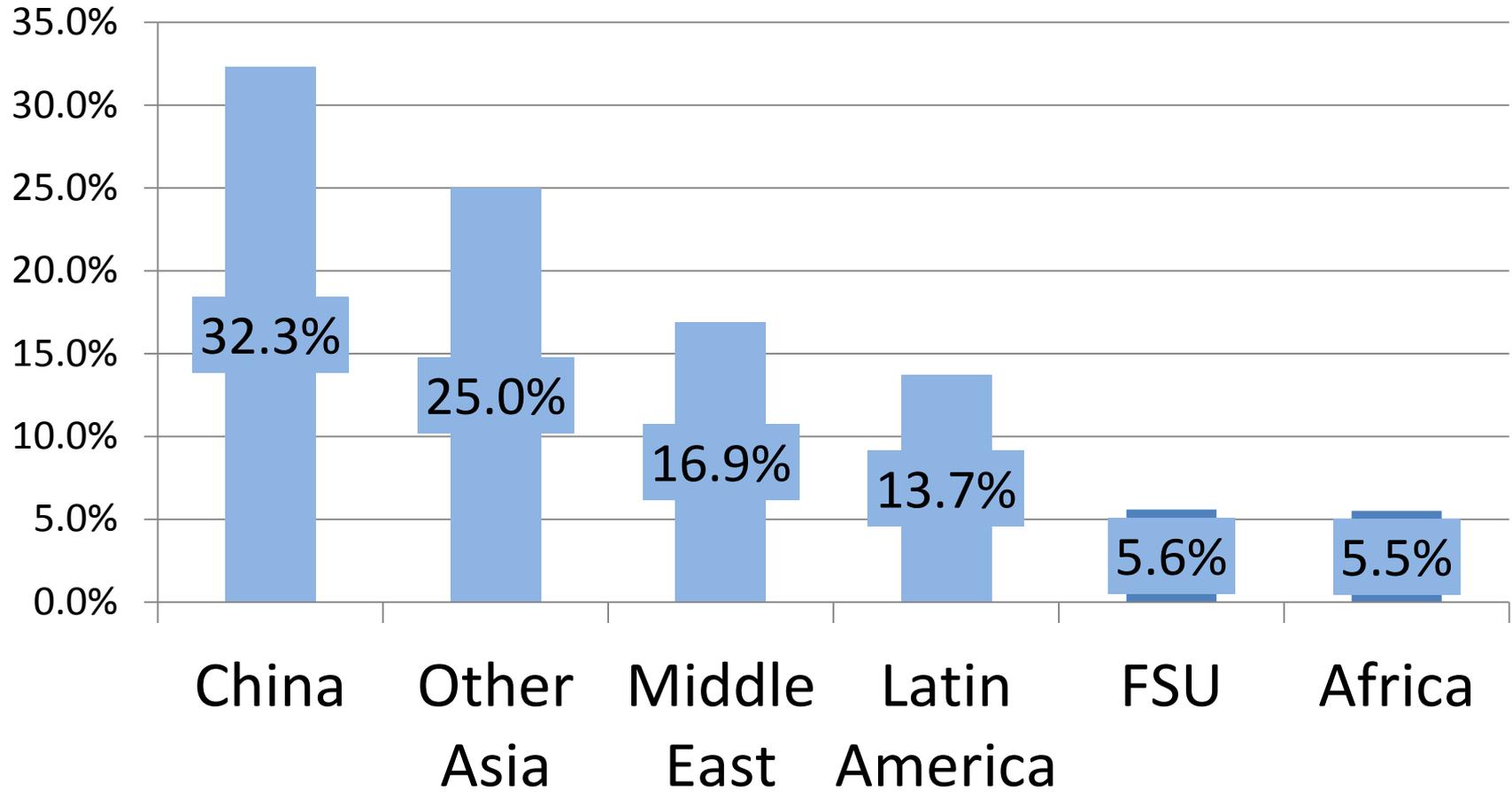
Growth in the Demand for Oil Comes from the Emerging Markets

(million b/d)



International Energy Agency

Percent contributions to oil demand growth since 2003



International Energy Agency



Global Growth Sluggish in 2013

(% GDP Growth)

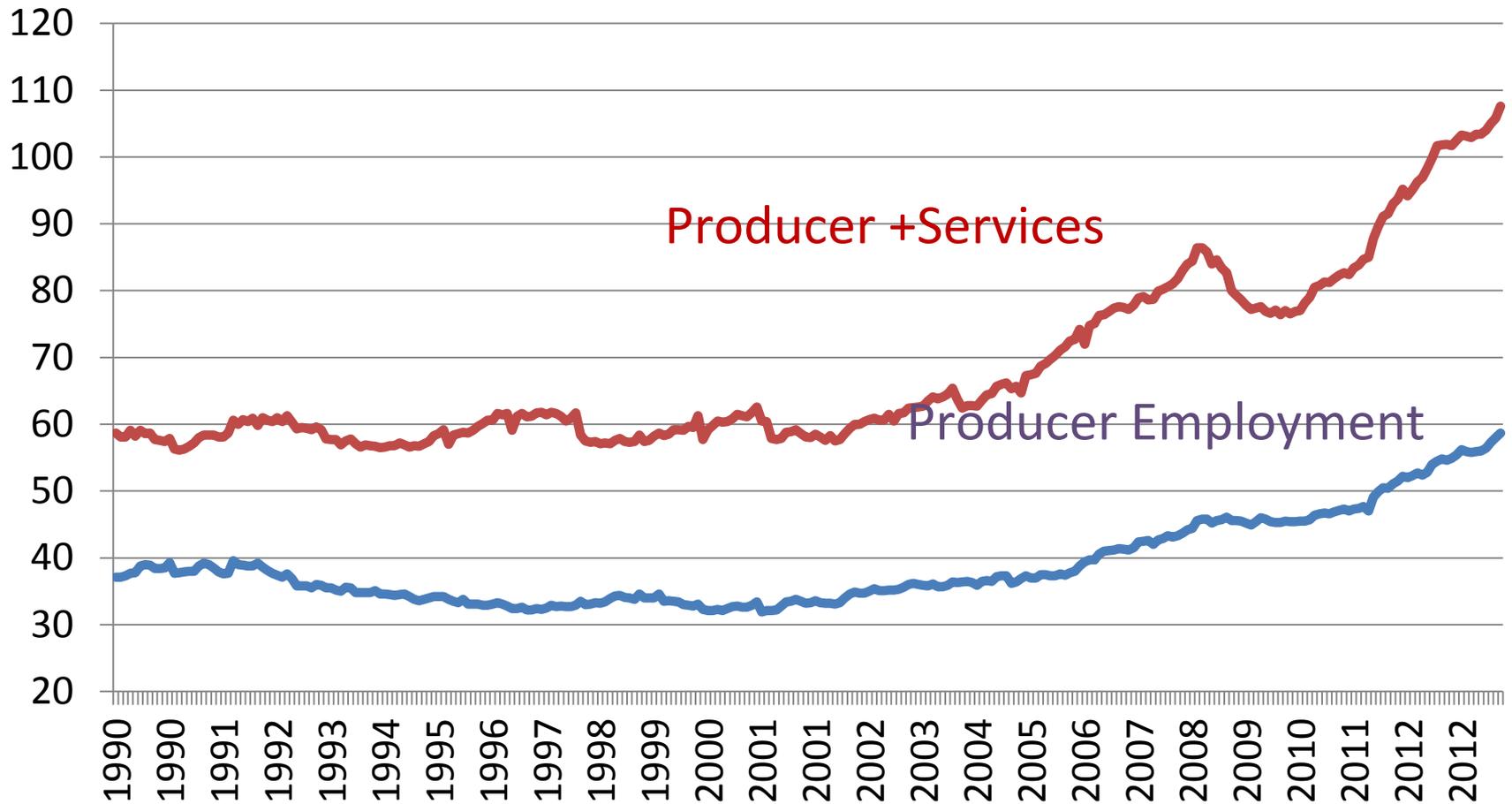
	2011	2012	2013	2014
World	4.0	3.2	3.3	4.0
U.S.	1.8	2.2	1.9	3.0
Europe	1.4	-0.6	-0.3	1.1
Japan	-0.6	2.0	1.6	1.4
	---	---	---	---
China	9.3	7.8	8.0	8.2
India	7.7	4.0	5.7	6.2
Brazil	2.7	0.9	2.0	4.0

Source: IMF World Economic Outlook, April 2013



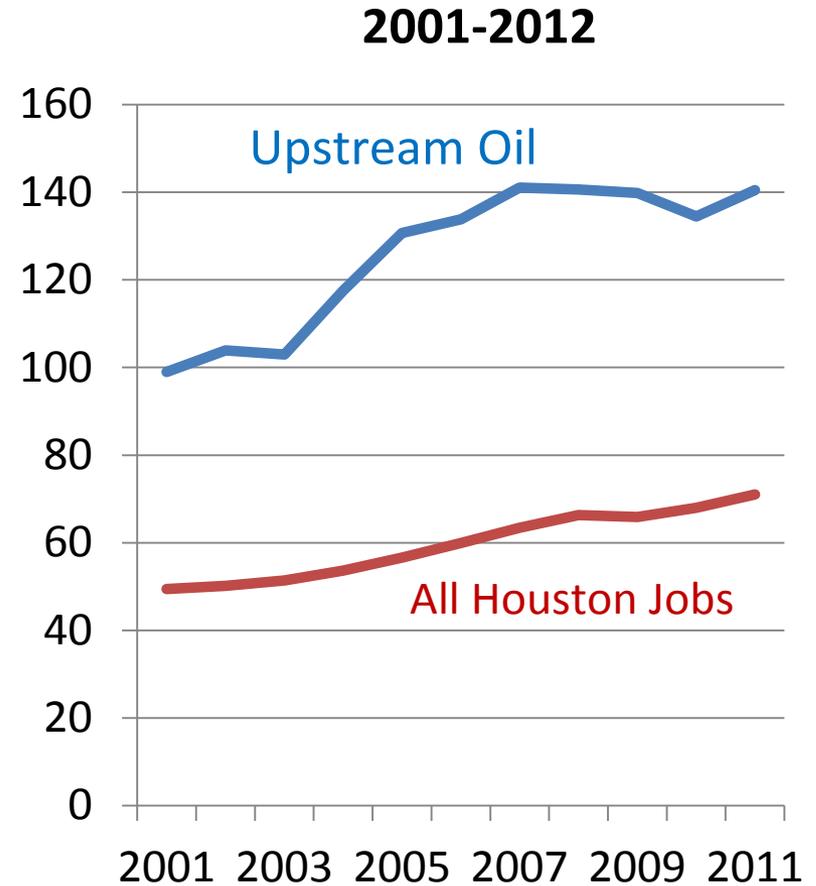
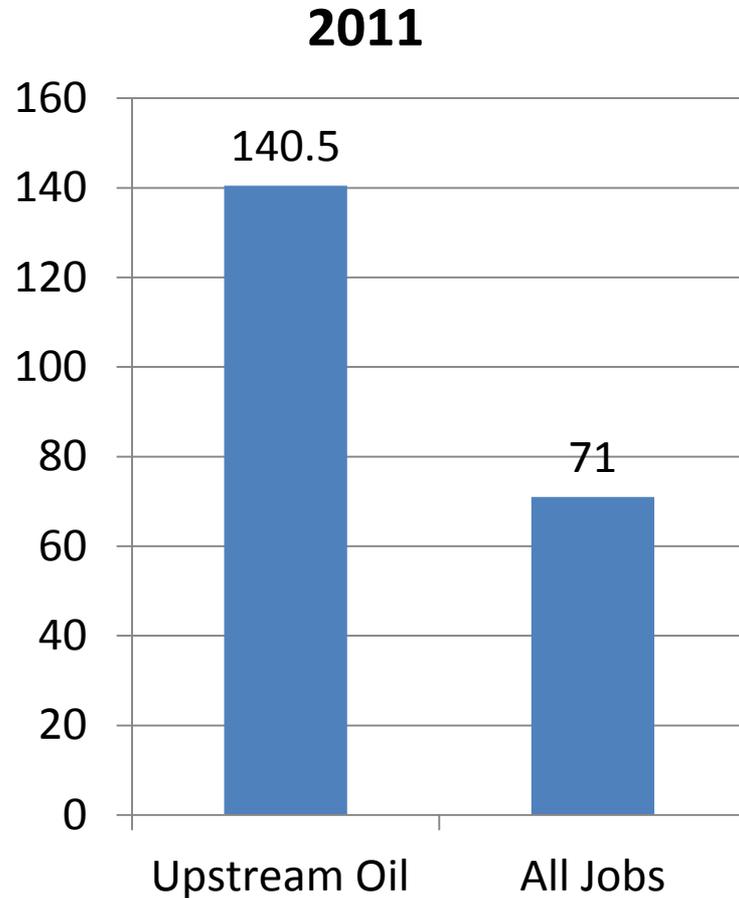
Houston's ties to oil and natural gas

Houston's upstream exploration jobs now total over 100,000



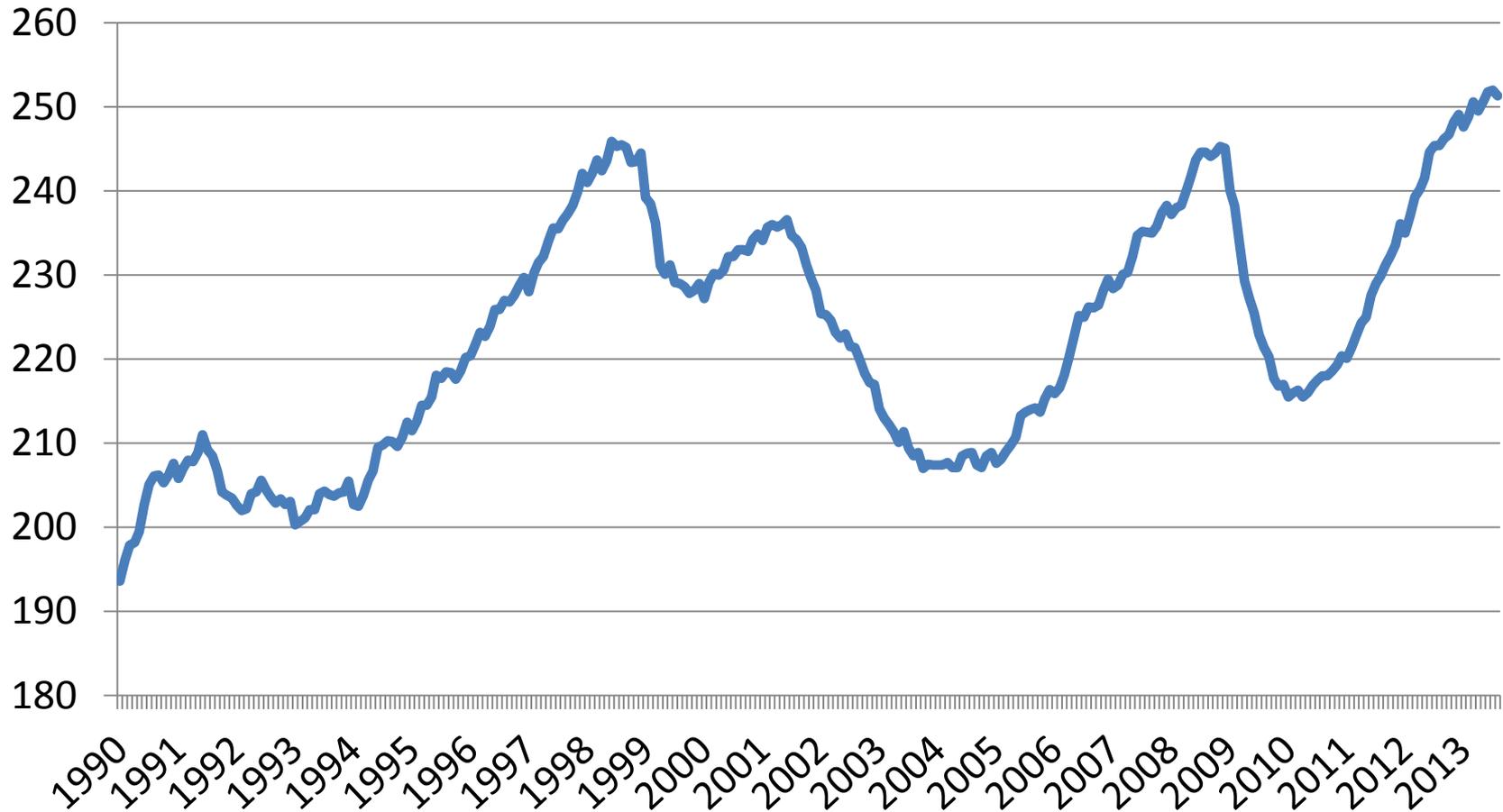


Annual earnings in upstream oil double the typical Houston job in 2011 (\$000/worker)



Houston adds manufacturing jobs since 2003

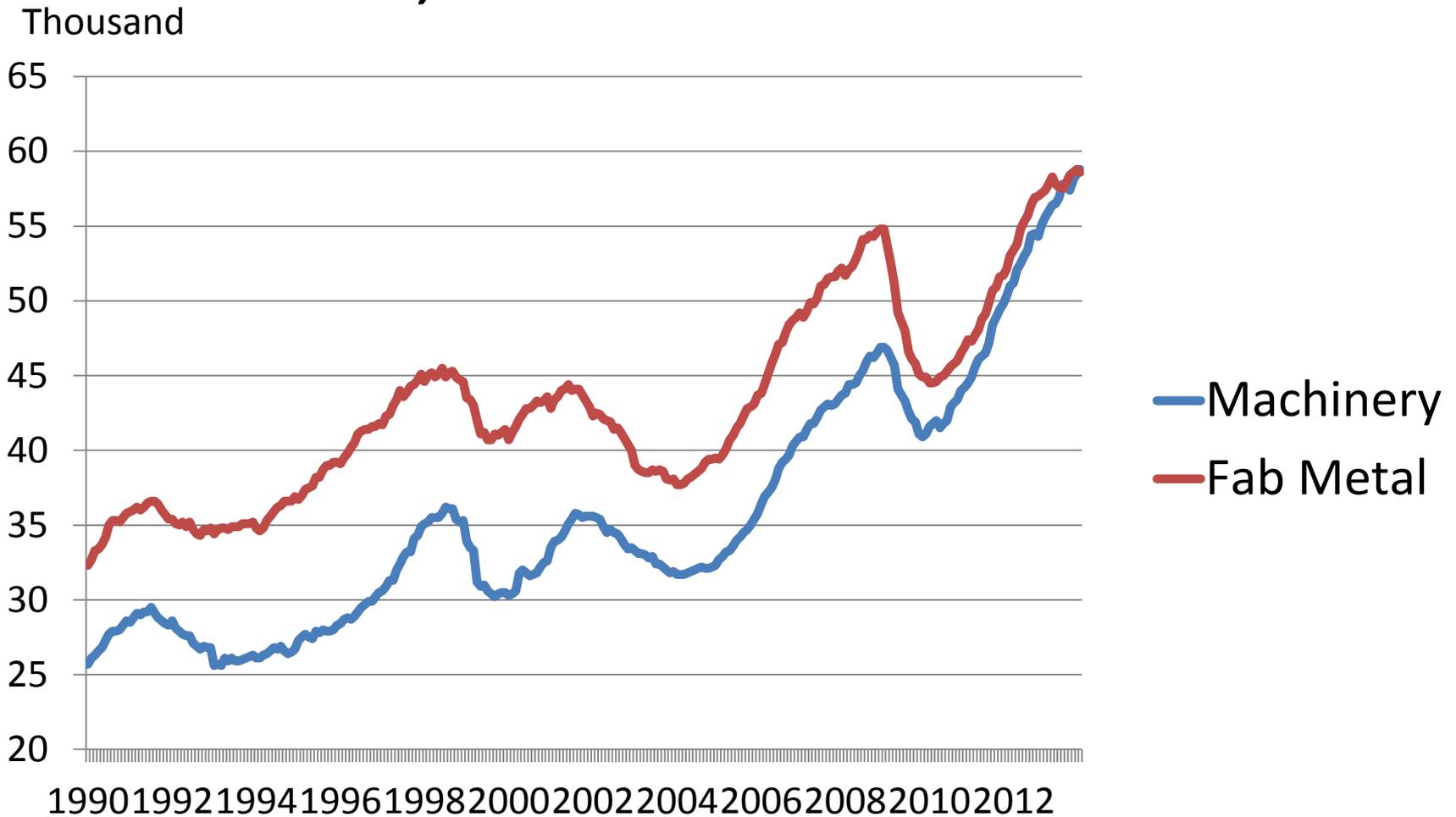
manufacturing employment (000)



Bureau of Labor Statistics

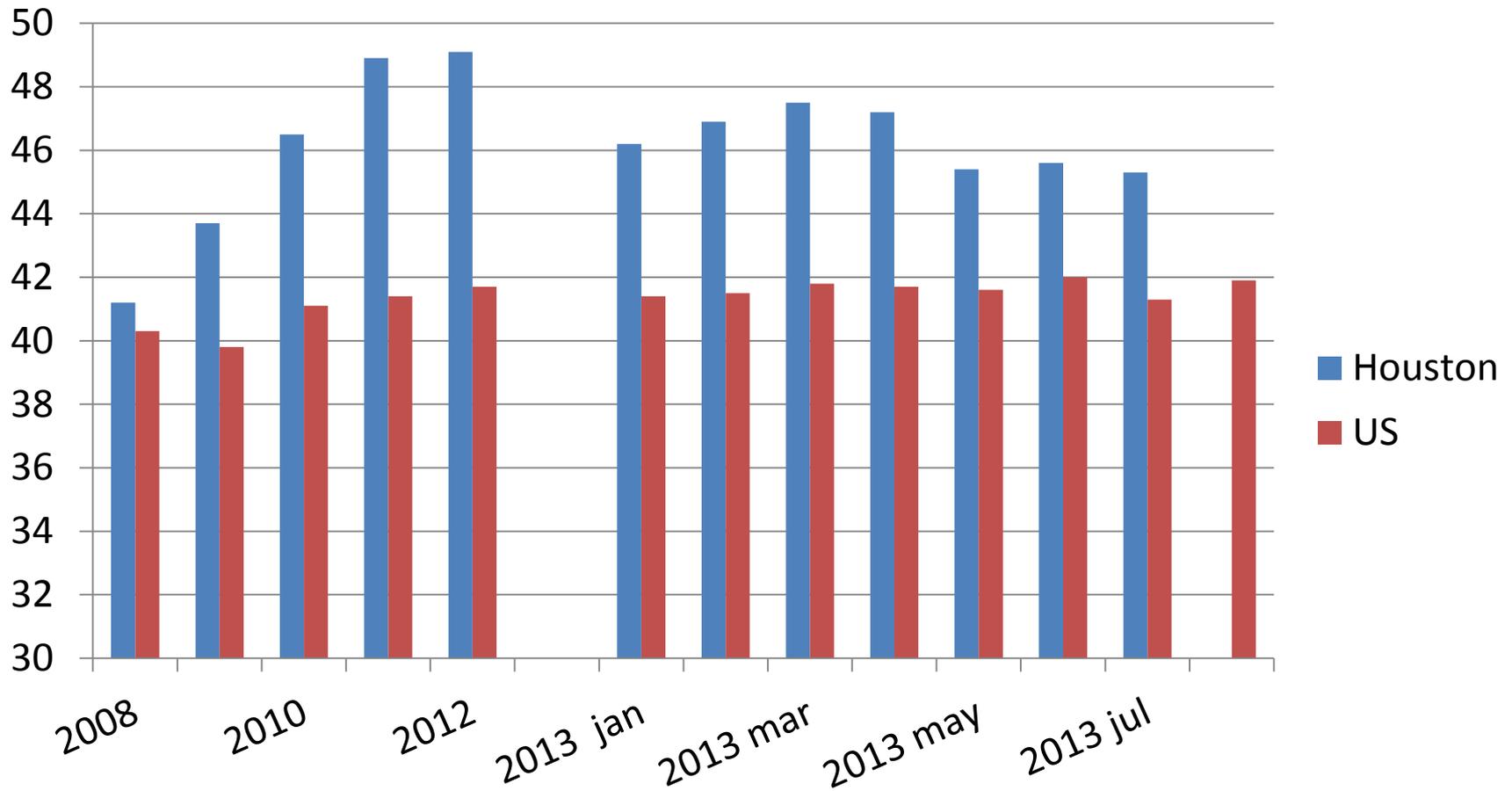


Machinery and Fabricated Metal Bring 115,000 Jobs in Houston



Bureau of Labor Statistics

But production hours worked fall in in mid-2013



Bureau of Labor Statistics

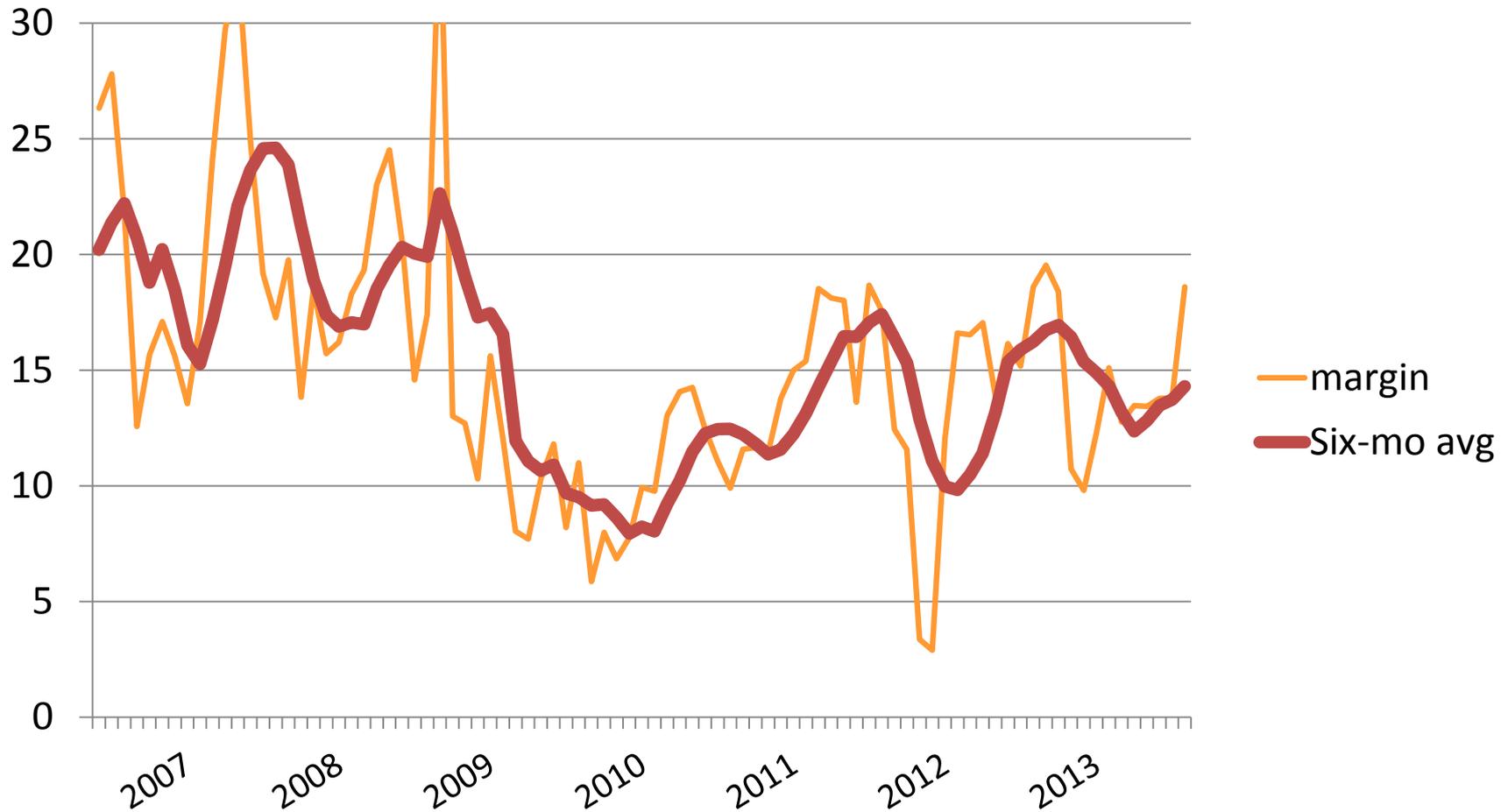


Houston is the capital of a refining and petrochemical complex on the Texas and Louisiana Gulf Coast



GULF OF MEXICO

Gulf Coast Refining Margin (\$/bbl)



Pace refining margins, *Oil and Gas Journal*

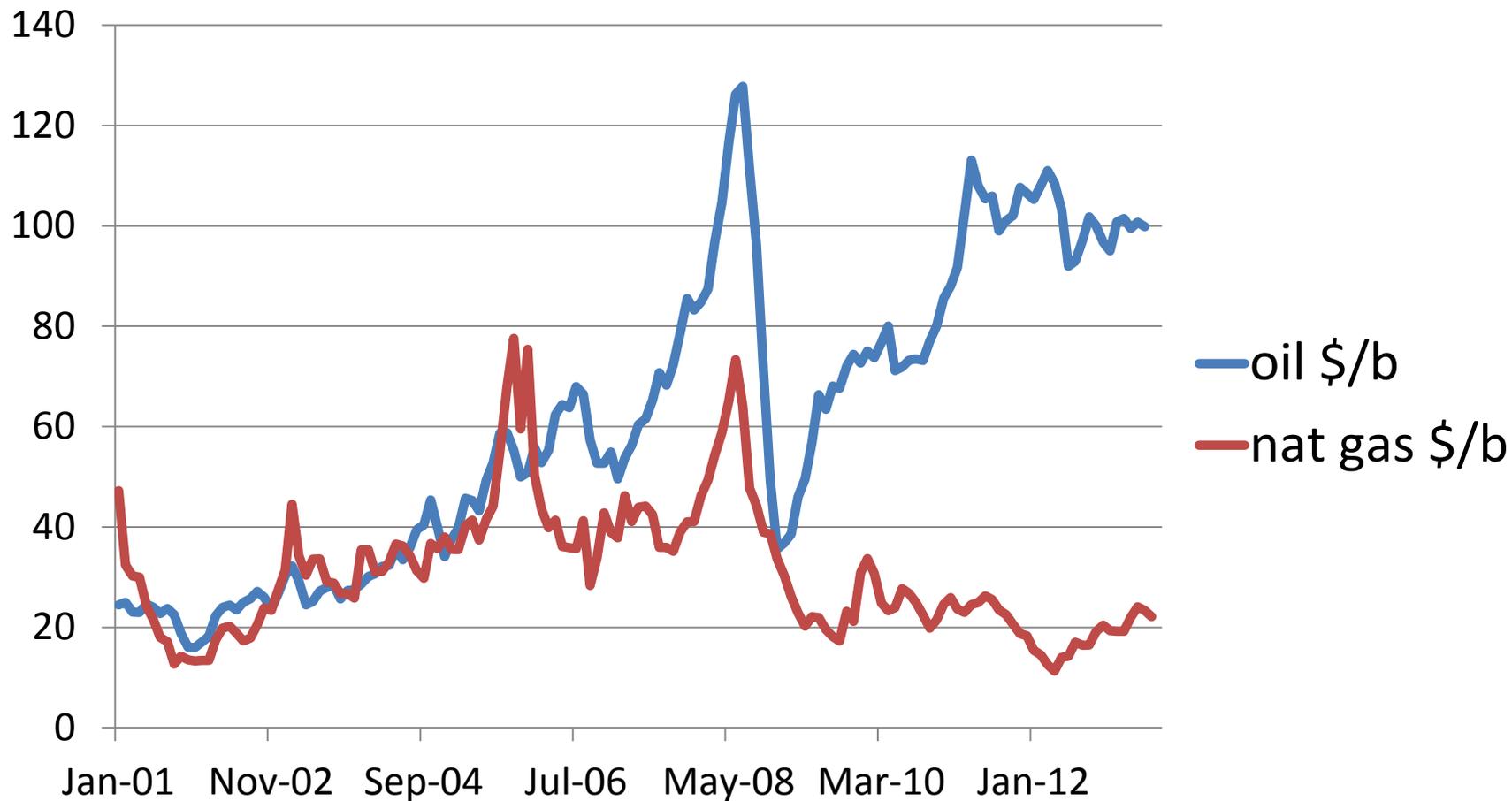


Four of eight largest ethylene complexes in the world are in Houston

Company	Plant location	Capacity (million tpy)
Formosa	Taiwan	2,935.0
Nova	Alberta	2,811.7
Arabian Petrochem	Saudi Arabia	2,250.0
ExxonMobil	Baytown	2,197.0
ChevronPhillips	Sweeny	1,865.0
Dow	Netherlands	1,800.0
Ineos	Chocolate Bayou	1,752.0
Equistar	Channelview	1,750.0
Anlou	Saudi Arabia	1,705.0
Equate	Kuwait	1,650.0



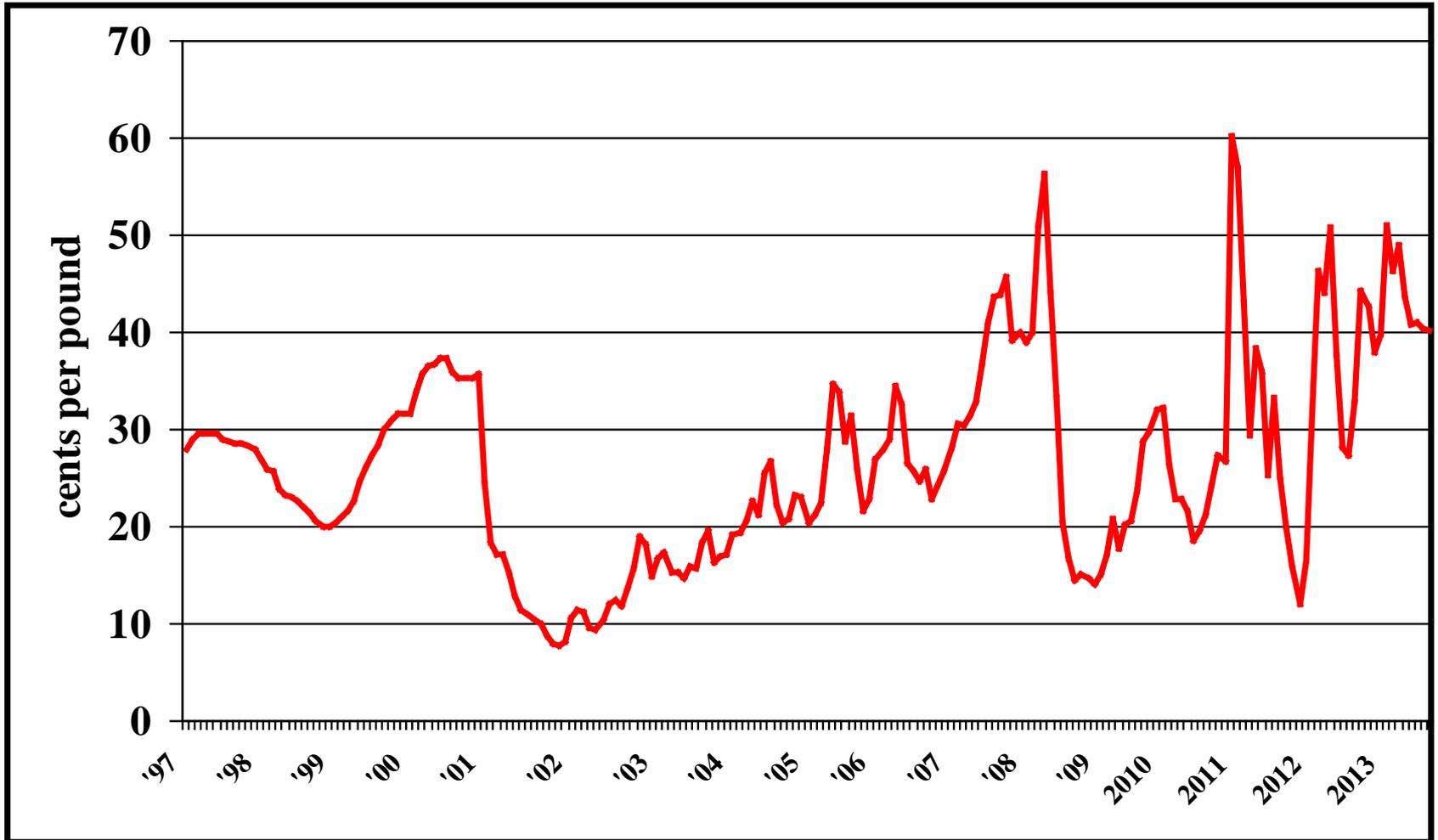
Natural gas energy content equivalent to \$20 per barrel for oil



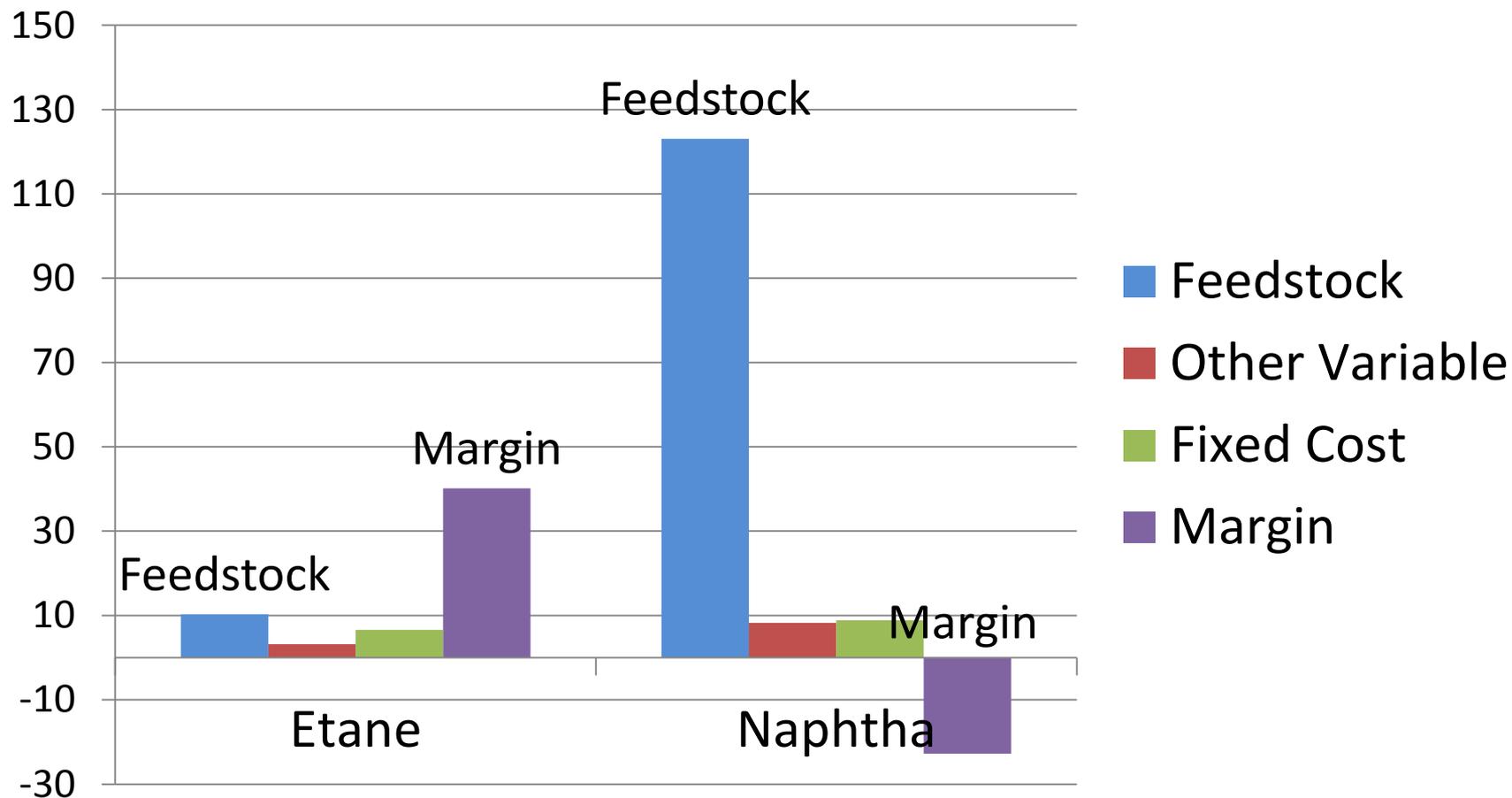
DOE/EIA and calculations of the author

Ethylene Margins

(cents per pound)



August margins for ethylene were 41 cents per pound in North America, -17 cents elsewhere



Muse, Stancil Cash Ethylene Margins, *Oil and Gas Journal*, 2013

New ethylene capacity concentrated on the U.S. Gulf Coast

Company	Location	Capacity (mm lb/yr)	Start-Up
Exxon	Baytown	3,300	2016
Chevron Phillips	Baytown	3000	2017
Dow Chemical	U.S. Gulf Coast	4,200	2017
Ineos	Lake Charles, LA	3,000	2018
CP Chem	Baytown, TX	2,500	2016/2017
Braskem/Idesa	Mexico	2,200	2015
Shell Chemical	Pennsylvania	2,000	2016+
Formosa	Point Comfort, TX	1,760	2015
LyondellBasell	LaPorte, Texas	1,450	2012-2014
Dow Chemical	Hahnville, LA	800	2012Q4
Williams	Lake Charles, LA	600	2013Q3
Westlake Chemical	Lake Charles, LA	230	2012
Ineos	Chocolate Bayou, TX	230	2013

Heavy construction to boom in U.S. and on Gulf Coast

- The American Chemistry Council recently counted 97 chemical project announcements with \$77.1 billion in construction cost
- 7 proposed LNG export terminals
- Numerous pipelines and processing facilities connect new oil and gas plays to Houston
- Many general manufacturing announcements for energy, plastics, tires, iron and steel



It is an exciting time to be in Houston

- We have been growing rapidly for nearly a decade, and saw the local economy accelerate after the financial crisis
- This could last another decade
 - Shale, tar sands, and deep-water drilling mean we can have a serious conversation about energy independence in the U.S.
 - We will need to rework and expand energy infrastructure in pipelines and processing
 - We have a new petrochemical industry to build



It all depends on the price of oil?

- Upstream, yes. The collapse of natural gas prices and weaker natural gas liquids prices put the burden on oil
- But weak natural gas prices are driving downstream expansion and construction. It could cushion any blow
- But any threat to oil prices is a prices threat to Houston's current expansion



IMF says that medium-term risks to the global economy remain high

- Europe continues to stagnate or has a financial crisis
- Fiscal trouble in the U.S. or Japan
- There is less slack in the advanced economies than thought, and inflation breaks out
- Unconventional monetary policy backfires
- There is a sustained slowdown in key emerging markets



Where is the price of oil going?

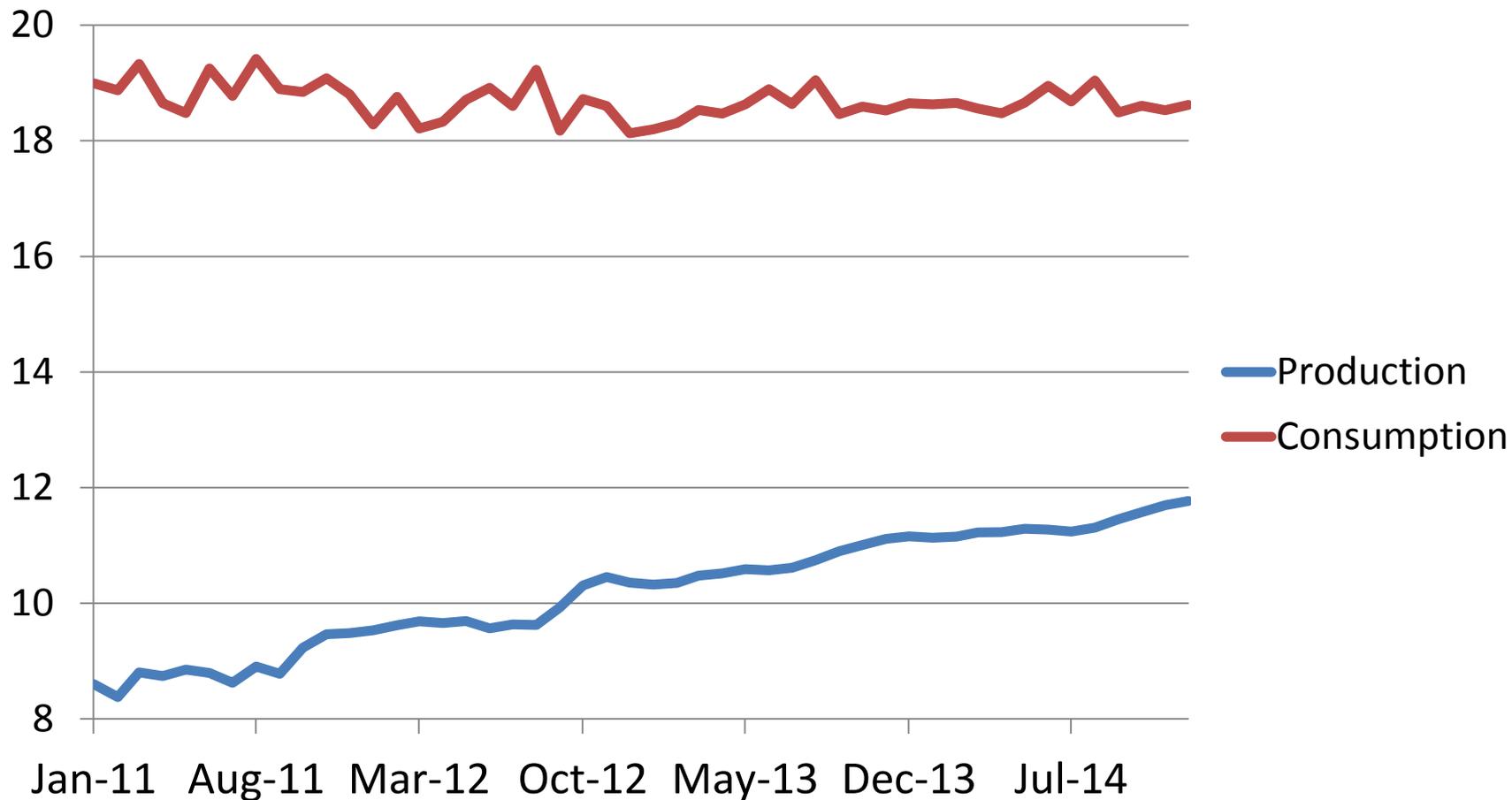
- Low oil prices pushed Houston into deep recessions in 1982, 1986, 1999 , and 2009
- The current expansion is again dependent on oil prices, and oil price depends on the health of the global economy
- No one knows where oil price will be next month – or how this ends. Don't bet your business on the price of oil



Houston Job Growth Takes a Mid-Year Breather

Robert W. Gilmer
Institute for Regional Forecasting
C.T. Bauer College of Business
University of Houston

Domestic Consumption of Oil is Stable, Production Rising through 2014 (million b/d)

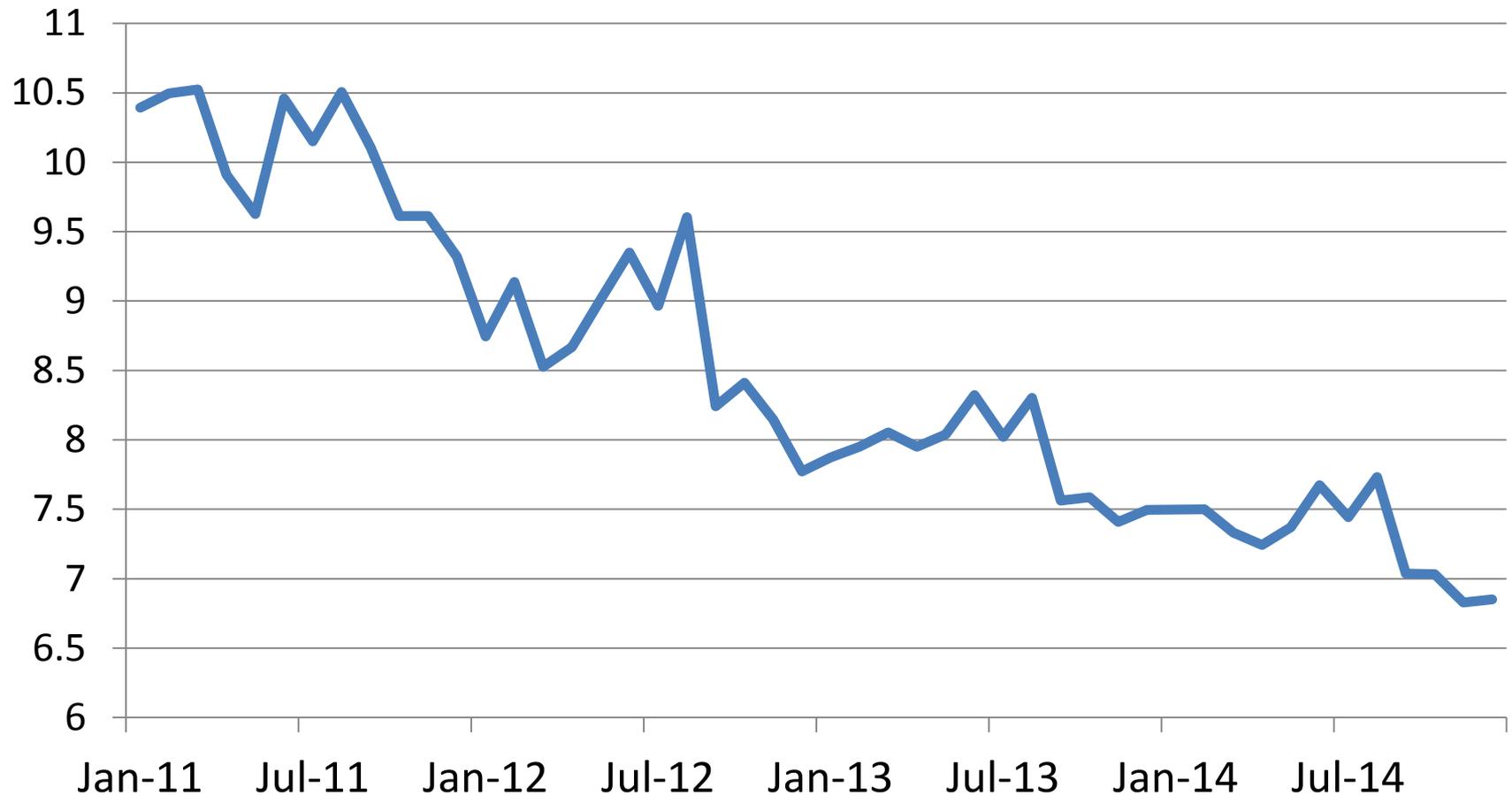


DOE/EIA



U.S. Net Imports Fall through 2014

(million b/d)



DOE/EIA

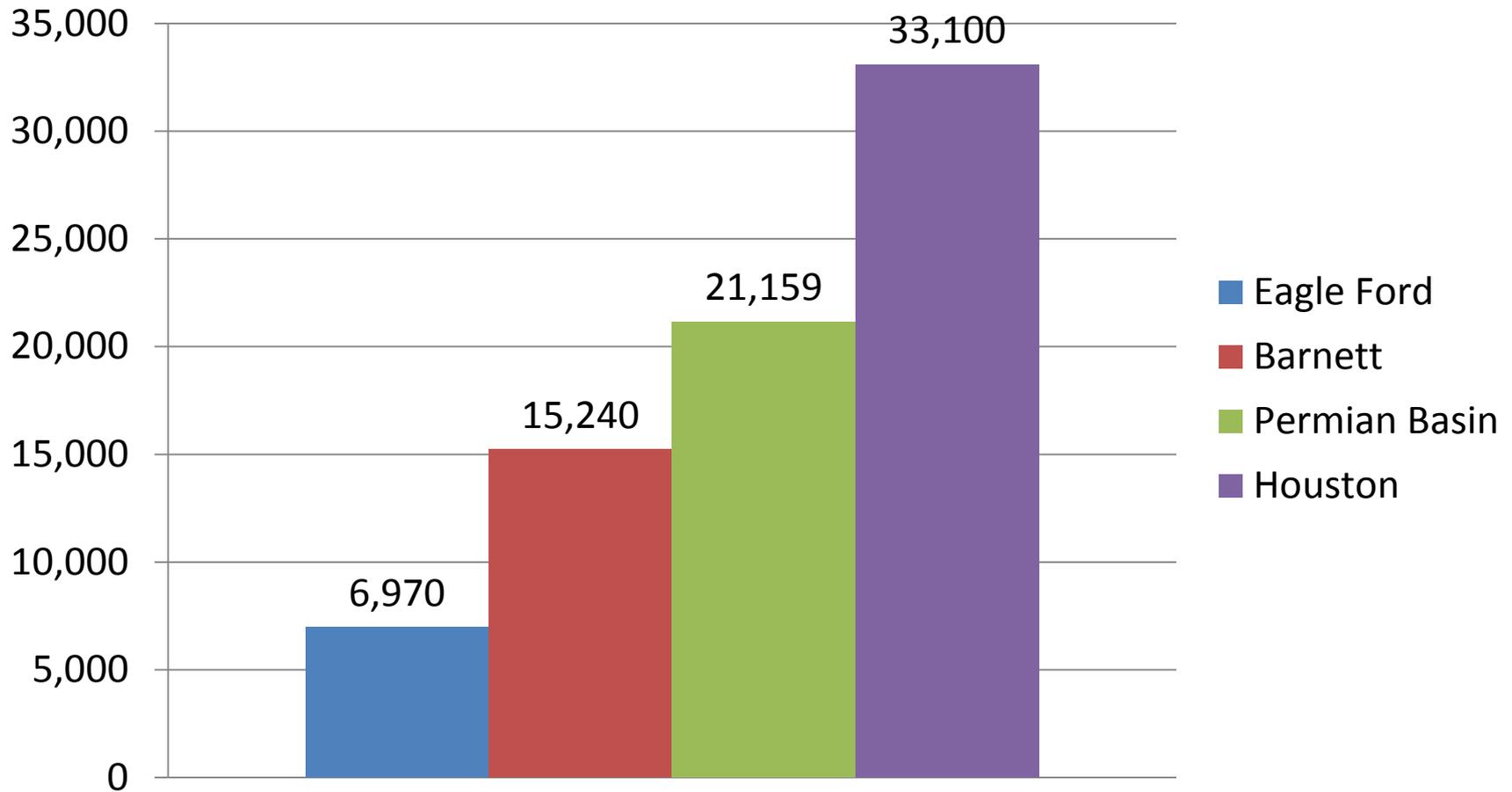


Good time to look to foreign markets for growth

- Barclay's forecast year-over-year growth of nine percent outside North America
- The market is \$460 billion, 2.5 times the size of the U.S. market
- The return of Iraq and 300 rigs has been the story of the last decade
- Now it is about complex geologies, and deep-water drilling



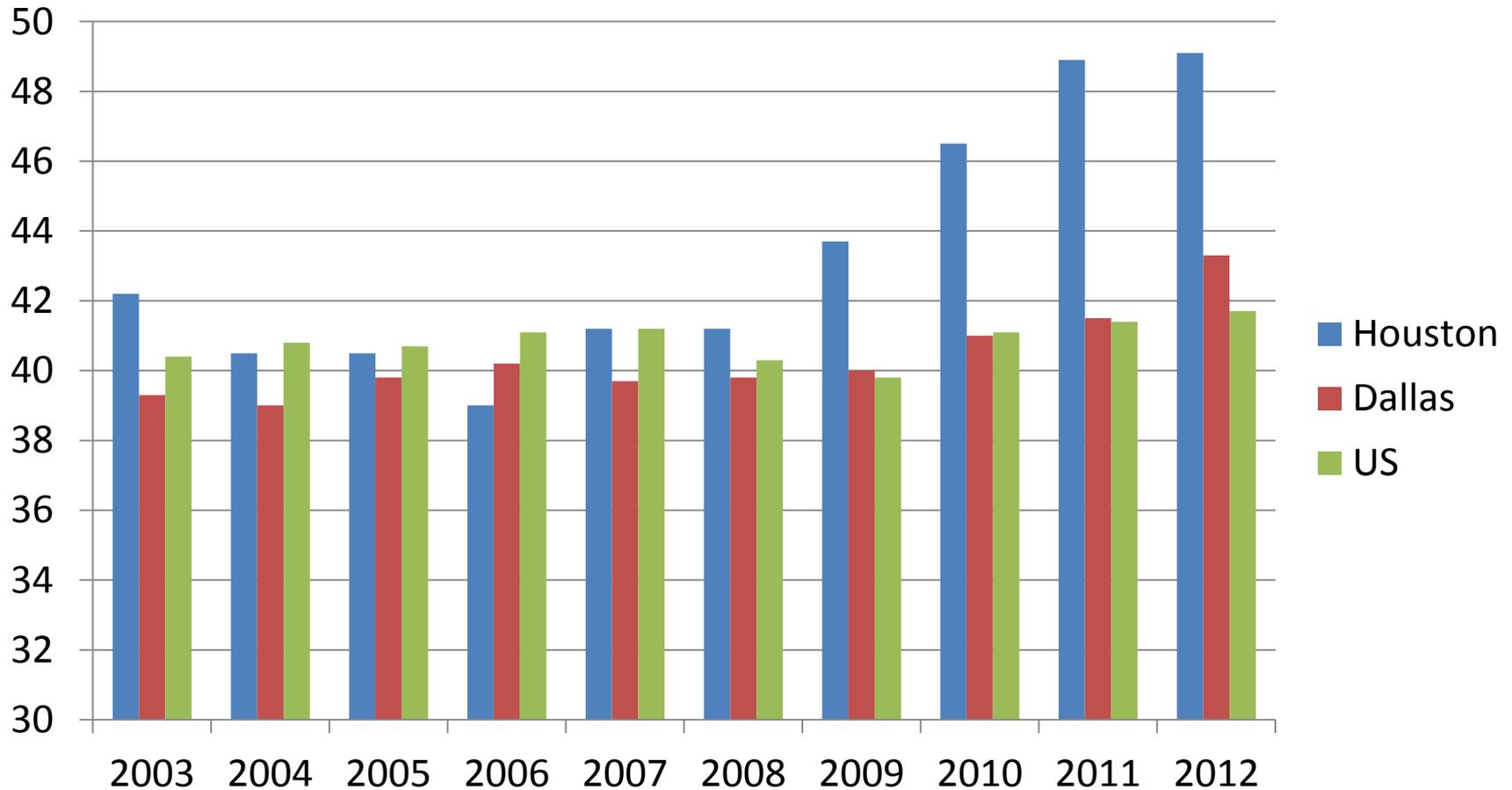
Houston has largest gains in upstream oil employment in Texas, 2006-2012



BLS payroll employment and FRB-Dallas calculations



Weekly hours surged for production workers in Houston manufacturing



Bureau of Labor Statistics



Chemical Plants Affected By Hurricane Rita

(Percent N.A. Capacity Shut Down at Peak)

- Ethylene Steam Cracker: 58.5%
- RG Propylene: 30.7%
- Benzene: 68.5%
- Polyethylene: 63.0%
- Styrene: 85.3%
- Butadiene: 95.8%

Data from CMAI, Inc. and expressed as percent of North American Capacity