



Risk in Forecasting

By:
Jim Rounds
Senior Vice President/Partner
Elliott D. Pollack & Company

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How does risk impact a forecast?

**How should it be handled in budget
development?**

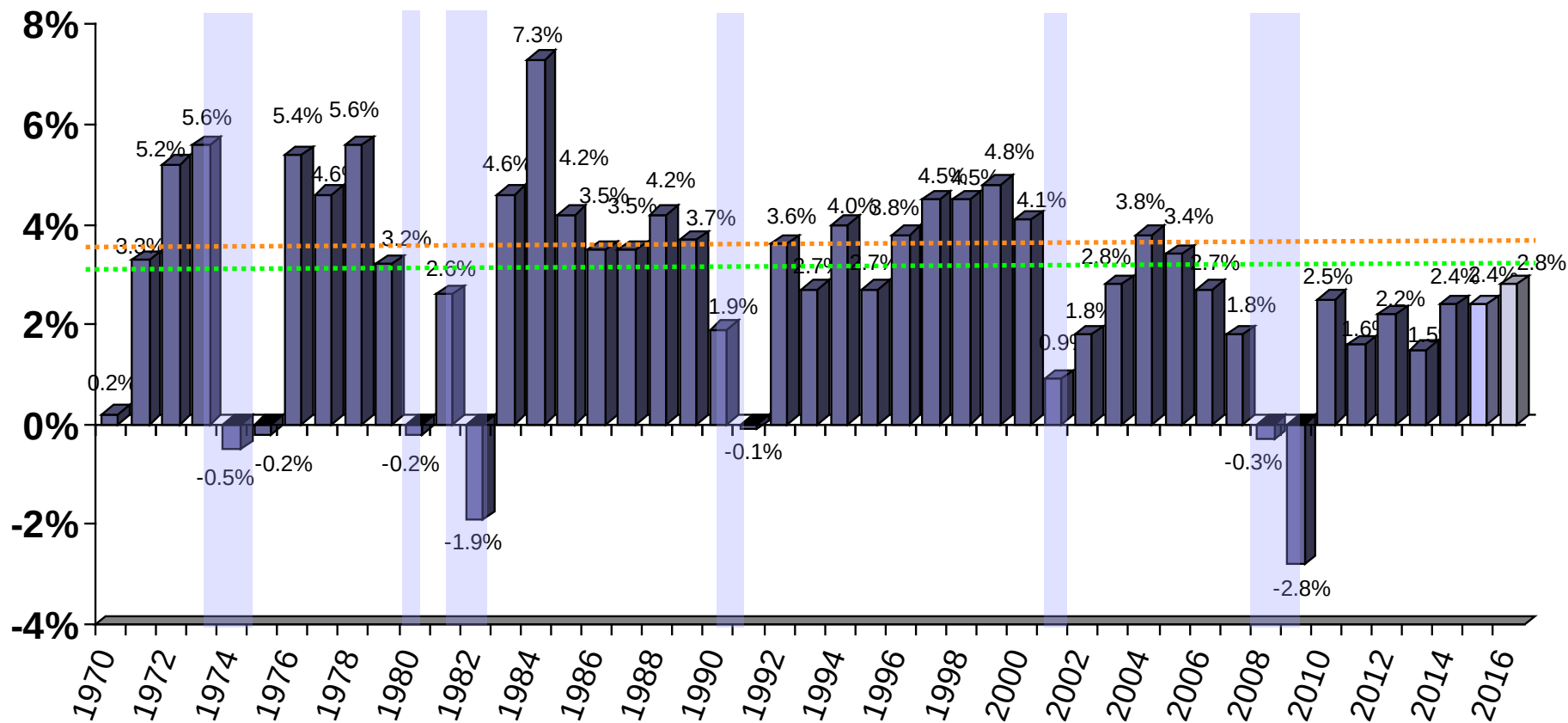
What are the risks?



United States Real Gross Domestic Product*

Annual Growth 1970 - 2016**

Source: U.S. Bureau of Economic Analysis & *Blue Chip Economic Indicators*



* Based on chained 2009 dollars.

** 2015 and 2016 are a forecast from the Blue Chip Economic Indicators, July 2015.

----- 3.6% = 40-year avg during expansion

----- 3.1% = 20-year avg during expansion

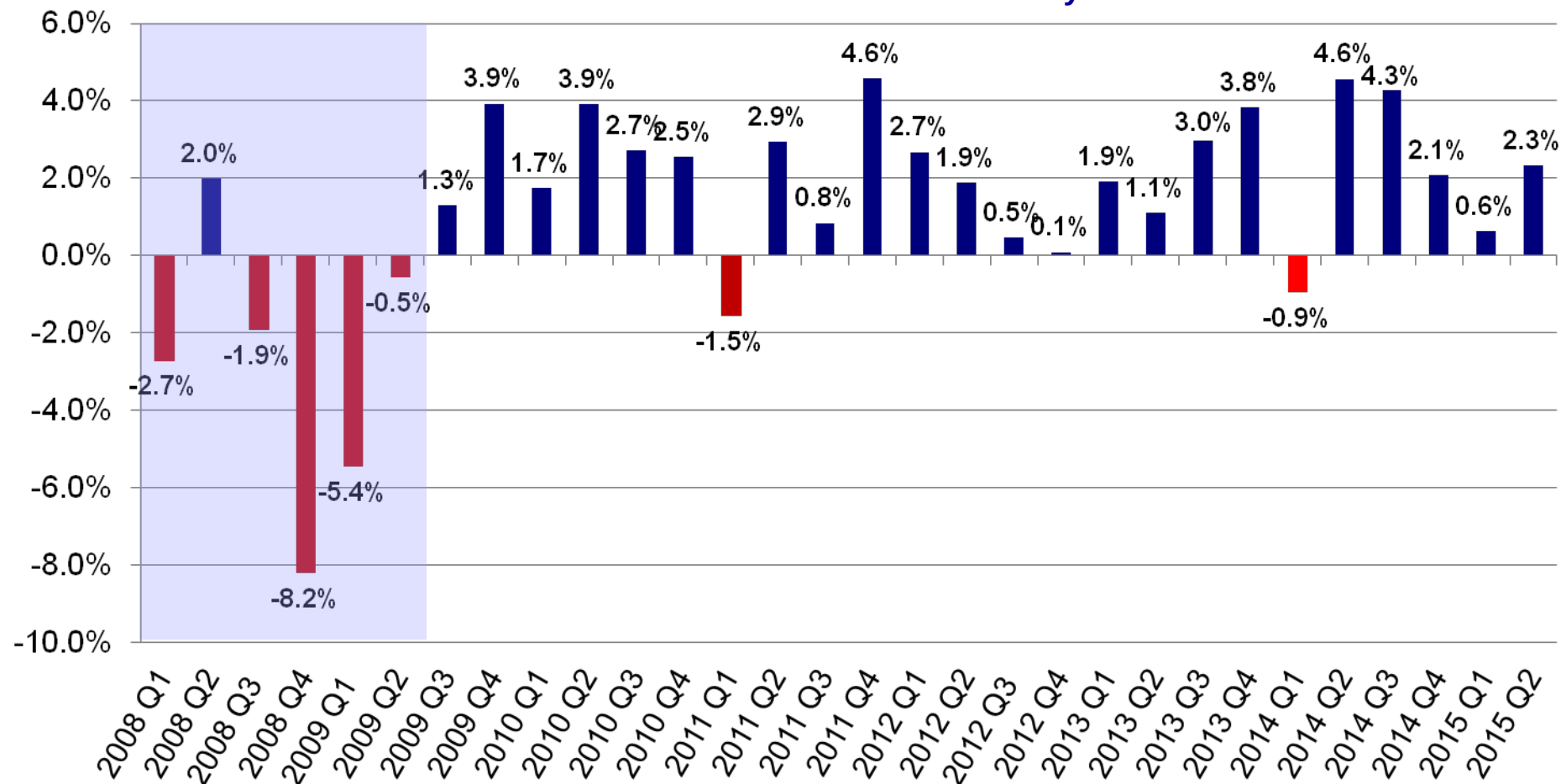
Recession Periods



United States Real Gross Domestic Product*

Quarterly Growth 2008 – 2015**

Source: U.S. Bureau of Economic Analysis



* Based on chained 2009 dollars.

** Data through Q2 2015.



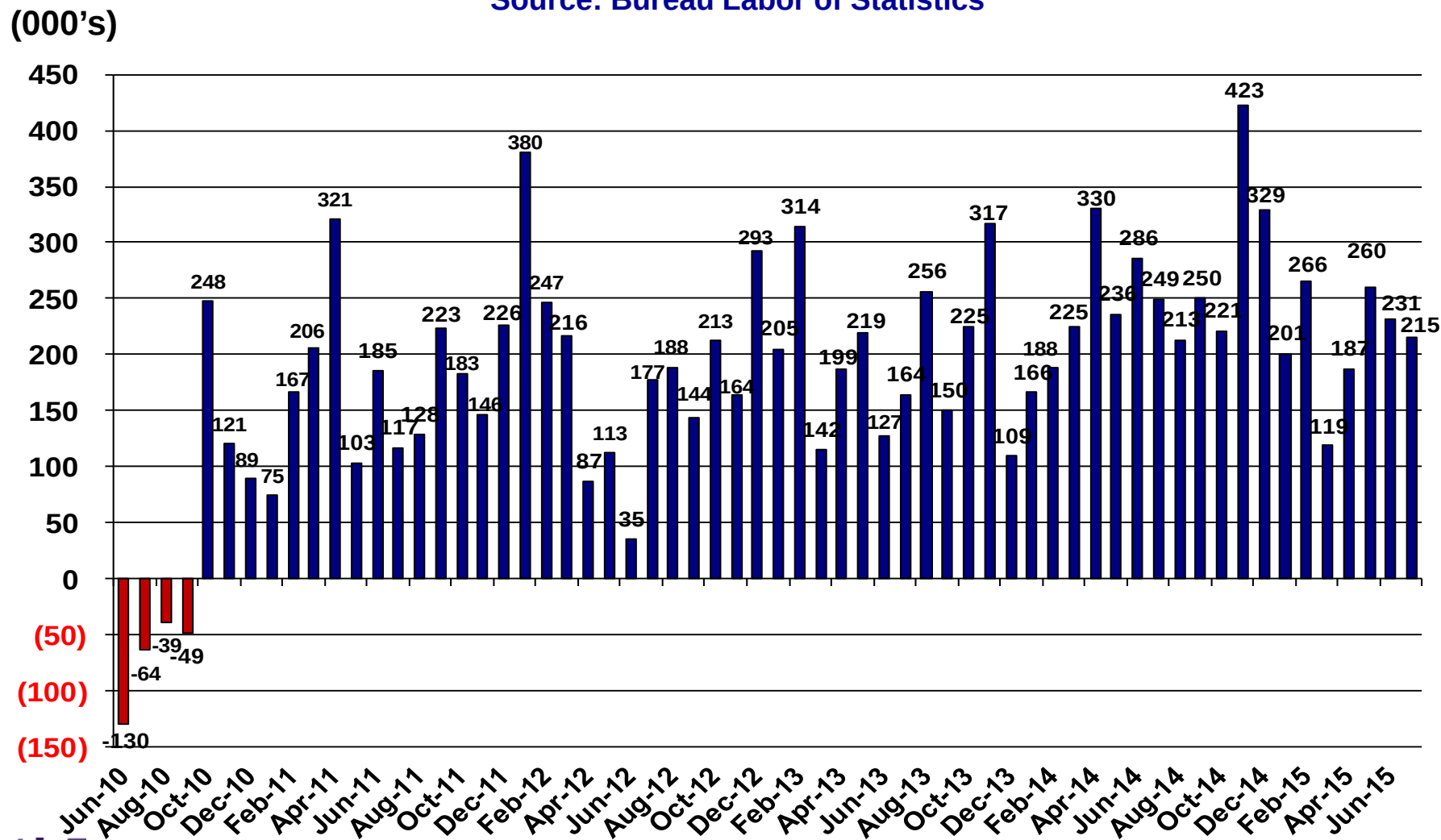
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Recession Periods

U.S. Non-Farm Employment Change from Prior Month (S/A)

June 2010 – July 2015

Source: Bureau Labor of Statistics

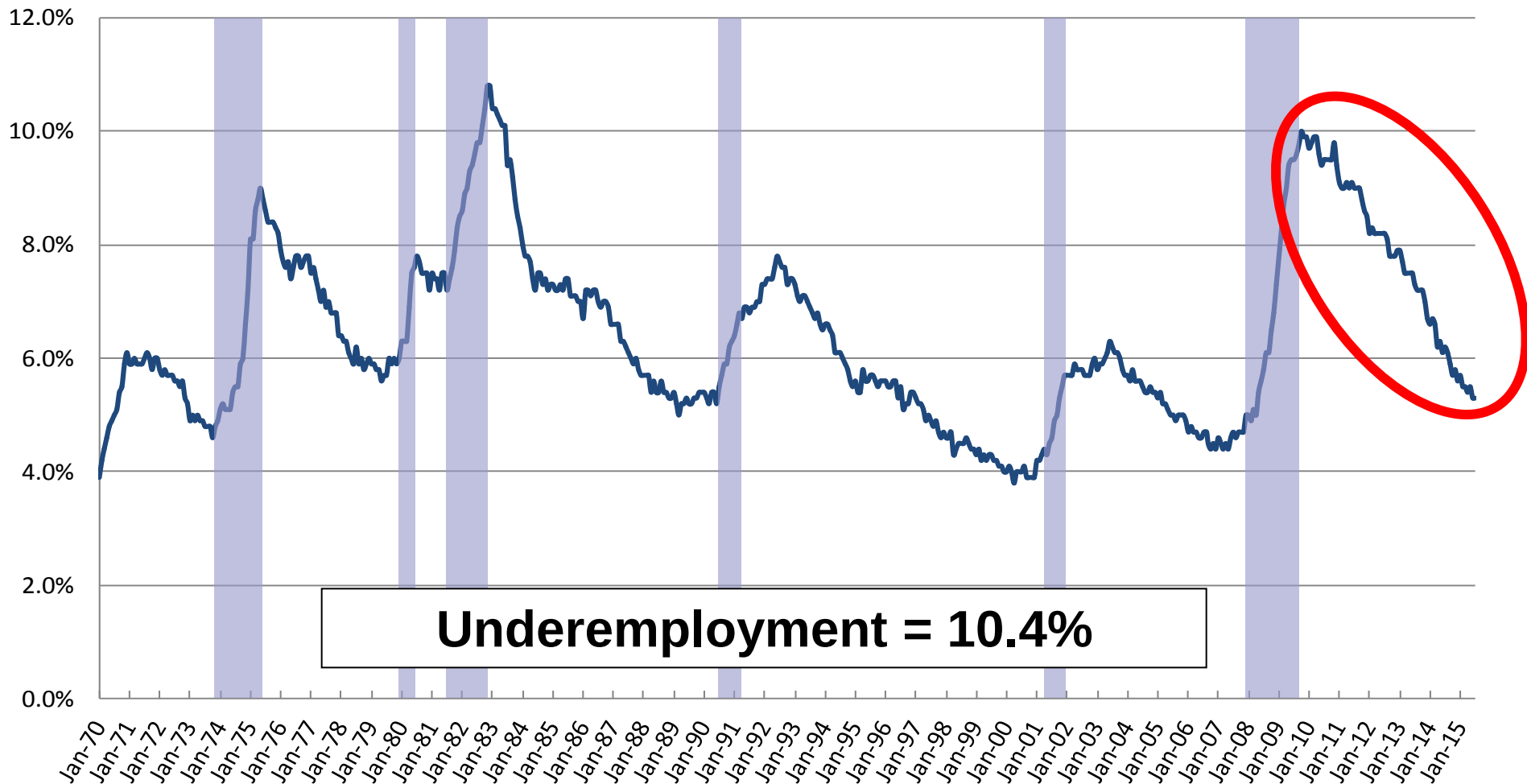


U.S. Unemployment Rate

1970 – 2015*

Source: Bureau of Labor Statistics

Recession Periods



Underemployment = 10.4%

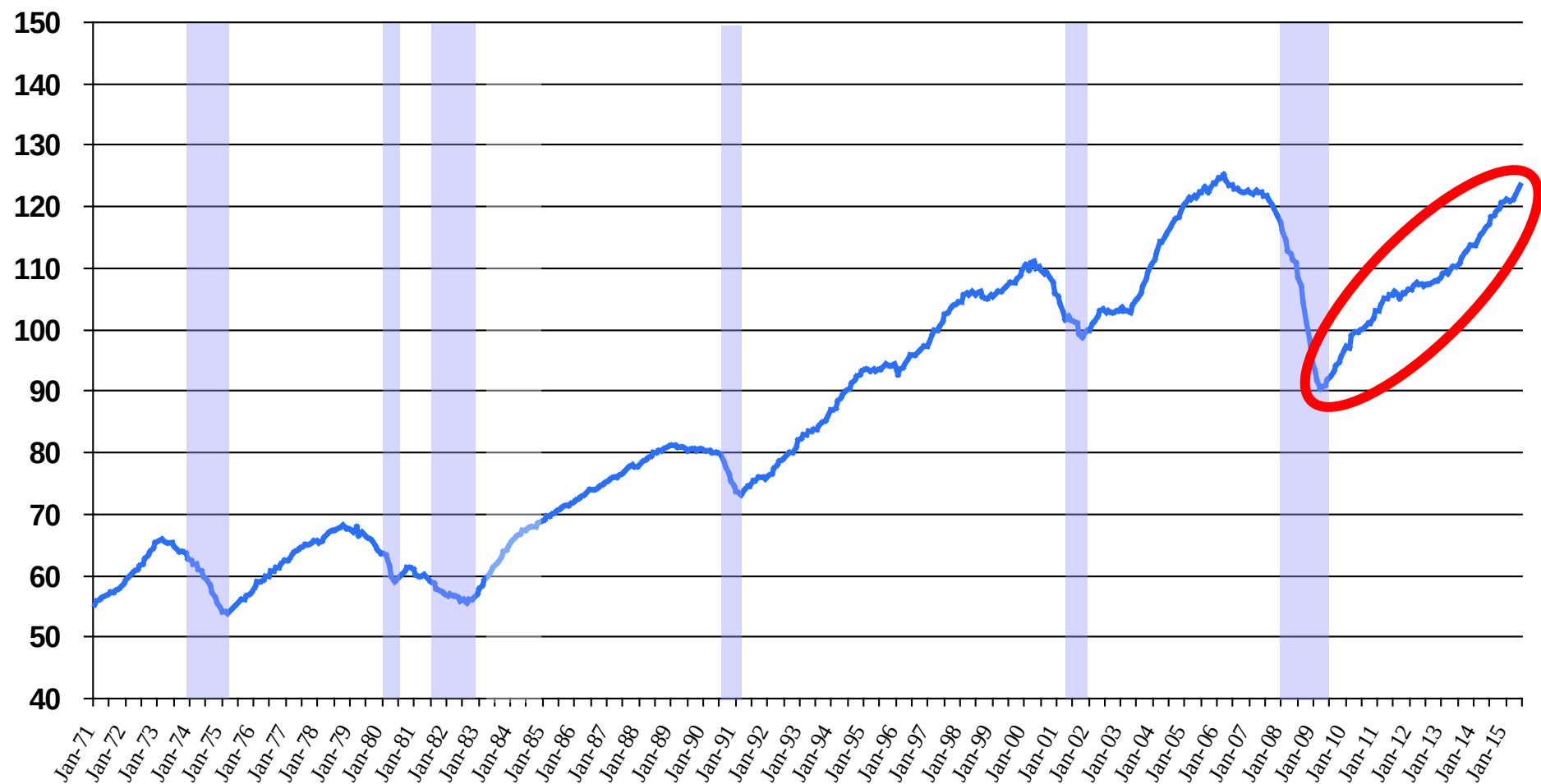


U.S. Leading Indicators

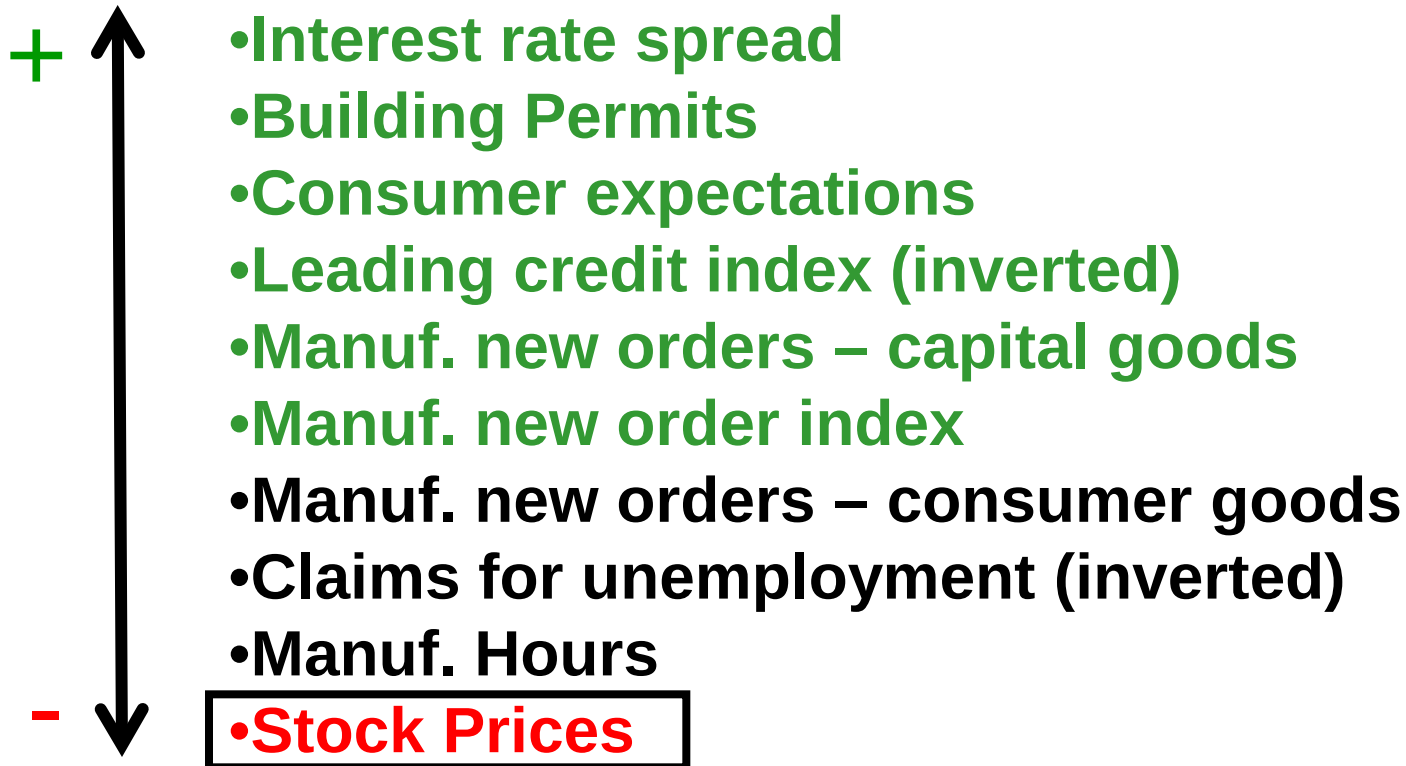
1971 – 2015*

Source: The Conference Board

Recession Periods



10 Components of U.S. Leading Indicators – June 2015

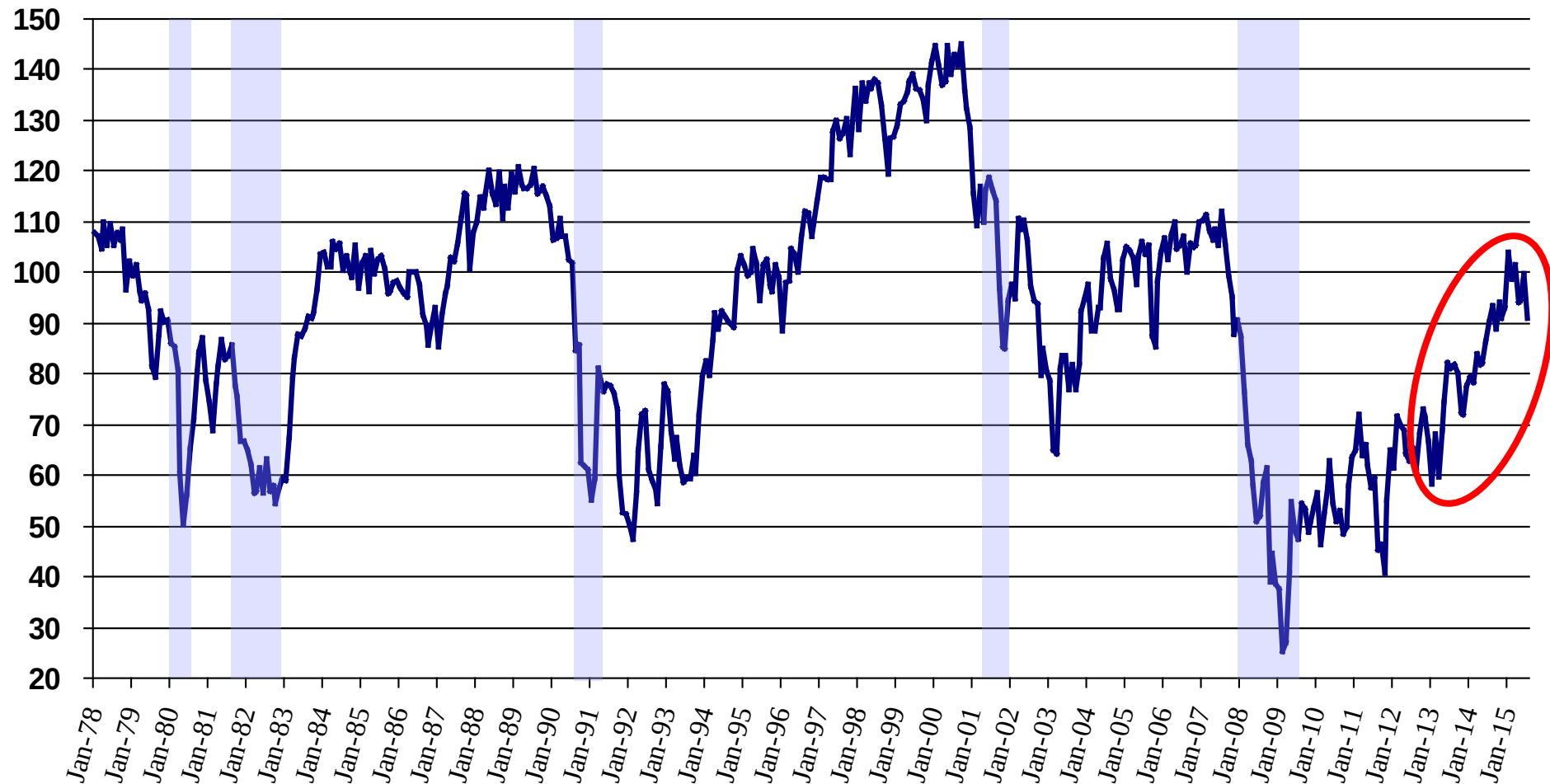


Consumer Confidence

1978 – 2015*

Source: The Conference Board

Recession Periods



*Data through July 2015.



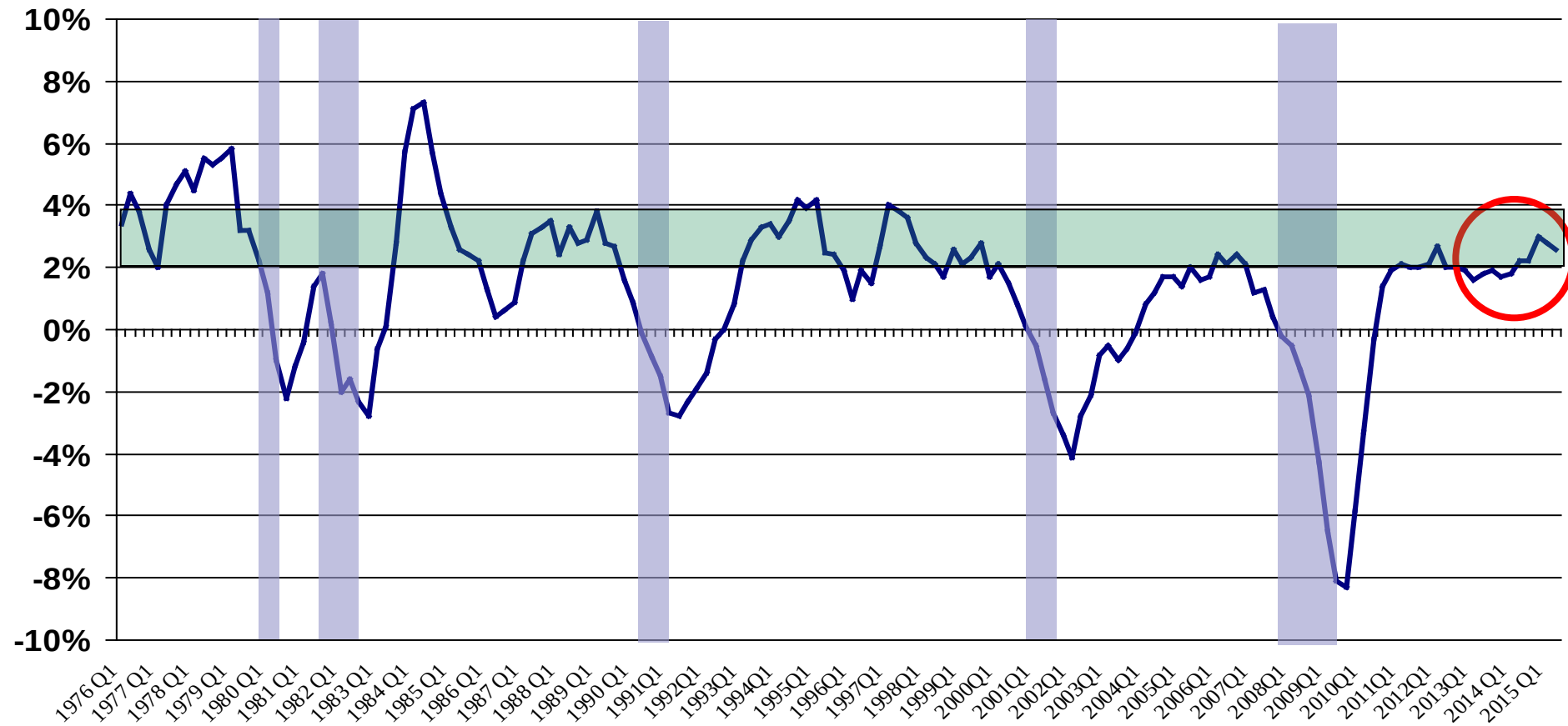
Hours Worked

Percent Change from Year Ago

1976 – 2015*

Source: Bureau of Labor Statistics

Recession Periods

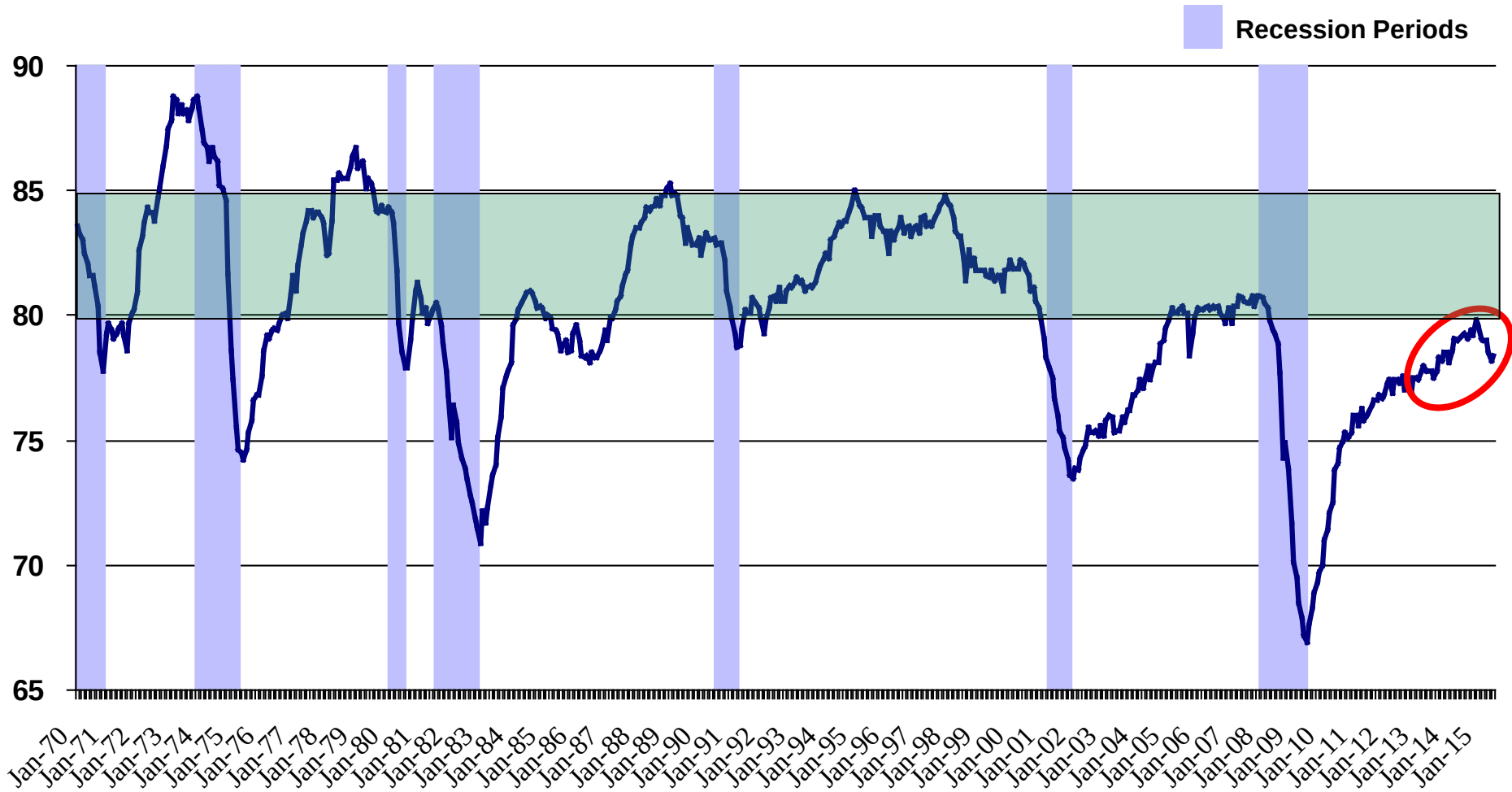


*Data through second quarter 2015



Capacity Utilization Rate 1970 – 2015*

Source: The Federal Reserve Bank of St. Louis





**All about jobs and population
growth.**

**Don't get caught up in the
negative discussion.**



Job Growth 2010

Source: US BLS

Alaska

2

32

Hawaii

49

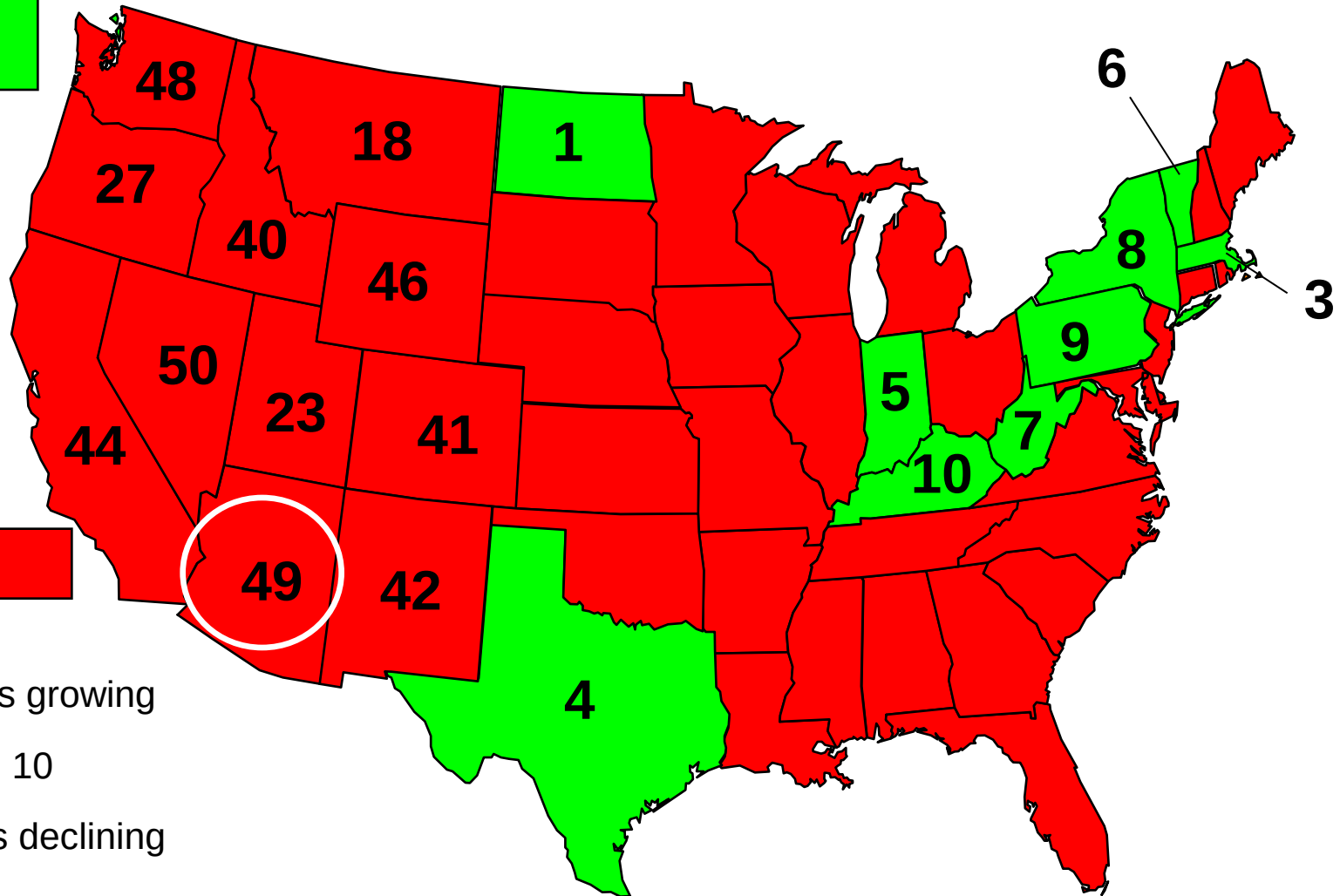
Jobs growing

Top 10

Jobs declining

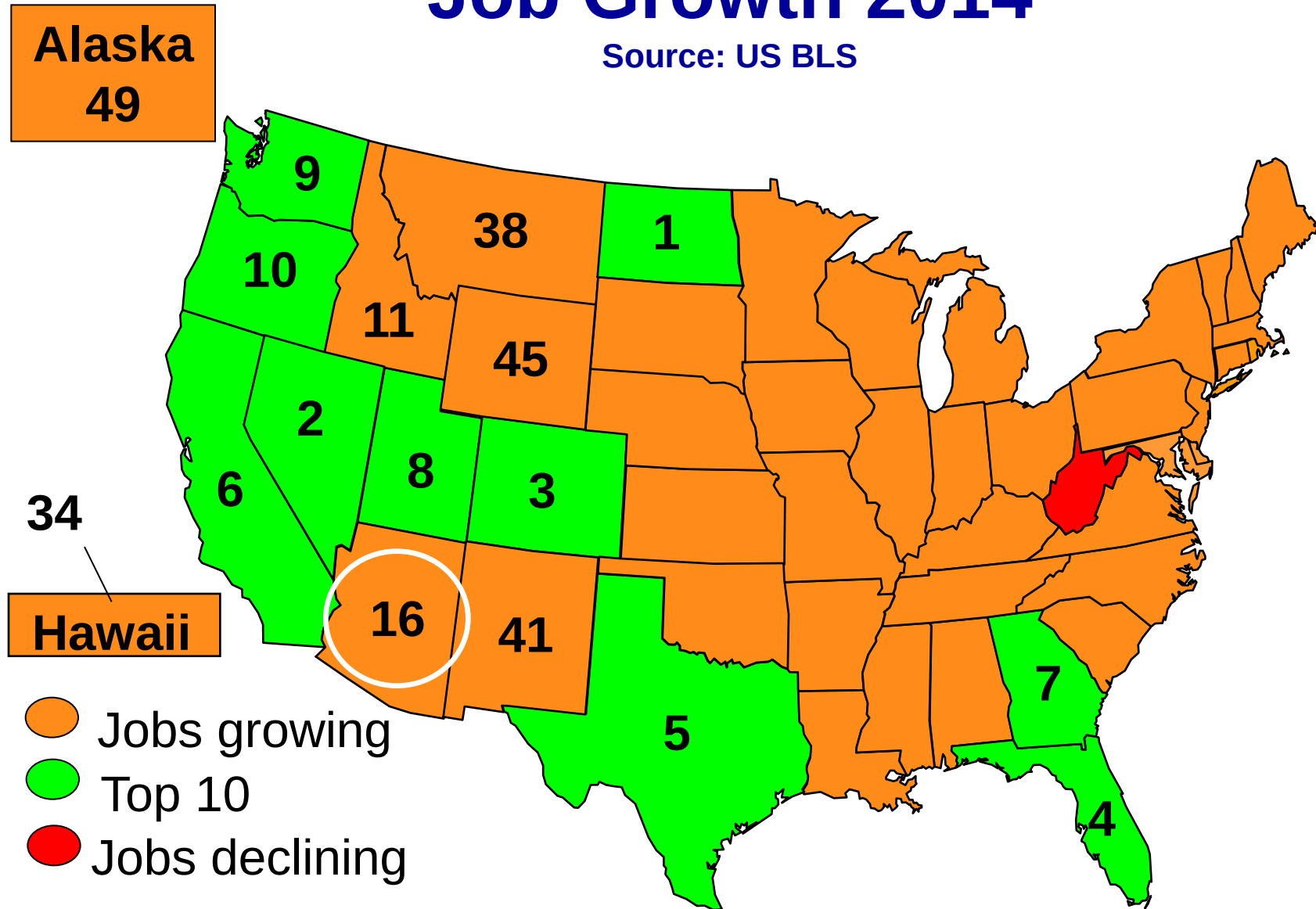


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Job Growth 2014

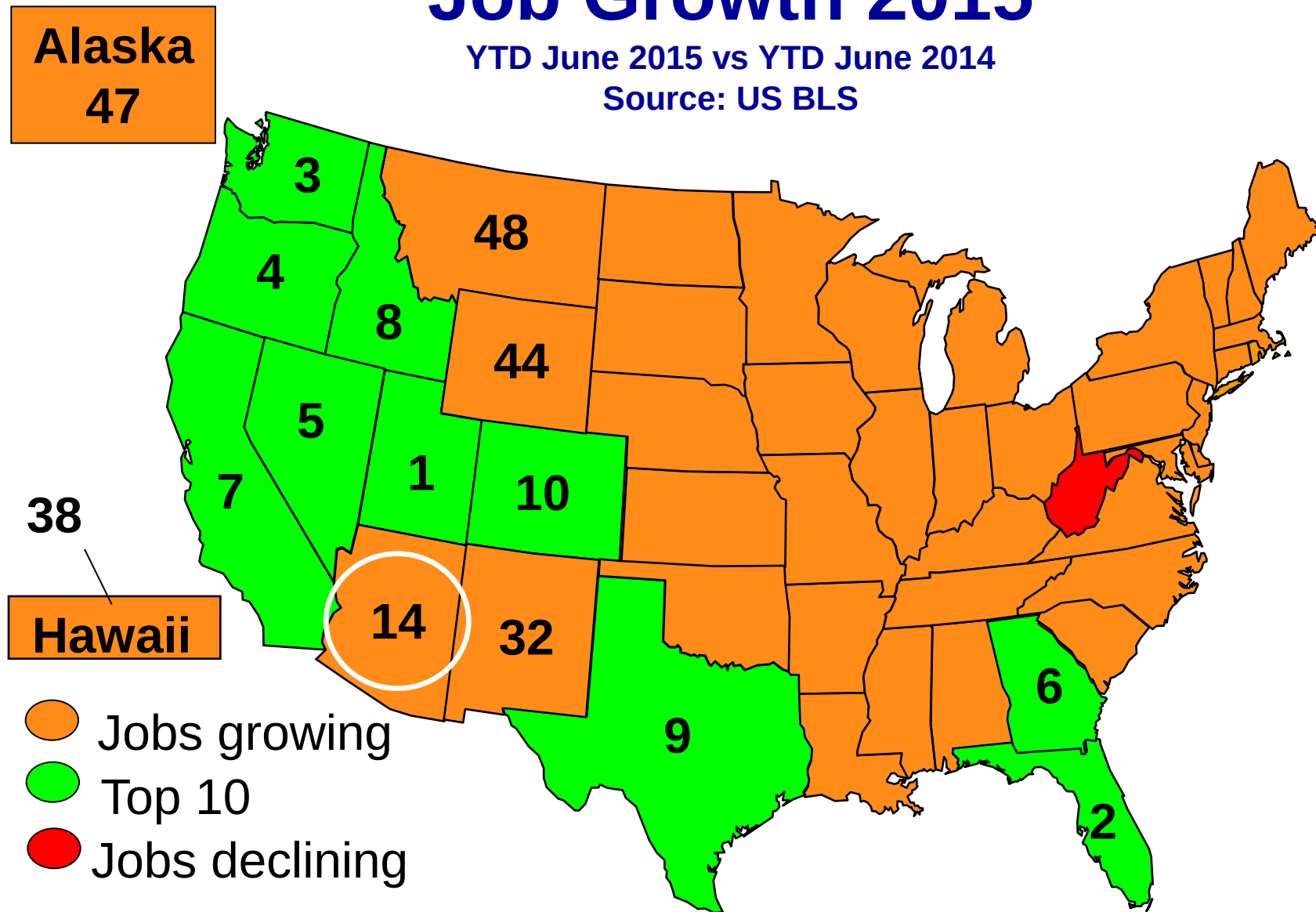
Source: US BLS



Job Growth 2015

YTD June 2015 vs YTD June 2014

Source: US BLS



Arizona Employment Growth

Arizona's Rank Out of 50 States

Source: Arizona State University, U.S. Bureau of Labor Statistics

Year	Rank
1992	23
1993	5
1994	2
1995	2
1996	2
1997	2
1998	1
1999	2
2000	5
2001	9
2002	10
2003	4

Year	Rank
2004	2
2005	2
2006	2
2007	17
2008	46
2009	49
2010	49
2011	27
2012	9
2013	10
2014	16
2015*	14



Phoenix-Mesa-Scottsdale Employment Growth

(Ranking among all metro areas greater than 1,000,000)

Source: Arizona State University, U.S. Bureau of Labor Statistics

Year	Rank	# MSA's
1992	4	19
1993	2	19
1994	1	19
1995	1	20
1996	1	21
1997	2	22
1998	1	23
1999	3	24
2000	7	25
2001	7	26
2002	5	25
2003	3	25

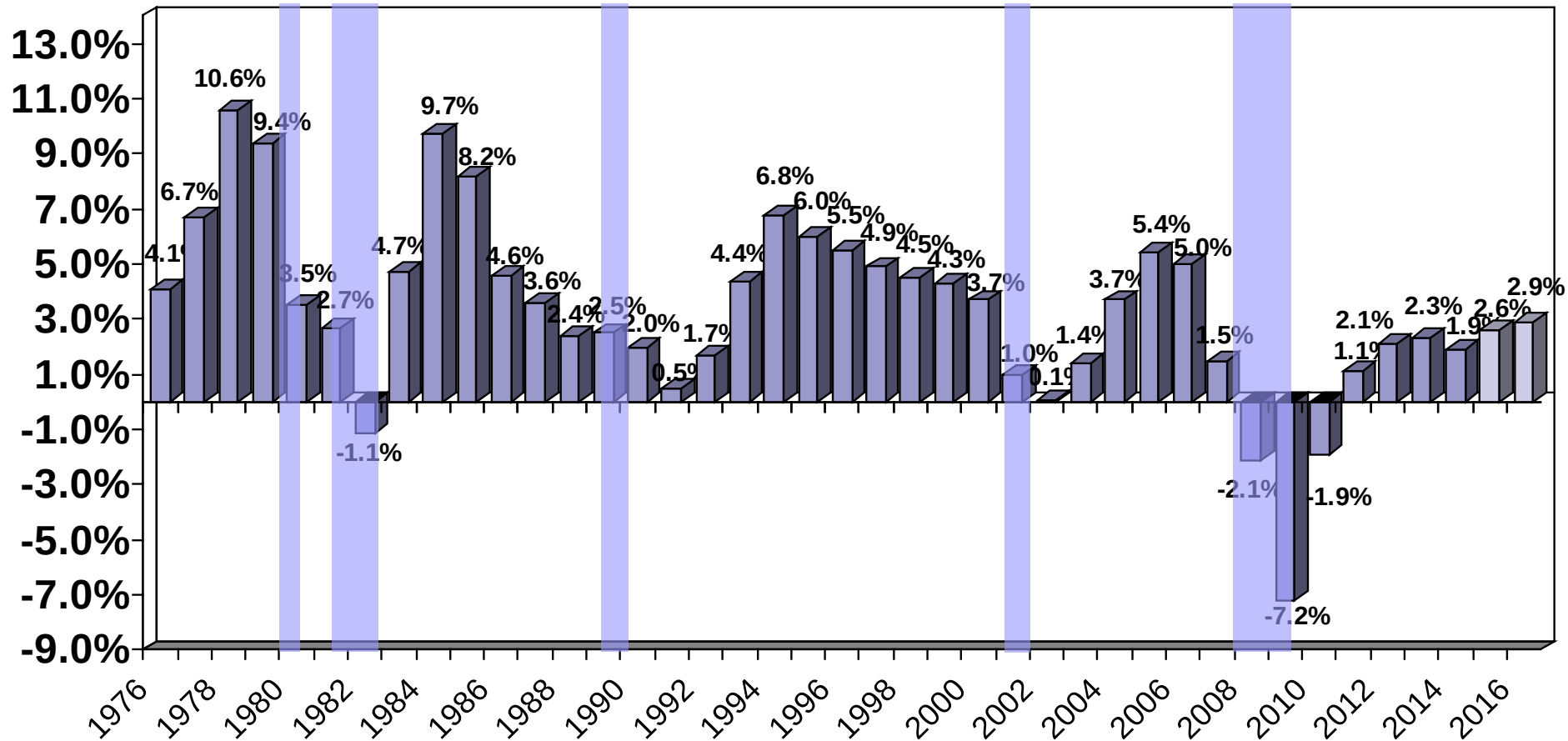
Year	Rank	# MSA's
2004	3	25
2005	1	26
2006	1	27
2007	10	29
2008	25	29
2009	23	24
2010	23	23
2011	14	25
2012	11	28
2013	9	28
2014	16	31
2015*	13	32



Arizona Employment*

Annual Percent Change 1976–2016**

Source: Arizona Department of Administration



Recession Periods

*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.

**2015 & 2016 forecasts from Elliott D. Pollack & Co. as of July 2015.

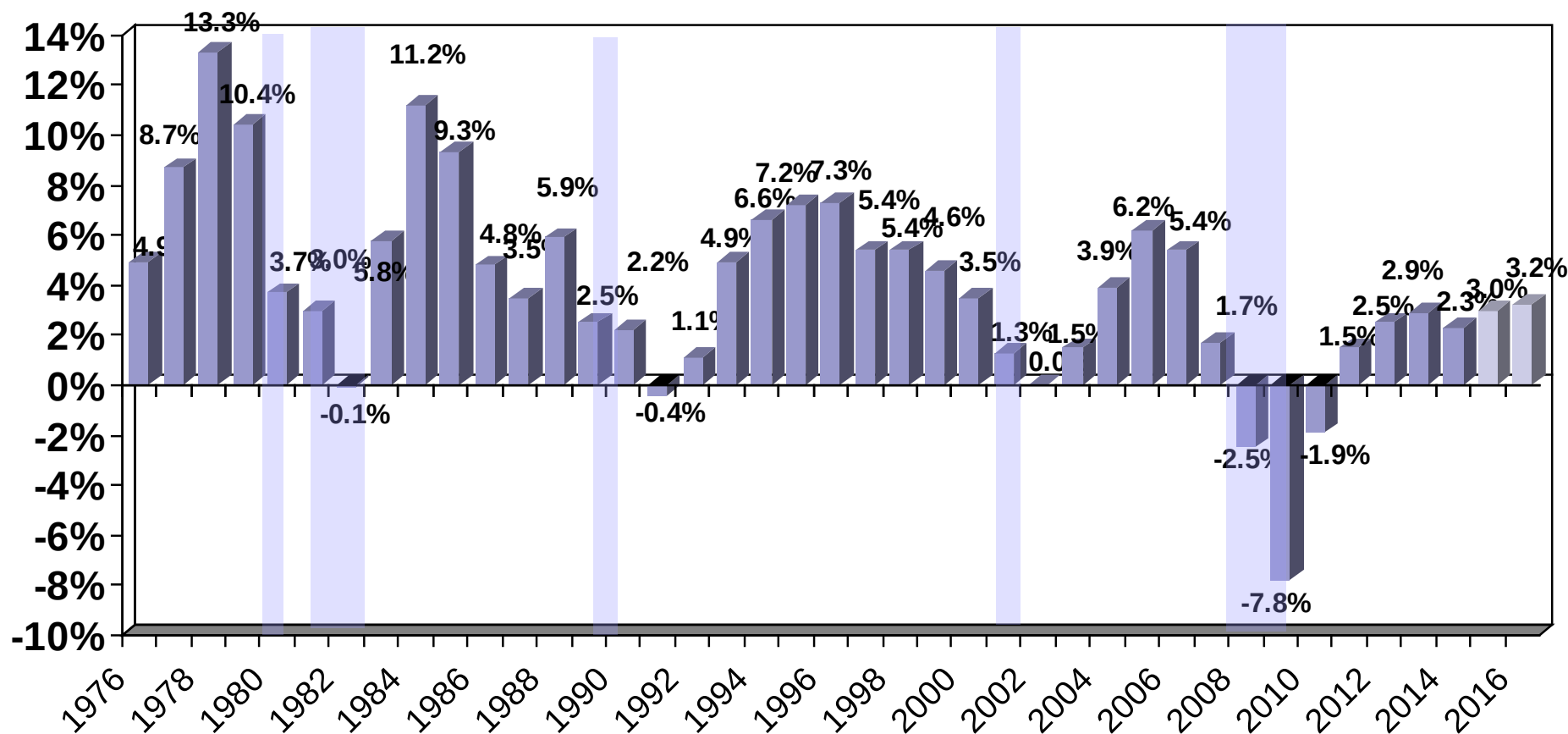


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Greater Phoenix Employment*

Annual Percent Change 1976–2016**

Source: Arizona Department of Administration



*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.

**2015 & 2016 forecasts from Elliott D. Pollack & Co. as of July 2015.



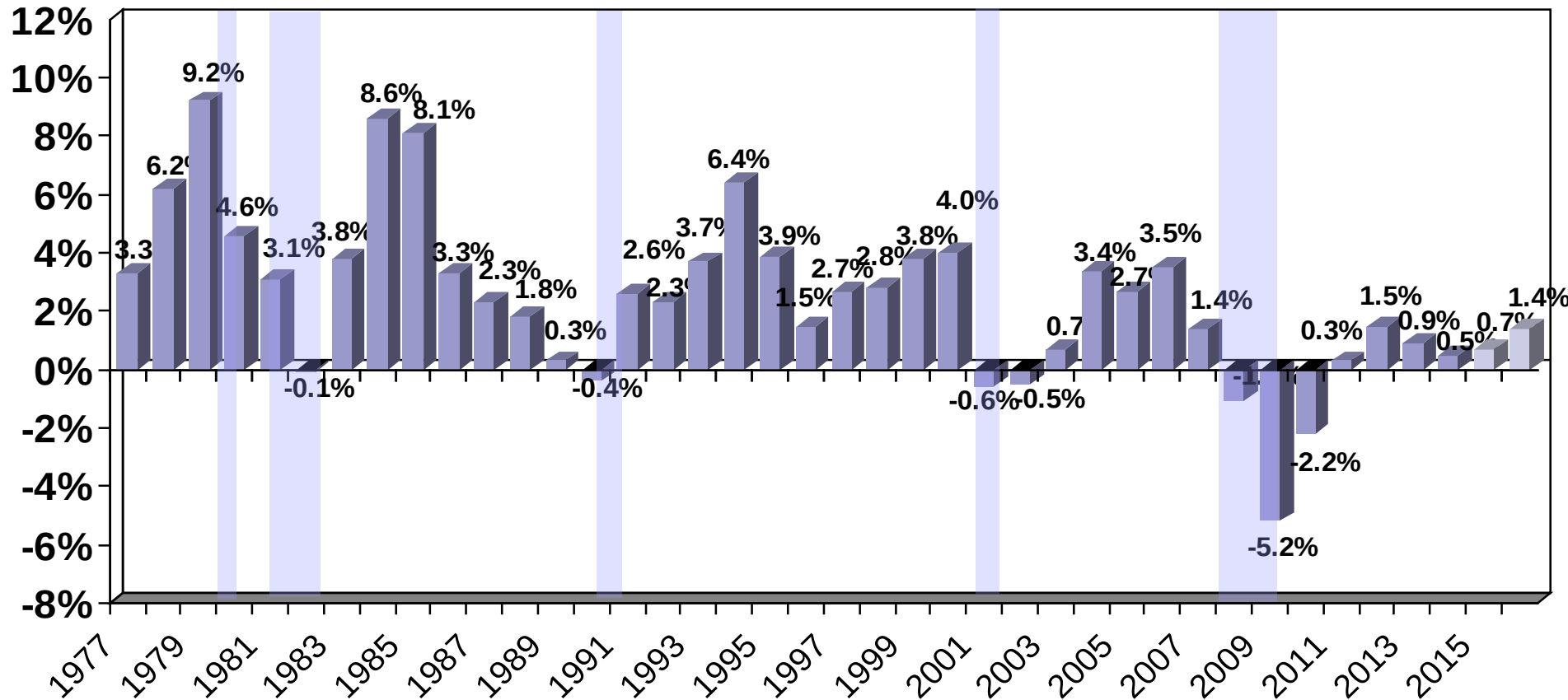
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Recession Periods

Greater Tucson Employment*

Annual Percent Change 1977–2016**

Source: Arizona Department of Administration



*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.

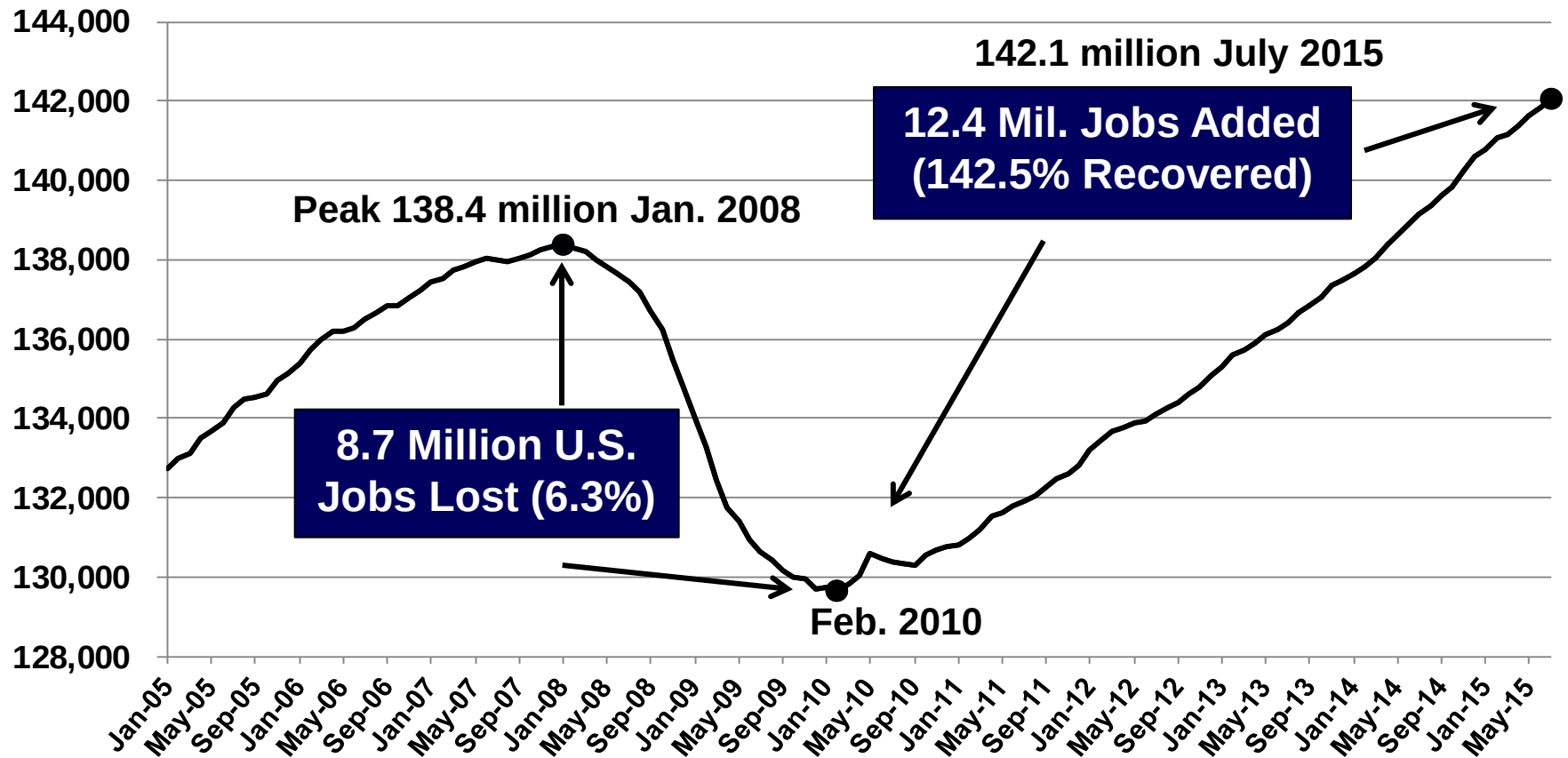
**2015 & 2016 forecasts from the University of Arizona as of the third quarter 2015.



U.S. Seasonally Adjusted Non-Farm Employment 2005 – 2015*

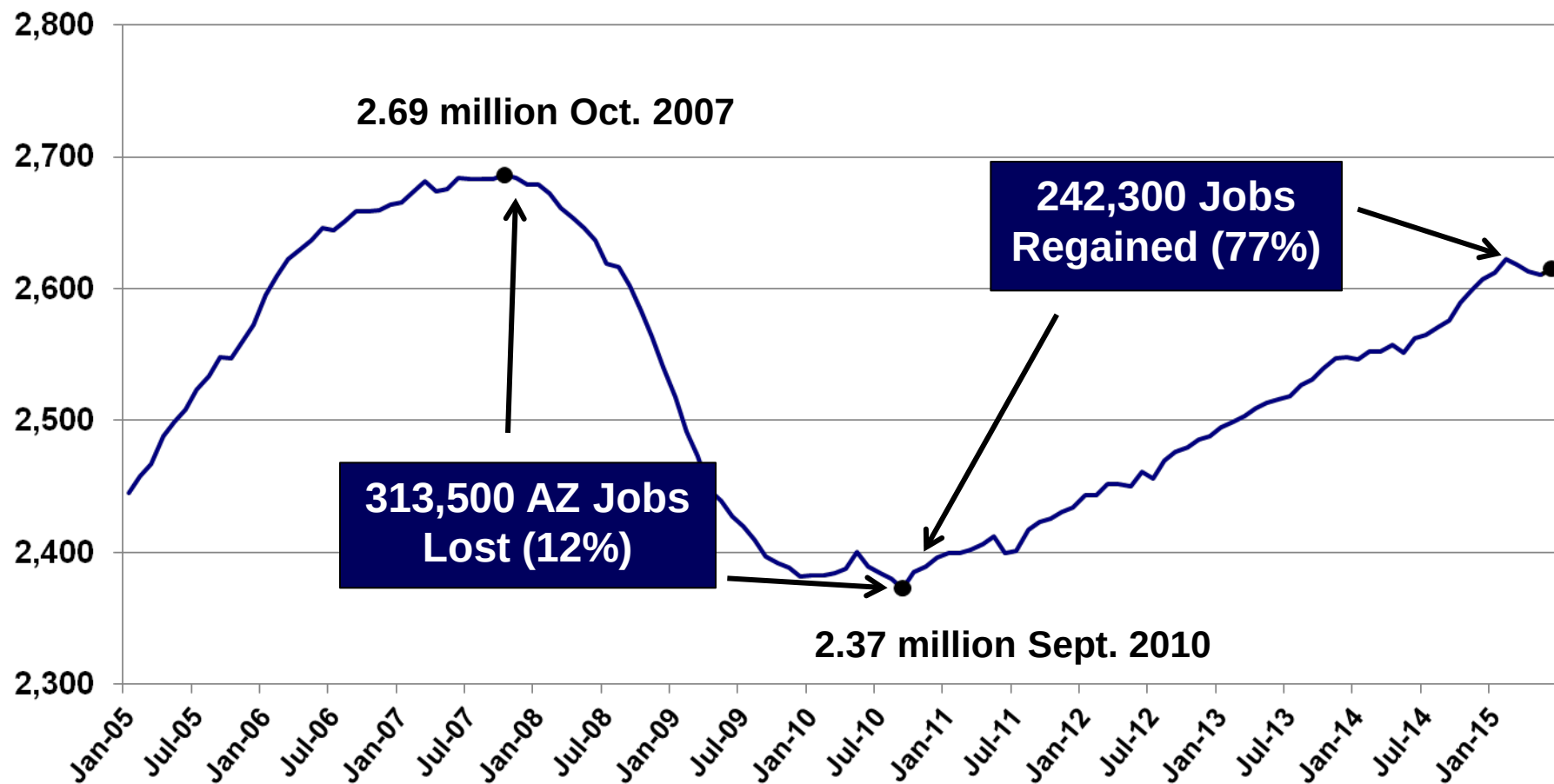
Source: Bureau of Labor Statistics

(000's)



AZ Has Regained 77% of Lost Jobs

71,200 Jobs (23%) Still to Recover

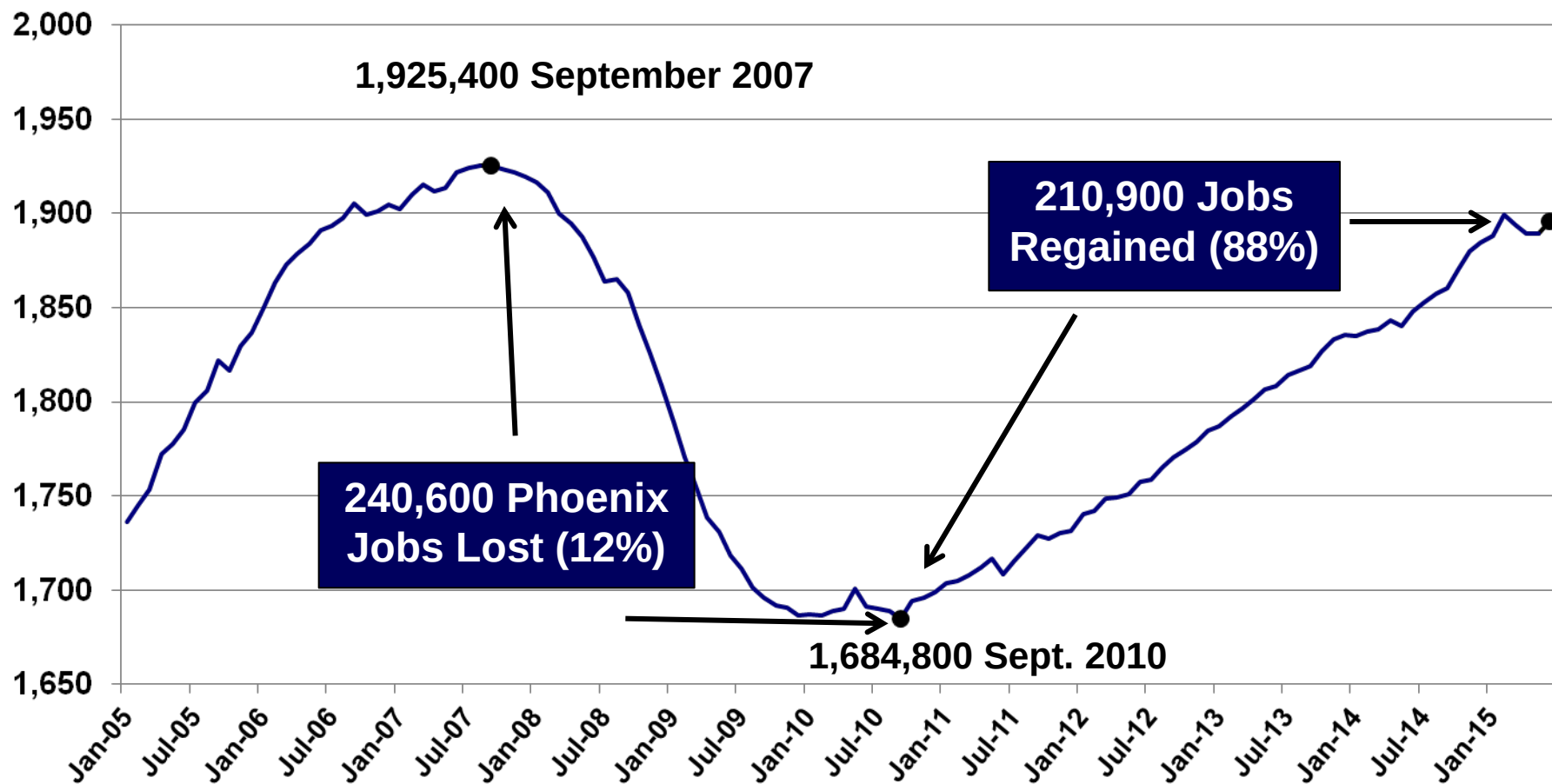


Source: U.S. Bureau of Labor Statistics, Thousands of Jobs, Seasonally Adjusted Data through June 2015.



Greater Phoenix Has Gained 88% of Lost Jobs

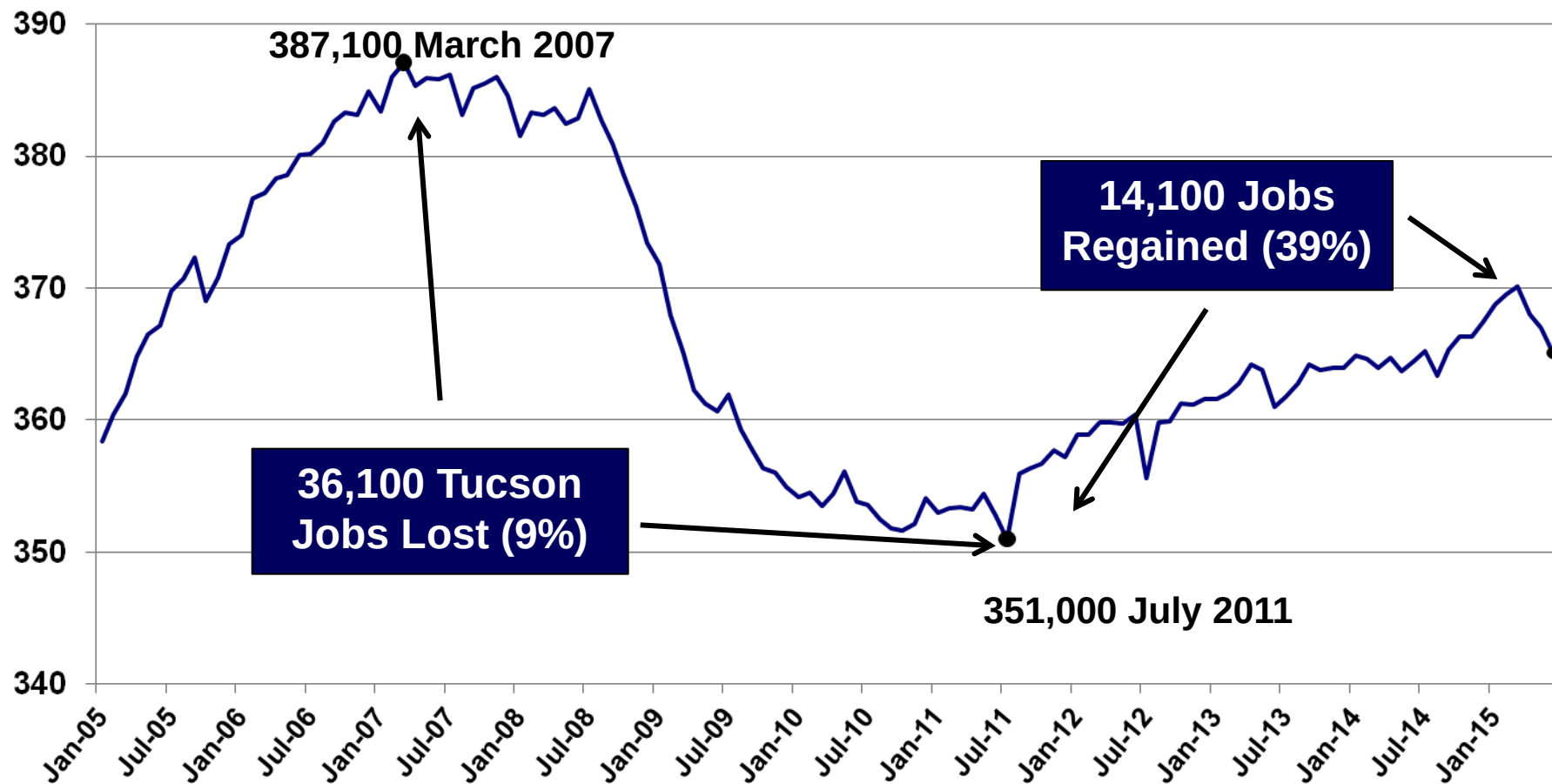
29,700 Jobs (12%) Still to Recover



Source: U.S. Bureau of Labor Statistics, Thousands of Jobs, Seasonally Adjusted Data through June 2015.



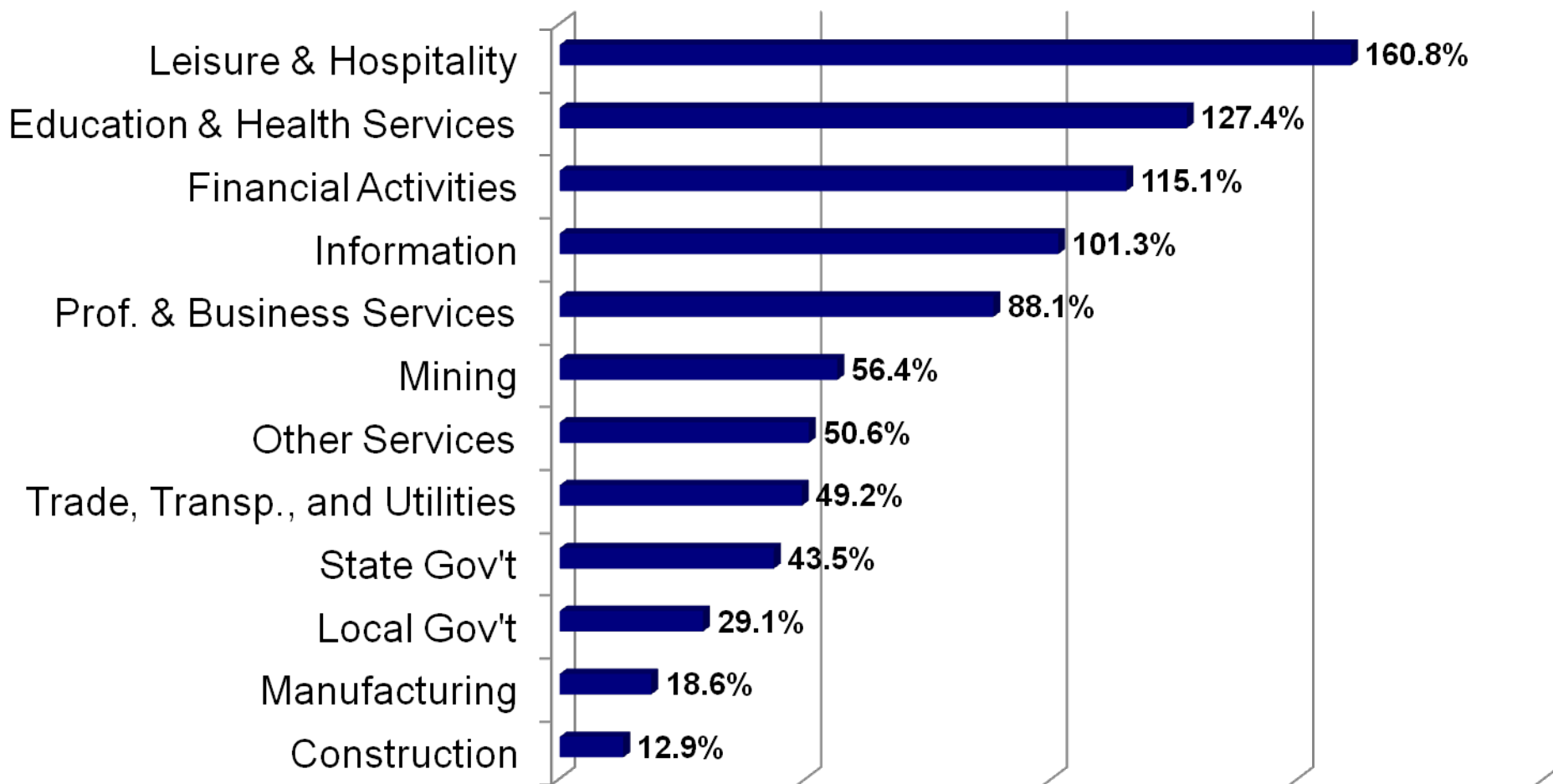
Greater Tucson Has Gained 39% of Lost Jobs 22,000 Jobs (61%) Still to Recover



Source: U.S. Bureau of Labor Statistics, Thousands of Jobs, Seasonally Adjusted Data through June 2015.



Arizona Jobs Regained Since Bottom of Cycle– Most Industries Yet to Regain Lost Jobs

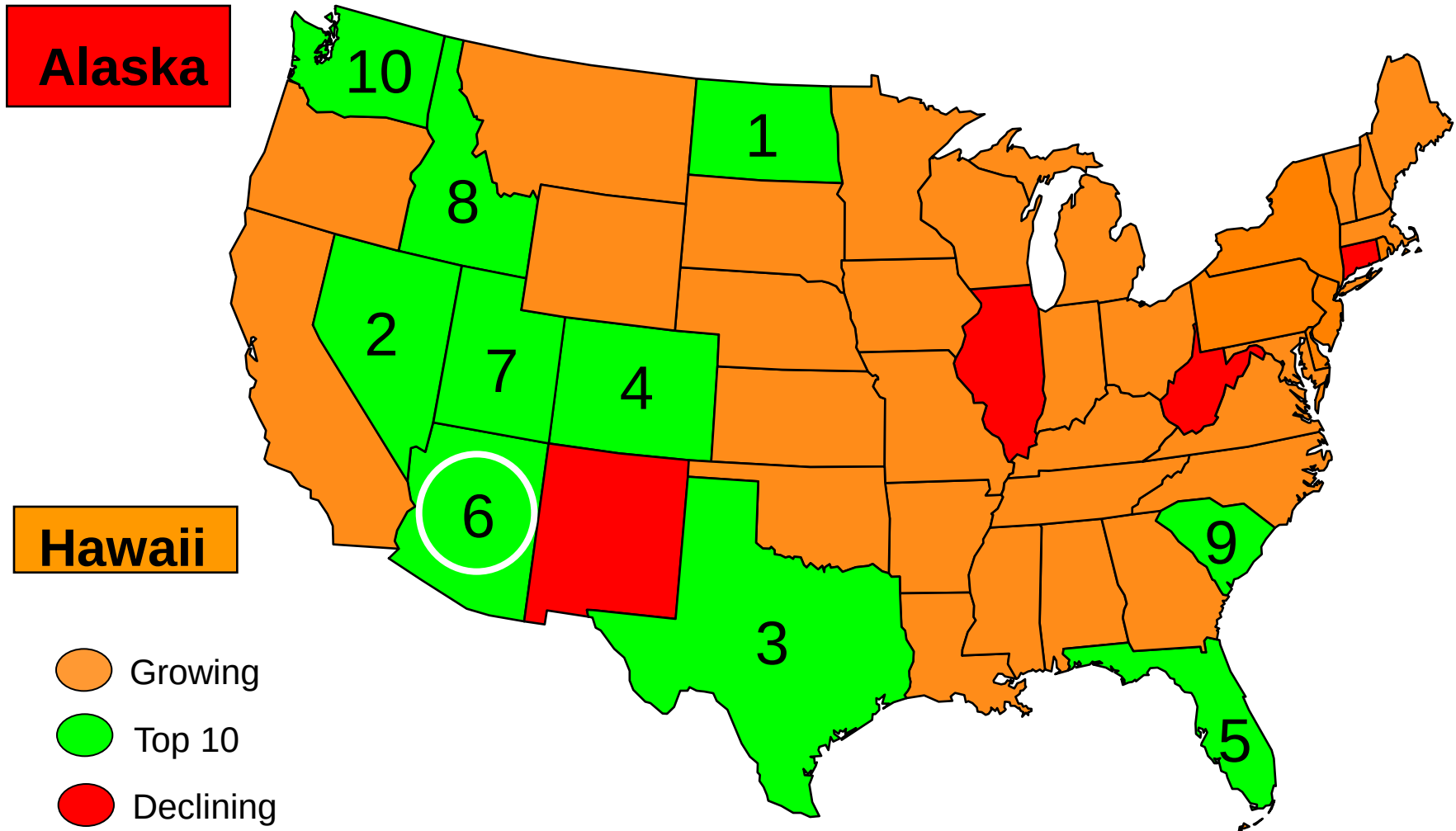


Source: U.S. Bureau of Labor Statistics, Thousands of Jobs, Seasonally Adjusted, as of June 2015.



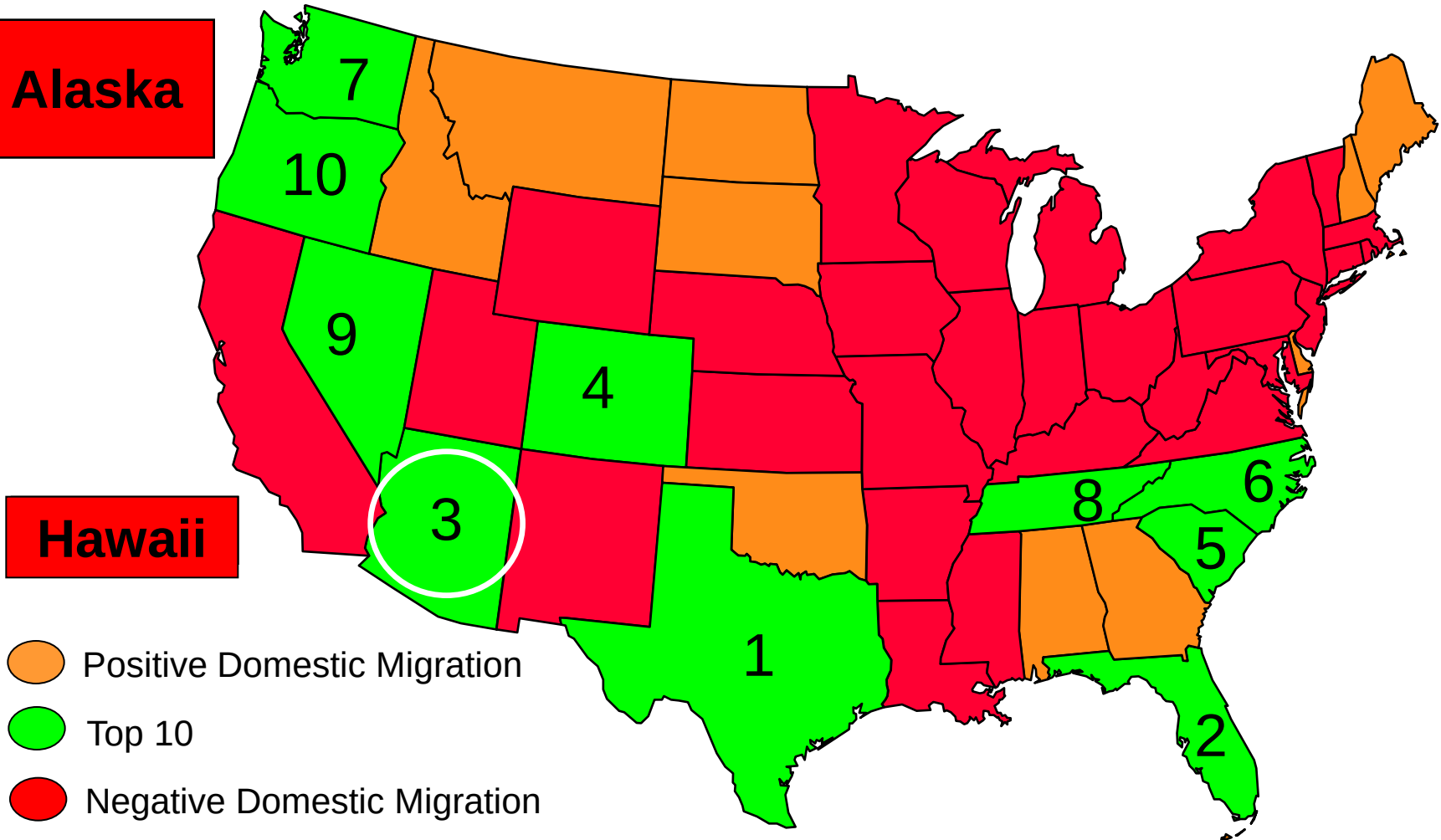
Population Growth 2014

Source: U.S. Census Bureau



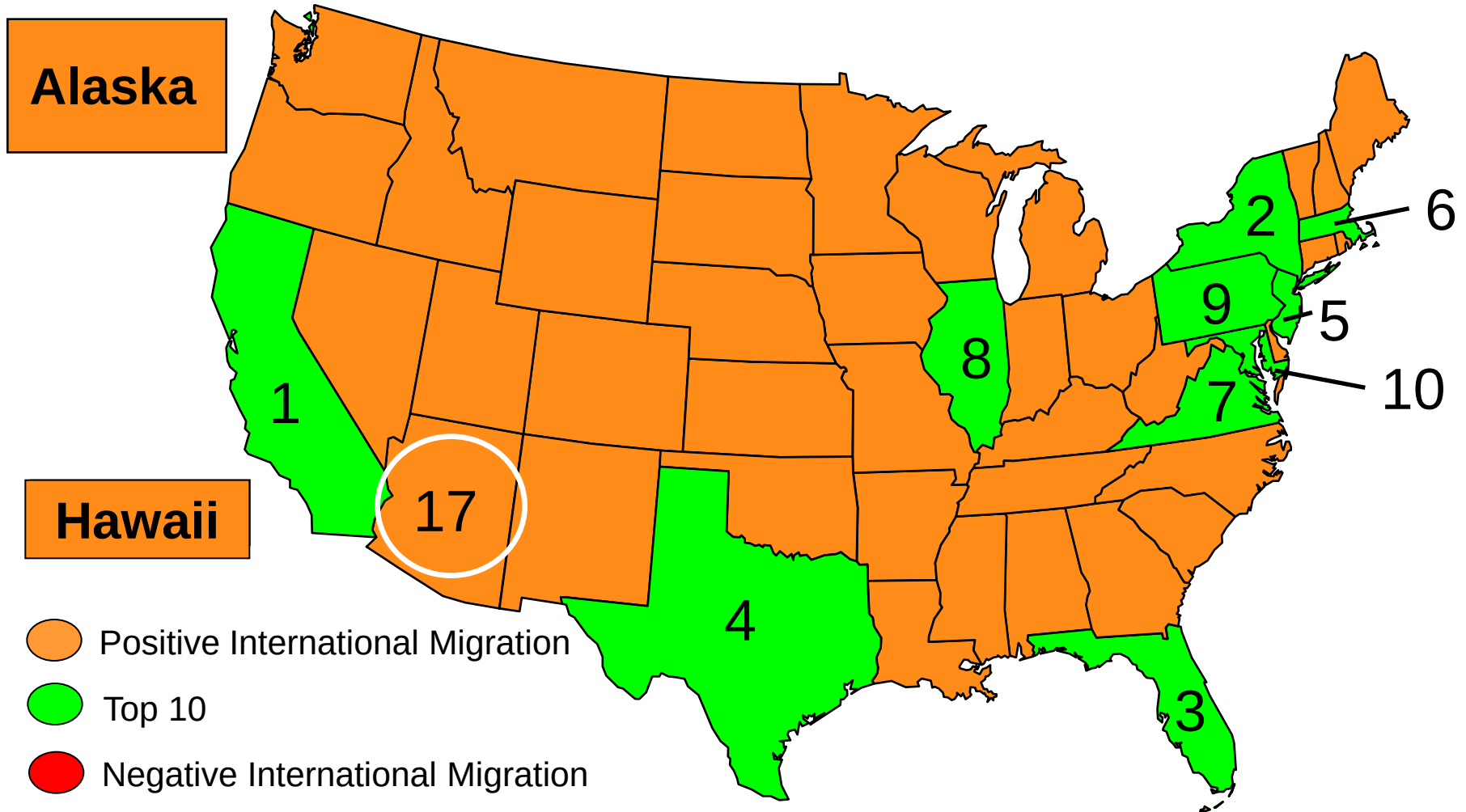
Domestic Migrant Ranking 2014

Source: U.S. Census Bureau



International Migrant Ranking 2014

Source: U.S. Census Bureau



Alaska

Hawaii

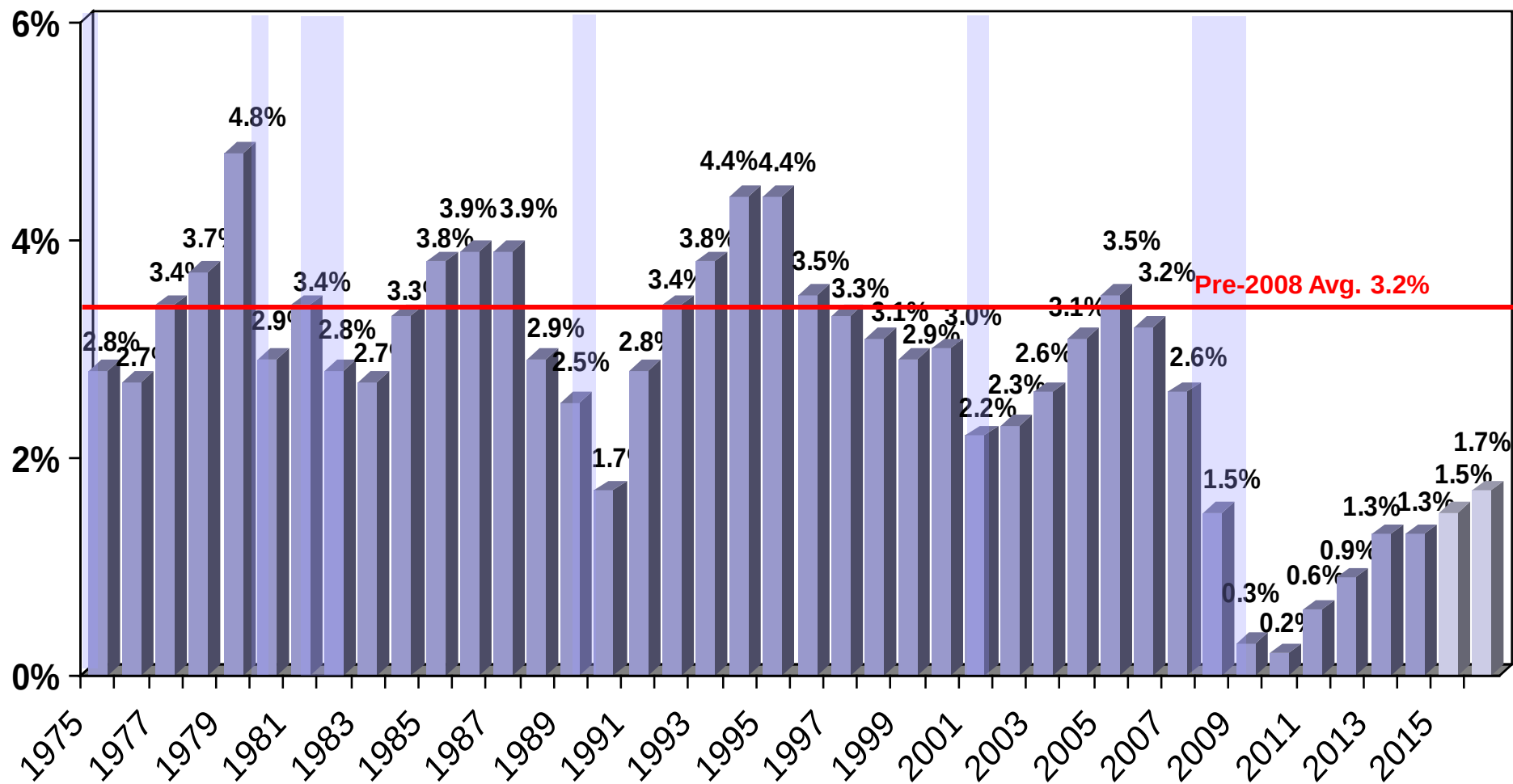
- Positive International Migration
- Top 10
- Negative International Migration



Arizona Population Annual Percent Change 1975–2016*

Source: AZ Dept. of Administration, EDPCo

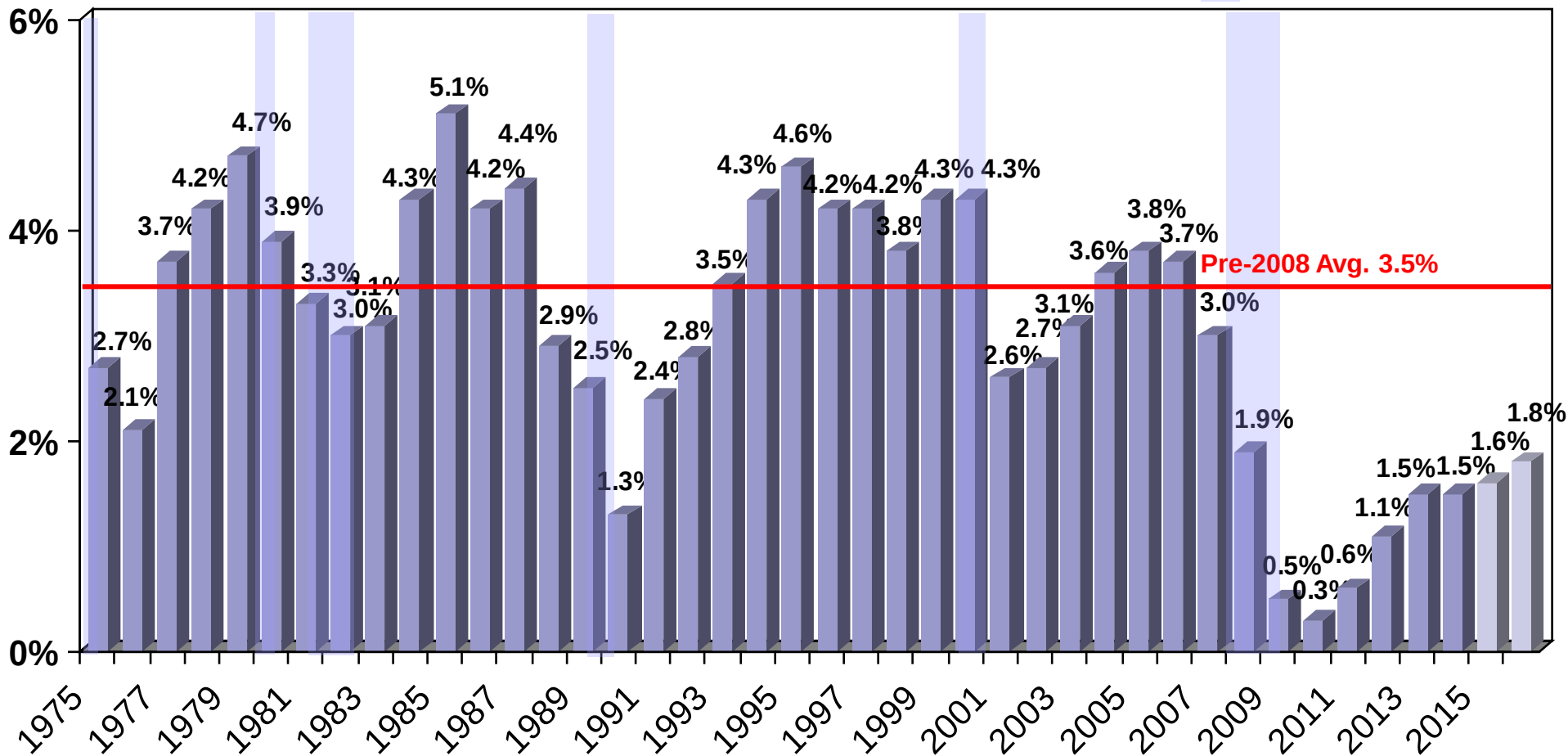
Recession Periods



Greater Phoenix Population Annual Percent Change 1975–2016*

Source: AZ Dept. of Administration, EDPCo

Recession Periods



*2015 & 2016 forecasts from Elliott D. Pollack & Co. as of July 2015.

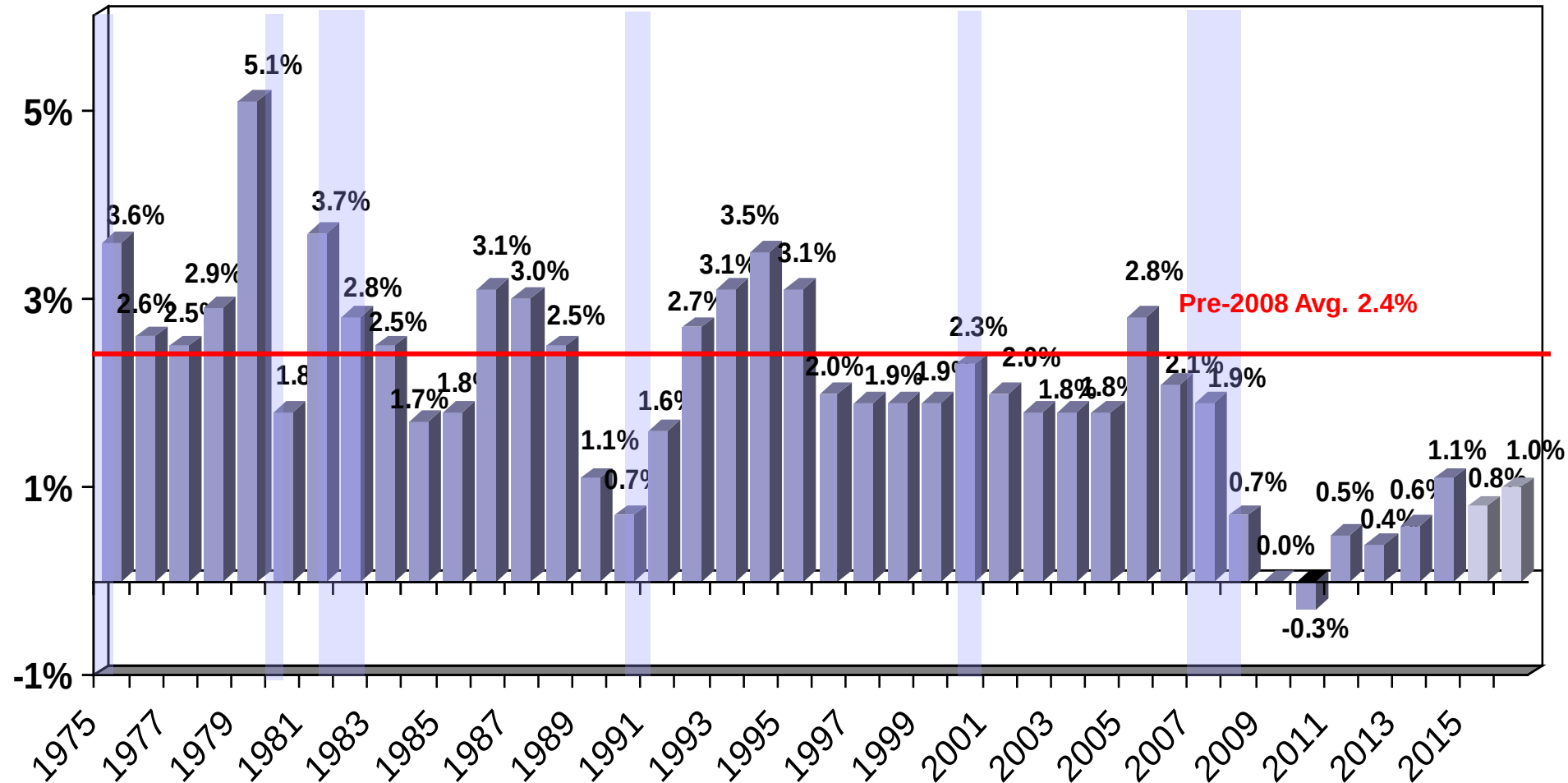


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Greater Tucson Population Annual Percent Change 1975–2016*

Source: AZ Dept. of Administration, U of A

Recession Periods



How quickly are population flows going to recover?

- (1) US Economy? **Stronger (?)**.
- (2) Local Jobs? **Improving**.
- (3) Financial Issues? **Around the corner...**



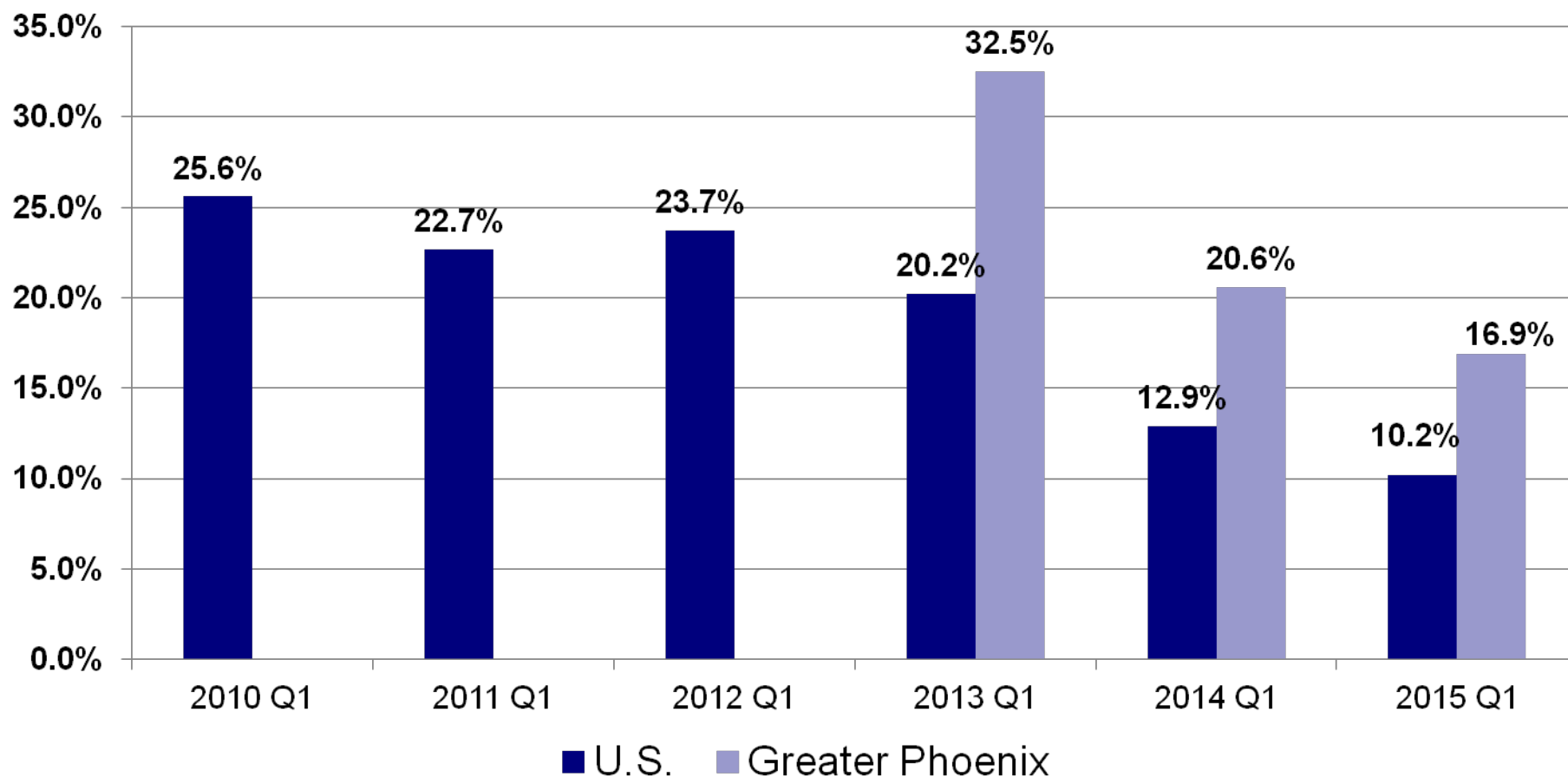
Why aren't people moving/ buying?

- Negative Equity,
- “Penalty Box”,
- Financing,
- Millennials.



U.S. and Greater Phoenix Negative Equity Share 2010–2015

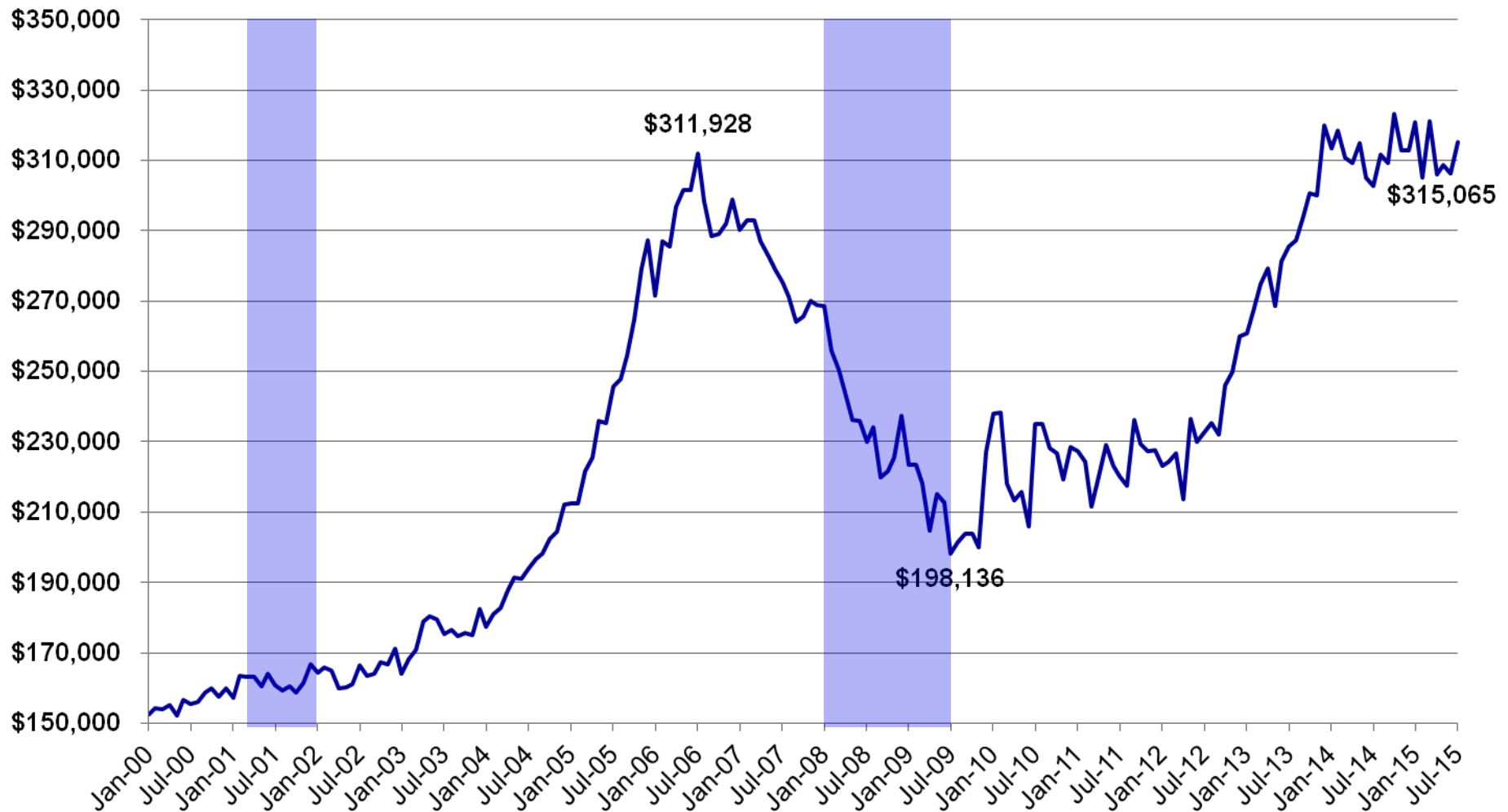
Source: CoreLogic



Greater Phoenix Median Price of New Homes 2000-2015*

Source: Information Market

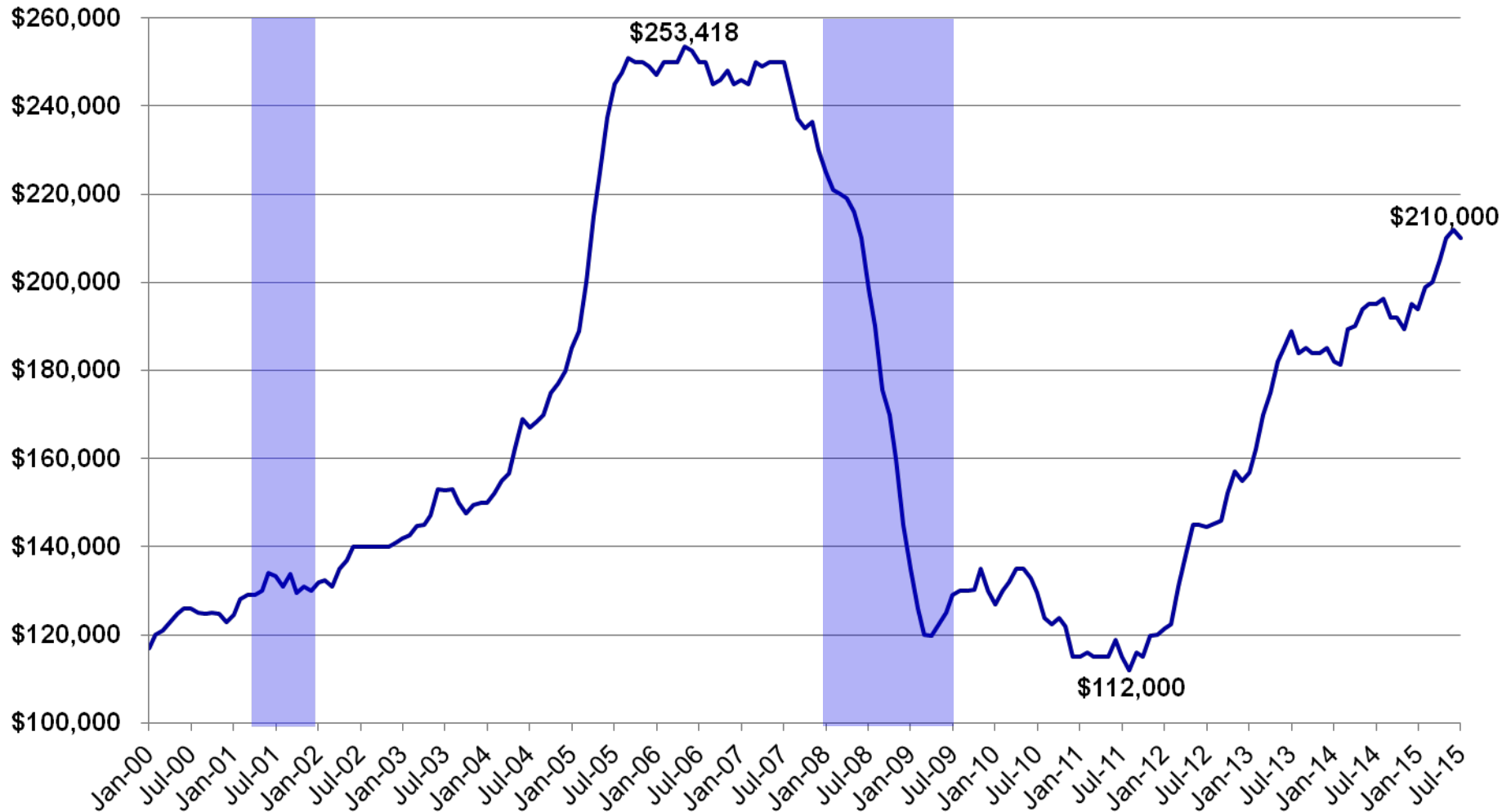
Recession Periods



Greater Phoenix Median Price of Resale Homes 2000-2015*

Source: Information Market

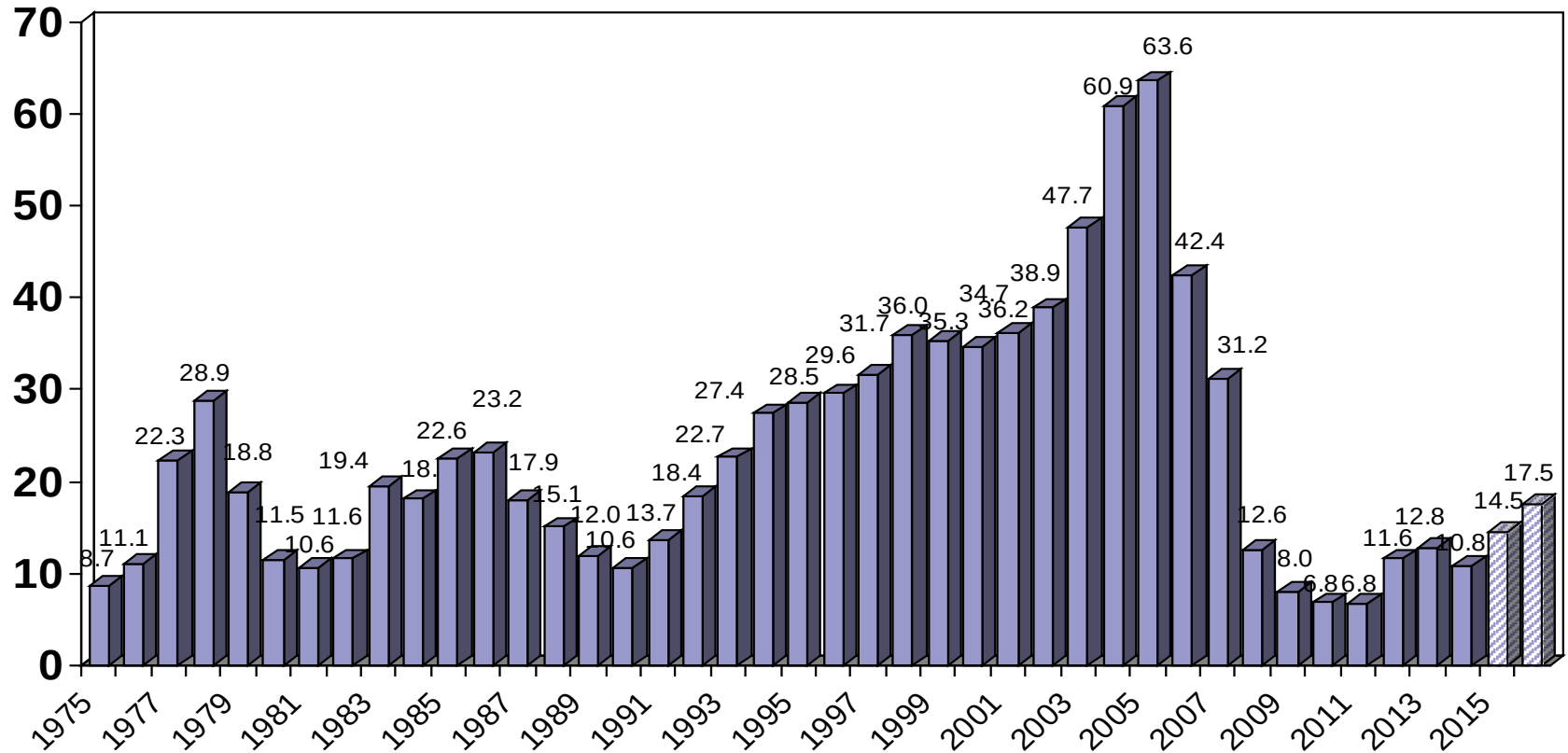
Recession Periods



Single Family Permits Greater Phoenix 1975–2016*

Source: RL Brown & Elliott D. Pollack & company

Permits
(000)

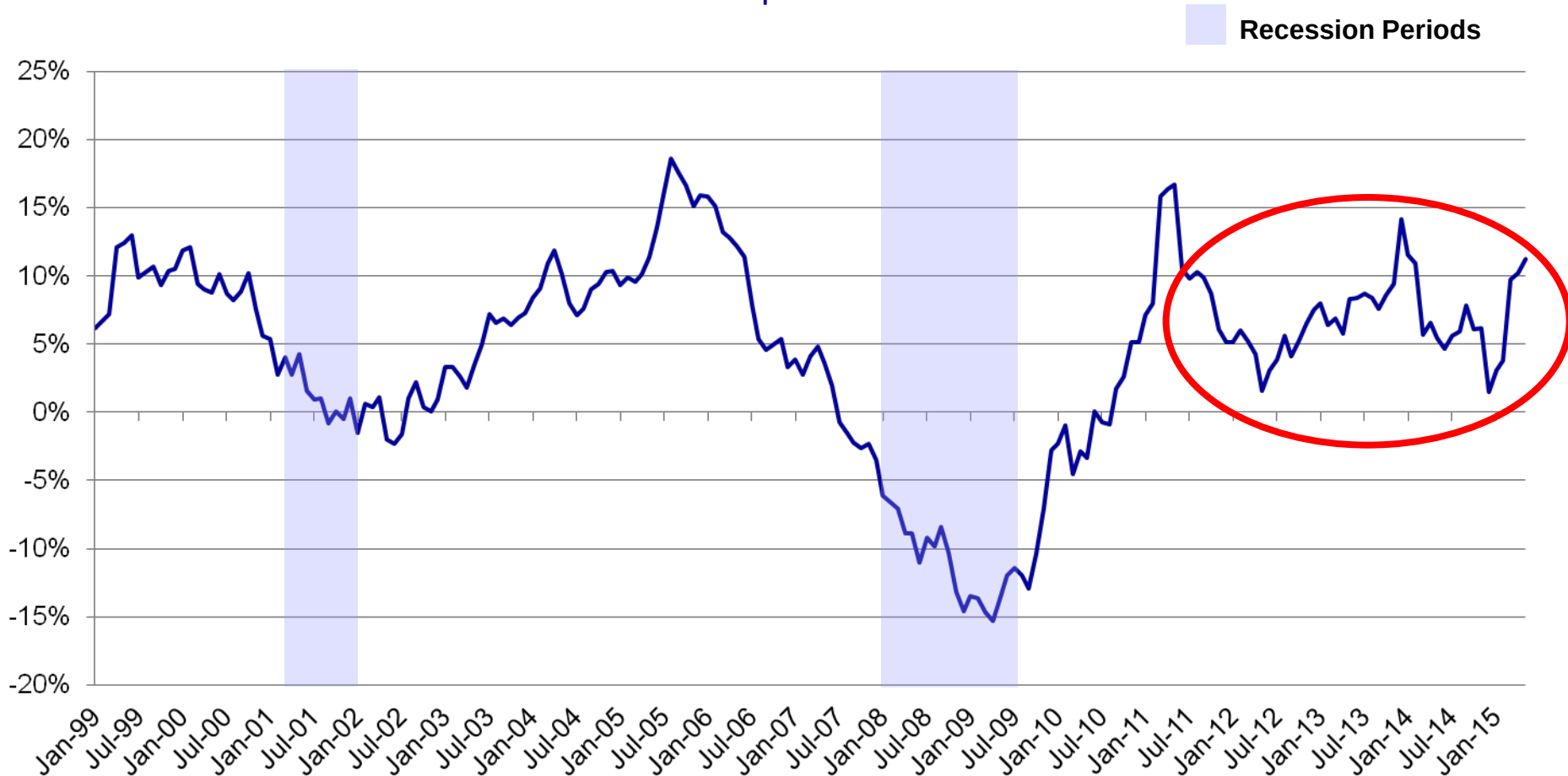


*2015 and 2016 forecast is from Elliott D. Pollack & Company as of second quarter 2015.



Maricopa County Retail Sales Percent Change Year Ago* 1999 – 2015**

Source: Arizona Department of Revenue



*Data through May 2015

**3-month moving average

Note: January 2010 and March 2010 retail sales are estimates.





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