Nothing Lasts Forever……

Greater Phoenix Chamber of Commerce: Economic Outlook 2020

October 10, 2019

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Questions and Answers

If late last year was the 7th inning,

where are we now?

Are we near the abyss?

Is it time to panic?

The answer is…..

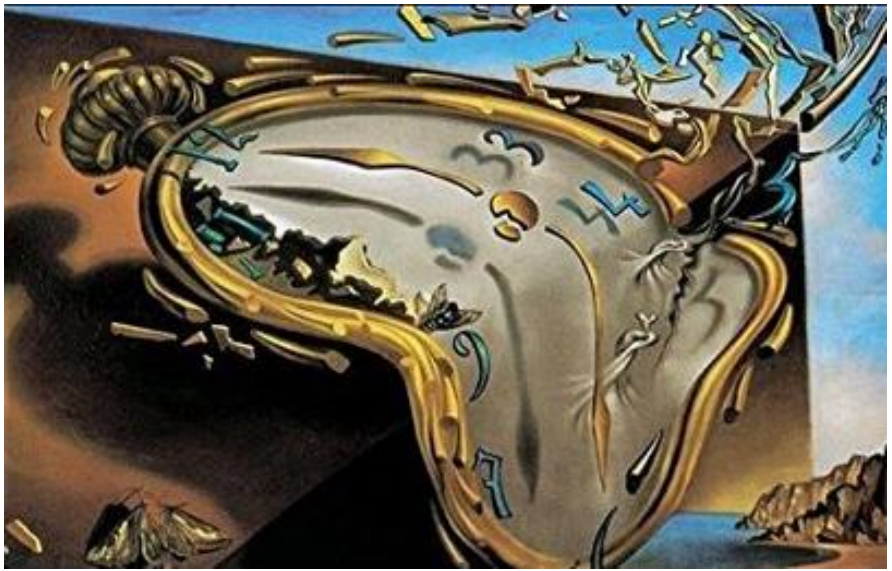
Extra innings.

No, more of a mild dip.

No.

Could there be a recession?

Very Possibly



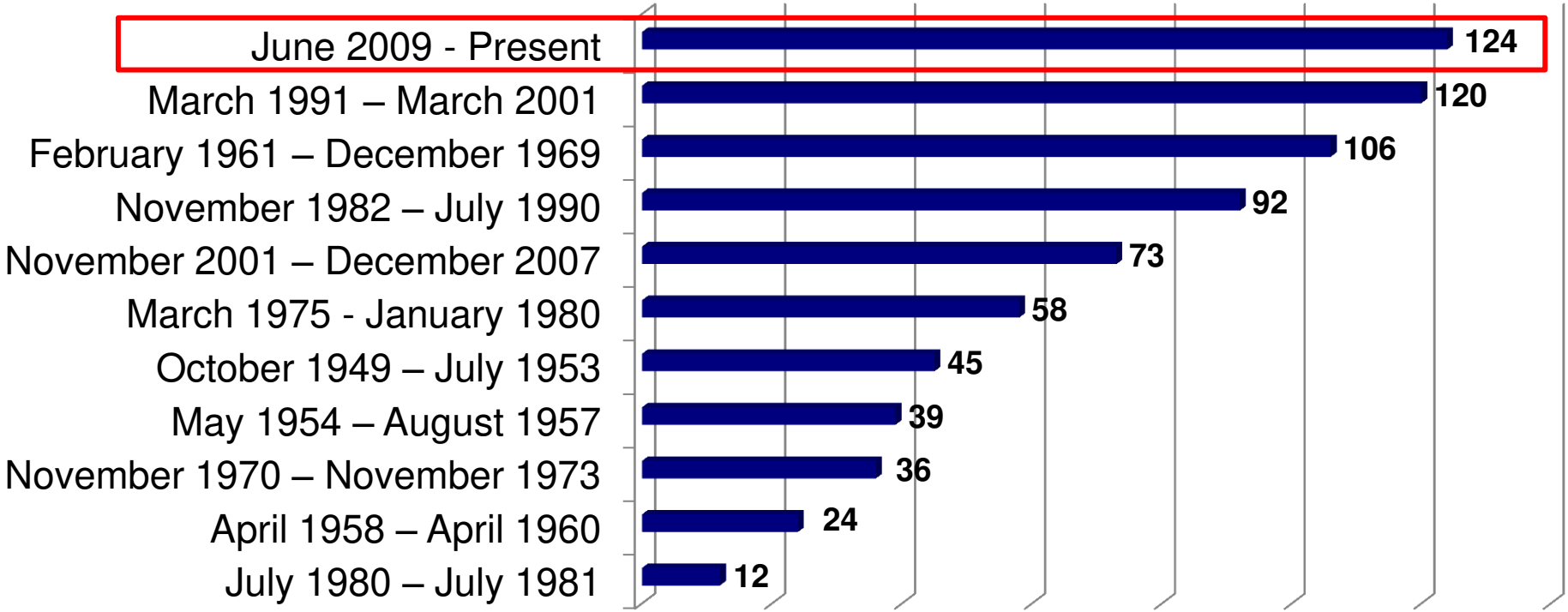
Will it look like 2007?

Not Likely!

The economy is inherently cyclical

U.S. BUSINESS CYCLE EXPANSIONS

Source: National Bureau of Economic Research

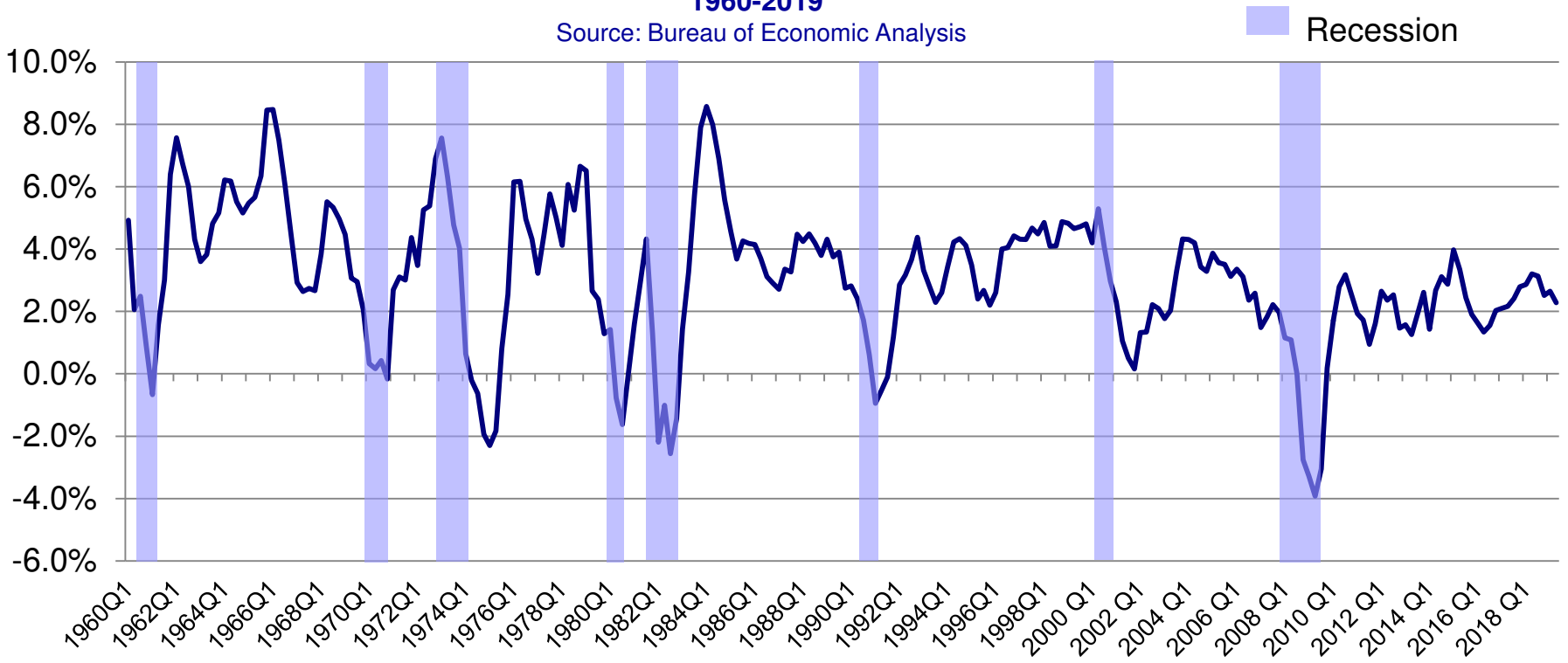


Real GDP

% Change a Year Ago

1960-2019*

Source: Bureau of Economic Analysis



But not all slowdowns are the same

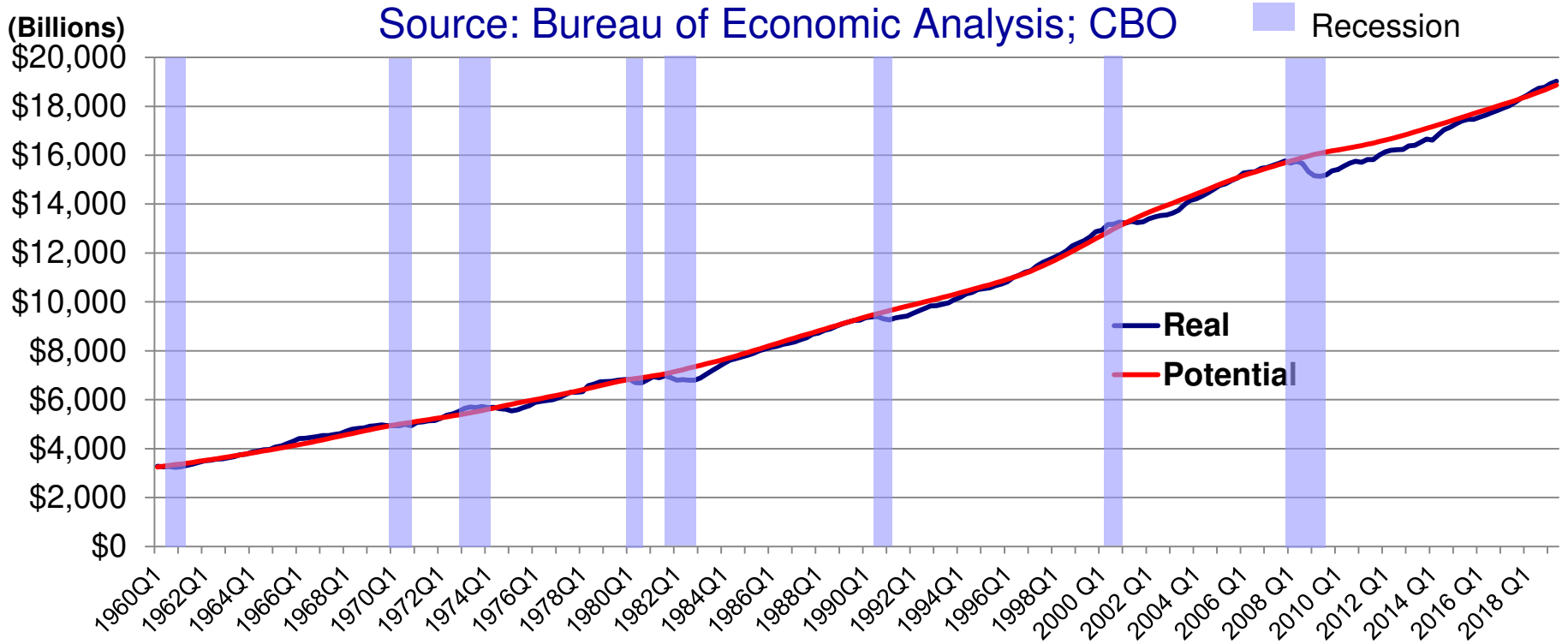
Current Dynamics

- Slowdown in the Long Term Trend
- We have caught up to potential GDP.
- Late in Cycle

Long Term Potential

- Going forward, factors that determine long term growth will be growing at rates that are slower than the historic norm.

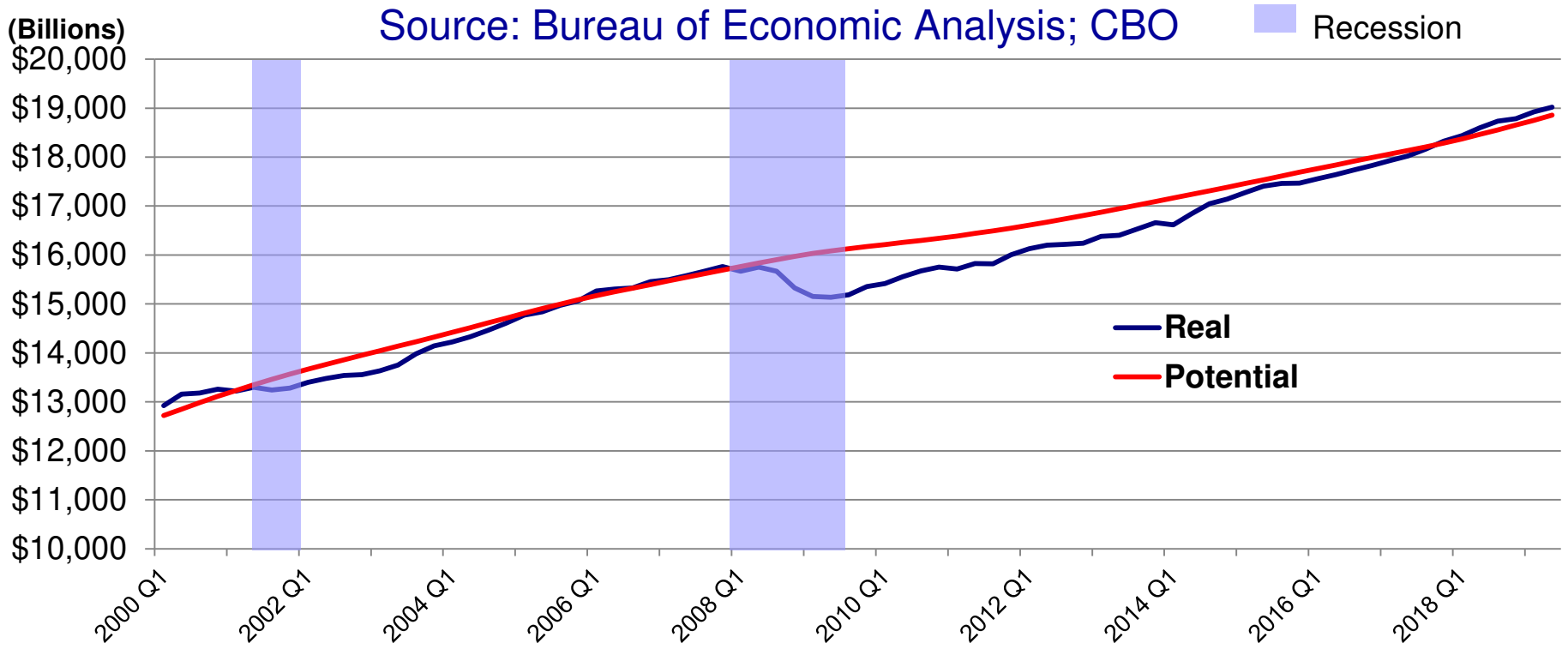
Real Versus Potential GDP
1960-2019*



We have caught up to potential GDP.

Real Versus Potential GDP
2000-2019*

Source: Bureau of Economic Analysis; CBO



*Data through the second quarter 2019

Growth in Potential GDP

Average Annual Growth Rate

Source: Congressional Budget Office

Period	Potential Labor Force	Real Potential GDP
1950-1973	1.6%	4.0%
1974-1981	2.5%	3.2%
1982-1990	1.6%	3.4%
1991-2001	1.2%	3.2%
2002-2007	1.0%	2.5%
2008-2014	0.6%	1.5%
2015-2018	0.5%	1.8%
2019-2023	0.5%	2.1%
2024-2029	0.4%	1.8%

Population Growth Slowdown

Population

5-Year Annual Growth Rates

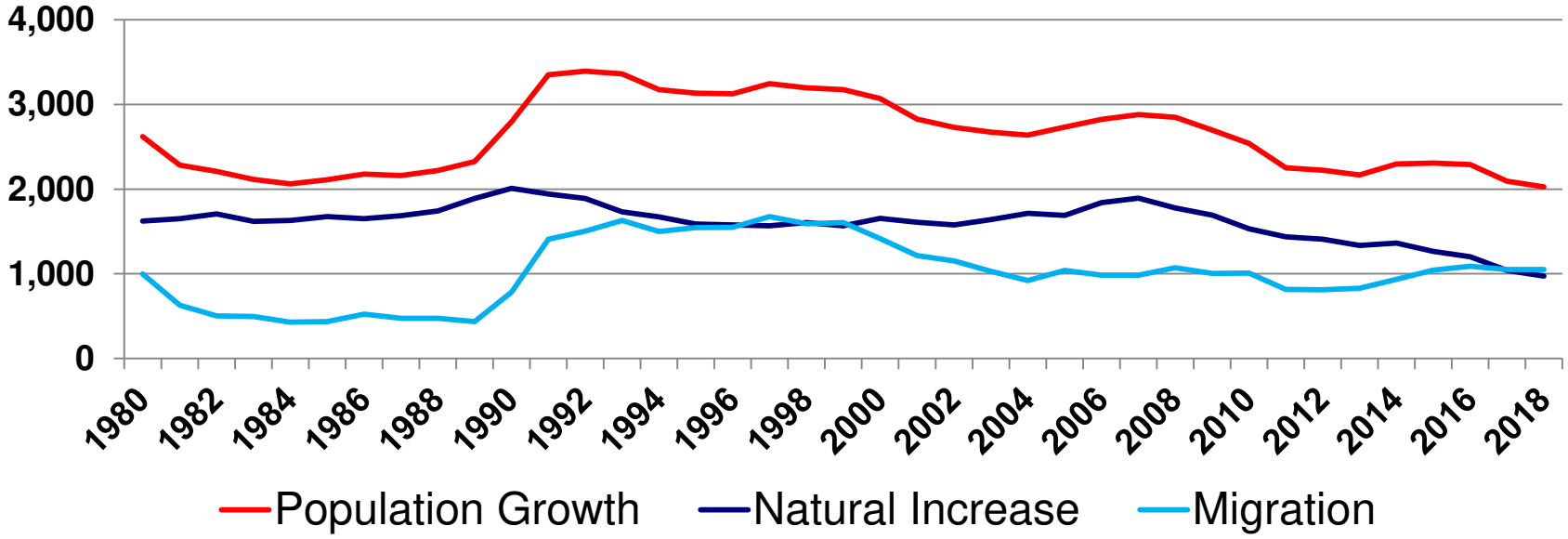
Source: U.S. Census Bureau

Year Ending	Native Population		Foreign-Born		Total	
	Total	18 to 64	Total	18 to 64	Total	18 to 64
2000	0.8%	0.9%	4.2%	4.7%	1.2%	1.4%
2005	0.7%	0.8%	3.2%	3.3%	0.9%	1.2%
2010	0.8%	0.8%	1.3%	1.4%	0.9%	1.0%
2015	0.5%	0.2%	2.3%	2.3%	0.7%	0.5%
2020	0.6%	0.2%	1.8%	1.0%	0.7%	0.3%
2025	0.6%	0.0%	1.5%	0.9%	0.7%	0.2%

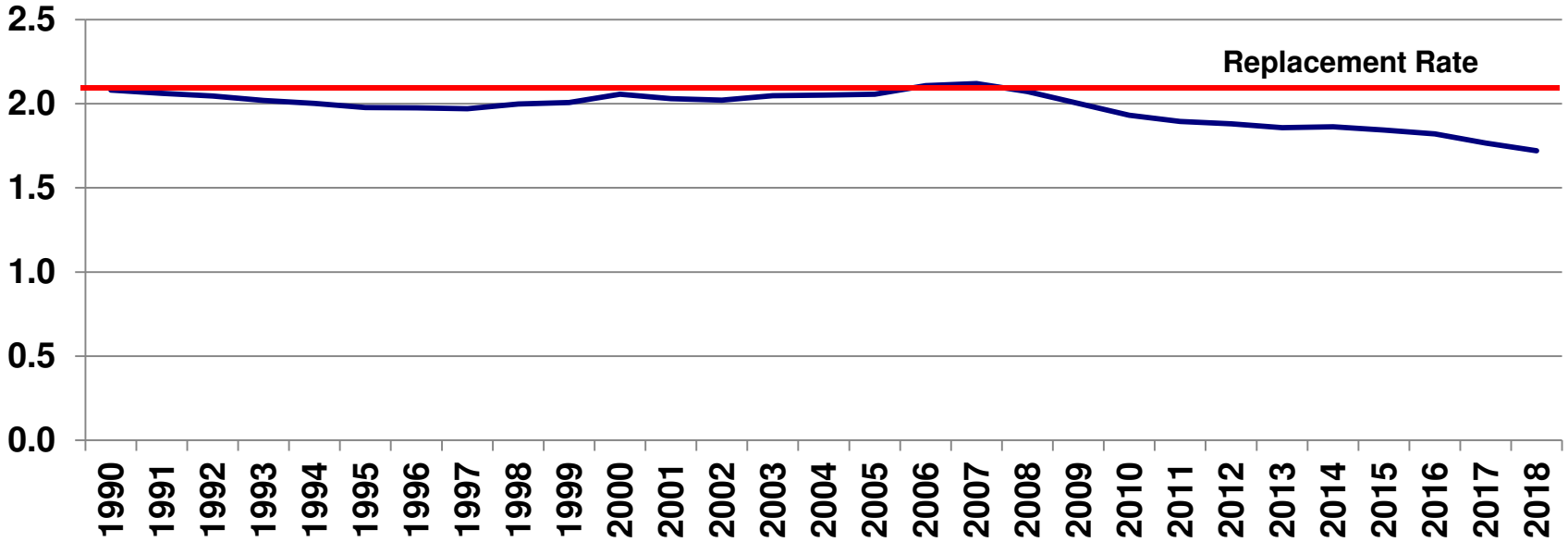
Trend

Given the number of Millennials coming in and Boomers going out, labor force growth is likely to continue to slow over the next decade.

U.S. Population Growth
(Thousands)
1980-2018
Source: U.S. Census Bureau



U.S. Total Fertility Rate
Women 15 to 44 years
1990-2018
Source: WorldBank; CDC



*Total fertility rate (TFR) in simple terms refers to total number of children born or likely to be born to a woman in her life time

Trend

Less population growth means less demand for housing and other goods and services.

Cycle

Where do we stand in the Cycle?

- We are very late in the game
- Synchronized global slowdown, especially in manufacturing
  - Chinese economy growing at the slowest rate in 28 years
- Slowdown in velocity of money
  - Fed is not getting much bang for the buck
- Uncertainty over trade policies
- Tax cuts have worked their way through the system
- Too much government debt
  - When we will pay the piper is unknown. Maybe 2 years. Maybe 20 years.
- Election year could get Crazy

Cycle

- The closer the U.S. Economy gets to full-employment, the less employment growth you can expect.
- So employment growth will slow over the next year

Deteriorating global growth?

- Europe near recession
- Japan in a period of slow growth
- China's growth is slowing

Real GDP Growth Forecast

Source: Blue Chip Economic Indicators

	2018	2019f	2020f
United States	2.9	2.3	1.8
Euro Area	1.9	1.2	1.2
United Kingdom	1.4	1.2	1.0
Germany	1.5	0.7	1.0
France	1.7	1.3	1.3
China	6.6	6.2	5.9
Japan	0.8	0.9	0.4
South Korea	2.7	1.9	2.2

If there is a Trade War
So far, it has been a skirmish.

- Declining growth in China
  - Export of goods represent 18.2% of GDP
  - 19.2% Chinese Goods Exports end up in the U.S.
- U.S.
  - 2018 Goods Exported represent 9.6% of GDP
  - 2018, 7.2% of U.S. Goods were exported go to China

If there is a Trade War

- Dollar has become stronger relative to Yuan and other currencies
- Foreign goods will cost less.
- American goods will cost more overseas
- Existing tariff increase add about $10 dollars per person in cost to the U.S. economy.
- As of now it is not a big deal. But when added on top of everything else it could become a problem.

Negative Interest Rates

Source: Bloomberg

Country	10-Year Bond Yield
Switzerland	-0.82%
Germany	-0.59%
Netherlands	-0.45%
France	-0.29%
Japan	-0.20%
United Kingdom	0.47%
Canada	1.24%
United States	1.53%

Implications of Negative Interest Rates

- Very low inflation or deflation
- Slow Growth
- With positive interest rates in the U.S., the dollar becomes stronger and U.S. exports become less competitive.
- Pushes investors to riskier assets in the hope of getting a better return.
- Savers are penalized.
- Creates perverse incentives.
- If rates go low enough, someone pays you to borrow for a car or a house.
- An admission that central banks are running out of bullets.

Monetary Policy

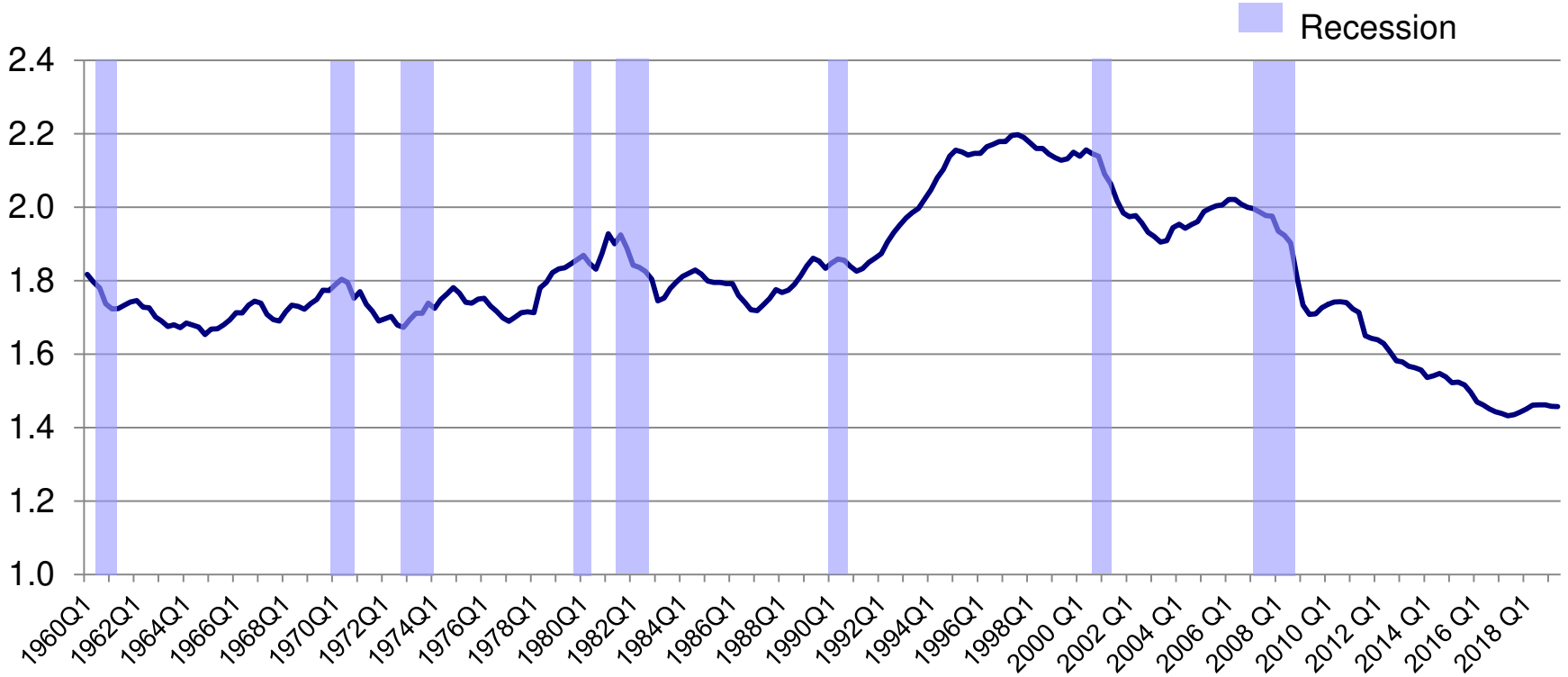
- The Fed does not want a recession.
- Worldwide monetary policy is expansive.
- The Fed is entering a period of slower growth with few bullets in its gun.
- Interest rates are already low and going lower.
- They will have to resort to quantitative easing.
- But with interests rates so low and huge government debt levels, it will be less effective.
- Central Banks are worried about disinflation and deflation.

The fed is not getting the bang for the buck in money supply growth

Velocity of M2 Money Stock

1960– 2019*

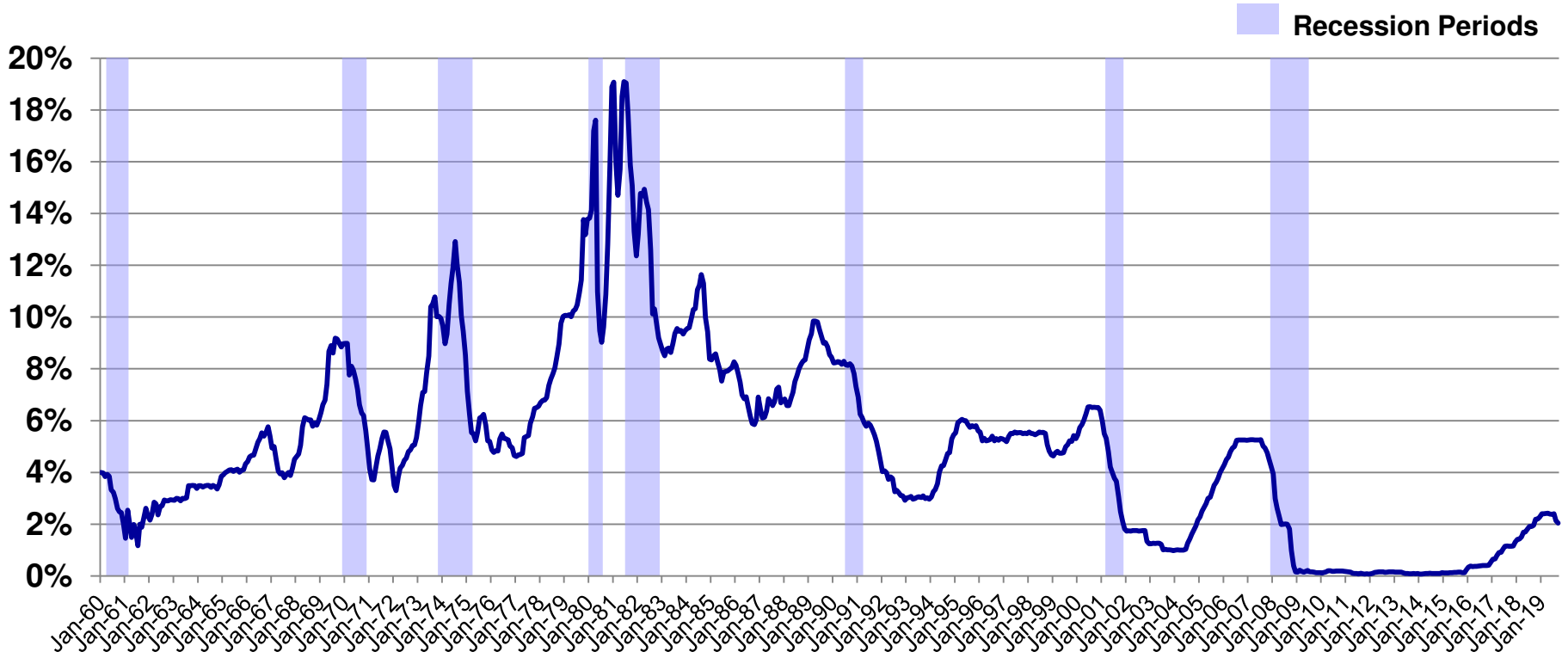
Source: Board of Governors of the Federal Reserve System



Effective Federal Funds Rate

1960– 2019*

Source: Board of Governors of the Federal Reserve System



What can kick us into a Recession?

What can kick us into a Recession?

- Deteriorating global growth
- Trade War
- Slowdown in spending by consumer
- Externalities that affect consumer confidence
  - Oil Price Shock
  - War
  - Unknown Unknowns

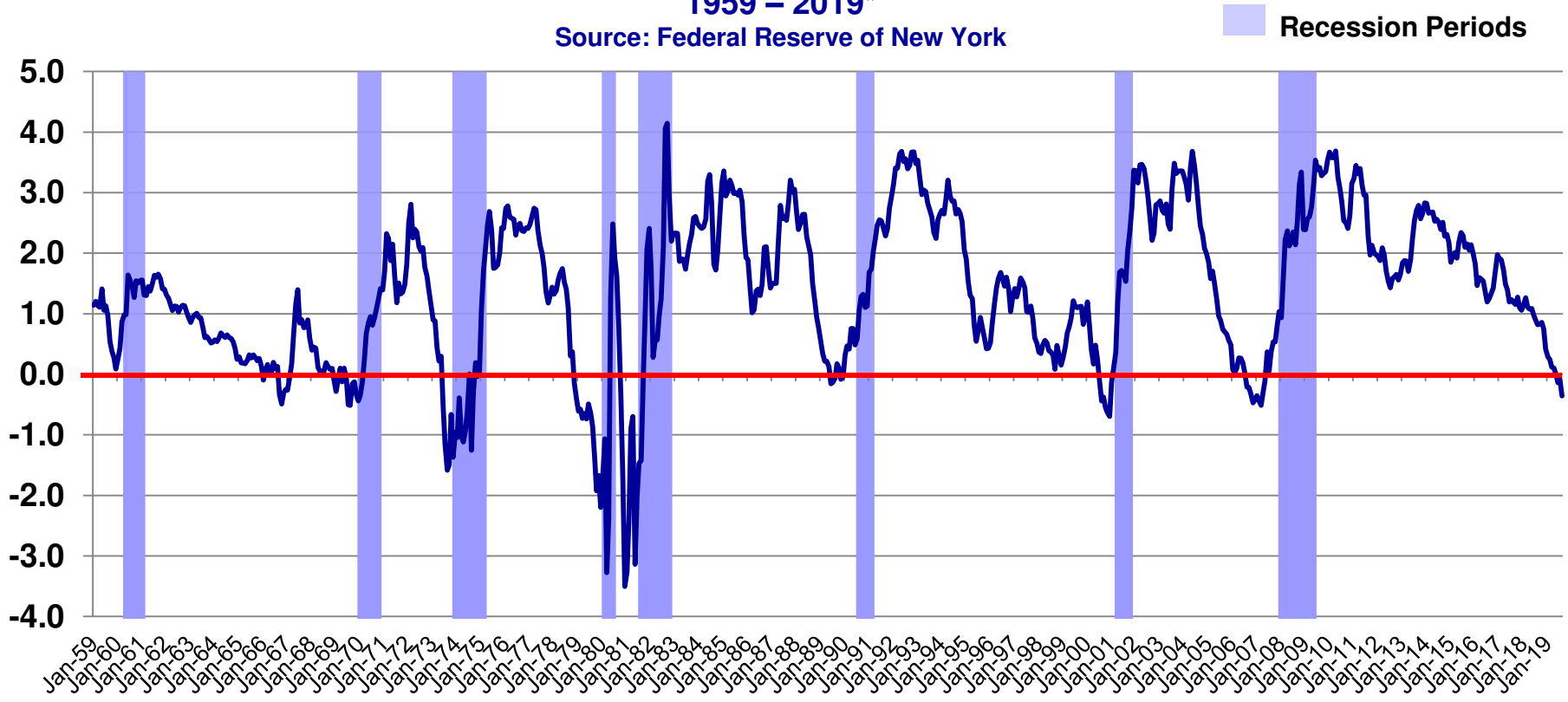
Recession indicators

Treasury Spread

(10-year minus 3-month)

1959 – 2019*

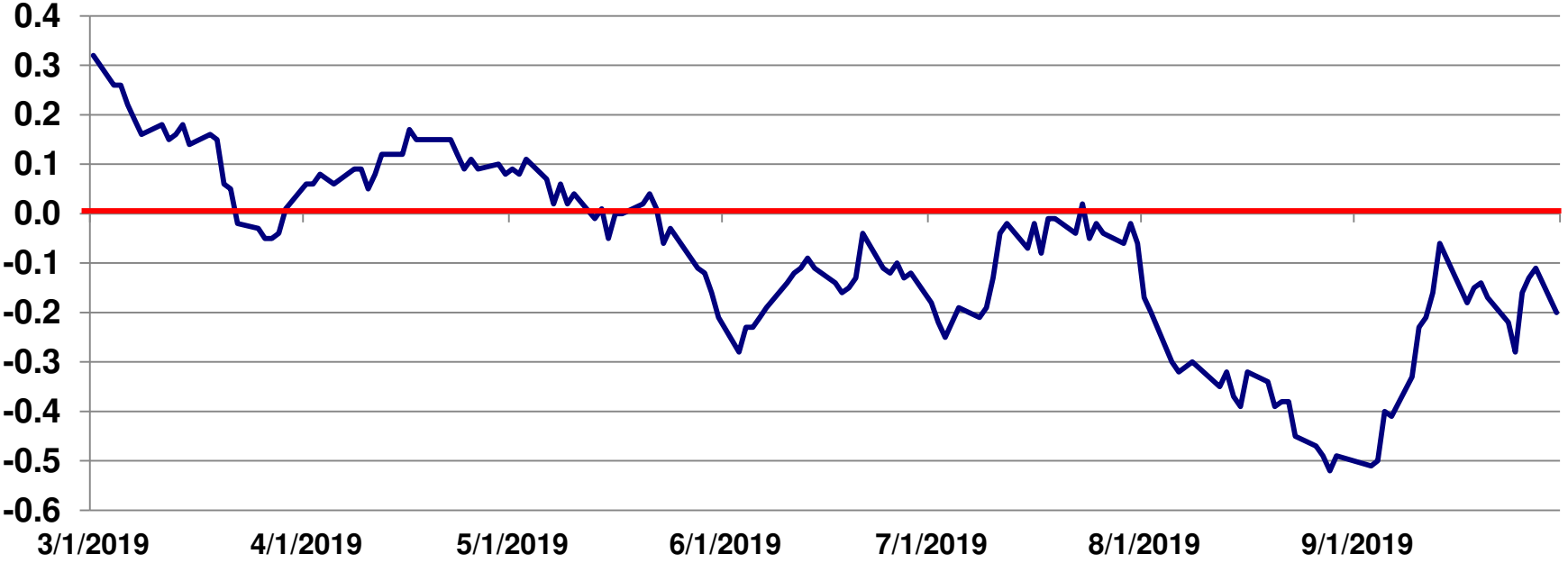
Source: Federal Reserve of New York



*Data through August 2019
Monthly Averages

Treasury Spread (10-year minus 3-month)
March-September 2019

Source: U.S. Department of Treasury

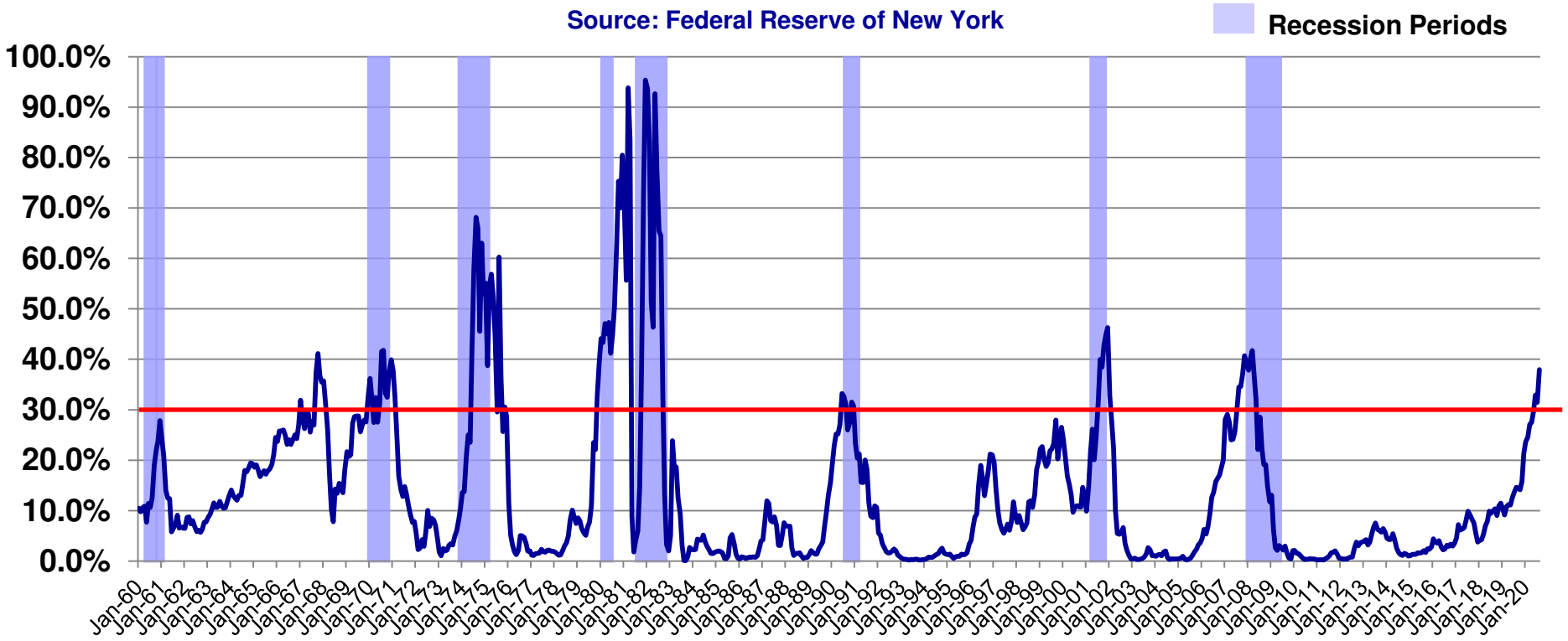


Recession Warning

	Yield Curve (10yr-3 month)
Warning	Inversion
Max Length	17
Min Length	6
Average Length	12

New York Fed Recession Indicator
Probability of Recession in 12 Months
1960 – 2020*

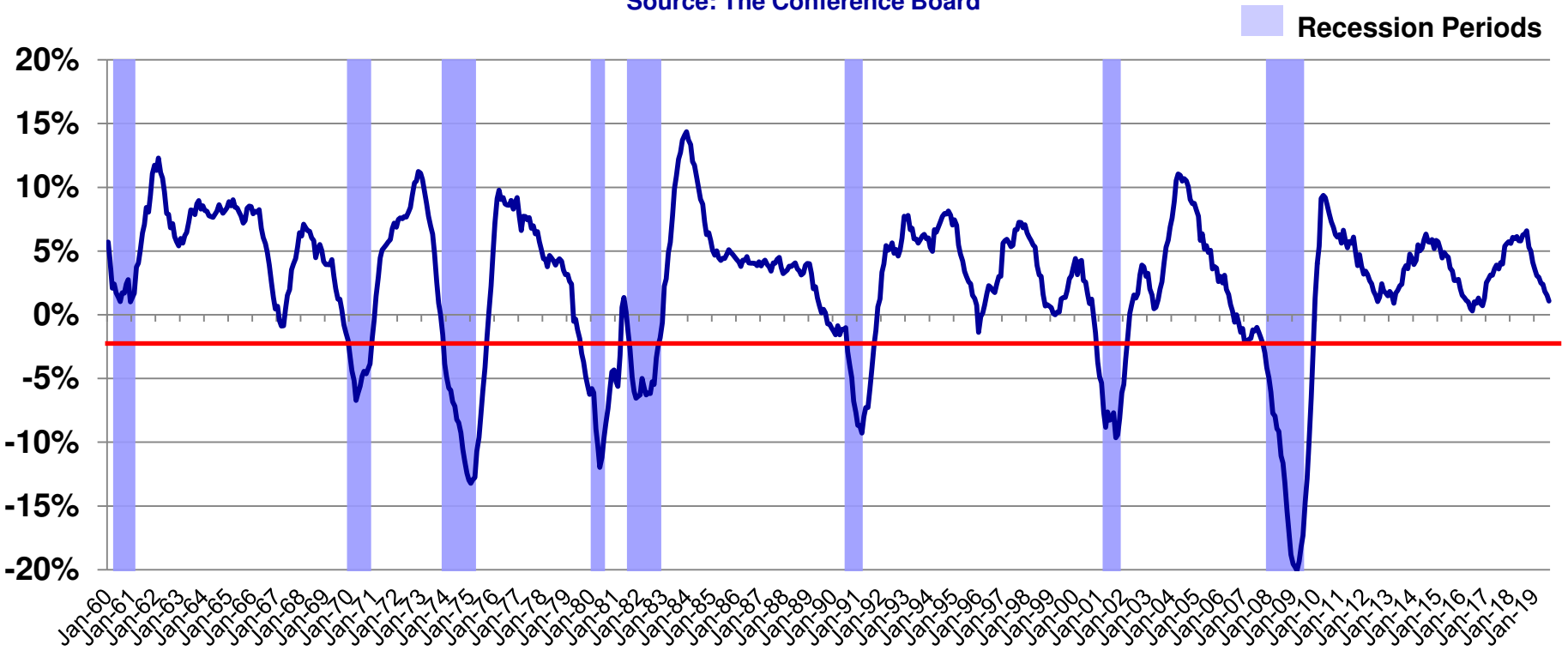
Source: Federal Reserve of New York



Recession Warning

	Recession Probability
Warning	30%
Max Length	5
Min Length	0
Average Length	1.6

Leading Economic Index
(Year-over-Year % Change)
1960 – 2019*
Source: The Conference Board



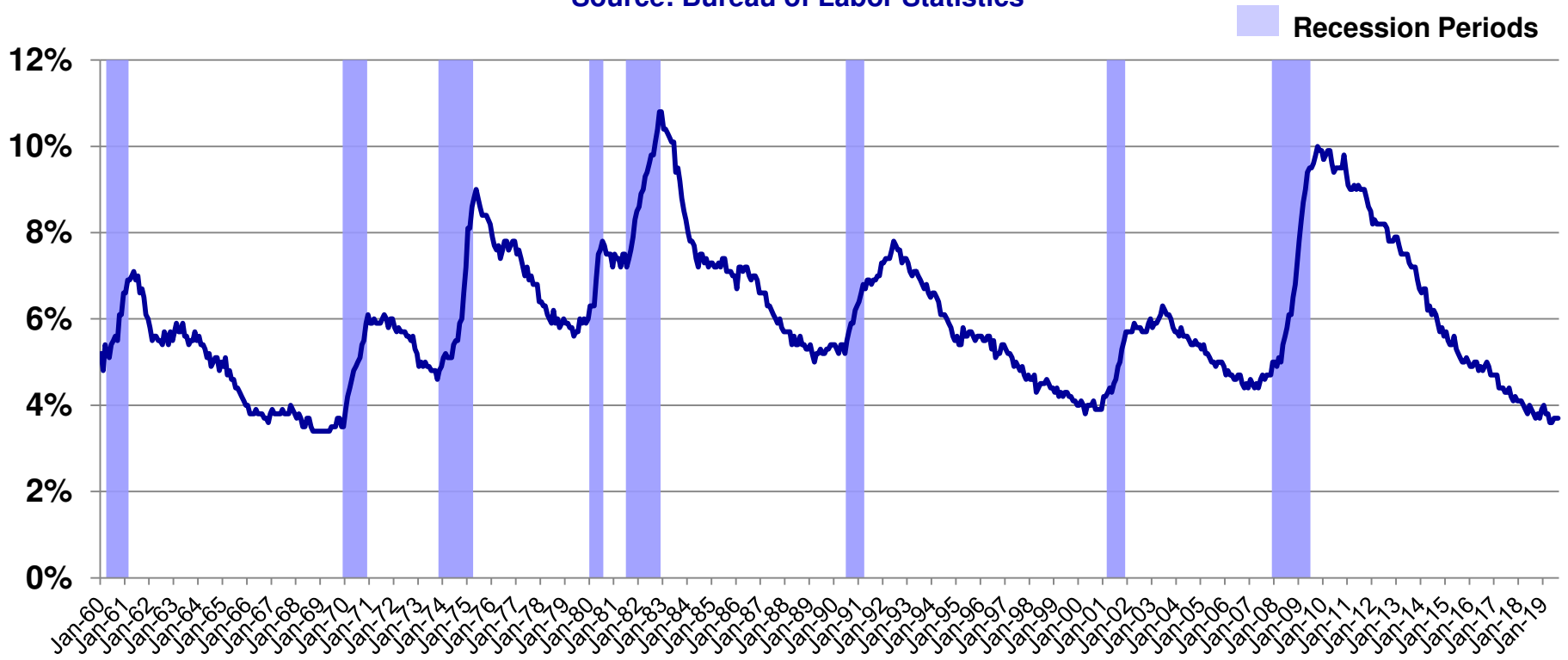
Recession Warning

	Leading Economic Index
Warning	1% decline YOY
Max Length	11
Min Length	0
Average Length	4.1

U.S. Unemployment Rate

1960– 2019*

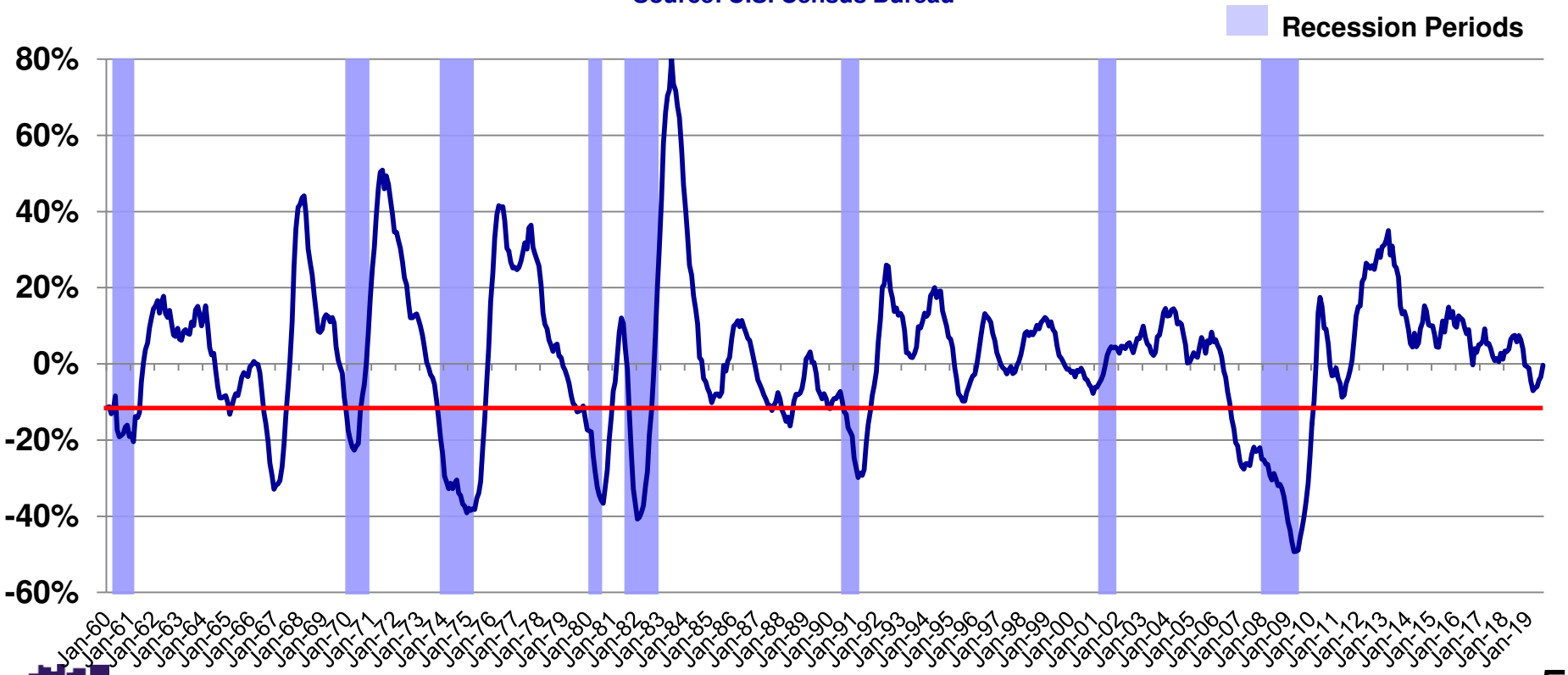
Source: Bureau of Labor Statistics



Recession Warning

	Unemployment
Warning	Rising from Cycle trough
Max Length	16
Min Length	1
Average Length	6.1

Housing Starts
(Year-over-year % Growth, 6-month Average)
1960 – 2019*
Source: U.S. Census Bureau

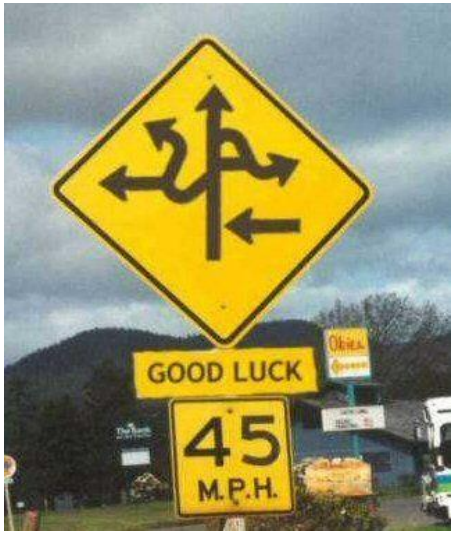


*Data through August 2019

Recession Warning

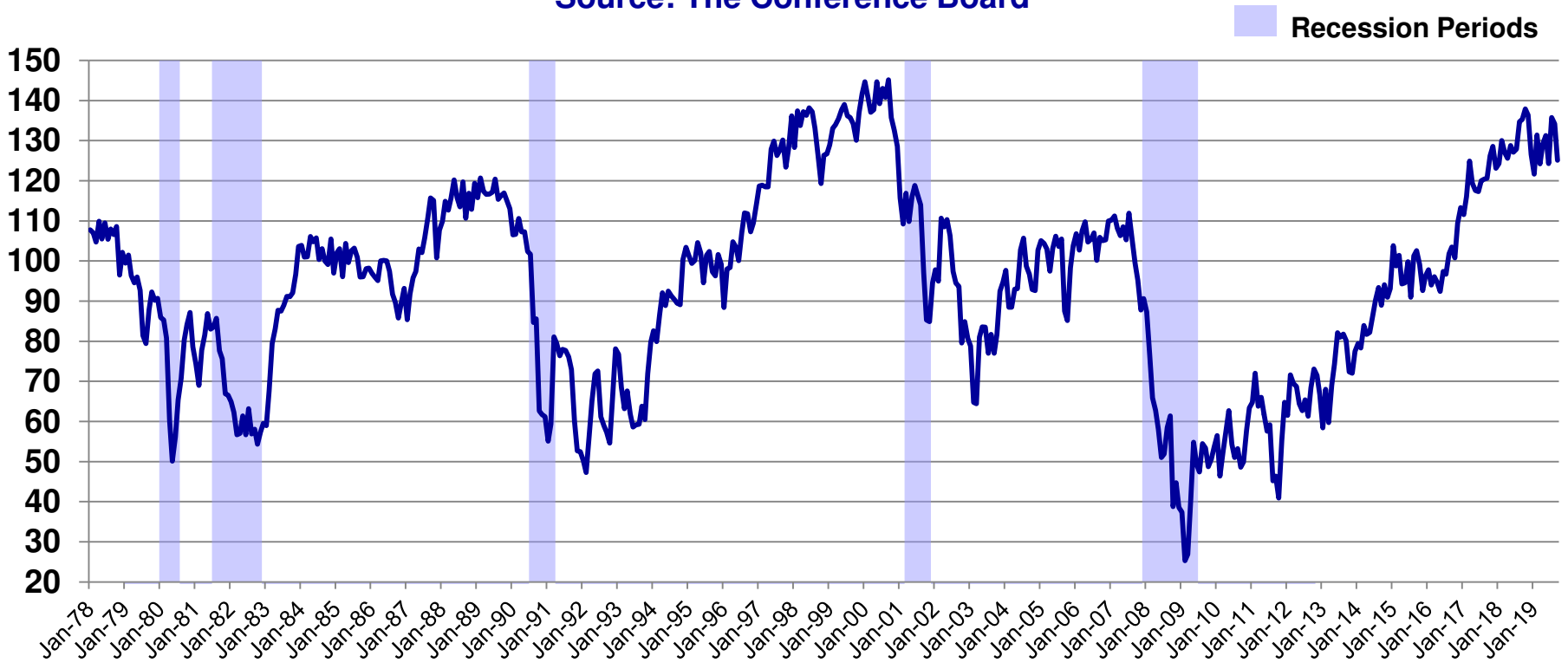
	Housing Starts
Warning	10% decline YOY
Max Length	16
Min Length	0
Average Length	5.3

Other Indicators



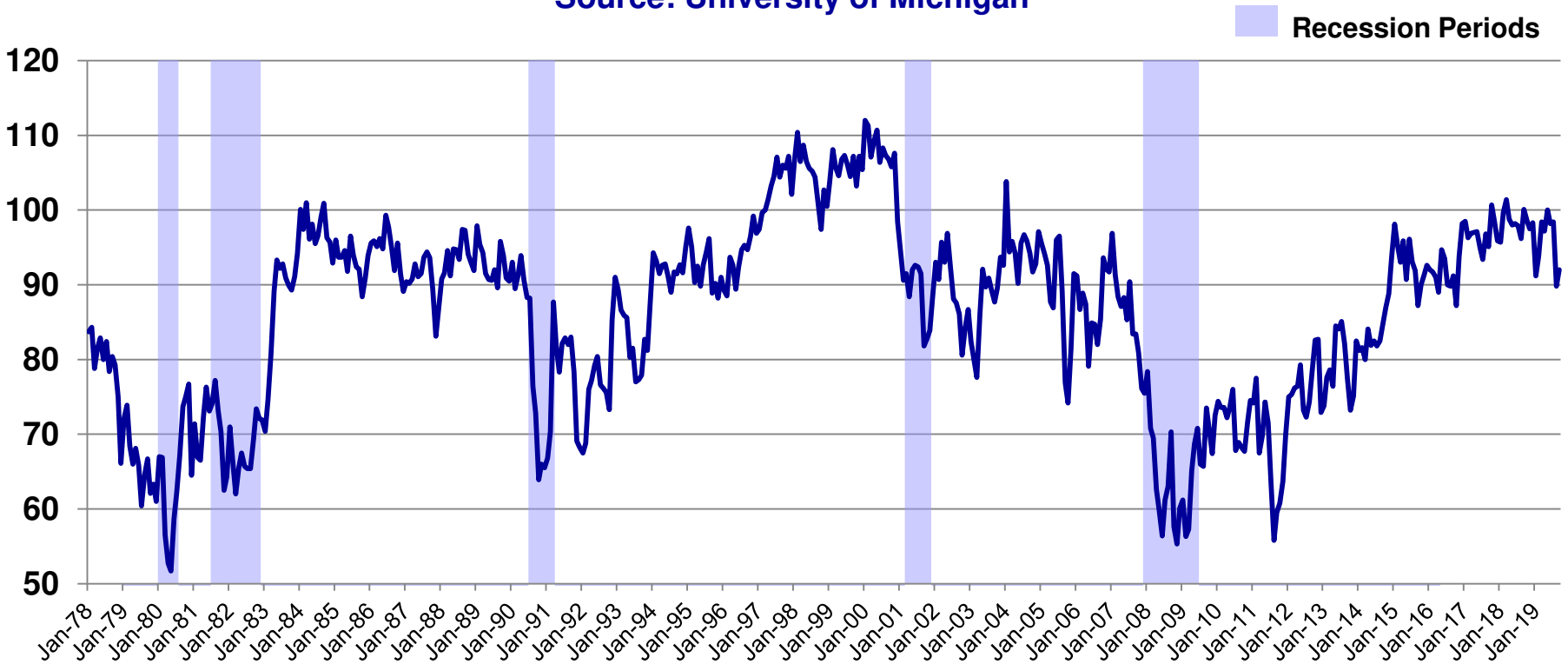
Consumer Confidence
1978 – 2019*

Source: The Conference Board



Consumer Sentiment
1978 – 2019*

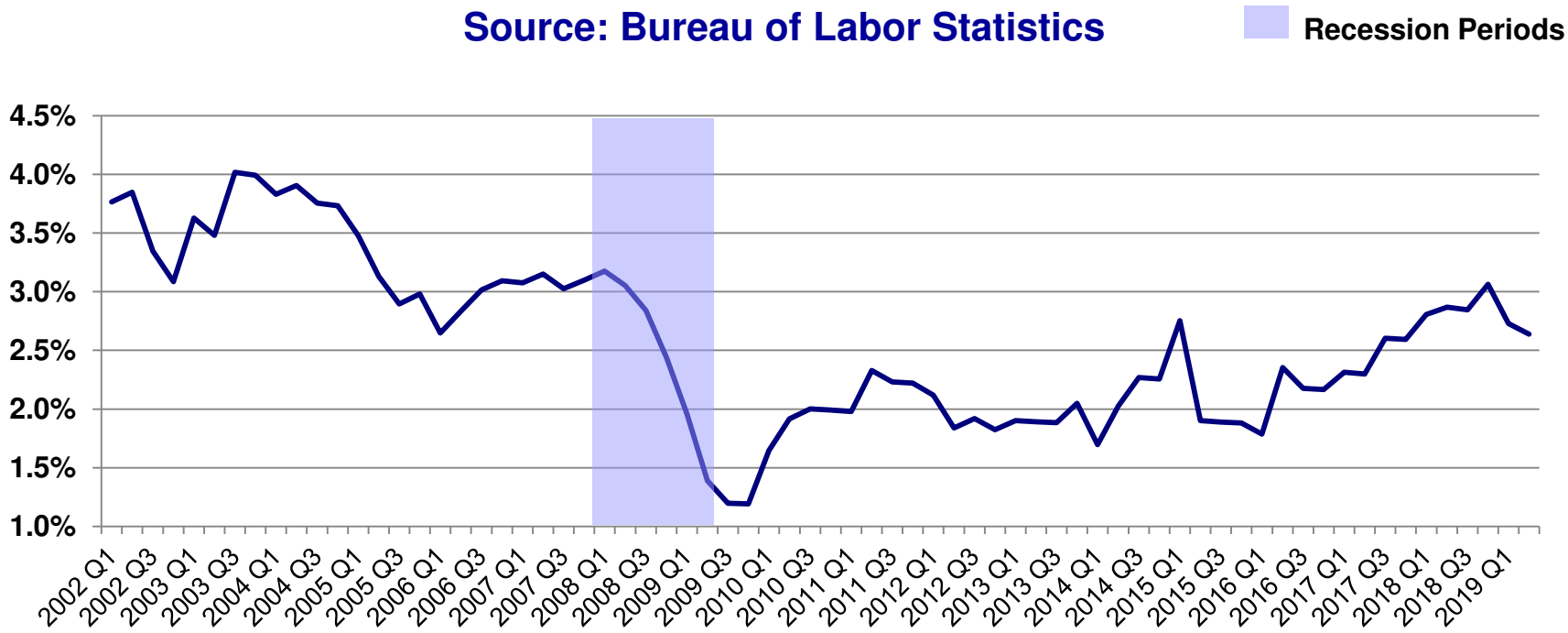
Source: University of Michigan



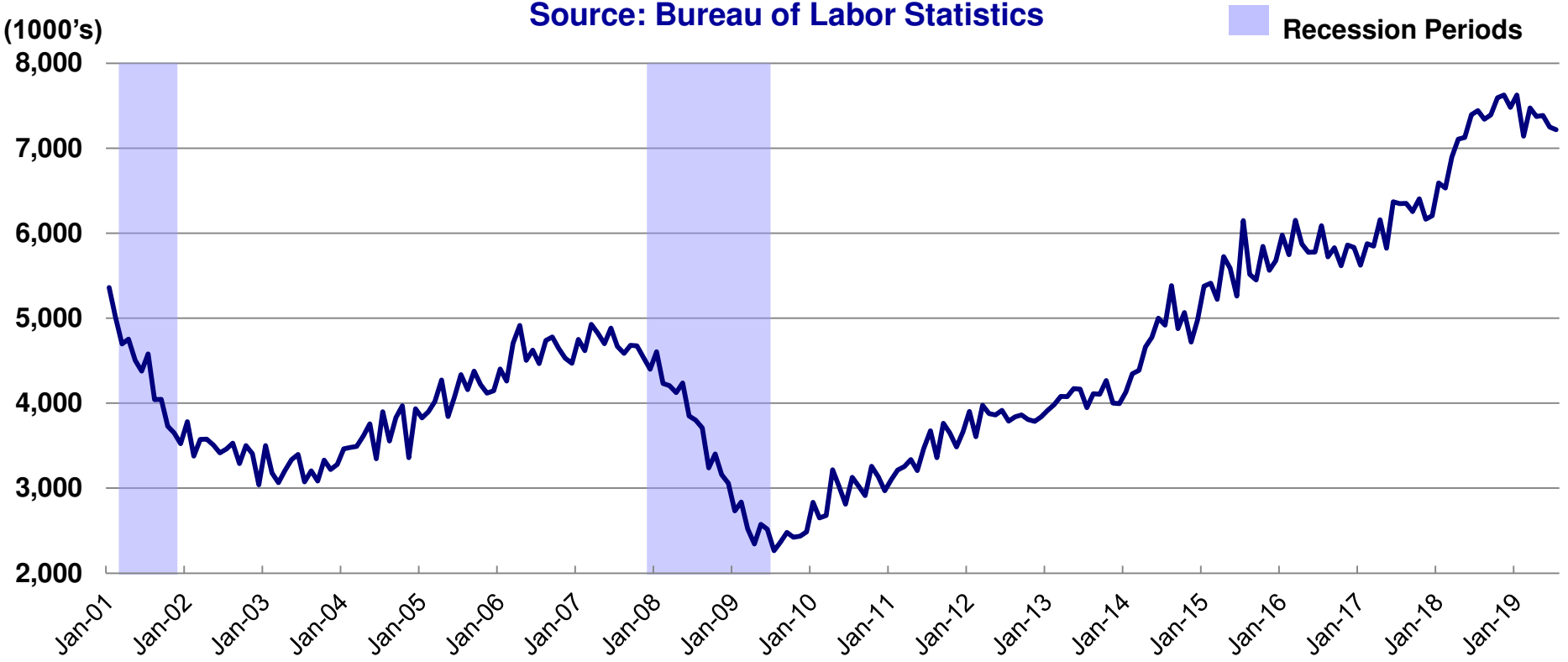
Employment Cost Index

2002-2019*

Source: Bureau of Labor Statistics

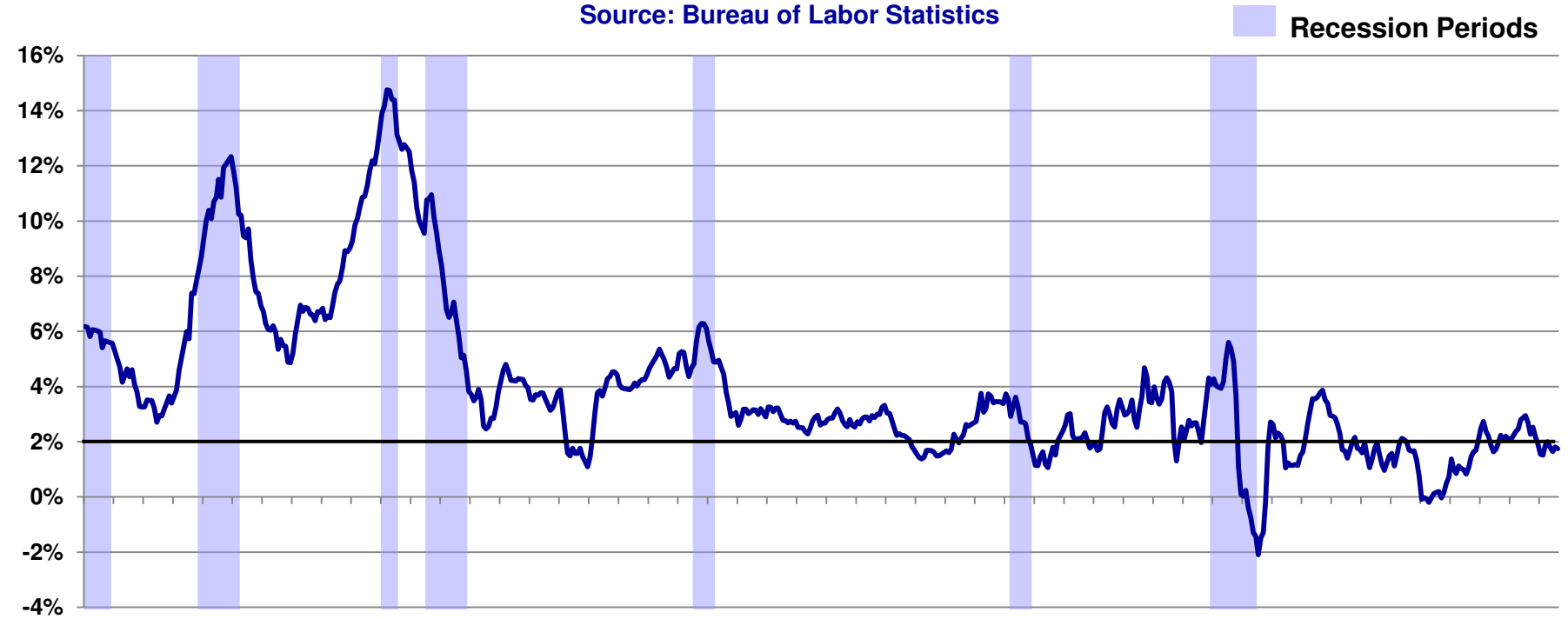


Job Openings
2001 – 2019*
Source: Bureau of Labor Statistics



U.S. Consumer Price Index
Annual Percent Growth
1970 – 2019*

Source: Bureau of Labor Statistics

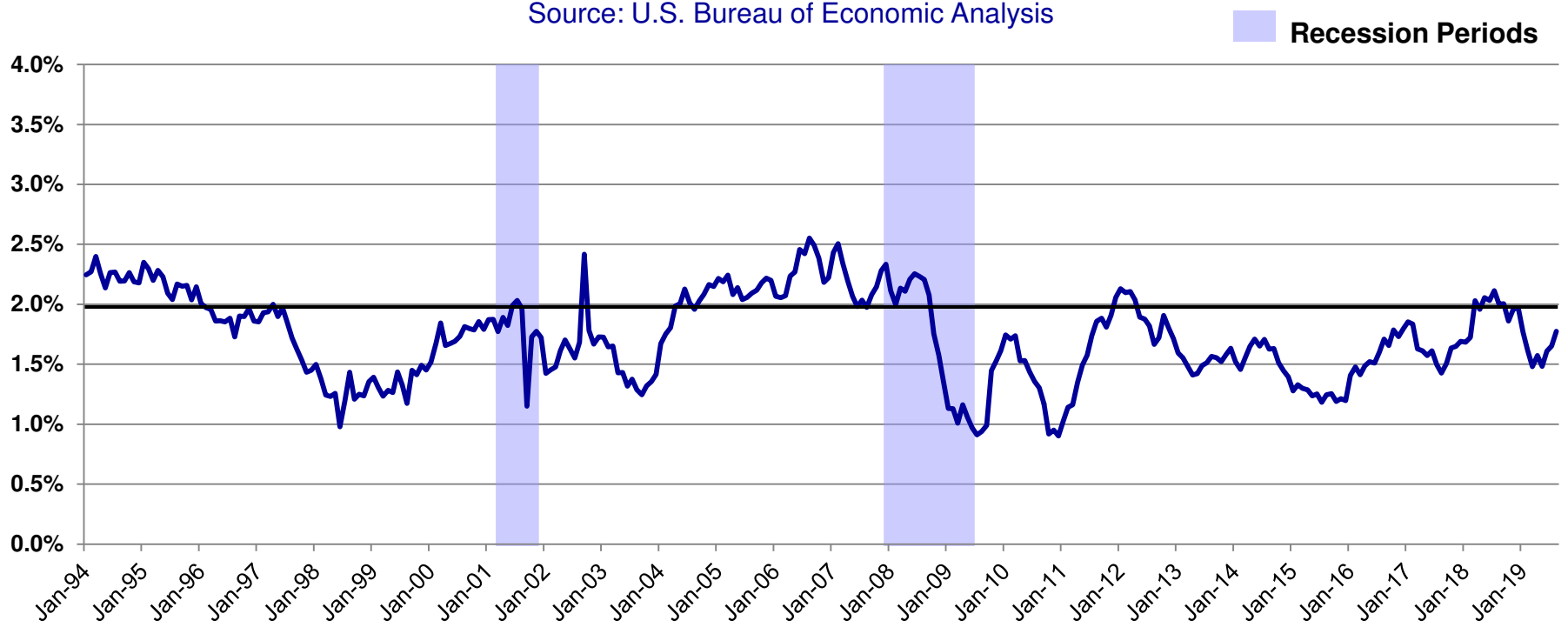


Personal Consumption Expenditures Excluding Food and Energy Index

Annual % Change

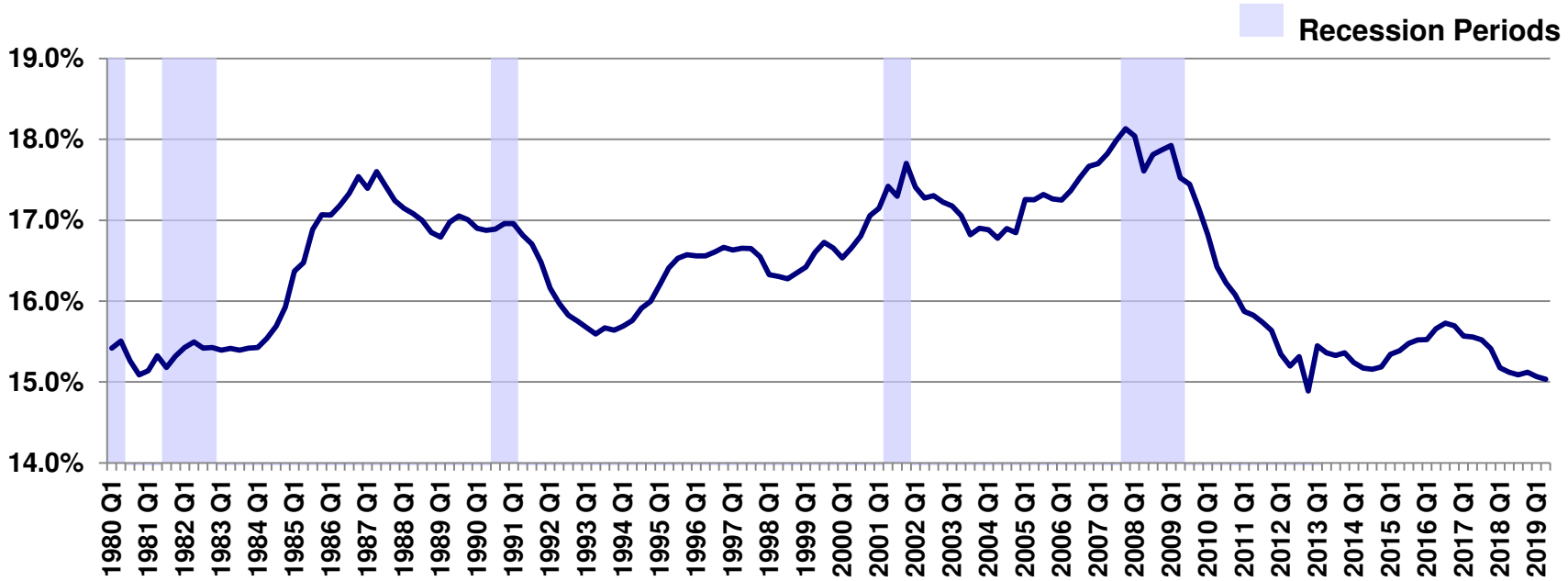
1994-2019*

Source: U.S. Bureau of Economic Analysis



Financial Obligation*
1980 – 2019**

Source: Federal Reserve

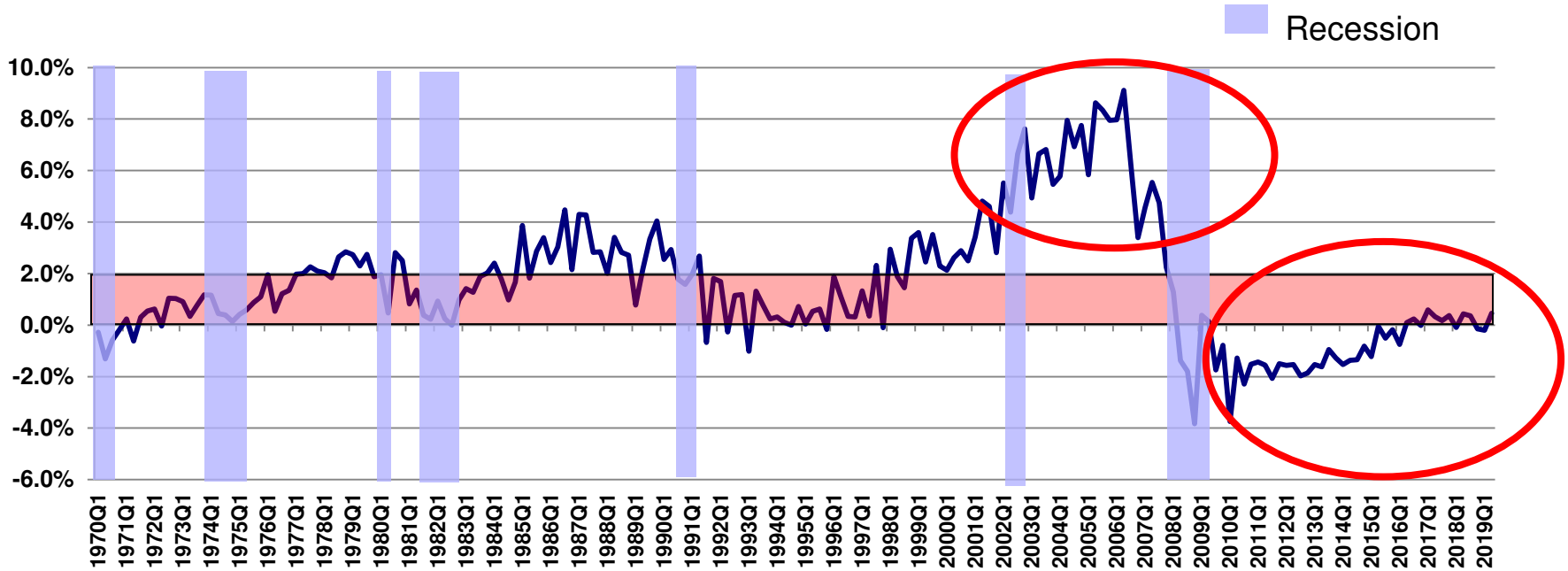


* of mortgage and consumer debt (including auto, rent and tax payments) to disposable income.

**Data through the second quarter 2019

Mortgage Equity Withdrawal as a share of Disposable Income-Single Family U.S.: 1970 – 2019*

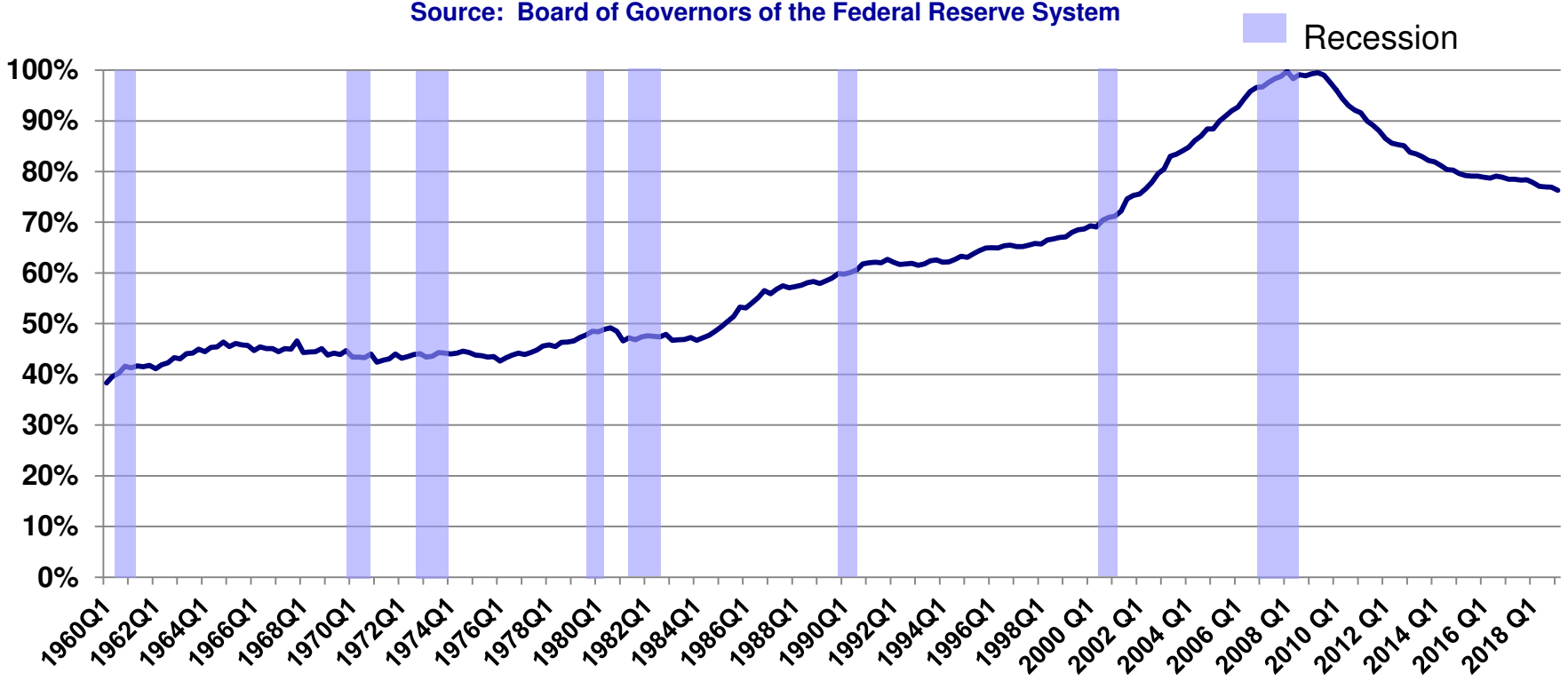
Source: Bureau of Economic Analysis



*Data through second quarter 2019

Households:
debt as a percent of gross domestic product
1960– 2019*

Source: Board of Governors of the Federal Reserve System



Student Loans

Student Loans

- Many young people have been lured into large amounts of student loan debt that their qualifications do not equip them to repay. In other words, they didn't receive the commensurate increase in skills to justify the debt.
- Spending that would have occurred is not occurring because student loans are eating up that cash flow.
- A huge transfer of spending from housing, durables, and optional non-durables to universities.

Student Loans by Age Group

(Trillions of Dollars)

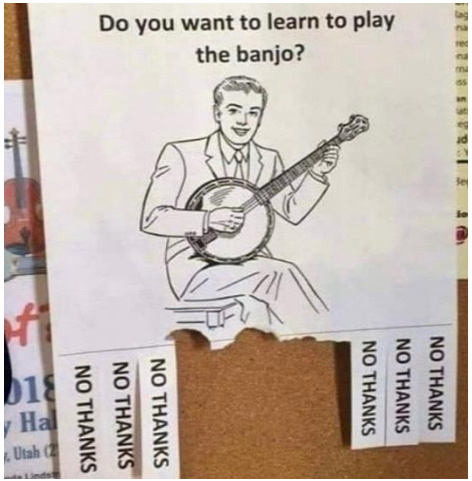
Source: New York Fed Consumer Credit Panel/Equifax

Age Group	Student Loans	% of Total
18 to 29	$0.35	23.6%
30 to 39	$0.49	33.1%
40 to 49	$0.32	21.6%
50 and over	$0.32	21.6%
All	$1.48	100.0%

Data for the second quarter 2019

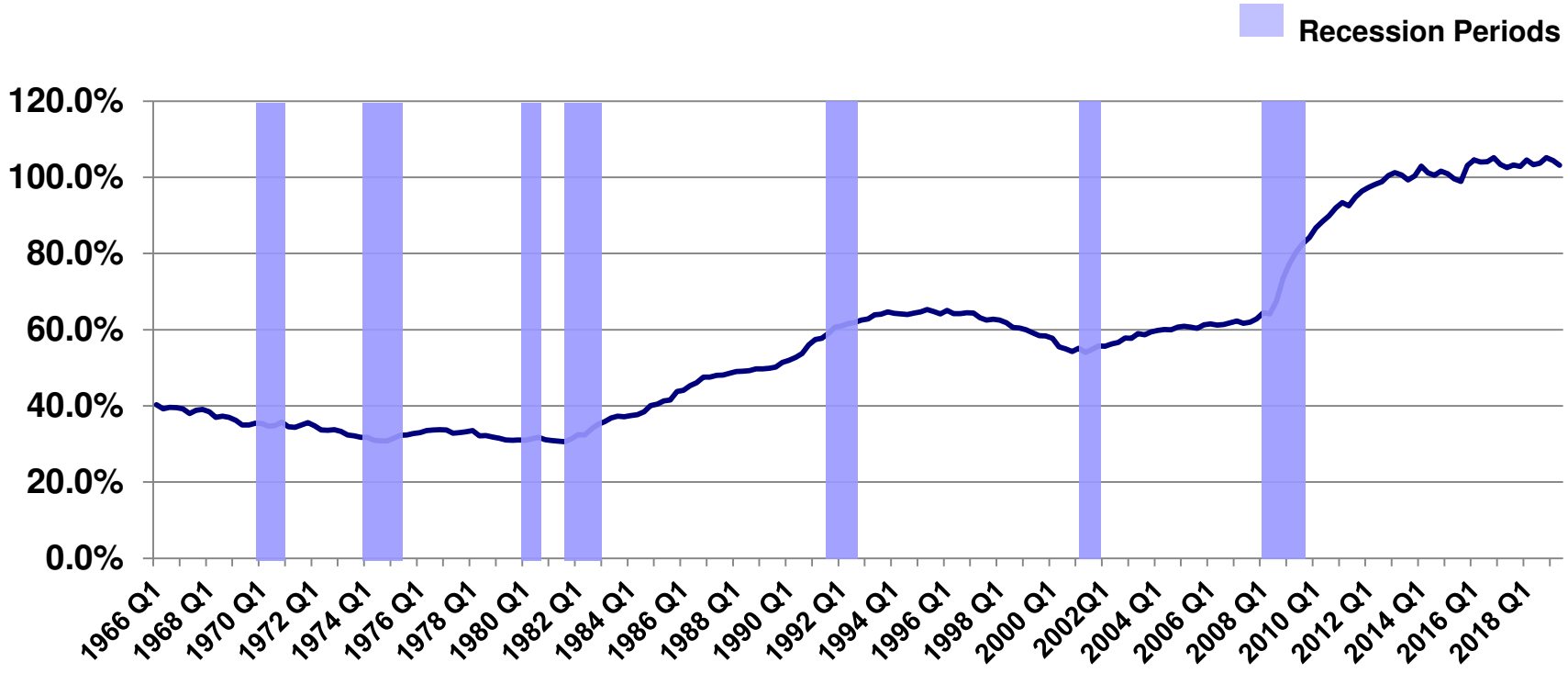
Political

- Two major political parties
- Have completely different views of the world
- 2020 is an election year. It could get crazy

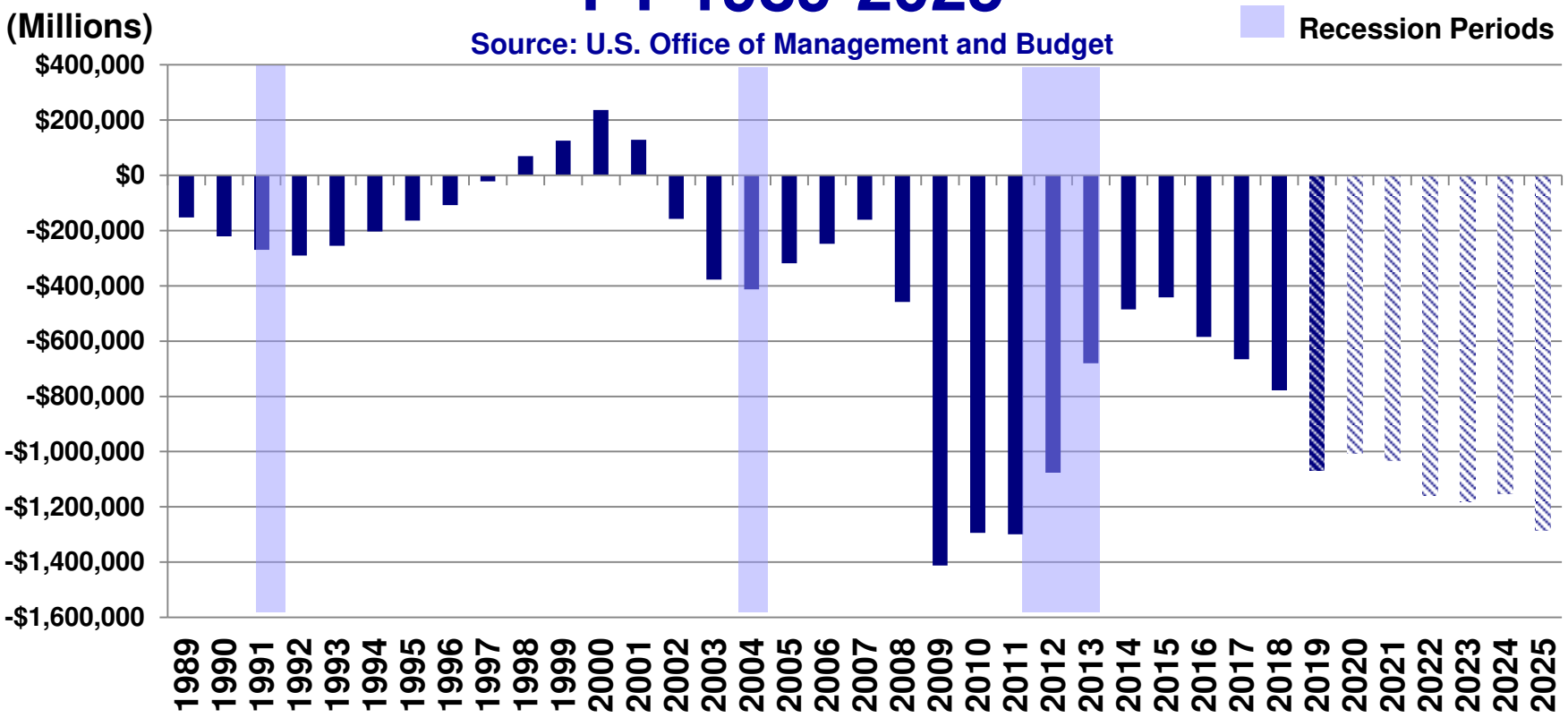


U.S. Debt to GDP Ratio

Source: Federal Reserve Bank of St. Louis



Federal Surplus or Deficit
FY 1989-2025

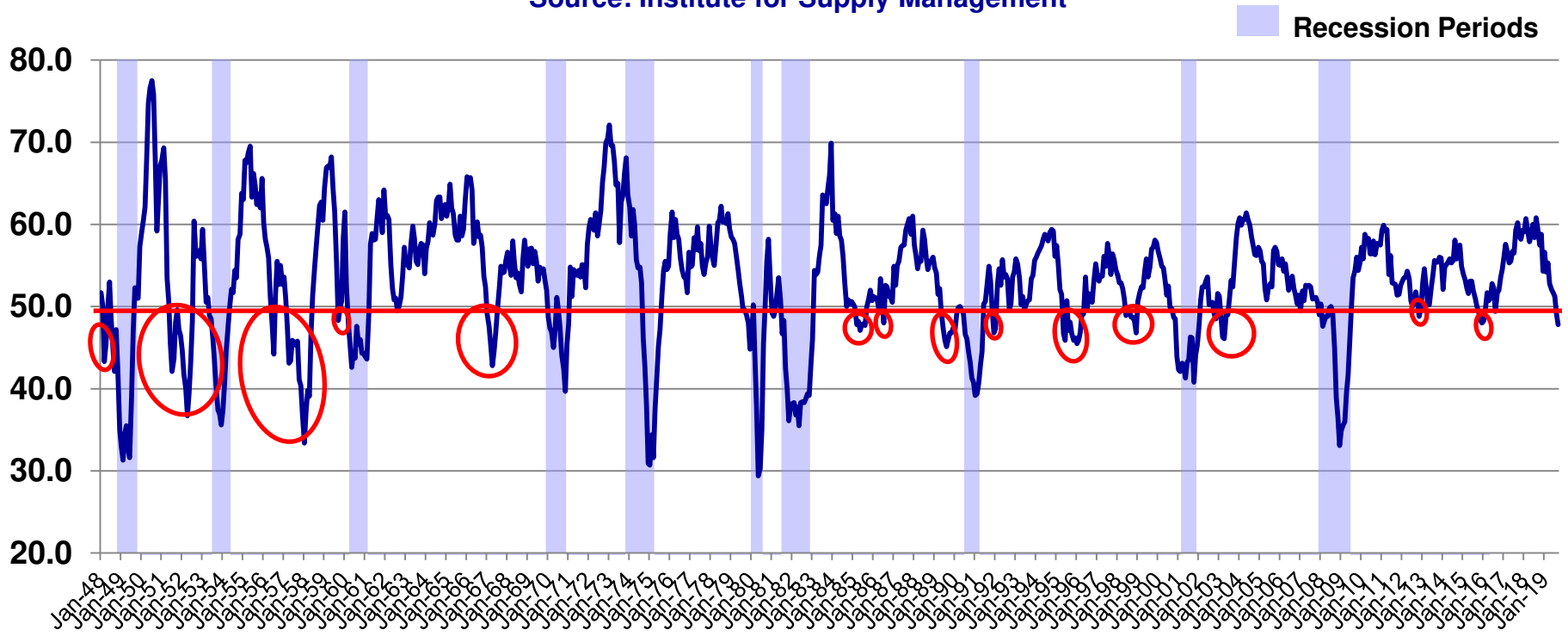


How Will We Pay for it?

- Education
- Healthcare
- Fighting Global Warming

U.S. Manufacturing Index
1948 – 2019*

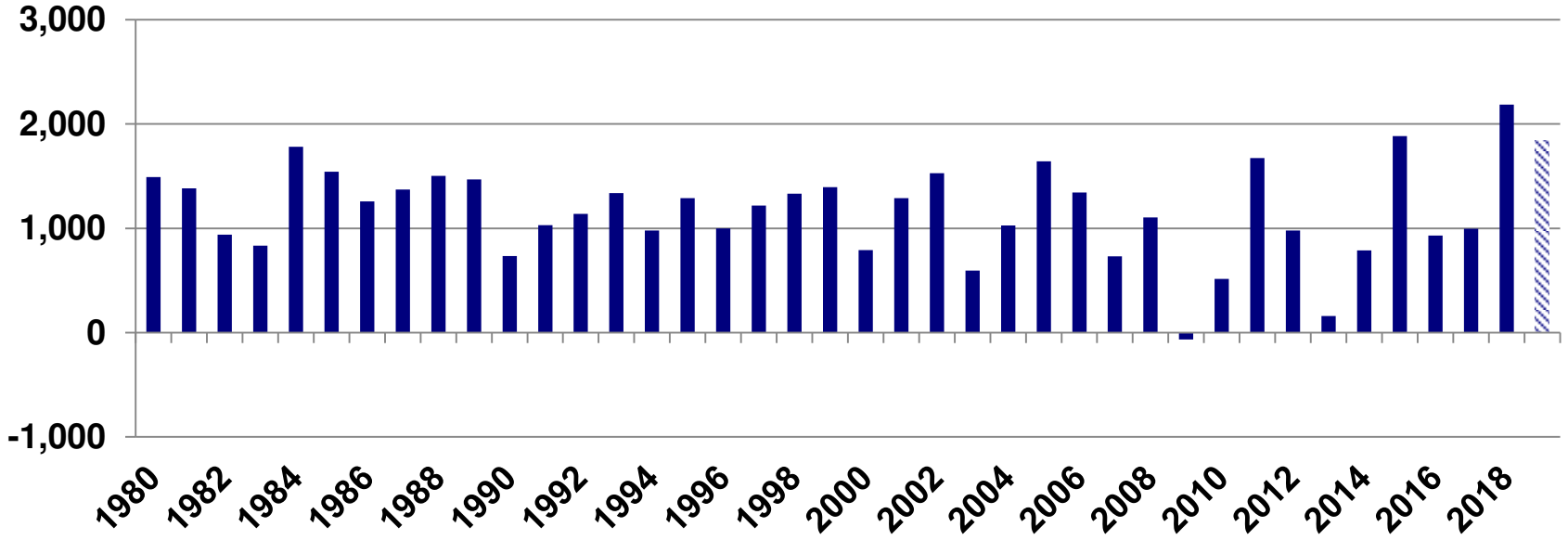
Source: Institute for Supply Management



*Data through August 2019
Data as released

Housing

Household Formations:
Change in Occupied Housing Units
(Thousands)
1980-2019*
Source: U.S. Census Bureau



Trough the first two quarters of 2018, 1,760,000 households were formed compare to 1,844,000 in 2019
Data through second quarter 2019

U.S. Single Family Permits
Source: U.S. Census Bureau

Time Period	Peak	Trough	Net Change	% Change
1963 – 1966	750,200	563,400	-186,800	-24.9%
1968 – 1969	694,600	625,900	-68,700	-9.9%
1972 – 1974	1,033,300	643,900	-389,400	-37.7%
1978 – 1982	1,182,600	546,300	-636,300	-53.8%
1986 – 1991	1,077,500	753,700	-323,800	-30.1%
1999 – 2000	1,246,500	1,198,200	-48,300	-3.9%
2005 – 2011	1,681,900	418,500	-1,263,400	-75.1%

Not all Recessions are the same

Not all recessions are the Same

- People don't have long economic memories
- 2007-2009 was an aberration, not the norm.
- Most recessions are short and shallow
- At this point, any recession is likely to be mild
- Government?

Real GDP
Billions of Chained 2012 Dollars
1960– 2019
Source: Bureau of Economic Analysis

	% Change	Quarters to Reach Previous Peak
1960Q1 - 1960Q4	-1.3%	4
1970Q3 - 1970Q4	-1.1%	1
1973Q4 - 1975Q1	-3.1%	7
1980Q1 - 1980Q3	-2.2%	3
1981Q3 - 1982Q1	-2.6%	6
1990Q3 - 1991Q1	-1.4%	4
2001Q2 - 2001Q3	-0.4%	2
2007Q4 - 2009Q2	-4.0%	13

U.S. Nonfarm Employment (Thousands)

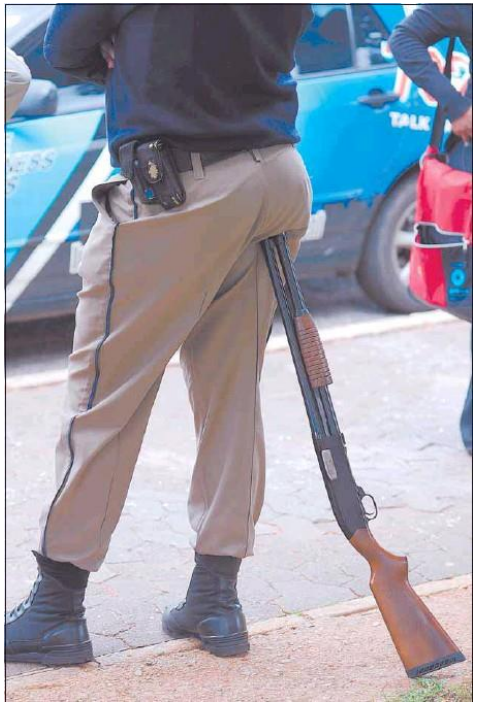
Source: U.S. Bureau of Labor Statistics

Time Period	% Change	Months to Reach Previous Peak
Apr-60 -- Feb-61	-2.3%	19
Mar-70 -- Nov-70	-1.5%	17
Jul-74 -- Apr-75	-2.8%	18
Mar-80 -- Jul-80	-1.3%	9
Jul-81 -- Dec-82	-3.1%	27
Jun-90 -- May-91	-1.4%	30
Feb-01 -- Aug-03	-2.0%	47
Jan-08 -- Feb-10	-6.3%	75

Overall

- Probably a slowdown but…….
- Odds of recession over next year are growing
- Slower Economic Growth
- Slower Employment Growth
- Slower Consumer Spending
- Stronger Dollar Possible
- Downward Pressure on Exports

Risks are on the downside



Conclusion:

Recession Possible but this is no 2007

At best, economic growth is going to slow next year

At worst, we will have a recession

Probability?

50/50

Too close to call

Depends on a shock or a trade war

It is not 2007

- No Housing Bubble
- No consumer debt bubble
- Total unfilled jobs
- Fed and other central banks are trying to prevent a recession and low inflation

Don’t panic!!!!!

(at least not yet)

Arizona


Northeast
Blizzard


Arizona
Blizzard
THE ORIGINAL
BLIZZARD
ONLY AT DQ

Arizona:
Phoenix and the rest of the State

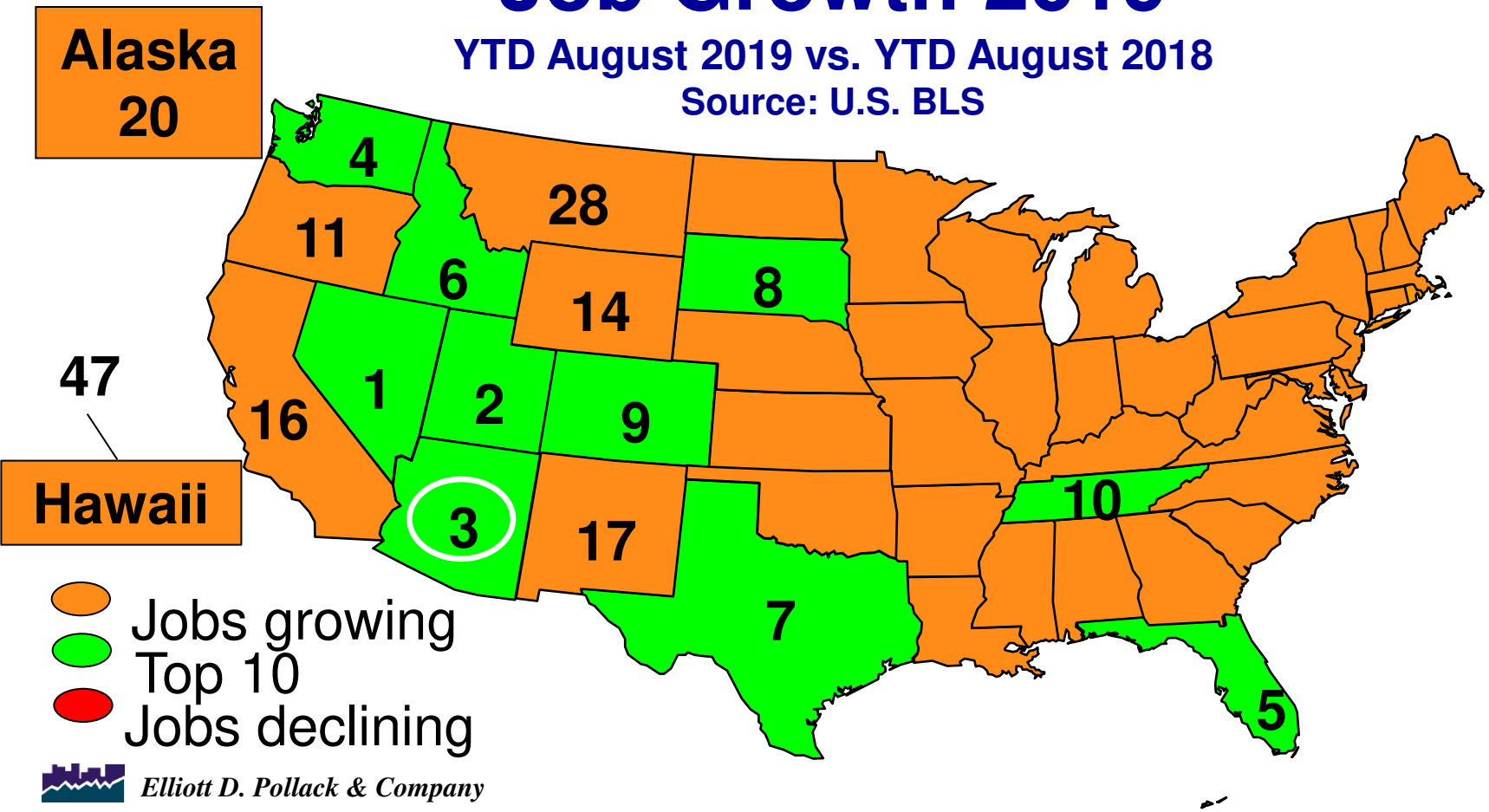
Area	% Change	% of Arizona Growth	2018 Annual Wages
United States	16.9%		$57,198
Arizona	24.0%	100.0%	$51,477
Greater Phoenix	29.5%	87.2%	$53,760
Greater Tucson	11.5%	7.1%	$45,352
Balance of State	9.6%	5.7%	$38,911

Note: Wages for Private industries
Bottom of Recession Sept. 2010 to August 2019

Job Growth 2019

YTD August 2019 vs. YTD August 2018

Source: U.S. BLS



Arizona Employment Growth
Arizona's Rank Out of 50 States

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

Year	Rank
1998	1
1999	2
2000	5
2001	9
2002	9
2003	4
2004	2
2005	2
2006	2
2007	17
2008	46

Year	Rank
2009	49
2010	49
2011	28
2012	8
2013	9
2014	16
2015	11
2016	7
2017	4
2018	4
2019*	3

*YTD August 2019 vs YTD August 2018

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
1998	1	22
1999	2	23
2000	6	24
2001	6	25
2002	5	24
2003	3	24
2004	2	24
2005	1	25
2006	1	26
2007	10	28
2008	24	28

Year	Rank	# MSA's
2009	22	23
2010	22	22
2011	13	24
2012	10	27
2013	7	28
2014	15	30
2015	11	31
2016	7	33
2017	4	33
2018	3	35
2019*	3	36

*YTD August 2019 vs YTD August 2018

Greater Phoenix Population

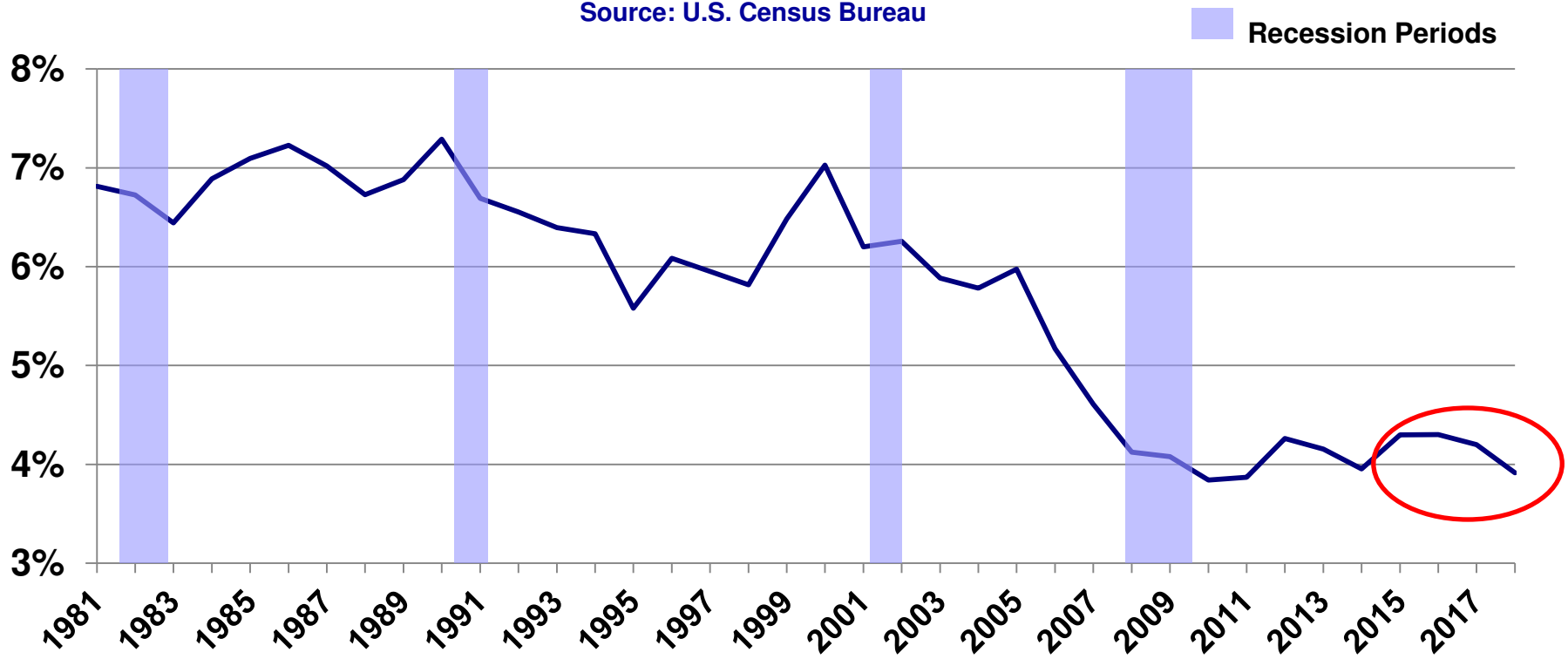
Source: U.S. Bureau of Census; Office of Economic Opportunity; UofA Forecasting Project

Period Ending	Population	Change	APR
1970	1,039,807		3.5%
1980	1,600,093	560,286	4.4%
1990	2,249,116	649,023	3.5%
2000	3,275,362	1,026,246	3.8%
2010	4,200,427	925,065	2.5%
2015	4,482,906	282,479	1.3%
2020*	4,903,752	420,846	1.8%
2025*	5,307,192	403,440	1.6%

*Forecasts from UofA
1970-2010 10 year period
2010-2025 5 year period

Total Movers as a % of Total U.S. Population

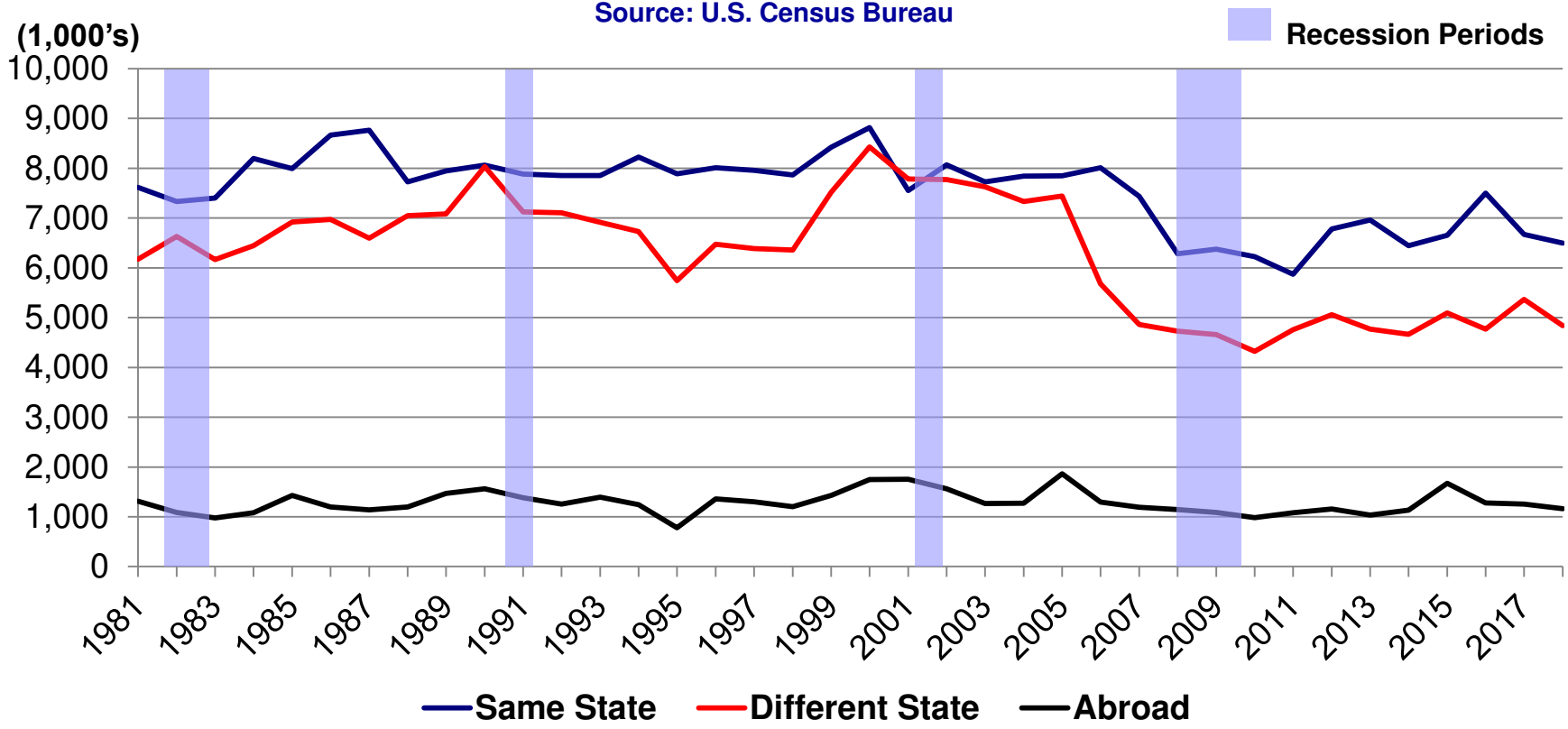
Source: U.S. Census Bureau



Note: Includes all movers except movers within same county

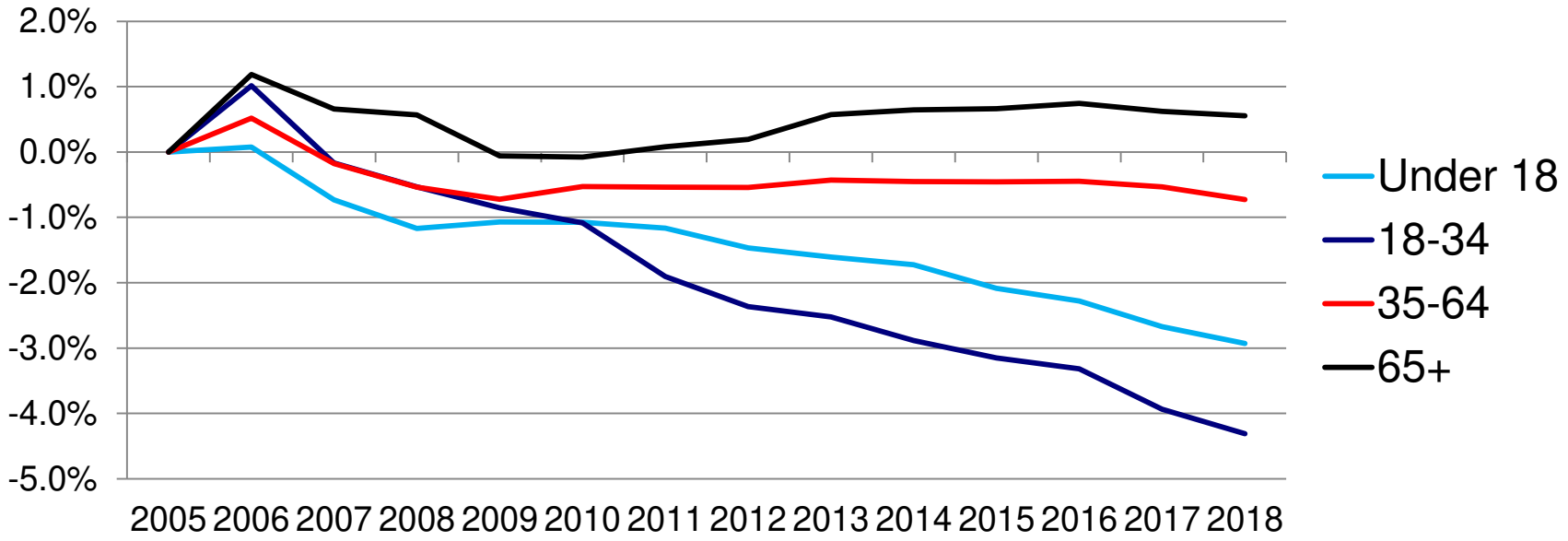
Movers from an Outside Area
1981-2018

Source: U.S. Census Bureau



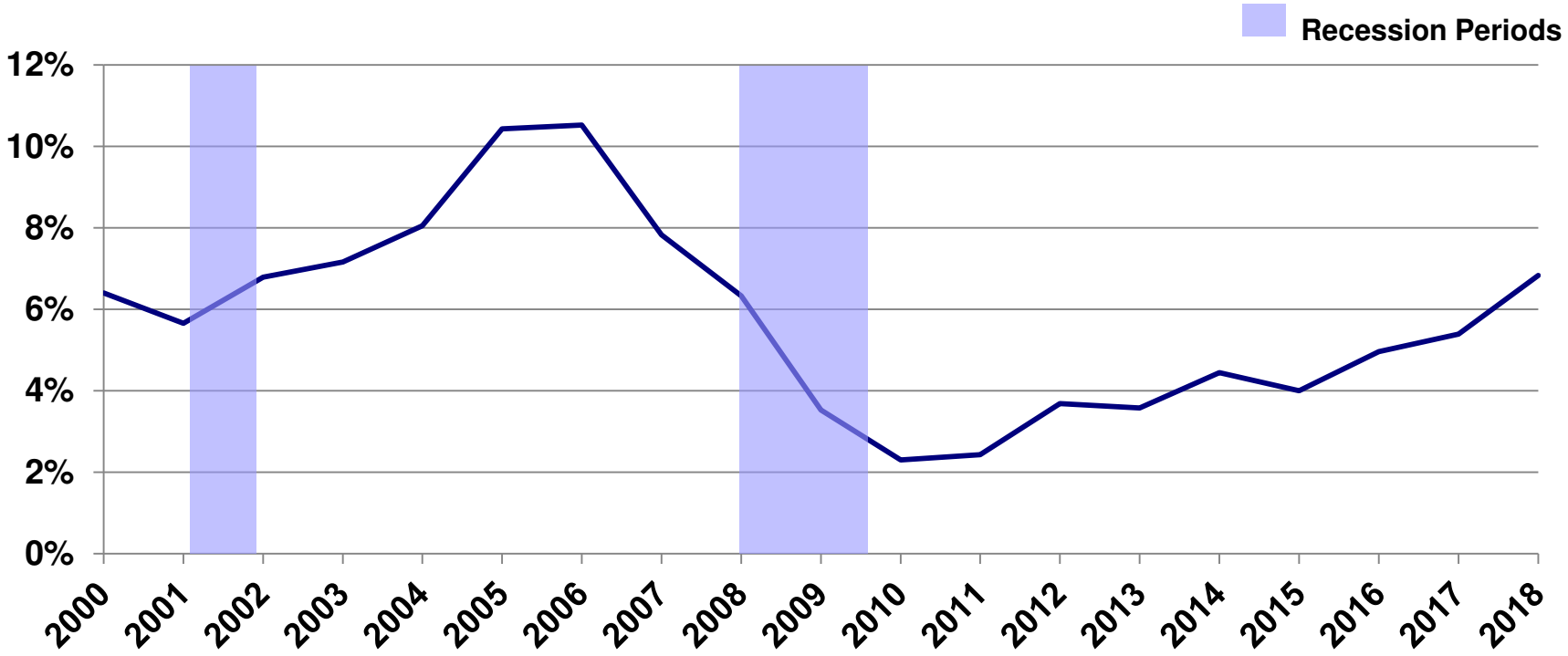
Population Moving by Age
Base year=2005

Source: American Community Survey



Arizona Capture Rate

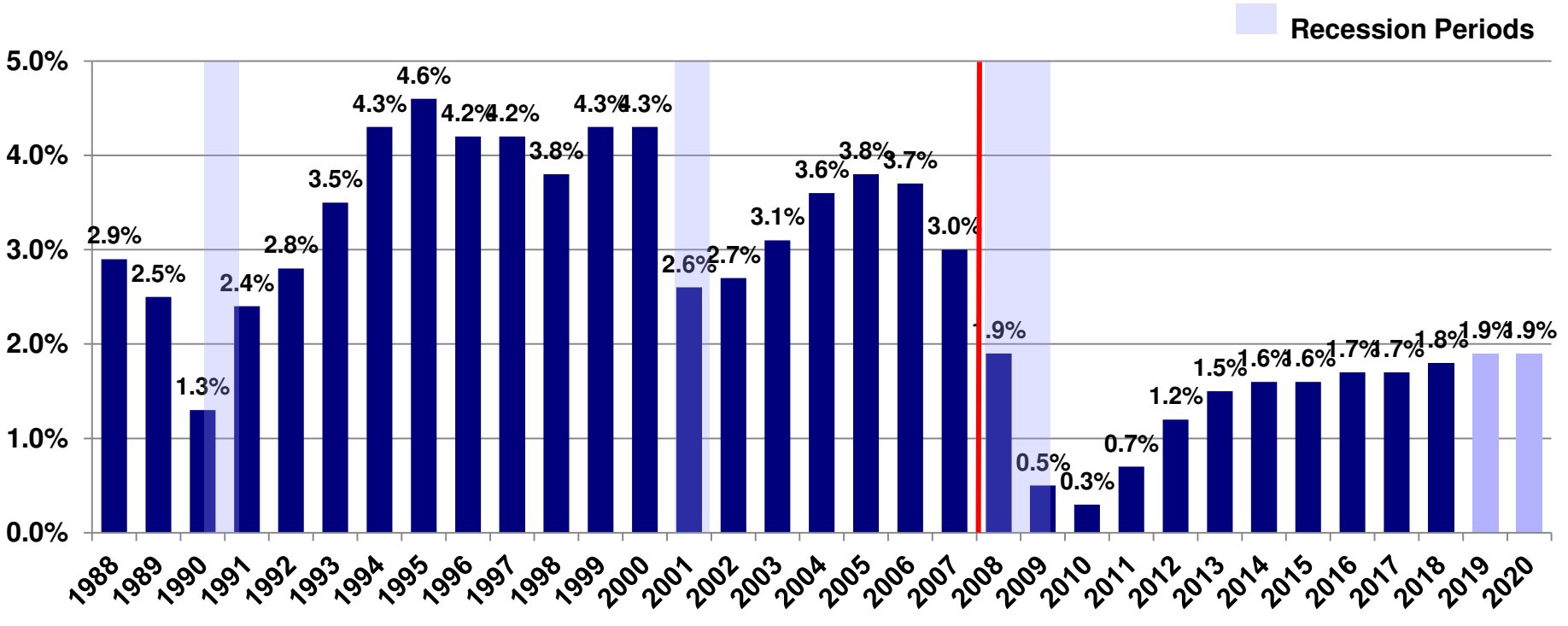
Source: U.S. Census Bureau



Note: Does not include in-state movers;
Net migration numbers.

Greater Phoenix Population
Annual Percent Change 1988–2020*

Source: Office of Economic Opportunity, EDPCo

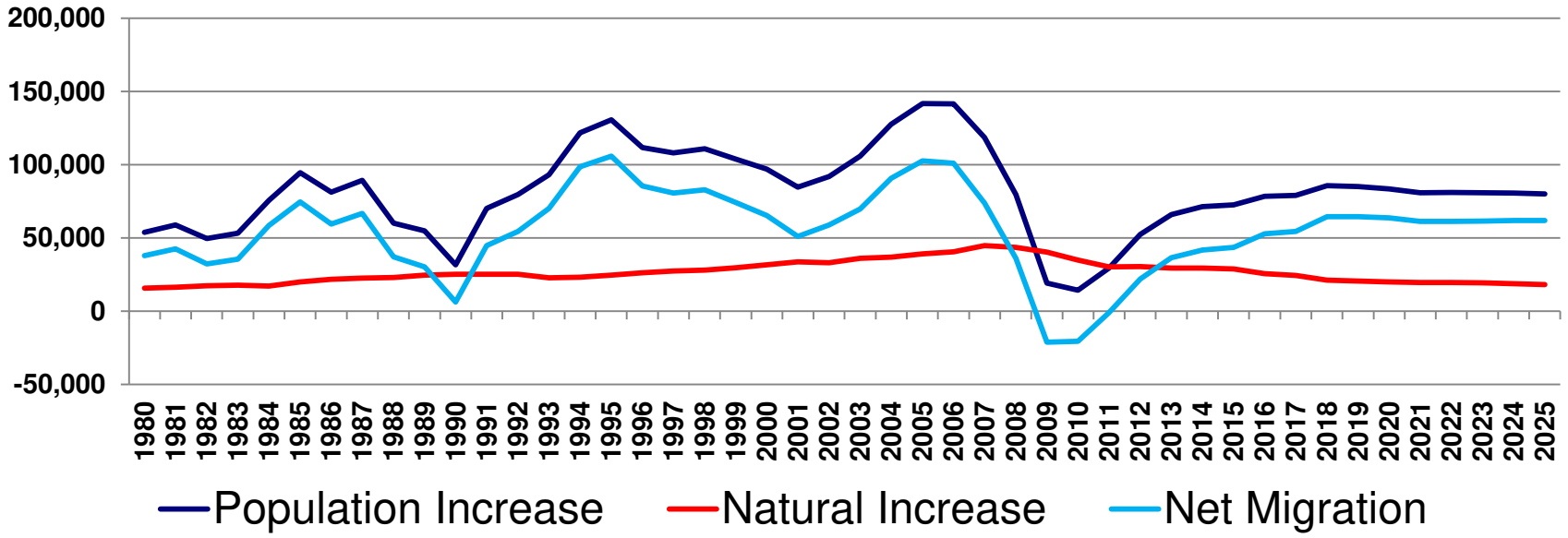


*Estimates for 2011, 2012, 2013, 2014, 2015 and 2016 and forecasts for 2019 and 2020 from Elliott D. Pollack & Co. as of October 2019.

Greater Phoenix

Population Growth

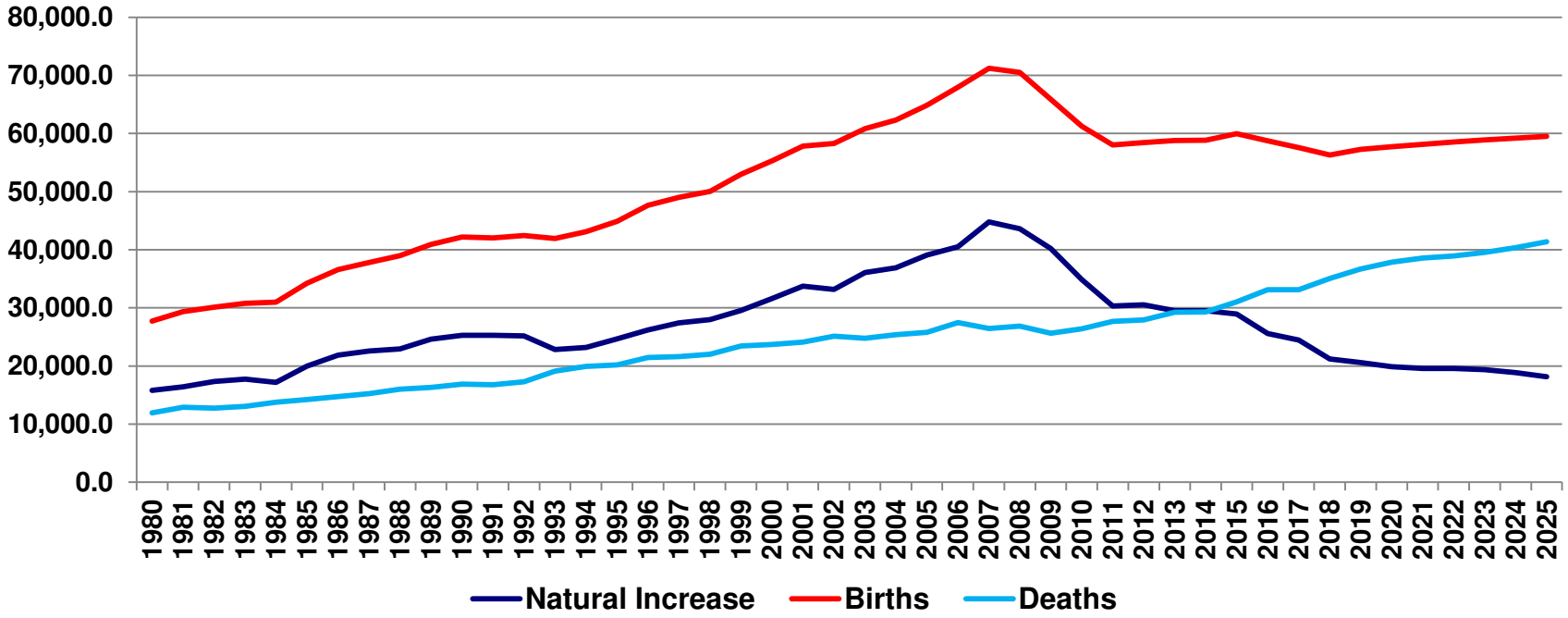
Source: UofA Forecasting Project



Greater Phoenix

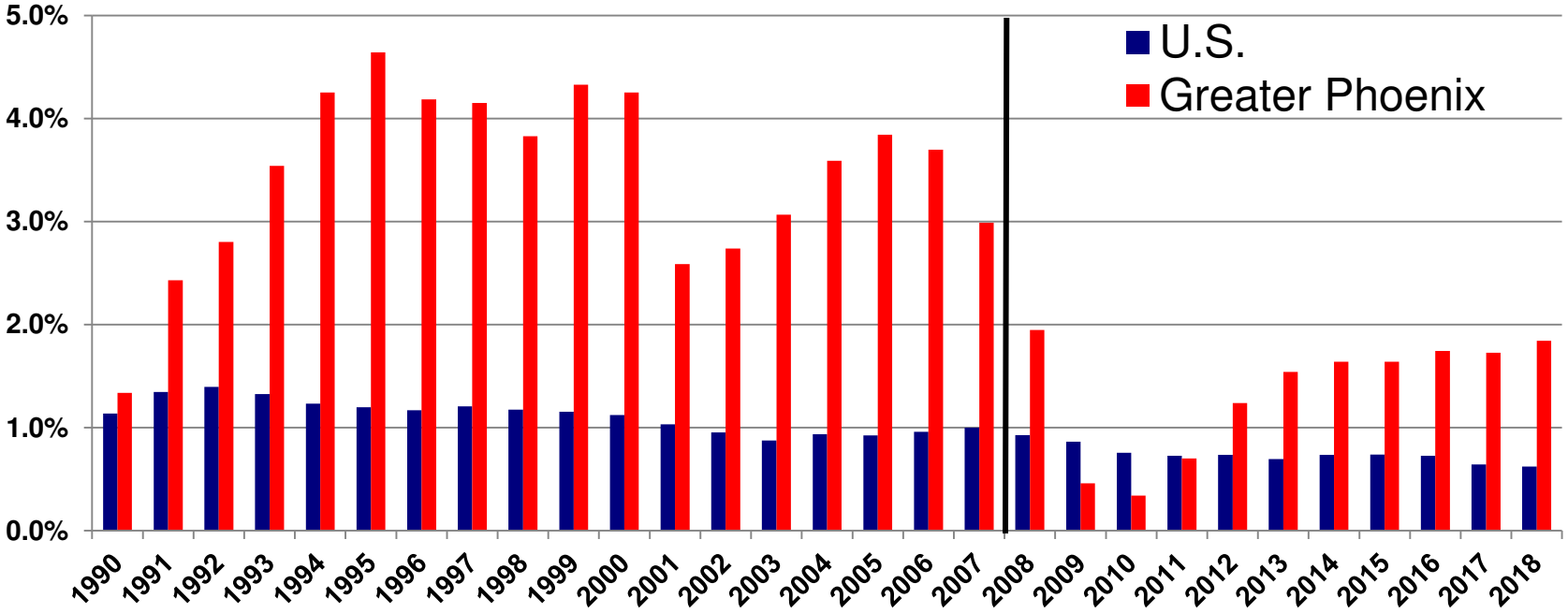
Natural Increase

Source: UofA Forecasting Project



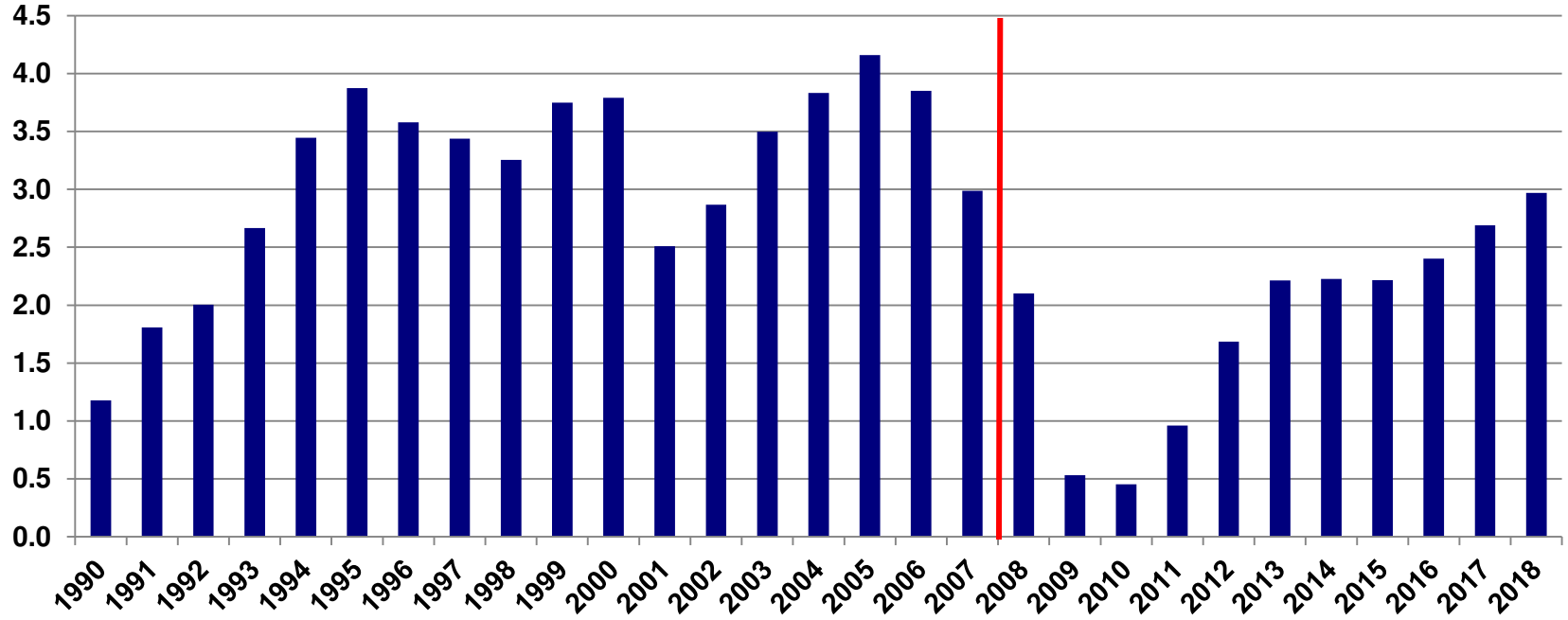
Population: Greater Phoenix to U.S.
Annual Growth Rate
1990-2018

Source: U.S. Census Bureau; Office of Economic Opportunity; EDPCo



Population: Greater Phoenix to U.S.
Outgrowing the U.S.
1990-2018

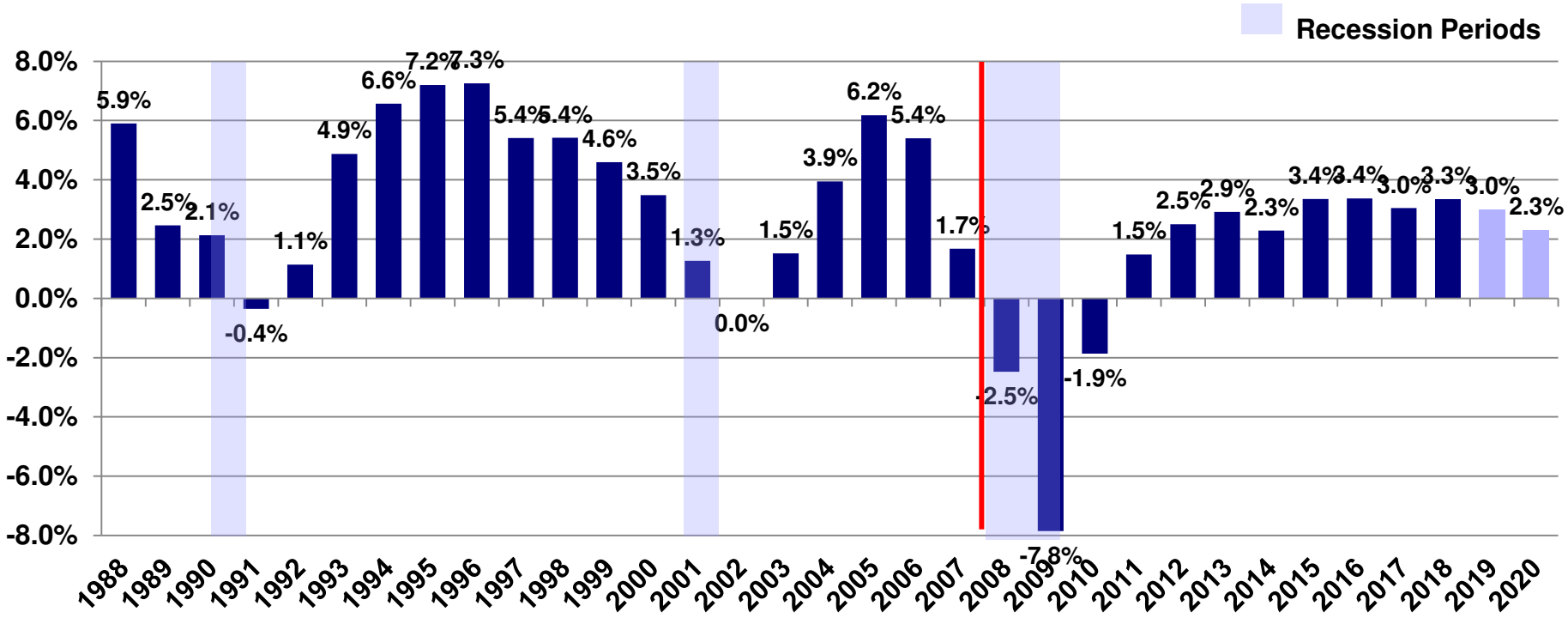
Source: U.S. Census Bureau; Office of Economic Opportunity; EDPCo



Slower population growth leads to slower employment growth

Greater Phoenix Employment*
Annual Percent Change 1988–2020**

Source: Office of Economic Opportunity

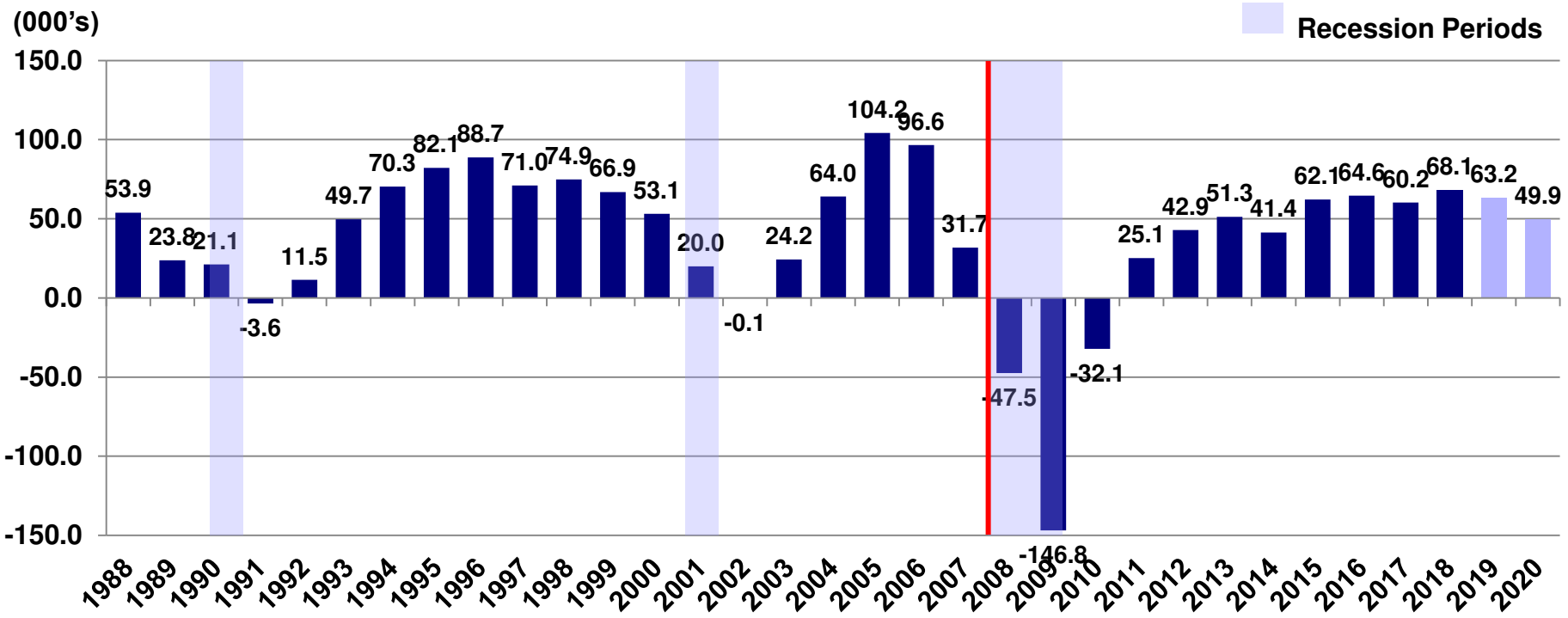


*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.

**2019 & 2020 forecasts from Elliot D. Pollack and Co. October 2019.

Greater Phoenix Employment*
Net Annual Growth Change 1988–2020**

Source: Office of Economic Opportunity

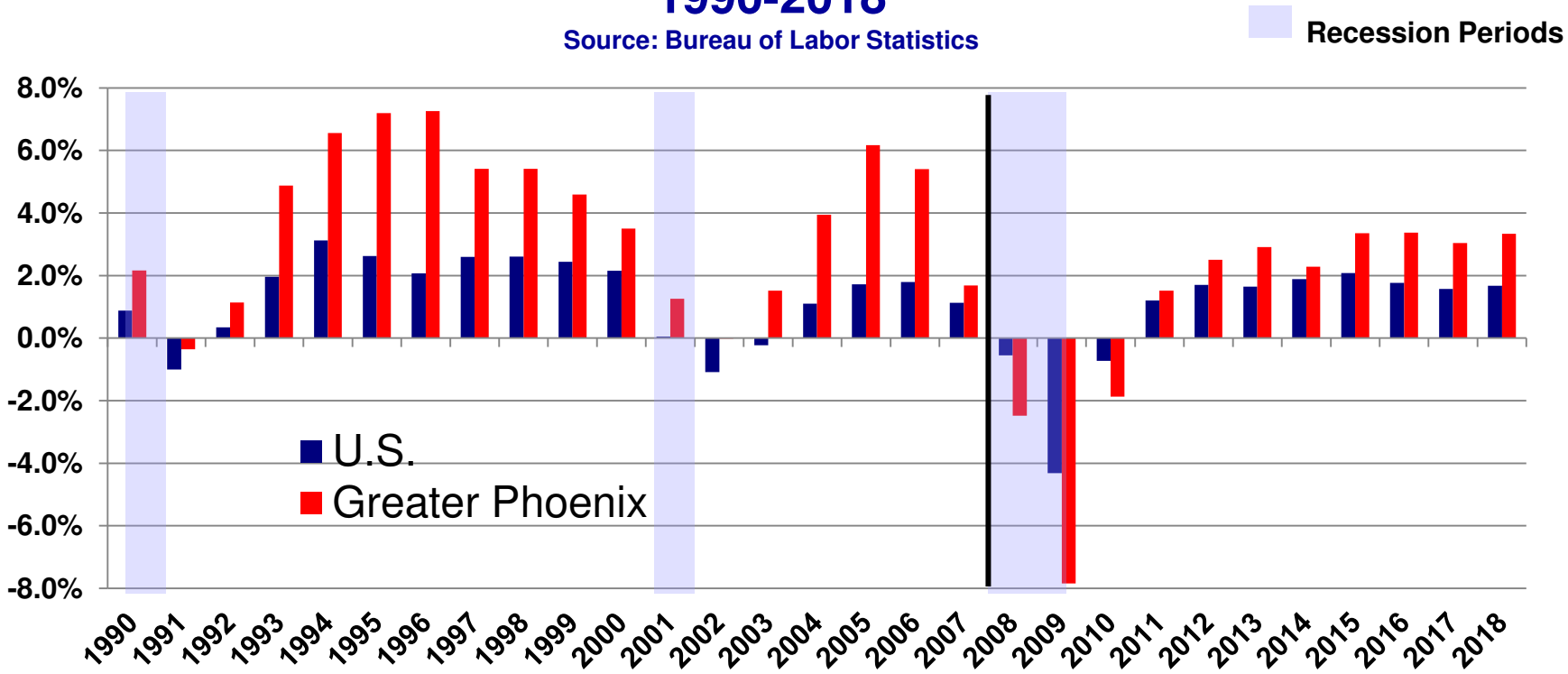


*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.

**2019 & 2020 forecasts from Elliot D. Pollack and Co. October 2019.

Employment: Greater Phoenix to U.S.
Annual Growth Rate
1990-2018

Source: Bureau of Labor Statistics



Growth in Jobs
2010-2019

Source: Bureau of Labor Statistics; Arizona Office of Economic Opportunity

	U.S.	Greater Phoenix
Total Nonfarm	15.5%	27.0%
Mining, Logging, and Construction	31.5%	62.9%
Manufacturing	11.3%	20.4%
Trade, Transportation, and Utilities	12.5%	18.8%
Information	4.0%	35.5%
Financial Activities	12.4%	37.1%
Professional and Business Services	27.0%	33.9%
Education and Health Services	20.6%	39.6%
Leisure and Hospitality	28.3%	33.7%
Other Services	11.2%	10.4%
Government	-0.4%	0.4%

YTD Data through August 2019

Greater Phoenix
2019

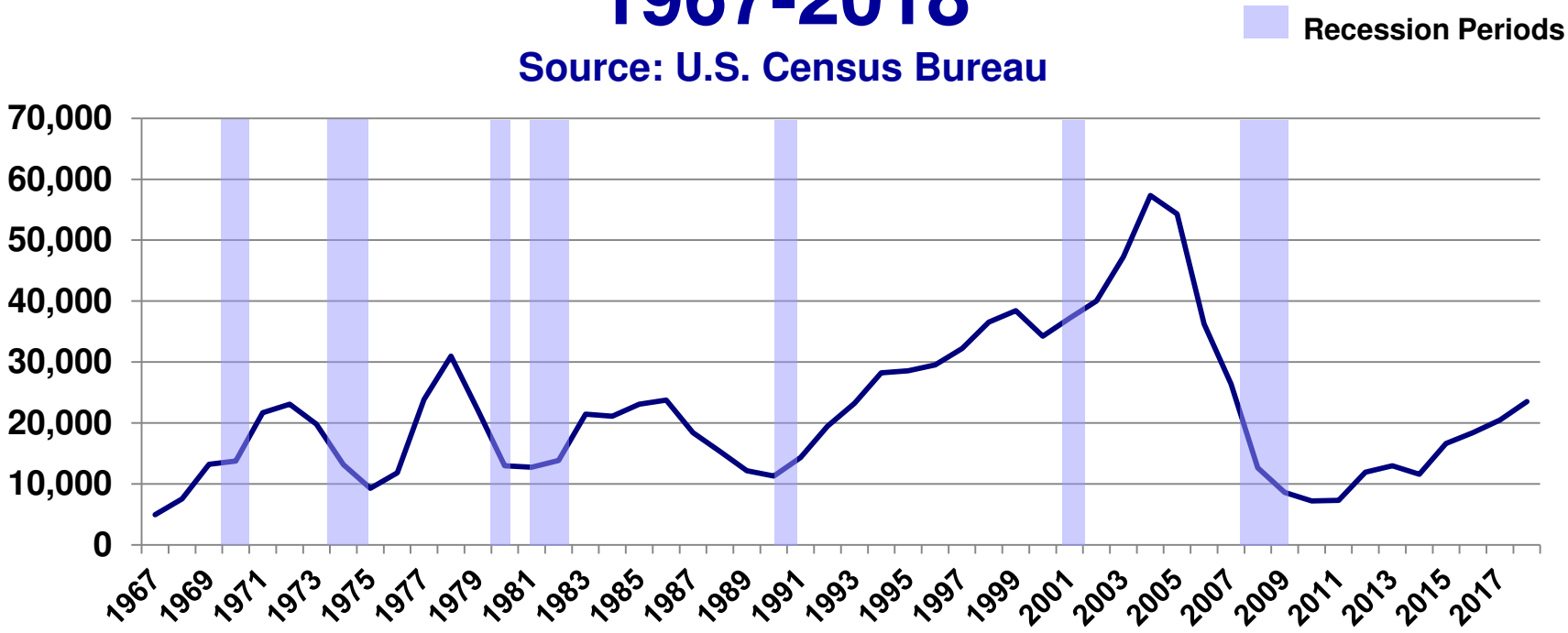
Source: Arizona Office of Economic Opportunity

	Net Change (1,000's)	Percent Change
Total Nonfarm	62.5	3.0%
Natural Resources and Mining	0.2	4.6%
Construction	13.2	10.8%
Manufacturing	6.4	5.0%
Trade, Transportation, and Utilities	9.6	2.4%
Information	-0.2	-0.5%
Financial Activities	1.0	0.5%
Professional and Business Services	10.4	3.0%
Education and Health Services	16.2	5.1%
Leisure and Hospitality	3.5	1.5%
Other Services	1.6	2.3%
Government	0.7	0.3%

Single Family Housing

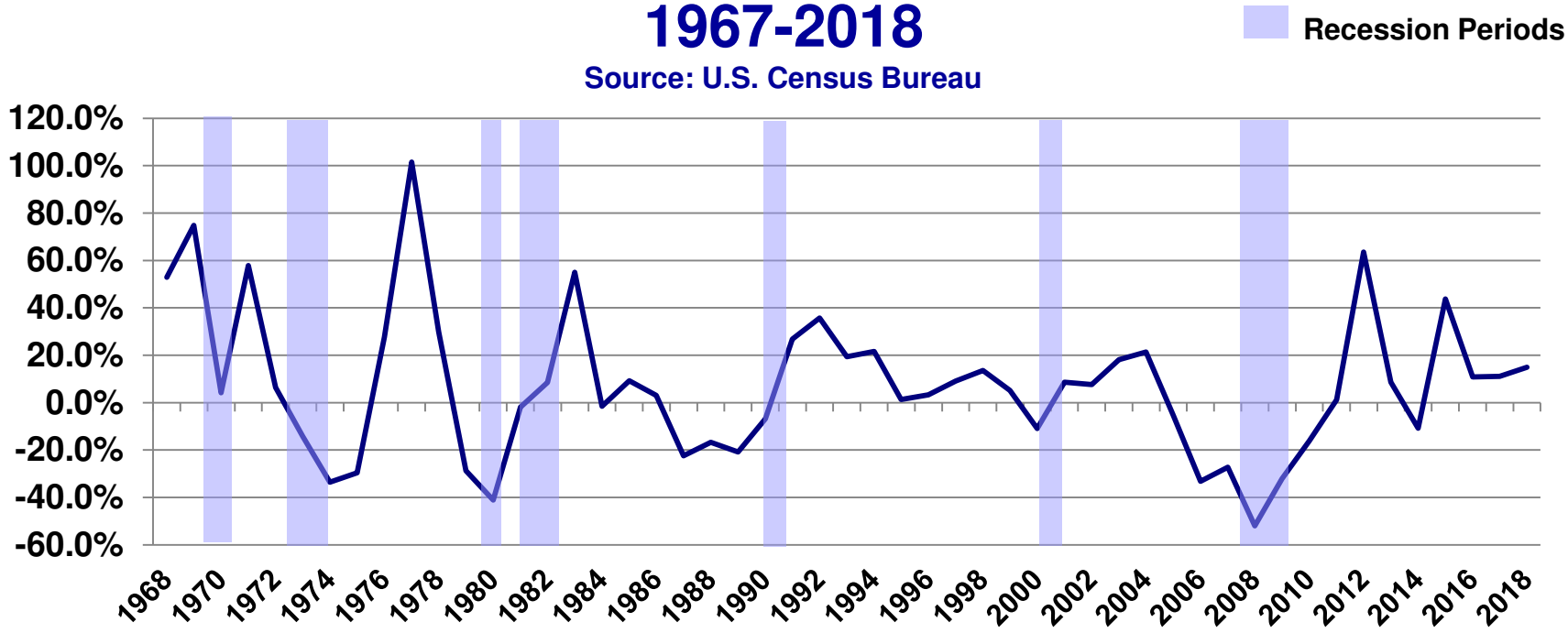
Greater Phoenix SF Permits 1967-2018

Source: U.S. Census Bureau



Greater Phoenix SF Permits
Annual % Change
1967-2018

Source: U.S. Census Bureau



Greater Phoenix SF Permits

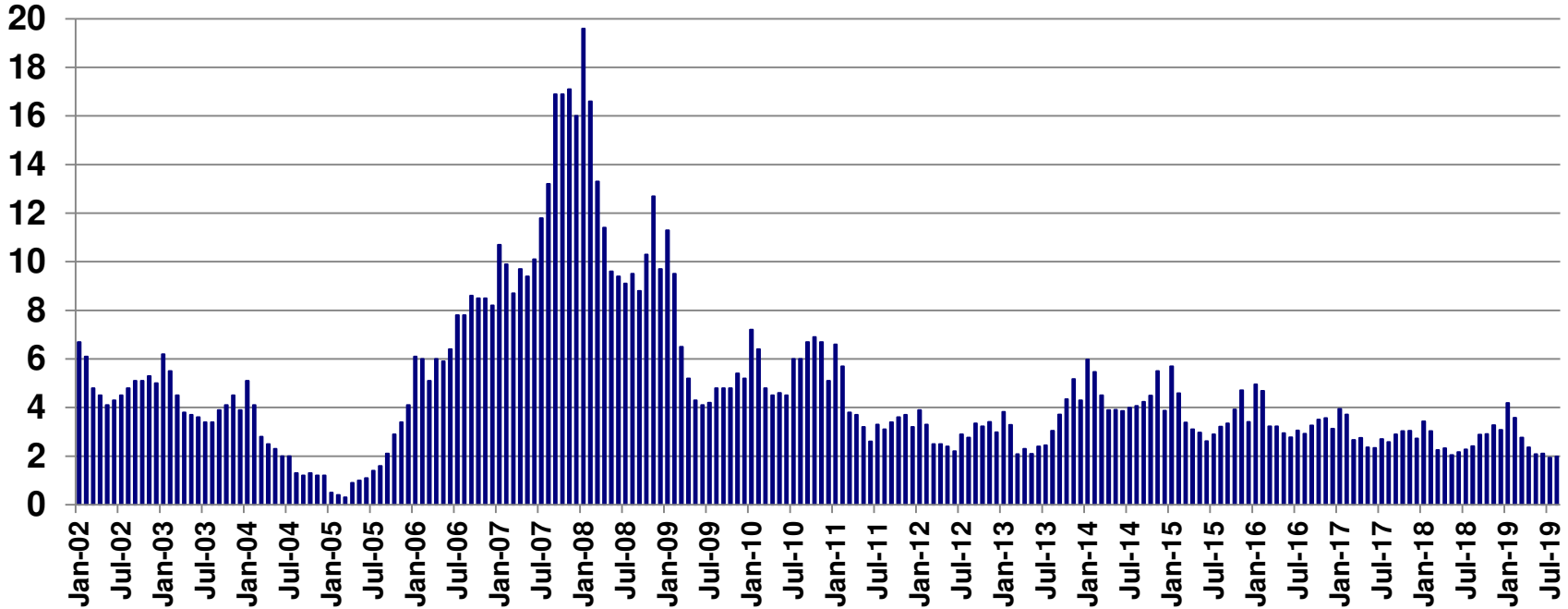
Source: U.S. Census Bureau

	Peak	Trough	Net Change	% Change
1972 – 1975	23,064	9,258	-13,806	-59.9%
1978 – 1981	30,956	12,743	-18,213	-58.8%
1986 – 1990	23,758	11,304	-12,454	-52.4%
1999 – 2000	38,448	34,232	-4,216	-11.0%
2004 – 2010	57,360	7,212	-50,148	-87.4%

Greater Phoenix Month's Supply

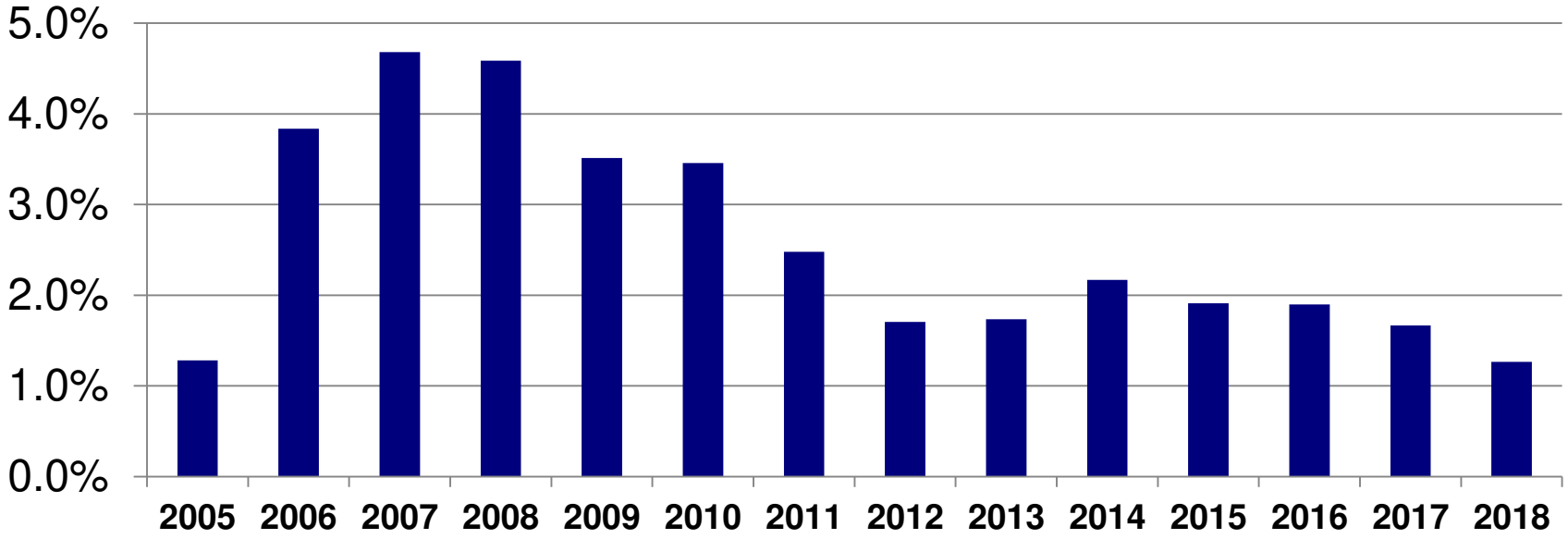
2002-2019

Source: ARMLS

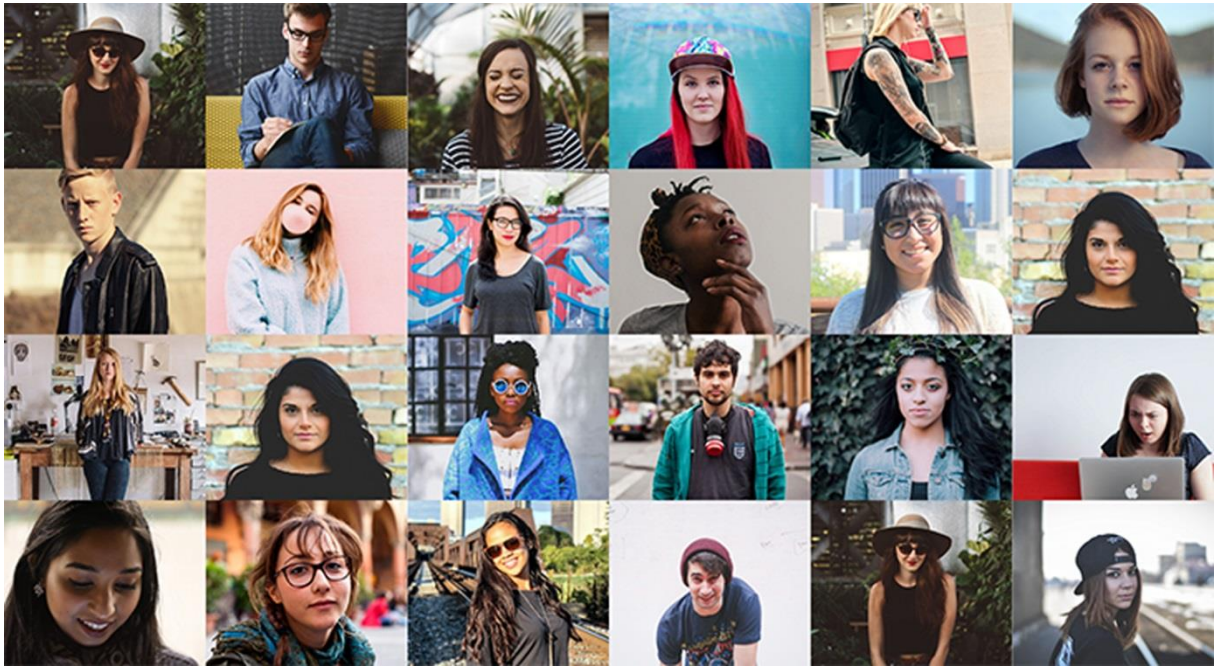


Active Listings to SF Units Ratio

Source: American Community Survey; AMLS



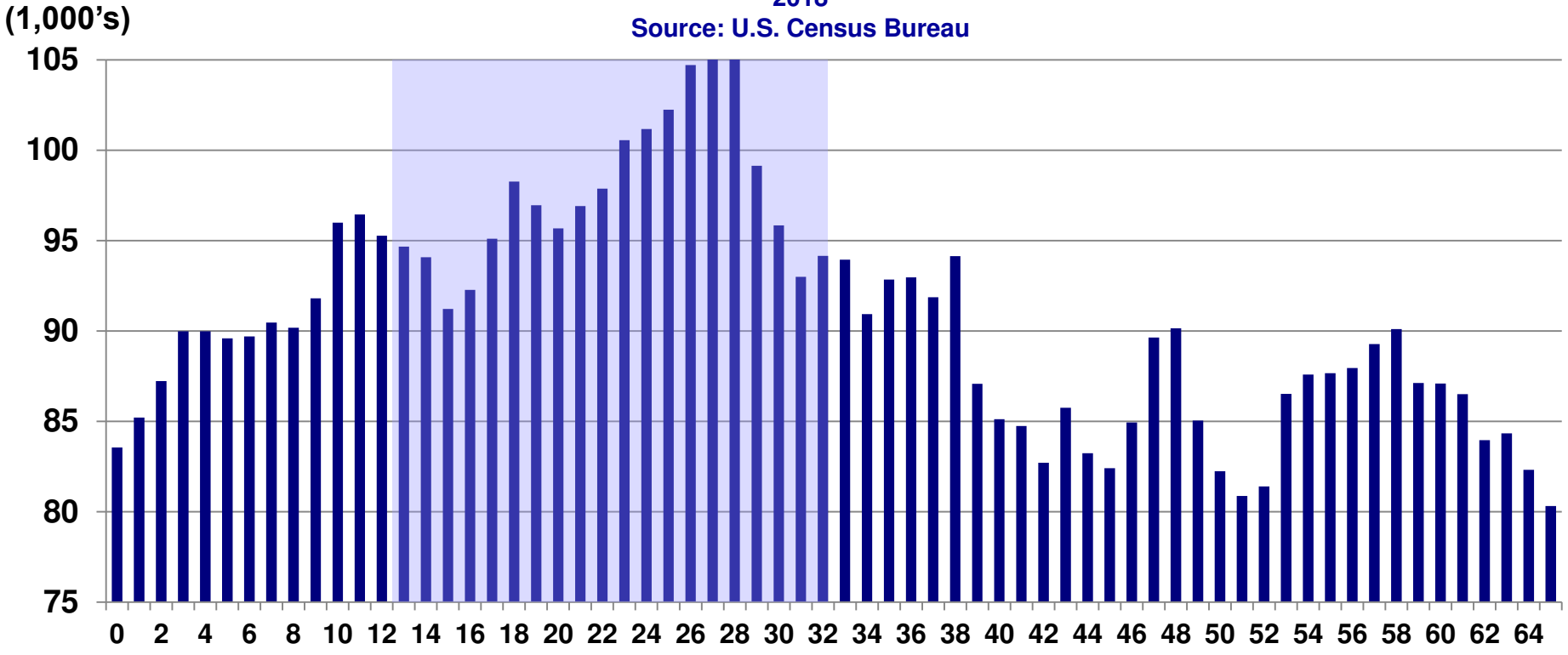
Millennials



Arizona Population by Age
(0-65)

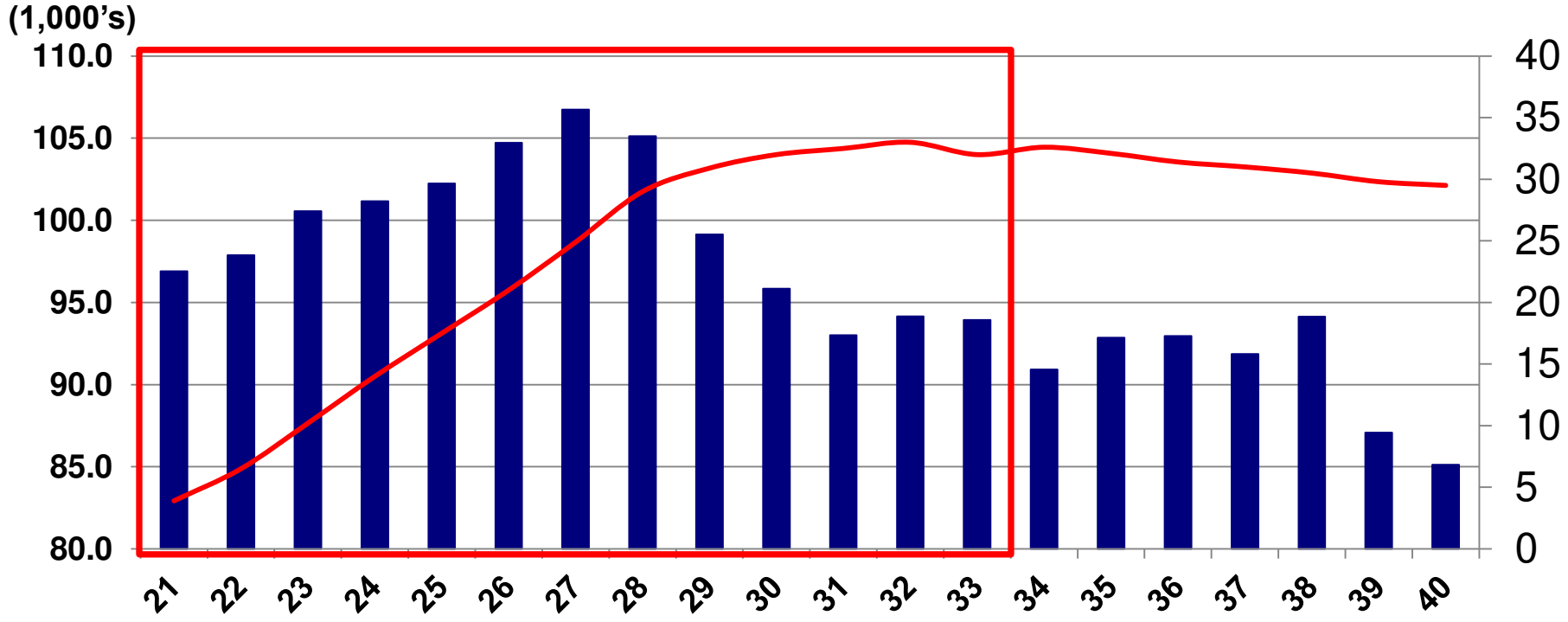
2018

Source: U.S. Census Bureau



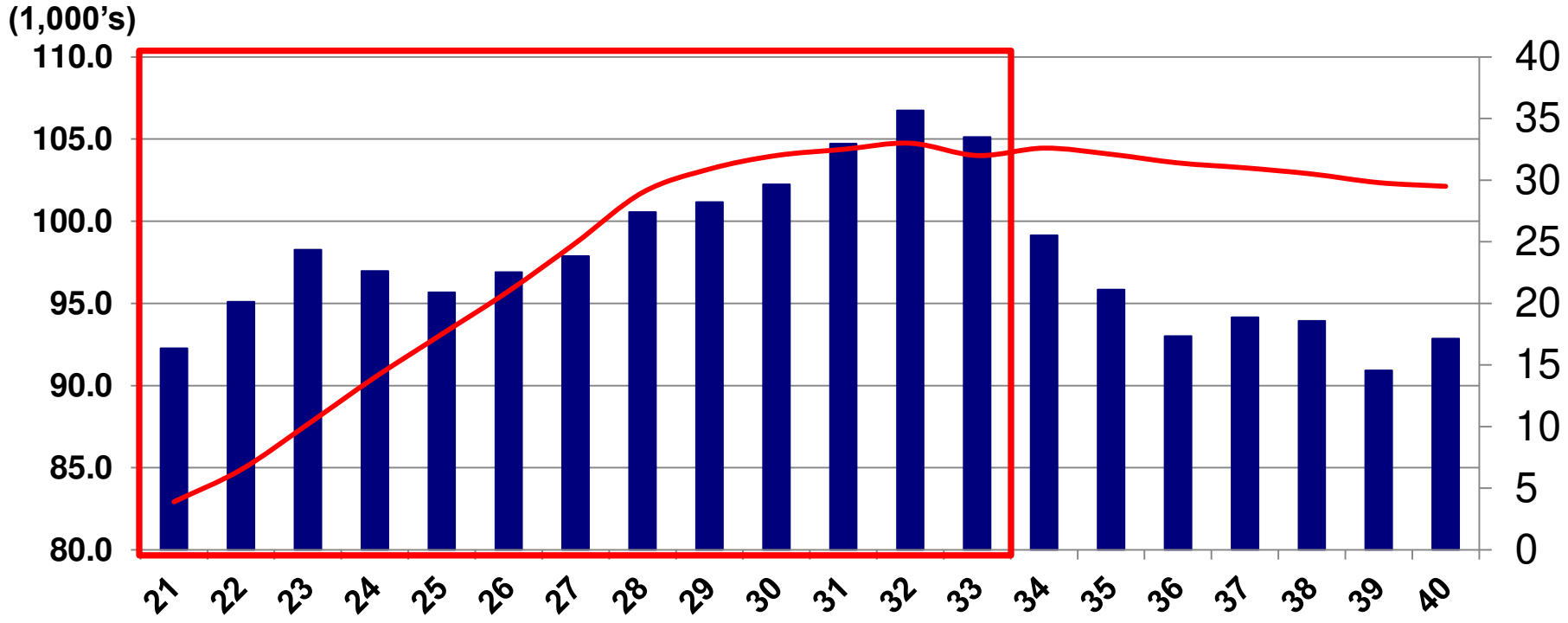
Arizona Number of Persons vs. Home-Purchase Loan Applications 2018

Source: U.S. Census Bureau



Arizona Number of Persons vs. Home-Purchase Loan Applications 2023

Source: U.S. Census Bureau

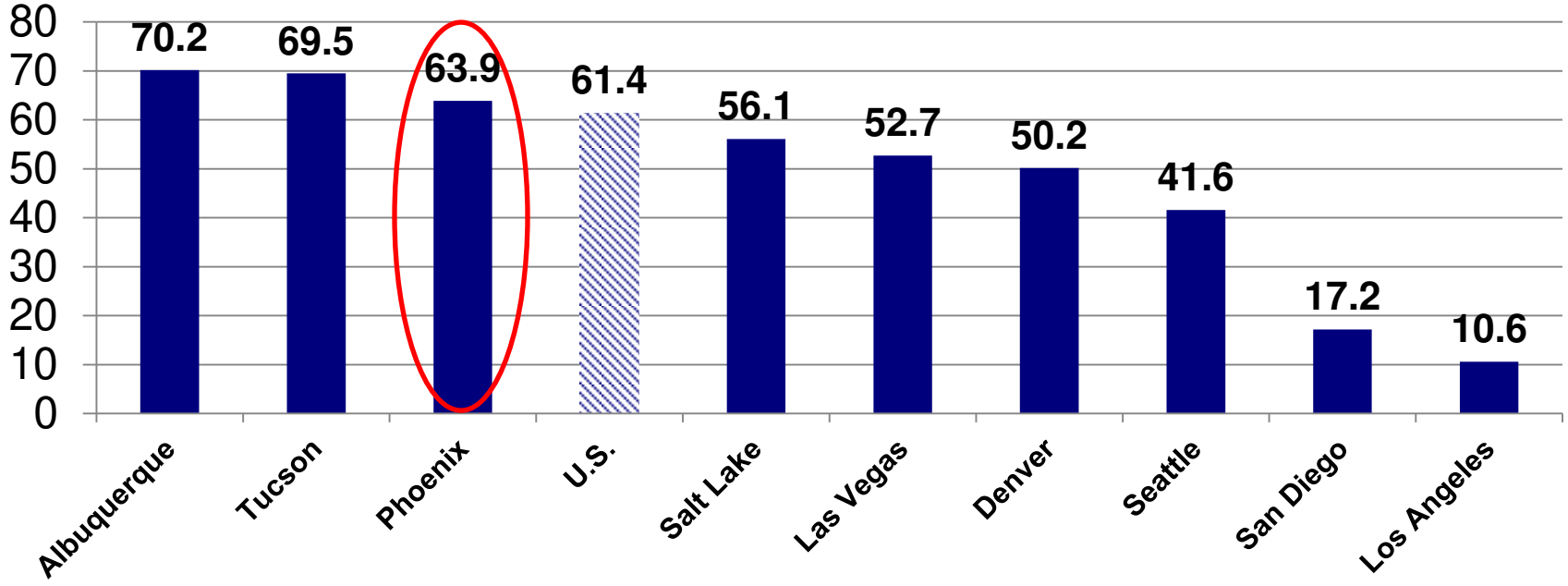


Greater Phoenix
Homeownership Rates by Age Group

Source: 2018 American Community Survey 1-Year Estimates; OEO

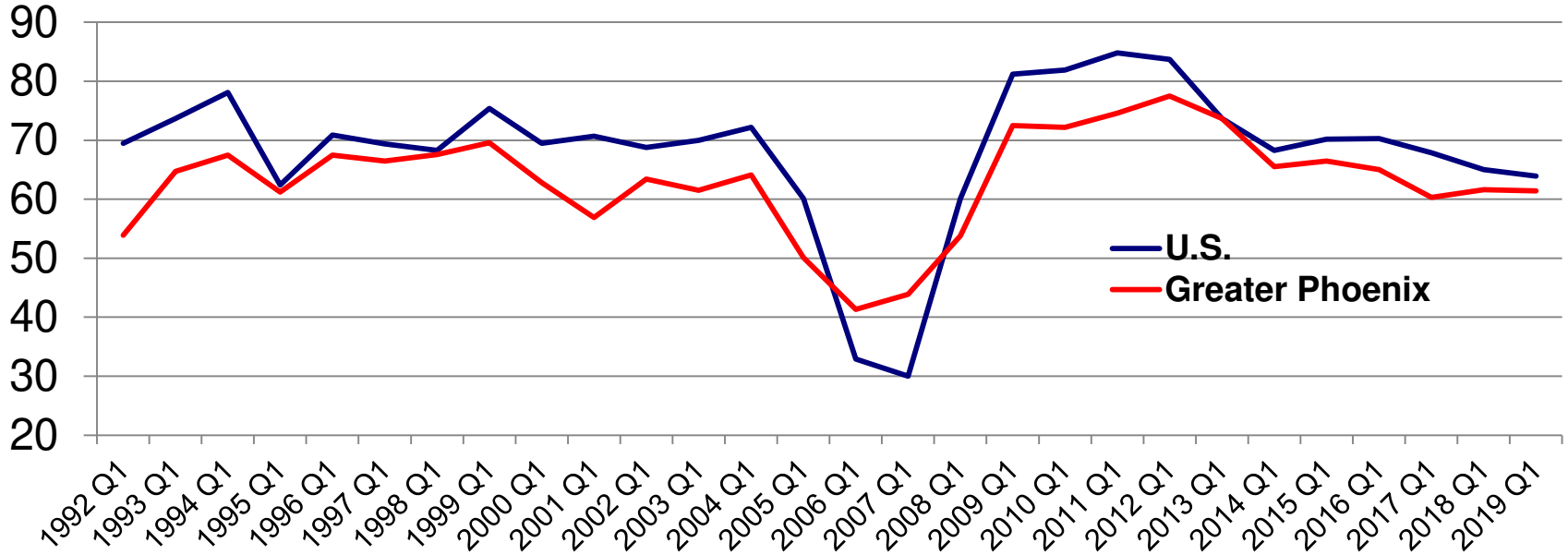
Householder Age	% of Total Occupied	2018	2028
15 to 24 years	**13.3%**	691,958	780,642
25 to 34 years	**38.4%**	637,501	788,063
35 to 44 years	**57.2%**	627,464	697,957
45 to 54 years	**67.2%**	592,955	672,180
55 to 64 years	**75.8%**	542,487	634,457
65 to 74 years	**82.1%**	410,564	567,246
75 to 84 years	**84.0%**	209,332	332,066
85 years and over	**71.9%**	79,127	113,176
Total	**63.9%**	**4,735,051**	**5,559,818**

Housing Opportunity Index
2019 Q1
Source: NAHB/Wells Fargo



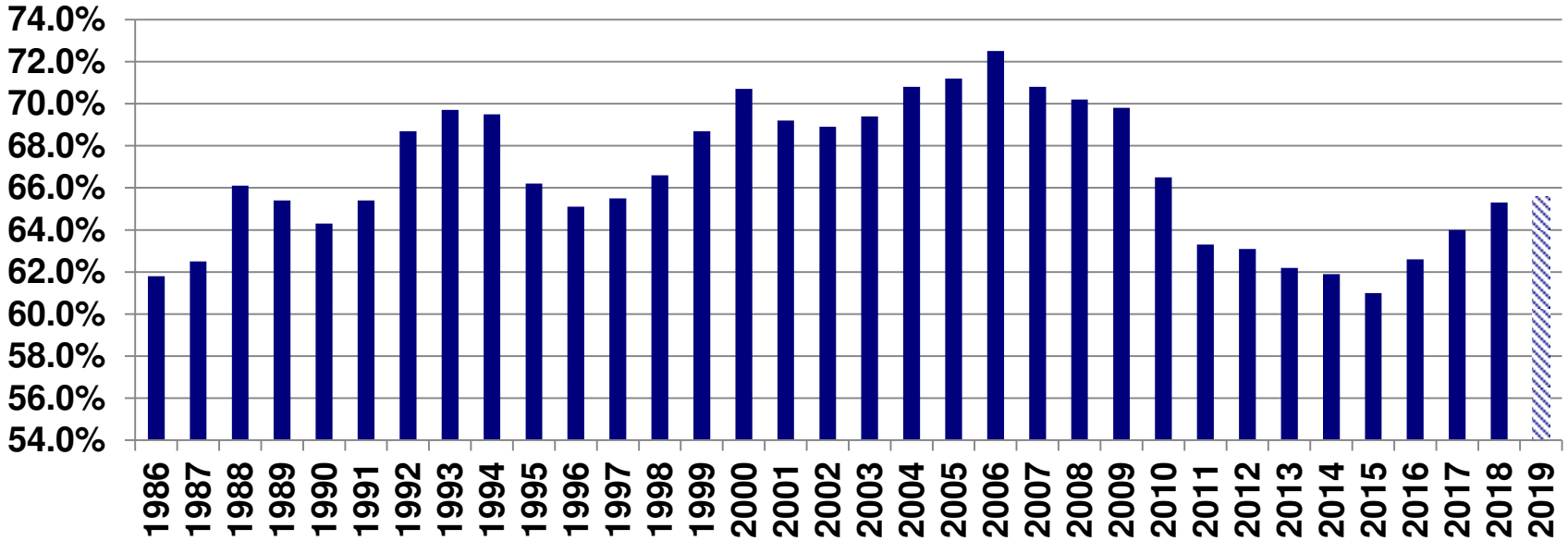
Housing Opportunity Index
1992-2019

Source: NAHB/Wells Fargo



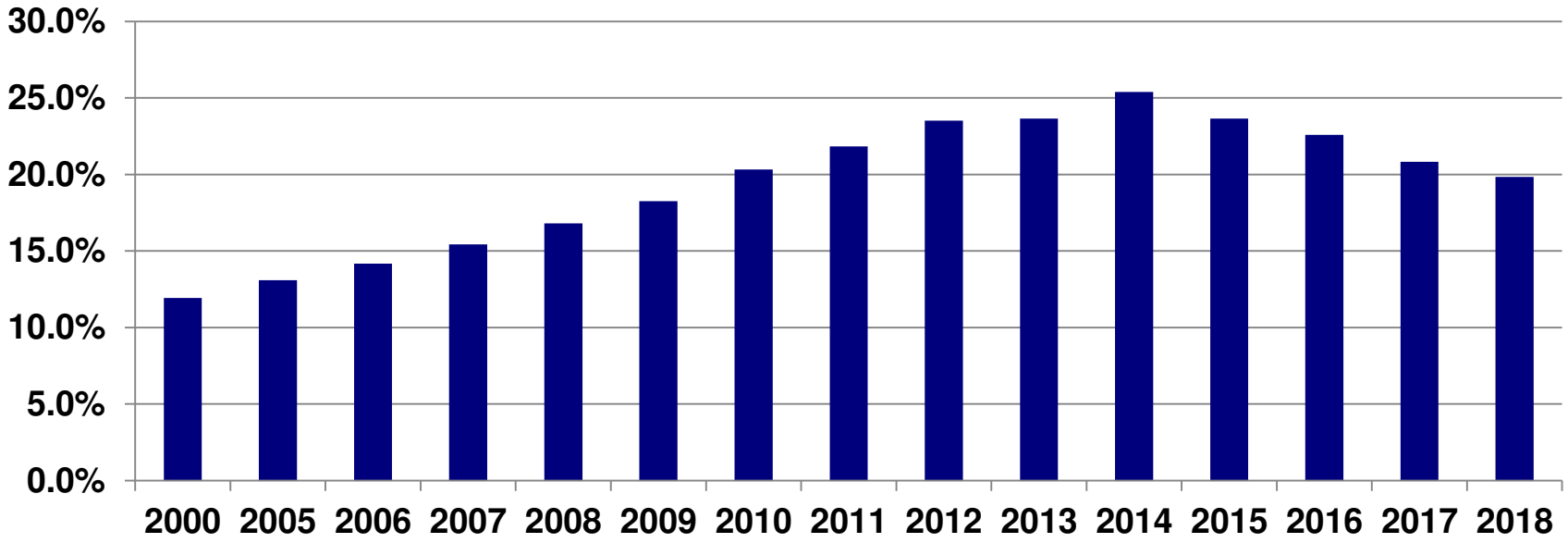
Homeownership Rate

Source: U.S. Census Bureau



% of Renter Occupied 1-unit

Source: American Community Survey



Top-seller are mostly smaller-lot, lower-priced new home communities-communities target entry-level and value–oriented buyers.

Source: Belfiore, KnowledgeBase Current and Future Market Insights

Student Debt Distribution

Source: Federal Reserve Bank of New York Consumer Credit Panel / Equifax

Balance	Number of Borrowers 2017 Q1	2017 Borrower
$1 and $5,000	8,547,500	**28,250,100**
$5,000 and $10,000	7,425,400	
$10,000 and $25,000	12,277,200	
$25,000 and $50,000	8,609,700	**8,609,700**
$50,000 and $75,000	3,681,000	**7,855,700**
$75,000 and $100,000	1,612,600	
$100,000 and $150,000	1,347,400	
$150,000 and $200,000	604,900	
$200,000+	609,800	

Student Loan or Mortgage Payment

Original Amount	Monthly Payment	Potential Mortgage
$200,000	$2,121	$444,332
$150,000	$1,591	$333,249
$100,000	$1,061	$222,166
$75,000	$795	$166,625
$50,000	$530	$111,083
$25,000	$265	$55,542
$10,000	$106	$22,217

Assumptions:
Monthly Payment
10 years
5% interest rate
Potential Mortgage
30-year mortgage
4.00% Interest rate

Outlook for Housing

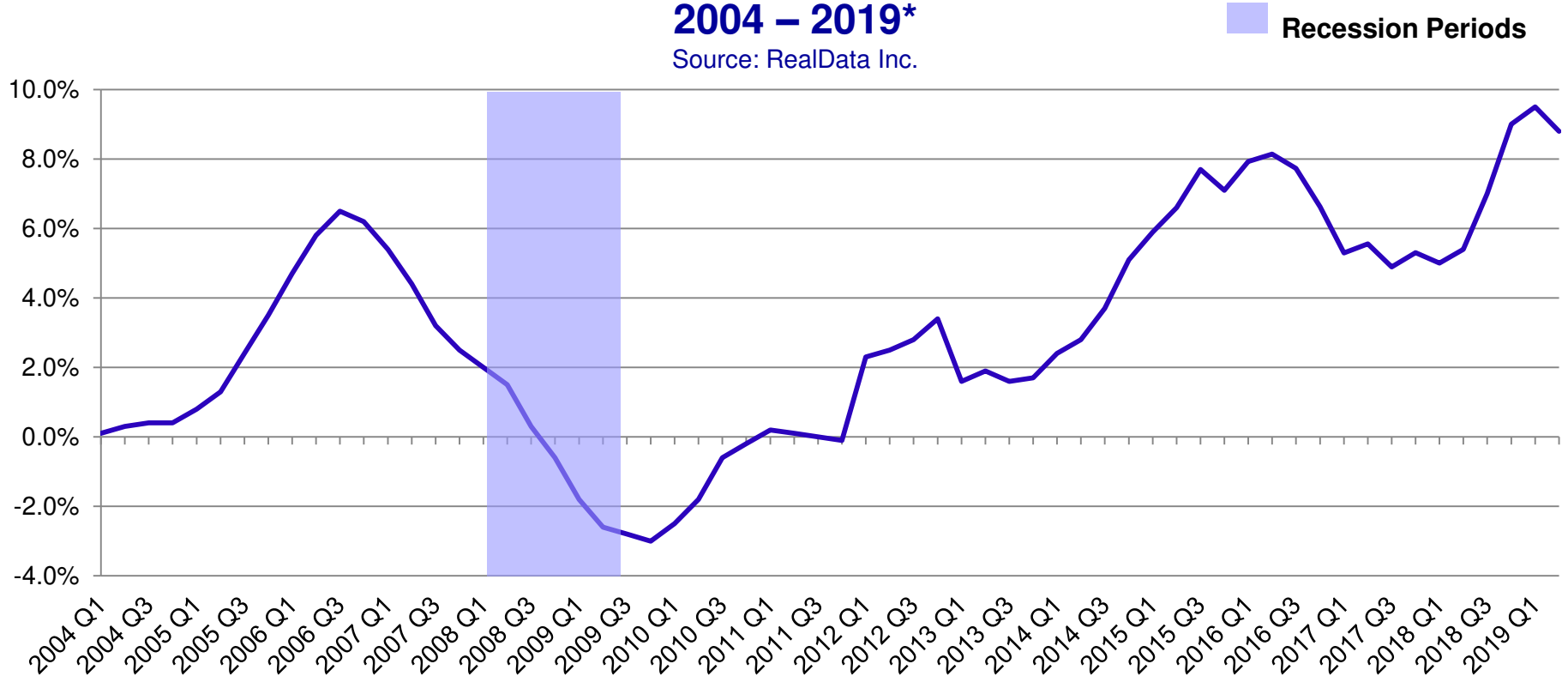
- Demographic demand remains strong
- No oversupply going into this cycle
- Based on demographics homeownership rates should continue to rise
- New Single family for rent product gives millennials and baby boomers more choices
- Single family communities can be counted as apartments
- We need more worker housing
- Slower total job growth means slower total income growth
- Slower total income growth could slow population growth
- Slower population could mean less demand for housing

By historic standards this should be a mild cycle.

Apartments

Greater Phoenix Multi-Family Average Rent
Percent Change a Year Ago
2004 – 2019*

Source: RealData Inc.



OFFICE

INDUSTRIAL

RETAIL

Greater Phoenix is doing well compared to virtually everyone else

Greater Phoenix will be affected by the business cycle

If growth just slows,

Greater Phoenix is likely remain in the top 10 metropolitan areas

The impact of a recession this time around is likely to milder in Greater Phoenix than in most places

Slowdown or Recession

This is the place you want to be.


Have an Arizona day!

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