California/Nevada/Arizona Regional Cement Outlook

October 2019/Ontario, California

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Welcome

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Antitrust Statement

The Portland Cement Association assigns the highest priority to full compliance with both the letter and the spirit of the antitrust laws, and it is vital that this meeting be conducted in a manner consistent with that policy. If at any time during the course of the meeting, PCA counsel or staff believe that a sensitive topic under the antitrust laws is being discussed, or is about to be discussed, they will so advise the meeting and halt further discussion. As attendees at this meeting, you should likewise not hesitate to voice any concerns you may have in this regard.

It is important to bear in mind that those in attendance at this meeting may be your competitors. Any discussions of commercial matters with one's competitors may create the appearance of an antitrust violation, even though there is none. Therefore, such discussions should be avoided at all times before, during, and after this meeting.

Portland Cement Association

California Regional Economic Conference Agenda
October 23, 2019
Key Focus Area: California, Nevada, Arizona

Economic and Construction Outlooks

8:30 – 9:00 a.m.	Continental Breakfast
9:00 – 9:15 a.m.	Intro and Greeting (Ed Sullivan)
9:15 – 10:15 a.m.	Moody's Regional Economist (Martin Wurum)
10:15 – 11:15 a.m.	National Forecast (Ed Sullivan)
11:15 – 11:30 a.m.	Break
11:30 – 12:20 p.m.	Regional Outlook (Dave Zwicke & Brian Schmidt)

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Introduction:
Market Intelligence as a Resource

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PCA Labor-Energy Input Survey

U.S. LABOR AND ENERGY SURVEY - SUMMARY REPORT

All Plants

I. INDUSTRY INFORMATION
Metric Tons

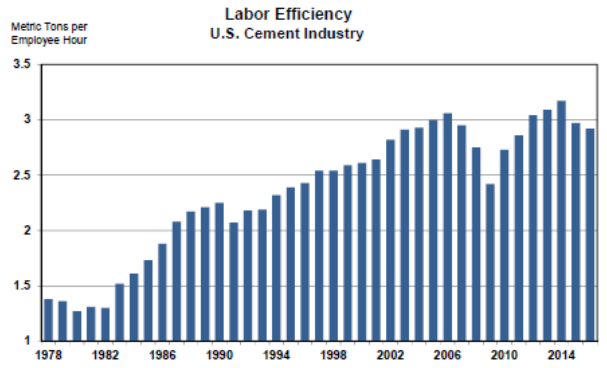
Clinker Production	65,137,517
Finish Cement Production	71,942,652
Annual Practical Clinker Capacity	82,313,660
Capacity Utilization Rate (%)	79.1

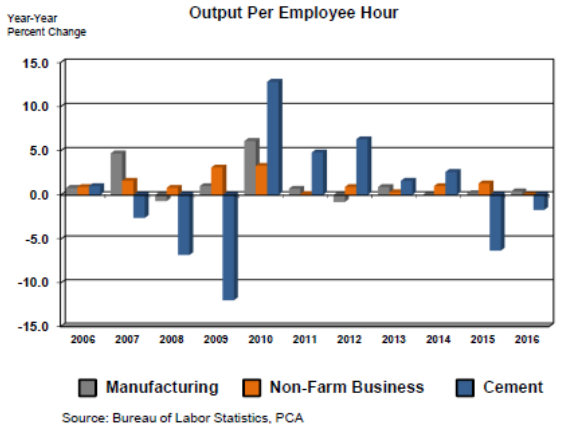
II. LABOR INFORMATION

	Number of Employees	Employee Hours	Tons per Employee Hour
Direct Labor	8,802	18,466,068	3.58
Indirect Labor	2,155	4,156,325	15.92
Total Labor	10,957	22,622,393	2.92
Hourly Labor	6,408	13,627,169	4.85
Salaried Labor	2,616	5,423,372	12.20
Contract Labor	1,933	3,571,852	18.52

III. ENERGY INFORMATION

Fuel Type	Quantity	BTUs (Billions)	BTUs per Ton
Coal (tons)	4,830,895	112,347.54	1,710,478.79
Petroleum Coke (tons)	1,864,072	50,782.46	773,157.29
Natural Gas (millions cu. ft.)	43,400	44,112.07	671,601.33
Middle Distillates - Diesel	17,847,066	2,315.53	35,253.72





Source: Bureau of Labor Statistics, PCA

December 31, 2016 Page 2

- Over the past 40 years, U.S. cement manufacturers have reduced their energy usage by over 40 percent.

- Data important for ENERGYSTAR Awards

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Industry Impact Reports & Special Surveys

Potential NAAQS Emission Changes Impact on Domestic Cement Production

PCA Market Intelligence has been tasked to provide a rough estimate regarding the potential impact of a tighter National Ambient Air Quality Standard (NAAQS) for ozone, as proposed by the Environmental Protection Agency (EPA), on domestic cement production. The following represents the key findings of the research.

- NAAQS changes could hold significant and broad adverse impacts on overall United States' economic activity. The National Association of Manufacturers (NAM) estimates if the EPA were to set NAAQS for ozone of 60 parts per billion (ppb), the potential emissions control costs could reduce U.S. Gross Domestic Product (GDP) by about $140 billion per year on average over the period from 2017 through 2040.
- PCA estimates this would translate into a reduction in construction activity by an average of $9.65 billion annually in real dollars. Further, this translates into an average reduction of 925 thousand short tons annually compared to baseline estimates.

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Contact: Ed Sullivan, Group VP & Chief Economist, (847) 972-9006, esullivan@cement.org

Waters of the United States: A Microeconomic Assessment

Overview

The nature of cement production involves extensive quarrying activity. This is supplemented by a large acreage footprint by each cement plant. Estimates suggest that the cement industry has a national quarry footprint of more than 118 thousand acres and this acreage includes more than 460 thousand linear feet of streams. Portland Cement Association (PCA) members must obtain and operate pursuant to the Clean Waters Act (CWA), Section 402 discharge and 404 wetland permits.

The Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) have historically asserted broad jurisdiction over "waters of the United States" (WOTUS). For years, industry, the states, and regulators have been frustrated over uncertainty regarding the definition of waters that fall under federal jurisdiction. This uncertainty has generated lawsuits that have brought the Supreme Court into play. The current proposal offered by the EPA comes in response to Supreme Court advice, to add clarity to definitions contained in the Clean Waters Act (CWA).

WOTUS: Cement Plant Locations

- Reports in recent years have covered NAAQS, WOTUS, NESHAP, Fly Ash Storage, and gas tax Proposals

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Results

• Cumulatively, PCA analysis in the advocacy arena has saved the U.S. cement industry billions in compliance costs.

• Over the past few years, PCA has tackled NESHAP, WOTUS, NAAQS, CCR Storage, carbon tax, and a myriad of other potential regulations.

• In addition to defending against regulation, PCA has demonstrated the ability of the industry to supply infrastructure projects, argued for rule changes with the NTSB, and reported on the affects of highway bill and gas tax proposals.

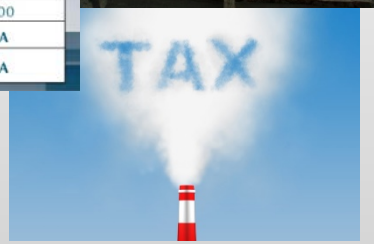
NAAQS Summary

Pollutant	Averaging Period	Historic NAAQS (µg/m³)	Revised NAAQS (µg/m³)
CO	1-Hour	10,000	10,000
	8-Hour	40,000	40,000
Ozone	8-Hour	75 ppb	60 – 70 ppb (proposed)
			0.15
			150
			35
			15
			188
			100
			196
			1,300
			N/A
			N/A

NESHAP Rules Reissued

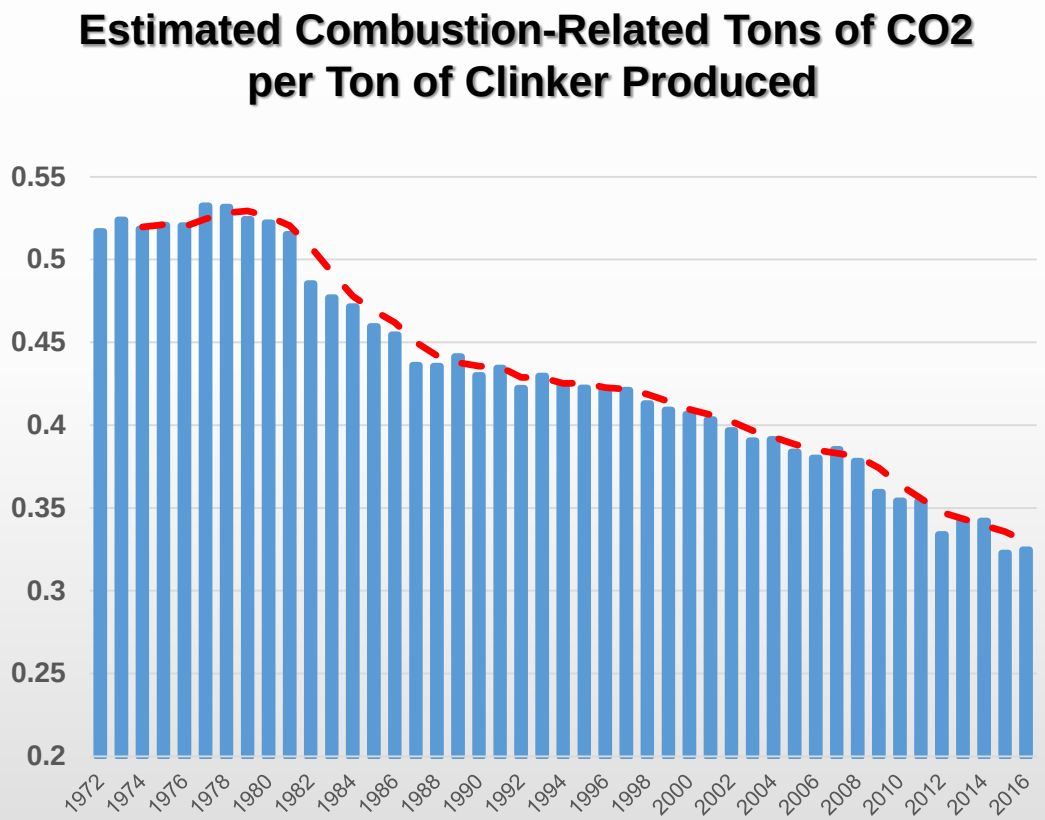
Pollutant	Existing Sources	New Sources	EPA expected Emissions Reductions
Mercury	55 lb/million tons clinker	21 lbs/million tons clinker	93%
THC	24 ppmvd	24 ppmvd	82%
O-HAP	**12 ppmvd**	**12 ppmvd**	
PM	**0.07 lb/ton clinker**	**0.02 lb/ton clinker**	**91%**
HCL	3 ppmvd	3 ppmvd	96%

Compliance Date September 2015



Advocacy On the Horizon

- Coordinating a GHG strategy
- Leveraging industry data and expertise to form a proactive approach
- We are only as effective as the strength of the data we collect



U.S. Monitor

- Comprehensive report on all aspects of the economy relevant to the cement industry
- Cement consumption, production, and imports at the national and state level
- Real monthly & annual construction put-in-place
- Also includes:
  - Masonry Consumption
  - Clinker Imports
  - Housing permits by state

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The Monitor - September 2018

A Monthly Analysis of Trends in the Construction and Cement Industries

- **Focal Points: PCA's Market Intelligence released the Summer 2018 U.S. Forecast**

PCA has released its Summer Forecast Estimates at the recent PCA Fall Congress. The forecast extended an extra year to the outlook and now projects through 2023.

Contact: Ed Sullivan (esullivan@cement.org)

Statistics at a Glance

Portland Cement Consumption	Jun-18	vs.	Jun-17	=	▼
Masonry Cement Consumption	Jun-18	vs.	Jun-17	=	▼
Cement & Clinker Imports	Jun-18	vs.	Jun-17	=	▲
Mortgage Rates	Jul-18	vs.	Jun-18	=	▲
Housing Starts	Jul-18	vs.	Jun-18	=	▲
Nonresidential Construction	Jul-18	vs.	Jun-18	=	▼
Public Construction	Jul-18	vs.	Jun-18	=	▲

Executive Summary

- The second estimate for real GDP growth in the second quarter came in at 4.2%. While consumer spending was downgraded to a still strong 3.8%, it was upwards revisions to nonresidential investment and public spending that pushed growth above the initial estimate. Strength in labor markets continue to produce favorable results across the economy. Unemployment remains low and wage growth was strong in August. The Fed will remain vigilant as the risk of inflation rises with accelerating wages.

The residential market continues to be marked by slow activity. Housing starts pulled back in July compared to a year prior. Rising lumber costs and labor shortages continue to act as constraints in a market in need of increased supply. However, permits were strong in the month. Single family home permits rose 6.4% year-over-year.

Regional Summary

Portland Cement Consumption*

June YTD Annual Percent Change	
New England	0.0%
Middle Atlantic	-3.7%
East North Central	-2.3%
West North Central	-5.8%
South Atlantic	1.9%
East South Central	2.7%
West South Central	4.6%
Mountain	8.3%
Pacific	11.1%

*Includes portland and blended cement

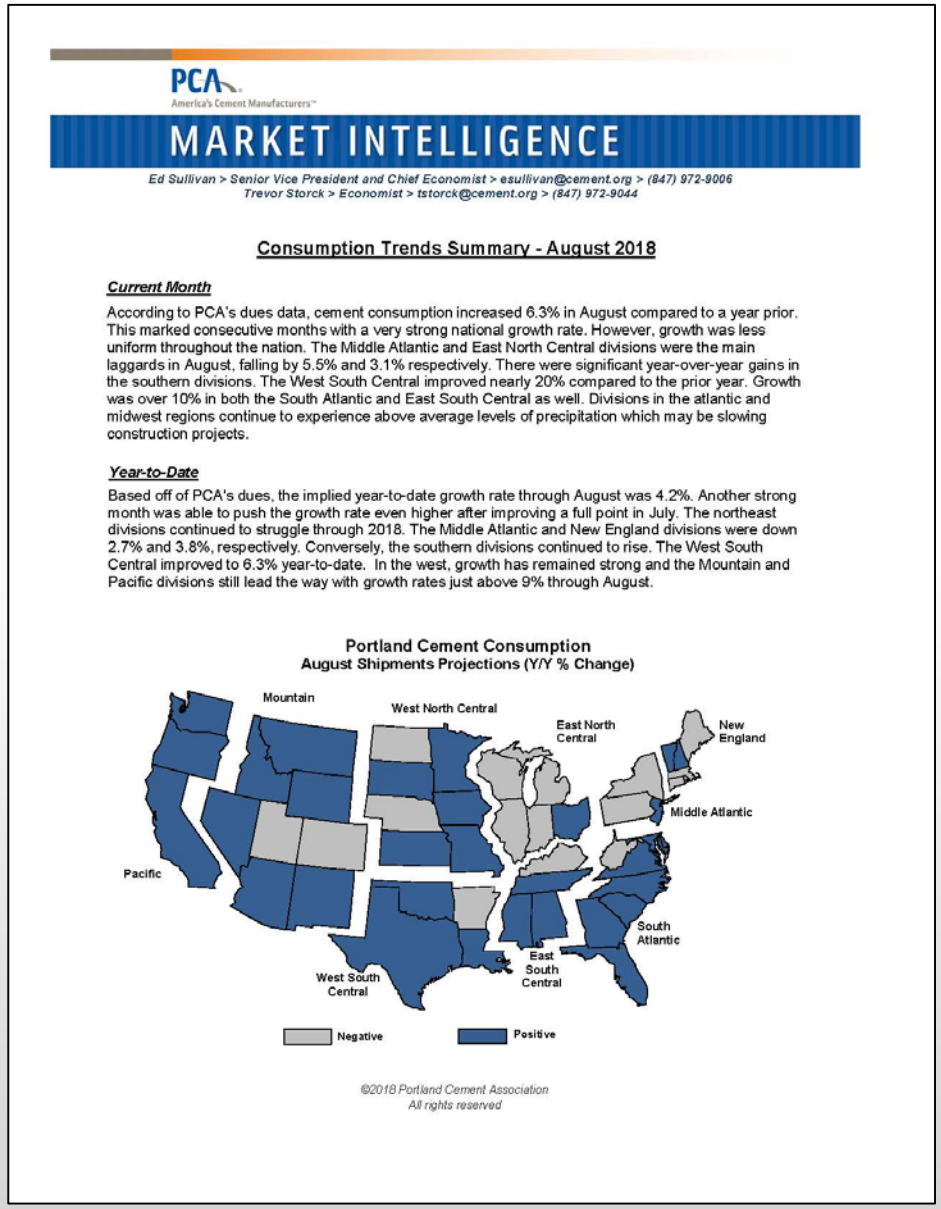
Portland Cement Consumption
(Percent Change - 2018/2017)
June Year-to-Date
U.S. = 2.9%

See Page 14 for full version of Consumption Map

There are significant timing lags from official data reporting agencies. The Monitor has the most current data.
Members can be added to the Monitor email list by contacting PCAMarketIntelligenceGroup@cement.org.

U.S. Consumption Trends Report

- Report provides a preliminary view of monthly cement consumption by state based on member shipments by destination
- Implied YTD growth rates are calculated using USGS data and two months of member dues estimates
- Report includes monthly and YTD precipitation maps



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Consumption Trends Summary - August 2018

Current Month

According to PCA's dues data, cement consumption increased 6.3% in August compared to a year prior. This marked consecutive months with a very strong national growth rate. However, growth was less uniform throughout the nation. The Middle Atlantic and East North Central divisions were the main laggards in August, falling by 5.5% and 3.1% respectively. There were significant year-over-year gains in the southern divisions. The West South Central improved nearly 20% compared to the prior year. Growth was over 10% in both the South Atlantic and East South Central as well. Divisions in the atlantic and midwest regions continue to experience above average levels of precipitation which may be slowing construction projects.

Year-to-Date

Based off of PCA's dues, the implied year-to-date growth rate through August was 4.2%. Another strong month was able to push the growth rate even higher after improving a full point in July. The northeast divisions continued to struggle through 2018. The Middle Atlantic and New England divisions were down 2.7% and 3.8%, respectively. Conversely, the southern divisions continued to rise. The West South Central improved to 6.3% year-to-date. In the west, growth has remained strong and the Mountain and Pacific divisions still lead the way with growth rates just above 9% through August.

Portland Cement Consumption
August Shipments Projections (Y/Y % Change)

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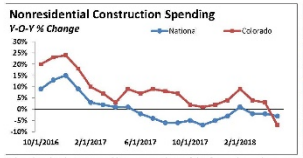
Colorado Nonresidential Indicators



Nonres. Employment: Largest Sectors (% of Total)				
Office	Leisure	Healthcare	Retail	Manufacturing
36.5%	19.0%	16.2%	14.9%	7.9%

Nonres. Employment: Top Accelerating Sectors*				
Leisure	Arts	Education	Retail	Office
130.0%	104.9%	37.2%	32.1%	-1.8%

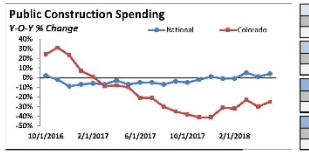
Nonres. Construction Spending: Largest Sectors (% of Total Nonres)				
Commercial	Manufacturing	Office	Lodging	Health Care
27.3%	20.9%	19.1%	12.5%	10.8%

Nonres Construction: Top Accelerating Sectors*				
Amusement	Religious	Office	Commercial	Educational
21.8%	13.4%	-3.2%	-4.4%	-8.8%

* Acceleration is measured by a comparison of the 3 month moving average (3MMA) of year over year percentage changes to the 12MMA. (3MMA-12MMA)

	Feb-18	Mar-18	Apr-18	May-18	Jun-18	3MMA	12MMA	2018 Forecast	Y-O-Y Change	Change from Last Period
Nonresidential Construction										
Real Nonresidential Construction Spending (mil 2009 $)	6,950	6,700	6,521	6,309	5,970	6,267	6,549	6,173		
Year-Over-Year Percent Change (%)	9.2	3.7	2.6	-7.0	-10.0	-4.8	2.8	-0.9		
Total Nonresidential Employment (000 SA)	1,759	1,766	1,773	1,782	1,788	1,781	1,756			
Change from Last Month (000)	6.6	6.3	7.3	8.8	5.7	7.3	4.3			
Manufacturing Construction										
Real Manufacturing Construction Spending (mil 2009 $)	1,664	1,629	1,549	1,478	1,246	1,424	1,400	1,309		
Year-Over-Year Percent Change (%)	97.2	75.4	69.9	32.0	13.6	38.5	59.9	17.9		
Manufacturing Employment (000 SA)	148	148	147	147	147	147	145	142		
Change from Last Month (000)	1.0	0.3	1.1	0.2	-0.1	0.4	0.2	-0.6		
Office Construction										
Real Office Construction Spending (mil 2009 $)	1,242	1,165	1,141	1,104	1,141	1,129	1,242	1,310		
Year-Over-Year Percent Change (%)	-27.2	-28.8	-27.2	-29.2	-22.3	-26.2	-23.0	-10.7		
Office Employment (000 SA)	662	666	668	672	675	672	681			
Change from Last Month (000)	2.9	3.6	3.0	3.5	2.9	3.1	1.8			
Lodging Construction										
Real Lodging Construction Spending (mil, 2009 $)	898	855	842	790	745	793	909	826		
Year-Over-Year Percent Change (%)	-16	-23	-22	-28	-30	-26	-10	-19		
Lodging Employment (000 SA)	341	342	345	349	351	348	341			
Change from Last Month (000)	0.9	1.5	2.5	4.4	2.2	3.0	1.5			
Health Care Construction										
Real Health Care Construction Spending (mil 2009 $)	770	726	699	671	643	671	744	736		
Year-Over-Year Percent Change (%)	27.7	22.2	21.6	-7.0	-11.9	0.9	19.8	8.8		
Health Care Employement (000 SA)	298	298	298	299	300	299	296			
Change from Last Month (000)	1.8	0.6	0.0	0.7	1.5	0.7	0.6			
Education Construction										
Real Educational Construction Spending (mil 2009 $)	345	336	335	323	304	321	338	353		
Year-Over-Year Percent Change (%)	0.0	-0.6	-1.0	-10.6	-13.4	-8.4	1.4	0.5		
Education Employment (000 SA)	40	40	39	38	38	39	40			
Change from Last Month (000)	-1.1	-0.6	-0.7	-0.5	-0.1	-0.4	-0.2			
Retail Construction										
Real Retail Construction Spending (mil 2009 $)	1,774	1,735	1,690	1,687	1,629	1,669	1,670	1,617		
Year-Over-Year Percent Change (%)	16.6	9.2	4.1	0.9	-2.4	0.9	5.3	2.4		
Retail Employment (000 SA)	273	274	276	276	275	276	273	265		
Change from Last Month (000)	1	1	1	1	-1	0	0	-1		
Retail Sales (Mil. $, SA)		24,744				24,744	24,316			
Year-Over-Year Percent Change (%)		4.75				4.75	4.80			
Recreational Construction										
Real Recreational Construction Spending (mil 2009 $)	233	230	239	230	230	233	221			
Year-Over-Year Percent Change (%)	-7.8	-3.2	1.7	2.3	5.9	3.3	-18.3			
Recreational Employment (000 SA)	58	59	61	63	64	63	58			
Change from Last Month (000)	0.7	0.6	2.2	1.3	1.7	1.7	0.7			
Public Utility Construction										
Real Public Utility Construction Spending (mil 2009 $)	1,894	2,301	2,425	2,478	2,505	2,469	1,847	1,329		
Year-Over-Year Percent Change (%)	124.3	242.8	287.1	282.3	100.1	223.2	121.5	27.0		
Farm Nonresidential Construction										
Real Farm Nonresidential Construction Spending	53	54	54	55	55	55	55	73		
Year-Over-Year Percent Change (%)	-4.0	-2.4	-3.8	-3.5	-2.8	-3.4	-4.3	19.3		
Farm Cash Reciepts (mil 2009 $)										
Year-Over-Year Percent Change (%)										

Colorado Public Indicators



Major Revenue Sources				
Tax Revenue	Other/Trust Rev	Charges & Fees	Gov't Transfers	Misc Revenue
41.1%	20.6%	16.1%	15.0%	7.2%

Major Sales & License Tax Revenue Sources				
General Sales Tax	Other Sales	Other License	Motor Fuel Sales	Motor Veh. Lic.
10.7%	2.0%	1.5%	1.2%	1.0%

Major Public Expenditures				
Education	Insurance Trust	Public Utilities	Public Welfare	Health & Hospitals
26.9%	11.9%	7.8%	7.1%	5.2%

Major Public Construction Outlays				
Educational	Highway	Pub. Utilities	General (NEC)	Parks & Rec.
2.1%	1.9%	1.5%	0.8%	0.5%

	Feb-18	Mar-18	Apr-18	May-18	Jun-18	3MMA	12MMA	2018 Forecast	Y-O-Y Change	Change from Last Period
Colorado Employment and Income										
Total Employment (000 SA)	2,949	2,959	2,968	2,979	2,990	2,979	2,948	2,983		
Change from Last Month (000 SA)	7.8	9.3	9.2	11.4	11.0	10.8	7.1			
Personal Income ($ mil, SAAR)		308,454				308,454	302,930	286,218		
Year-Over-Year Percent Change (%)		4				4	4	3		
Government Revenue										
Tax Revenue (000 $)		3,394				3,394	3,562			
Year-Over-Year Percent Change (%)		15.1				15.1	10.1			
General Sales Tax										
Year-Over-Year Percent Change										
Individual Income Tax		1,751				1,751	1,848			
Year-Over-Year Percent Change		21.8				21.8	11.2			
Corporate Income tax		155				155	164			
Year-Over-Year Percent Change		260.5				260.5	70.9			
Public Employment (000 SA)										
Total Government Employment	439	441	442	442	446	443	441			
Change from Last Month	-0.4	1.3	1.1	0.6	3.9	1.9	1.2			
Federal Government Employment	53	53	53	53	53	53	54			
Change from Last Month	-0.1	0.1	0.1	-0.1	0.0	0.0	0.0			
State Government Employment	126	127	127	127	128	127	125			
Change from Last Month	-0.2	0.7	0.0	0.3	0.9	0.4	1.0			
Local Government Employment	260	261	262	262	265	263	262			
Change from Last Month	-0.1	0.2	-0.3	0.3	1.3	0.4	0.2			
Public Construction										
Real Public Construction Spending (mil 2009 $)	2,786	2,905	2,768	2,795	2,609	2,724	2,831	3,115		
Year-Over-Year Percent Change (%)	-31.6	-23.3	-30.2	-24.7	-27.9	-27.6	-31.2	-5.8		
Public Building Construction										
Real Public Building Construction Spending (mil 2009 $)	1,410	1,507	1,426	1,446	1,303	1,392	1,433	1,486		
Year-Over-Year Percent Change (%)	-31.8	-22.6	-35.4	-21.3	-24.5	-27.1	-33.1	-11.9		
Government Education Employment (000 $)	54	54	54	54	54	54	54			
Year-Over-Year Percent Change (%)	0.9	-0.1	-0.2	0.0	0.4	0.1	0.0			
Property Tax Reciepts (000 $)										
Year-Over-Year Percent Change (%)										
Highway Construction										
Real Highway Construction Spending (mil 2009 $)	711	753	720	732	718	723	816	1,077		
Year-Over-Year Percent Change (%)	-48.9	-40.4	-40.4	-42.9	-45.8	-43.0	-39.8	0.4		
Motor Fuel Tax Collections (000 $)		157				157	166			
Year-Over-Year Percent Change (%)		0.0				0.0	-1.9			
Vehicle License Tax (000 $)		135				135	136			
Year-Over-Year Percent Change (%)		3.1				5.2	3.1			
Vehicle Miles Traveled (000)	3,869	5,082	4,817	4,610	4,408	4,612	4,536			
Year-Over-Year Percent Change (%)	-0.3	1.1	2.4	1.2	0.5	1.4	1.9			
Public Safety Construction										
Real Public Safety Construction Spending (mil 2009 $)	131	93	52	31	21	35	41	17		
Year-Over-Year Percent Change (%)	11,626.7	9,458.4	10,540.7	64.6	116.8	3,574.0	3,180.7	3,715.0		
Conservation Construction										
Real Conservation Construction Spending (mil 2009 $)	38	39	35	34	35	35	50	67		
Year-Over-Year Percent Change (%)	-65.1	-65.7	-65.2	-64.7	-58.8	-62.9	-53.9	-17.4		
Sewer Systems Construction										
Real Sewer Systems Construction Spending (mil 2009 $)	290	310	295	280	260	278	277	282		
Year-Over-Year Percent Change (%)	-6.0	23.2	13.4	1.4	-1.8	4.3	2.3	-2.8		
Water Supply Systems Construction										
Real Water Supply Systems Construction Spending (mil 2009 $)	206	203	240	272	272	261	214	205		
Year-Over-Year Percent Change (%)	6.6	-3.8	26.8	36.1	32.6	31.8	3.2	9.7		

State Ranking Report

- States ranked monthly by residential, nonresidential and public construction fundamentals

- **Residential:** mortgage delinquency rates, unemployment rates, home price growth

- **Nonresidential:** manufacturing, office, retail, hospitality and total employment

- **Public:** employment, long-term debt to GSP, transportation capital expenditure, tax revenues, unfunded pension obligations

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August 31, 2018

Regional Analysis: Ranking Cement Market Fundamentals

Home appreciation decelerated slightly in June but remains elevated on the account of continued tight supplies. Cooling in home prices is healthy given emerging affordability concerns in some markets. However, home price appreciation will likely remain elevated in the near-term as inventory-to-sales ratios are near historic lows. Homebuilders continue to site lack of lot availability, labor shortages and rising material prices as constraints. Given that the market appreciation is driven more by tight supply rather than exuberant demand, residential construction appears much better positioned in this cycle.

In terms of construction spending outlook for 2018, recent patterns are expected to remain in place. Moderate growth is expected for residential with a slight decline in nonresidential. Public construction spending is expected to improve slightly from the decline in 2017 but growth is to remain tepid.

Market Ranking

The level and degree of the obstacles slowing the construction recovery vary widely by state and region. The purpose of this flash report is to provide insight into the economic tailwinds that will help shape regional construction recoveries. The rankings are based on economic fundamentals which identify regional markets most favorable for improved cement consumption. Due to the broad nature of the criteria, individual state inconsistencies will likely emerge due to project type variation, cement intensity, policy/promotion actions, and other unique drivers.

Construction recoveries will continue to emerge in local markets before being reflected in national numbers. Homebuilders, for example, are unlikely to significantly accelerate construction activity until two critical conditions are met: 1) low levels in inventory of unsold new homes reflecting no higher than five months supply, and 2) stable or rising home prices. Both conditions are now increasingly being met and signaling the residential construction recovery; however, labor shortages continue to influence the speed and magnitude of recovery which varies by region. Regions with weakest residential fundamentals will likely lead the market in rates of growth given years of under-building. PCA expects single family construction to take a more prominent role in residential construction in coming years.

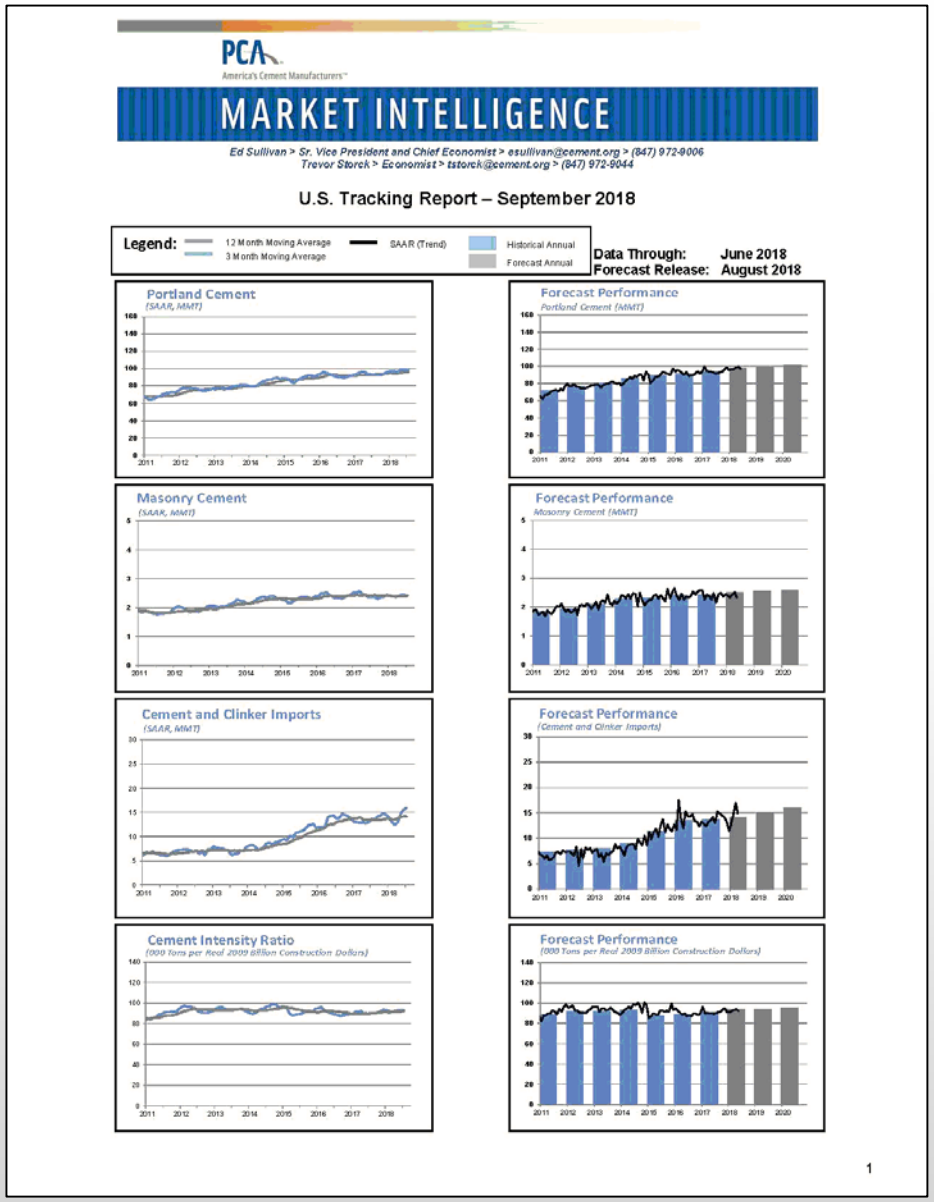
Cement Market Fundamentals
Based on PCA Sector Composite Rankings

Cement Market Fundamentals
Based on PCA Sector Composite Rankings

Lead Markets	Lag Markets
1 Nevada	51 Alaska
2 Utah	50 D.C.
3 Colorado	49 Connecticut
4 North Carolina	48 Indiana
5 Oregon	47 Vermont
6 Washington	46 Montana
7 Georiga	45 Louisiana
8 Idaho	44 North Dakota
9 Texas	43 Maryland
10 Delaware	42 Mississippi

U.S. Tracking Report

- Report tracks PCA National Forecast accuracy
- Provides transparency with regards to forecast
- SAAR trend line compared against national forecast data
- Graphs of 3 & 12 month moving averages for all forecast categories

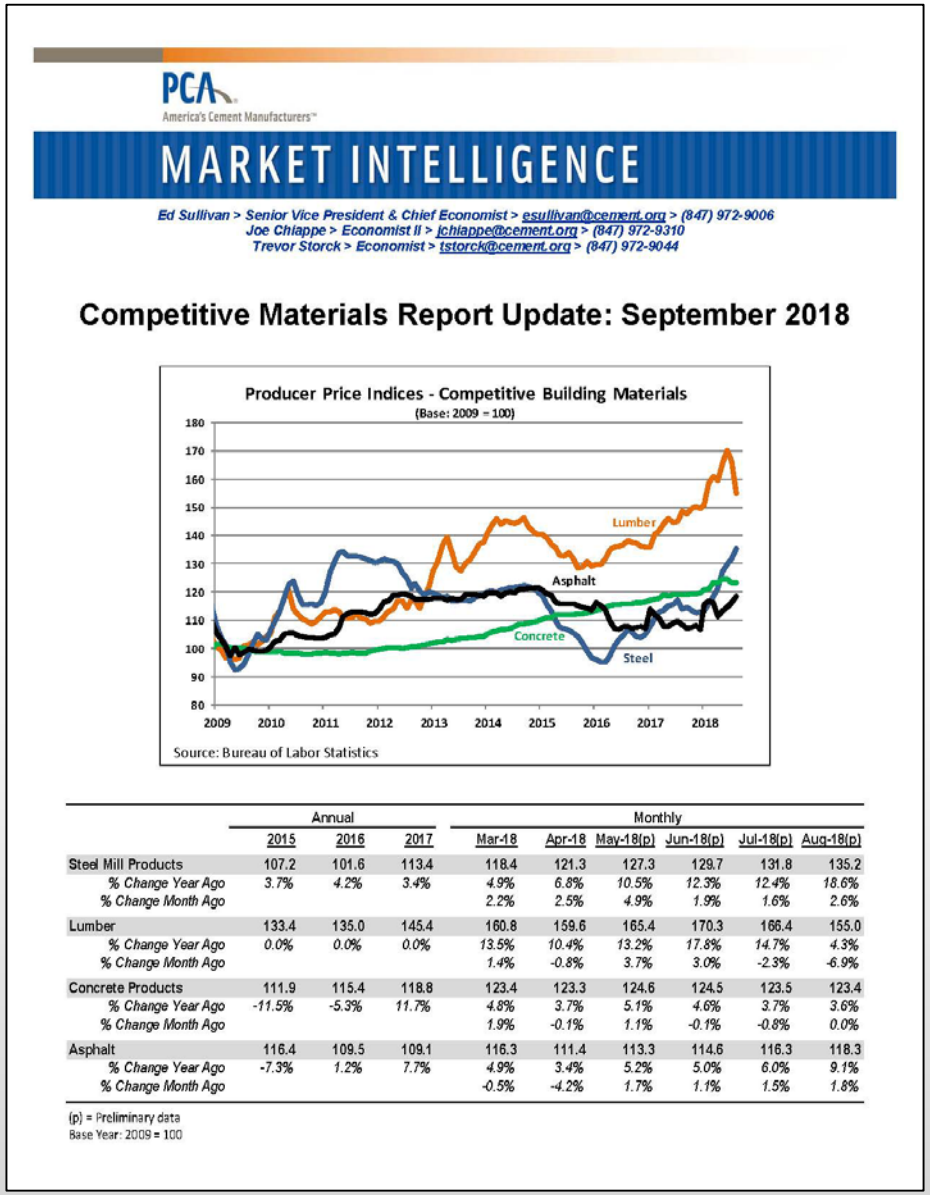


Competitive Materials Report Update

- Monthly update of producer price indices of the competing materials of concrete: steel, lumber, and asphalt

- Features graphs charting the relative prices and cost indicators for concrete's three main competitors

•Series include:
  - •Canadian Lumber Imports
  - •Steel Scrap PPI
  - •West Texas Intermediate
  - •U.S. Coking Capacity



PCA
America's Cement Manufacturers™

MARKET INTELLIGENCE

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Competitive Materials Report Update: September 2018

	Annual			Monthly					
	2015	2016	2017	Mar-18	Apr-18	May-18(p)	Jun-18(p)	Jul-18(p)	Aug-18(p)
Steel Mill Products	107.2	101.6	113.4	118.4	121.3	127.3	129.7	131.8	135.2
% Change Year Ago	*3.7%*	*4.2%*	*3.4%*	*4.9%*	*6.8%*	*10.5%*	*12.3%*	*12.4%*	*18.6%*
% Change Month Ago				*2.2%*	*2.5%*	*4.9%*	*1.9%*	*1.6%*	*2.6%*
Lumber	133.4	135.0	145.4	160.8	159.6	165.4	170.3	166.4	155.0
% Change Year Ago	*0.0%*	*0.0%*	*0.0%*	*13.5%*	*10.4%*	*13.2%*	*17.8%*	*14.7%*	*4.3%*
% Change Month Ago				*1.4%*	*-0.8%*	*3.7%*	*3.0%*	*-2.3%*	*-6.9%*
Concrete Products	111.9	115.4	118.8	123.4	123.3	124.6	124.5	123.5	123.4
% Change Year Ago	*-11.5%*	*-5.3%*	*11.7%*	*4.8%*	*3.7%*	*5.1%*	*4.6%*	*3.7%*	*3.6%*
% Change Month Ago				*1.9%*	*-0.1%*	*1.1%*	*-0.1%*	*-0.8%*	*0.0%*
Asphalt	116.4	109.5	109.1	116.3	111.4	113.3	114.6	116.3	118.3
% Change Year Ago	*-7.3%*	*1.2%*	*7.7%*	*4.9%*	*3.4%*	*5.2%*	*5.0%*	*6.0%*	*9.1%*
% Change Month Ago				*-0.5%*	*-4.2%*	*1.7%*	*1.1%*	*1.5%*	*1.8%*

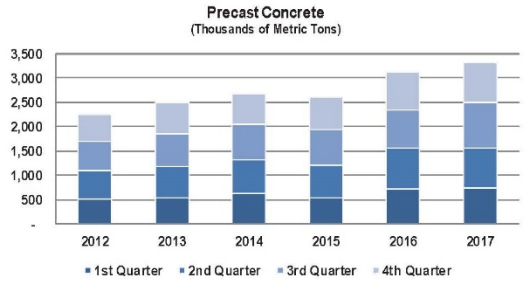
(p) = Preliminary data
Base Year: 2009 = 100

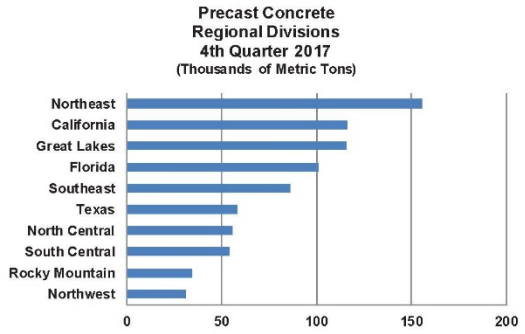
PCA Since 1916
America's Cement Manufacturers™

Cement Consumption by User Groups

Precast Concrete: Data

Shipments of portland cement to U.S. precast manufacturers increased 6.3% to 820,809 mt during the fourth quarter of 2017 when compared to the year-ago levels. Precast concrete accounted for 3.5% of total portland cement shipments in fourth quarter 2017. The Northeast region was the largest regional cement consumer in this category with 155,521 mt, followed by California with 116,215 mt.





Precast Concrete: Analysis

Precast concrete is concrete cast in forms in a controlled environment and allowed to achieve a specified strength prior to placement on location. Examples of products include, but are not limited to, architectural wall panels, catch basin covers, concrete furniture, and floor slabs.

Precast Concrete *(000 mt)*

Year	2013	2014	2015	2016	2017	PCA Projection 2017	2018
1st Quarter	**532**	**617**	**547**	**707**	**748**		
% Change Y/Y	*4.2%*	*16.1%*	*-11.4%*	*29.4%*	*5.8%*		
% Change YTD	*4.2%*	*16.1%*	*-11.4%*	*29.4%*	*5.8%*		
2nd Quarter	**642**	**700**	**669**	**848**	**823**		
% Change Y/Y	*10.0%*	*9.0%*	*-4.5%*	*26.9%*	*-3.0%*		
% Change YTD	*7.3%*	*12.2%*	*-7.7%*	*28.0%*	*1.0%*		
3rd Quarter	**685**	**739**	**733**	**781**	**933**		
% Change Y/Y	*15.5%*	*7.8%*	*-0.8%*	*6.5%*	*19.5%*		
% Change YTD	*10.2%*	*10.6%*	*-5.2%*	*19.9%*	*7.2%*		
4th Quarter	**626**	**612**	**653**	**772**	**821**		
% Change Y/Y	*12.1%*	*-2.2%*	*6.7%*	*18.3%*	*6.3%*		
% Change YTD	*10.7%*	*7.4%*	*-2.5%*	*19.5%*	*7.0%*		
Total	**2,485**	**2,668**	**2,601**	**3,108**	**3,325**	**3,262**	**3,428**
% Change Y/Y	*10.7%*	*7.4%*	*-2.5%*	*19.5%*	*7.0%*	*5.1%*	*0.2%*

With strong nonresidential construction spending in 2016, the precast segment was able to bounce back and grew nearly 20%. Construction spending for nonresidential in 2017 was not able to grow but it does not appear to have negative effects on cement consumption in the sector. Precast concrete consumption was up 7.0% compared to the prior year.

Cement consumed in nonresidential construction projects has been growing at a healthy pace. However, it seems that some large commercial projects have been completed as nonresidential construction spending slowed throughout 2017. Looking ahead, PCA forecasts consistent growth long-term in nonresidential spending near 2%, which will benefit the precast segment.

Precast concrete is also allocated an upwards of 40% toward public construction, which fell in 2017. The long-term outlook remains positive though with the likelihood of increased federal investment from an infrastructure bill. Public construction spending and cement consumption are expected to rebound and grow in 2018.

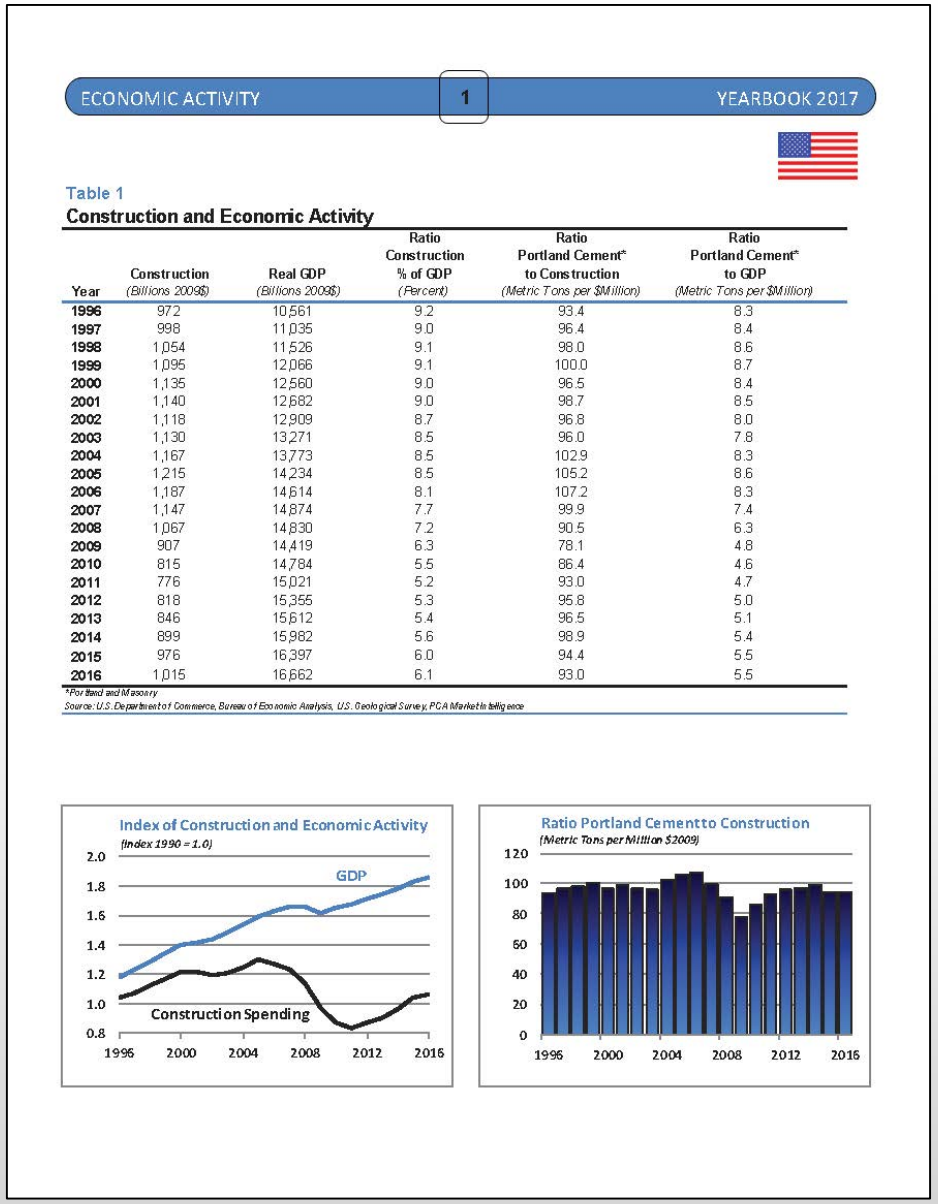
Precast concrete consumption finished 2017 with another strong year of growth. This segment was largely supported by gains in the nonresidential sector during the year. Looking to 2018, precast concrete is projected to experience more modest growth near 3% due to increased public and nonresidential spending.

U.S. Cement Industry Annual Yearbook

- Report provides detailed statistics from all facets of the cement industry

- 48 Data tables; 20-year historical time series

- Categories include:
  - Economic activity & construction drivers
  - Cement consumption
  - Infrastructure
  - Cement Supply
  - Operating characteristics
  - International cement markets



ECONOMIC ACTIVITY 1 YEARBOOK 2017

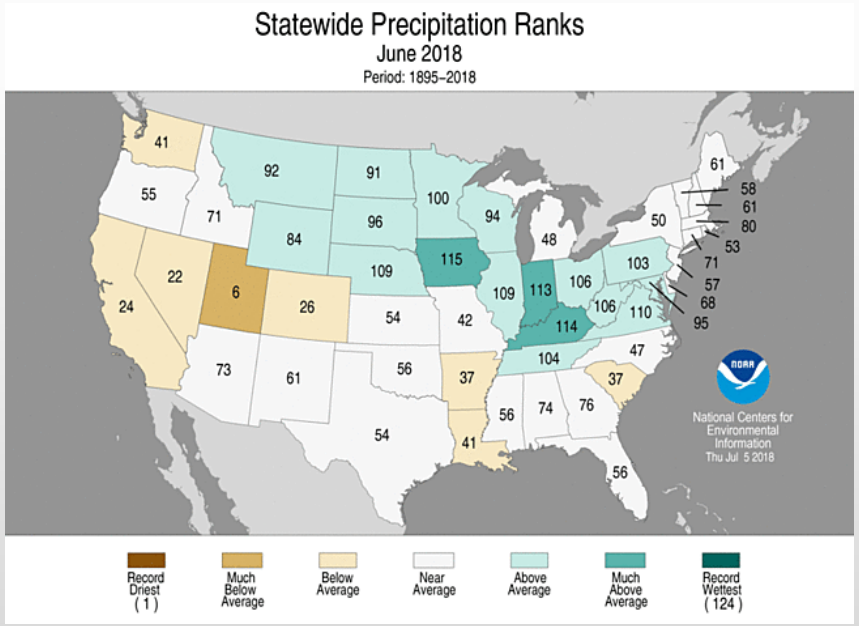
Table 1
Construction and Economic Activity

Year	Construction (Billions 2009$)	Real GDP (Billions 2009$)	Ratio Construction % of GDP (Percent)	Ratio Portland Cement* to Construction (Metric Tons per $Million)	Ratio Portland Cement* to GDP (Metric Tons per $Million)
1996	972	10,561	9.2	93.4	8.3
1997	998	11,035	9.0	96.4	8.4
1998	1,054	11,526	9.1	98.0	8.6
1999	1,095	12,066	9.1	100.0	8.7
2000	1,135	12,560	9.0	96.5	8.4
2001	1,140	12,682	9.0	98.7	8.5
2002	1,118	12,909	8.7	96.8	8.0
2003	1,130	13,271	8.5	96.0	7.8
2004	1,167	13,773	8.5	102.9	8.3
2005	1,215	14,234	8.5	105.2	8.6
2006	1,187	14,614	8.1	107.2	8.3
2007	1,147	14,874	7.7	99.9	7.4
2008	1,067	14,830	7.2	90.5	6.3
2009	907	14,419	6.3	78.1	4.8
2010	815	14,784	5.5	86.4	4.6
2011	776	15,021	5.2	93.0	4.7
2012	818	15,355	5.3	95.8	5.0
2013	846	15,612	5.4	96.5	5.1
2014	899	15,982	5.6	98.9	5.4
2015	976	16,397	6.0	94.4	5.5
2016	1,015	16,662	6.1	93.0	5.5

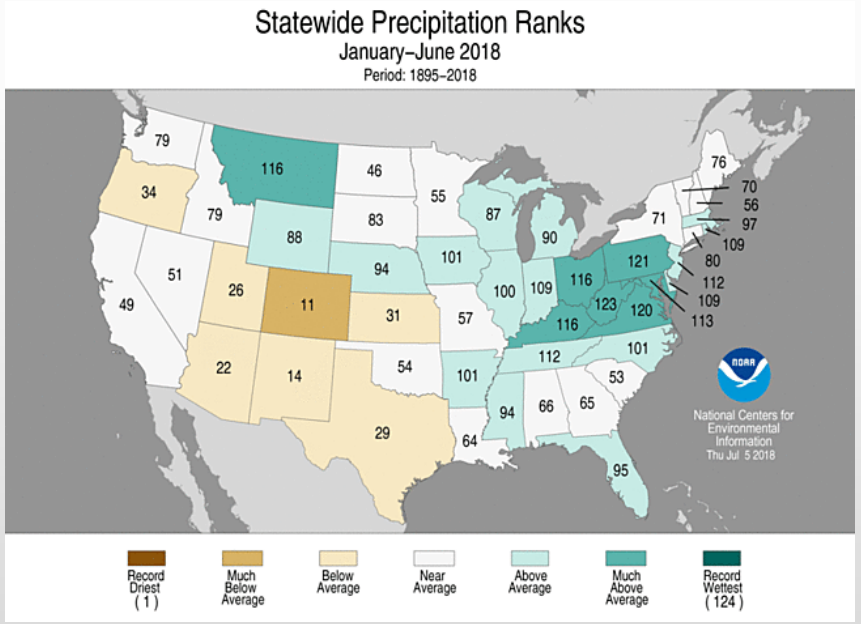
*Portland and Masonry
Source: U.S. Department of Commerce, Bureau of Economic Analysis, U.S. Geological Survey, PCA Market Intelligence

Rain. Said it all. Rain.

Monthly Precipitation Ranks



Year-to-Date Precipitation Ranks



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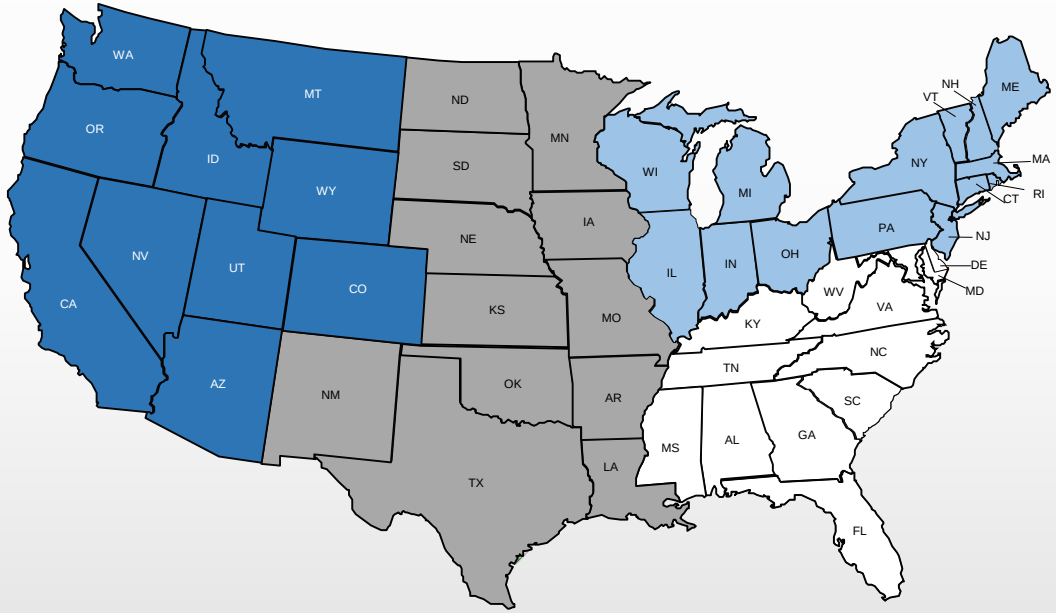
PCA Regional Divisions



Brian Schmidt | Dave Zwicke | Joe Chiappe | David Lan

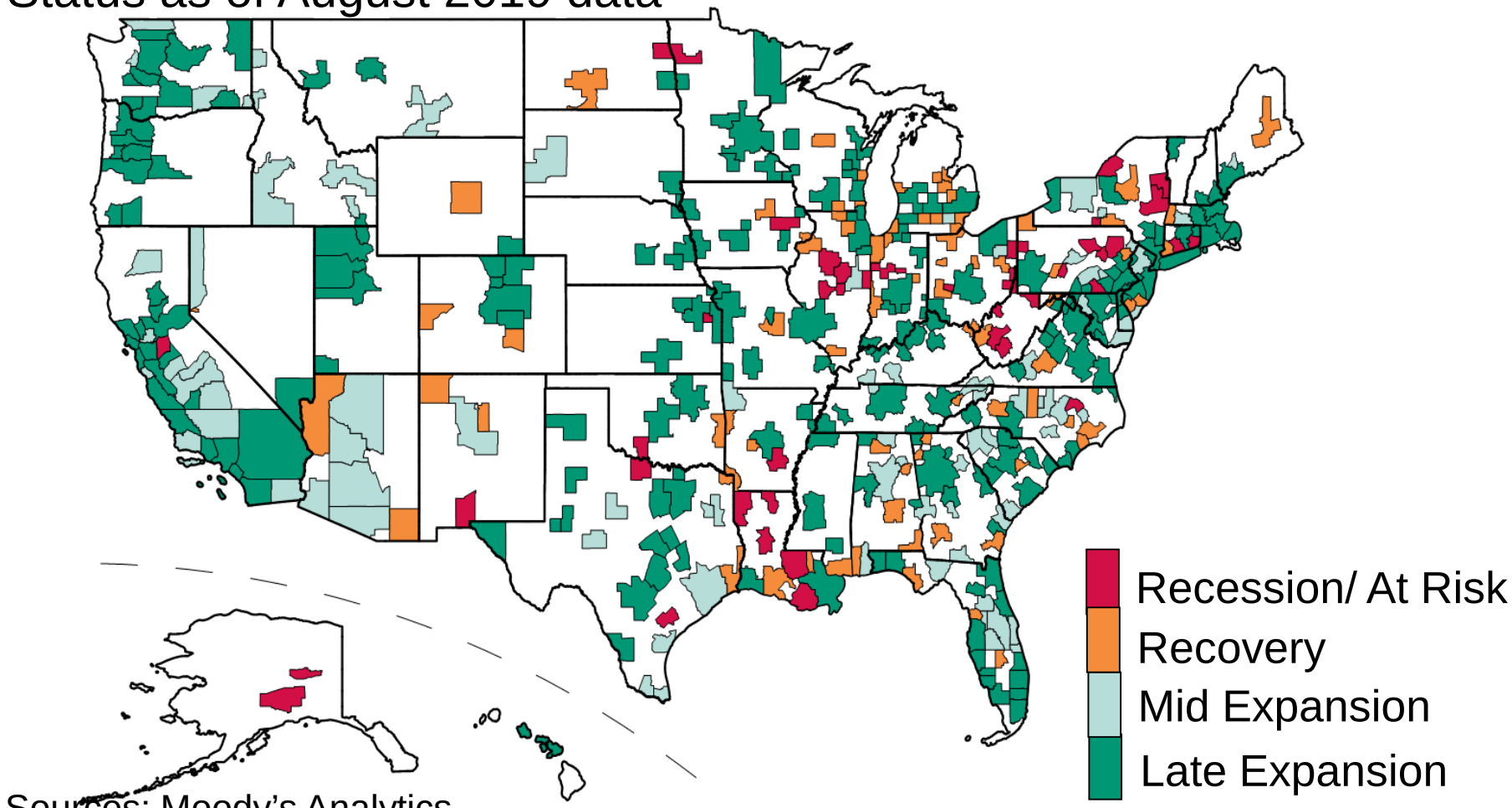
Slower Growth Ahead

Martin A. Wurm, Senior Economist

October 2019

Late Cycle Expansion Across the Nation

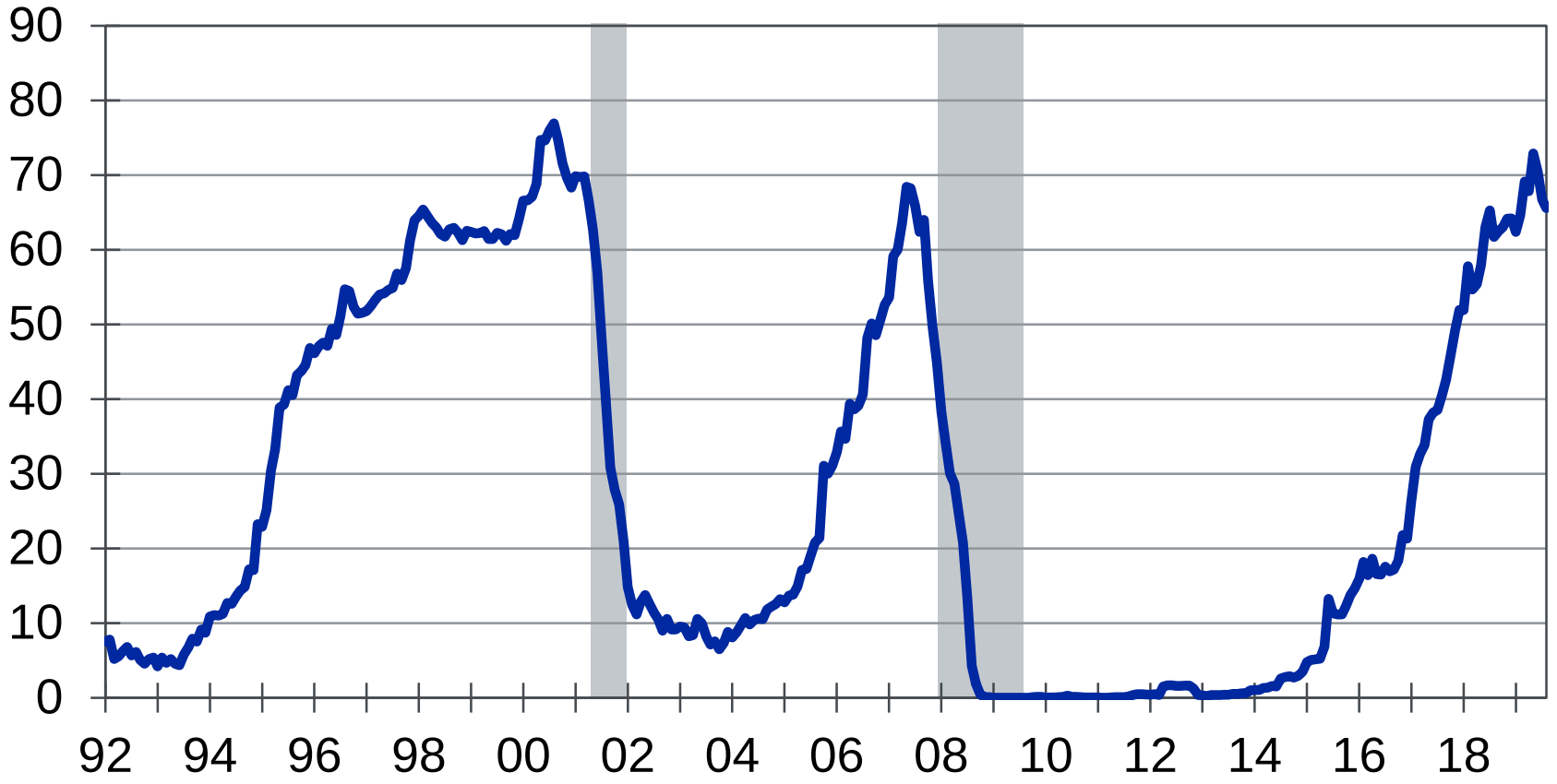
Status as of August 2019 data



Sources: Moody's Analytics

The First Warning Signs are Emerging

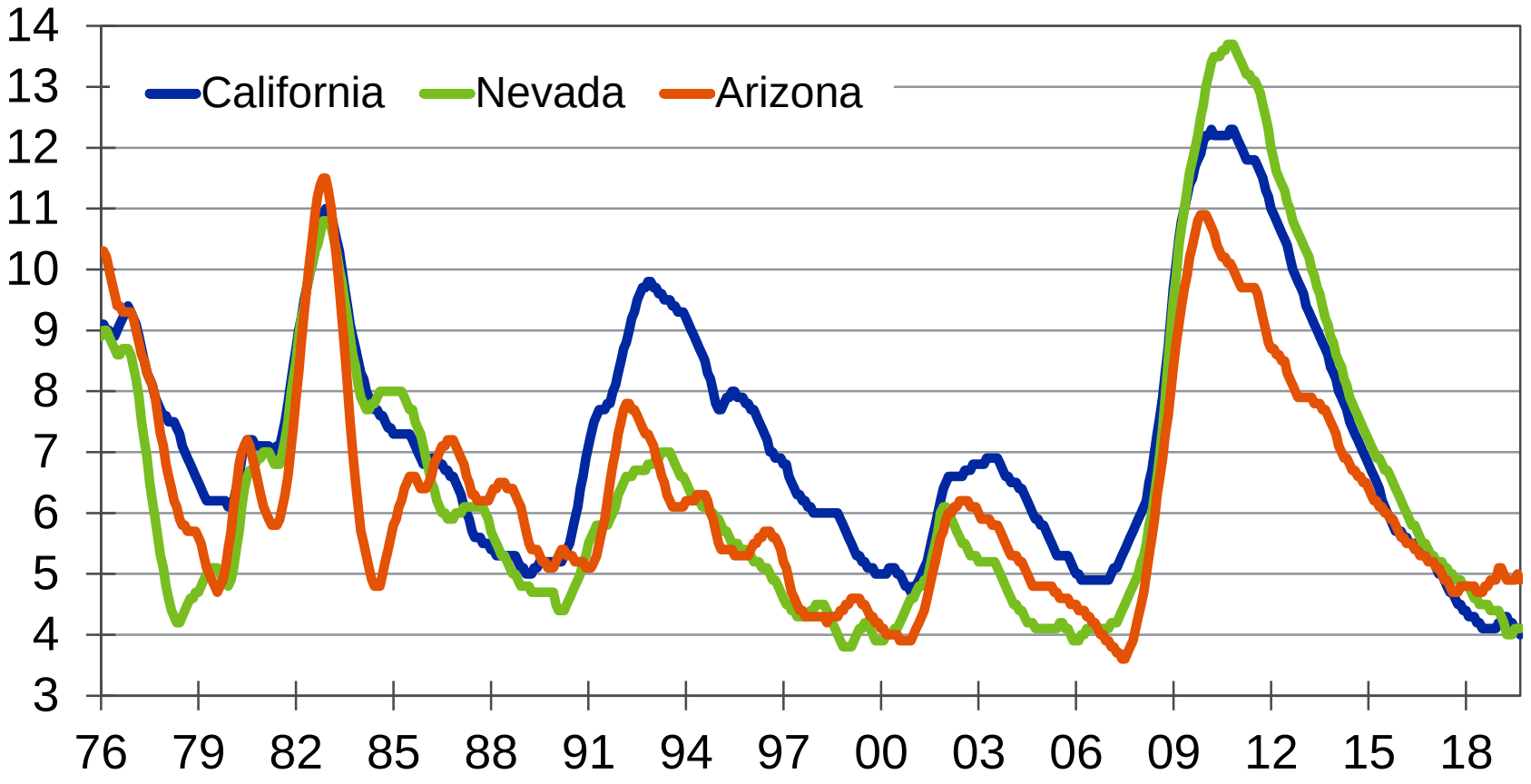
Share of metro area GDP in late-cycle expansion, %



Source: Moody's Analytics

Labor Market Have Rarely Been This Tight

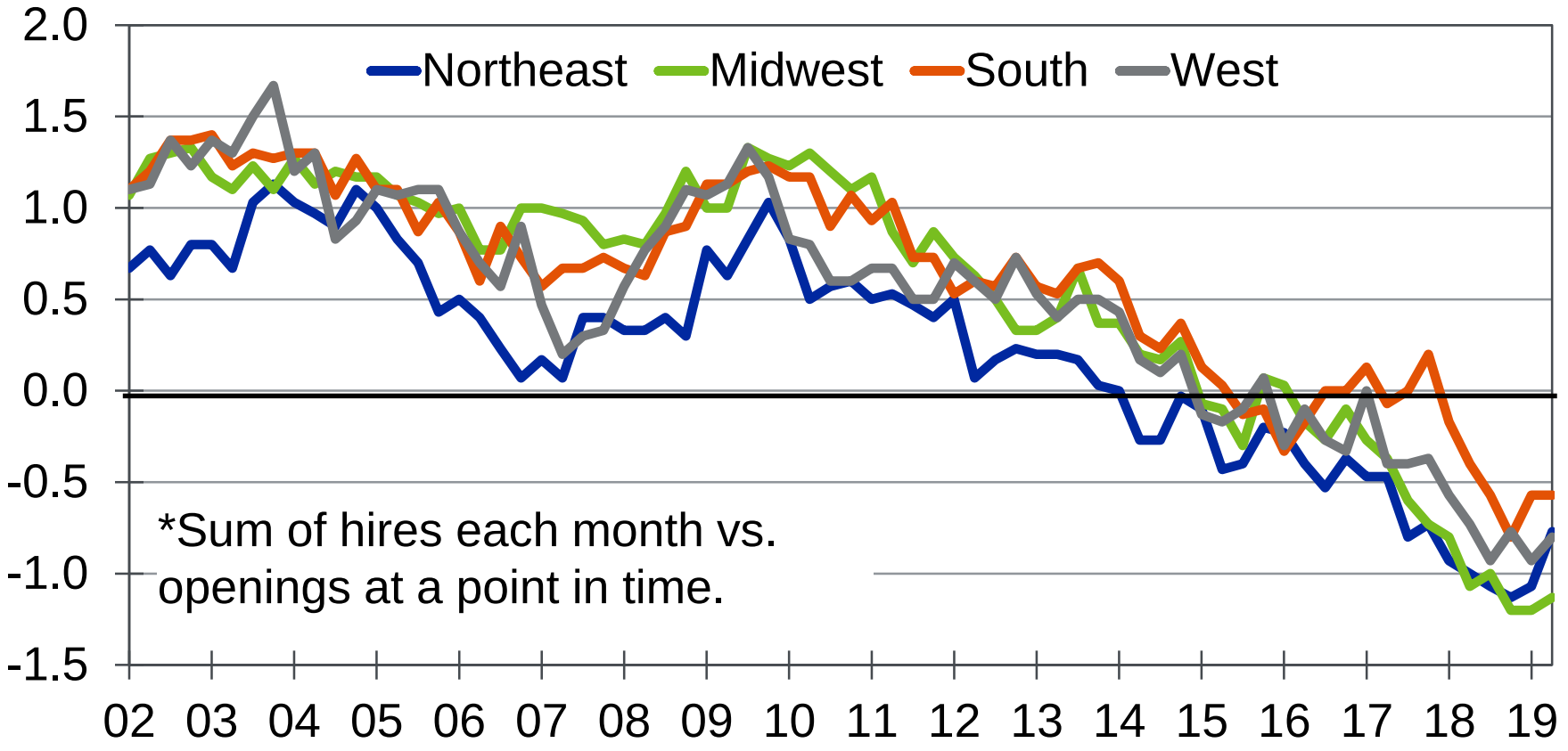
Unemployment rate, %



Sources: BLS, Moody's Analytics

Labor Shortages Persist

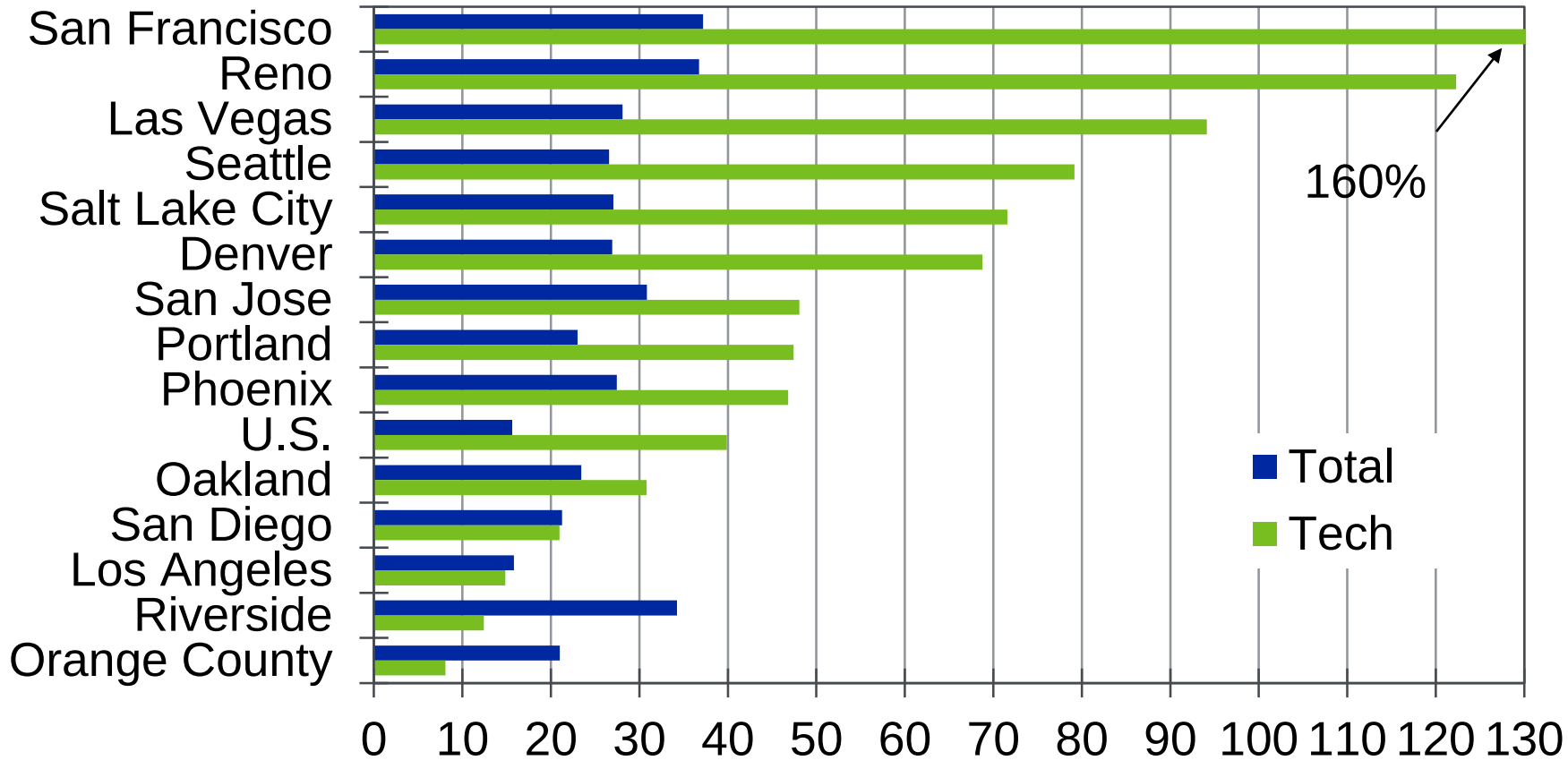
Job hire rate net job opening rate*, %, quarterly



Sources: BLS, Moody's Analytics

Tech Is Driving West Leaders…

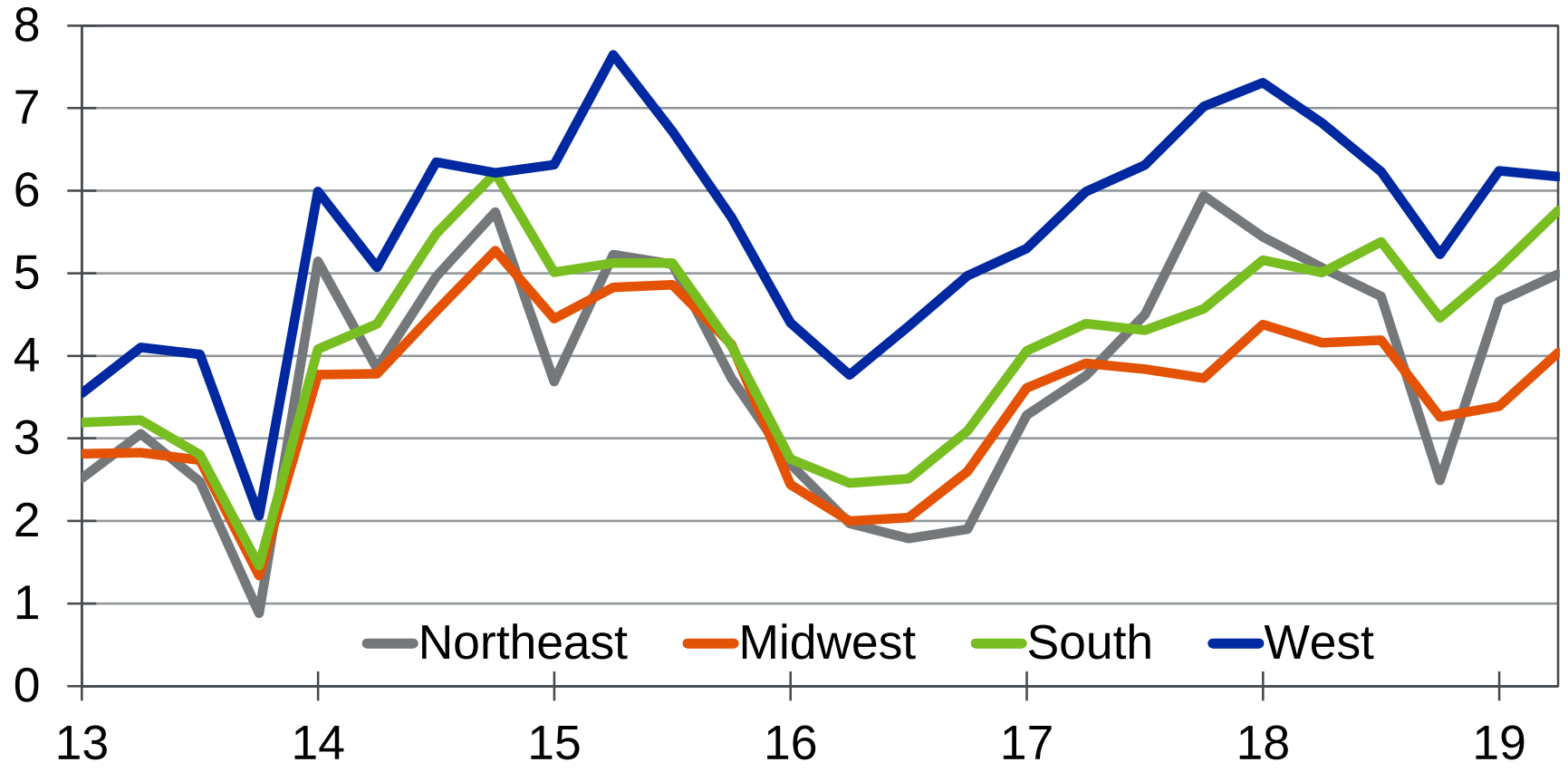
Employment, % change since 2011, 2019Q3



Sources: BLS, Moody's Analytics

The South Is Catching Up To The West

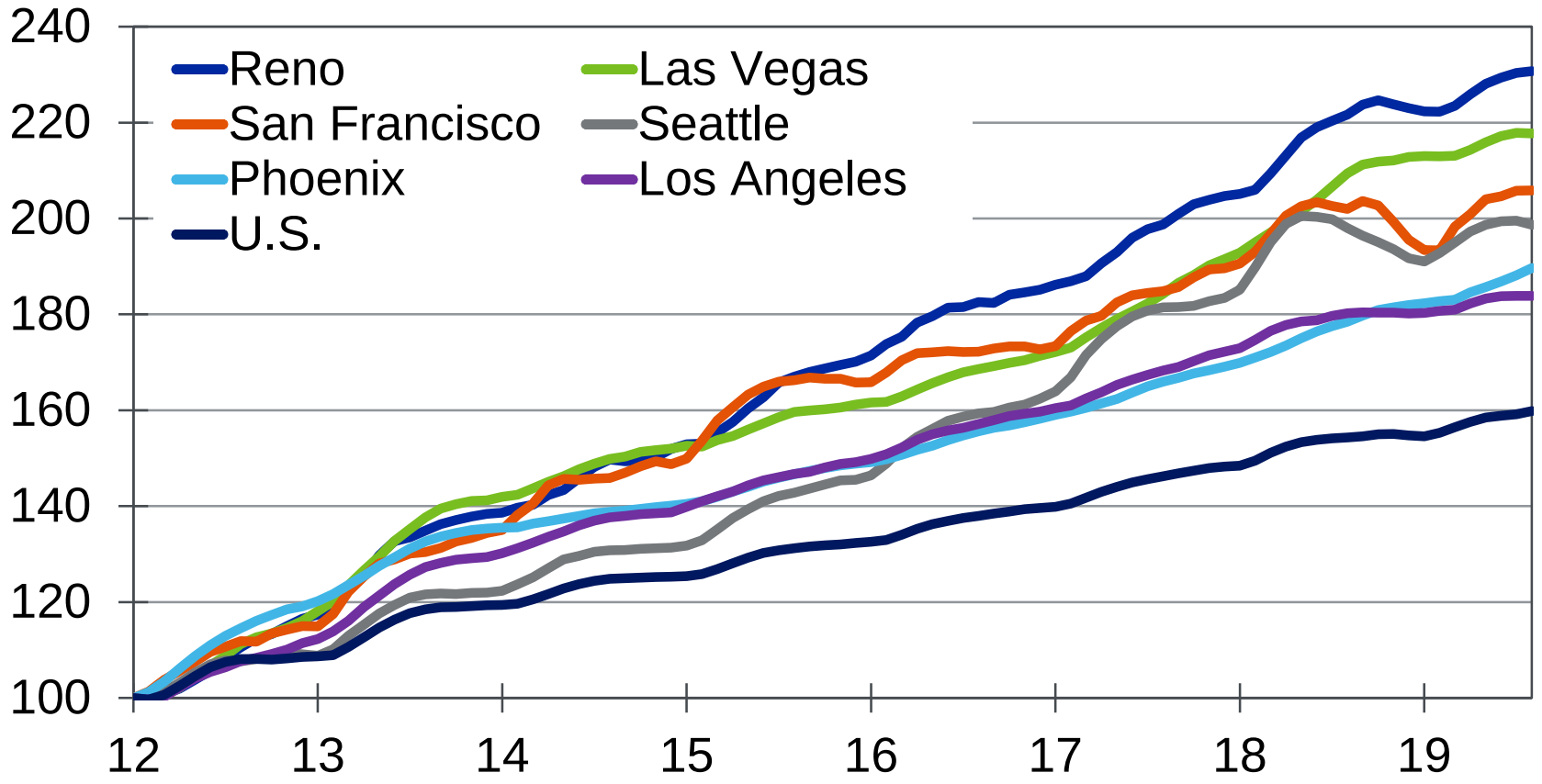
Wage and salary income, % change yr ago



Sources: BEA, Moody's Analytics

…Where House Prices Remains Hot

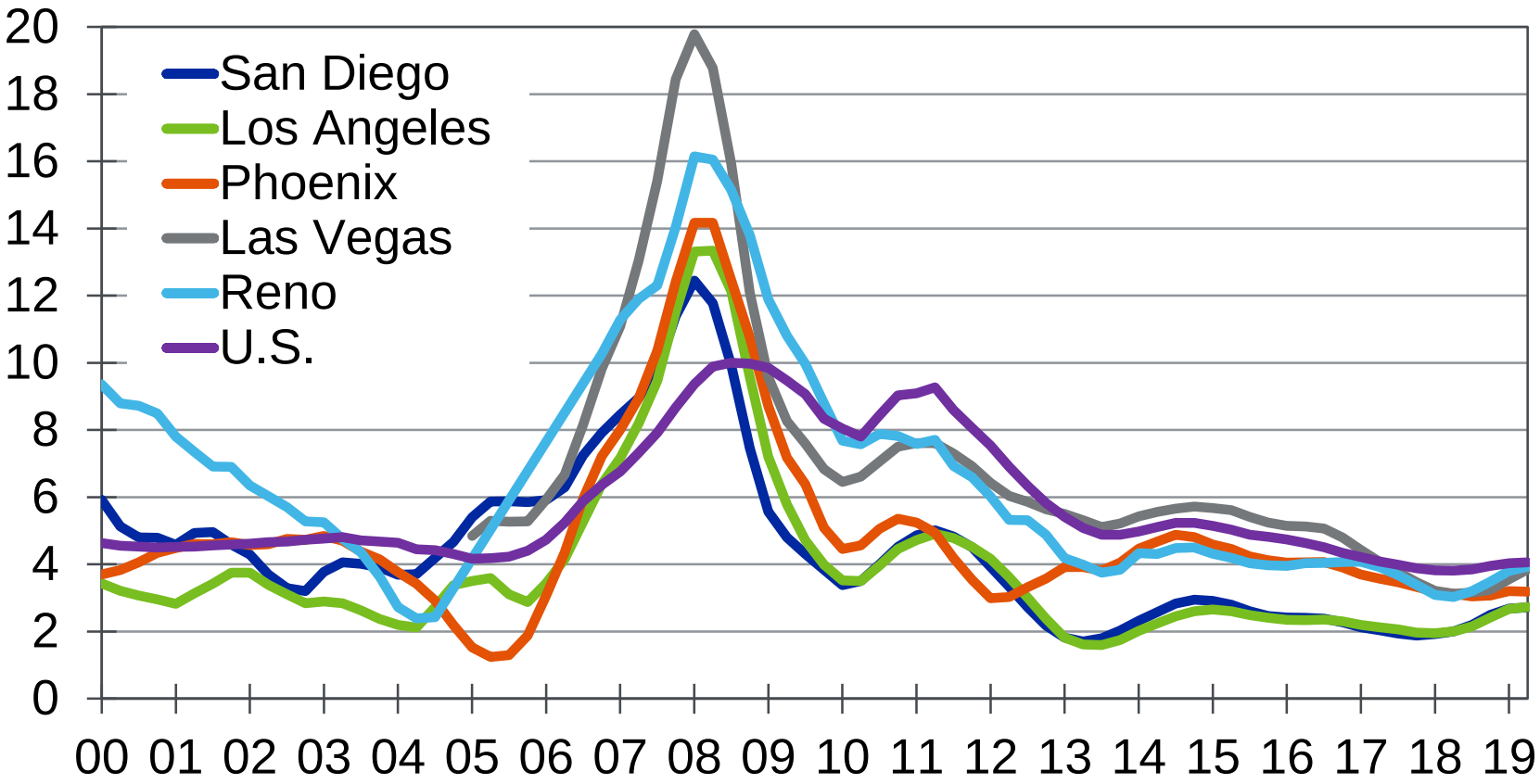
Core Logic Single-Family Home Price Index, 2012Q1 = 100



Sources: Core Logic, Moody's Analytics

Existing-Home Markets: Still Very Tight

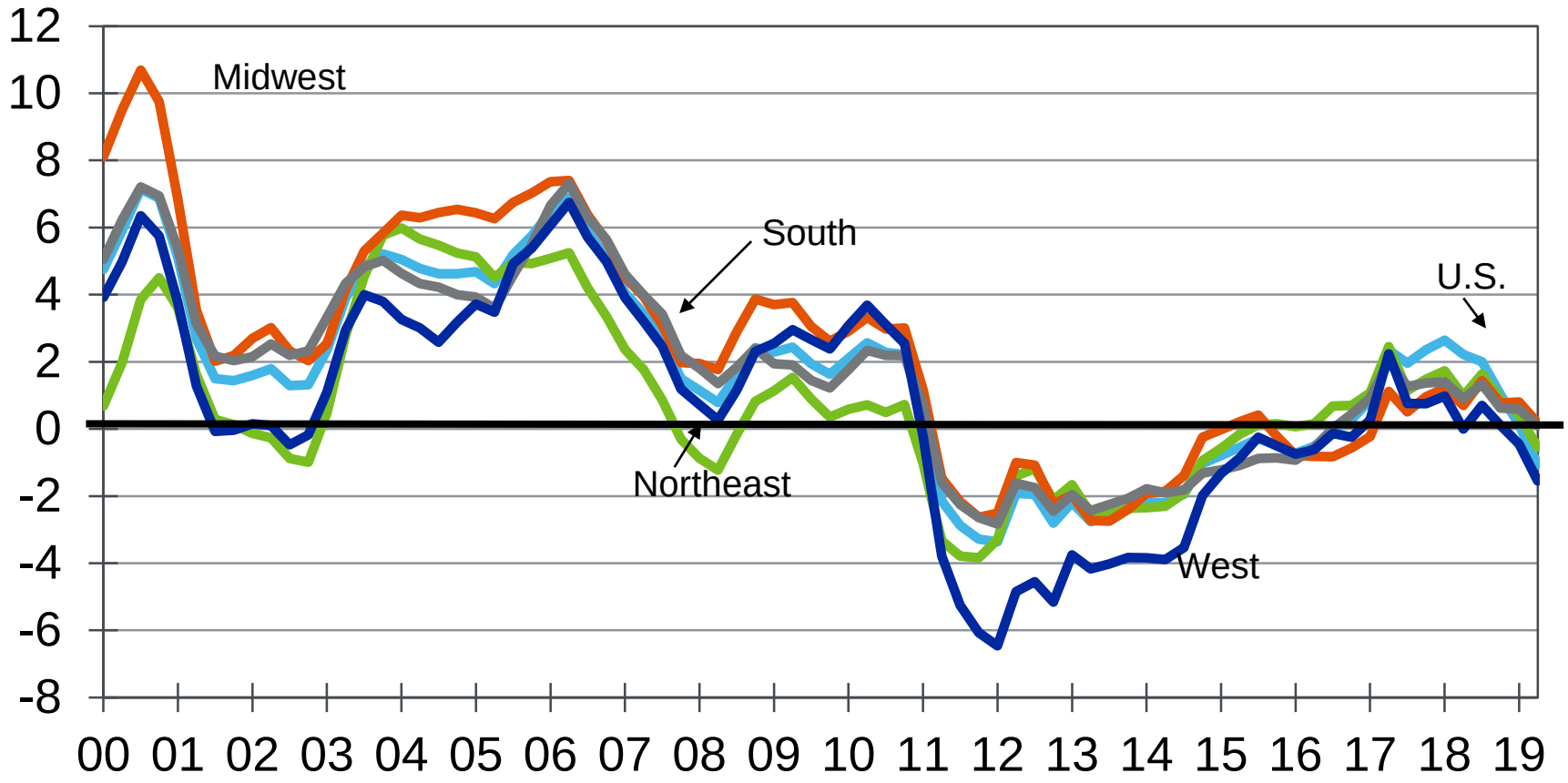
Existing single-family home listings, months of sales, 4-qtr. MA



Sources: NAR, Moody's Analytics

…But West Construction No Longer Lags

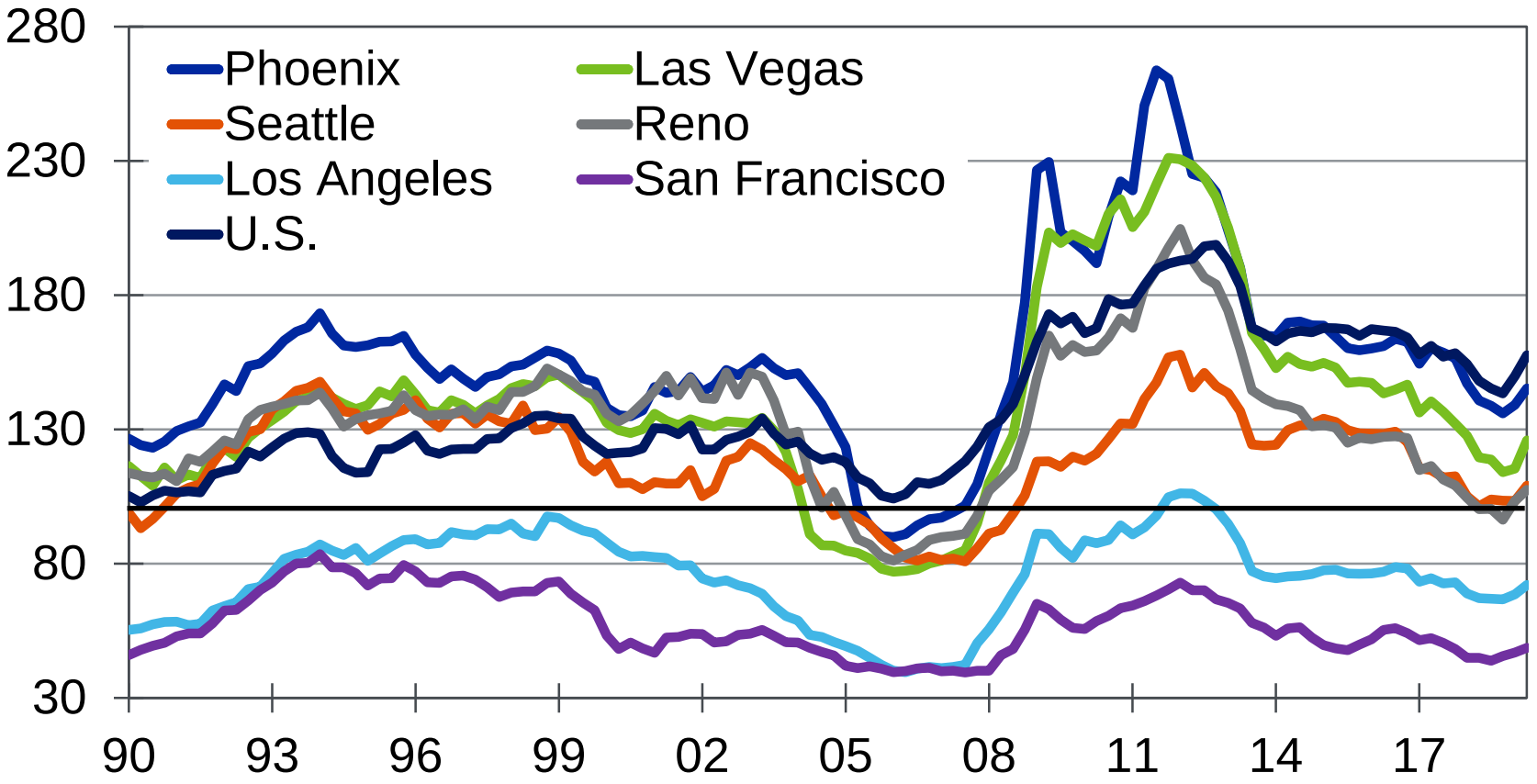
Completions-household formation, % of vacant housing stock



Sources: Census Bureau, Moody's Analytics

Affordability Holds Mostly Steady

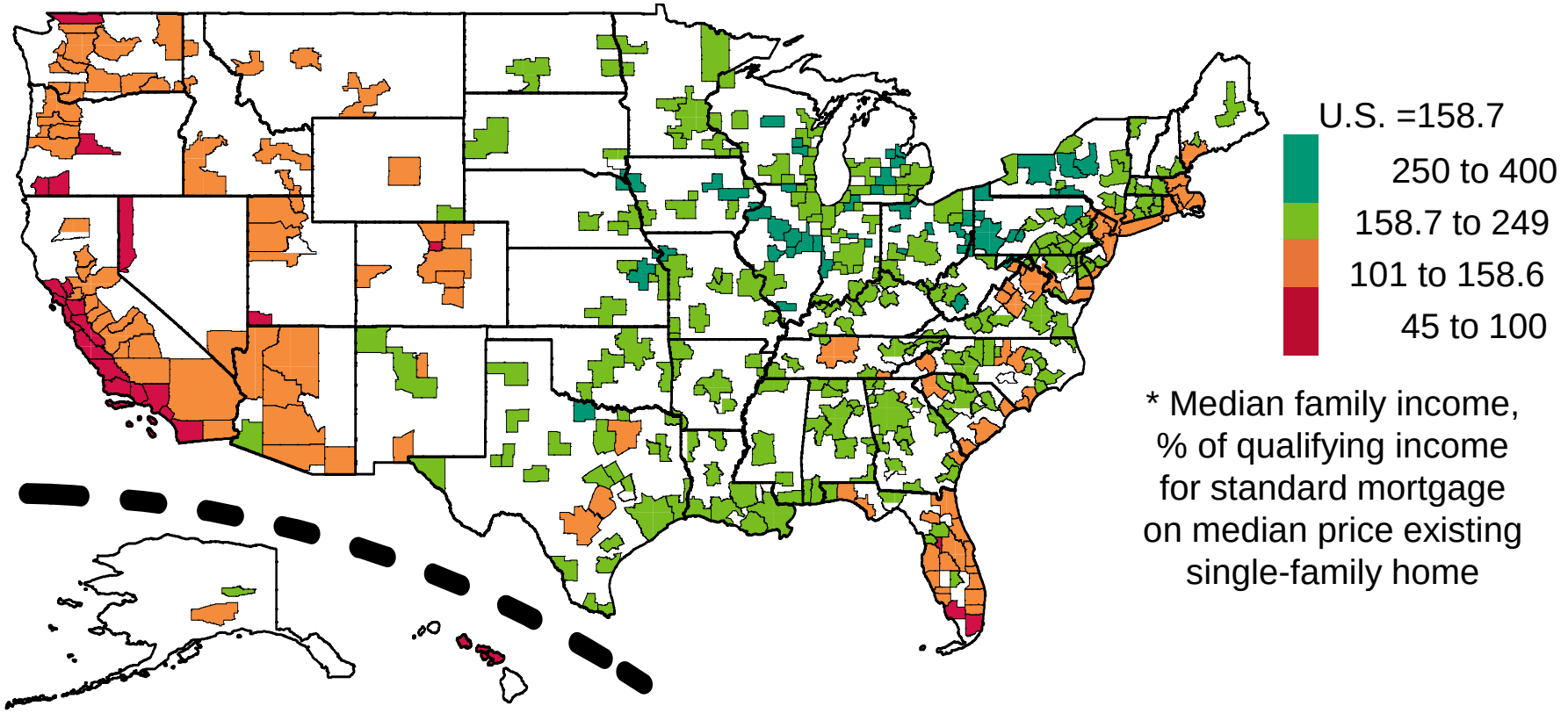
Moody's Analytics housing affordability index, Equilibrium=100



Sources: BEA, BOC, NAR, Moody's Analytics

Affordability: The Perennial West Problem

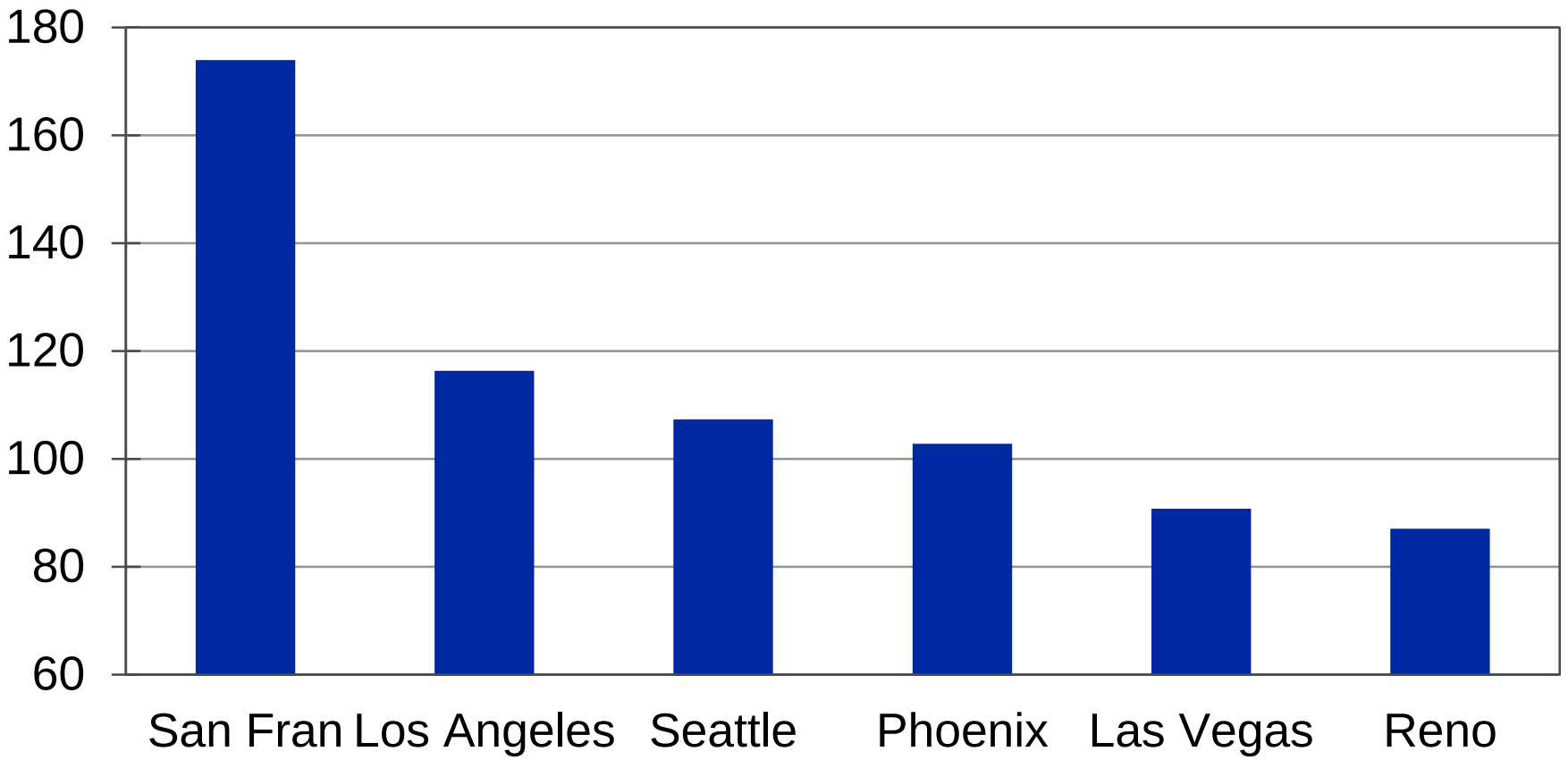
MA housing affordability index *, % of qualifying income, 2018Q4



Sources: Census Bureau, NAR, FHFA, Moody's Analytics

Few Low Cost Areas Still Shine

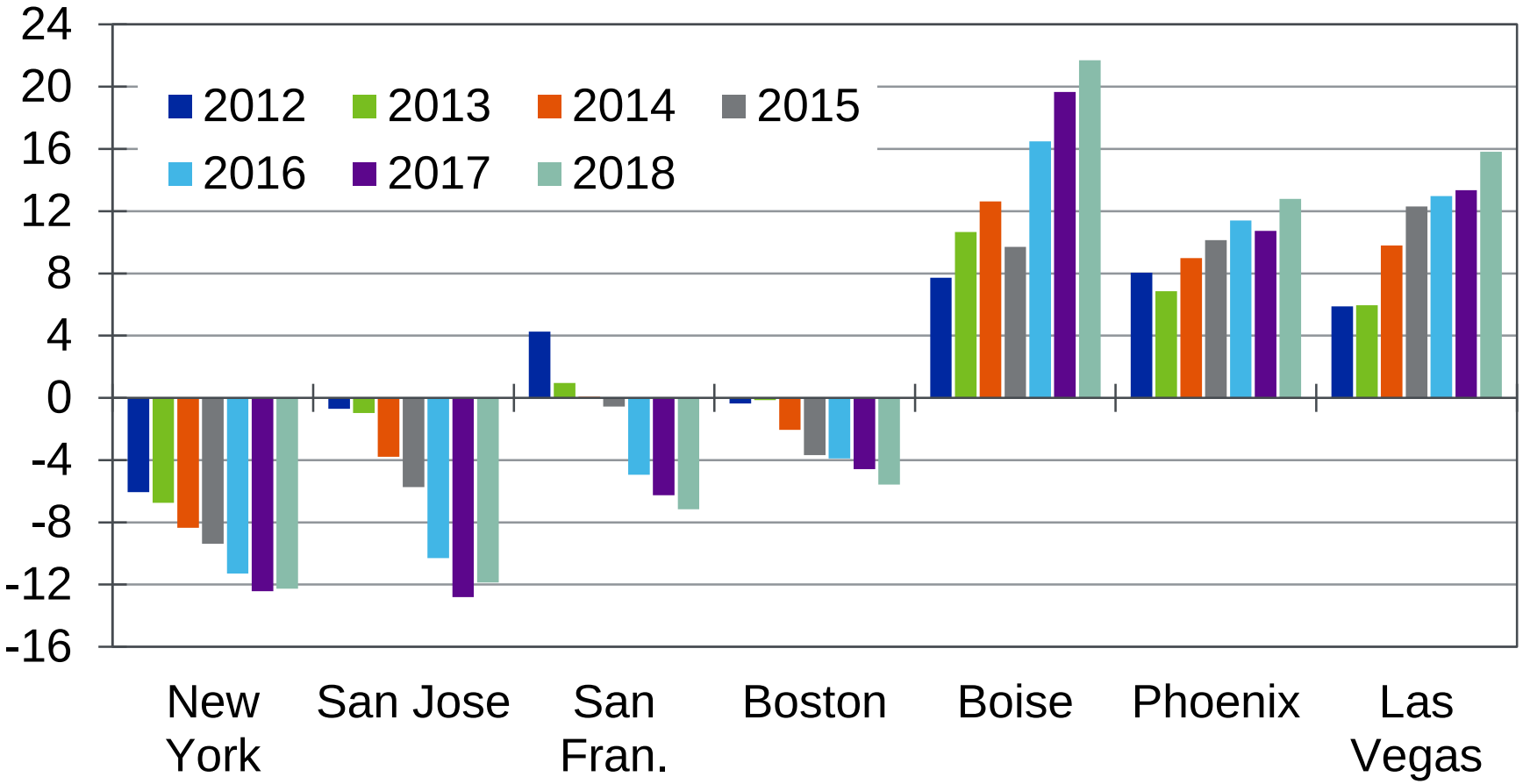
Cost of Doing Business, U.S.=100, 2017



Sources: Moody's Analytics

Cost Advantage Bolsters Mountains

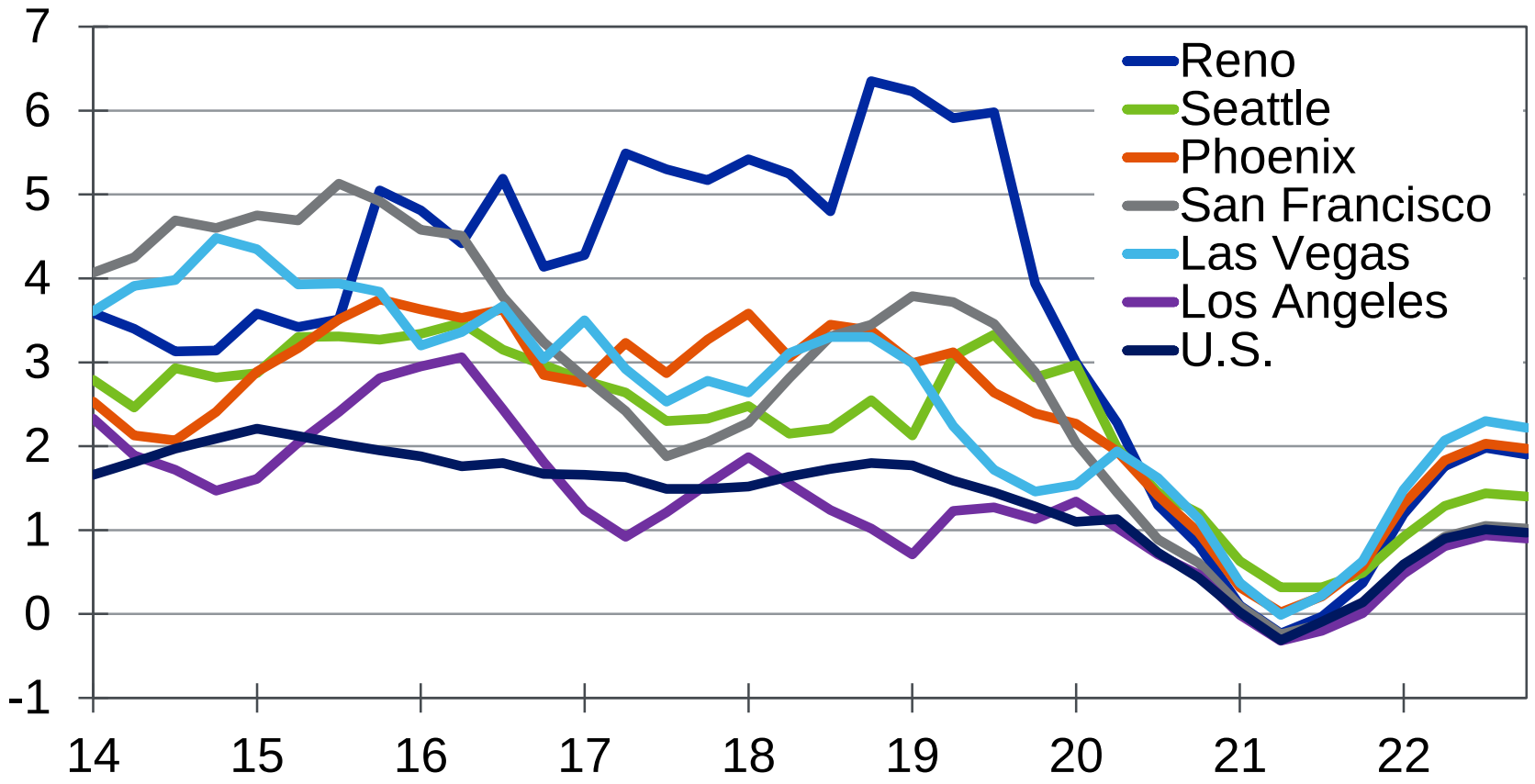
Net domestic migration per 1,000 residents, 2012 to 2018



Sources: Census Bureau, Moody's Analytics

Aging Expansion, Slower Hiring

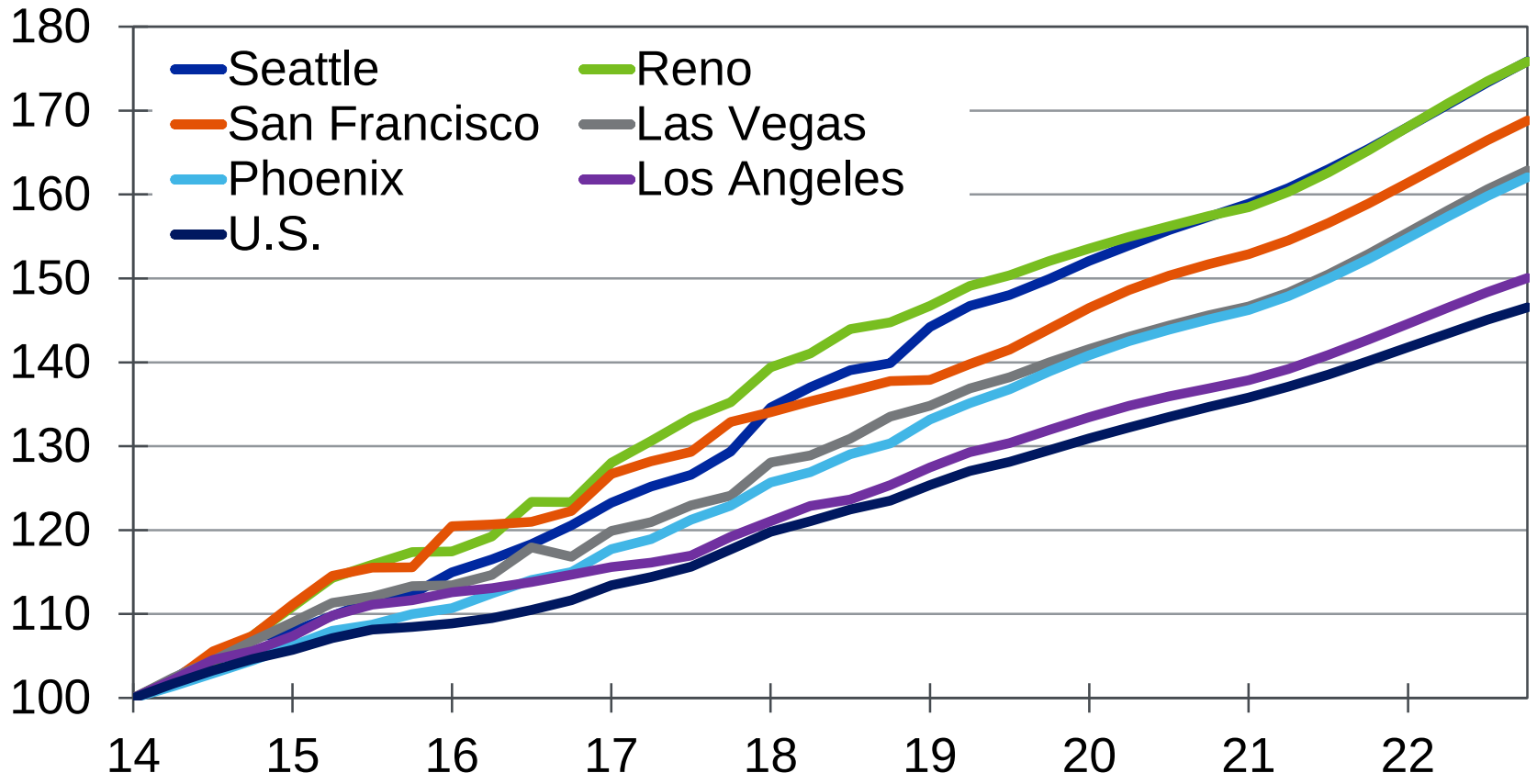
Payroll employment, % change year ago



Sources: BLS, Moody's Analytics

…While Land and Labor Costs Stay High

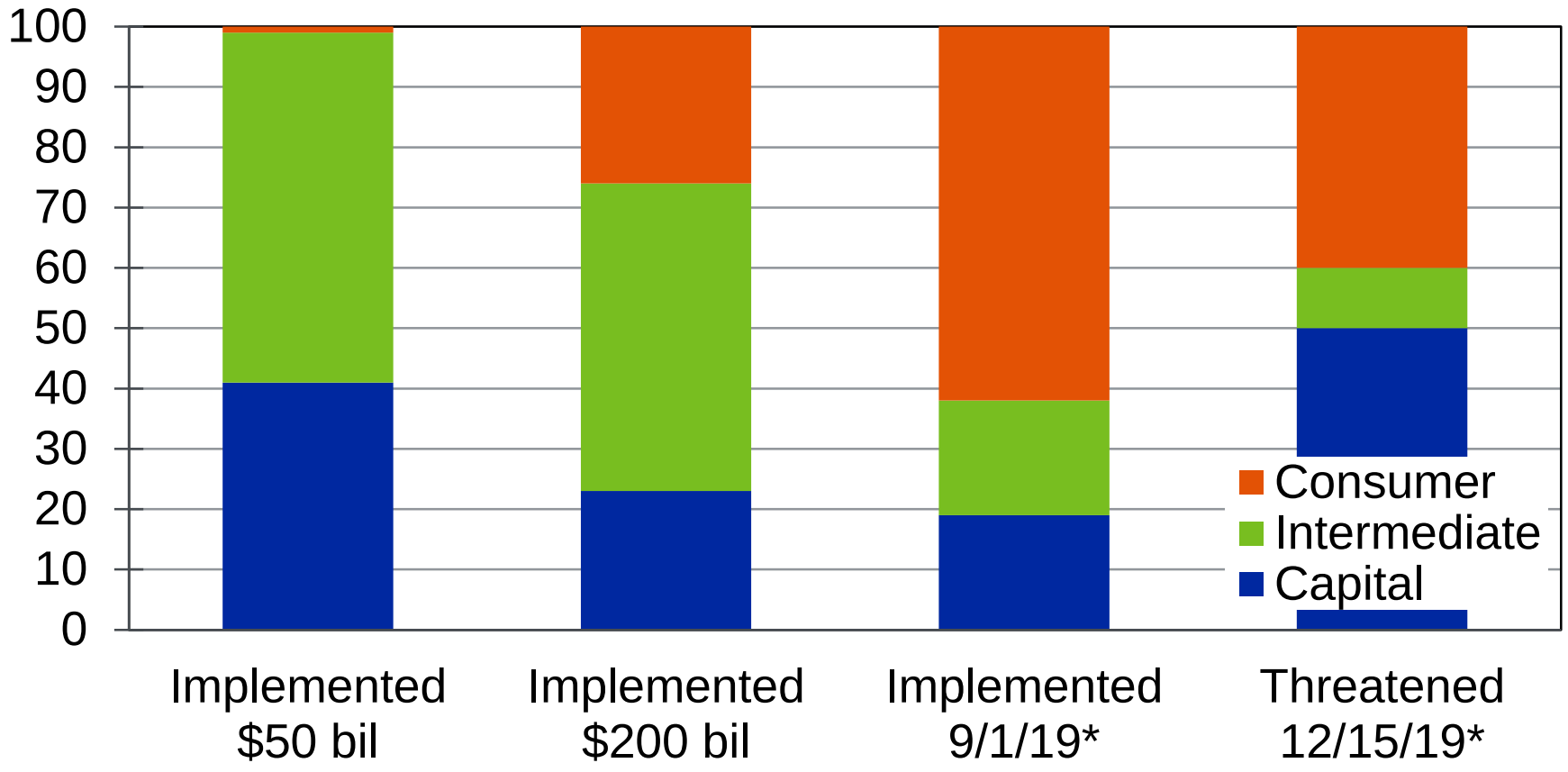
Total personal income, 2014Q1 = 100



Sources: BEA, Moody's Analytics

Trade War: Consumers at Risk

Tariffed imported goods from China by type, value % of total

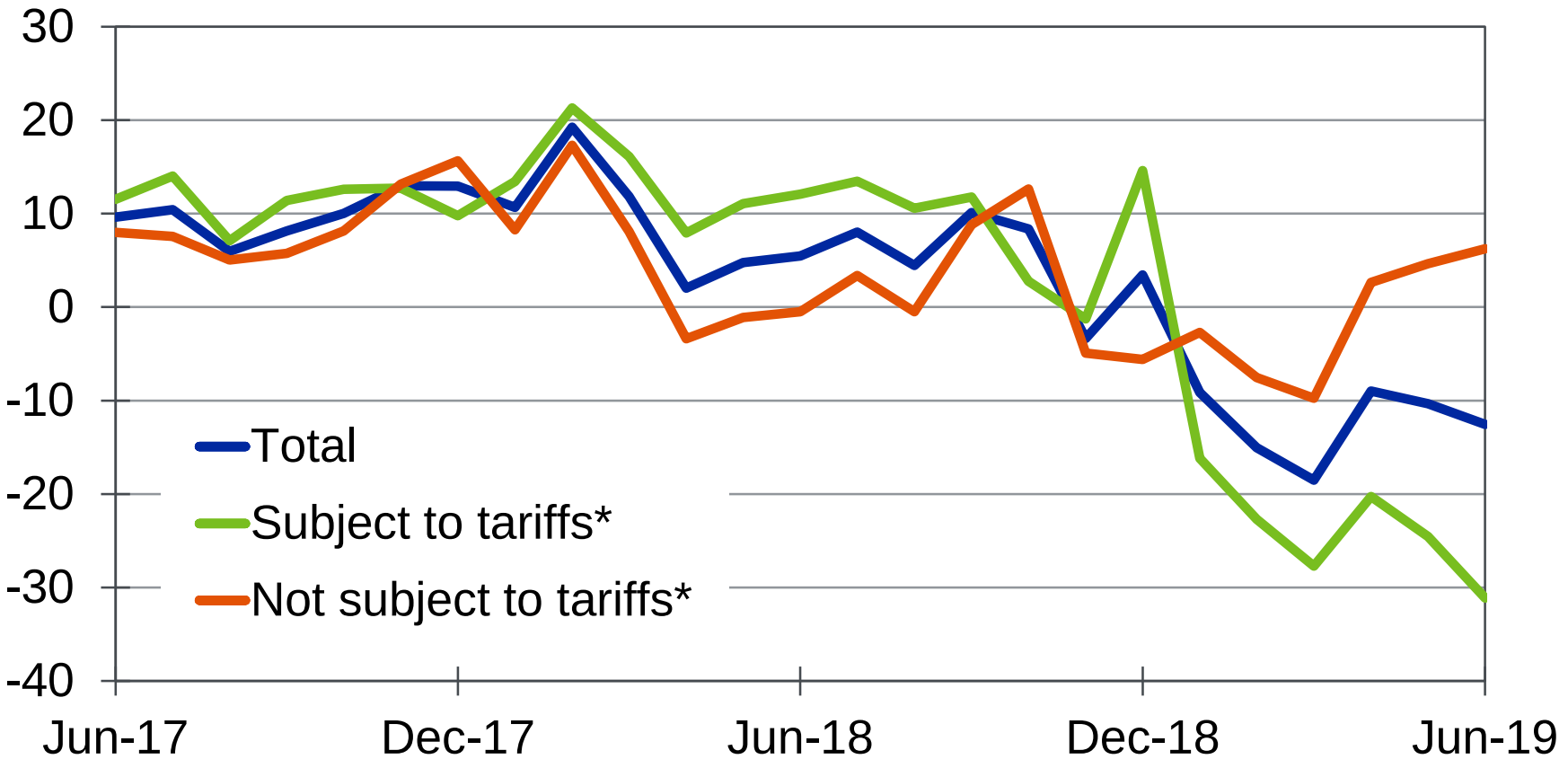


Sources: Census Bureau, USTR, USITC, Moody's Analytics

*Total value is $300 bil

Tariffs' Impact Is Discernible

U.S. goods imports from China, % change yr ago

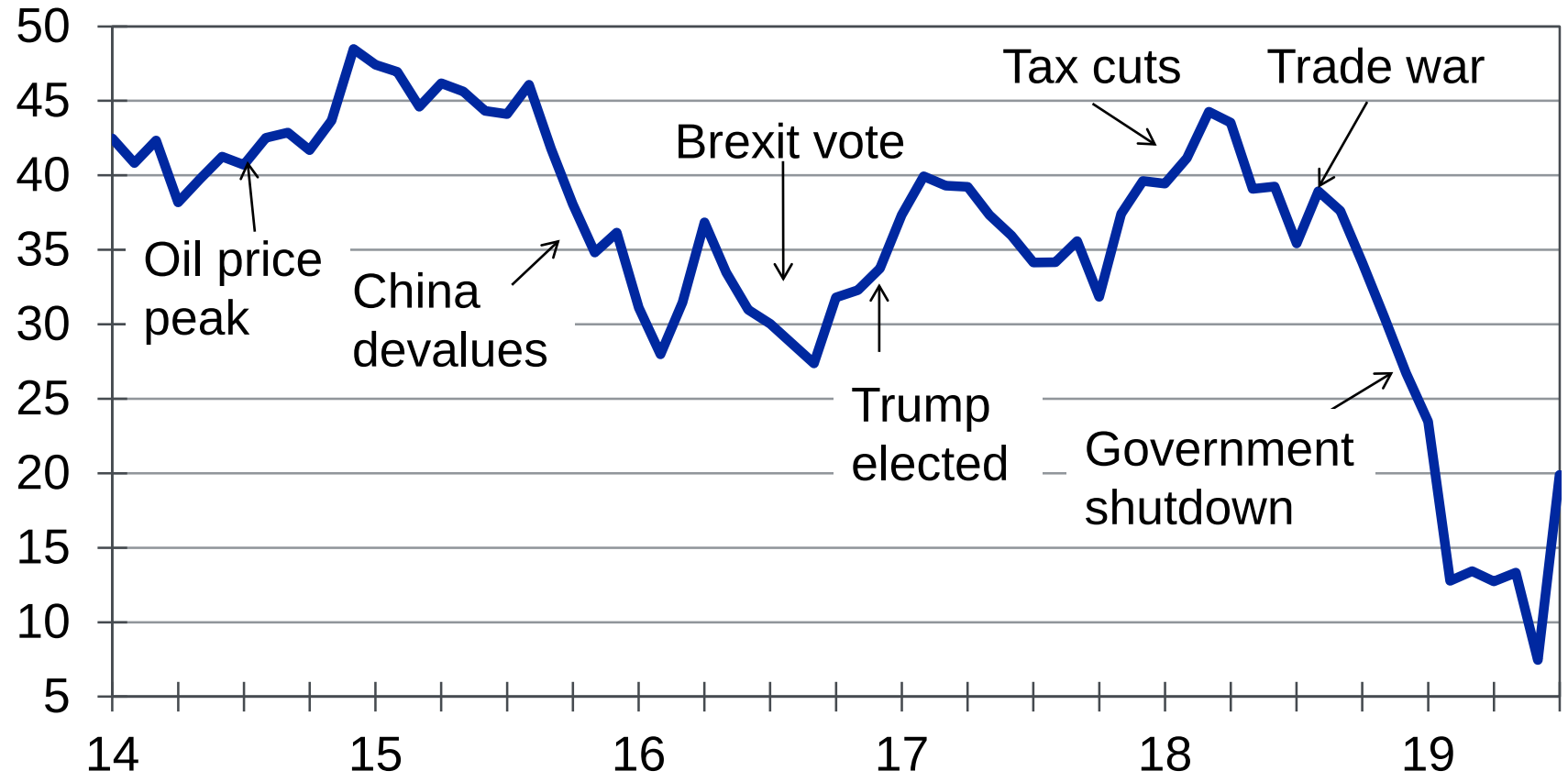


Sources: Census Bureau, USITC, Moody's Analytics

*Imposed before Sep 1, 2019

Businesses Lose Faith

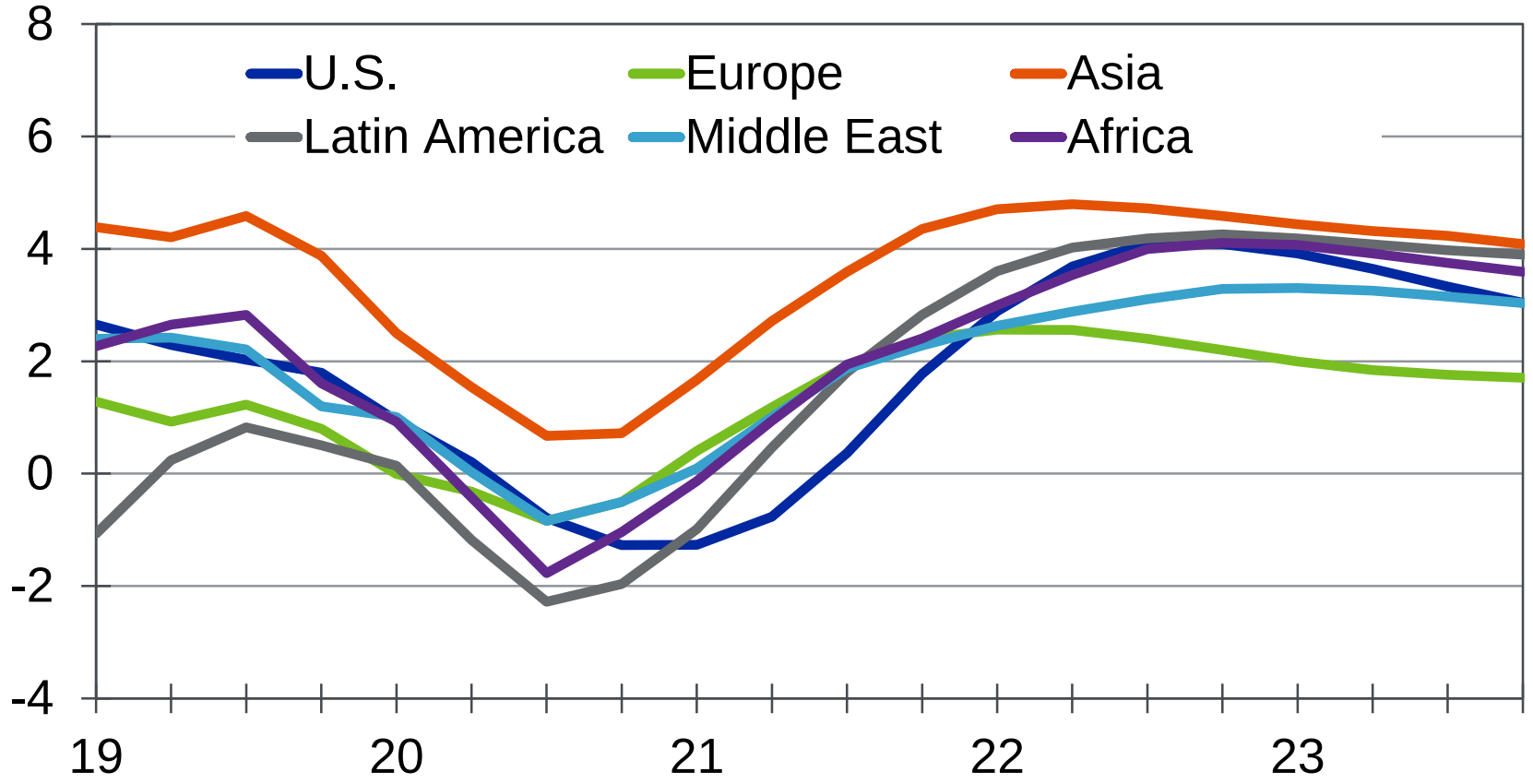
Business sentiment diffusion index, net % positive



Source: Moody's Analytics

Escalation a Self-Inflicted Wound

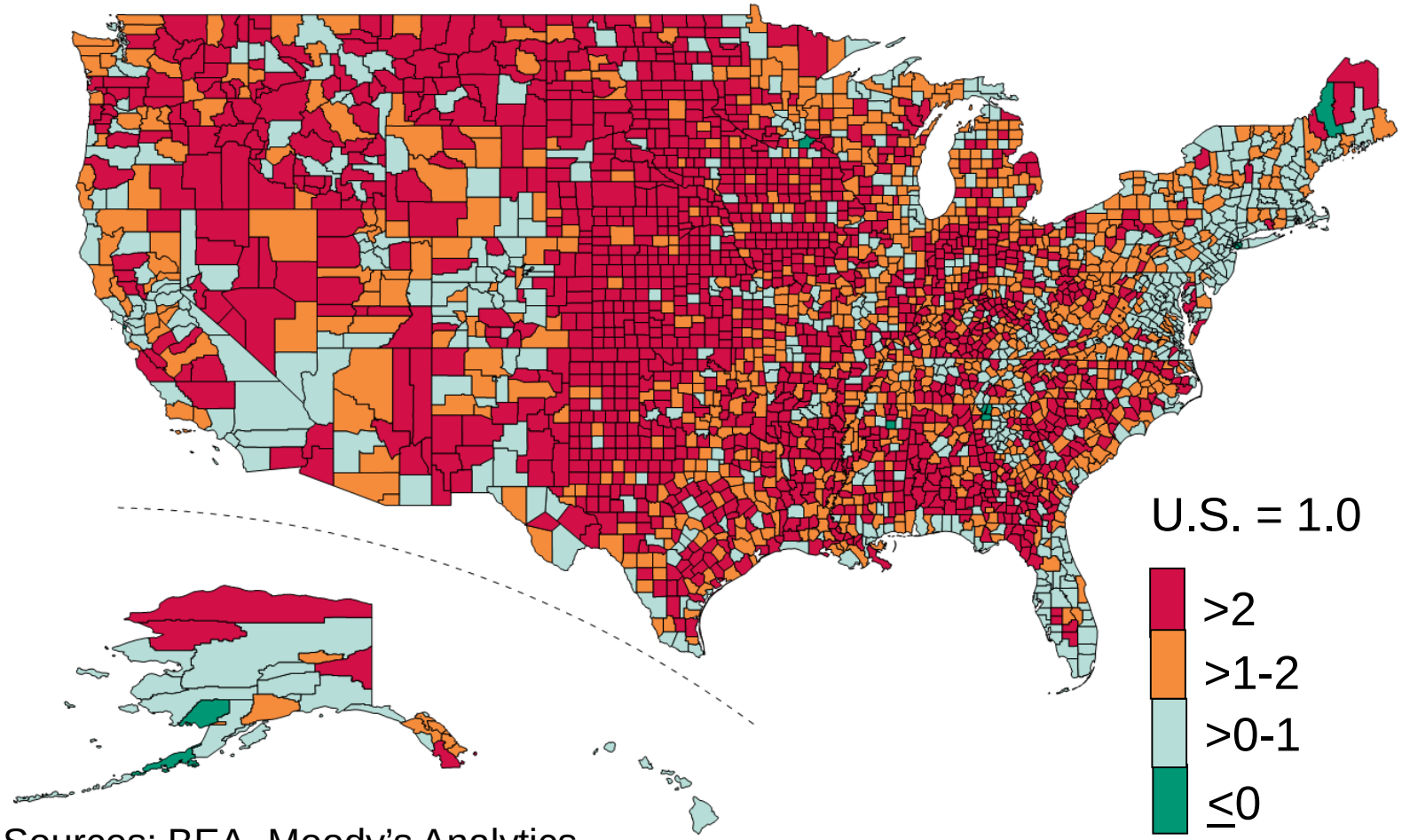
Real GDP, % change yr ago, Trade War Escalation scenario



Source: Moody's Analytics

Direct Trade War Impact Hurts Farm Belt

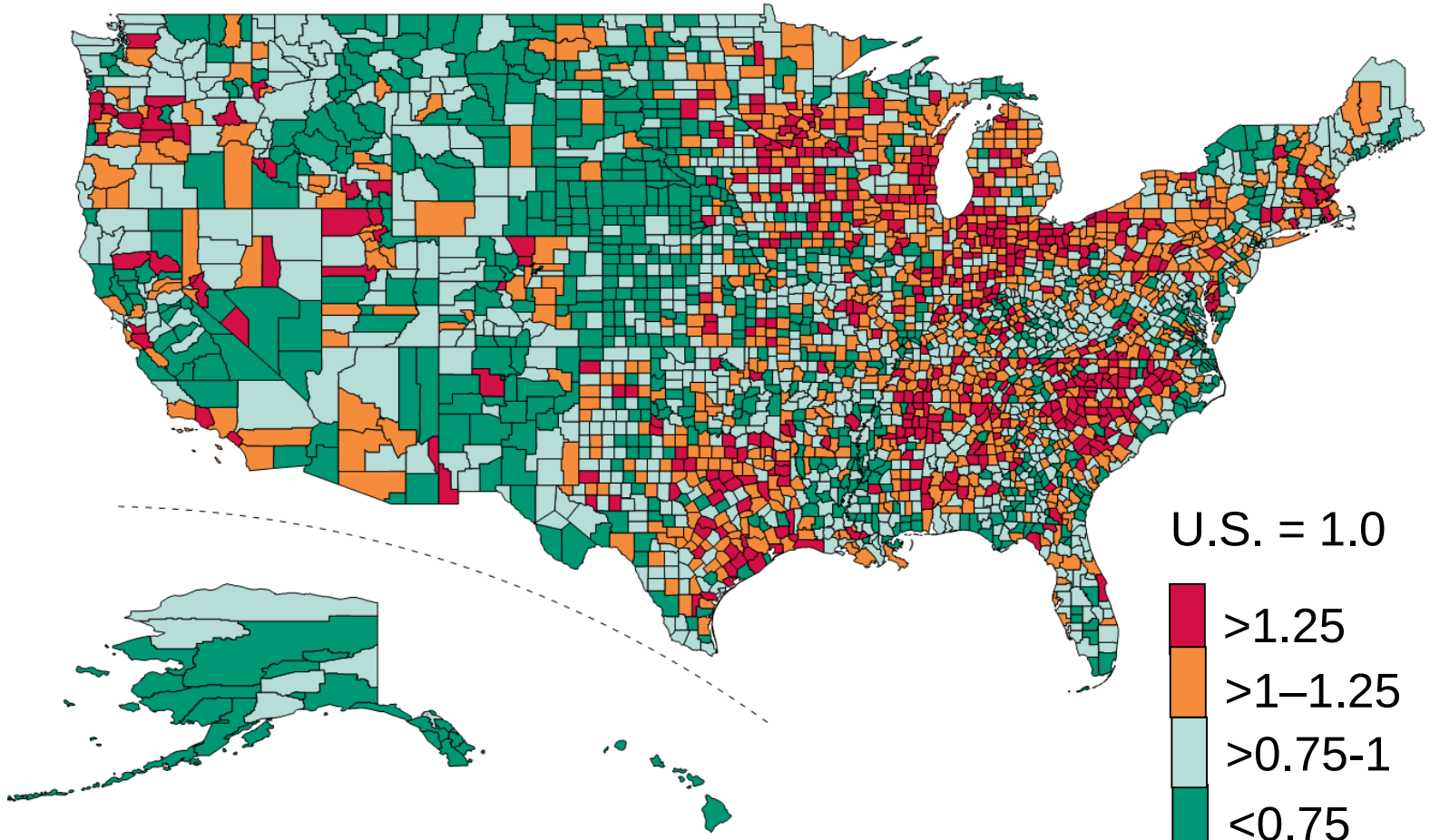
Economic impact of goods tariffs with China, U.S. = 1.0



Sources: BEA, Moody's Analytics

Manufacturing Hubs Hurt by Indirect Costs

Economic impact of goods tariffs with China, U.S. = 1.0



Sources: BEA, Moody's Analytics

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PCA Cement Outlook

Ed Sullivan, SVP & Chief Economist

2019 I California Regional Conference

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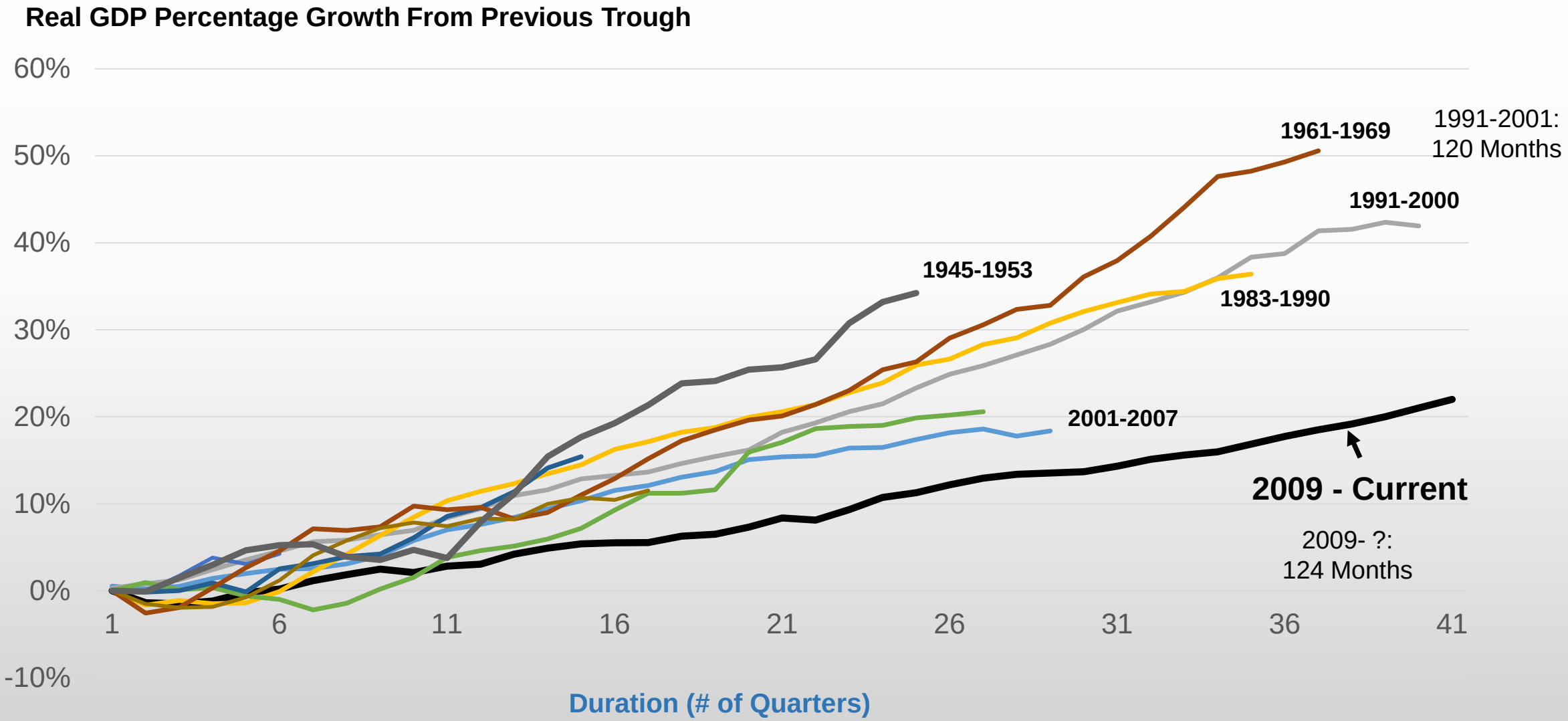
Strength & Duration of U.S. Recoveries



Recession Indicators

PCA Since 1916
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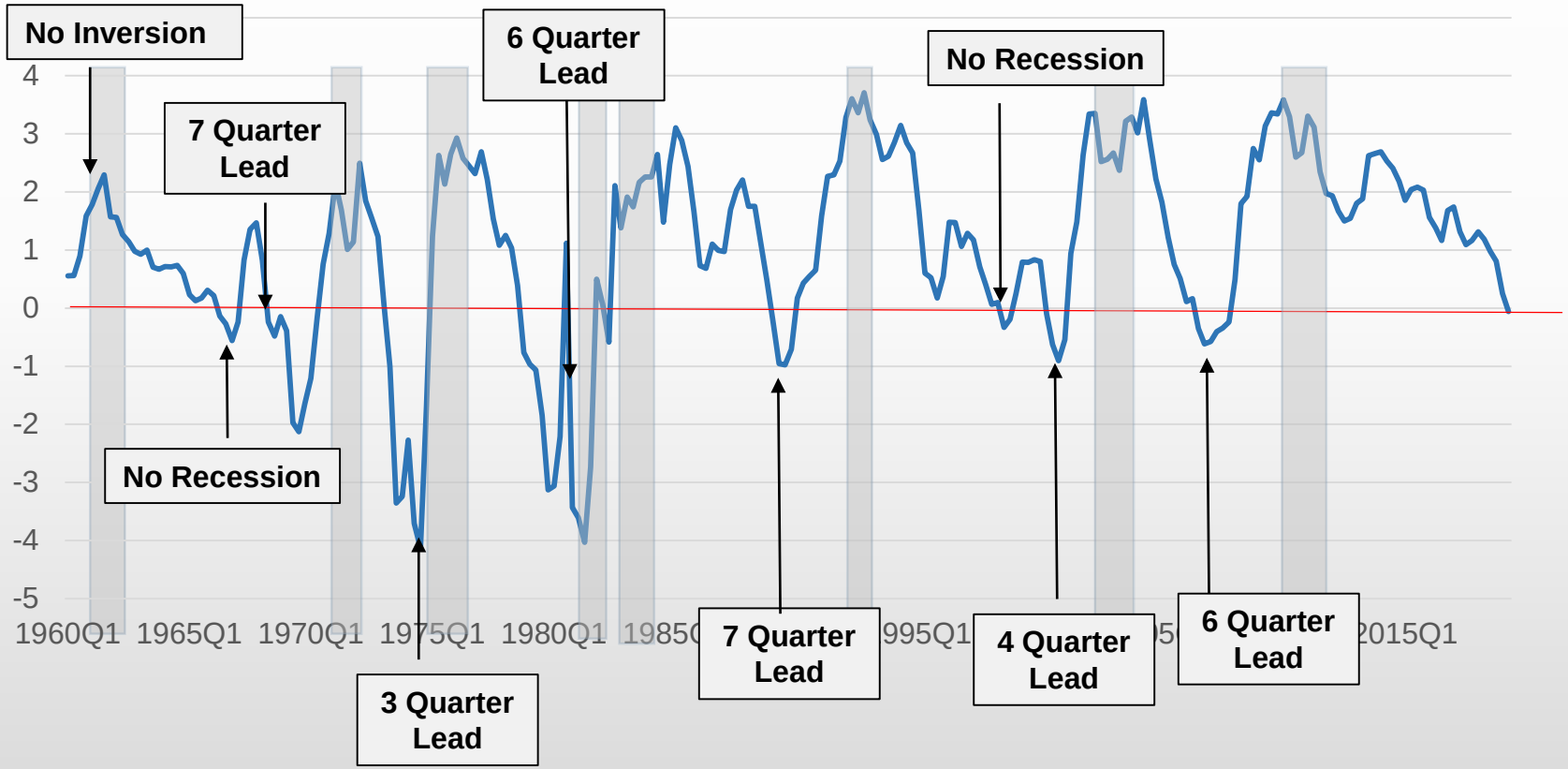
10 Year Treasury Less Federal Funds Rate

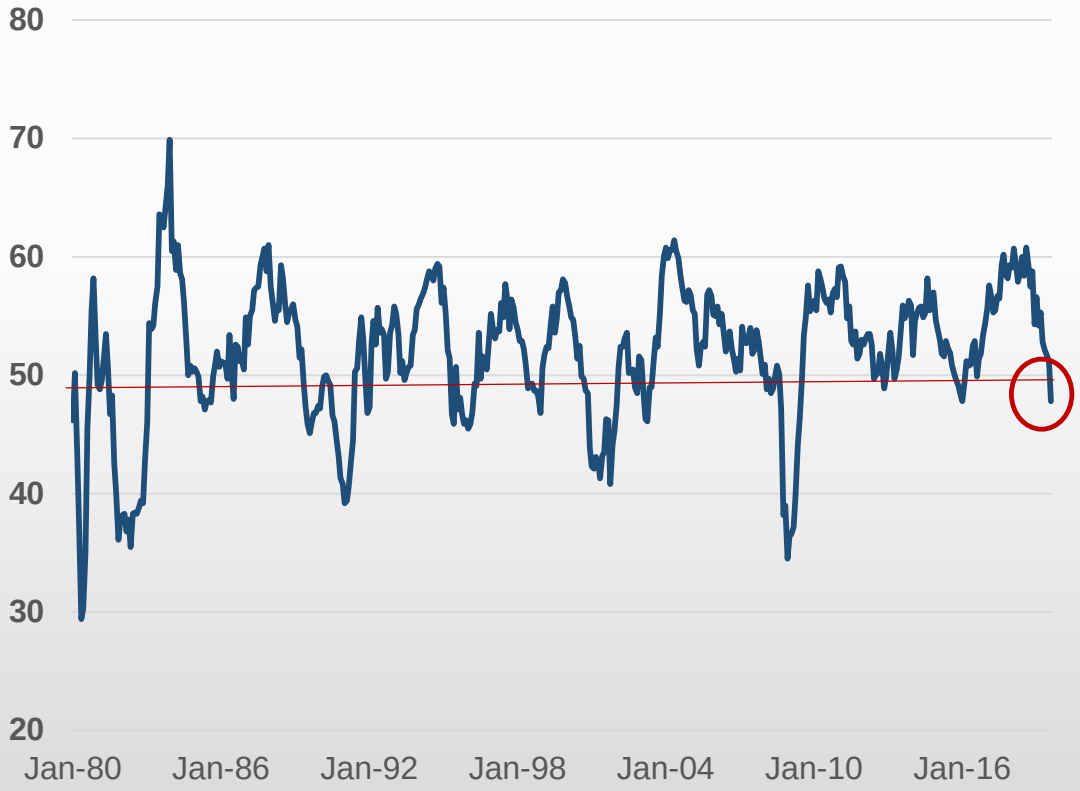
Per 100 Basis Points



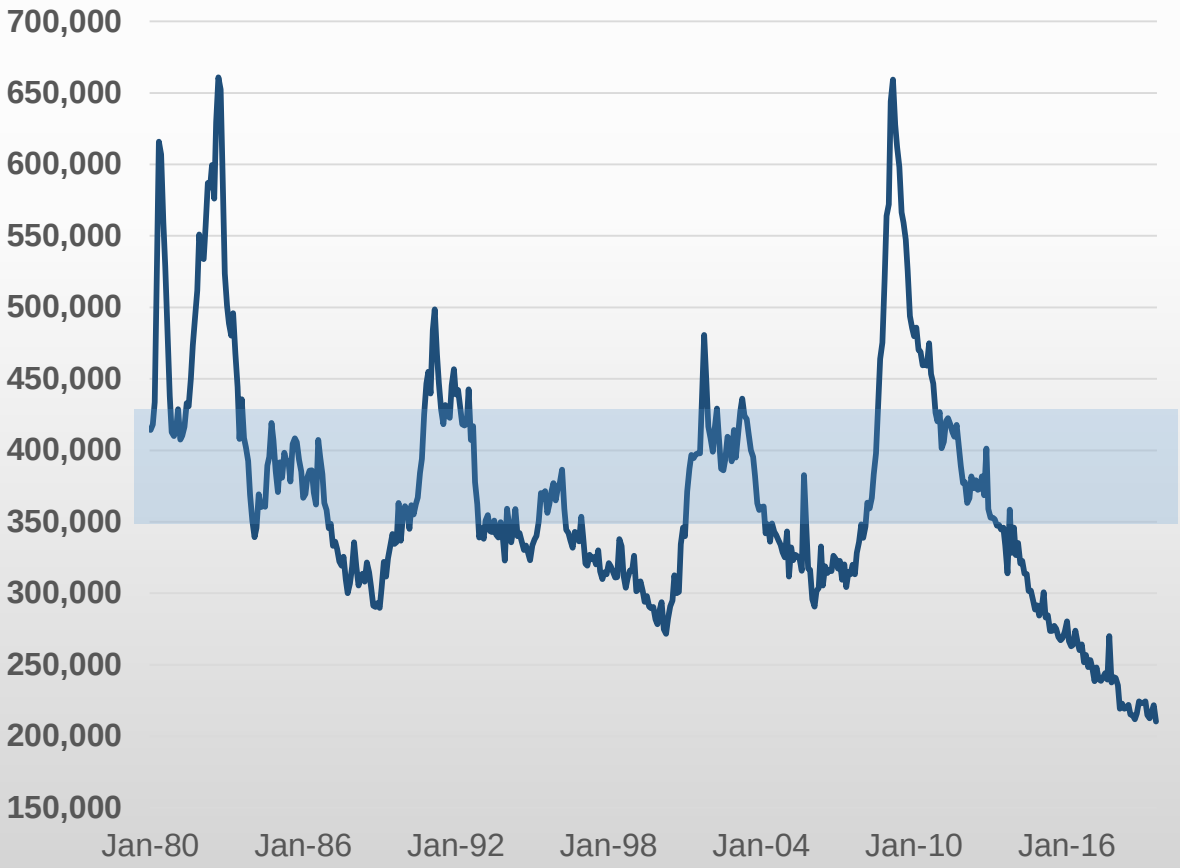
The inverted yield curve - where the federal funds or 2 year treasury rate yield is higher than the 10-year bond yield . This can point to a recession because when investors pile into long-dated bonds it means they are becoming more risk-averse about the economy.

Length and Magnitude matter as a predictor.

ISM Manufacturing Index



New Unemployment Claims



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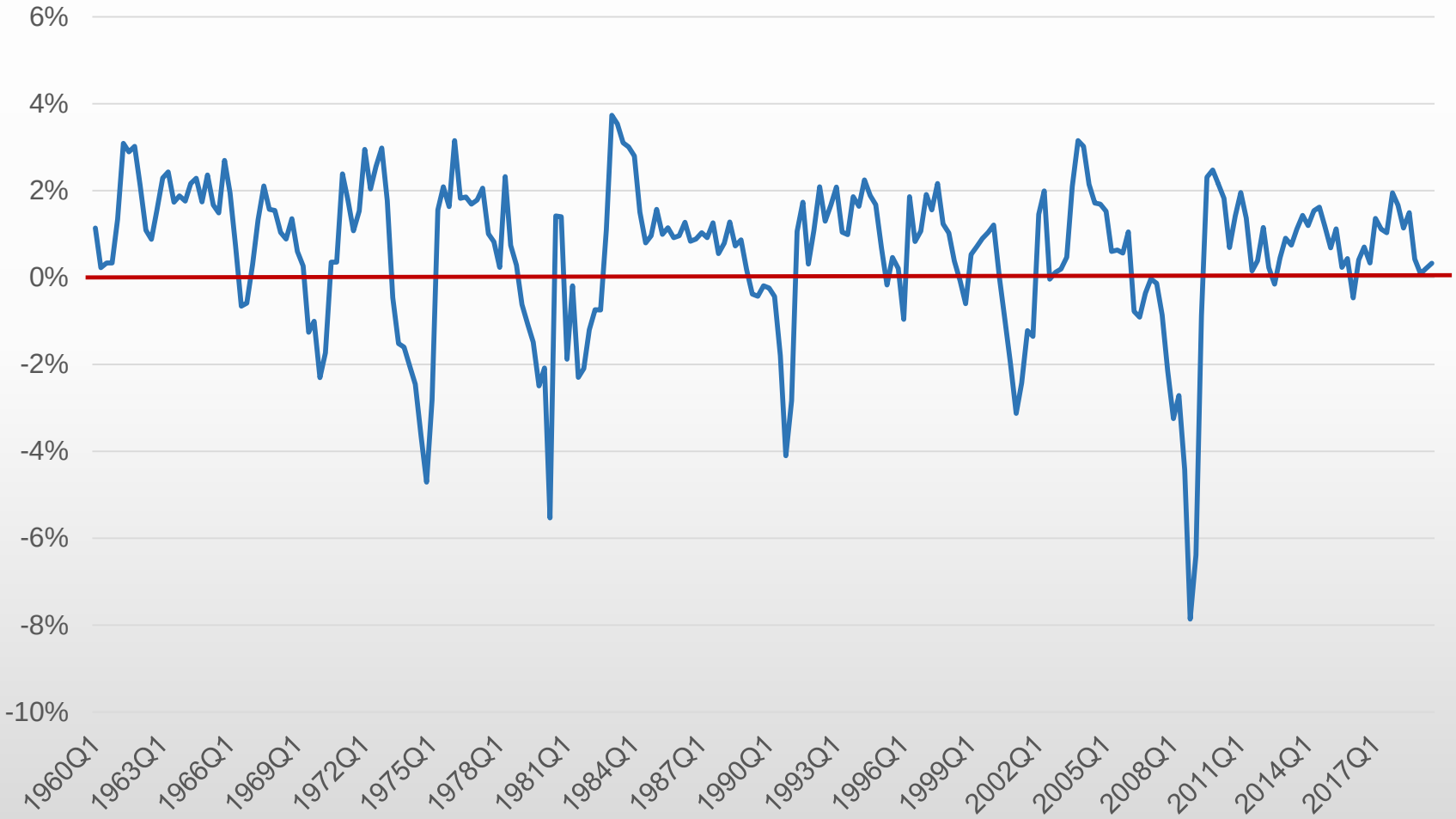
Leading Economic Indicators

Quarterly % Change, Composite Index



Source: Conference Board

Economic Fundamentals

Two Key Pillars
The Labor Market & Consumer Spending

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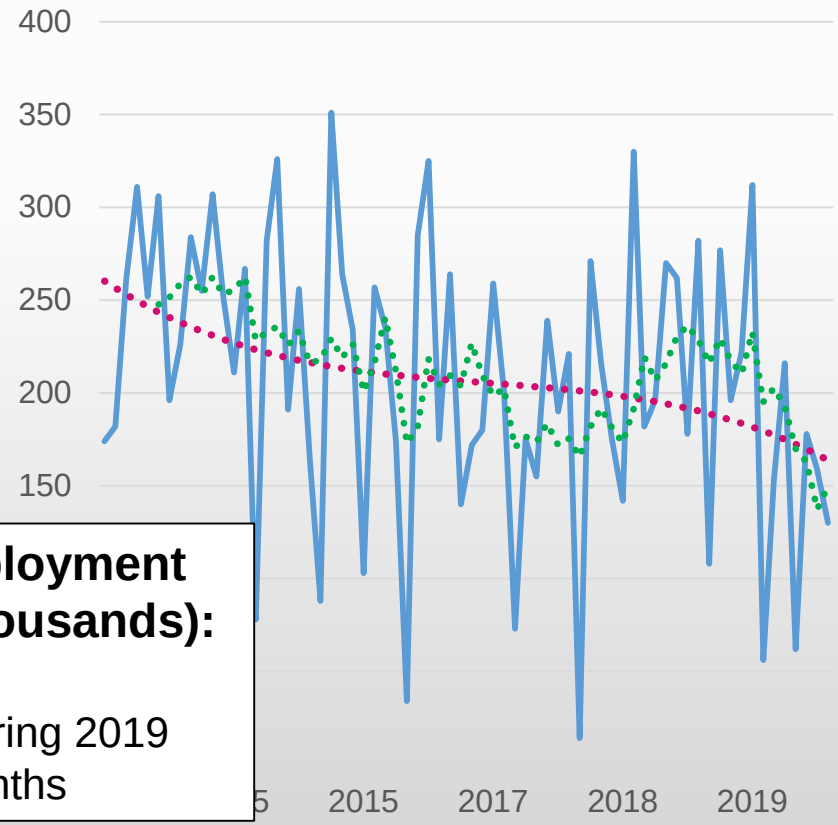
Labor Markets

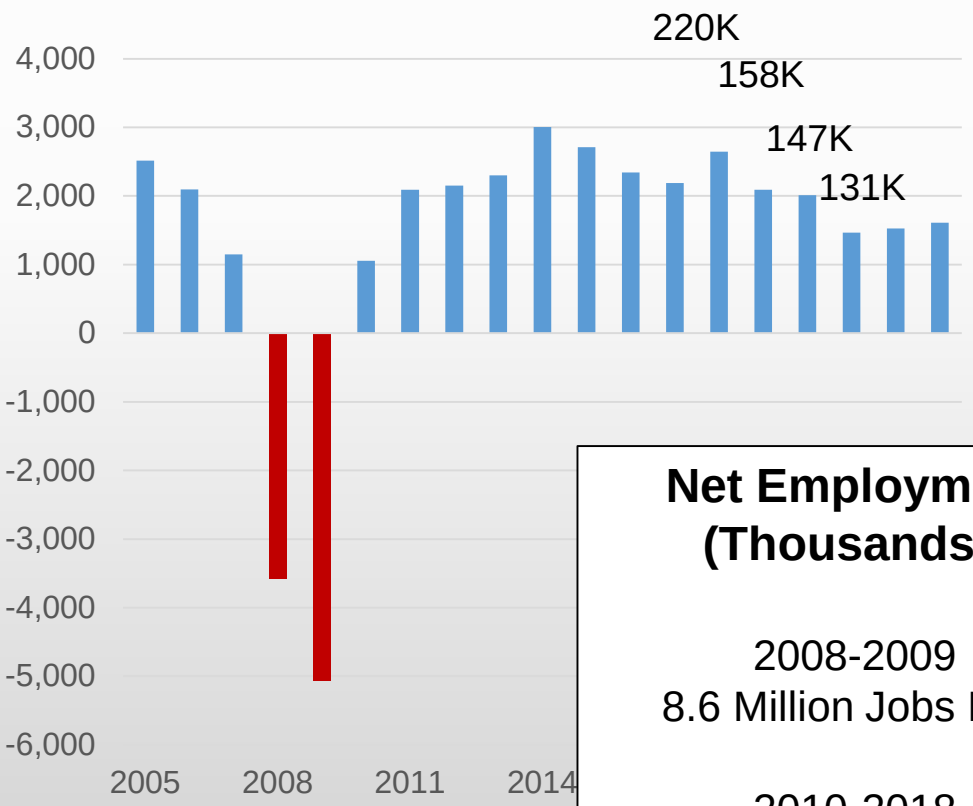
Net Job Creation
Monthly Gain



Net Employment Gains (thousands):

158K During 2019 Months

Net Job Creation
Annual



Net Employment (Thousands):

2008-2009
8.6 Million Jobs Lost

2010-2018
19.4 Million Jobs Created

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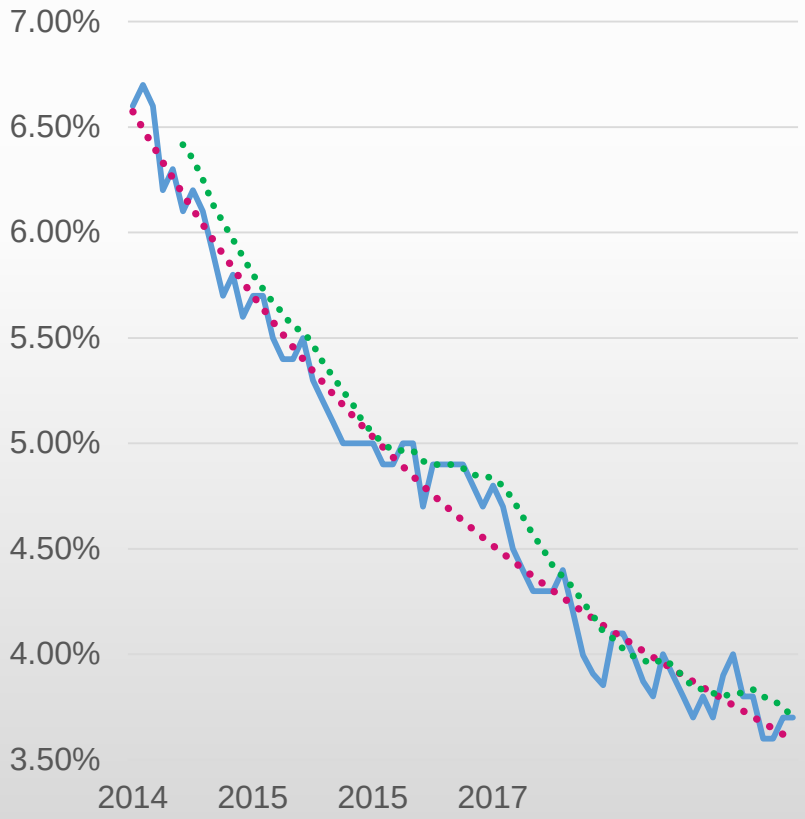
Labor Markets

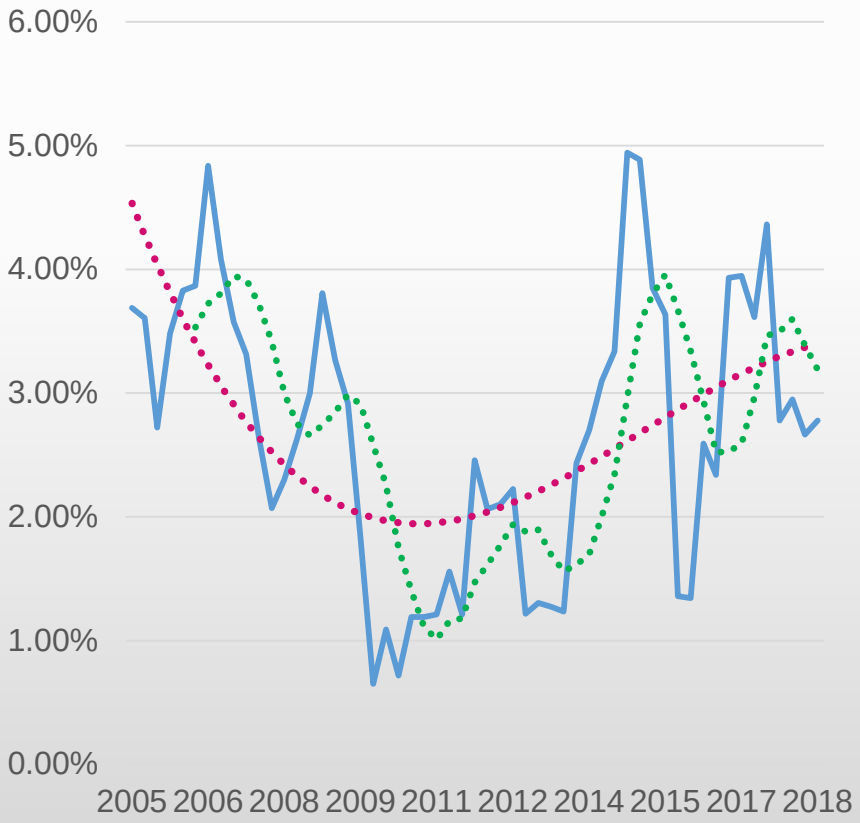
Unemployment Rate

U3 Measurement



Labor Costs

Quarterly Growth



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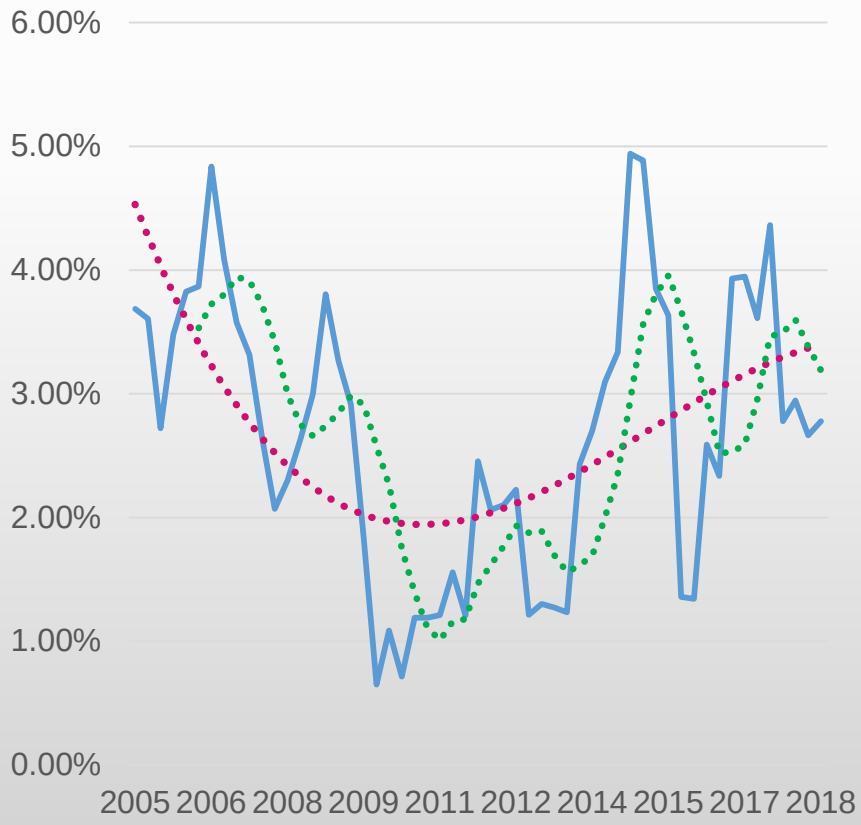
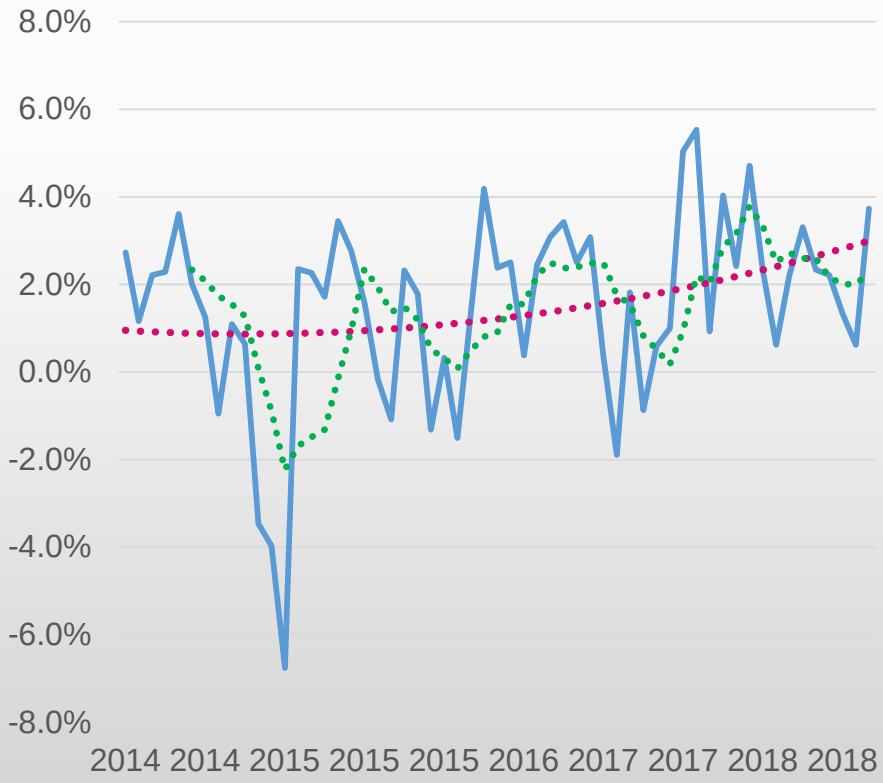
Inflation Rates

Labor Costs
Quarterly Growth



Inflation Rate
CPUI, Annual % Change



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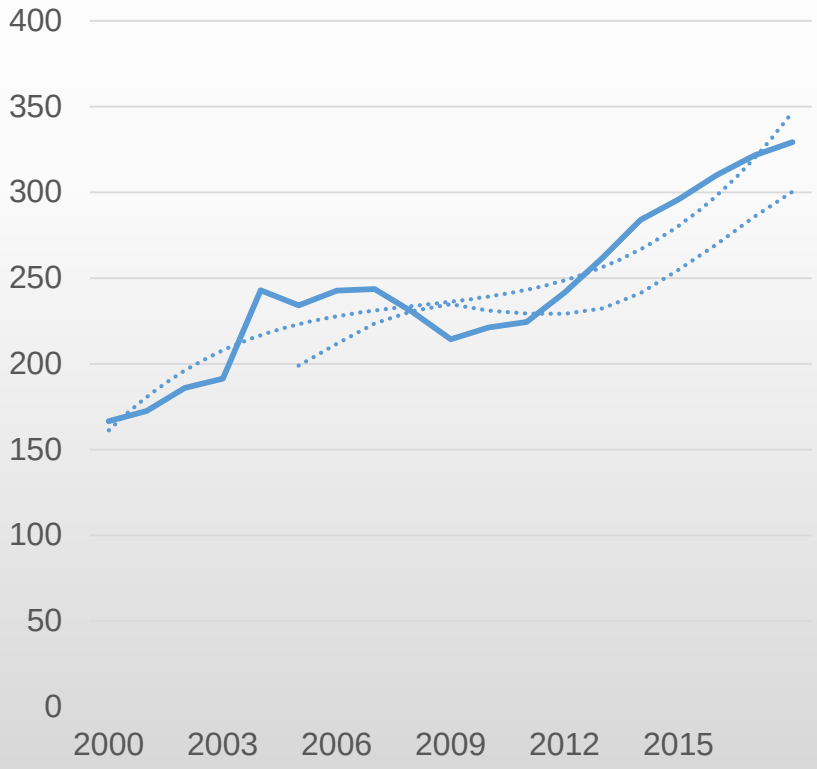
Sentiment & Wealth

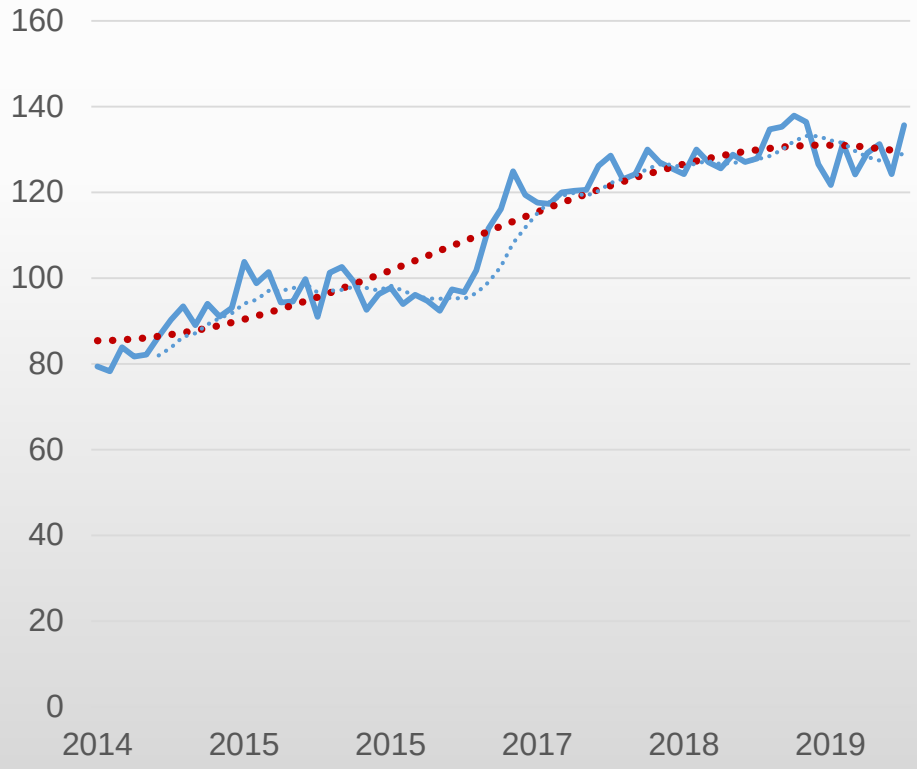
Home Prices

Thousand Current $



Consumer Confidence

1985=100



The Potential for a Near Term Recession

- ***All these strengths will take time to unravel under normal cyclical conditions***.
  - *According to Moody's there is only a 21% chance the economy slips into a recession in the next 12 months based on its economic data. Its separate financial model, which includes the yield curve, puts the risks at 47%.*

- Recessions typically occur because imbalances materialize, and there is a sectoral retreat in response to these excesses.
  - Nothing lies in the near term horizon that seems particularly threatening.

- This is an abnormal economic recovery, from an abnormal recession.
  - The pace of economic recovery has been extremely slow and perhaps has reduced the generation of excesses and imbalances.

- The possible factor that may lead to the next recession may be ***old age***.

Risks to the recovery.

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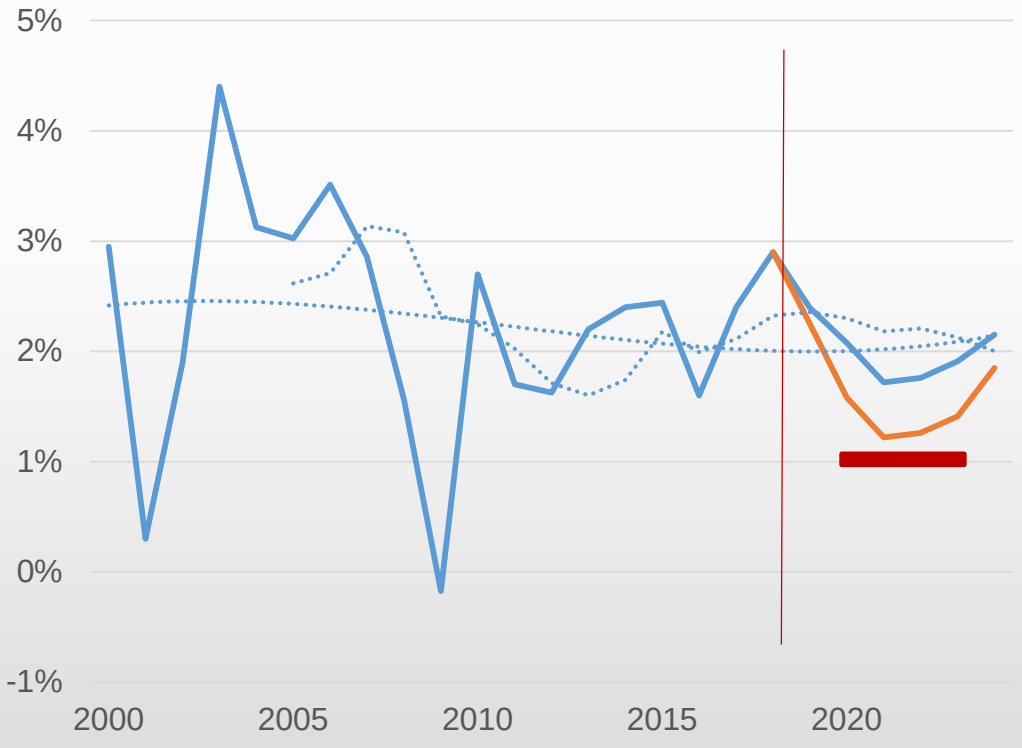
US Near Term Forecast Risks

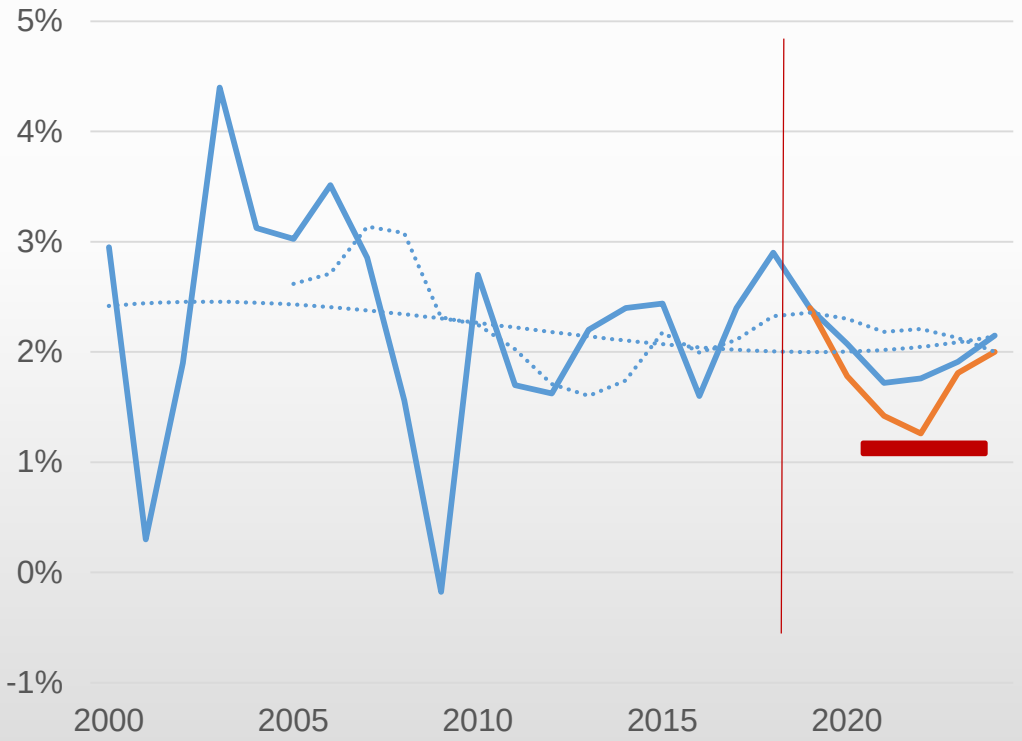
Real GDP Growth: Tariffs

Annual % Change



Real GDP Growth: Global Slowdown

Annual % Change



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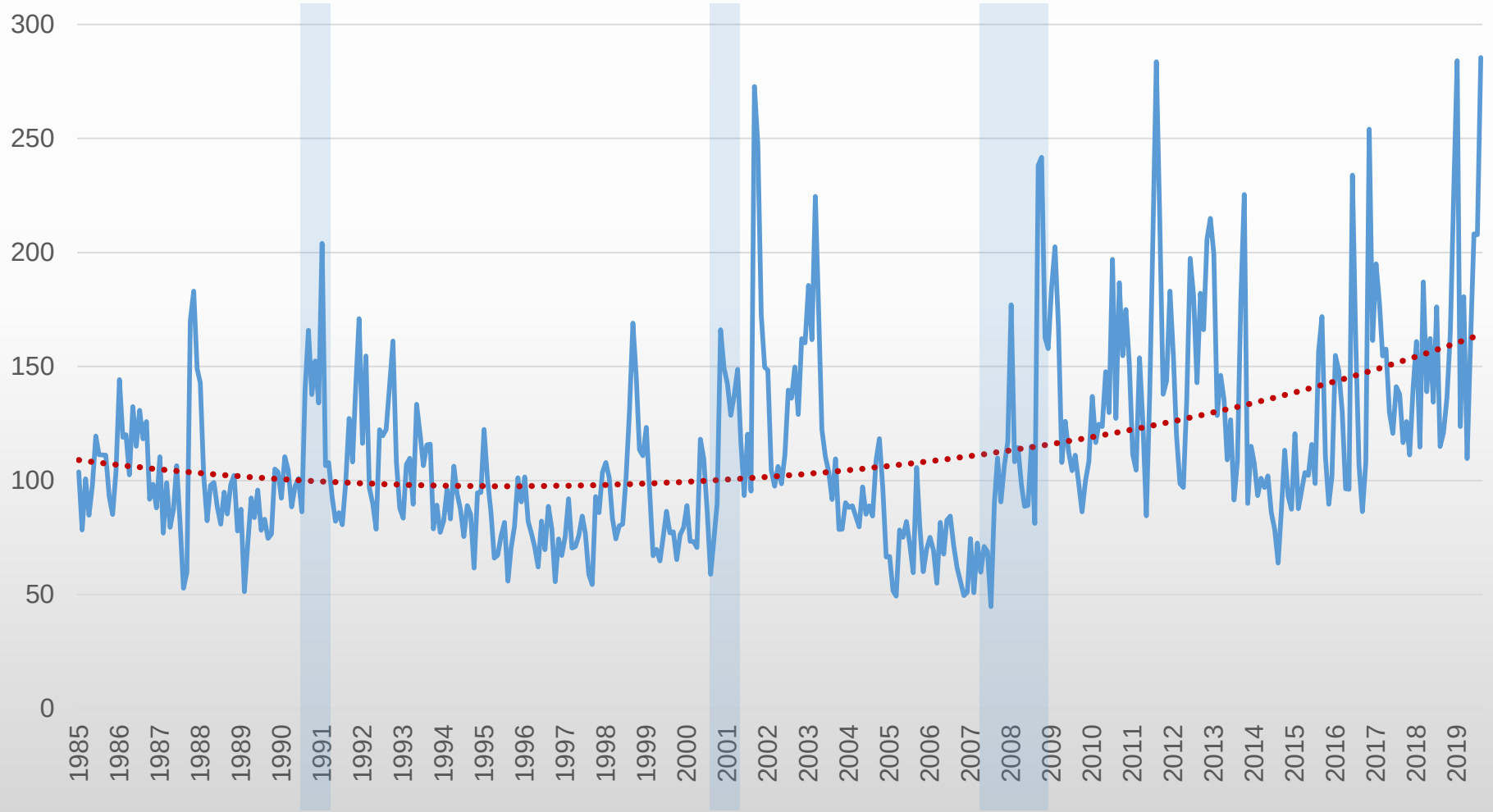
Economic Policy Uncertainty Index

Indexed to 1985=100

Survey Papers

- Chicago Tribune
- USA Today
- Miami Herald
- SF Chronical
- LA Times
- WSJ
- Boston Globe
- Dallas News
- Houston Chronical
- Washington Post



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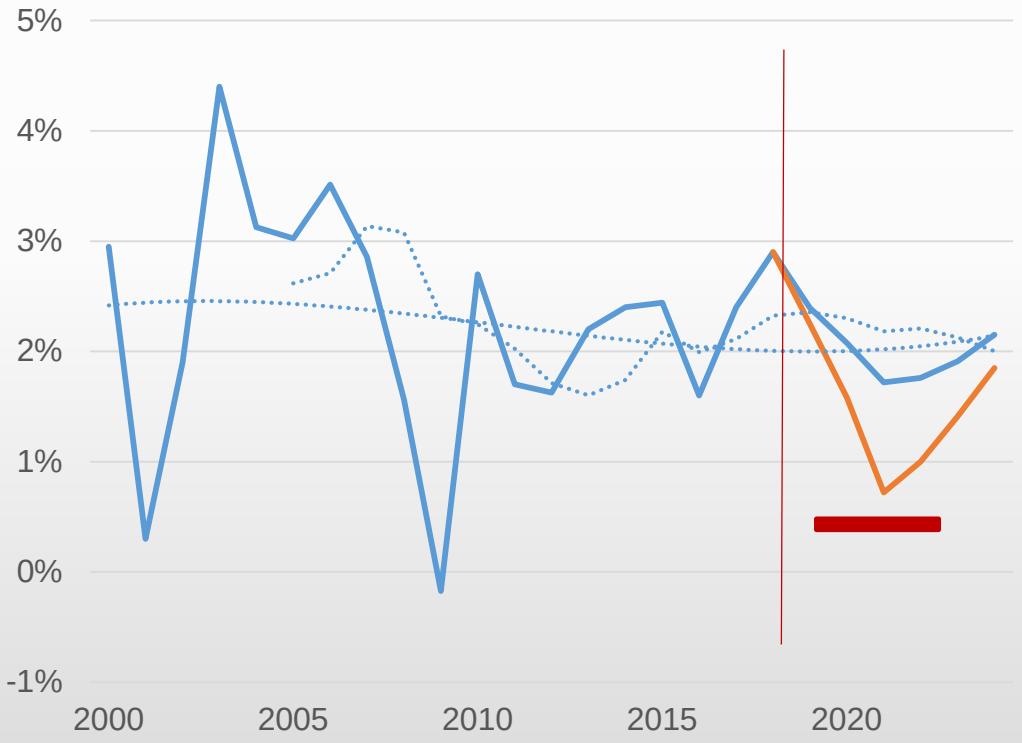
US Near Term Forecast Risks

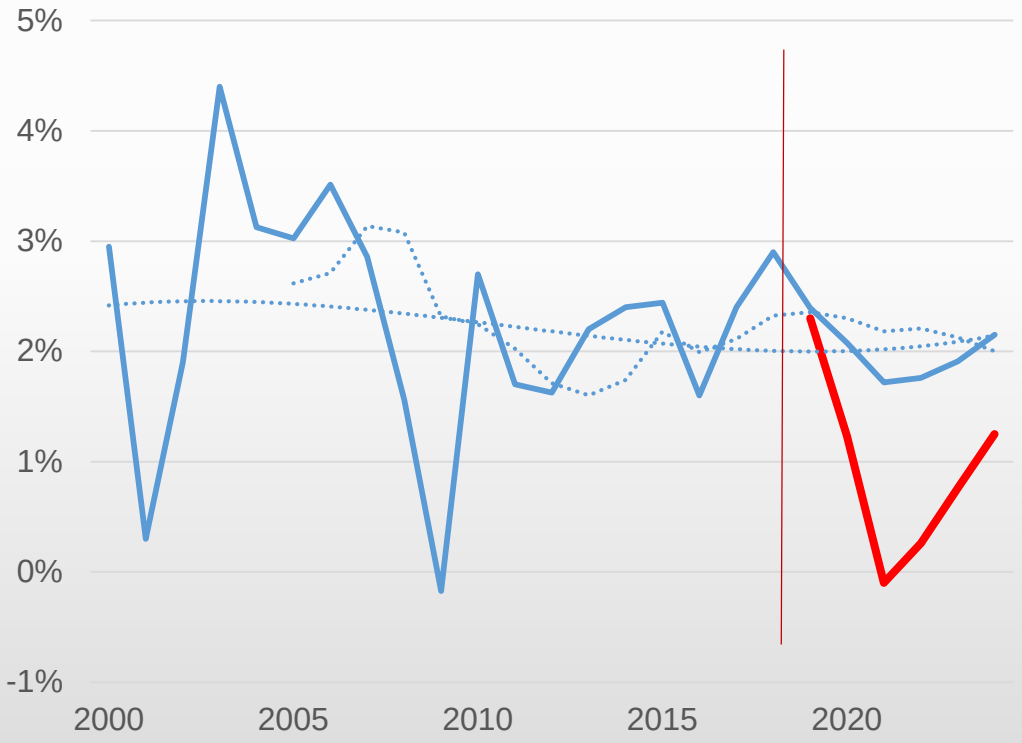
Real GDP Growth: Sentiment

Annual % Change



Real GDP Growth: All

Annual % Change



Federal Reserve Policy

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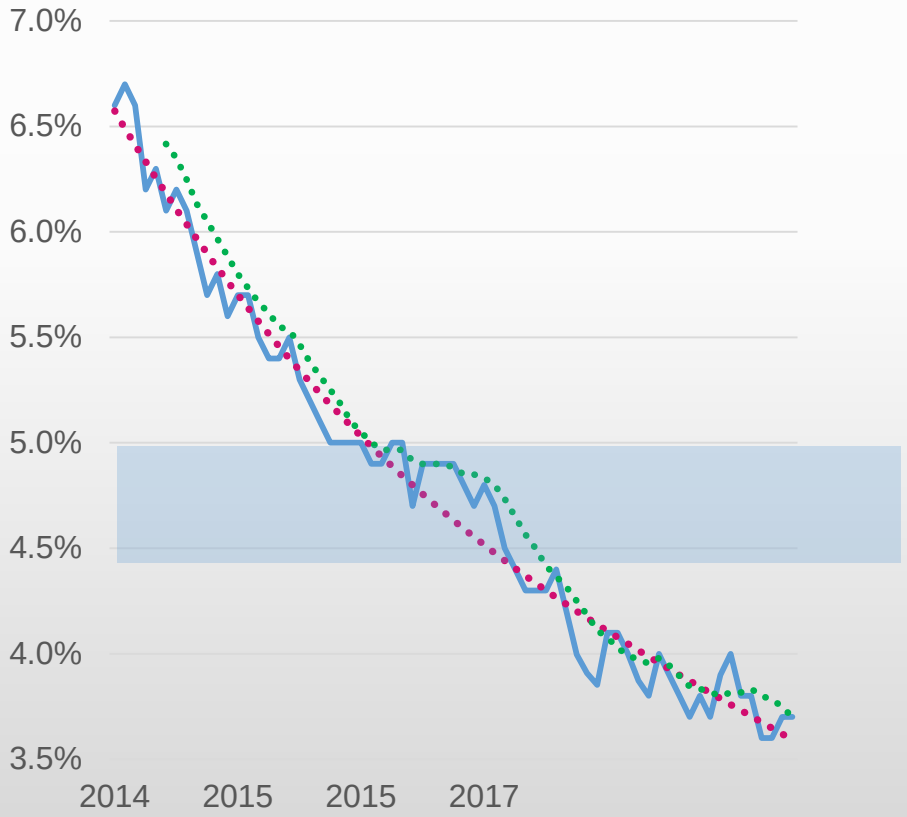
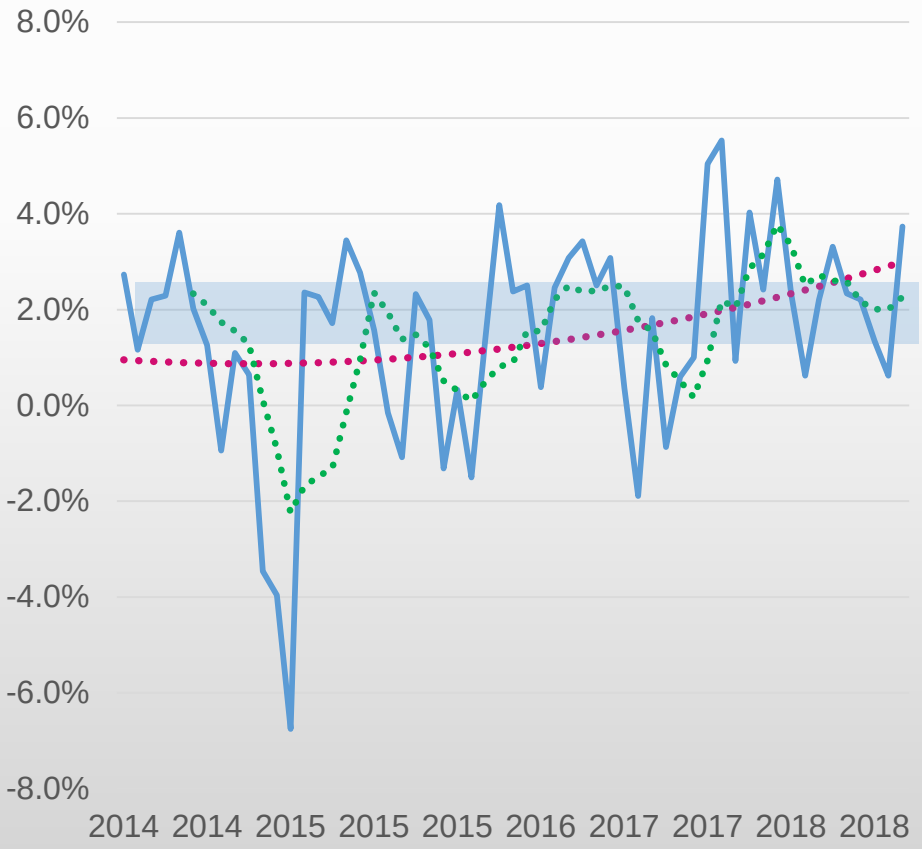
The Fed's Dual Mandate

Unemployment Rate
U3 Measurement



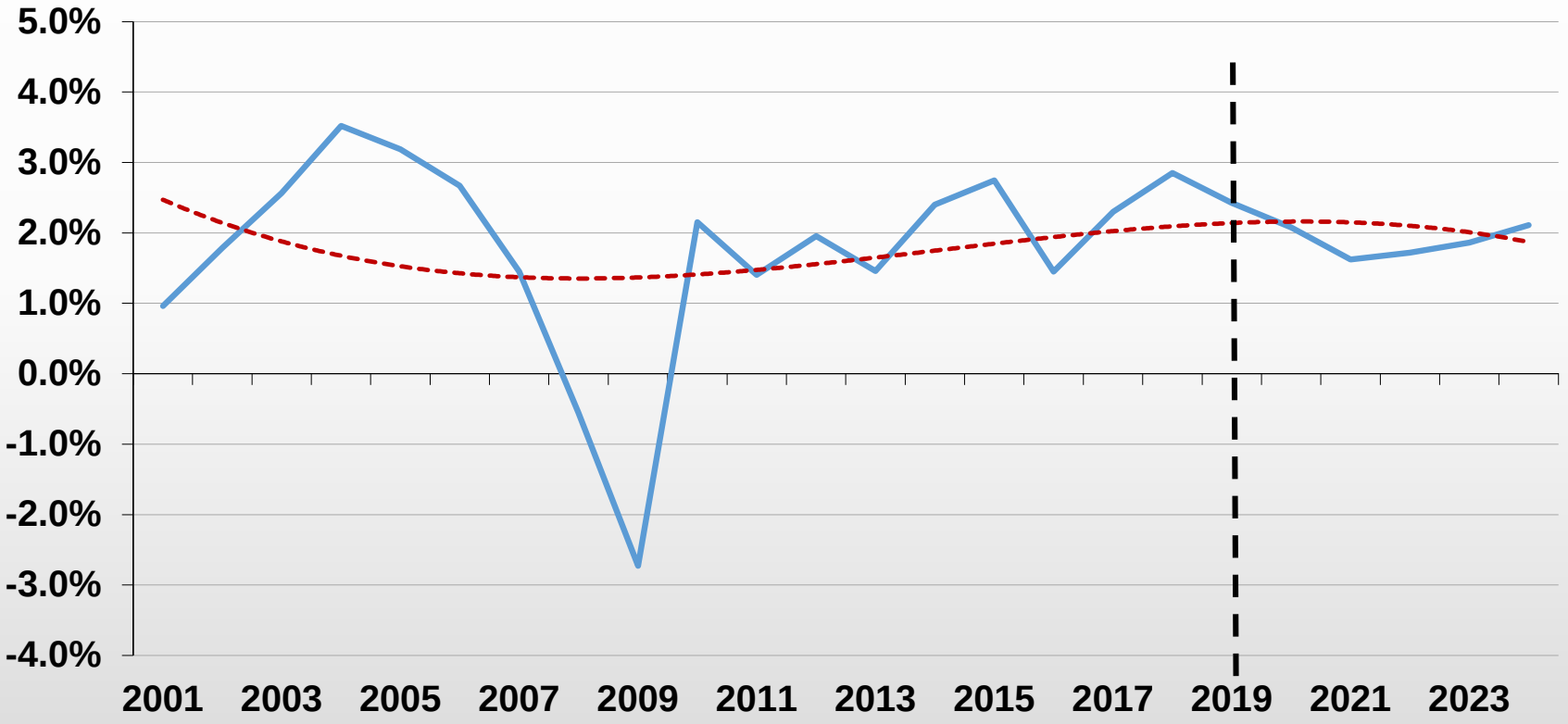
Inflation Rate
CPUI, Annual % Change



The Outlook

Economic Growth

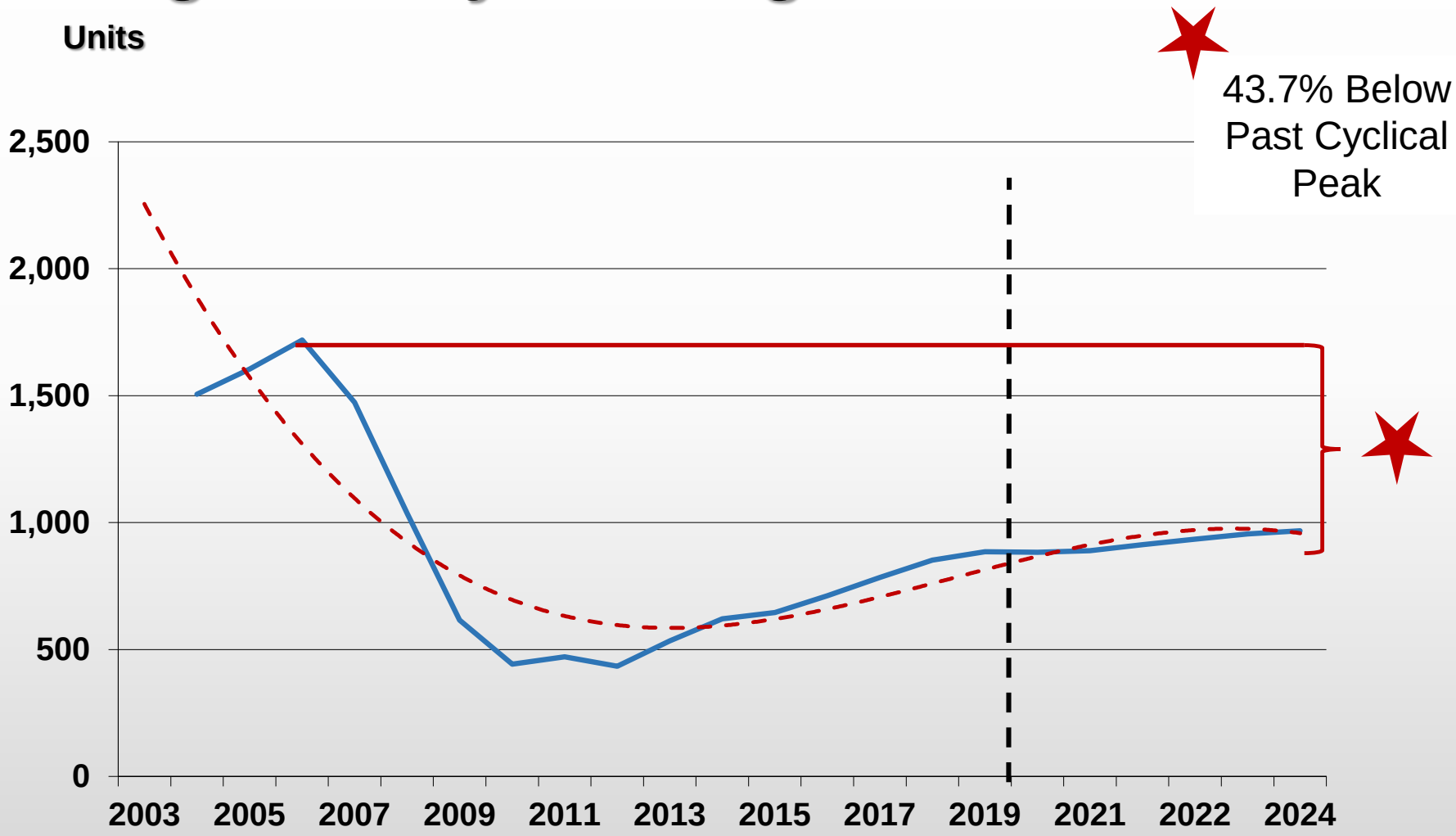
Annual Percent Change, Real Gross State Product



Source: PCA

- Aging recovery but fundamentals solid.
- Increased vulnerability to threats.
- Federal Reserve will defend, but with limited tools.
- Watch for: Monthly Job Creation Report. Monthly Auto Sales.

Single Family Housing Starts



- Even in context of low mortgage rates areas of affordability pressures exist.
- Millennials and Gen X more important as a share of home buying population.
- Student debt

Source: PCA

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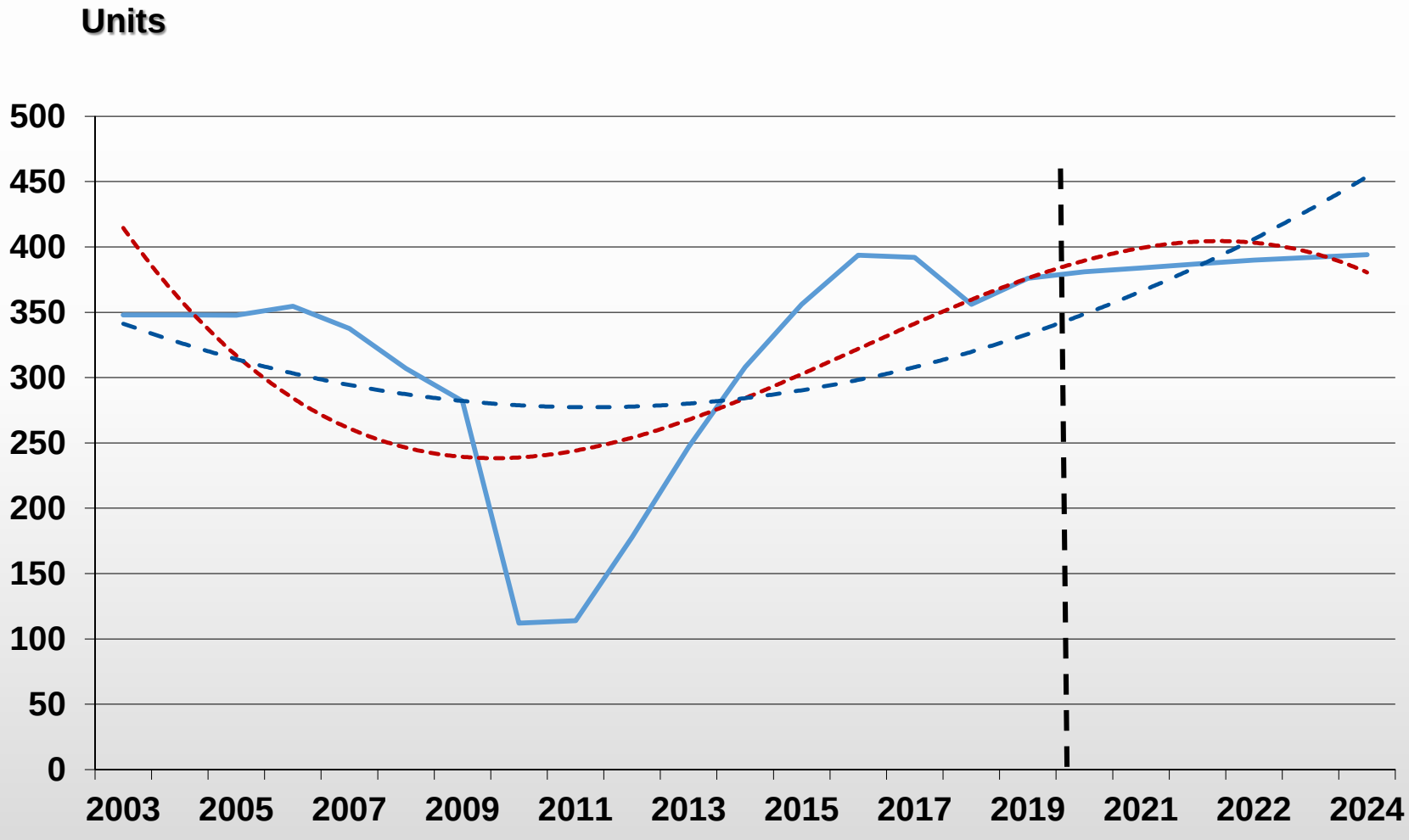
Multifamily Housing Starts



- Home affordability issues add to rental and condo.
- Household formation remains strong.
- Aging baby boomers move to condos.
- Vacancy rates low, despite marginally worsening mortgage-to-rent ratios.

Source: PCA

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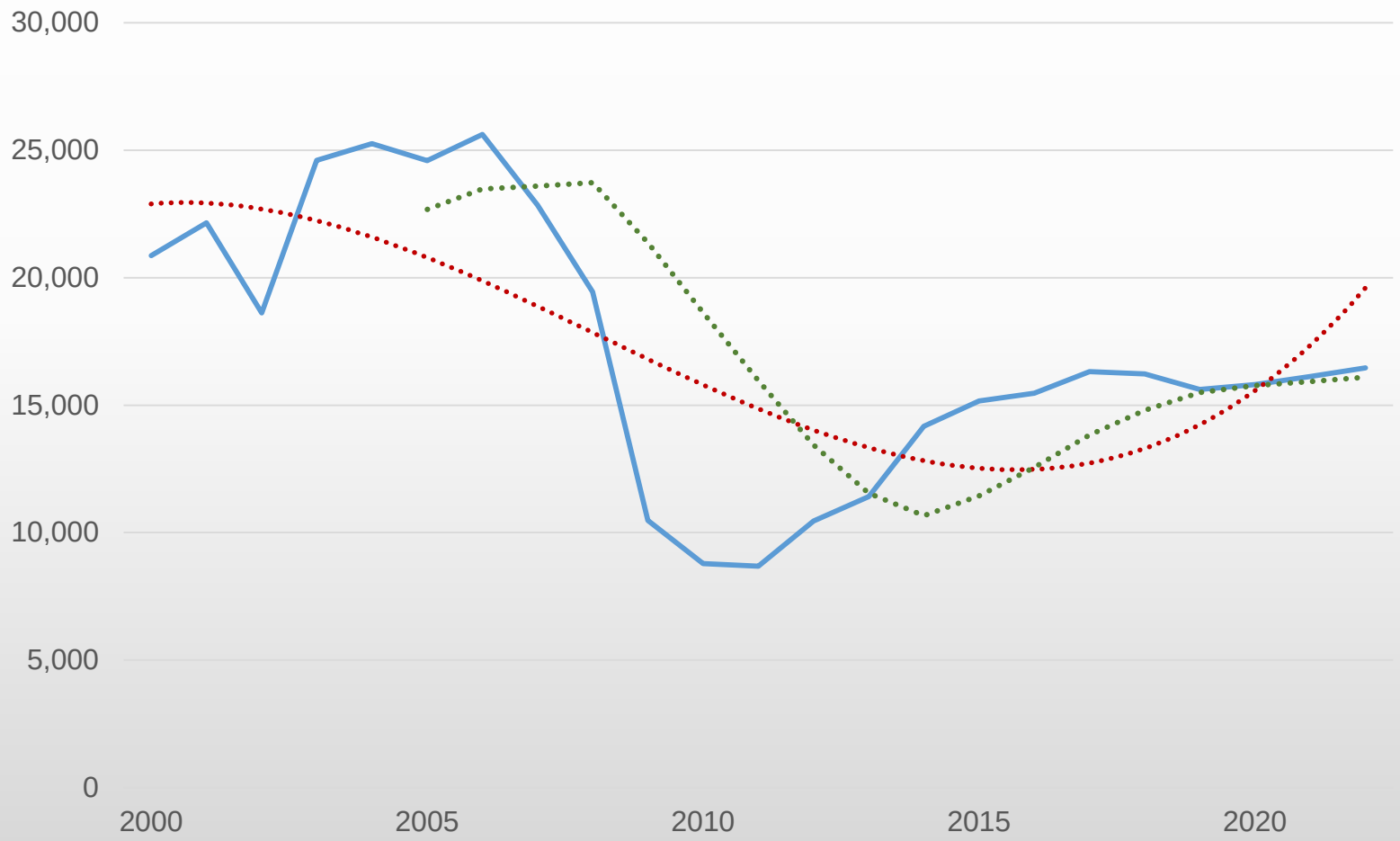
Nonresidential Cement Consumption

Thousand Metric Tons



- Job market strength supports cyclical portions of segment.
- Retail vulnerability partially offset by warehousing.
- Late stage recovery in some markets.
- Ag recession continues.
- Oil shows modest growth.

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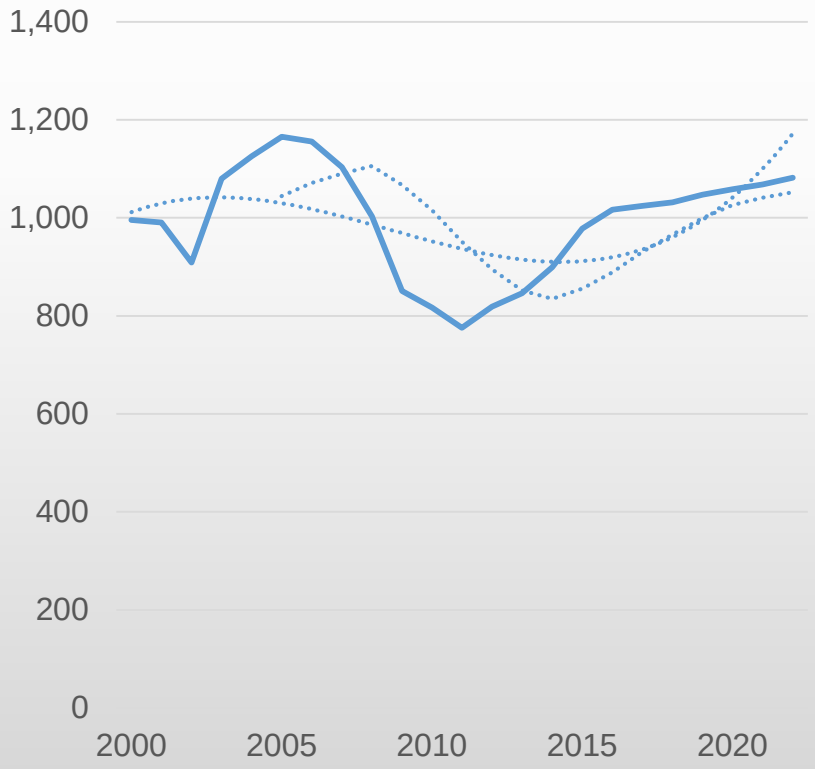
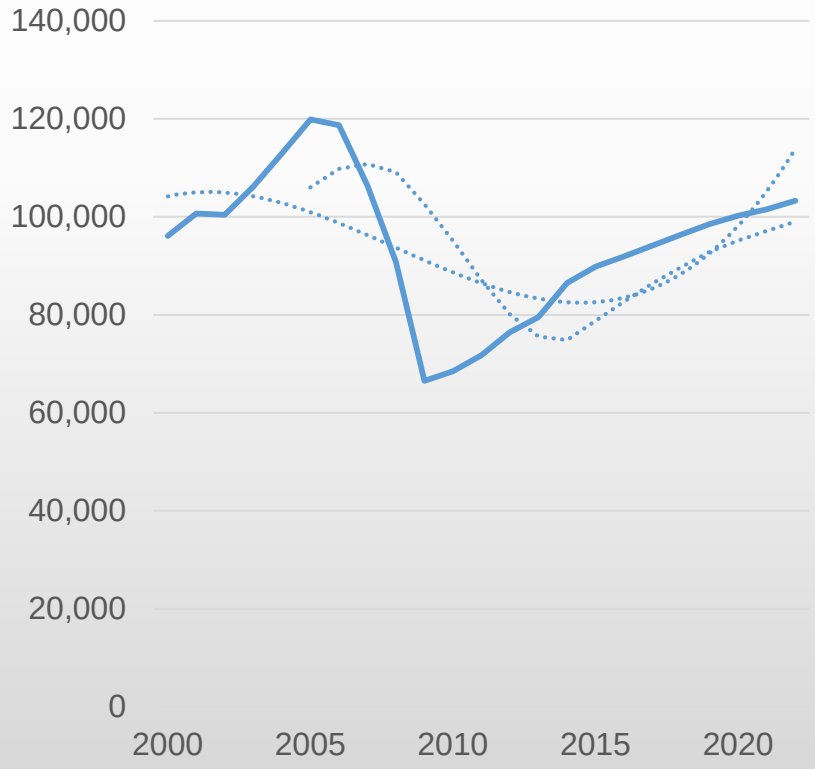
US Near Term Forecast

Construction
Million Real $



Cement Consumption
Thousand Metric Tons



Outlook	
2018	2.3%
2019	2.4%
2020	1.7%
2021	1.4%
2022	1.8%
2023	2.5%
2024	2.3%

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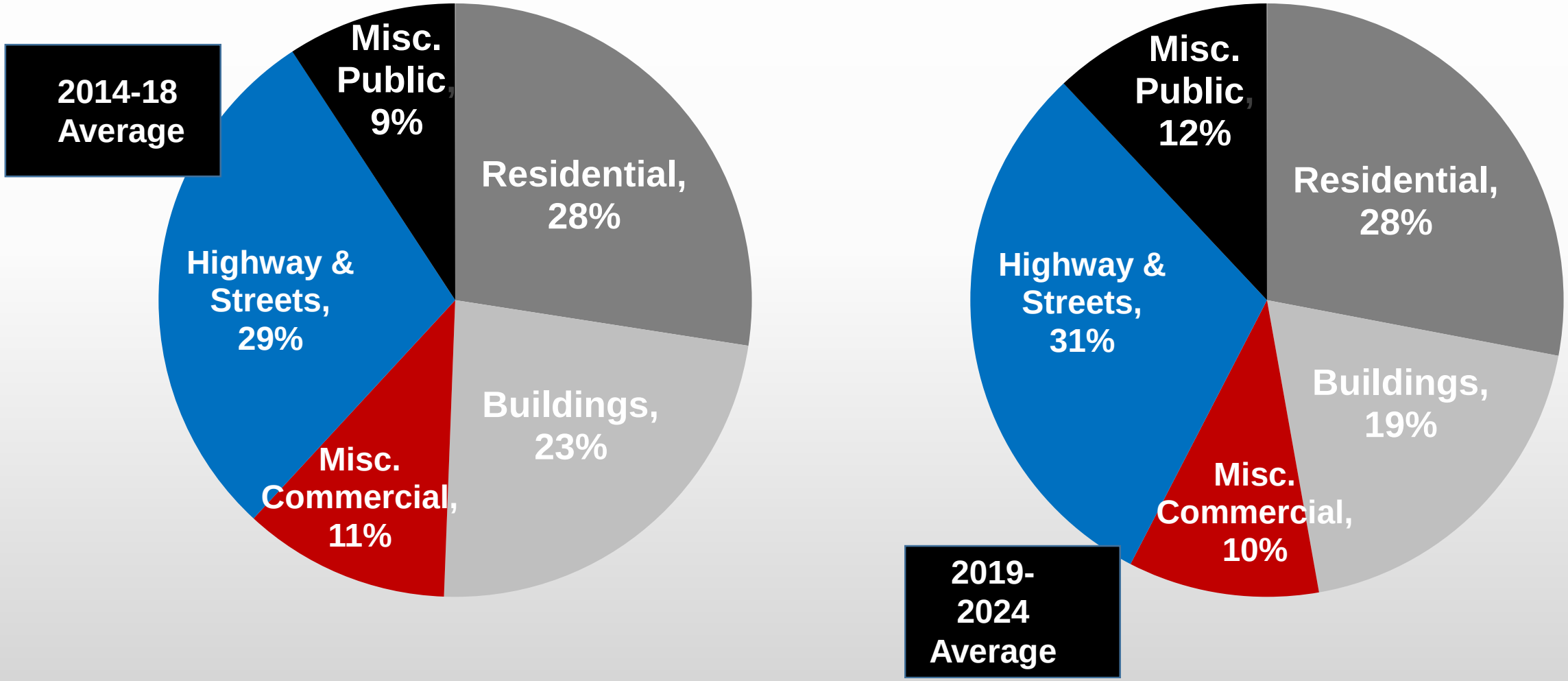
Cement/Concrete Market Segments



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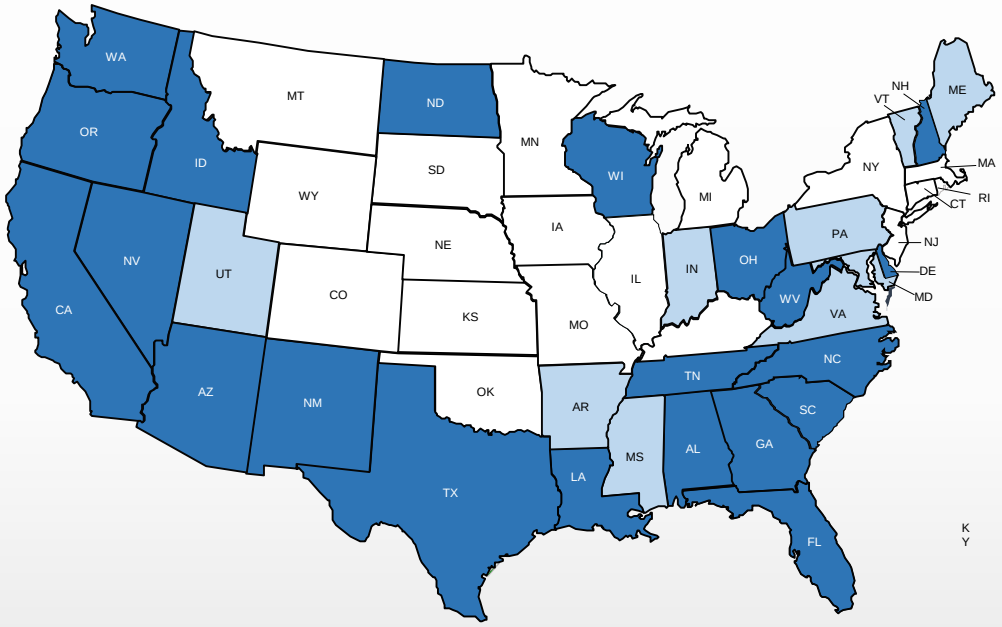
Regional Markets

National growth rates mask the variances in regional performances.



Average Annual Growth Rates

Exceed National | **National Average** | **Subnational**

- **Northeast & Great Lakes Regions** – are generally older communities and hubs of manufacturing. Characterized by a deterioration in population and economic bases reflected in slower cement consumption growth rates.

- **The Middle Regions** – are dominated by agriculture and energy industries. Ag industries tend to be less volatile and slow growing. Energy regions tend to be highly volatile and growth is influenced by oil prices.

- **Western & Southeastern Regions** – attract high tech and retirees. Dynamic job markets and population growth characterize these regions and reflected in strong cement consumption.

Longer Term Considerations

- Demographics
- Debt
- Sourcing

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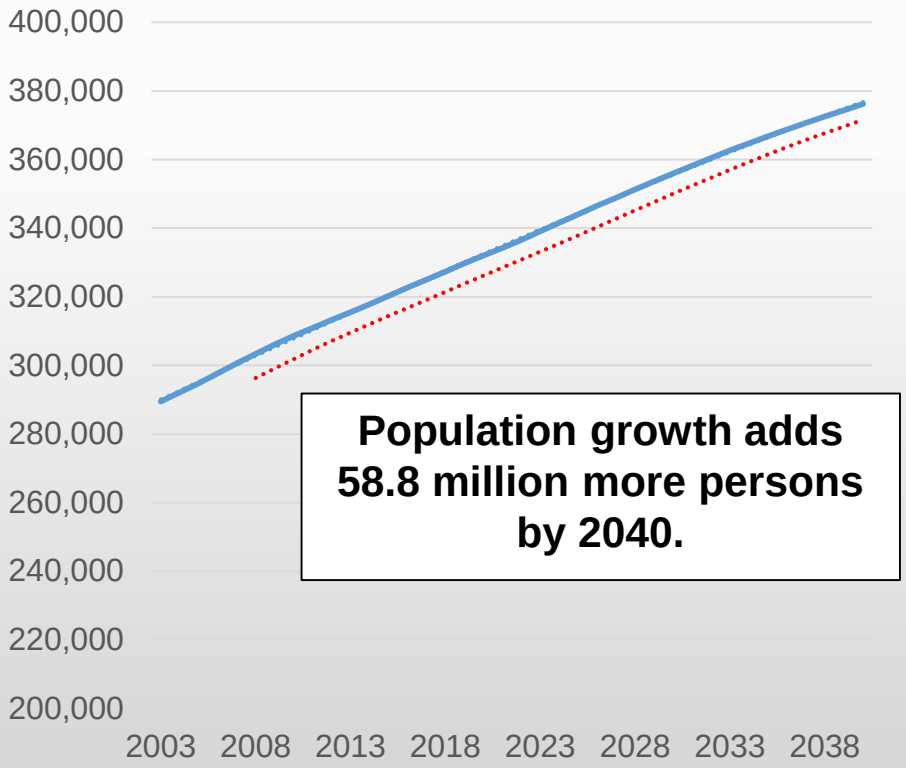
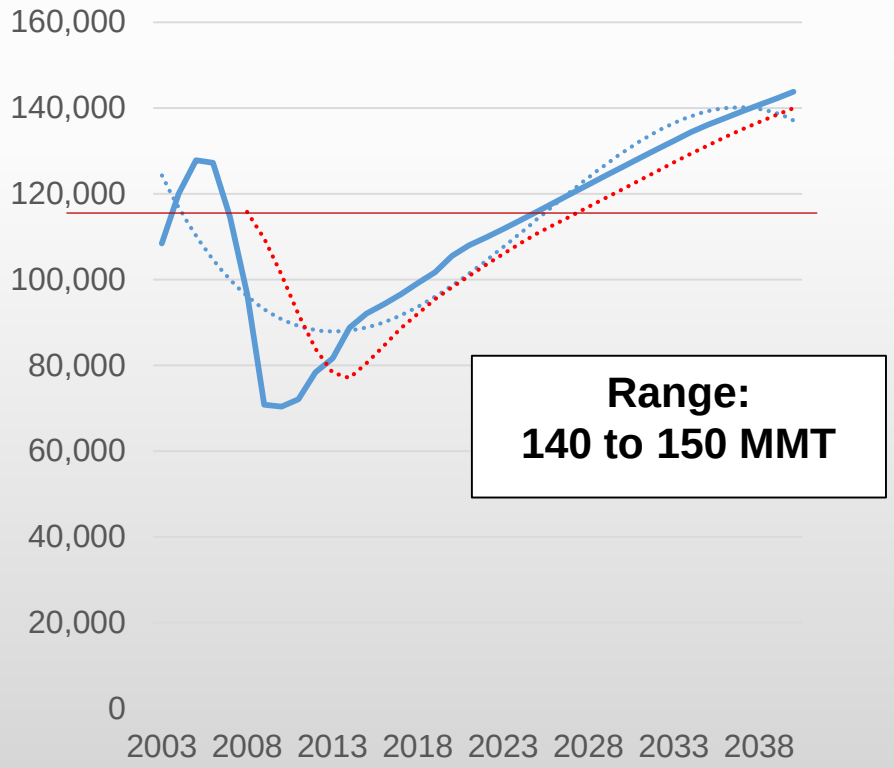
US Long Term Forecast

Population Growth
Thousand Persons



Cement Consumption
Million Metric Tons



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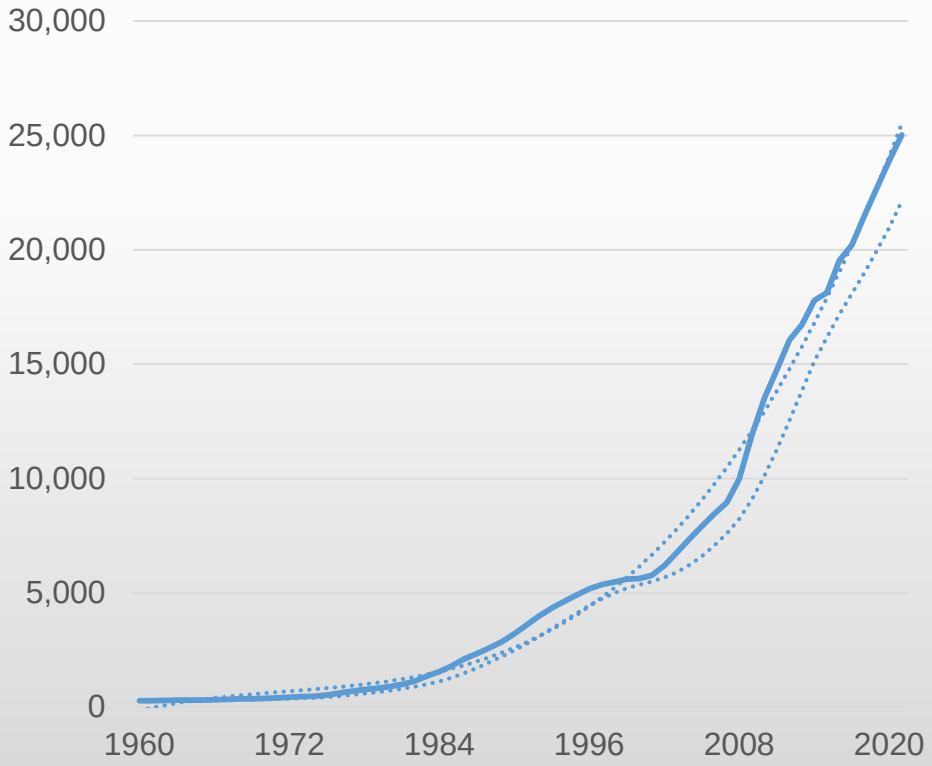
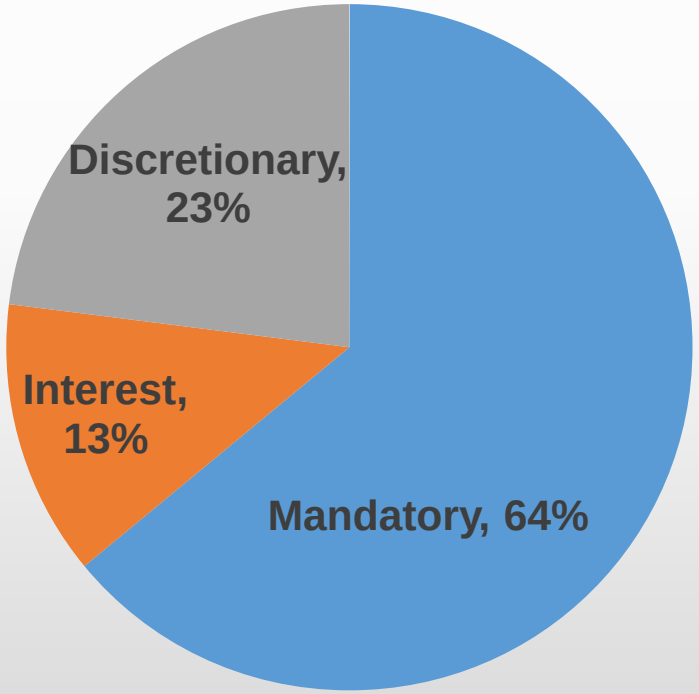
Federal Debt

Federal Debt
Trillion $



Composition of Spending
Share of Total



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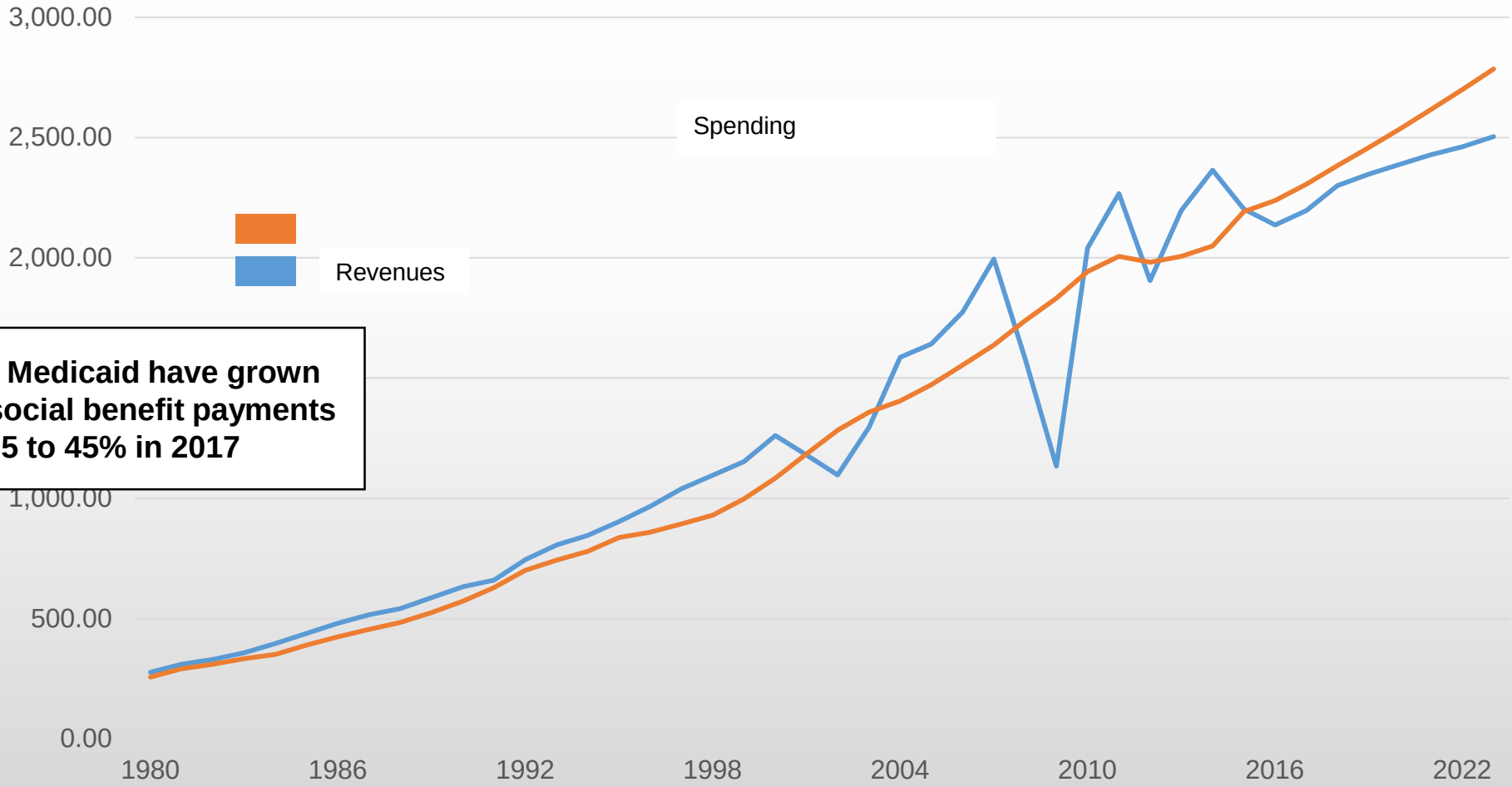
State Revenue & Spending

Billion $



Medicare & Medicaid have grown from 8% of social benefit payments in 1965 to 45% in 2017

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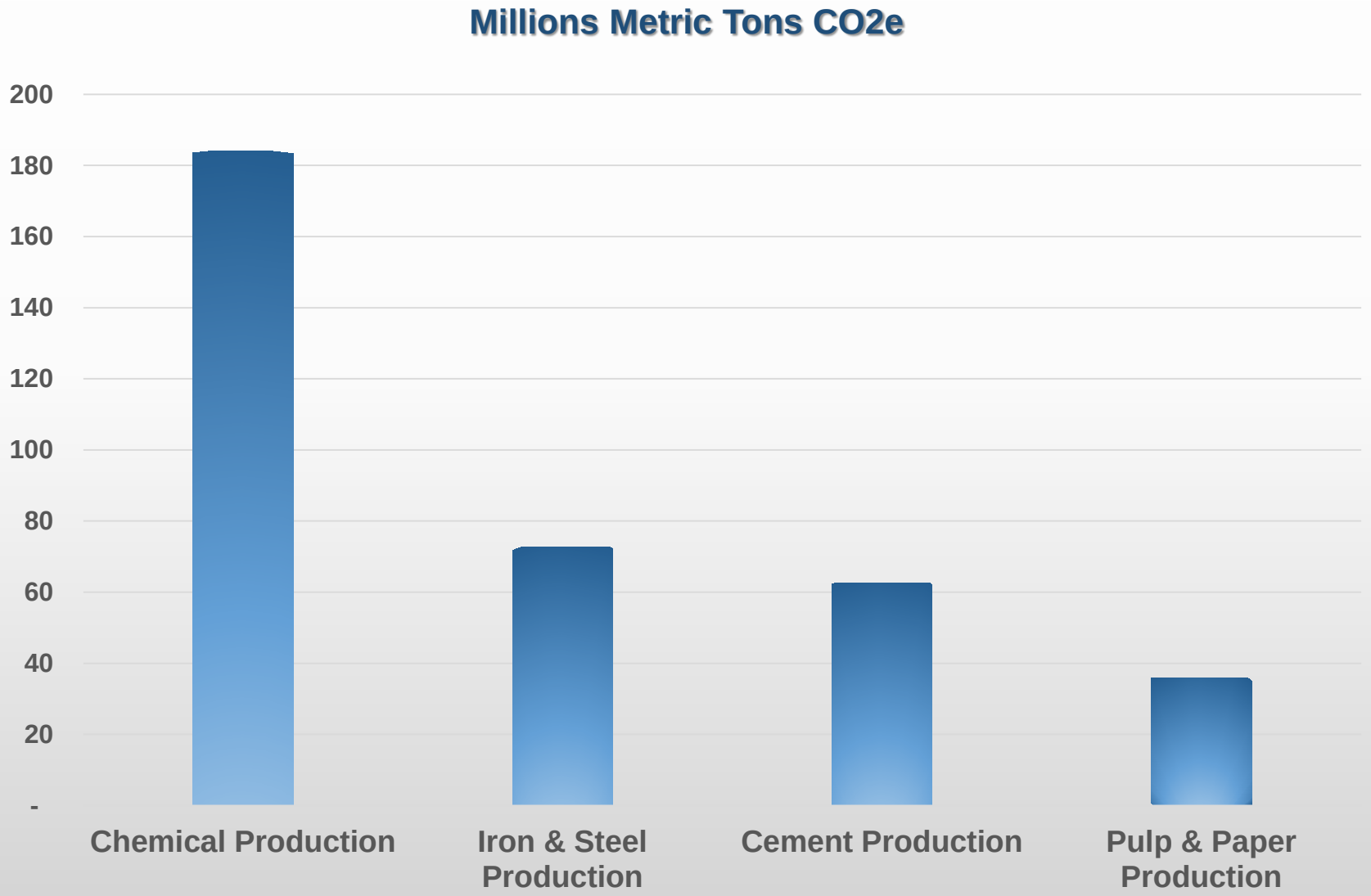
Industrial Greenhouse Gas Emissions



Source: EPA

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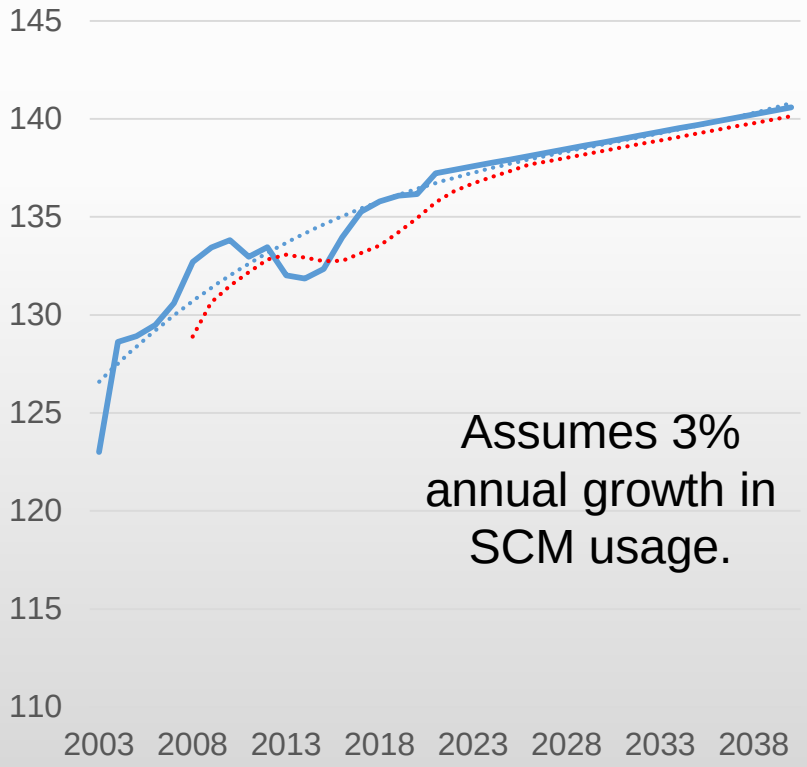
Net Supply

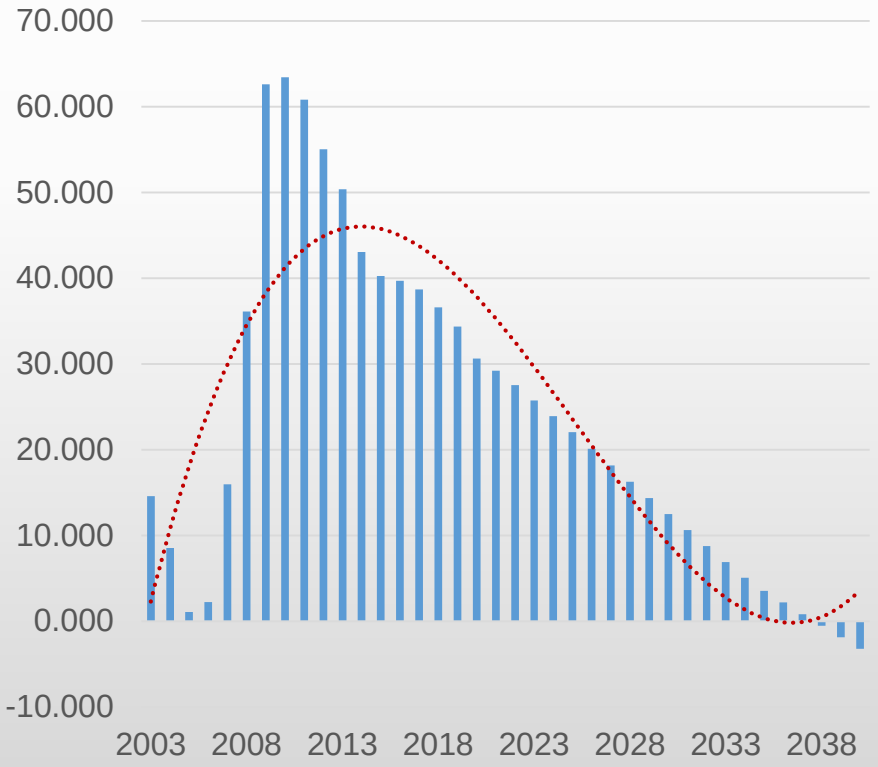
Cement Supply

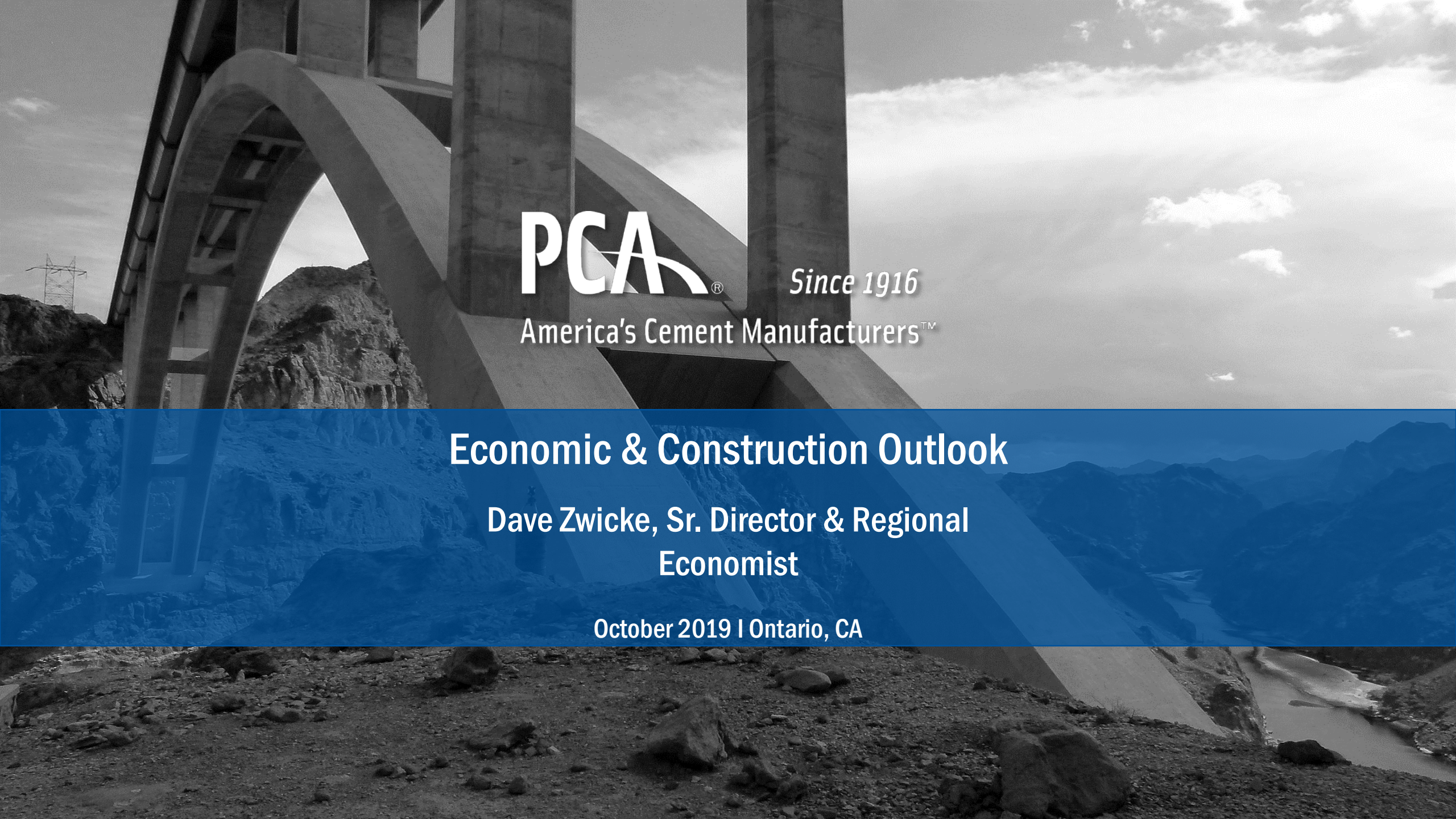
Million Metric Tons.



Net Supply Capabilities

Million Metric Tons





Economic & Construction Outlook

Dave Zwicke, Sr. Director & Regional Economist

October 2019 I Ontario, CA

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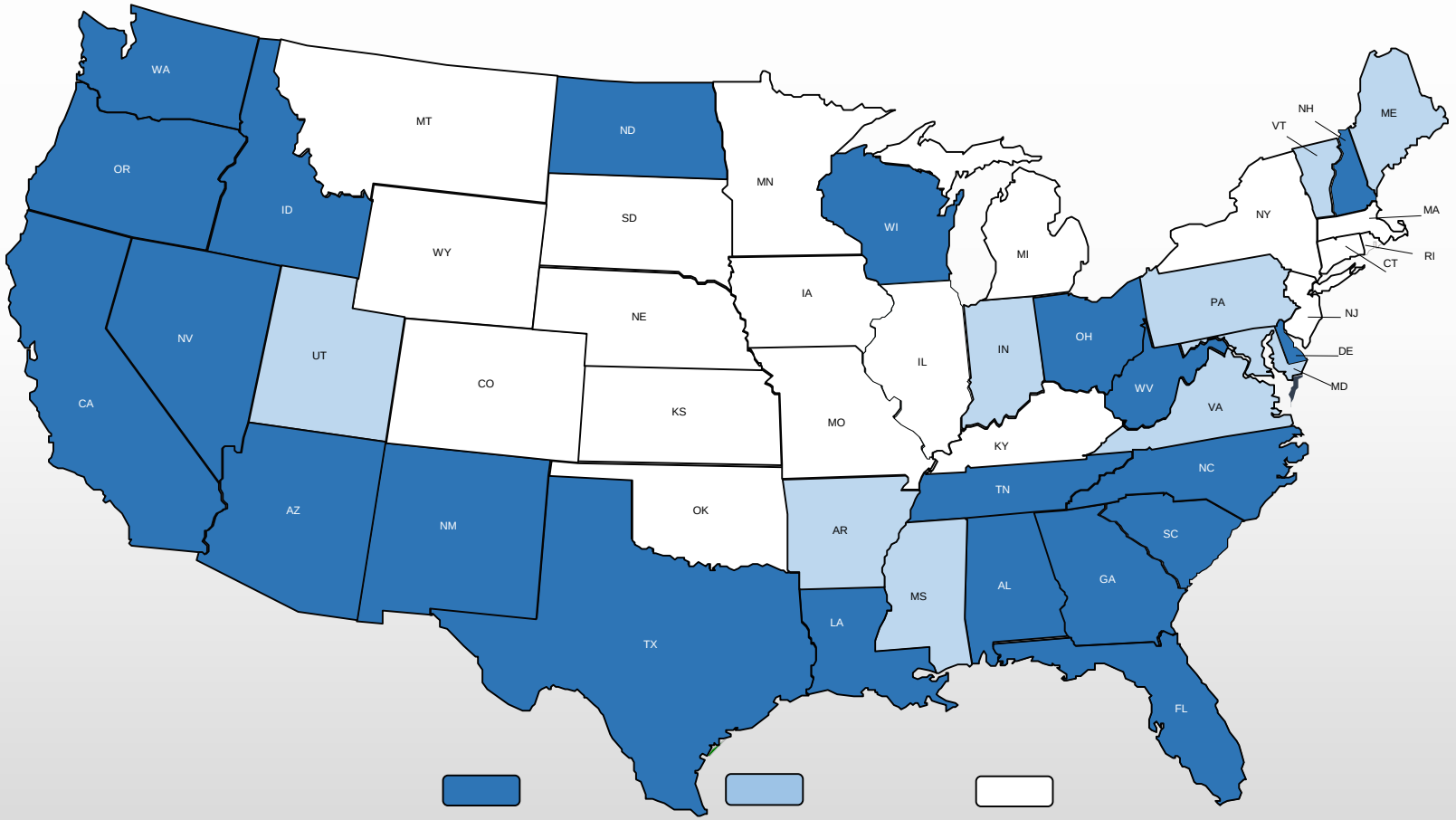
Regional Cement Trends: Through 2020

Based on year-over-year % Growth



Source: PCA 2019 Summer State Forecast

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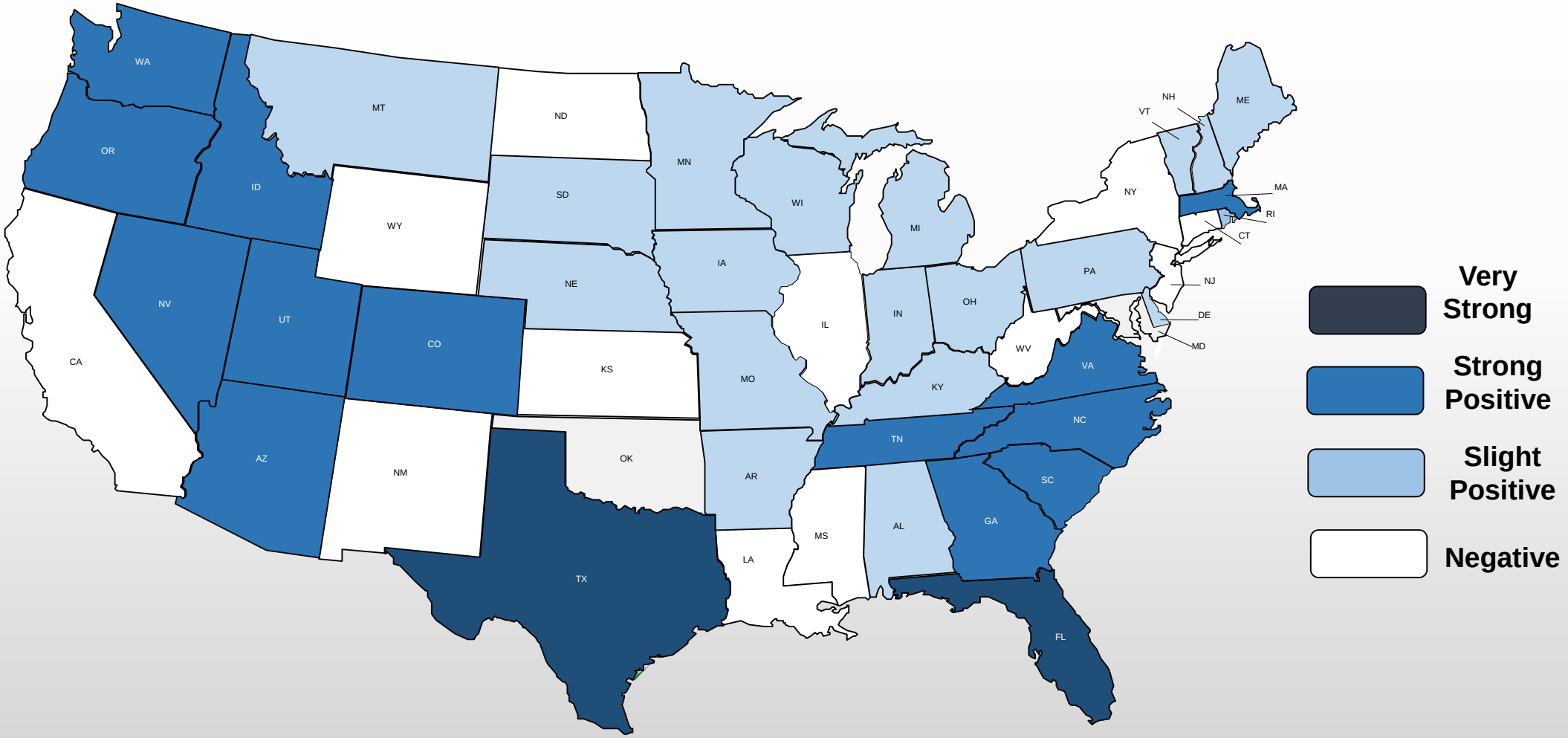
U.S. Total Net Migration

2016 through 2018



Source: U.S. Census Bureau

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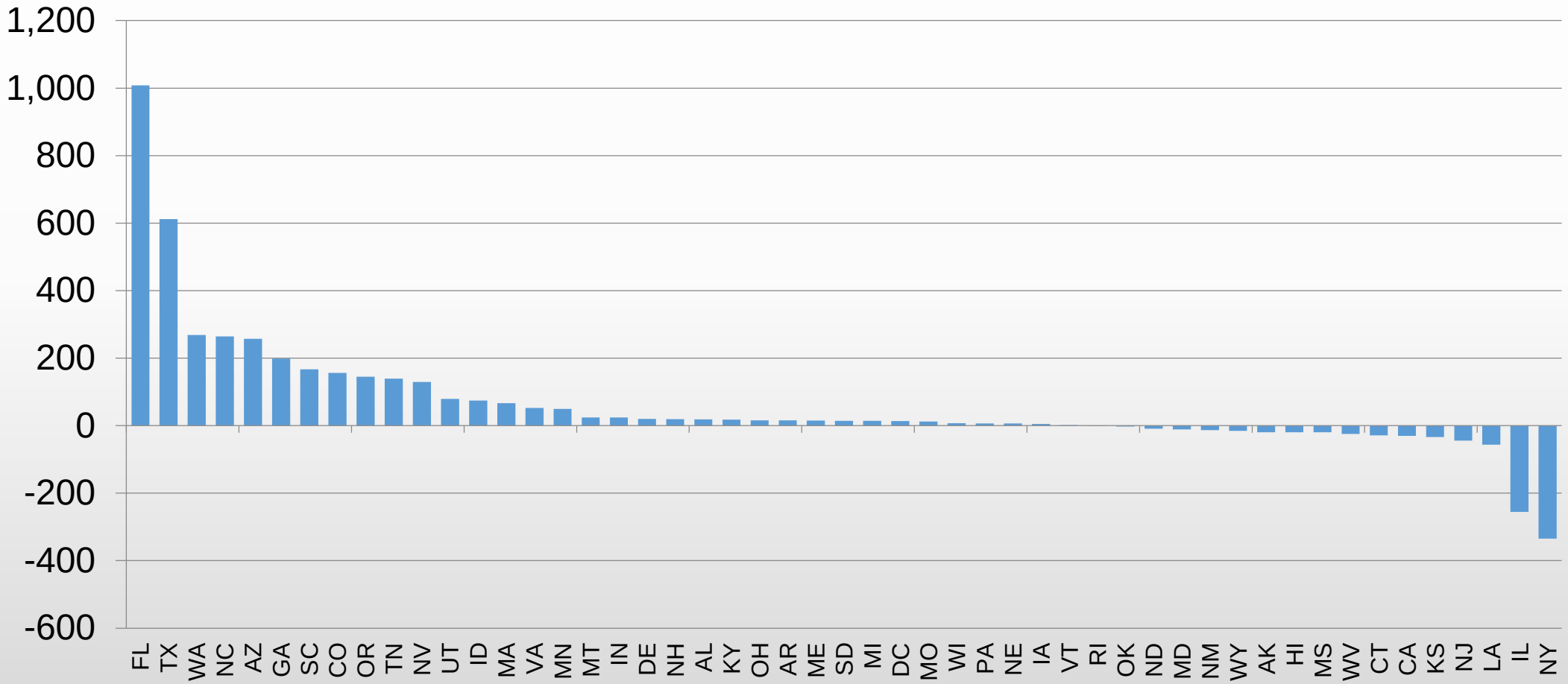
Total Net Migration

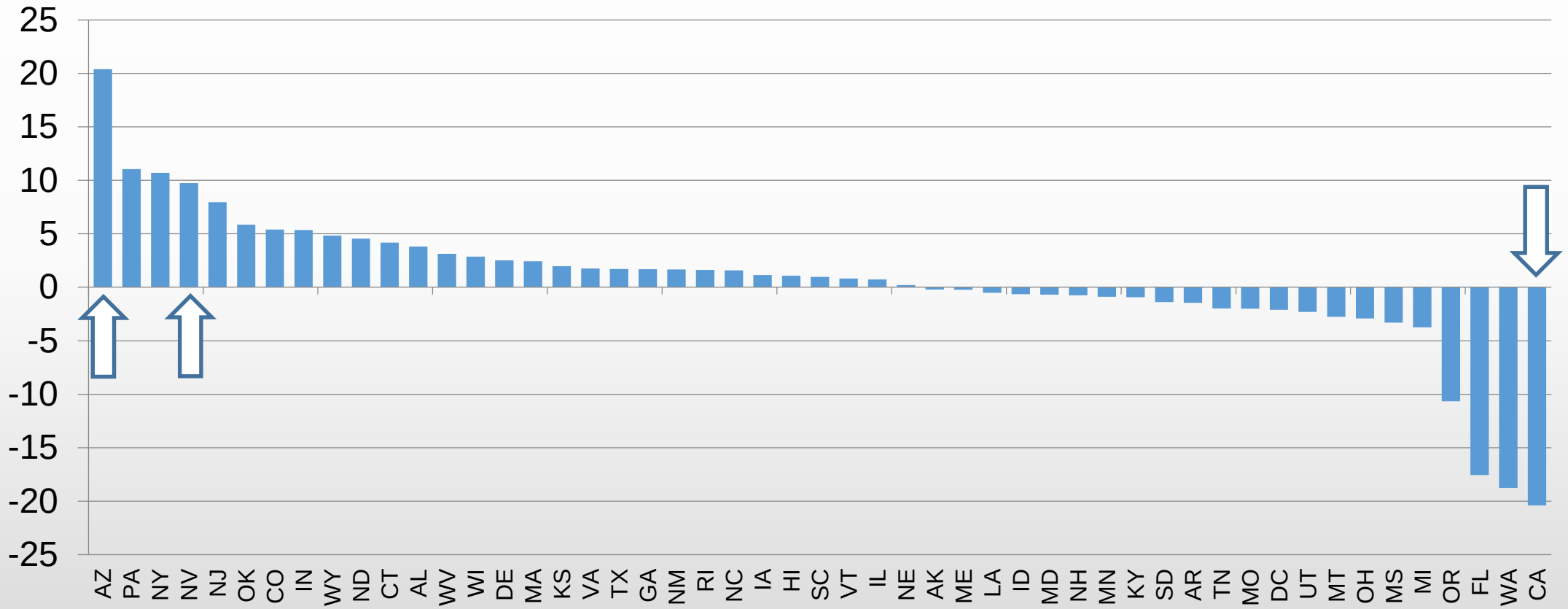
2016-2018 (000s)



Source: U.S. Census Bureau

Change in Net Migration

Change Between 2018/2017 (000s)



Source: U.S. Census Bureau

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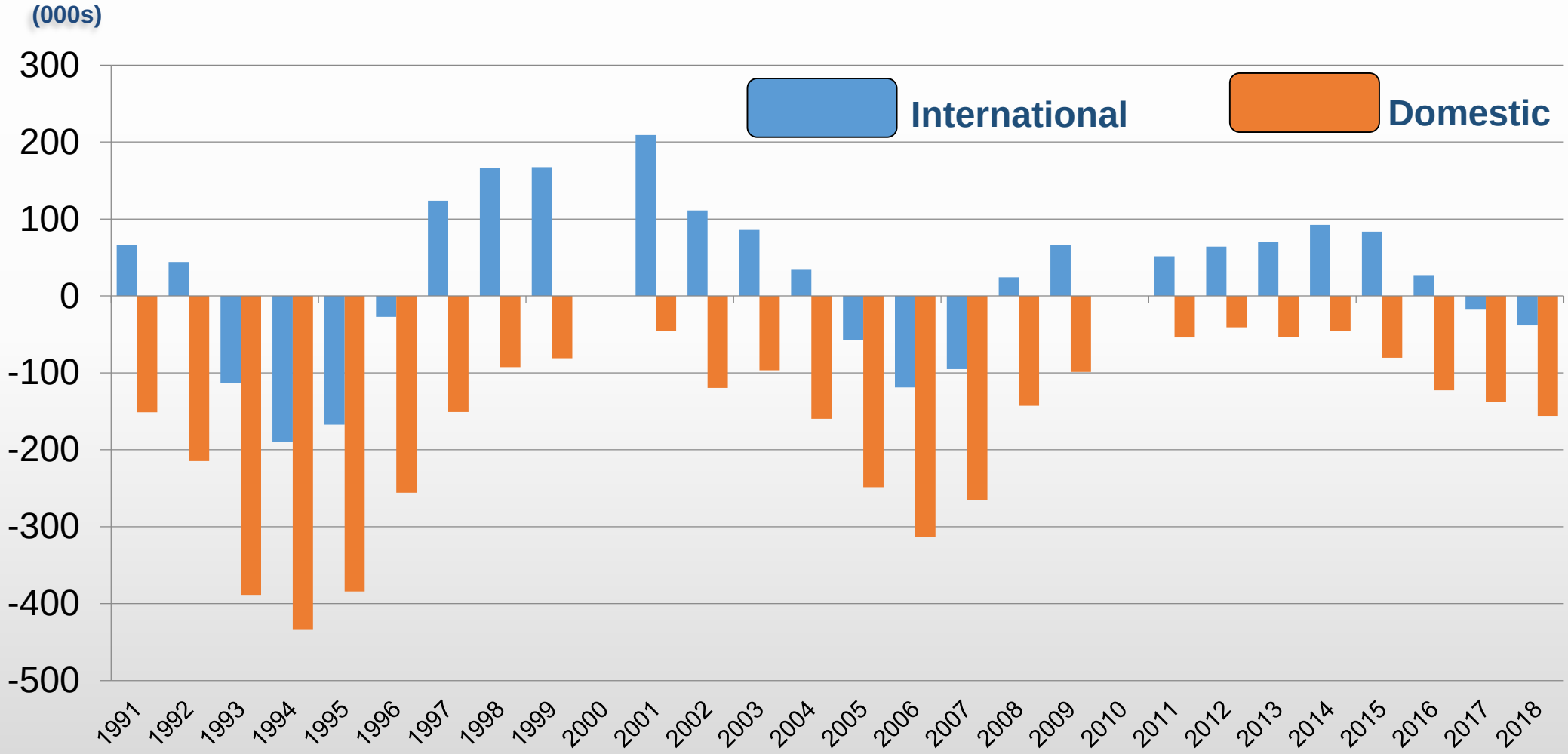
Total Net Migration - California



Source: U.S. Census Bureau

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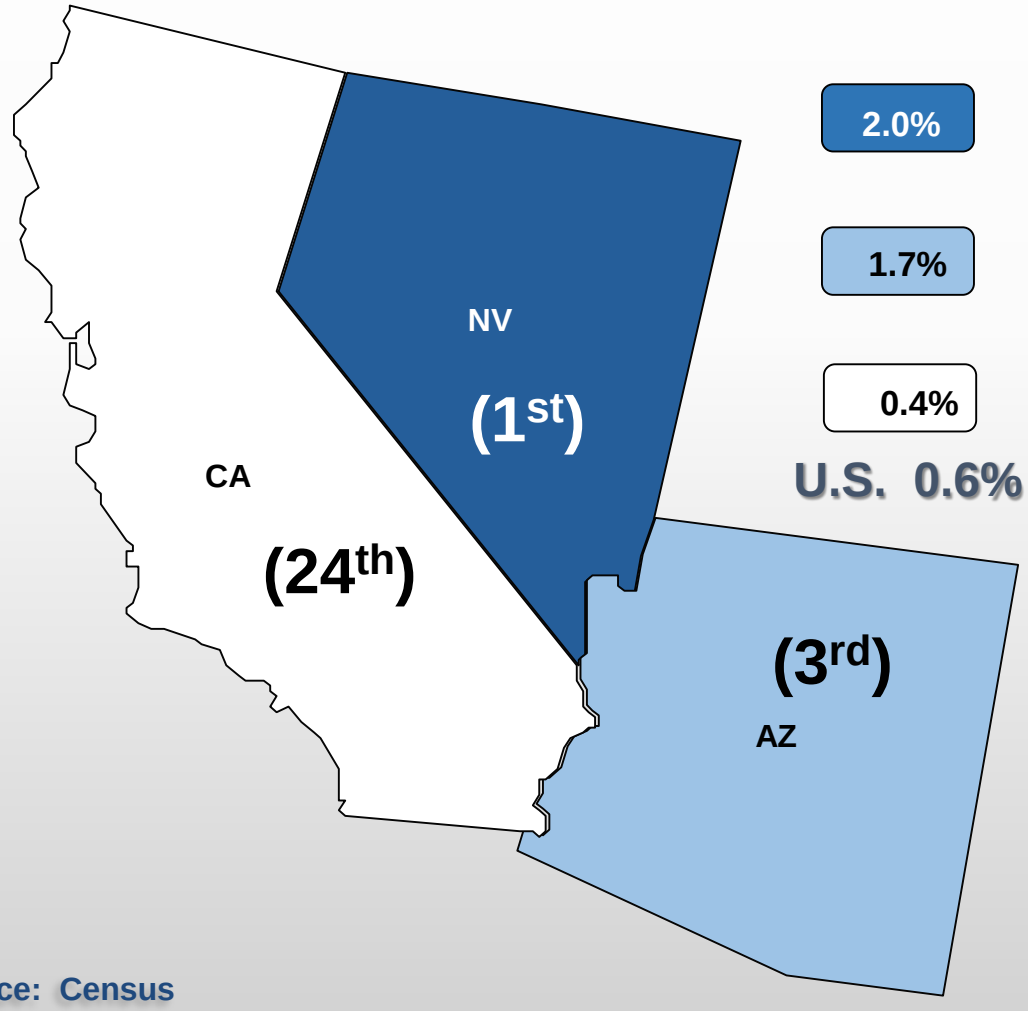
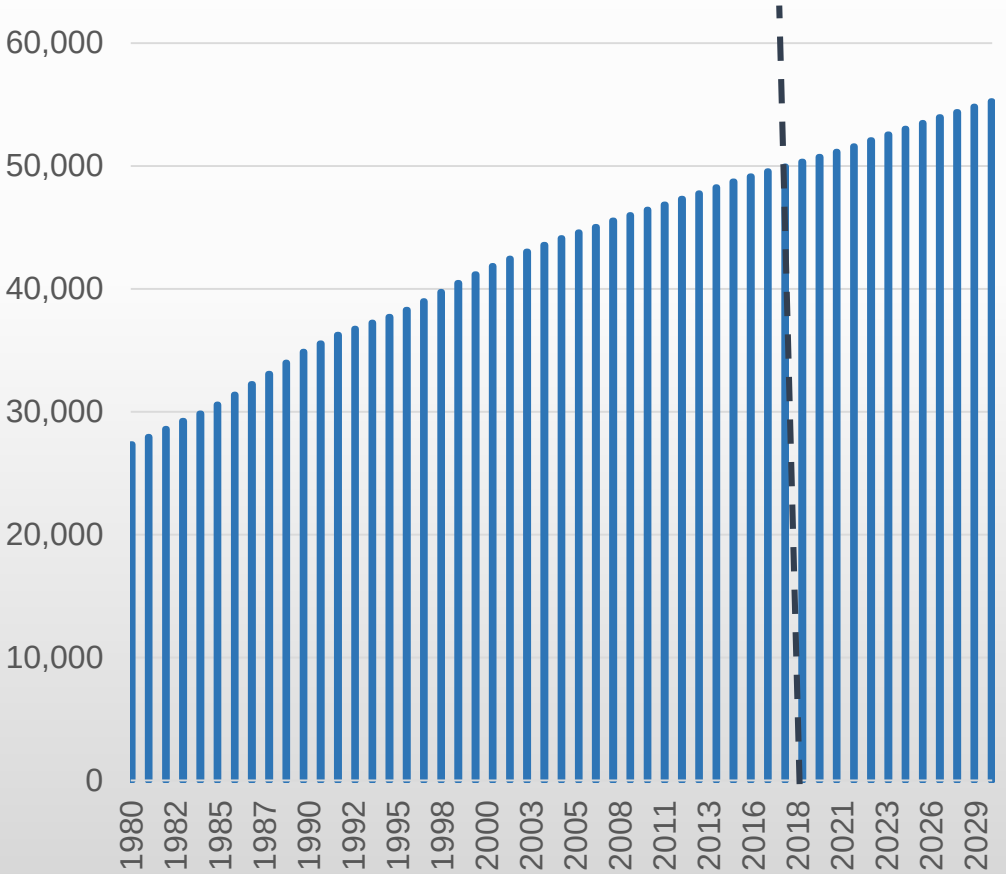
Demographics

10Y Population Growth



Total Population – AZ, CA, NV

Thousands



Source: Census

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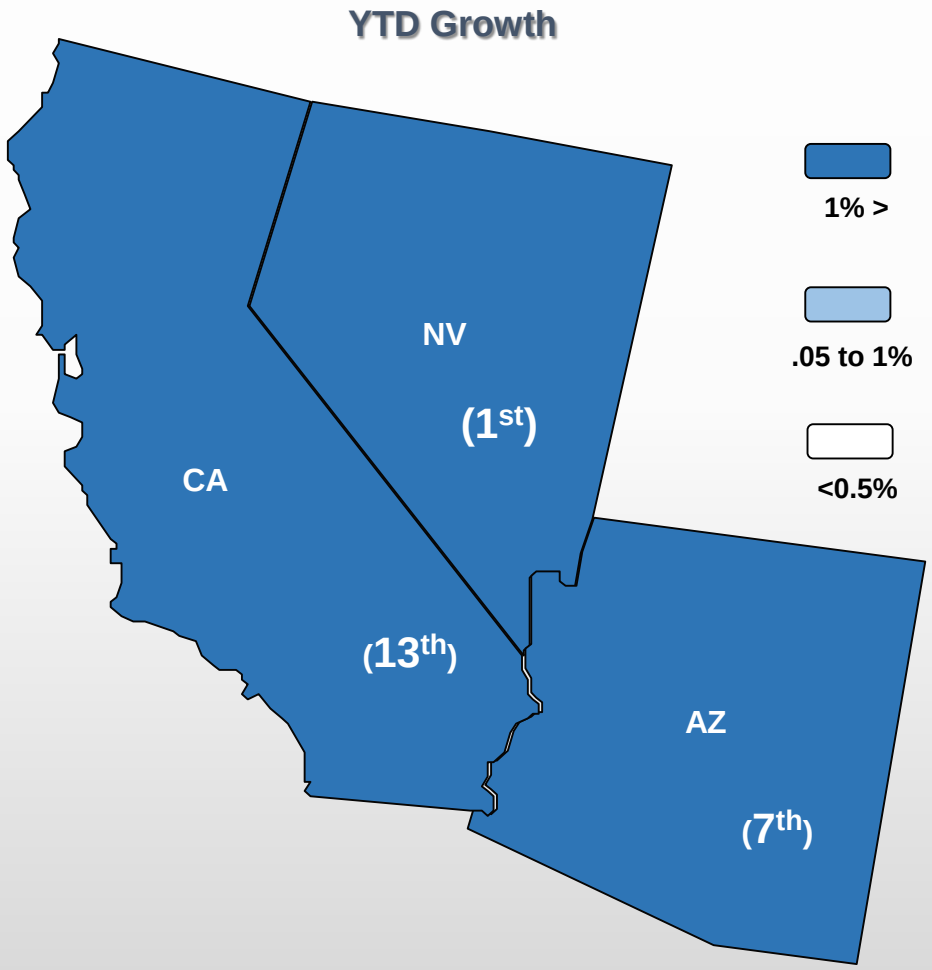
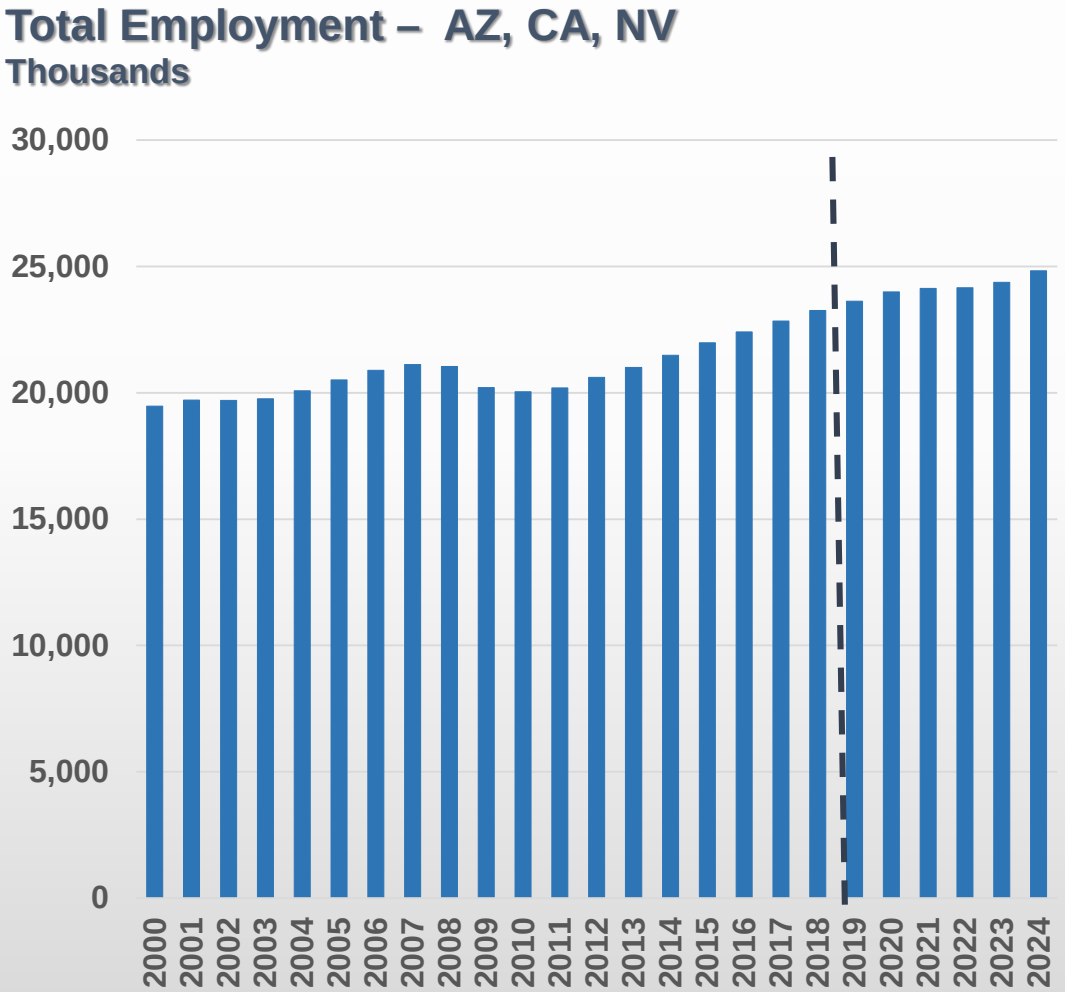
America's Cement Manufacturers™

Employment Growth



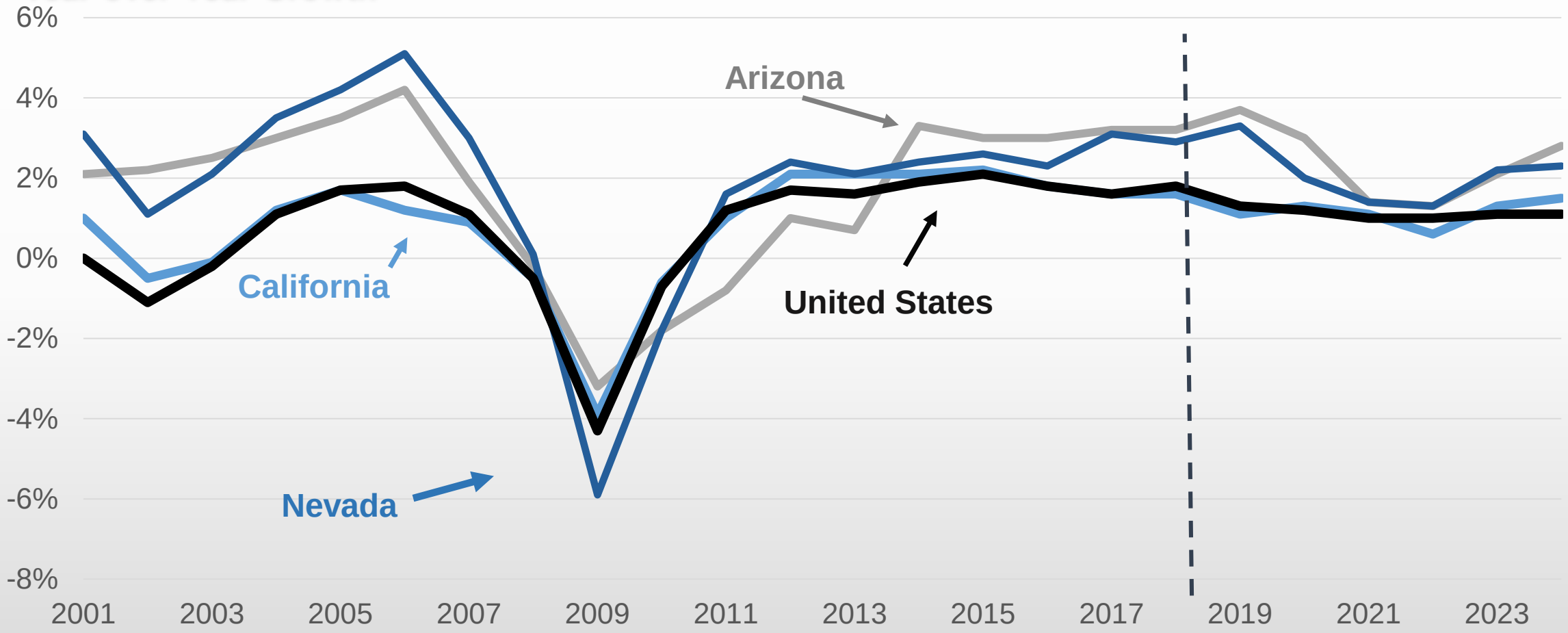


Source: BLS, PCA

PCA Since 1916
America's Cement Manufacturers™

Regional Employment Trends

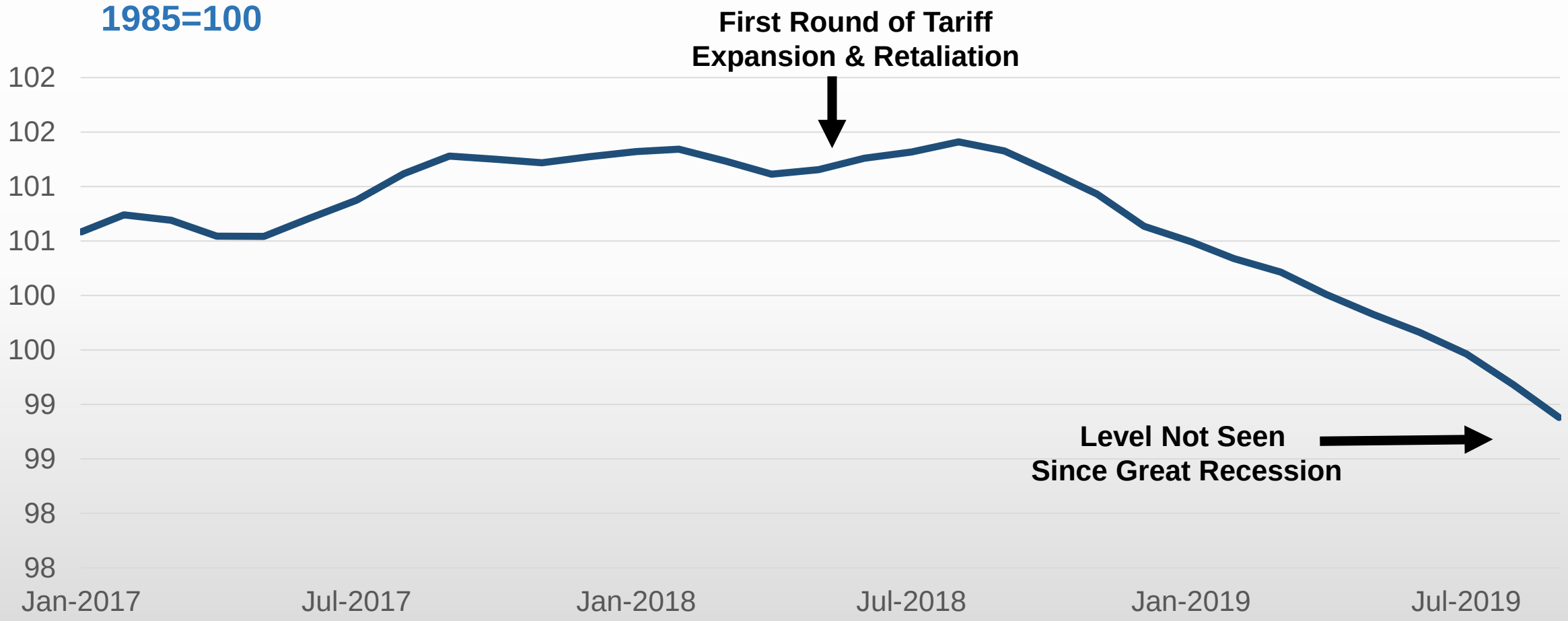
Year-over-Year Growth



Source: BLS, PCA

PCA Since 1916
America's Cement Manufacturers™

U.S. Business Confidence Waning



Source: OECD

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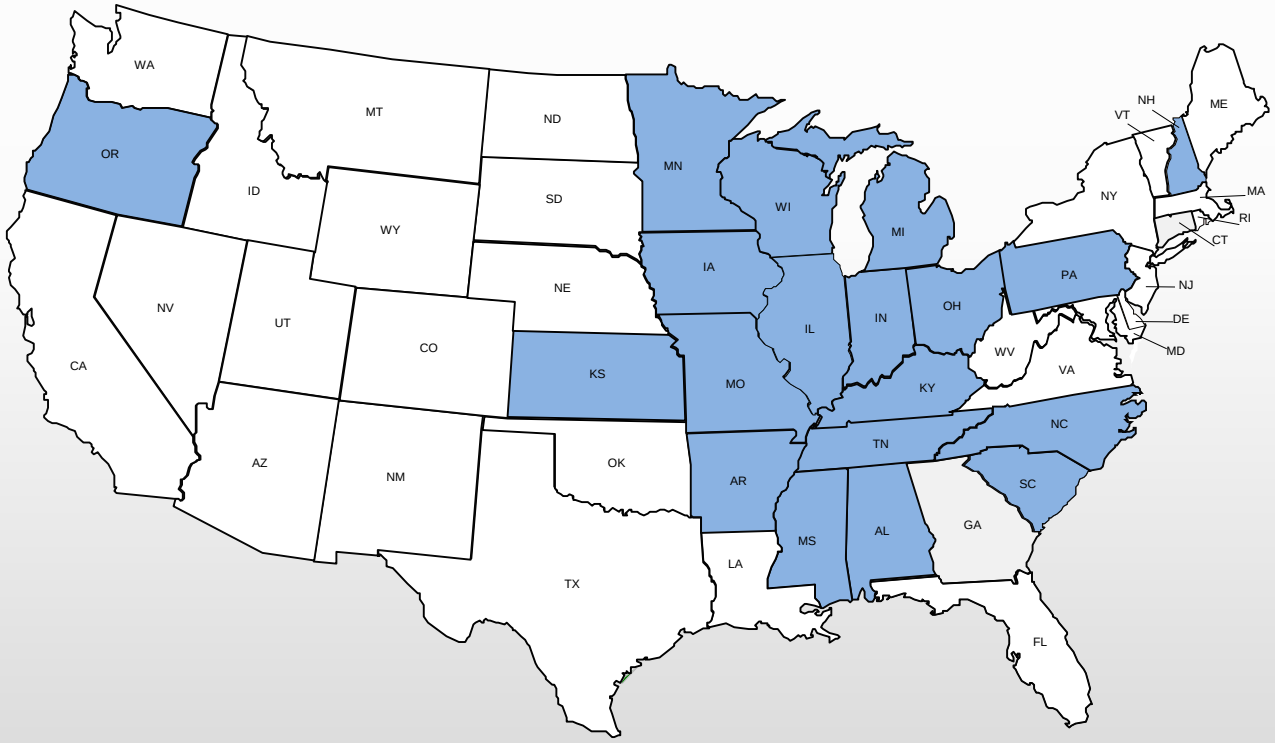
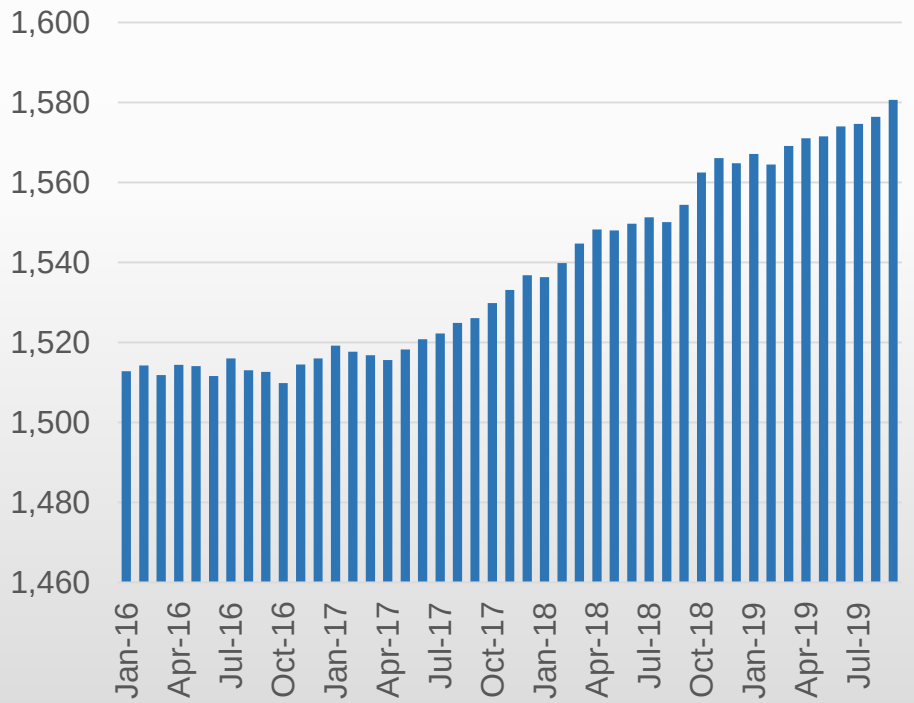
Manufacturing Exposure

10% or Greater Manufacturing Share of Total Employment



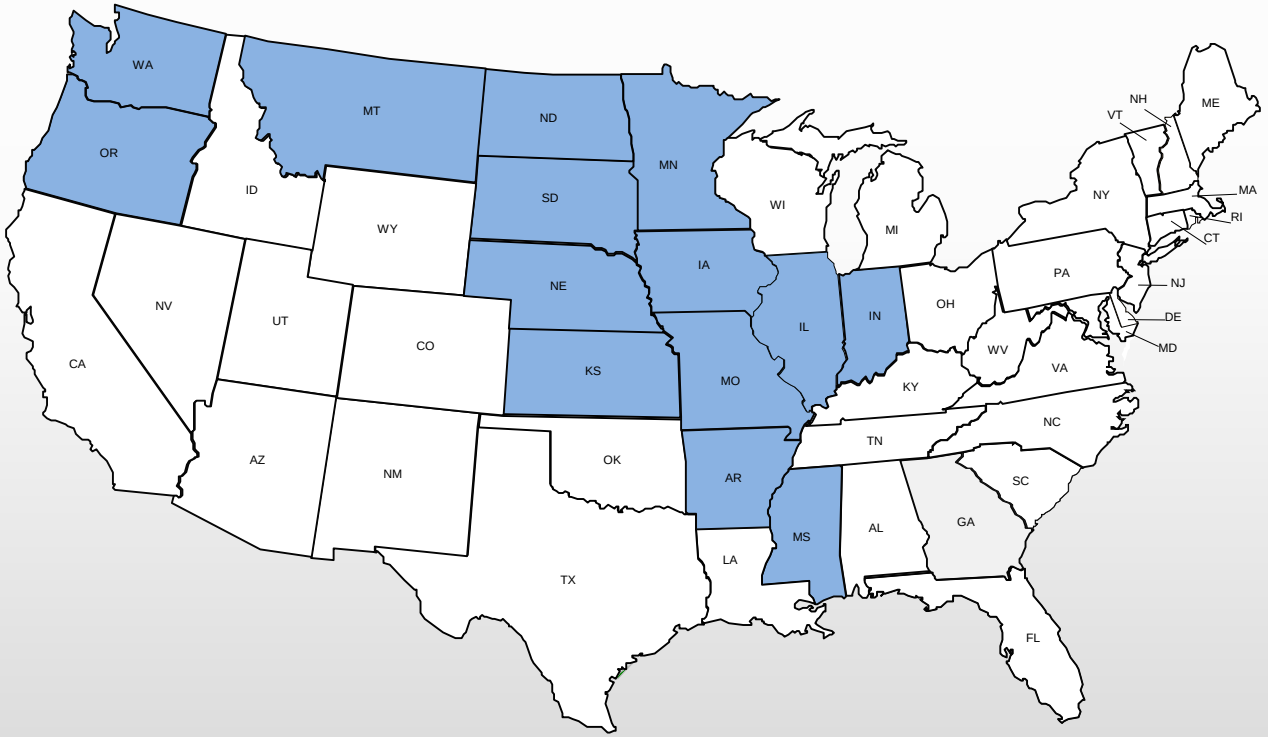
AZ CA NV Manufacturing Employment (000s)



PCA Since 1916
America's Cement Manufacturers™

Agriculture Exposure

Crop Cash Receipts 1% or Greater Share of Gross State Product

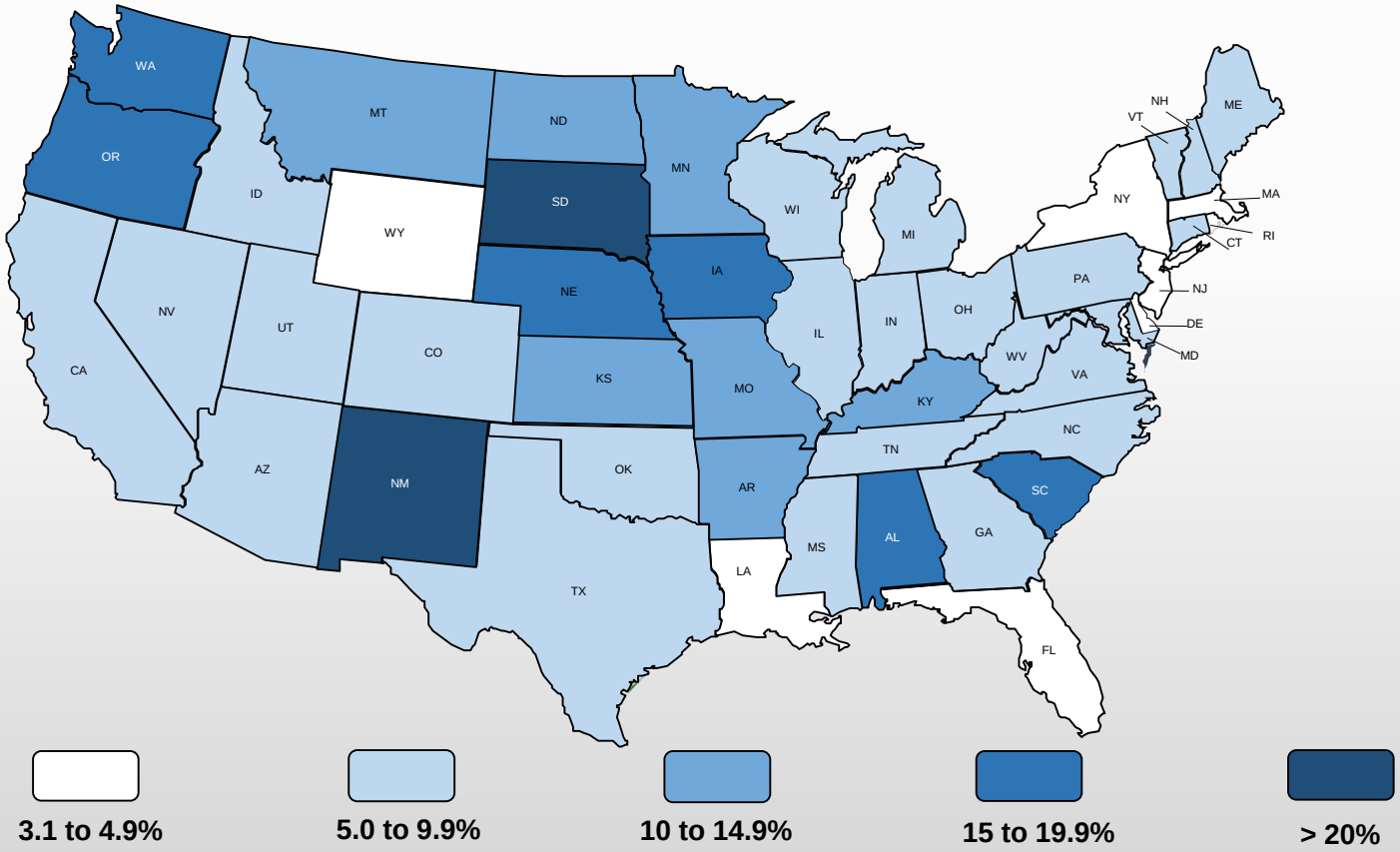


Agriculture Price Index—Food Grain (2011=100)

PCA Since 1916
America's Cement Manufacturers™

Regional Trade Exposure

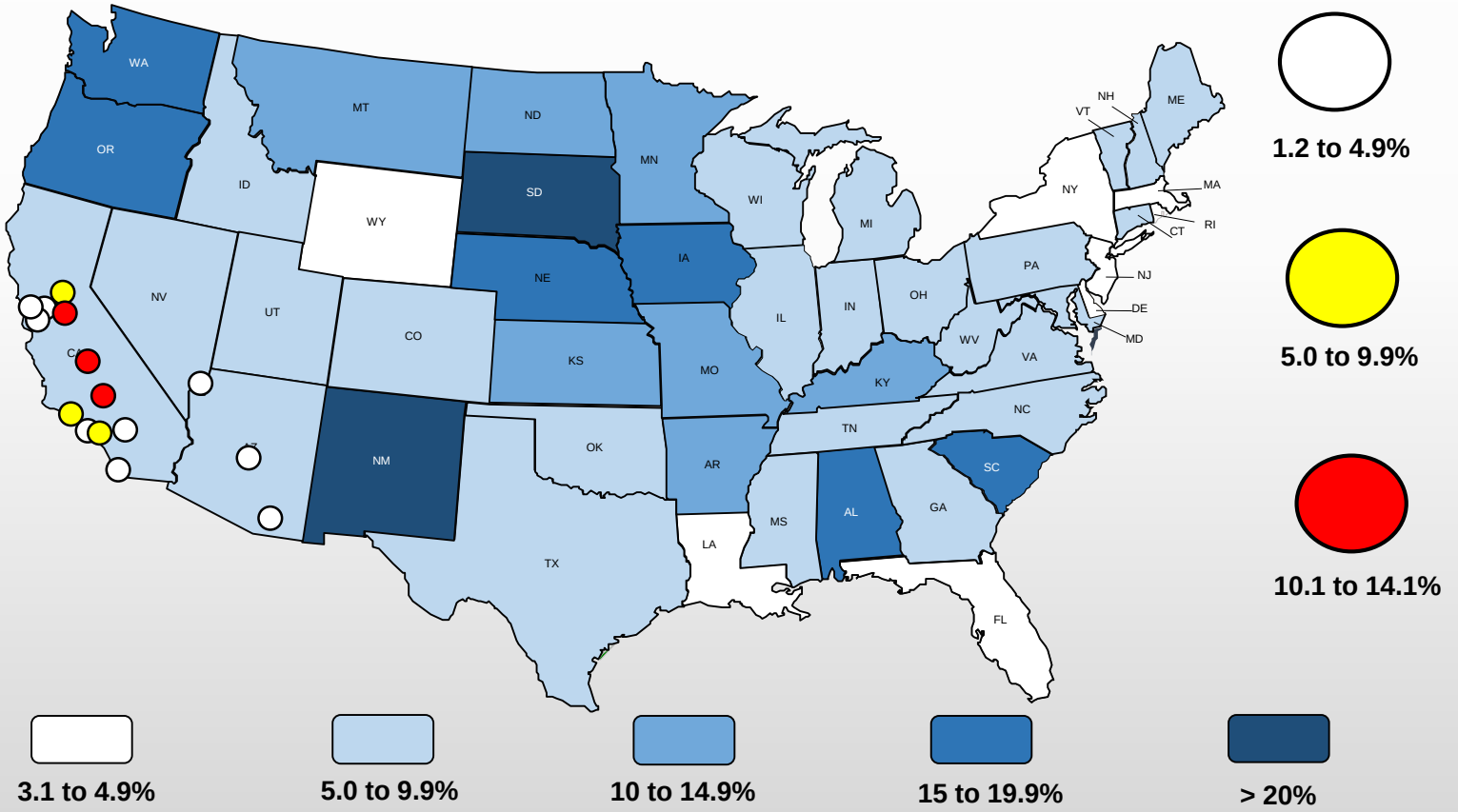
Exports to China as a Percent of Total State Exports (2017)



Source: Census, PCA

Regional Trade Exposure

Exports to China as a Percent of Total State Exports (2017)

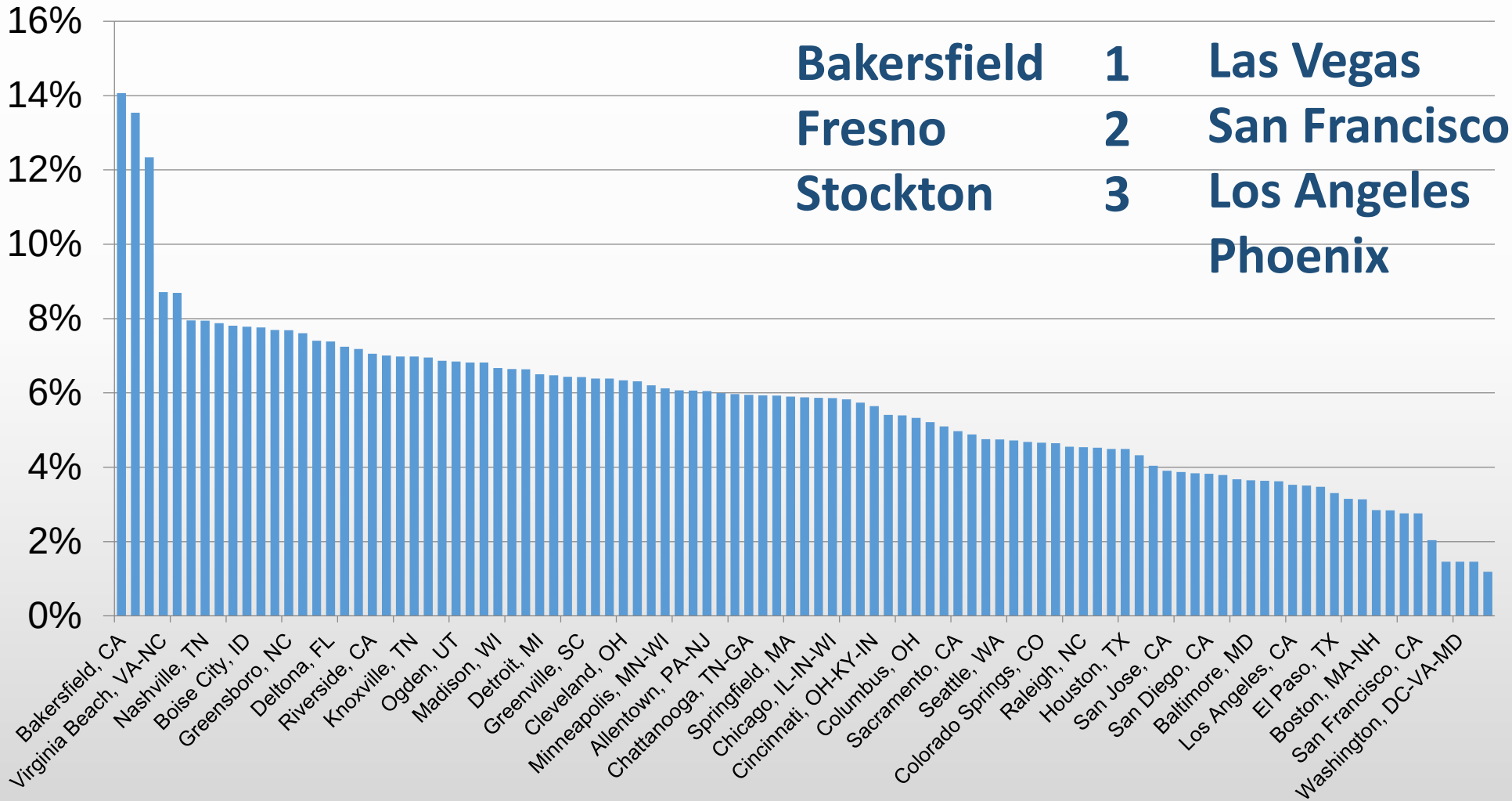


Source: Census, PCA

PCA Since 1916
America's Cement Manufacturers™

Regional Trade Exposure

Exports to China as Percent of Total Exports



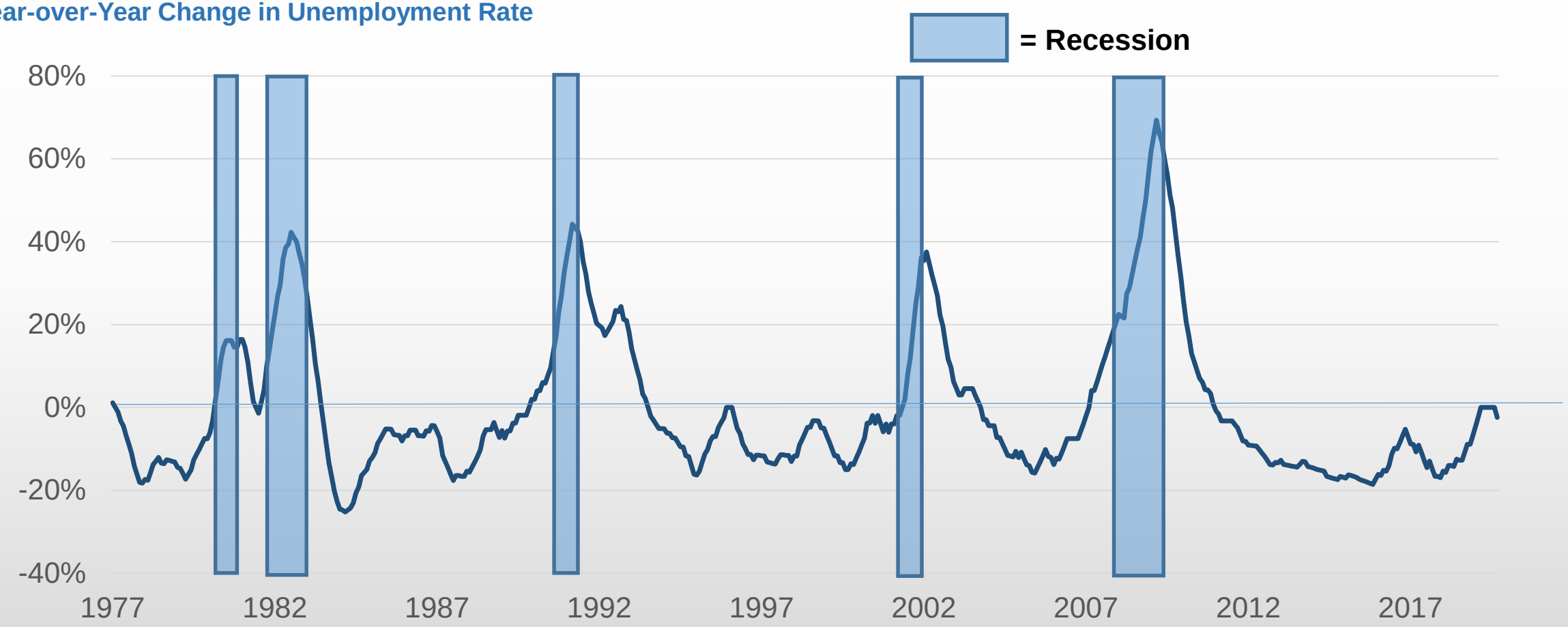
Top 100 MSA Rank

Bakersfield	1	Las Vegas	100
Fresno	2	San Francisco	95
Stockton	3	Los Angeles	86
		Phoenix	73

Source: Census, PCA

California Labor Markets Worth Monitoring

Year-over-Year Change in Unemployment Rate



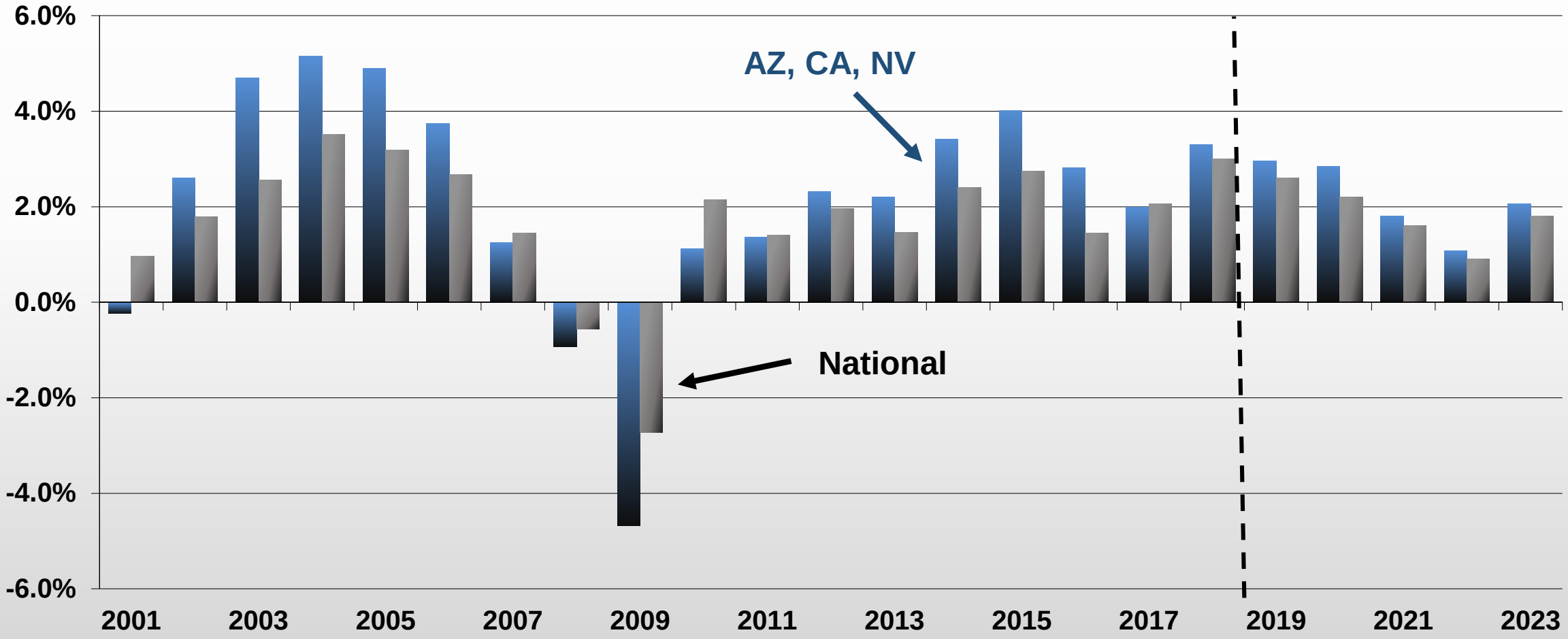
Source: BLS, PCA

PCA Since 1916
America's Cement Manufacturers™

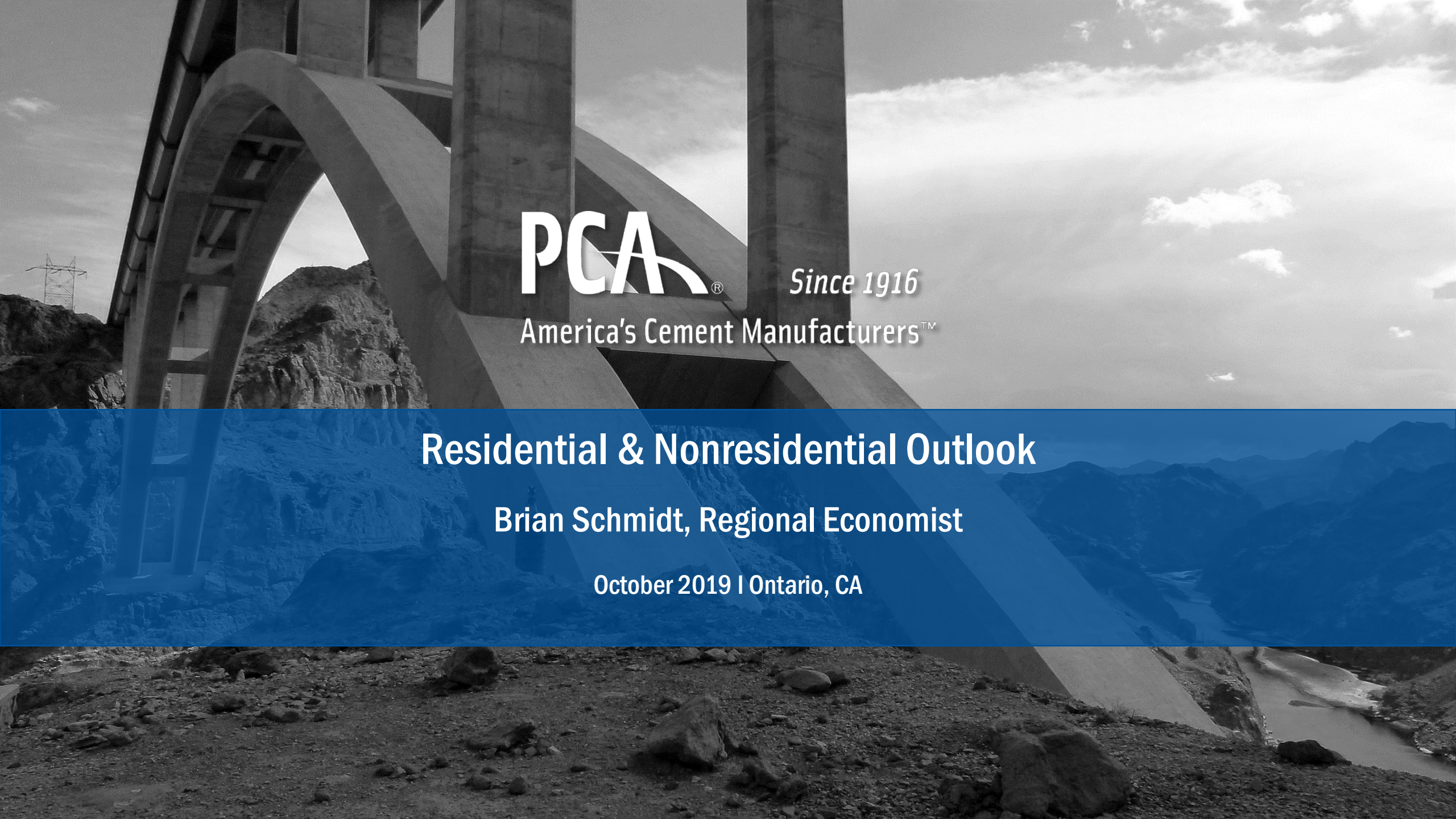
Economic Growth

Annual Percent Change, Real Gross State Product

Average Annual Growth	Historical	Projected
California	2.2%	2.7%
Arizona	1.8%	2.7%
Nevada	1.8%	2.9%



Source: PCA



Residential & Nonresidential Outlook

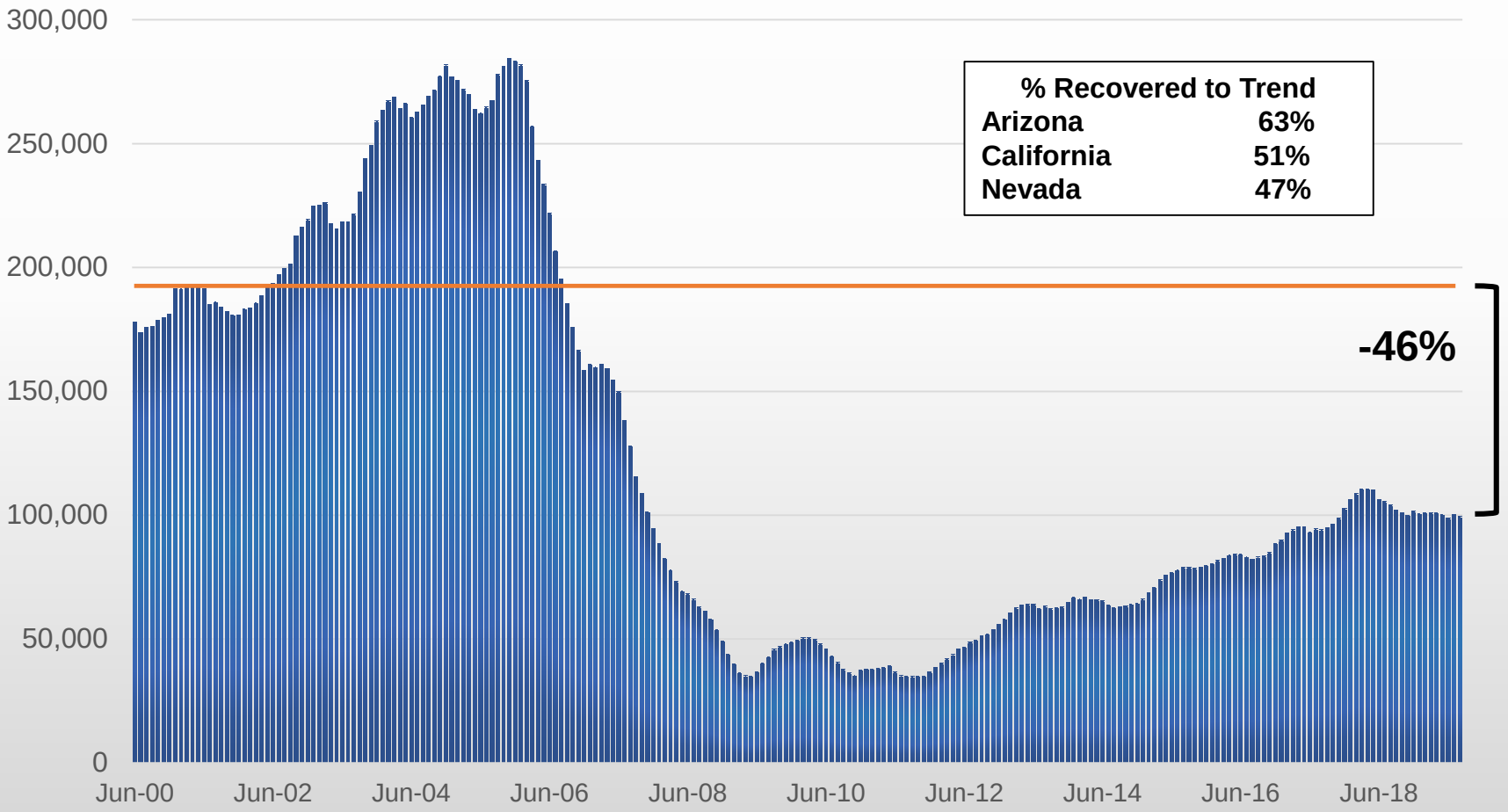
Brian Schmidt, Regional Economist

October 2019 I Ontario, CA

Residential

Single Family Construction – AZ, CA, NV

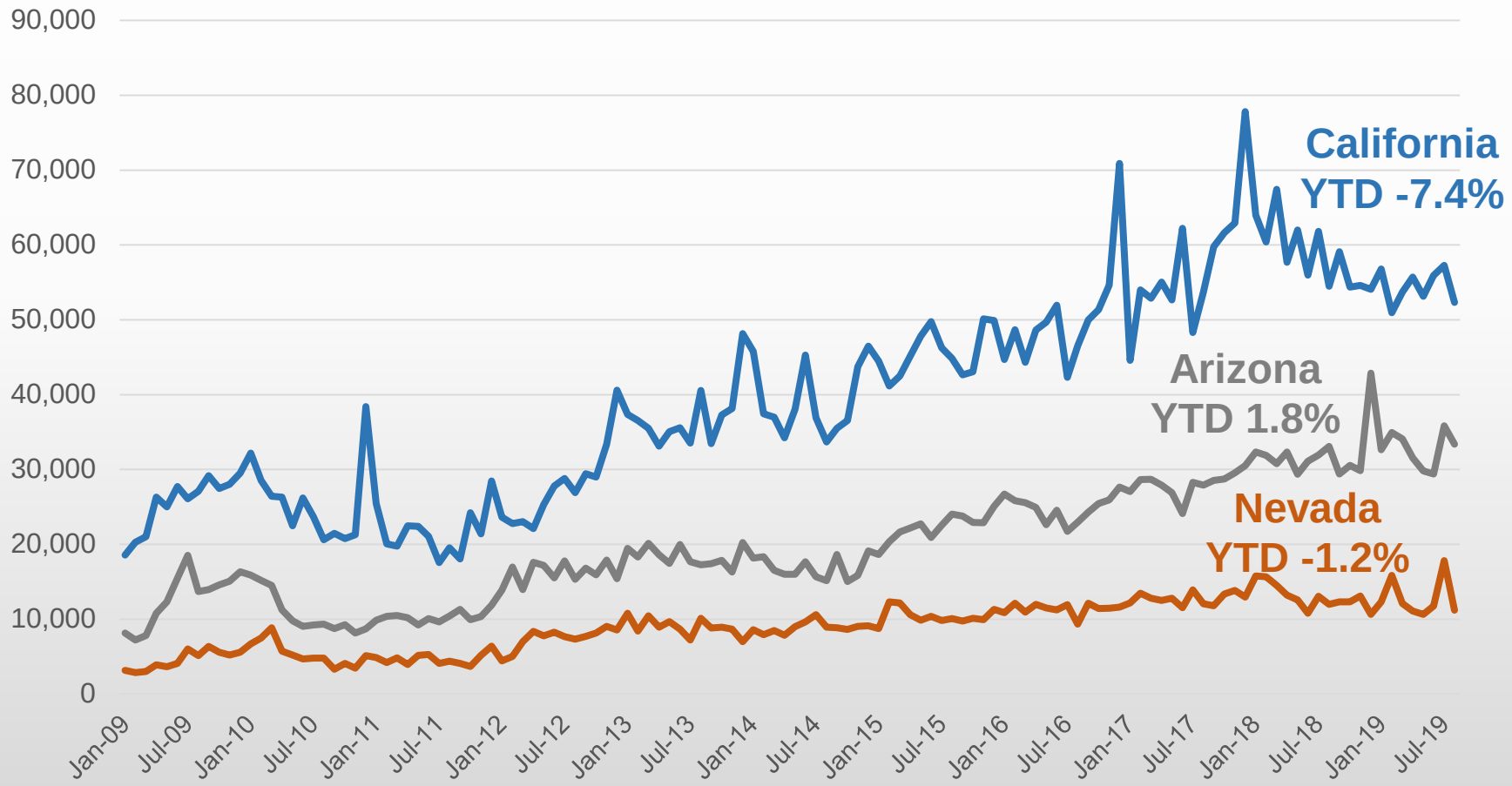
Single Family Permits, 6mma, SAAR



Source: Census, PCA

Recent Weakness in Single Family Permits

Single Family Permits, SAAR



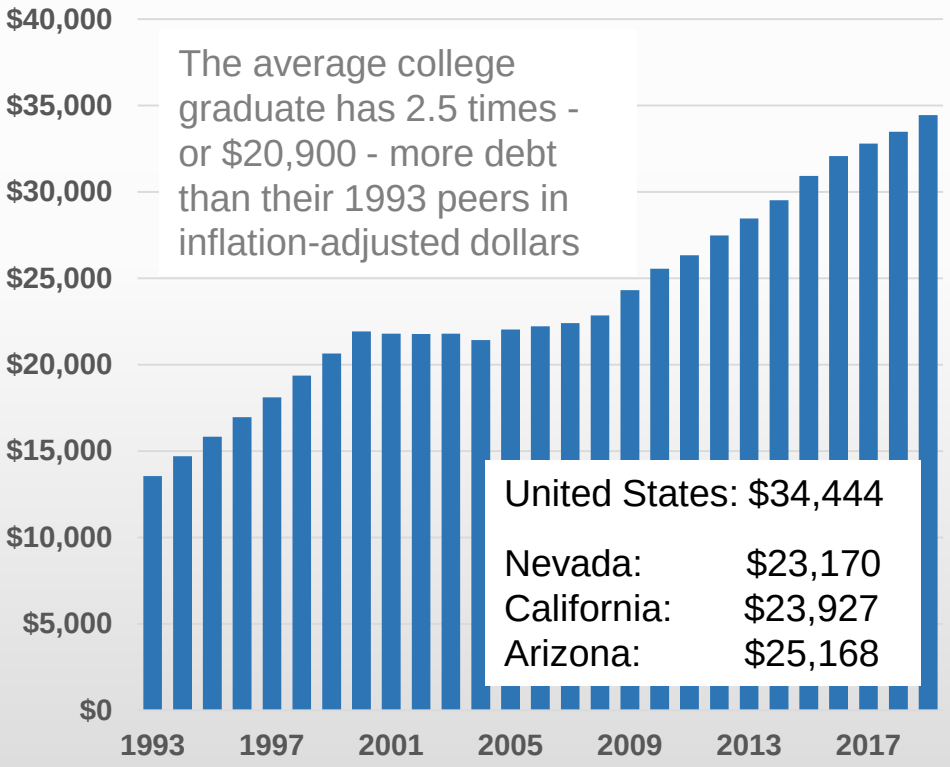
Source: Census, PCA

PCA Since 1916
America's Cement Manufacturers™

Structural Change in Homebuyers?

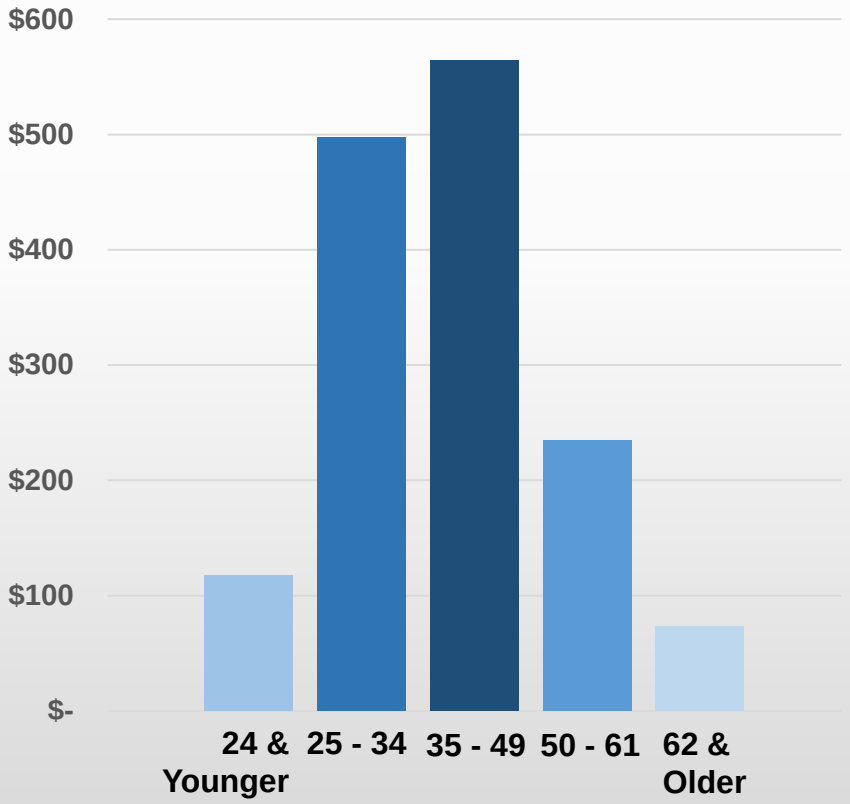
Average U.S. Student Debt per Borrower

Real 2019$



Student Debt Levels by Borrower Age

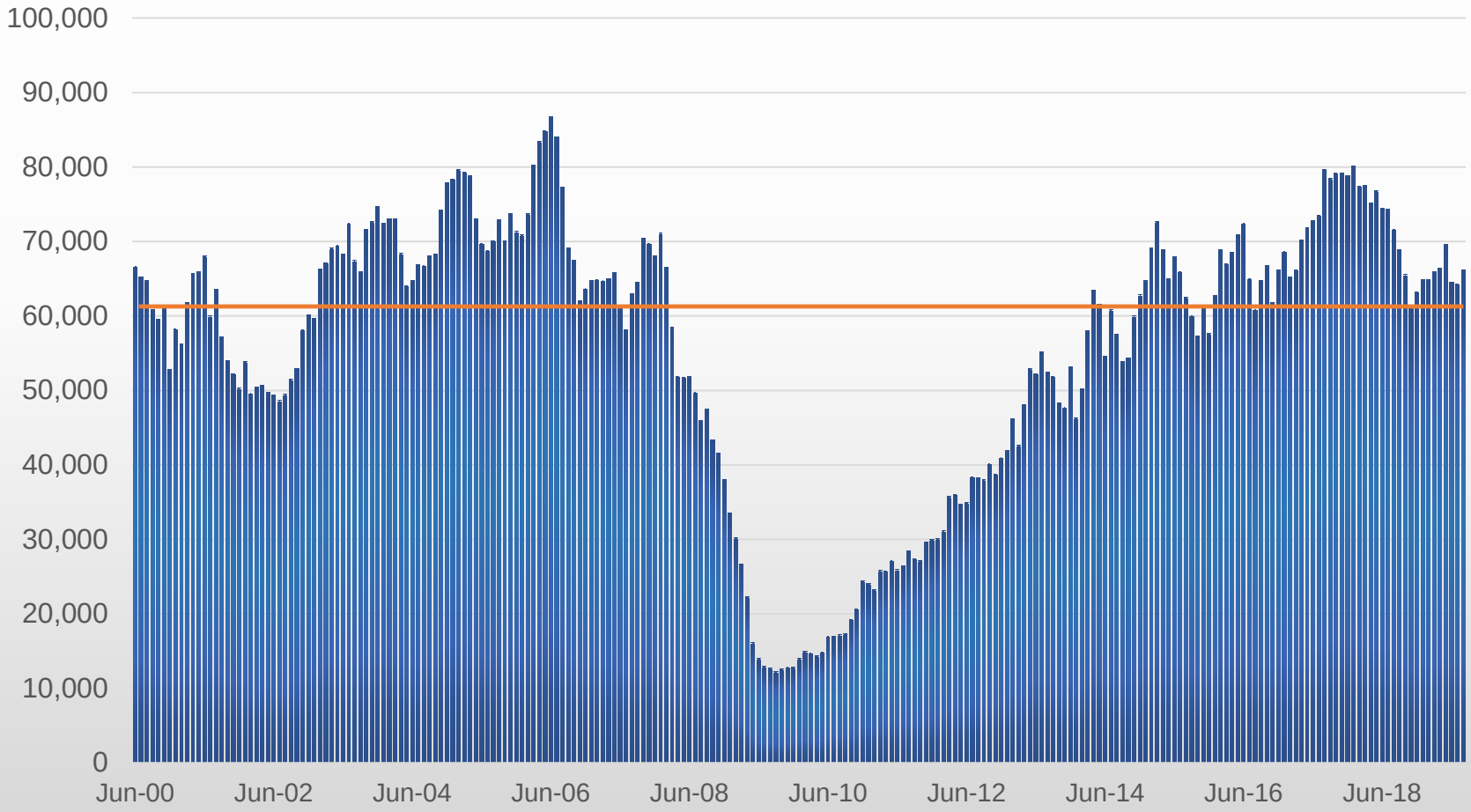
$Billions



Source: U.S. Department of Education, PCA

Multi Family Construction – AZ, CA, NV

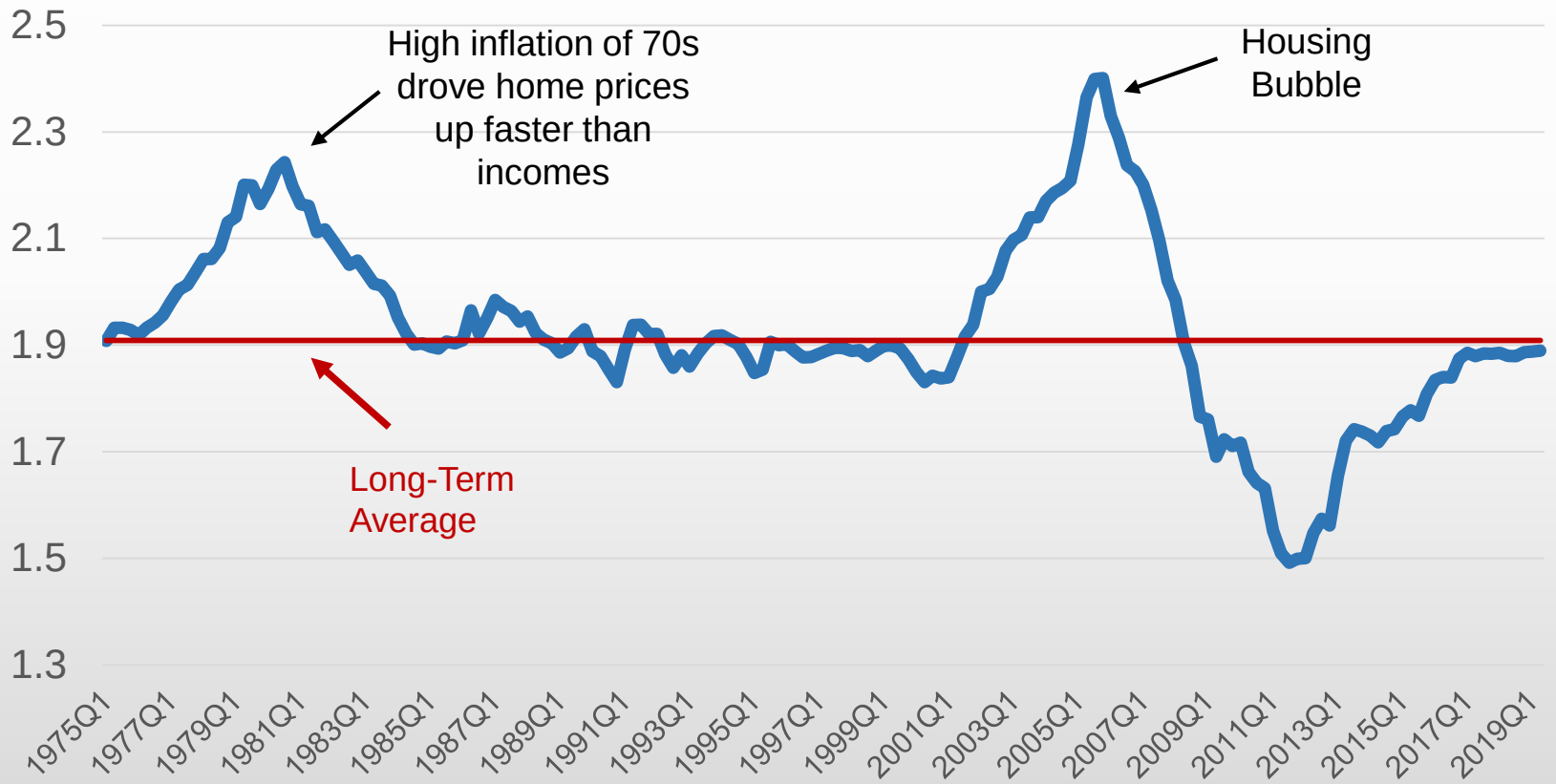
Multi Family Permits, 6mma, SAAR



Source: Census, PCA

On the national level, home values are in line with long term trends

Single Family Existing Home Price Relative to Household Income



Source: BEA, BLS, PCA

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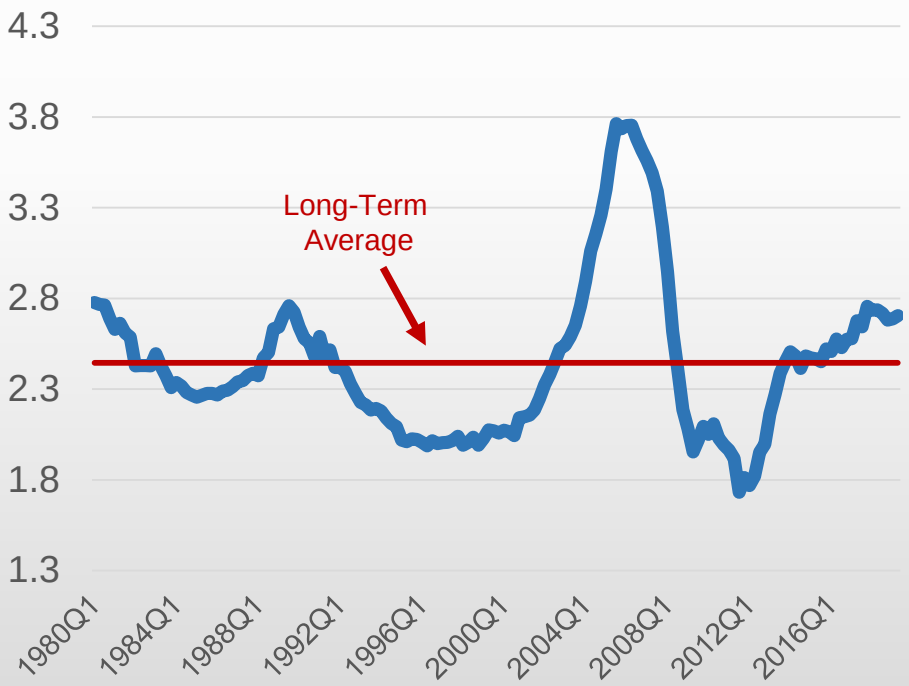
Regional Affordability Concerns

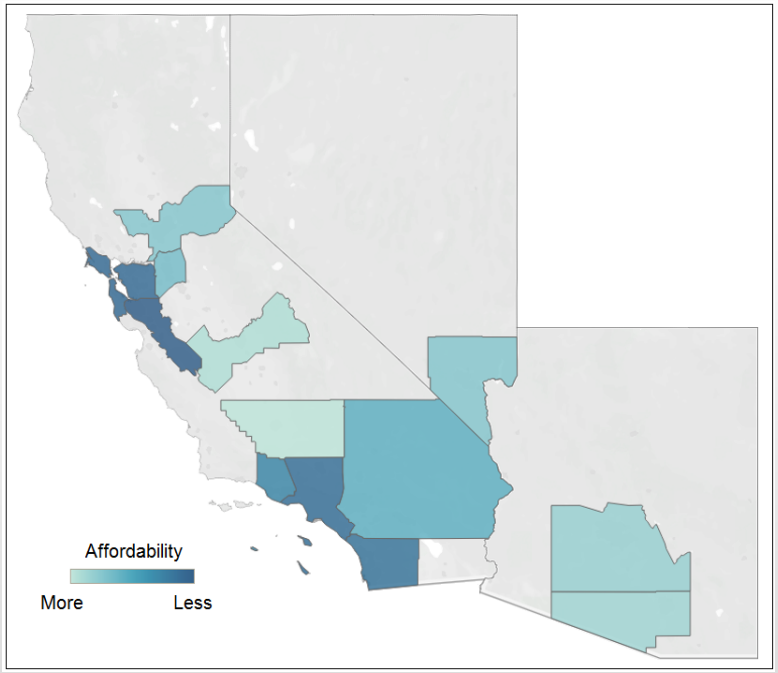
Price-Income ratios are rising faster than the national average in an already expensive market…

Regional MSA Weighted Price-Income Ratio



…with affordability concerns showing up to varying degrees city to city…

MSA's Price-Income Ratio



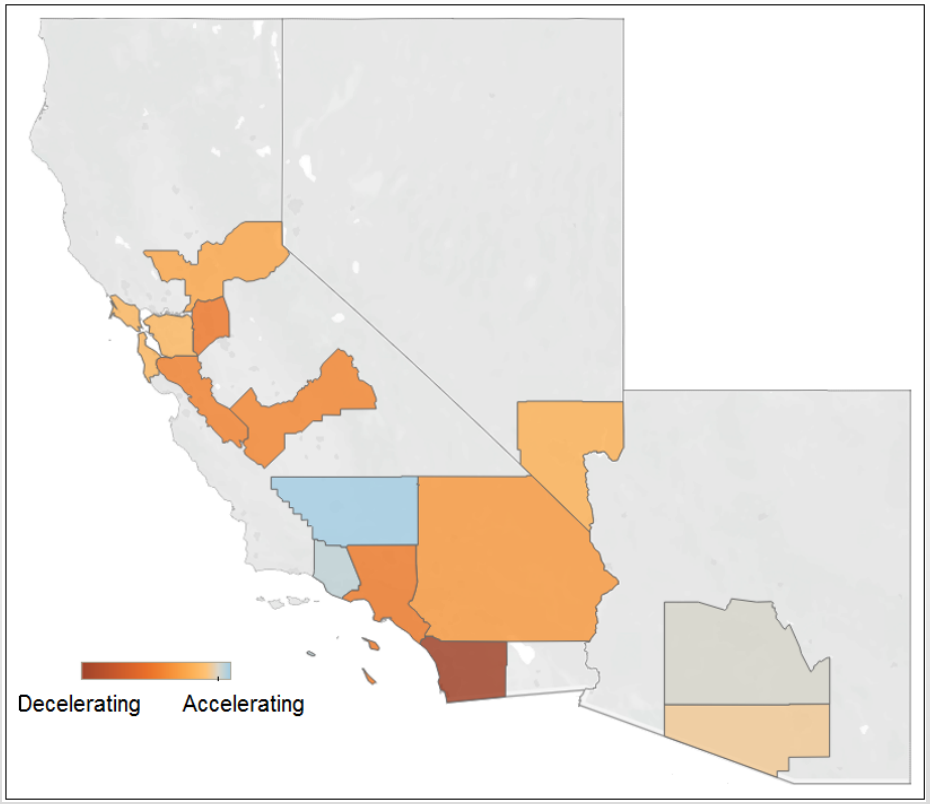
…but larger affordability troubles are being shielded by low interest rates.

Source: BEA, BLS, PCA

MSA Level Momentum

Residential Building Permits

12 mma/24 mma



Market Intelligence's new MSA Construction Performance Report

PCA
MARKET INTELLIGENCE
October 2019

Pacific MSA Construction Performance

The Pacific region has been strong relative to the rest of the United States in recent years, although there are some recent metrics that represent areas of concern. Through August, employment has receded in California, Hawaii and Alaska, although job gains have been healthy in Washington and to a slightly lesser extent, Oregon. This trend in employment has been consistent with each states' respective net migration patterns. There have also been affordability concerns in multiple metro areas throughout the region. Housing permits for the region are down 6.5% through August. Indeed, only one metro region's (Sacramento) construction market is growing relative to the past two years.

Cement consumption in the region is expected to slightly underperform the national rate (2.3%) and grow 2.5% this year after strong growth (6.2%) in 2018.

The dynamics that drive a state's construction activity will unfold at the metropolitan level. The purpose of this report is to provide guidance on the relative performance of the metropolitan areas that comprise a state's construction activity. PCA provides a composite ranking of the top MSA's in the region, followed by key residential, commercial, and public sector metrics. This is followed by macro level statistics that have the potential to drive construction spending and ultimately cement consumption.

Pacific MSA's: Construction Sector Fundamentals

The composite ranking is meant to illustrate the relative performance of MSA's in terms of construction fundamentals. Residential permits, nonresidential contract awards, and public contract awards are weighted based upon how much cement is consumed in each sector by Census region. MSA's are ranked based upon a three month moving average over a 12 month moving average. The red and green arrows show if the market is receding or growing, respectively, relative to year ago levels.

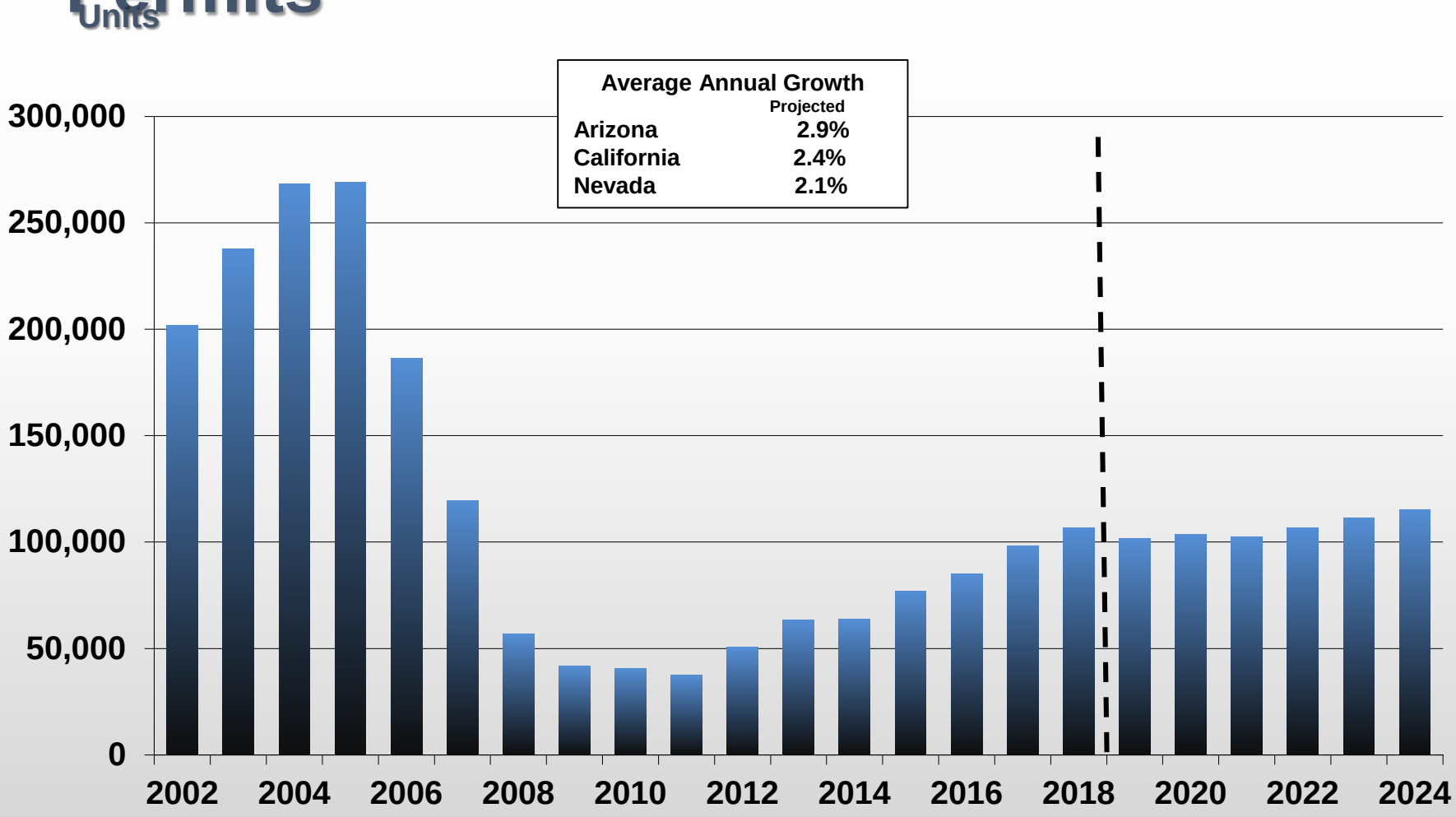
Census Name	Composite Rank
Chicago-Naperville-Elgin, IL-IN-WI	44
Nashville-Davidson--Murfreesboro--Franklin,	45
Minneapolis-St. Paul-Bloomington, MN-WI	46
Tucson, AZ	47
Greenville-Anderson-Mauldin, SC	48
Virginia Beach-Norfolk-Newport News, VA-NC	49
New Haven-Milford, CT	50
Charleston-North Charleston, SC	94
Bridgeport-Stamford-Norwalk, CT	95
Spokane-Spokane Valley, WA	96
Scranton--Wilkes-Barre--Hazleton, PA	97
San Diego-Carlsbad, CA	98
Birmingham-Hoover, AL	99
Pittsburgh, PA	100

Top 100 MSA's ranked based upon construction fundamentals and macro drivers

Report for each Census Division

Source: Census, PCA

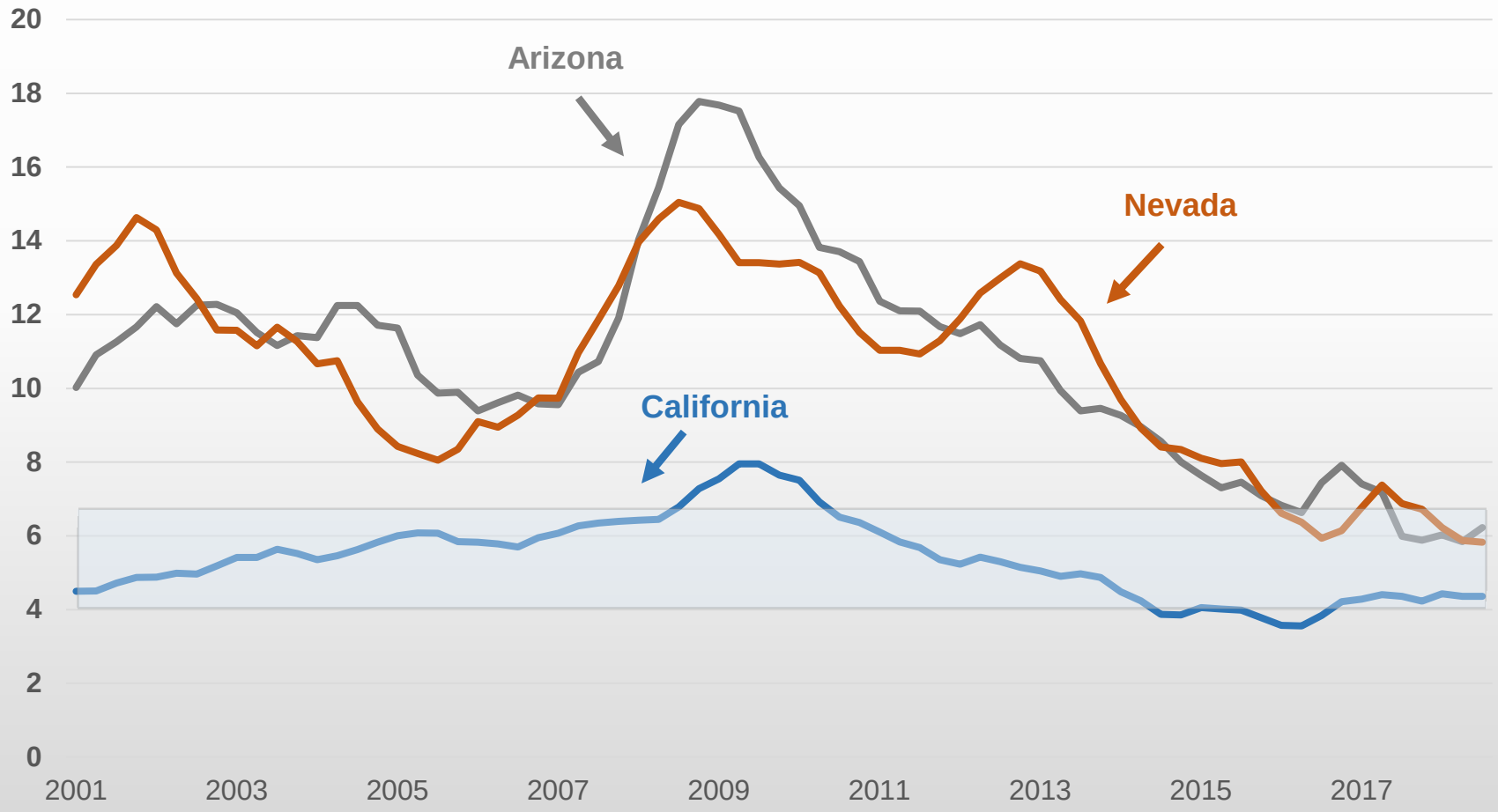
AZ, CA, NV: Single Family Housing Permits



Source: PCA

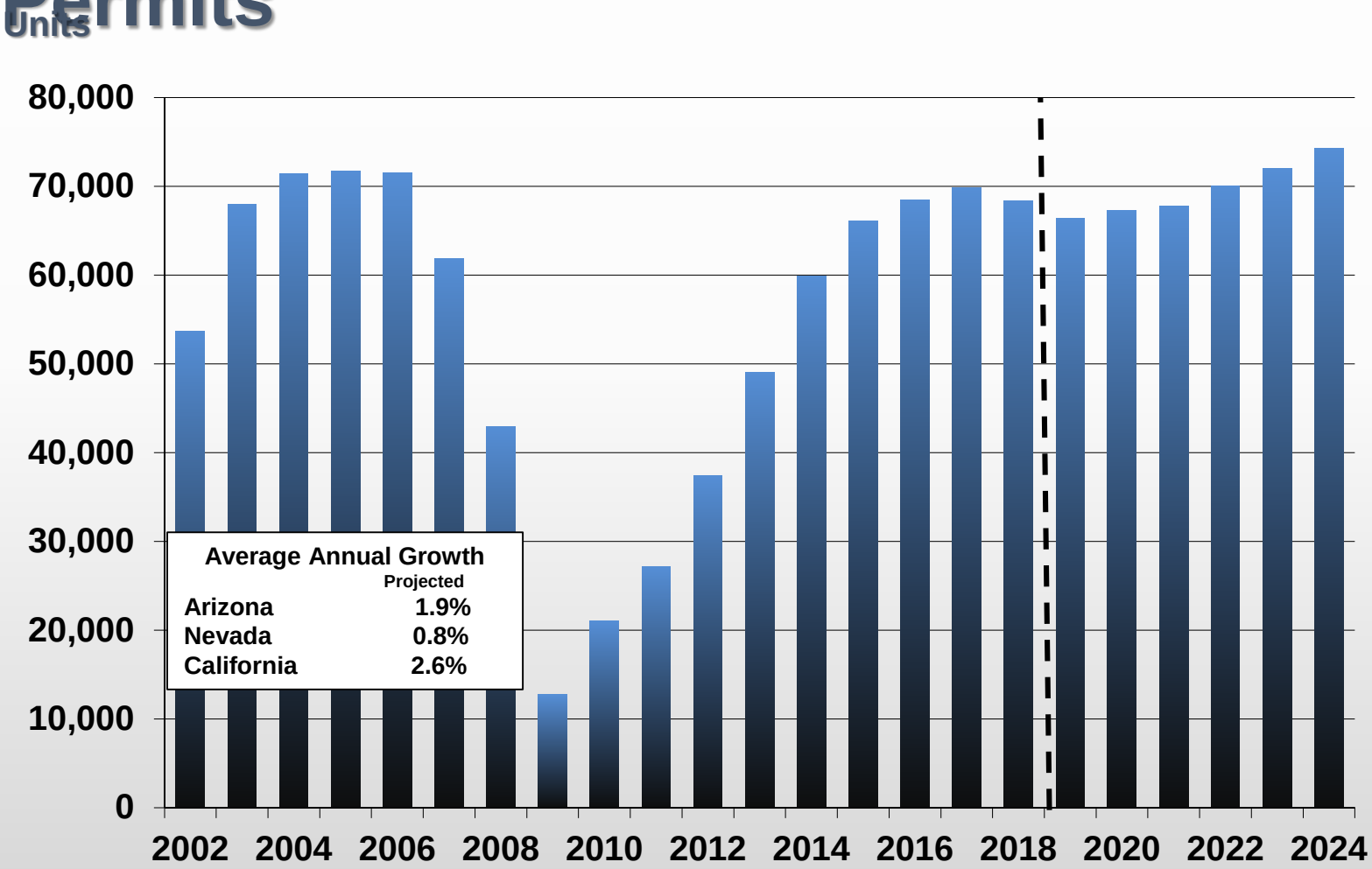
Rental Vacancy Rates Remain Low Throughout Region

4Q Moving Average, Percent



Source: Census – Current Population Survey

AZ, CA, NV: Multifamily Housing Permits

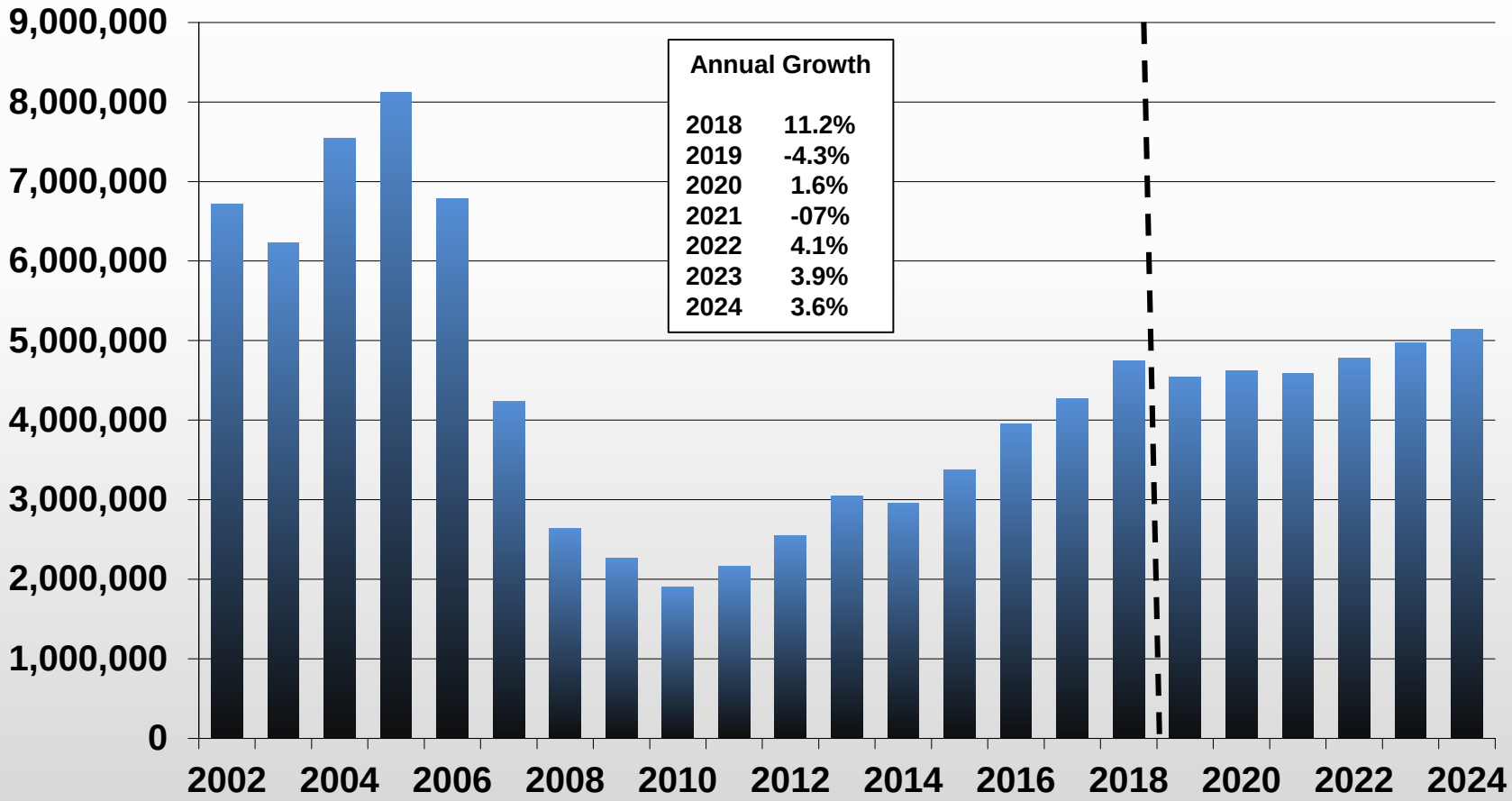


Source: PCA

PCA Since 1916
America's Cement Manufacturers™

AZ, CA, NV: Residential Cement Outlook

Metric Tons



Source: PCA

Nonresidential

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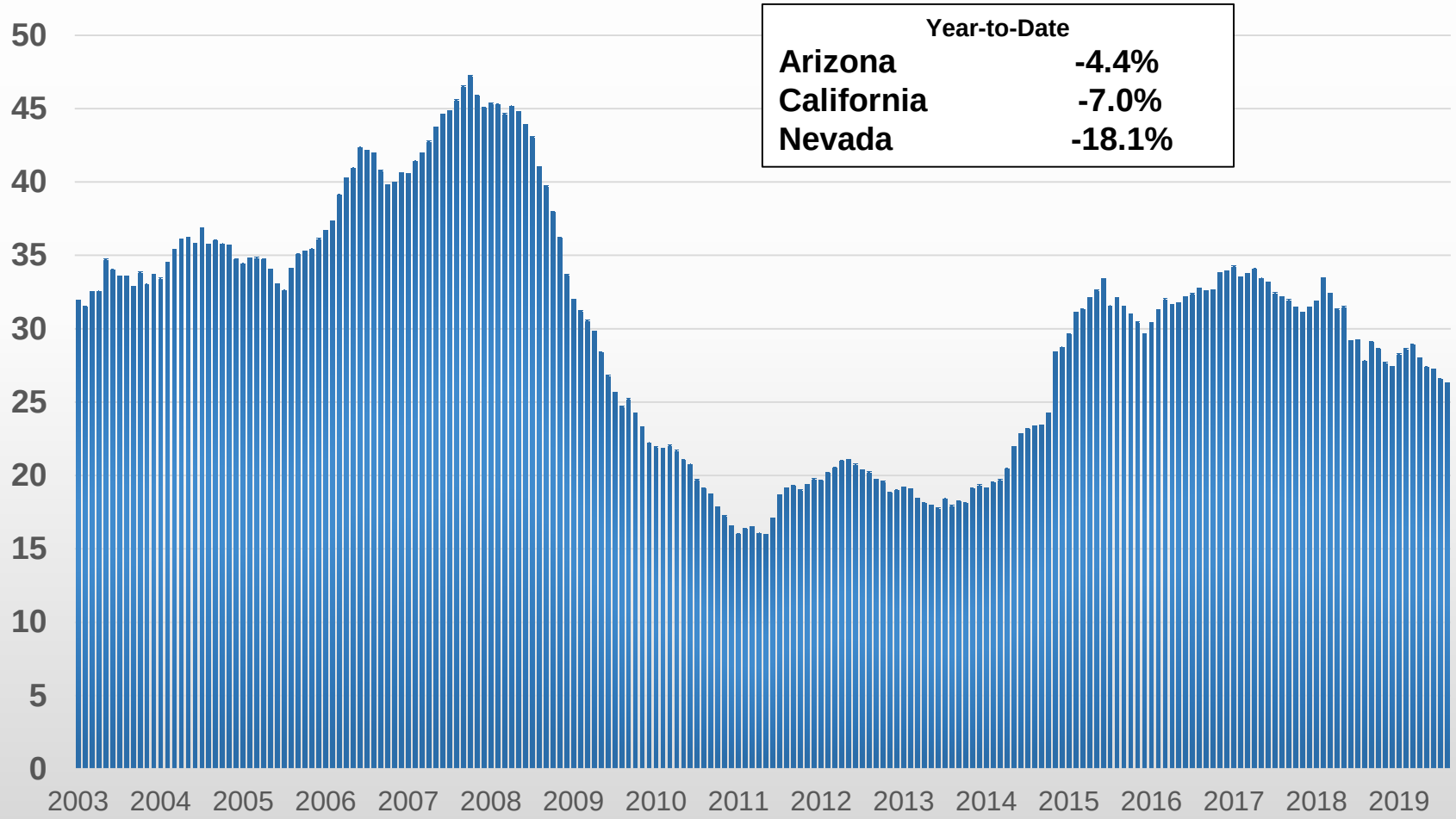
Nonresidential Construction Spending: AZ, CA, NV

2009$s, Billions, SAAR



Source: PCA

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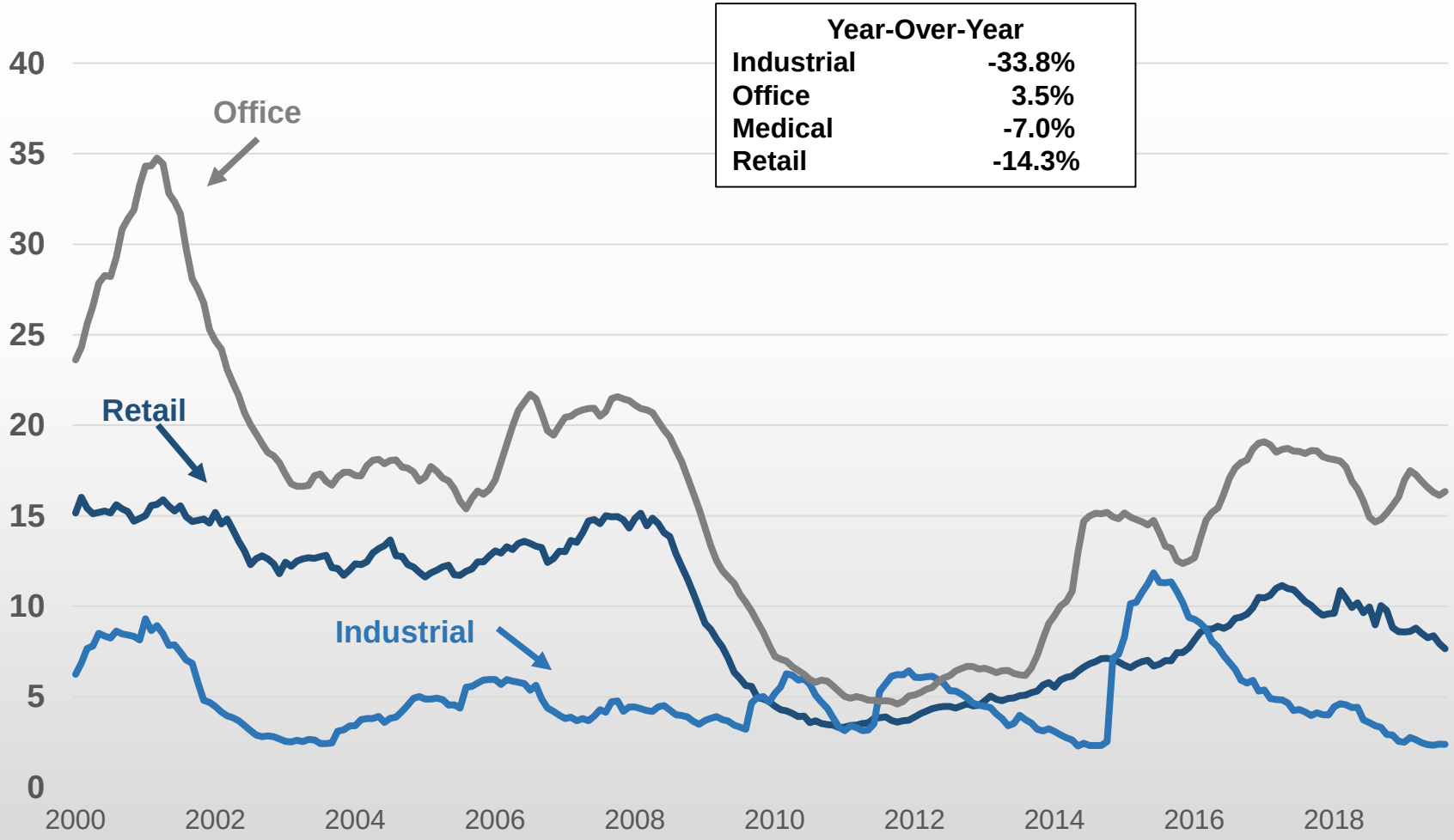
Nonresidential Construction Spending by Major Component

2009$s, Billions, SAAR



Source: PCA

Will Businesses Spend on Capital Investment?

Corporate profits remain healthy while business confidence has been declining for 12 months.

Real Corporate Profits

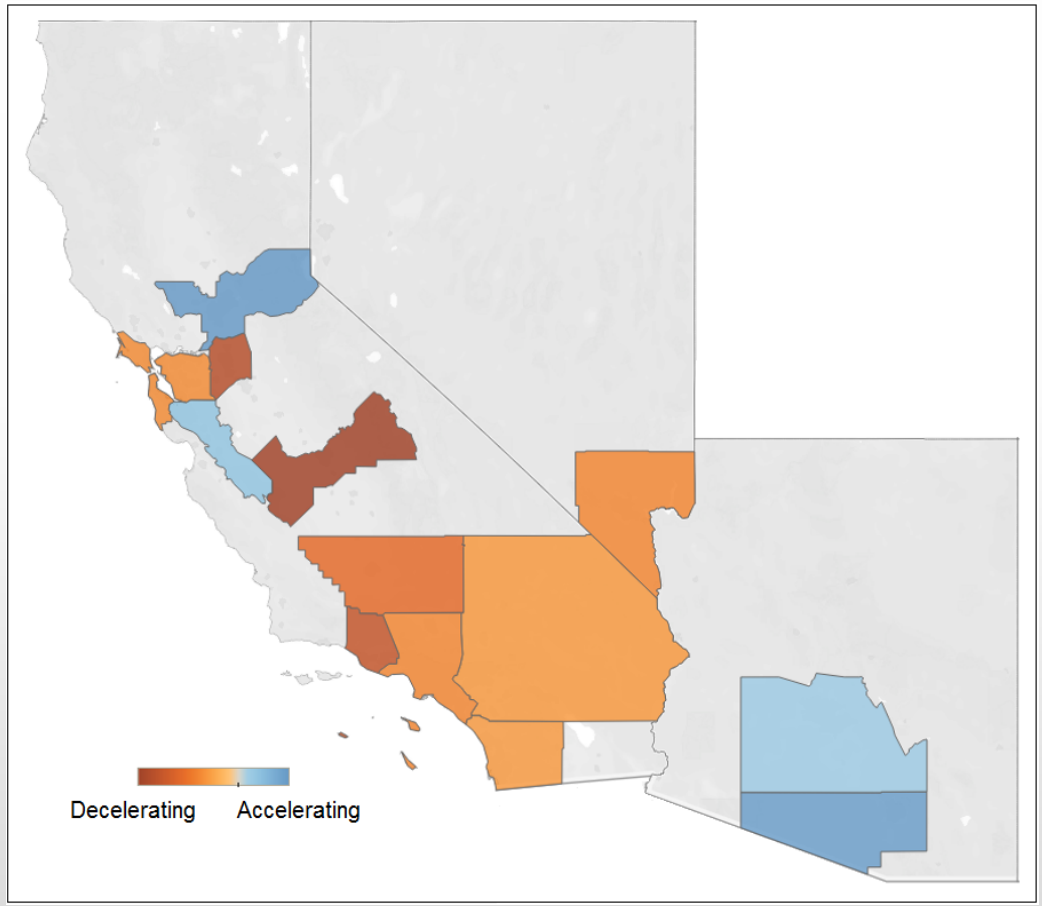
After Tax, $2012, Billions

Business Confidence Index

Amplitude Adjusted, Long-term Avg = 100

Source: BLS, BEA, OECD, PCA

Nonresidential MSA Level Momentum



Based on moving average growth relative to the past 24 months

Gives indication if market is accelerating or decelerating

Based on contract awards, which are forward looking

Las Vegas' commercial construction market, for instance, has been hot. This will show up in previous contract awards as tons start to be poured.

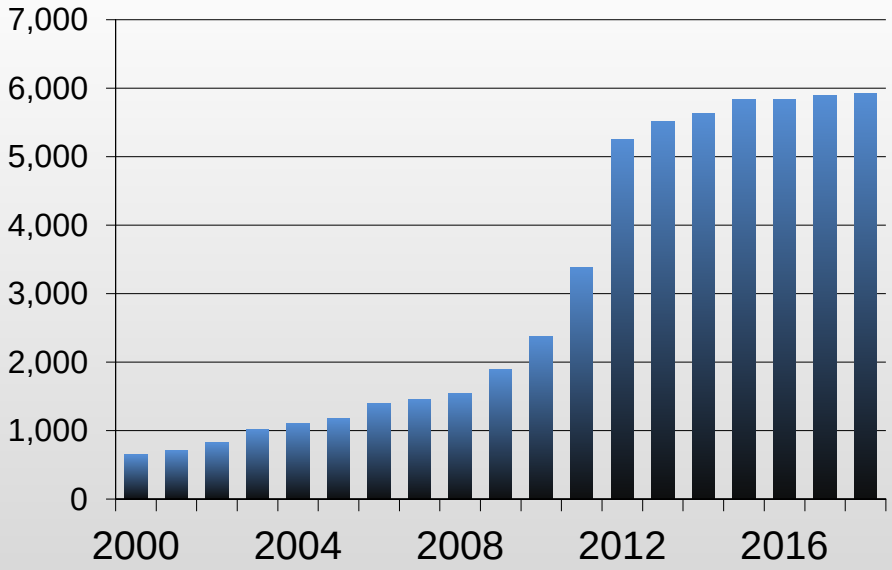
Source: Dodge, PCA

Wind Energy in California

- Installing wind capacity cement intensive.
- California "carbon-zero" electricity by 2045
- California has longest wind exposed coastline, yet a distant forth in installed wind capacity and less than quarter of Texas' capacity

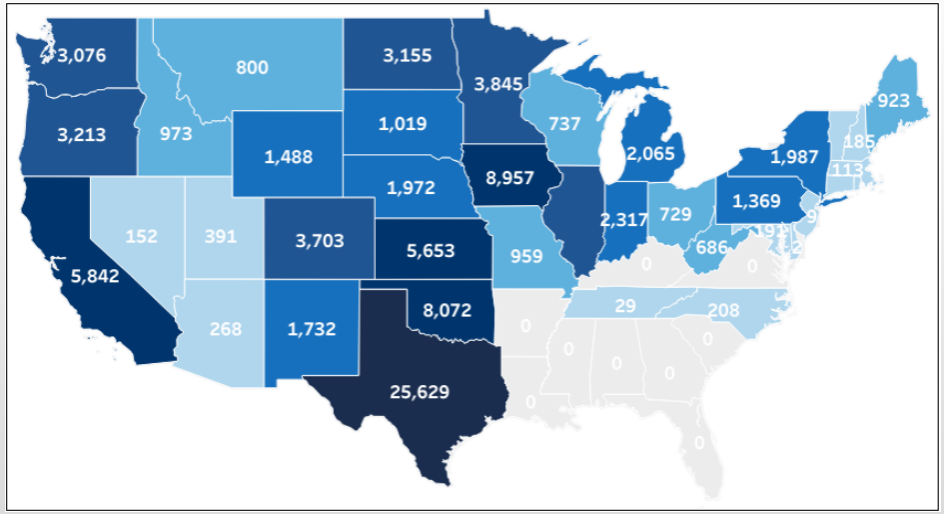
Pacific Wind Energy Production

Megawatts



Installed Wind Capacity by State

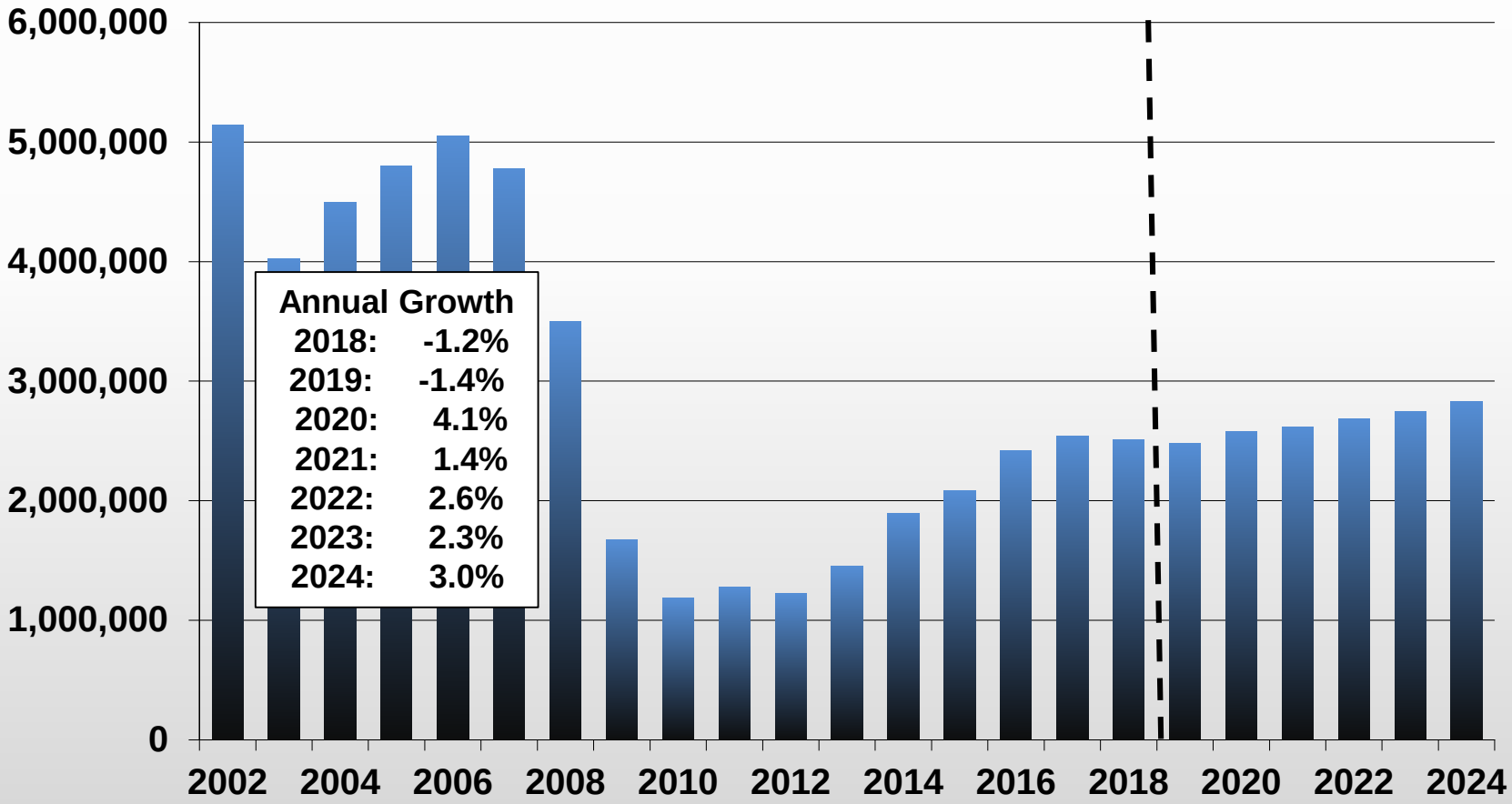
Megawatts



Source: AWEA, PCA

Nonresidential Cement Consumption: AZ, CA, NV

Metric Tons



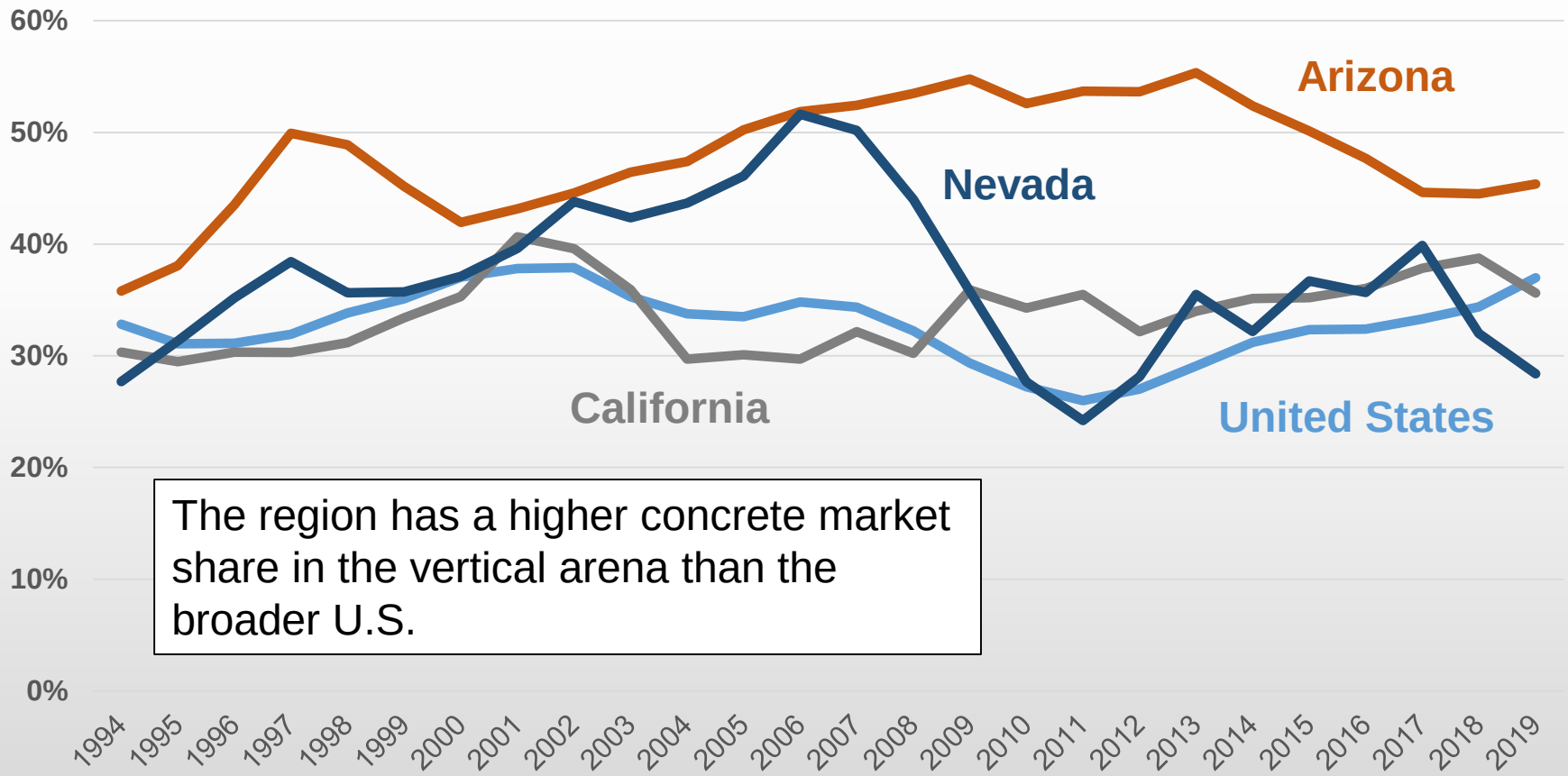
Source: PCA

Building Trends

PCA Since 1916
America's Cement Manufacturers™

Concrete Framing Shares in Total Commercial & Multifamily Buildings

SQFT based, 3YMA

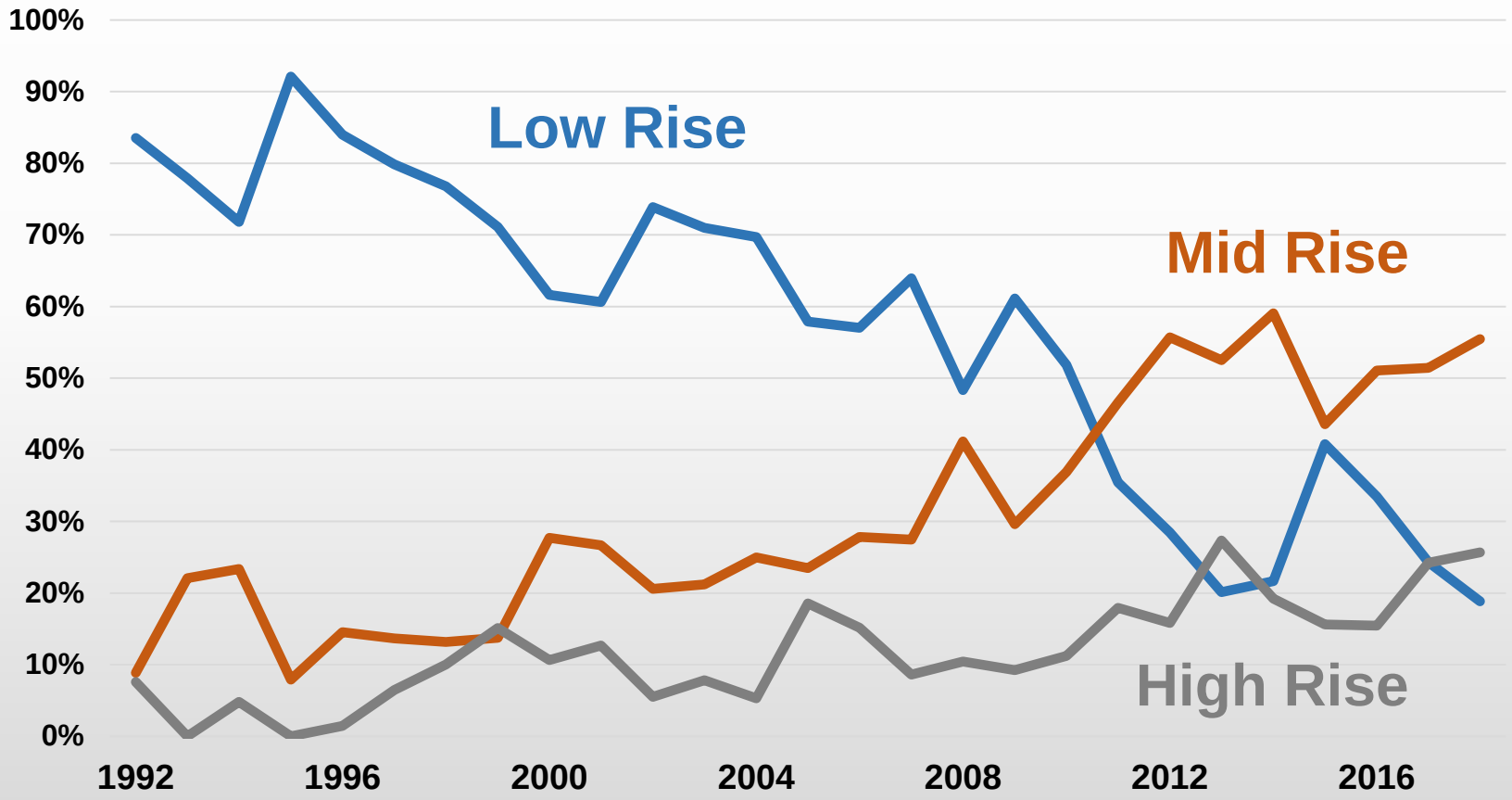


The region has a higher concrete market share in the vertical arena than the broader U.S.

Source: Dodge, PCA

Mid and High Rise Gaining in Importance

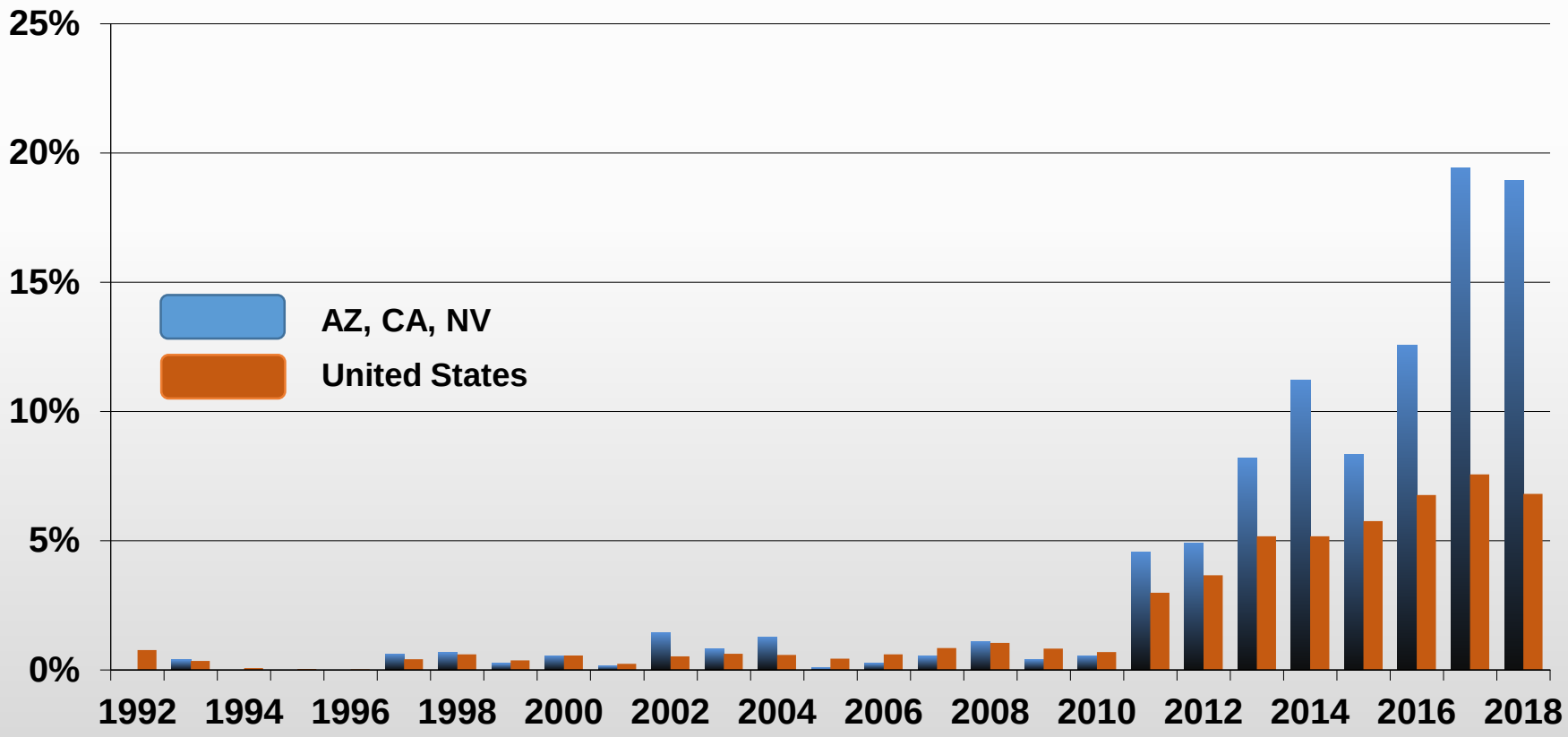
SQFT Based; California Lodging Construction



Source: Dodge Data & Analytics

Wood Framing Share (Lodging)

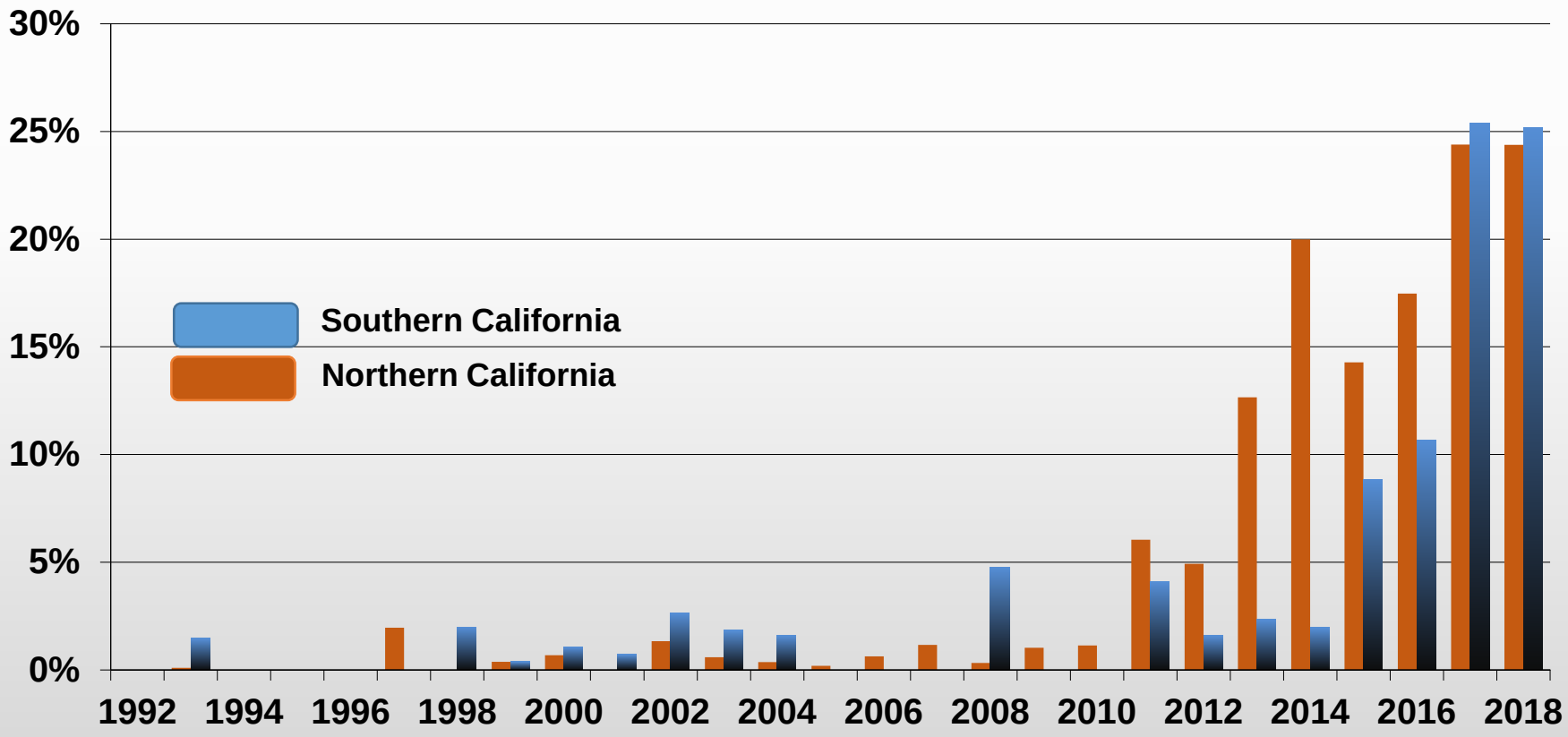
SQFT – Share of to total construction activity (6-10 stories)



Source: McGraw Hill, PCA

Wood Framing Share (Lodging)

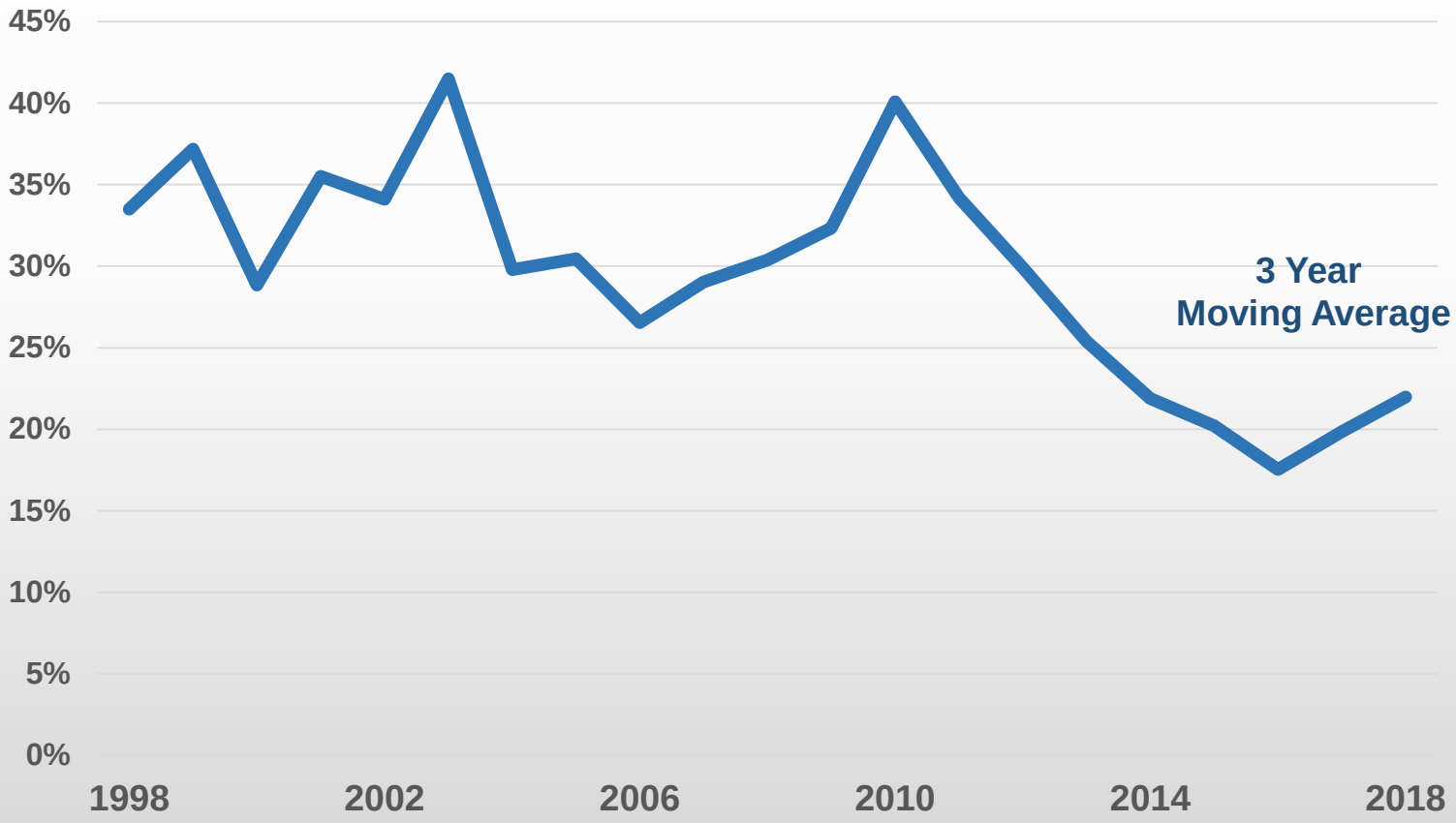
SQFT – Share of to total construction activity (6-10 stories)



Source: McGraw Hill, PCA

Concrete Framing Share in California Mid & High Rise Lodging

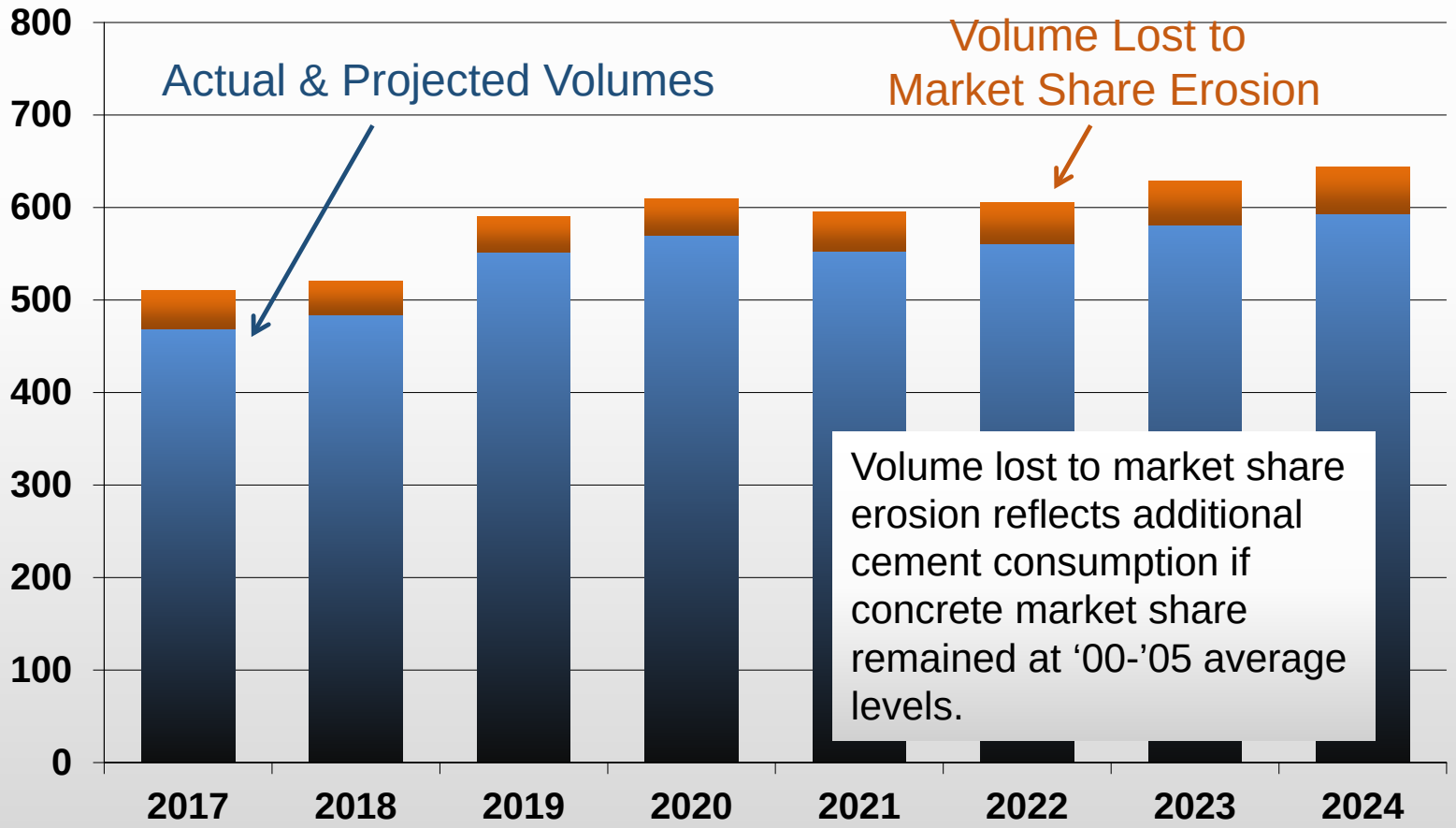
SQFT Based; 4+ Stories; Multifamily, Dorms, Hotels



Source: Dodge Data & Analytics

California Cement Consumption: Lodging Construction

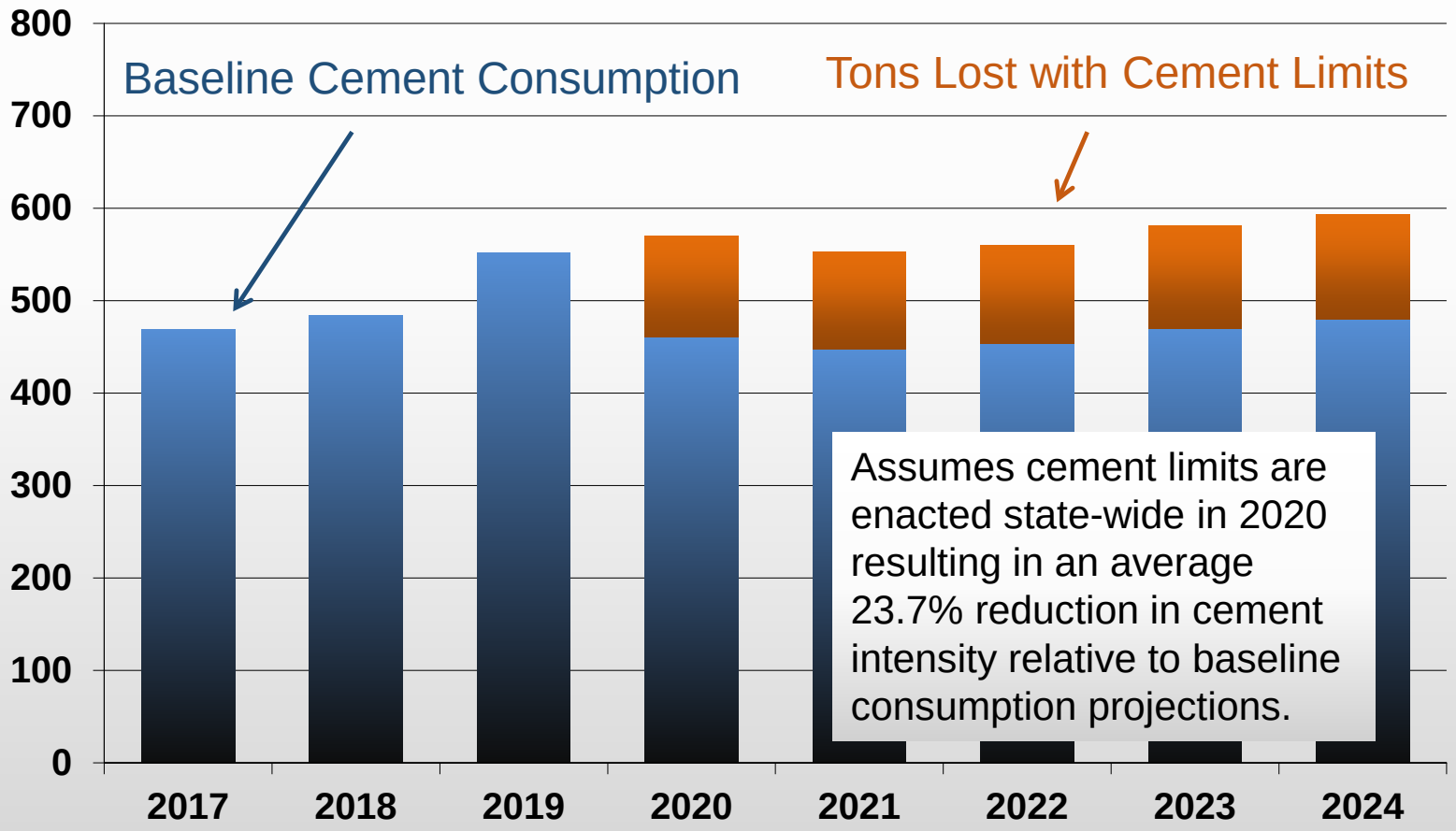
(000 Metric Tons); Multifamily, Dorms, Hotels



Source: PCA

Low Carbon Building Code: Tons at Stake

(000 Metric Tons); Lodging Construction Market



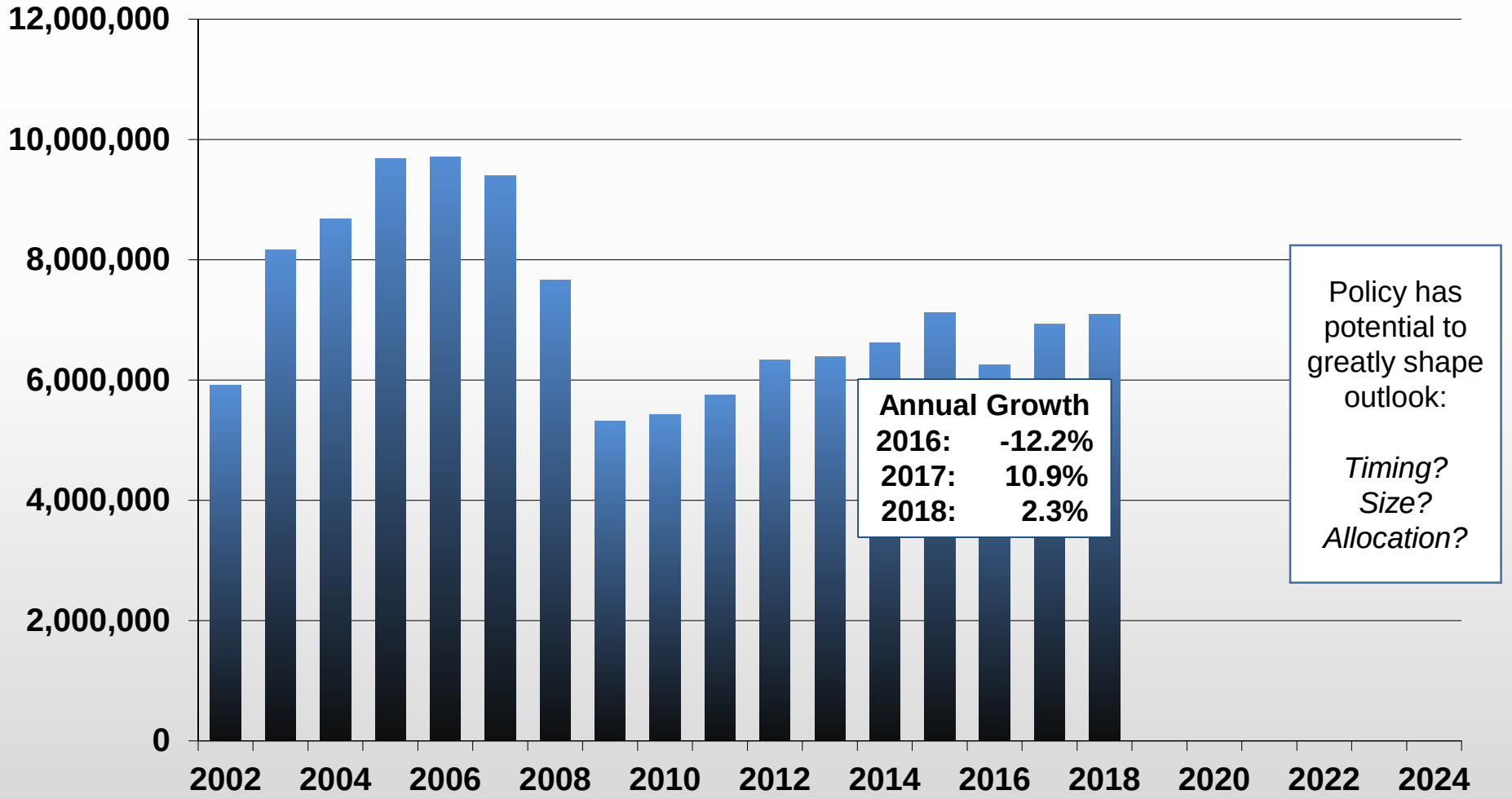
Source: PCA

Public Construction Outlook

PCA Since 1916
America's Cement Manufacturers™

Public Cement Consumption: AZ, CA, NV

Metric Tons

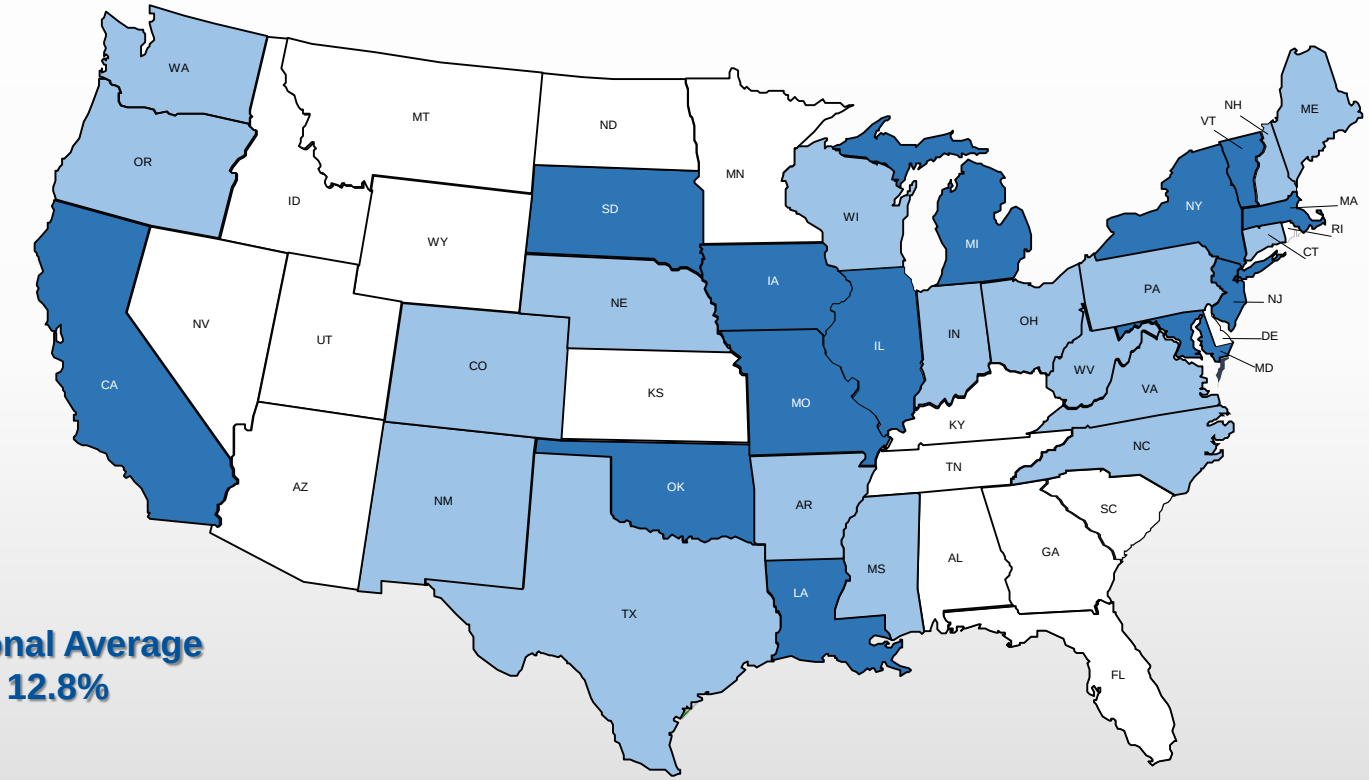


Source: PCA

PCA Since 1916
America's Cement Manufacturers™

The Need for Infrastructure Funding

% Share of lane miles rated 'poor' based on IRI



National Average 12.8%

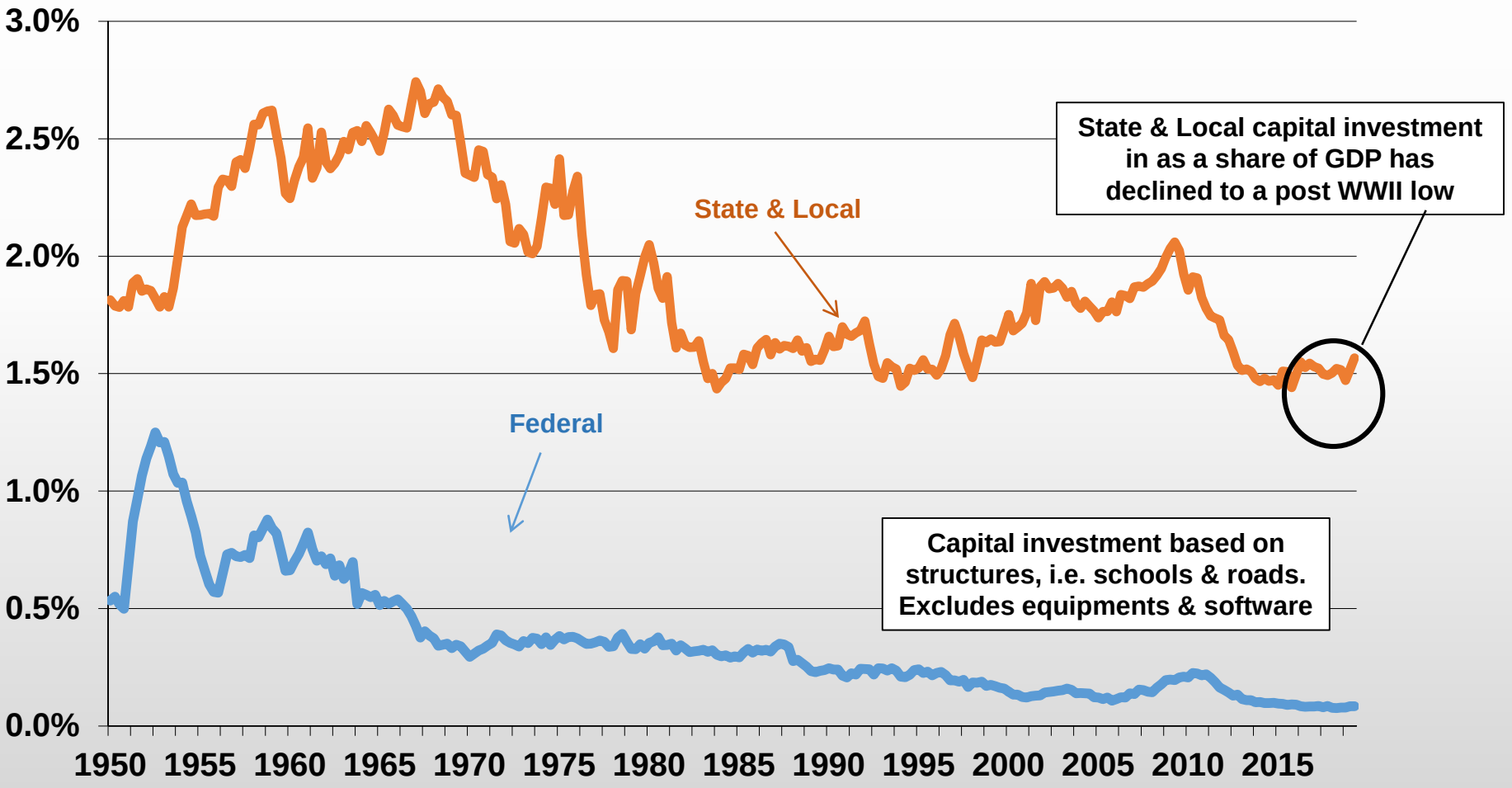
11%+

10% to 5%

Less Than 5%

Source: FHWA – Table HM-64, PCA

Public Capital Investment
Share of GDP



Source: BEA, PCA

PCA Since 1916
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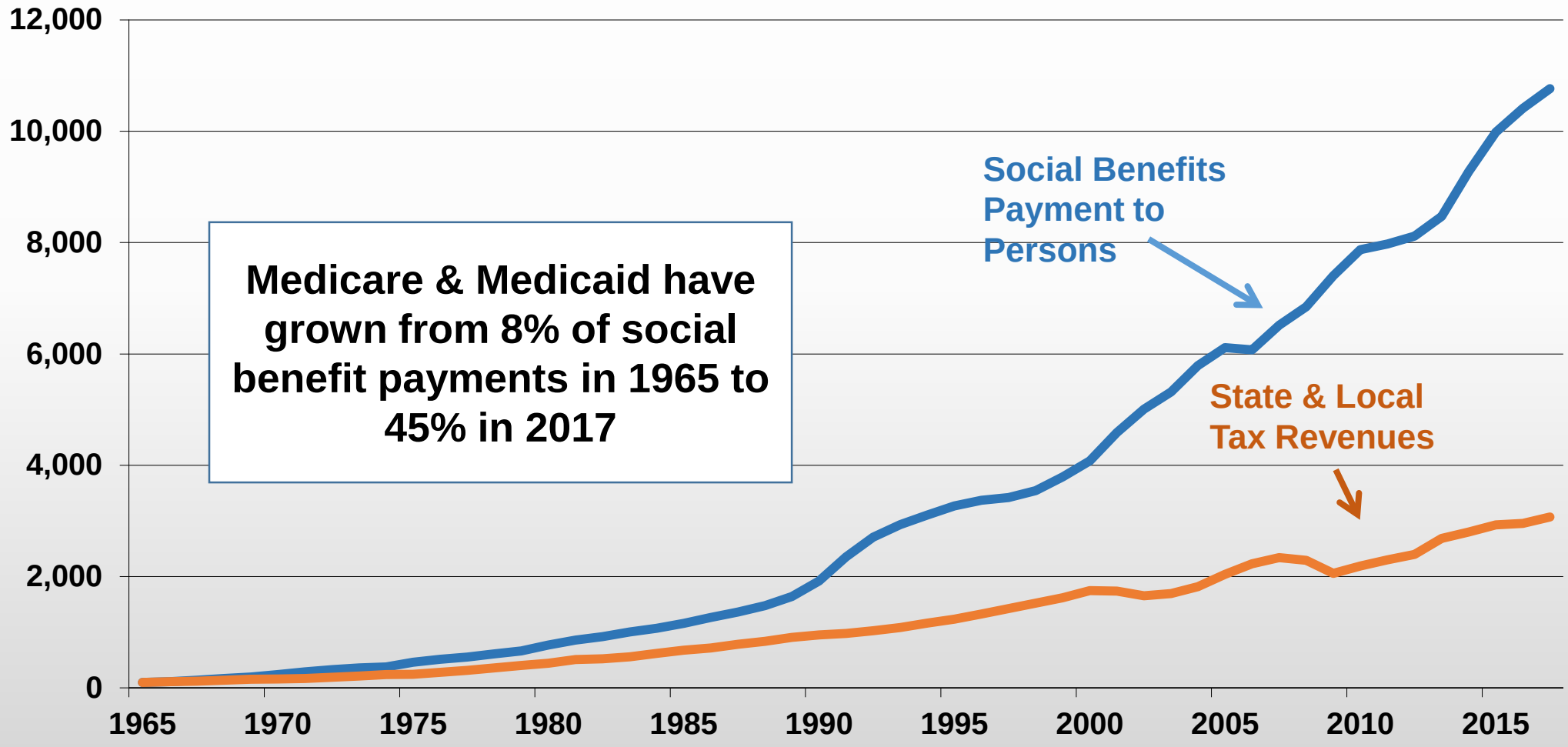
Medicaid Cost vs. Tax Revenue Growth

Index, 1965=100



Source: BEA, PCA

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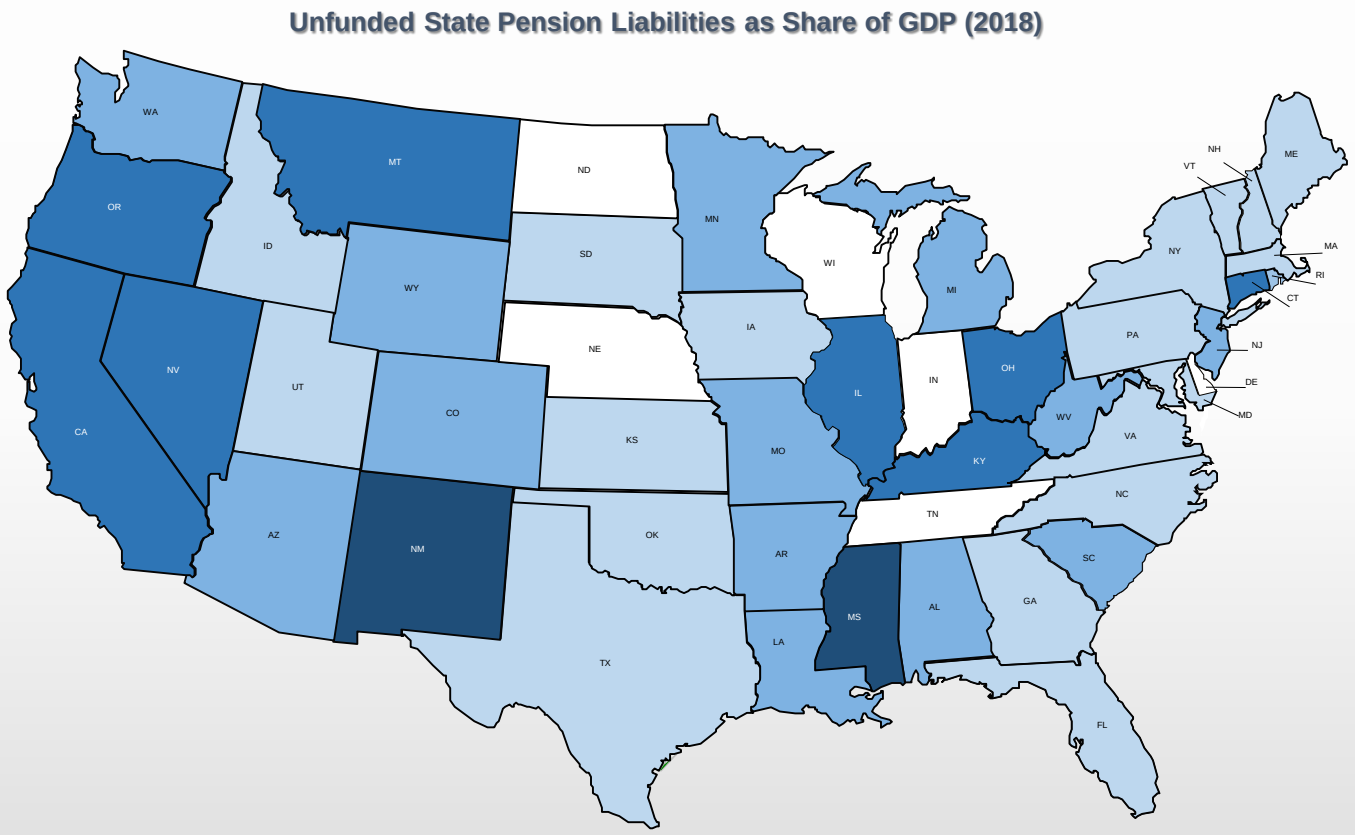
Unfunded State Pension Liabilities as Share of GSP



National Rank

	Per Capita	% of GSP
Nevada	44	47
California	48	39
Arizona	16	26

14% to 19% | 20% to 29% | 30% to 39% | 40% to 49% | 50% to 66%

Source: ALEC

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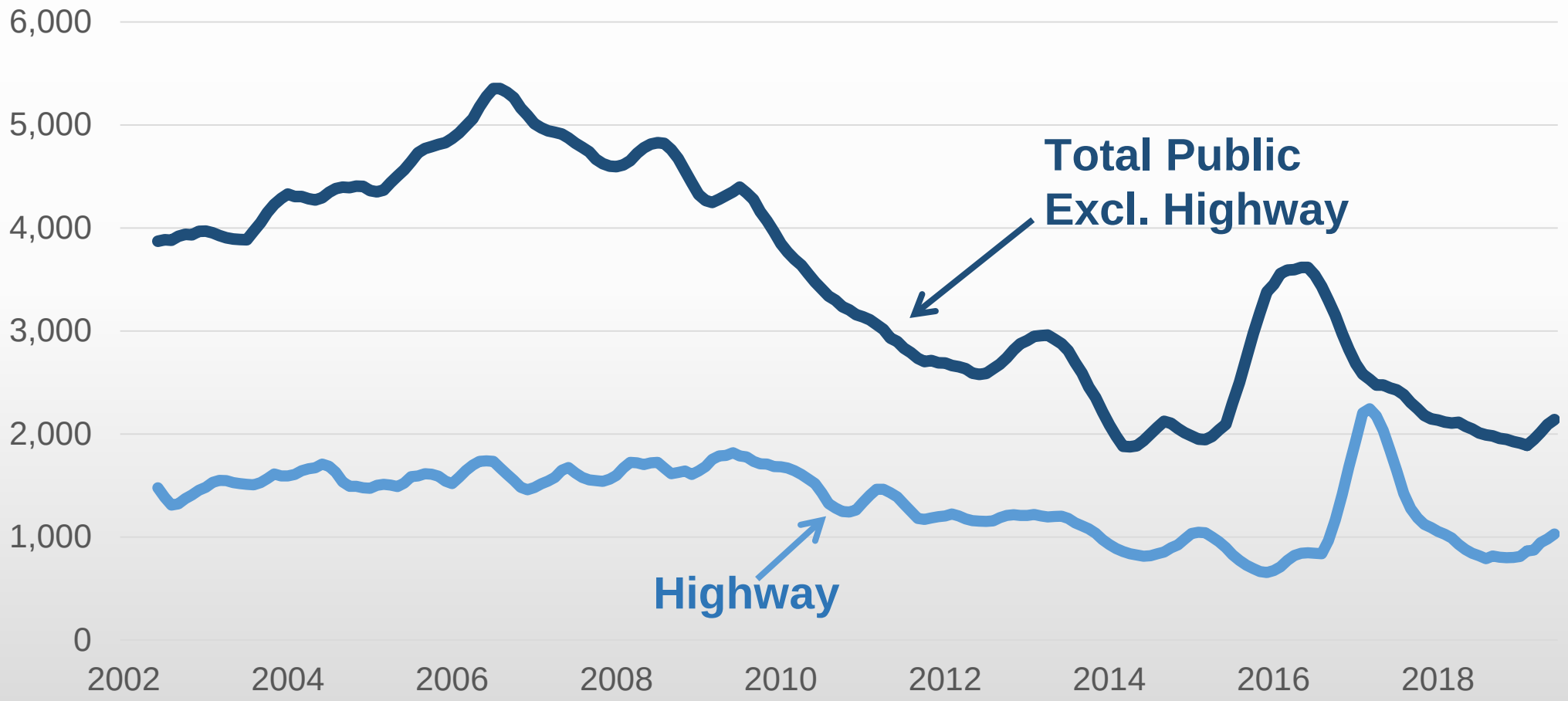
Public Construction Spending: Arizona

2009$s, Millions, 6MMA



Source: PCA

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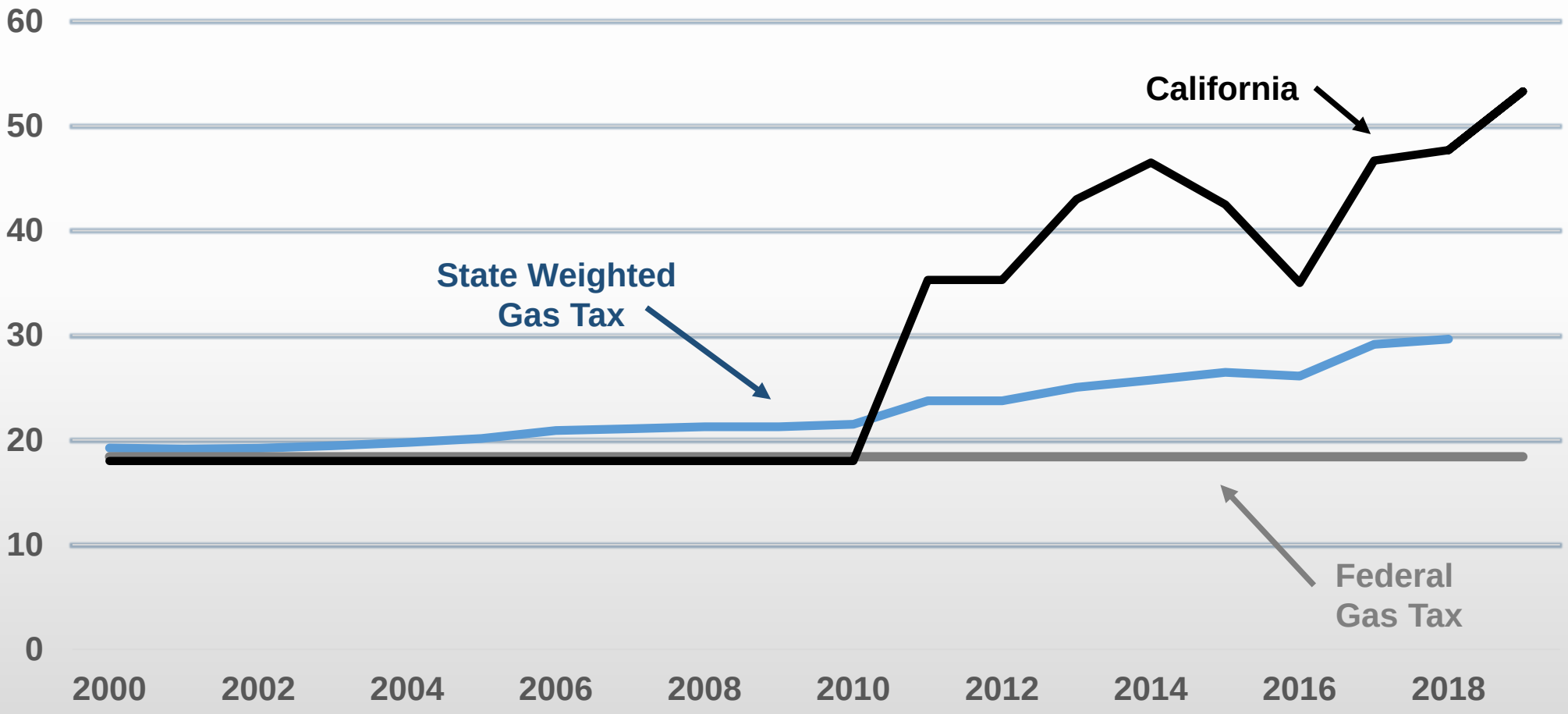
States are Increasingly Less Reliant on Federal Funds

Cents Per Gallon



Source: Federal Tax Administrators, FHWA, PCA

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California SB – 1 *(Annual Funding)*

- Maintenance & Rehabilitation of State Highway System: **$1.8 billion**
- New Funding to Transit Agencies: **$750 million**
  - *Funds will help transit increase access and build capital projects*
- Maintaining & Repairing the State's Bridges and Culverts: **$400 million**
- Trade Corridor Enhancement: **$300 million**
  - *Program will fund freight projects along import trade corridors*
- Repair Local Streets & Roads: **$1.5 billion**
- Solutions for Congested Corridor Program: **$250 million**
  - *Funds dedicated to improve traffic flow along states most congested routes*
- Matching Funds for Local Agencies: **$200 million**
- Bike & Pedestrian Projects: **$100 million**
- Research, training, grants and other: **$62 million**

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Potential Cement Impact

- SB – 1 Allocation at face value:
  - Estimated SB -1 Intensity : **154,000 Metric Tons Cement Per $1 billion of construction spending**
    - **820,812 Metric tons per year.**

- SB – 1 Allocation adjusted for *maintenance & sterilization*:
  - Intensity : **110,000 Metric Tons Cement Per $1 billion of construction spending**
    - **Assumes 30% funding sterilization**
    - **Assumes maintenance intensities**
    - **422,043 Metric tons per year.**

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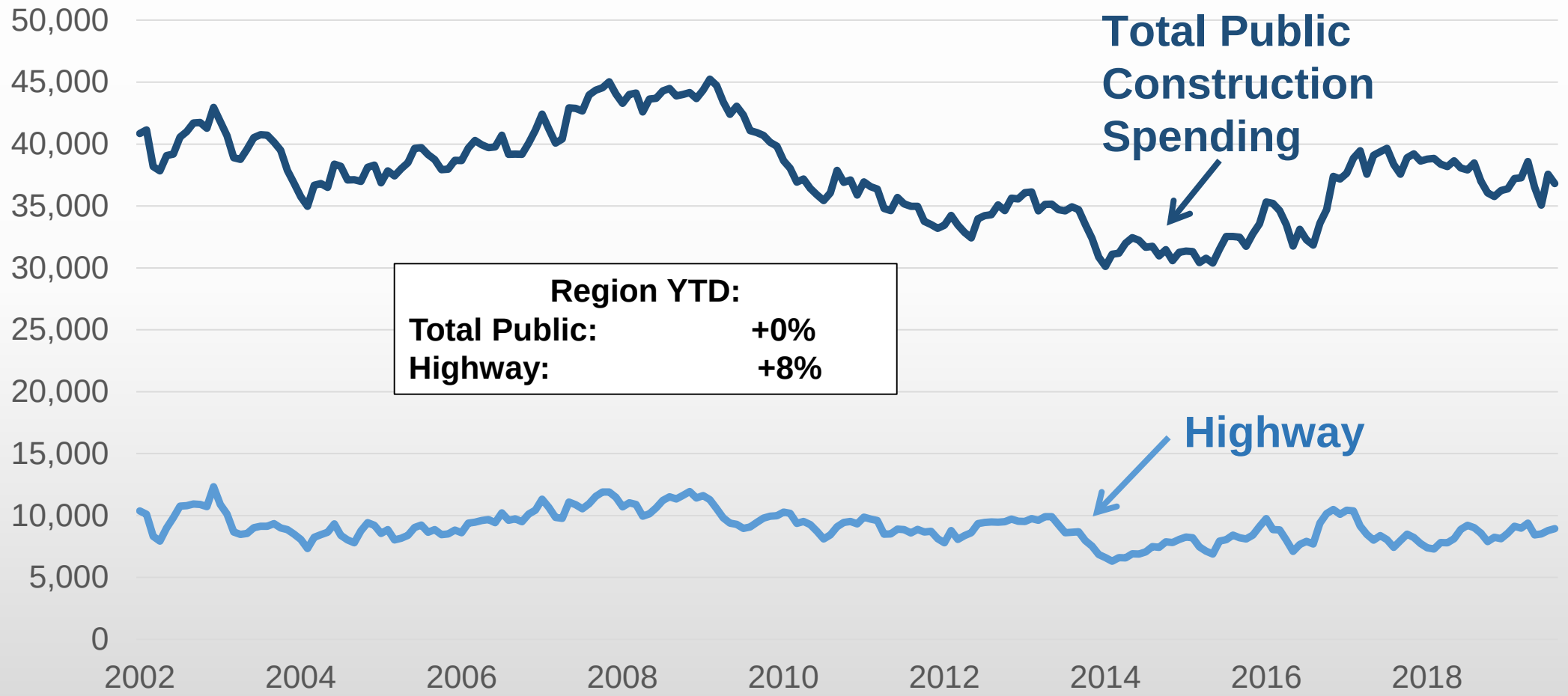
Public Construction Spending: AZ, CA, NV

2009$s, Millions, 6MMA



Source: PCA

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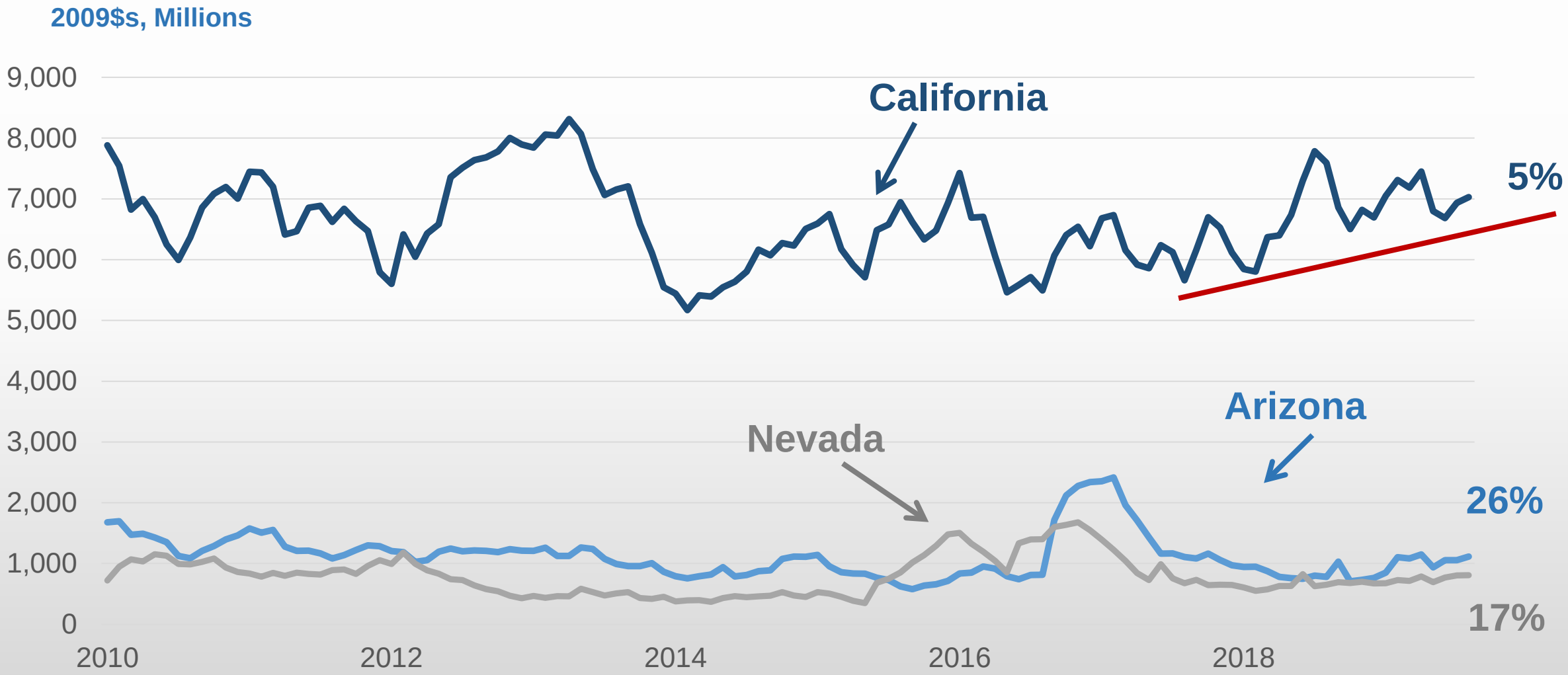
Highway Construction Spending:



Source: OMAN, PCA

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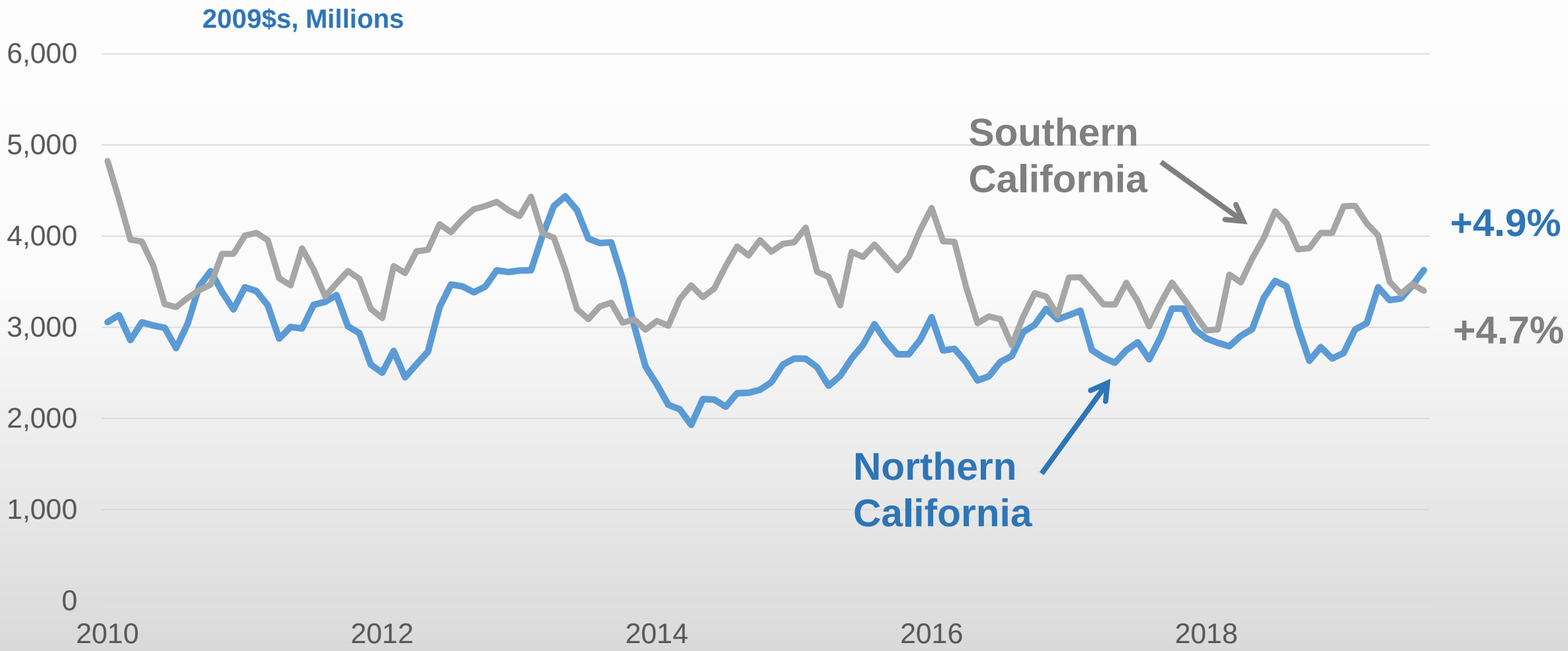
Highway Construction Spending:



Source: PCA

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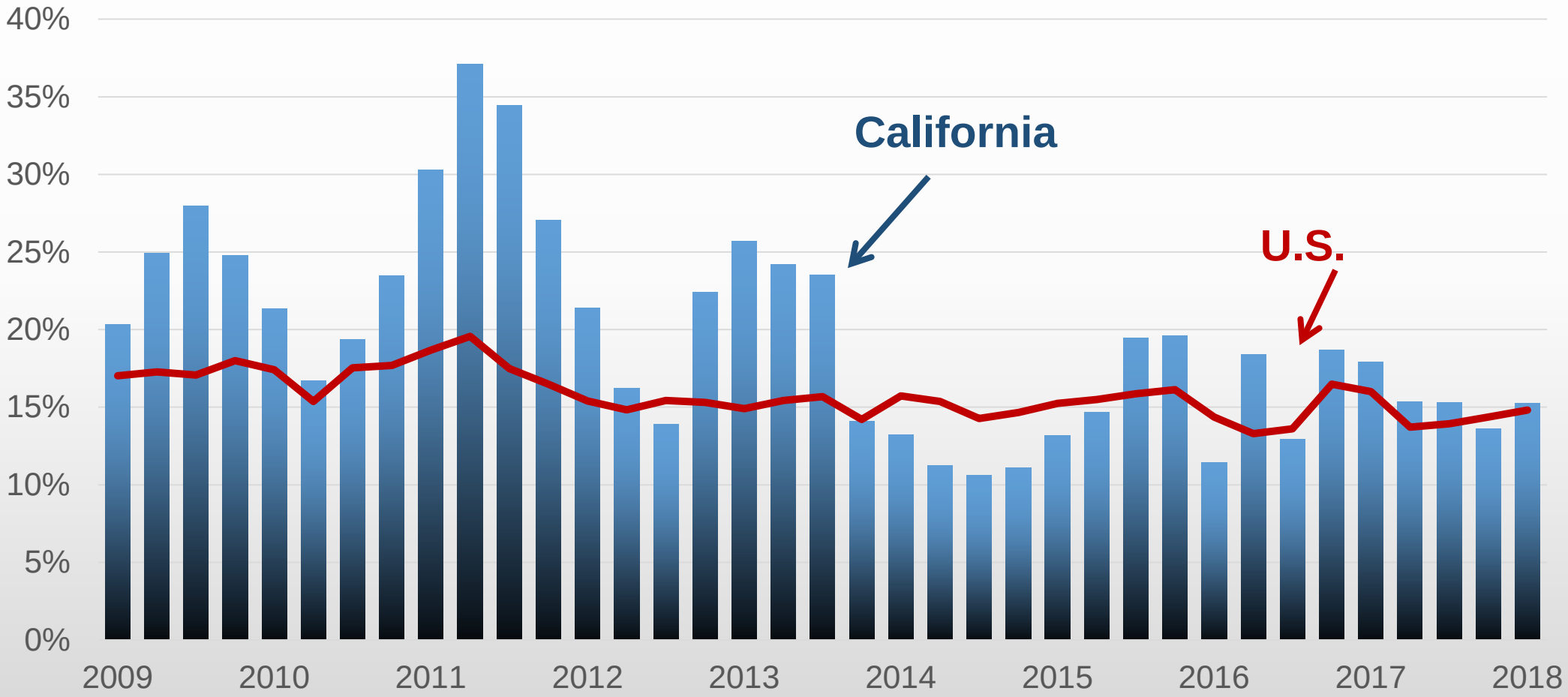
Oman Concrete Paving Shares

4Q Moving Average, Volume Based Share

AVG Share 2010-Present
Arizona: 7.7%
Nevada: 2.7%



Source: OMAN PCA

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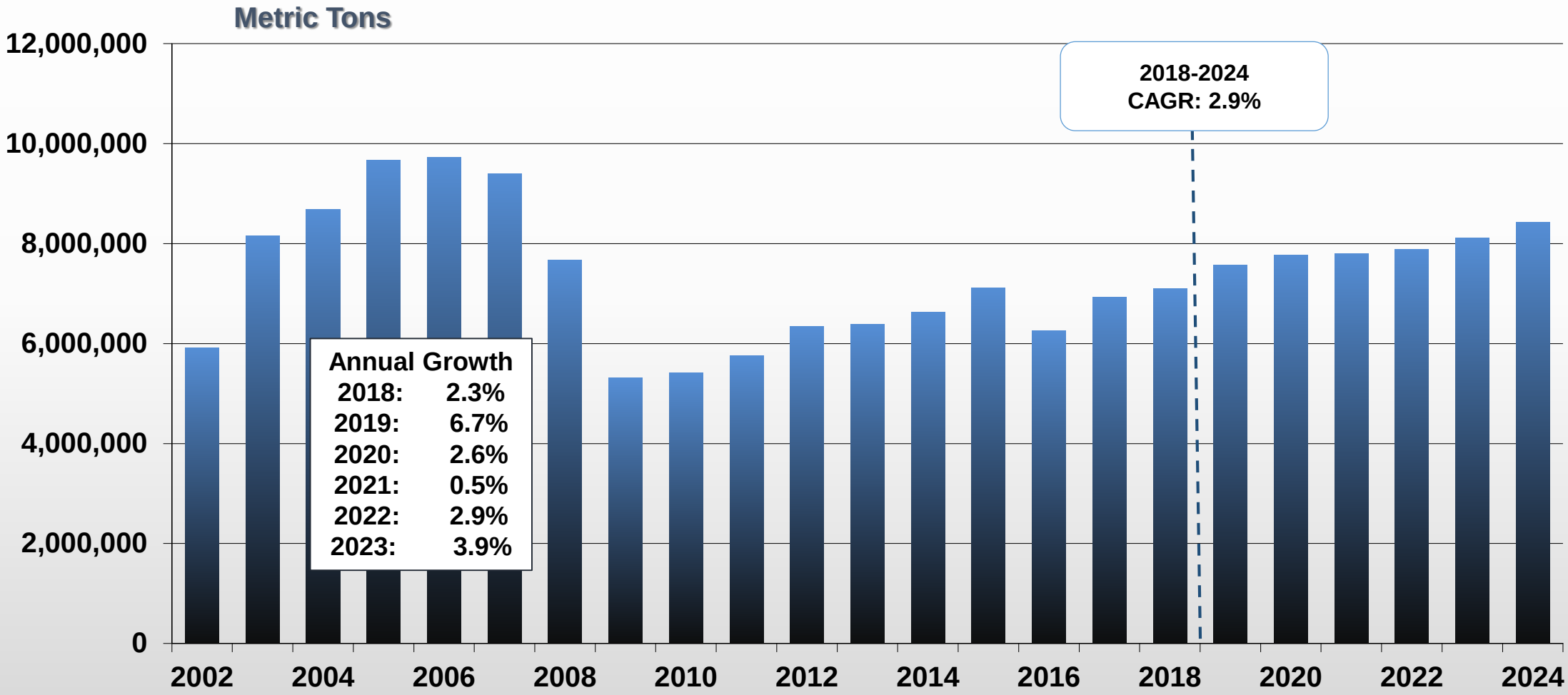
Public Cement Consumption: AZ, CA, NV



Source: PCA

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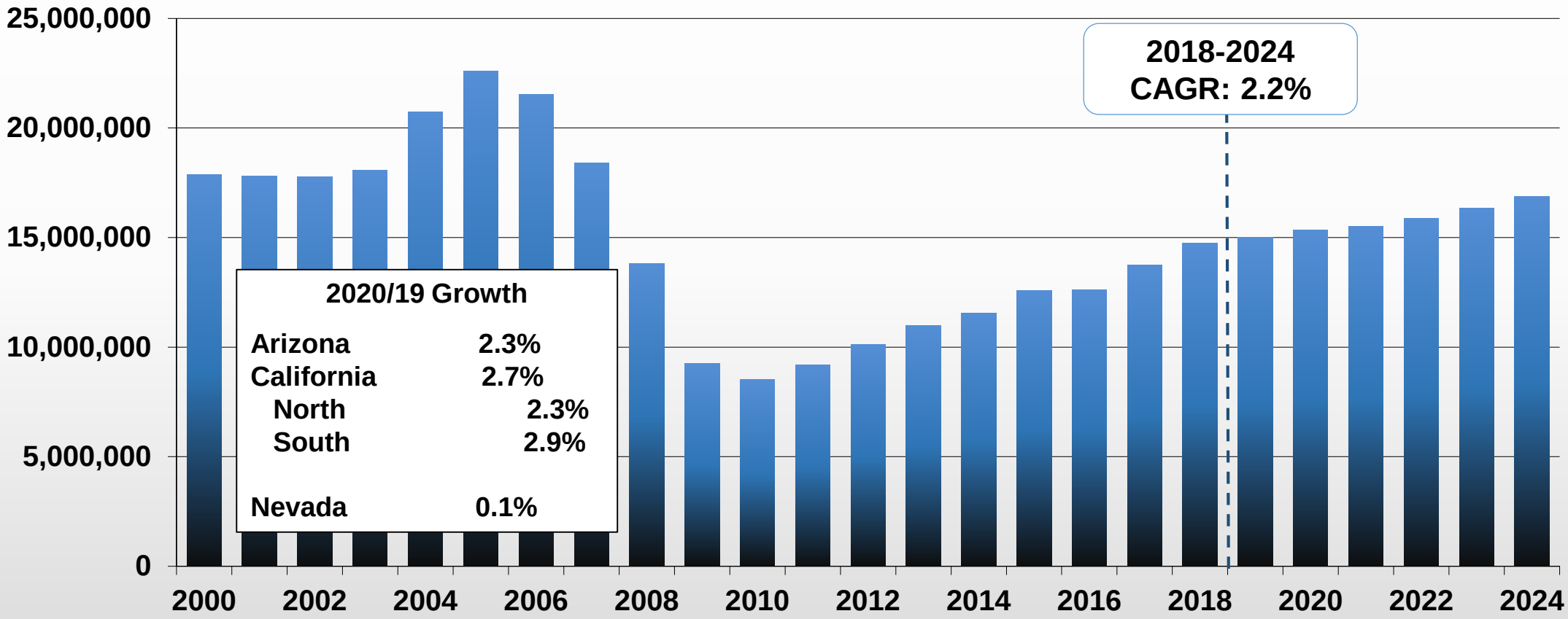
Total Cement Consumption – AZ, CA, NV

Metric Tons



2016	2017	2018	2019F	2020F	2021F	2022F	2023F	2024F
0.3%	9.0%	7.3%	1.6%	2.4%	1.1%	2.4%	2.9%	3.1%

Source: USGS, PCA

California/Nevada/Arizona Regional Cement Outlook

October 2019/Ontario, California