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Autodesk-AGC survey finds 80% of firms have trouble filling craft jobs, adding to cost, delays

Filling craft positions and some **salaried positions** is an even greater challenge for contractors than it was a year ago, according to participants in the Autodesk-AGC of America 2018 Workforce Survey, released on Wednesday. (The site includes results for four regions and 34 states, and by firm size, union/nonunion, and project type.) Of the 2,552 respondents (a 38% increase from the 2018 survey), 80% stated they were having a hard time filling some hourly craft positions (up from 70% in 2017), while 10% reported no difficulty and 9% had no openings. In addition, 56% said they were having a hard time filling some salaried positions (up from 38% in 2017), while 14% reported no difficulty and 29% had no openings. For all but one of 20 specific craft positions listed in the survey, a majority of respondents whose firms employ that craft said filling positions was harder than last year. (The sole exception was traffic control personnel, with 47% of respondents saying it was harder to fill than last year.) The **hardest craft positions to fill** were pipelayers, reported as harder to fill than a year ago by 72% of firms that currently employ them; sheet metal workers, reported by 68%; carpenters and concrete workers, each cited by 67%; cement masons and pipefitters/welders, each cited by 66%. For each craft, fewer than 4% of respondents said filling the position was easier than last year, while 7-16% said they hired without difficulty. Among 10 **salaried positions,** 49% of respondents said project manager/supervisor positions were harder to fill than last year; engineers, 38%; and estimating personnel, 36%. More firms than in 2017 increased **base pay rates** for hourly craft workers (62%, vs. 50% in 2017) and salaried workers (56%, vs. 43% in 2017) because of difficulty filling positions. To add to their labor supply, firms turned to: engaging with career-building programs (48%, vs. 27% in 2017); craft staffing firms (32%, vs. 22% in 2017); executive and non-craft worker search firms (29%, vs. 23% in 2017). To replace workers or skills, 25% of firms used methods to reduce onsite worktime (e.g., lean construction, virtual construction or offsite fabrication) and 25% used labor-saving equipment (e.g., drones, robots, 3-D printers, laser- or GPS-guided equipment). Nearly half of respondents said costs have been higher than anticipated (44%) and/or have taken longer than anticipated (46%), while 47% have put higher prices into bids or contracts and 27% have put in longer times.

Construction employment, not seasonally adjusted, rose from July 2016 to July 2017 **in** 281 (78%) of the 358 **metro areas** (including divisions of larger metros) for which the Bureau of Labor Statistics (BLS) provides construction employment data, fell in 41 (11%) and was unchanged in 36, according to an AGC analysis posted on Wednesday. (BLS combines mining and logging with construction in most metros to avoid disclosing data about industries with few employers.) The largest gains occurred in Houston-The Woodlands-Sugar Land (25,500 construction jobs, 12%), followed by the Dallas-Plano-Irving metro division (13,100 combined jobs, 9%) and Phoenix-Mesa-Scottsdale (13,000 construction jobs, 11%). The largest percentage gains occurred in Merced, Calif. (32%, 800 combined jobs), followed by Midland, Texas (26%, 7,400 combined jobs) and New Bedford, Mass. (22%, 600 combined jobs). The largest job losses were in the Middlesex-Monmouth-Ocean, N.J. division (-3,900 combined jobs, -10%), followed by Nashville-Davidson—Murfreesboro—Franklin (-3,000 combined jobs, -7%). The largest percentage losses (10% each) occurred in Columbia, S.C. (-2,200 combined jobs), Spokane-Spokane Valley, Wash. (-1,500 combined jobs) and Middlesex-Monmouth-Ocean. July employment was a record high for the month in 71 metros (dating back in most areas to July 1990), the most July peaks since 2006; three areas set a new July low.

The Federal Highway Administration recently posted the National **Highway Construction Cost** Index for March. The index increased by 0.2% from December 2017 and 2.9% over 12 months, following a decrease of 0.9% in the previous 12 months. The agency states that it "uses data on State web-postings of winning bids submitted on highway construction contracts. The data represent a detailed universe of prices and quantities of pay items for those winning contracts. A pay item is a unit of work, construction material, labor, or service for which price and quantity is provided in the contract. The NHCCI covers the universe of the nation's highway projects and arrive at an average cost index for all highway construction." By comparison, BLS's producer price index (PPI) for inputs to highway and street construction, which measures producers' selling prices for goods and services sold to highway contractors, increased 2.4% from December 2017 to March and 5.5% over 12 months.

Distributor New South Construction Supply reported on Wednesday in its monthly e-newsletter, "As it was the case in July, few manufacturers of **construction materials** we distribute increased **prices** or announced price increases in August; however, a few manufacturers are now increasing prices for steel construction products as a result of the tariffs imposed by the Trump administration last spring. The increases are also due to domestic manufacturers implementing yet another price increase on wire rod and steel flats in August….Domestic rebar prices were unchanged in August, despite strong demand and most mills rollings being sold out until mid to late September. [Two manufacturers] will increase prices by 10% on masonry reinforcing, ties, and all other steel masonry accessories the first week in September….Importers of construction products from China notified their customers that they will increase prices by 10% on or about September 2 for anchor bolts and other steel anchors if the [U.S. imposes a retaliatory] 10% tariff." On August 23, the U.S. imposed tariffs on $16 billion worth of imports from China. The American Institute of Steel Construction reported on August 9, "This is the first time that tariffs have been extended beyond mill products to include fabricated structural steel."

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The Economic Impact of Construction in the United States and Texas

Economic Impact of Construction:

- U.S. gross domestic product (GDP)—the value of all goods and services produced in the country—totaled $19.3 trillion in 2017; construction contributed $826 billion (4.3%).
- In Texas, construction contributed $93 billion (5.5%) of the state's GDP of $1.7 trillion, more than the industry's 4.3% share of U.S. GDP.
- Construction wages and salaries in 2017 totaled $427 billion in the United States, including $45 billion in Texas.

Nonresidential Construction Spending:

- Nonresidential spending in the U.S. totaled $714 billion in 2017 ($438 billion private, $277 billion public).
- Private nonresidential spending in Texas totaled $45 billion in 2017. State and local spending totaled $31 billion.
- Nonresidential starts in Texas totaled $57 billion in 2017 and $51 billion in 2016, according to ConstructConnect.

Construction Employment (Seasonally Adjusted):

- Construction (residential + nonresidential) employed 7.2 million workers in July 2018, an increase of 308,000 (4.4%) from July 2017, but 6.3% less than in April 2006, when U.S. construction employment peaked.
- Construction employment in Texas in July 2018 totaled 768,300, an increase of 8.1% from July 2017, a record high.

Construction Industry Pay:

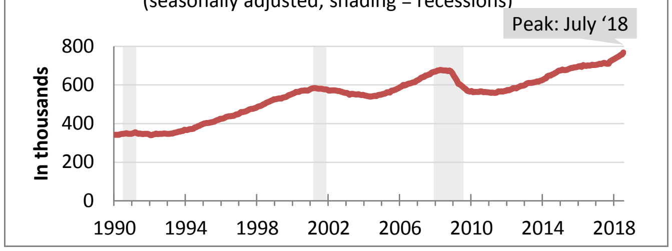
- In 2017, pay for all construction industry employees in the U.S. averaged $60,700, 10% more than the average (mean) for all private-sector employees.
- Pay for construction industry employees in Texas averaged $63,200 in 2017, 12% more than the average for all private-sector employees in the state.
- Four out of the five most numerous construction *occupations* in Texas had higher median pay than the median for all employees in the state. (Half of workers earn more than the median; half earn less.)

Small Business:

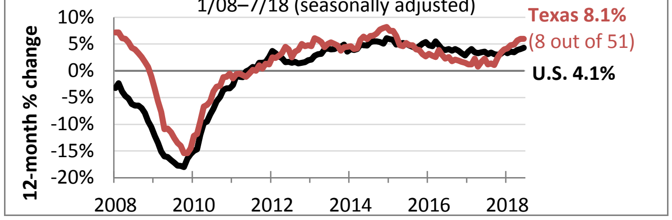
- The United States had 669,000 construction firms in 2015, of which 92% were small (1 to 19 employees).
- Texas had 40,900 construction firms in 2015, of which 87% were small.

*The Bureau of Labor Statistics reports employment for construction, mining and logging combined for metro areas in which mining and logging have few employers. To allow comparisons between states and their metros, the table shows combined employment change for these metros. Not seasonally adjusted statewide data is shown for both construction-only and combined employment change.

Texas Construction Employment, 1/90–7/18
(seasonally adjusted; shading = recessions)



Construction Employment Change from Year Ago
1/08–7/18 (seasonally adjusted)



Empl. Change by Metro (not seasonally adjusted)		**Rank**
Metro area or division	**7/17–7/18**	**(out of 358)**
Statewide (Construction)	8%	
Statewide (Mining, logging, and construction)*	9%	
Abilene*	0%	282
Amarillo*	8%	62
Austin-Round Rock*	7%	89
Beaumont-Port Arthur*	2%	248
Brownsville-Harlingen*	-3%	334
College Station-Bryan*	1%	266
Corpus Christi*	5%	150
Dallas-Plano-Irving Div.*	9%	46
El Paso*	4%	183
Fort Worth-Arlington Div.*	1%	266
Houston-The Woodlands-Sugar Land	12%	14
Killeen-Temple*	0%	282
Laredo*	-3%	334
Longview*	-3%	334
Lubbock*	5%	150
McAllen-Edinburg-Mission*	-1%	319
Midland*	26%	2
Odessa*	10%	35
San Angelo*	5%	150
San Antonio-New Braunfels	10%	35
Sherman-Denison*	3%	223
Texarkana, TX-AR*	3%	223
Tyler*	5%	150
Victoria*	0%	282
Waco*	8%	62
Wichita Falls*	-3%	334

5 most numerous construction jobs and median annual pay in Texas

Occupation	**Number of employees**	**Median annual pay**	**Pay relative to all employees**
All occupations	11,890,880	$36,170	
Construction Laborers	108,260	$29,710	-18%
First-Line Supervisors of Construction Trades and Extraction Workers	71,220	$64,260	+78%
Electricians	60,080	$47,380	+31%
Plumbers, Pipefitters, and Steamfitters	42,050	$47,860	+32%
Operating Engineers and Other Construction Equipment Operators	38,340	$38,370	+6%

Source: Ken Simonson, Chief Economist, AGC of America, simonsonk@agc.org, from Bureau of Economic Analysis (GDP); Census Bureau (spending, small business); ConstructConnect (starts); Bureau of Labor Statistics (employment, pay).

September 11, 2018

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THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
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US & TX Construction Spending, Labor and Materials Outlook

Dallas, TX September 12, 2018

Ken Simonson

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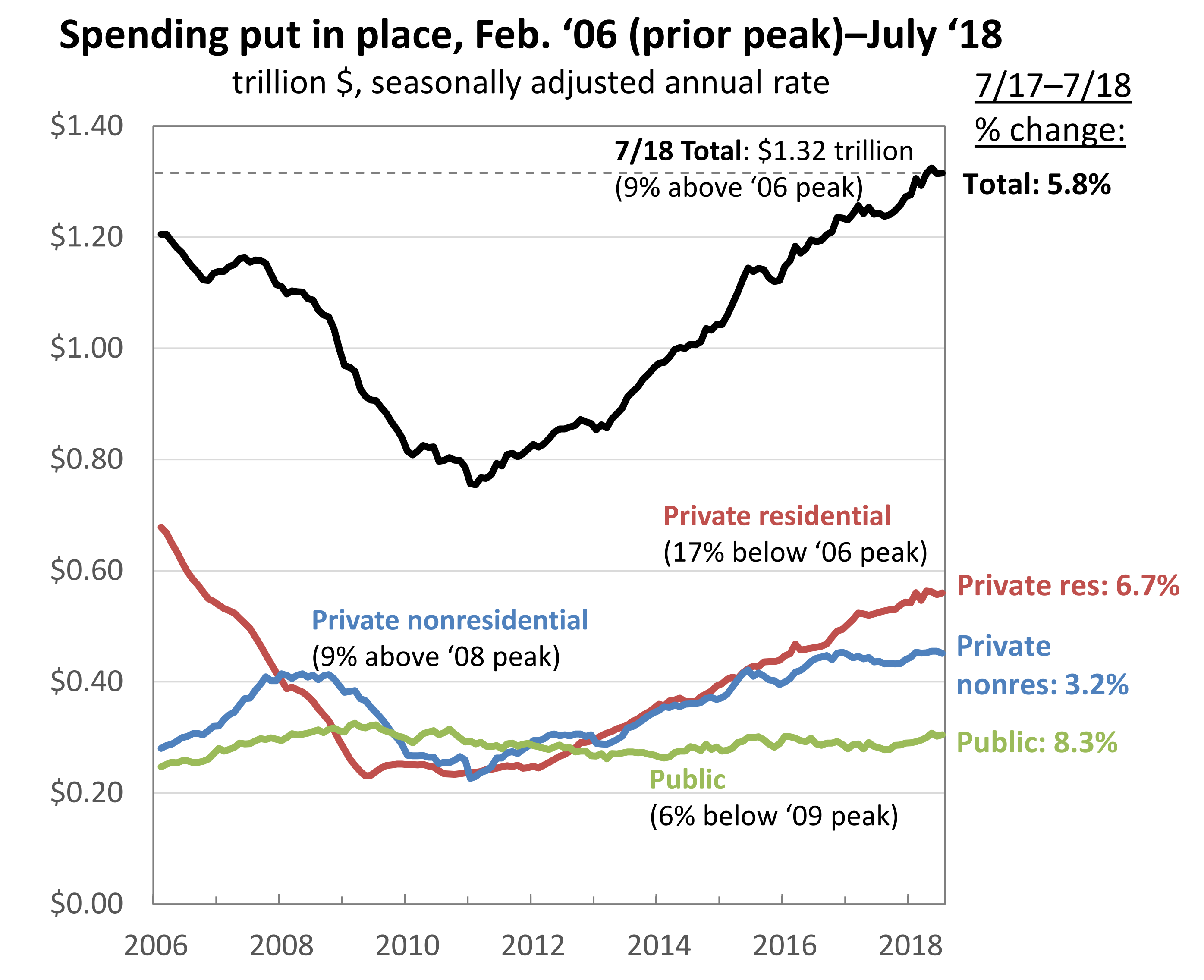
Quality People.
Quality Projects.

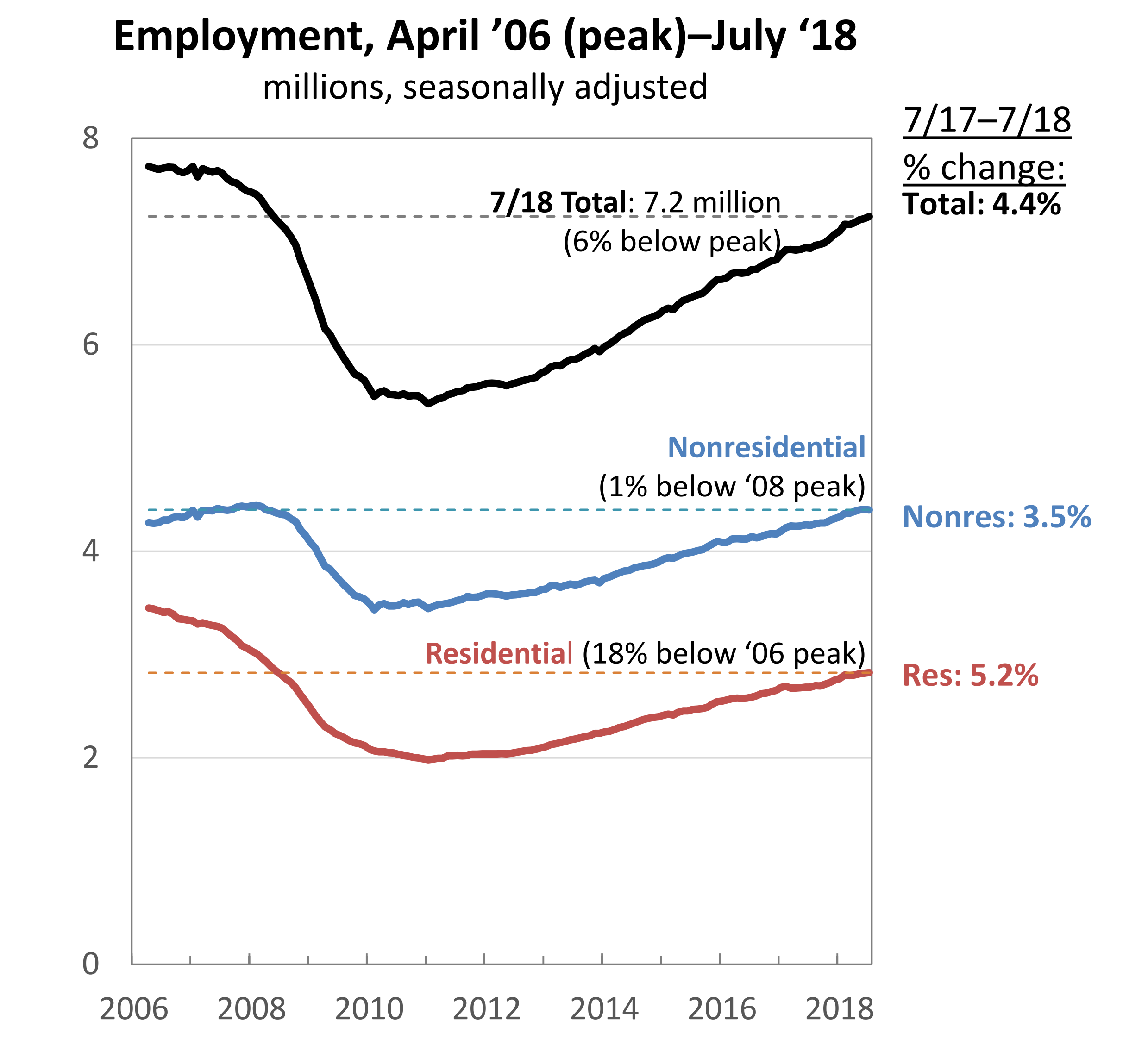
Headline Forecast

- The US economy is strong and growing; 4.2% 2nd quarter real GDP growth; consumer, business confidence are high
- Trade tensions continue as tariffs, retaliation widen; metals, lumber and other prices rising at double-digit rates, squeezing contractors' profits
- Construction employment is rising at 3x the rate of overall employment; unemployment is at an 18-year low; majority of contractors regardless of sector or size are struggling to fill craft and other skilled positions
- AGC priorities: infrastructure, career training and education, immigration

Source: Author

Construction spending & employment, 2006–2018





Nonresidential spending by segment: 2017 change, 2018 forecast

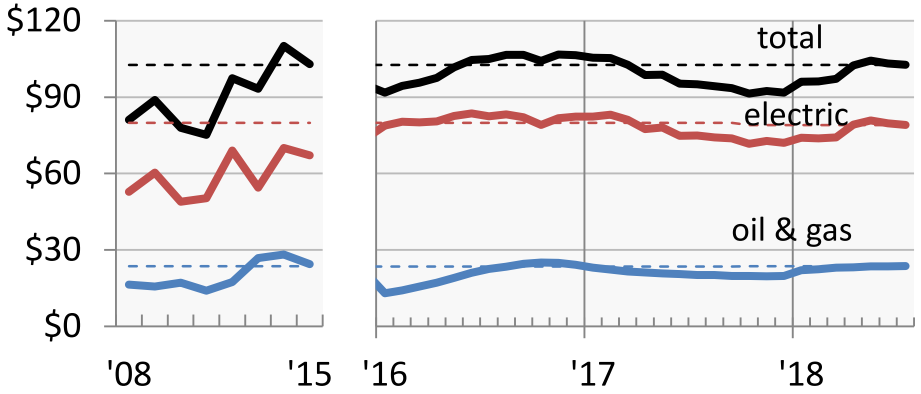
	2017 vs. 2016	Jan–July '18 vs. Jan–July '17	2018 forecast
Nonresidential total (public+private)	**-0.5%**	**3%**	**2018: 2-4% 2019: 2-5%**
Power (incl. oil & gas field structures, pipelines)	-5	1	0-3%
Educational	1	1	0-3%
Highway and street	-4	4	2-5%
Commercial (retail, warehouse, farm)	12	5	4-7%
Office	-1	7	5-8%
Manufacturing	-13	-7	-3 to 0%
Transportation	4	16	12-15%
Health care	4	2	2-5%
Lodging	6	10	7-10%
Sewage & waste disposal	-12	9	7-10%
Other--amusement; communication; religious; public safety; conservation; water: 11% of '17 total	3	5	2-5%

Source: U.S. Census Bureau construction spending report; Author's forecast

Construction spending: industrial, heavy

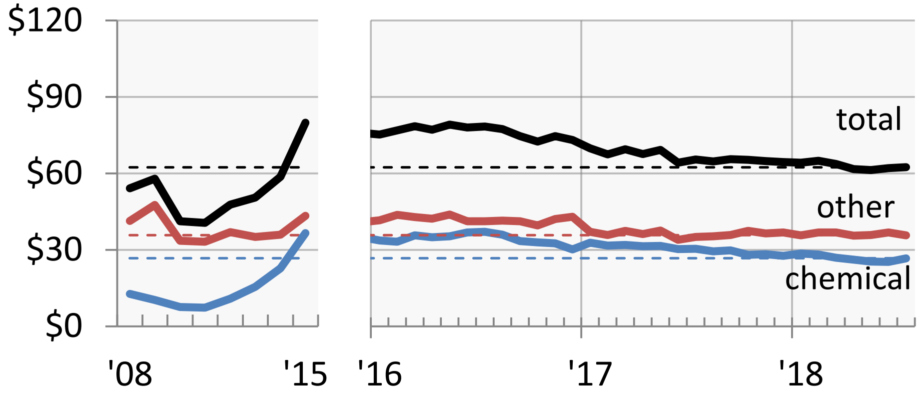
annual total, 2008–15; monthly (seasonally adjusted annual rate), 1/16–7/18; billion $

Power (94% private in 2017)



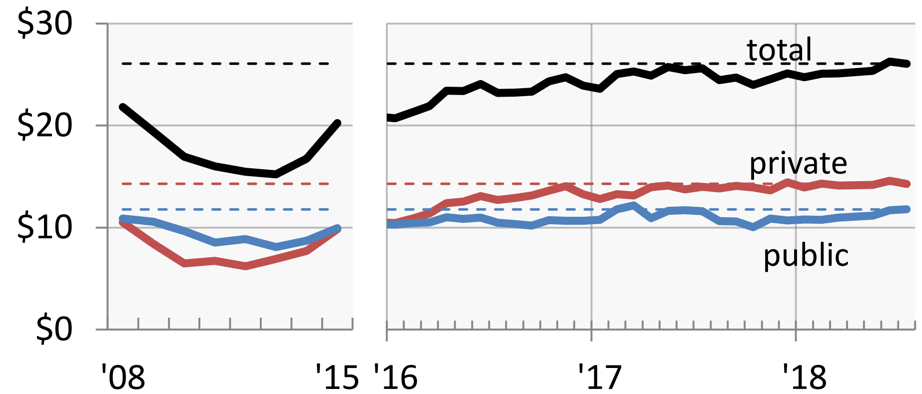
July ‘17–July '18: 8% (oil & gas 17%; electric 6%)

Manufacturing (99% private in 2017)



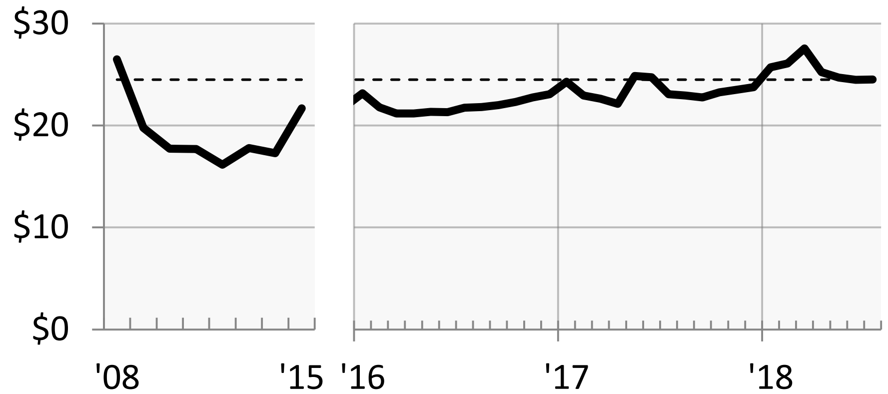
July ‘17–July '18: -5% (chemical -12%; other 2%)

Amusement & recreation (55% private in 2017)



July ‘17–July '18: 2% (private 2%; public 1%)

Communication (99.5% private in 2017)



July ‘17–July '18: 6%

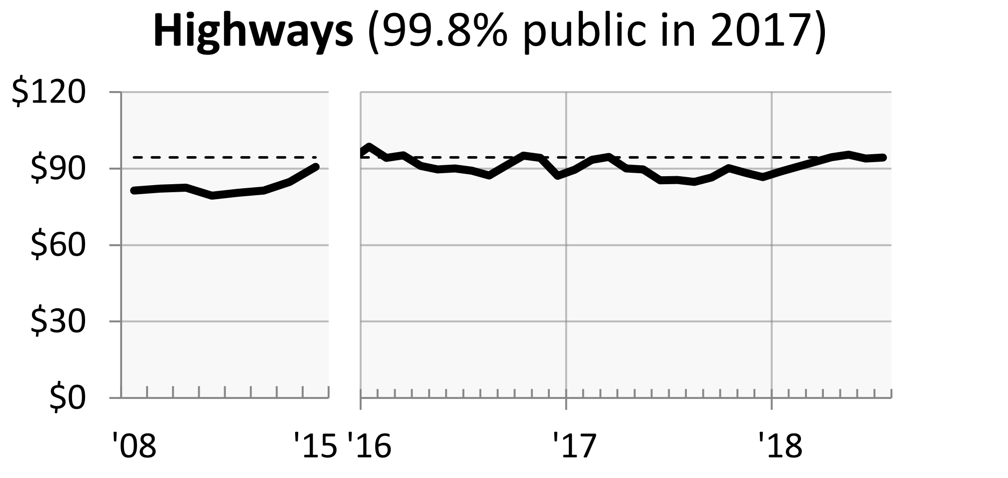
Key points: power & energy, mfg, amusement, communication

- Solar, wind power are growing again; expect more gas-fired plants, natural gas pipelines in ’18 and ‘19
- Manufacturing construction should recover later in ‘18 and ‘19 based on energy projects, U.S. economic growth; but tariffs, foreign retaliation, rising construction costs are major concerns
- Amusement & recreation spending is very “lumpy”—a few big stadiums at irregular intervals; but funding for local, state, federal parks keeps eroding
- Communication may revive as wireless firms build out 5G networks

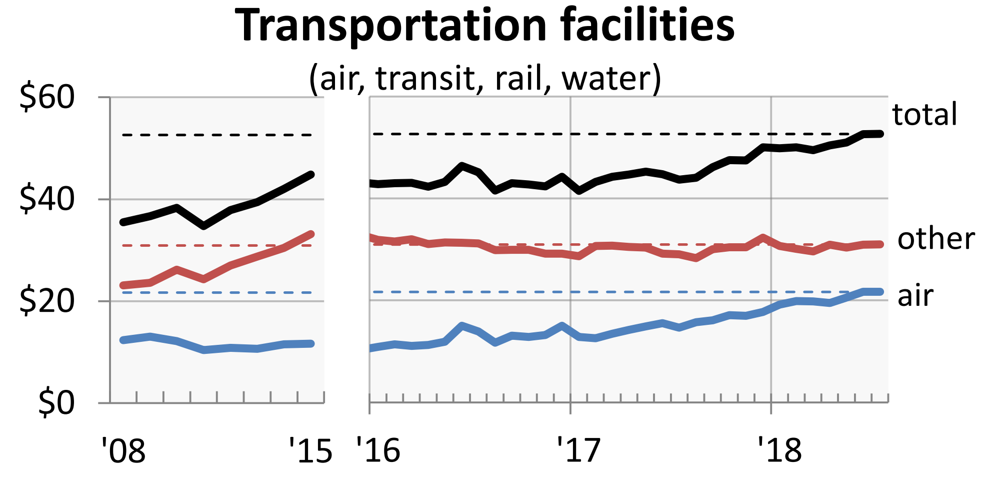
Source: Author

Construction spending: public works

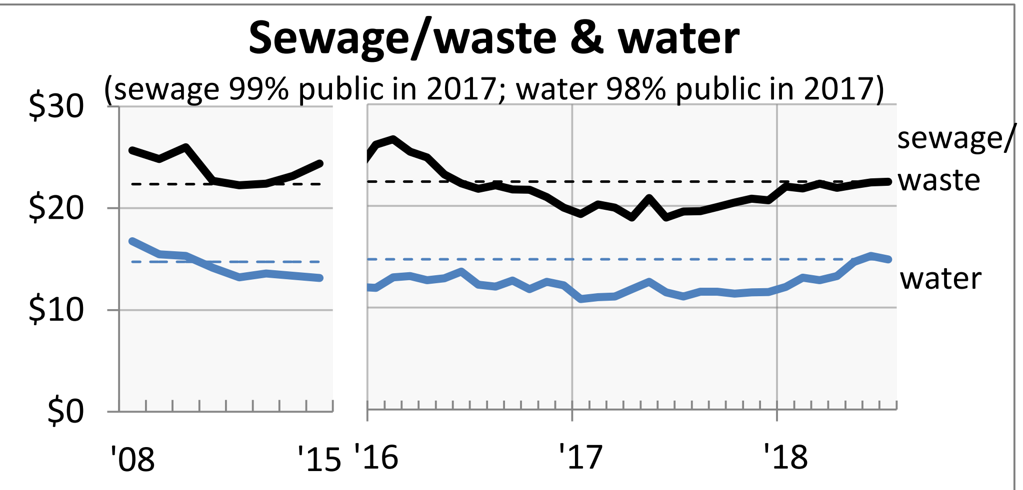
annual total, 2008–15; monthly (seasonally adjusted annual rate), 1/16–7/18; billion $



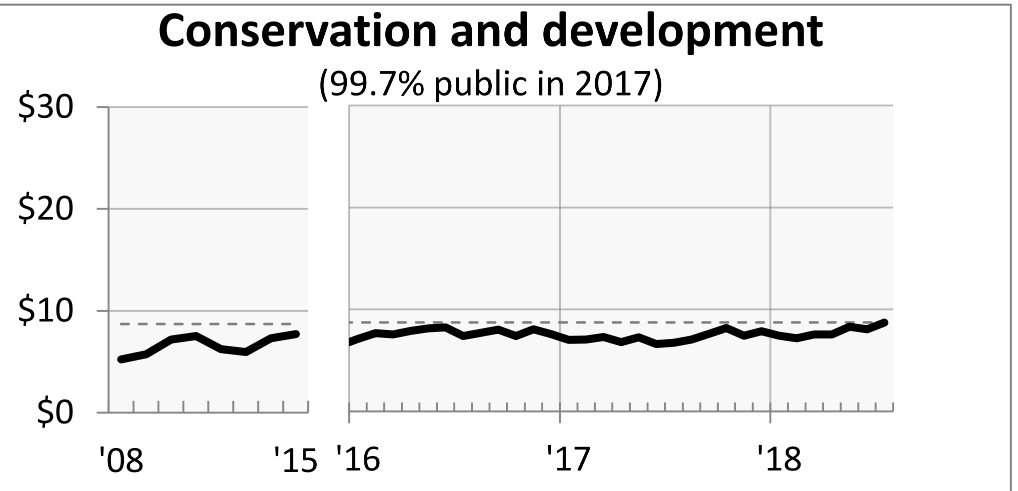
July '17–July '18: 10%



July '17–July '18: 20% (air 48%; other 7%)



July '17–July '18: Sewage/waste 15%, water 33%



July '17–July '18: 29%

Key points: roads, transportation, sewer/water

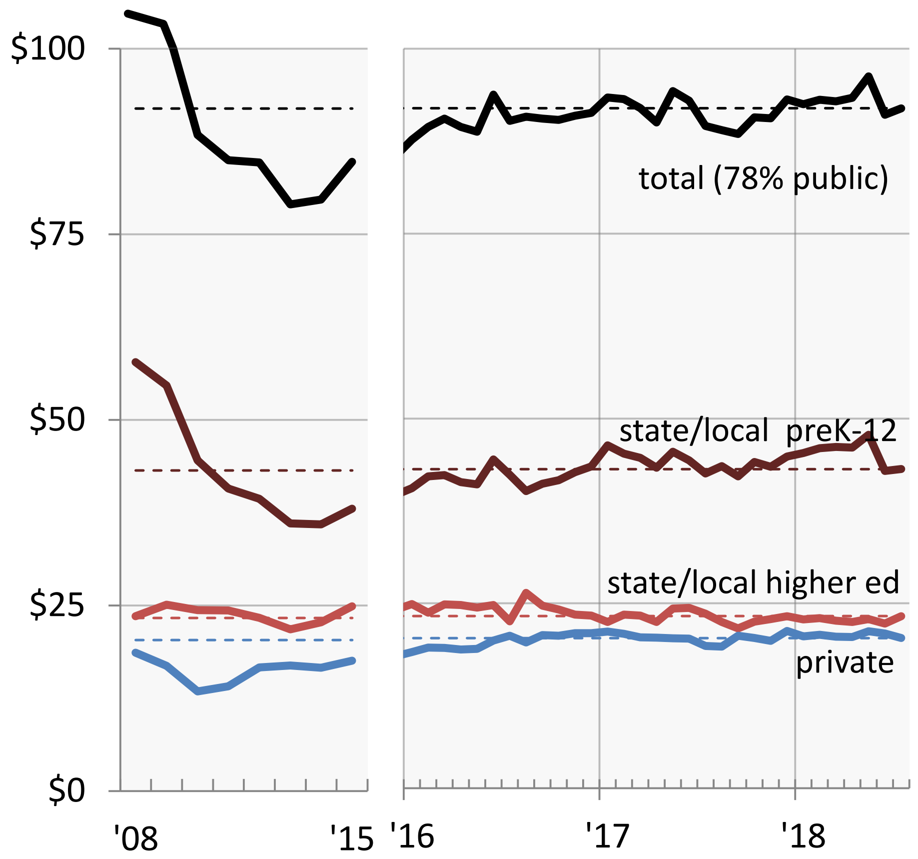
- State highway funding and P3s gradually increasing but federal funding likely to be flat through 2018; pickup likely by 2019
- Many new and ongoing public & private airport projects; revival of freight rail construction; but no net increase likely in public funding for port, passenger rail or transit construction
- Water & sewer/wastewater spending returning to 2014-16 levels after large drop in 2016-17; little long-term new funding likely
- Conservation may grow if Corps of Engineers can award enough $

Source: Author

Construction spending: education, health care

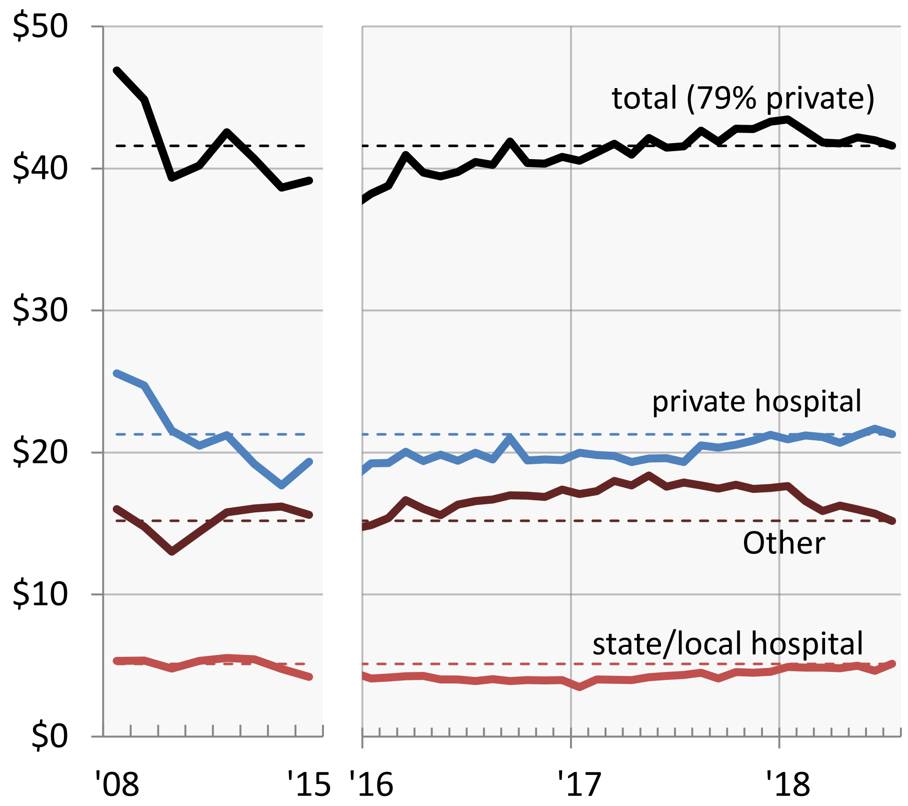
annual total, 2008–15; monthly (seasonally adjusted annual rate), 1/16–7/18; billion $

Education: (state/local K-12, S/L higher; private)



July '17–July '18: 3% (state/local preK-12 1%; state/local higher ed -1%; private 6%)

Health care: (private hospital, S/L hospital, other)



July '17–July '18: 0% (private hospital 10%; S/L hospital 18%; other: special care, medical office, federal -15%)

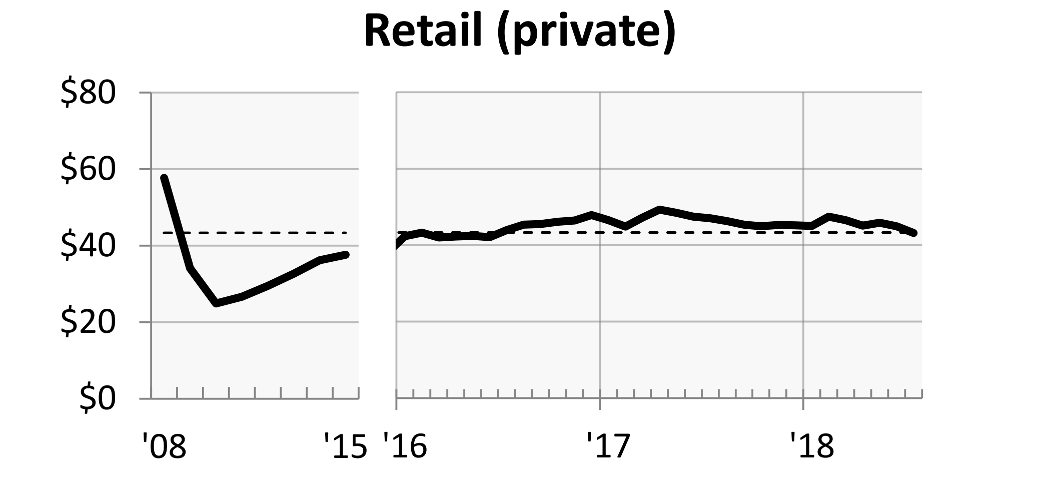
Key points: education & health care

- Rising house & commercial property values are supporting school district tax receipts & bond issues for preK-12 projects
- Higher-ed enrollment declined 21% from 2011 to 2016; likely decrease in full-tuition foreign students will hurt budget; apts. (multifamily) replacing dorms (educational construction)
- Rising stock prices help private school & college capital campaigns
- Despite recent rebound in hospital spending, health care spending is shifting to special care facilities (urgent care, surgery, rehab, hospices)

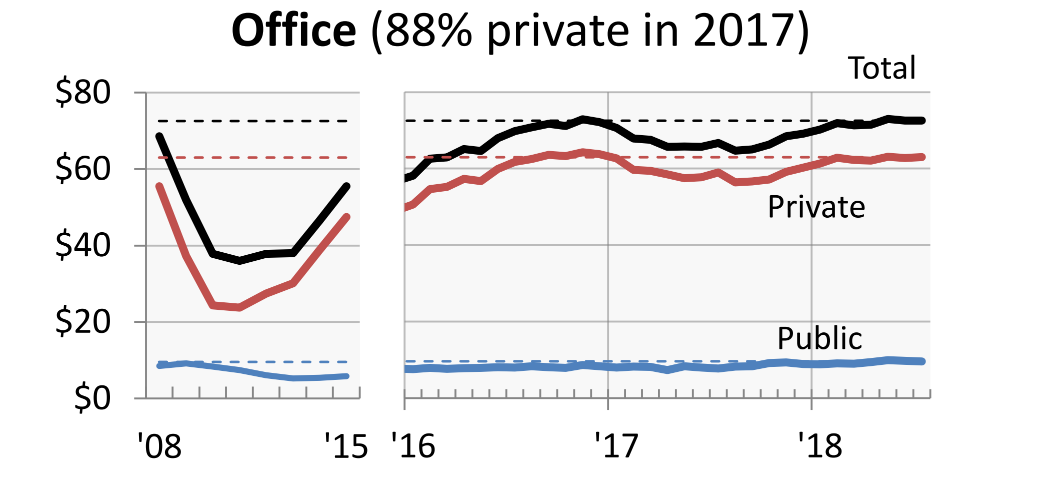
Source: Author

Construction spending: developer-financed

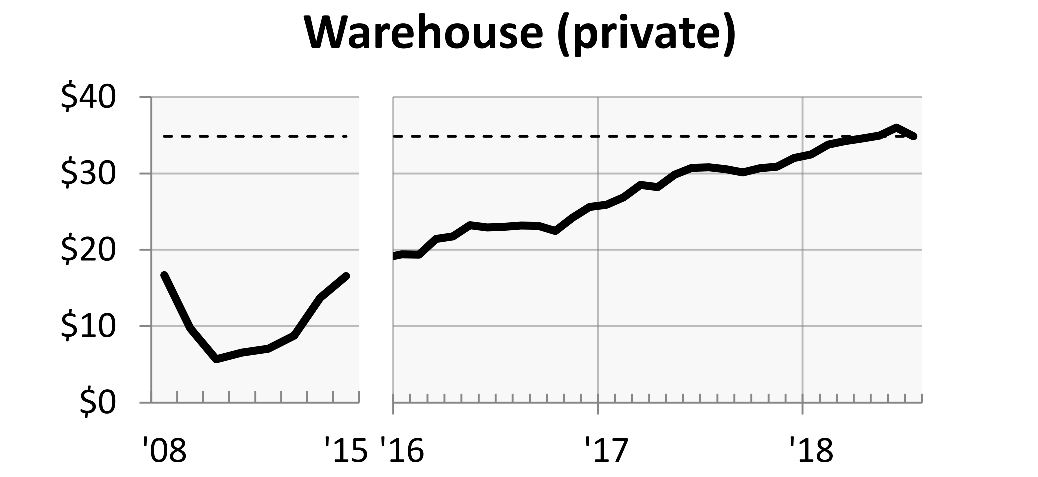
annual total, 2008–15; monthly (seasonally adjusted annual rate), 1/16–6/18; billion $



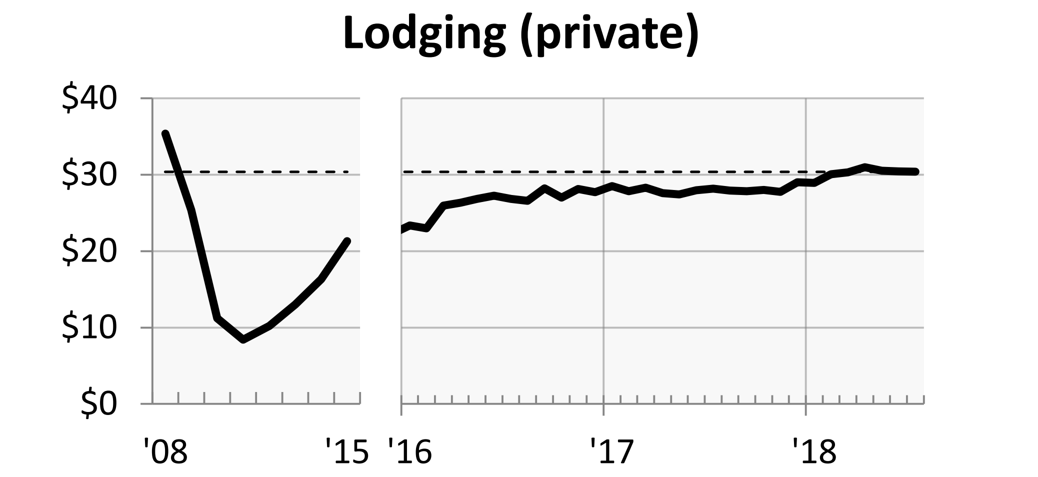
July '17–July '18: -8%



July '17–July '18 : 9% (private 7%; public 24%)



July '17–July '18: 13%



July '17–July '18: 8%

Source: U.S. Census Bureau construction spending report

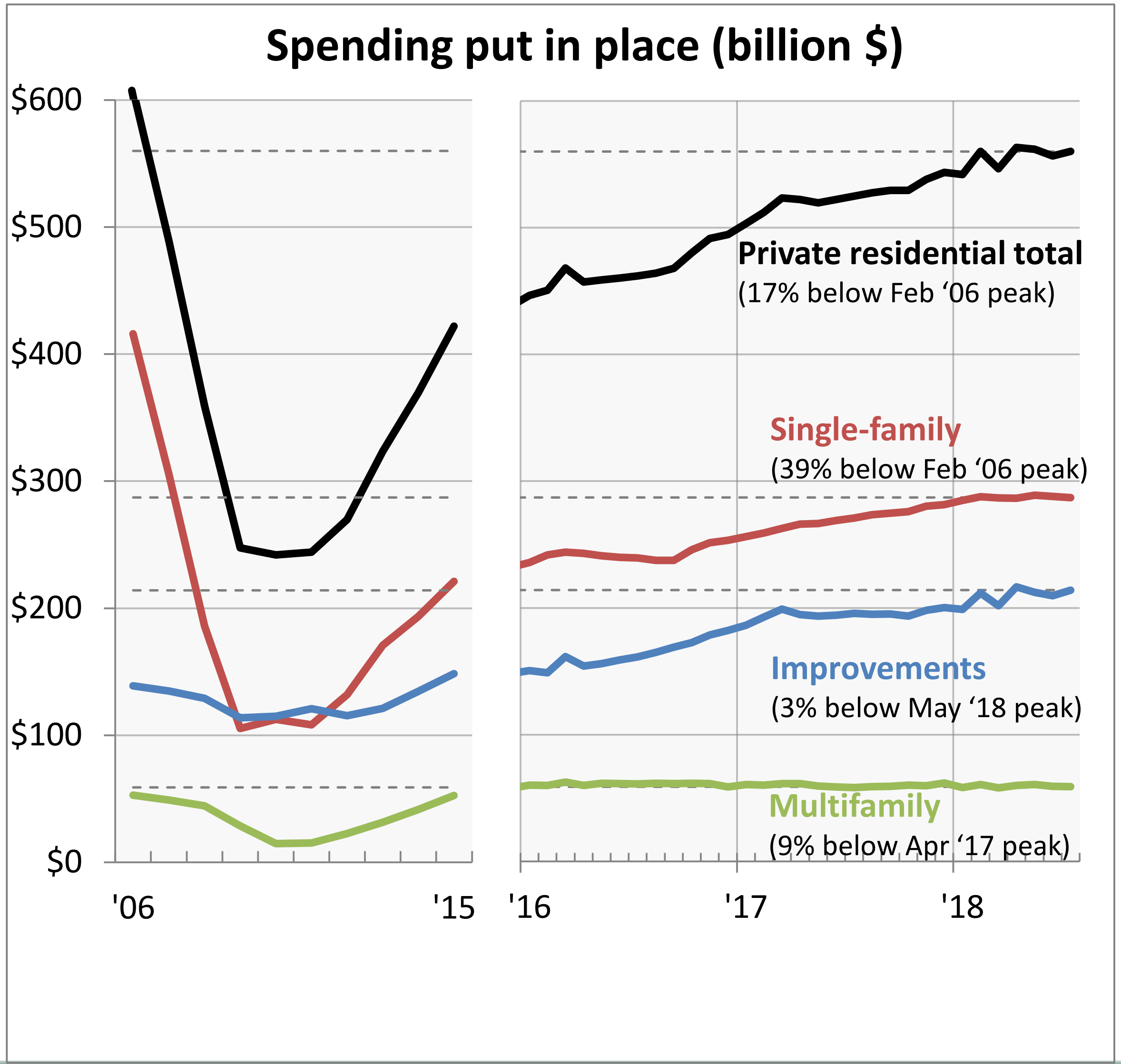
Key points: retail, warehouse, office, hotel, data centers

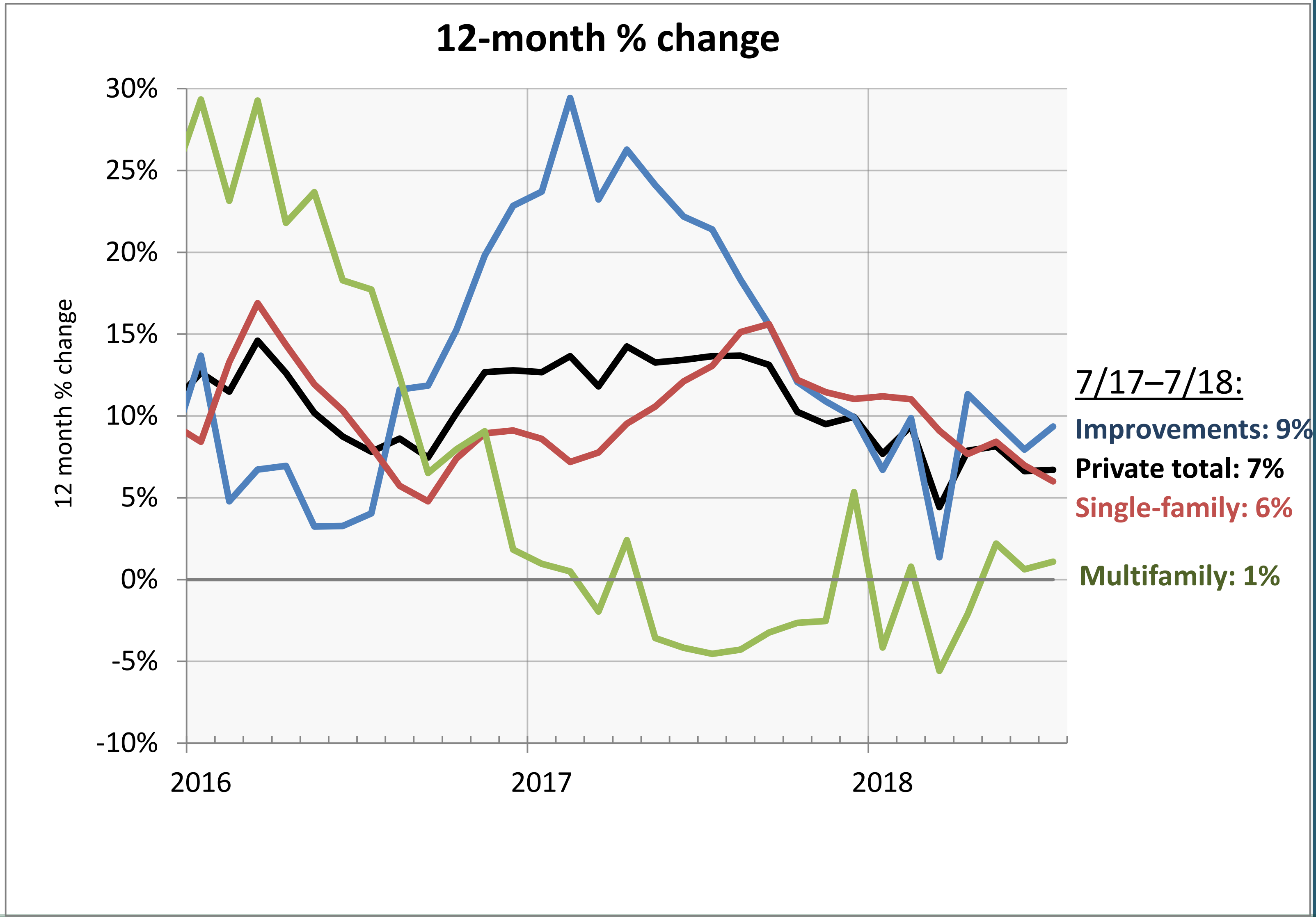
- Retail now tied to mixed-use buildings & renovations, not standalone structures; massive store closings imply downturn continuing into ‘19
- Warehouse growth is still benefiting from e-commerce; more local than huge regional distribution centers likely in future; self-storage is booming
- Office growth is slowing; employment still rising but space per worker is shrinking; more urban & renovation work than suburban office parks
- Hotel pipeline is still growing but sector is very interest-rate sensitive
- Data centers remain a strong niche but no data available on how strong

Source: Author

Private residential spending: steady single-family growth, slower multifamily

annual total, 2006–15; monthly (seasonally adjusted annual rate), 1/16–7/18; billion $





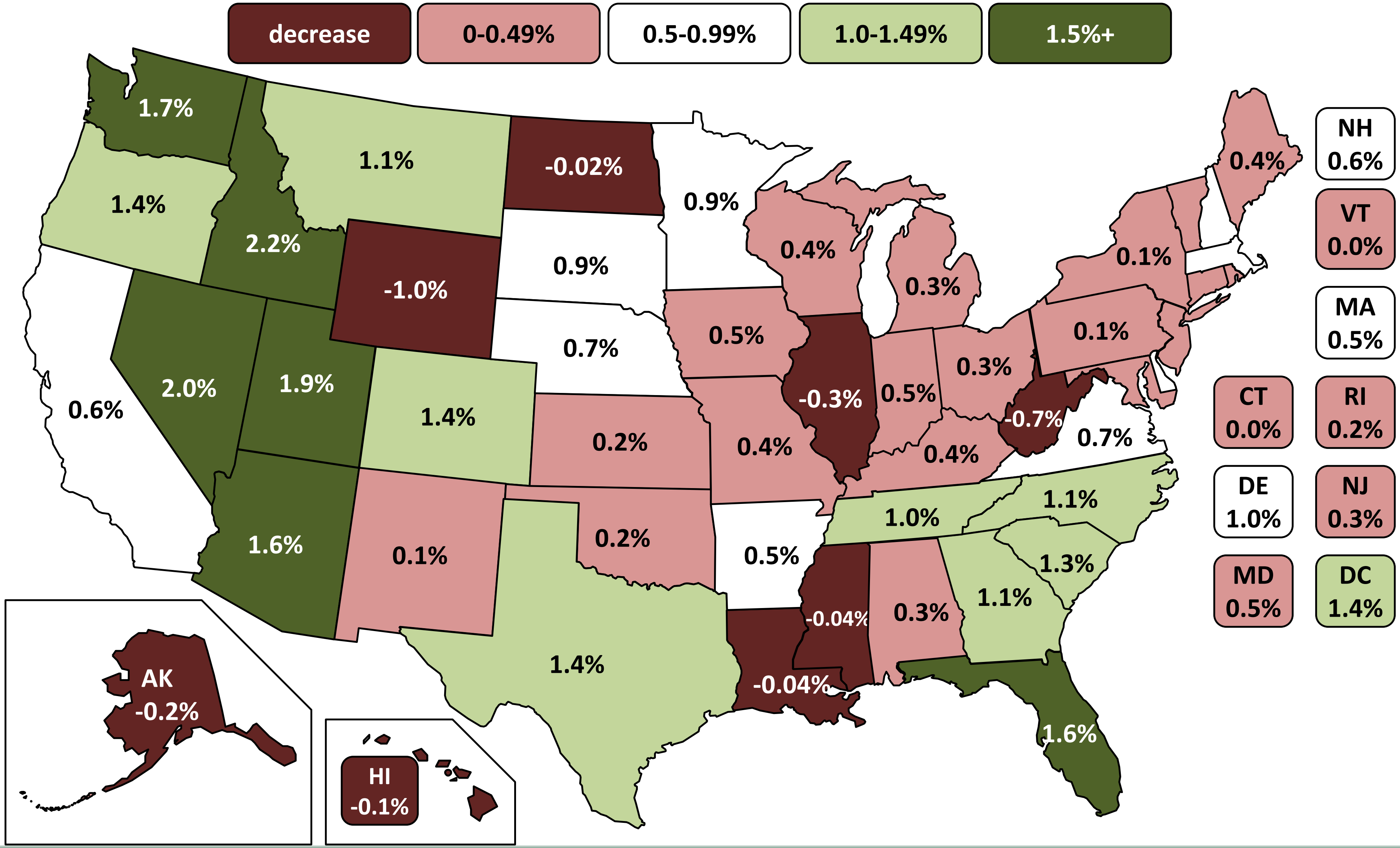
Source: U.S. Census Bureau construction spending report

Residential spending forecast--2018: 6-9% growth; 2019: 7-10% (12% in 2017)

- SF--**2018: 8-10% growth; 2019: 8-12%** (11% in 2017); rising interest rates, building costs, student debt will limit number of potential buyers
- MF--**2018: near 0; 2019: 2-5%** (-2% in 2017)
  - occupancy rates, rents have leveled off; but permits are rising, implying rebound in 2019
  - millennials are staying longer in cities and denser suburbs where MF construction is bigger share of market than in outer suburbs
  - nearly all MF construction is rental, not condo; more high-rises
- Improvements--**2018: 8-12% growth; 2018: 5-10%** (19% in 2017); rising number of seniors prefer remodeling to moving but interest cost, labor scarcity are barriers

Source: Author

Population change by state, July 2016–July 2017 (U.S.: 0.72%)



Source: U.S. Census Bureau

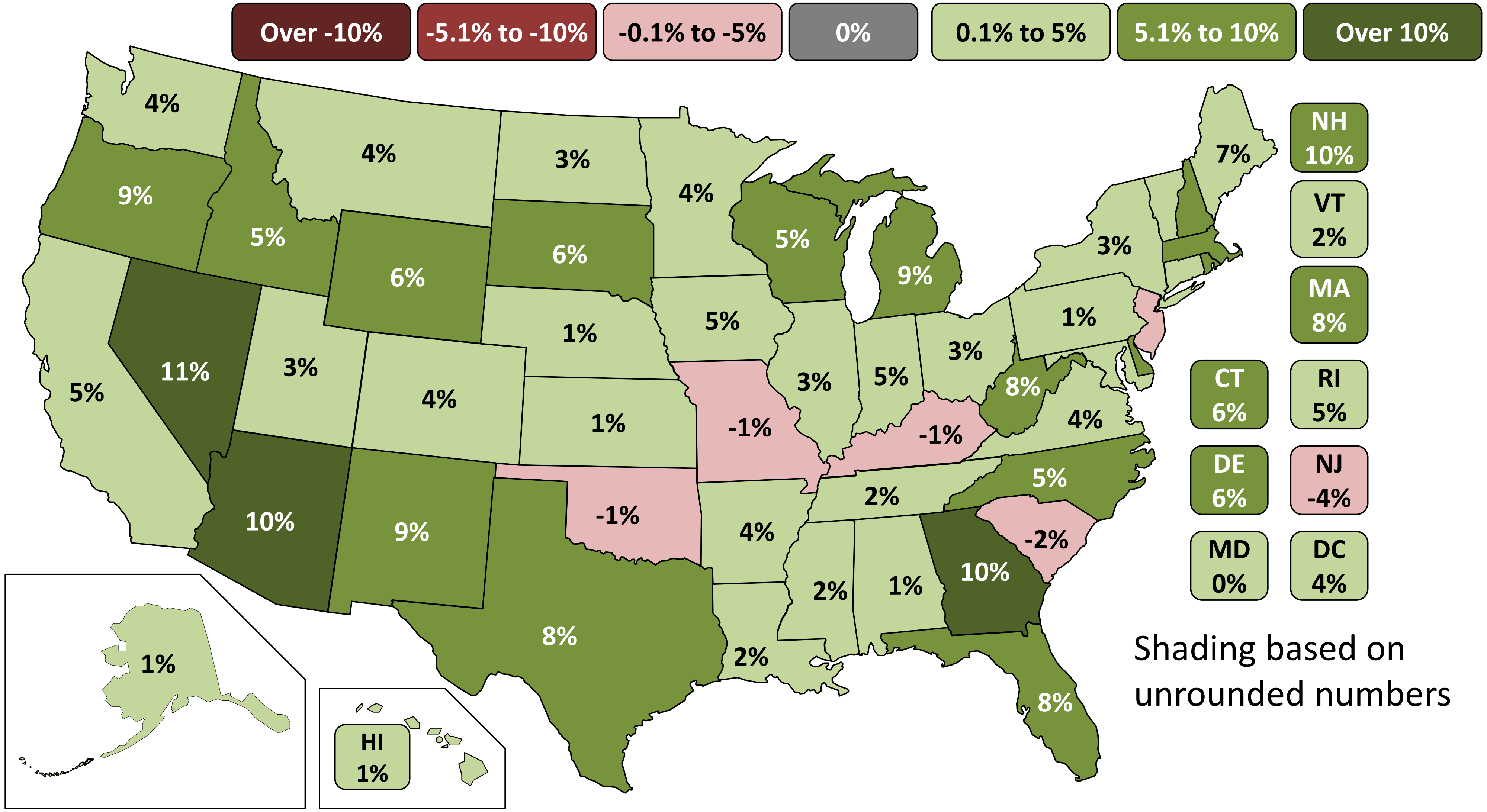
State construction employment change (U.S.: 4.4%)
7/17 to 7/18: 45 states and DC up, 5 down

Top 5

NV	10.9%
GA	10.1%
AZ	10.0%
NH	9.8%
OR	9.1%

Bottom 5

OK	-0.9%
KY	-1.0%
MO	-1.0%
SC	-2.3%
NJ	-3.9%



Shading based on unrounded numbers

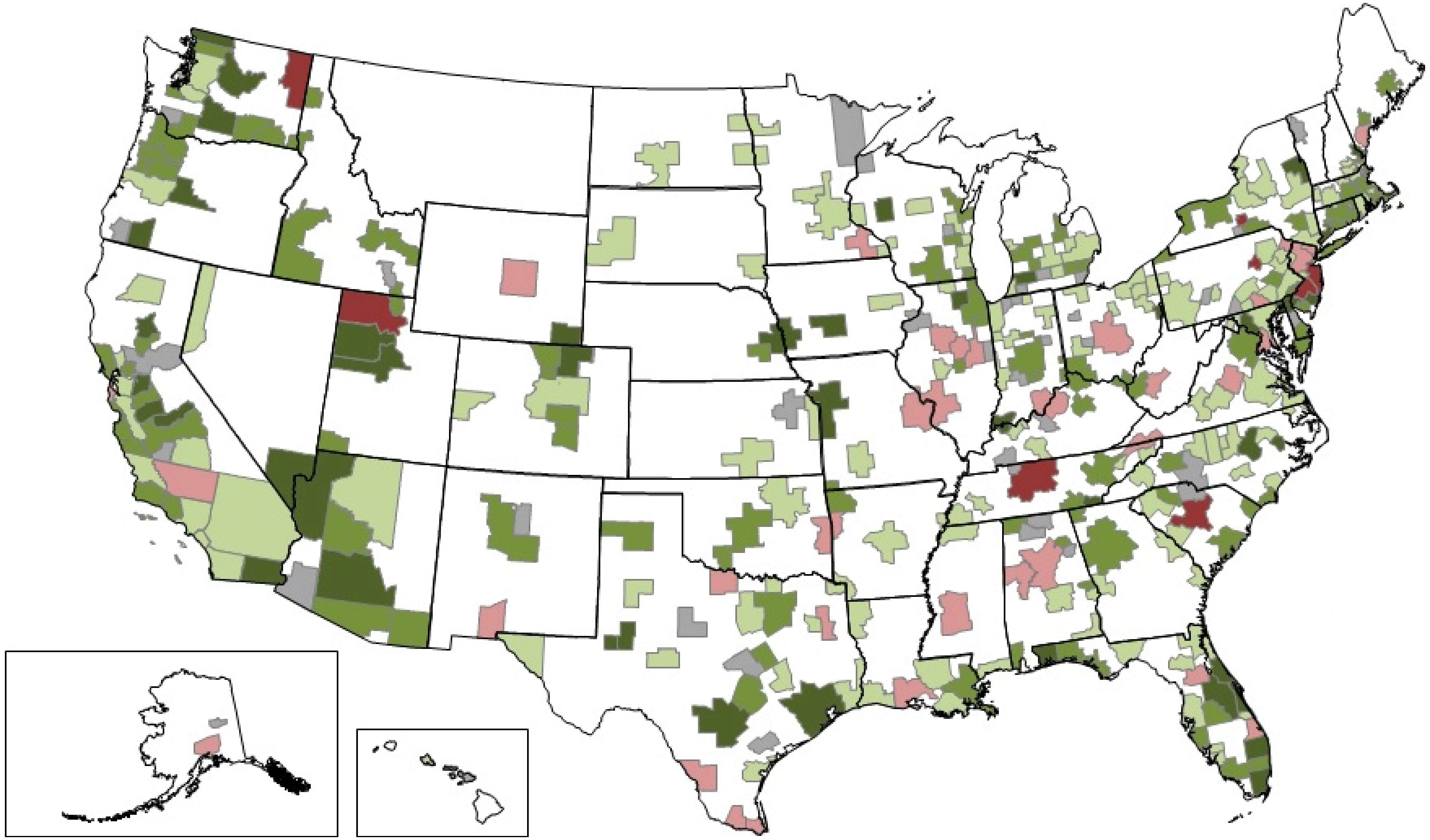
Metro construction employment change (U.S.: 4.4%)

7/17 to 7/18: 282 (79%) of 358 metros up, 35 unchanged, 41 (11%) down

Over -10% | -5.1% to -10% | -0.1% to -5% | 0% | 0.1% to 5% | 5.1% to 10% | Over 10%

Top 5

Merced, CA	32%
Midland, TX	26%
New Bedford, MA NECTA	22%
Miami-Miami Beach-Kendall FL Div.	17%
Bellingham, WA	17%



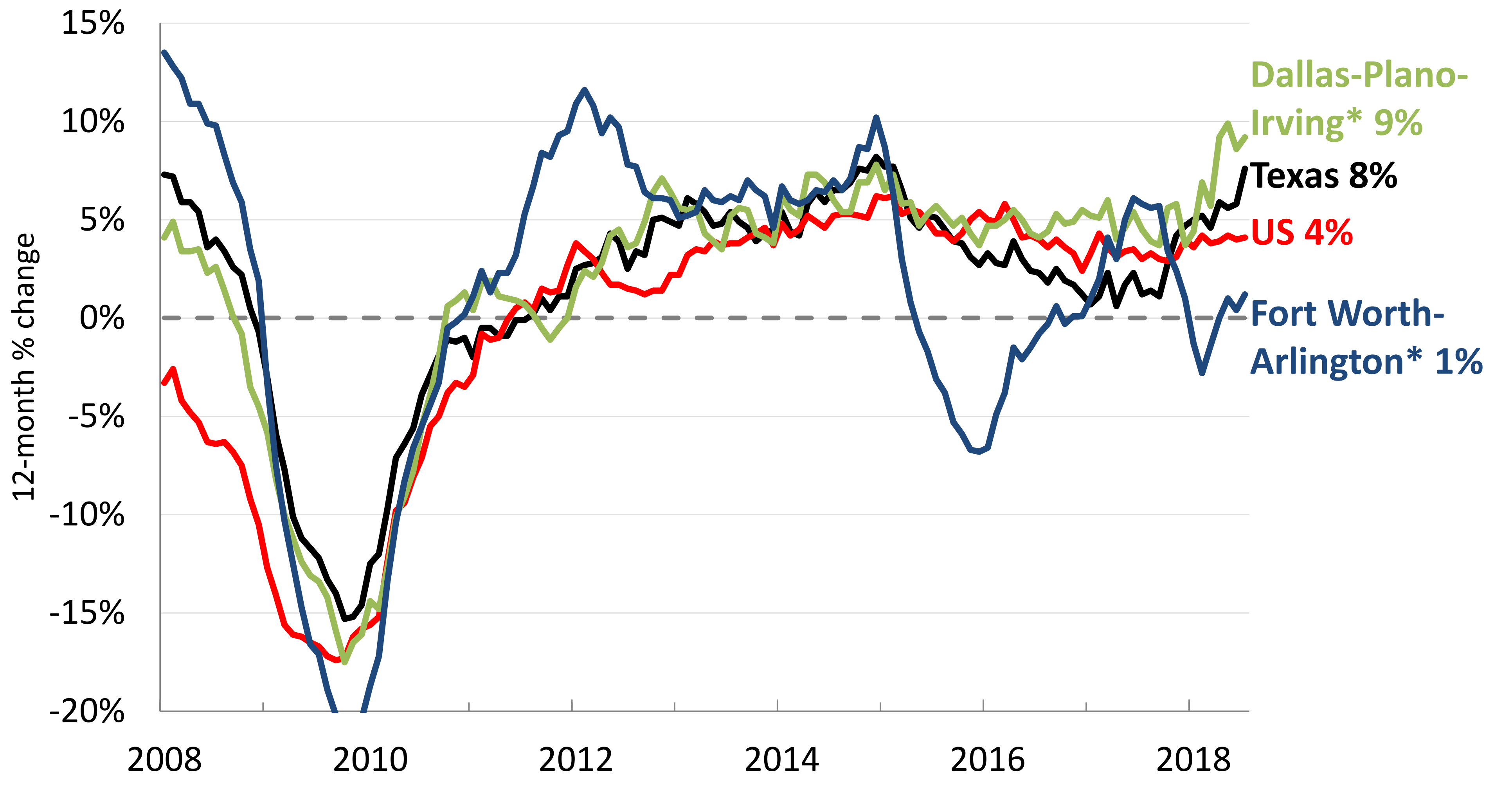
Bottom 5

Middlesex-Monmouth-Ocean, NJ	-10%
Columbia, SC	-10%
Spokane-Spokane Valley, WA	-10%
Camden, NJ Div.	-8%
Ogden-Clearfield, UT	-8%
Ithaca, NY	-8%
Bloomsburg-Berwick, PA	-8%

Source: BLS state and regional employment report

Construction Employment Change from Year Ago

1/08–7/18, not seasonally adjusted



Source: BLS

Change in construction employment, 7/17–7/18 (not seasonally adjusted)

Metro area or division	12-mo. empl. change	Rank (out of 358)
Statewide (Construction)	8%	
Statewide (Mining, logging, and construction)*	9%	
Abilene*	0%	282
Amarillo*	8%	62
Austin-Round Rock*	7%	89
Beaumont-Port Arthur*	2%	248
Brownsville-Harlingen*	-3%	334
College Station-Bryan*	1%	266
Corpus Christi*	5%	150
Dallas-Plano-Irving Div.*	9%	46
El Paso*	4%	183
Fort Worth-Arlington Div.*	1%	266
Houston-The Woodlands-Sugar Land	12%	14
Killeen-Temple*	0%	282
Laredo*	-3%	334

Metro area or division	12-mo. empl. change	Rank (out of 358)
Longview*	-3%	334
Lubbock*	5%	150
McAllen-Edinburg-Mission*	-1%	319
Midland*	26%	2
Odessa*	10%	35
San Angelo*	5%	150
San Antonio-New Braunfels	10%	35
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Texarkana, TX-AR*	3%	223
Tyler*	5%	150
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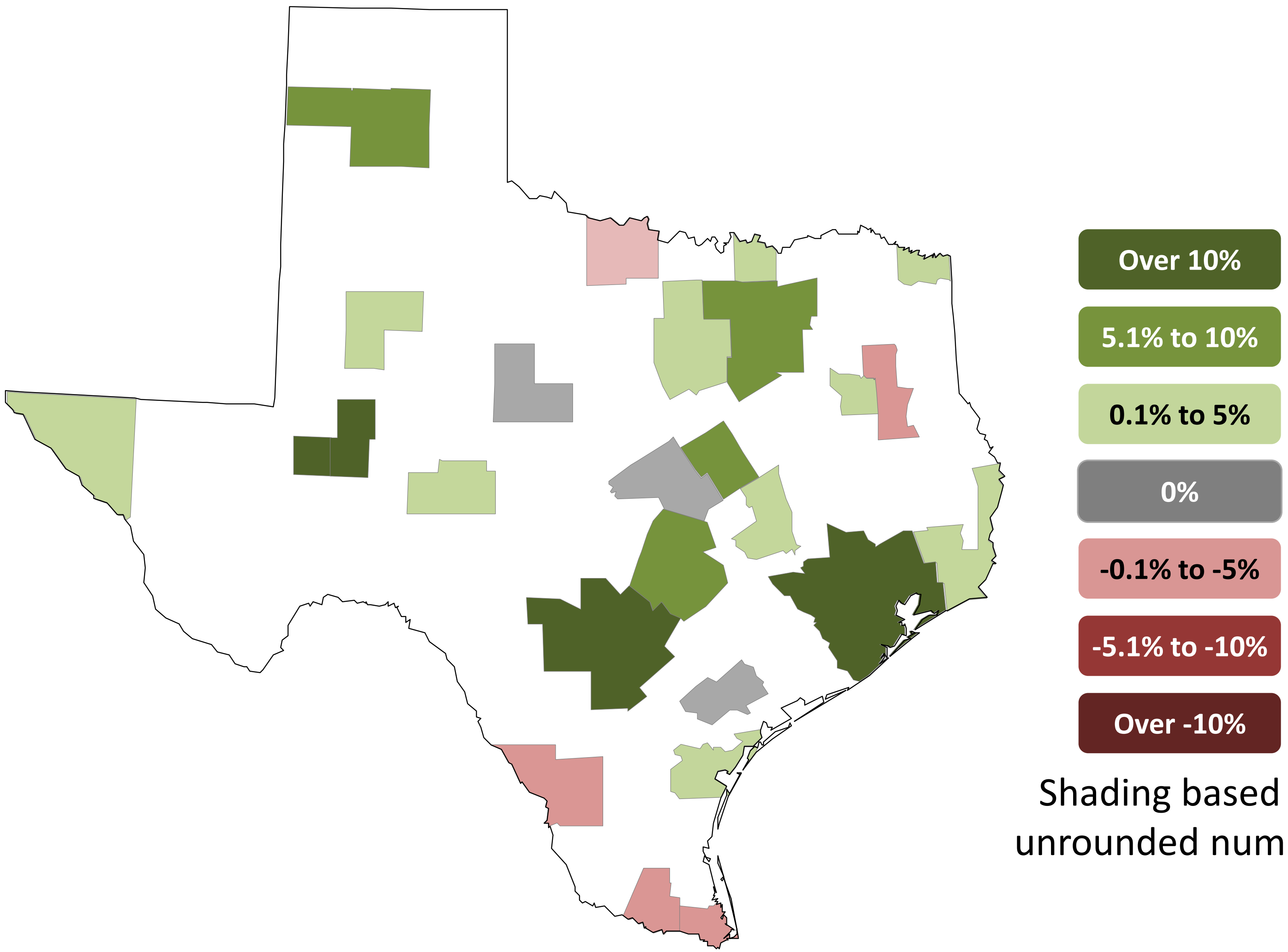
**The Bureau of Labor Statistics reports employment for construction, mining and logging combined for metro areas in which mining and logging have few employers. To allow comparisons between states and their metros, the table shows combined employment change for these metros. Not seasonally adjusted statewide data is shown for both construction-only and combined employment change.*

Source: AGC rankings, calculated from BLS state and area employment reports

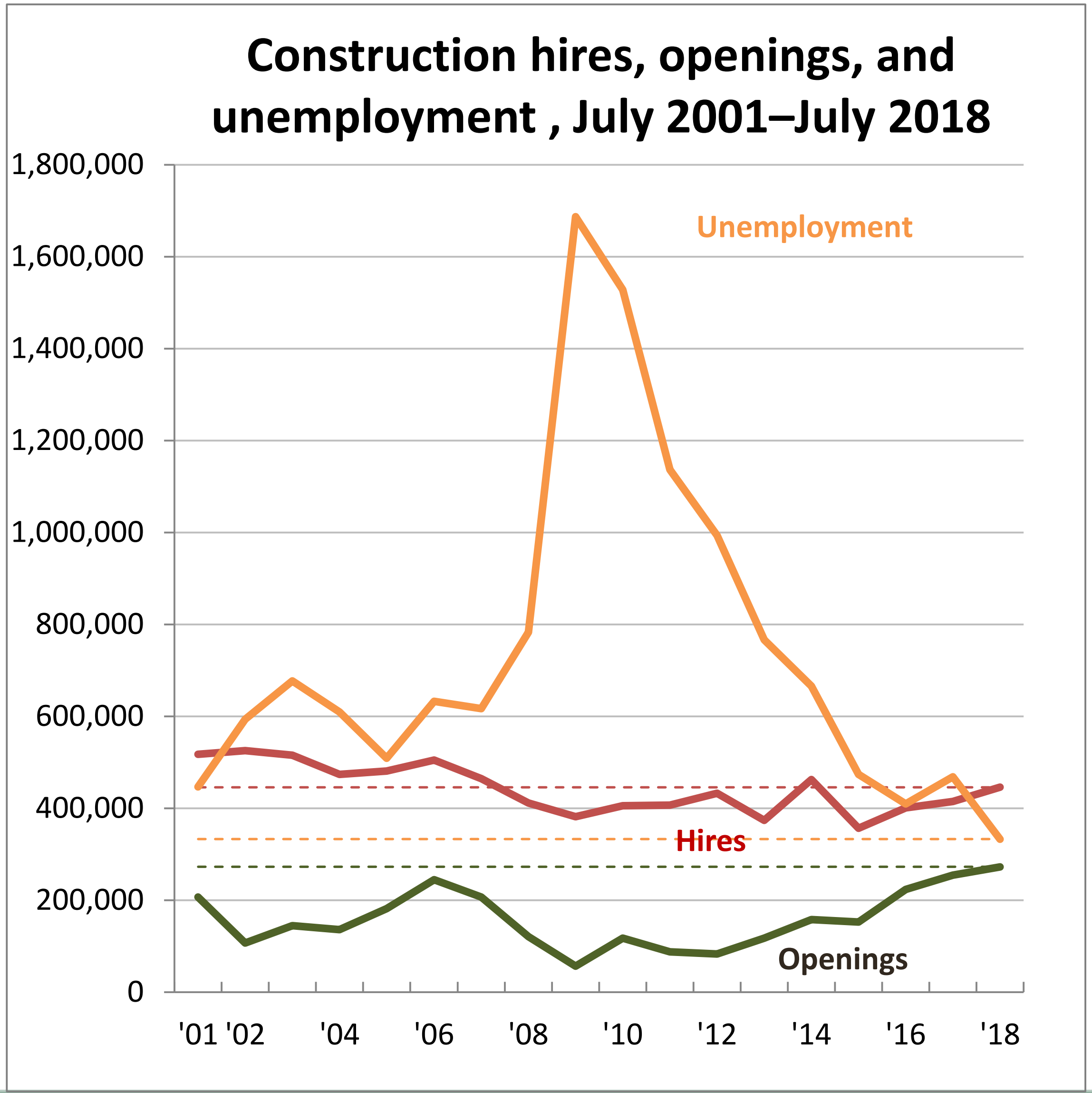
Construction employment change by TX metro, 7/17–7/18

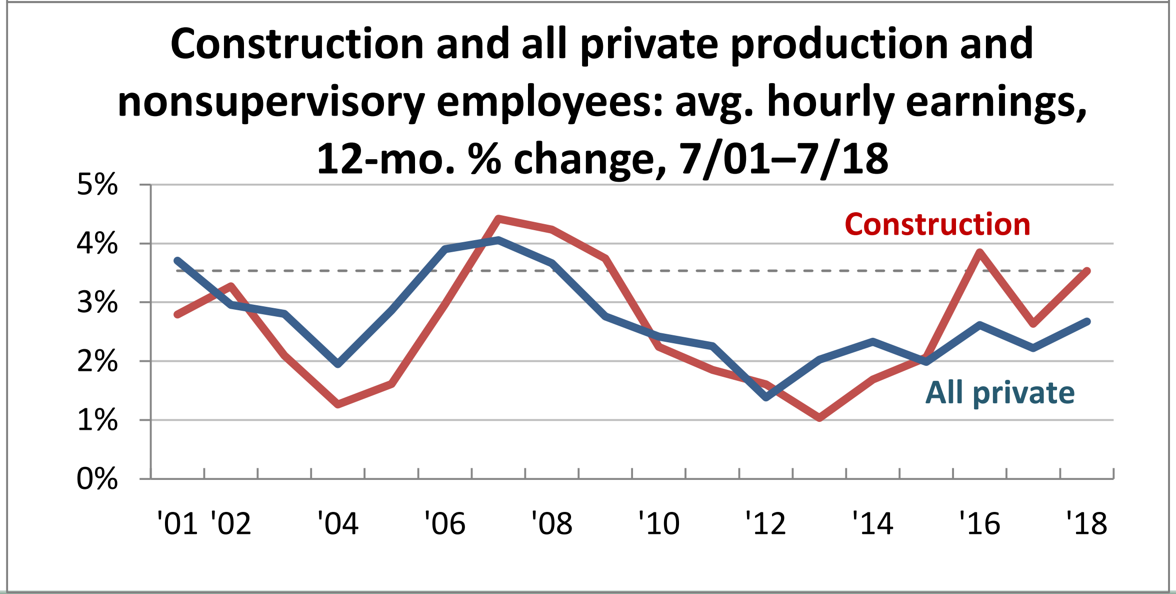


Shading based on unrounded numbers

Source: BLS state and regional employment report

Construction workforce indicators (not seasonally adjusted)

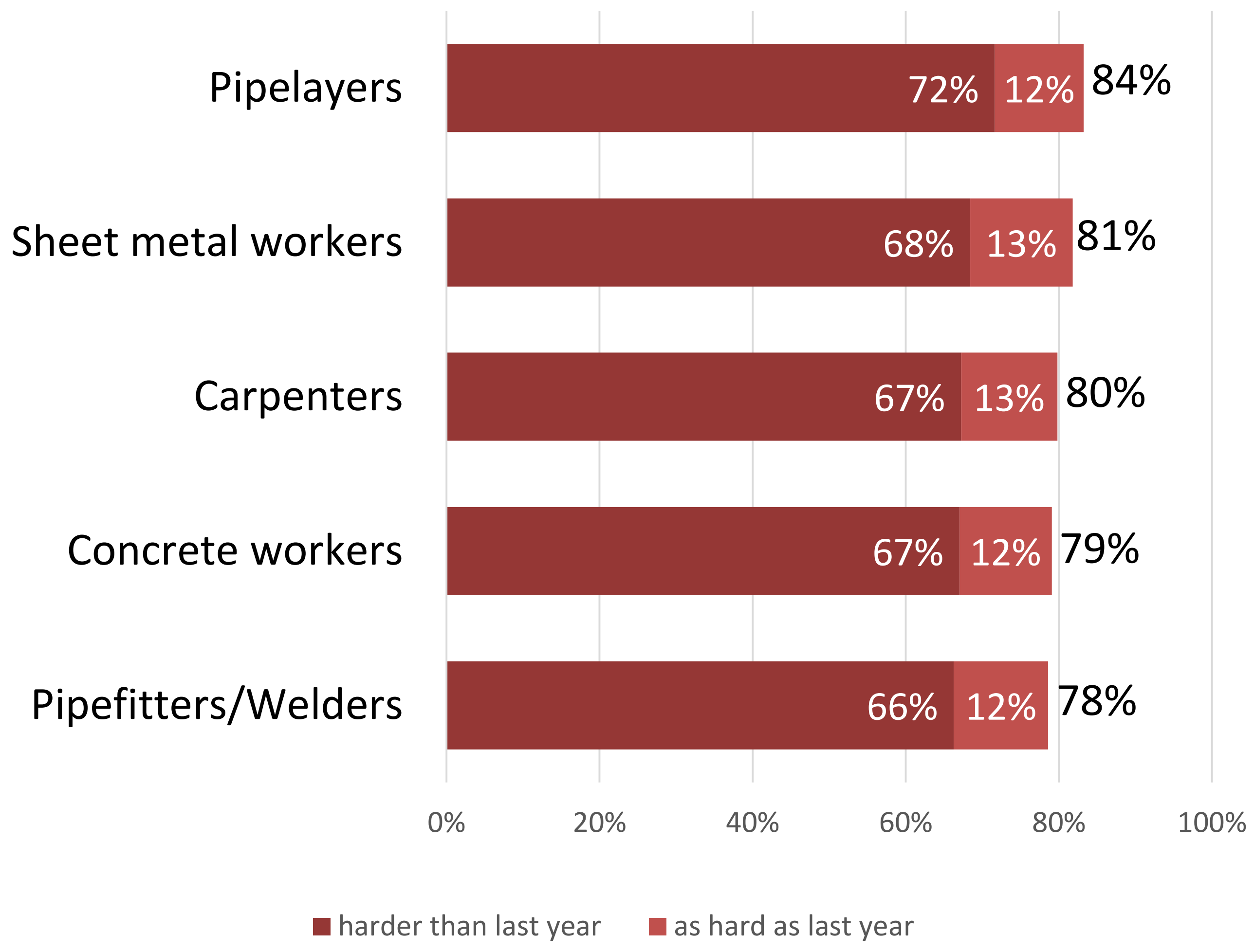




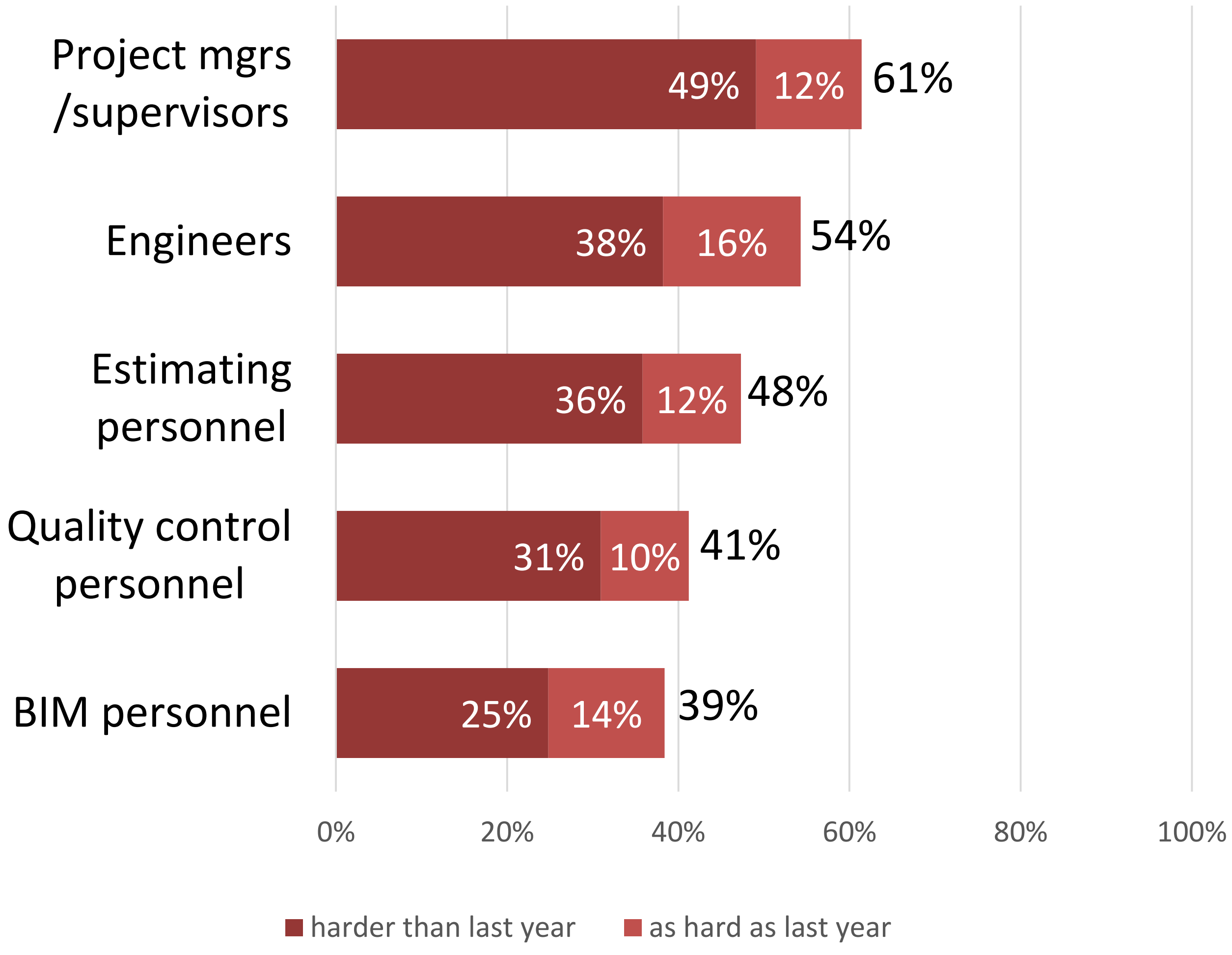
AGC Workforce Survey: hardest positions to fill

% of firms that employ a position and report difficulty filling:

Hourly craft (80% having trouble filling)

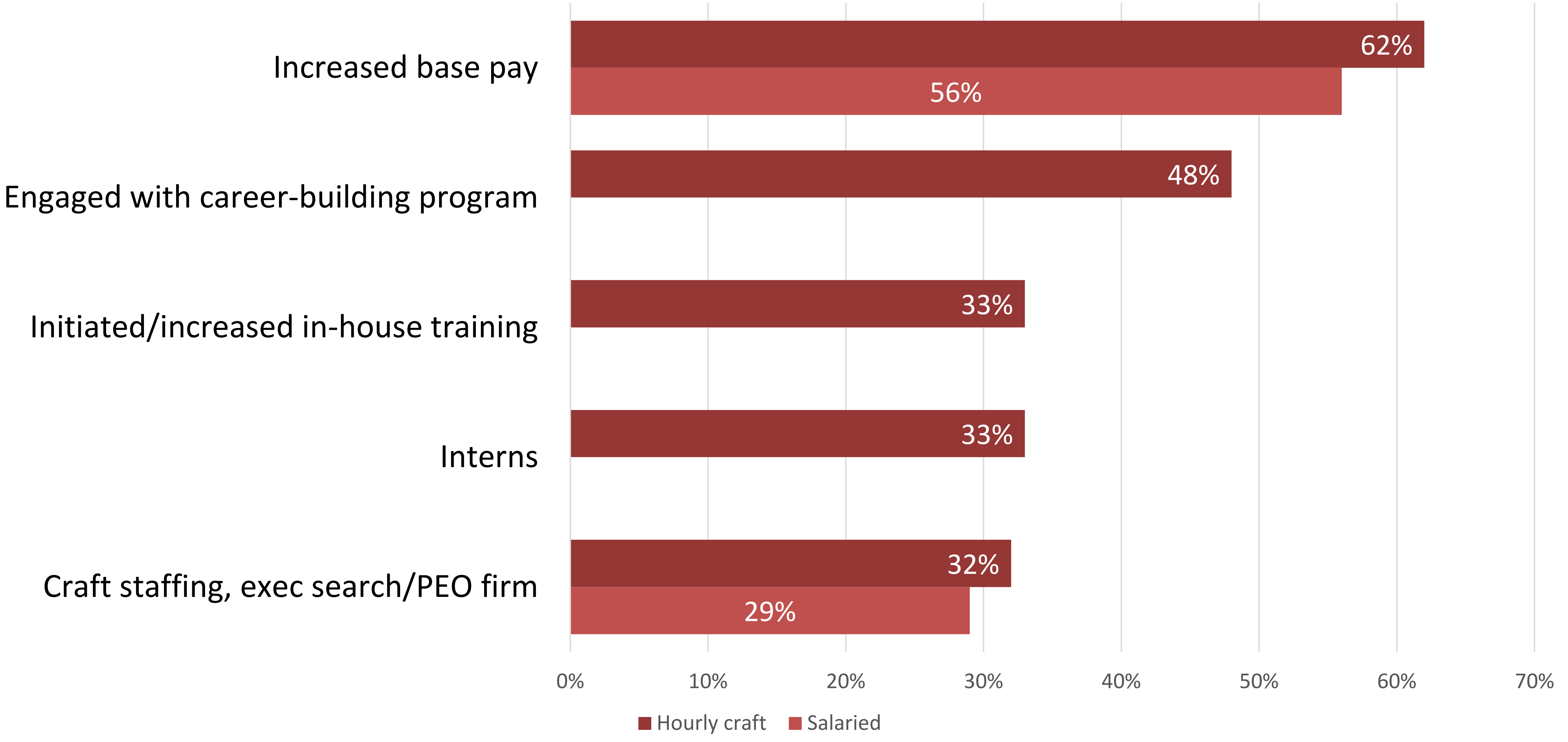


Salaried (56% having trouble filling)



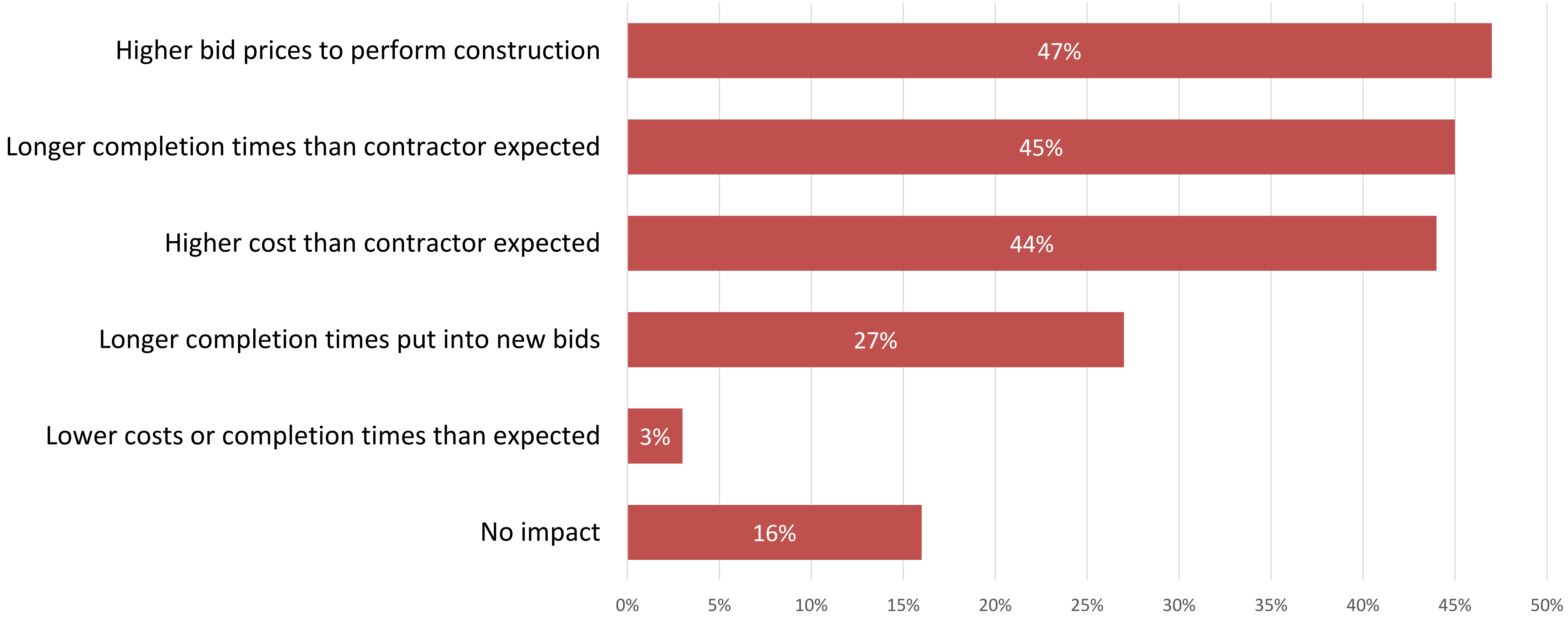
Source: AGC Workforce Survey, Aug. 2018

How firms are coping with workforce shortages



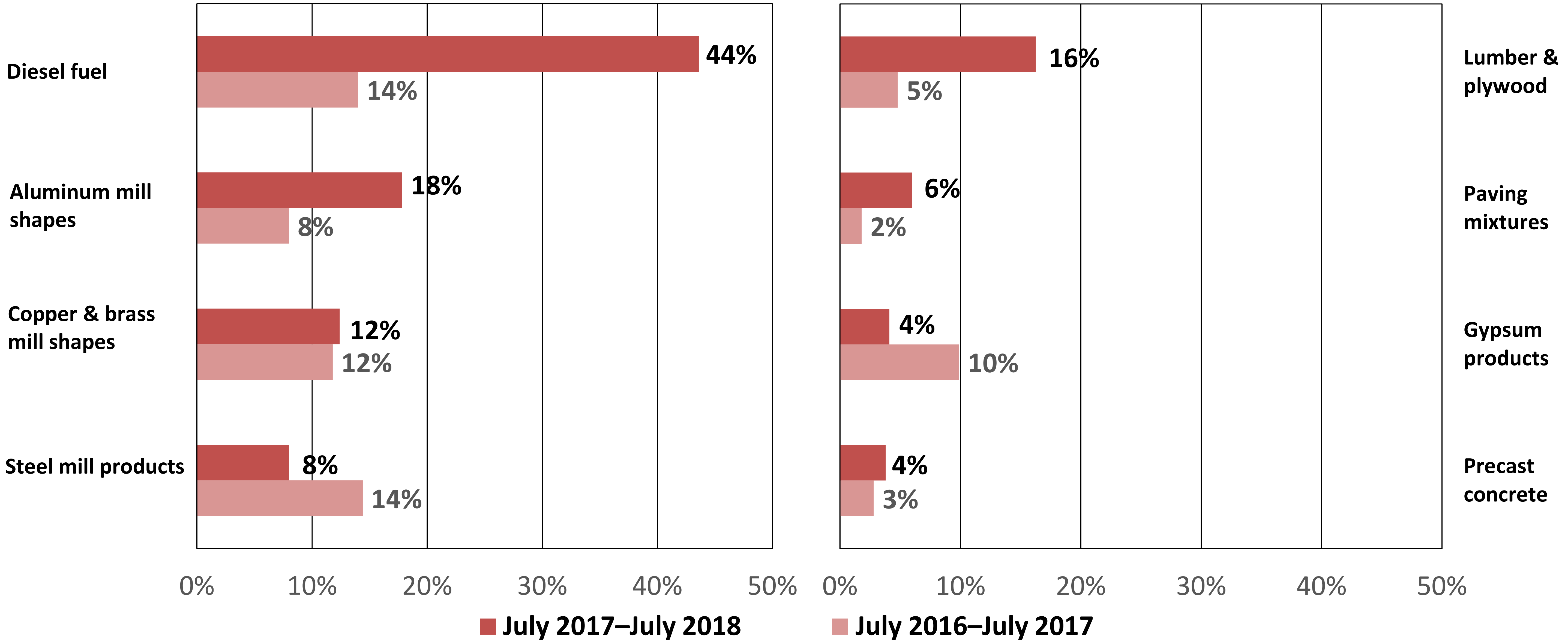
Source: AGC Workforce Survey, Aug. 2018

Impact on project costs and completion times

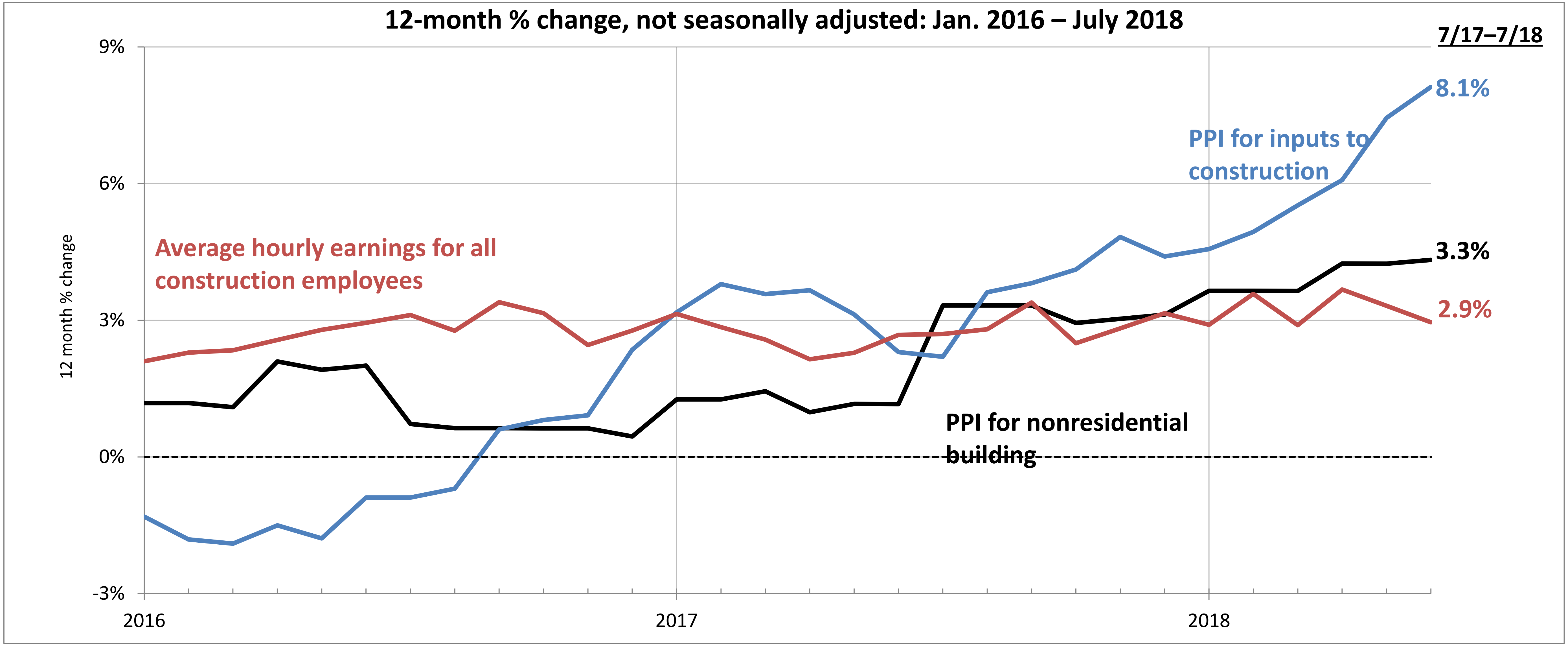


Source: AGC Workforce Survey, Aug. 2018

12-month change in producer price index for key inputs



Materials costs are rising faster than bid prices



2017 summary, 2018 and 2019 forecast

	2017 actual	7/17–7/18	2018 forecast	2019 forecast
Total spending	4%	6%	4-7%	5-8%
Private – residential	12%	7%	6-9%	7-10%
– nonresidential	1%	3%	2-5%	3-6%
Public	-3%	8%	4-7%	2-5%
Goods & services inputs PPI	4%	8%	4.5-5.5%	4-6%
Employment cost index	2.7%	3.0%*	3-4%	4-5%

* 2018Q2/2017Q2
Source: actuals: Census, BLS; forecasts: Author’s estimates

AGC economic resources

(email simonsonk@agc.org)

- *The Data DIGest*: weekly 1-page email (subscribe at http://store.agc.org)
- monthly press releases: spending; producer price indexes; national, state, metro employment with rankings
- yearly employment & outlook surveys, state and metro data, fact sheets: www.agc.org/learn/construction-data