



2019 U.S. Office Market Update



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Today's Agenda

- Matrix Product Update
- Macroeconomic Outlook
- General Market Conditions
- Deep Dive Into 3 Market Niches:
 - Medical Office
 - R&D Office/Life Sciences
 - Coworking/Office as an Experience



The Yardi Matrix View

- **U.S. economy is a glass half full/glass half empty situation**
 - GDP growth in Q2 was OK (~2%), and we expect Q3 to be about the same, but with a lot more noise
 - U.S. oil production is keeping inflation low below 2% – and low inflation is a global phenomenon
 - The yield curve has been inverted for 5 months, but flattened following the Sept 18 rate cut
 - The European and Chinese economies are decelerating rapidly
 - The U.S. service sector labor market is extremely tight, and wages continue to rise
 - Manufacturing and farming sectors are struggling
 - There is a highly elevated risk of recession mid 2021
- **Conditions sufficient to maintain good office using employment growth, occupancy and slow rental growth**
 - Demand is steady with job growth in office-using industries outpacing other industries, and tech hub markets have had the most dynamic job growth
 - More than half of Yardi Matrix markets are seeing moderate rent growth over the past year, with some winners (San Francisco, Tampa, Austin), but some have seen asking rates fall (Chicago, Central Valley, Winston-Salem)
 - Office completions peaked in 2018, but a lot of markets still have room for absorption
 - New developments are getting caught up in the prospective phase, with an increase of 192 million sq. ft. in this phase since the spring, with a decrease of about 128 million sq. ft. in the planning and under construction phases
 - Transaction activity has been slowing, and prices for Class A assets have increased more than B and C since the recession

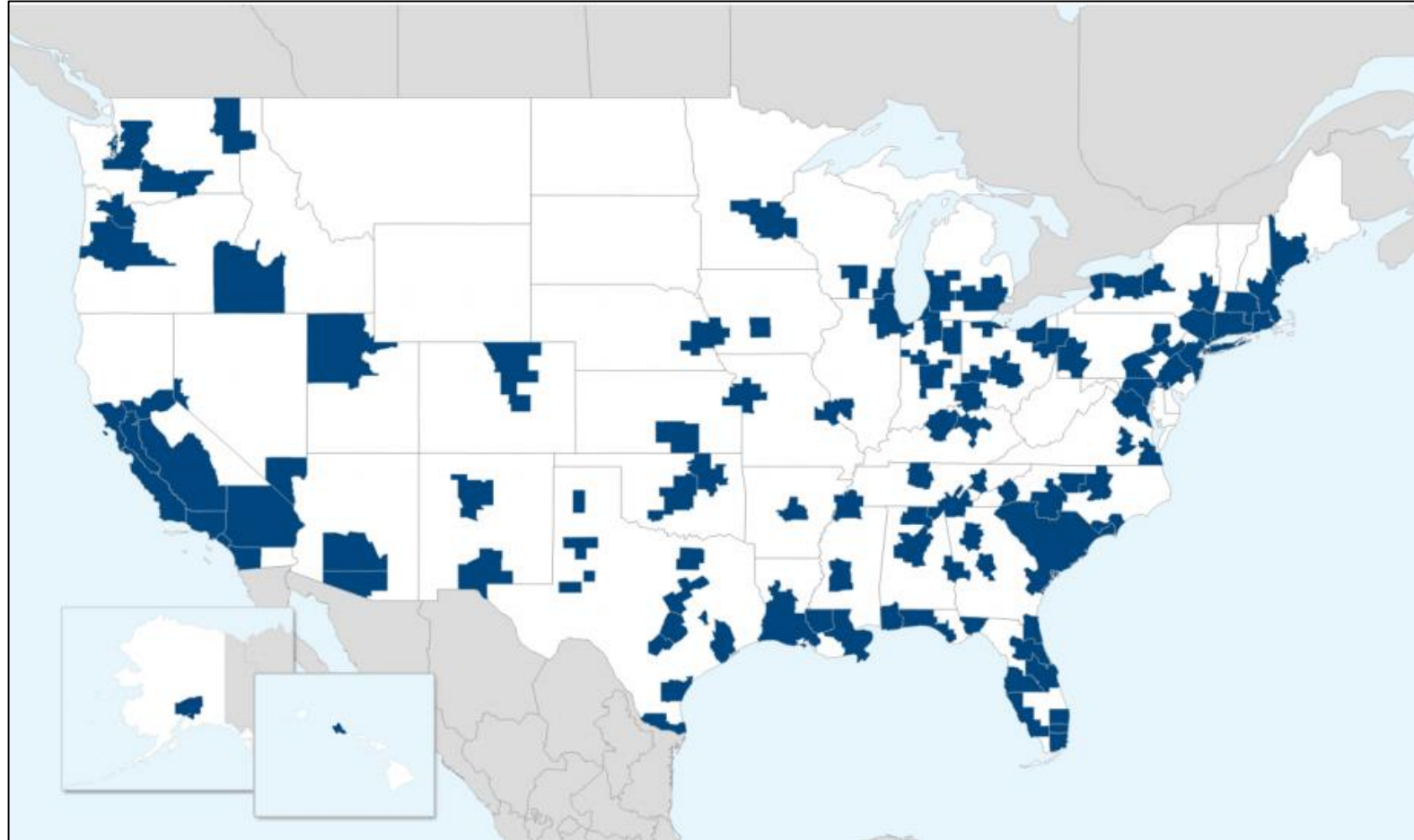
The Yardi Matrix View

- **Though medical office is a small market, the demand is expected to grow rapidly as the U.S. population is aging**
 - Medical office sales prices have been in-line with general office since 2009, however medical office prices surged in 2016, and only just converged with general office sales prices this year
 - Medical office generally has lower vacancy rates than general office, however asking rates varied by market, and medical office exhibits the same fundamentals in on- vs. off-campus as student housing
- **R&D office space is highly concentrated and is targeted toward emerging medical tech start-ups**
 - R&D office space typically has higher asking rates, but also higher vacancy rates than general office
 - Compared to general office, R&D office space typically sells at a higher price per sq. ft., R&D office sales volume appears to be increasing in 2019 compared to last year
- **Coworking continues to grow nationally, and according to the 2019 Colliers report *U.S. Flexible Workspace and Coworking*, flexible workspace accounted for one-third of office leasing in the last 18 months**
 - Coworking is growing as companies are increasing their sprawl of employment in various locations outside of their primary office locations
 - With such a tight labor market, office space is being used as an HR strategy to attract talent, and with that comes substantial capital expenditures
 - A new model for coworking as emerged, with companies such as Hana, Convene, Knotel, and Industrious marketing their partnership model as more sustainable than the traditional WeWork model

Matrix Product Update

Full Yardi Matrix Office Suite, 5 Years in the Making

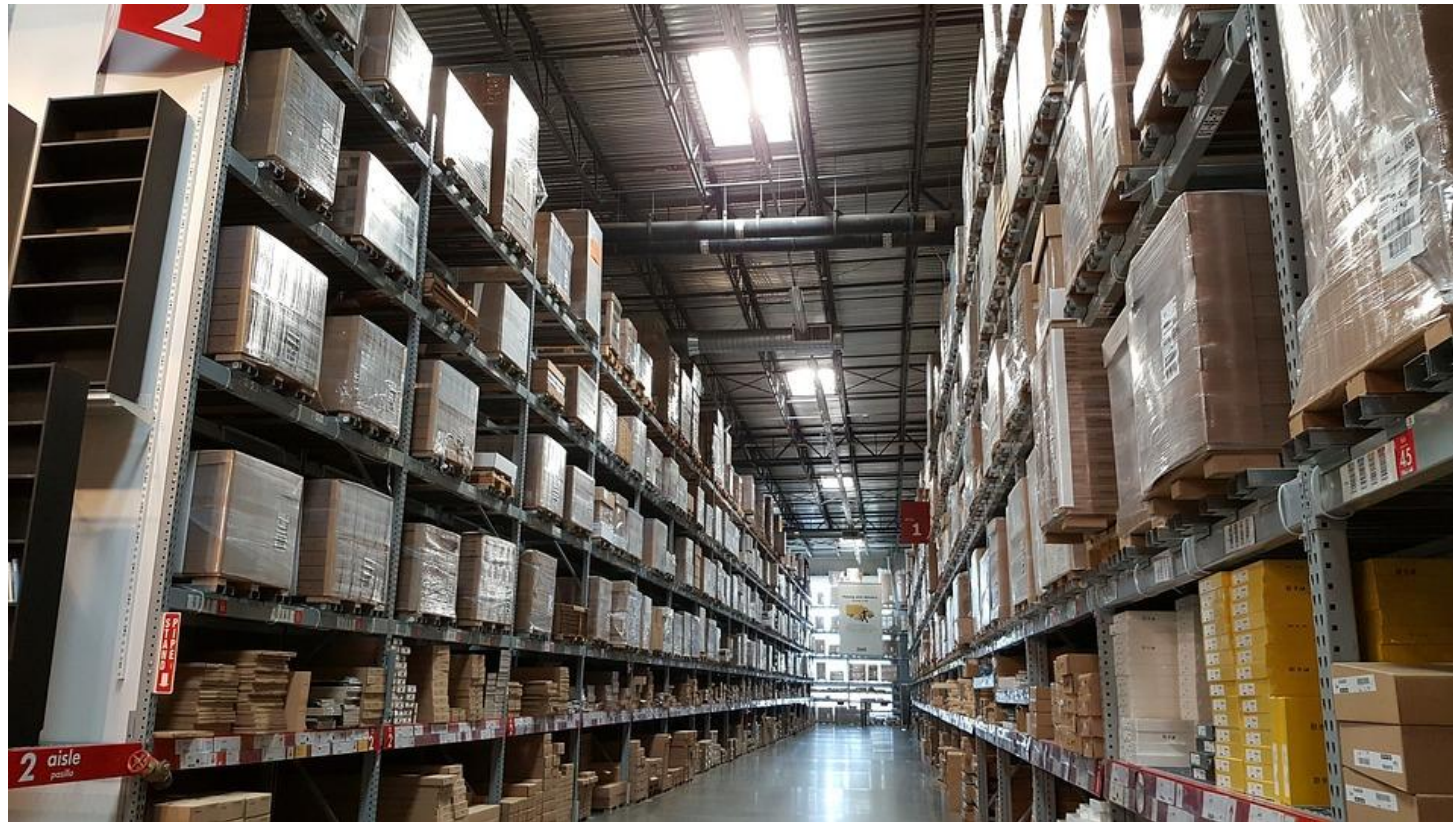
115 markets with inventory down to 25k sq. ft.
with tenant listing and expense data



We're Turning Our Attention to Industrial in 2020

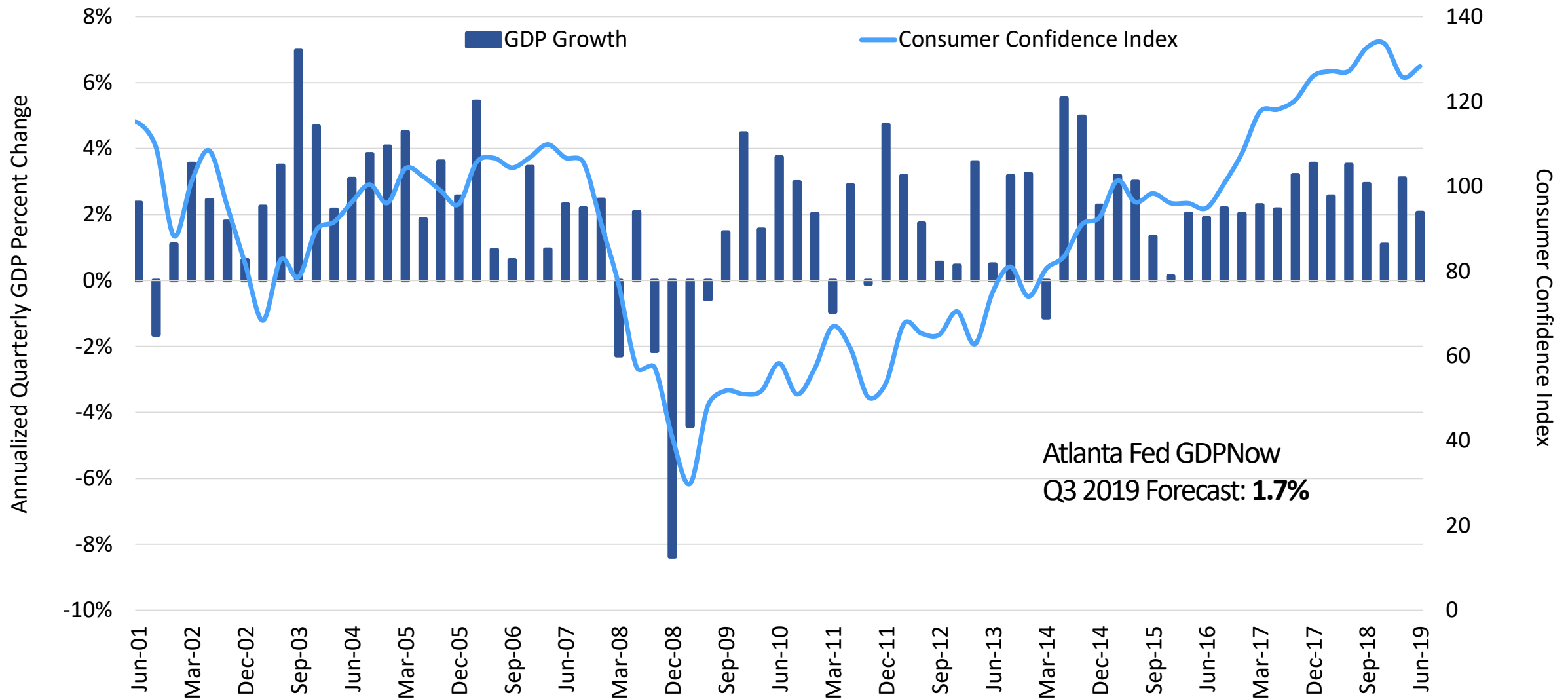
23 Markets with Industrial Data...and Expanding

By the end of 2020, we will match our office footprint of 115 markets for industrial



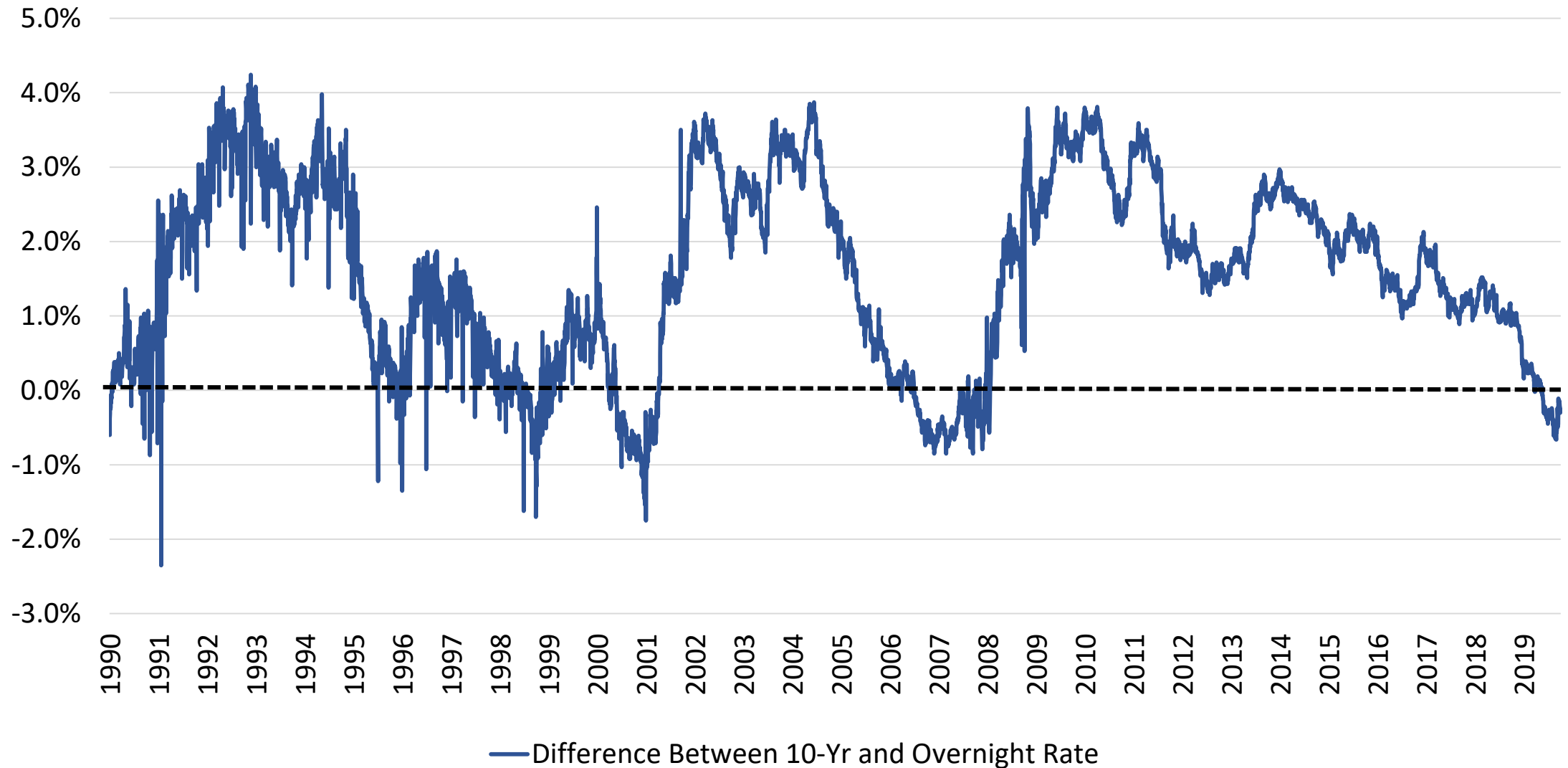
Macroeconomic Outlook

U.S. Economic Growth is Decent, but Slowing



Source: Moody's Analytics; Bureau of Labor Statistics (BLS); S&P Dow Jones Indices LLC; CoreLogic, Inc; Federal Housing Agency (FHFA); Freddie Mac; Fannie Mae; U.S. Bureau of Economic Analysis (BEA); U.S. Board of Governors of the Federal Reserve System (FRB); Investing.com; Federal Reserve Bank of Atlanta

The Yield Curve Has Returned to Flat



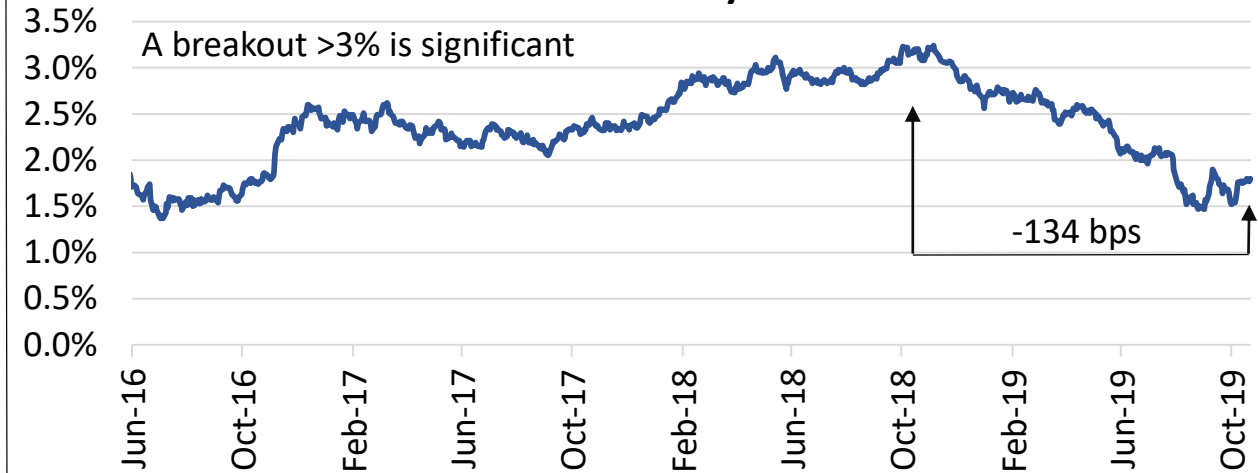
Source: Moody's Analytics; U.S. Board of Governors of the Federal Reserve System (FRB)

U.S. and International Financial Market

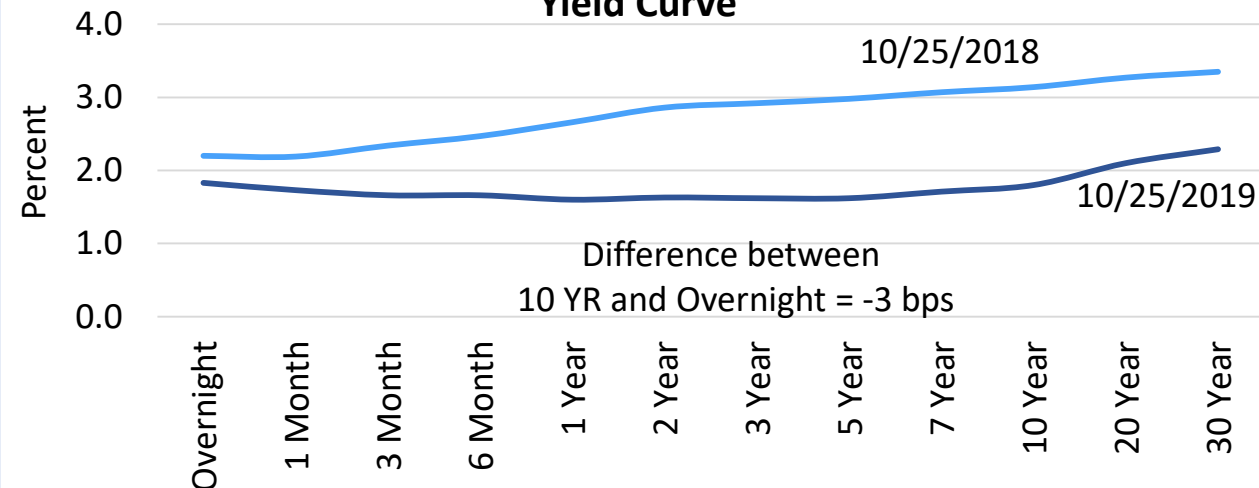
S&P 500



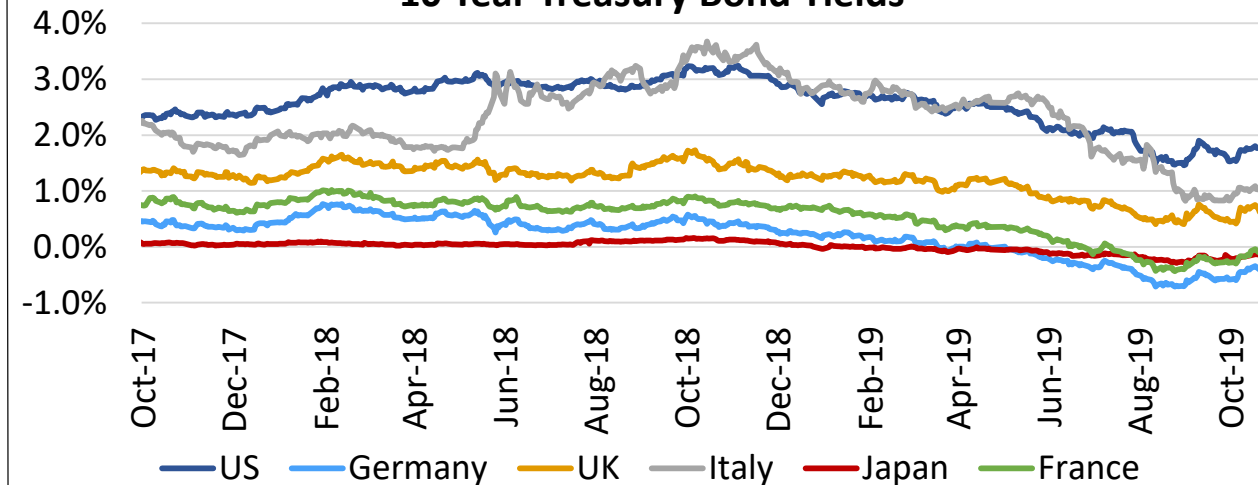
10 -Year Treasury Note



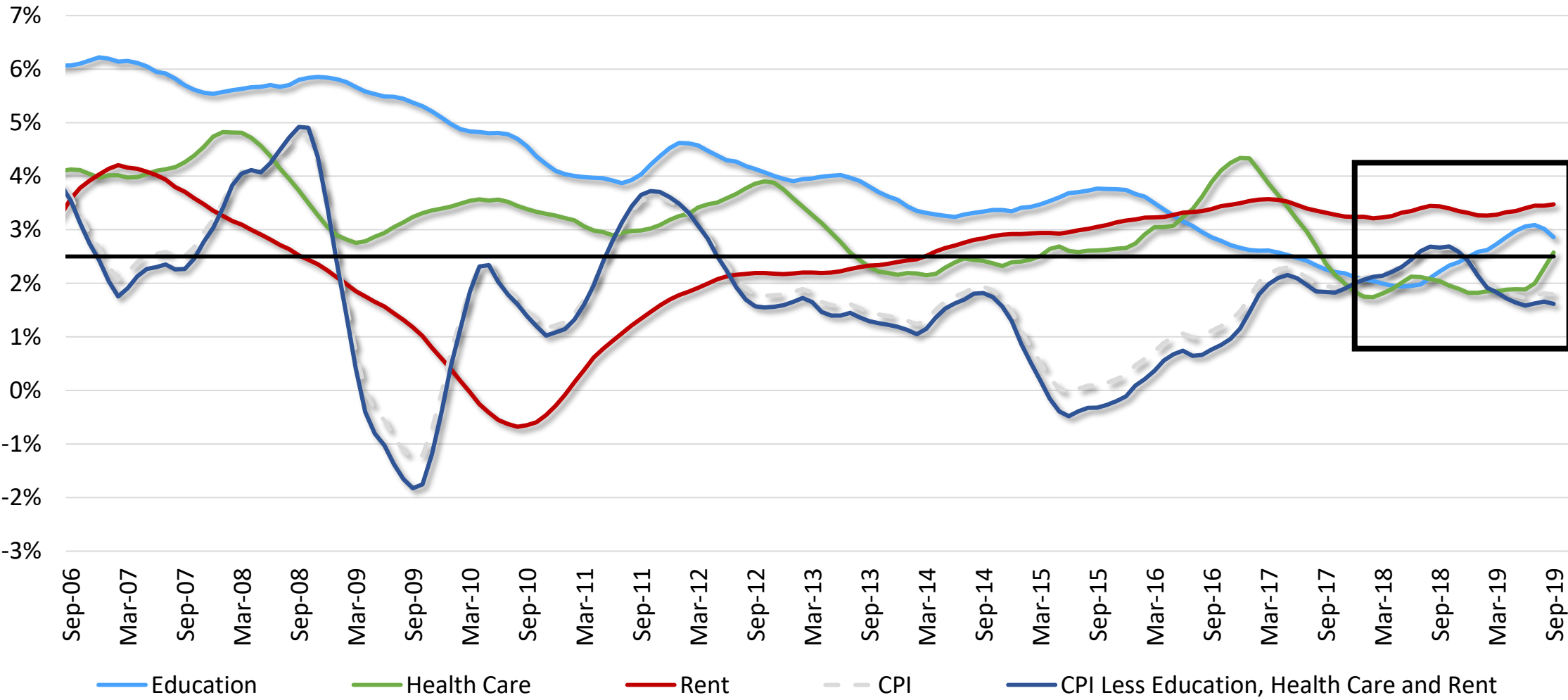
Yield Curve



10 Year Treasury Bond Yields



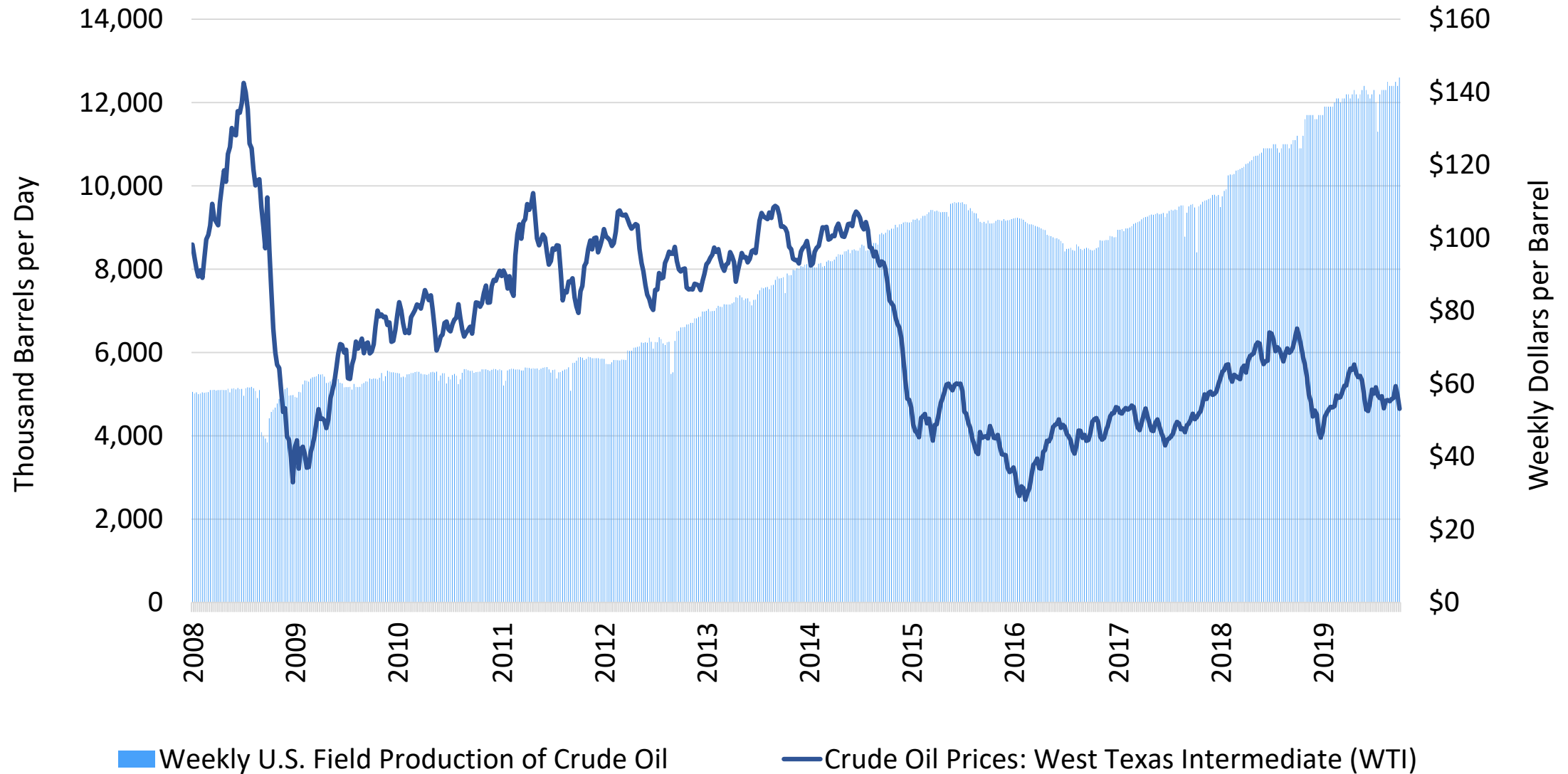
Inflation Was Rising, But is Now Well Below 2%, and is Unlikely to Break Out >2.5%



*YOY 6 month moving avgs. CPI Less Health Care, Education and Rent is an estimate using BLS document "Math calculations to better utilize CPI data"
 Source: Moody's Analytics; Bureau of Labor Statistics (BLS)



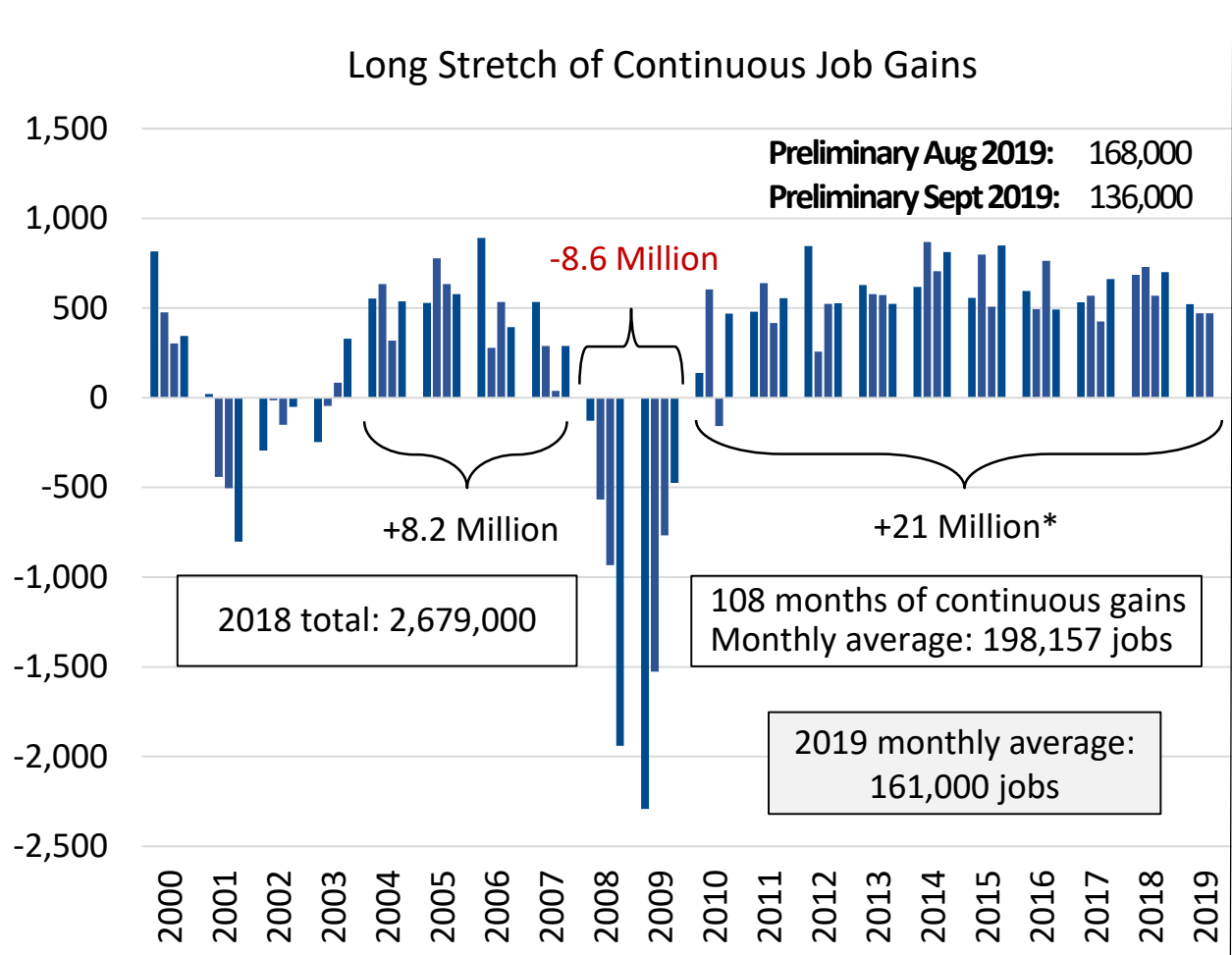
Why is There No Inflation? U.S. Oil is Flooding the Market



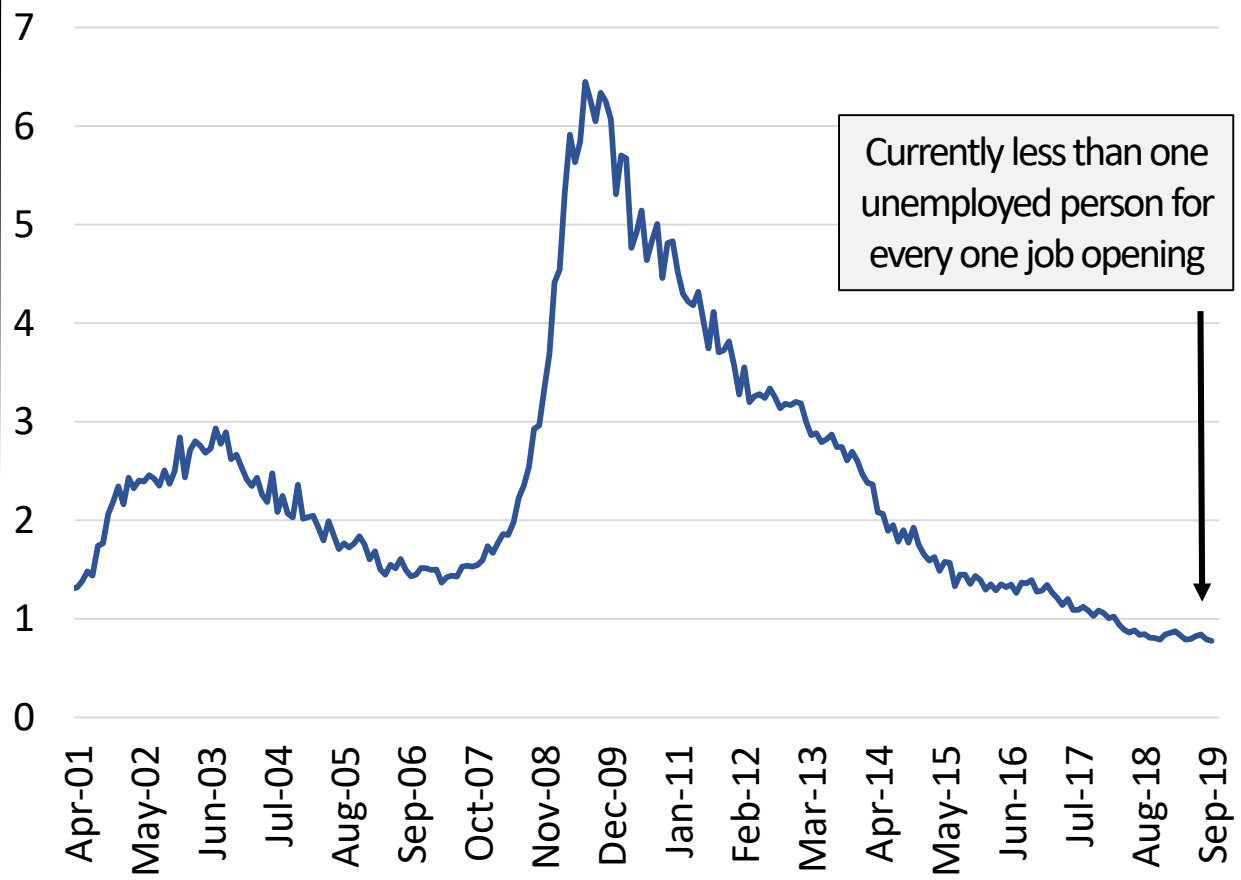
Tight Labor Market, Pulling People Off the Sidelines

It is difficult to find labor at the right *price*, with the right *skills*, in the right *city*

Long Stretch of Continuous Job Gains

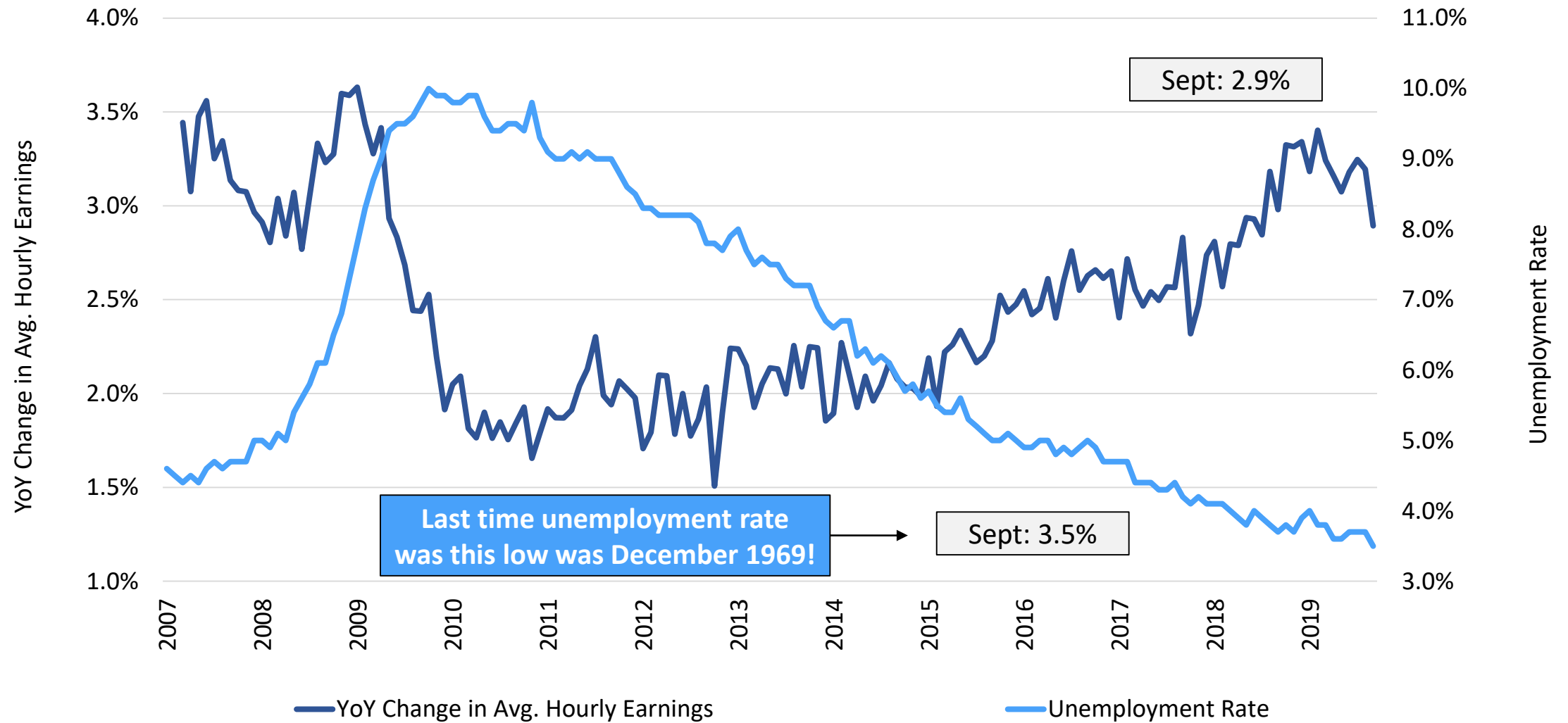


Unemployed Persons per Job Opening



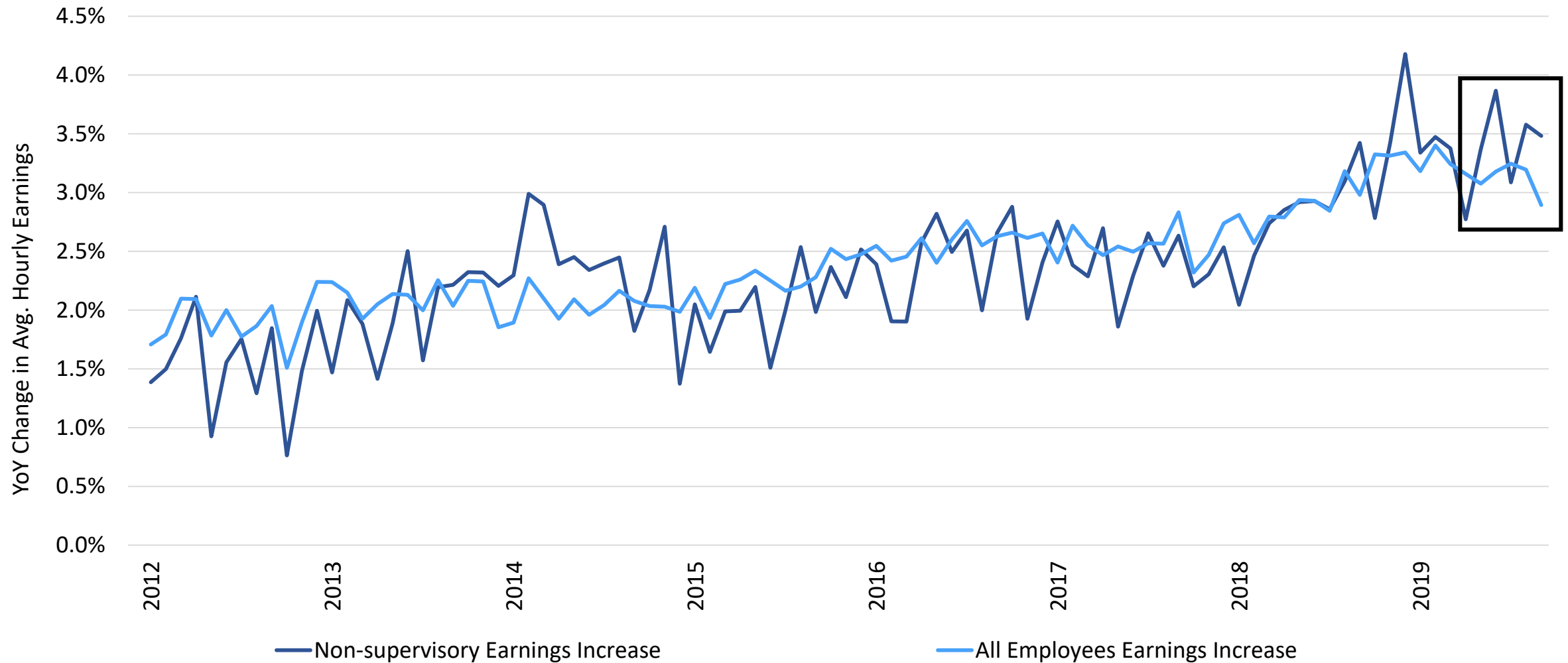
*Through Sept 2019

Wage Growth Finally Emerging



Source: Yardi® Matrix; Moody's Analytics; Bureau of Labor Statistics (BLS); Current Population Survey (CPS)

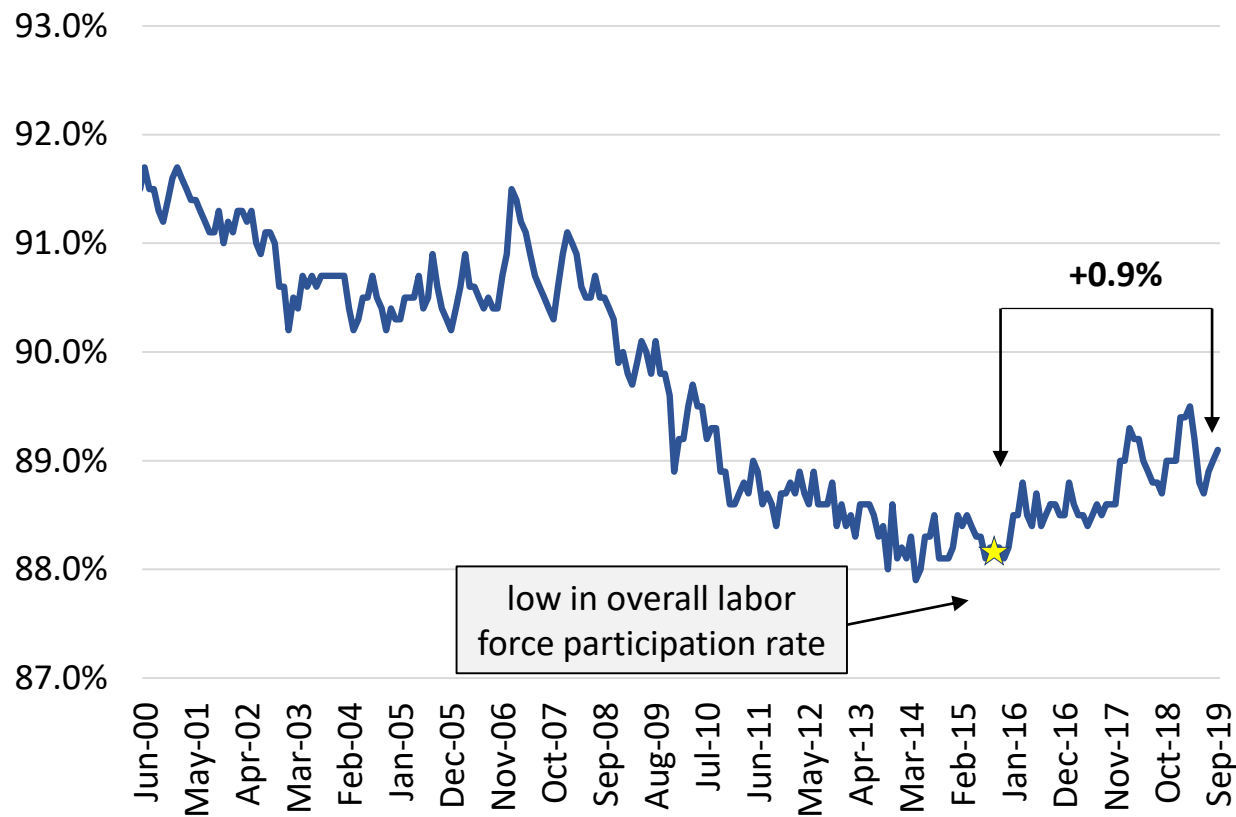
Wages For Non-supervisory Workers Outperform the Overall Labor Market



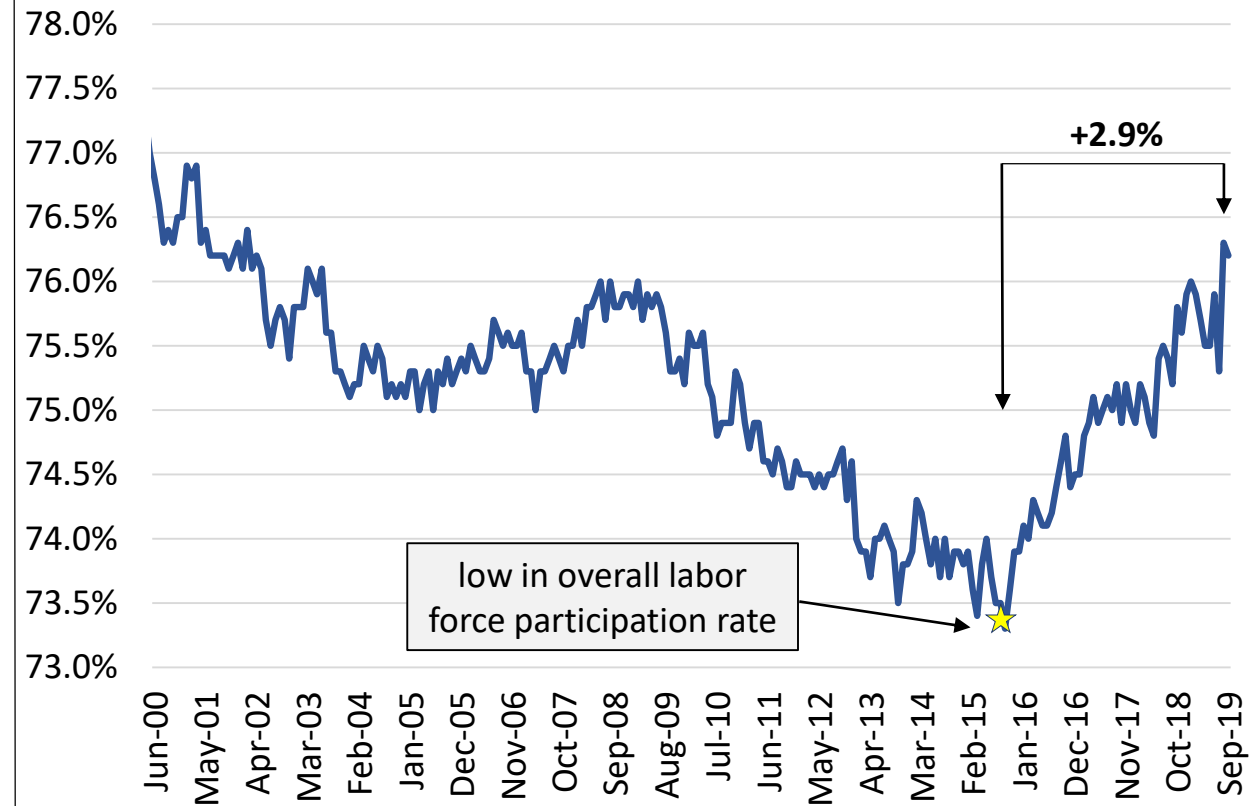
Source: Yardi® Matrix, Federal Reserve Bank of St. Louis

The Labor Force Participation Rate Among 25-54 Year Olds has Risen, Which was Mostly Driven by Women

Labor Force Participation Rate Male, Ages 25-54



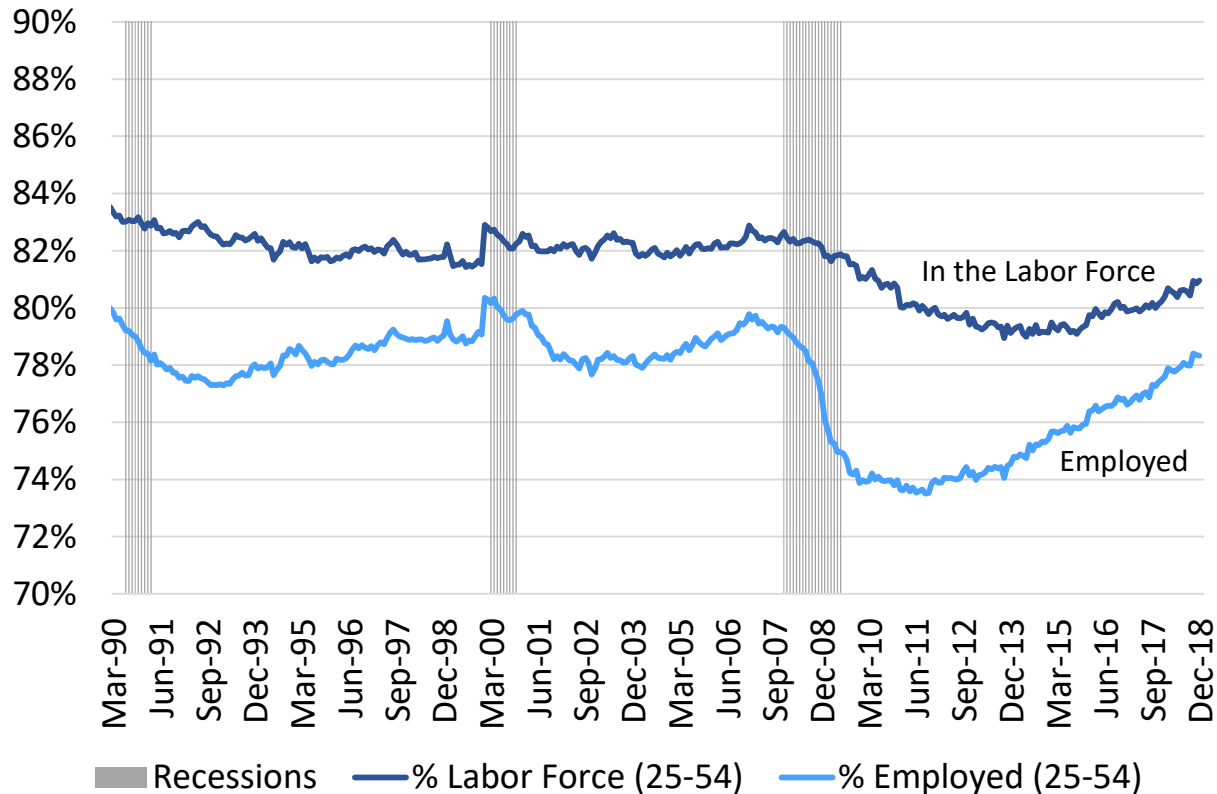
Labor Force Participation Rate Female, Ages 25-54



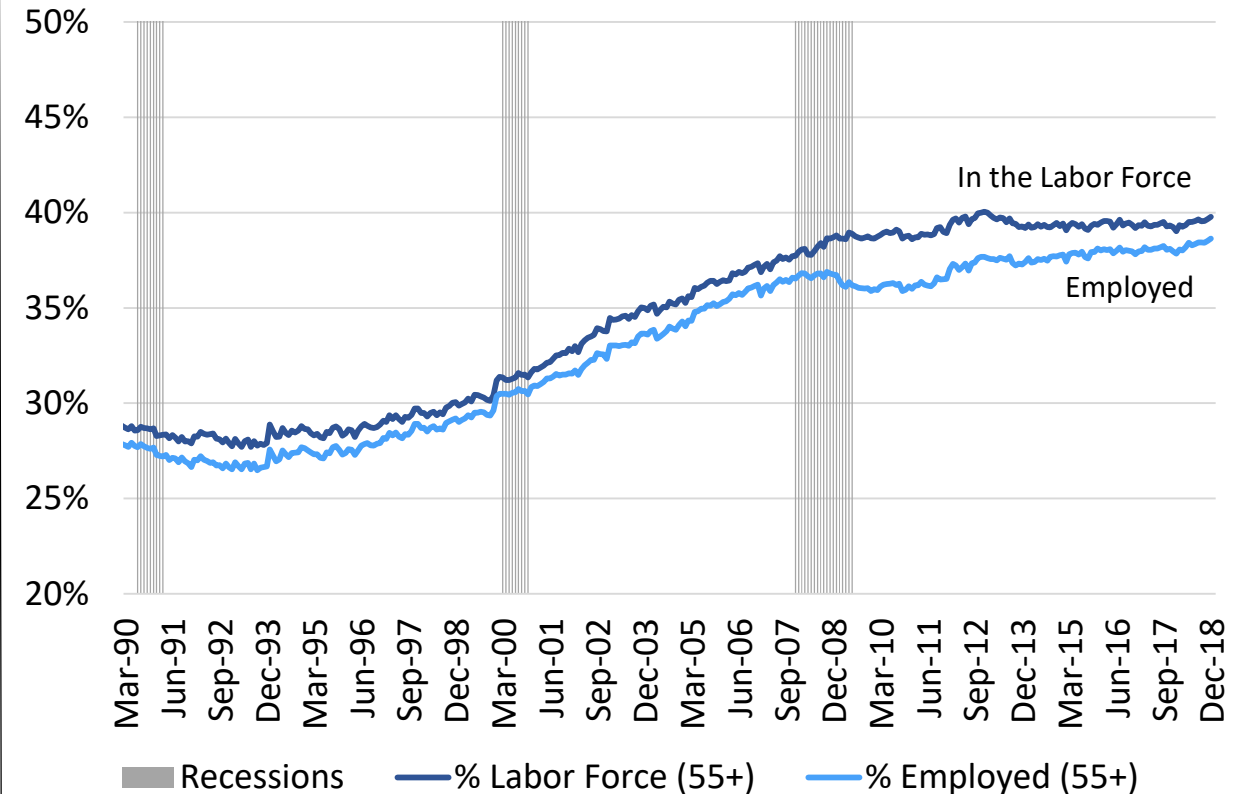
There is Still a Reserve Supply of Labor

- Another 2.6% of the prime-age population could get engaged – approximately 3.4 million people
- Participation rates for people age 55+ are rising – buoying the expansion

Share of Prime-Age Population (25-54) That Is...

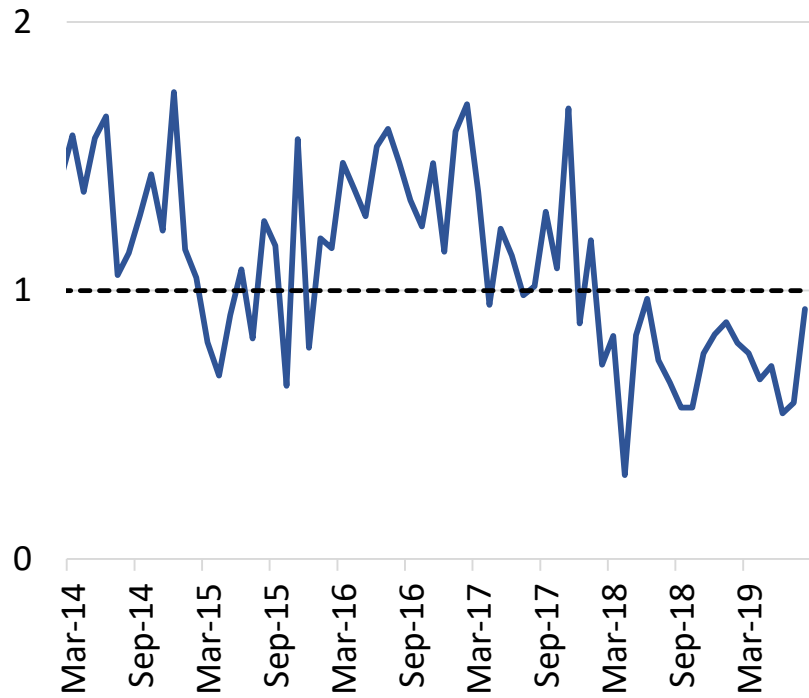


Share of Age 55+ Population That Is...

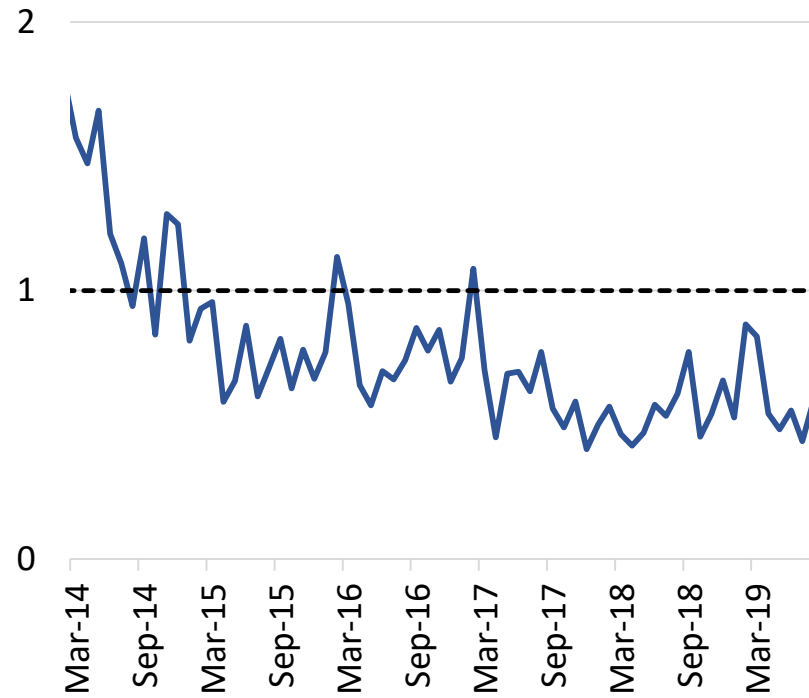


Unemployed Persons per Job Opening: Office-Using Industries

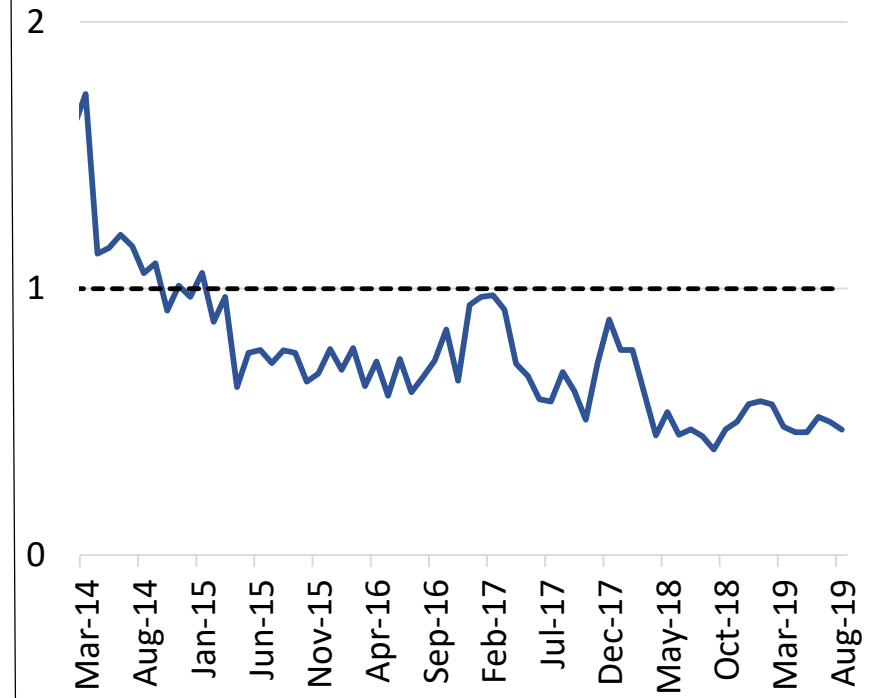
Information



Financial Activities

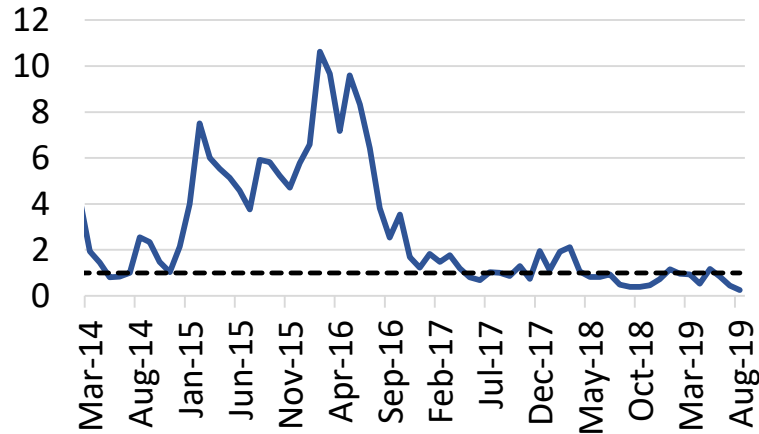


Professional and Business Services

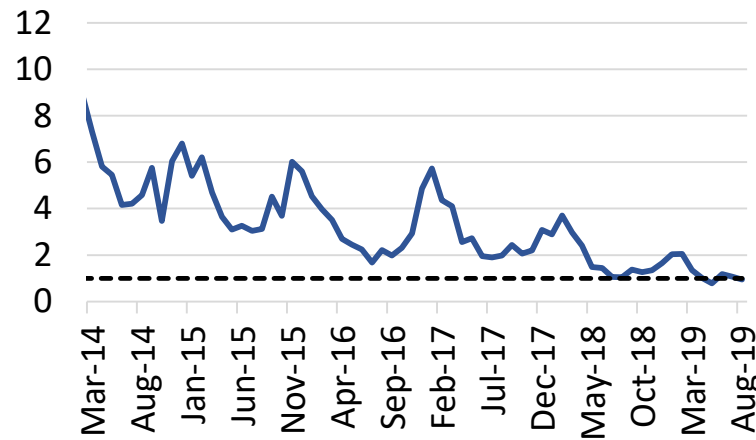


Unemployed Persons per Job Opening: Non Office-Using Industries

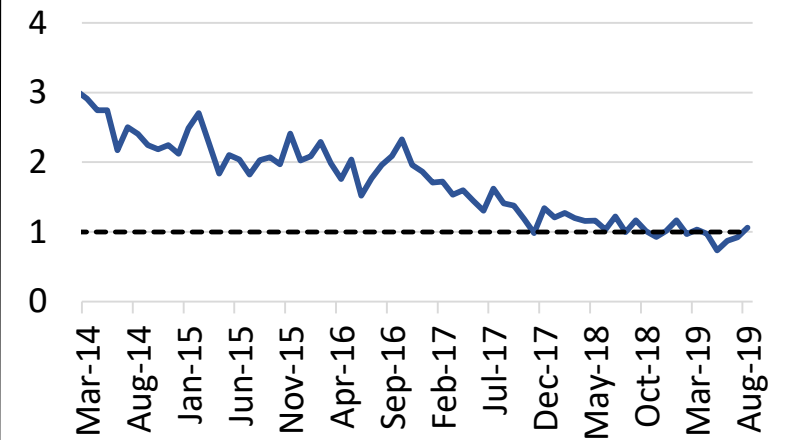
Natural Resources and Mining



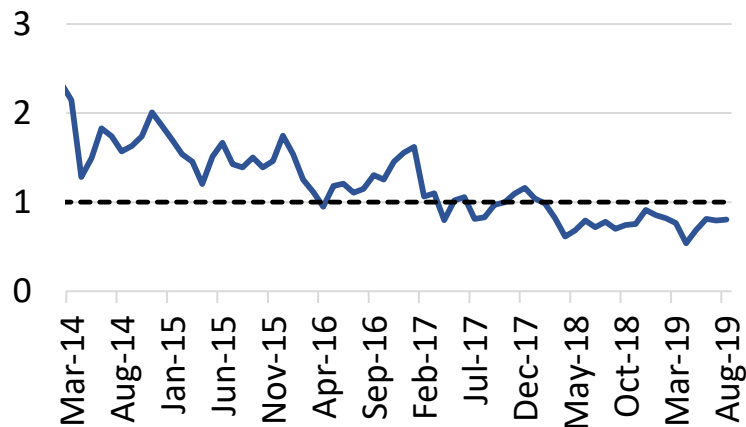
Construction



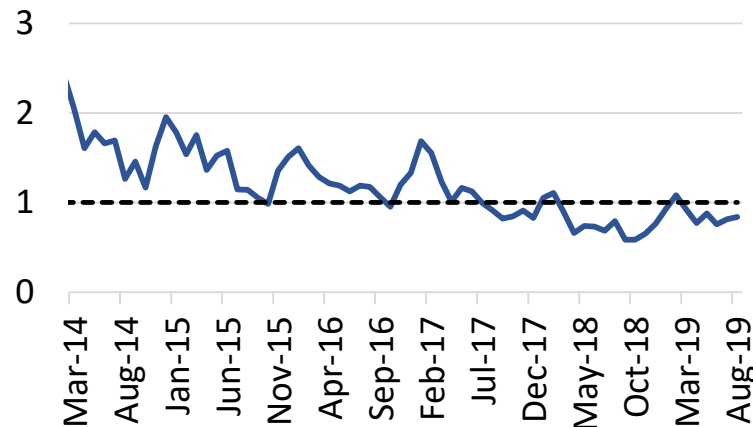
Manufacturing



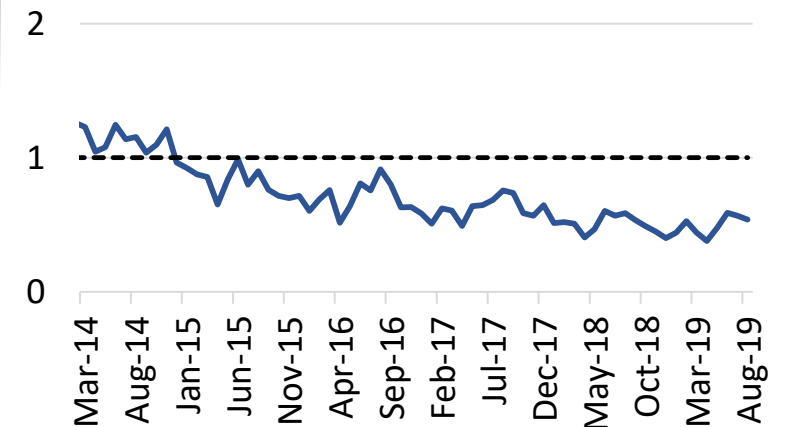
Leisure and Hospitality



Trade, Transportation and Utilities

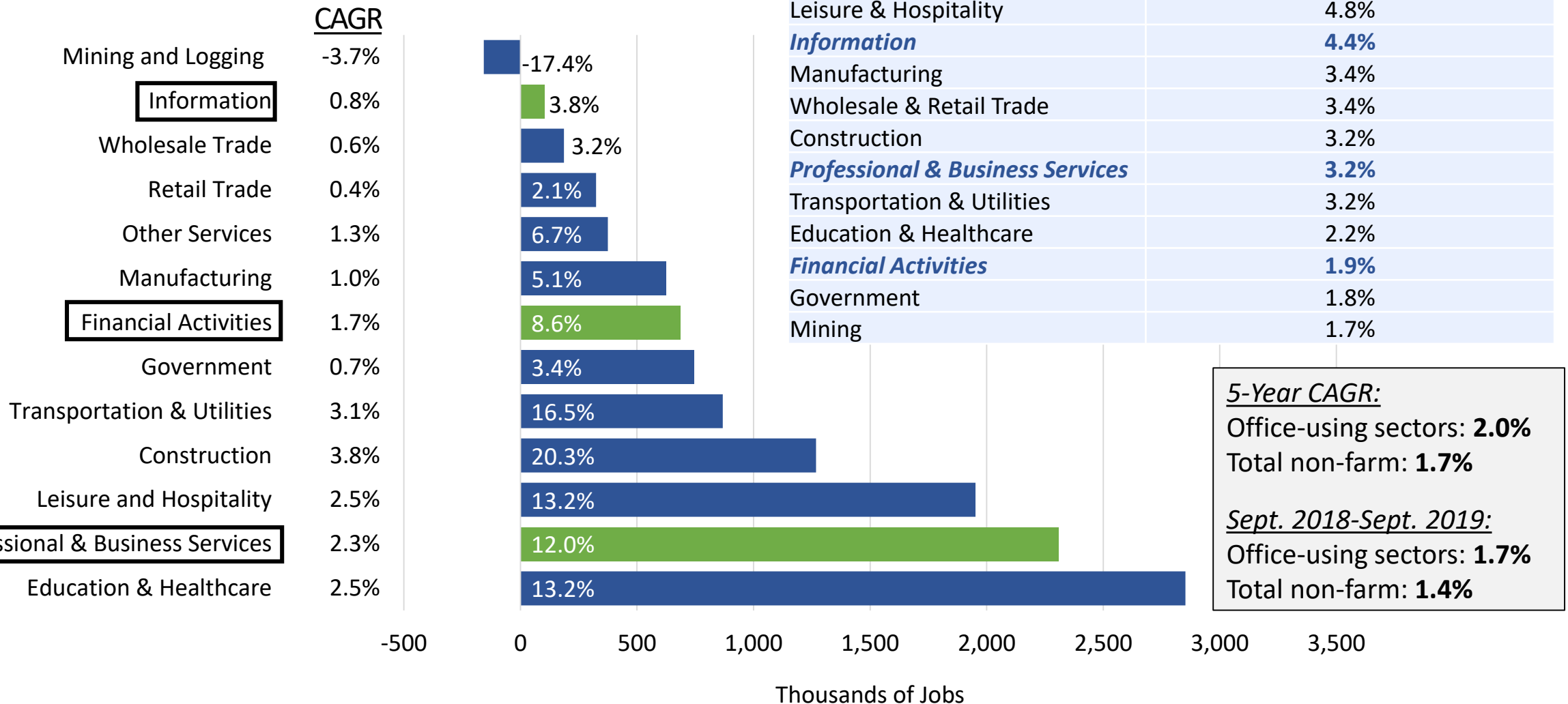


Education and Health Services



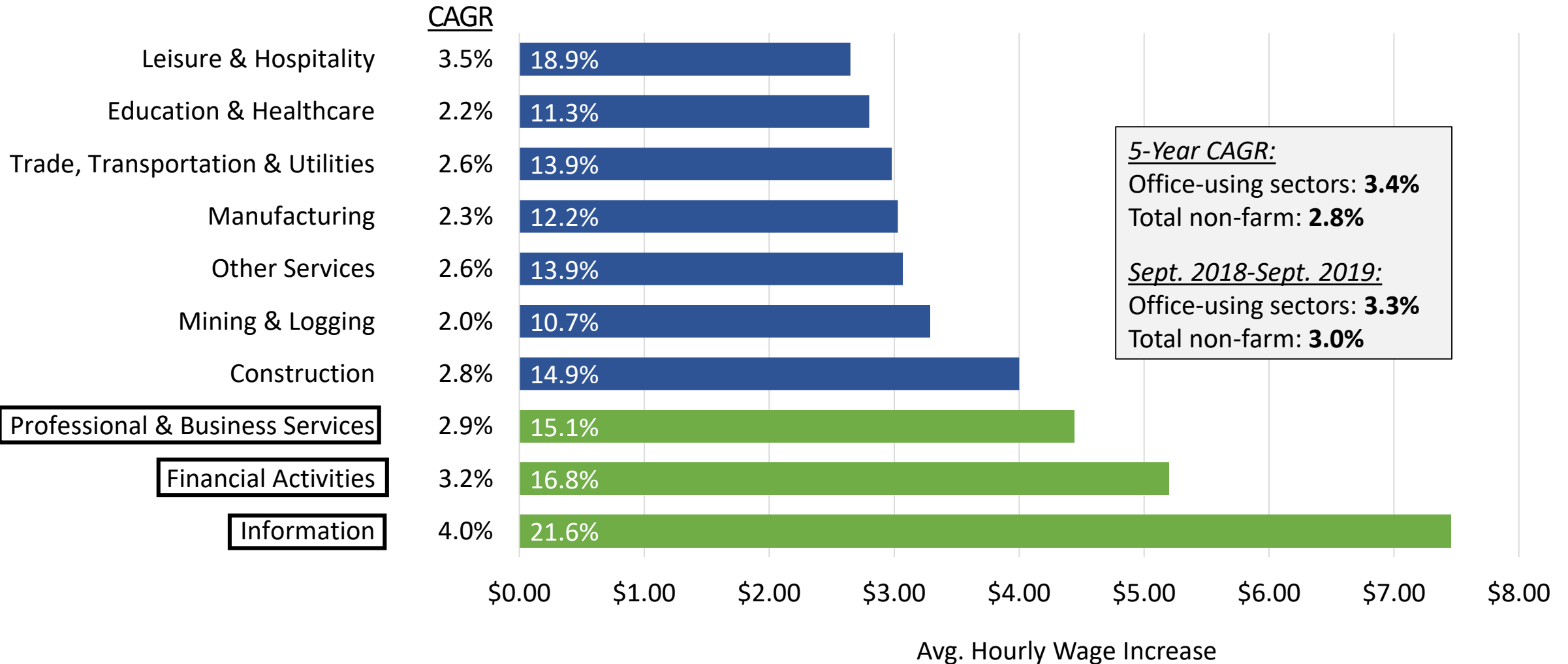
Office-Using Sectors Outpaced Overall Job Growth Over the Last Five Years

Sector	Sept 2019 Unemployment Rate
Leisure & Hospitality	4.8%
<i>Information</i>	4.4%
Manufacturing	3.4%
Wholesale & Retail Trade	3.4%
Construction	3.2%
<i>Professional & Business Services</i>	3.2%
Transportation & Utilities	3.2%
Education & Healthcare	2.2%
<i>Financial Activities</i>	1.9%
Government	1.8%
Mining	1.7%



*September 2014-September 2019, Boxed labels are office-using sectors
 Source: Moody's Analytics; Bureau of Labor Statistics (BLS)

Office-Using Sectors Exhibit the Most Wage Growth Over the Last Five Years



*September 2014-September 2019, Boxed labels are office-using sectors

Source: Moody's Analytics; Bureau of Labor Statistics (BLS)

U.S. Federal Policy is a Classic Glass Half Full/Glass Half Empty Situation

Pro-Growth

- Tax Reform
- Regulatory Relief
- Executive Orders
 - Energy
 - Finance
 - Labor Costs



Generally Positive
Progress

Pro-Growth but Slow

- Infrastructure
- Education Reform
 - German Model
- Healthcare Reform



Progress in Tone, but
Not Yet Substantive

Anti-Growth

- Immigration Control
- Trade Renegotiation



Trade Negotiation is a
Drag on Growth

In Summary:

- GDP growth in Q2 was OK, and we expect Q3 will be about the same
- Low inflation is a global phenomenon – with oil production keeping it low in the U.S.
- The yield curve has been inverted for 5 months, but flattened following the Sept 18 rate cut
- The labor market is extremely tight, and employment and wage growth are in excellent condition, particularly in office-using industries
- There is an elevated risk of recession mid 2021

National Office Fundamentals

Market Classifications

Gateway Markets

Bay Area
Boston
Brooklyn
Chicago
Long Island
Los Angeles
Manhattan
New Jersey
Queens
San Francisco
Washington, D.C

Tech Hub Markets

Atlanta	Minneapolis-St. Paul
Austin	Nashville
Boise	Omaha
Charlotte	Orlando
Columbus	Philadelphia
Dallas	Phoenix
Denver	Pittsburgh
Detroit	Portland
Houston	Raleigh-Durham
Indianapolis	Sacramento
Jacksonville	Salt Lake City
Kansas City	San Diego
Las Vegas	Seattle
Madison	Tampa
Miami	

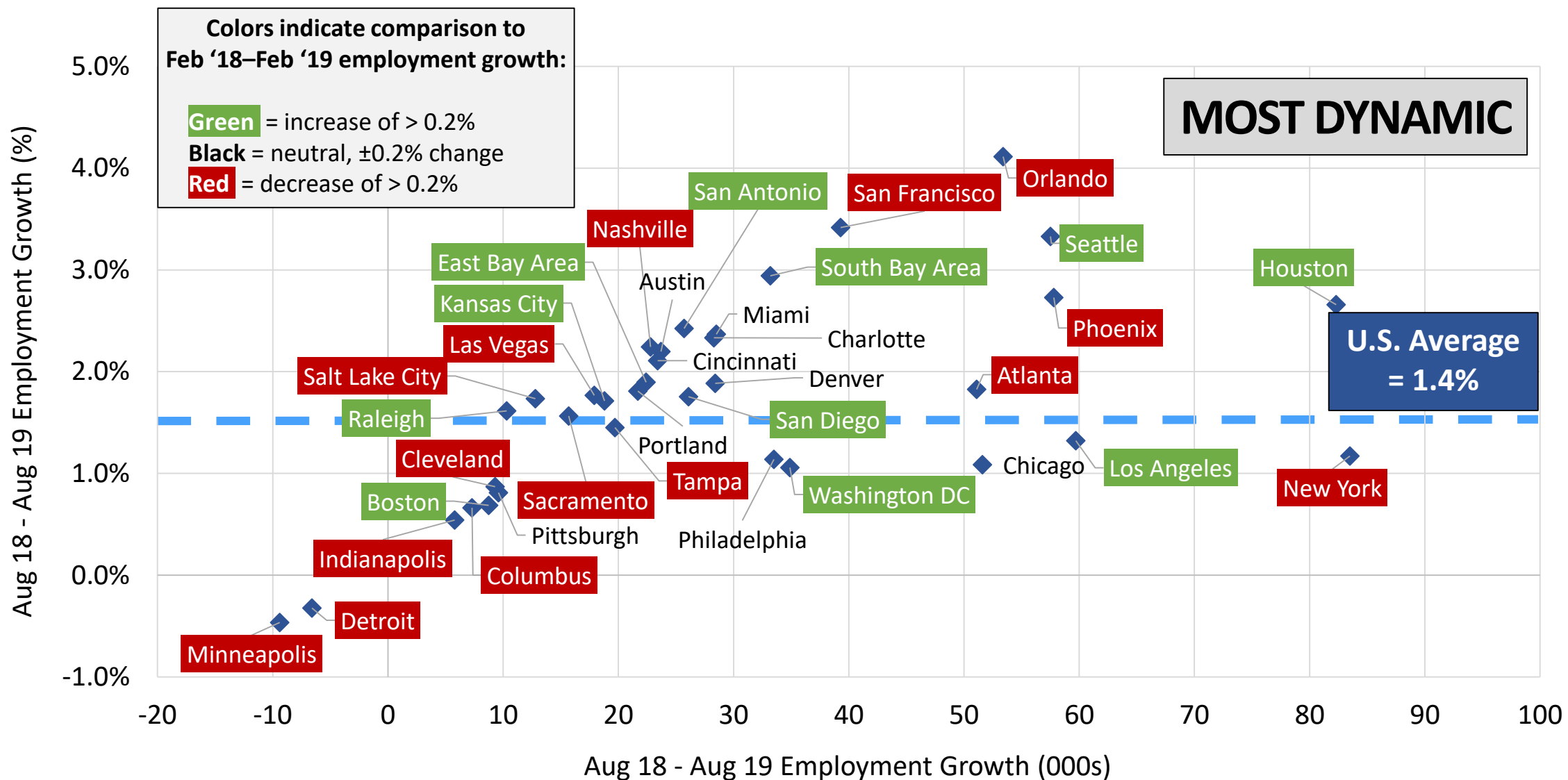
Tertiary Markets

Remaining 77 Yardi® Matrix office markets

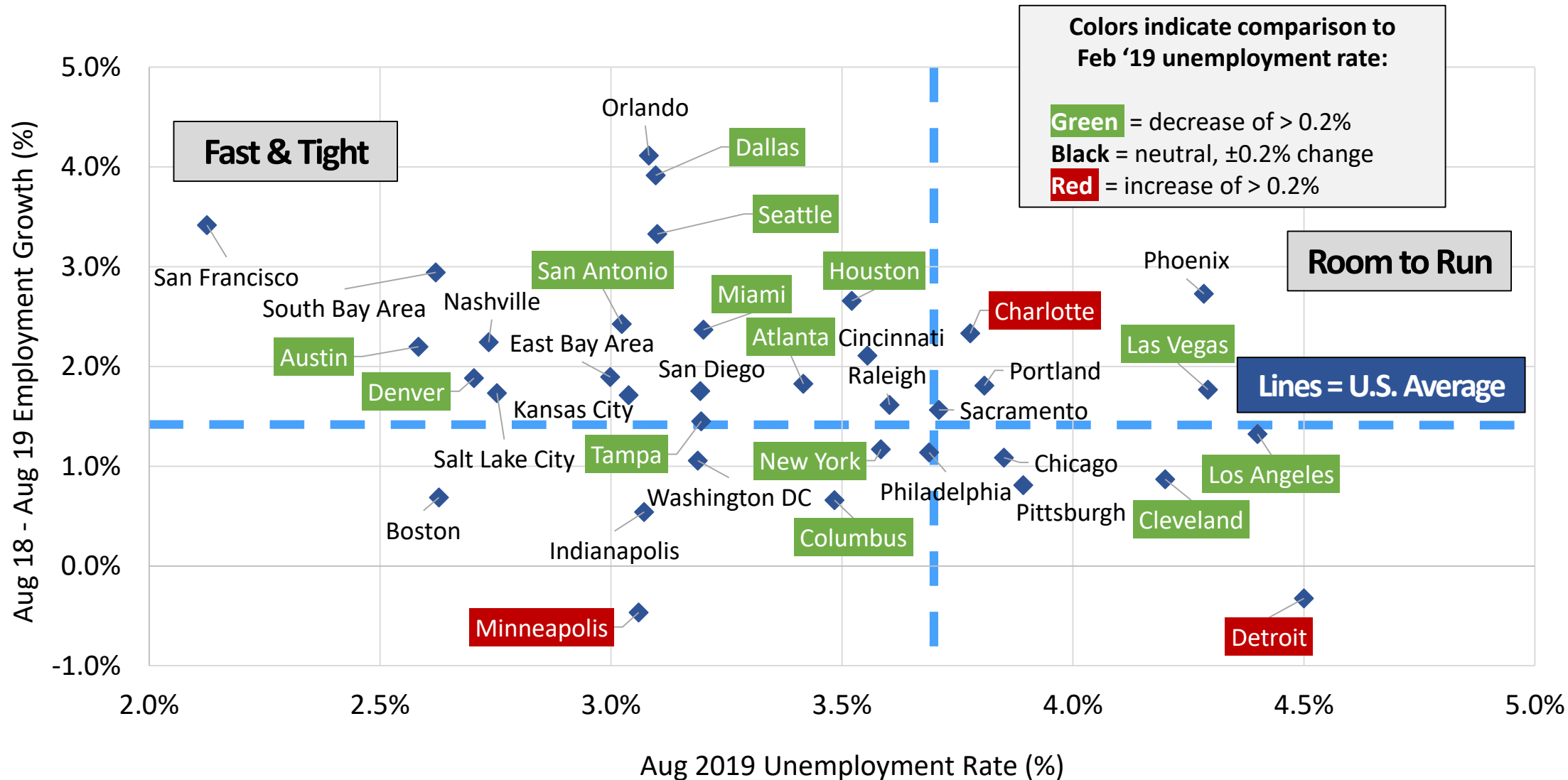
Since we Last Spoke in the Spring...

- Most gateway markets have showed strong employment growth, except for New York and San Francisco – which each showed decelerating growth
- Most tech hubs have been consistent in terms of employment growth – but, Minneapolis and Detroit went from positive employment growth to employment loss
- Most tech hubs show stable or declining unemployment rates
- Phoenix, Madison, and San Diego all showed significant improvement in the quality of their labor force, as determined by a study conducted by CBRE
- Orlando, Dallas, Salt Lake City and San Francisco have room to run – with small development pipelines as a % of existing stock and strong job growth

Tech Hub Markets Have the Most Dynamic Job Growth



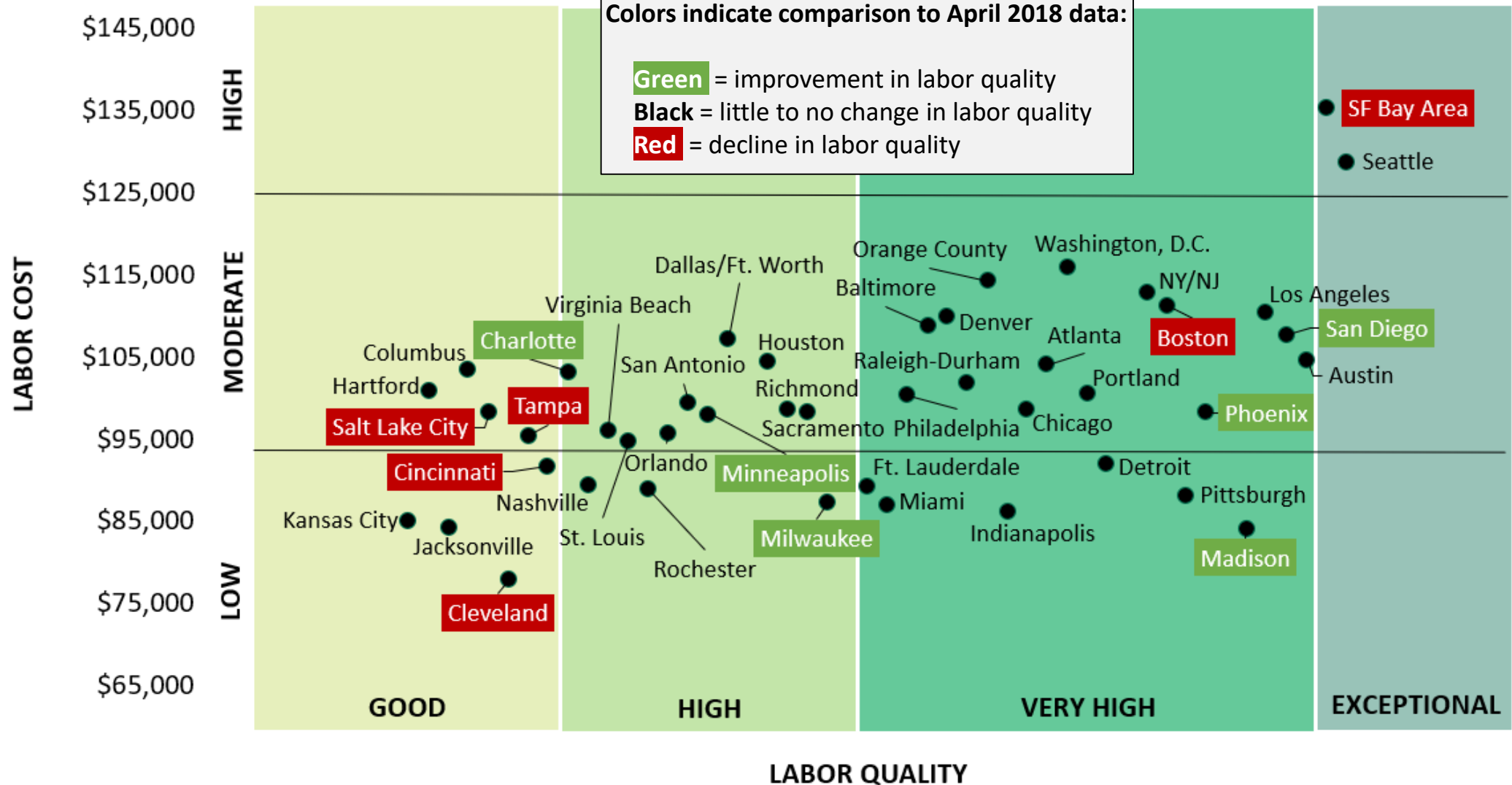
Tech Hub Markets Have the Most Dynamic Job Growth



Source: Moody's Analytics; U.S. Bureau of Labor Statistics (BLS)

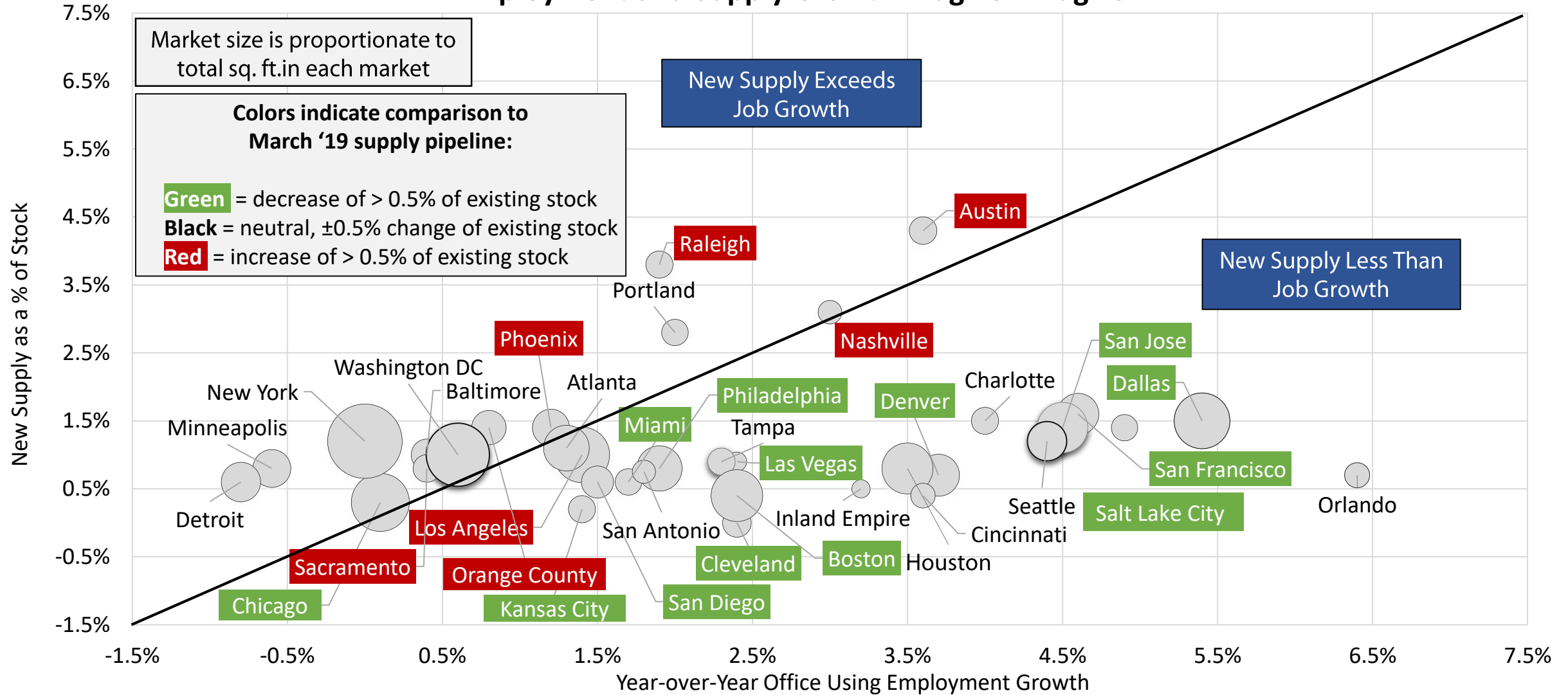
Tech Talent Quality vs. Cost Analysis

Average Annual Salary for Software Engineer (USD)



Most Markets are Absorbing Office Space

Employment and Supply Growth: Aug 18 – Aug 19



*Green markets indicate a decrease in supply pipeline, black indicate neutral, and red indicate a increase in supply pipeline since March 2019

Source: Yardi® Matrix



Office Fundamentals – Top 10 Markets

Top 10 Markets

Market	YoY Change in Full-Service Equivalent Asking Rent	YoY Change in Full-Service Equivalent Asking Rent (Same Store)	YoY Change in Vacancy Rate	September Full-Service Equivalent Asking Rent	August Income/Sq. Ft. Matrix Expert	September Vacancy Rate	August Vacancy Rate Matrix Expert	New Supply as a % of Stock Last 12 months
San Francisco	26.1%	12.6%	-1.3%	\$73.3	\$58.81	8.0%	10.1%	2.6%
Tampa - St. Petersburg	16.2%	3.8%	-0.3%	\$29.3	\$24.58	11.3%	13.5%	0.6%
Austin	13.0%	4.5%	-3.0%	\$41.2	\$35.04	8.4%	11.8%	4.2%
Brooklyn	11.8%	8.6%	1.9%	\$58.3	\$45.04	10.2%	16.6%	5.2%
West Palm Beach	11.4%	N/A	0.2%	\$34.3	\$29.72	12.7%	14.6%	0.7%
Bay Area	8.6%	3.2%	-1.7%	\$46.8	\$37.75	14.2%	12.1%	1.4%
Manhattan	8.5%	0.4%	-2.7%	\$81.3	\$65.68	7.0%	9.3%	1.0%
Nashville	5.3%	2.3%	0.3%	\$31.6	\$24.16	10.1%	11.9%	2.8%
Dallas - Fort Worth	3.9%	3.0%	-1.2%	\$28.4	\$25.08	18.1%	21.0%	1.5%
San Diego	3.8%	0.2%	-1.8%	\$38.1	\$31.46	11.8%	15.7%	0.7%

*Listings with high full-service equivalent rents that have been added over the last year in San Francisco, Tampa, Austin, Brooklyn, Bay Area, and Manhattan are contributing to large YoY asking rent changes

*As of September 2019

Source: Yardi®Matrix



Office Fundamentals – Bottom 10 Markets

Bottom 10 Markets

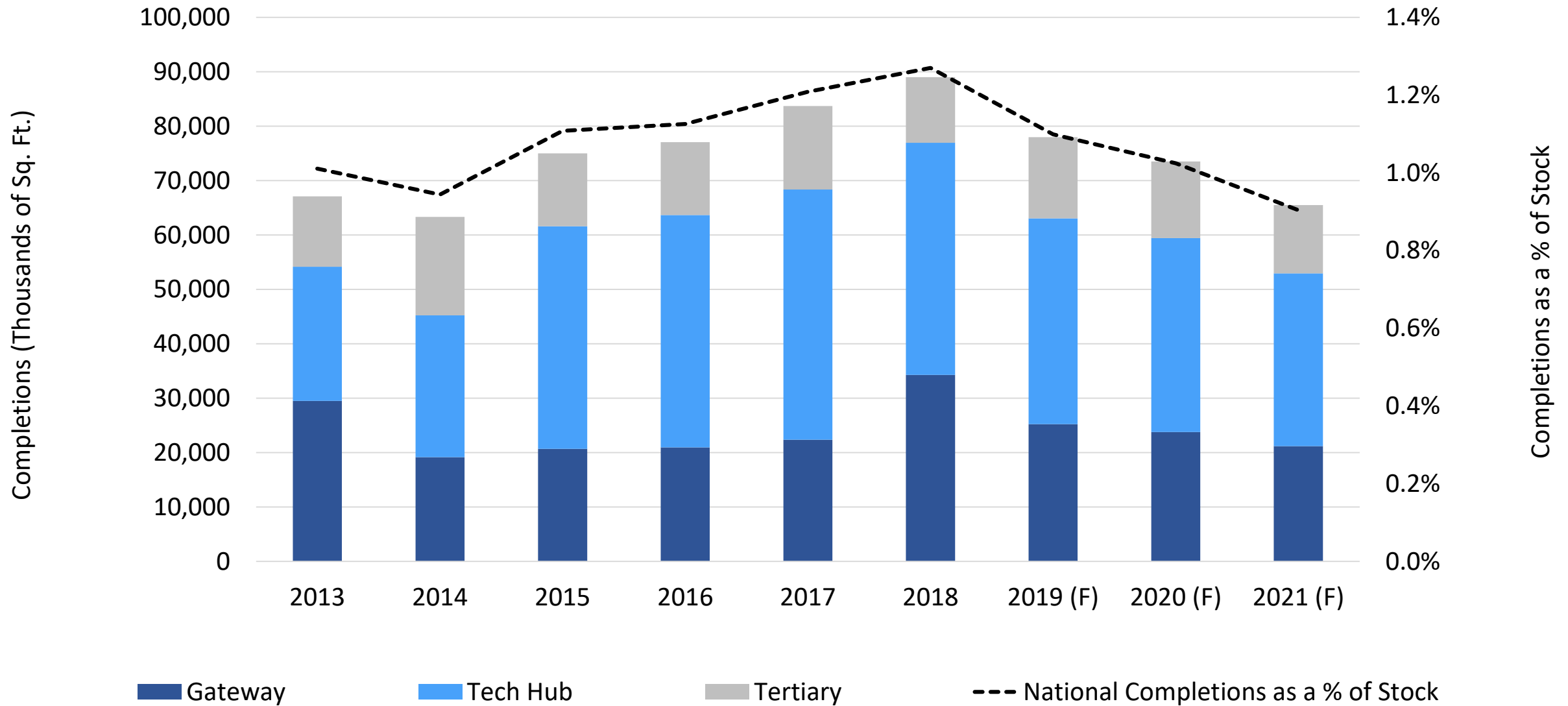
Market	YoY Change in Full-Service Equivalent Asking Rent	YoY Change in Vacancy Rate	September Full-Service Equivalent Asking Rent	August Income/Sq. Ft. Matrix Expert	September Vacancy Rate	August Vacancy Rate Matrix Expert	New Supply as a % of Stock Last 12 months
Chicago	-6.6%	0.8%	\$28.4	\$31.38	14.7%	20.0%	0.3%
Winston - Salem	-5.8%	2.8%	\$17.4	N/A	16.2%	N/A	0.2%
Central Valley	-5.2%	2.9%	\$23.8	\$24.12	10.4%	11.6%	0.6%
Orlando	-4.5%	1.0%	\$21.2	\$21.60	12.3%	13.4%	0.8%
Seattle	-4.0%	-0.8%	\$36.4	\$35.51	8.3%	7.5%	2.5%
Birmingham	-3.3%	2.3%	\$19.4	\$21.09	17.0%	13.9%	1.0%
South Carolina	-3.3%	1.4%	\$21.3	\$23.26	12.9%	16.9%	0.8%
Salt Lake City	-3.2%	3.2%	\$23.4	\$24.71	11.9%	10.3%	1.7%
St. Louis	-2.5%	1.0%	\$20.9	\$22.17	12.1%	25.1%	0.5%
Boston	-1.8%	0.0%	\$36.4	\$41.11	9.7%	11.3%	0.6%

*Listings with high full-service equivalent rents that have been removed over the last year in Chicago, Orlando, and Seattle are contributing to large YoY asking rent changes

*As of September 2019

Source: Yardi®Matrix

Office Supply Additions Peaked in 2018



*Includes owner-occupied
Source: Yardi®Matrix

Where is Future Supply Concentrated?

Property Status	March 2019	September 2019	Difference
Under Construction	211,801,440	209,468,002	(2,333,438)
Planned	393,800,025	268,362,980	(125,437,045)
Prospective	356,215,838	549,005,520	192,789,682

■ Under Construction Sq. Ft.

Top 10 Markets	Sq. Ft. UC (MM)	UC as a % of Existing Stock
Brooklyn	5.2	14.7%
Queens	2.3	11.0%
Austin	7.9	9.9%
Nashville	5.1	8.8%
South Bend	0.6	8.5%
San Francisco	11.1	6.3%
Seattle	9.6	5.9%
Charlotte	3.9	5.2%
El Paso	0.4	5.2%
Manhattan	23.3	4.7%

■ Planned Sq. Ft.

Top 10 Markets	Sq. Ft. Planned (MM)	Planned as a % of Existing Stock
Austin	14.1	17.6%
Brooklyn	3.8	10.8%
Wilmington	0.4	10.1%
Seattle	15.1	9.2%
Miami	6.3	8.8%
San Francisco	15.2	8.7%
Mobile	0.5	8.1%
Bay Area	20.0	7.8%
Orlando	4.7	7.7%
Dallas - Fort Worth	22.4	7.2%

■ Prospective Sq. Ft.

Top 10 Markets	Sq. Ft. Prospective (MM)	Prospective as a % of Existing Stock
Nashville	15.4	26.3%
Austin	15.3	19.2%
Bay Area	46.7	18.2%
West Palm Beach	5.8	16.4%
Atlanta	33.7	16.1%
Brooklyn	5.6	15.7%
Washington DC	55.5	13.6%
Long Island	7.3	13.6%
Pensacola	1.1	13.4%
Fort Lauderdale	5.7	12.4%

*Data as of September 2019, includes owner-occupied
Source: Yardi®Matrix

Top 20 Largest Office Projects Under Construction

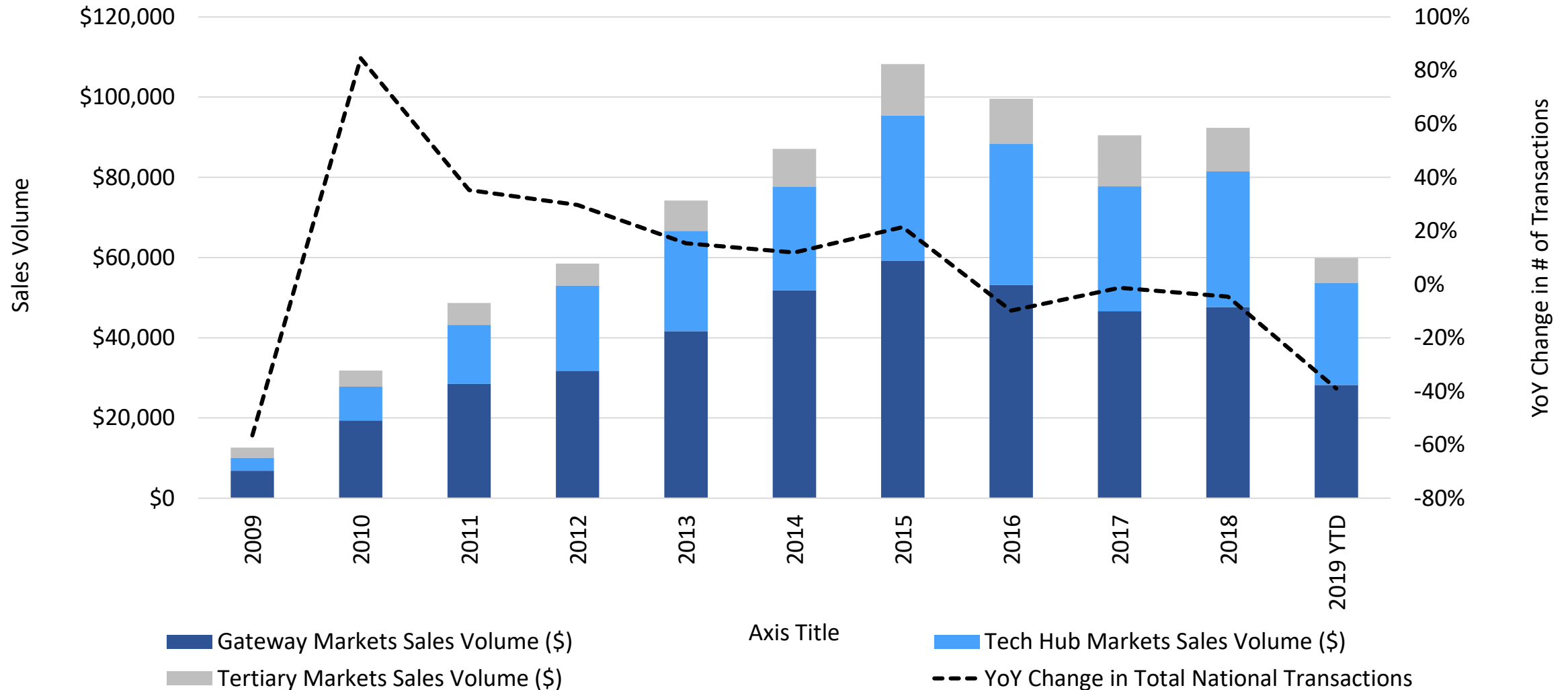
Property Name	Market	Building Sq. Ft.
50 Hudson Yards	Manhattan	2,900,000
The Post Office	Chicago	2,800,000
The Spiral	Manhattan	2,800,000
One Manhattan West	Manhattan	2,077,557
Two Manhattan West	Manhattan	1,840,000
One Vanderbilt	Manhattan	1,755,814
Winthrop Center	Boston	1,612,400
110 North Wacker	Chicago	1,565,909
3 Hudson Blvd	Manhattan	1,538,210
First Street Tower of Oceanwide Center	San Francisco	1,491,019
Google Hudson Square – 550 Washington Street	Manhattan	1,300,000
California Market Center	Los Angeles	1,296,360
The Jacx	Queens	1,200,000
The Dayton's Project	Minneapolis – St. Paul	1,200,000
State Farm at Park Center – Phase II	Atlanta	1,160,000
Memorial Sloan Kettering	Manhattan	1,153,000
Texas Tower	Houston	1,140,000
Pioneer Natural Resource Headquarters	Dallas – Fort Worth	1,125,000
One Congress at Bulfinch Crossing	Boston	1,012,000
Nike World Headquarters – Serena Williams Building	Portland	1,000,000

*Square Footage = total building square footage, some buildings might include other use types in addition to office

Bolded markets are new projects since our Spring 2019 webinar, data as of September 2019 - expected completion year between 2019-2020

Source: Yardi®Matrix

We Expect 2019 Sale Volume to be in Line with the Past Two Years



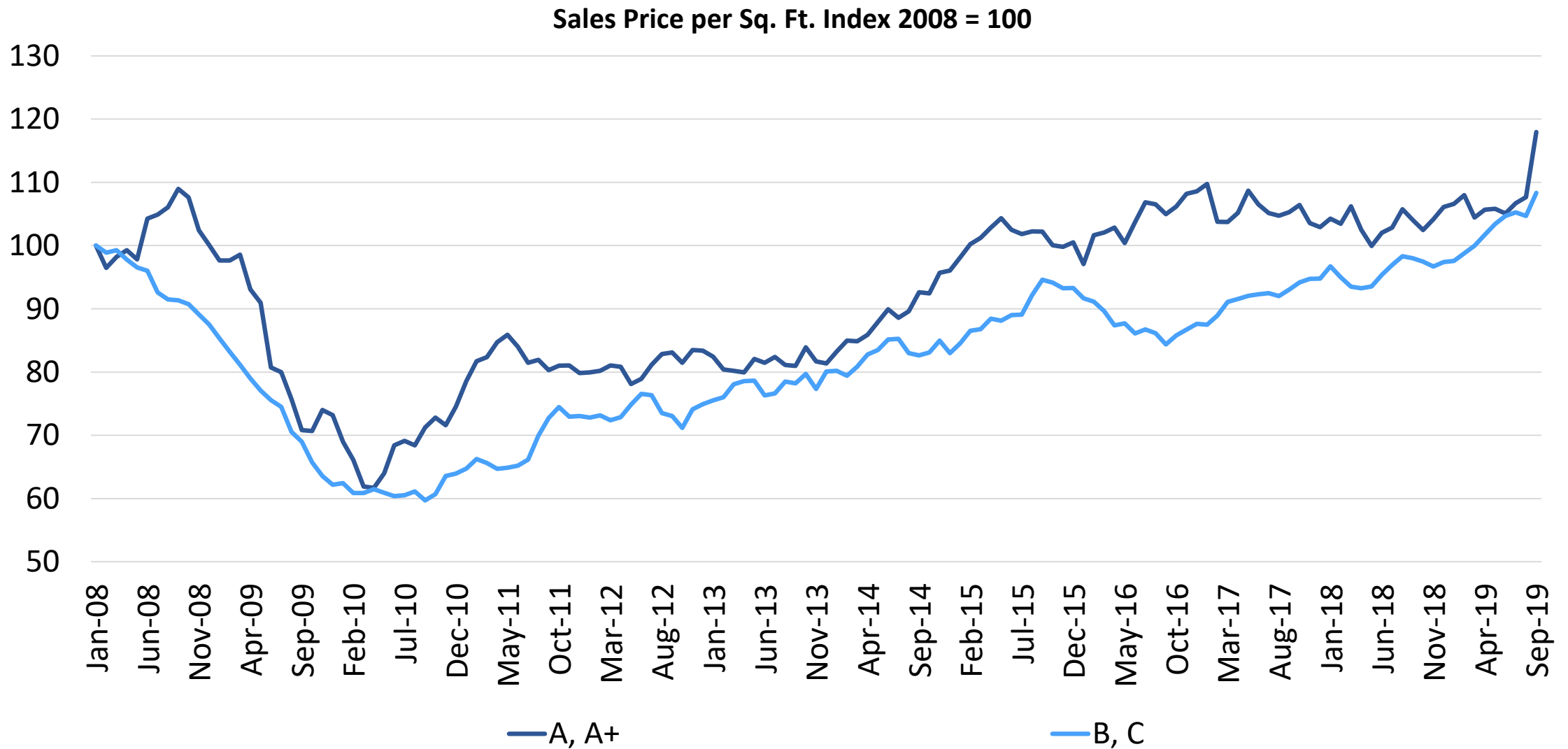
*YTD sales volume as of September 2019, transactions often have a lag

*Includes owner-occupied

Source: Yardi® Matrix



Since the Recession, Class A Has Outperformed B/C



*12-month rolling avg. sales price per sq. ft. index 2008 = 100

Source: Yardi®Matrix

Most Active Buyers

Buyer	Total Sq. Ft. (MM)	# of Transactions (Including Portfolio Sales)	Markets Where Transactions Occurred
EQ Office	2.86	3	Seattle
Cerberus Capital Management	2.10	2	Houston
RFR Realty	1.61	2	Manhattan
Google	1.54	8	Bay Area & Manhattan
Starwood Property Trust	1.31	4	Atlanta & Bay Area
Piedmont Office Realty Trust	1.28	3	Dallas-Fort Worth
Vanbarton Group	1.24	2	Manhattan & Seattle
Kennedy Wilson	1.19	8	Los Angeles & Seattle
DRA Advisors	1.11	2	Bay Area & Phoenix
Prime US Reit	1.10	3	Atlanta, Bay Area & Dallas-Fort Worth

*EQ Office was also on the most active seller list

October 2018 – October 2019

Source: Yardi®Matrix

Most Active Sellers

Seller	Total Sq. Ft. (MM)	# of Transactions (Including Portfolio Sales)	Markets Where Transactions Occurred
Ivanhoe Cambridge	2.90	7	Seattle
Hines Interests	2.34	7	Los Angeles, Orange County, San Diego, San Francisco & Seattle
Hariri Interests	2.10	2	Houston
Brookfield Properties	1.70	6	Bay Area & Los Angeles
EQ Office	1.59	9	Atlanta, Los Angeles, Orange County & San Diego
Blackstone Group	1.59	9	Dallas-Fort Worth & Manhattan
PGIM Real Estate	1.48	10	Manhattan, Miami, Orange County, San Diego & San Francisco
KBS Realty Advisors	1.45	5	Atlanta, Bay Area & Dallas-Fort Worth
AEW Capital Management	1.36	7	Atlanta, Dallas-Fort Worth, Manhattan, Orange County & Phoenix
CIM Group	1.20	4	Bay Area

*EQ Office was also on the most active buyer list

October 2018 – October 2019

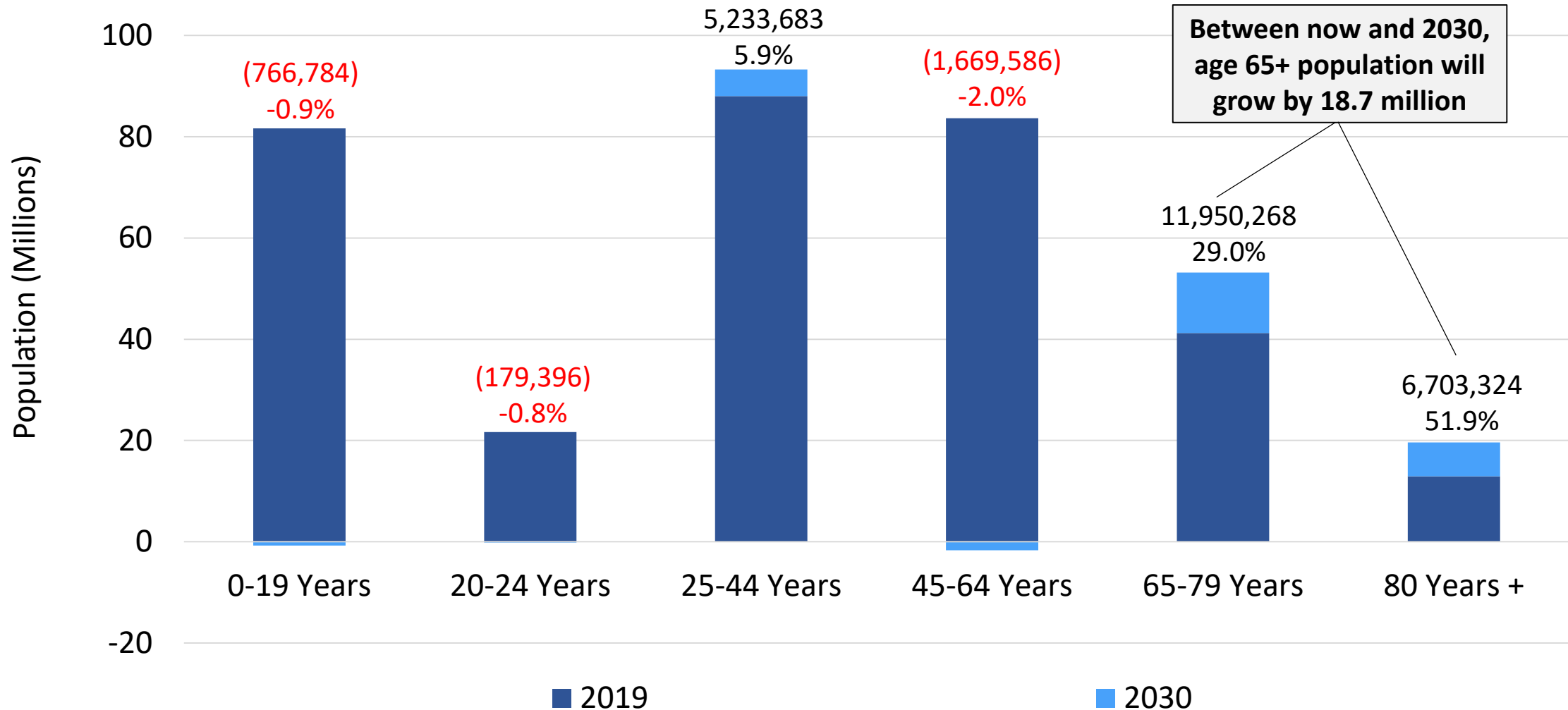
Source: Yardi®Matrix

In Summary:

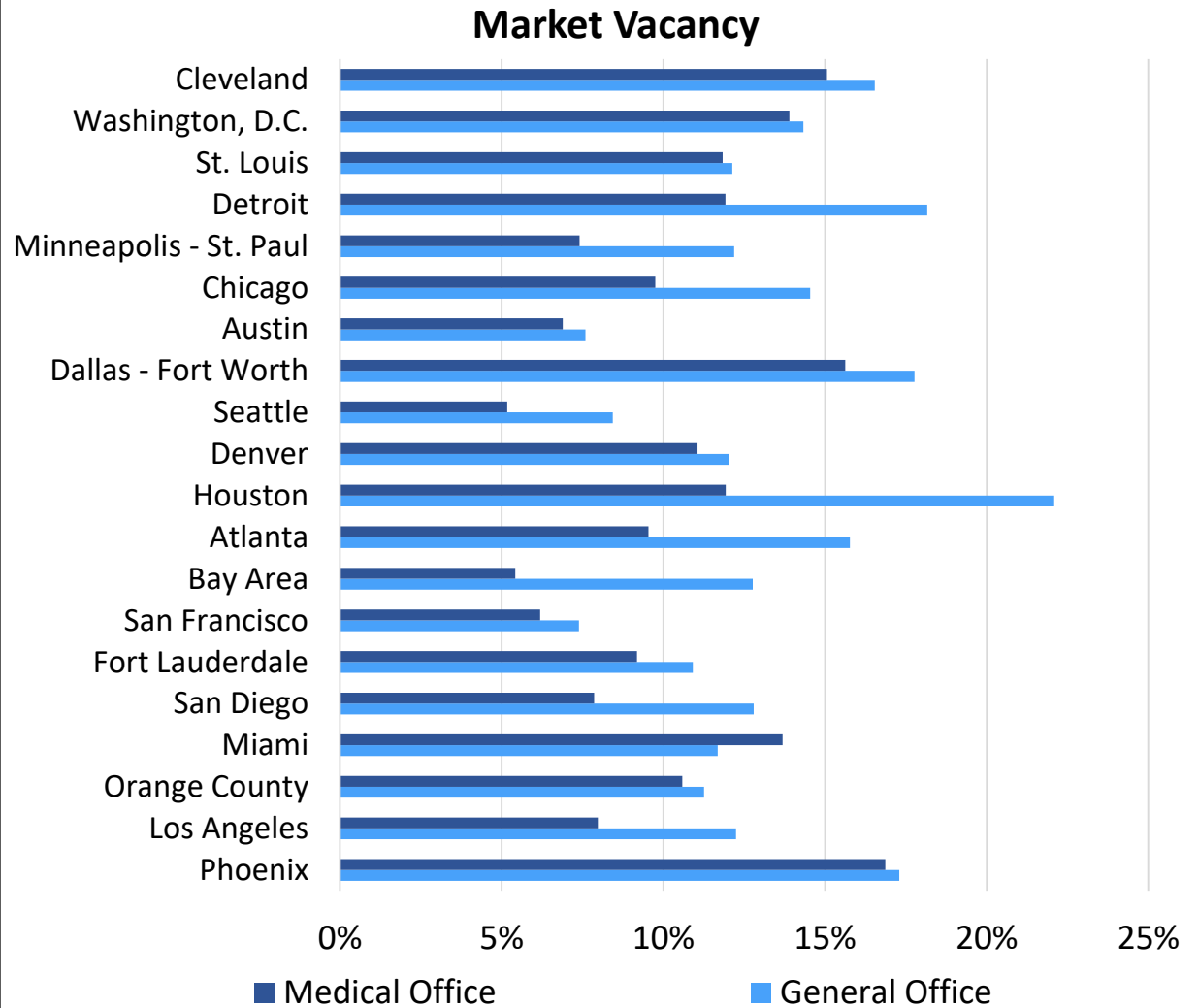
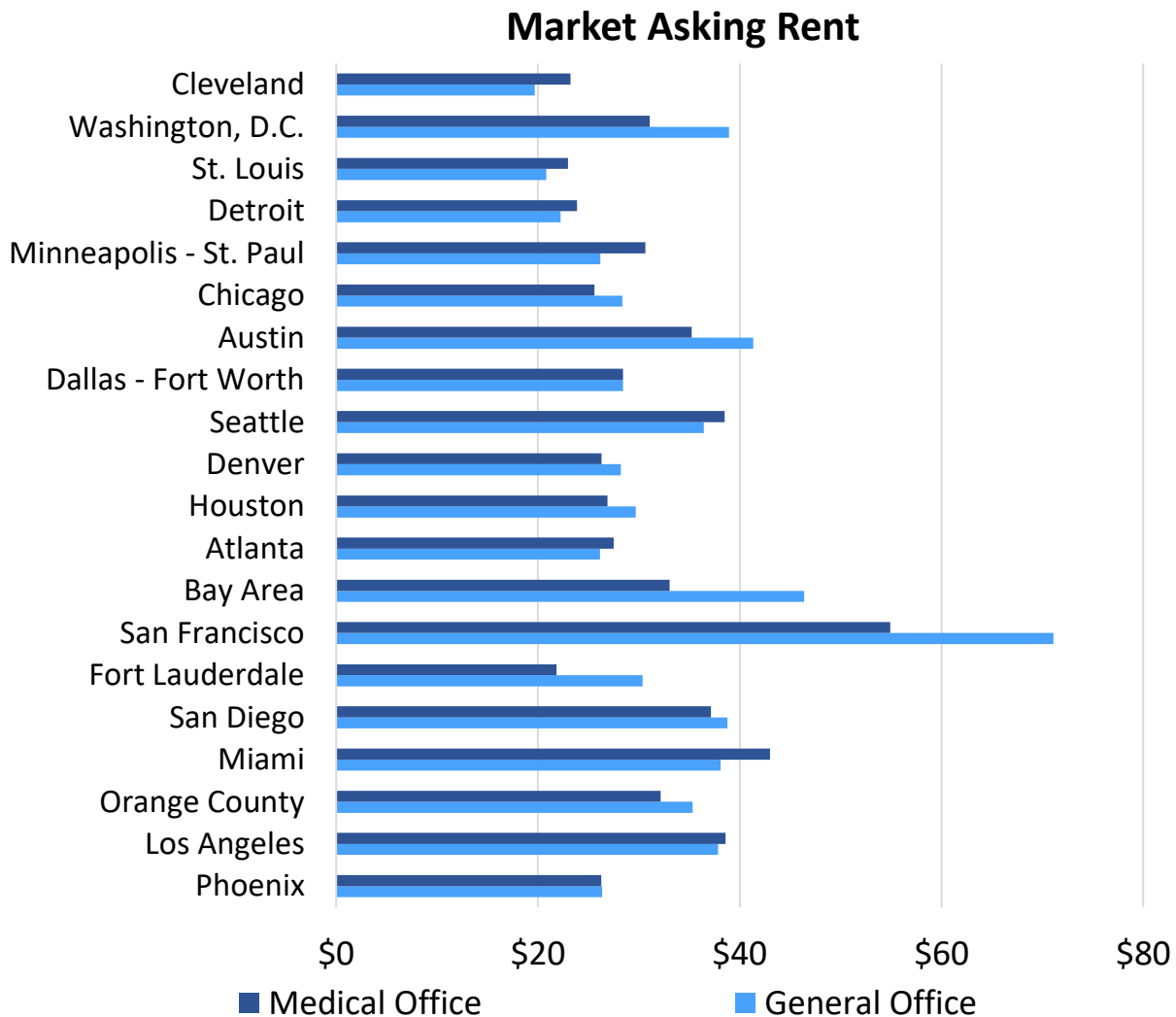
- Both gateway and tech hub markets have shown strong employment growth since we spoke in the Spring (with the exception of New York, San Francisco, Minneapolis and Detroit)
- San Francisco, Tampa, Austin, Brooklyn, Bay Area and Manhattan all had high year-over-year rent growth thanks in part to some high-rent listings that have been added over the past year
- Office completions peaked in 2018, and a lot of new developments are getting stuck in the prospective phase
- Transaction activity has been slowing
 - Investors are exhibiting more caution as they assume the economic cycle hits the late stages, and some types of foreign buyers have reduced levels of interest as acquisition yields remain extremely tight in primary markets

Medical Office

Within Each Age Group, There are Drivers of Demand



Medical Office Generally has Lower Vacancy Than General Office, but Asking Rates Vary

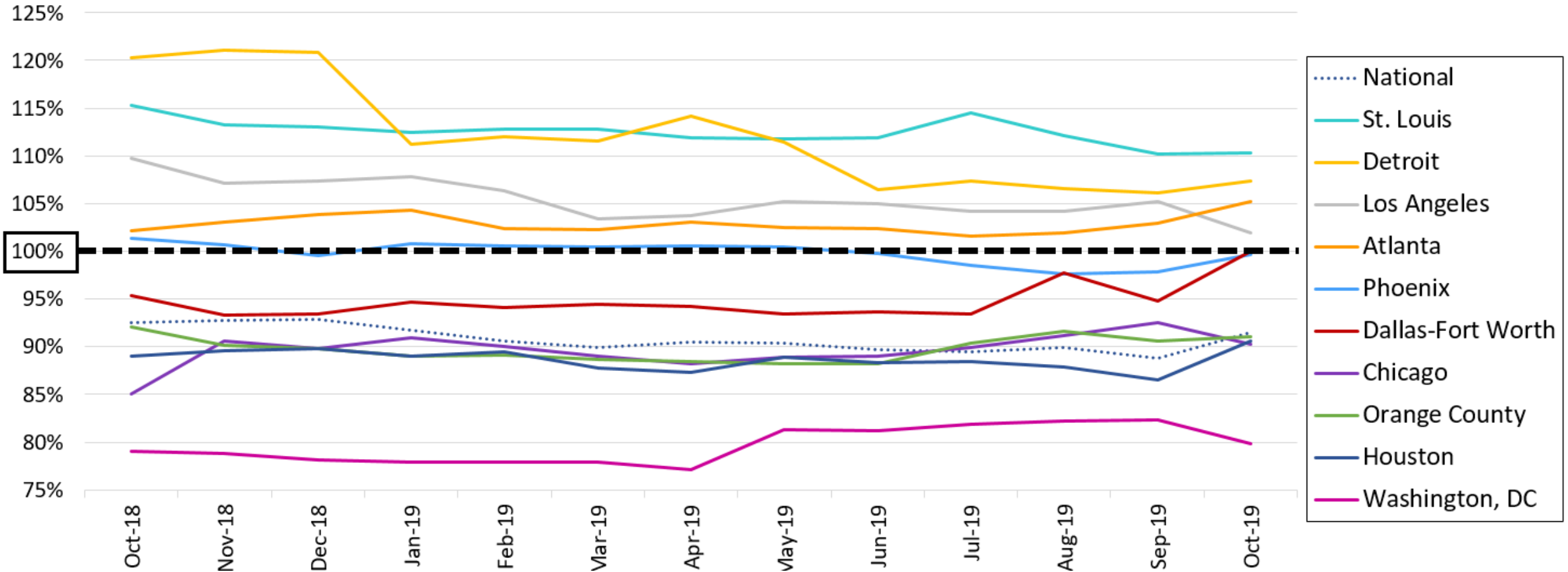


*As of September 2019

Source: Yardi®Matrix

Relationship Between Market Asking Rents for Medical and General Office Fluctuate by Market

Market Asking Rents: Medical Office as a % of General Office

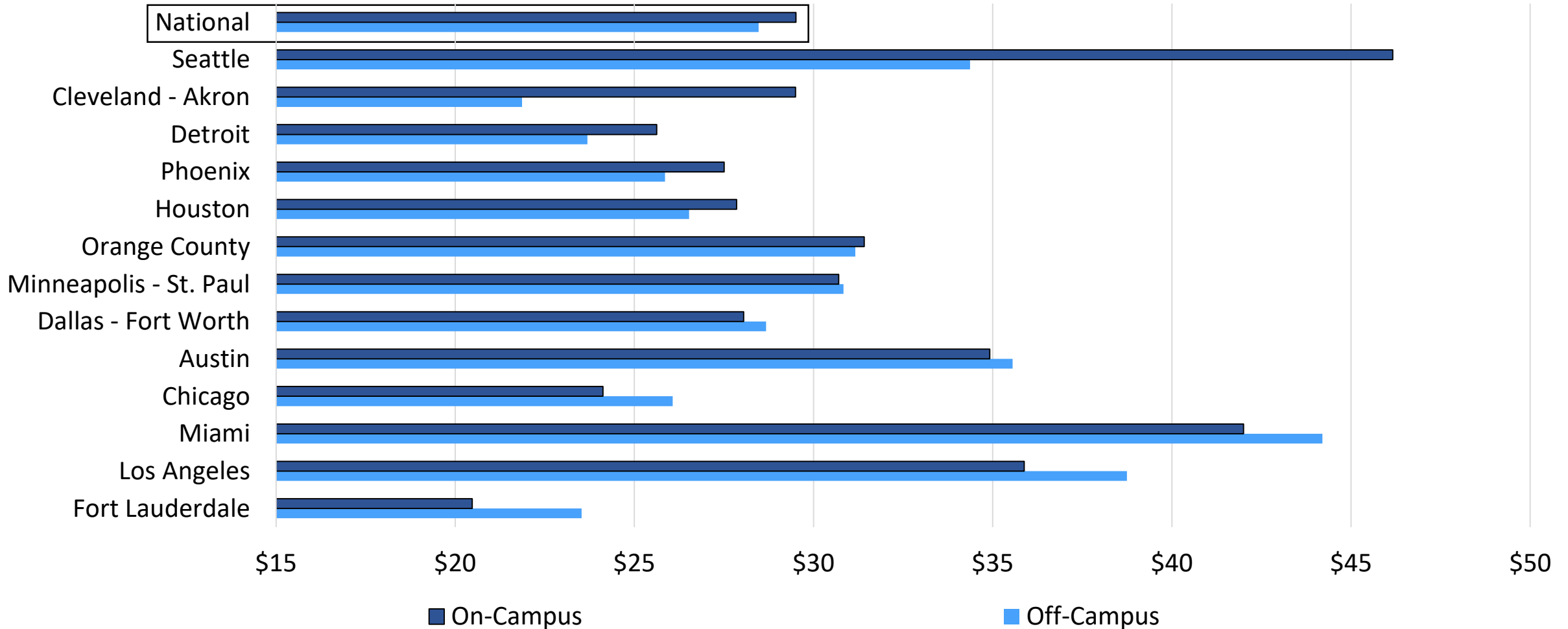


*Markets shown have at least 90 medical office listings and availability of 12 months of market asking rent data

Source: Yardi®Matrix

On-Campus Medical Office Tends to Have Higher Asking Rates Than Off-Campus, Just Like Student Housing

Medical Office Market Asking Rates: On-Campus VS. Off-Campus

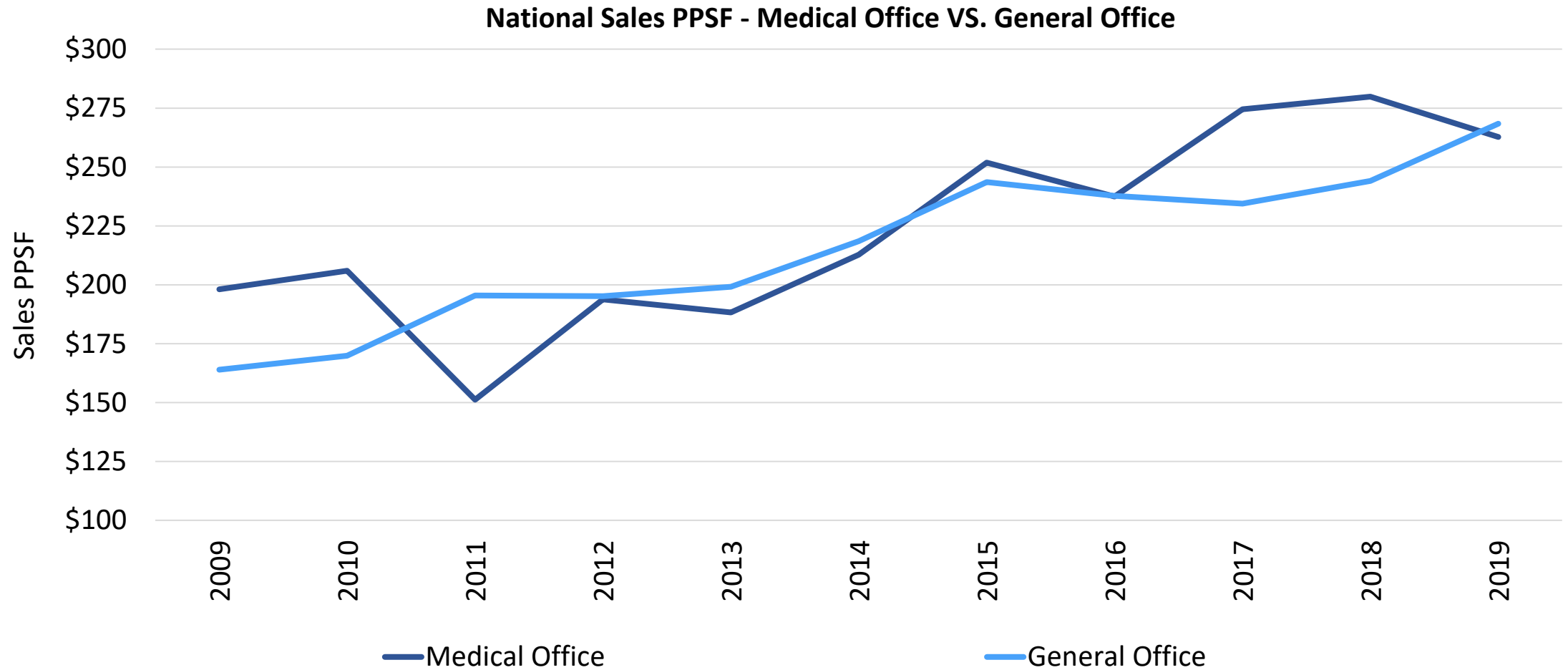


*Markets shown have at least 20 on-campus and 20 off-campus medical office listings

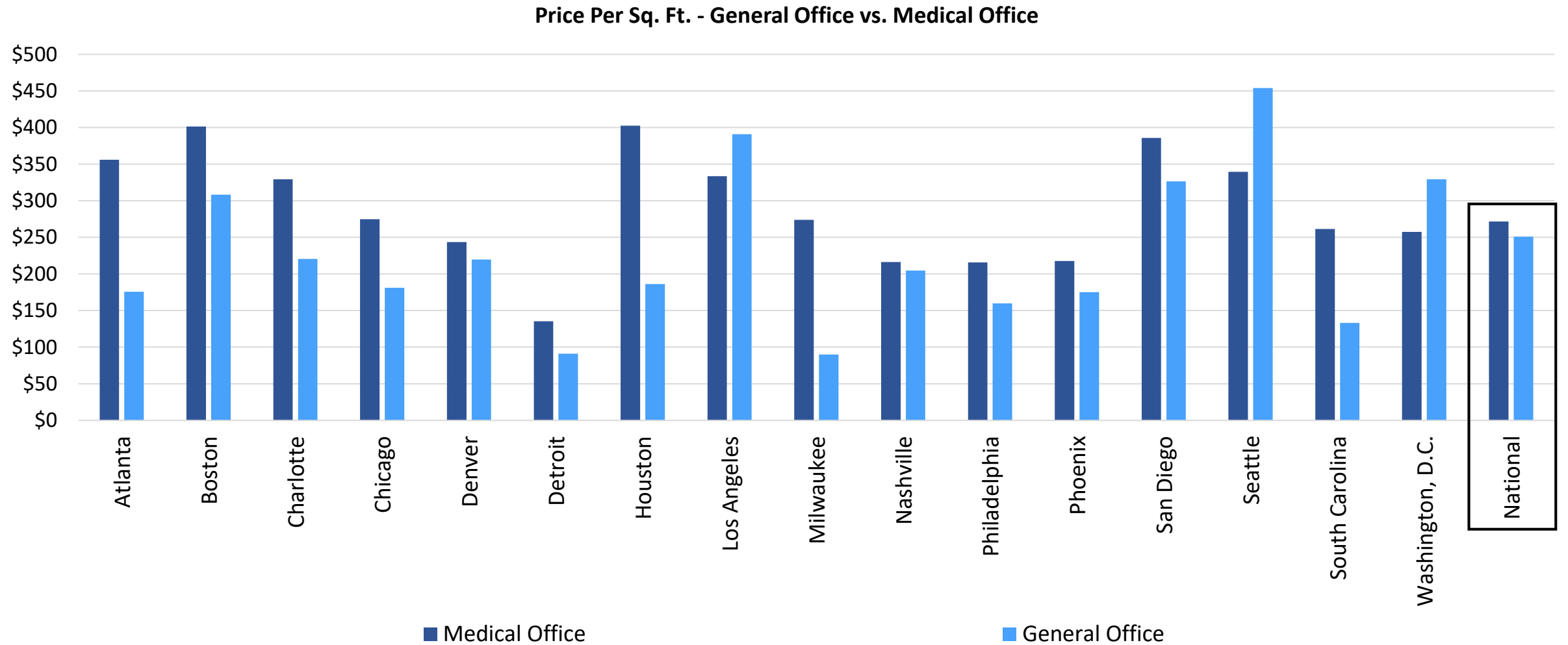
*As of October 2019

Source: Yardi®Matrix

Medical Office Sales PPSF Has Outperformed General Office Since 2016, But They Recently Converged



Medical Office Typically Sells at a Higher Price Than General Office



*PPSF = October 2017 – October 2019

Source: Yardi®Matrix

Medical Office Cap Rate Comparison

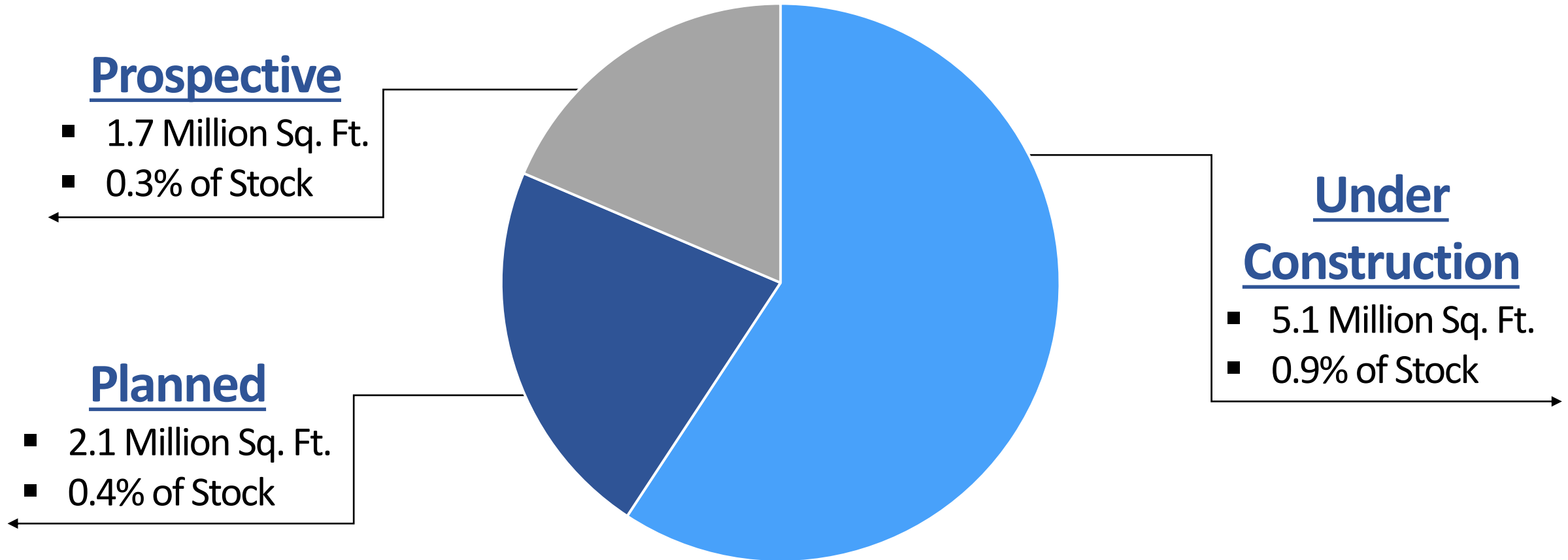
Market	Medical Office Cap Rate	General Office Cap Rate	Difference
San Diego	6.35%	5.01%	1.34%
Nashville	7.40%	6.73%	0.67%
Miami	6.30%	5.63%	0.67%
Phoenix	7.17%	6.73%	0.44%
Los Angeles	5.51%	5.14%	0.37%
Tampa	8.04%	8.13%	-0.09%
Orlando	6.89%	7.27%	-0.38%
Seattle	4.78%	5.33%	-0.55%
Houston	4.86%	5.77%	-0.91%
Charlotte	4.42%	5.91%	-1.49%



Nationally, Yardi Matrix Covers...

544 Million Sq. Ft. of Medical Office

8.9 Million Sq. Ft. is Currently in the Development Pipeline



Prospective

- 1.7 Million Sq. Ft.
- 0.3% of Stock

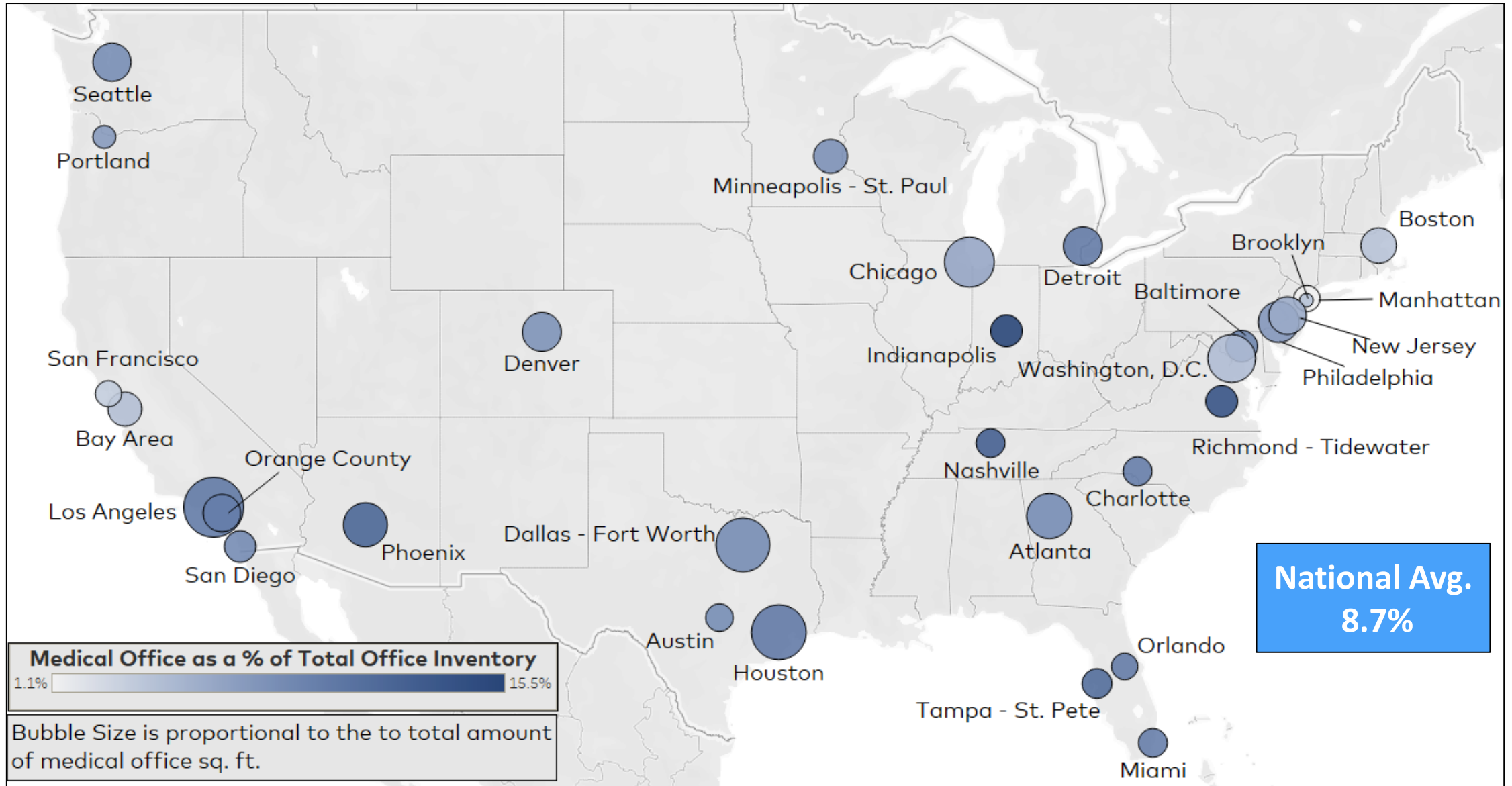
Planned

- 2.1 Million Sq. Ft.
- 0.4% of Stock

Under Construction

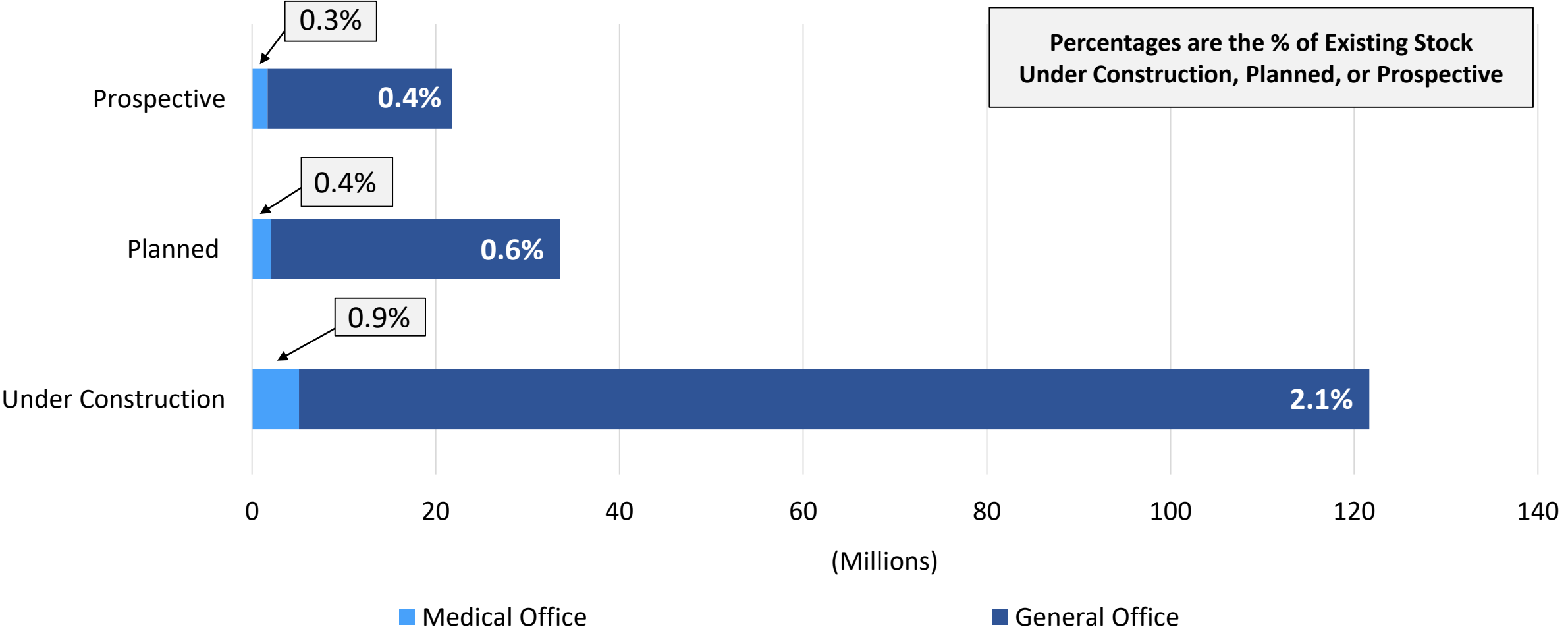
- 5.1 Million Sq. Ft.
- 0.9% of Stock

Medical Office Concentrated in Sunbelt Markets



General Office Has a Significantly Larger Supply Pipeline Than Medical Office

National New Supply Pipeline



*As of October 2019
Source: Yardi®Matrix



Where is Future Medical Office Supply Concentrated?

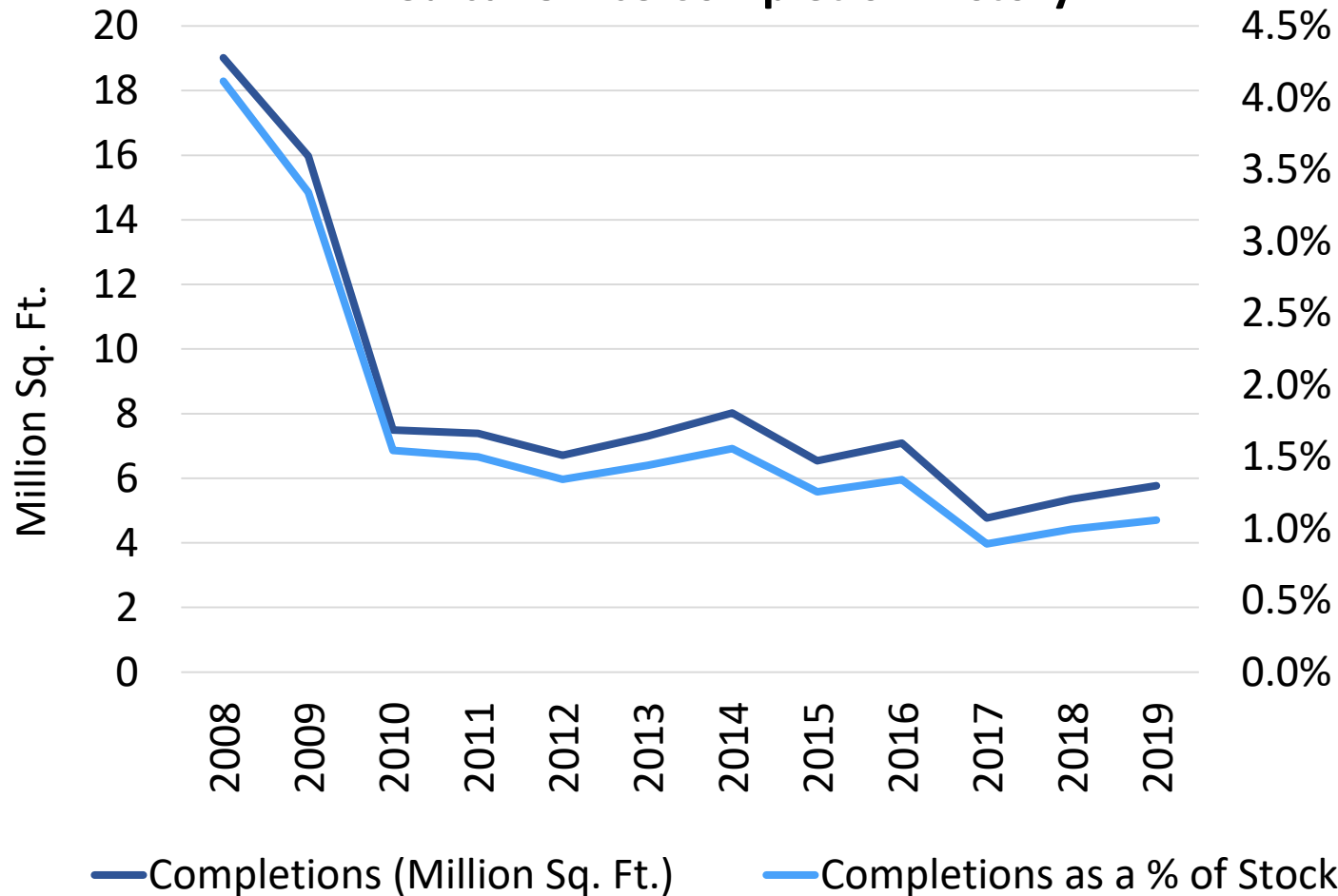
Under Construction			Planned			Prospective		
Top 10 Markets	Sq. Ft.	% of Existing Stock	Top 10 Markets	Sq. Ft.	% of Existing Stock	Top 10 Markets	Sq. Ft.	% of Existing Stock
Manhattan	1,325,467	24.9%	San Francisco	122,226	29.9%	Brooklyn	112,534	7.6%
Providence	46,913	6.8%	Boise	90,000	8.1%	Providence	45,000	6.5%
Little Rock	156,000	6.5%	Grand Rapids	200,000	5.8%	Nashville	297,145	4.6%
Kansas City	257,000	5.4%	Mobile	55,000	4.6%	Honolulu	27,000	2.0%
Inland Empire	256,954	4.7%	Knoxville	107,000	4.1%	Minneapolis	175,000	2.0%
Charlotte	281,148	4.3%	Philadelphia	459,000	3.1%	Miami	120,000	1.9%
Memphis	120,000	4.0%	Toledo	55,000	2.7%	Allentown	40,000	1.9%
Sacramento	174,000	3.6%	New Jersey	60,000	2.4%	West Palm Beach	81,000	1.8%
Fort Wayne	25,000	3.2%	Fort Lauderdale	126,000	2.3%	Philadelphia	232,429	1.6%
Cincinnati	115,000	2.9%	Dayton	35,000	1.8%	Albany	42,000	1.2%

Top 20 Largest In-Place Medical Office Complexes

Property Name	Market	Building Sq. Ft.
Memorial Hermann Tower	Houston	915,034
One Hundred Oaks	Nashville	891,470
Lancaster General Health - Suburban Pavilion	Harrisburg	611,932
259 East Erie Street	Chicago	600,000
Methodist Dallas Medical Center - Pavilion II	Dallas - Fort Worth	575,748
Scurlock Tower	Houston	560,000
Rush University Medical Center Professional Building	Chicago	556,610
Northwestern Memorial Hospital - Arkes Family Pavilion	Chicago	551,409
The Gibson Medical Center	Albuquerque	529,178
Memorial Hermann Medical Plaza	Houston	511,381
O'Quinn Medical Tower at St Luke's	Houston	506,257
Metro III	Washington, D.C.	488,502
Presbyterian Hospital - Physician Office Building	Albuquerque	472,156
Baylor Charles A. Sammons Cancer Center at Dallas	Dallas - Fort Worth	458,396
Johns Hopkins Hospital Outpatient Center	Baltimore	454,000
Smith Tower	Houston	450,000
The Helmsley Medical Tower	Manhattan	441,398
Ninth & Jefferson Building	Seattle	440,000
333 East 38th Street	Manhattan	422,000
Plantation Pointe – 7600, 7700 West Sunrise Blvd	Fort Lauderdale	406,040

Medical Office Completions Have Been Fairly Steady Since Dropping in 2010

Medical Office Completion History



5 Cities with the Most Completions in 2018



1. Dallas – Fort Worth

- 652,942 Sq. Ft.
- 2.9% of Stock



2. Louisville, KY

- 425,098 Sq. Ft.
- 8.6% of Stock



3. Atlanta, GA

- 332,400 Sq. Ft.
- 2.1% of Stock



4. Richmond-Tidewater, VA

- 325,200 Sq. Ft.
- 4.2% of Stock



5. Portland, OR

- 320,000 Sq. Ft.
- 7.8% of Stock

In Summary:

- Though medical office is a small niche market, the need is expected to grow rapidly as the U.S. population is aging, and inventory is concentrated in sunbelt markets
- Medical office sales prices have been in-line with general office since 2009, however medical office prices surged in 2016, and only just converged with general office sales prices this year
- Comparing cap rates in 10 major markets, medical office cap rates were greater than general office in exactly half of the markets
- Medical office generally has lower vacancy rates than general office, however asking rates varied by market, and medical asking rates are typically more volatile than general office

R&D Office/Life Sciences

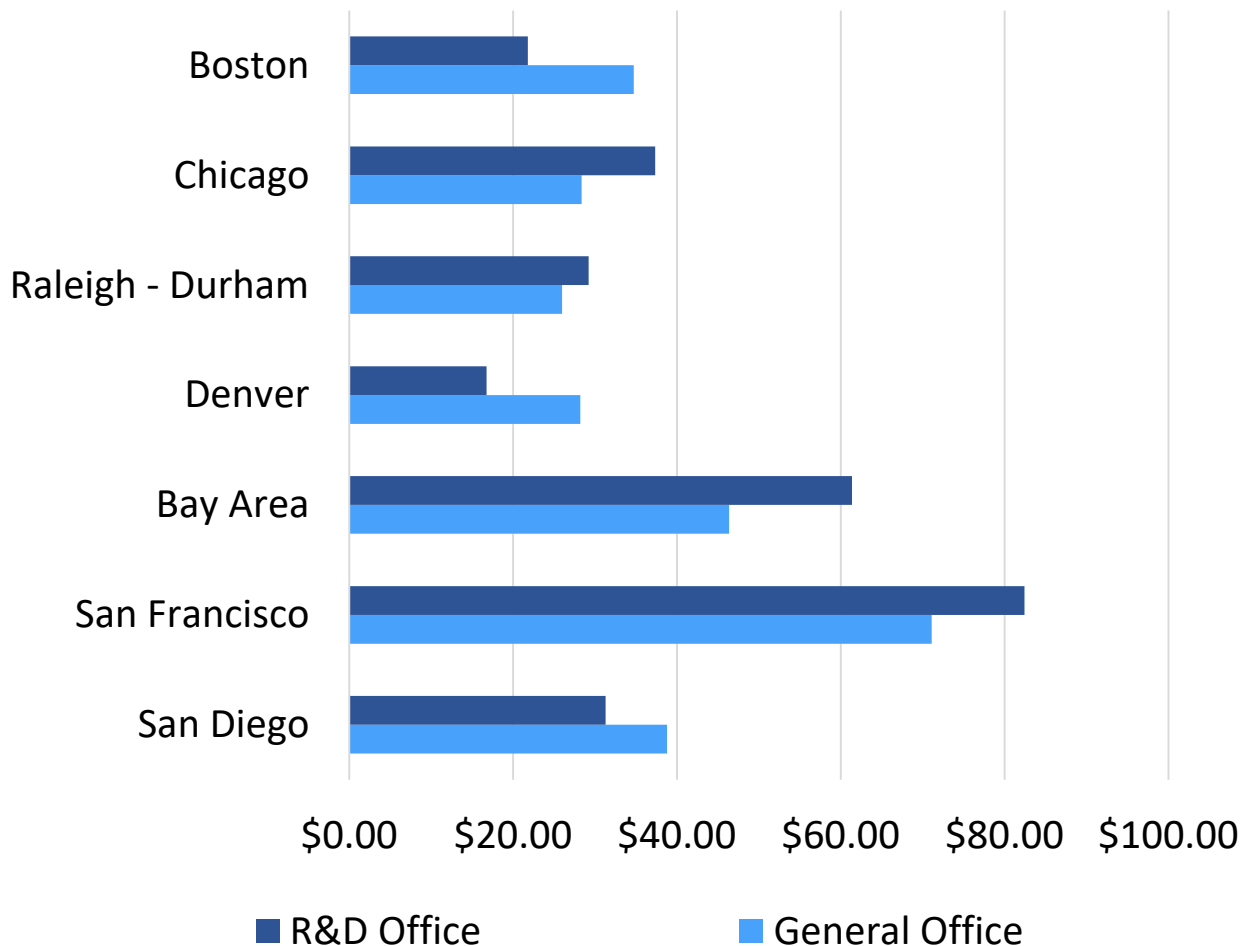
What is R&D Office Space?

- Highly specialized laboratory or research and development space that is targeted at emerging biotech start-ups and is highly concentrated
- Space is uniquely configured and is typically developed to the needs of the biotech tenant
- May require significant retrofit should the tenant vacate the space
- Typically characterized by robust mechanical, electrical and plumbing systems, as well as, sophisticated ventilation systems

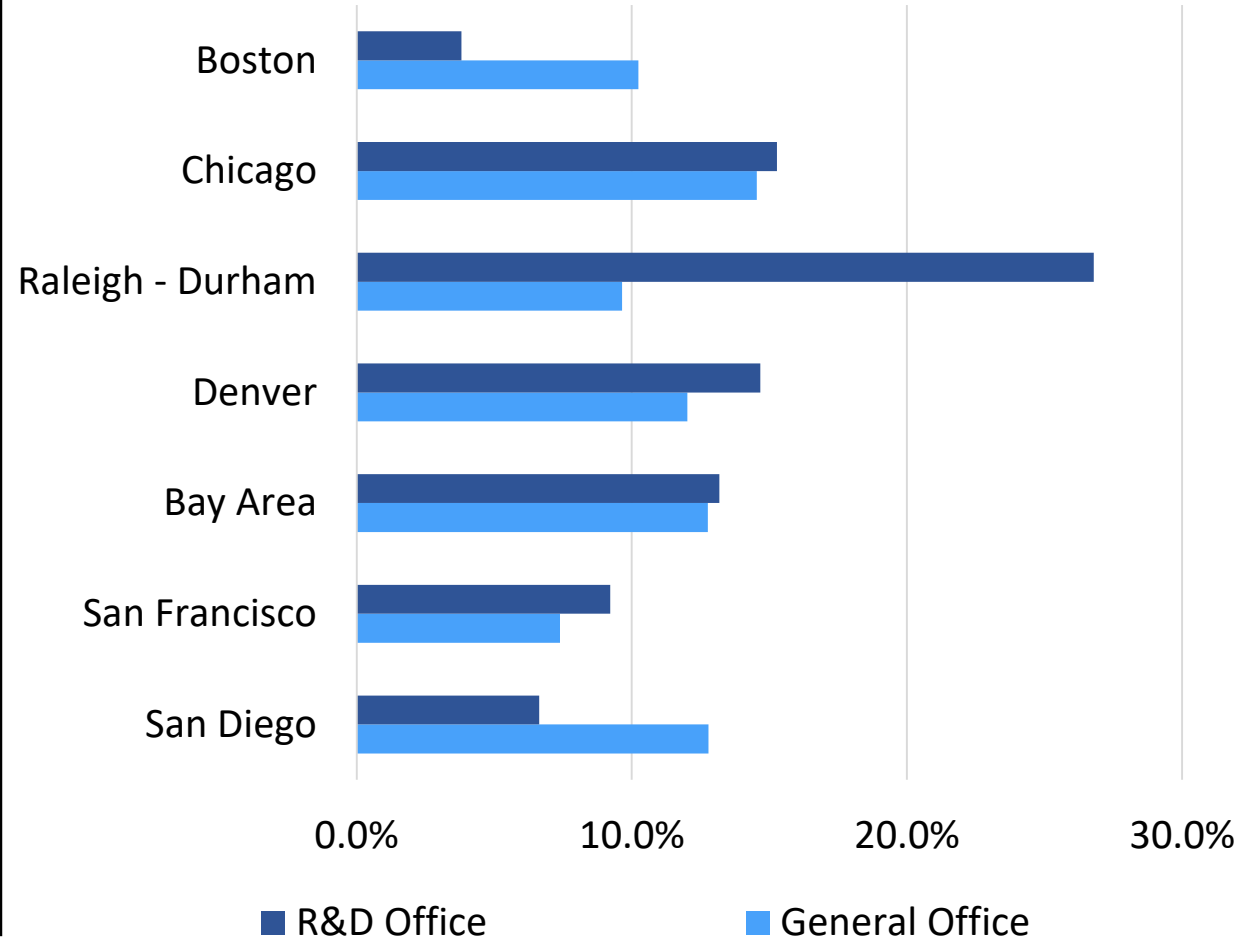
Examples: Biotech, Bioscience, Life Science, Pharma, Biochemical

R&D Office Typically Has Higher Rents and Higher Vacancy Than General Office

Market Asking Rent



Market Vacancy



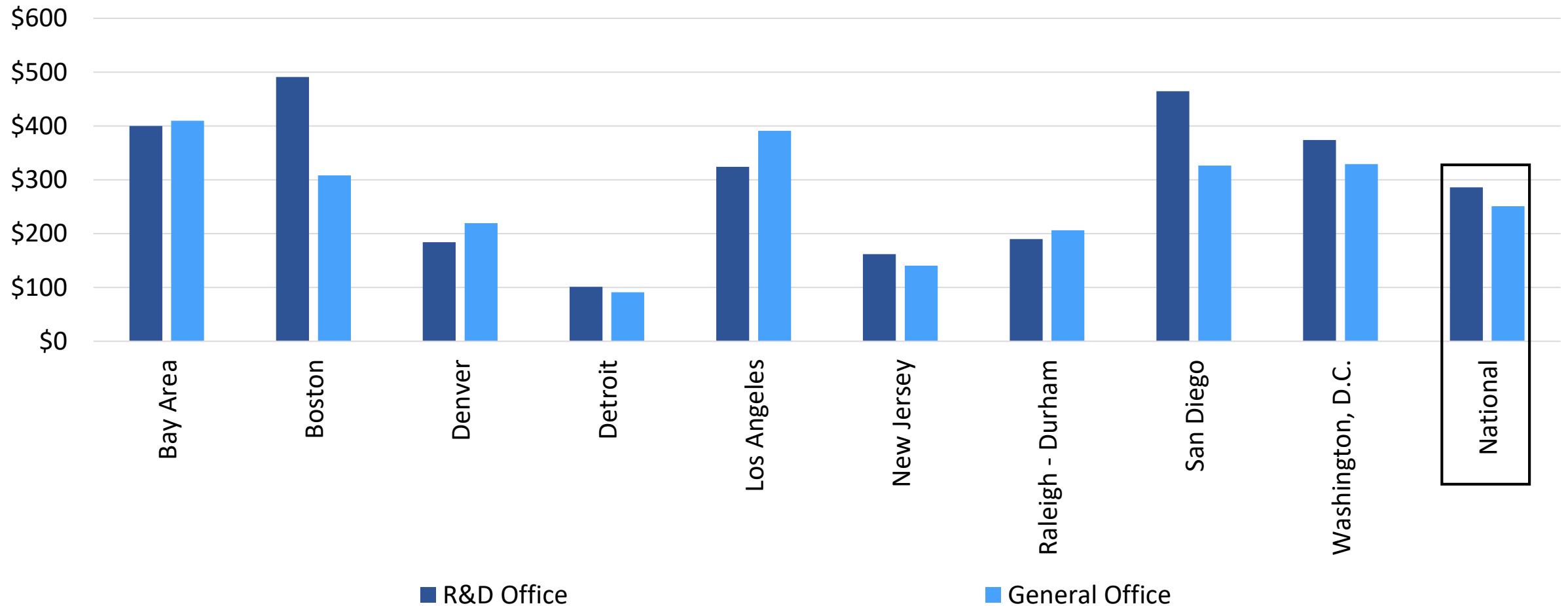
*Boston R&D office rents and vacancy are based off five listings & San Diego, Raleigh – Durham, and Chicago are based off six listings.

*As of September 2019

Source: Yardi®Matrix

R&D Office Typically Sells at a Higher Price Than General Office

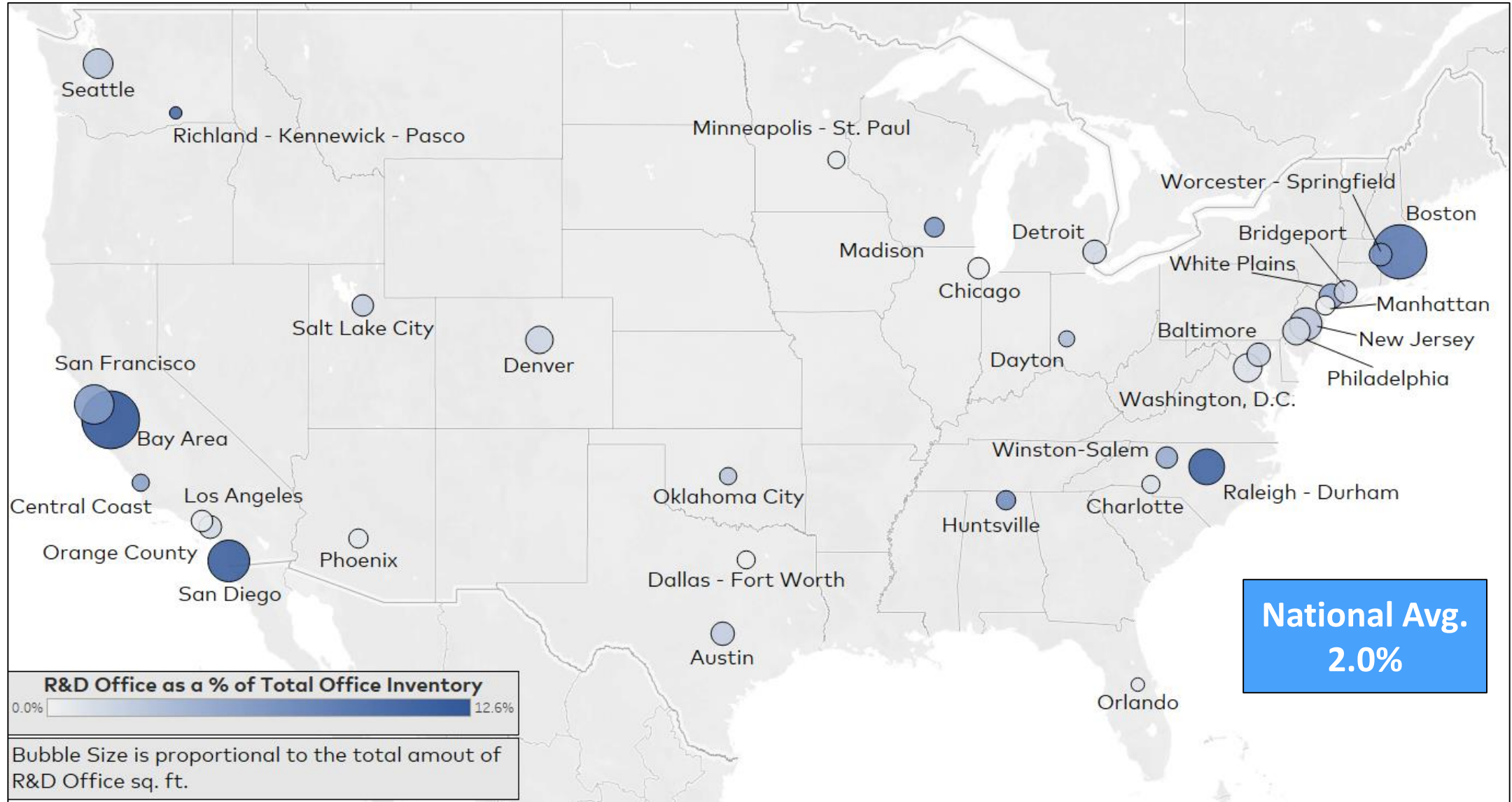
Price Per Sq. Ft. - General Office vs. R&D Office



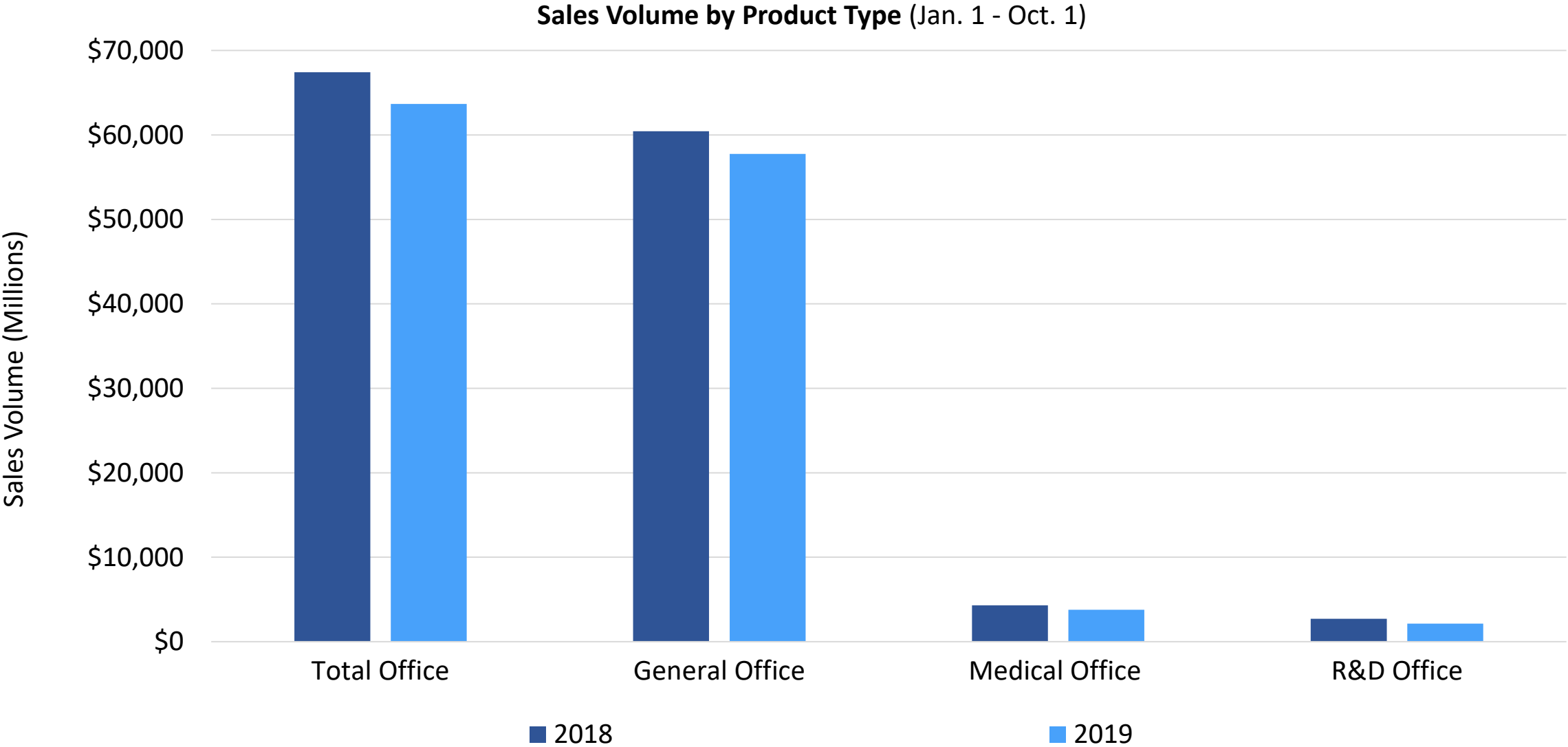
*PPSF = October 2017 – October 2019

Source: Yardi®Matrix

R&D Office Space as a % of Total Office



Office Sales Volume Falling Compared to Last Year



*Data for January 2018 – October 2018 and January 2019 – October 2019
Source: Yardi®Matrix



In Summary:

- R&D office space is different from medical office in that it is targeted at emerging medical tech start-ups and is highly concentrated
- R&D office space typically has higher asking rates, but also higher vacancy rates than general office
- The Bay Area, San Diego, Raleigh-Durham, Richland and Boston all have high concentrations of R&D office space
- Compared to general office, R&D office space typically sells at a higher price per sq. ft., R&D office sales volume appears to be increasing in 2019 compared to last year

Coworking and Office as an Experience

Whether Coworking Reduces Demand for Office Space is a Hotly Debated Topic

Coworking, Telecommuting and Outsourcing

Telecommuting

- Work-at-home population has grown by 115% since 2005
 - Nearly 10x faster than the rest of the workforce
- 3.7 million employees (2.8% of workforce) now work from home at least half the time



Small but growing
Impacts demand at the margins

Outsourcing

- Companies outsource to cut costs, focus on core business, and solve capacity issues

What are your current and future outsourcing strategies for the various business functions?

	Currently outsource	Increase use of outsourcing
IT	72%	31%
Legal	63%	14%
RE & FM	60%	30%
Tax	53%	17%
HR	47%	32%
Finance	42%	36%
Procurement	41%	29%

2016 Global Outsourcing Survey by Deloitte

*Telecommuting data as of June 2017, outsourcing data as of Jan 2016

Source: GlobalWorkplaceAnalytics.com; 2016 Global Outsourcing Survey by Deloitte; Yardi®Matrix

Two Different Coworking Models

Traditional Model (WeWork)

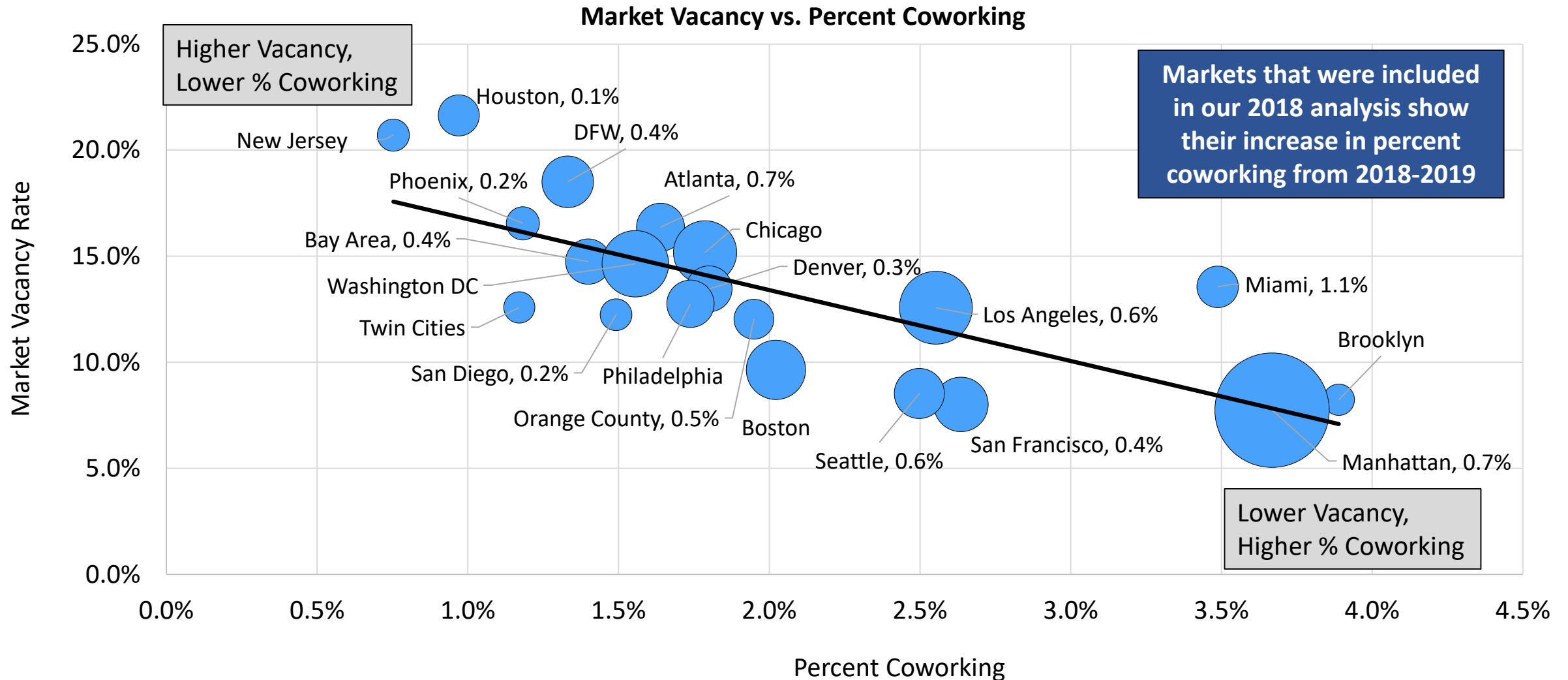
- Coworking operator locks in a long-term lease with a property owner, and then signs their users on short-term leases

New Model (Hana, Convene, Knotel, Industrious)

- Partnership model viewed as more sustainable than the traditional model
- The building owner pays the coworking operator to manage the space, then receives pass-through income received by the tenants (rather than receiving a fixed rate from a lease)
- During economic expansions, the flexibility of short-term leases commands higher rents than traditional space

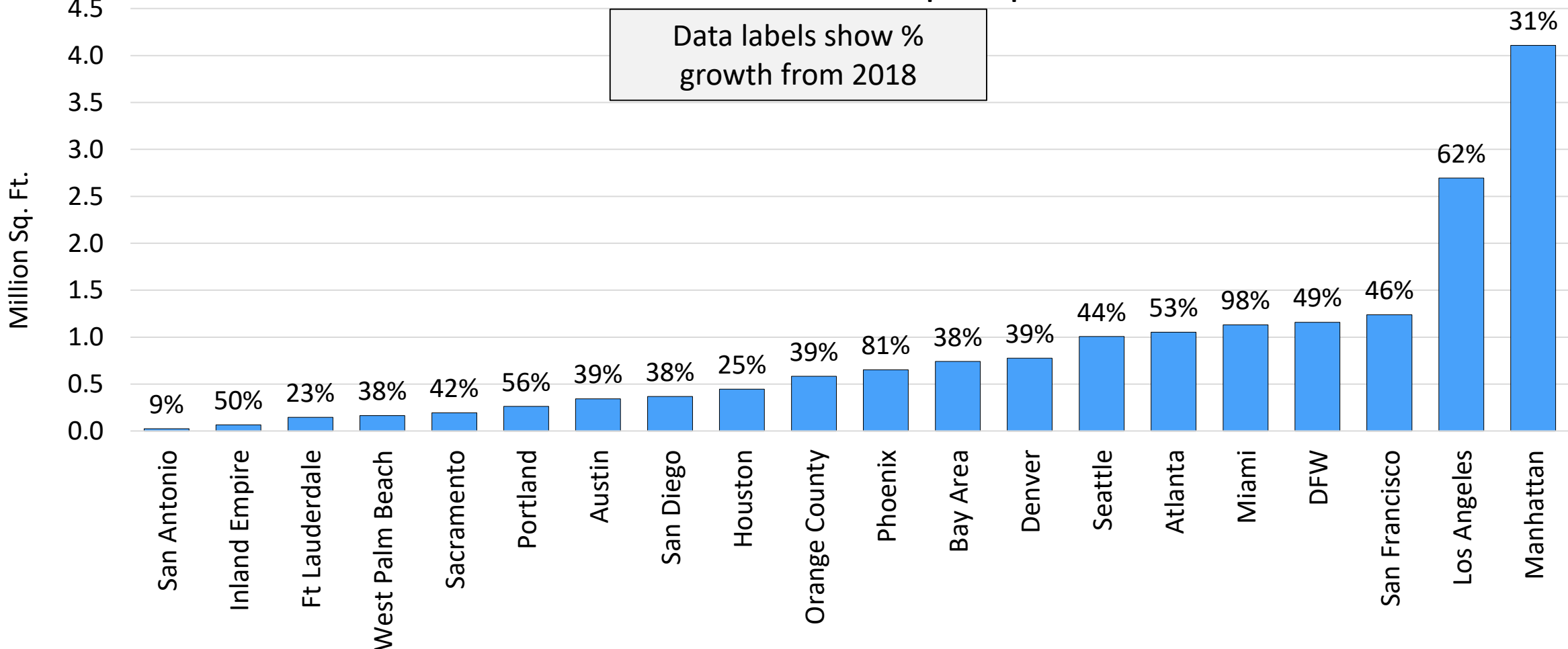


Markets with Lower Vacancy Have a Higher Proportion of Coworking Space



Our Study Showed a 17.2 Million Sq. Ft. or 43% Increase in 20 Metros From 2018 to 2019

2018-2019 Growth in Shared Space Sq. Ft.

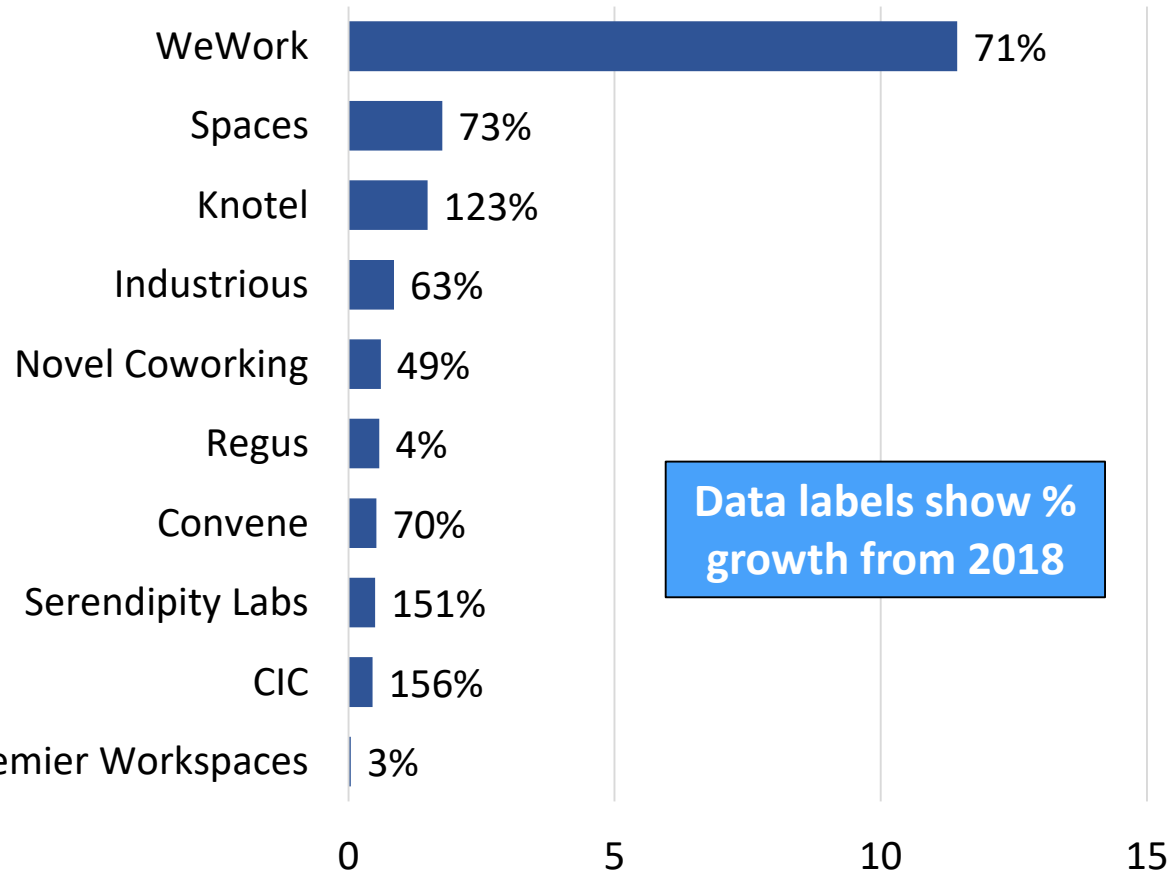


Source: Yardi®Matrix, as of September 2019

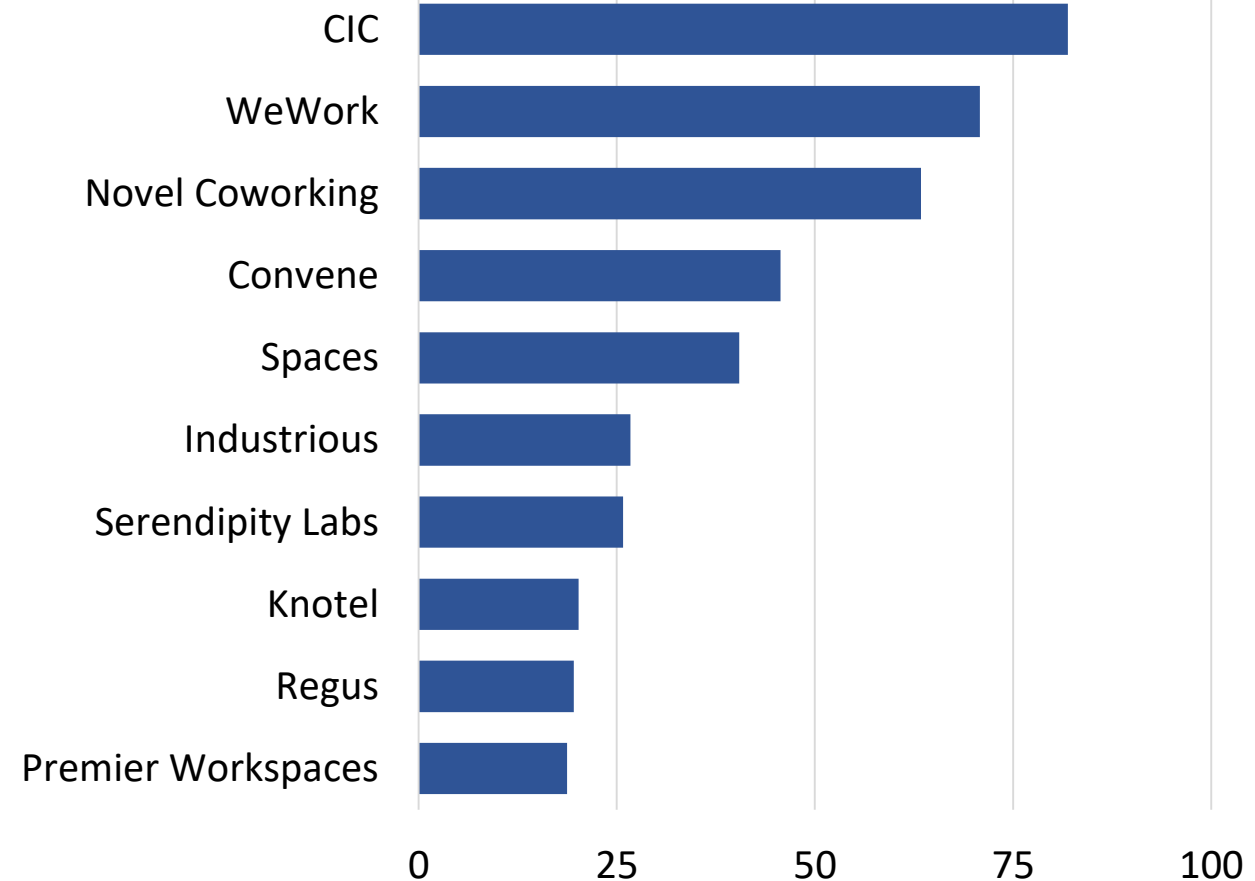


Since Our 2018 Report, WeWork's Footprint Grew by 11 Million Sq. Ft. or 71% in 20 Metros

2018-2019 Growth in Total Sq. Ft. (Millions)



Average Sq. Ft. in 2019 (Thousands)



Emerging Trends in Coworking



We currently track 5,469 shared spaces, and 1,743 (32%) are not in traditional office buildings over 25k sq. ft.



Hotels

- The Virgin hotel in Chicago has implemented a monthly membership model for its coworking space – includes a bar, private meeting areas, free drinks, a library, Wi-Fi and wireless printing



Airports

- Varidesk recently installed standing desks at the Dallas/Fort Worth International Airport – space includes free Wi-Fi, 75 charging hubs, and a meeting room



Multifamily

- The Cooper, a five-story multifamily community recently broke ground in Fort Worth – will include a coworking space
- Faraday Park development, a two-building multifamily project in Reston, VA will include a coworking space



Malls

- Industrious has secured 40,000 SF at a former Barney's inside Fashion Square mall in Scottsdale, Arizona. Other locations include: 30,000 SF of space at a former Saks Fifth Avenue inside the Mall at Short Hills in New Jersey and Broadway Plaza in Walnut Creek, California.



College Campuses

- WeWork has opened its first location on a college campus at the University of Maryland – space covers more than 16K SF over two floors, more than 300 desks, communal space and access to conference rooms

Niche

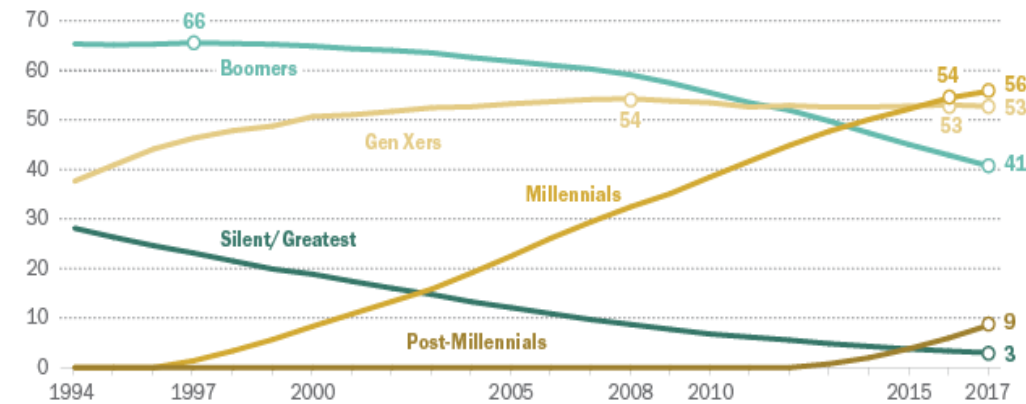


- Targeting a specific segment – a coworking space for artists, for developers and coders, writers, photographers, etc.
 - Ex: The Landing Zone – collaborative workspace in New Orleans that caters to veterans
 - Ex: Gateway Works – California's first coworking space exclusively for emerging Cannabis companies

The Office Has Become an Experience Much Like Retail

Millennials became the largest generation in the labor force in 2016

U.S. labor force, in millions

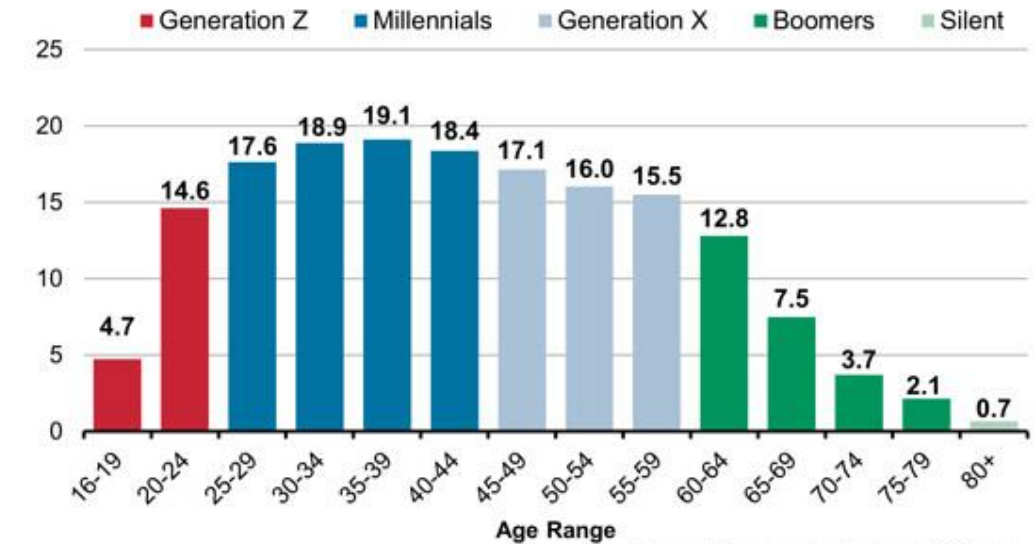


Note: Labor force includes those ages 16 and older who are working or looking for work. Annual averages shown.
Source: Pew Research Center analysis of monthly 1994-2017 Current Population Survey (IPUMS).

PEW RESEARCH CENTER

The Workforce in 2025

Projected size of U.S. labor force (in millions) by age, for the year 2025



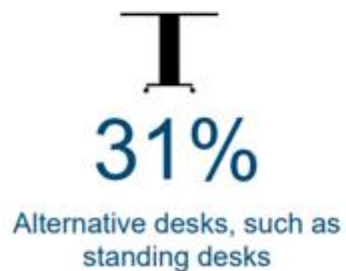
Source: Department of Labor | WSJ.com

From **Commercial Property Executive**: “Gen-Z’s Impact on Workplace Design”

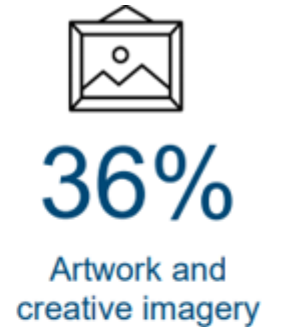
- Gen-z will comprise 30% of the workforce by 2030
- In the reception area, 100% of participants preferred a personal connection over a strictly digital one
- 86% of Gen-Z indicated that office setting would influence the acceptance of a job offer

CapitalOne 2018 Work Environment Survey

Attracting Talent: Meeting Expectations



Office Design: Elements That Matter



Platforms to Enhance the Office Experience

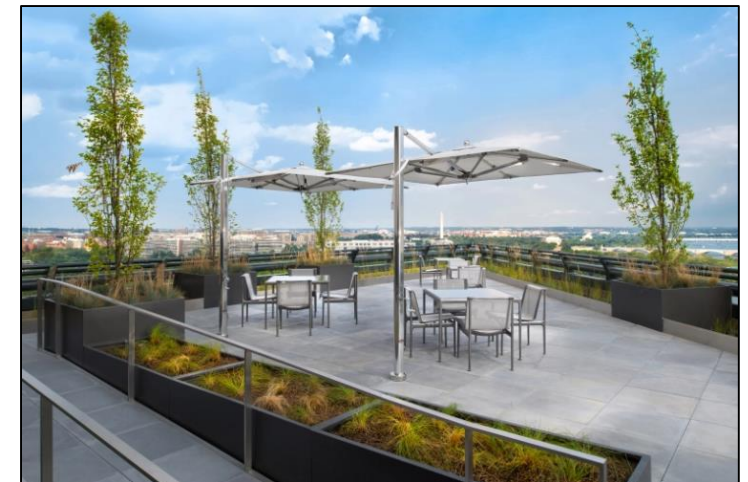
Convene Services

- Partnership with landlords to offer companies and building tenants a variety of amenities
- Access to a year-round calendar of events, executive chefs who work with local food suppliers, on-site service professionals
- Announced a partnership with The New Stand to offer in-store conveniences, including daily essentials, on-the-go swappable phone chargers, office and tech accessories and locally-made products and gifts



Activated by Brookfield Properties

- Currently only available in the D.C., Maryland, & Virginia Metro
- Gives all Brookfield tenants access to a collection of amenity spaces, exclusive events and on-demand concierge services
- Exclusive events include: yoga classes, holiday activities, cooking classes, craft workshops and happy hours
- ‘Experience Managers’ source event tickets, personal training, etc.



Office as an Experience – Case Studies

VRBO Headquarters – Austin, TX

- 324,000 SF, 16-story building with 360-degree views of North Austin
- The design of each floor is themed around different eco-environments around the world, including lakes, forests, deserts, etc.
- Amenities include ping-pong, shuffleboard tables, a video game area and a wide variety of snacks and drinks
- “Launch Pad” area on the 10th floor where VRBO will showcase new products to employees – includes a training room with the ability to accommodate 120 people



Slack Headquarters – San Francisco, CA

- 242,531 SF, 10-story building
- Shift in terrain between each level (floors 2-3 considered the foothills, 4-7 represent a volcanic crater, 8 is the glacier and 9-10 represent the summit)
- Differs from the typical tech office – no foosball, no primary colors, no slides



Capital Expenditures Rising as Office Space Becomes a Bigger Part of Talent Strategy

MULTIFAMILY	Atlanta	Austin	Boston	Dallas	Manhattan	Miami	Philadelphia	San Francisco	Washington D.C.
Net Operating Income	\$8,526	\$7,549	\$14,890	\$7,194	\$18,692	\$11,696	\$9,381	\$20,732	\$11,369
CapEx	\$2,053	\$1,459	\$1,808	\$1,683	\$2,057	\$1,155	\$1,649	\$1,855	\$1,493
CapEx as a % of NOI	24.1%	19.3%	12.1%	23.4%	11.0%	9.9%	17.6%	8.9%	13.1%

OFFICE	Atlanta	Austin	Boston	Dallas	Manhattan	Miami	Philadelphia	San Francisco	Washington D.C.
Net Operating Income	\$13.03	\$18.65	\$21.91	\$10.63	\$32.28	\$18.42	\$14.16	\$35.94	\$20.00
CapEx	\$4.48	\$4.42	\$5.14	\$4.04	\$5.90	\$4.70	\$4.22	\$6.05	\$5.03
CapEx as a % of NOI	34.4%	23.7%	23.5%	38.0%	18.3%	25.5%	29.8%	16.8%	25.2%

The Yardi Matrix View

- **U.S. economy is a glass half full/glass half empty situation**
 - GDP growth in Q2 was OK (~2%), and we expect Q3 to be about the same, but with a lot more noise
 - U.S. oil production is keeping inflation low below 2% – and low inflation is a global phenomenon
 - The yield curve has been inverted for 5 months, but flattened following the Sept 18 rate cut
 - The European and Chinese economies are decelerating rapidly
 - The U.S. service sector labor market is extremely tight, and wages continue to rise
 - Manufacturing and farming sectors are struggling
 - There is a highly elevated risk of recession mid 2021
- **Conditions sufficient to maintain good office using employment growth, occupancy and slow rental growth**
 - Demand is steady with job growth in office-using industries outpacing other industries, and tech hub markets have had the most dynamic job growth
 - More than half of Yardi Matrix markets are seeing moderate rent growth over the past year, with some winners (San Francisco, Tampa, Austin), but some have seen asking rates fall (Chicago, Central Valley, Winston-Salem)
 - Office completions peaked in 2018, but a lot of markets still have room for absorption
 - New developments are getting caught up in the prospective phase, with an increase of 192 million sq. ft. in this phase since the spring, with a decrease of about 128 million sq. ft. in the planning and under construction phases
 - Transaction activity has been slowing, and prices for Class A assets have increased more than B and C since the recession

The Yardi Matrix View

- **Though medical office is a small market, the demand is expected to grow rapidly as the U.S. population is aging**
 - Medical office sales prices have been in-line with general office since 2009, however medical office prices surged in 2016, and only just converged with general office sales prices this year
 - Medical office generally has lower vacancy rates than general office, however asking rates varied by market, and medical office exhibits the same fundamentals in on- vs. off-campus as student housing
- **R&D office space is highly concentrated and is targeted toward emerging medical tech start-ups**
 - R&D office space typically has higher asking rates, but also higher vacancy rates than general office
 - Compared to general office, R&D office space typically sells at a higher price per sq. ft., R&D office sales volume appears to be increasing in 2019 compared to last year
- **Coworking continues to grow nationally, and according to the 2019 Colliers report *U.S. Flexible Workspace and Coworking*, flexible workspace accounted for one-third of office leasing in the last 18 months**
 - Coworking is growing as companies are increasing their sprawl of employment in various locations outside of their primary office locations
 - With such a tight labor market, office space is being used as an HR strategy to attract talent, and with that comes substantial capital expenditures
 - A new model for coworking as emerged, with companies such as Hana, Convene, Knotel, and Industrious marketing their partnership model as more sustainable than the traditional WeWork model

Contact Information

Thank you! We are happy to answer any questions. Please contact:

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