

The Virginia Tech – U.S. Forest Service

June 2017

Housing Commentary: Section I



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<http://woodproducts.sbio.vt.edu/housing-report>. To request the report, please email: buehlmann@gmail.com

Opening Remarks

The collective U.S. housing market rebounded in June, as most monthly indicators were positive on a month-over-month basis. On a year-over-year basis, the majority were positive; yet single-family starts are barely “treading water.” Construction spending is problematic again, as single-family and improvement expenditures were only just positive on a month-over-month basis. These sub-sectors may portend a slowdown in the housing market if the continuation of this pattern continues. Regionally, data were mixed across all sectors. The August 11th Atlanta Fed GDPNow™ model projects aggregate residential investment spending to decrease at a - 1.0% percent seasonally adjusted annual rate. New private housing was estimated to decline - 2.5% and improvement spending was projected to increase 1.6% in Quarter 2. All declined from Q1’s forecasts.¹

How does one describe the current housing market? According to Mark Boud, Chief Economist at Metrostudy, ““We like to call it the CEO’s recovery,” one astute observer in the arena tells us. “It’s not as sharp, fast, flashy, or dramatic as a CEO would want the recovery cycle to be, but it’s manageable, predictable, and it allows prudent planning for the future.””²

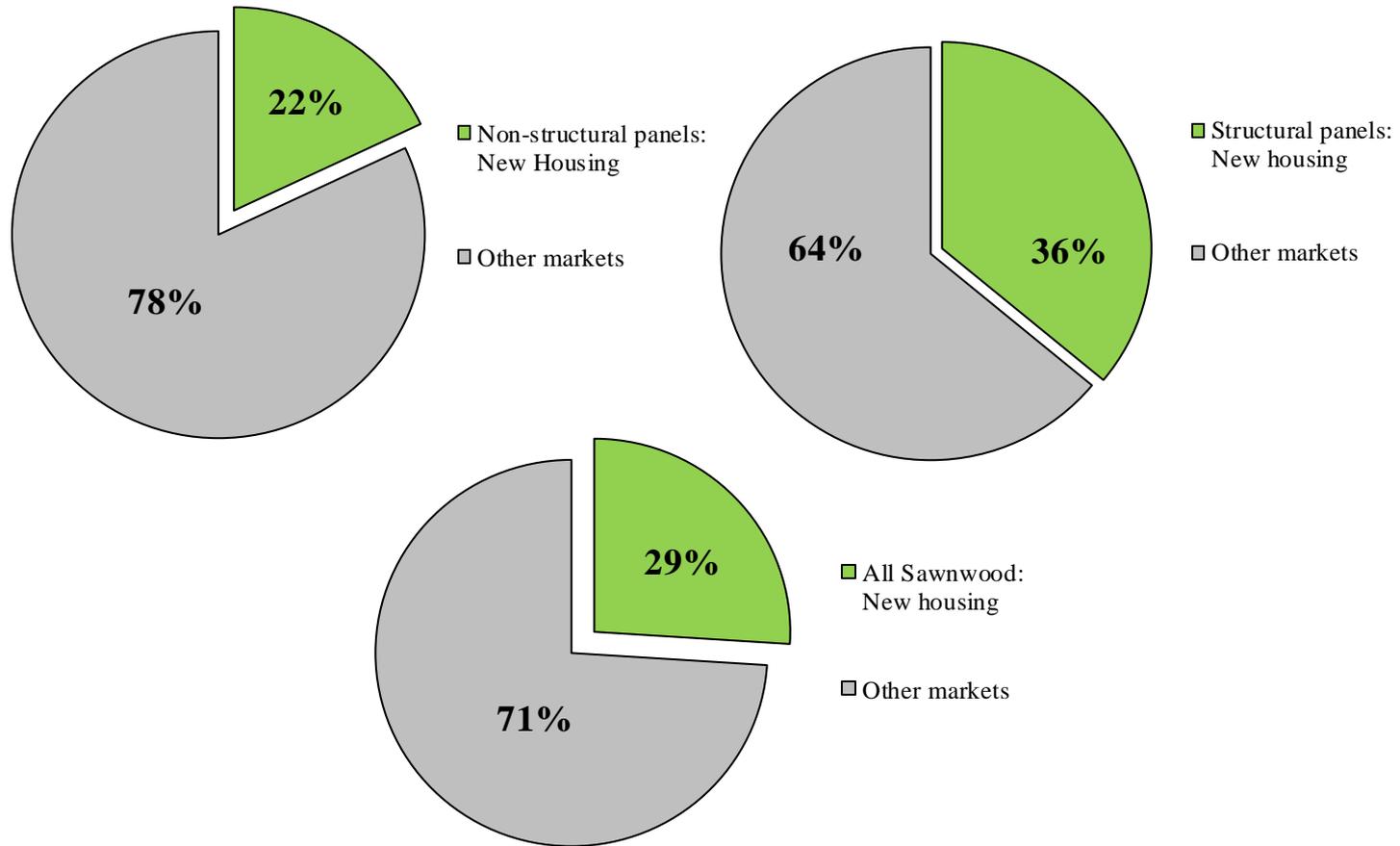
This month’s commentary also contains applicable housing data; new single-family and multifamily analysis; remodeling projections;; economic and demographic information. Section I contains data and commentary and Section II includes Federal Reserve analysis; private indicators; and demographic commentary. We hope you find this commentary beneficial.

June 2017 Housing Scorecard

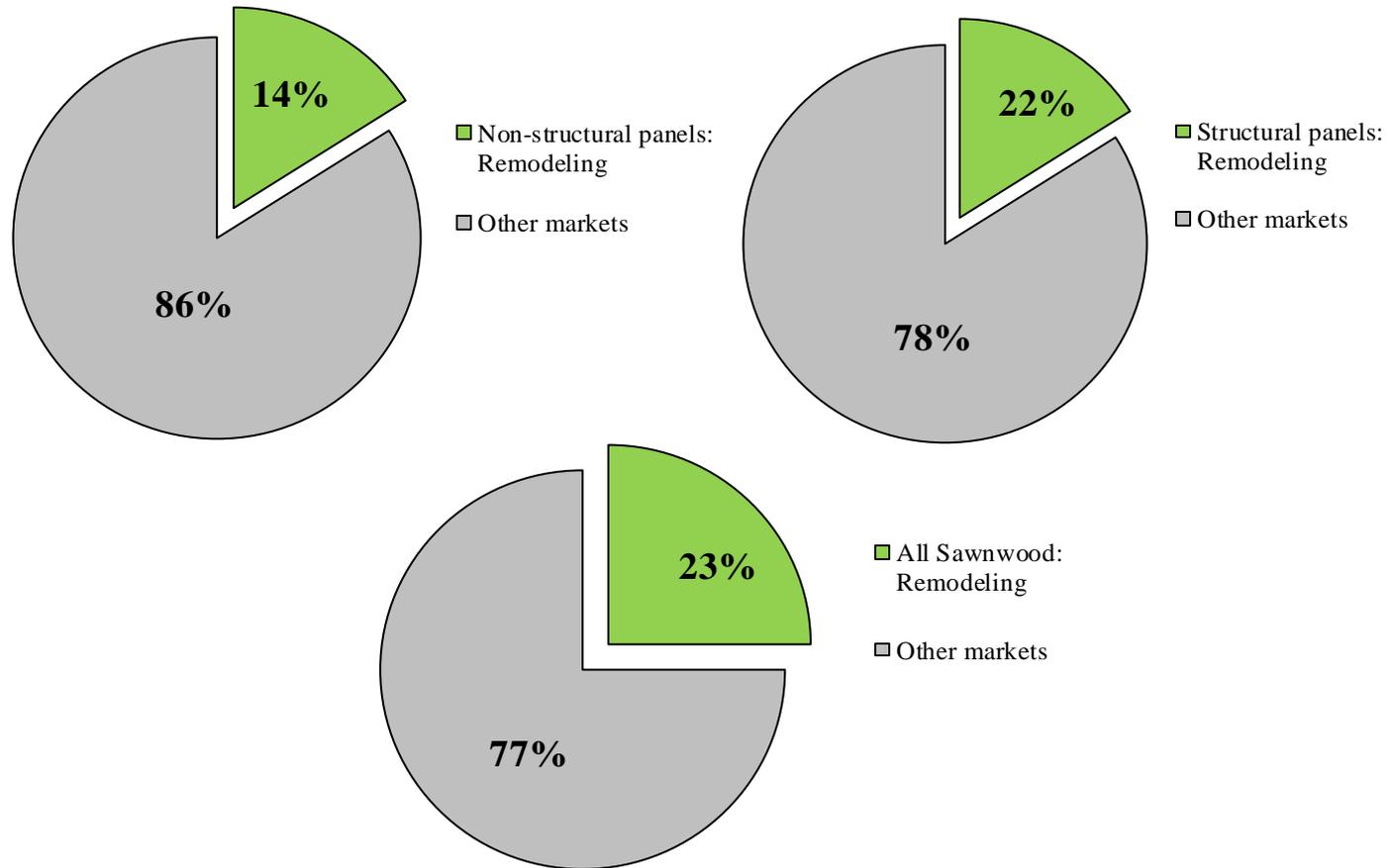
| | M/M | Y/Y |
|--|--------|---------|
| Housing Starts | △ 8.3% | △ 2.1% |
| Single-Family Starts | △ 6.3% | △ 10.3% |
| Housing Permits | △ 7.4% | △ 5.1% |
| Single-Family Permits | △ 4.1% | △ 9.2% |
| Housing Completions | △ 5.2% | △ 8.1% |
| New Single-Family House Sales | △ 0.8% | △ 9.1% |
| Private Residential Construction Spending | ▽ 0.2% | △ 9.2% |
| Single-Family Construction Spending | △ 0.3% | △ 9.0% |
| Existing House Sales ¹ | ▽ 1.8% | △ 0.7% |

M/M = month-over-month; Y/Y = year-over-year; NC = no change

New Construction's Percentage of Wood Products Consumption



Repair and Remodeling's Percentage of Wood Products Consumption



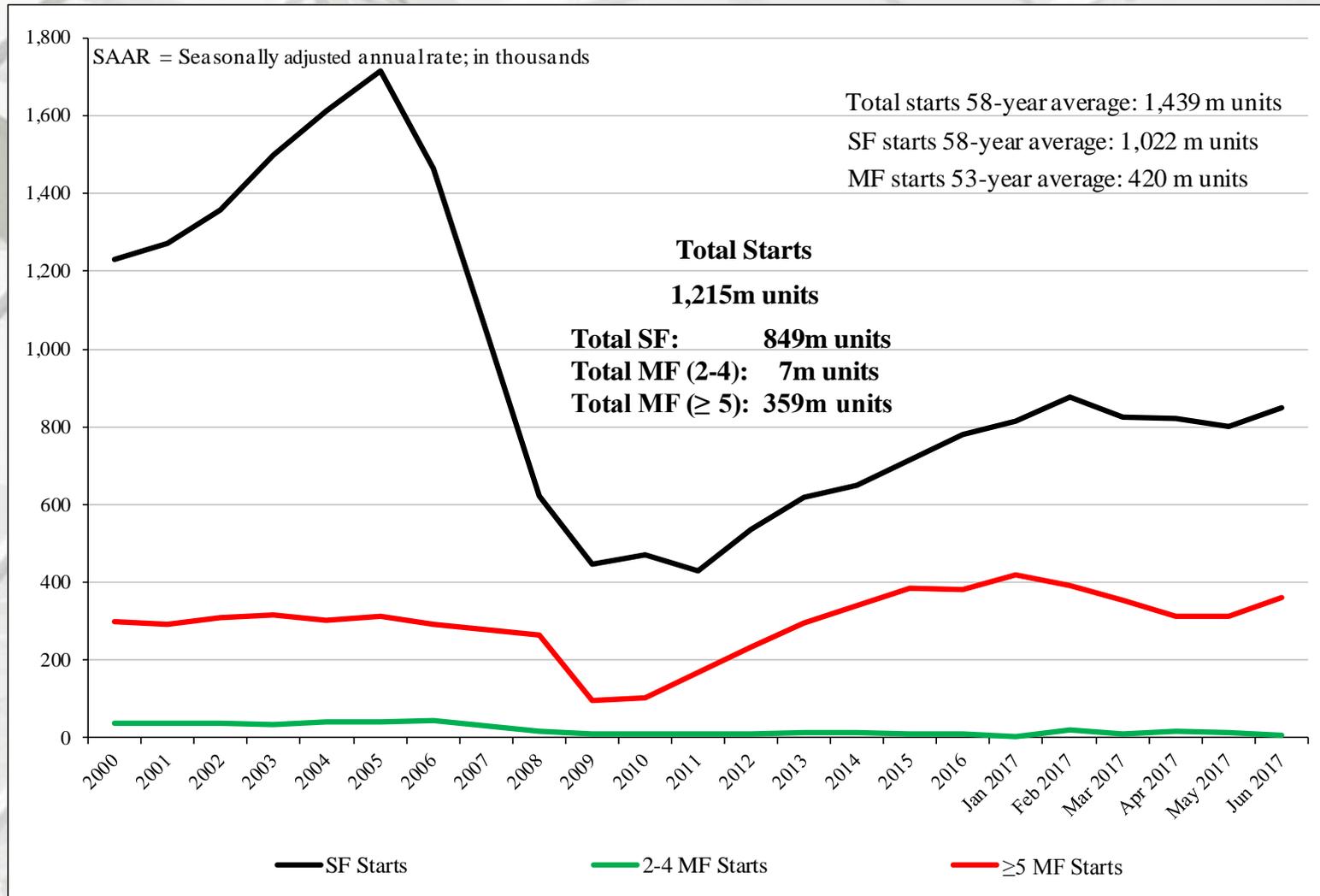
New Housing Starts

| | Total Starts* | SF Starts | MF 2-4 Starts** | MF ≥5 Starts |
|------------|---------------|-----------|-----------------|--------------|
| June | 1,215,000 | 849,000 | 7,000 | 359,000 |
| May | 1,122,000 | 799,000 | 12,000 | 311,000 |
| 2016 | 1,190,000 | 770,000 | 18,000 | 402,000 |
| M/M change | 8.3% | 6.3% | -41.7% | 15.4% |
| Y/Y change | 2.1% | 10.3% | -61.1% | -10.7% |

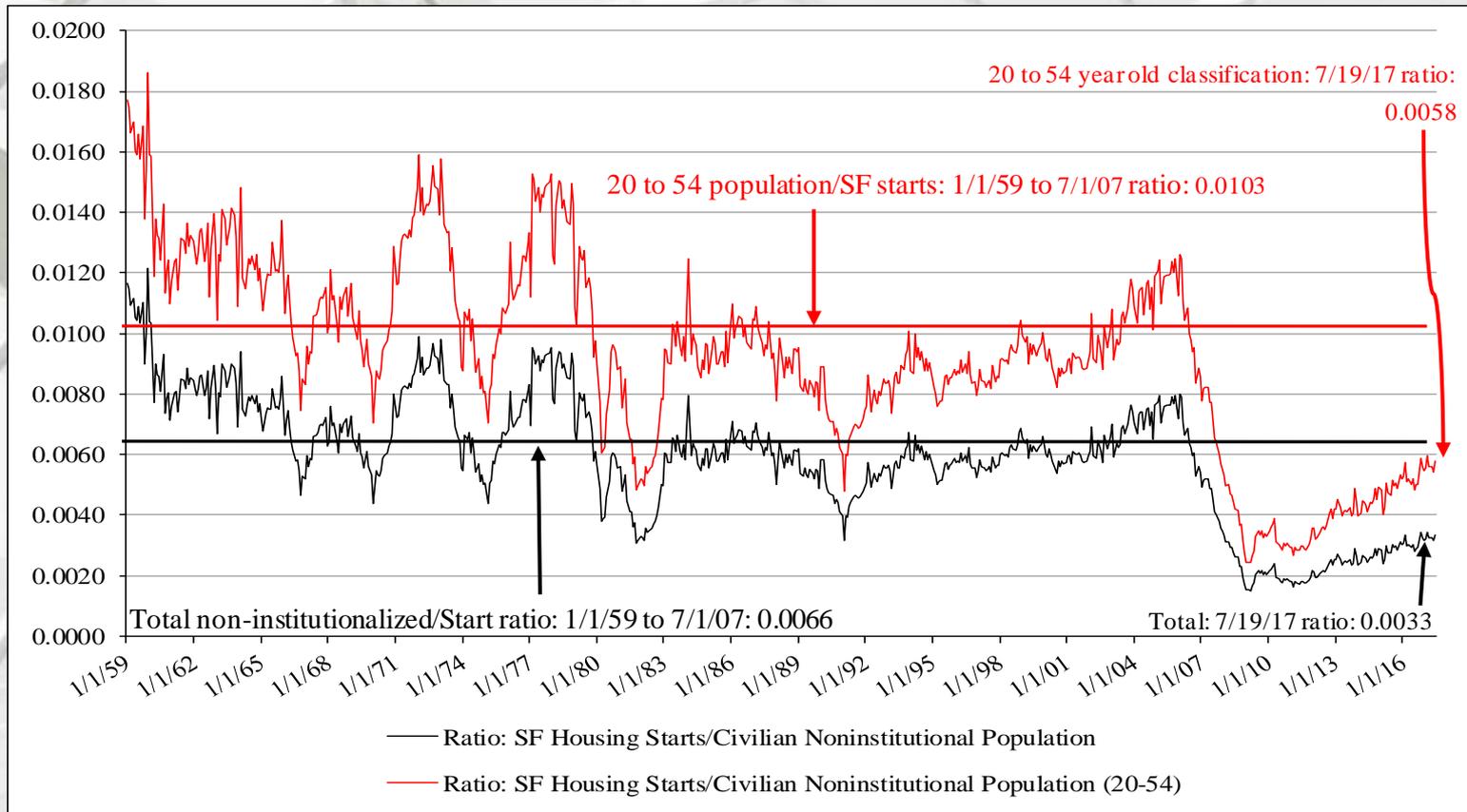
* All start data are presented at a seasonally adjusted annual rate (SAAR).

** US DOC does not report 2 to 4 multifamily starts directly, this is an estimation ((Total starts – (SF + 5 unit MF)).

Total Housing Starts



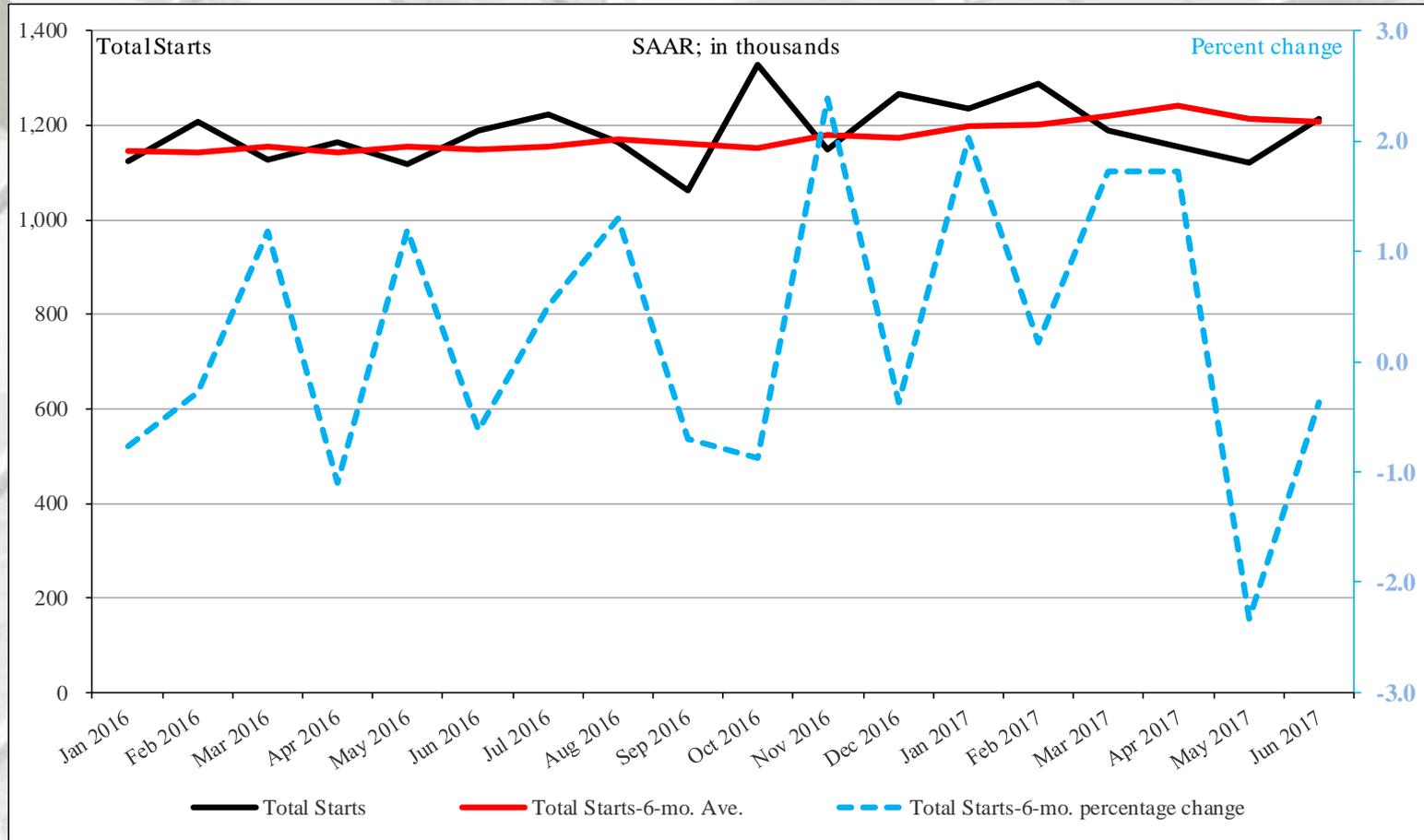
New SF Starts



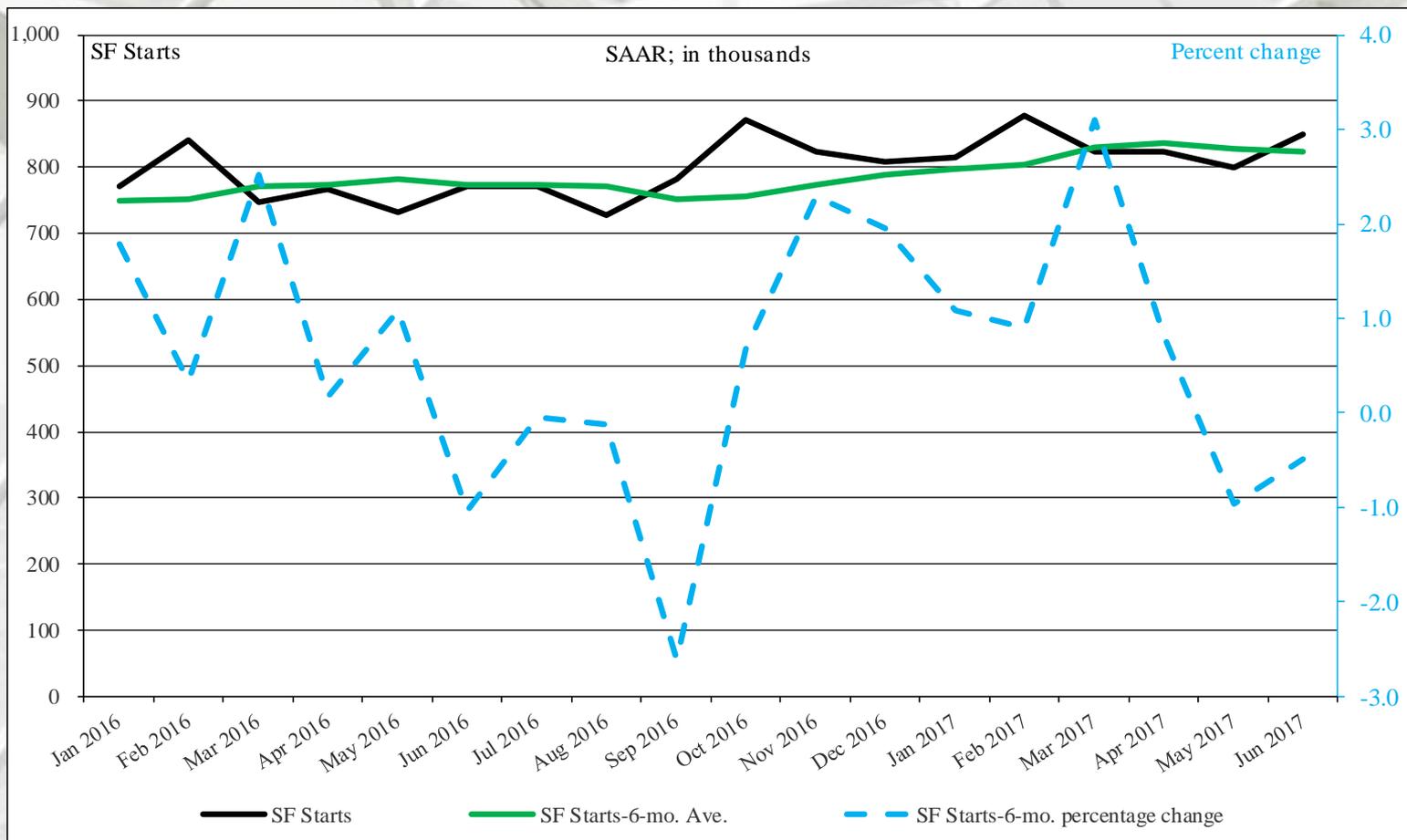
New SF starts adjusted for the US population

From January 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in June 2017 it was 0.0033 – a slight increase from May (0.0031). The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in June 2017 it was 0.0058 – an increase from April (0.0054). From a population worldview, construction is less than what is necessary for changes in population (i.e., under-building).

Total Housing Starts: Six-Month Average



SF Housing Starts: Six-Month Average



New Housing Starts by Region

| | NE Total | NE SF | NE MF** |
|------------|-----------------|--------------|----------------|
| June | 158,000 | 59,000 | 99,000 |
| May | 86,000 | 54,000 | 32,000 |
| 2016 | 114,000 | 73,000 | 41,000 |
| M/M change | 83.7% | 9.3% | 209.4% |
| Y/Y change | 38.6% | -19.2% | 141.5% |

| | MW Total | MW SF | MW MF |
|------------|-----------------|--------------|--------------|
| June | 205,000 | 134,000 | 71,000 |
| May | 168,000 | 139,000 | 29,000 |
| 2016 | 188,000 | 114,000 | 74,000 |
| M/M change | 22.0% | -3.6% | 144.8% |
| Y/Y change | 9.0% | 17.5% | -4.1% |

All data are SAAR; NE = Northeast and MW = Midwest.

** US DOC does not report multifamily starts directly, this is an estimation (Total starts – SF starts).

New Housing Starts by Region

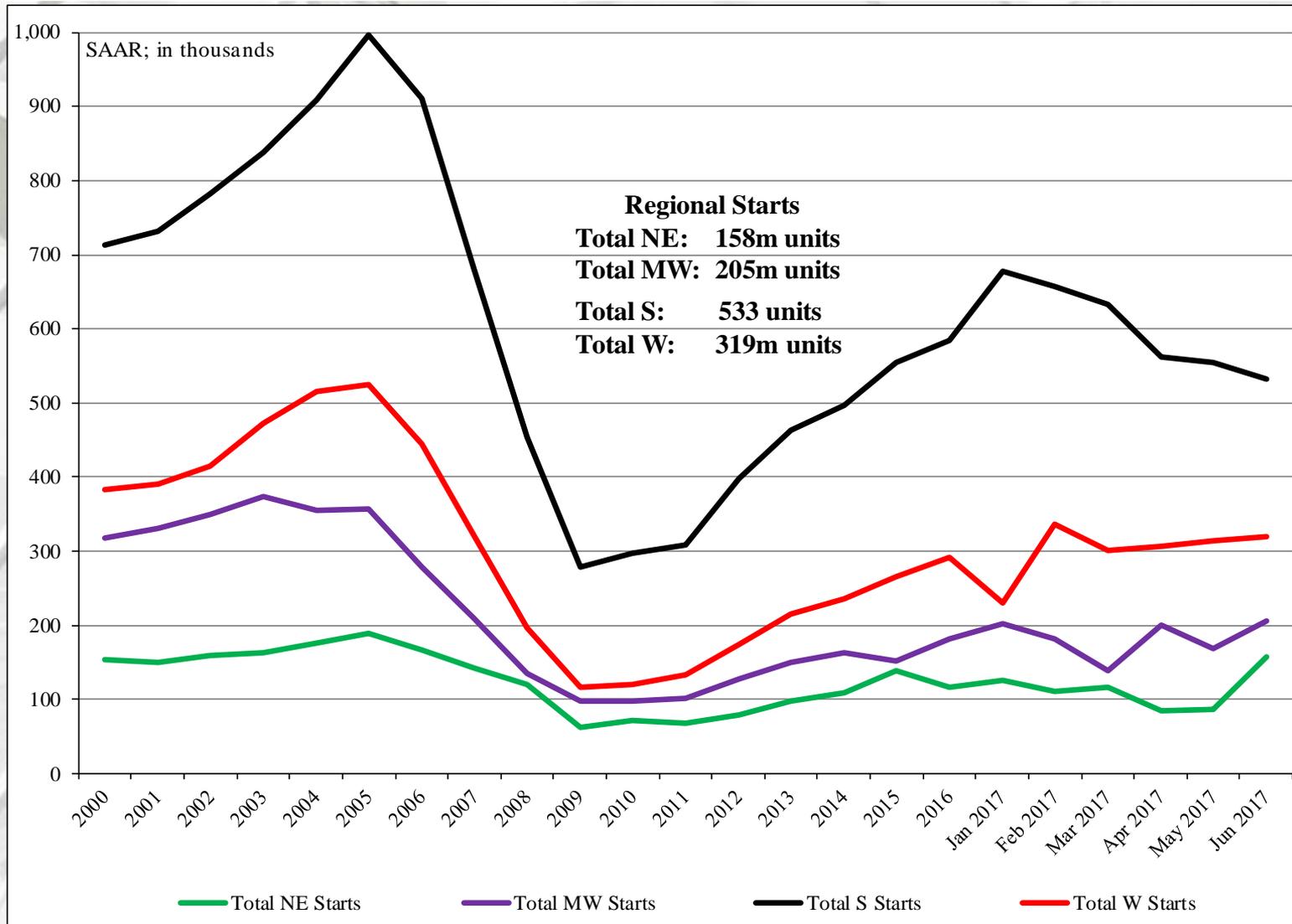
| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| June | 533,000 | 448,000 | 85,000 |
| May | 554,000 | 418,000 | 136,000 |
| 2016 | 587,000 | 413,000 | 174,000 |
| M/M change | -3.8% | 7.2% | -37.5% |
| Y/Y change | -9.2% | 8.5% | -51.1% |

| | W Total | W SF | W MF |
|------------|----------------|-------------|-------------|
| June | 319,000 | 208,000 | 111,000 |
| May | 314,000 | 188,000 | 126,000 |
| 2016 | 301,000 | 170,000 | 131,000 |
| M/M change | 1.6% | 10.6% | -11.9% |
| Y/Y change | 6.0% | 22.4% | -15.3% |

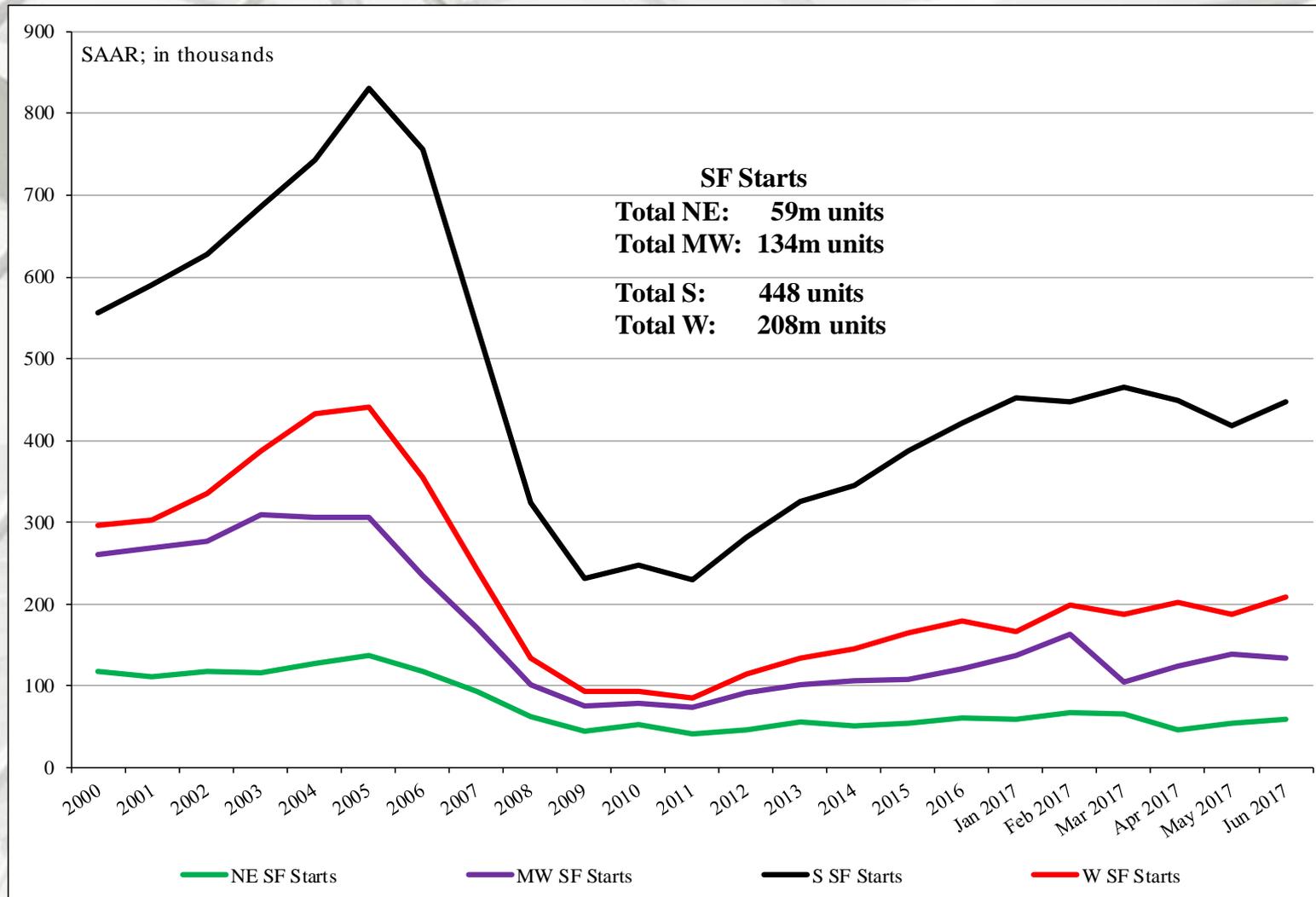
All data are SAAR; S = South and W = West.

** US DOC does not report multifamily starts directly, this is an estimation (Total starts – SF starts).

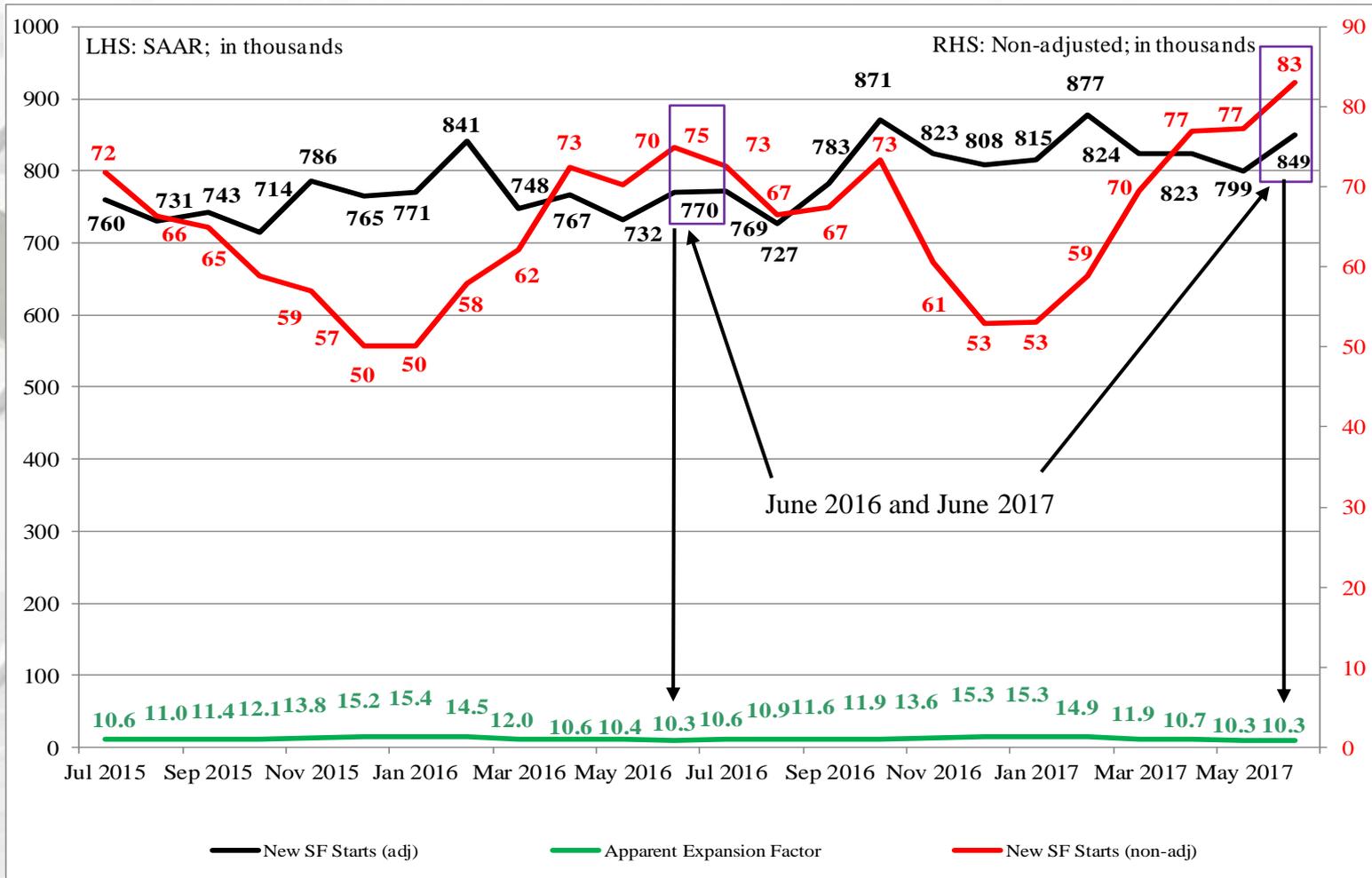
Total Housing Starts by Region



SF Housing Starts by Region



Nominal & SAAR SF Starts

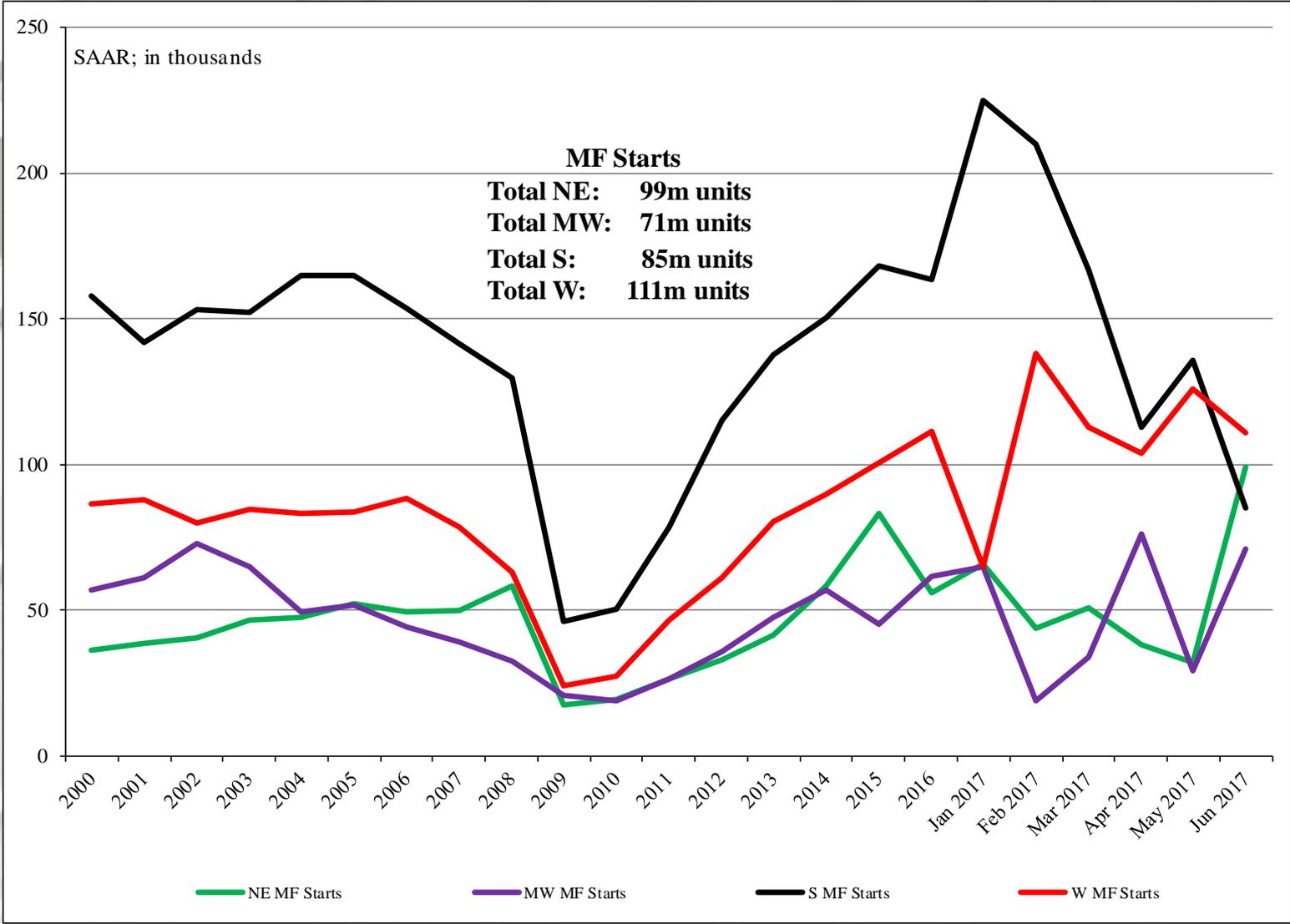


Nominal and Adjusted New SF Monthly Starts

Presented above is nominal (non-adjusted) new SF start data contrasted against SAAR data.

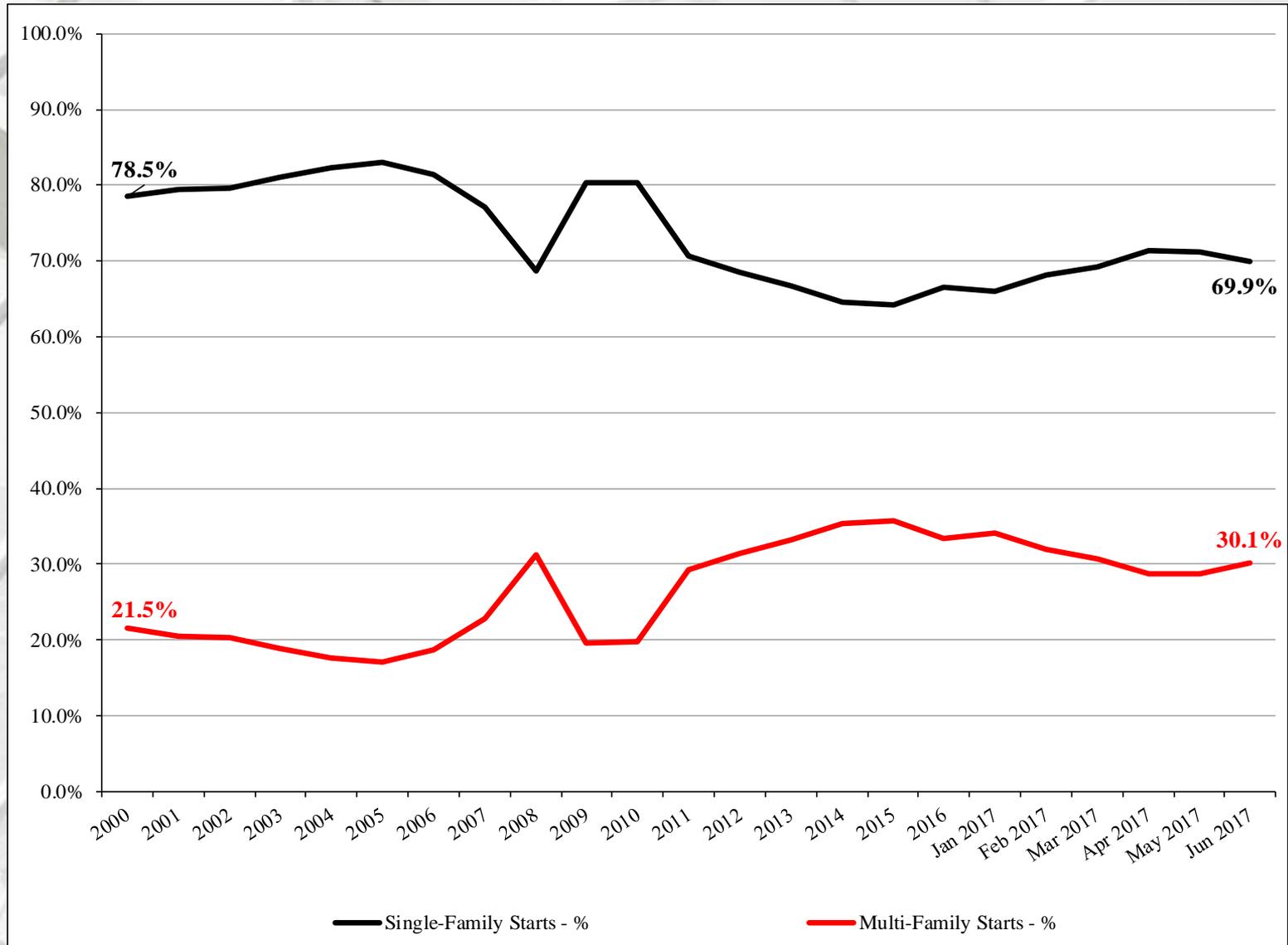
The apparent expansion factor “... is the ratio of the unadjusted number of houses started in the US to the seasonally adjusted number of houses started in the US (i.e., to the sum of the seasonally adjusted values for the four regions).” – U.S. DOC-Construction

MF Housing Starts by Region

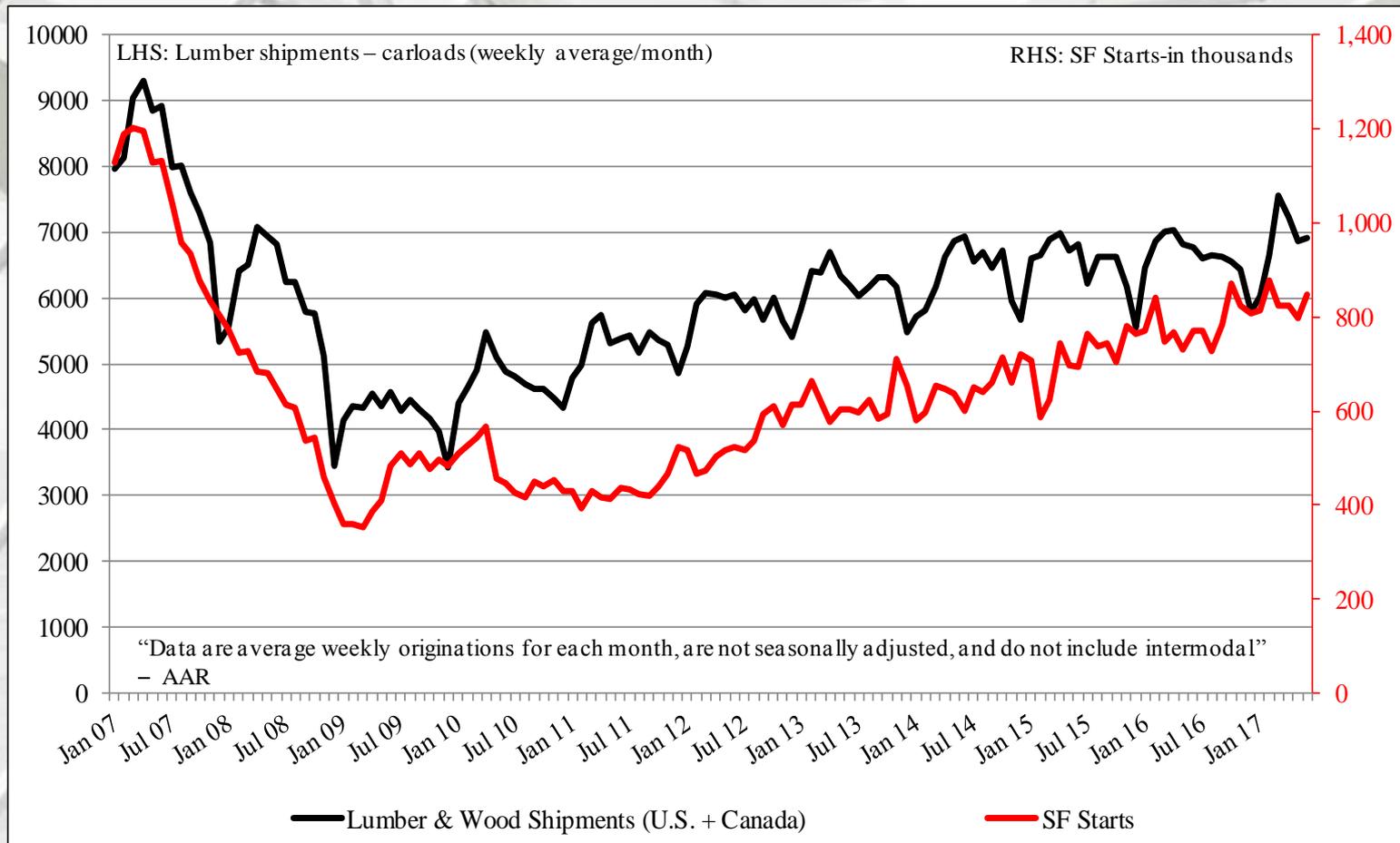


Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 7/19/17

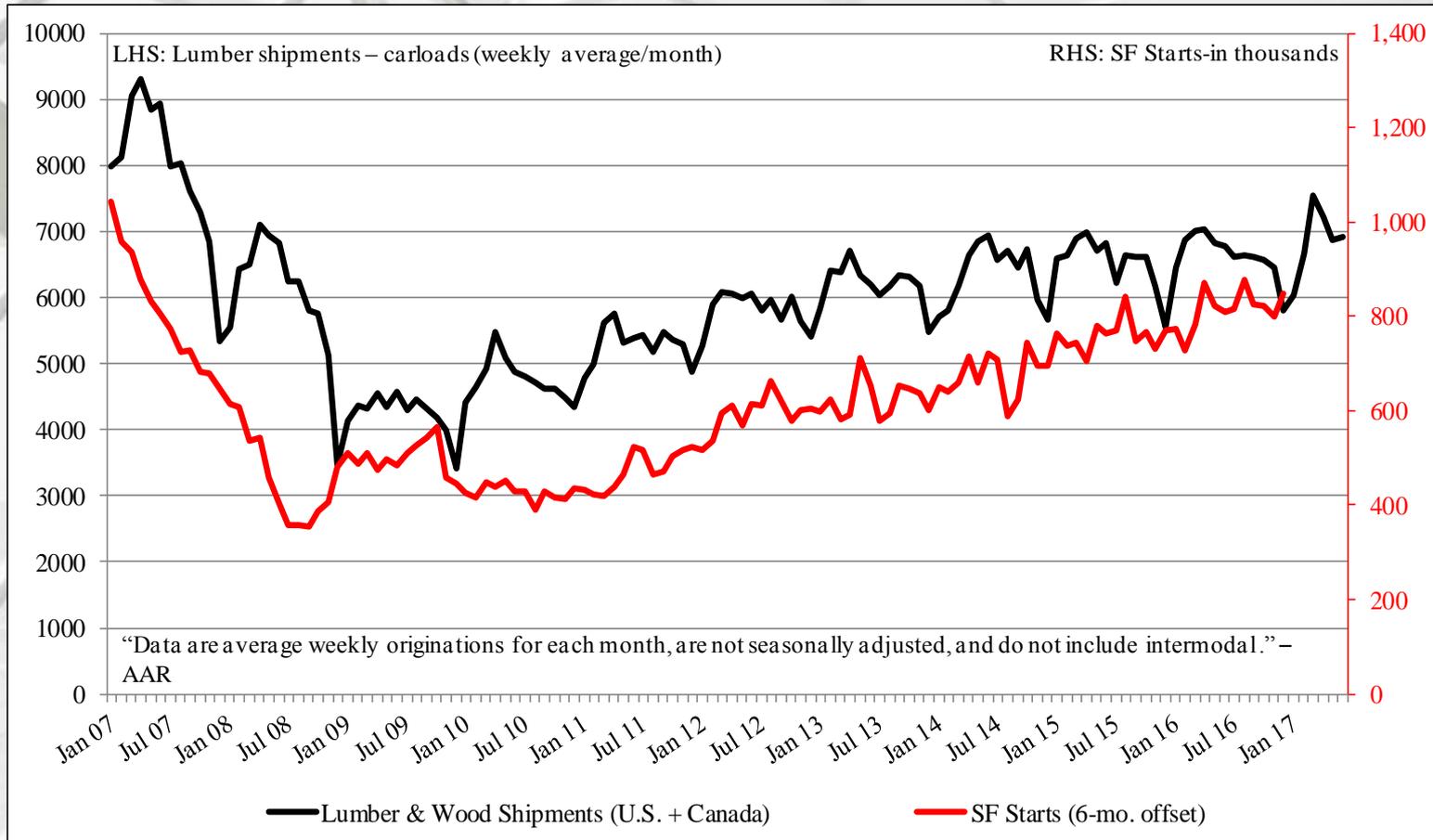
SF & MF Housing Starts (%)



Railroad Lumber & Wood Shipments vs. U.S. SF Housing Starts



Railroad Lumber & Wood Shipments vs. U.S. SF Housing Starts: 6-month Offset



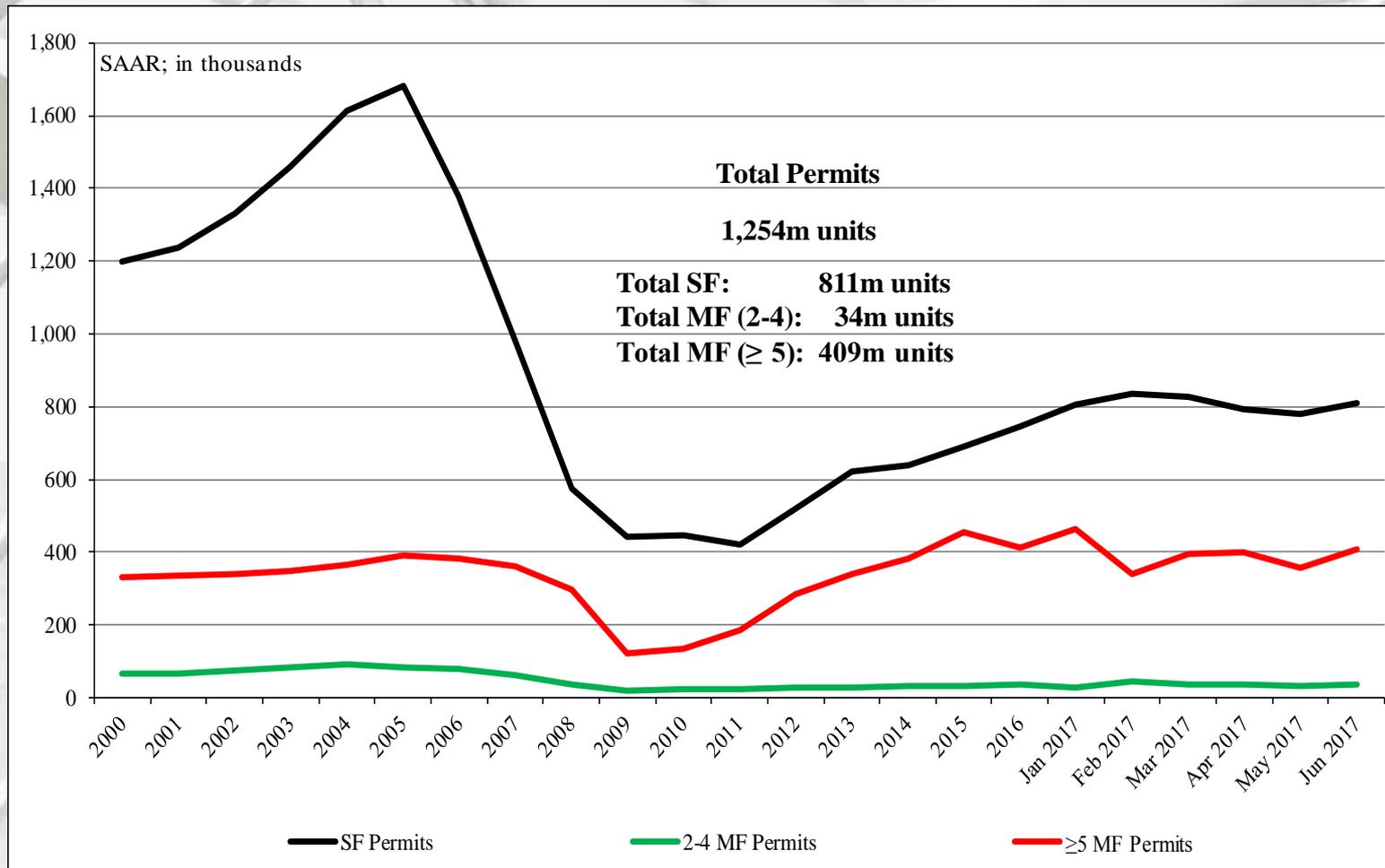
In this graph, January 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through June 2017 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

New Housing Permits

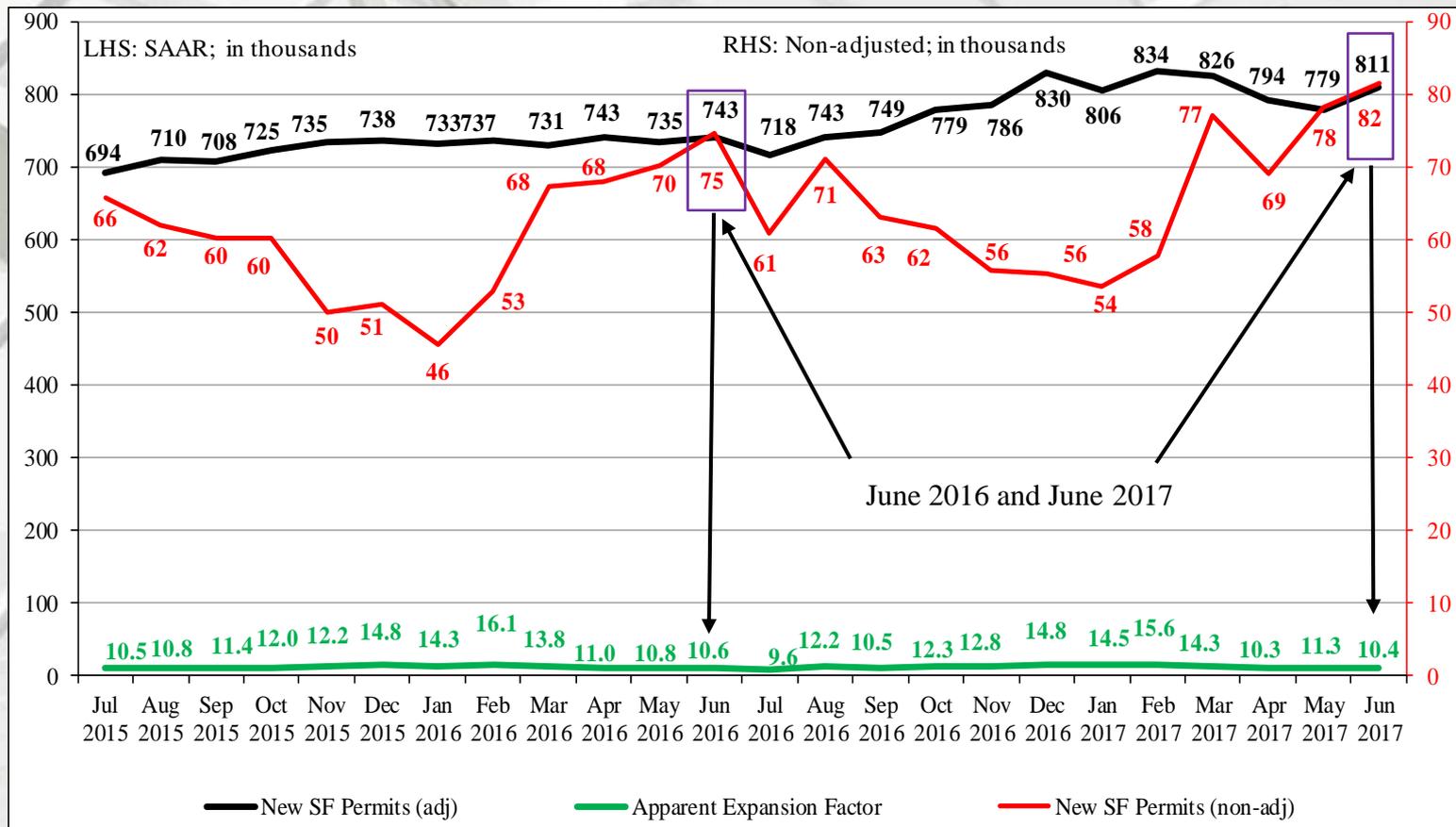
| | Total Permits* | SF Permits | MF 2-4 unit Permits | MF ≥ 5 unit Permits |
|------------|-----------------------|-------------------|----------------------------|----------------------------|
| June | 1,254,000 | 811,000 | 34,000 | 409,000 |
| May | 1,168,000 | 779,000 | 32,000 | 357,000 |
| 2016 | 1,193,000 | 743,000 | 31,000 | 419,000 |
| M/M change | 7.4% | 4.1% | 6.3% | 14.6% |
| Y/Y change | 5.1% | 9.2% | 9.7% | -2.4% |

* All permit data are presented at a seasonally adjusted annual rate (SAAR).

Total New Housing Permits



Nominal & SAAR SF Permits



Nominal and Adjusted New SF Monthly Permits

Presented above is nominal (non-adjusted) new SF start data contrasted against SAAR data.

The apparent expansion factor “...is the ratio of the unadjusted number of houses started in the US to the seasonally adjusted number of houses started in the US (i.e., to the sum of the seasonally adjusted values for the four regions).” – U.S. DOC-Construction

New Housing Permits by Region

| | NE Total* | NE SF | NE MF** |
|------------|------------------|--------------|----------------|
| June | 105,000 | 58,000 | 47,000 |
| May | 122,000 | 52,000 | 70,000 |
| 2016 | 120,000 | 58,000 | 62,000 |
| M/M change | -13.9% | 11.5% | -32.9% |
| Y/Y change | -12.5% | 0.0% | -24.2% |
| | MW Total* | MW SF | MW MF** |
| June | 207,000 | 120,000 | 87,000 |
| May | 173,000 | 108,000 | 65,000 |
| 2016 | 170,000 | 110,000 | 60,000 |
| M/M change | 19.7% | 11.1% | 33.8% |
| Y/Y change | 21.8% | 9.1% | 45.0% |

- All data are SAAR
- ** US DOC does not report multifamily starts directly, this is an estimation (Total starts – SF starts).

New Housing Permits by Region

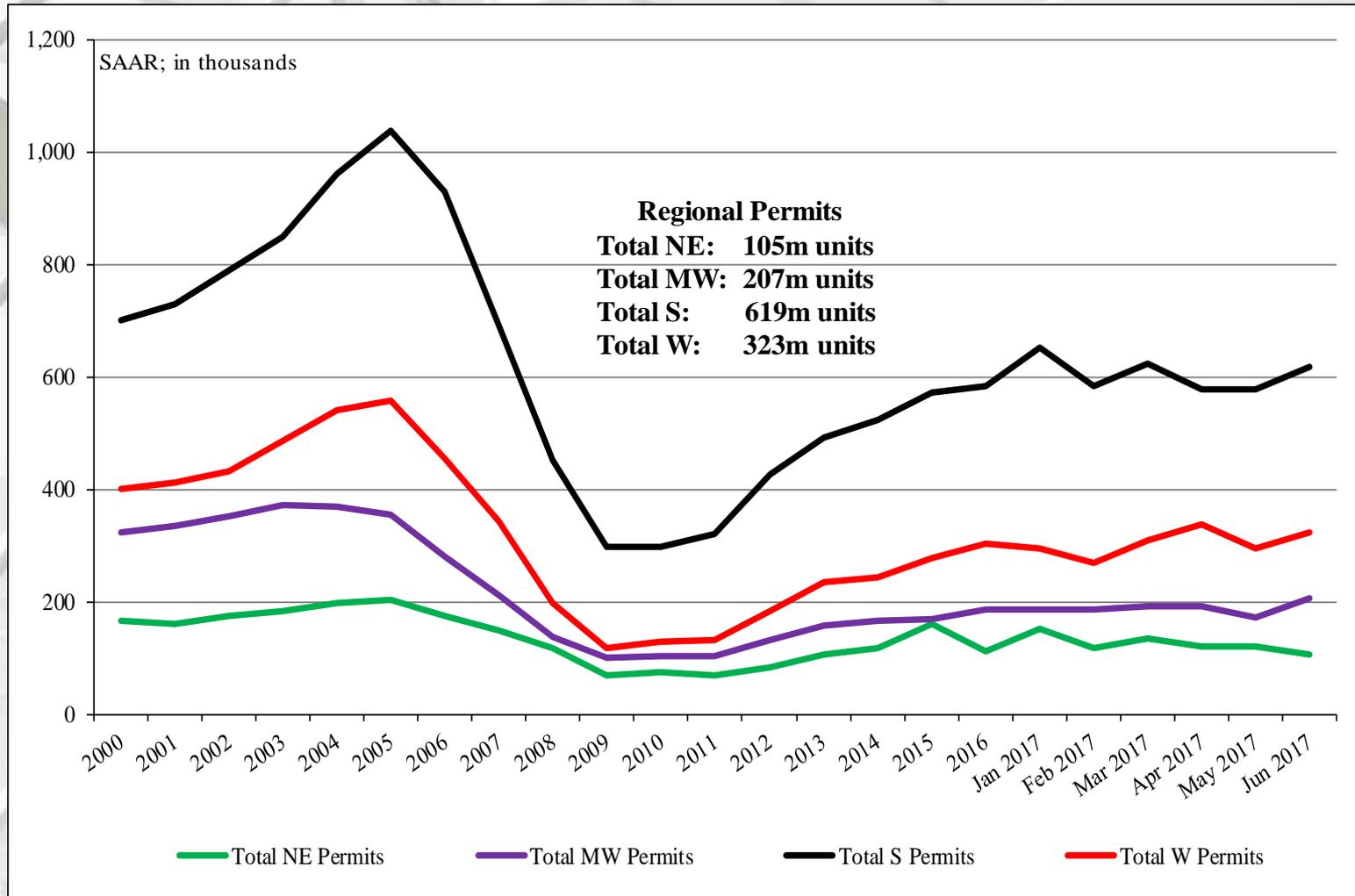
| | S Total* | S SF | S MF** |
|------------|-----------------|-------------|---------------|
| June | 619,000 | 444,000 | 175,000 |
| May | 579,000 | 436,000 | 143,000 |
| 2016 | 608,000 | 401,000 | 207,000 |
| M/M change | 6.9% | 1.8% | 22.4% |
| Y/Y change | 1.8% | 10.7% | -15.5% |

| | W Total* | W SF | W MF** |
|------------|-----------------|-------------|---------------|
| June | 323,000 | 189,000 | 134,000 |
| May | 294,000 | 183,000 | 111,000 |
| 2016 | 295,000 | 174,000 | 121,000 |
| M/M change | 9.9% | 3.3% | 20.7% |
| Y/Y change | 9.5% | 8.6% | 10.7% |

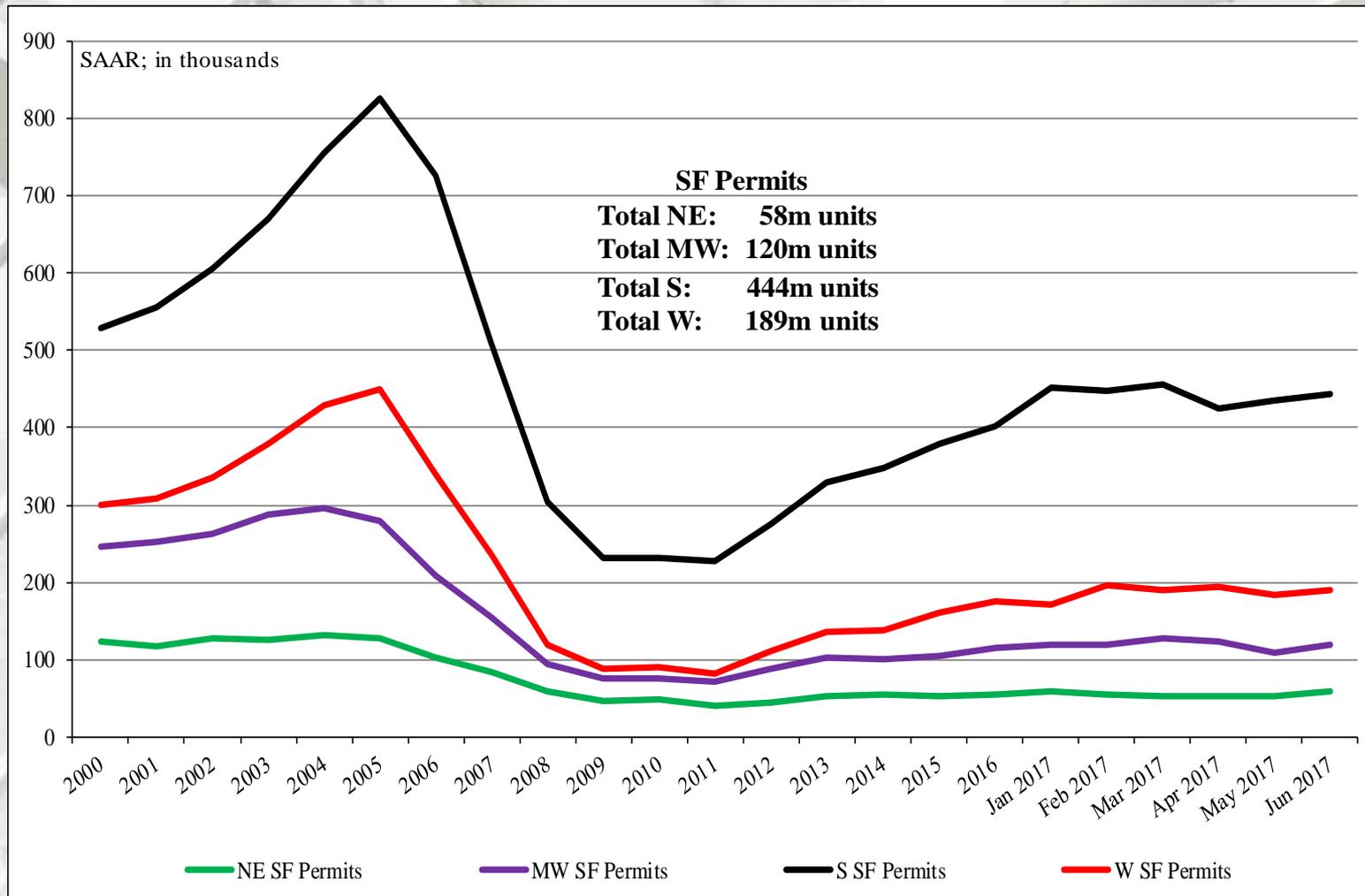
• All data are SAAR

• ** US DOC does not report multifamily starts directly, this is an estimation (Total starts – SF starts).

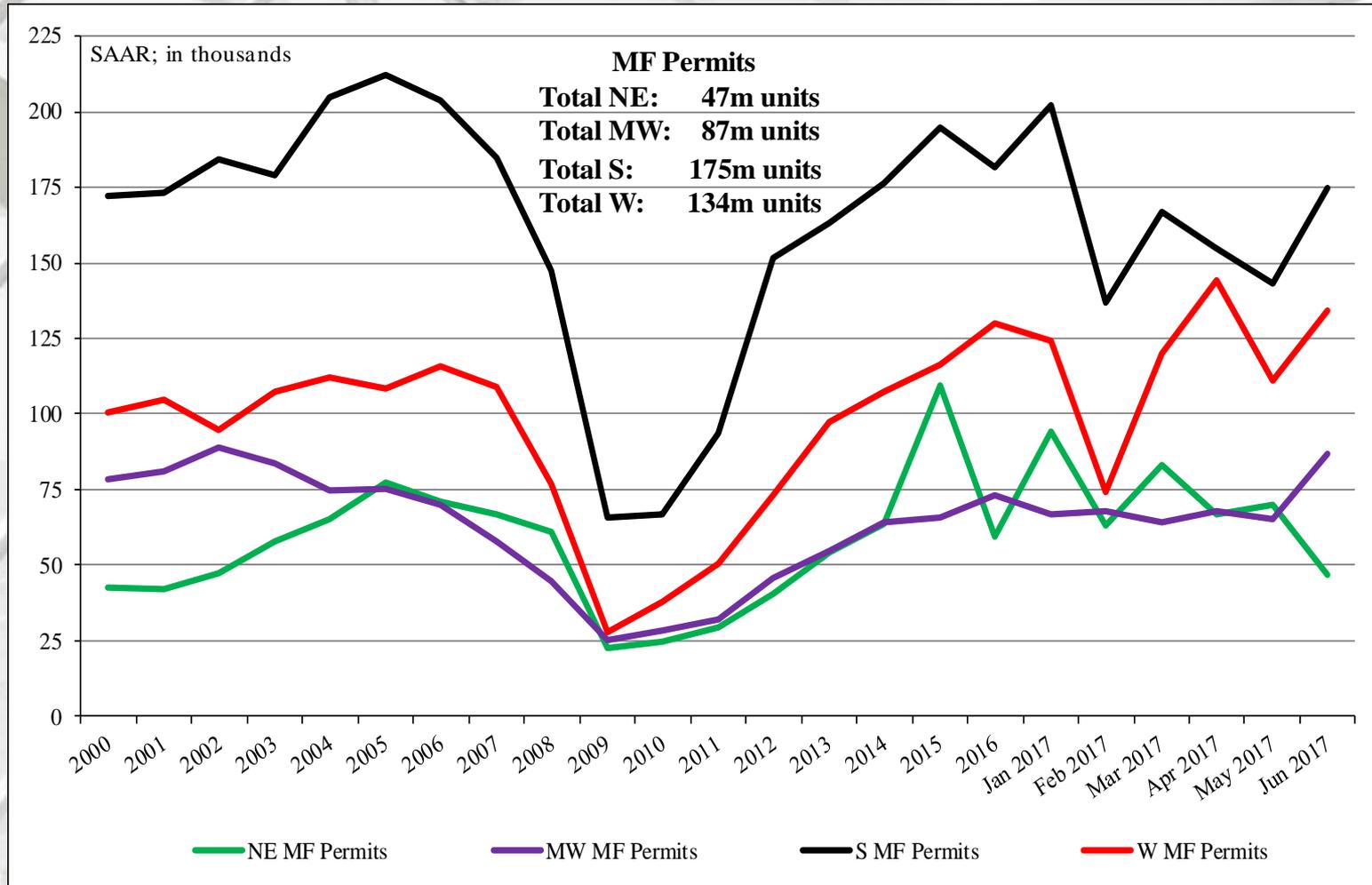
Total Housing Permits by Region



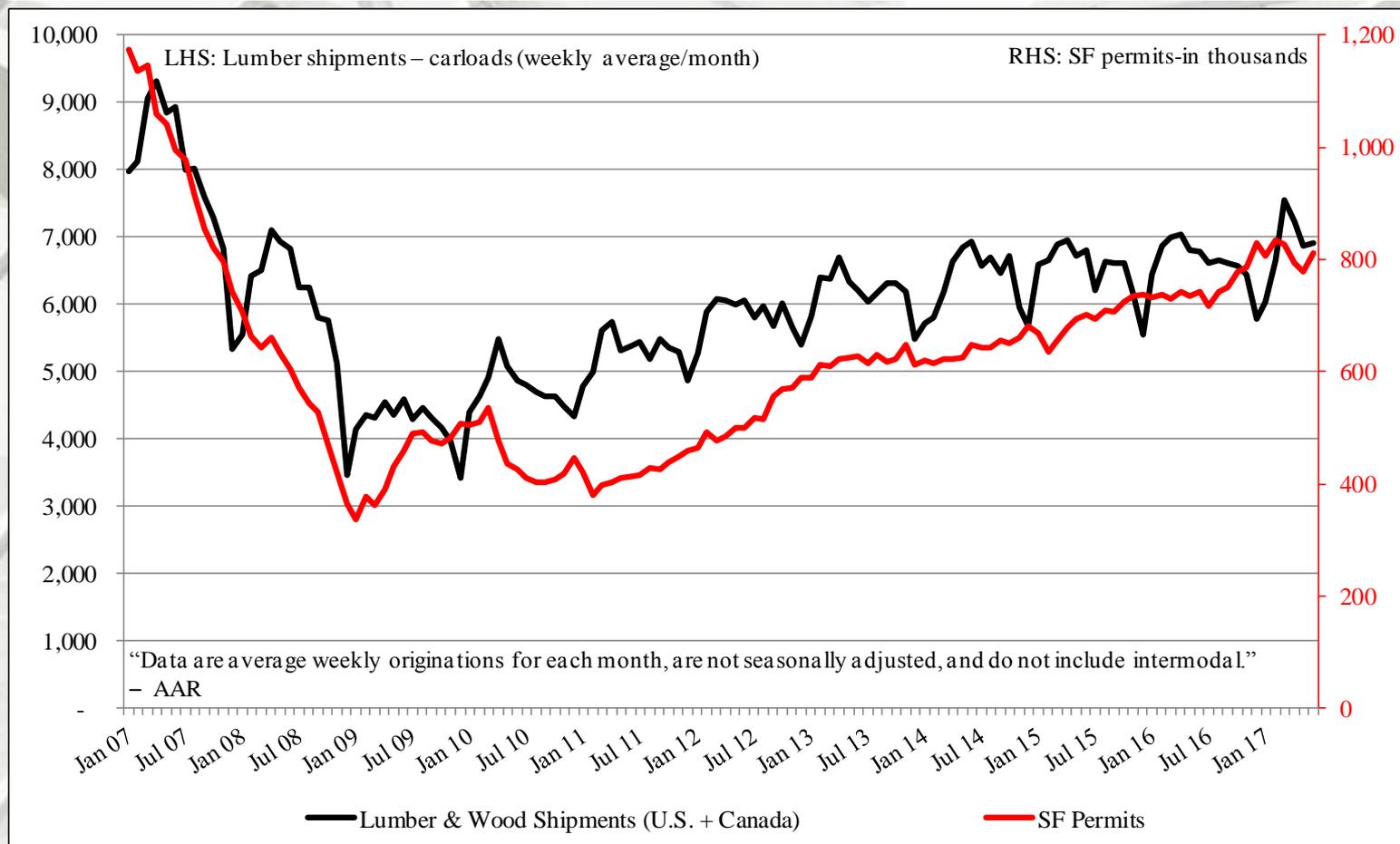
SF Housing Permits by Region



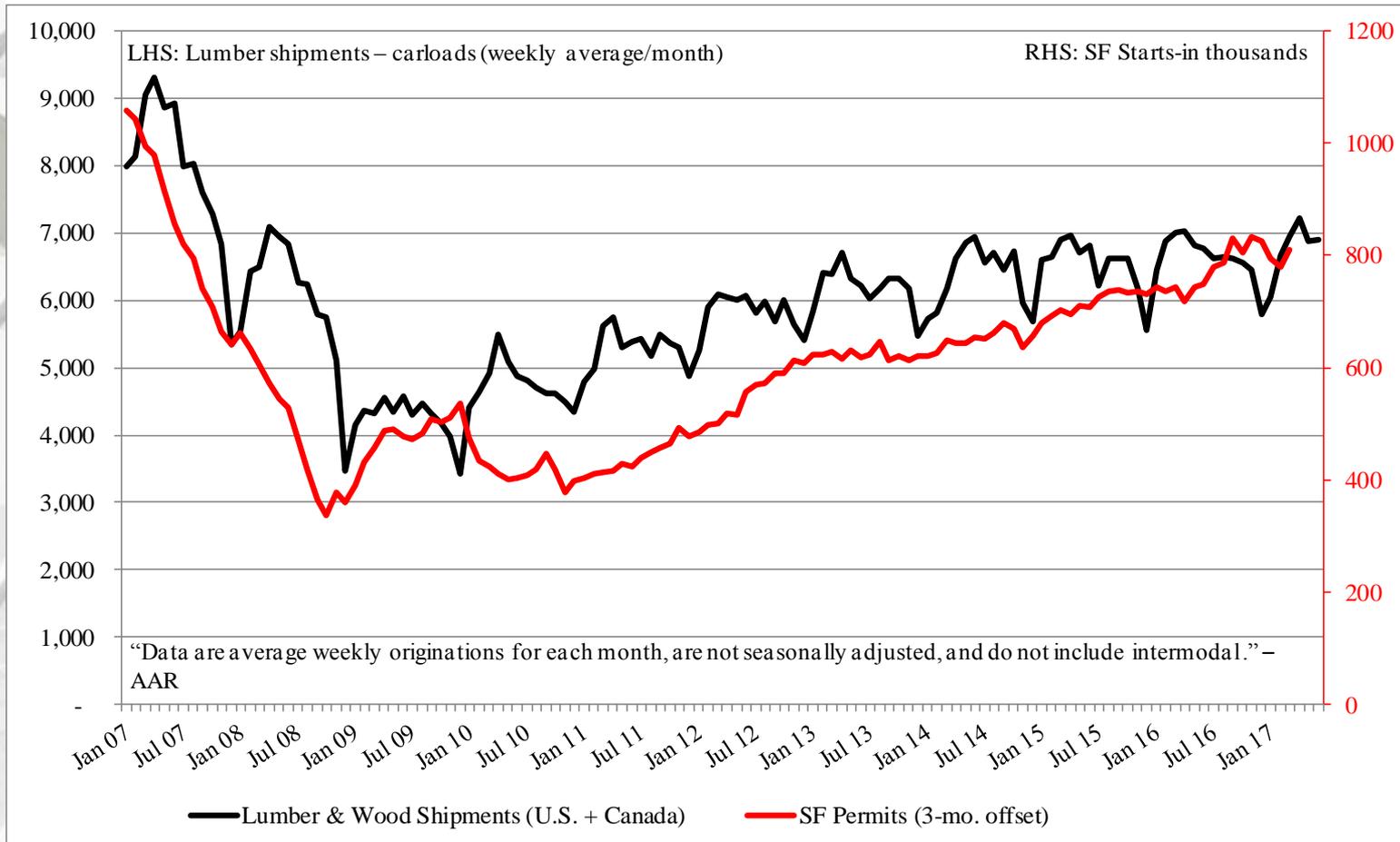
MF Housing Permits by Region



Railroad Lumber & Wood Shipments vs. U.S. SF Housing Permits



Railroad Lumber & Wood Shipments vs. U.S. SF Housing Permits: 3-month Offset



In this graph, January 2007 lumber shipments are contrasted with April 2007 SF permits, continuing through June 2017. The purpose is to discover if lumber shipments relate to future single-family permits. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

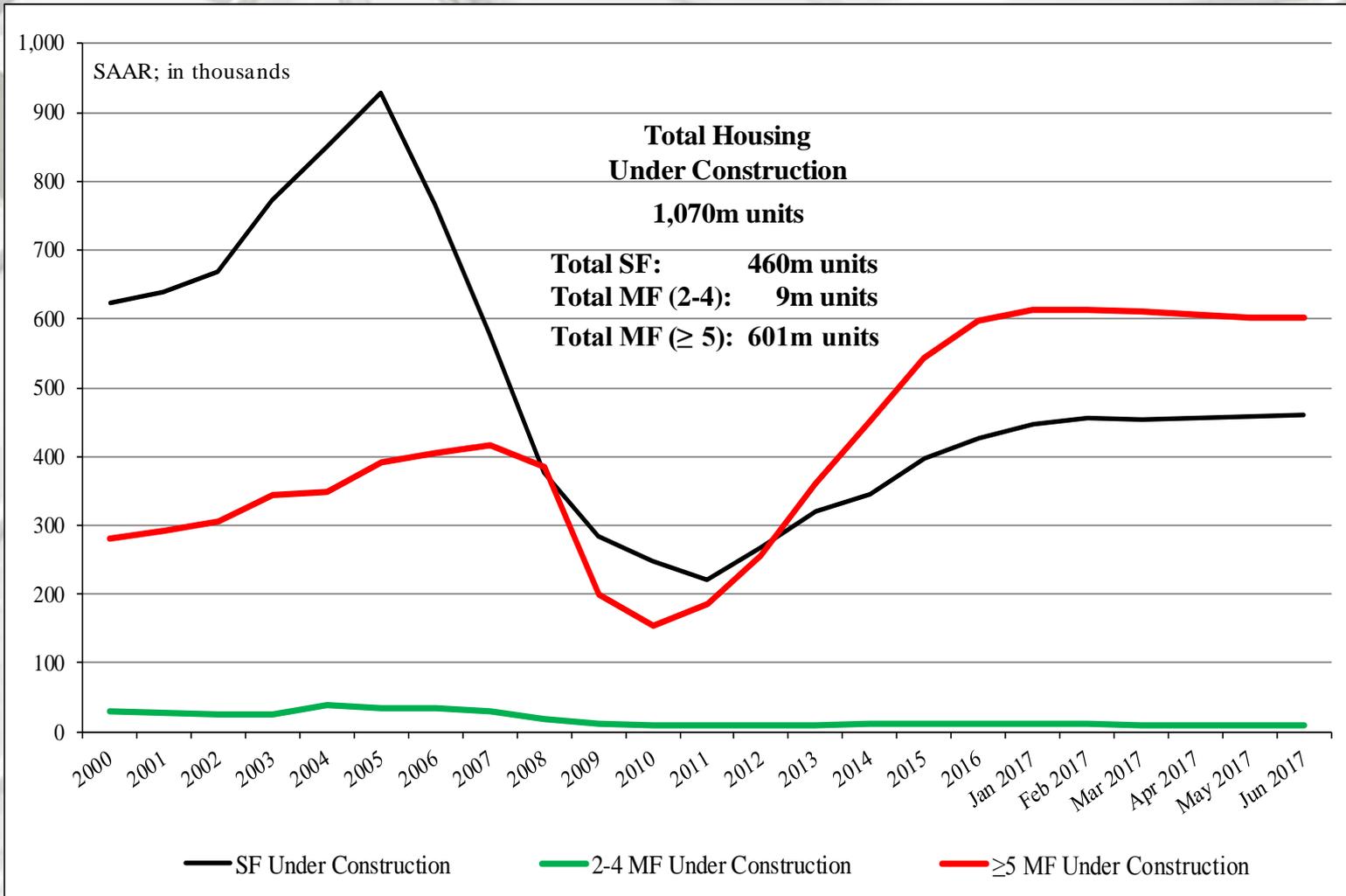
New Housing Under Construction

| | Total Under Construction* | SF Under Construction | MF 2-4 unit** Under Construction | MF ≥ 5 unit Under Construction |
|------------|---------------------------|-----------------------|----------------------------------|--------------------------------|
| June | 1,070,000 | 460,000 | 9,000 | 601,000 |
| May | 1,070,000 | 458,000 | 10,000 | 602,000 |
| 2016 | 1,011,000 | 428,000 | 11,000 | 572,000 |
| M/M change | 0.0% | 0.4% | -10.0% | -0.2% |
| Y/Y change | 5.8% | 7.5% | -18.2% | 5.1% |

All housing under construction data are presented at a seasonally adjusted annual rate (SAAR).

** US DOC does not report 2-4 multifamily units under construction directly, this is an estimation ((Total under construction – (SF + 5 unit MF)).

Total Housing Under Construction



New Housing Under Construction by Region

| | NE Total | NE SF | NE MF** |
|------------|-----------------|--------------|----------------|
| June | 190,000 | 50,000 | 140,000 |
| May | 189,000 | 51,000 | 138,000 |
| 2016 | 187,000 | 50,000 | 137,000 |
| M/M change | 0.5% | -2.0% | 1.4% |
| Y/Y change | 1.6% | 0.0% | 2.2% |
| | MW Total | MW SF | MW MF |
| June | 151,000 | 75,000 | 76,000 |
| May | 151,000 | 75,000 | 76,000 |
| 2016 | 136,000 | 71,000 | 65,000 |
| M/M change | 0.0% | 0.0% | 0.0% |
| Y/Y change | 11.0% | 5.6% | 16.9% |

All data are SAAR; NE = Northeast and MW = Midwest.

** US DOC does not report multifamily units under construction directly, this is an estimation
(Total under construction – SF under construction).

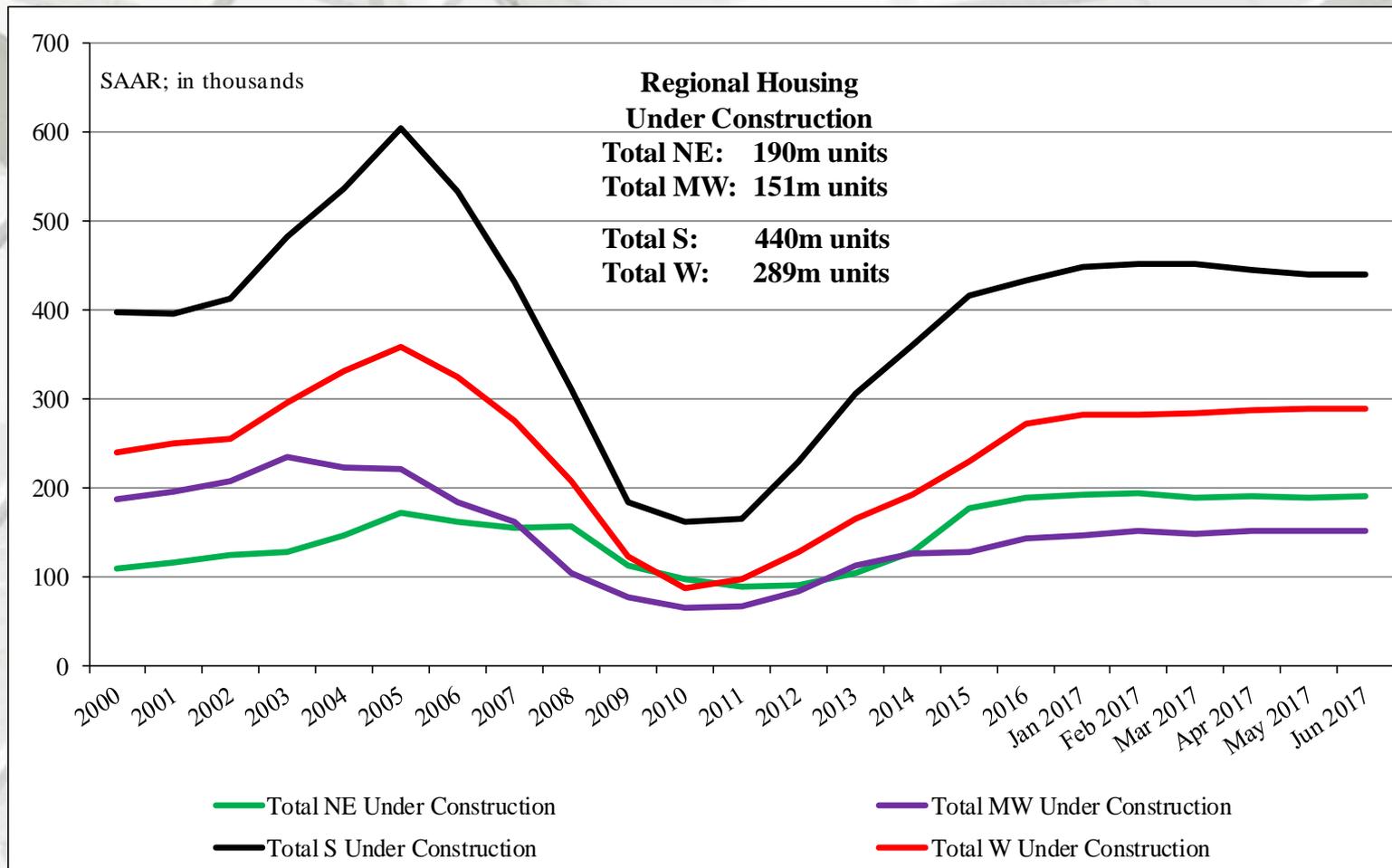
New Housing Under Construction by Region

| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| June | 440,000 | 221,000 | 219,000 |
| May | 440,000 | 219,000 | 221,000 |
| 2016 | 439,000 | 211,000 | 228,000 |
| M/M change | 0.0% | 0.9% | -0.9% |
| Y/Y change | 0.2% | 4.7% | -3.9% |
| | W Total | W SF | W MF |
| June | 289,000 | 114,000 | 175,000 |
| May | 290,000 | 113,000 | 177,000 |
| 2016 | 249,000 | 96,000 | 153,000 |
| M/M change | -0.3% | 0.9% | -1.1% |
| Y/Y change | 16.1% | 18.8% | 14.4% |

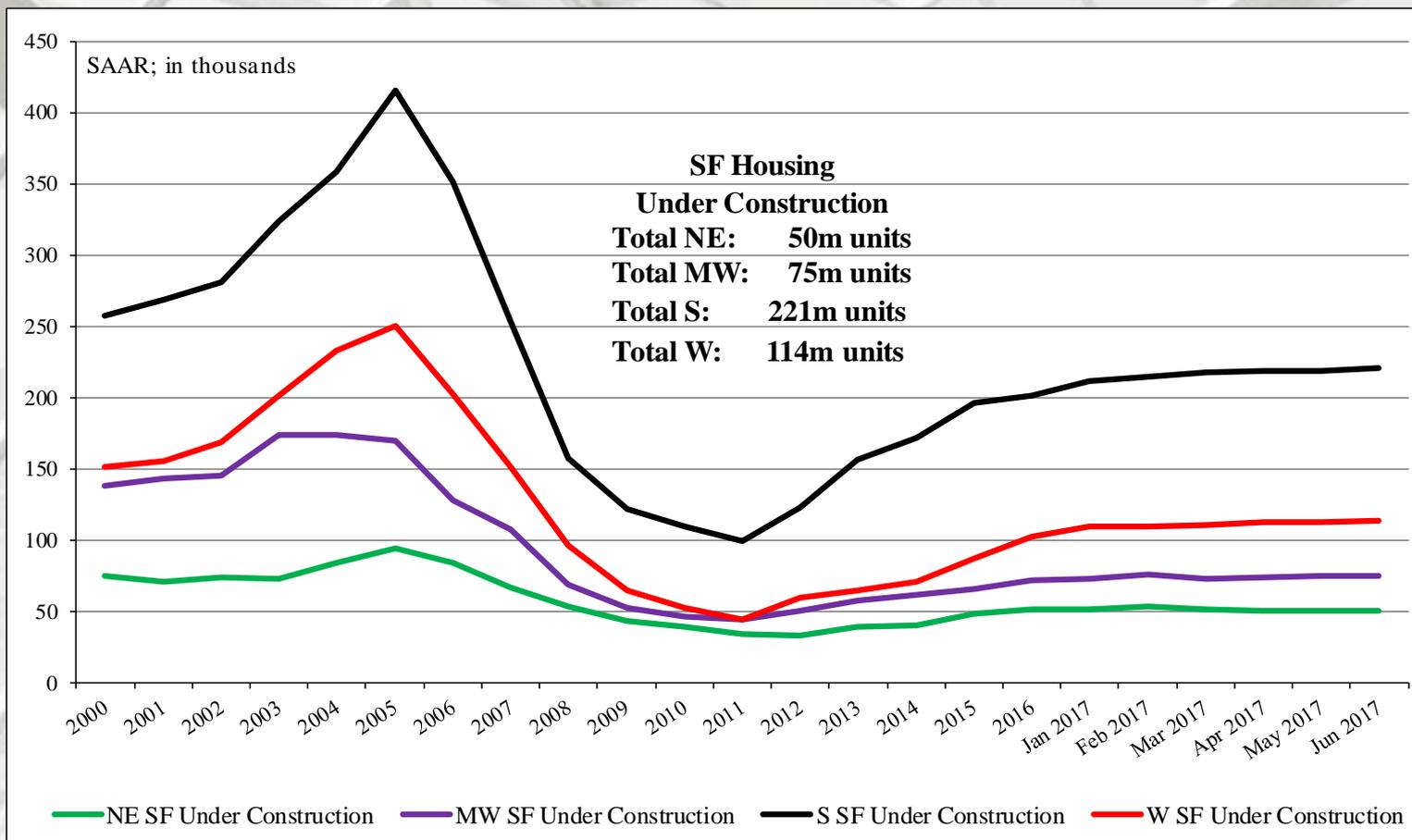
All data are SAAR; S = South and W = West.

** US DOC does not report multifamily units under construction directly, this is an estimation
(Total under construction – SF under construction).

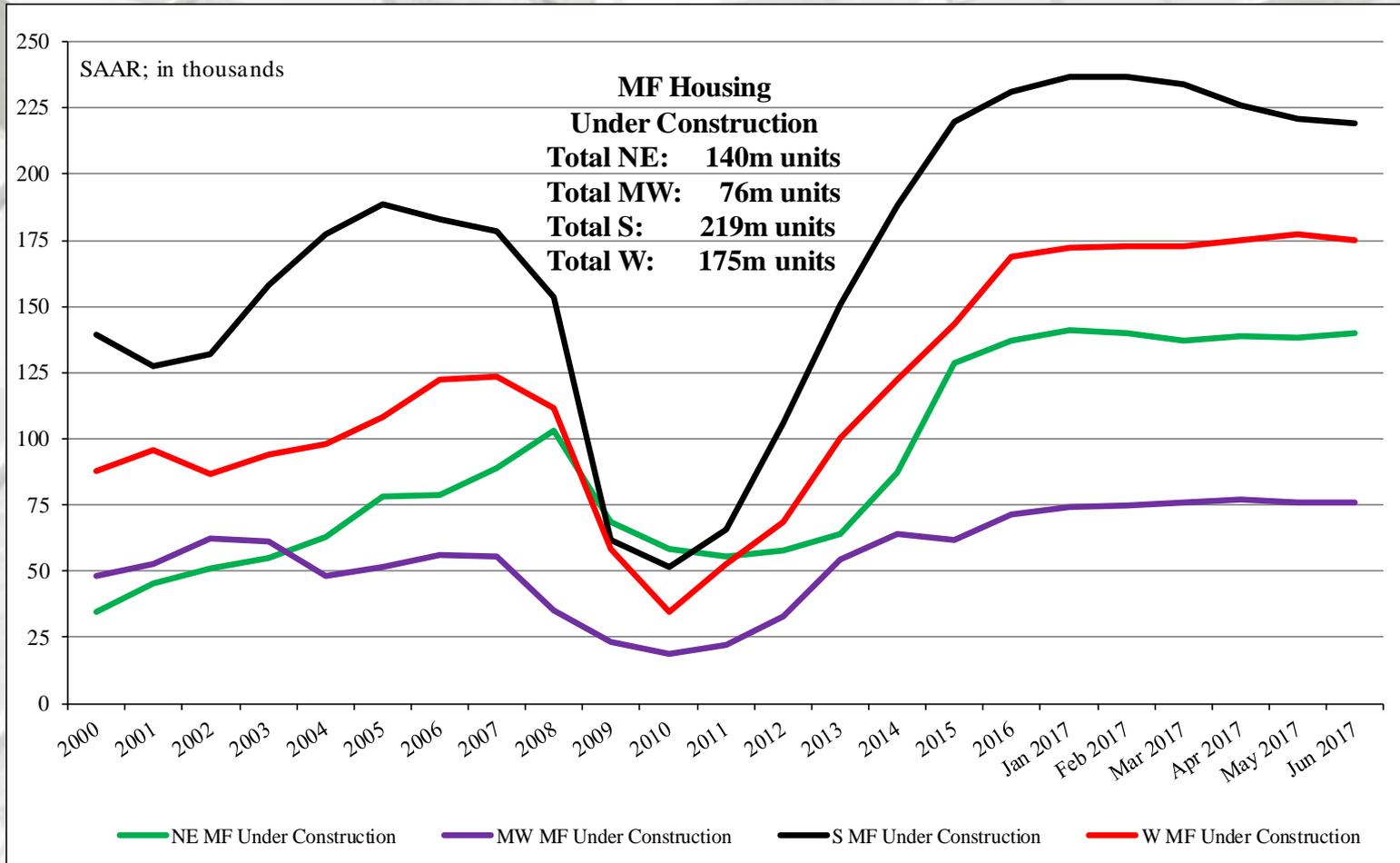
Total Housing Under Construction by Region



SF Housing Under Construction by Region



MF Housing Under Construction by Region



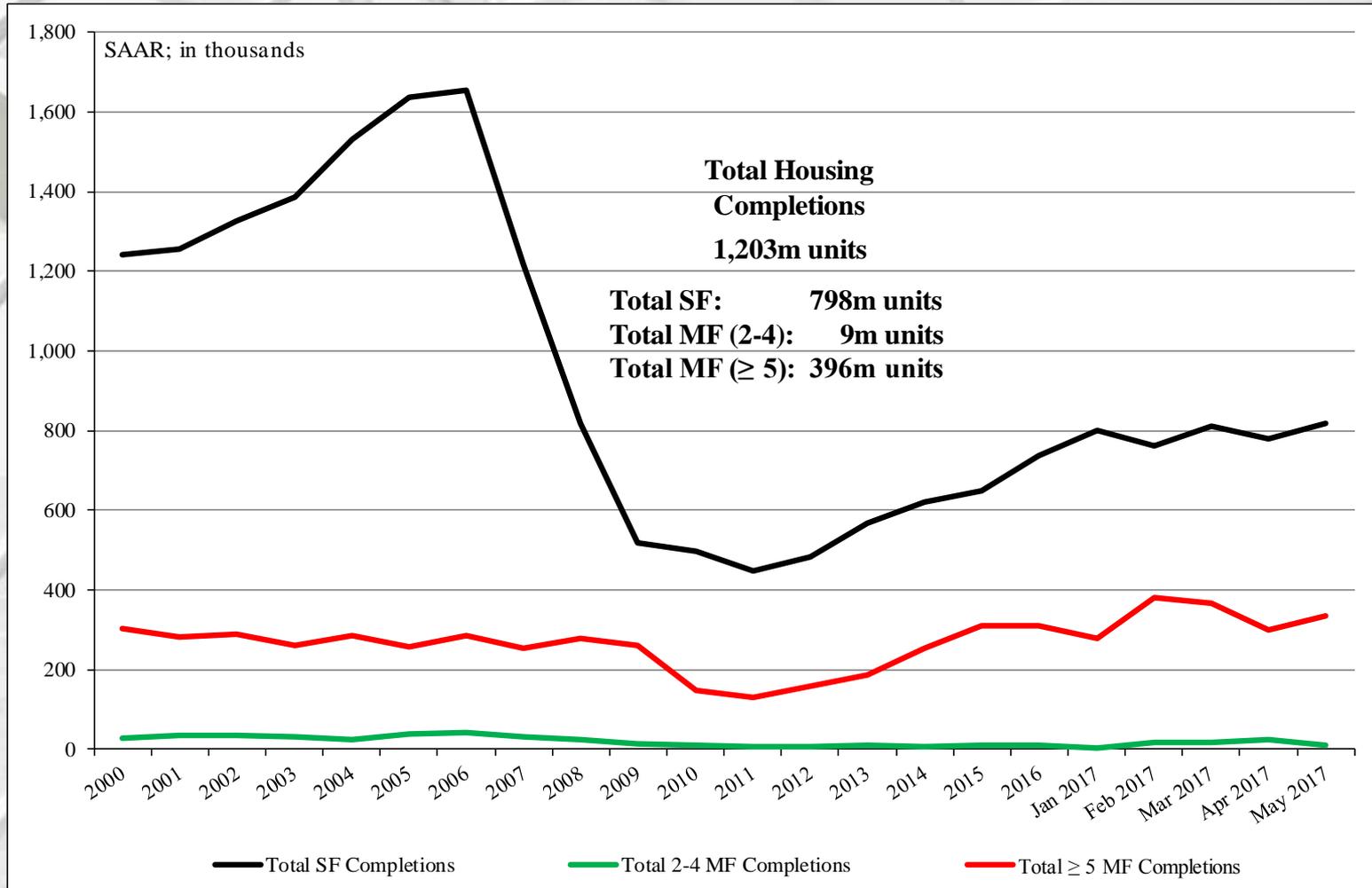
New Housing Completions

| | Total Completions* | SF Completions | MF 2-4 unit** | MF ≥ 5 unit Completions |
|------------|--------------------|----------------|---------------|-------------------------|
| June | 1,203,000 | 798,000 | 9,000 | 396,000 |
| May | 1,144,000 | 795,000 | 13,000 | 336,000 |
| 2016 | 1,113,000 | 760,000 | 9,000 | 344,000 |
| M/M change | 5.2% | 0.4% | -30.8% | 17.9% |
| Y/Y change | 8.1% | 5.0% | 0.0% | 15.1% |

* All completion data are presented at a seasonally adjusted annual rate (SAAR).

** US DOC does not report multifamily completions directly, this is an estimation ((Total completions – (SF + 5 unit MF)).

Total Housing Completions



Total Housing Completions by Region

| | NE Total | NE SF | NE MF** |
|------------|-----------------|--------------|----------------|
| June | 115,000 | 60,000 | 55,000 |
| May | 105,000 | 55,000 | 50,000 |
| 2016 | 123,000 | 62,000 | 61,000 |
| M/M change | 9.5% | 9.1% | 10.0% |
| Y/Y change | -6.5% | -3.2% | -9.8% |
| | MW Total | MW SF | MW MF |
| June | 210,000 | 134,000 | 76,000 |
| May | 147,000 | 120,000 | 27,000 |
| 2016 | 185,000 | 140,000 | 45,000 |
| M/M change | 42.9% | 11.7% | 181.5% |
| Y/Y change | 13.5% | -4.3% | 68.9% |

All data are SAAR; NE = Northeast and MW = West.

** US DOC does not report multi-family completions directly, this is an estimation (Total completions – SF completions).

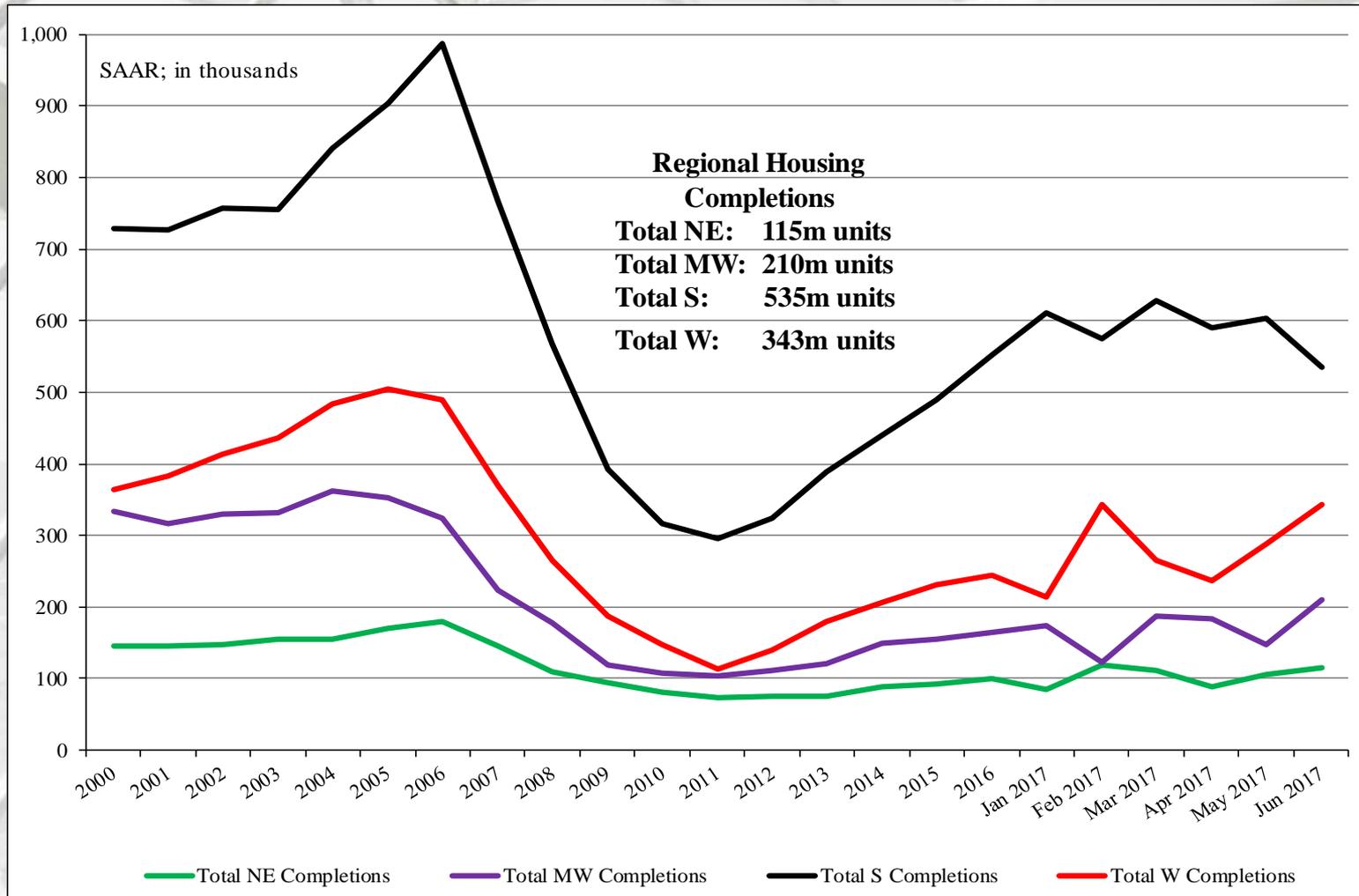
Total Housing Completions by Region

| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| June | 535,000 | 410,000 | 125,000 |
| May | 603,000 | 424,000 | 179,000 |
| 2016 | 561,000 | 397,000 | 164,000 |
| M/M change | -11.3% | -3.3% | -30.2% |
| Y/Y change | -4.6% | 3.3% | -23.8% |
| | W Total | W SF | W MF |
| June | 343,000 | 194,000 | 149,000 |
| May | 289,000 | 196,000 | 93,000 |
| 2016 | 244,000 | 161,000 | 83,000 |
| M/M change | 18.7% | -1.0% | 60.2% |
| Y/Y change | 40.6% | 20.5% | 79.5% |

All data are SAAR; S = South and W = West.

** US DOC does not report multi-family completions directly, this is an estimation (Total completions – SF completions).

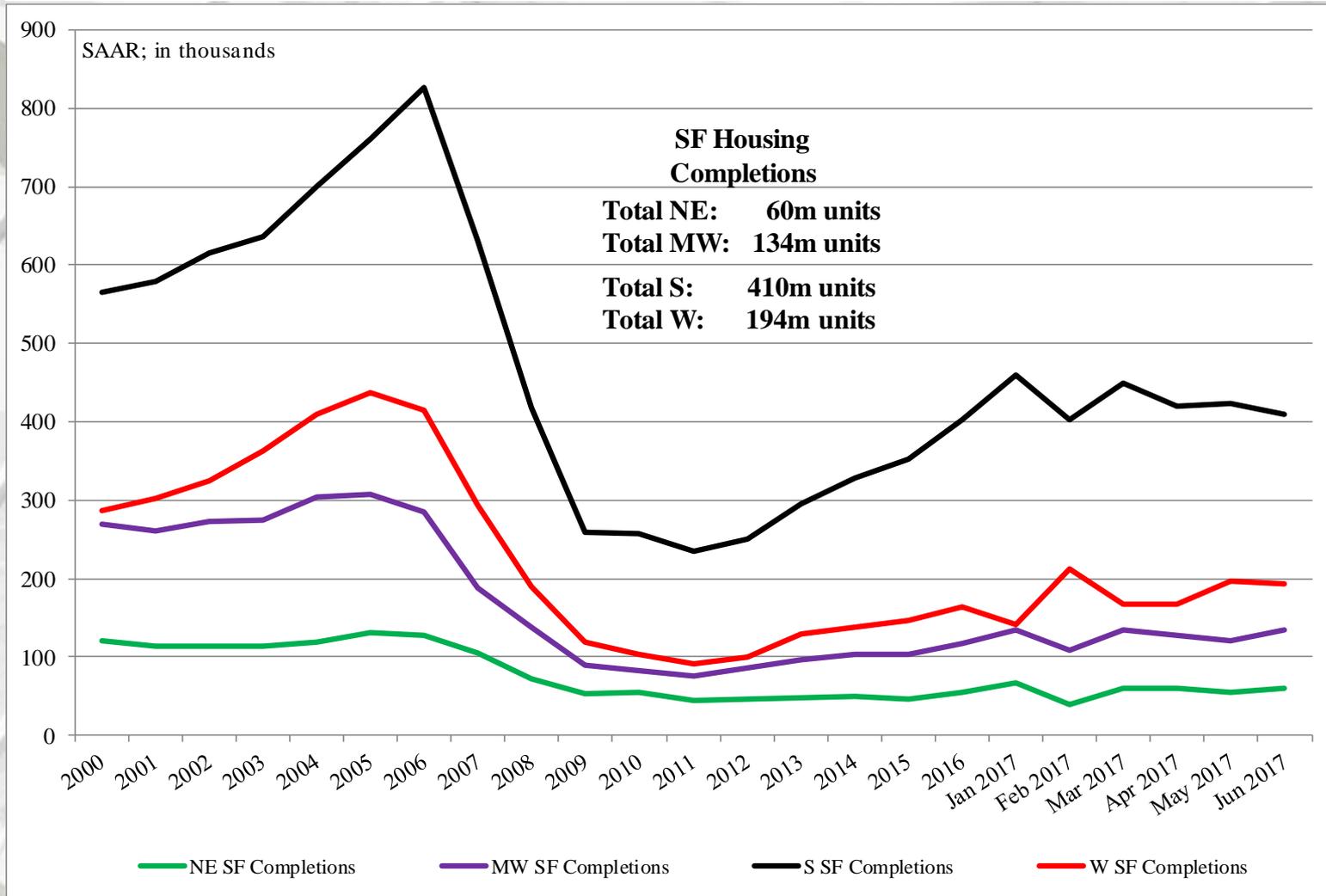
New Housing Completions by Region



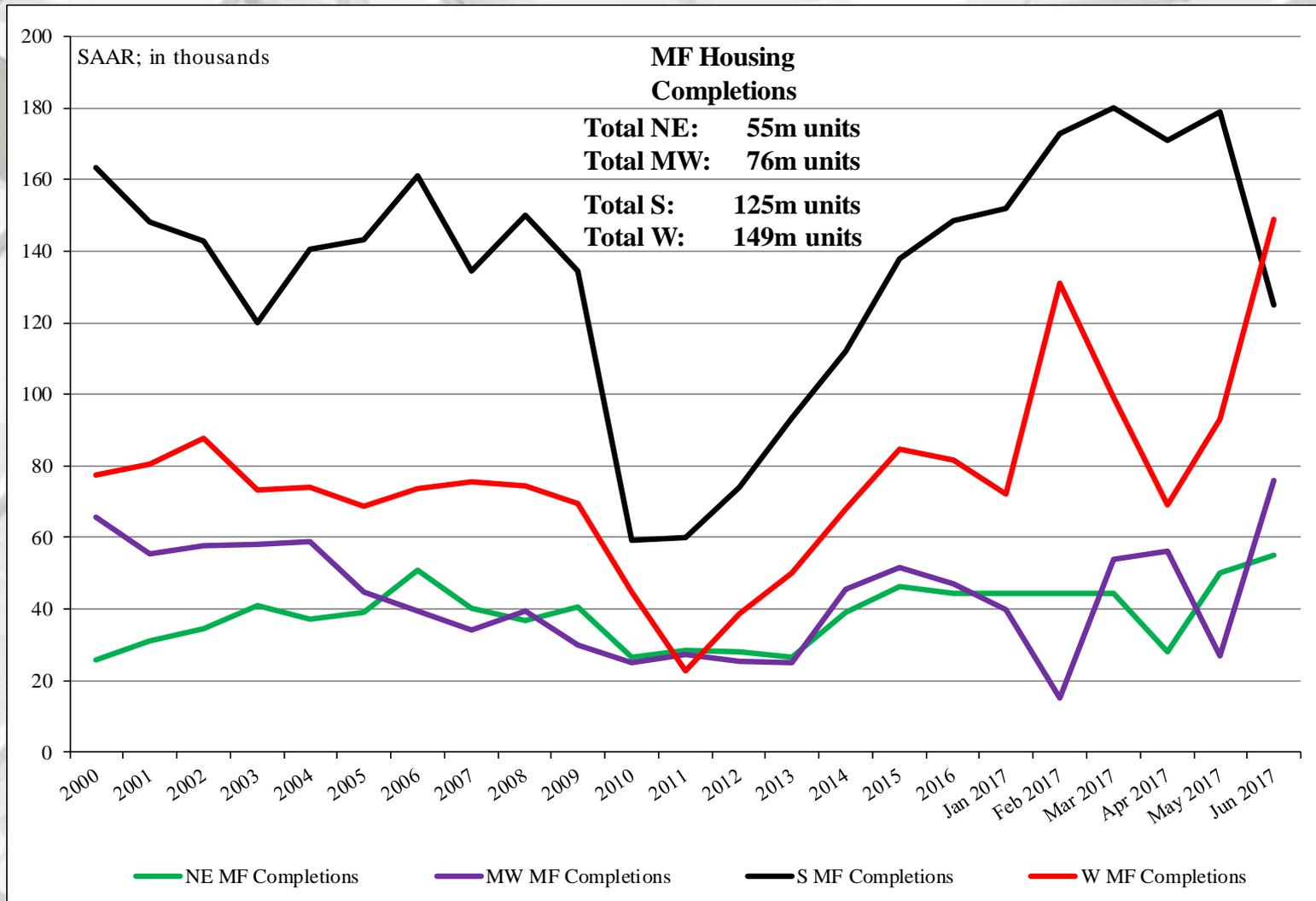
All data are SAAR; NE = Northeast and MW = Midwest.

** US DOC does not report multifamily completions directly, this is an estimation (Total completions – SF completions).

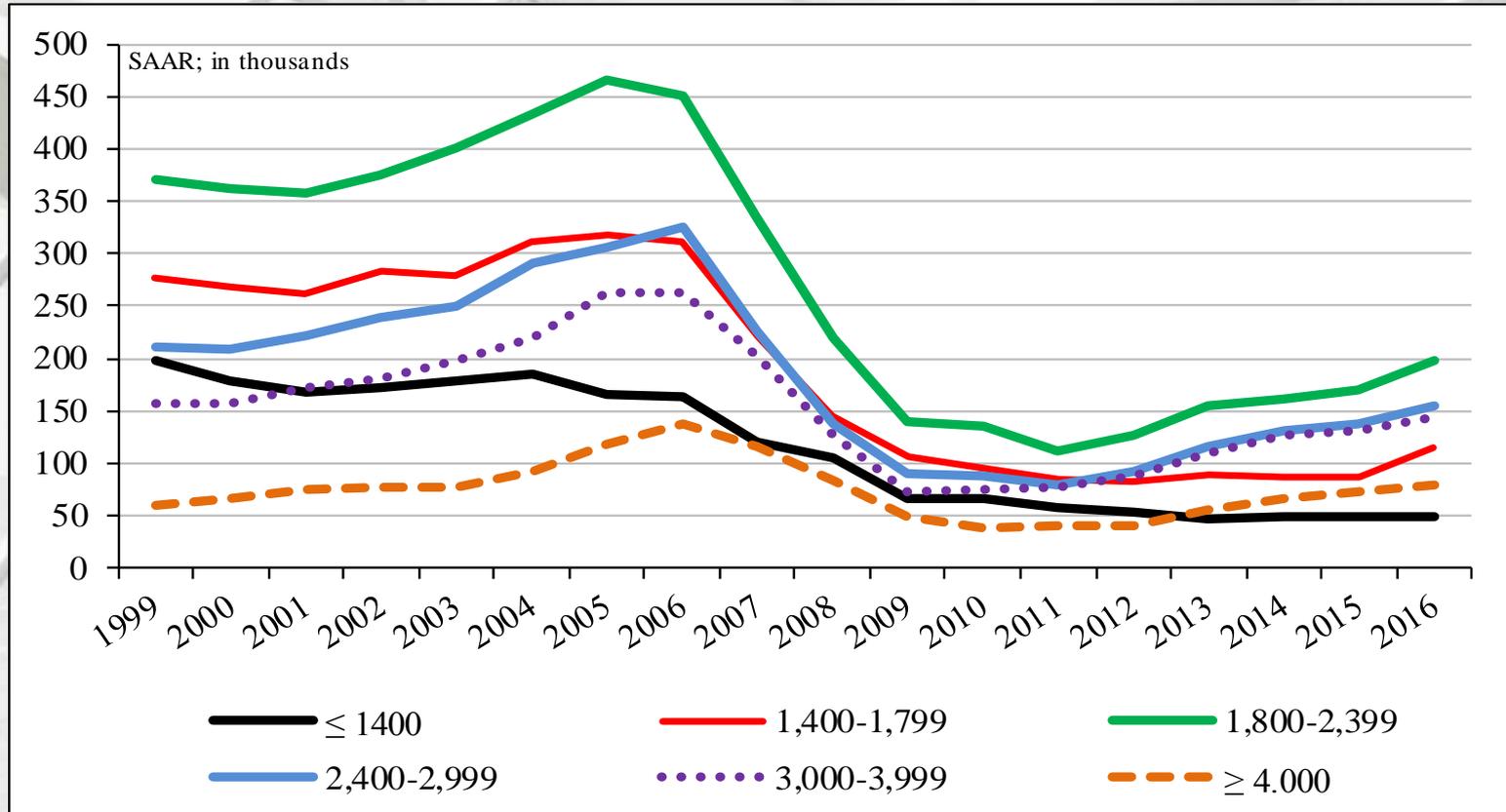
SF Housing Completions by Region



MF Housing Completions by Region

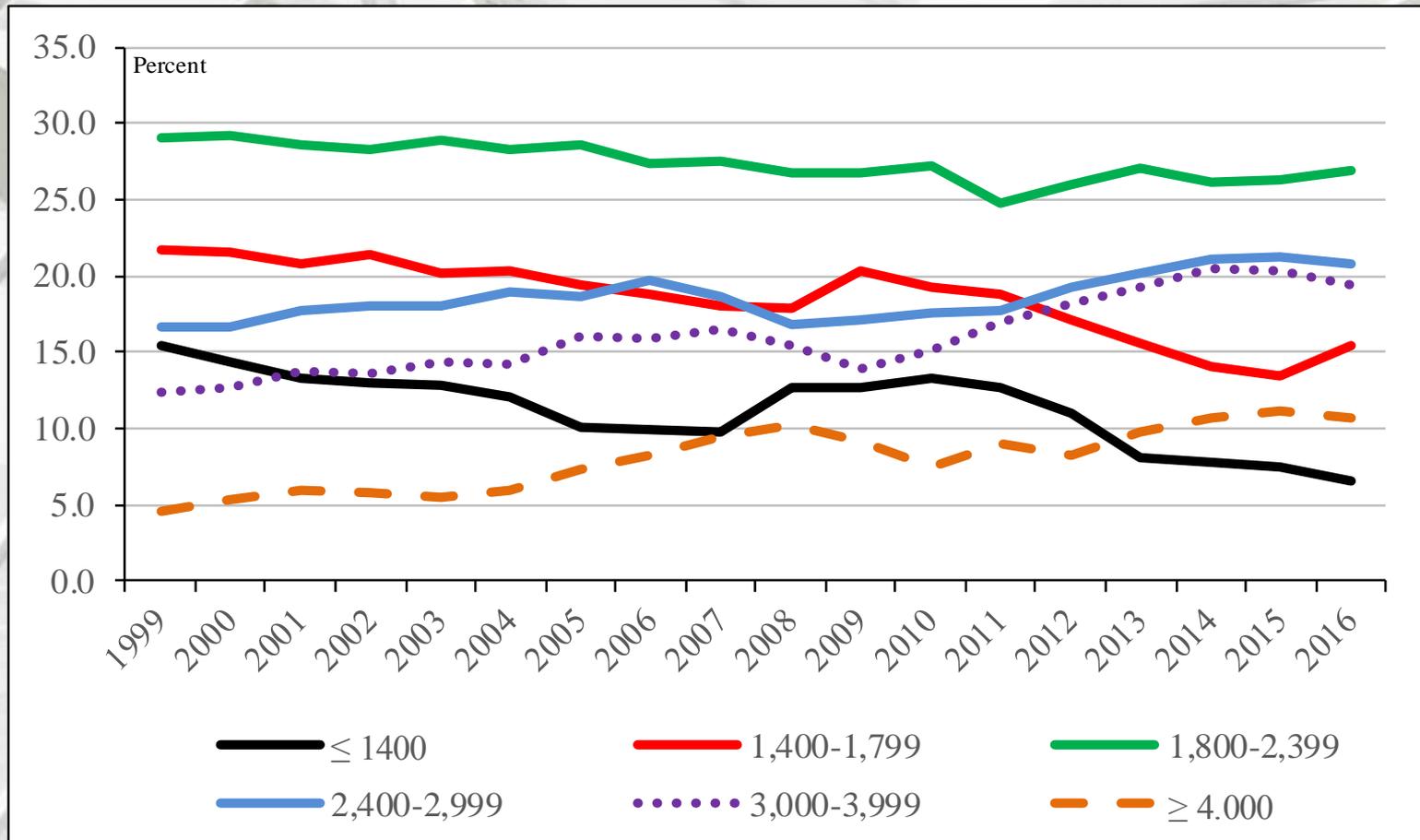


Housing Completions by Square Feet



Five of the six size classifications registered gains in 2016. Leading the gains, on a percentage basis, was the 1,400 sq ft to 1,799 sq ft category (31.0%). This is a needed; one of the hindrances to the market has been the smaller-sized houses for entry level buyers. The 1,800 to 2,399 classification followed, recording a 6.4% gain.

Housing Completions by Square Feet



The $\leq 1,400$ classification has sustained the largest loss since 1999. Yet, the two smaller sized categories comprised 22.1% of all houses completed in 2016. Profitability, land and credit availability, are three of several factors suggested for this decline.

New Single-Family House Sales

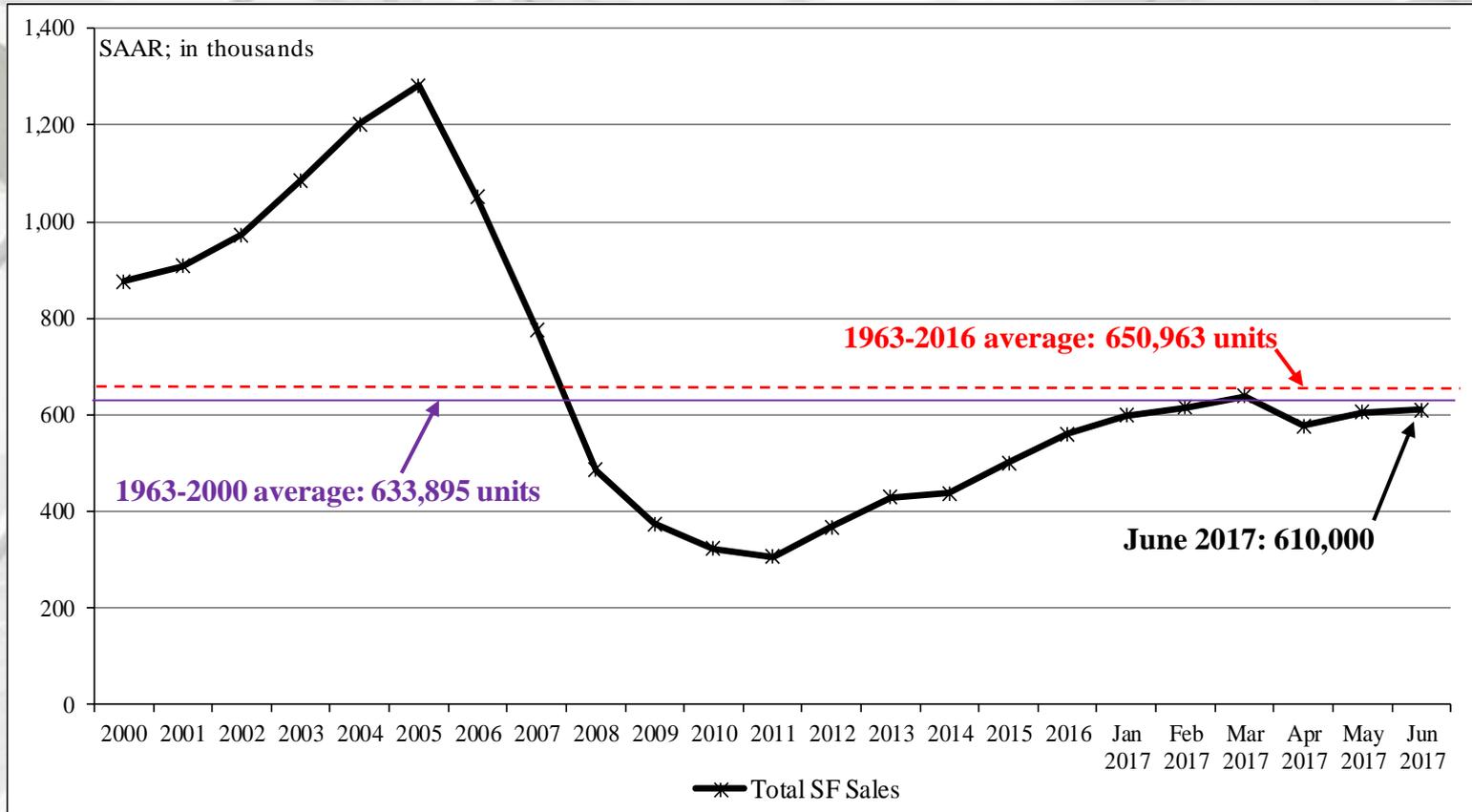
| | New SF Sales* | Median Price | Mean Price | Month's Supply |
|------------|---------------|--------------|------------|----------------|
| June | 610,000 | \$310,800 | \$379,500 | 5.4 |
| May | 605,000 | \$324,300 | \$381,400 | 5.3 |
| 2016 | 559,000 | \$321,600 | \$364,300 | 5.2 |
| M/M change | 0.8% | -4.2% | -0.5% | 1.9% |
| Y/Y change | 9.1% | -3.4% | 4.2% | 3.8% |

* All new sales data are presented at a seasonally adjusted annual rate (SAAR) ¹ and housing prices are adjusted at irregular intervals².

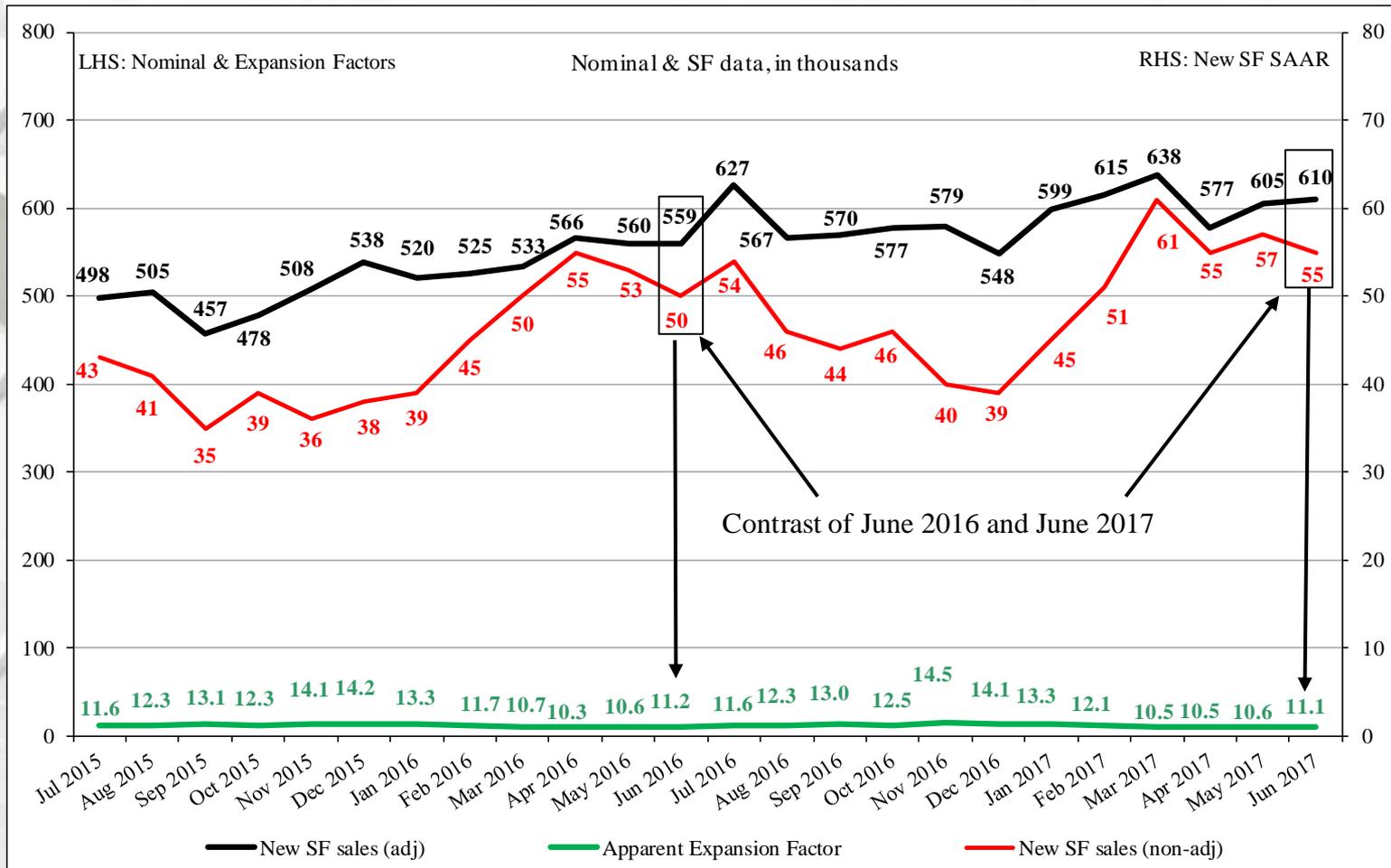
New SF sales were slightly less than the consensus forecast (611 m)³. The past three month's new SF sales data were revised:

March initial: 644 m revised to 638 m;
 April initial: 593 m revised to 577 m;
 May initial: 610 m revised to 605 m.

New SF House Sales



Nominal vs. SAAR New SF House Sales

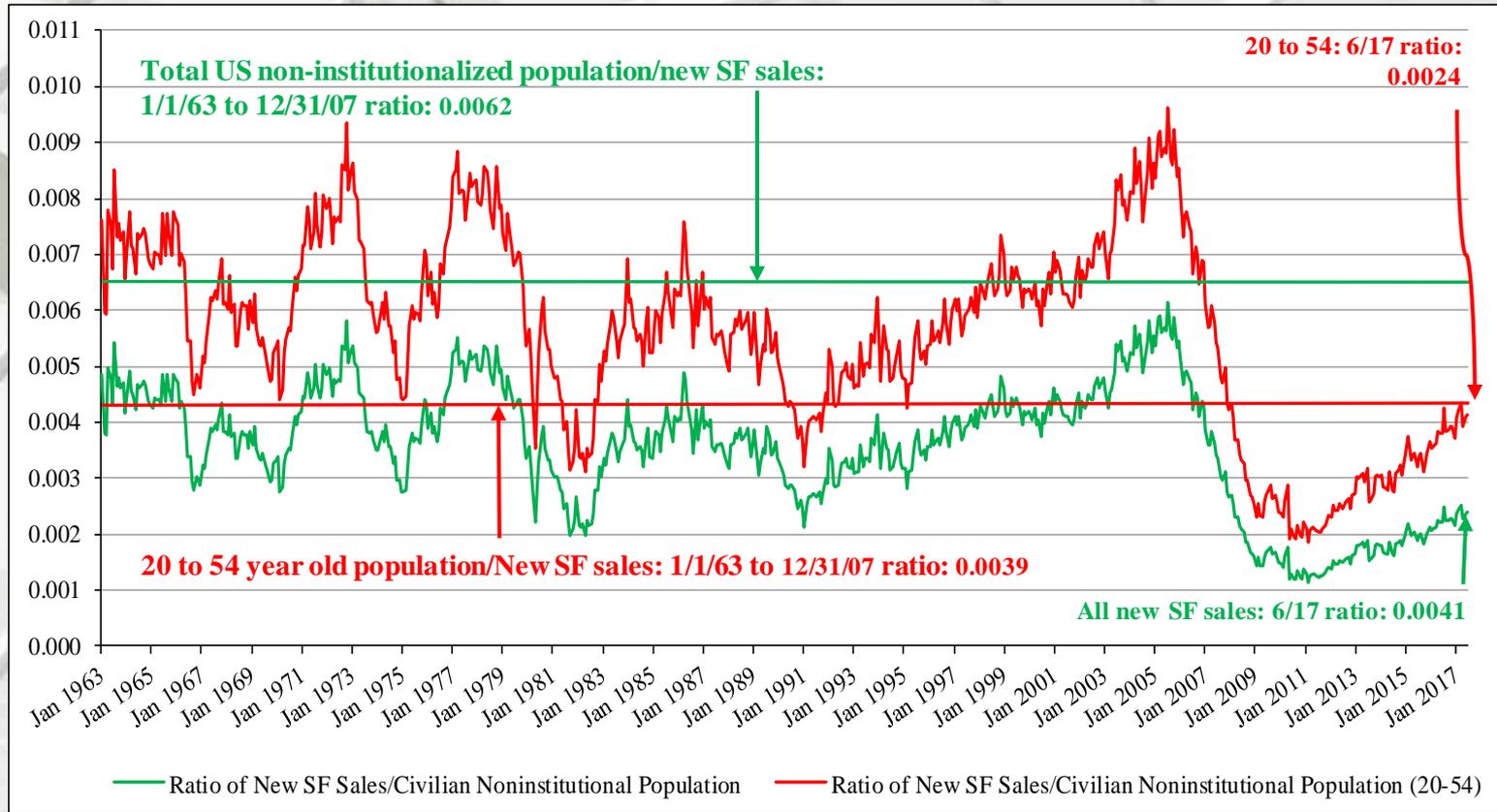


Nominal and Adjusted New SF Monthly Sales

Presented above is nominal (non-adjusted) new SF sales data contrasted against SAAR data.

The apparent expansion factor "...is the ratio of the unadjusted number of houses sold in the US to the seasonally adjusted number of houses sold in the US (i.e., to the sum of the seasonally adjusted values for the four regions)." – U.S. DOC-Construction

New SF House Sales



New SF sales adjusted for the US population

From January 1963 to June 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in June 2017 it was 0.0024 – no change from May (0.0024). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in June 2017 it was 0.0041 – also no change from May (0.0041). All are non-adjusted data. From a population viewpoint, construction is less than what is necessary for changes in population (i.e., under-building).

New SF House Sales by Region and Price Category

| | NE SF Sales | MW SF Sales | S SF Sales | W SF Sales |
|------------|-------------|-------------|------------|------------|
| June | 41,000 | 66,000 | 323,000 | 180,000 |
| May | 41,000 | 60,000 | 344,000 | 160,000 |
| 2016 | 37,000 | 79,000 | 369,000 | 142,000 |
| M/M change | 0.0% | 10.0% | -6.1% | 12.5% |
| Y/Y change | 41.4% | -12.0% | 0.9% | 33.3% |

| | \$150 - ≤ \$150m | \$200 - \$199.9m - 299.9m | \$300 - \$299.9m - \$399.9m | \$400 - \$399.9m - \$499.9m | \$500 - \$499.9m - \$749.9m | ≥ \$750m | |
|---------------------|---------------------|---------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------|--------|
| June ^{1,2} | 2,000 | 6,000 | 19,000 | 12,000 | 6,000 | 8,000 | 3,000 |
| May | 2,000 | 7,000 | 16,000 | 15,000 | 9,000 | 6,000 | 3,000 |
| 2016 | 1,000 | 6,000 | 15,000 | 12,000 | 9,000 | 5,000 | 1,000 |
| M/M change | 0.0% | -14.3% | 18.8% | -20.0% | -33.3% | 33.3% | 0.0% |
| Y/Y change | 100.0% | 0.0% | 26.7% | 0.0% | -33.3% | 60.0% | 200.0% |

¹ All data are SAAR

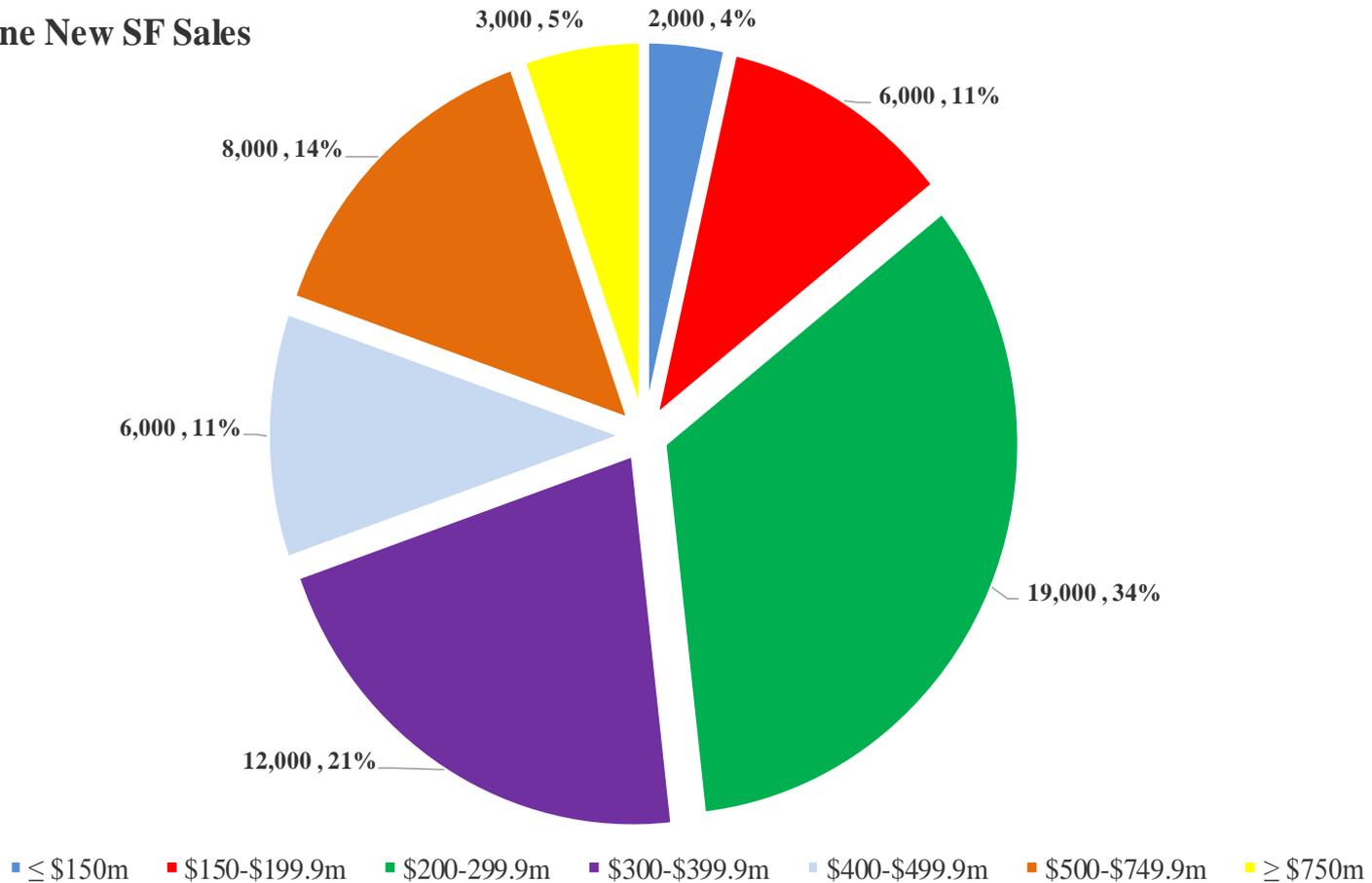
² Houses for which sales price were not reported have been distributed proportionally to those for which sales price was reported;

³ Detail may not add to total because of rounding.

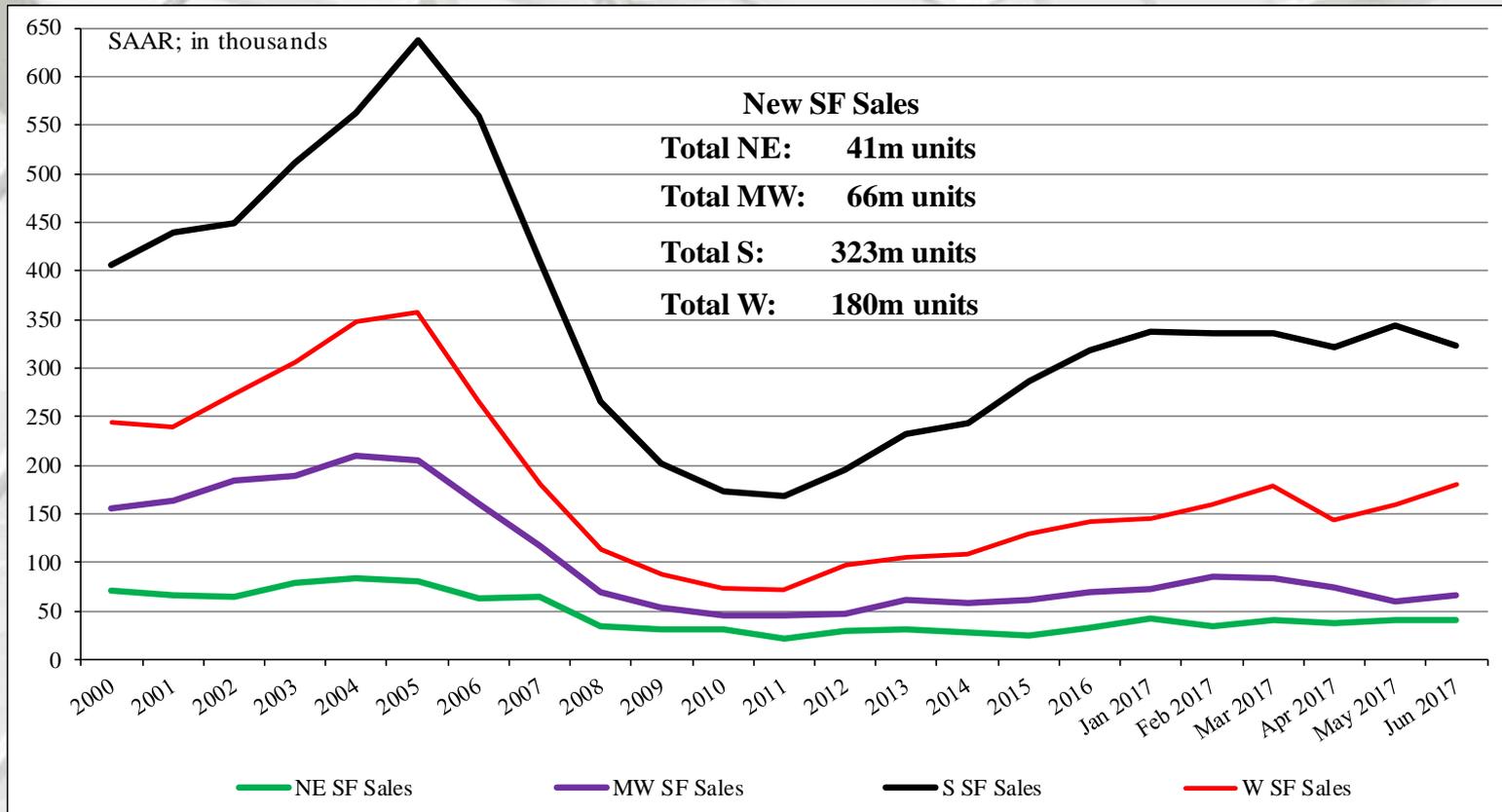
⁴ Housing prices are adjusted at irregular intervals.

New SF House Sales

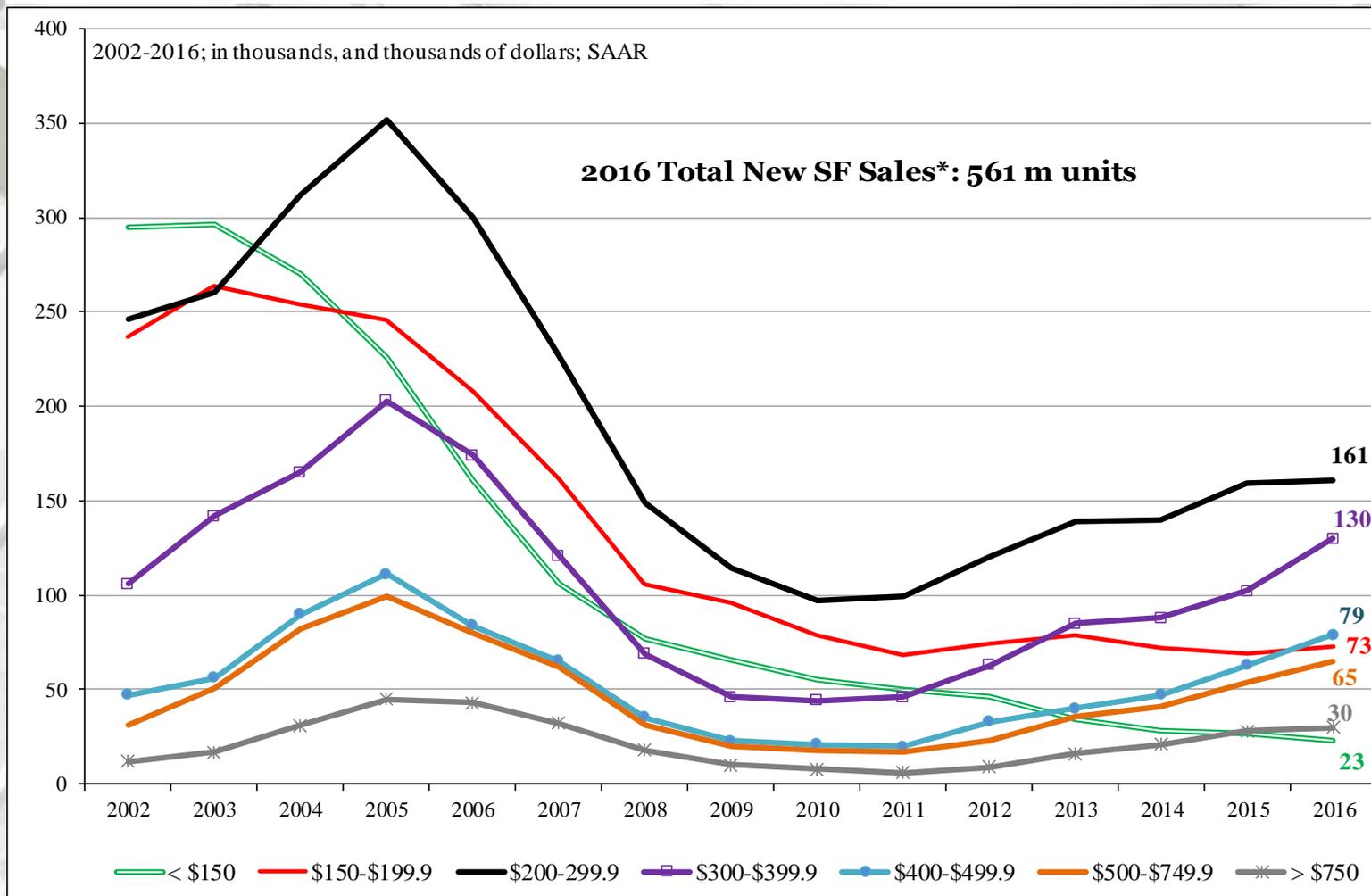
June New SF Sales



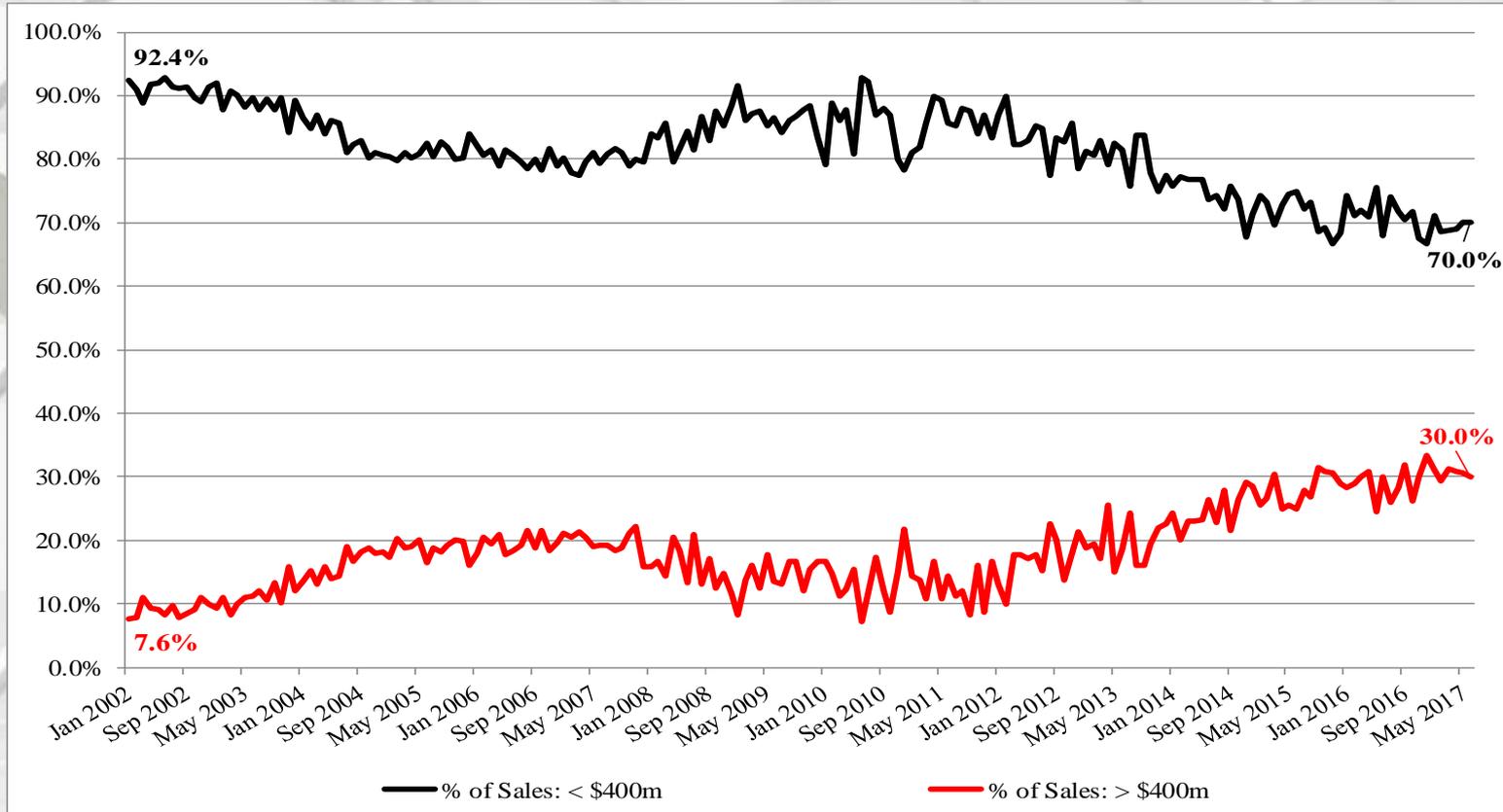
New SF House Sales by Region



New SF House Sales by Price Category



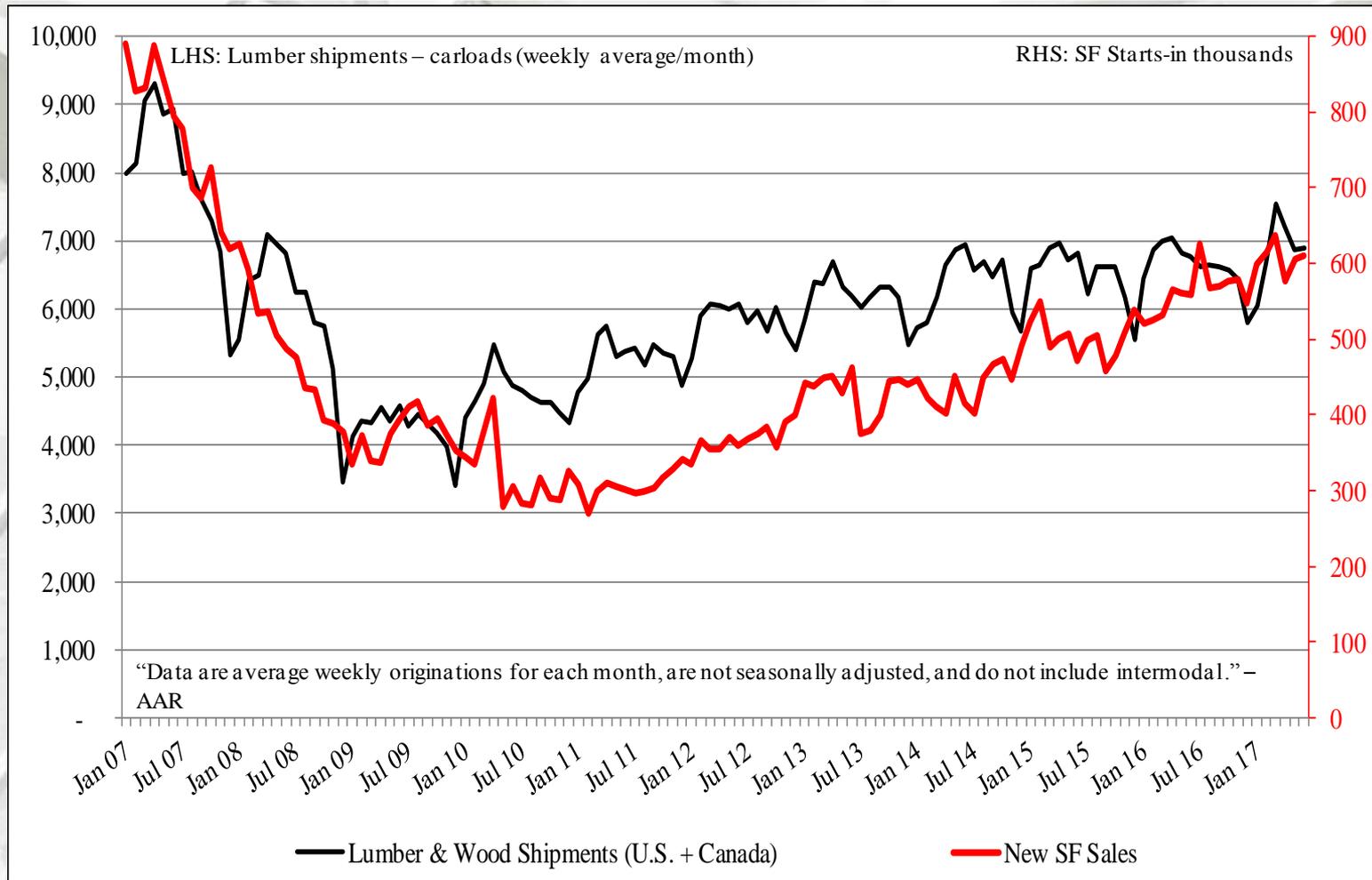
New SF House Sales



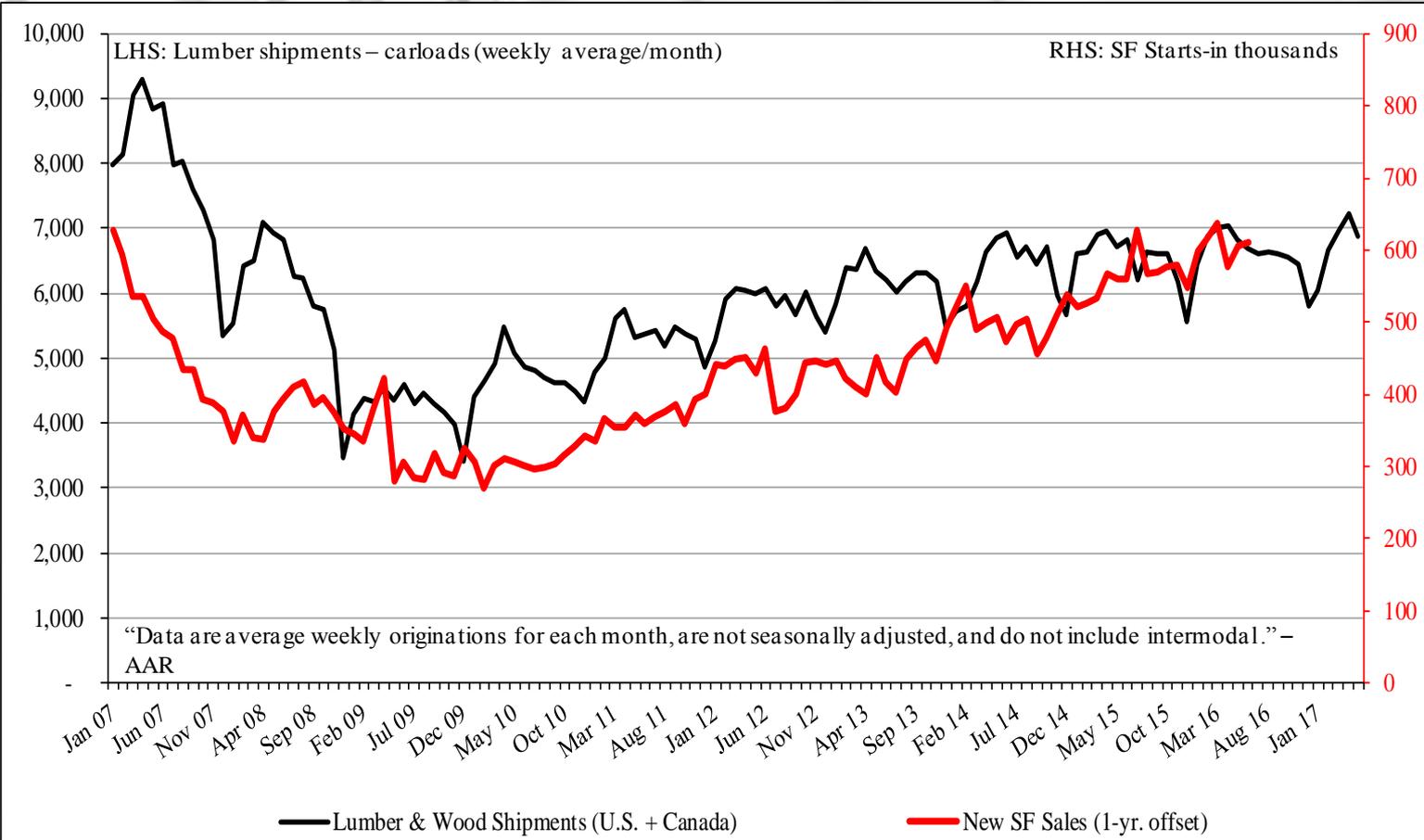
New SF Sales: 2002 – June 2017

The sales share of \$400 thousand plus SF houses is presented above^{1,2}. Since the beginning of 2012, the upper priced houses have and are garnering a greater percentage of sales. The wider the spread, the more high-end luxury homes were sold. Several reasons are offered by industry analysts; 1) builders can realize a profit on higher priced houses; 2) historically low interest rates have indirectly resulted in increasing house prices; and 3) purchasers of upper end houses fared better financially coming out of the Great Recession.

Railroad Lumber & Wood Shipments vs. U.S. New SF House Sales



Railroad Lumber & Wood Shipments vs. U.S. New SF House Sales: 1-year offset



In this graph, initially January 2007 lumber shipments are contrasted with January 2008 new SF sales through June 2017 new SF sales. The purpose is to discover if lumber shipments relate to future new SF house sales. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

June 2017 Construction Spending

| | Total Private Residential* | SF | MF | Improvement** |
|------------|----------------------------|-----------|----------|---------------|
| June | \$502,891 | \$261,332 | \$60,709 | \$180,850 |
| May | \$503,967 | \$260,579 | \$62,538 | \$180,850 |
| 2016 | \$460,433 | \$239,757 | \$60,320 | \$160,356 |
| M/M change | -0.2% | 0.3% | -2.9% | 0.0% |
| Y/Y change | 9.2% | 9.0% | 0.6% | 12.8% |

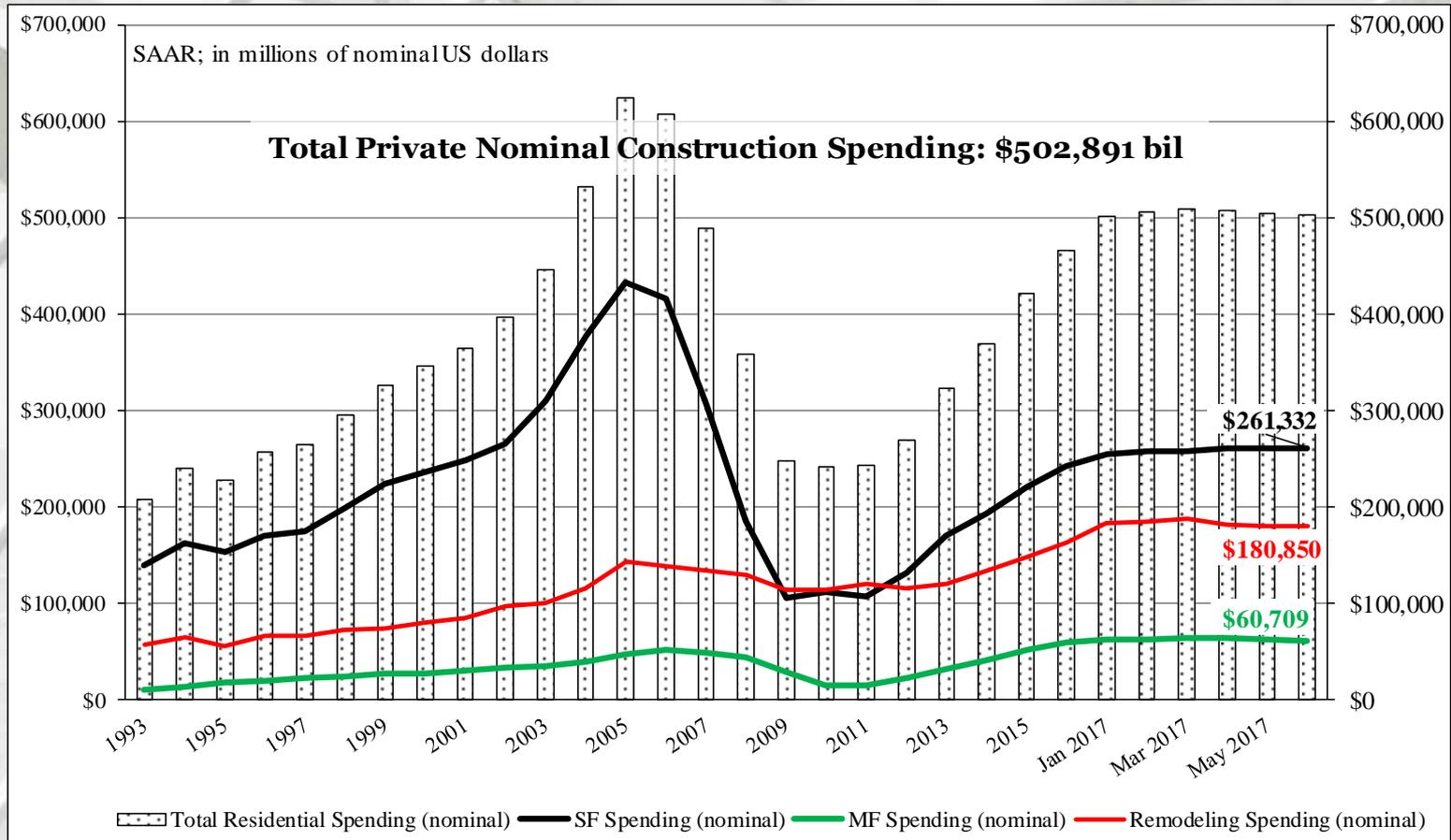
* Millions

** The US DOC does not report improvement spending directly, this is a monthly estimation for 2017:

((Total Private Spending – (SF spending + MF spending)).

All data are SAARs and reported in nominal US\$.

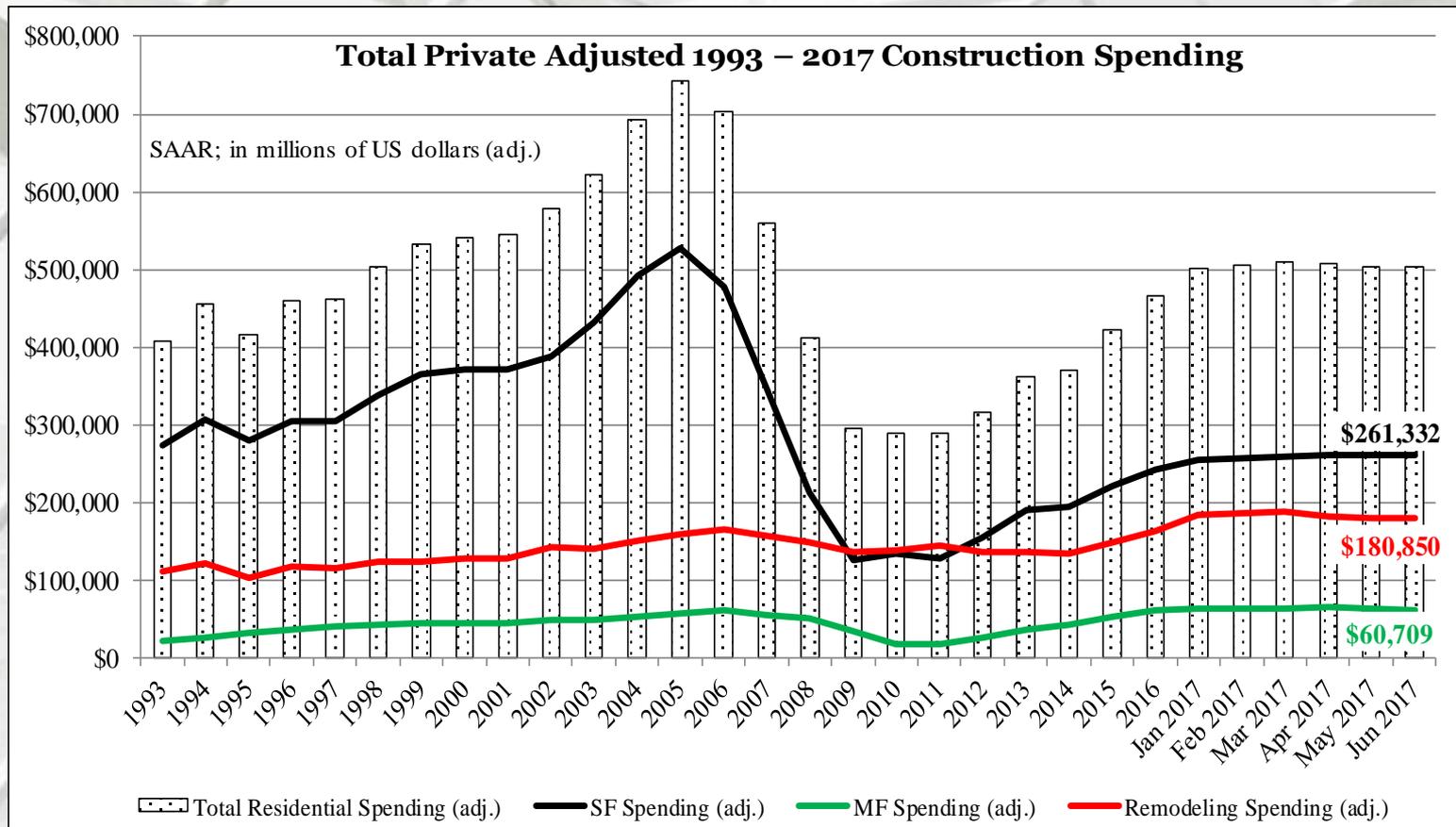
Total Construction Spending (nominal): 1993 – June 2017



Reported in nominal US\$.

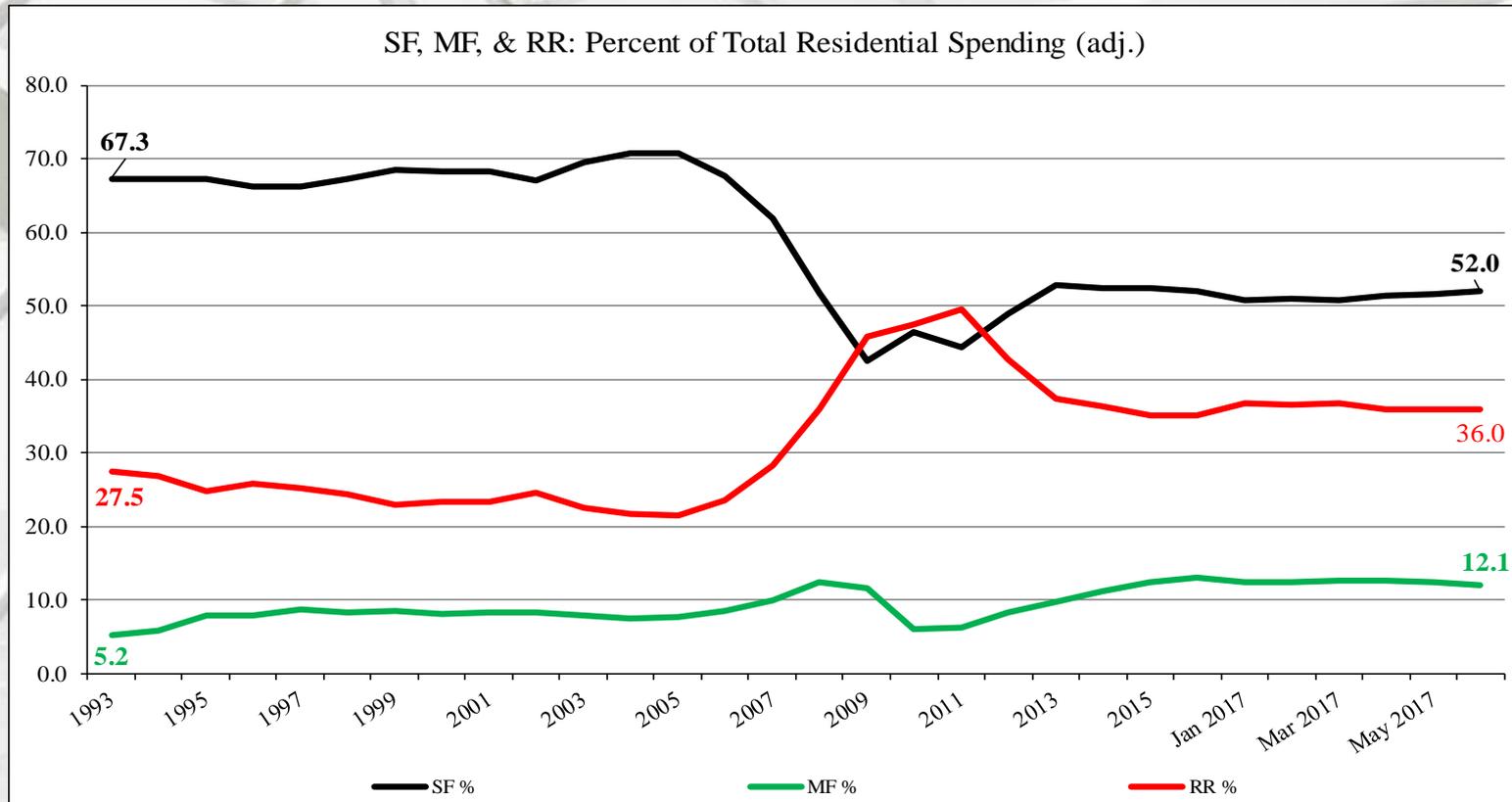
The US DOC does not report improvement spending directly, this is a monthly estimation for 2017.

Total Construction Spending (adjusted): 1993-2017*



Reported in adjusted US\$: 1993 – 2016 (adjusted for inflation, BEA Table 1.1.9); *January-June 2017 reported in nominal US\$.

Construction Spending Shares: 1993 to June 2017



Total Residential Spending: 1993 through 2006

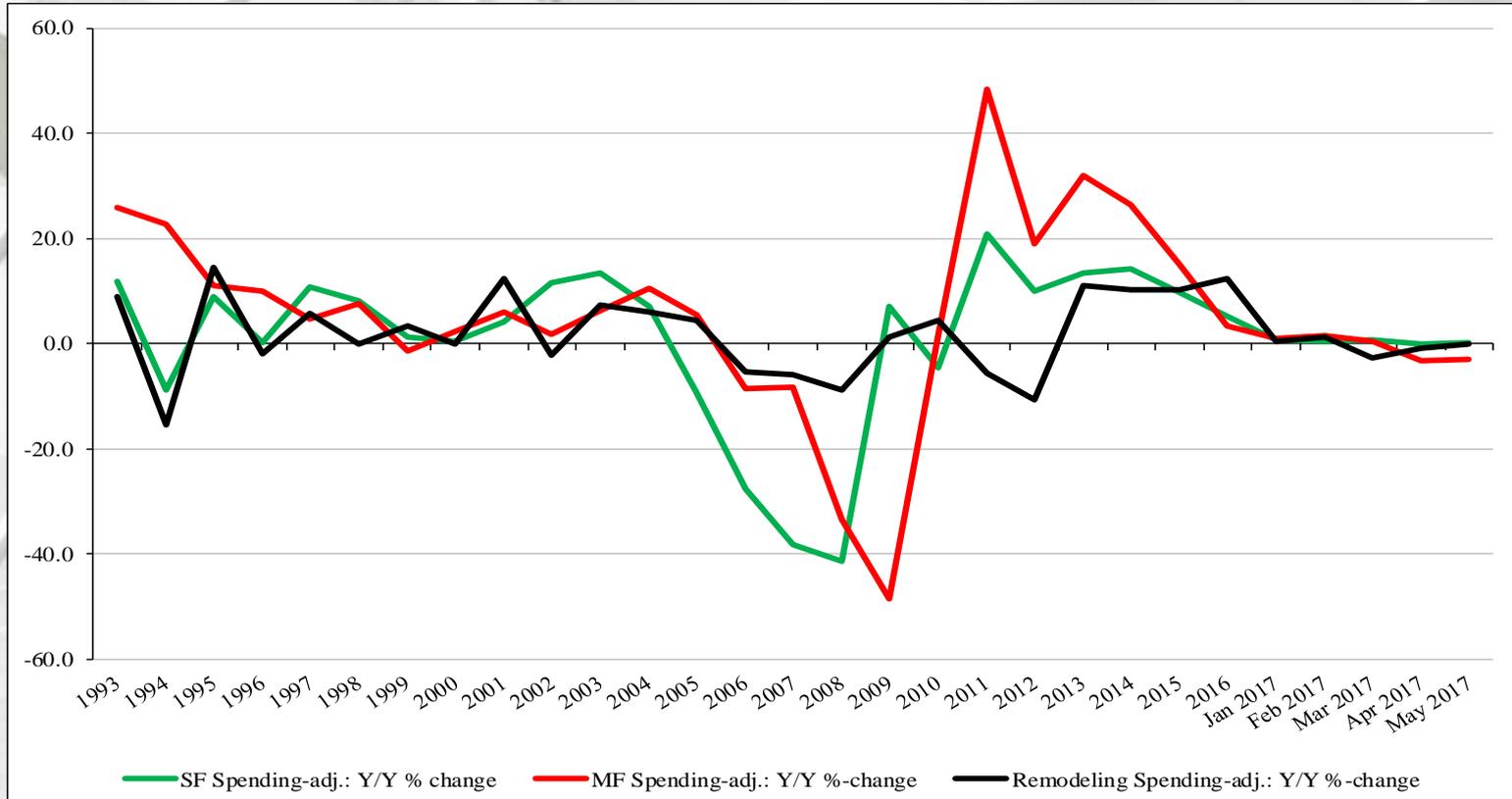
SF spending average: 69.2%

MF spending average: 7.5 %;

Residential remodeling (RR) spending average: 23.3 % (SAAR).

Note: 1993 to 2016 (adjusted for inflation, BEA Table 1.1.9); January-June 2017 reported in nominal US\$.

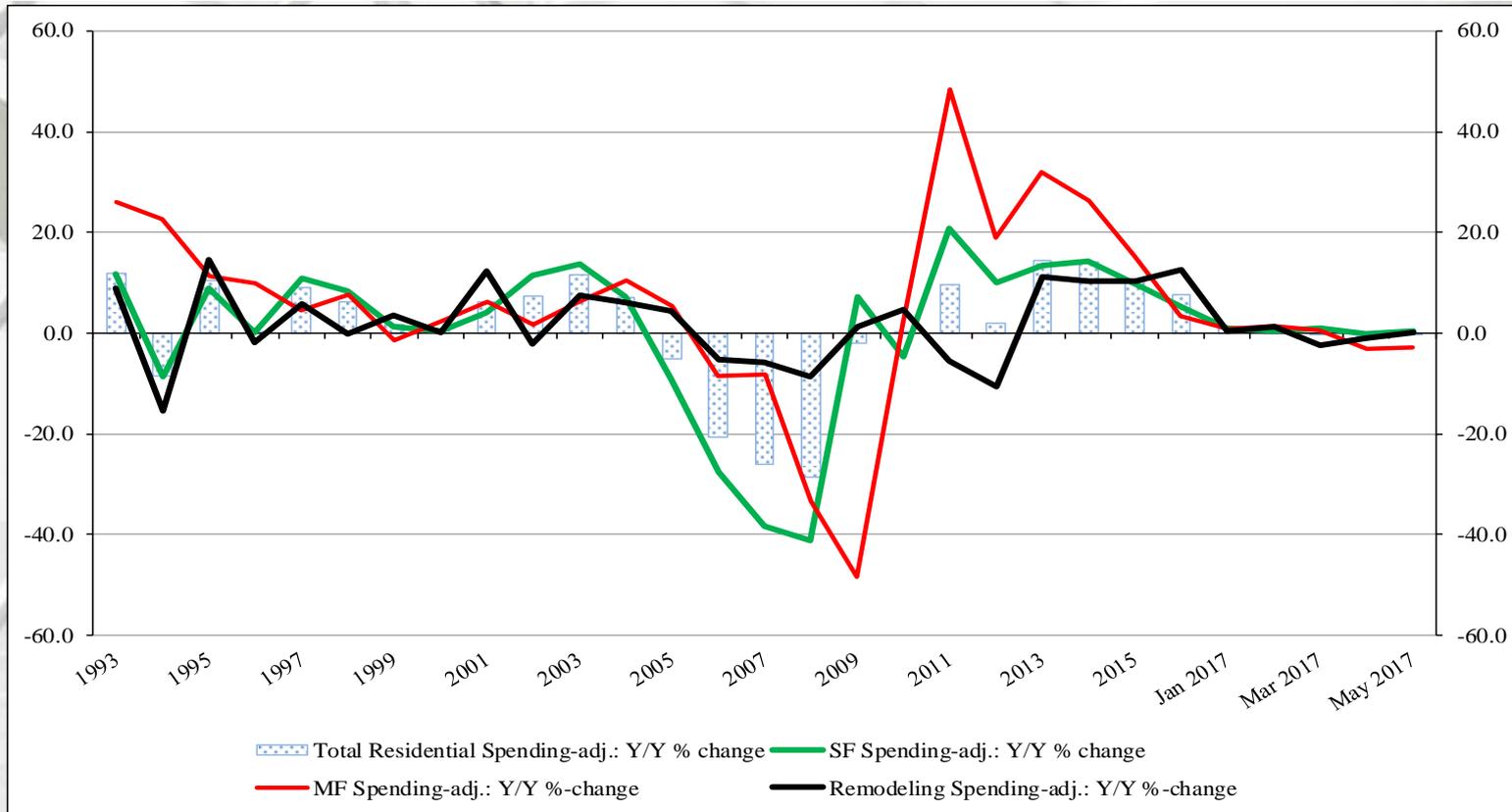
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to June 2017



Residential Construction Spending: Percentage Change, 1993 to June 2017

Presented above is the percentage change of inflation adjusted Y/Y construction spending (1993-2016). Since mid-2015 – SF, MF, and RR spending are in an apparent decreasing trend.

Total Adjusted Construction Spending: Y/Y Percentage Change, 1993 to June 2017



Residential Construction Spending: Percentage Change, 1993 to June 2017

The questions are: Is construction spending normalizing? Has housing turned over? Or, are there alternative explanations? The percentage change in construction spending has been flat and/or declining since the beginning of 2017. One thing to consider, SF permits and starts have improved (albeit marginally) since the fourth quarter of 2016. Thus, improvement may be reflected in future construction spending data.

Construction Spending

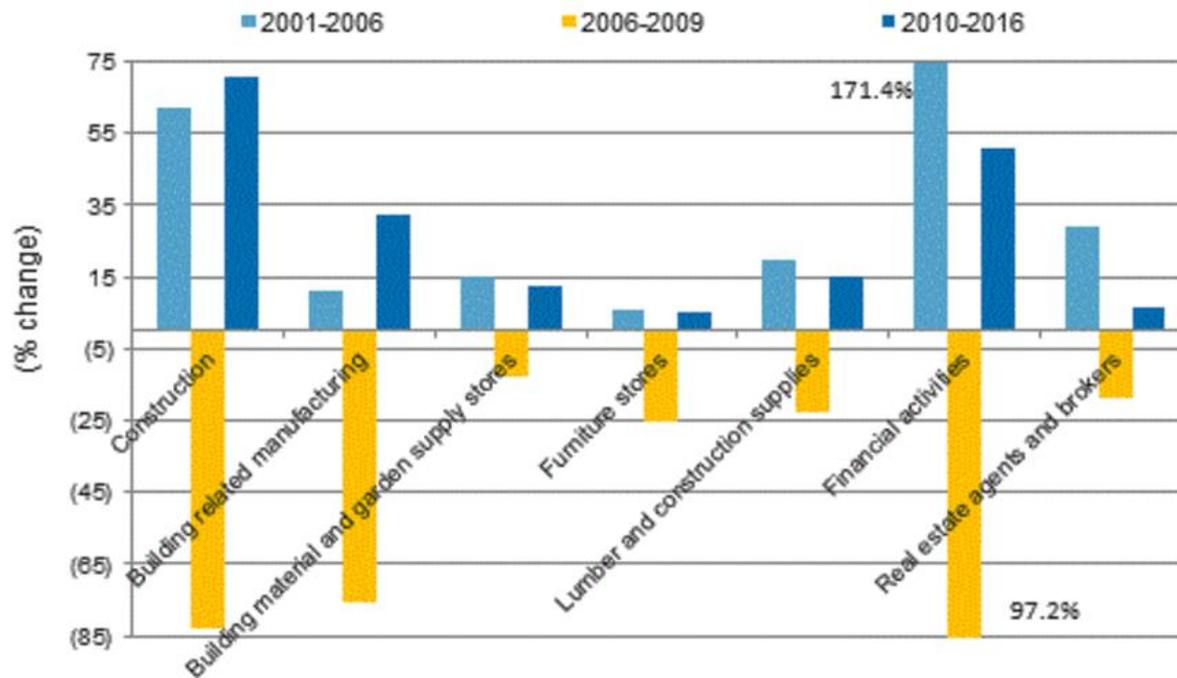
With More Americans Homeward Bound, The U.S. Housing Market Has Room To Run

“In the past half century, residential investment – including construction of new single- and multifamily homes, residential remodeling, the production of manufactured homes, and brokers’ fees has averaged 4.4% of GDP. Consumption spending on housing services which includes gross rents and utilities paid by renters, as well as owners’ imputed rents and utility payments has averaged roughly 11.5% of the economy. Typically, the two components combined have made housing represent 14% -18% of GDP, or roughly one-sixth of what is now an \$18 trillion economy. This is a large enough size to affect the speed and trajectory of overall economic growth.

And residential construction, in particular, although only a little more than 4% of GDP, is just as important for the nation's employment picture (chart 1). For example, the effects of the housing bubble were not limited to the construction sector. From 2001 to 2006, according to the Bureau of Labor Statistics (BLS), employment in cement and concrete product manufacturing and in construction machinery manufacturing grew by 5% and 9%, respectively. Employment in the real estate credit industry and the mortgage and nonmortgage loan brokers industry ballooned by 52% and 119%, respectively. And when the housing market crashed, the declines were just as sharp and relatively broad based.” – Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

Construction Spending

Employment Effects Of Residential Investment Are Not Limited To The Construction Sector
 Cumulative Percent Change In Nonfarm Payroll Employment, Select Housing-Related Industries



Sources: BLS and S&P Global Ratings' calculations.

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Construction Spending

The Green, Green Grass Of Home: Rebuilding Postrecession

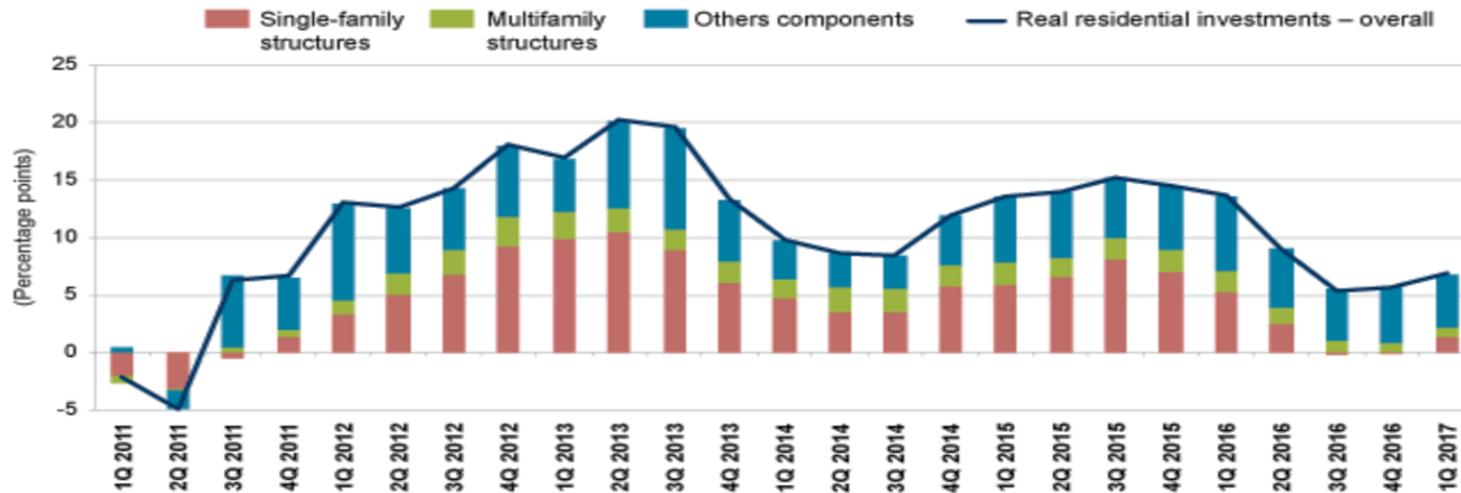
“The recovery in the U.S. housing sector has benefited from a strong and sustained pace of job growth since 2012 and historically low mortgage rates. As such, growth in real residential investment has outpaced overall real GDP growth since the Great Recession an expansionary period that has entered its ninth year and is now the third-longest since the end of World War II.

Residential investment is realized primarily through housing construction. Looking at the components of residential investment, investment in single-family structures (about one-third of total residential investment) has been the source of much of the variation in residential investment growth during the recovery (see chart 2). Investment in multifamily structures (less than 10% of the total) has been a steadier, but smaller contributor to growth. The rest of residential investment, which includes brokers’ commissions on existing home sales and improvements on homes, has also risen solidly in recent years, after slowing in 2013-2014.

And while real investment in multifamily structures has fully recovered to its prerecession level, real investment in single-family structures hasn’t, indicating room for further growth (see chart 3).”
– Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

Construction Spending

Real Residential Investment Growth And Contribution Of Components, 2011-2016

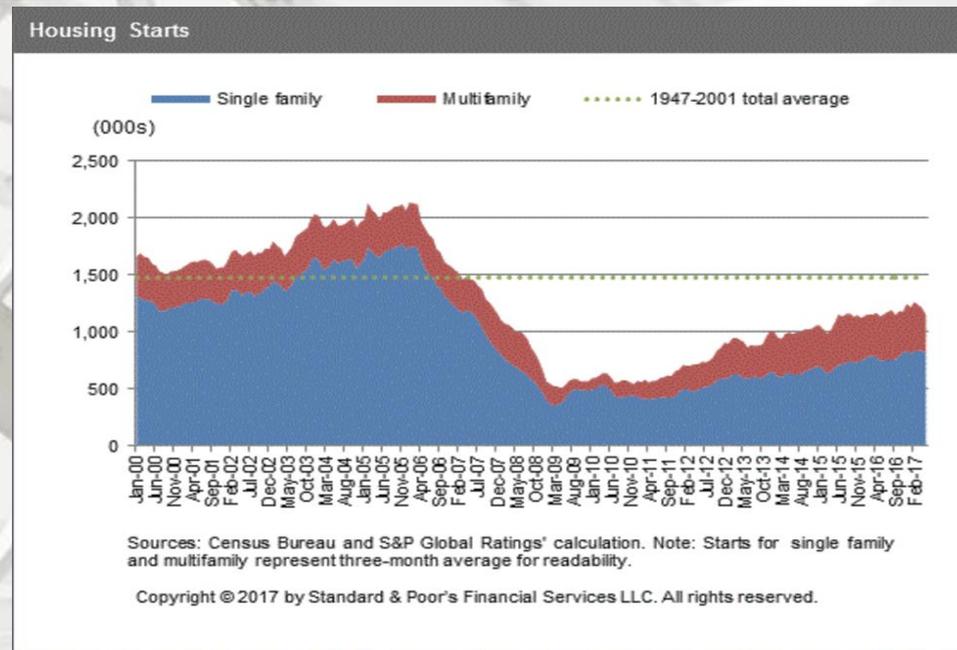


Source: Bureau of Economic Analysis

Note: Data is seasonally adjusted, percentage points contribution to overall percent change

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Construction Spending



The Green, Green Grass Of Home: Rebuilding Postrecession

“New groundbreaking added 1.17 million units to the national housing stock last year – a 5.6% increase from 2015 and the seventh consecutive year of gains. Since last year, starts and permits of multifamily structures remained relatively flat (393,000 units last year versus 397,000 in 2015), while construction of single-family homes picked up, rising 9.4% last year, to 781,600 units, and outpacing growth in multifamily construction for the first time since the recession. (Multifamily construction has focused on rental apartments, with only 8% of newly completed units built as condominiums last year, according to the Census Bureau.)” – Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

Construction Spending

The Green, Green Grass Of Home: Rebuilding Postrecession

“So far this year through May, the pace of single-family starts has picked up, to 827,000 annualized units – a 5.8% increase from last year. Meanwhile, multifamily construction has slowed, to 365,000 units – which would be a 7.1% decline. Nevertheless, the outlook for housing construction is encouraging, with the single-family segment now propelling most of the gains in overall permitting (and, as indicated in the earlier section, the economic multiplier effect is higher for single-family segment, meaning this is a favorable outcome for the broader economy).

And yet, even after seven years of gains, total housing starts remain neatly below the 1.49 million unit average from 1947-2001 – so much so that underbuilding in recent years has likely more than offset the excess housing supply from overbuilding leading up to the housing crash. Accumulation of supply barriers – including zoning, other land use regulations, and lengthy development approval processes – have reduced the ability of many housing markets to respond to growing demand. At the same time, low household formation, particularly among young adults, may be playing a role in reducing the overall desired demand for housing. (Households are made up of both homeowners and renters.)

The interaction of supply constraints and lower average household formation during the recovery appears to have led to lower effective, or realized, demand in the housing market. Hence, sizeable pent-up demand will likely be realized in the coming years.” – Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

Remodeling

Steady Gains in Remodeling Activity Moving into 2018

“Healthy and stable growth in home improvement and repair spending is anticipated for the remainder of the year and into the first half of 2018, according to our latest [Leading Indicator of Remodeling Activity \(LIRA\)](#). The LIRA projects that annual increases in remodeling expenditures will soften somewhat moving forward, but still remain at or above 6.0 percent through the second quarter of 2018.

Even with some easing this year, the remodeling market is still expected to grow above its long-term average. Over the coming 12 months, national spending on improvements and repairs to the owner-occupied housing stock is projected to reach fully \$324 billion.” – Abbe Will, Research Associate, Harvard Joint Center for Housing Studies

“The remodeling market continues to benefit from a stronger housing market and, in particular, solid gains in house prices, which are encouraging owners to make larger investments in their homes. Yet, weak gains in home sales activity due to tight inventories in many parts of the country is constraining opportunities for more robust remodeling growth given that significant investments often occur around the time of a sale.” – Chris Herbert, Managing Director, Harvard Joint Center for Housing Studies

Remodeling

Leading Indicator of Remodeling Activity – Second Quarter 2017

Homeowner Improvements & Repairs
Four-Quarter Moving Totals
Billions

Four-Quarter Moving
Rate of Change

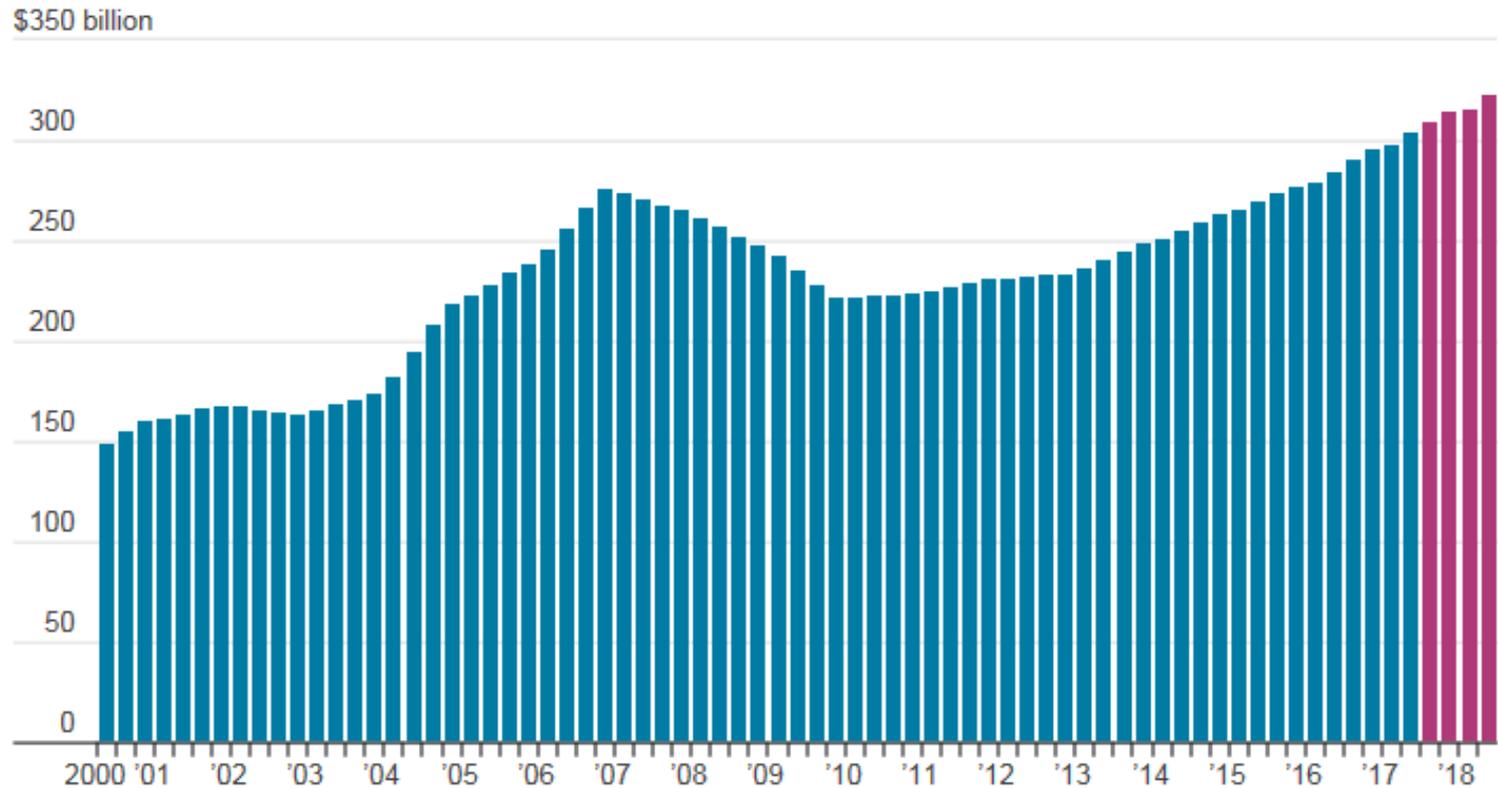


Notes: The former LIRA modeled homeowner improvement activity only, while the re-benchmarked LIRA models home improvement and repair activity. Historical estimates are produced using the LIRA model until American Housing Survey data become available.
Source: Joint Center for Housing Studies.

Remodeling

Remodeling Gains

“Home improvement spending is expected to grow at a swift clip into 2018, according to the LIRA four quarter moving total.” – Laura Kusisto and Sarah Chaney, Reporters, *The Wall Street Journal*



Note: Figures for the remainder of 2017 and 2018 represent projections

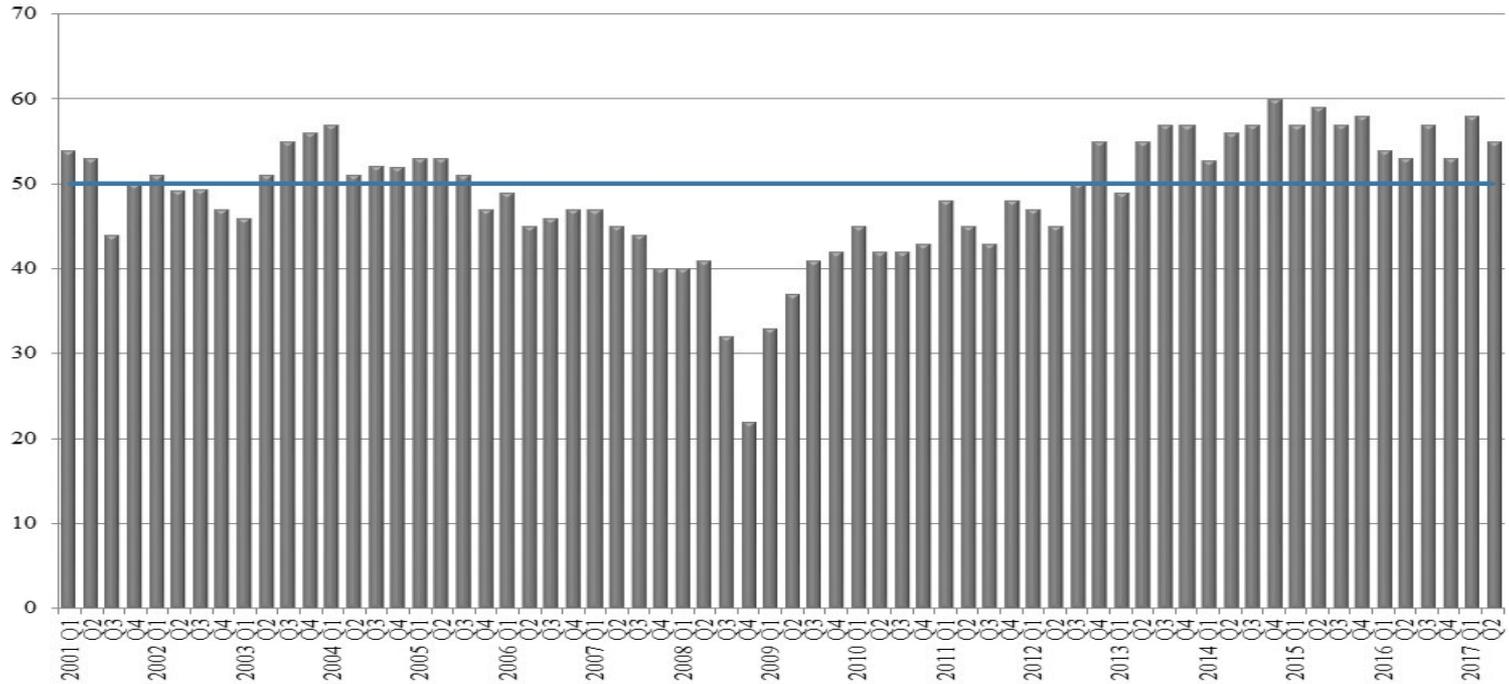
Source: Harvard University, Joint Center for Housing Studies

THE WALL STREET JOURNAL

Remodeling



Figure 1: Remodeling Market Index (RMI)
Overall RMI



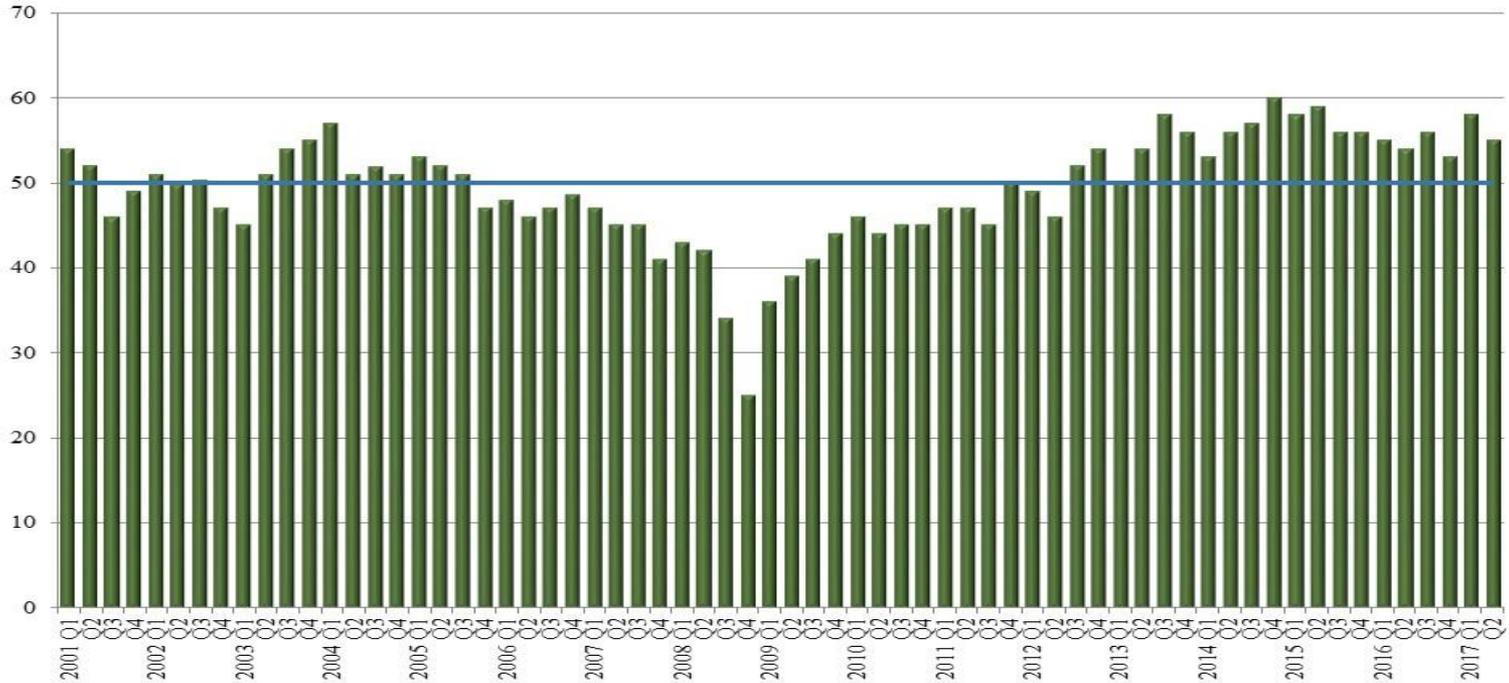
Remodeling Market Indicator Remains in Positive Territory

“The Remodeling Market Index (RMI) dropped 3 points to 55 in the second quarter of 2017, according to the National Association of Home Builders (NAHB). Although the RMI posted a decrease, it has been at or above 50 for 17 consecutive quarters. A reading above 50 indicates that more remodelers report market activity is higher (compared to the prior quarter) than report it is lower (Figure 1).” – Carmel Ford, Research Associate, NAHB

Remodeling



Figure 2: Remodeling Market Index (RMI)
Current Market Conditions



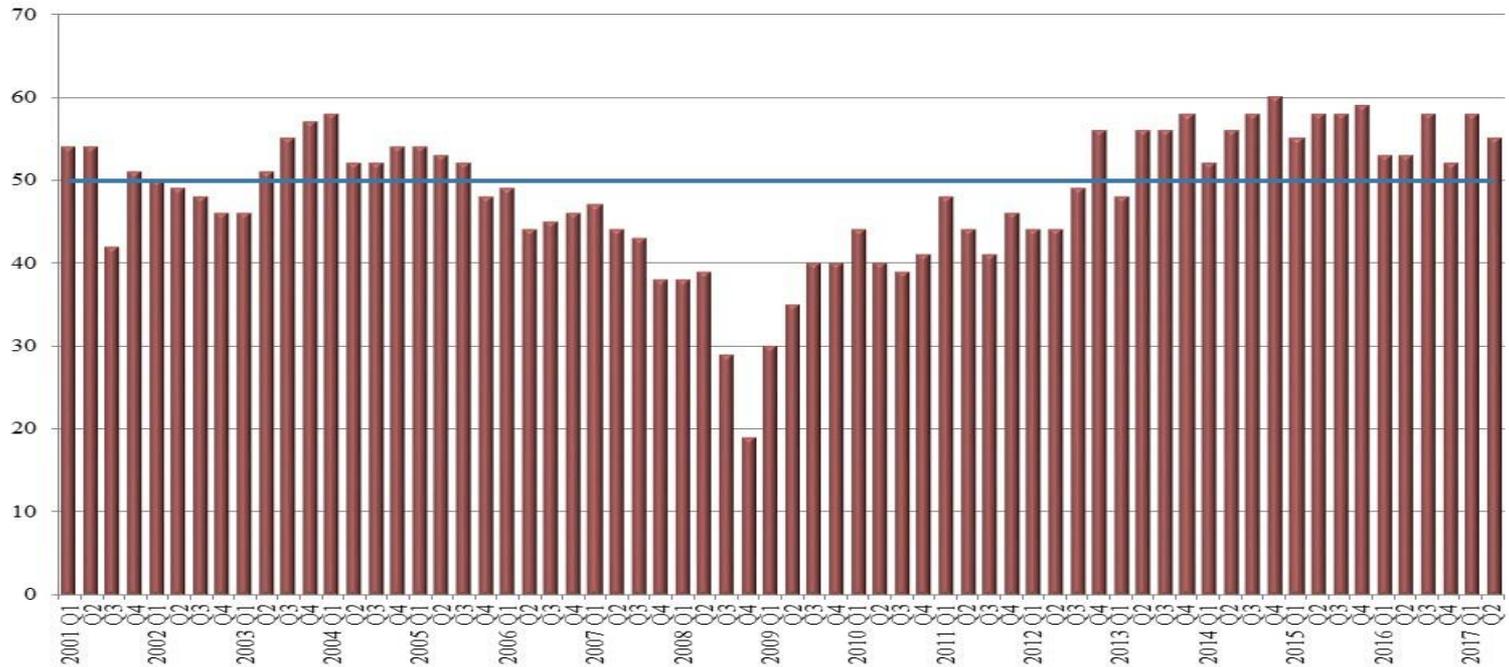
Remodeling Market Indicator Remains in Positive Territory

“The RMI is a composite measure of two sub-indices: the current market conditions and future market indicators. Similar to the overall RMI, the current market conditions index stood at 55. Among its components, major additions and alterations waned three points to 54, minor additions and alterations decreased six points to 53, and the home maintenance and repair component fell three points to 57 (Figure 2).” – Carmel Ford, Research Associate, NAHB

Remodeling



Figure 3: Remodeling Market Index (RMI)
Future Market Indicators



Remodeling Market Indicator Remains in Positive Territory

“The future market indicators index also posted a reading of 55. Among its components, calls for bids fell three points to 56, amount of work waned five points to 53, and the backlog of remodeling jobs dropped four points to 58. Meanwhile, appointments for proposals rose one point to 55 (Figure 3). Although market activity has been strong, remodelers face continuing challenges, particularly with the cost and availability of labor. In this quarter’s survey, 84 percent of respondents reported that the cost/availability of labor is one of the most significant challenges they face.” – Carmel Ford, Research Associate, NAHB

Remodeling

Quarterly Houzz Renovation Barometer Introduces Project Backlog Index

The report for 2017's second quarter shows the average number of weeks until a firm could start a new project

“With all industry groups reporting increased market activity in the second quarter of 2017, the remodeling platform Houzz has added a new metric to their quarterly report, the [Houzz Renovation Barometer Backlog Index](#), which details the average number of weeks until a firm could start work on a new mid-size project given its current commitments.

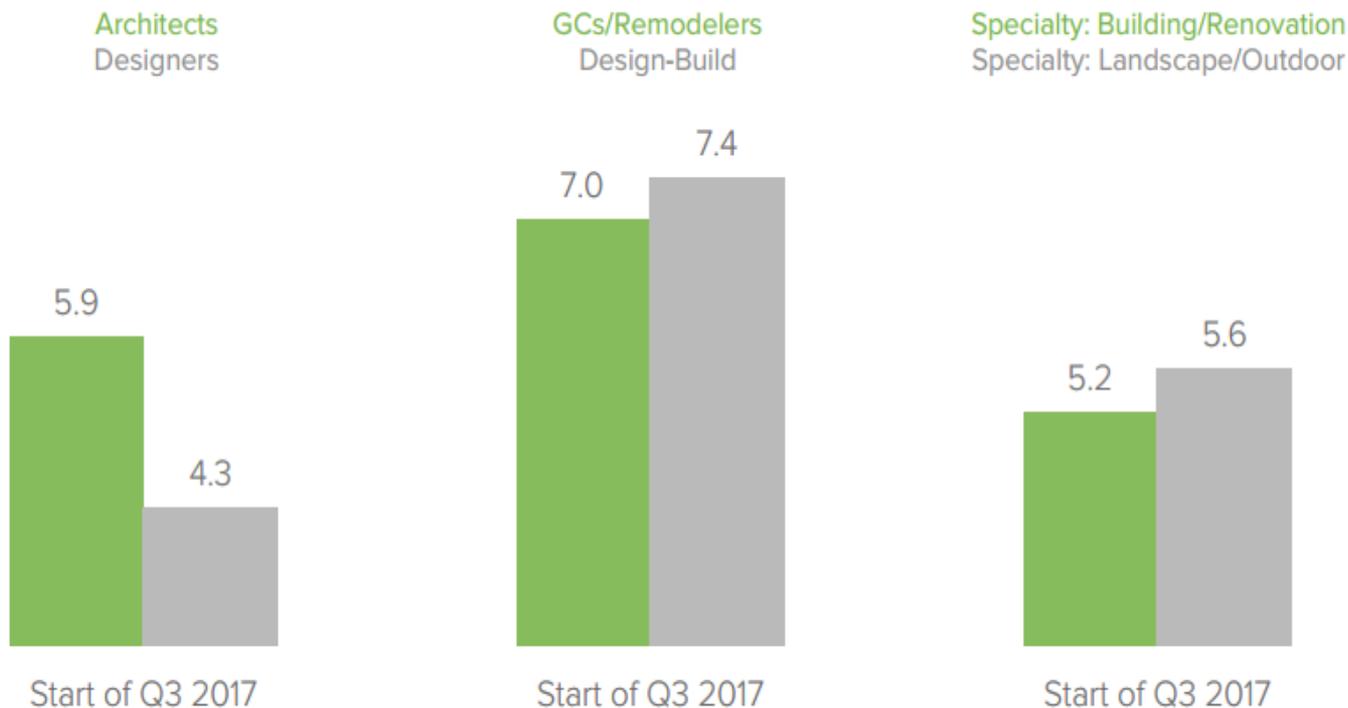
According to the report fielded June 27 to July 10 to roughly 2,500 U.S. residential construction experts, general contractors/remodelers and design-build firms report the longest backlogs with 7 and 7.4 weeks on average, while interior designers have the shortest with 4.3 weeks. Architects and specialty firms range in the middle with 5.2 to 5.9 weeks.

Although GCs/remodelers and design-builds seem to be the busiest in all areas of the country, the regional averages for the backlogs vary. In the Northeast, remodelers report an average 6.4-week backlog, while design-builds have an average of 7.7. In the West, the longest delays out of all regions and groups exist with a range of 7.9 weeks to 8.3 weeks for remodelers and design-build companies.” – Symone Garvett, Content Producer, Houzz

“The Barometer is pointing to strong market conditions for home renovation professionals, with business confidence at similar levels observed this time last year. Western firms stand out with an uptick in confidence year-over-year and backlogs of more than three months, in large part driven by strong job markets and significant home price appreciation over the past few years in urban centers.” – Nino Sitchinava, Principal Economist, Houzz

Remodeling

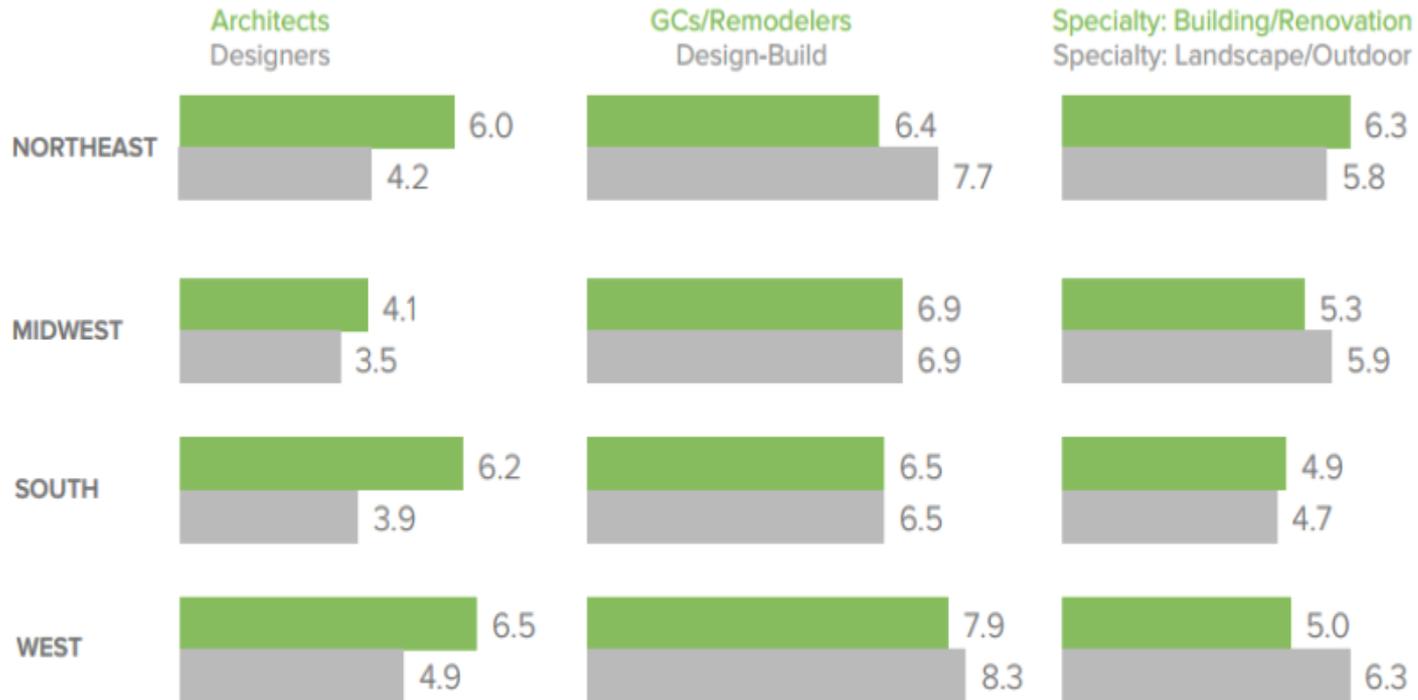
HOUZZ RENOVATION BAROMETER – AVERAGE PROJECT BACKLOGS IN WEEKS*



*Project backlog refers to the number of weeks until a firm can start work on a new mid-sized project given its current in-progress projects or orders and upcoming confirmed projects or orders.

Remodeling

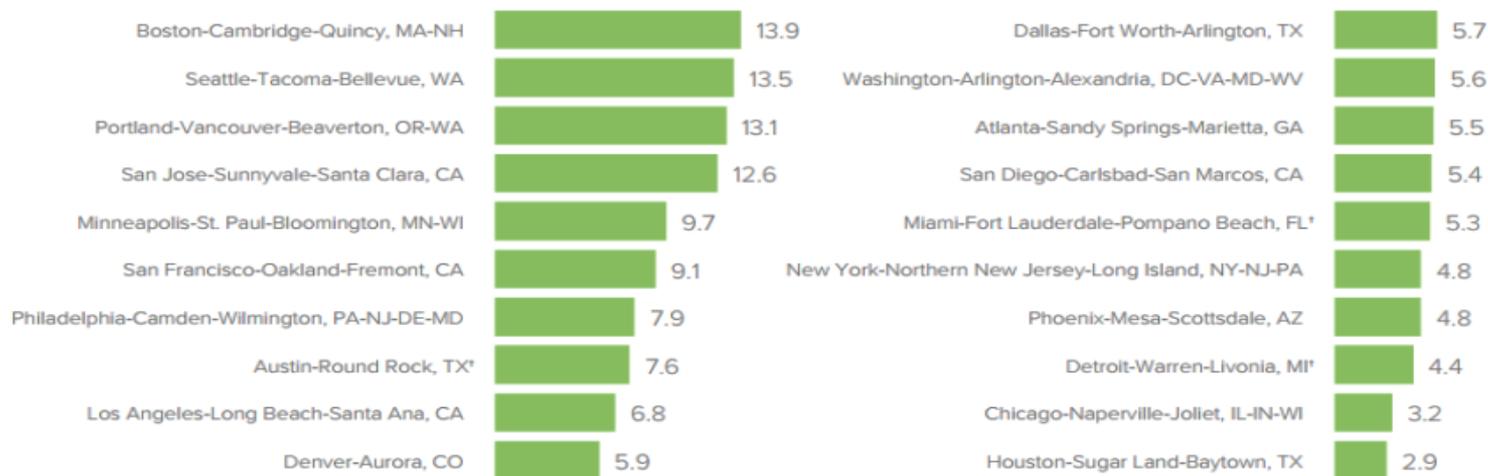
HOUZZ RENOVATION BAROMETER – REGIONAL AVERAGE PROJECT BACKLOGS IN WEEKS*



*Project backlog refers to the number of weeks until a firm can start work on a new mid-sized project given its current in-progress projects or orders and upcoming confirmed projects or orders.

Remodeling

TOP 20 METRO AREAS AVERAGE PROJECT BACKLOGS IN WEEKS – GCS/REMODELERS/DESIGN-BUILD COMPANIES COMBINED*



*Project backlog refers to the number of weeks until a firm can start work on a new mid-sized project given its current in-progress projects or orders and upcoming confirmed projects or orders. Interpret metro-level backlog estimates with caution due to small sample size (N<50).

*Denotes limited sample size of four to 10 respondents.

“Besides the regional data, the new index breaks down the project backlogs by 20 top metropolitan areas. Boston, Seattle, Portland, Ore., and San Jose, Calif., have project backlogs exceeding three months (12.6 to 13.9 weeks). Comparatively, Houston, Chicago, Detroit, and Phoenix, have the shortest delays starting at 2.9 weeks and ranging to 4.8.

In addition to the Backlog Index, the Houzz Renovation Barometer posted high confidence readings of 63 to 78 in quarter-over-quarter gains in Q2 2017 and year-over-year readings of 65 to 78.

Looking forward to Q3 2017, predictions remain strong with five out of the six industry groups expected to have increased confidence scores in October when the Q3 report is released.” – Symone Garvett, Content Producer, Houzz

Existing House Sales

National Association of Realtors (NAR®)

June 2017 sales: 5.520 million (SAAR)

| | Existing Sales* | Median Price | Mean Price | Month's Supply |
|------------|-----------------|--------------|------------|----------------|
| June | 5,520,000 | 263,800 | 303,900 | 4 |
| May | 5,620,000 | 252,500 | 294,300 | 4 |
| 2016 | 5,480,000 | 247,600 | 289,800 | 5 |
| M/M change | -1.8% | 4.5% | 3.3% | 2.4% |
| Y/Y change | 0.7% | 6.5% | 4.9% | -6.5% |

* All sales data: SAAR

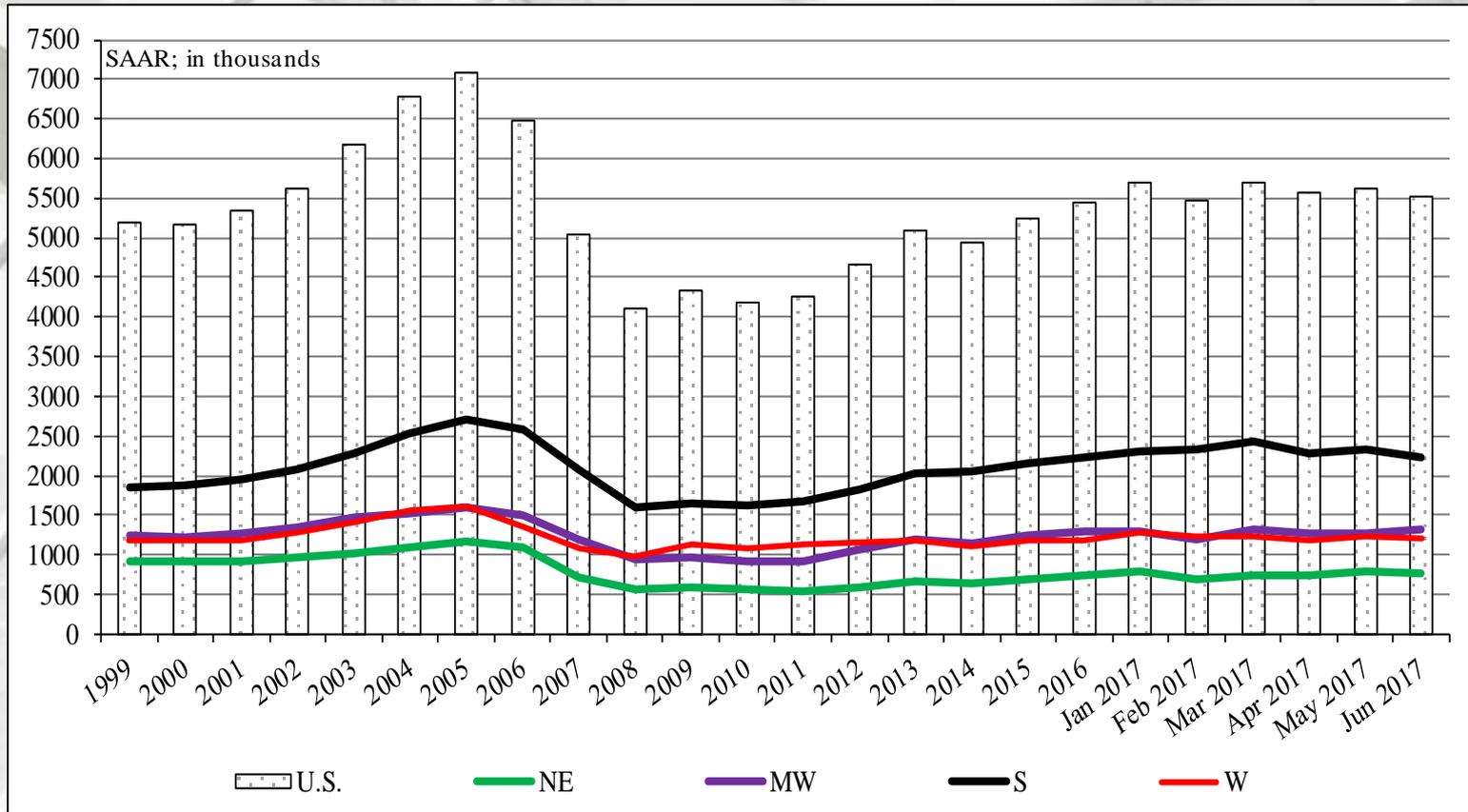
Existing House Sales

| | NE Sales | MW Sales | S Sales | W Sales |
|------------|----------|-----------|-----------|-----------|
| June | 760,000 | 1,320,000 | 2,230,000 | 1,210,000 |
| May | 780,000 | 1,280,000 | 2,340,000 | 1,220,000 |
| 2016 | 750,000 | 1,320,000 | 2,230,000 | 1,180,000 |
| M/M change | -2.6% | 3.1% | -4.7% | -0.8% |
| Y/Y change | 1.3% | 0.0% | 0.0% | 2.5% |

| | Distressed House Sales | Foreclosures | Short-Sales | All-Cash Sales | Individual Investor Purchases* | Cash Purchases |
|------|------------------------|--------------|-------------|----------------|--------------------------------|----------------|
| June | 4% | 3% | 1% | 18% | 13% | 56% |
| May | 5% | 5% | 2% | 22% | 16% | 64% |
| 2016 | 6% | 5% | 1% | 22% | 11% | 64% |

* Next column reports percentage of cash purchases.

Total Existing House Sales



Changes in Existing House Sales

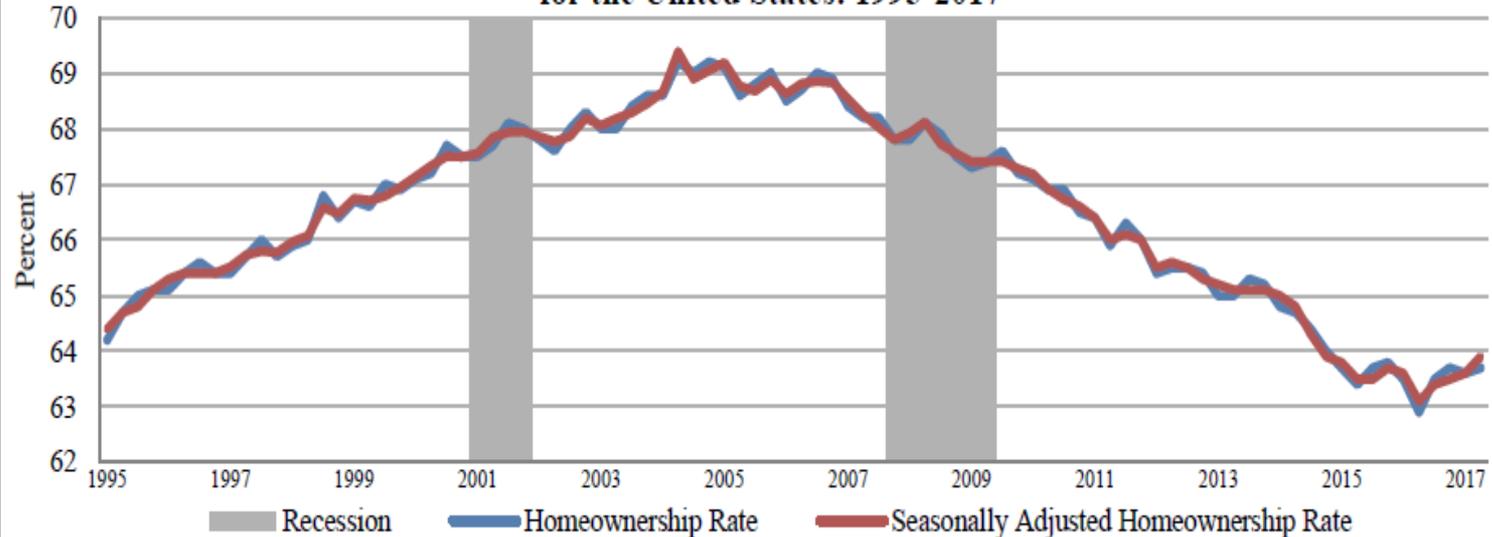
Percent Change in Sales From a Year Ago by Price Range



Home Ownership

Figure 4

Quarterly Homeownership Rates and Seasonally Adjusted Homeownership Rates for the United States: 1995-2017

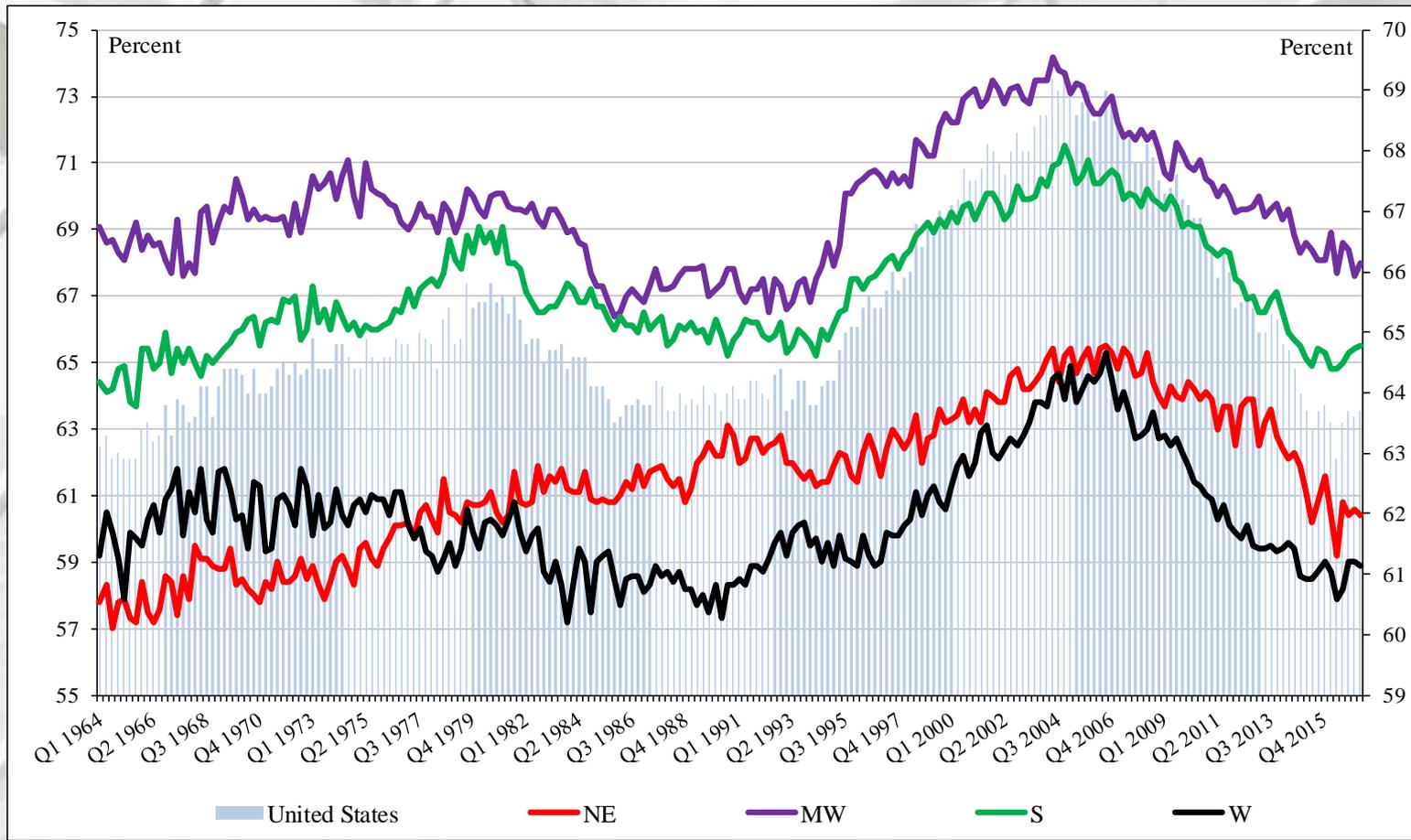


Source: U.S. Census Bureau, Current Population Survey/Housing Vacancy Survey, July 27, 2017, Recession data: National Bureau of Economic Research, <www.nber.org>

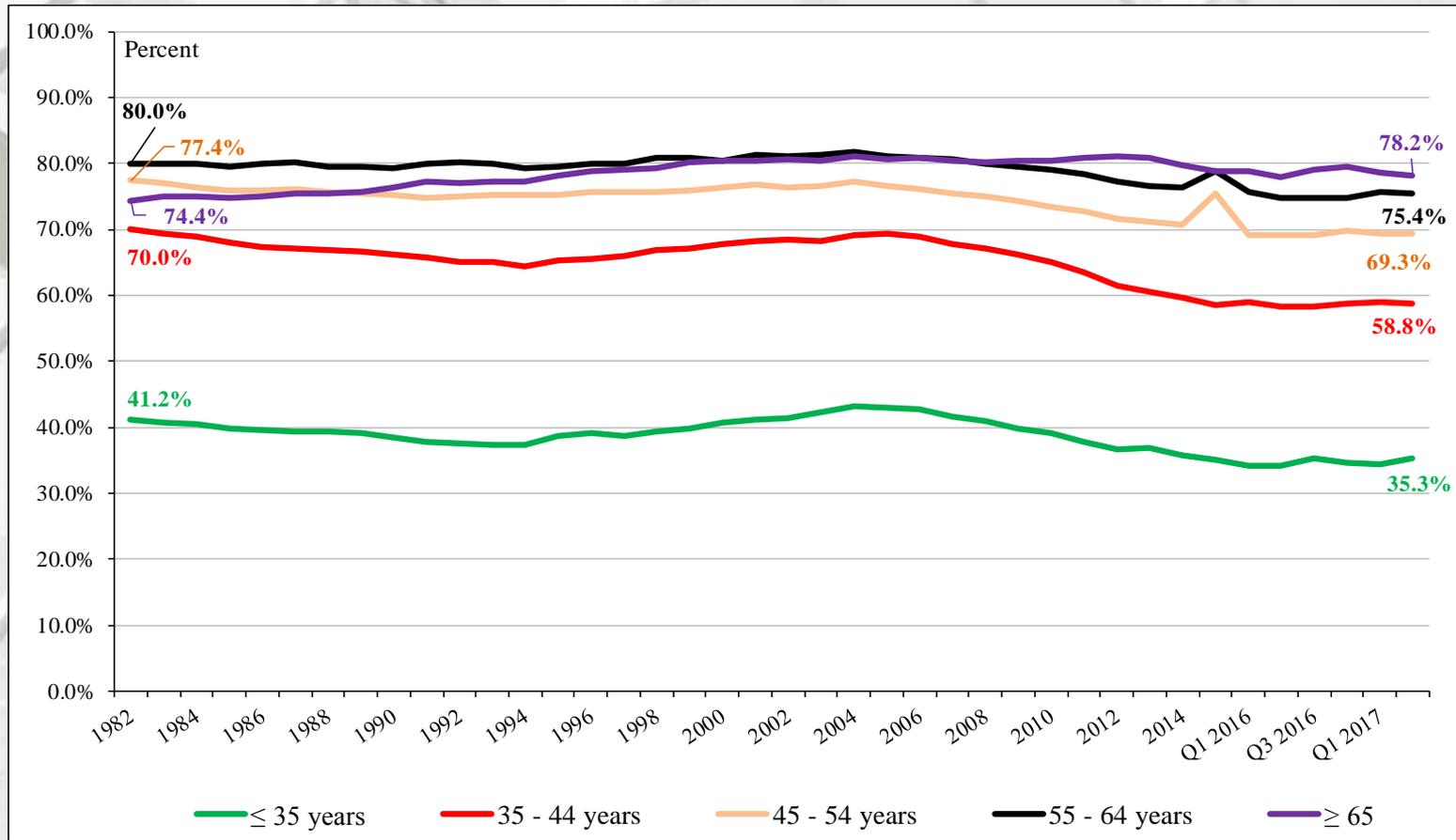
Quarterly Residential Vacancies and Homeownership, Second Quarter 2017

The homeownership rate of 63.7 percent was 0.8 percentage points higher than the rate in the second quarter 2016 (62.9 percent) and not statistically different from the rate in the first quarter 2017 (63.6 percent).” – Robert Callis and Melissa Kresin, Social, Economic & Housing Statistics Division, US Census

Home Ownership by Region



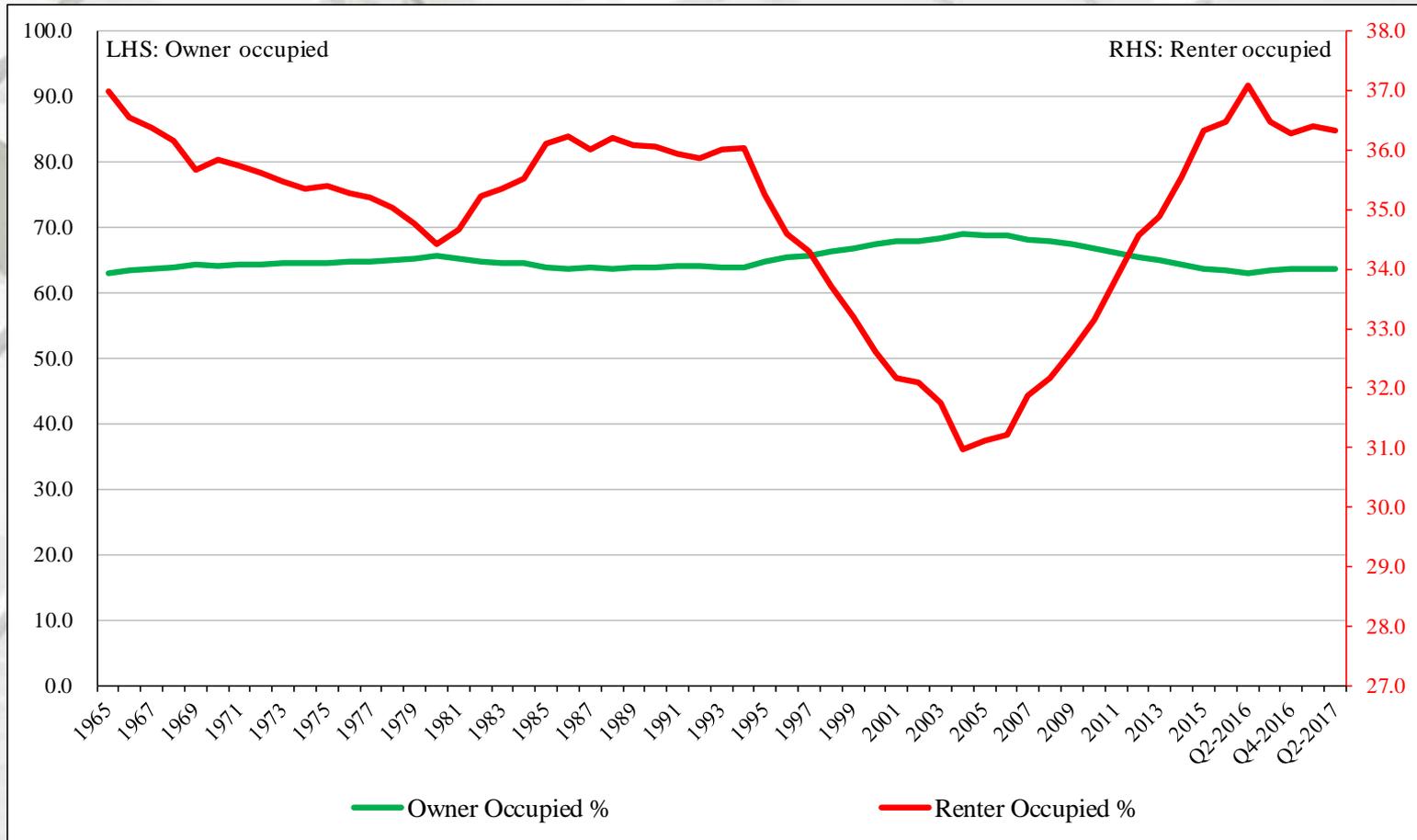
Home Ownership



Home Ownership by Age Category

The 55 to 65 year old age class was the only category that indicated improvement in home ownership since 1982. All other age categories still exhibit declines; yet, the less than 35 year old class improved by one percentage point from Q1 2017 to Q2 2017.

Home Ownership



Owner- and Renter-Occupied Housing (percent)

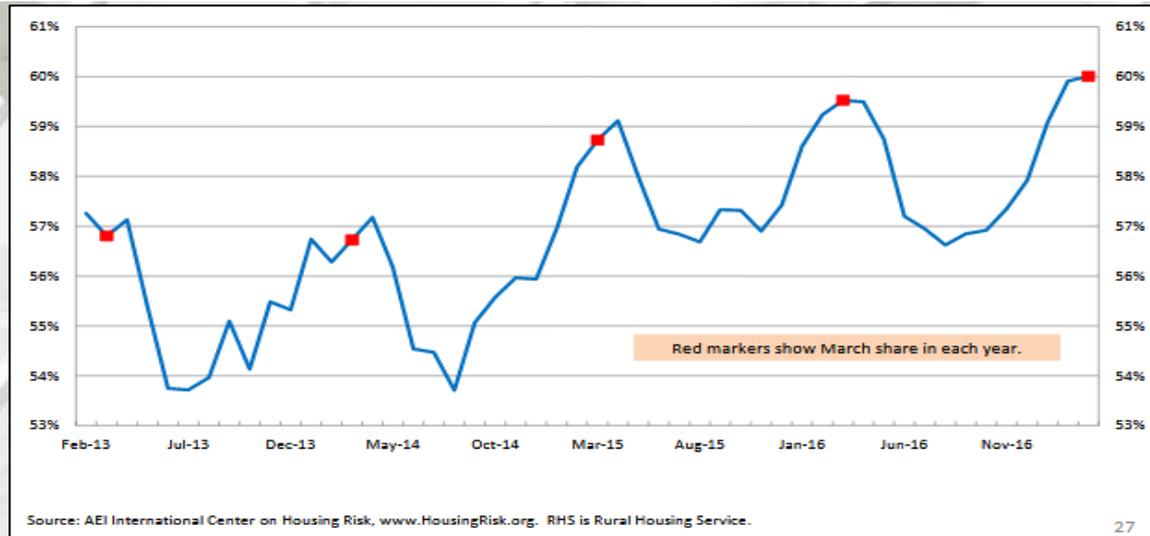
The above graph presents the percentage of owner-occupied and renter-occupied since 1965. Currently, both occupant types appear to be leveling off on a percentage basis.

First-Time Purchasers

National Association of Realtors (NAR®)

32% of sales in June 2017 – 33% in April 2017, and 33% in June 2016¹

American Enterprise Institute International Center on Housing Risk



“The NMRI for Agency purchase loans stood at 12.7% in April, up 0.1 percentage point from a year earlier and up 0.3 percentage point from April 2015. The year-over-year credit easing trend has resumed from an already high level. FHA’s first-time buyer NMRI stands at 25.4%, up 0.8 percentage point from a year earlier.” – Edward Pinto, Codirector, American Enterprise Institute’s International Center on Housing Risk²

Sources: ¹ <https://www.nar.realtor/news-releases/2017/06/existing-home-sales-rise-11-percent-in-june-median-sales-price-ascends-to-new-high>, 6/21/17;

² <http://www.aei.org/publication/april-2017-mortgage-risk-index-from-aeis-ichr/>, 7/31/17

First-Time Purchasers

American Enterprise Institute International Center on Housing Risk

“The NMRI for Agency purchase loans stood at 12.7% in April, up 0.1 percentage point from a year earlier and up 0.3 percentage point from April 2015. The year-over-year credit easing trend has resumed from an already high level. FHA’s first-time buyer NMRI stands at 25.4%, up 0.8 percentage point from a year earlier.

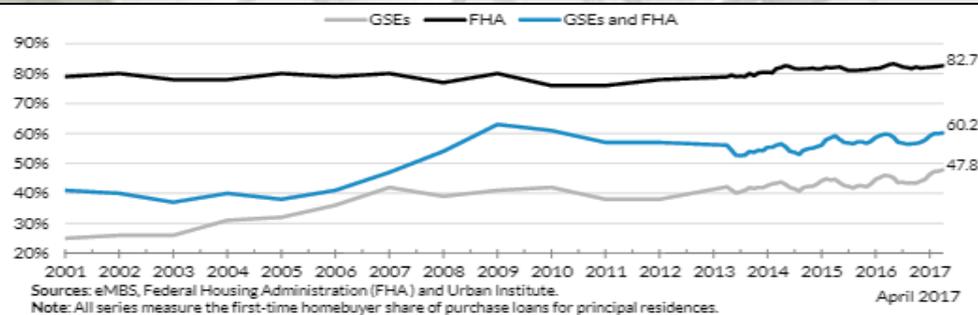
With the rate of real home price increases accelerating, particularly for entry level homes, the continuing boom in financed home sales is dependent on the ability of first time buyers to take on ever increasing levels of debt. The five government credit agencies, particularly the FHA, continue to promote this vicious cycle.” – Edward Pinto, Codirector of the American Enterprise Institute’s International Center on Housing Risk

“Volume by count has increased for the past 32 months and is now 34% higher than 3 years ago. Thanks to rising debt burdens, it is simply not true that potential buyers are squeezed out of the market by rising prices.” – Tobias Peter, Senior Research Analyst, AEI’s International Center on Housing Risk

First-Time Purchasers

Urban Institute

“In April 2017, the first-time homebuyer share of GSE purchase loans edged up to 47.8%, the highest level in recent history. The FHA has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent and stood at 82.7 percent in April 2017, moving closer to the peak of 83.3 percent in May 2016. The bottom table shows that based on mortgages originated in April 2016, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan and have a lower credit score and higher LTV and DTI, thus requiring a higher interest rate.” – Laurie Goodman, et al., Co-director, Housing Finance Policy Center

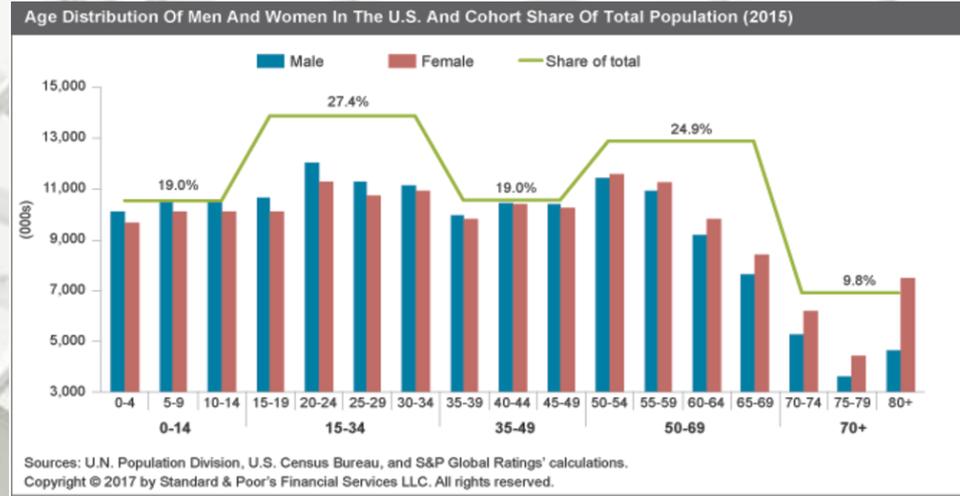


Comparison of First-Time and Repeat Homebuyers, GSE and FHA Originations

| Characteristics | GSEs | | FHA | | GSEs and FHA | |
|------------------|------------|---------|------------|---------|--------------|---------|
| | First-time | Repeat | First-time | Repeat | First-time | Repeat |
| Loan Amount (\$) | 223,382 | 249,829 | 197,301 | 220,635 | 210,434 | 243,545 |
| Credit Score | 739.1 | 755.0 | 675.1 | 683.2 | 707.4 | 739.5 |
| LTV (%) | 86.8 | 79.1 | 97.3 | 95.8 | 92.0 | 82.7 |
| DTI (%) | 34.0 | 34.9 | 42.0 | 43.0 | 38.0 | 36.6 |
| Loan Rate (%) | 4.29 | 4.18 | 4.24 | 4.15 | 4.26 | 4.17 |

Sources: eMBS and Urban Institute.
Note: Based on owner-occupied purchase mortgages originated in April 2017.

First-Time Purchasers



Many Americans Are Stuck Singing “Can’t Find My Way Home”

“..., survey data suggest that first-time homebuyers are still having a hard time getting mortgages. Although debt overhang (measured by loan-to-value ratios) is a lesser risk to the housing market now, indebtedness (according to the debt-to-income ratio) has been the key determinant of successful mortgage application – much as personal credit scores once were.

That said, Millennials (now the largest age cohort, with around 87 million Americans) will soon have a significant presence in housing markets (see “[U.S. Demographic Shifts Will Curb Economic Growth -- At Least Until Millennials Get Up To Speed](#),” published March 8, 2016, and “[Millennials And The U.S. Economy: The Kids Are All Right \(Or Soon Will Be\)](#),” published April 29, 2015.) Any increase in households in the foreseeable future is likely to largely reflect the entrance of this generation into the phase of life when they are most apt to form households. In fact, Millennials already make up the largest cohort of American workers and will, by some estimates, make up half of the U.S. workforce within five years (see chart).” – Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

First-Time Purchasers

Many Americans Are Stuck Singing “Can’t Find My Way Home”

The group of Americans ages 20-34, a key rental cohort, has been increasing since the end of the 20th century, and current projections from the Census Bureau show the increase will continue at least through 2020 – suggesting that demand for apartments still has support in the near term. In the decade through 2030, the population for this key rental group will remain mostly unchanged, according to Census Bureau estimates. With regard to real estate purchases, the 30-39 age group is important, and the population of this cohort is also increasing and will continue to do so significantly in the next decade.

That said, some of the fluctuation in household formation is due to immigration patterns immediately following the financial crisis. But net inflows of immigrants have picked up, to just under 1 million last year, from 854,000 in 2011. Increased in-migration from Asia and Africa helped to offset out-migration to Latin America. Immigrants are an important source of housing demand, accounting for more than one-third of total U.S. household growth from 1995-2015 according to JCHS. We aren't sure yet if the in-migration flows will drastically drop in the current political climate.” – Satyam Panday and Beth Ann Bovino, U.S. Economists, S&P Global Ratings

Aggregate Housing Market

MF Housing

Multifamily 2017 Mid-year Outlook

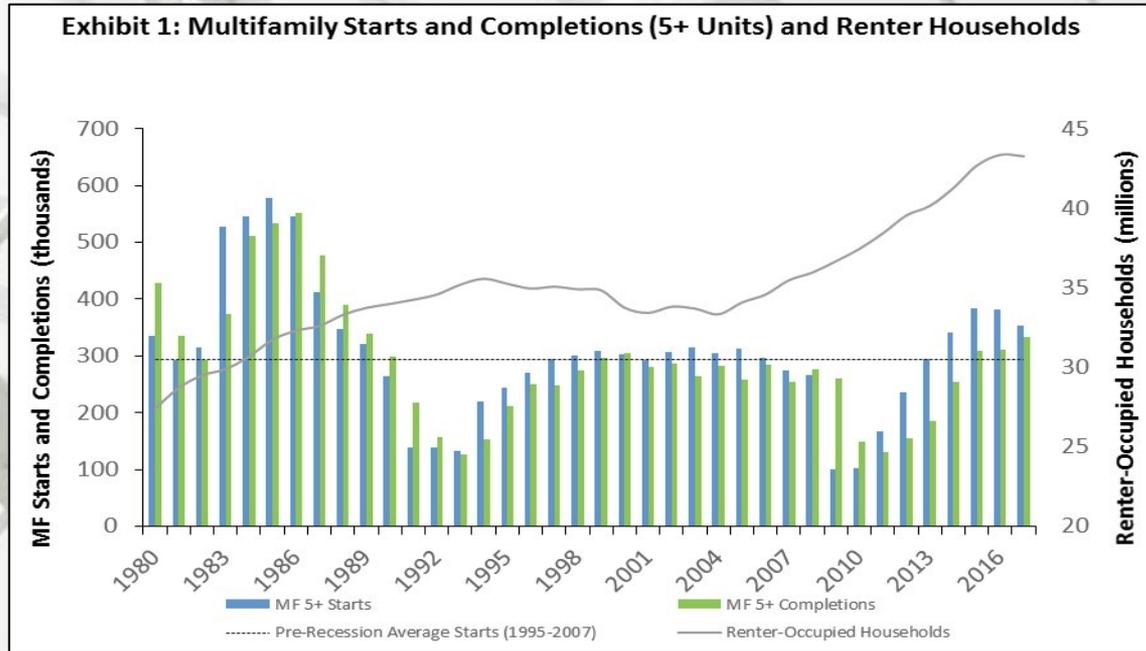
Performance in the multifamily market remains healthy in 2017, even as it continues to moderate from cyclical highs.

“Multifamily performance, by most measures, remained near the historical average across the nation and in most markets in the first half of 2017. While results were mixed, the overall trend remained the same: High levels of new supply, slowly increasing vacancy rates, and moderating rent growth. The rest of this year will bring more of the same.

As expected, the multifamily market remained strong in the first half of 2017 as it continued to moderate from the cyclical peak. Vacancy rates started to trend upward due to new supply entering the market. Meanwhile, rent growth picked up following a slowdown at the end of 2016. Several of the larger metropolitan areas, such as San Francisco and New York City, experienced more pronounced slowing than the broader market. Although rent growth moderated in most metros in the past year, the majority continued to perform above their pre-recession averages. Market uncertainty kept many multifamily investors on the sidelines in the first quarter of the year, but they are starting to return as interest rates moderate and the economy continues its steady upward trajectory.

Multifamily permits and starts have been abating over the last two years, down 14 percent and 10 percent, respectively. Meanwhile, multifamily completions are expected to increase, resulting in more units entering the market this year than any other since the late 1980s, as shown in Exhibit 1. As of May, 330,000 units delivered annually, up 6.7 percent year-over-year. But that number likely will be even higher, given that construction starts averaged 380,000 units each of the past two years, whereas completions averaged only 310,000 units each year.”

MF Housing



Multifamily 2017 Mid-year Outlook

“Due to the high levels of new deliveries, supply slightly outpaced demand, and vacancy rates increased marginally over the past few months. But reporting is mixed. Reis reported that the vacancy rate was up slightly year-over-year, by 20 basis points (bps) to 4.4 percent as of second quarter 2017. Meanwhile, Axiometrics reported the vacancy rate slightly higher, at 5 percent as of June, which is up 30 bps year-over-year.

In most markets, rent growth continued to moderate in 2017 after a year of landlords ceding some of their pricing power. Reis reported annual effective rent growth of 3 percent through second quarter 2017, while Axiometrics reported slightly more subdued growth of 2.5 percent annually through June. Rent growth remained subdued at the high end of the rent spectrum, including in several markets that saw an explosion of new luxury inventory, namely New York City, San Francisco, and Boston. Rent growth in these areas will remain suppressed temporarily as the new supply is absorbed.”

MF Housing

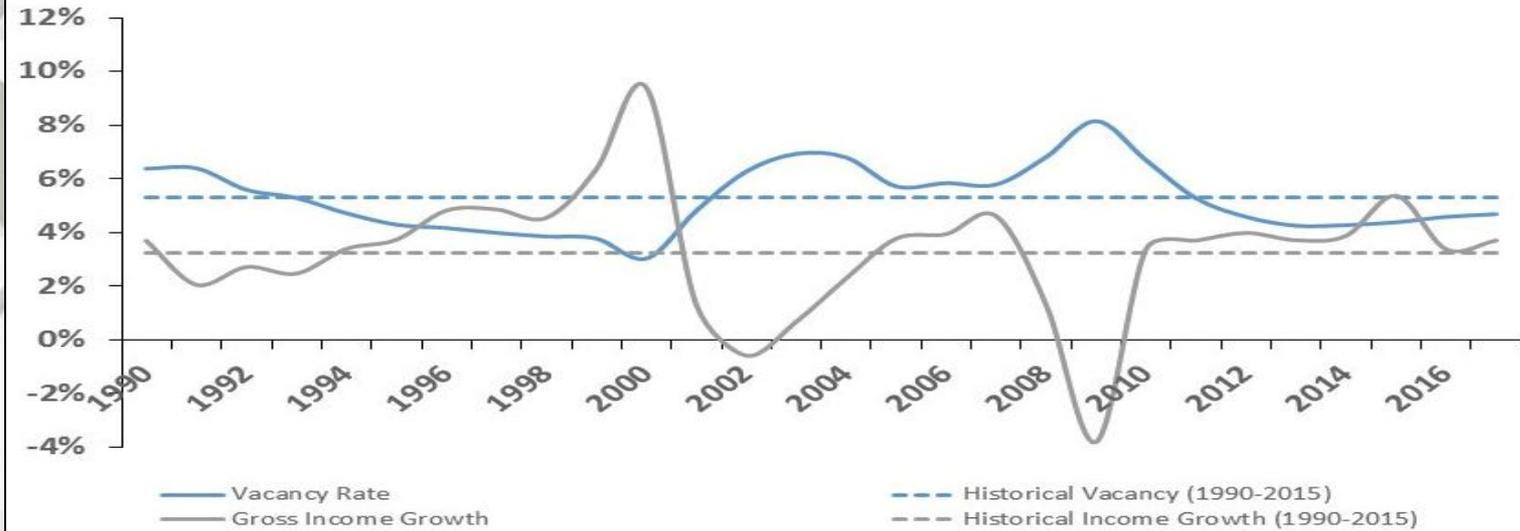
Second Half of 2017 and Beyond: Status Quo

“Most measures suggest the multifamily market will continue to grow in line with the historical average for the rest of 2017. Employment growth is expected to remain near 2016 growth levels and demand for multifamily units to stay strong due to lifestyle preferences and demographic trends. New deliveries are expected to peak in the second half of this year and remain elevated into 2018 before moderating. The new supply is expected to outpace demand nationally in the short-term, causing vacancy rates to increase, albeit more slowly than expected. Because of the tight vacancy rates through the end of 2016 and into 2017, vacancy rates for the rest of 2017 have been revised downward, to 4.7 percent. As vacancy rates increase more slowly than originally expected, rent growth is expected to remain strong through 2017, possibly exceeding the 2016 rate at the national level. Furthermore, forecasts of higher wage growth will help spur more housing demand. Combined, we expect gross income growth in 2017 to be slightly higher than in 2016, as shown in Exhibit 3.

While at the national level demand and supply remain relatively tight, performance across metros areas will vary. Construction starts in many markets are elevated compared to levels in the early 2000s and several metros have vacancy rates above the historical average. As shown in Exhibit 4, areas with below-historical-average vacancy rates are better poised to absorb new supply without significantly disrupting multifamily performance. However, areas with increased new supply and above-historical-average vacancy rates can expect slower absorption and potential negative impacts on multifamily fundamentals.”

MF Housing

Exhibit 3: Vacancy Rate and Gross Income Growth, History and Forecast



Second Half of 2017 and Beyond: Status Quo

“Overall, the multifamily market outlook remains positive for the rest of 2017 as the market continues to moderate. Employment growth will stay above population growth, fueling demand for housing units, while demographic and lifestyle preferences will continue to favor rental housing. New completions are expected to peak in 2017, possibly extending into the beginning of 2018, pushing vacancy rates toward historical averages but at a slower pace than forecast at the beginning of this year. Absorption of new units in some areas will take longer than in prior years, slowing rent growth. An uncertain beginning of the year led many investors to remain on the sidelines, but investor demand is expected to return. Nonetheless, we predict that origination volume will hit another record in 2017 and multifamily fundamentals will continue to perform in line with or slightly better than long-run averages at the national level.”

Aggregate Housing Market

What is Causing the Lean Inventory of Houses?

Why aren't we building enough houses?

“A decade after the Great Recession, the housing market is rebounding. House prices today are higher than they were at the peak in the summer of 2006, near-record-low mortgage rates have boosted housing demand, and sales volume is robust.

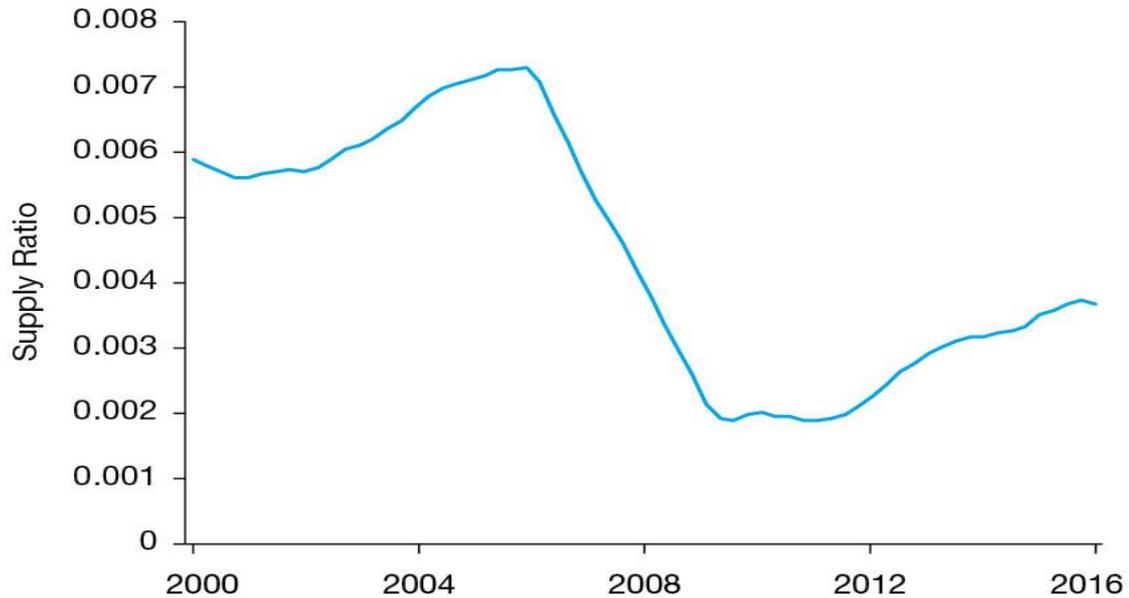
The spoiler is the lean inventory of houses for sale. Nationally, just over five months of supply is for sale and hot markets are much tighter than the national average. So far, residential construction is not doing much to fill the gap. Permits as a share of the population dropped around 70 percent during the housing bust and has yet to fully recover (Exhibit 2).

With home prices rising and housing demand high, we'd expect builders to increase production. Instead, they are providing less housing (relative to population) than in the past. The main reasons appear to be a shortage of skilled labor and an increase in development costs.” – Tian Liu, Chief Economist, Freddie Mac

Aggregate Housing Market

Exhibit 2

U.S. supply ratio: permits/population



Note: Supply Ratio is calculated as the 4-quarter moving sum of total residential permits (# of units) to Total Population

Source: U.S. Census Bureau

Aggregate Housing Market

Tight Labor Market

“The number of open construction jobs has been on the rise since the recession. As of May 2017, the number of [open construction sector jobs](#) stood at 154,000, at an elevated rate of 2.2 percent of total employment.

Four factors contribute to the current labor shortage in housing:

1. The housing collapse in the late 2000s reduced construction employment by 1.5 million. Many of those who were laid off never returned to the industry, leaving the housing sector with a significant skills gap that will take some time to redress.
2. The construction industry is having difficulty attracting younger workers. Traditionally, the construction industry has offered attractive jobs to young people who are either delaying or skipping college. Builders report that fewer young people are interested in these opportunities than in the past.
3. While we can't quantify the impacts, commentators have noted that opioid use is having some negative effect on production. One source estimated that 15 percent of construction workers engaged in [illicit drug use](#) [pdf] and subcontractors report that a significant share of job applicants fail their drug test.
4. Increases in the enforcement of immigration laws and a generally less-welcoming environment for immigrants may be reducing the supply of construction workers. Foreign-born workers have comprised more than a quarter of the construction work force [in recent years](#), and the share has been as high as 35 to 40 percent in states like California, Texas, Nevada, and New York. While it is difficult to quantify, it seems likely that recent policy changes may have made foreign-born workers hesitant to seek employment in construction.” – Tian Liu, Chief Economist, Freddie Mac

Aggregate Housing Market

High Development Costs

“The price of land (acquisition and preparation for construction) has risen more rapidly than the price of the structures built on the land. This trend has driven up the share of land cost as a proportion of house price (Exhibit 3). Since the cost of land is largely a fixed cost in a building project, the increase in the cost of land tends to make entry-level housing less profitable and thus tilts development toward higher-end housing.

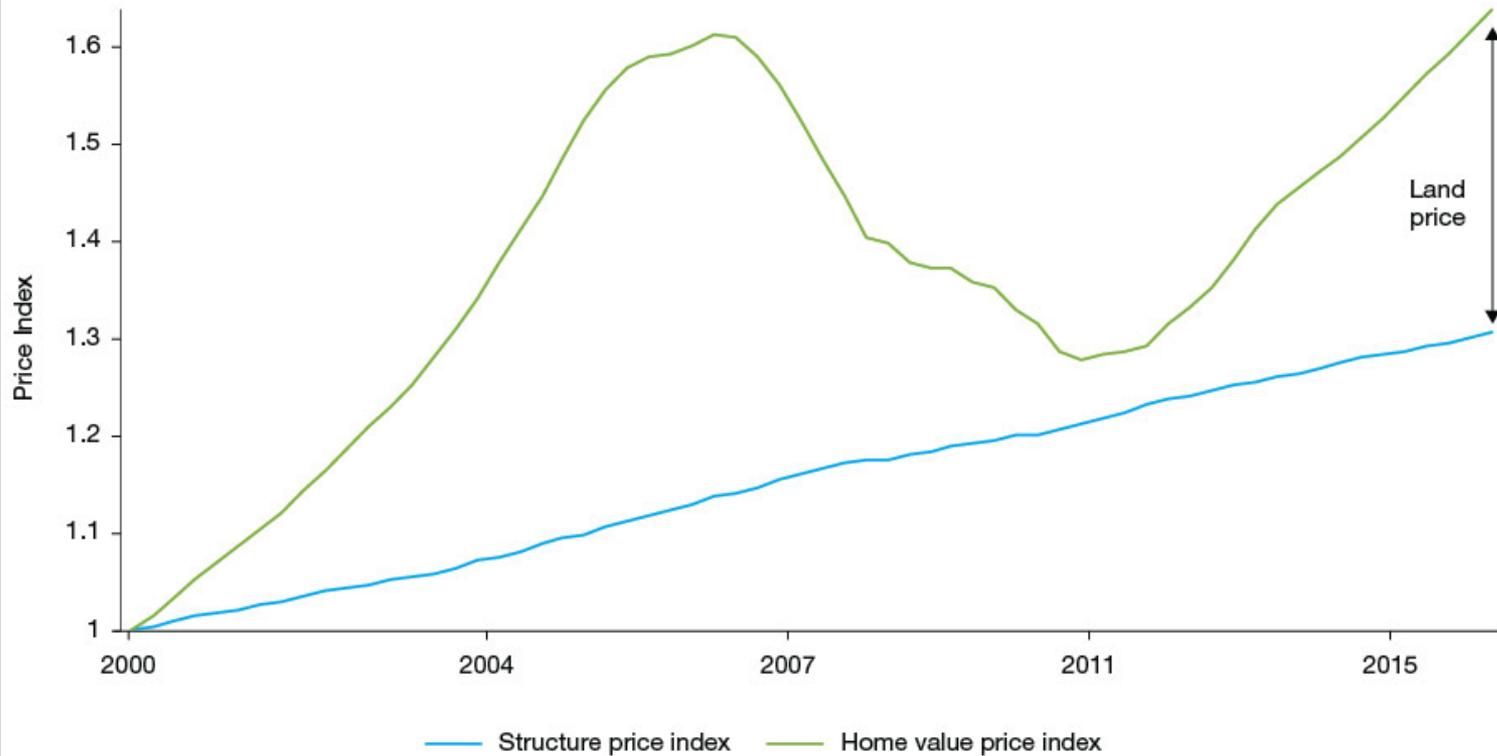
Over the last three decades, land-use regulations have become more burdensome in the U.S., making developable land costlier. As an example, in areas with strict land-use regulation, builders face long delays in obtaining permit approvals (Exhibit 4). In New Orleans, where regulation is relatively lenient, permit approval is received in 3.5 months on average. In Honolulu, where regulations are particularly strict, permit approval takes around 17 months on average. The [2016 White House Report](#) [PDF] on land use regulation argues that lengthy approval processes have reduced the ability to respond to growing housing demand in many markets.

In cities like San Francisco, the scarcity of buildable land compounds the impact of land use regulations. And, in fact, cities where bodies of water and steep grades significantly reduce the supply of land tend to have [stricter-than-average](#) [PDF] land-use regulations.” – Tian Liu, Chief Economist, Freddie Mac

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Exhibit 3

Share of land price in home value

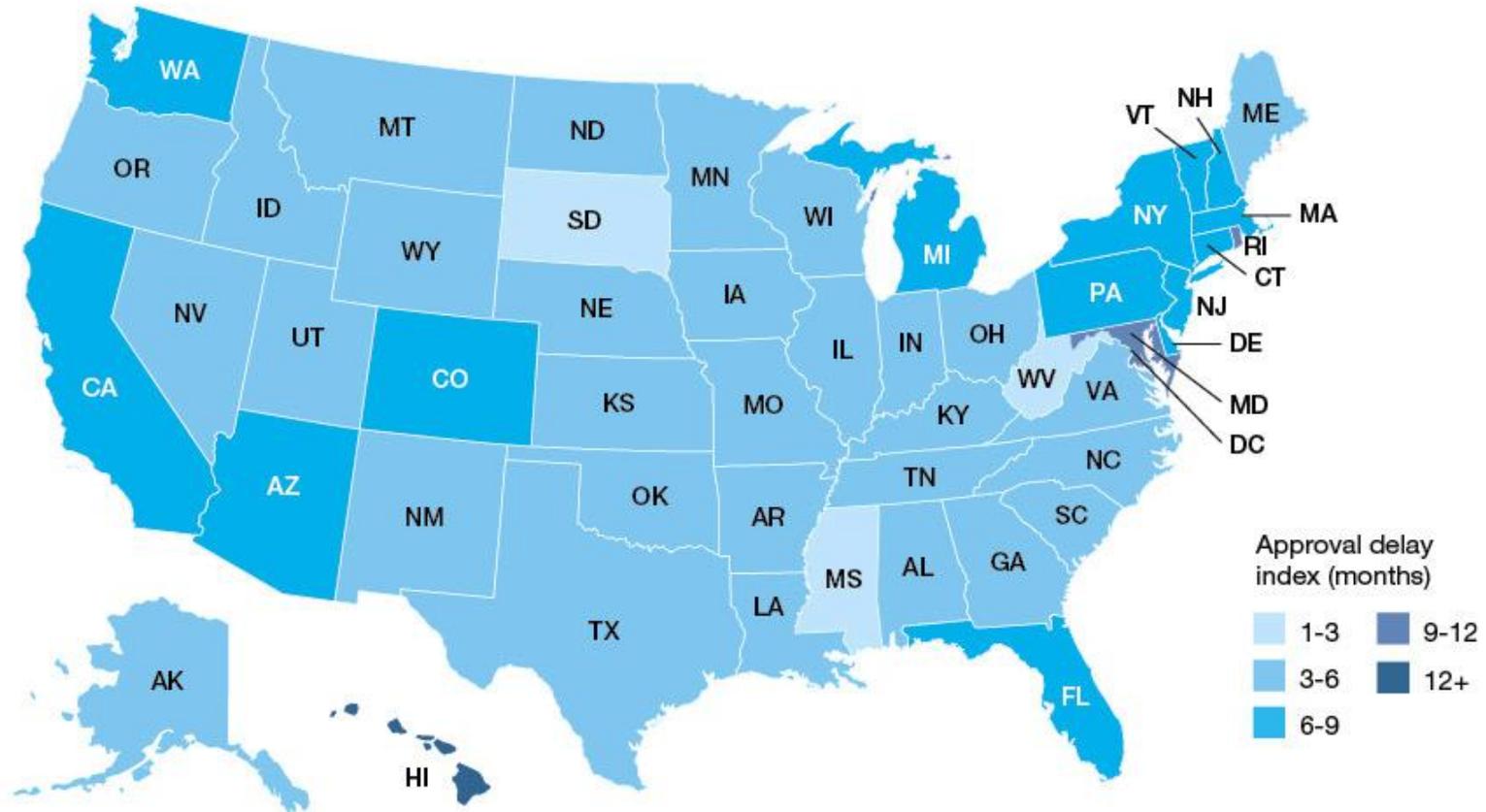


Source: Lincoln Institute of Land Policy

Aggregate Housing Market

Exhibit 4

Approval delay index (months)



Source: Wharton Residential Land Use Regulation Index (WRLURI)

Aggregate Housing Market

Inventory Myth Busting: Why is Home Inventory So Low?

When it Comes to Explaining Low Inventory Some Theories Are Better Than Others

“Everyone agrees the U.S. housing market is being squeezed by low inventory. What they don’t agree on is why.

As home inventory sits near post-recession lows, there are many hypotheses on why there are so few homes for sale today. Here are the five leading theories: (1) investors bought up too many foreclosures during the bust and are hoarding them as rentals, (2) rising prices have made buying a home unaffordable, (3) owners don’t want to sell if they don’t think they can buy another home, (4) too many home-owning boomers can’t or don’t want to move, and (5) owners who want to trade up can’t find an affordable home at the next level.

To date, these educated guesses have primarily been tested in isolation through simple correlations with inventory, with little or no regard to analyzing what their impact is relative to other factors. When you wear statistical blinders, you run the risk of ignoring potentially more impactful factors when you’re trying to identify the cause of a problem. To be fair, we’re just as guilty as anyone of looking at possible reasons for low inventory in in isolation when we looked at [rising home values](#) and a [widening price gap](#).” – Ralph McLaughlin, Chief Economist, Trulia

Aggregate Housing Market

Inventory Myth Busting: Why is Home Inventory So Low?

“To remedy this, we tested each of the five major hypotheses *while controlling for the impact of each other hypotheses*. The good news is that we found a statistically significant effect for each, which means there is some direct correlation with inventory.

The surprising news? Homebuilding’s impact – or a lack of it in some places – is by far and away the biggest influence when it comes to inventory woes, outweighing other explanations by a large margin. Across the 100 largest metros, our findings show that:

- **New home construction** is strongly related to inventory. Every one percentage point increase in a market’s housing stock between 2010 and 2016 is, on average, correlated with inventory that is approximately 13% higher.
- **Investor ownership** is tied to lower inventory. Every one percentage point increase in the housing stock owned by investors in a market is, on average, correlated with inventory that is 2.8% lower.
- **Older households** – by hanging on to their homes – aren’t necessarily driving down inventory, at least not yet. Every one percentage point increase in the housing stock owned by those aged 55 and over is, on average, correlated with inventory that is actually 3.6% higher.” – Ralph McLaughlin, Chief Economist, Trulia

Aggregate Housing Market

Inventory Myth Busting: Why is Home Inventory So Low?

The Hypotheses

“To test the impact of five popular explanations of why inventory is low across the 100 largest housing markets, we ran a regression model on the number of homes for sale in a market in 2017 Q2. We standardized inventory by dividing inventory by the number of occupied homes in that market. Here’s what we tested:

1. Markets with a higher share of **investors** will have low inventory because investors sit on homes and rent them out;
2. Markets with a bigger recent **price increases** will have lower inventory because higher home values make affordability worse;
3. Markets with a larger increase in **price spread** – or the gap between prices for premium, trade-up and starter homes — will have lower inventory because as prices of expensive homes outpace less expensive ones it’s harder for existing homeowners to trade up;
4. Markets with a larger share of **older homeowners** will have lower inventory because older households don’t tend to move often;
5. Markets with more **homebuilding** will have more inventory because more new homes helps provide new supply that existing homeowners can trade up to.” – Ralph McLaughlin, Chief Economist, Trulia

Aggregate Housing Market

Inventory Myth Busting: Why is Home Inventory So Low?

The Results

“We found that proponents of each of the five popular explanations aren’t wrong – at least not entirely: when controlling for the role that other explanations play, each individual explanation has a statistically significant relationship with inventory. The surprising news is that when it comes to relative impact, homebuilding and investor activity are about the only ones that matter – as they had the highest positive and negative impact of the five explanations.

First, the factor with the largest impact is **homebuilding**. Across the largest 100 metros, every one percentage point increase in a market’s housing stock between 2010-2016 is, on average, correlated with inventory that is approximately 13% higher. For example, if the Los Angeles metro had increased their housing stock by 2.6% instead of 1.6% between 2010 – 2016, we could have expected their existing home inventory to increase from 10,181 homes on the market to 11,504 in 2017 Q3: an increase of over 1,300 homes.

Second, the factor with the second largest economic significance is **investor ownership**. Across the largest 100 metros, every one percentage point increase in the housing stock owned by investors in a market is, on average, correlated with inventory that is 2.8% lower. For example, if investors in the Boston metro reduced their ownership of the housing stock from 43.7% to 42.7%, we could have expected their existing home inventory to increase from 3,290 homes on the market to 3,382 in 2017 Q3: an increase of nearly 100 homes.” – Ralph McLaughlin, Chief Economist, Trulia

Aggregate Housing Market

Inventory Myth Busting: Why is Home Inventory So Low?

The Results

“**Third**, and surprisingly, we find the share of **owner occupied homes owned by boomers** is actually positively correlated with inventory. Every one percentage point increase in the housing stock owned by those aged 55 and over is, on average, correlated with inventory that is actually 3.6% higher. Why is this? It’s tough to say exactly why, but we think the effect is driven by the fact that markets with the largest share of boomers just happen to be in retirement destinations such as Florida and Arizona – states that haven’t much been impacted by low inventory because they tend to build a lot of homes. This also isn’t to say that boomers owning a larger share of the housing stock won’t become problematic in the future. Their decision to either age in place or move to a retirement home could have a substantial impact on home inventory as well as the broader economy.

Last, we find that relative to these other explanations, **home value recovery and price spread** have relative small economic significance. A one percentage point increase in home value recovery is correlated with a 1.6% decrease in inventory across the 100 largest metros. A one percentage point increase in the price spread is correlated with just a 0.2% increase in inventory, which renders the correlation close to being economically insignificant. Both effects, however, are small relative homebuilding and investor activity.” – Ralph McLaughlin, Chief Economist, Trulia

Aggregate Housing Market

| Inventory Model Results | |
|--|--|
| For every 1 percentage point increase in ... | ...there is a __ change, on average, in inventory across the 100 largest metros. |
| Homebuilding | +13.3% |
| Share of homeowners aged 55+ | 3.4% |
| Price Spread | 0.2% |
| Home Value Recovery | -1.8% |
| Investor Ownership | -2.5% |

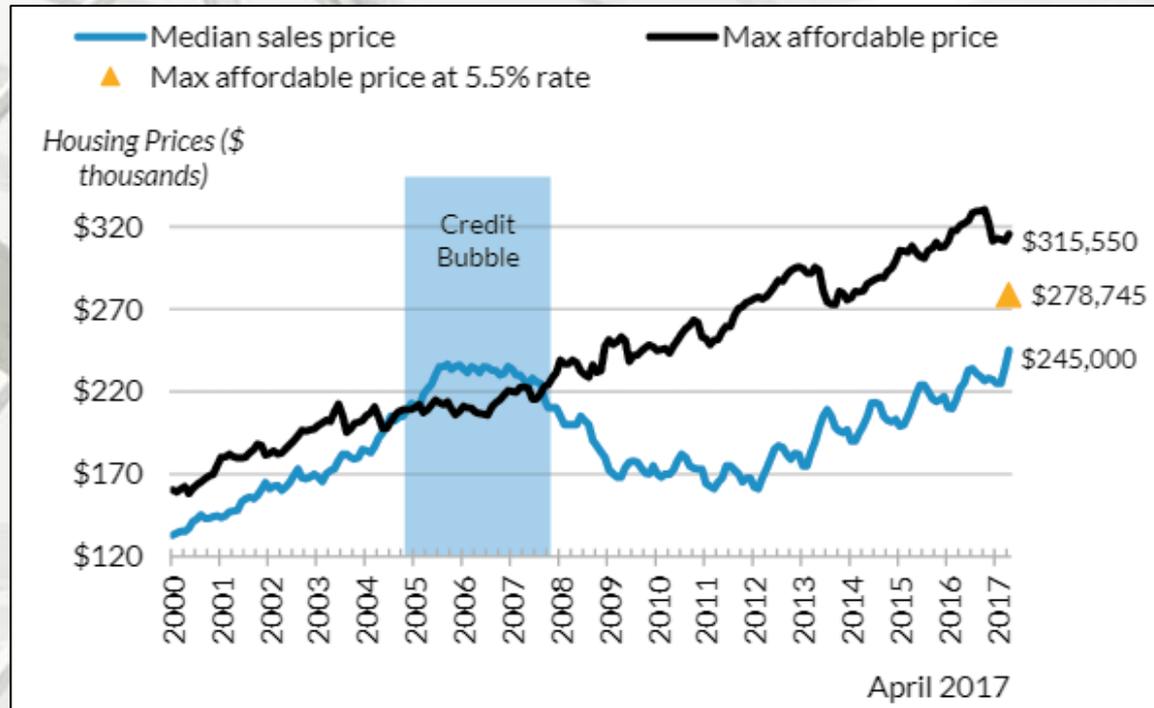
Inventory Myth Busting: Why is Home Inventory So Low?

The Conclusion

“The takeaway here is that not all explanations for low inventory fully explain why the national home inventory is at or near historic lows. While our modeling of all five of these theories are not definitive, they do provide a step forward in explaining which explanations matter most. It turns out the leading explanation for low inventory is that investor activity and a lack of homebuilding are both significant predictors of low inventory. On the contrary, home value recovery and price spread play a much smaller role while an aging population plays a countervailing one. The silver lining from these results are that homebuilding and investor activity are factors that could be made more attractive through a combination of strategically targeted land use, tax, and financial policies.”

– Ralph McLaughlin, Chief Economist, Trulia

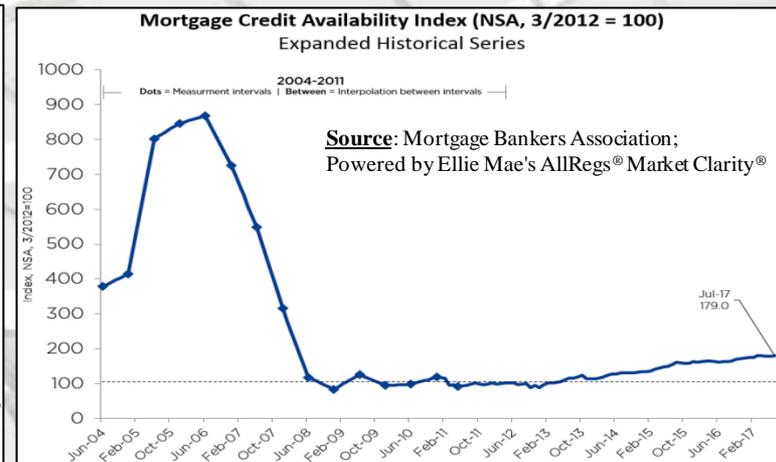
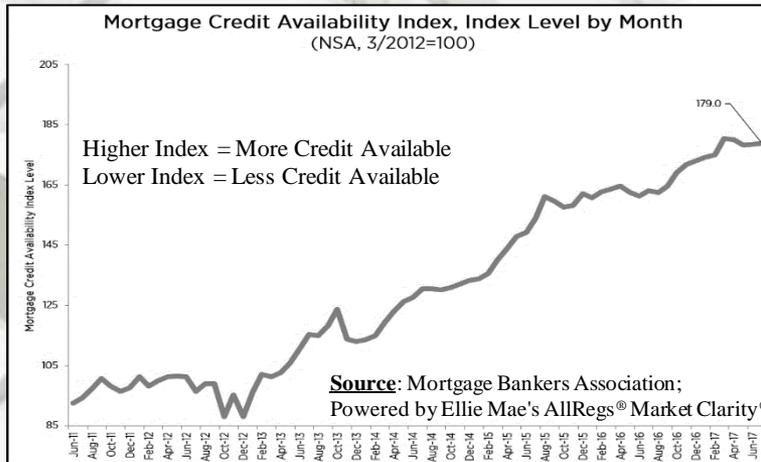
Housing Affordability



Urban Institute

“Home prices are still very affordable by historic standards, despite increases over the last four years and the recent interest rate hike. Even if interest rates rise to 5.5 percent, affordability would still be at the long term historical average.” – Bing Lai, Research Associate, Housing Finance Policy Center

Mortgage Credit Availability



Mortgage Credit Availability Increases Slightly in July

“Mortgage credit availability increased slightly in July according to the Mortgage Credit Availability Index (MCAI), a report from the Mortgage Bankers Association (MBA) The MCAI increased 0.3 percent to 179.0 in July. A decline in the MCAI indicates that lending standards are tightening, while increases in the index are indicative of loosening credit. The index was benchmarked to 100 in March 2012. Of the four component indices, the Jumbo MCAI saw the greatest increase in availability over the month (up 2.7 percent), followed by the Conventional MCAI (up 1.5 percent), and the Conforming MCAI (up 0.3 percent). The Government MCAI (down 0.6 percent) decreased from last month.

Mortgage credit availability increased slightly in July, driven by increased availability of conventional programs. Many agency eligible loan programs have been updated so that underwriting parameters for adjustable rate mortgages (ARMs) more closely align with their existing fixed rate counterparts. In many cases this means higher loan to value (LTV) ratios on existing ARMs loan programs, which exerted an upward pressure on the MCAI. This change affected conforming loan programs as well as agency jumbo programs, which focus on loans in high cost areas that exceed the baseline conforming loan limit of \$424,000 but which are still eligible for purchase by the GSEs.” – Lynn Fisher, Vice President of Research and Economics, Mortgage Bankers Association

Summary

In summary:

The U.S. housing market rebounded nicely, as most monthly indicators were positive on a month-over-month basis. On a year-over-year basis, the majority were positive; yet single-family starts are barely “treading water.” Construction spending is problematic again, as single-family and improvement expenditures were only just positive on a month-over-month basis. These sub-sectors may portend a slowdown in the housing market if the continuation of this pattern continues. Once again, new SF lower-priced tier house sales struggled. It warrants repeating, the market needs consistent improvement in this category to influence the housing construction market upward.

Housing, in the majority of categories, continues to be substantially less than their historical averages. The new SF housing construction sector is where the majority of value-added forest products are utilized and this housing sector has room for improvement.

Pros:

- 1) Historically low interest rates are still in effect, though in aggregate rates are incrementally rising;
- 2) As a result, housing affordability is good for many in the U.S. – but not all of the U.S.;
- 3) Select builders are beginning to focus on entry-level houses.

Cons:

- 1) Lot availability and building regulations (according to several sources);
- 2) Changing attitudes towards SF ownership
- 3) Gentrification;
- 4) Job creation is improving and consistent but some economists question the quantity and types of jobs being created;
- 5) Debt: Corporate, personal, government – United States and globally.
- 6) Other global uncertainties.

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