

The Virginia Tech – U.S. Forest Service

April 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

In April 2017, in aggregate, monthly housing data were decidedly negative on a month-over-month basis. Total and single-family (SF) permits and starts declined; yet SF starts increased. New SF and existing sales, and completions also decreased. Observing unadjusted data; permits, starts, and new SF sales were similar to April 2016. In fact, SF starts and new SF unadjusted sales were *greater* than April 2016. New SF house construction spending increased minimally month-over-month. Regionally, data were mixed across all sectors. The June 13th Atlanta Fed GDPNow™ model projects aggregate residential investment spending to increase at a 5.8 percent seasonally adjusted annual rate for Quarter 2; both new residential investment and improvements spending were projected to increase (7.6 and 3.0 percent, respectively). All declined from Q1's estimate.¹

“Two consecutive months of weaker existing home sales isn't cause for panic, but it does suggest that forecasts calling for a robust housing market may have been too optimistic. It appears that the combination of extraordinarily low inventory and home price appreciation that continues to outpace wage growth is slowing down sales, especially in some of the country's higher priced markets. Despite inventory constraints continuing to fuel price gains and curb affordability, demand is healthy and relatively low mortgage rates have enabled more buyers to enter the market. While there is some uncertainty over the possibility of another rate hike and its impact on affordability, the housing market remains on solid footing supported by a firm labor market and rising wages.”² – Rick Sharga, Executive Vice President and Peter Muoio, Chief Economist, Ten-X.

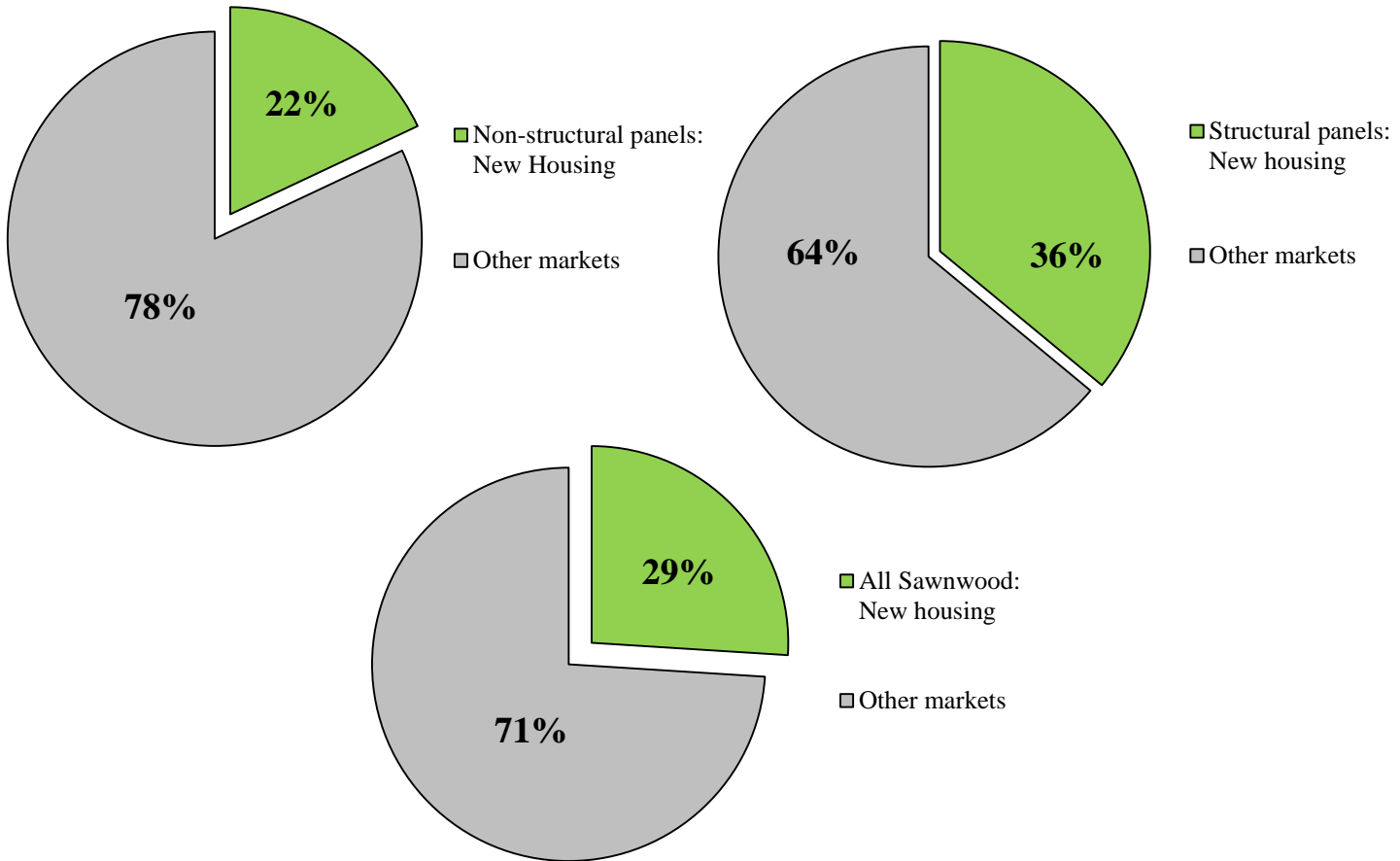
This month's commentary also contains applicable housing data; new SF- and multifamily and existing housing data; economic information; and demographics. Section I contains data and commentary and Section II includes Federal Reserve analysis; private indicators; and demographic commentary. We hope you find this commentary beneficial.

April 2017 Housing Scorecard

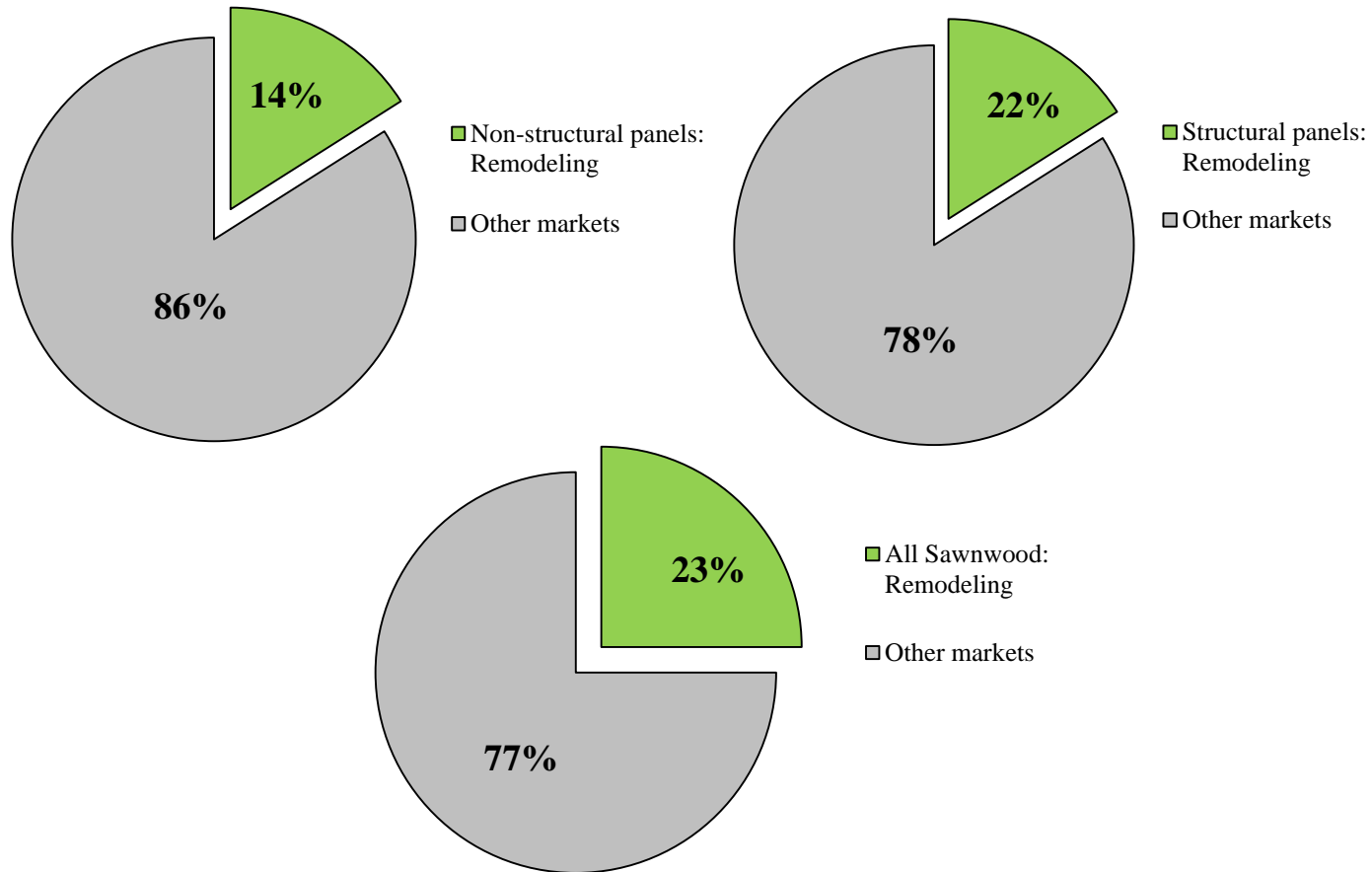
| | M/M | Y/Y |
|--|---------|---------|
| Housing Starts | ▽ 2.6% | △ 0.7% |
| Single-Family Starts | △ 0.4% | △ 8.9% |
| Housing Permits | ▽ 2.5% | △ 5.7% |
| Single-Family Permits | ▽ 4.5% | △ 6.2% |
| Housing Completions | ▽ 8.6% | △ 15.1% |
| New Single-Family House Sales | ▽ 11.4% | △ 0.5% |
| Private Residential Construction Spending | ▽ 0.7% | △ 16.0% |
| Single-Family Construction Spending | △ 0.8% | △ 7.7% |
| Existing House Sales ¹ | ▽ 2.3% | △ 1.6% |

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



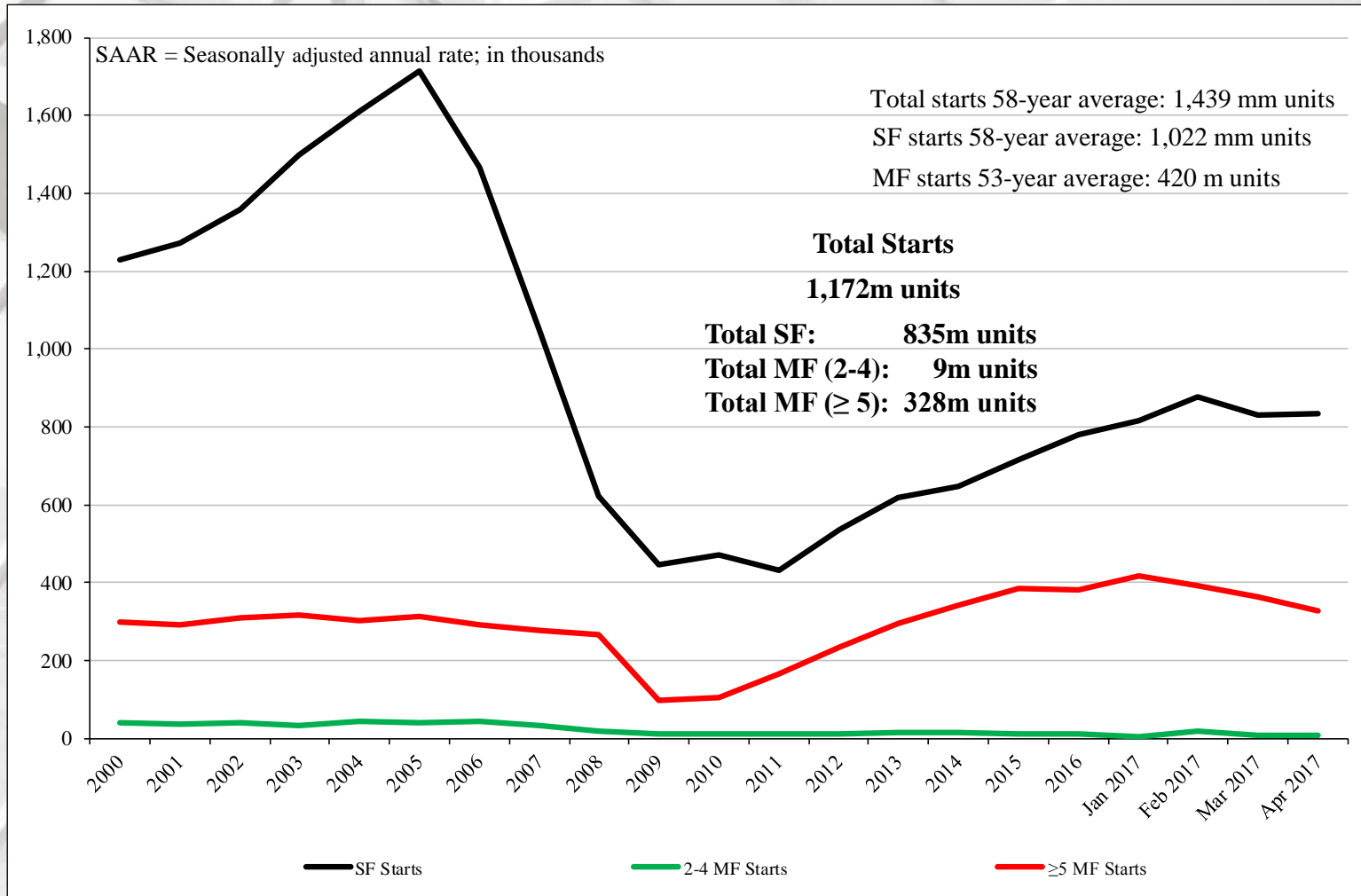
New Housing Starts

| | Total Starts* | SF Starts | MF 2-4 Starts** | MF ≥5 Starts |
|------------|---------------|-----------|-----------------|--------------|
| April | 1,172,000 | 835,000 | 9,000 | 328,000 |
| March | 1,203,000 | 832,000 | 8,000 | 363,000 |
| 2016 | 1,164,000 | 767,000 | 13,000 | 384,000 |
| M/M change | -2.6% | 0.4% | 12.5% | -9.6% |
| Y/Y change | 0.7% | 8.9% | -30.8% | -14.6% |

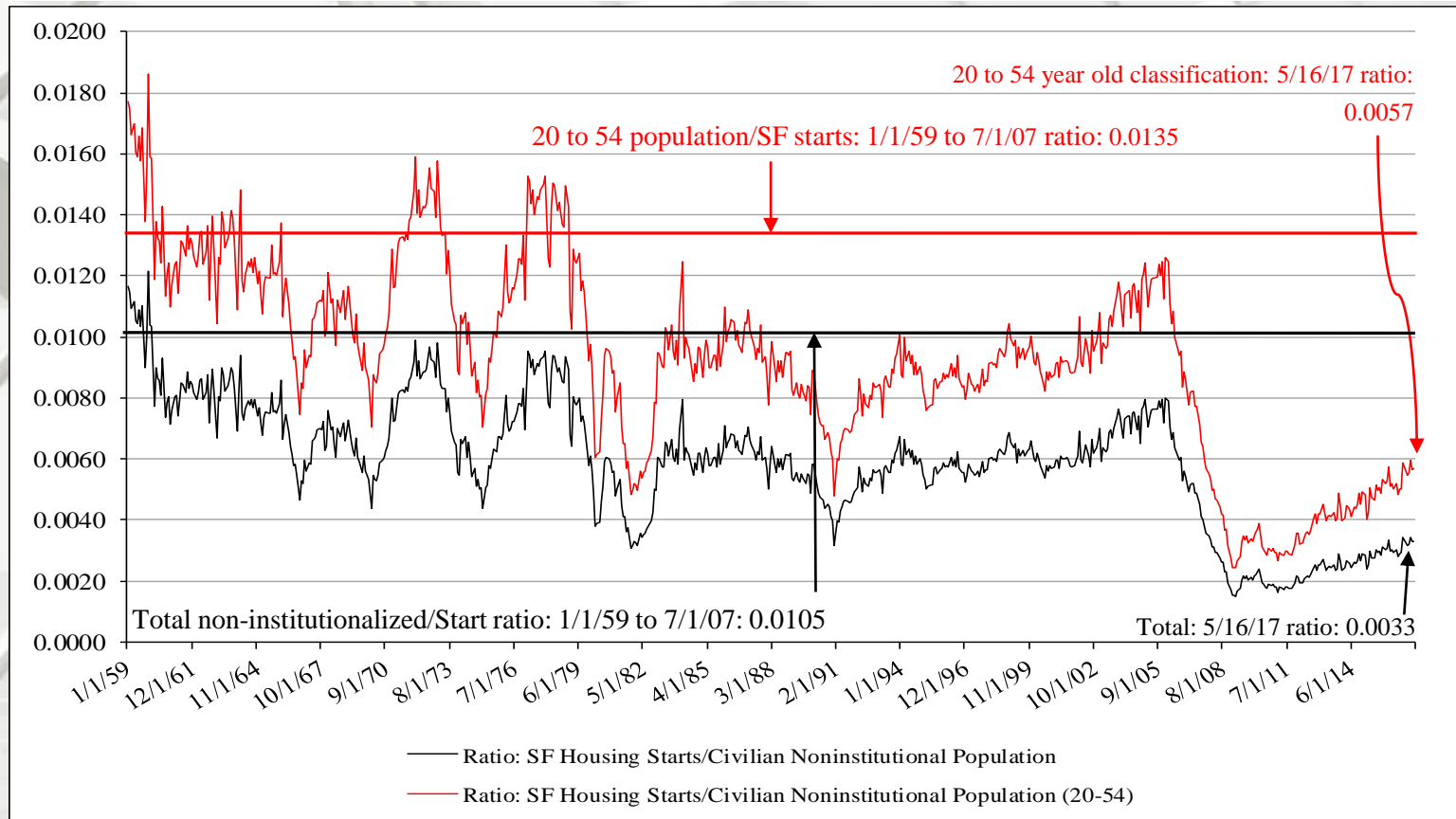
* All start data are presented at a seasonally adjusted annual rate (SAAR).

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

Total Housing Starts



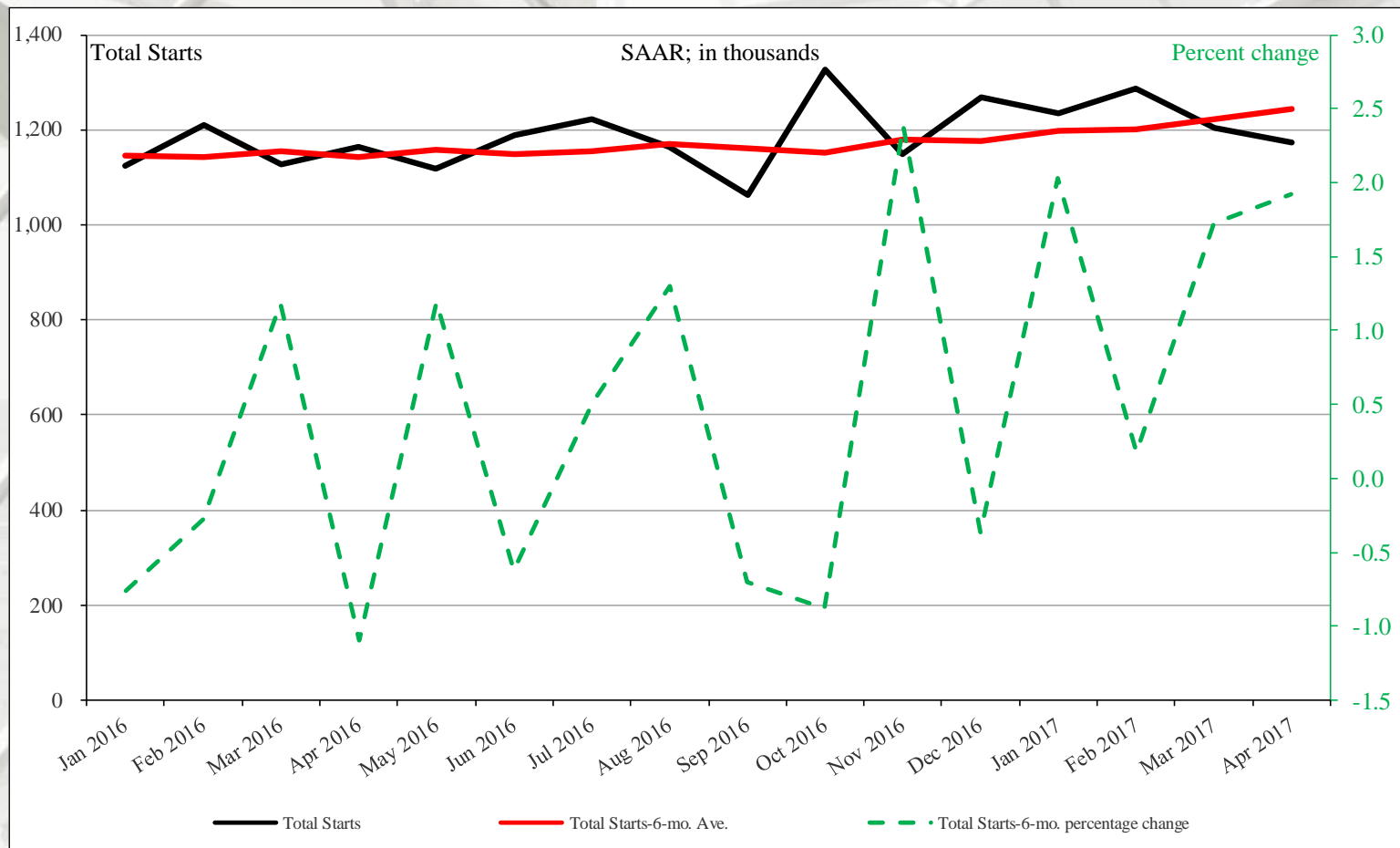
New SF Starts



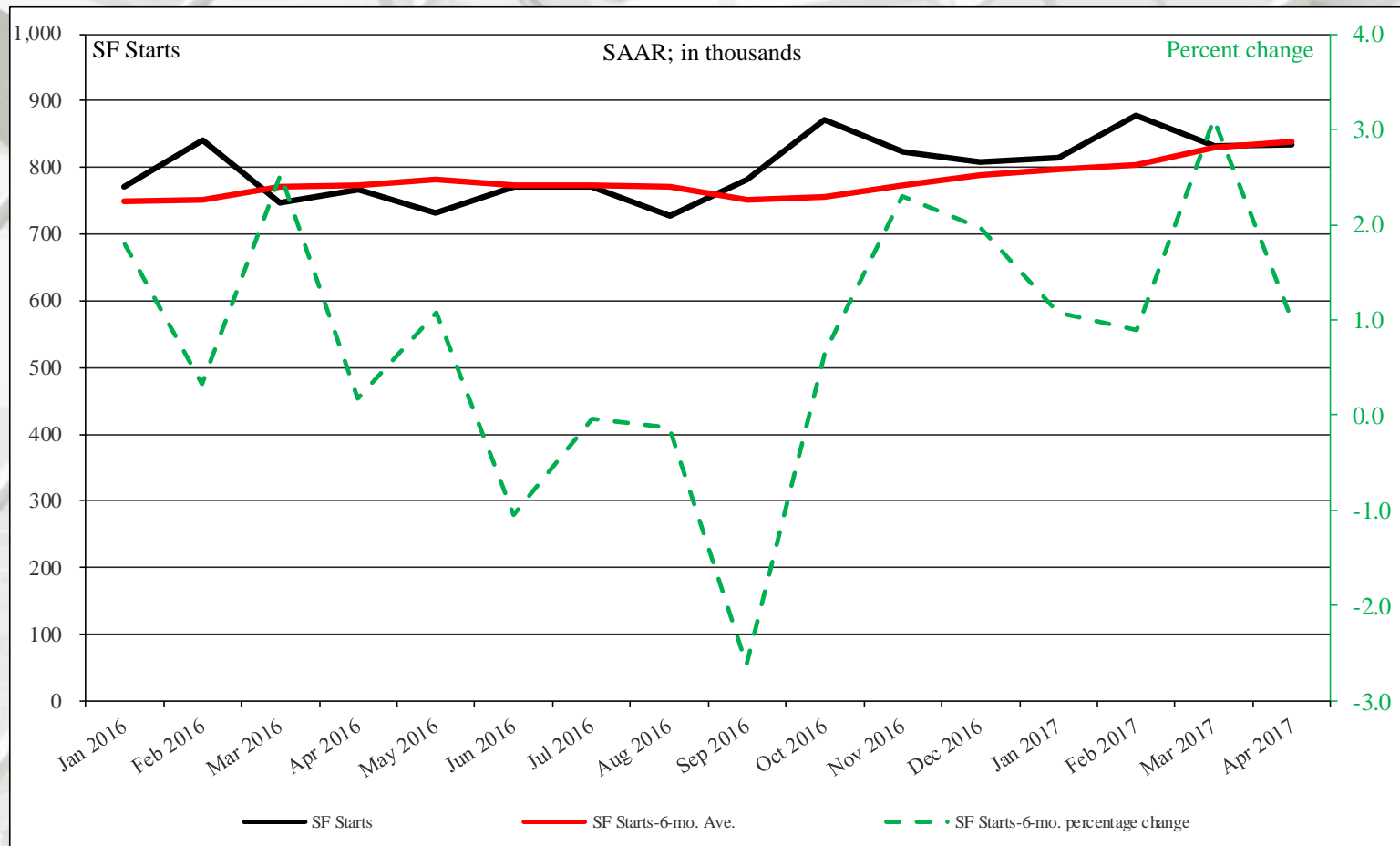
New SF starts adjusted for the US population

From January 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0105; in April 2017 it was 0.0033 – no change from February. The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0135; in April 2017 it was 0.0057 – no change from March. From a population viewpoint, 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** |
|------------|-----------------|--------------|----------------|
| April | 79,000 | 46,000 | 33,000 |
| March | 126,000 | 65,000 | 61,000 |
| 2016 | 120,000 | 55,000 | 65,000 |
| M/M change | -37.3% | -29.2% | -45.9% |
| Y/Y change | -34.2% | -16.4% | -49.2% |

| | MW Total | MW SF | MW MF |
|------------|-----------------|--------------|--------------|
| April | 206,000 | 129,000 | 77,000 |
| March | 146,000 | 108,000 | 38,000 |
| 2016 | 204,000 | 130,000 | 74,000 |
| M/M change | 41.1% | 19.4% | 102.6% |
| Y/Y change | 1.0% | -0.8% | 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

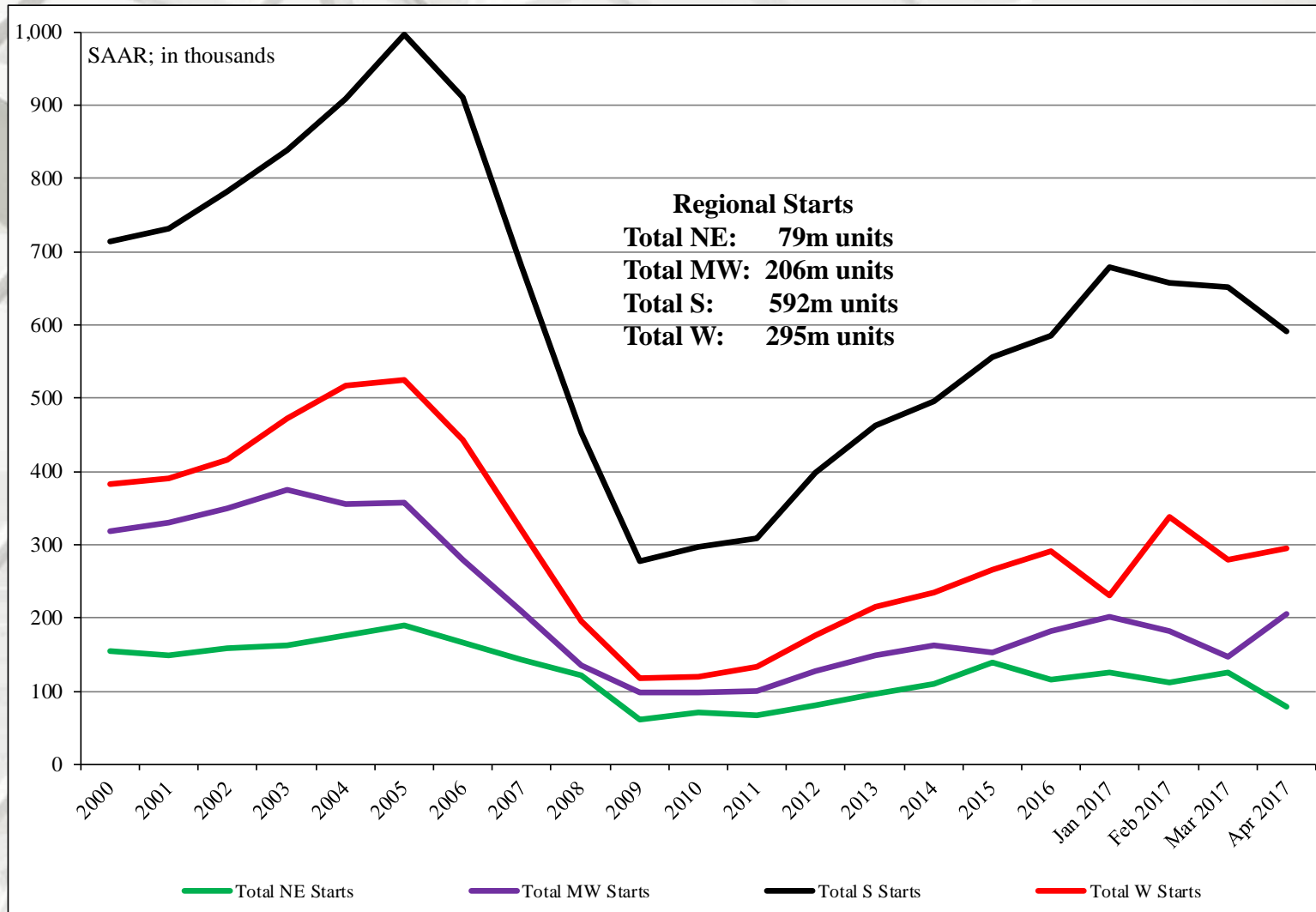
| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| April | 592,000 | 456,000 | 136,000 |
| March | 651,000 | 472,000 | 179,000 |
| 2016 | 601,000 | 425,000 | 176,000 |
| M/M change | -9.1% | -3.4% | -24.0% |
| Y/Y change | -1.5% | 7.3% | -22.7% |

| | W Total | W SF | W MF |
|------------|----------------|-------------|-------------|
| April | 295,000 | 204,000 | 91,000 |
| March | 280,000 | 187,000 | 93,000 |
| 2016 | 239,000 | 157,000 | 82,000 |
| M/M change | 5.4% | 9.1% | -2.2% |
| Y/Y change | 23.4% | 29.9% | 11.0% |

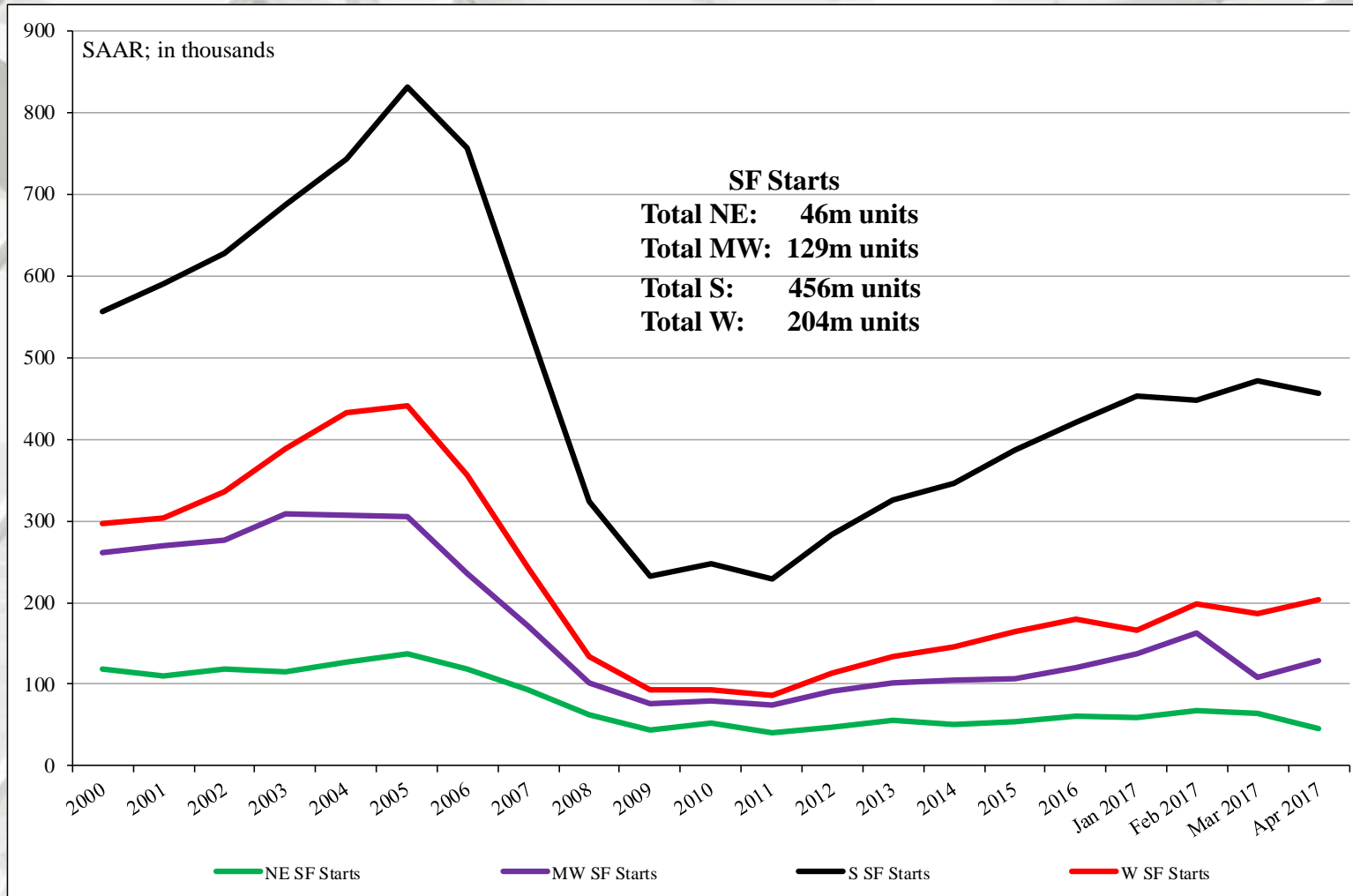
All data are SAAR; S = South and W = West.

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

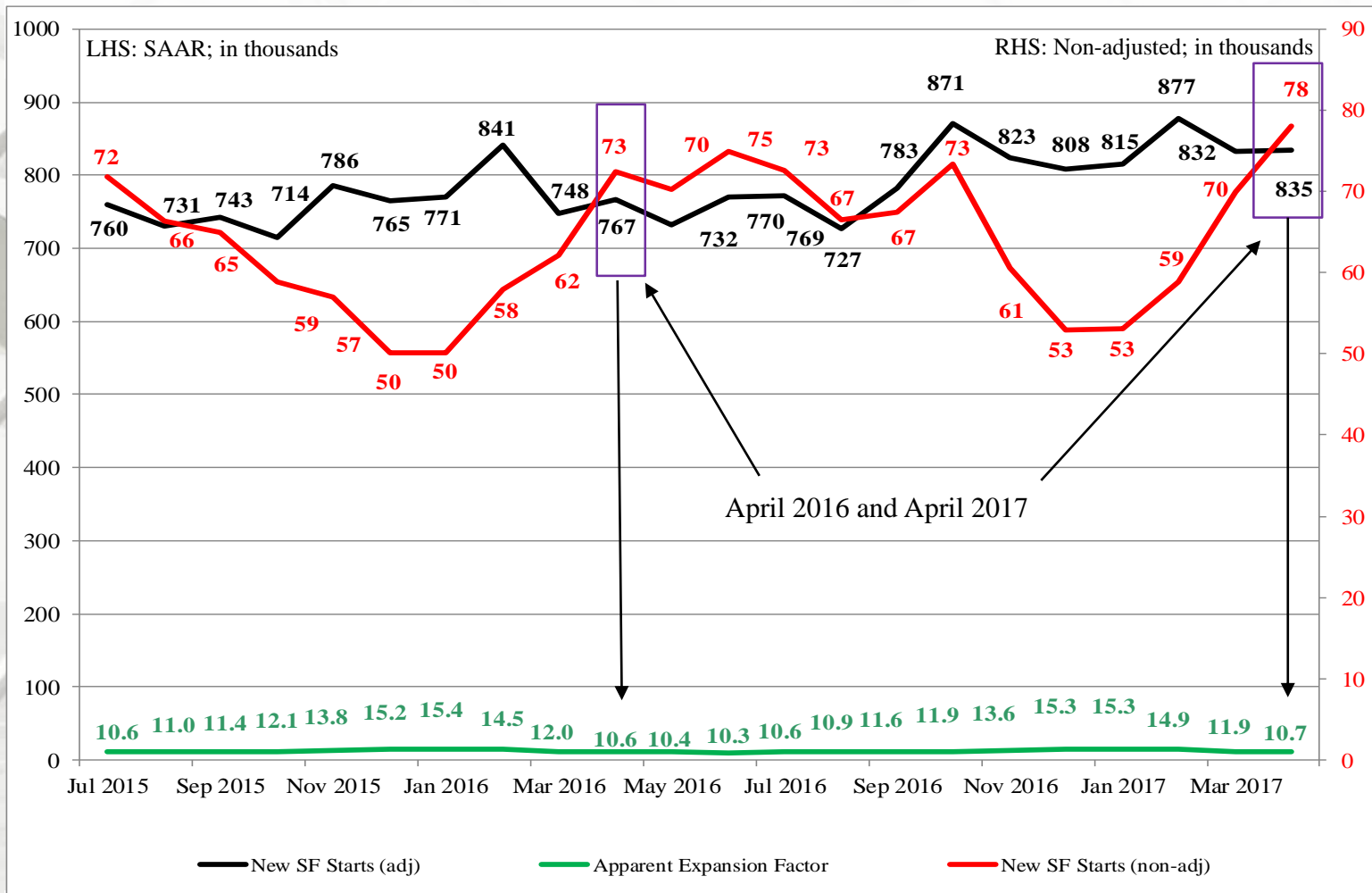
Total Housing Starts by Region



SF Housing Starts by Region



Nominal & SAAR SF Starts

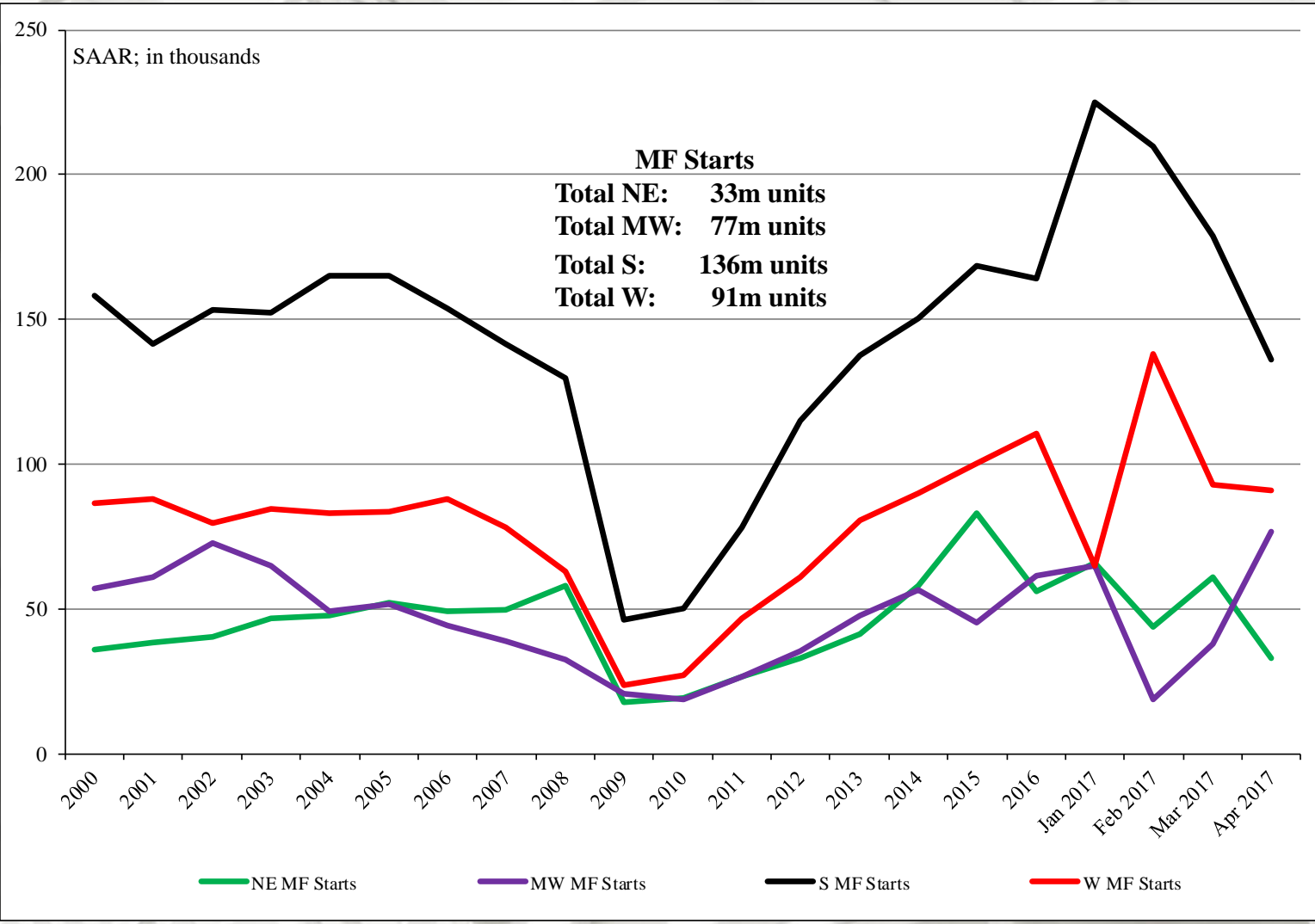


Nominal and Adjusted New SF Monthly Starts

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

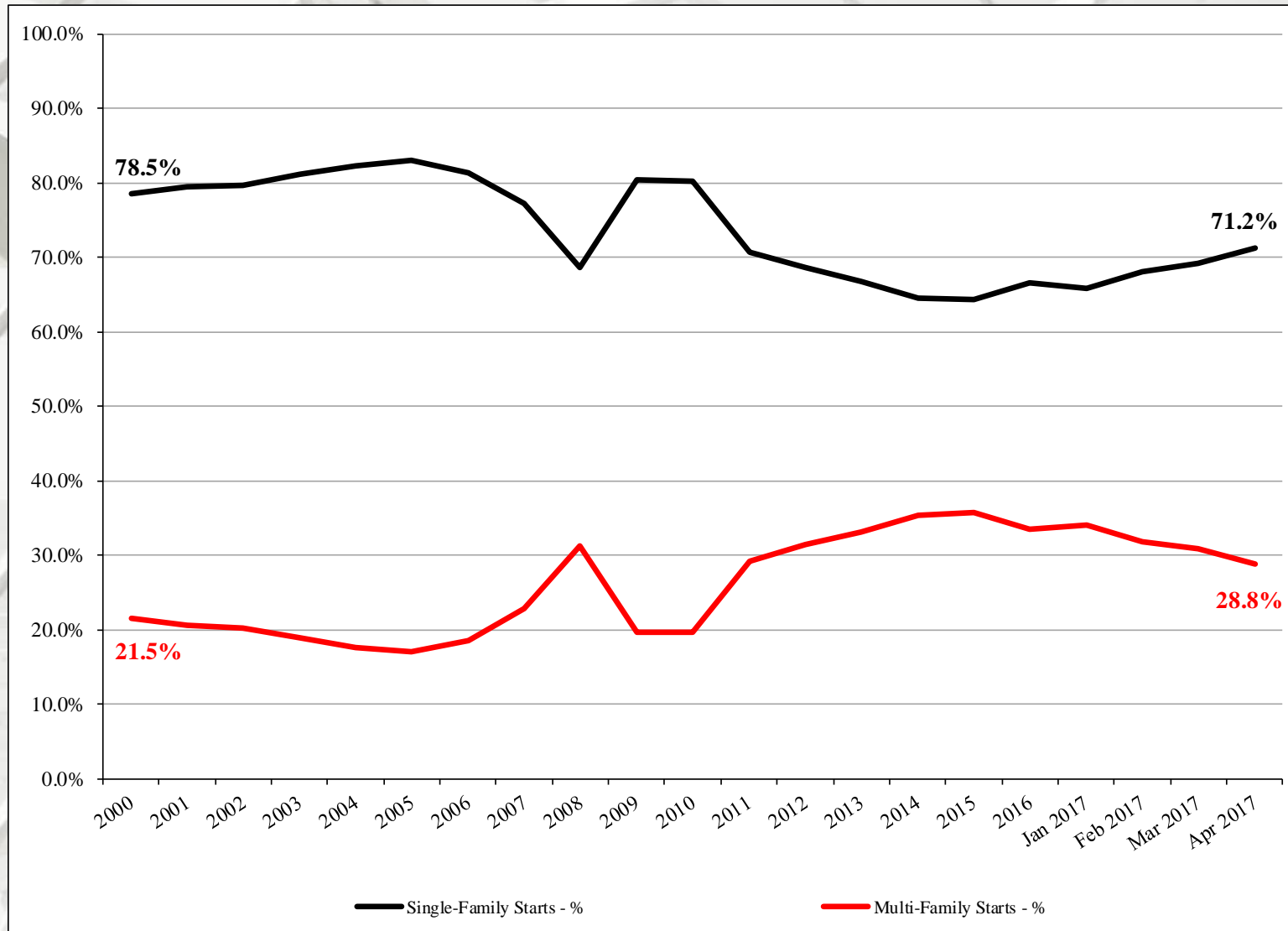
The apparent expansion factor "... is the ratio of the unadjusted number of houses started in the US to the seasonally adjusted number of houses started in the US (i.e., to the sum of the seasonally adjusted values for the four regions)." – U.S. DOC-Construction

MF Housing Starts by Region

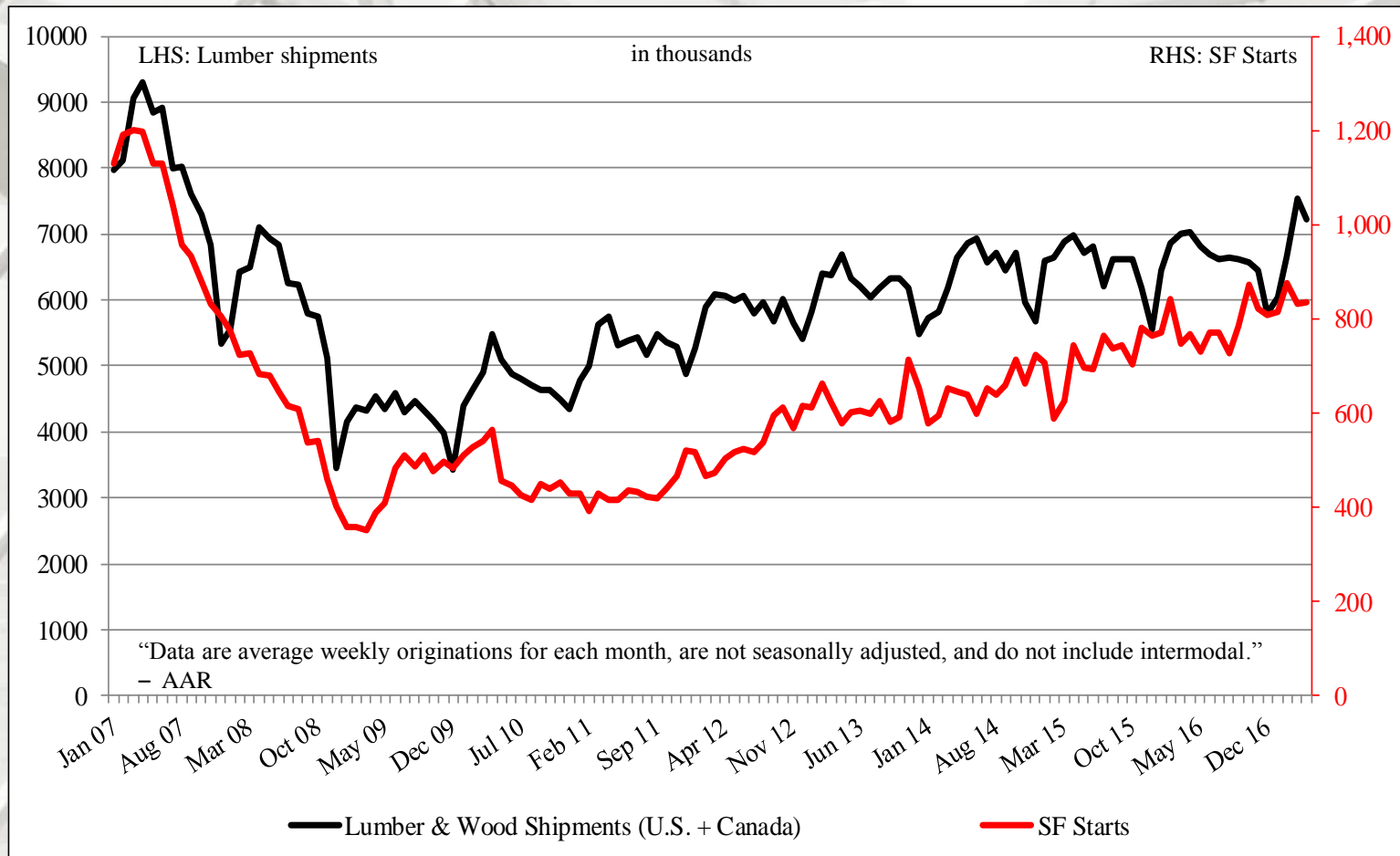


Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 5/16/17

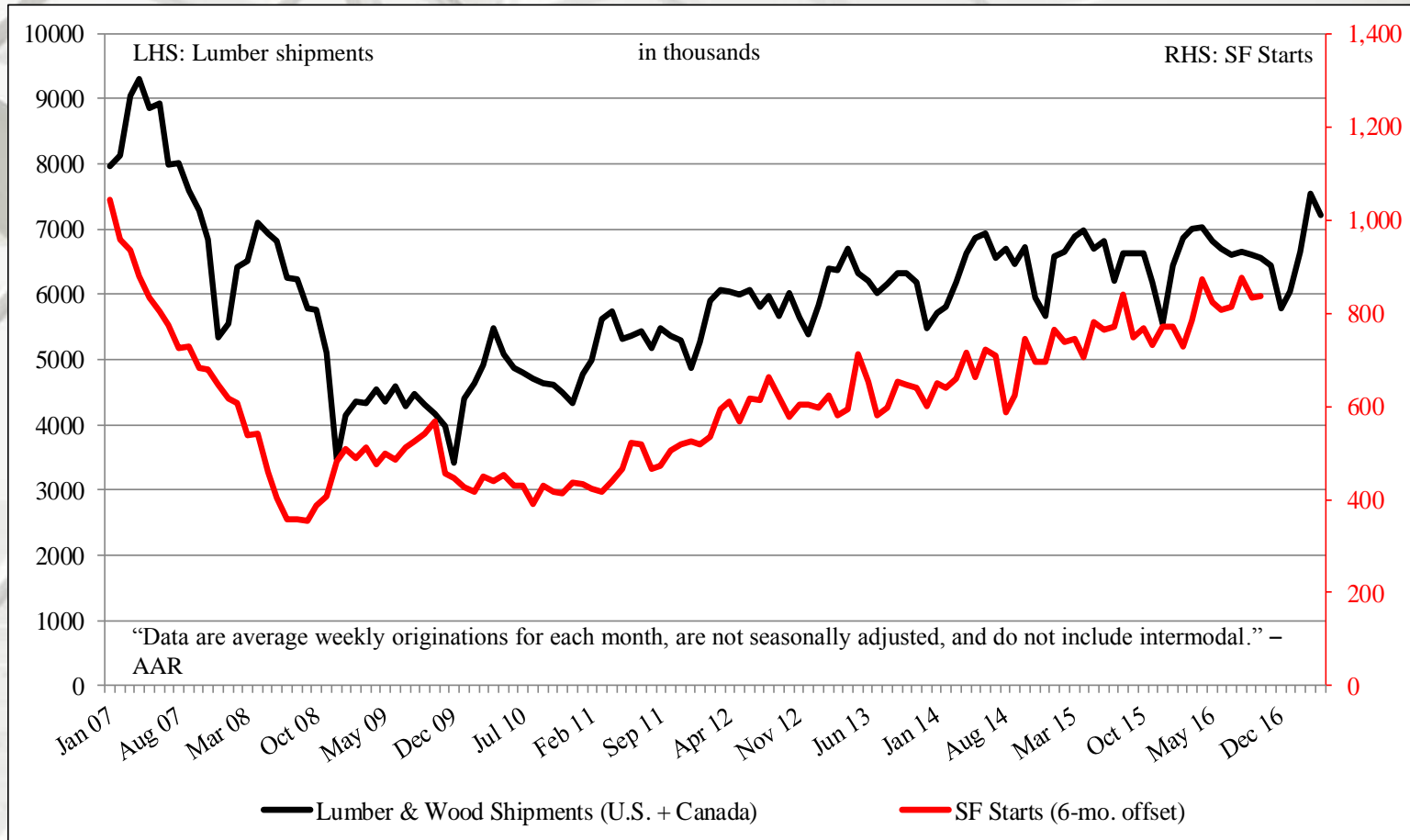
Housing Starts by Percent



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



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



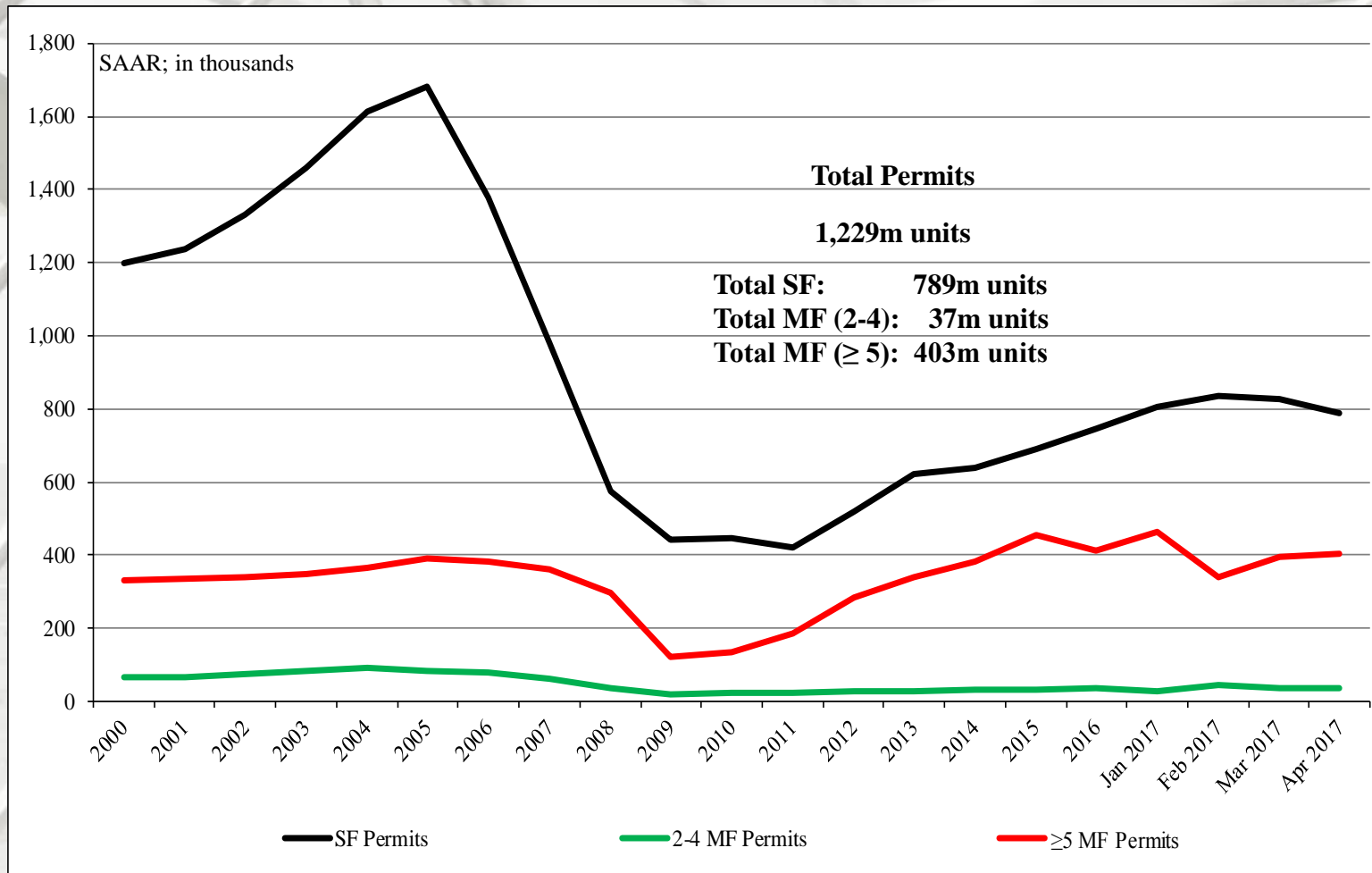
In this graph, January 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through April 2017 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge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

New Housing Permits

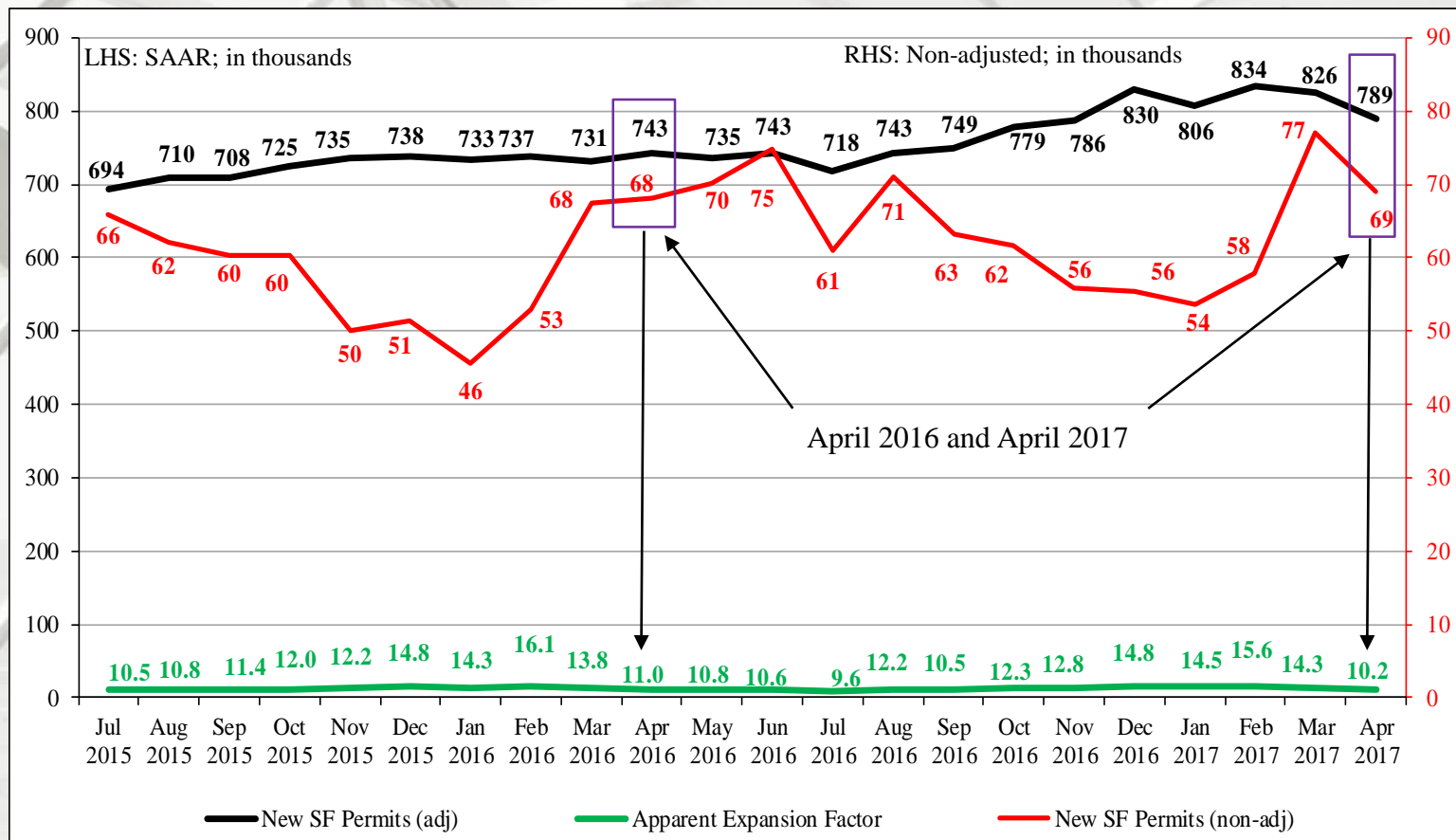
| | Total Permits* | SF Permits | MF 2-4 unit Permits | MF ≥ 5 unit Permits |
|------------|-----------------------|-------------------|----------------------------|----------------------------|
| April | 1,229,000 | 789,000 | 37,000 | 403,000 |
| March | 1,260,000 | 826,000 | 37,000 | 397,000 |
| 2016 | 1,163,000 | 743,000 | 33,000 | 387,000 |
| M/M change | -2.5% | -4.5% | 0.0% | 1.5% |
| Y/Y change | 5.7% | 6.2% | 12.1% | 4.1% |

* 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** |
|------------|------------------|--------------|----------------|
| April | 122,000 | 52,000 | 70,000 |
| March | 136,000 | 53,000 | 83,000 |
| 2016 | 108,000 | 56,000 | 52,000 |
| M/M change | -10.3% | -1.9% | -15.7% |
| Y/Y change | 13.0% | -7.1% | 34.6% |
| | MW Total* | MW SF | MW MF** |
| April | 194,000 | 124,000 | 70,000 |
| March | 192,000 | 128,000 | 64,000 |
| 2016 | 191,000 | 109,000 | 82,000 |
| M/M change | 1.0% | -3.1% | 9.4% |
| Y/Y change | 1.6% | 13.8% | -14.6% |

• All data are SAAR

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

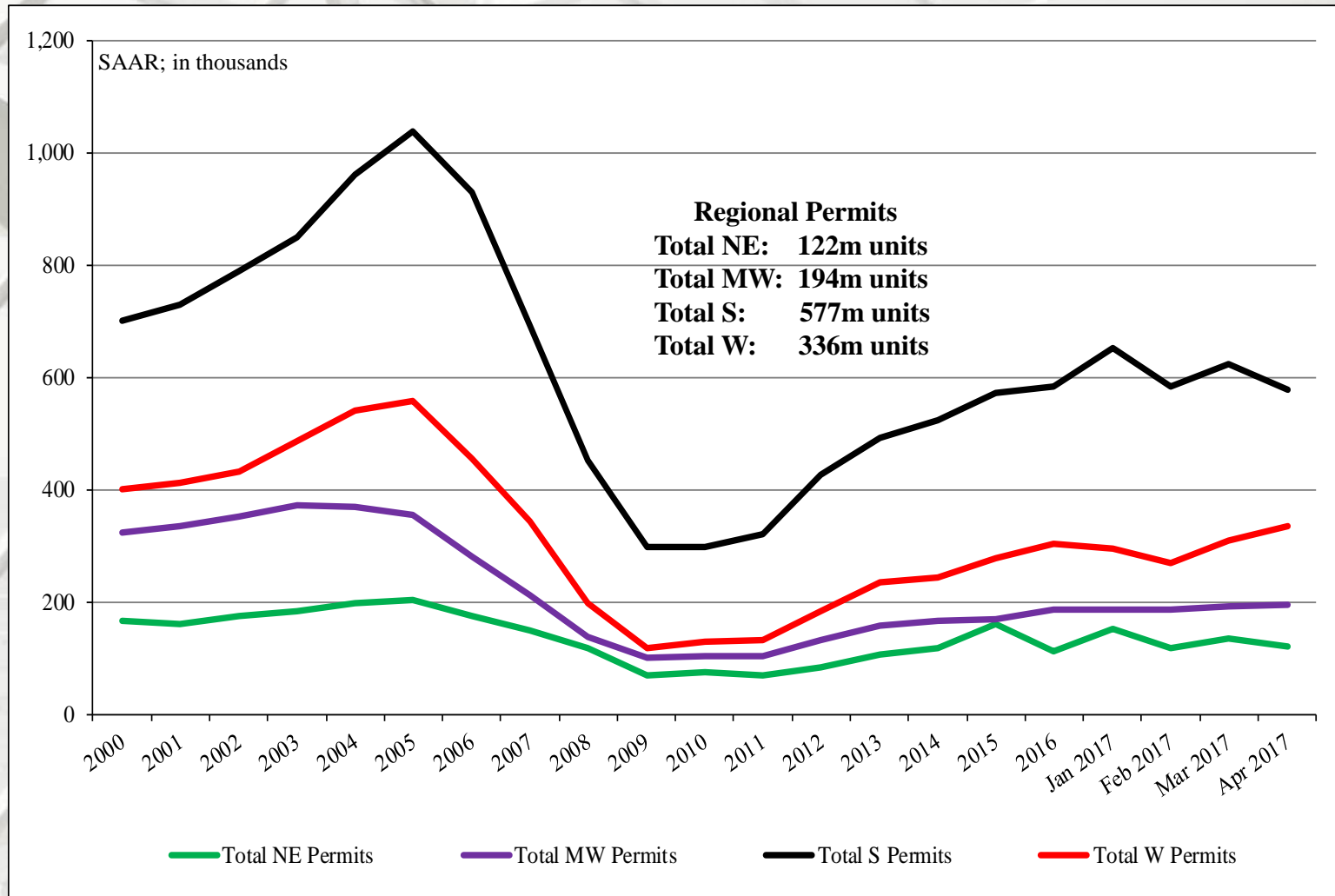
New Housing Permits by Region

| | S Total* | S SF | S MF** |
|------------|-----------------|-------------|---------------|
| April | 577,000 | 420,000 | 157,000 |
| March | 623,000 | 456,000 | 167,000 |
| 2016 | 580,000 | 400,000 | 180,000 |
| M/M change | -7.4% | -7.9% | -6.0% |
| Y/Y change | -0.5% | 5.0% | -12.8% |

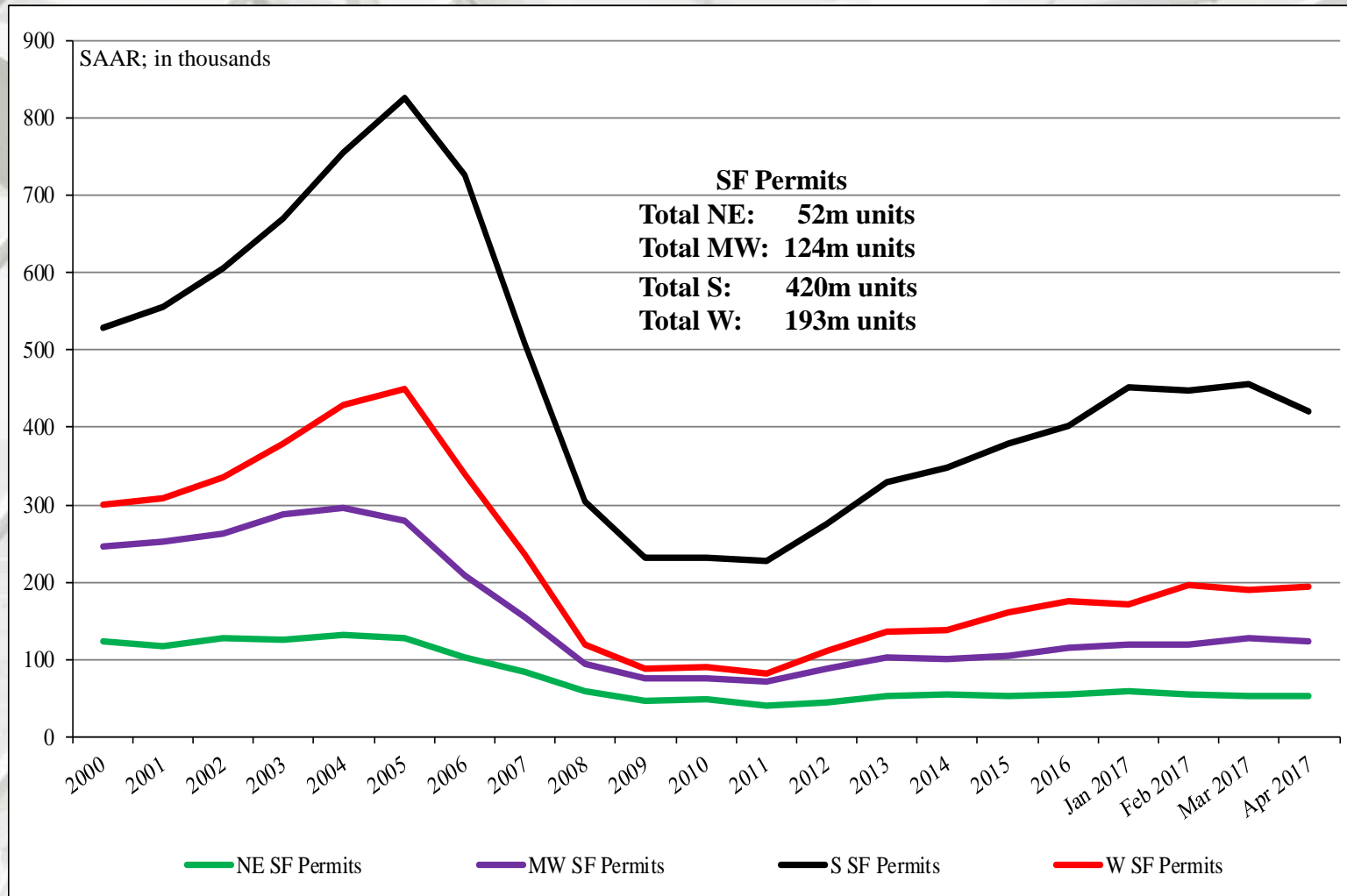
| | W Total* | W SF | W MF** |
|------------|-----------------|-------------|---------------|
| April | 336,000 | 193,000 | 143,000 |
| March | 309,000 | 189,000 | 120,000 |
| 2016 | 284,000 | 178,000 | 106,000 |
| M/M change | 8.7% | 2.1% | 19.2% |
| Y/Y change | 18.3% | 8.4% | 34.9% |

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

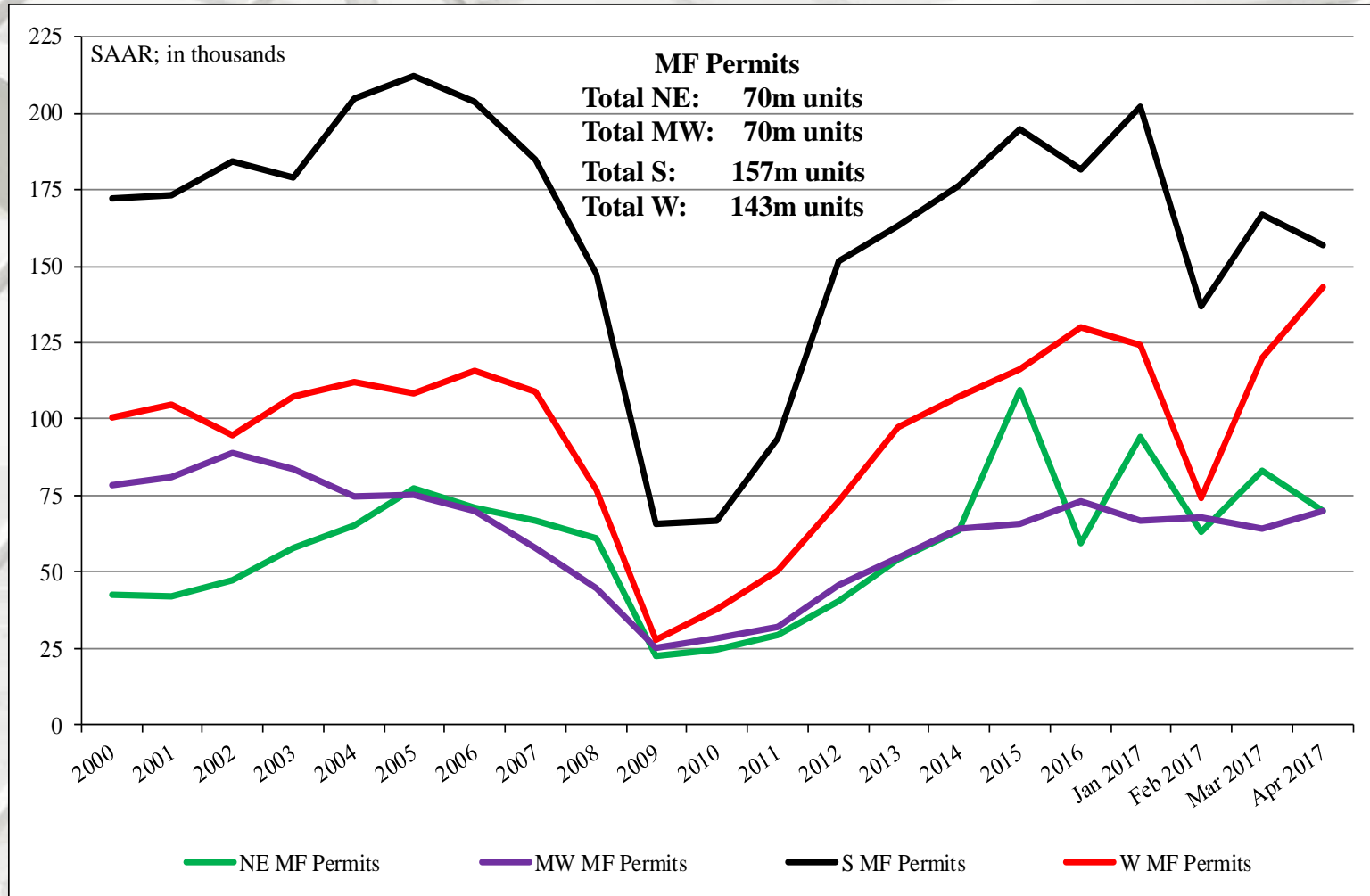
Total Housing Permits by Region



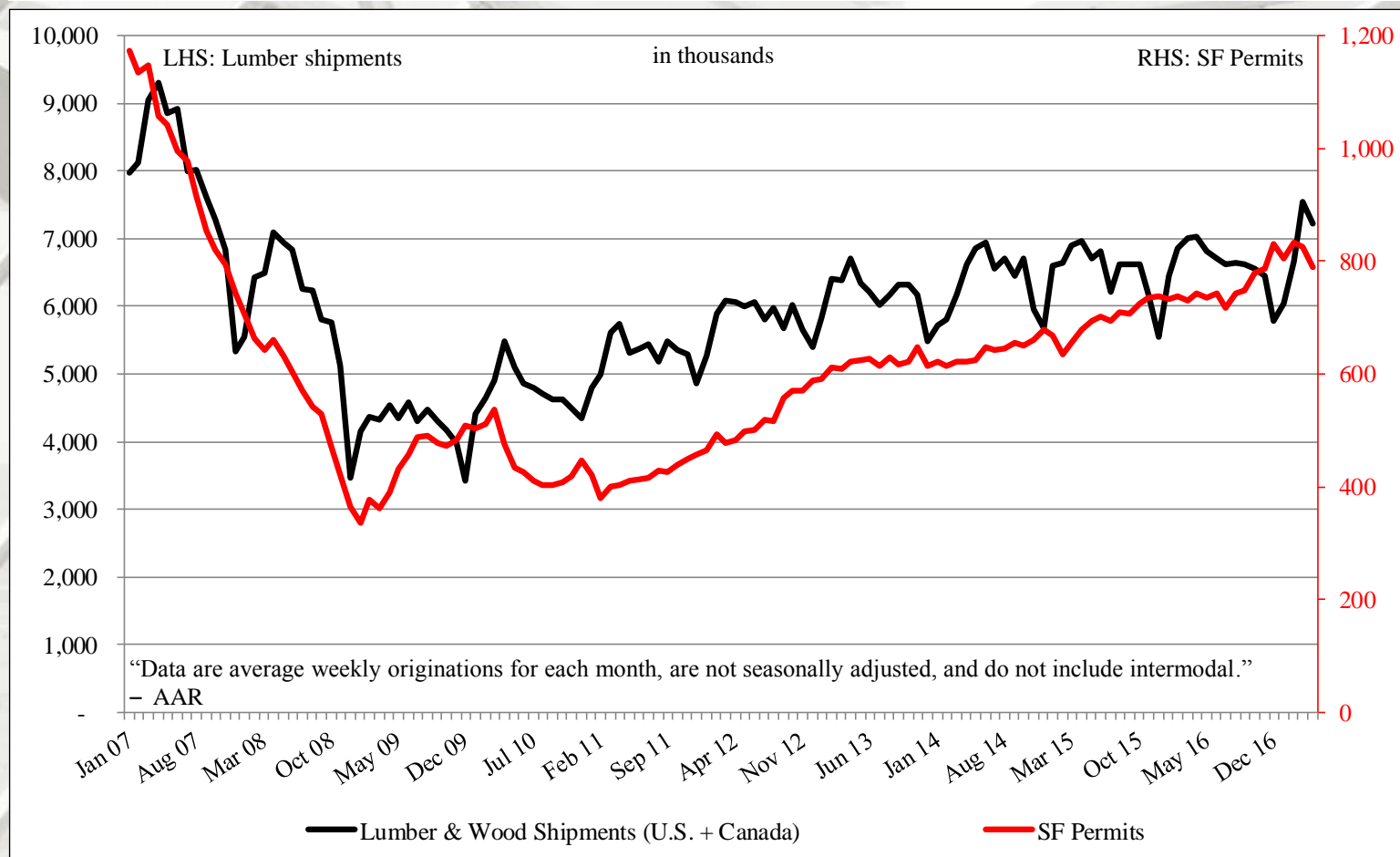
SF Housing Permits by Region



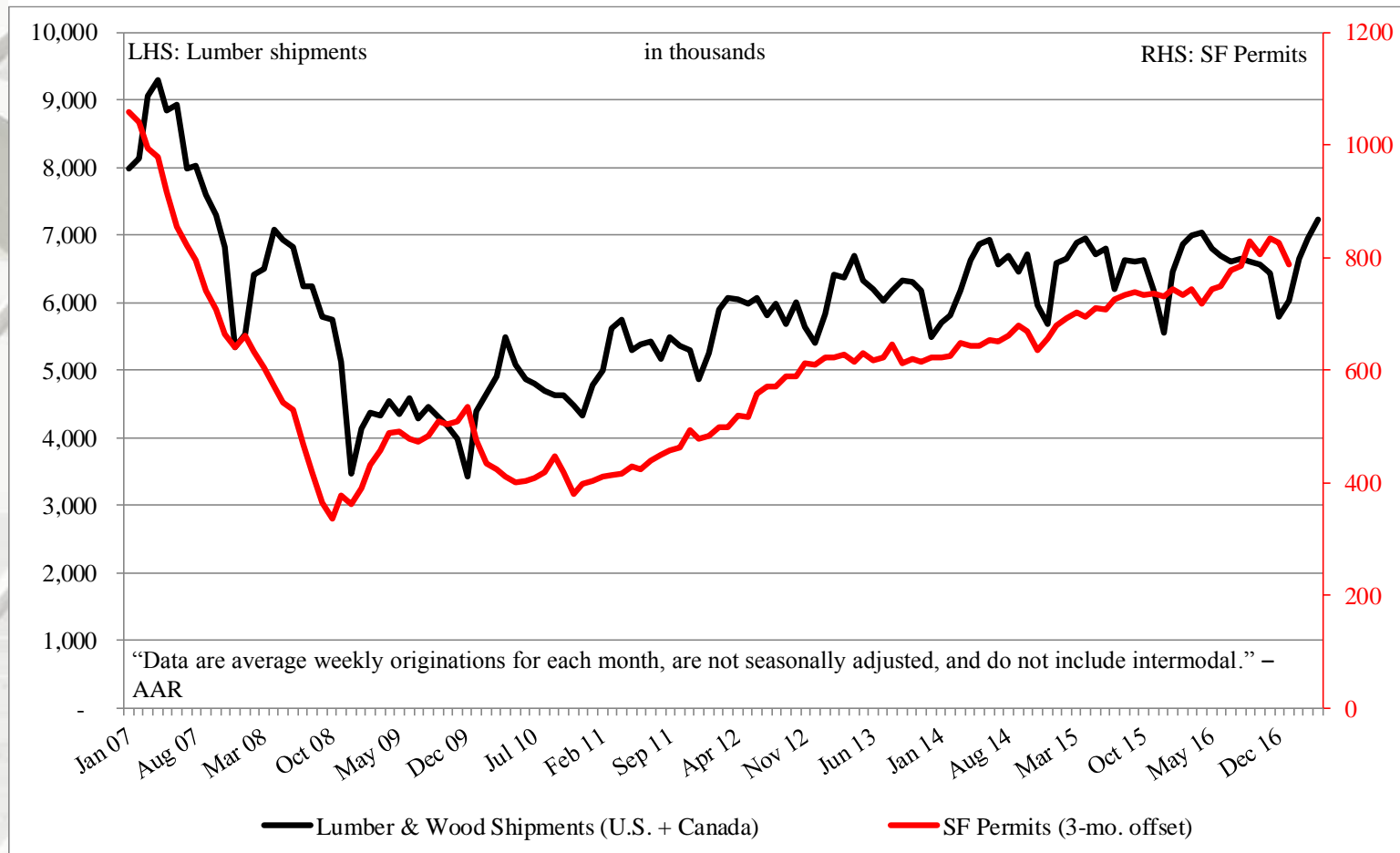
MF Housing Permits by Region



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 April 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.

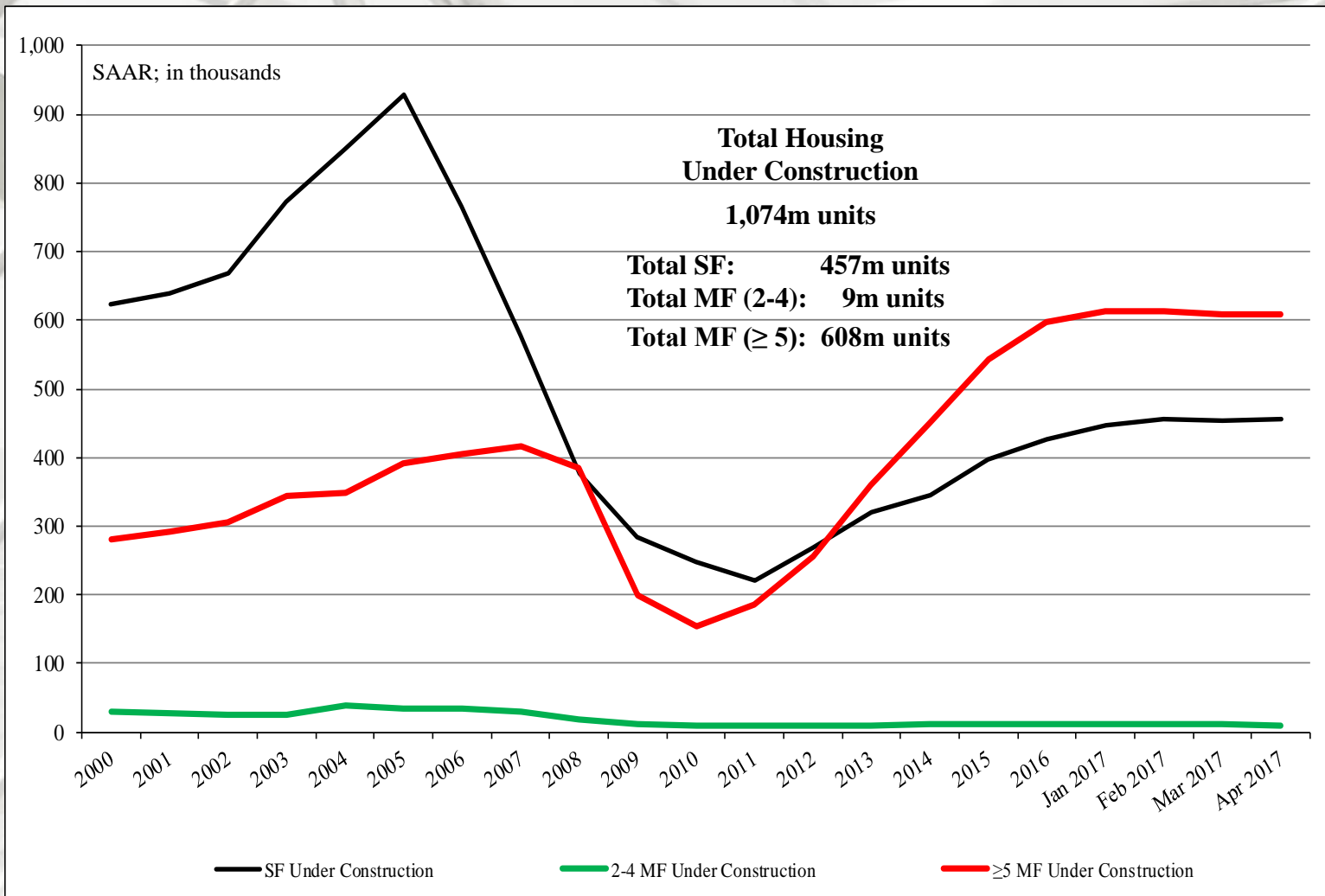
New Housing Under Construction

| | Total Under Construction* | SF Under Construction | MF 2-4 unit** Under Construction | Under Construction |
|------------|---------------------------|-----------------------|----------------------------------|--------------------|
| April | 1,074,000 | 457,000 | 9,000 | 608,000 |
| March | 1,074,000 | 454,000 | 11,000 | 609,000 |
| 2016 | 996,000 | 429,000 | 10,000 | 557,000 |
| M/M change | 0.0% | 0.7% | -18.2% | -0.2% |
| Y/Y change | 7.8% | 6.5% | -10.0% | 9.2% |

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** |
|------------|-----------------|--------------|----------------|
| April | 192,000 | 52,000 | 140,000 |
| March | 193,000 | 53,000 | 140,000 |
| 2016 | 187,000 | 49,000 | 138,000 |
| M/M change | -0.5% | -1.9% | 0.0% |
| Y/Y change | 2.7% | 6.1% | 1.4% |
| | MW Total | MW SF | MW MF |
| April | 148,000 | 74,000 | 74,000 |
| March | 147,000 | 73,000 | 74,000 |
| 2016 | 135,000 | 74,000 | 61,000 |
| M/M change | 0.7% | 1.4% | 0.0% |
| Y/Y change | 9.6% | 0.0% | 21.3% |

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).

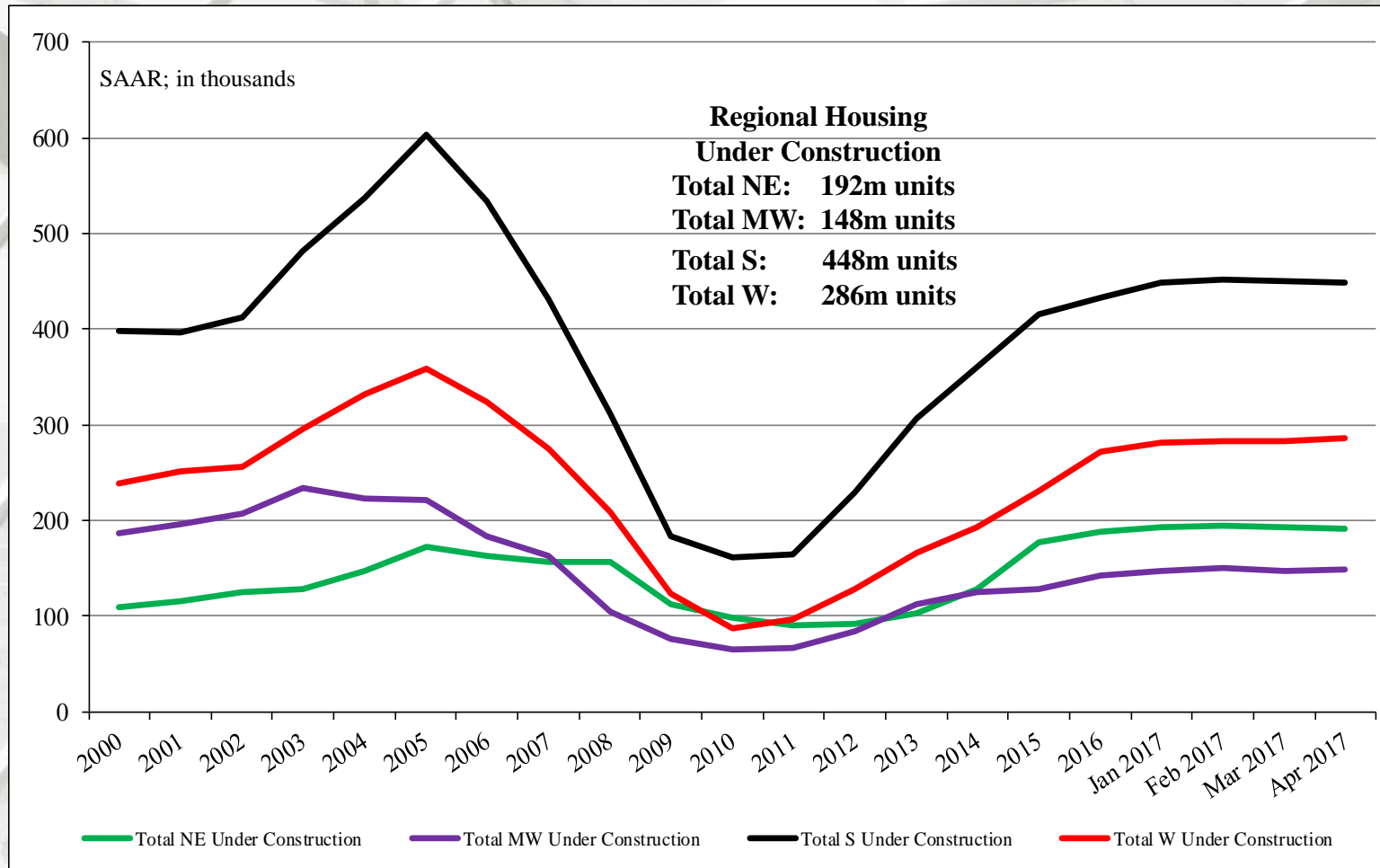
New Housing Under Construction by Region

| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| April | 448,000 | 219,000 | 229,000 |
| March | 451,000 | 217,000 | 234,000 |
| 2016 | 431,000 | 211,000 | 220,000 |
| M/M change | -0.7% | 0.9% | -2.1% |
| Y/Y change | 3.9% | 3.8% | 4.1% |
| | W Total | W SF | W MF |
| April | 286,000 | 112,000 | 174,000 |
| March | 283,000 | 111,000 | 172,000 |
| 2016 | 243,000 | 95,000 | 148,000 |
| M/M change | 1.1% | 0.9% | 1.2% |
| Y/Y change | 17.7% | 17.9% | 17.6% |

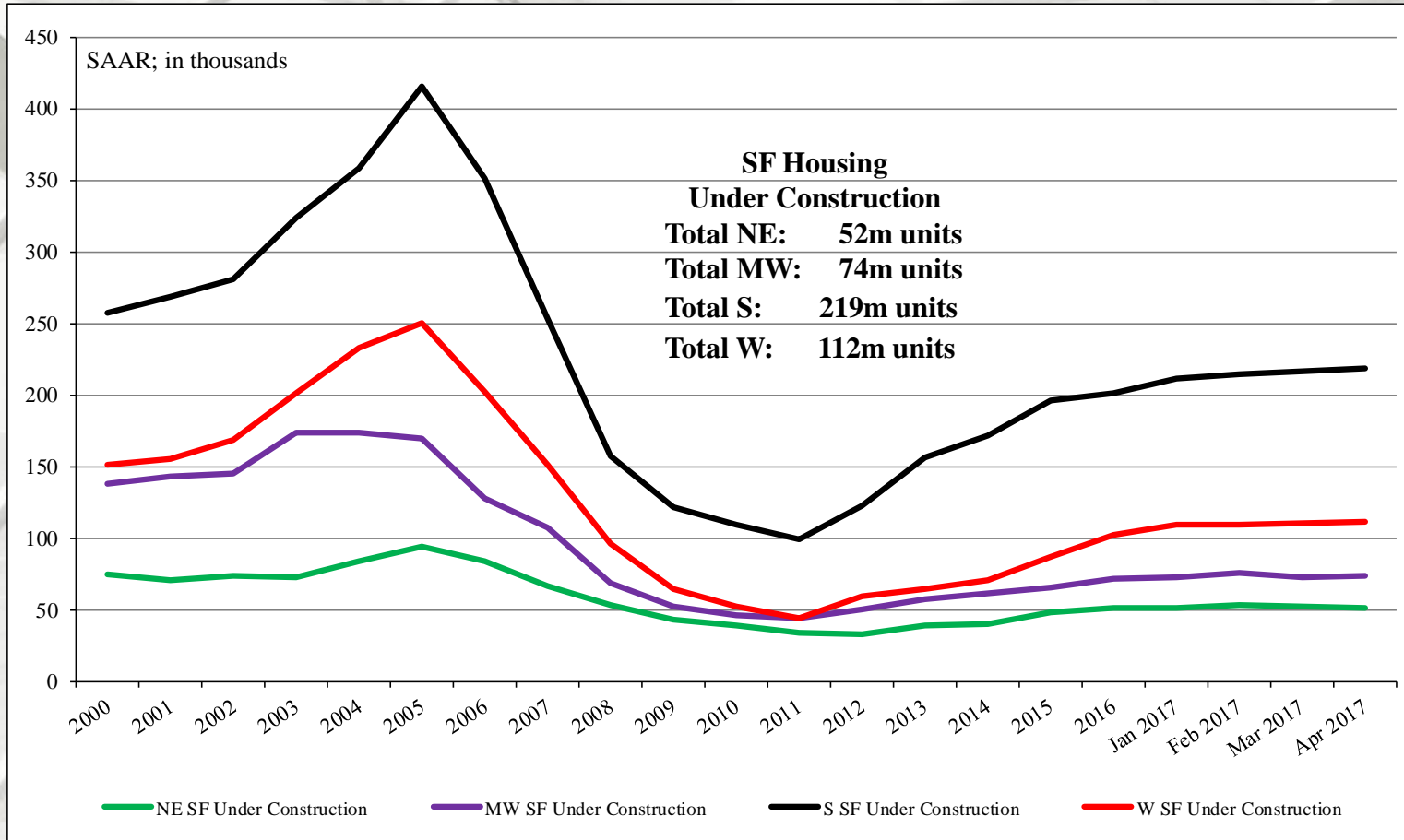
All data are SAAR; S = South and W = West.

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

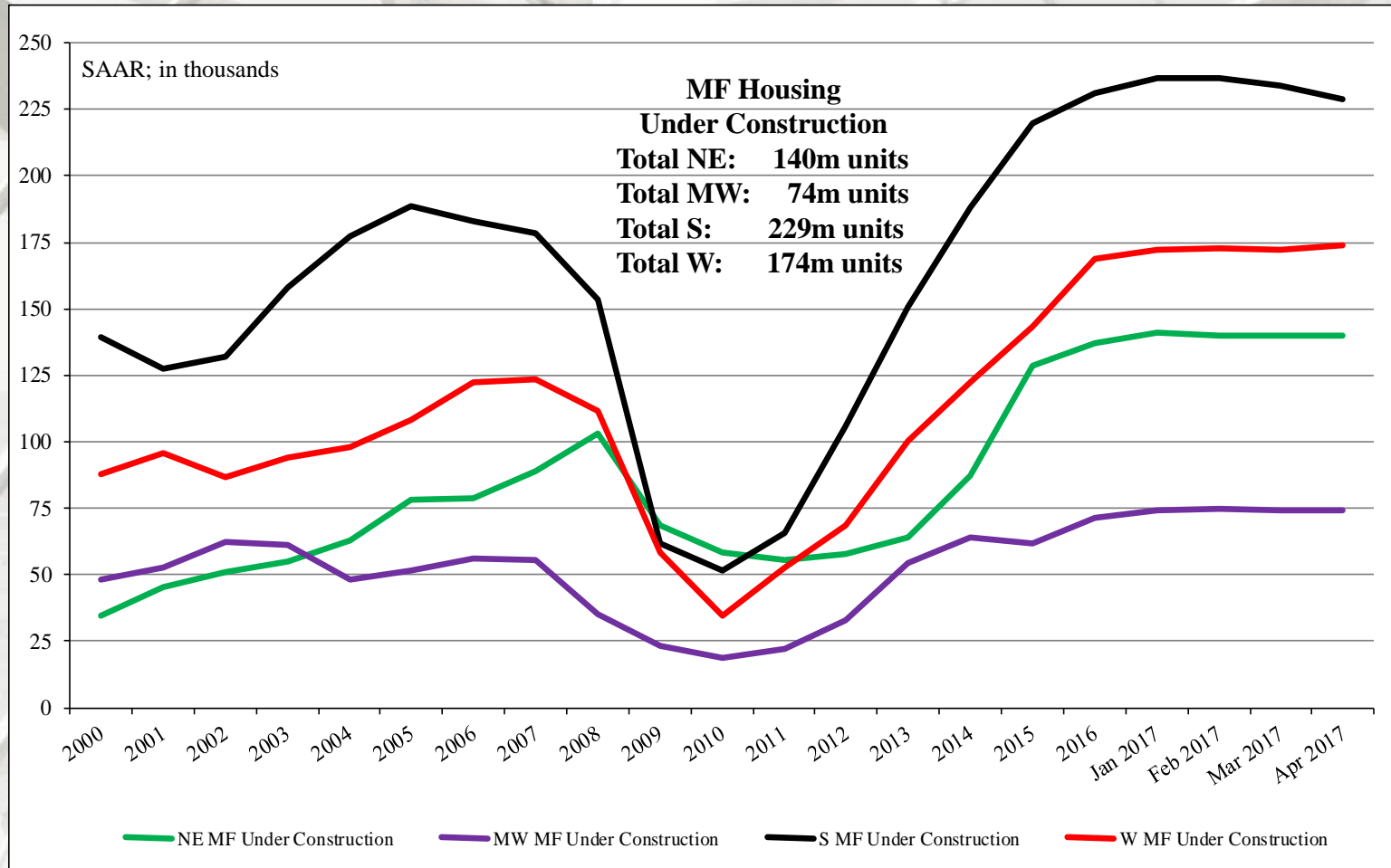
Total Housing Under Construction by Region



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 |
|------------|--------------------|----------------|---------------|-------------------------|
| April | 1,106,000 | 784,000 | 23,000 | 299,000 |
| March | 1,210,000 | 821,000 | 16,000 | 373,000 |
| 2016 | 961,000 | 712,000 | 9,000 | 240,000 |
| M/M change | -8.6% | -4.5% | 43.8% | -19.8% |
| Y/Y change | 15.1% | 10.1% | 155.6% | 24.6% |

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 by Region

| | NE Total | NE SF | NE MF** |
|------------|-----------------|--------------|----------------|
| April | 84,000 | 62,000 | 22,000 |
| March | 115,000 | 62,000 | 44,300 |
| 2016 | 85,000 | 56,000 | 29,000 |
| M/M change | -27.0% | 0.0% | -50.3% |
| Y/Y change | -1.2% | 10.7% | -24.1% |
| | MW Total | MW SF | MW MF |
| April | 186,000 | 127,000 | 59,000 |
| March | 187,000 | 134,000 | 53,000 |
| 2016 | 149,000 | 117,000 | 32,000 |
| M/M change | -0.5% | -5.2% | 11.3% |
| Y/Y change | 24.8% | 8.5% | 84.4% |

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).

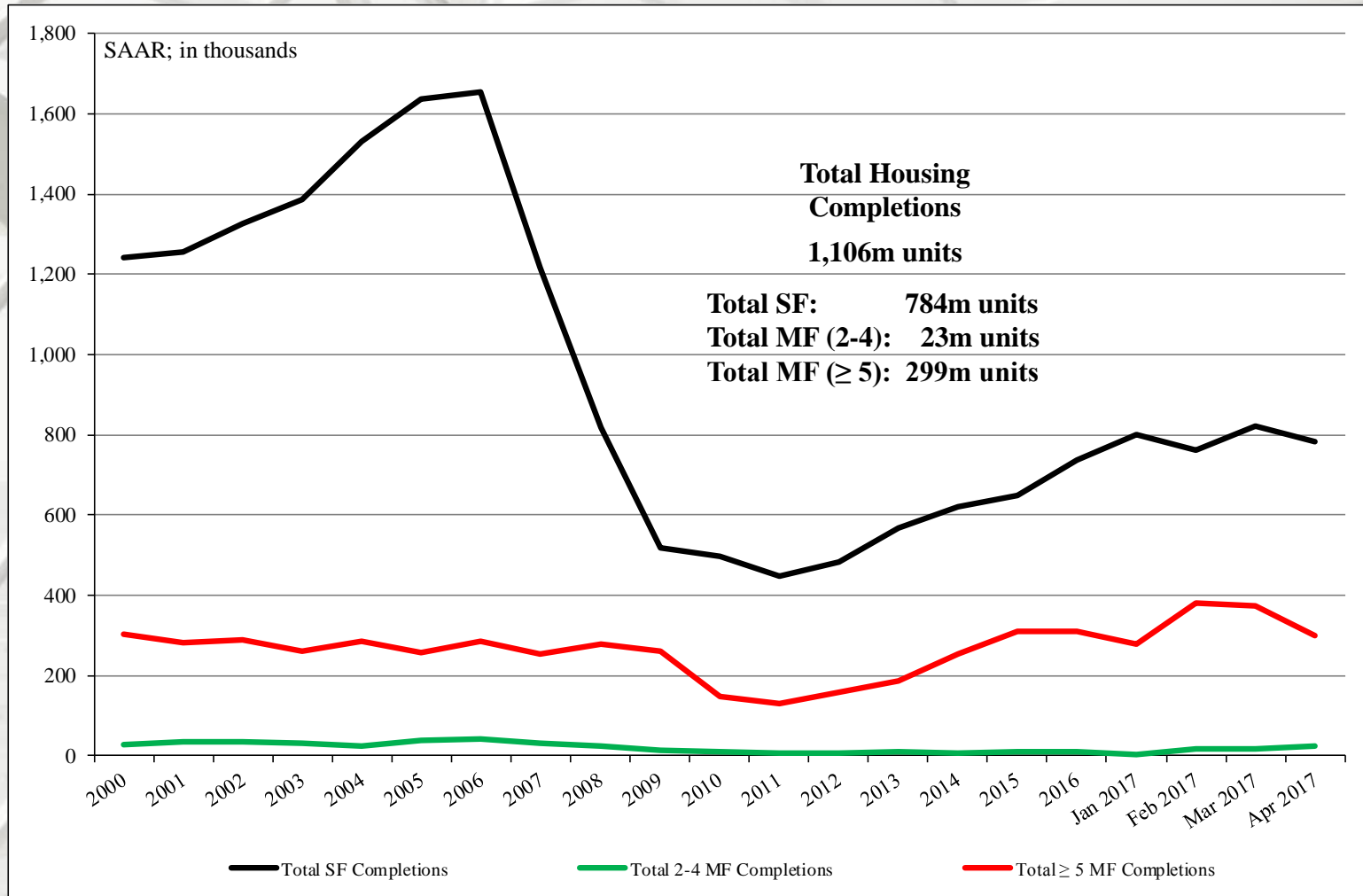
Total Housing Completions by Region

| | S Total | S SF | S MF** |
|------------|----------------|-------------|---------------|
| April | 596,000 | 419,000 | 177,000 |
| March | 636,000 | 455,000 | 181,000 |
| 2016 | 508,000 | 387,000 | 121,000 |
| M/M change | -6.3% | -7.9% | -2.2% |
| Y/Y change | 17.3% | 8.3% | 46.3% |
| | W Total | W SF | W MF |
| April | 240,000 | 176,000 | 64,000 |
| March | 272,000 | 170,000 | 102,000 |
| 2016 | 219,000 | 152,000 | 67,000 |
| M/M change | -11.8% | 3.5% | -37.3% |
| Y/Y change | 9.6% | 15.8% | -4.5% |

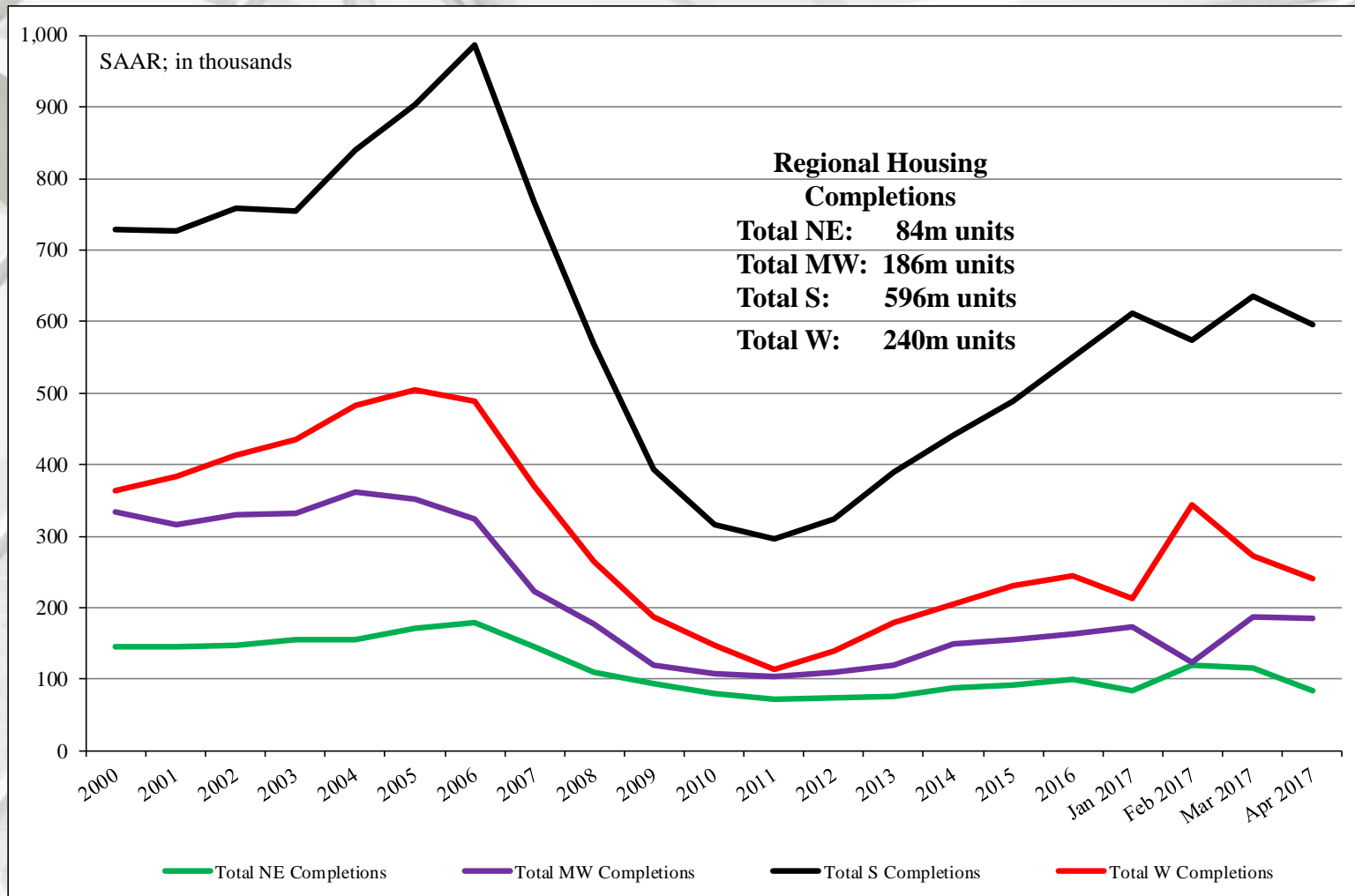
All data are SAAR; S = South and W = West.

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

Total Housing Completions



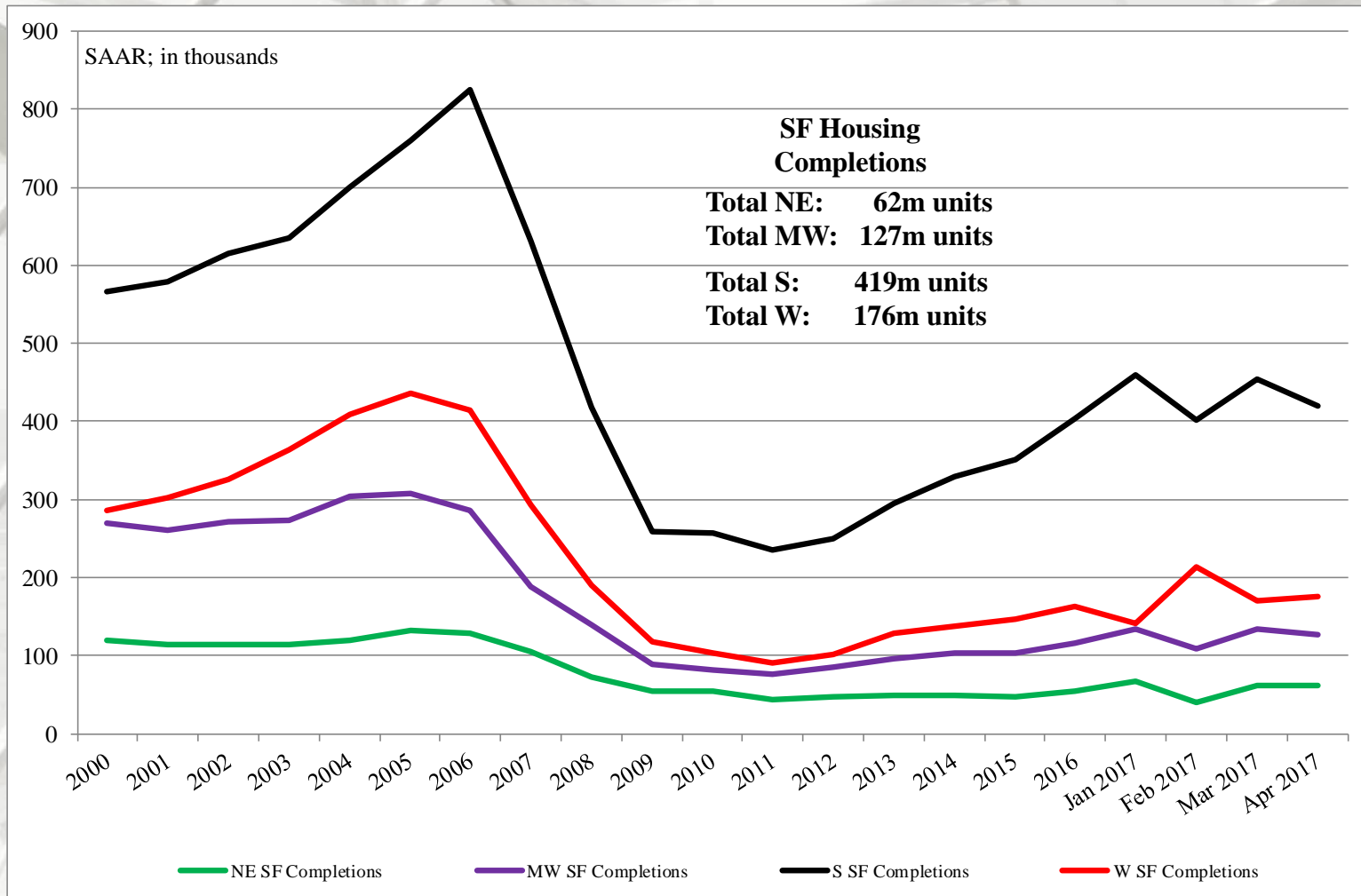
New Housing Completions by Region



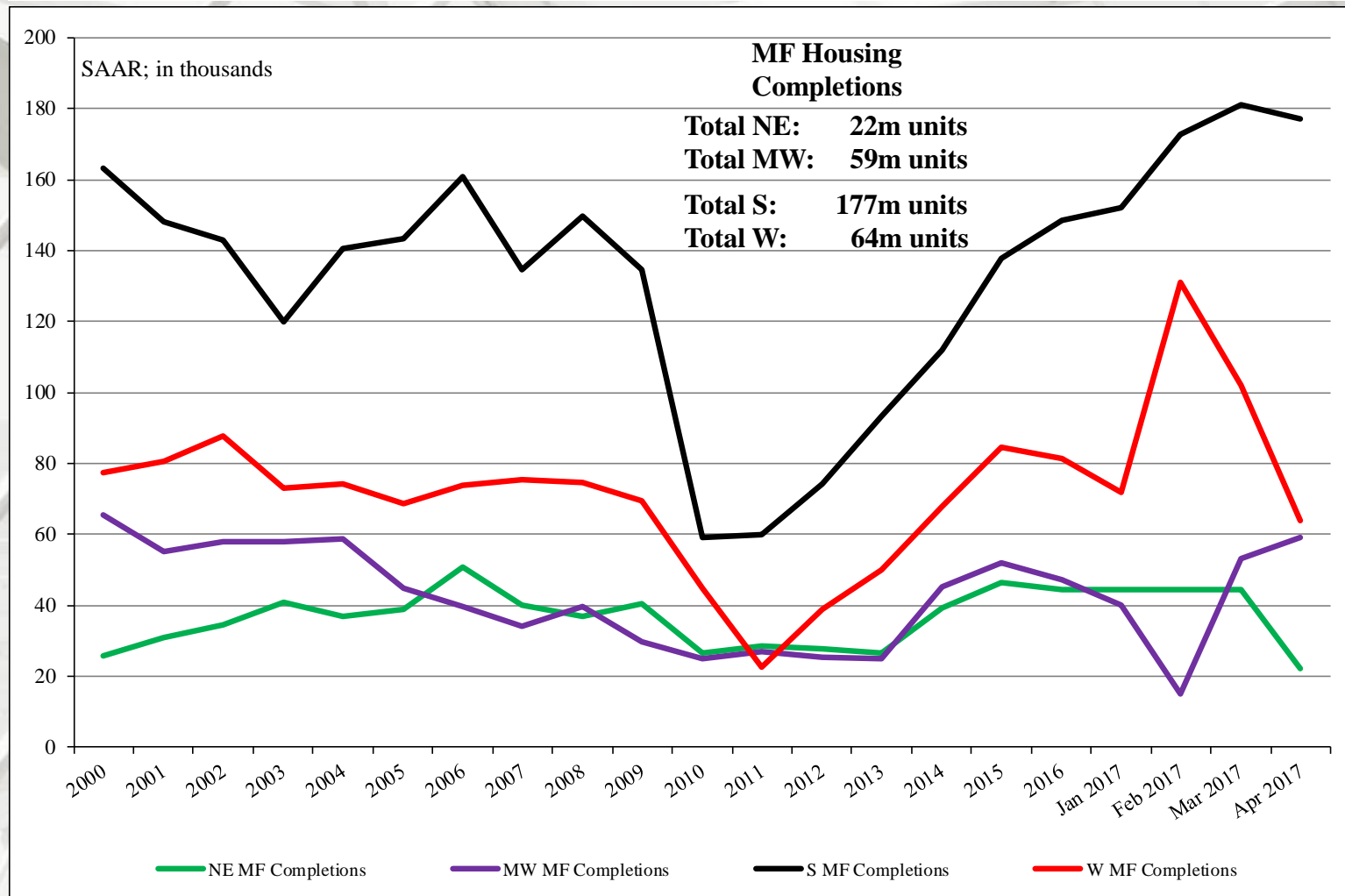
All data are SAAR; NE = Northeast and MW = Midwest.

** 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



New SF Houses Completed: 2016

“Of the 738,000 single-family homes completed in 2016:

- 686,000 had air-conditioning.
- 71,000 had two bedrooms or less and 336,000 had four bedrooms or more.
- 25,000 had one and one-half bathrooms or less and 273,000 homes had three or more bathrooms.
- 178,000 had stucco as the primary exterior wall material.
- 200,000 had a full or partial basement.
- 61,000 had concrete framing.

The median size of a completed single-family house was 2,422 square feet.”

New Single-Family House Sales

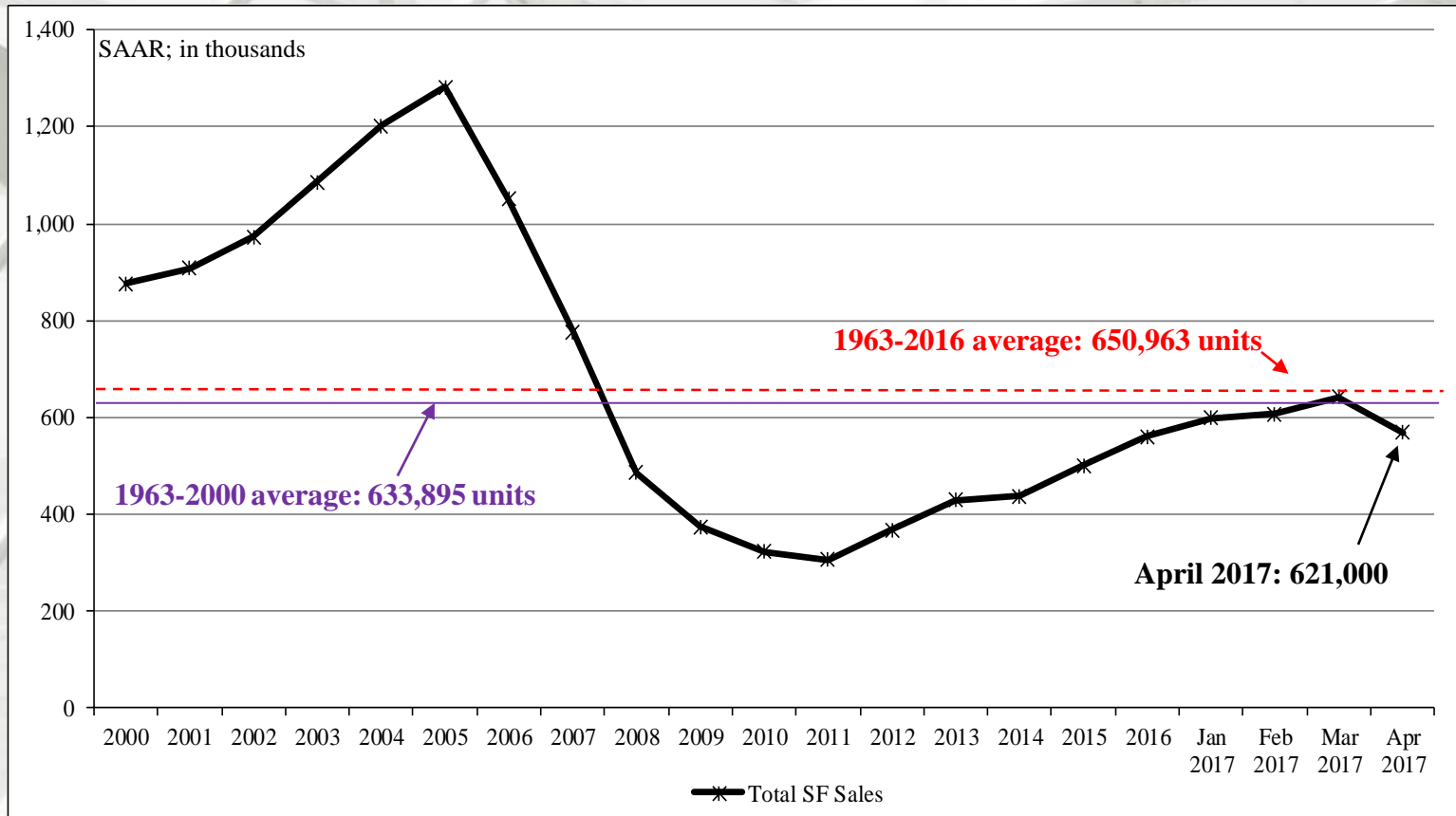
| | New SF Sales* | Median Price | Mean Price | Month's Supply |
|------------|----------------------|---------------------|-------------------|-----------------------|
| April | 569,000 | \$309,200 | \$368,300 | 5.7 |
| March | 642,000 | \$318,700 | \$385,400 | 4.9 |
| 2016 | 566,000 | \$292,700 | \$334,700 | 5.1 |
| M/M change | -11.4% | -3.0% | -4.4% | 16.3% |
| Y/Y change | 0.5% | 7.6% | 8.1% | 11.8% |

* All sales data are presented at a seasonally adjusted annual rate (SAAR) ¹.

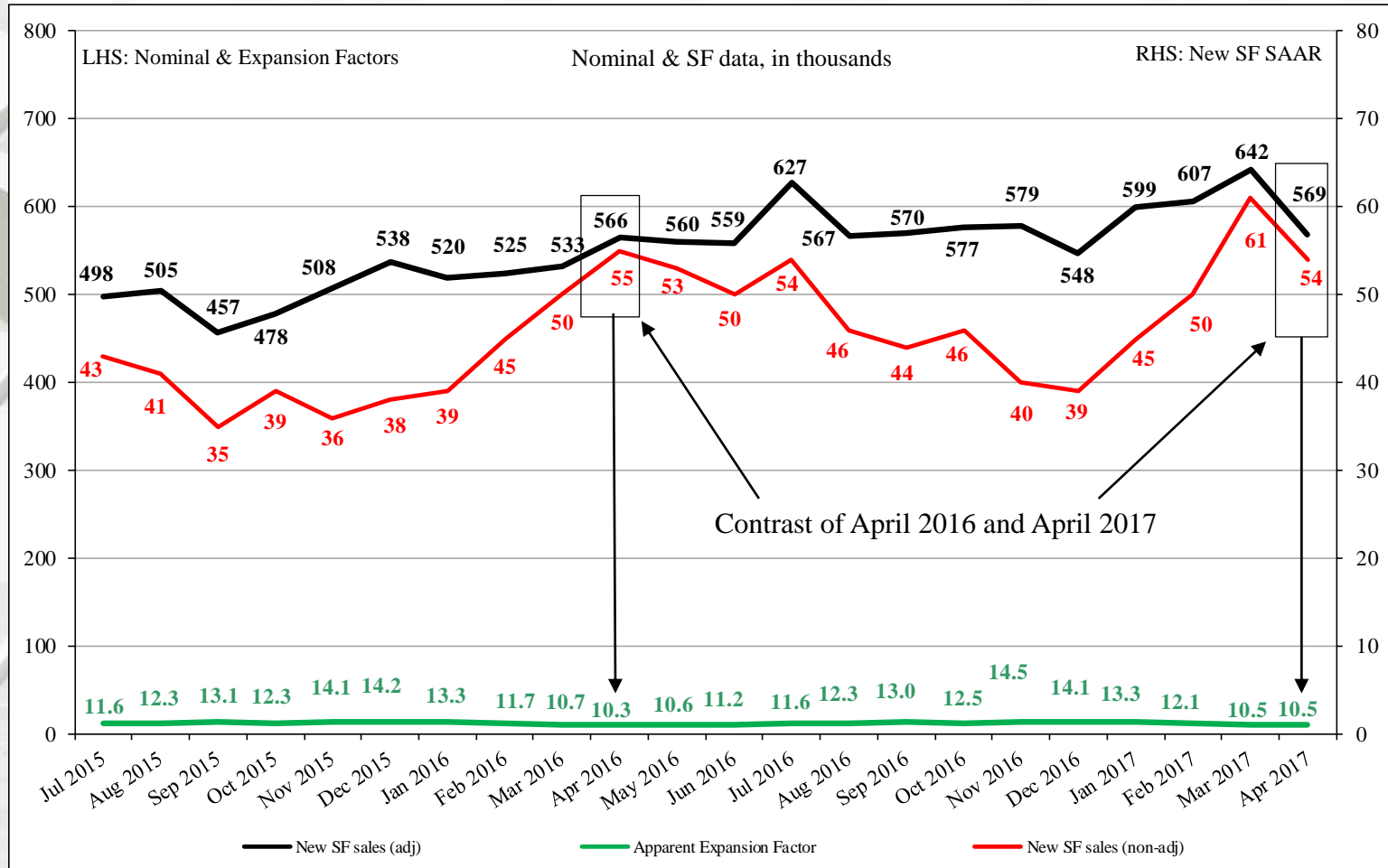
New SF sales were substantially more than the consensus forecast (610m)². The past three month's new SF sales data were revised upward:

January initial: 585 m revised to 599 m;
 February initial: 587 m revised to 607 m;
 March initial: 621m revised to 642 m.

New SF House Sales



Nominal vs. SAAR New SF House Sales

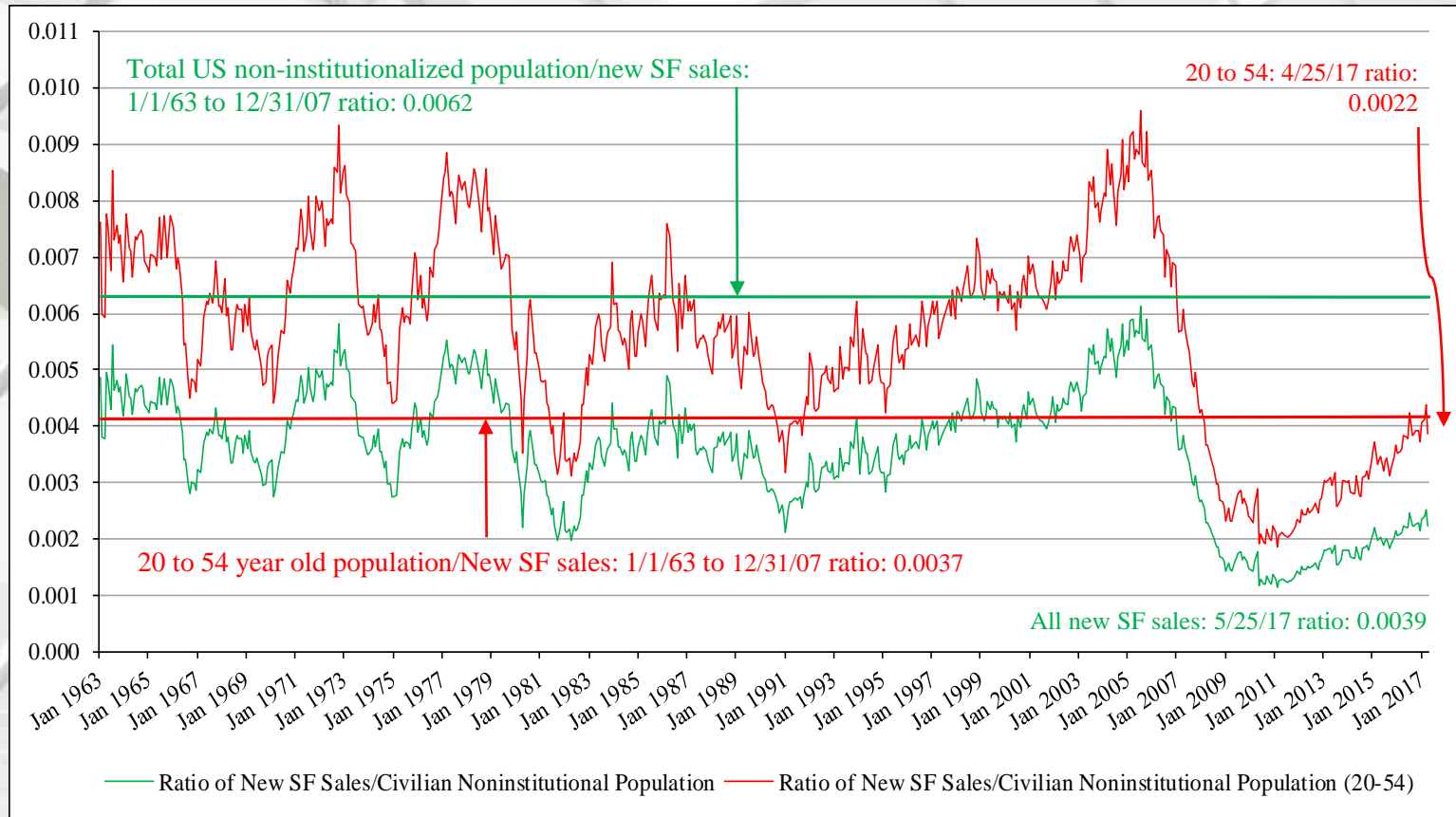


Nominal and Adjusted New SF Monthly Sales

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 April 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0037; in April 2017 it was 0.0022 – a decrease from March (0.0025). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in April 2017 it was 0.0039 – a decrease from March (0.0044). 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 |
|------------|-------------|-------------|------------|------------|
| April | 37,000 | 73,000 | 333,000 | 126,000 |
| March | 40,000 | 84,000 | 347,000 | 171,000 |
| 2016 | 39,000 | 61,000 | 320,000 | 146,000 |
| M/M change | -7.5% | -13.1% | -4.0% | -26.3% |
| Y/Y change | -5.1% | 19.7% | 4.1% | -13.7% |

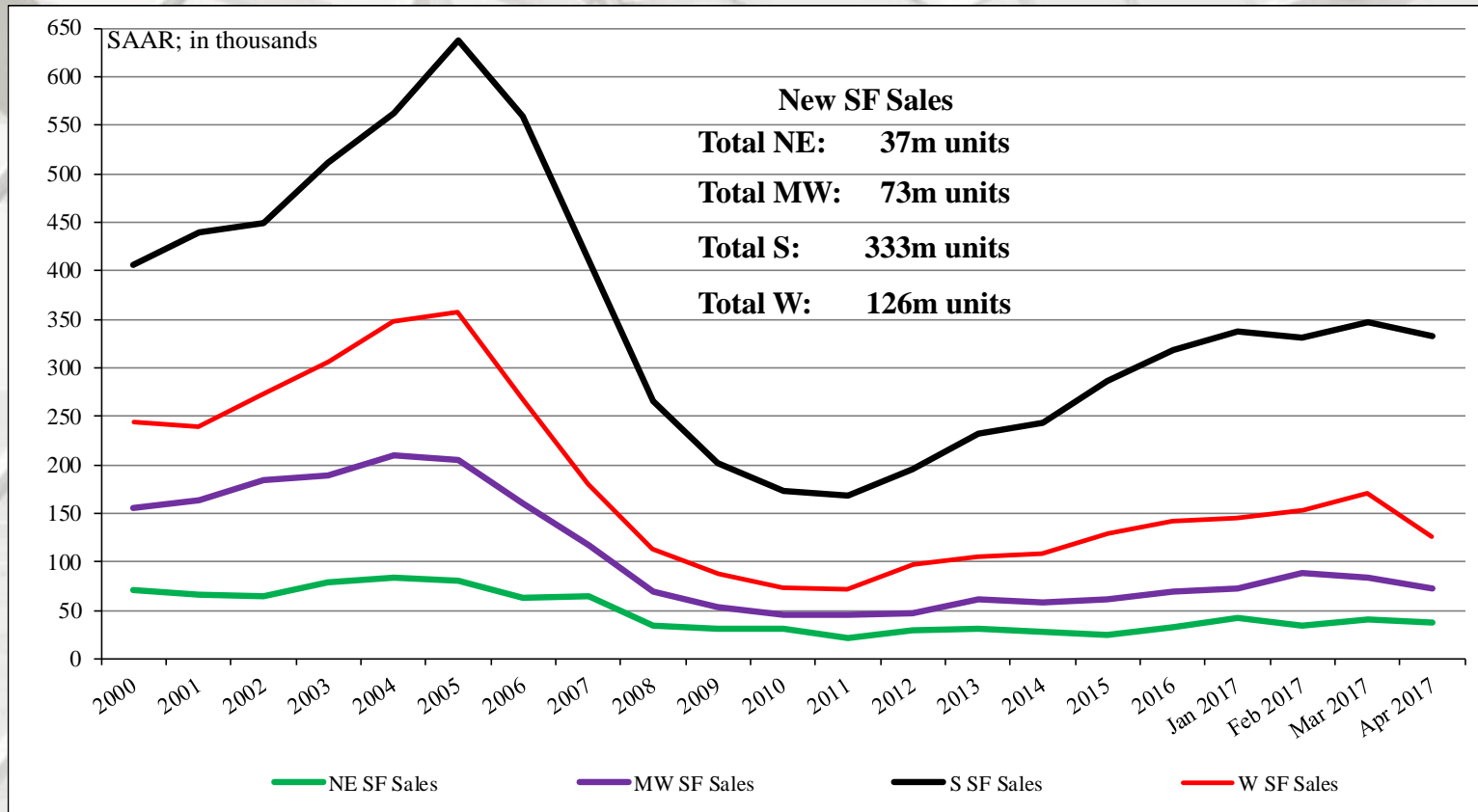
| | ≤ \$150m | \$150 - \$199.9m | \$200 - 299.9m | \$300 - \$399.9m | \$400 - \$499.9m | \$500 - \$749.9m | ≥ \$750m |
|----------------------|----------|------------------|----------------|------------------|------------------|------------------|----------|
| April ^{1,2} | 1,000 | 5,000 | 21,000 | 11,000 | 9,000 | 4,000 | 2,000 |
| March | 3,000 | 6,000 | 18,000 | 15,000 | 8,000 | 8,000 | 3,000 |
| 2016 | 2,000 | 8,000 | 14,000 | 15,000 | 7,000 | 7,000 | 3,000 |
| M/M change | -66.7% | -16.7% | 16.7% | -26.7% | 12.5% | -50.0% | -33.3% |
| Y/Y change | -50.0% | -37.5% | 50.0% | -26.7% | 28.6% | -42.9% | -33.3% |

All data are SAAR.

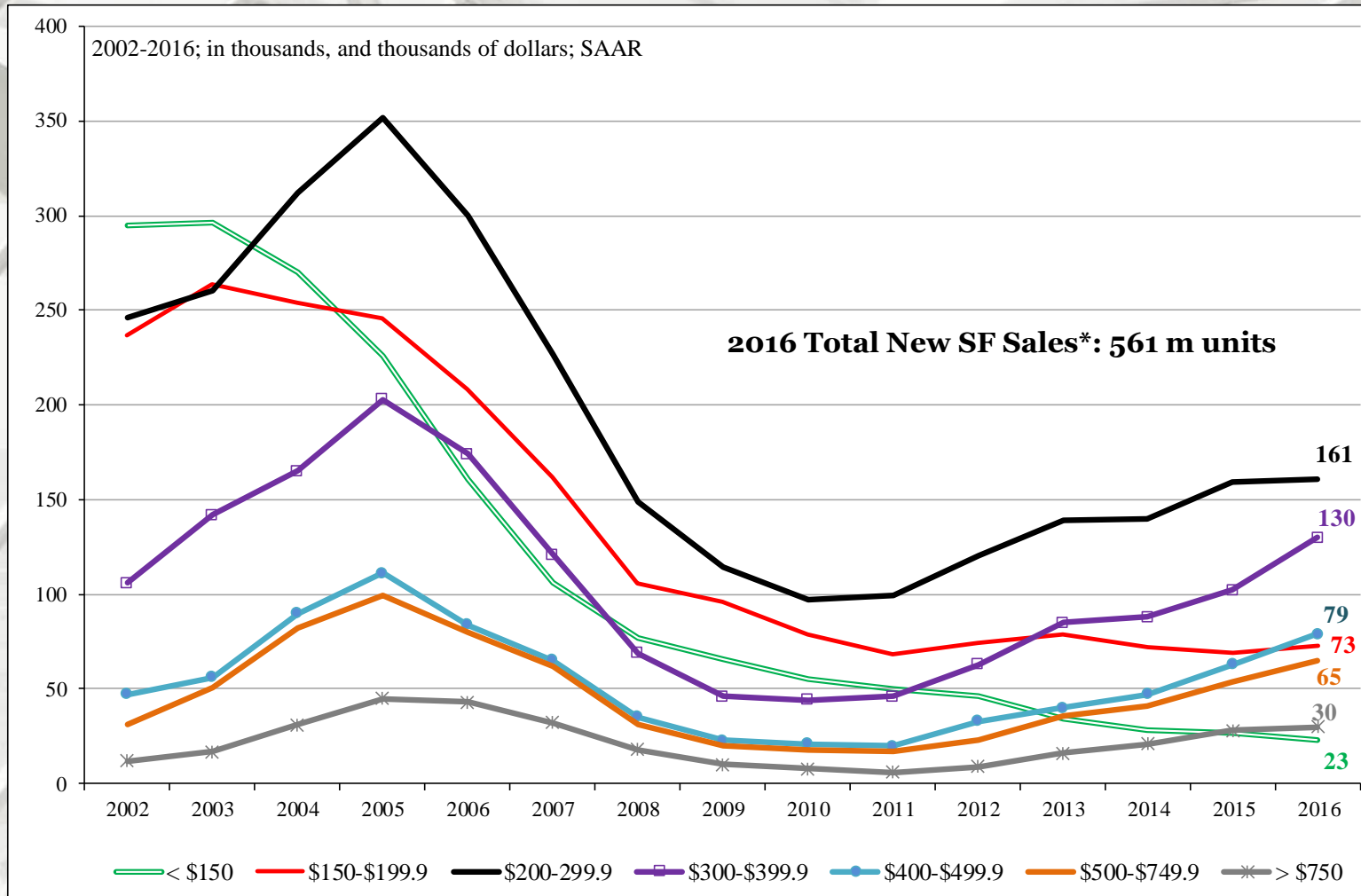
¹ Houses for which sales price were not reported have been distributed proportionally to those for which sales price was reported;

² Detail may not add to total because of rounding.

New SF House Sales by Region



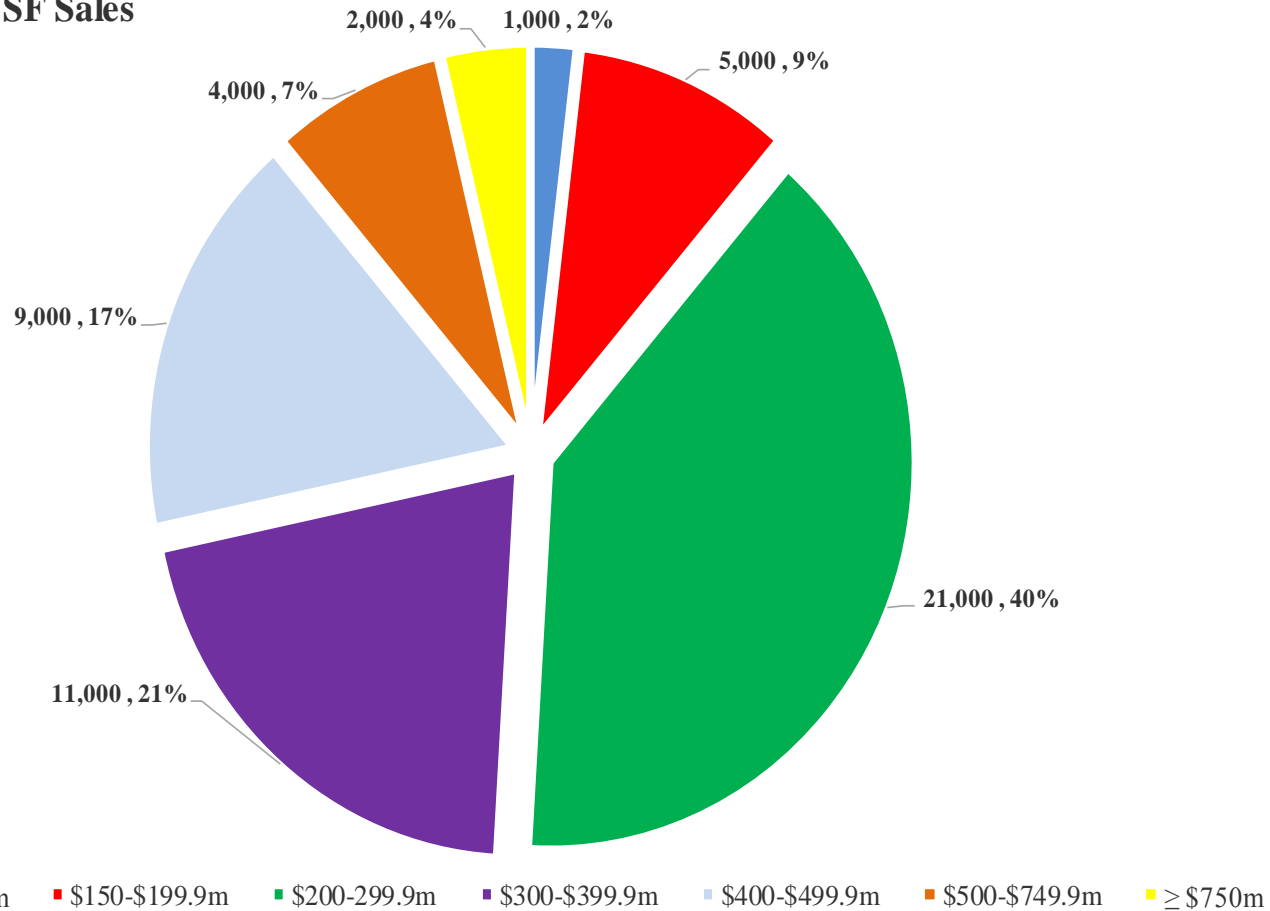
New SF House Sales by Price Category



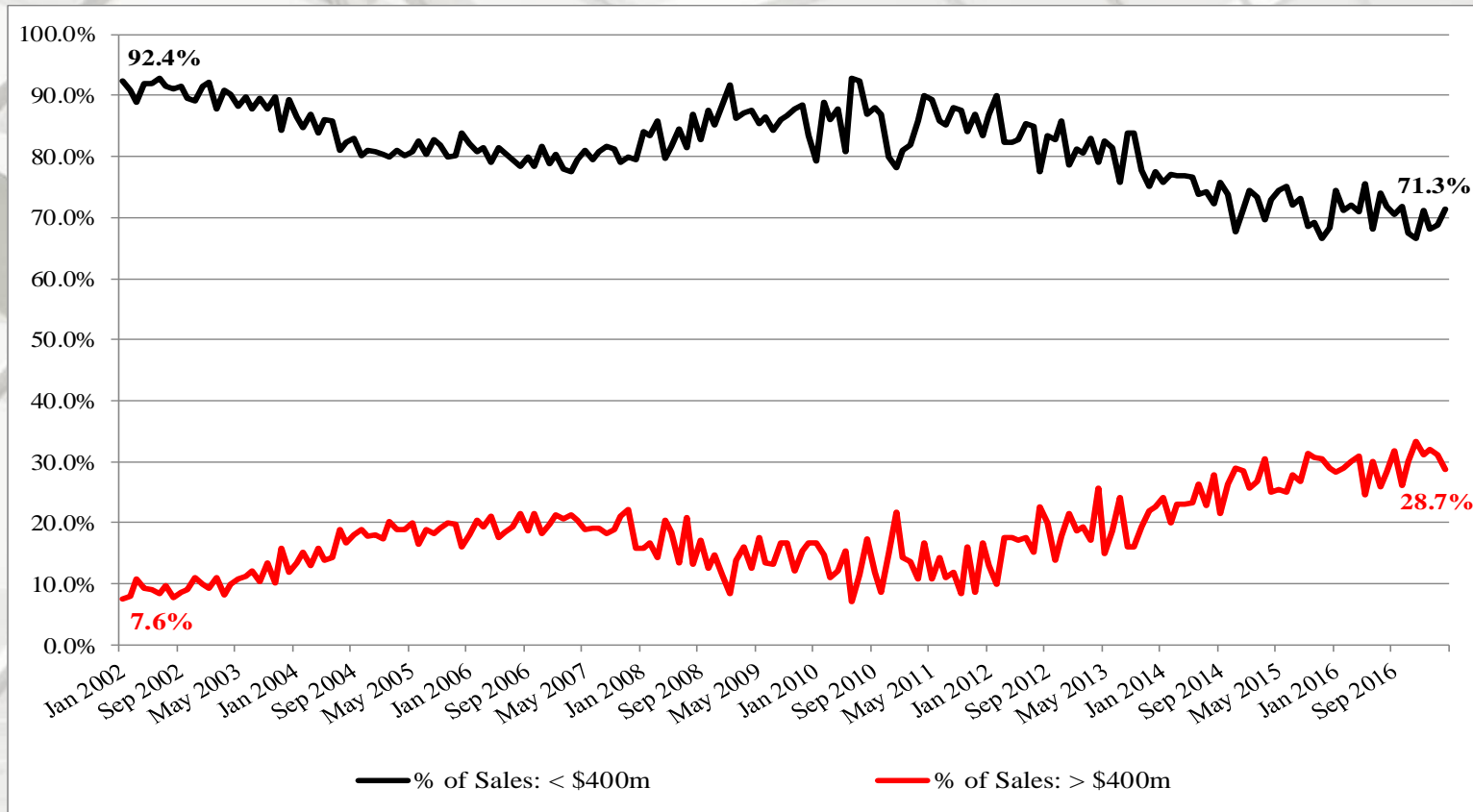
* Sales tallied by price category.

New SF House Sales

April New SF Sales



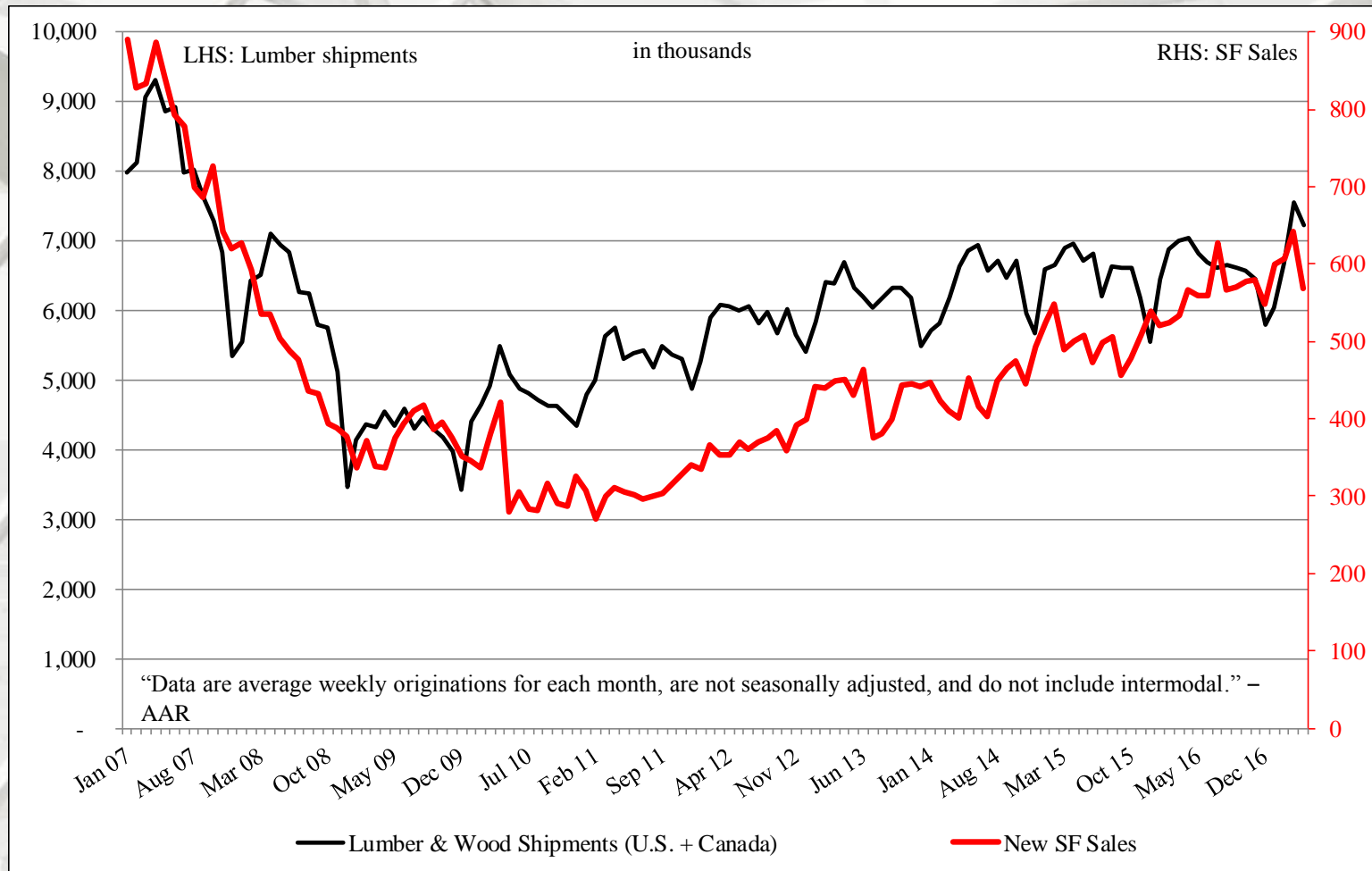
New SF House Sales



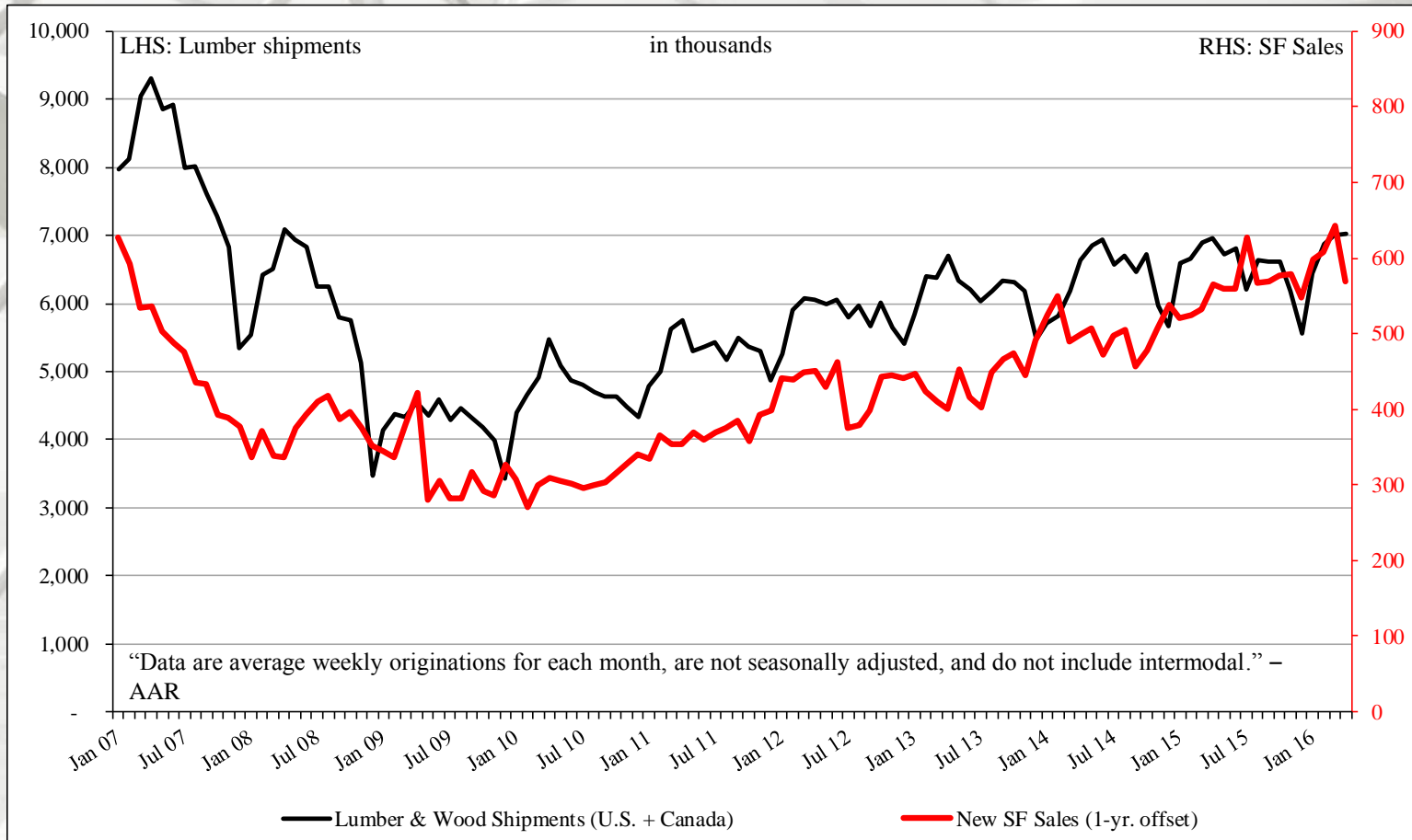
New SF Sales: 2002 – April 2017

The sales share of \$400 thousand plus SF houses is presented above. 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 April 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.

New SF Houses Sold: 2016

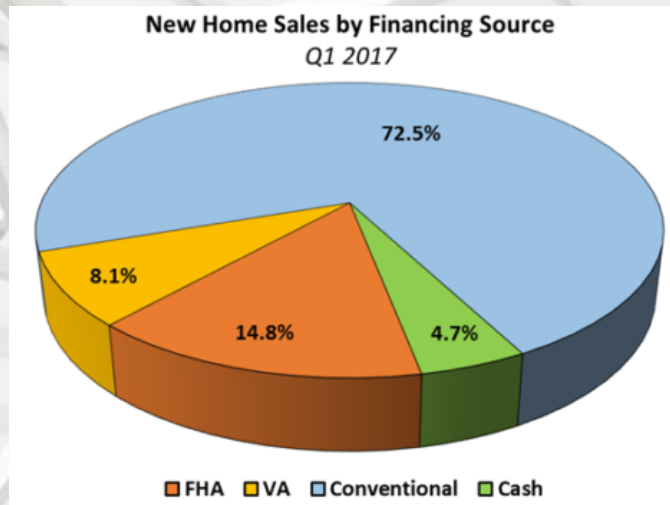
“Of the 561,000 single-family homes sold in 2016:

- 500,000 were detached homes and 61,000 were attached homes.
- 395,000 were in a community with a homeowners’ association.
- 380,000 had a 2-car garage.
- 129,000 had brick as the primary exterior wall material.
- 396,000 were paid for using conventional financing and 29,000 were paid for in cash.

The median sales price of new single-family homes sold in 2016 was \$316,200, while the average sales price was \$372,500.

The median size of a new single-family home sold was 2,497 square feet.” –
US Census-Construction

New SF House Sales



Price Predicaments

Even as the mortgage credit box expands, input costs on labor and materials, and interest rates put tricky balances at risk.

“Cash reigns as king in resales of homes. More than a quarter (27%) of existing home sales are all-cash, a reflection of two housing economic phenomena

But among new home sales, cash is taking an ever lower share of the total annual sales tally. This is a sign of housing's continued healing, and that builders are increasingly effective in helping get their buyers into mortgages to help them finance their homes.

... in the first quarter 2017, all-cash purchases represented less than 5% of the 150,000 new homes sold during the period. The fact that conventional loans accounted for 108,000 of the 150,000 total new-home sales transactions in Q1 2017, or very nearly three out of four new home sales, indicates that conforming mortgages increasingly are meeting a need in the market among move-up and second-time move-up buyers.” – John McManus, Editorial and Digital Content Director, Builder, Hanley Wood

April 2017 Construction Spending

| | Total Private Residential* | SF | MF | Improvement** |
|------------|----------------------------|-----------|----------|---------------|
| April | \$516,653 | \$262,143 | \$64,862 | \$189,648 |
| March | \$520,363 | \$260,089 | \$65,010 | \$195,264 |
| 2016 | \$445,499 | \$243,301 | \$58,898 | \$143,300 |
| M/M change | -0.7% | 0.8% | -0.2% | -2.9% |
| Y/Y change | 16.0% | 7.7% | 10.1% | 32.3% |

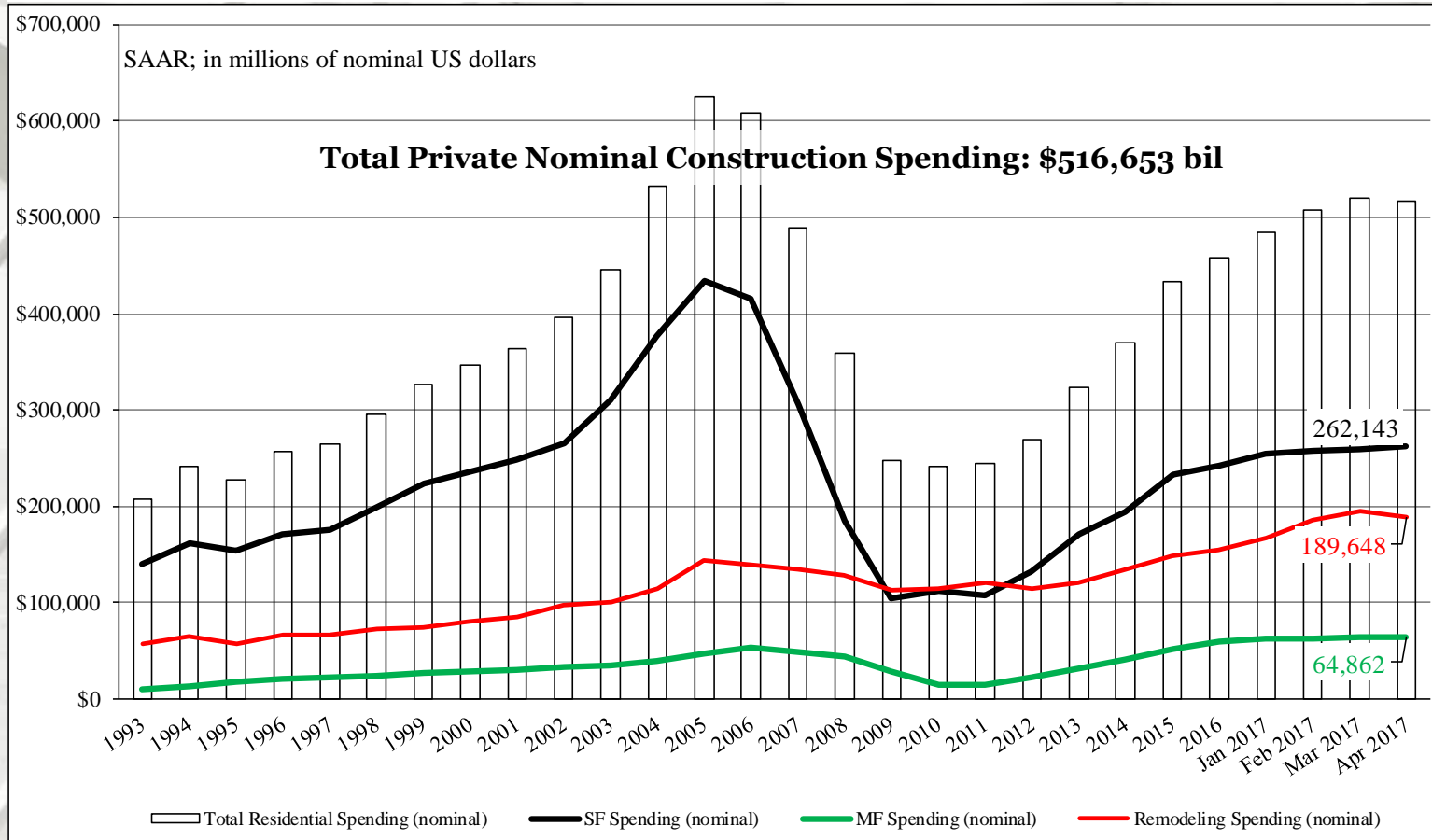
* Millions

** 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\$.

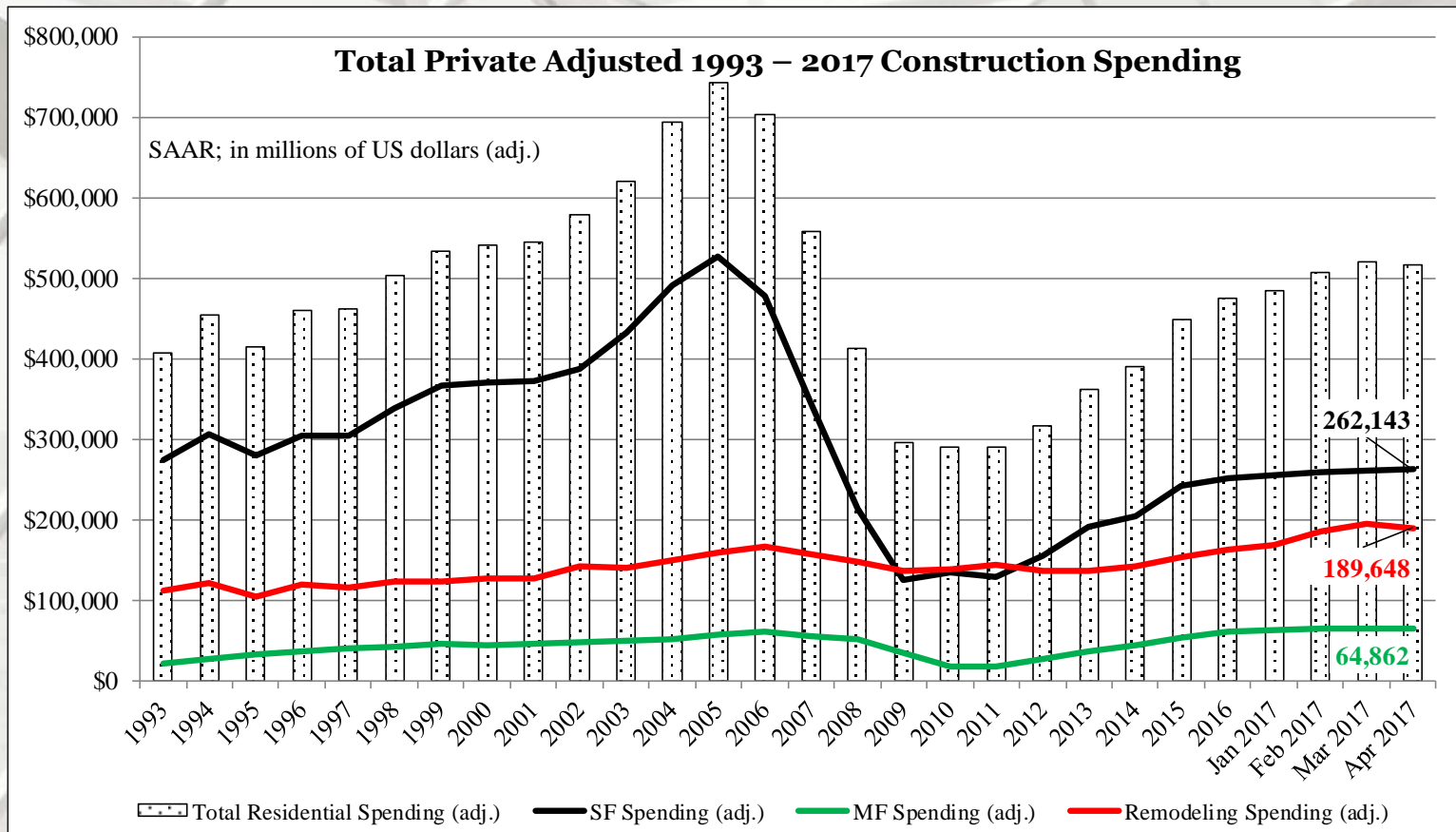
Total Construction Spending (nominal): 1993 – April 2017



Reported in nominal US\$.

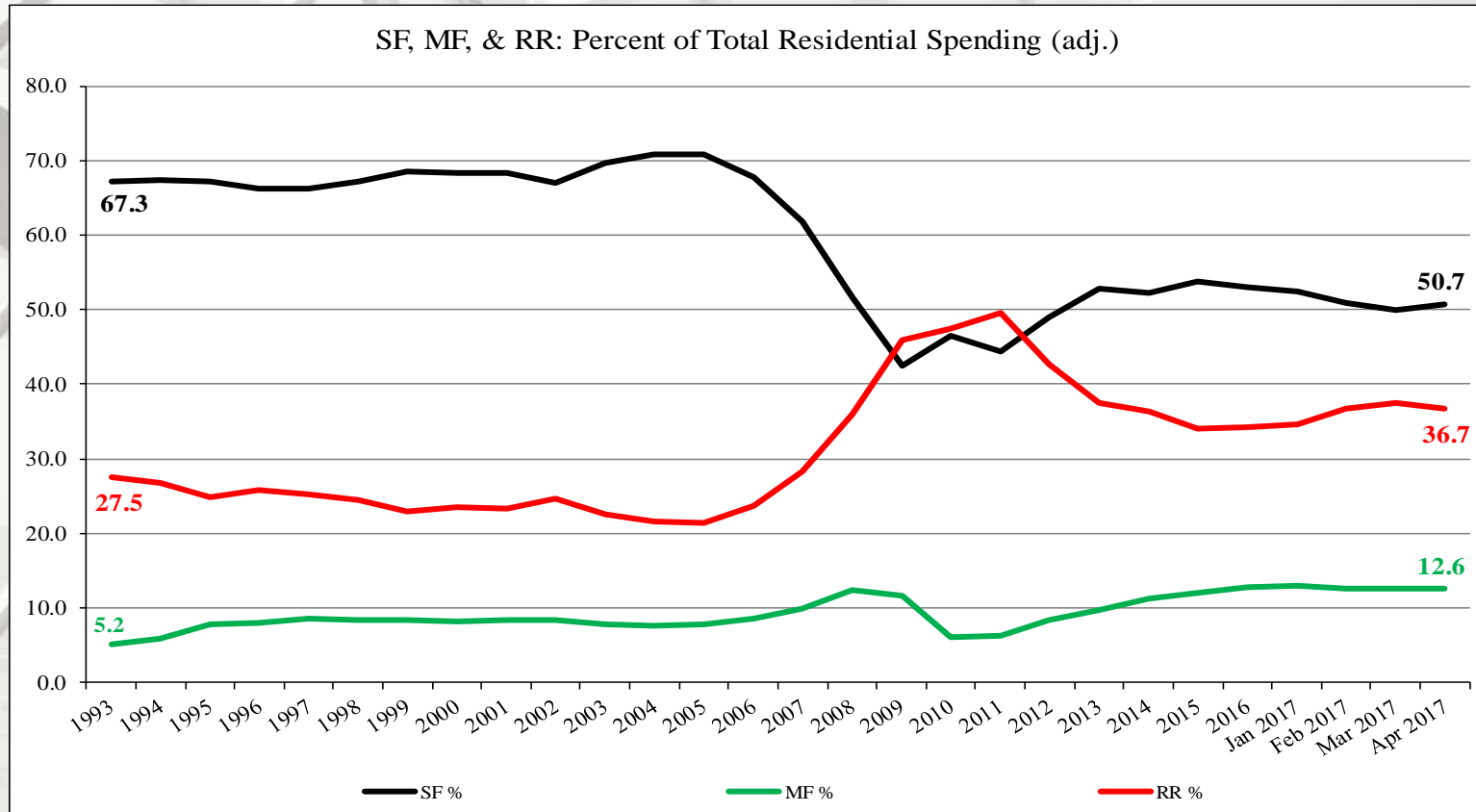
The US DOC does not report improvement spending directly, this is a monthly estimation for 2017.

Total Construction Spending (adjusted): 1993-2017*



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

Construction Spending Shares: 1993 to April 2017



Total Residential Spending: 1993 through 2006

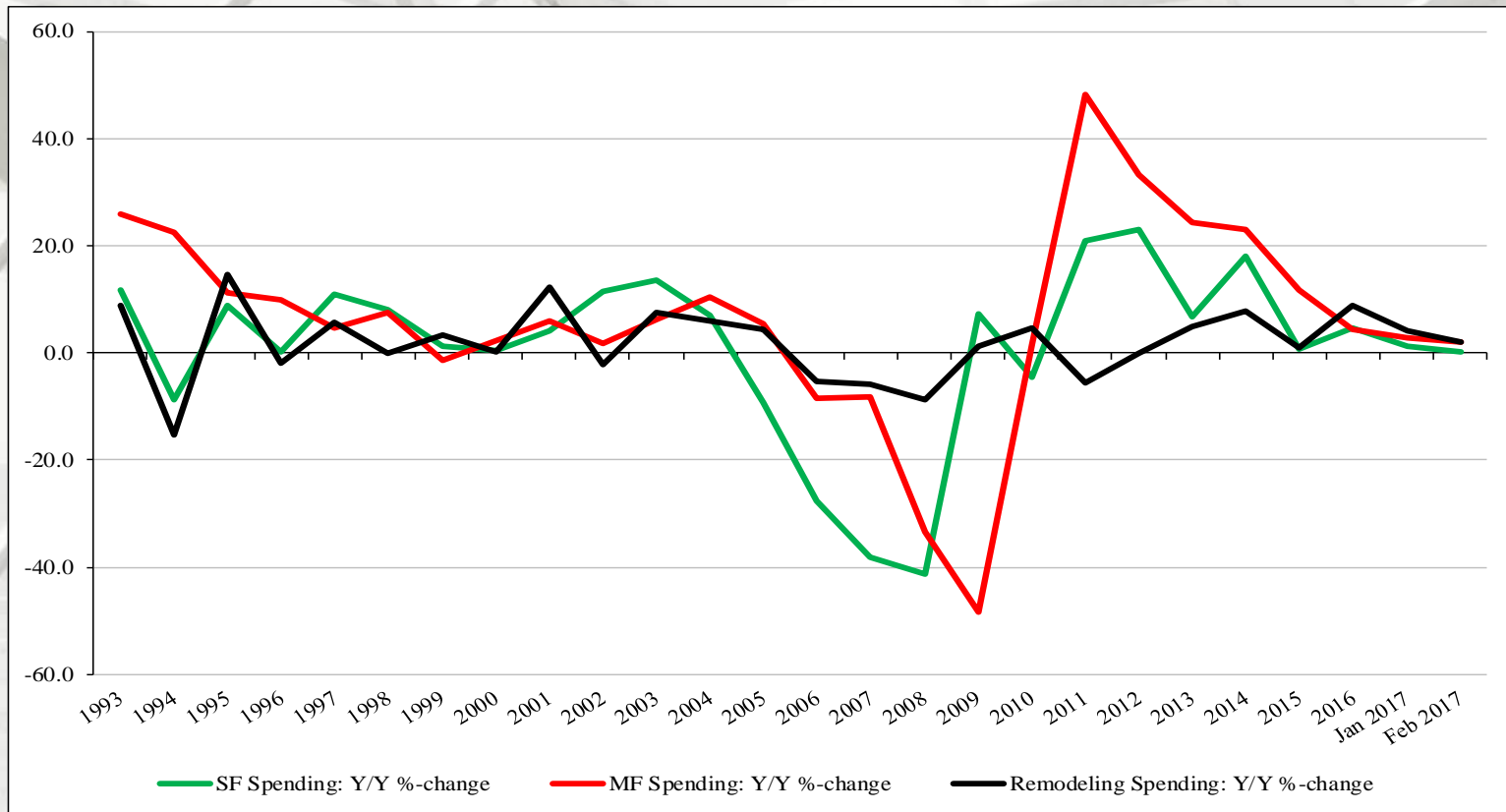
SF spending average: 69.2 %

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-April 2017 reported in nominal US\$.

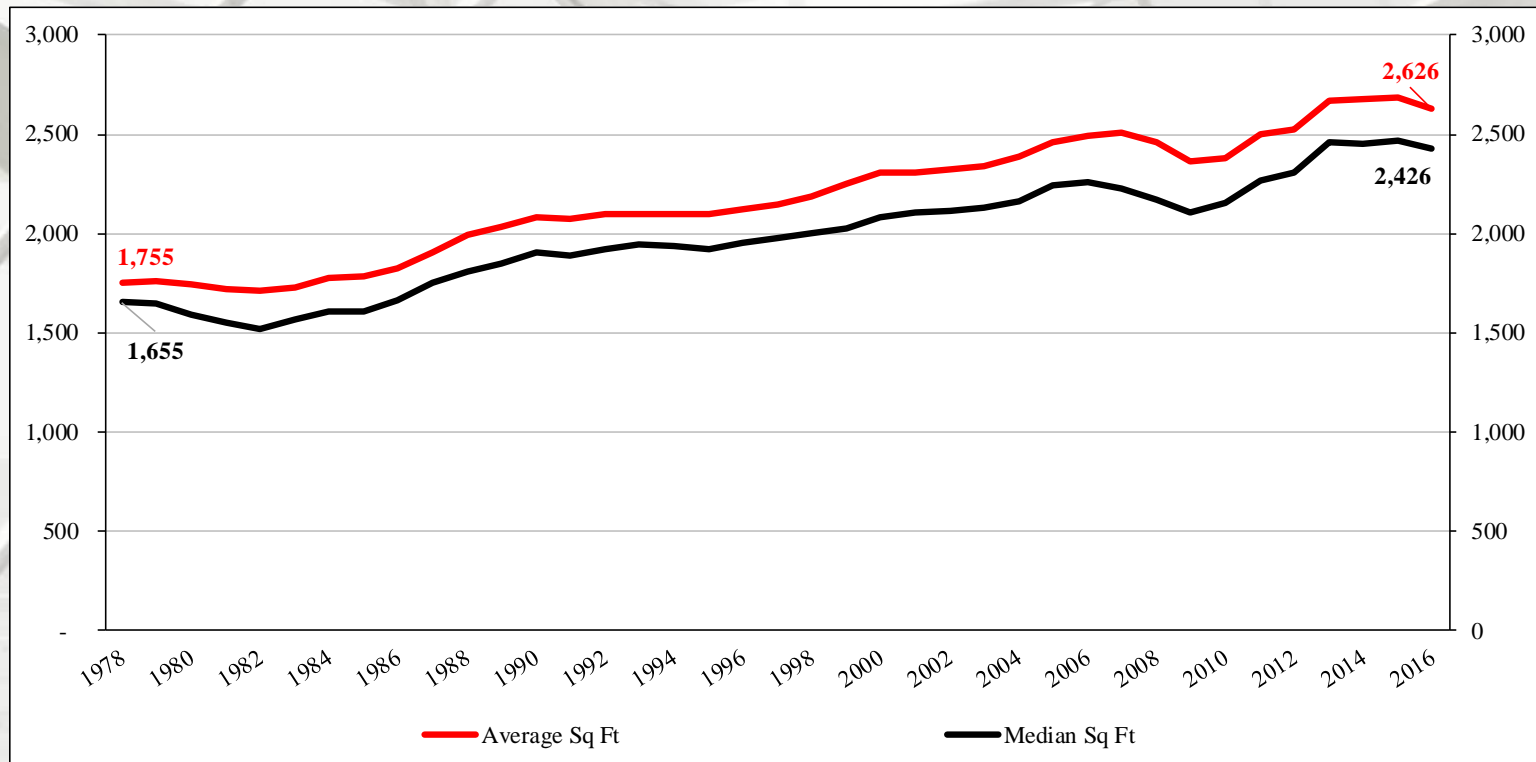
Construction Spending: Percentage Change, 1993 to April 2017



Residential Construction Spending: Percentage Change, 1993 to April 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. The questions are: Is construction spending normalizing? Or is it turning over?

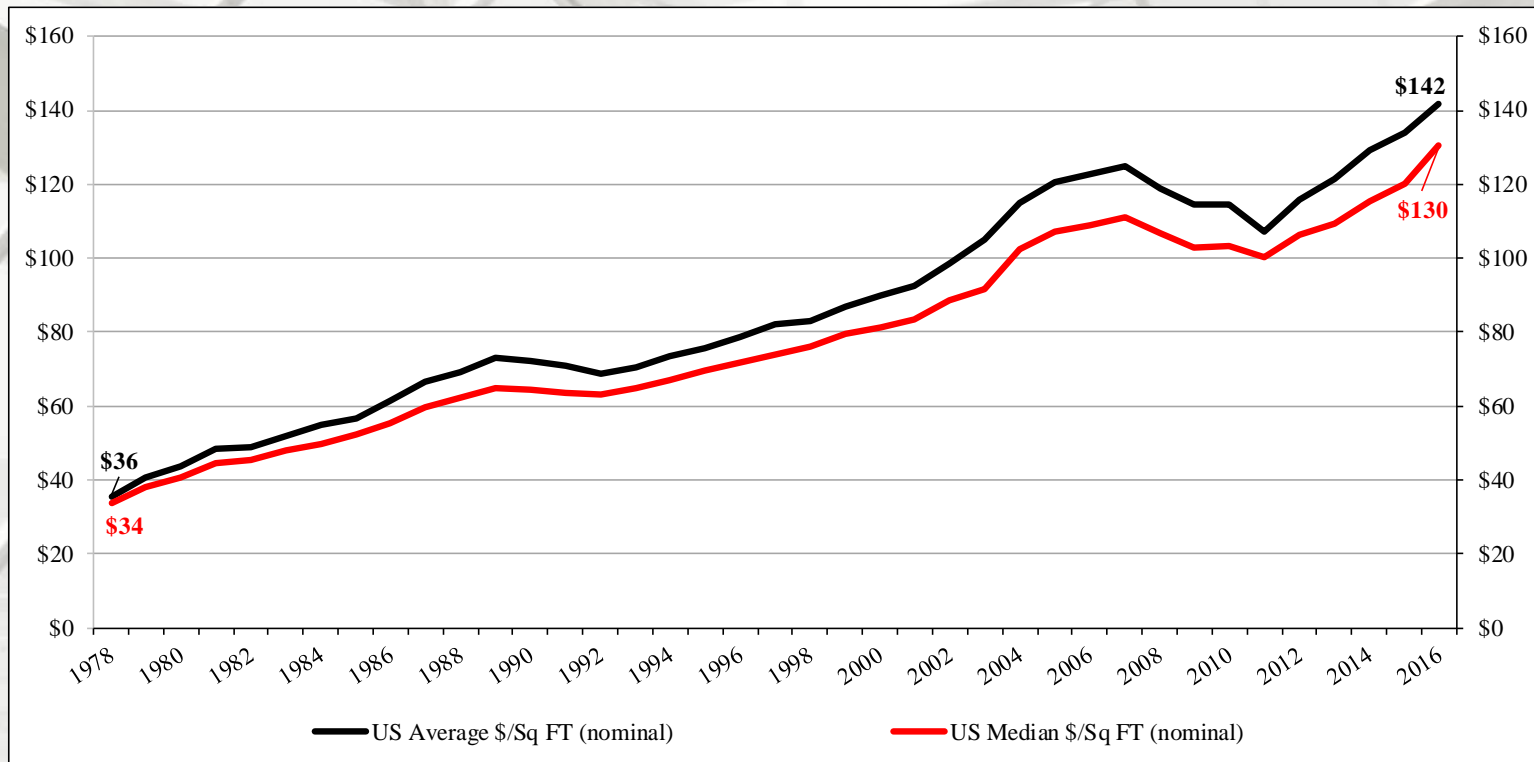
Completed SF Houses, Median & Mean Square Feet: 1978-2016



Completed SF Houses

Presented above is the square footage (Sq Ft) of completed SF houses from January 1978 to December 2016. Since 2013, median housing size has declined, and more rapidly since 2015. The average Sq Ft began its decline in 2014.

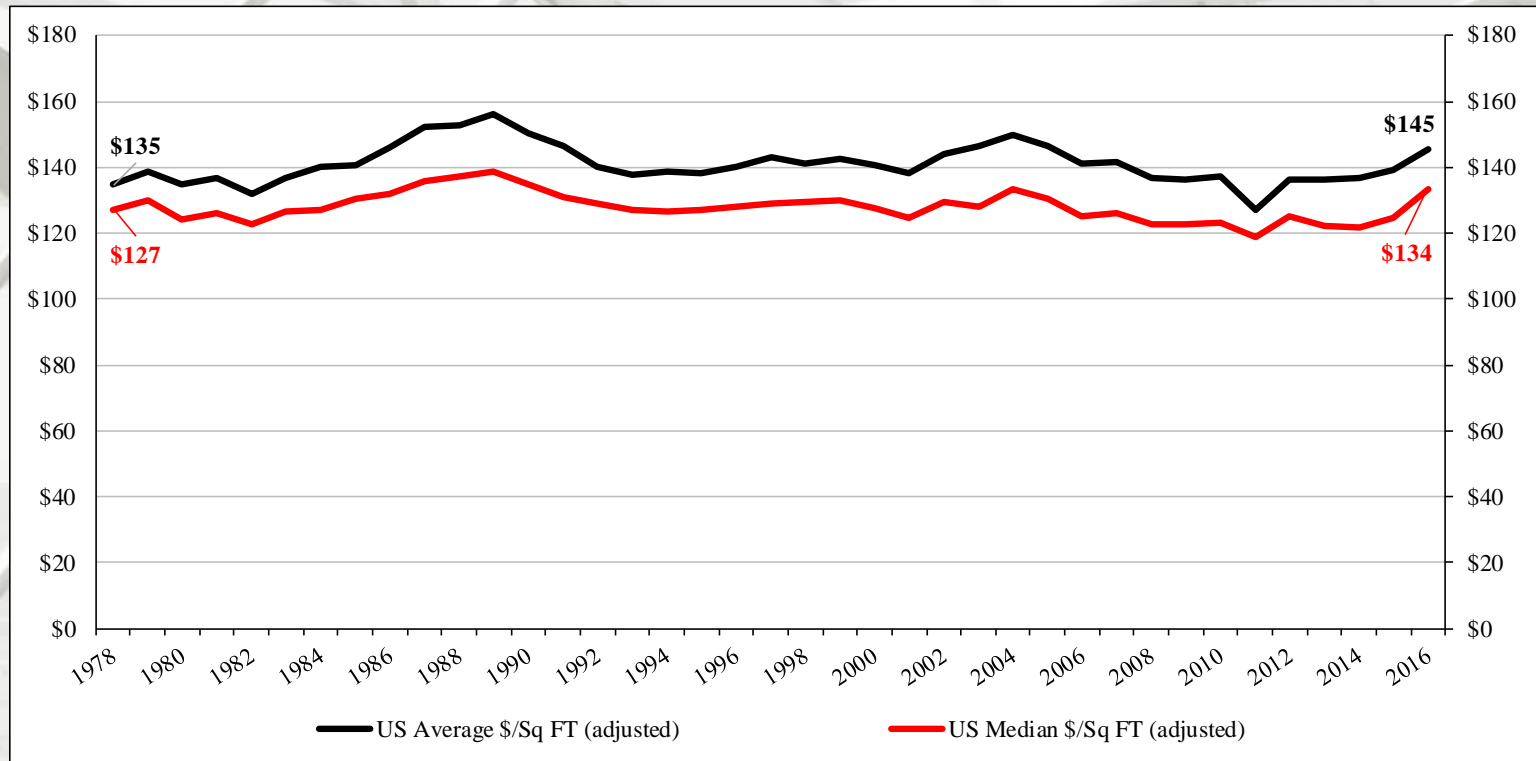
Completed SF Houses, Nominal Price per Median & Mean Square Foot: 1978-2016



Completed SF Houses, Nominal Price per Median & Mean Square Foot

The average nominal price per square foot (Sq Ft) was \$36 in 1978, rising to \$142 by the end of 2016. The nominal price per median SQ FT followed a comparable trajectory.

Completed SF Houses, Adjusted Price per Median & Mean Square Foot: 1978-2016



Completed SF Houses, Adjusted Price per Median & Mean Square Foot

The average inflation adjusted price per Sq Ft was \$135 in 1978, increasing to \$145 by the end of 2016. The inflation adjusted price per median SQ FT followed a comparable trajectory; \$127 to \$134.

Data were adjusted using the deflator values from, “Table 1.1.9. Implicit Price Deflators for Gross Domestic Product.” – Bureau of Economic Analysis.

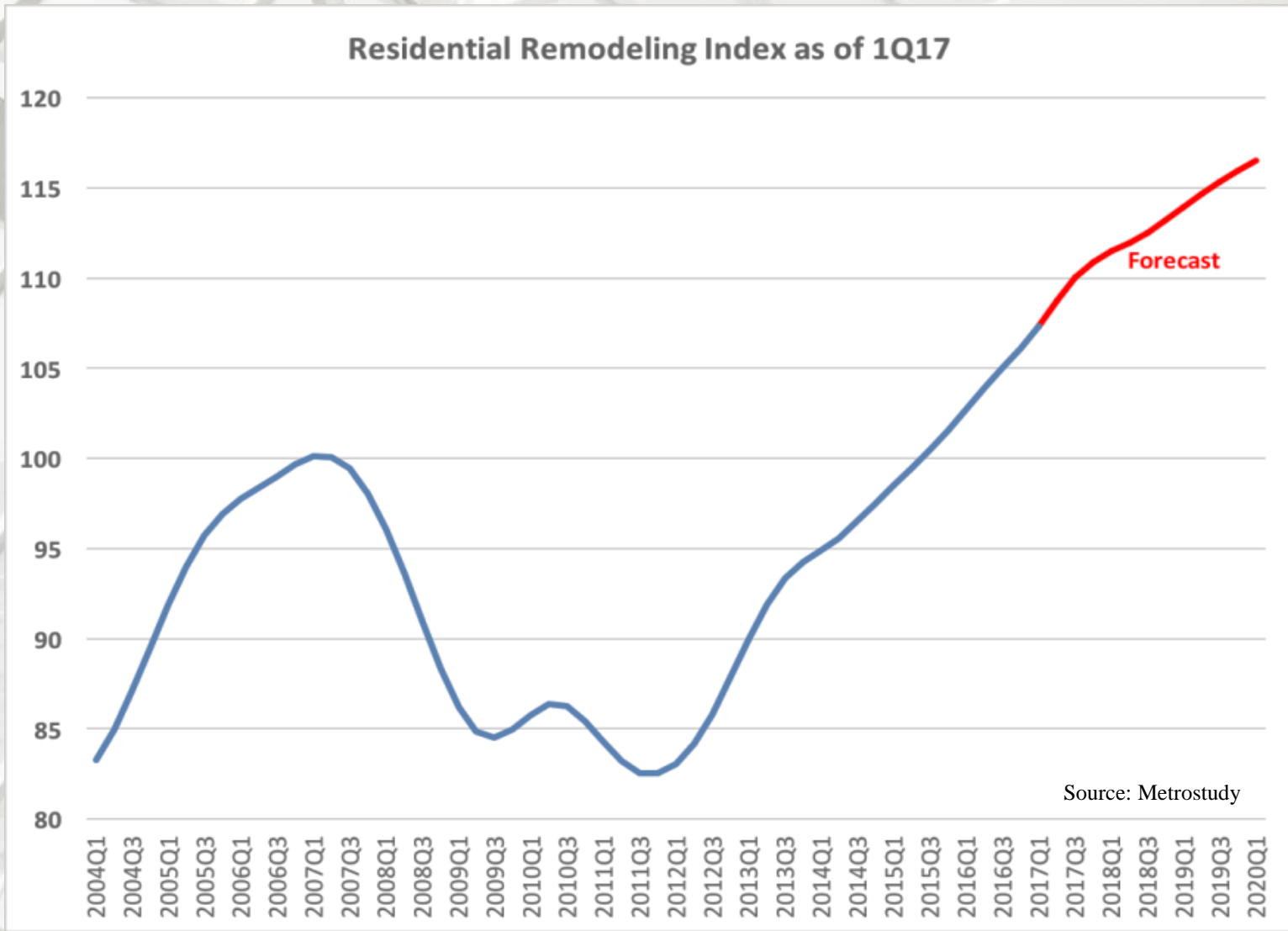
Remodeling

Remodeling Activity Is Continuing Its Five-Year Growth Climb

“Pro-worthy remodeling activity nationwide recorded its 20th straight quarter of growth during 2017’s first three months and looks set to keep rising, albeit a bit more slowly, through 2020... . The index hit a new high of 107.3, which means remodeling-friendly conditions are 7.3% better than they were during the previous peak in spring 2007 and are 4.5% ahead of where the index was in 2016’s first quarter. And unlike past years, in 2017 all 381 Metropolitan Statistical Areas across the country can expect to see year-over-year growth in remodeling and replacement projects.

The current strength of the remodeling market can be attributed primarily to economics – low mortgage rates, strong existing home sales, the bull stock market run, good job gains, and now more recently, wage gains. Yet, as the economic cycle matures over the next few years, rates increase and full employment translates to less robust job growth over time, demographic trends will play a bigger role in driving demand for remodeling. Baby-boomers will continue retiring and aging in place as they have been, and Millennials will be increasingly maturing in their life stage – jobs, dating, marrying (or no not marrying), buying a home, and choosing to remodel that home. And, with housing affordability an issue in many markets across the country, Millennials will be more inclined to purchase older, more-affordable existing homes that will necessitate renovations. Demographics will matter greatly to remodeling over the next few years as the economic cycle matures.” – Mark Boud, Chief Economist, Metrostudy

Remodeling



Existing House Sales

National Association of Realtors (NAR®)

April 2017 sales: 5.570 million (SAAR)

| | Existing Sales* | Median Price | Mean Price | Month's Supply |
|------------|-----------------|--------------|------------|----------------|
| April | 5,570,000 | \$244,800 | \$287,500 | 4.2 |
| March | 5,700,000 | \$236,600 | \$278,700 | 3.8 |
| 2016 | 5,480,000 | \$230,900 | \$273,600 | 4.6 |
| M/M change | -2.3% | 3.5% | 3.2% | 10.5% |
| Y/Y change | 1.6% | 6.0% | 5.1% | -8.7% |

* All sales data: SAAR

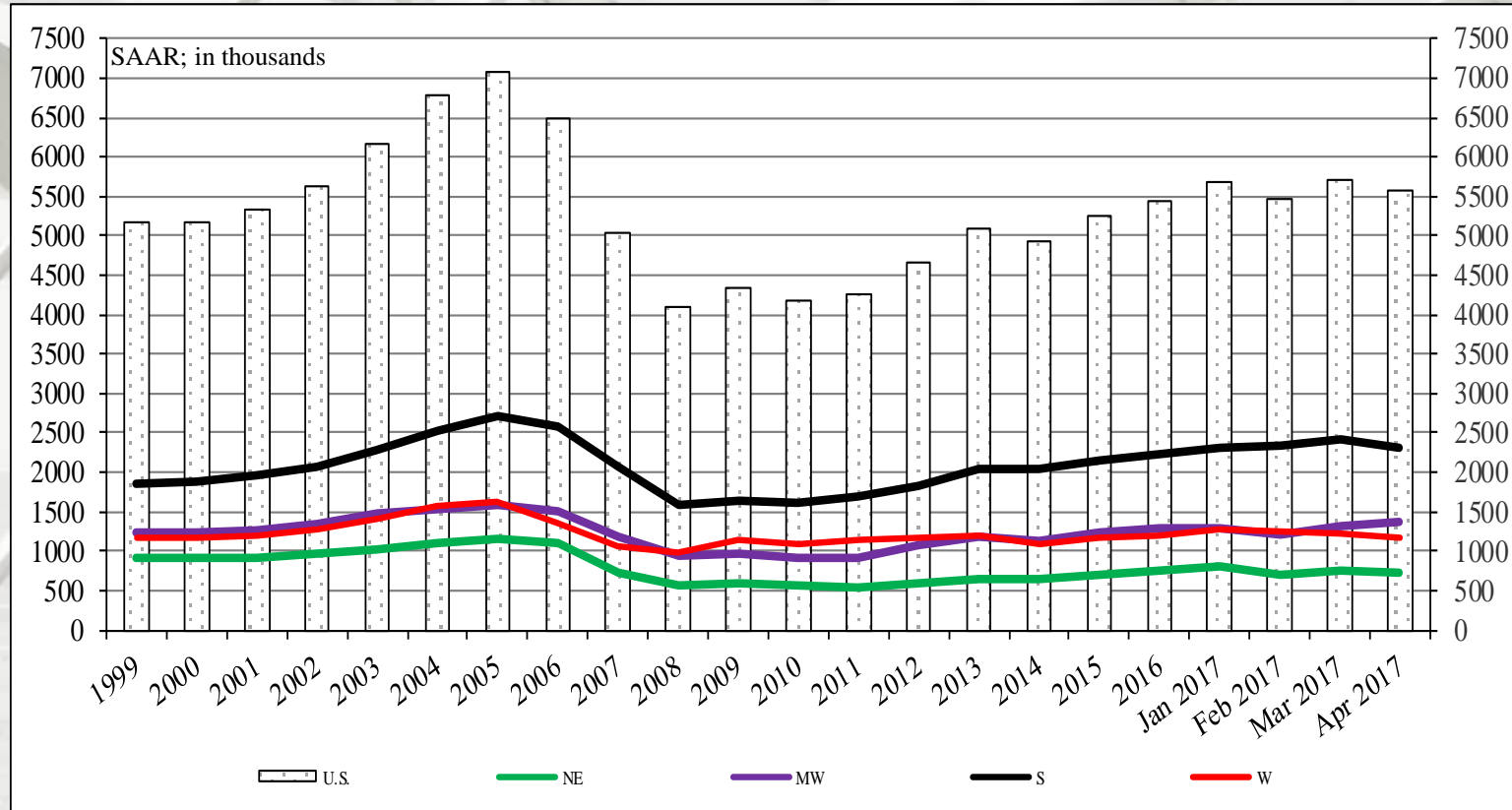
Existing House Sales

| | NE Sales | MW Sales | S Sales | W Sales |
|------------|----------|-----------|-----------|-----------|
| April | 730,000 | 1,360,000 | 2,300,000 | 1,180,000 |
| March | 750,000 | 1,310,000 | 2,420,000 | 1,220,000 |
| 2016 | 750,000 | 1,370,000 | 2,220,000 | 1,140,000 |
| M/M change | -2.7% | 3.8% | -5.0% | -3.3% |
| Y/Y change | -2.7% | -0.7% | 3.6% | 3.5% |

| | Distressed House Sales | Foreclosures | Short-Sales | All-Cash Sales | Individual Investor Purchases* | Cash Purchases |
|-------|------------------------|--------------|-------------|----------------|--------------------------------|----------------|
| April | 5% | 3% | 2% | 21% | 15% | 57% |
| March | 6% | 5% | 1% | 23% | 15% | 63% |
| 2016 | 7% | 5% | 2% | 24% | 13% | 59% |

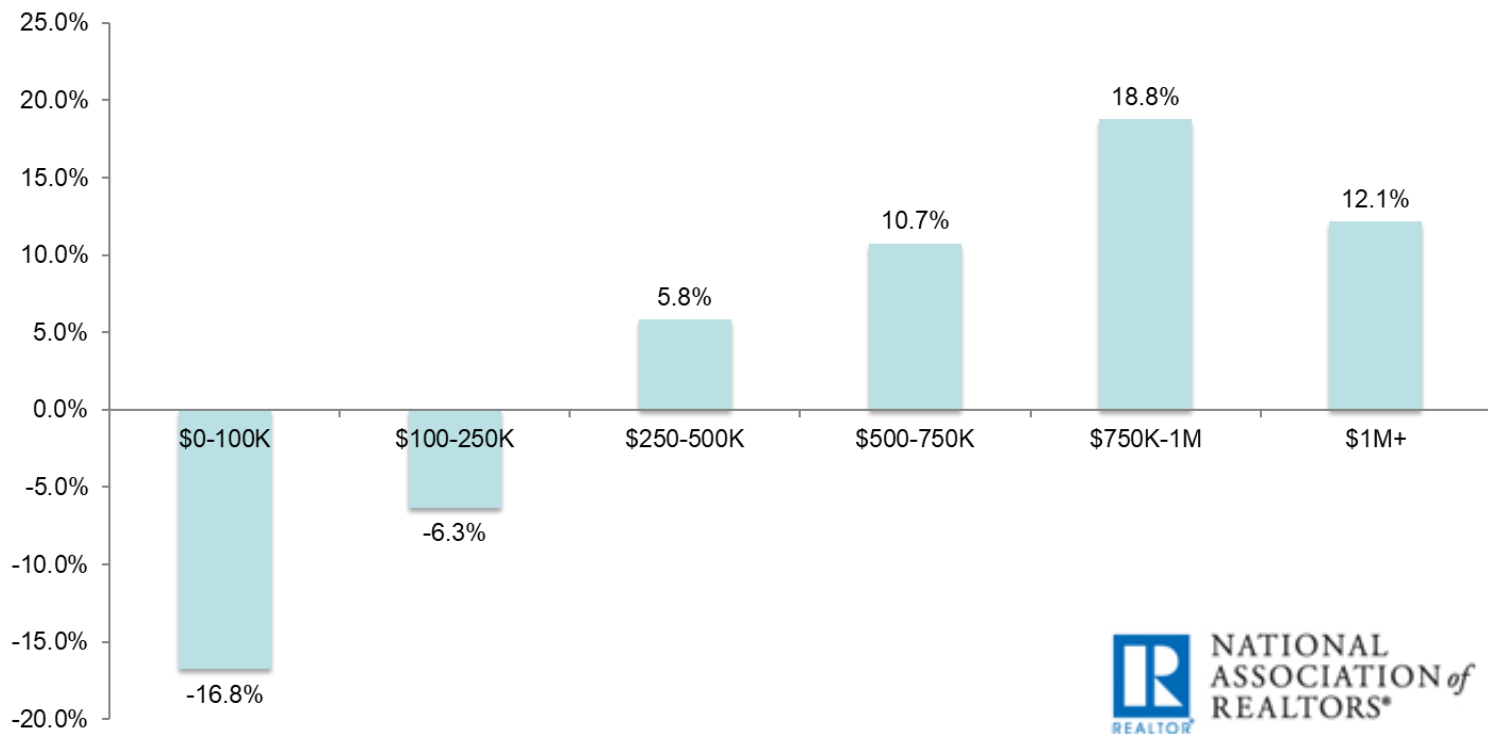
* Next column reports percentage of cash purchases.

Total Existing House Sales



Changes in Existing House Sales

Percent Change in Sales From a Year Ago by Price Range



First-Time Purchasers

National Association of Realtors (NAR®)

34% of sales in April 2017 – 32% in March 2017 and 32% in April 2016

American Enterprise Institute International Center on Housing Risk

“The First-Time Buyer Mortgage Risk Index (FBMRI) for Agency purchase loans stood at 16.1 percent in February, a series high and up 0.4 ppt. from February 2016. The Agency FBMRI is 6.4 ppts. higher than the repeat buyer MRI. The gap has widened 0.8 ppt. from a year earlier. Maintaining a series high, FHA’s First-Time Buyer NMRI stood at 25.1 percent in February, up 0.9 ppt. from a year earlier and up 1.0 ppt. from two years earlier (before FHA’s mortgage insurance premium cut).”

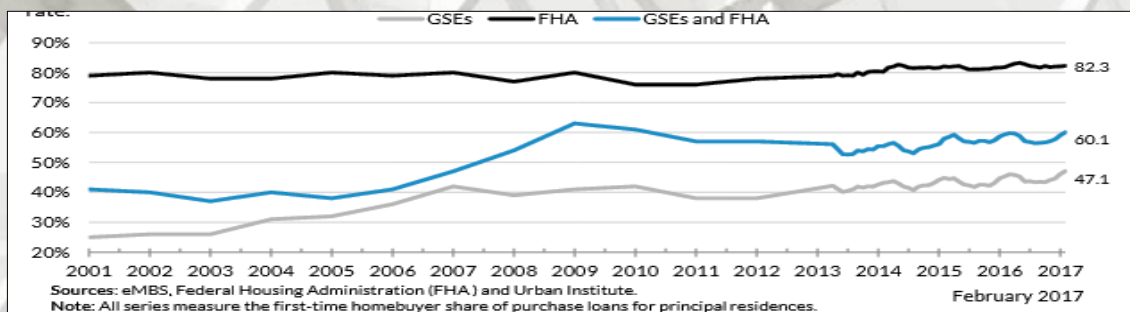
“The on-going housing boom is built on the backs of first-time buyers. These buyers are using government guaranteed financing to take on ever greater levels of leverage to chase rapidly increasing entry-level home prices, a trend that is unsustainable over the long term.”
– Edward Pinto, Codirector of the American Enterprise Institute’s International Center on Housing Risk

“Down payment requirements don’t pose the hurdle to homeownership as commonly believed. Helped in part by various programs from State Housing Finance Agencies, 21 percent of first-time buyer purchases in February did not require any down payment.” – Tobias Peter, Senior Research Analyst, AEI’s International Center on Housing Risk

First-Time Purchasers

Urban Institute

“In February 2017, the first-time homebuyer share of GSE purchase loans rose for the second consecutive month to 47.1 percent, the highest level in recent history. The FHA, which has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent, stood at 82.3 percent in February 2017, down from the peak of 83.3 percent in May 2016. The bottom table shows that based on mortgages originated in February 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

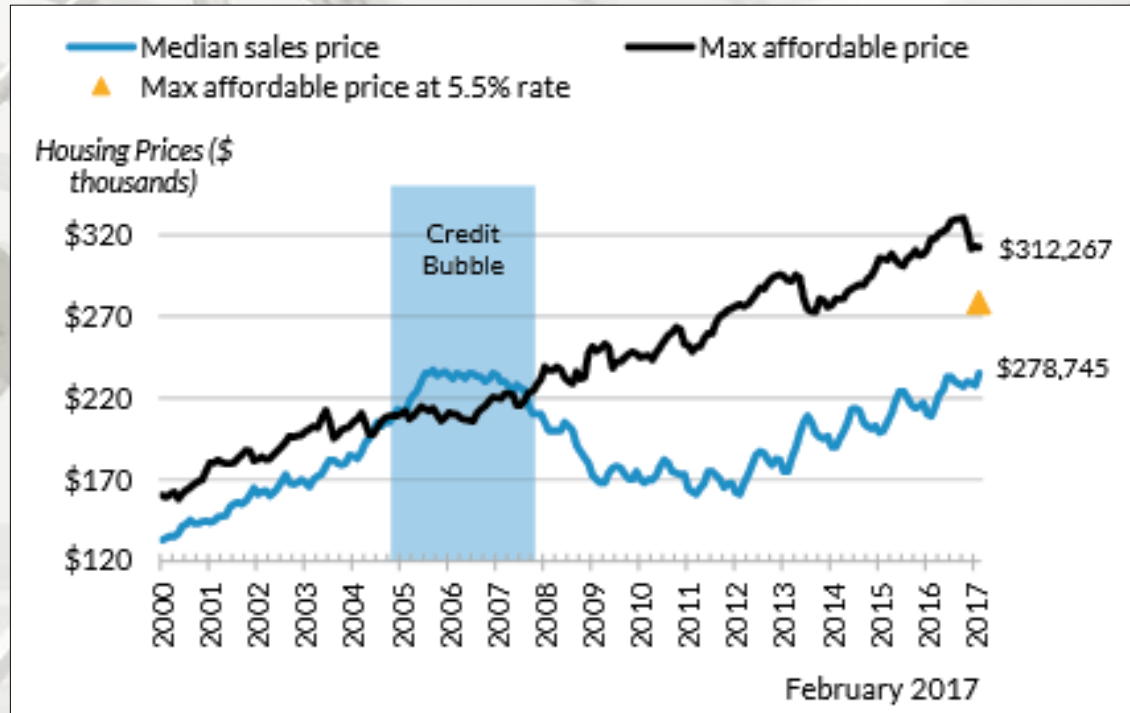


Comparison of First-Time and Repeat Homebuyers, GSE and FHA Originations

| Characteristics | GSEs | | FHA | | GSEs and FHA | |
|------------------|------------|---------|------------|---------|--------------|---------|
| | First-time | Repeat | First-time | Repeat | First-time | Repeat |
| Loan Amount (\$) | 225,130 | 249,277 | 196,962 | 219,798 | 210,495 | 242,322 |
| Credit Score | 739.7 | 754.2 | 676.9 | 686.1 | 707.1 | 738.1 |
| LTV (%) | 86.5 | 79.2 | 95.5 | 94.2 | 90.9 | 82.4 |
| DTI (%) | 34.1 | 35.2 | 41.8 | 43.1 | 38.1 | 37.0 |
| Loan Rate (%) | 4.34 | 4.24 | 4.24 | 4.16 | 4.29 | 4.22 |

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

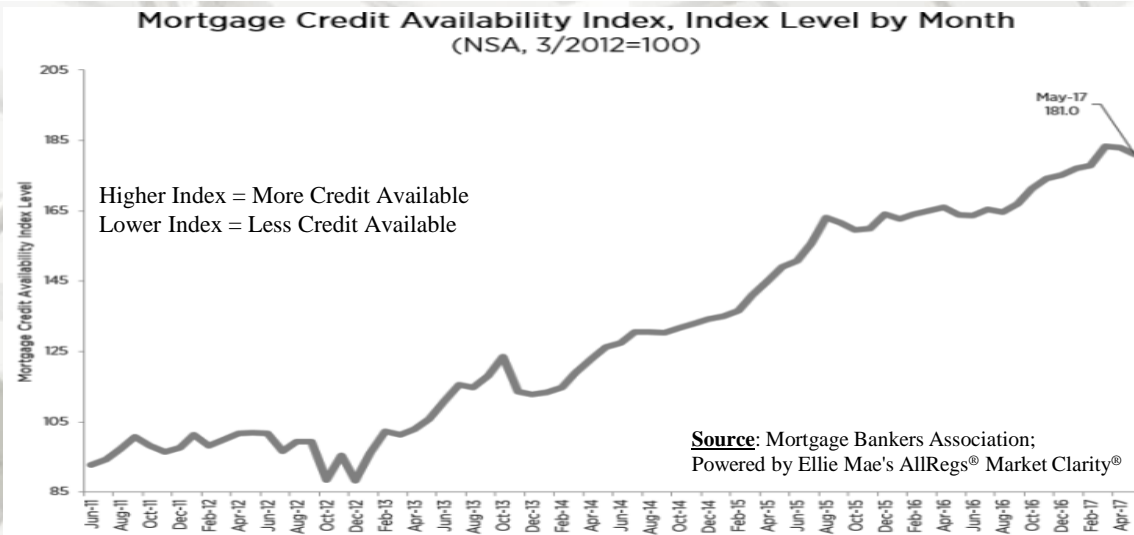
Housing Affordability



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



Fixed Mortgage Rates and Credit Availability Down

“The 30-year fixed mortgage rate fell for the fourth consecutive week and hit its lowest level in nearly seven months, according to Freddie Mac’s Primary Mortgage Market Survey (PMMS) for the week ending June 8. The 15-year FRM this week averaged 3.16 percent, down from last week when it averaged 3.19 percent. And the five-year Treasury-indexed hybrid adjustable-rate mortgage averaged 3.11 percent this week, unchanged from last week.

Separately, the Mortgage Bankers Association (MBA) reported that monthly Mortgage Credit Availability Index (MCAI) dropped by 1.1 percent to 181.0 in May. Two of the four component indices saw decreases (the Government MCAI was down 1.9 percent and the Conforming MCAI fell by 0.3 percent) and two saw increases (the Conventional MCAI was up 0.2 percent and the Jumbo MCAI was up 0.8 percent).

Credit availability slipped in May, primarily driven by investors consolidating their offerings for government insured loans. These decreases were partially offset by continued expansion among jumbo loan programs. The Jumbo MCAI has increased in 13 of the last 15 months.” – Lynn Fisher, Vice President of Research and Economics, Mortgage Bankers Association

Summary

In summary:

April's housing data were decidedly negative on a month-over-month basis. Conversely, year-over-year data are positive. All data sectors were positive on a year-over-year basis. When looking at unadjusted data, permits, starts, and new SF sales were similar to April 2016. In fact, SF starts and new SF unadjusted sales were *greater* than April 2016. The bottom line, it was one-month's data – let's wait a couple of month's and form observations. Once again, new SF lower-priced tier house sales struggled. It bears 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 forest products are used 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 most of – 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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