

The Virginia Tech – U.S. Forest Service

July 2018

Housing Commentary: Section I



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This report is a free monthly service of Virginia Tech. Past issues are available at: <http://woodproducts.sbio.vt.edu/housing-report>.

To request the commentary, please email: buehlmann@gmail.com or dalderman@fs.fed.us

Opening Remarks

July housing data rebounded in the majority of categories; yet, the aggregate housing market appears to be in a sluggish mode. Total permits and starts, including single-family permits and starts “inched” into positive territory. Total starts were negative on a year-over-year basis. Housing under construction also crept into positive territory on a monthly basis. Total and single-family housing completions were negative on a month-over-month basis. New single-family sales declined month-over-month and were robust on a year-over-year basis. Existing sales continued their declining trend, monthly and yearly. New single-family construction spending indicated a minimal negative change on a monthly basis. The September 14th Atlanta Fed GDPNow™ residential investment spending model projects an aggregate -0.7% decline for September 2018. New private permanent site expenditures were projected for a -5.0% decrease; the improvement spending forecast was a 4.7% increase; and the manufactured/mobile housing projection was a -15.9% decline (all: quarterly log change and seasonally adjusted annual rate)¹.

“The recent acceleration in overall economic growth has done precious little to promote a stronger housing recovery. Home sales, new home construction and outlays for renovations and repairs were collectively a net drag on overall growth during the first half of the year, even as real GDP growth ramped up to a 4.1 percent pace during the second quarter. The disconnect between a strengthening economy and struggling housing sector has been a common theme throughout this expansion and, unfortunately, is a theme that is likely to continue.”² – Mark Vitner, Senior Economist, Charlie Dougherty, Economist, and Matthew Honnold, Economic Analyst; Economics Group, Wells Fargo LLC

This month’s commentary also contains applicable housing data, house ownership, and economic information. Section I contains data and commentary and Section II includes regional Federal Reserve analysis, private indicators, and demographic and economic commentary.

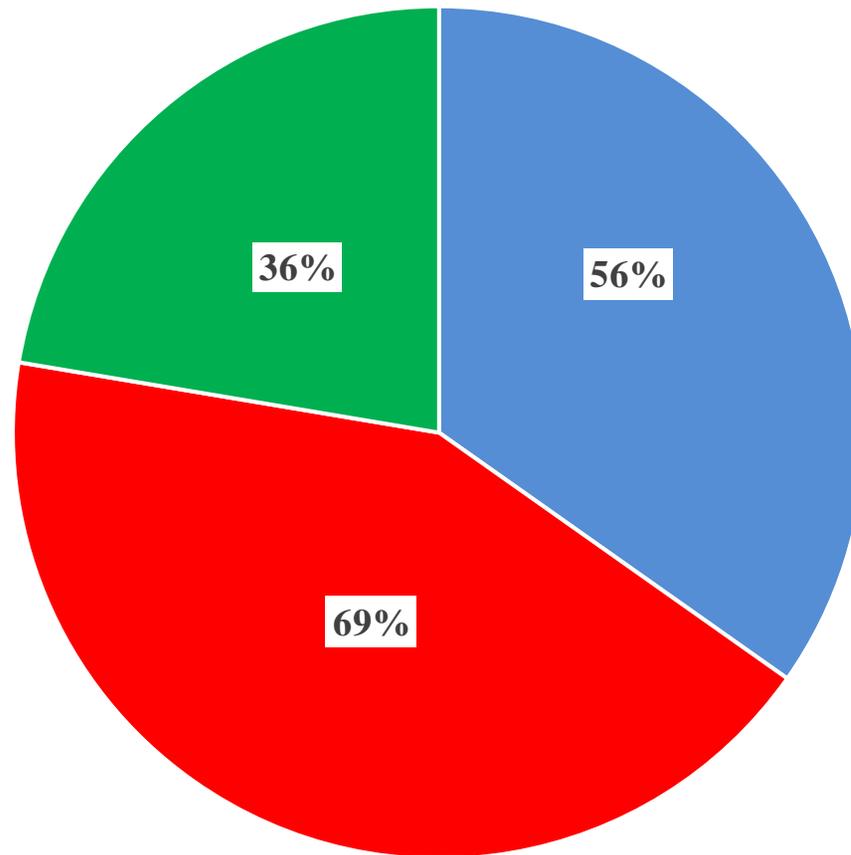
Sources: ¹ <https://www.frbatlanta.org/cqer/research/gdpnow.aspx>; 9/14/18;

² <http://image.mail1.wf.com/lib/fe8d13727664027a7c/m/3/housing-remains-in-the-slow-lane-20180809.pdf>; 8/9/18

July 2018 Housing Scorecard

	M/M		Y/Y	
Housing Starts	△	0.9%	▽	1.4%
Single-Family Starts	△	0.9%	△	2.7%
Housing Permits	△	1.5%	△	4.2%
Single-Family Permits	△	1.9%	△	6.4%
Housing Under Construction	△	0.1%	△	4.8%
Single-Family Under Construction	△	1.0%	△	12.5%
Housing Completions	▽	1.7%	▽	0.8%
Single-Family Completions	▽	5.2%	▽	3.9%
New Single-Family House Sales	▽	1.7%	△	12.8%
Private Residential Construction Spending	△	0.6%	△	6.7%
Single-Family Construction Spending	▽	0.3%	△	6.0%
Existing House Sales ¹	▽	0.7%	▽	1.5%

New Construction's Percentage of Wood Products Consumption

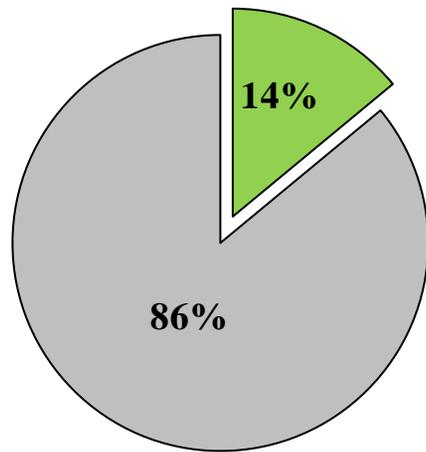


■ All Sawnwood

■ Structural panels

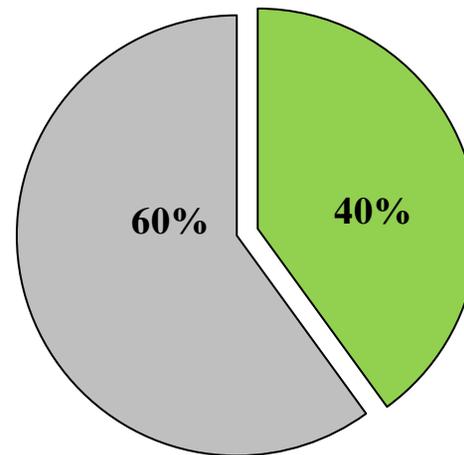
■ Non-structural panels

New SF Construction Percentage of Wood Products Consumption



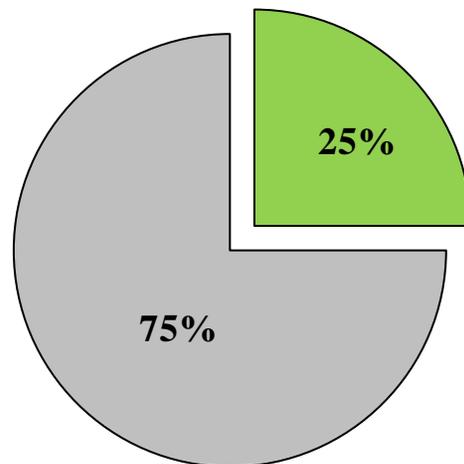
■ Non-structural panels:
New Housing

■ Other markets



■ Structural panels:
New housing

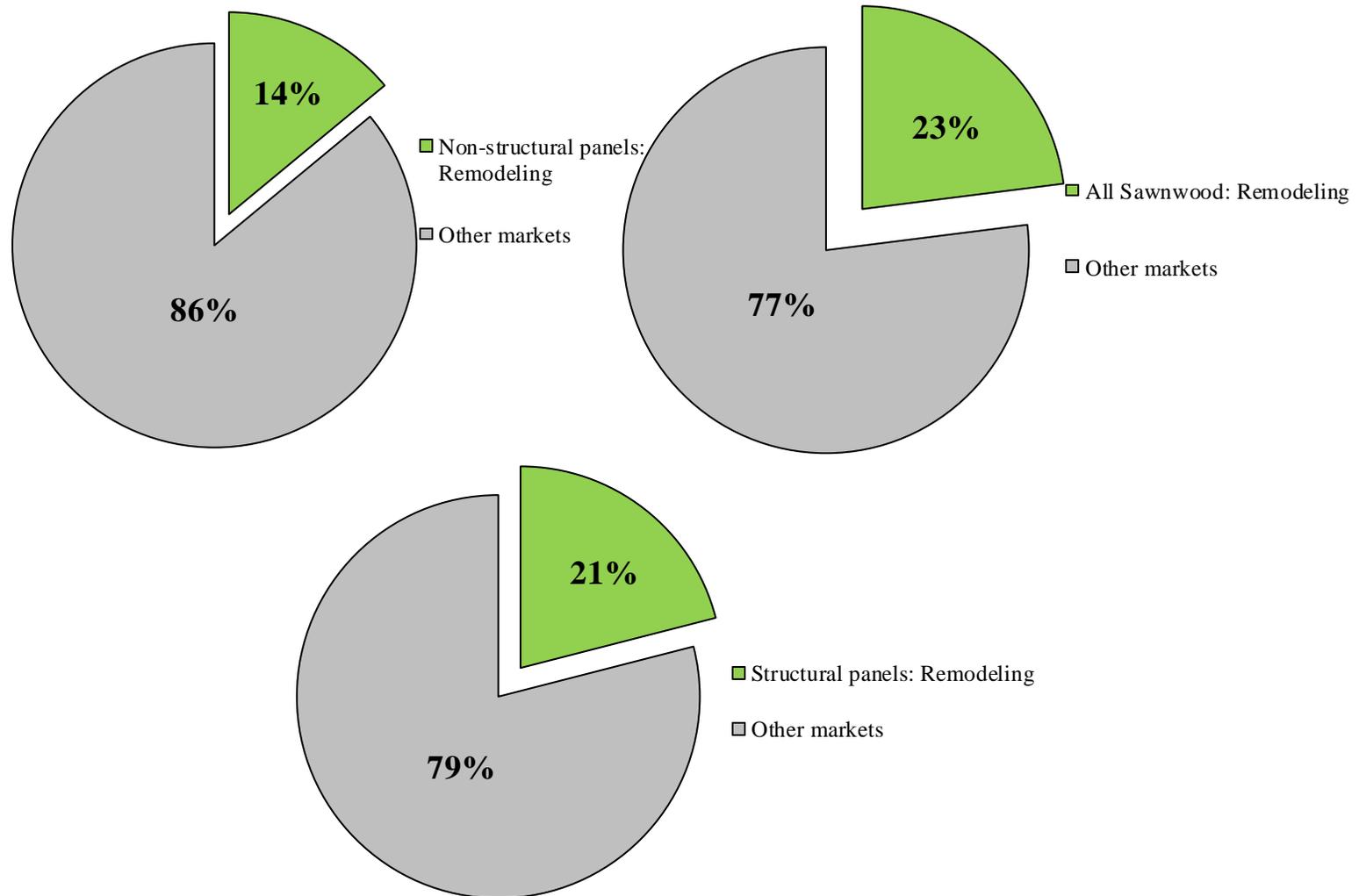
■ Other markets



■ All Sawnwood: New housing

■ Other markets

Repair and Remodeling's Percentage of Wood Products Consumption



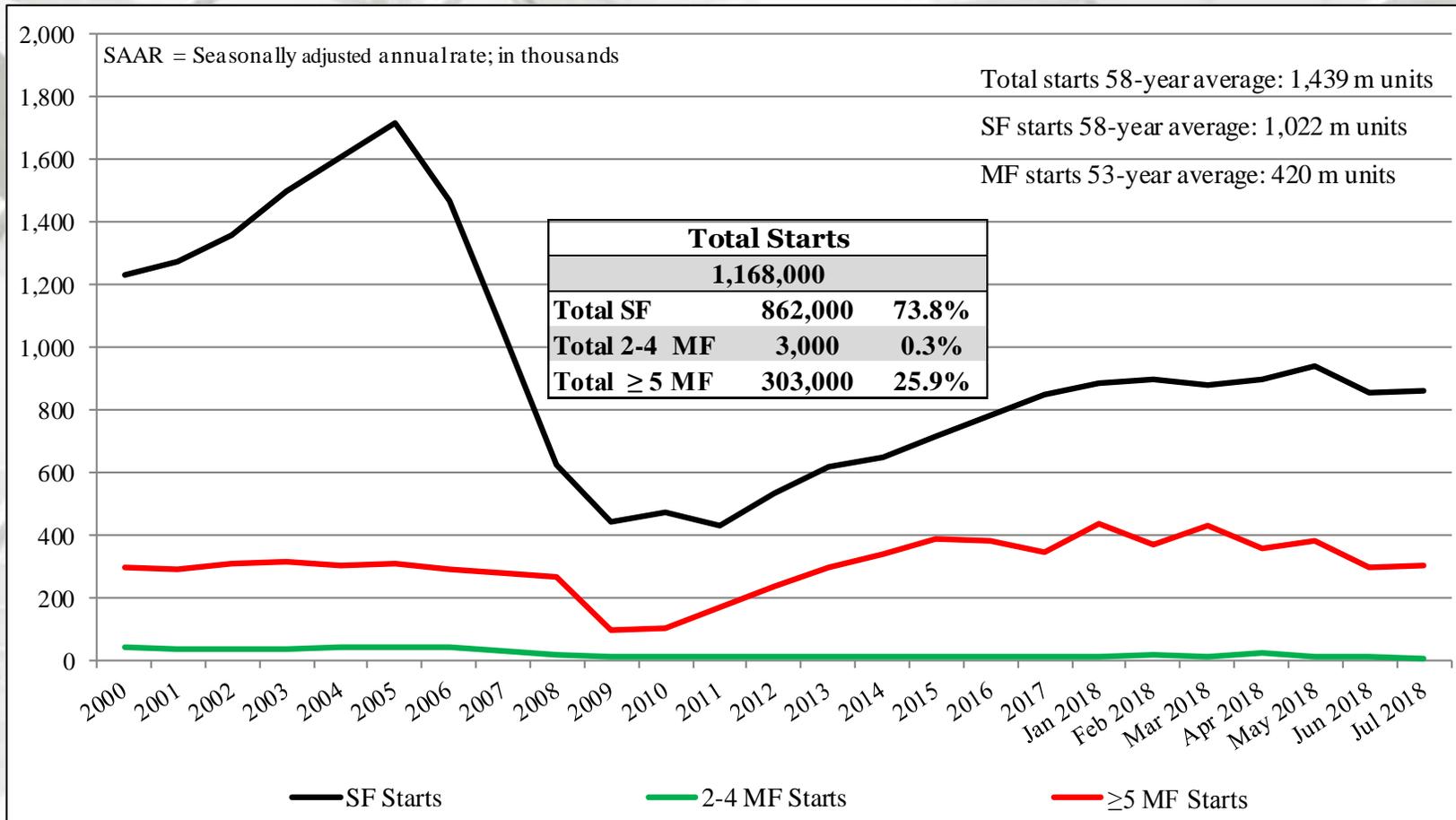
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
July	1,168,000	862,000	3,000	303,000
June	1,158,000	854,000	10,000	294,000
2017	1,185,000	839,000	11,000	335,000
M/M change	0.9	0.9	-70.0	3.1
Y/Y change	-1.4	2.7	-72.7	-9.6

* 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)).

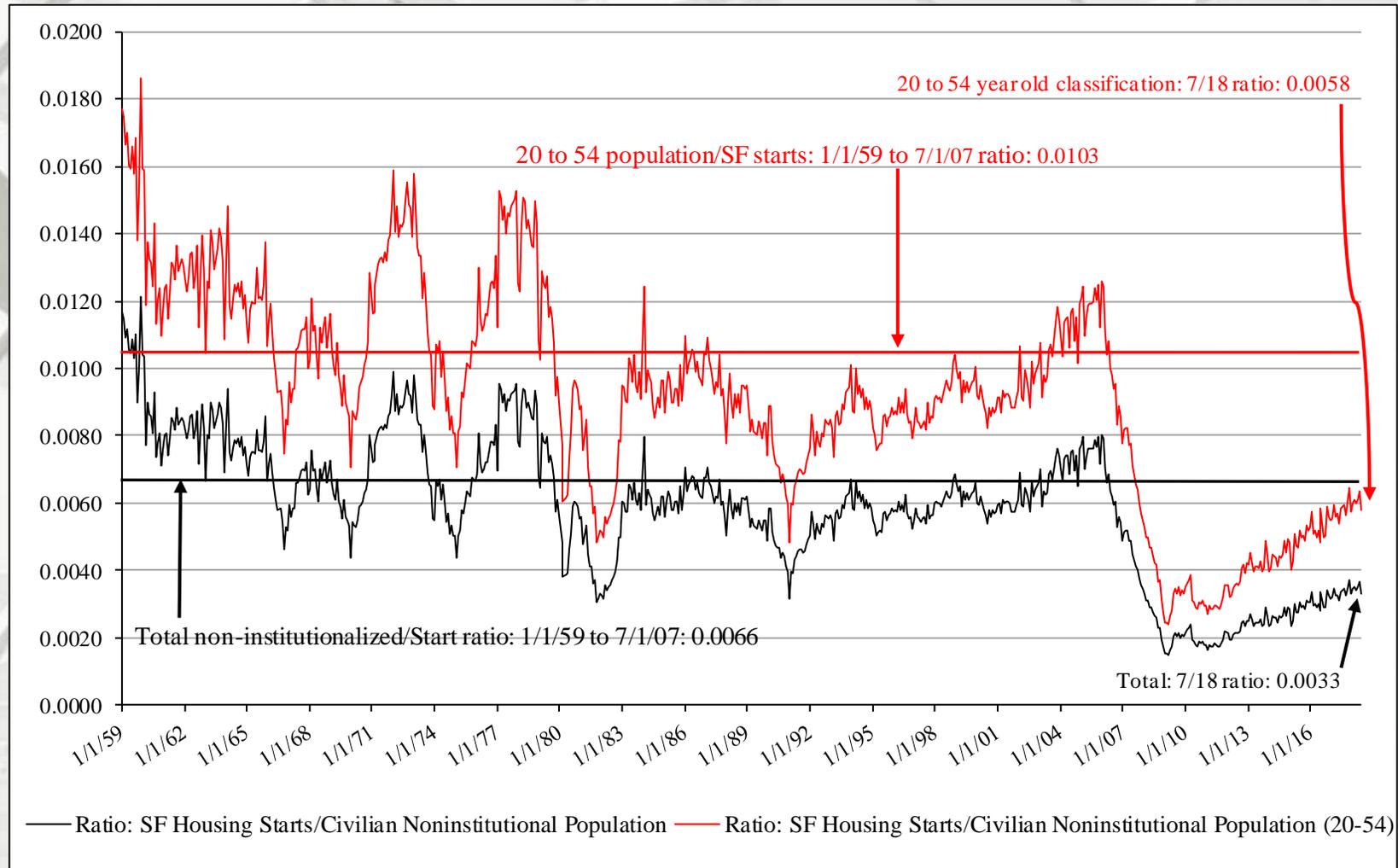
Total Housing Starts



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

* Percentage of total starts.

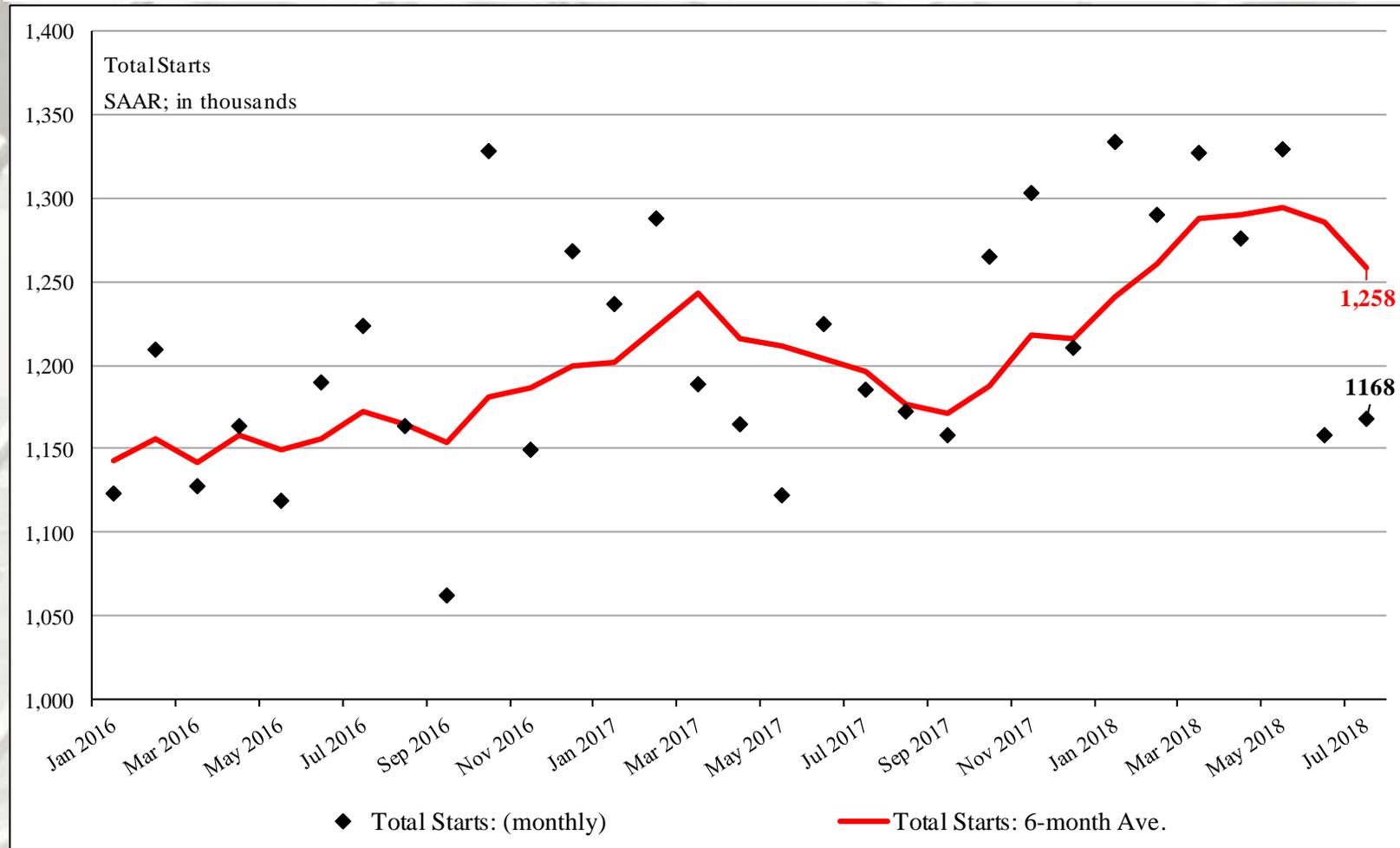
New SF Starts



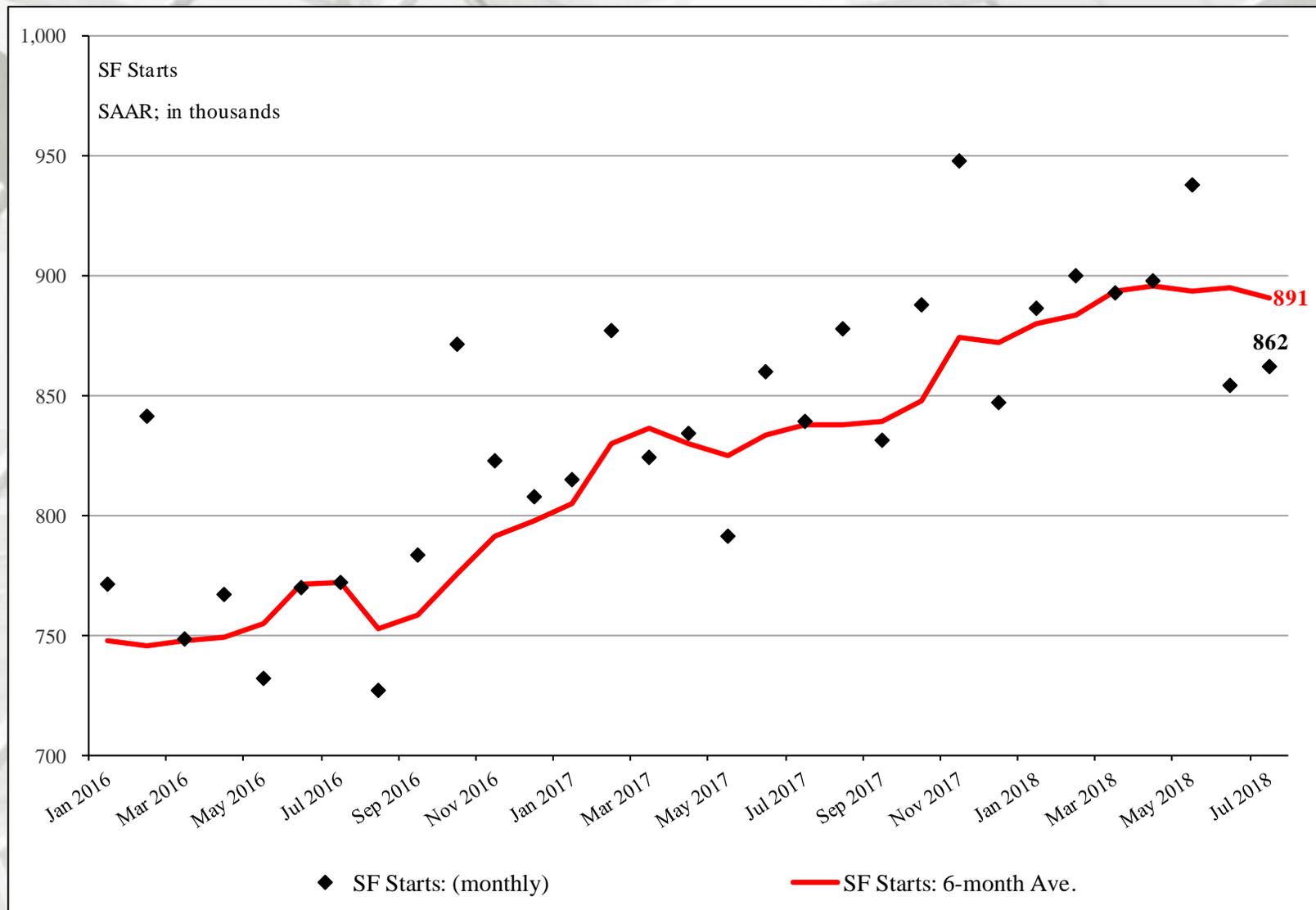
New SF starts adjusted for the US population

From July 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in July 2018 it was 0.0033 – no change from June (0.0033). The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in July 2018 was 0.0058 – also no change from June (0.0058). From a population worldview, new SF construction is less than what is necessary for changes in population (i.e., under-building).

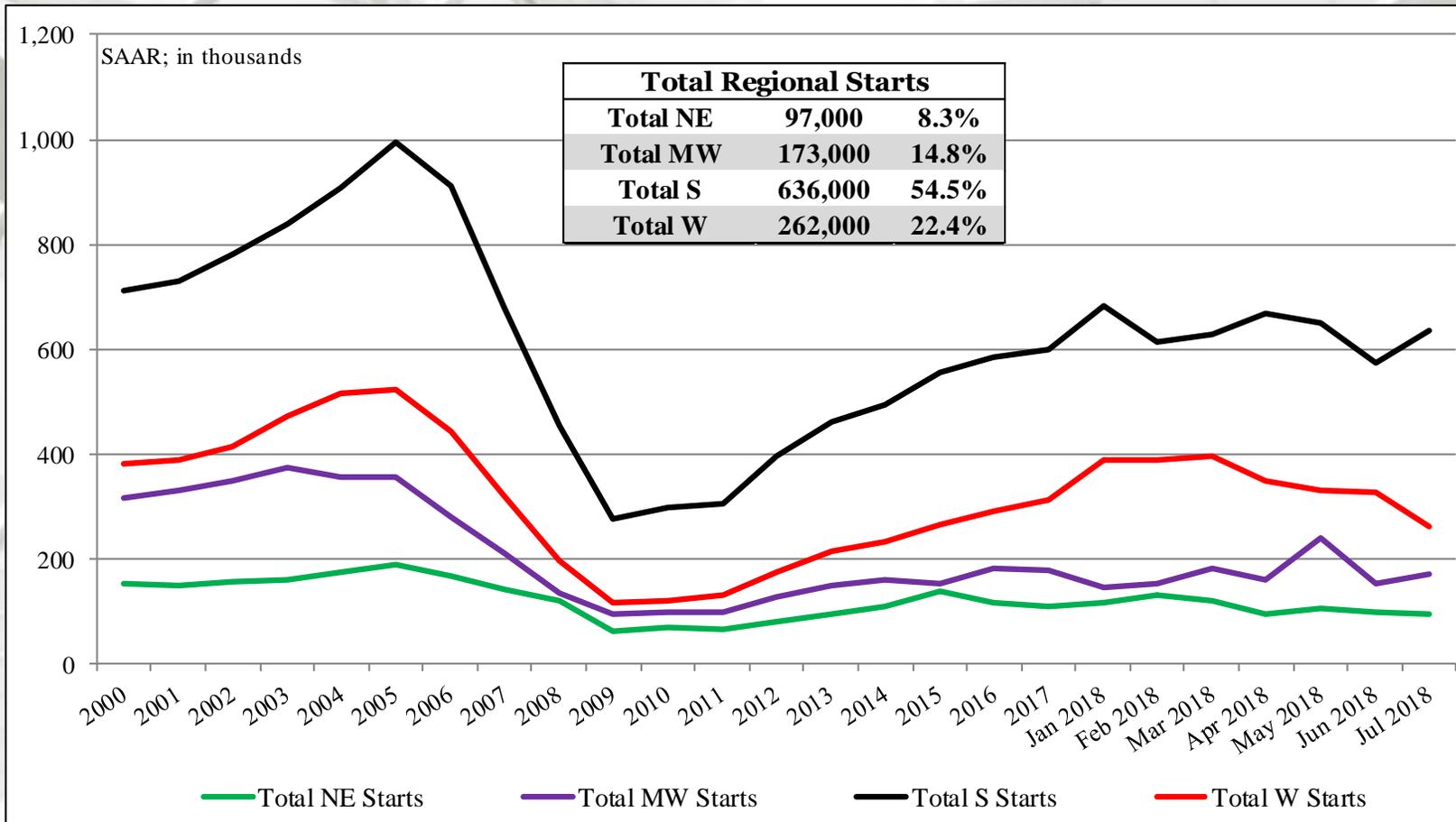
Total Housing Starts: Six-Month Average



SF Housing Starts: Six-Month Average



New Housing Starts by Region



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

New Housing Starts by Region

	NE Total	NE SF	NE MF**
July	97,000	66,000	31,000
June	101,000	70,000	31,000
2017	119,000	68,000	51,000
M/M change	-4.0	-5.7	0.0
Y/Y change	-18.5	-2.9	-39.2
	MW Total	MW SF	MW MF
July	173,000	137,000	36,000
June	155,000	112,000	43,000
2017	161,000	116,000	45,000
M/M change	11.6	22.3	-16.3
Y/Y change	7.5	18.1	-20.0

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).

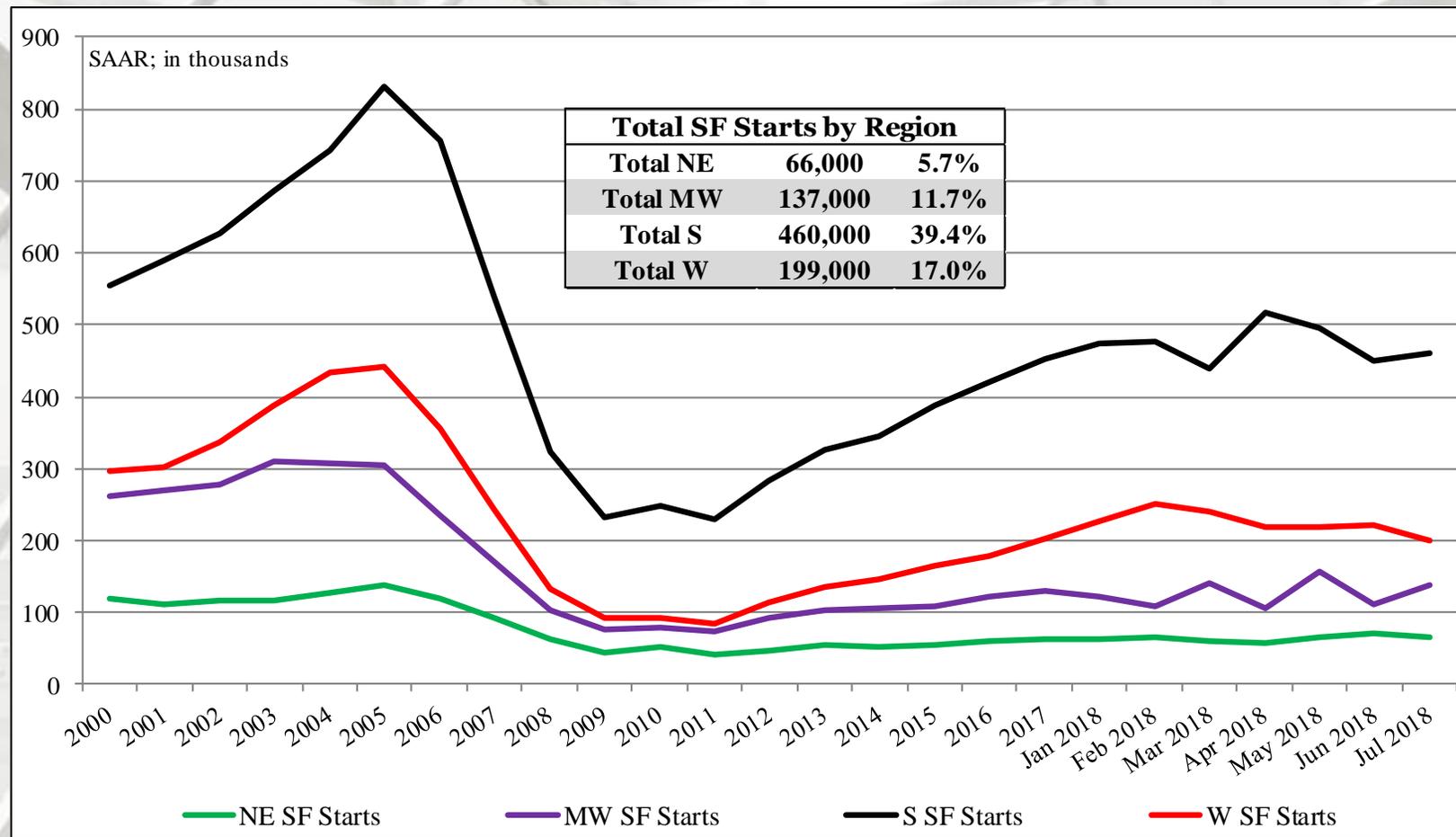
New Housing Starts by Region

	S Total	S SF	S MF**
July	636,000	460,000	176,000
June	576,000	451,000	125,000
2017	611,000	462,000	149,000
M/M change	10.4	2.0	40.8
Y/Y change	4.1	-0.4	18.1
	W Total	W SF	W MF
July	262,000	199,000	63,000
June	326,000	221,000	105,000
2017	294,000	193,000	101,000
M/M change	-19.6	-10.0	-40.0
Y/Y change	-10.9	3.1	-37.6

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 SF Housing Starts by Region

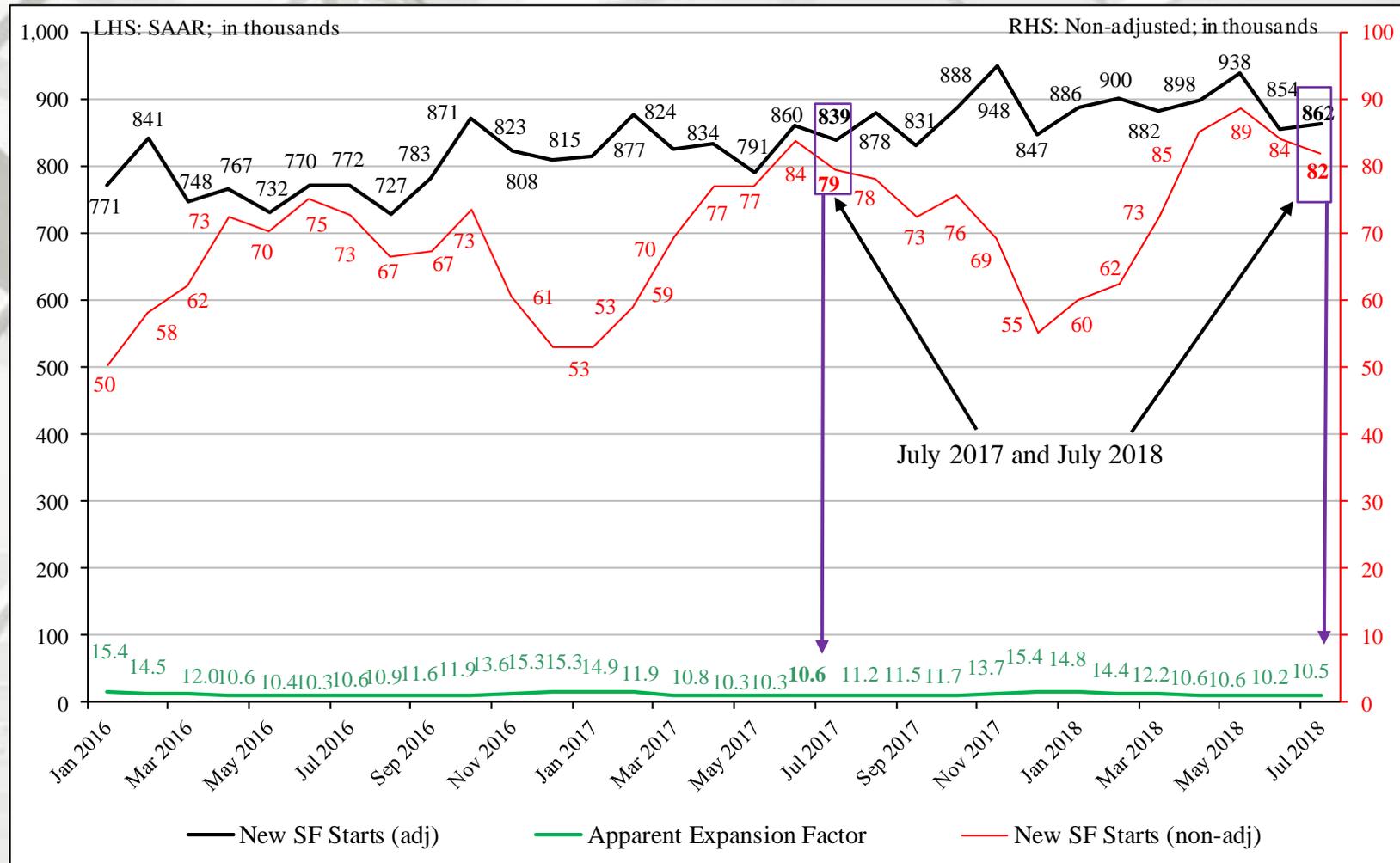


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

Nominal & SAAR SF Starts

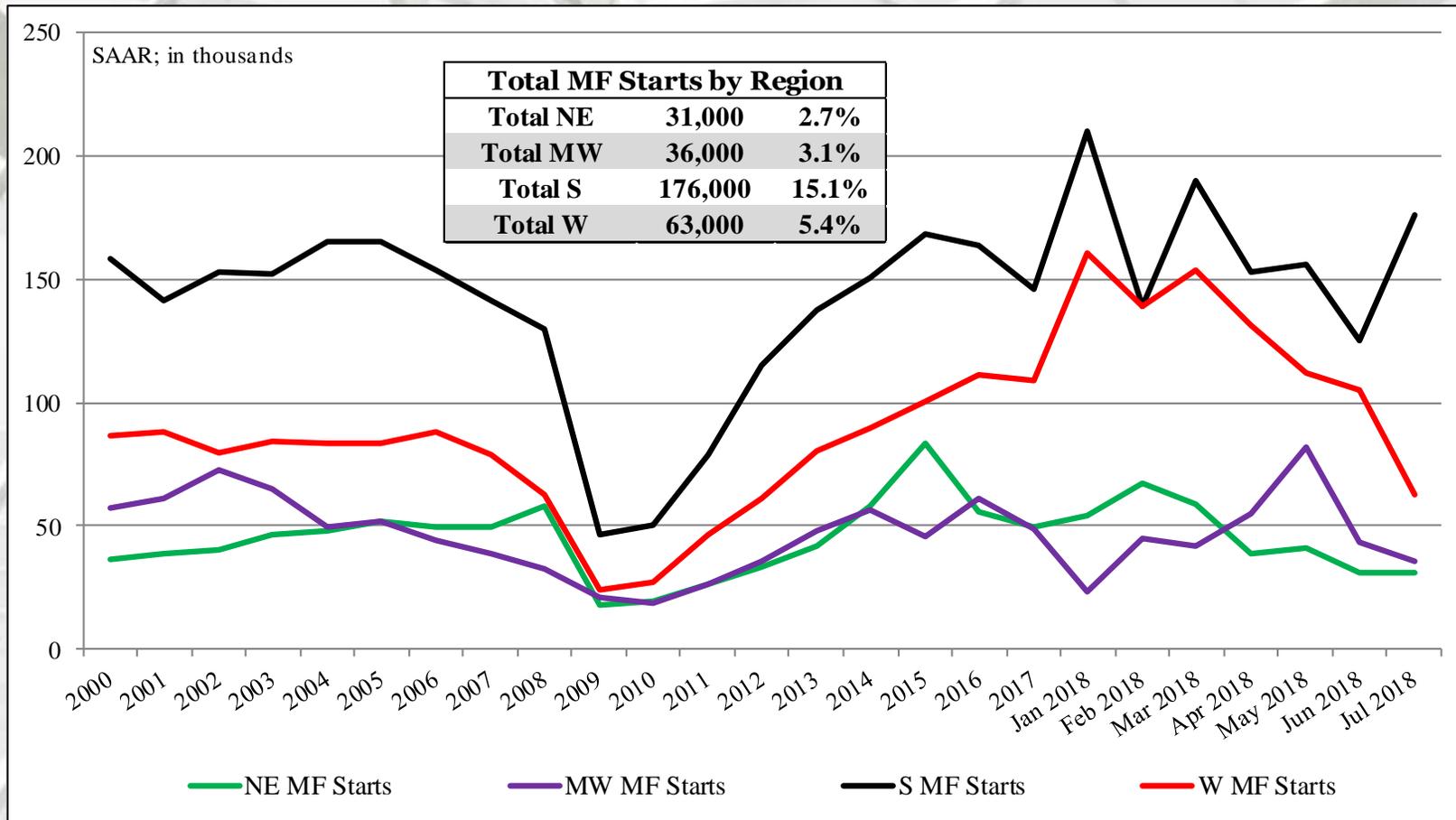


Nominal and Adjusted New SF Monthly Starts

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

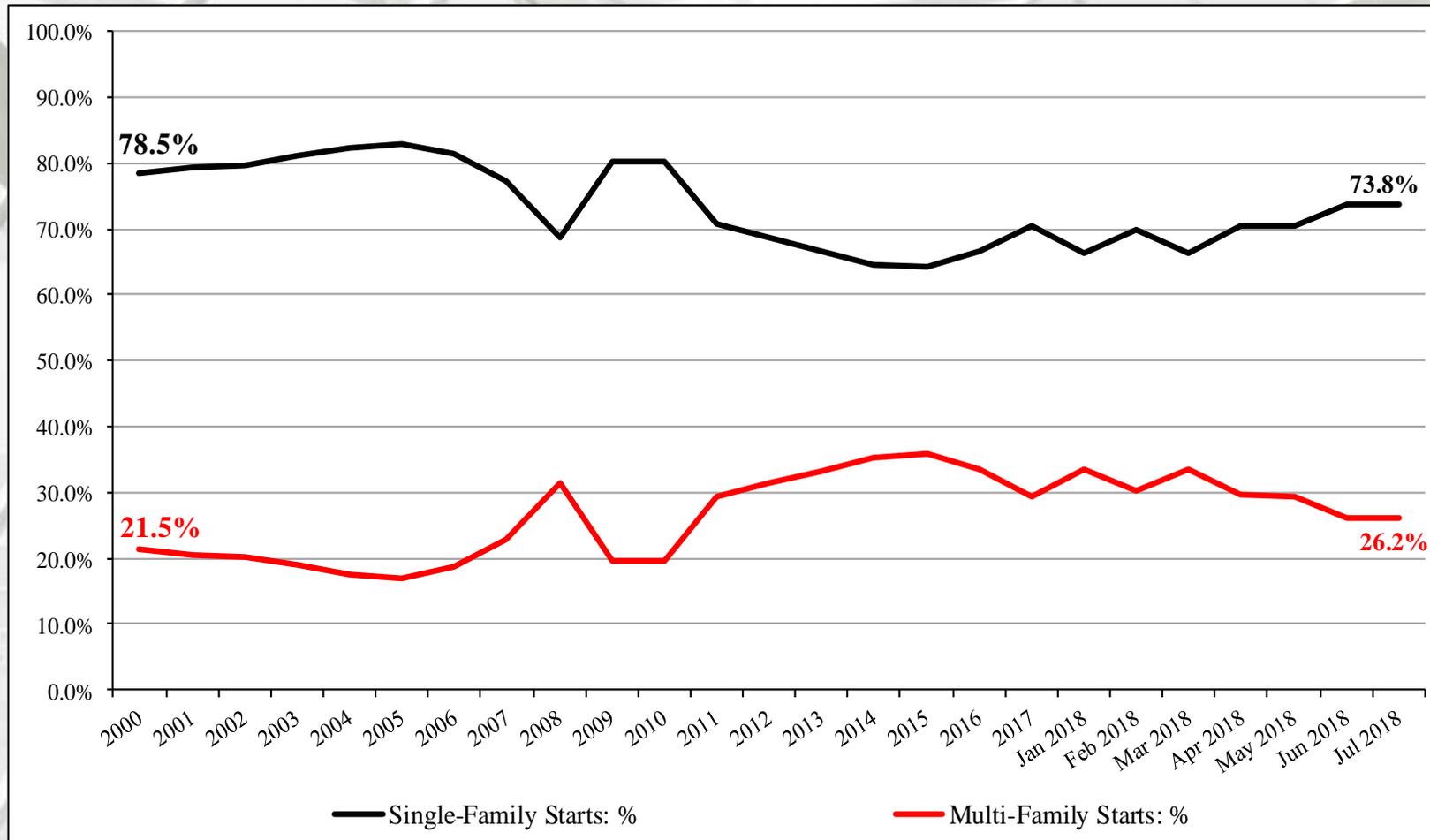


NE = Northeast, MW = Midwest, S = South, W = West

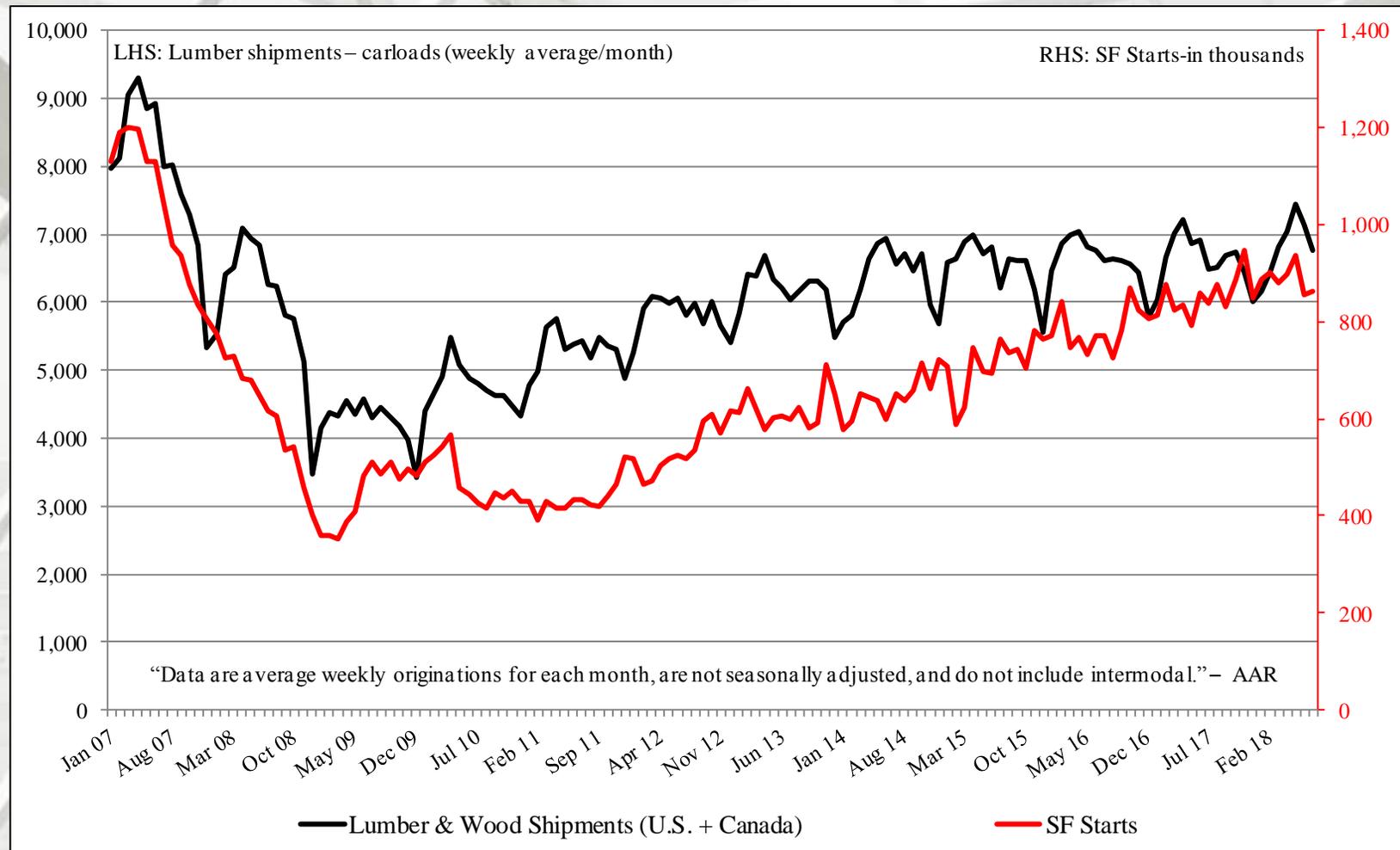
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

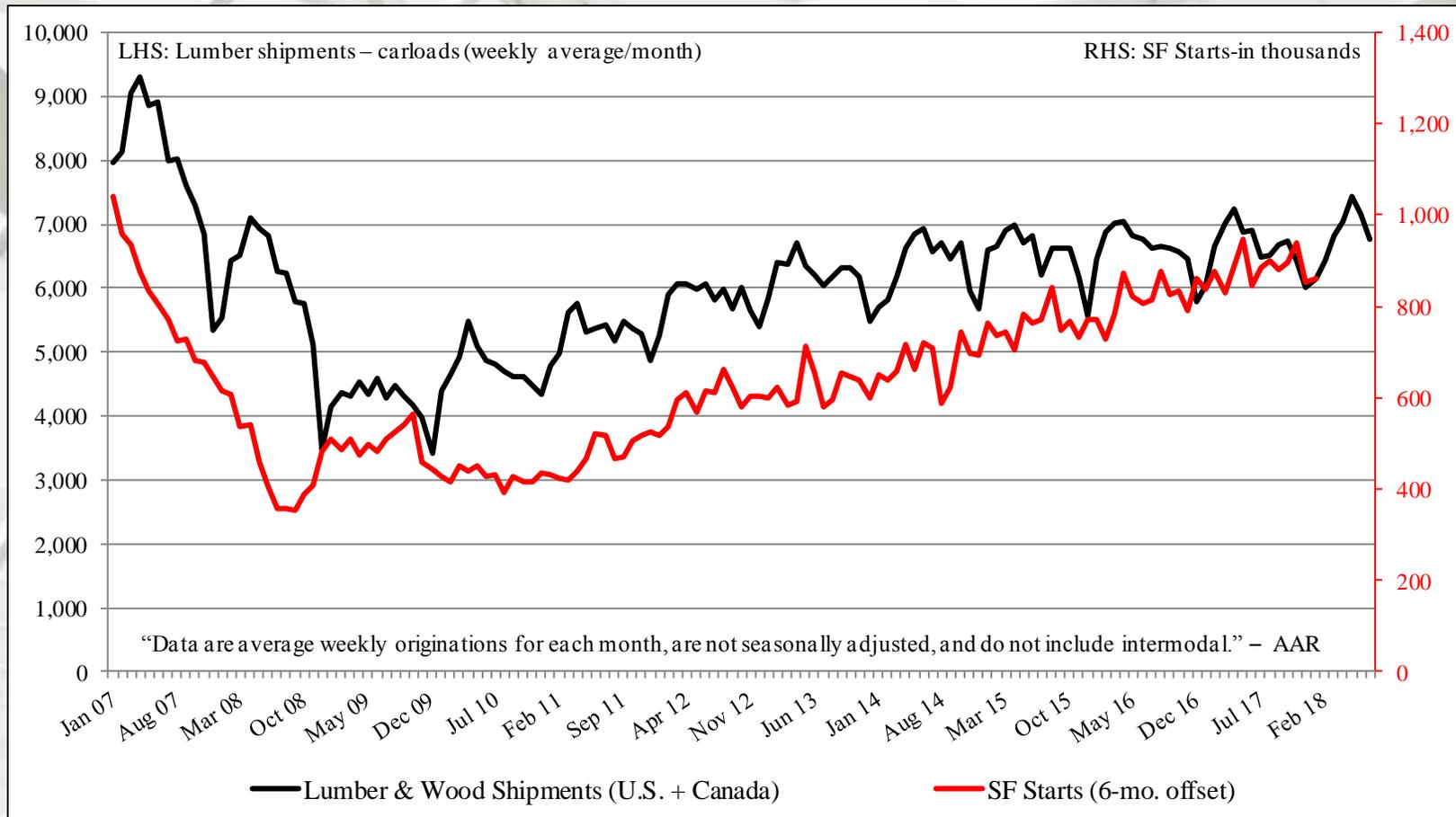
SF & MF Housing Starts (%)



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



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



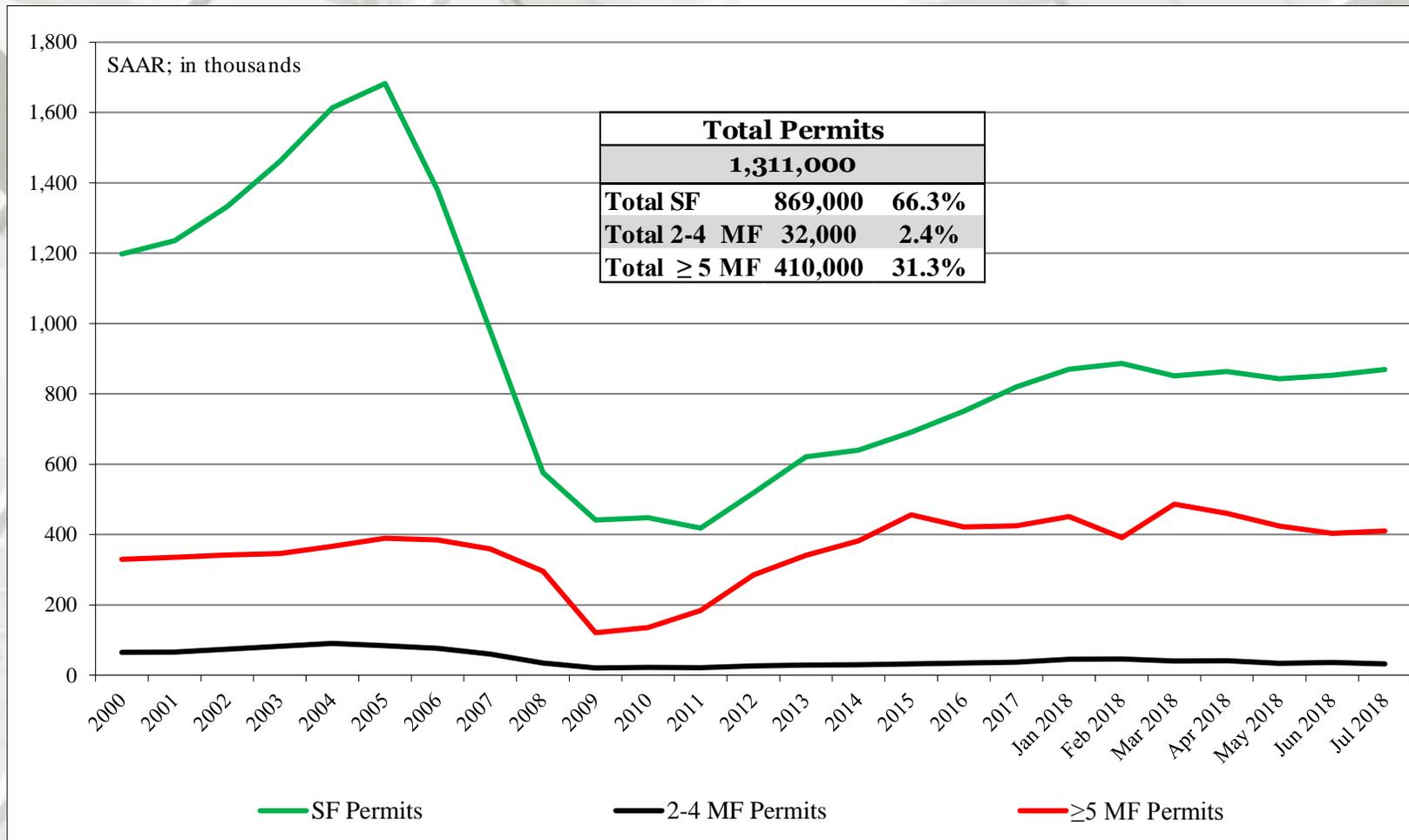
In this graph, January 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through July 2018 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
July	1,311,000	869,000	32,000	410,000
June	1,292,000	853,000	36,000	403,000
2017	1,258,000	817,000	42,000	399,000
M/M change	1.5	1.9	-11.1	1.7
Y/Y change	4.2	6.4	-23.8	2.8

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

Total New Housing Permits

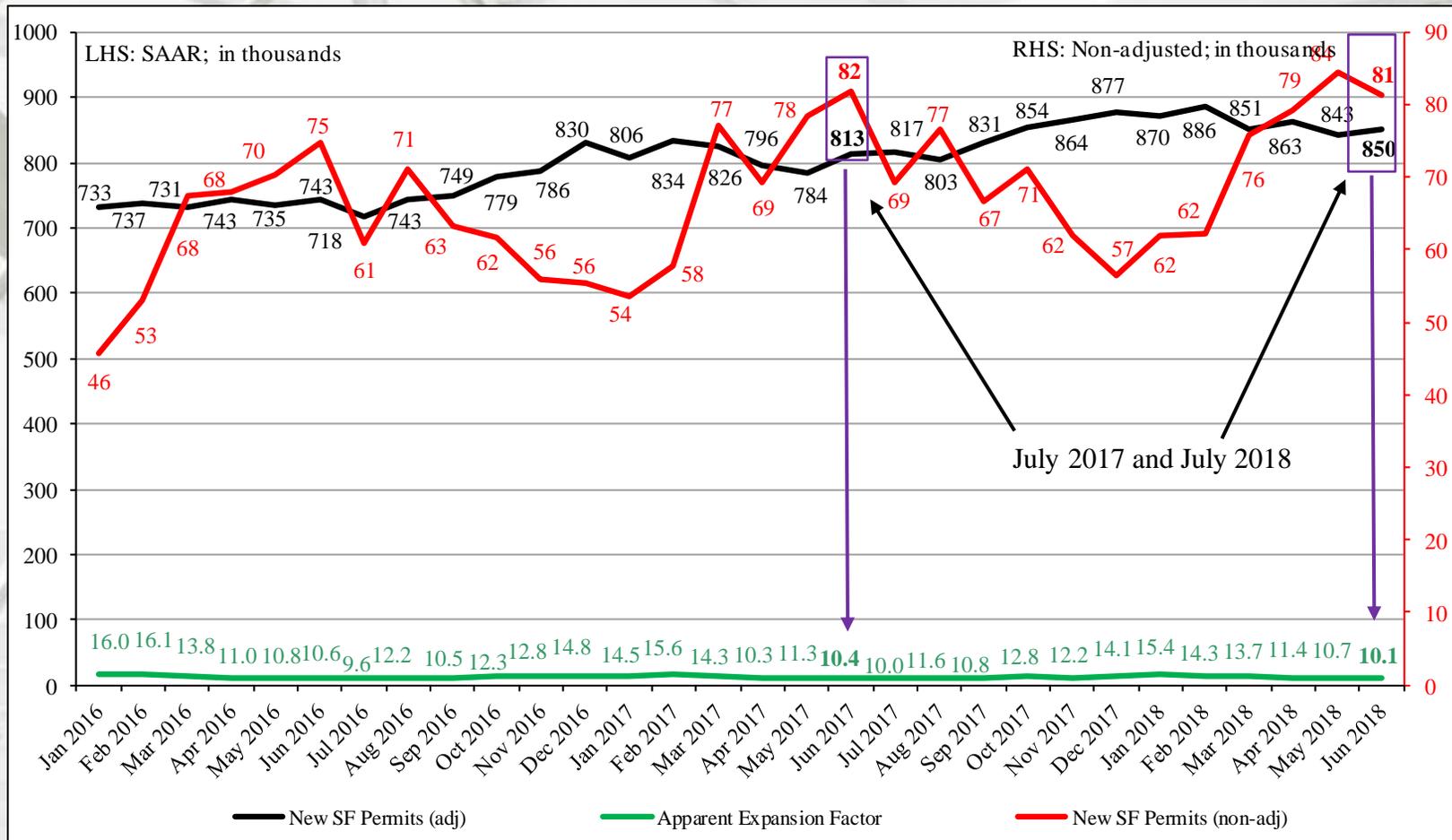


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total 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	112,000	54,000	58,000
May	134,000	57,000	77,000
2017	105,000	55,000	50,000
M/M change	-16.4	-5.3	-24.7
Y/Y change	6.7	-1.8	16.0
	MW Total*	MW SF	MW MF**
June	170,000	117,000	53,000
May	209,000	122,000	87,000
2017	212,000	120,000	92,000
M/M change	-18.7	-4.1	-39.1
Y/Y change	-19.8	-2.5	-42.4

* All data are SAAR

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

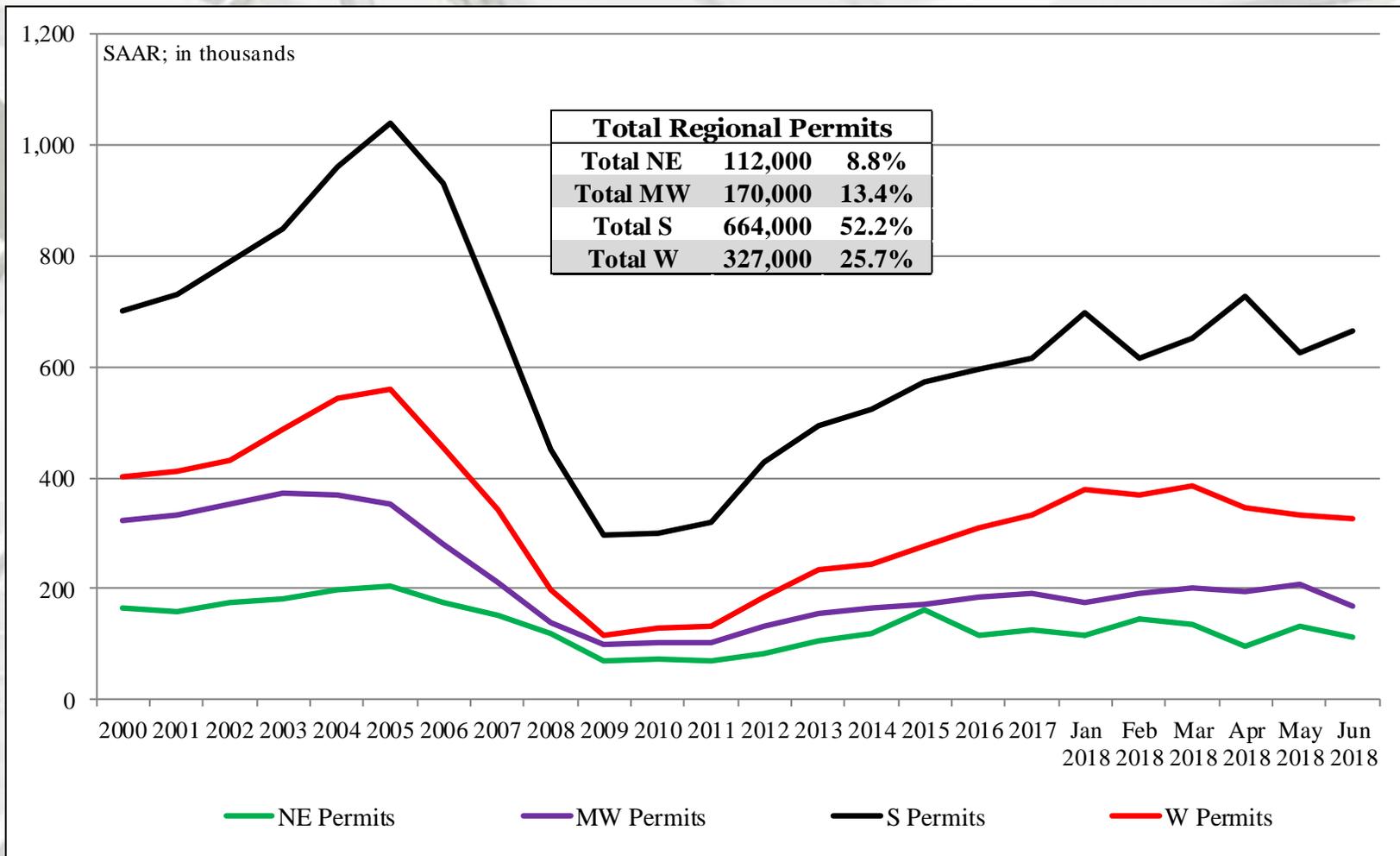
New Housing Permits by Region

	S Total*	S SF	S MF**
June	664,000	477,000	187,000
May	625,000	458,000	167,000
2017	643,000	447,000	196,000
M/M change	6.2	4.1	12.0
Y/Y change	3.3	6.7	-4.6
	W Total*	W SF	W MF**
June	327,000	202,000	125,000
May	333,000	206,000	127,000
2017	352,000	191,000	161,000
M/M change	-1.8	-1.9	-1.6
Y/Y change	-7.1	5.8	-22.4

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

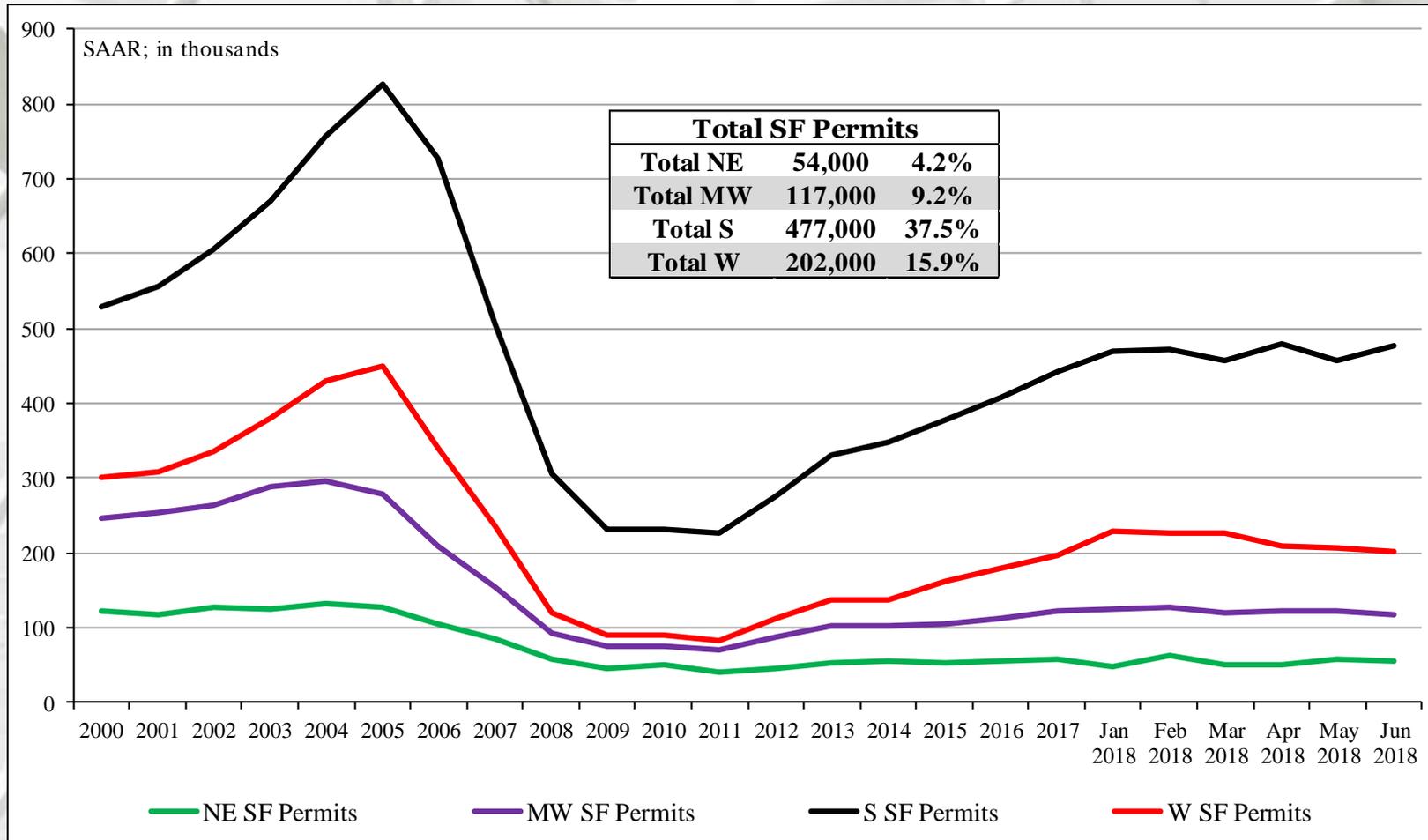


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total permits.

SF Housing Permits by Region

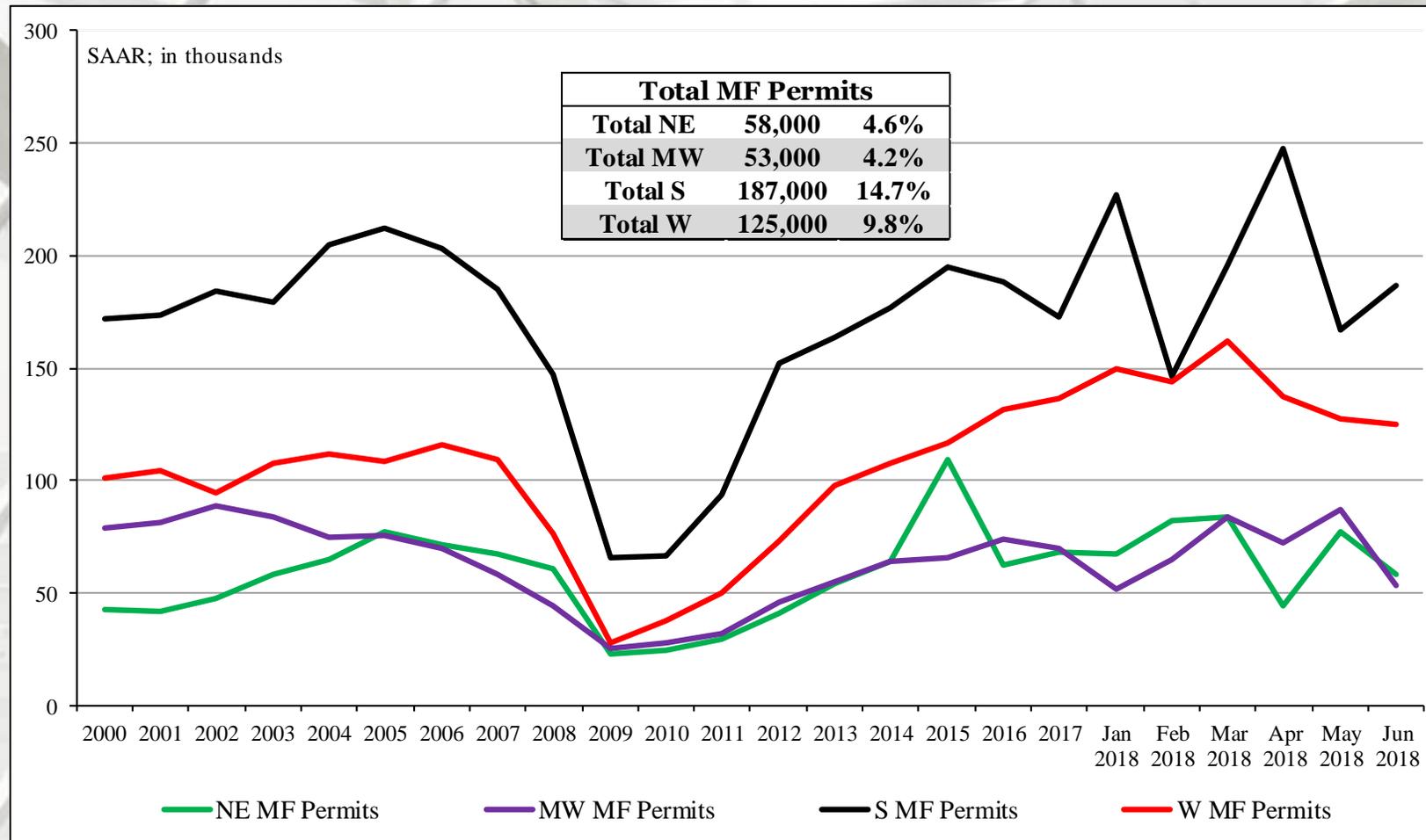


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total permits.

MF Housing Permits by Region

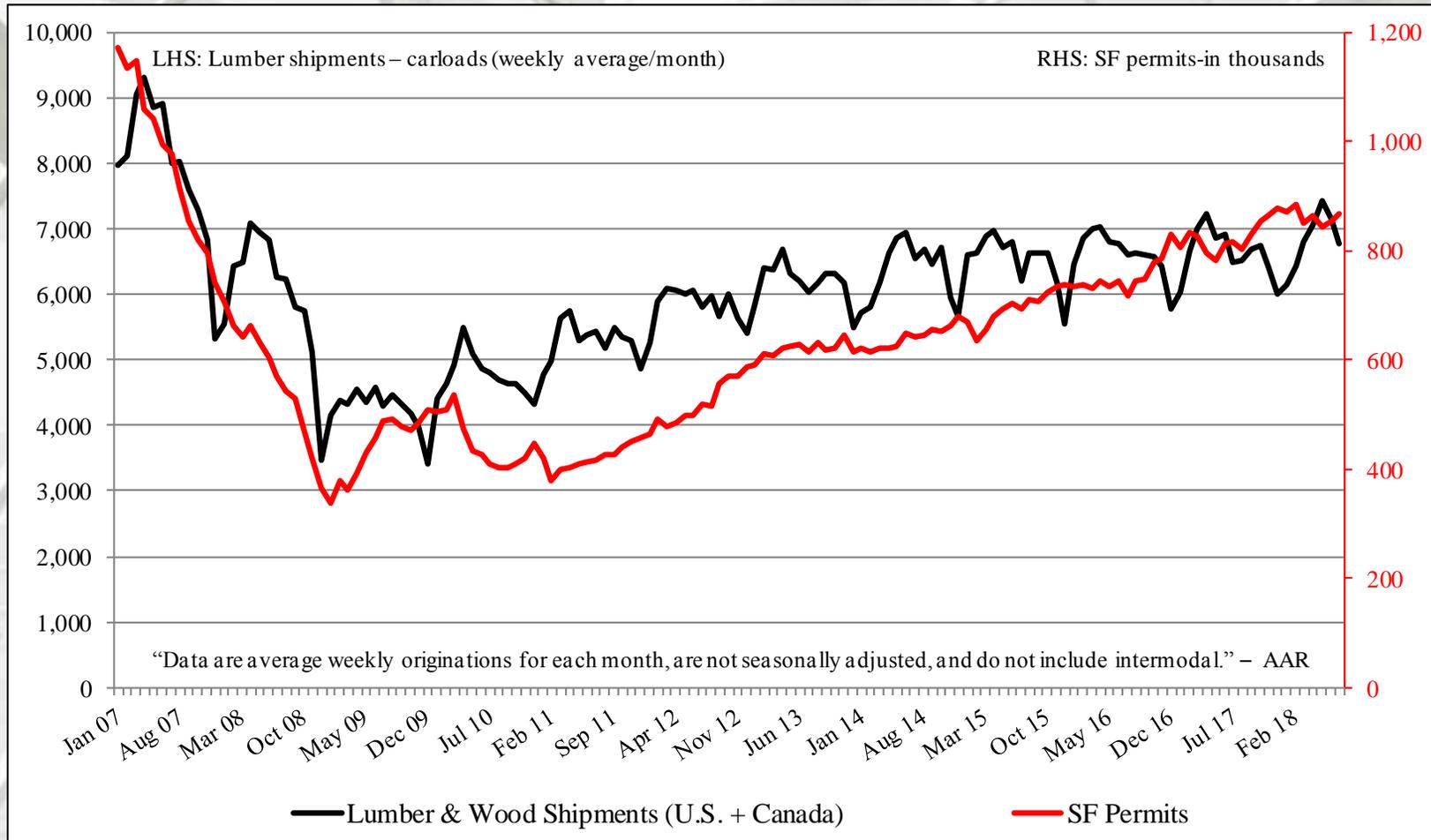


NE = Northeast, MW = Midwest, S = South, W = West

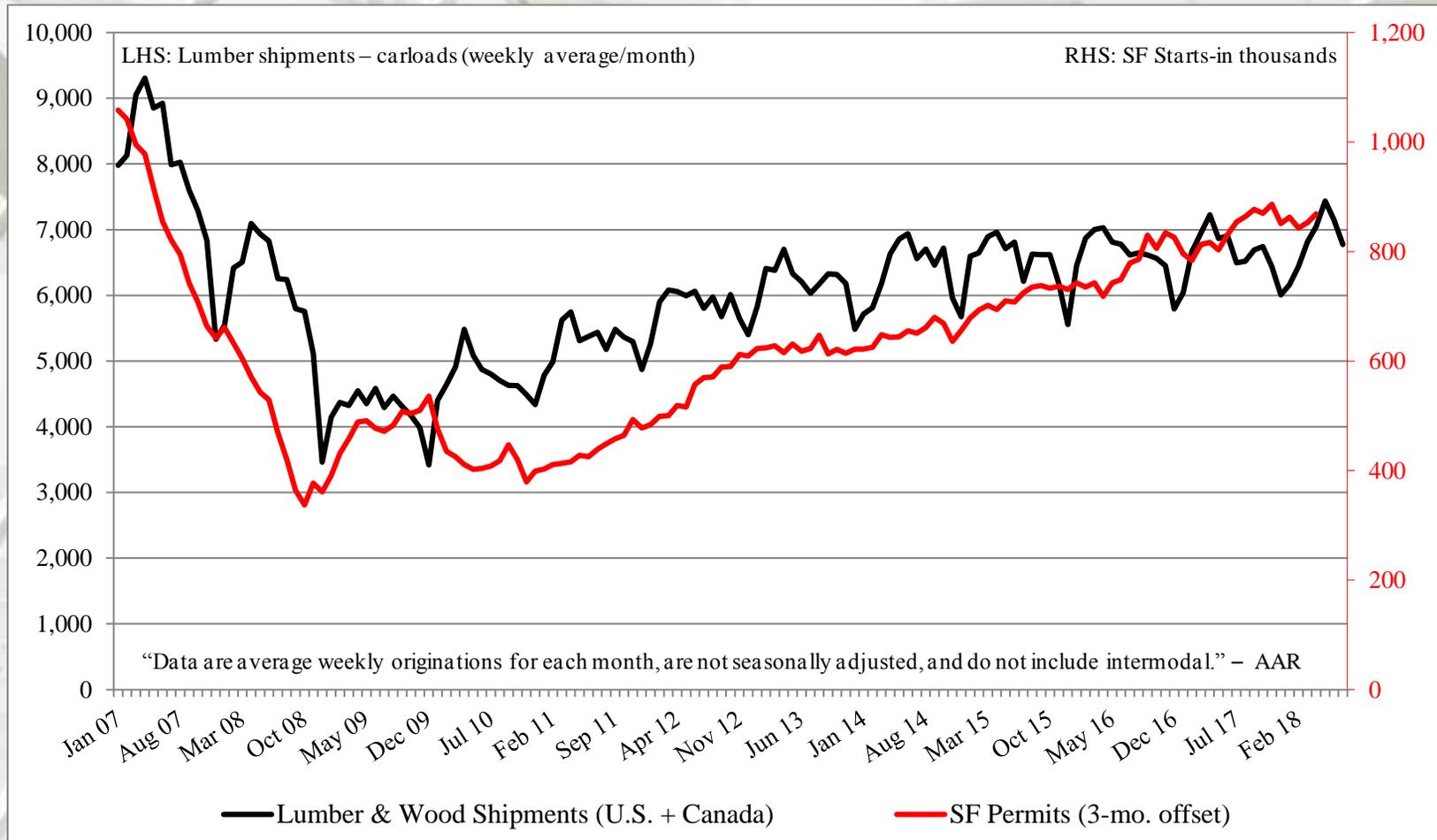
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total permits.

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 July 2007 SF permits, continuing through July 2018. 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.

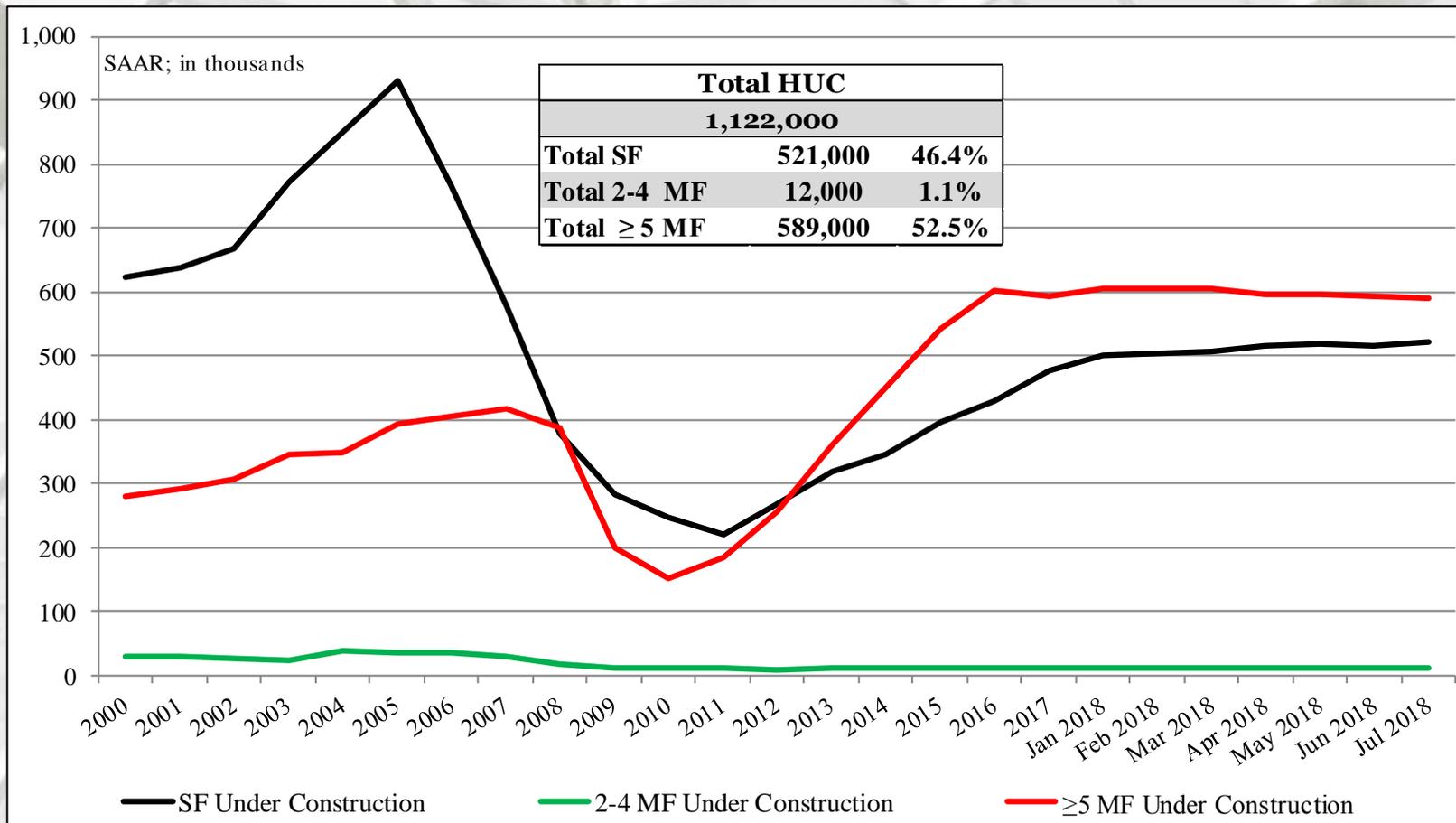
New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	Under Construction	MF ≥ 5 unit Under Construction
July	1,122,000	521,000	12,000	589,000
June	1,121,000	516,000	12,000	593,000
2017	1,071,000	463,000	9,000	599,000
M/M change	0.1	1.0	0.0	-0.7
Y/Y change	4.8	12.5	33.3	-1.7

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



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing under construction units.

New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
July	184,000	57,000	127,000
June	187,000	56,000	131,000
2017	186,000	50,000	136,000
M/M change	-1.6	1.8	-3.1
Y/Y change	-1.1	14.0	-6.6
	MW Total	MW SF	MW MF
July	153,000	83,000	70,000
June	154,000	82,000	72,000
2017	153,000	78,000	75,000
M/M change	-0.6	1.2	-2.8
Y/Y change	0.0	6.4	-6.7

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).

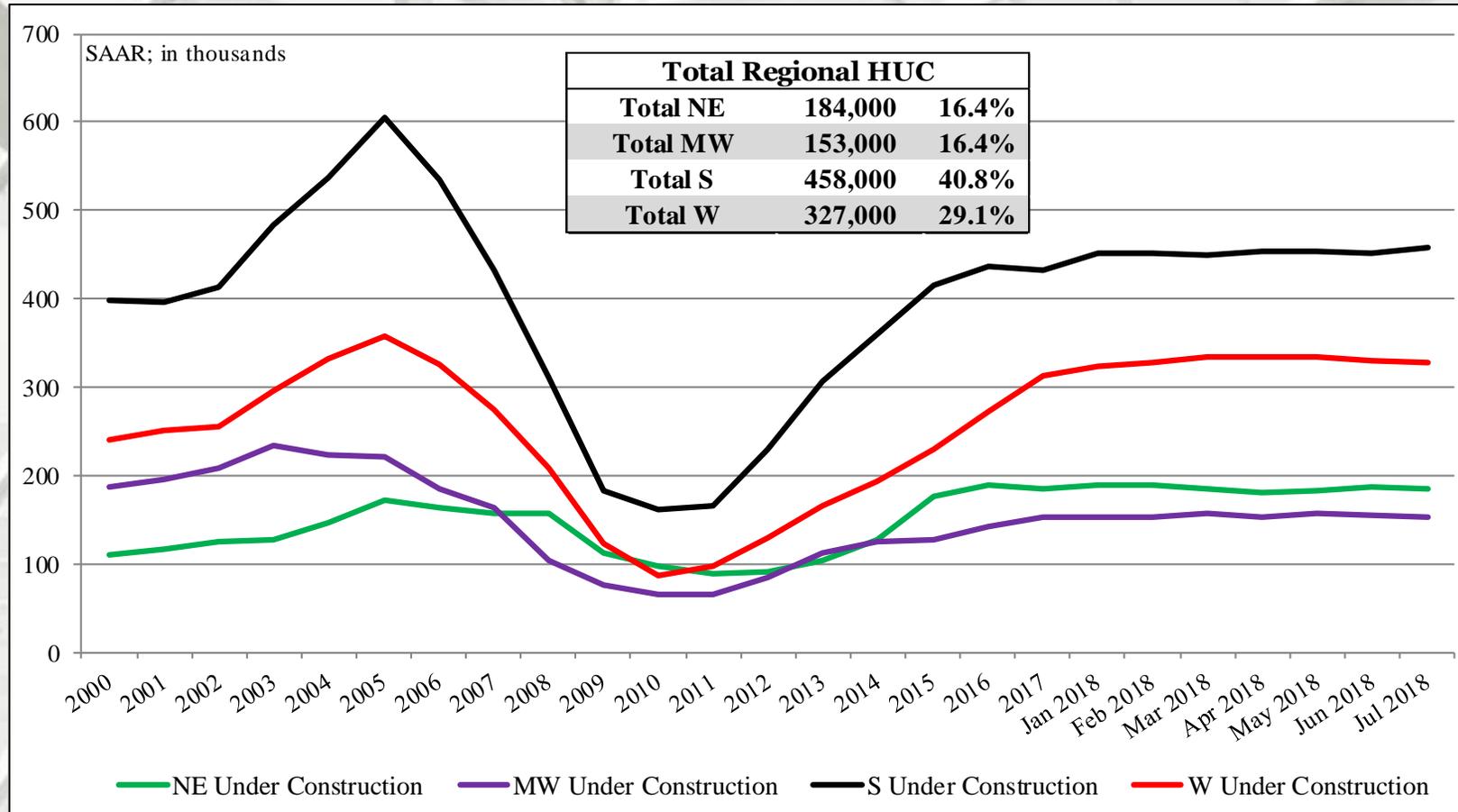
New Housing Under Construction by Region

	S Total	S SF	S MF**
July	458,000	245,000	213,000
June	451,000	242,000	209,000
2017	441,000	221,000	220,000
M/M change	1.6	1.2	1.9
Y/Y change	3.9	10.9	-3.2
	W Total	W SF	W MF
July	327,000	136,000	191,000
June	329,000	136,000	193,000
2017	291,000	114,000	177,000
M/M change	-0.6	0.0	-1.0
Y/Y change	12.4	19.3	7.9

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

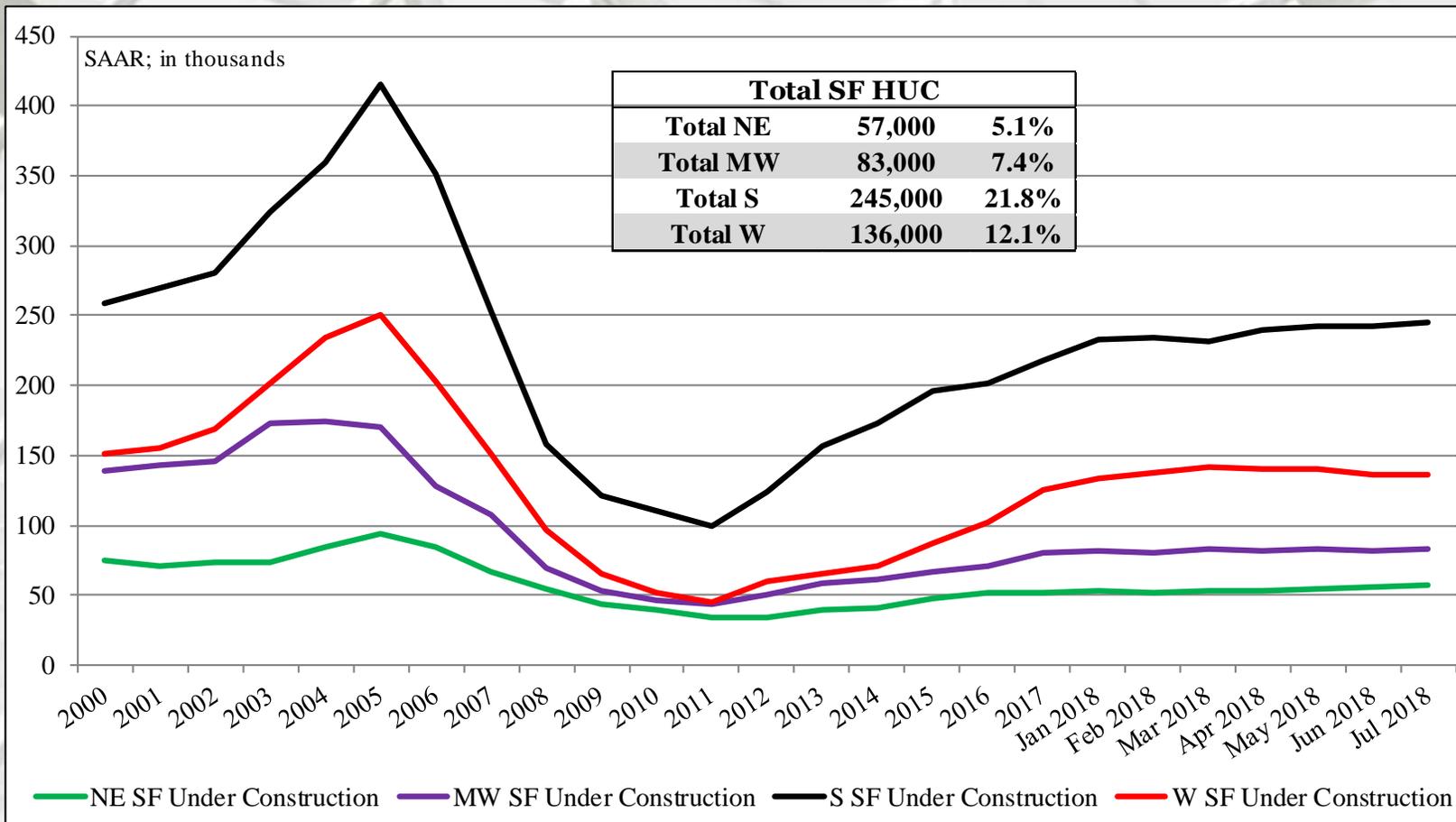


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing under construction units.

SF Housing Under Construction by Region

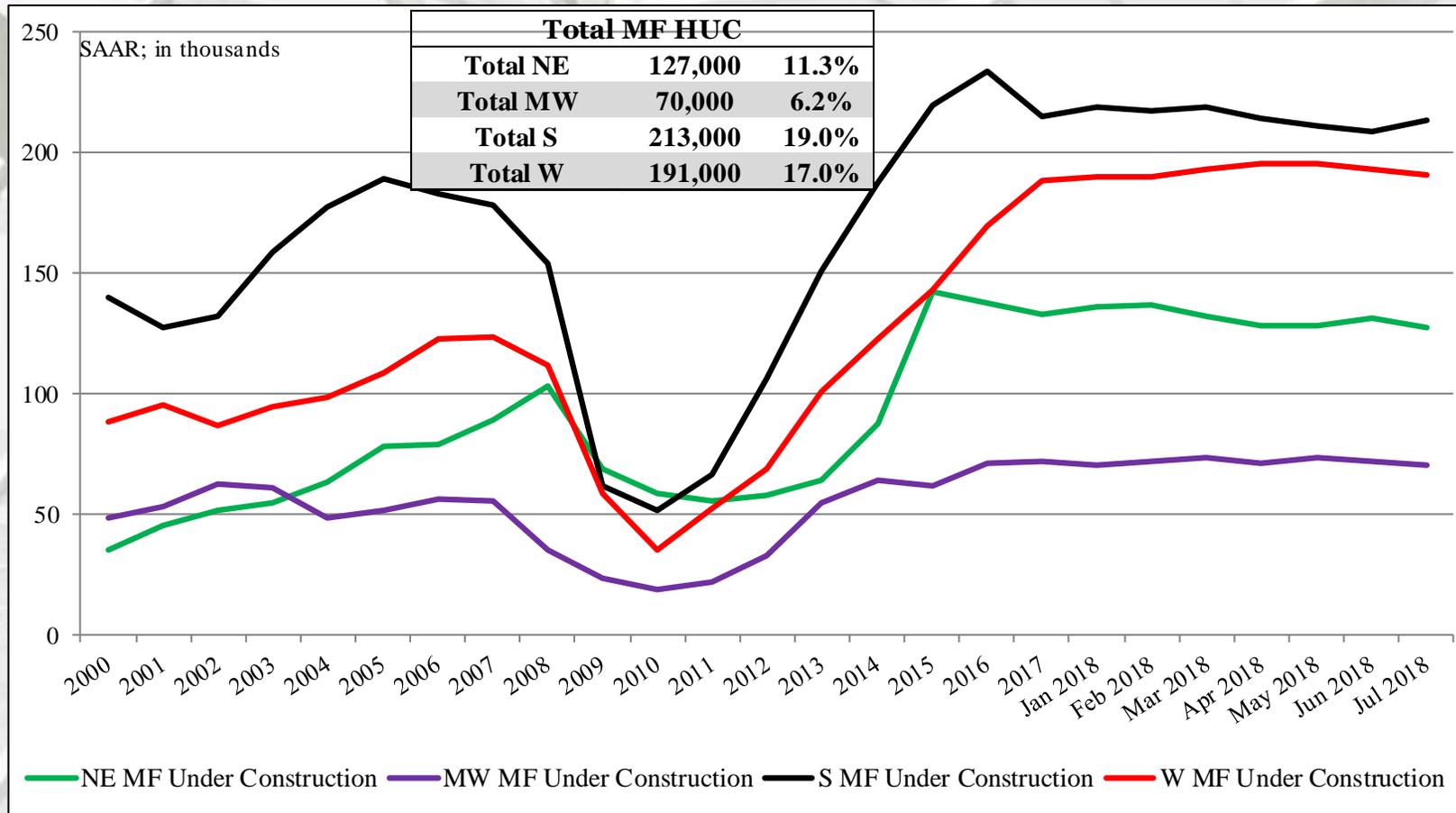


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing under construction units.

MF Housing Under Construction by Region



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing under construction units.

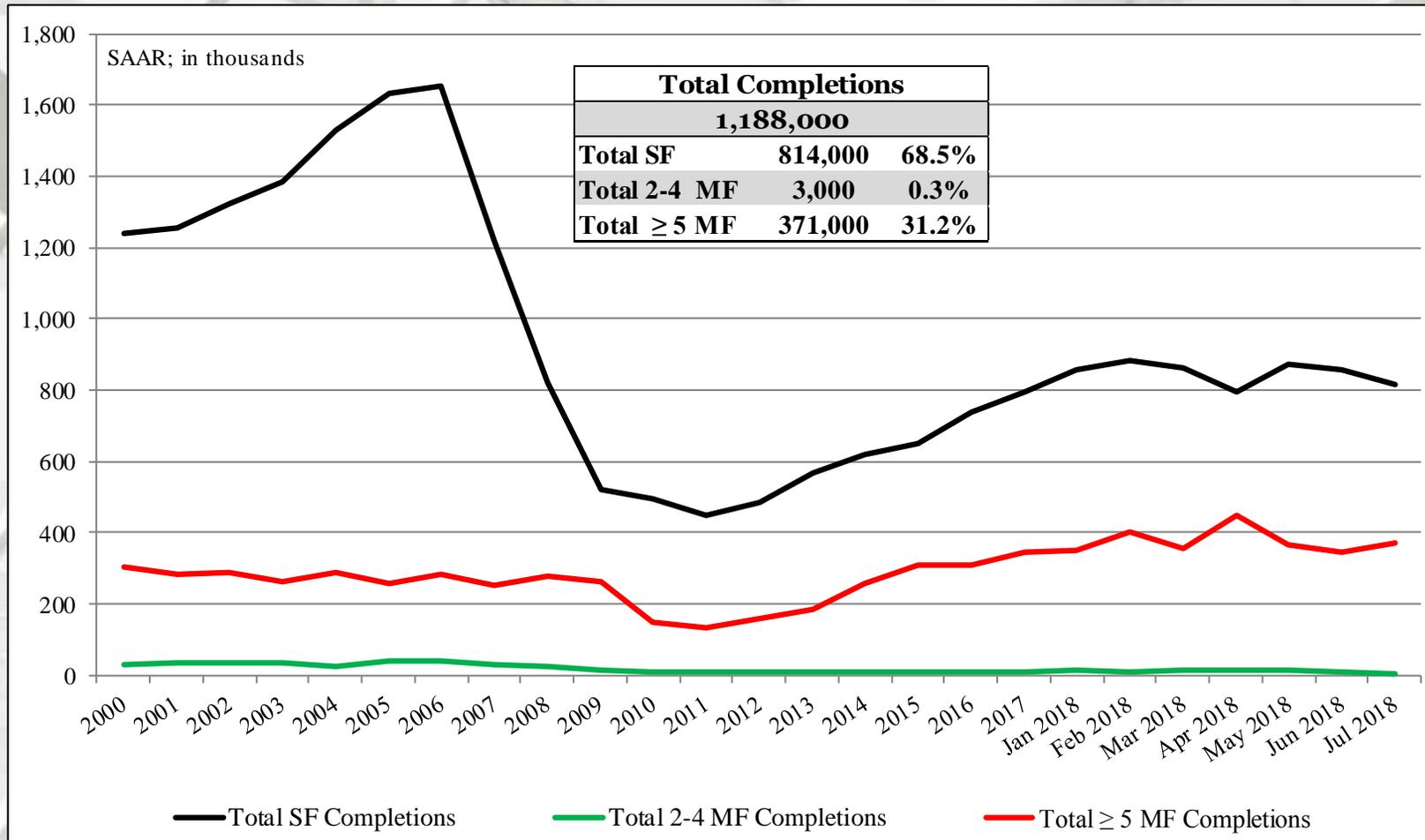
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
June	1,188,000	814,000	3,000	371,000
May	1,209,000	859,000	7,000	343,000
2017	1,197,000	847,000	7,000	343,000
M/M change	-1.7%	-5.2%	-57.1%	8.2%
Y/Y change	-0.8%	-3.9%	-57.1%	8.2%

* 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)).

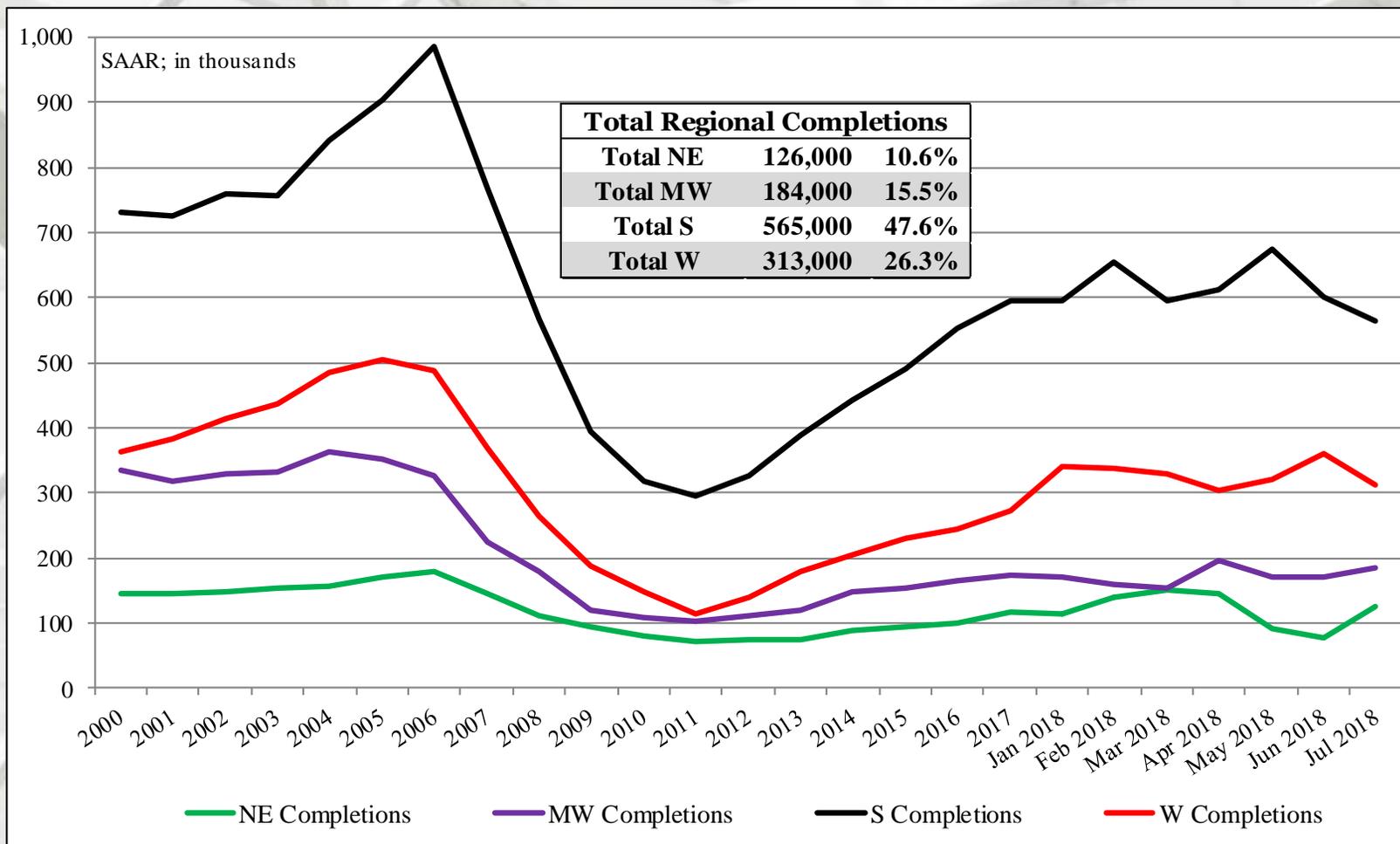
Total Housing Completions



US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

Total Housing Completions by Region



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

New Housing Completions by Region

	NE Total	NE SF	NE MF**
June	126,000	49,000	77,000
May	76,000	48,000	28,000
2017	106,000	75,000	31,000
M/M change	65.8%	2.1%	175.0%
Y/Y change	18.9%	-34.7%	148.4%
	MW Total	MW SF	MW MF
June	184,000	131,000	53,000
May	171,000	118,000	53,000
2017	171,000	106,000	65,000
M/M change	7.6%	11.0%	0.0%
Y/Y change	7.6%	23.6%	-18.5%

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).

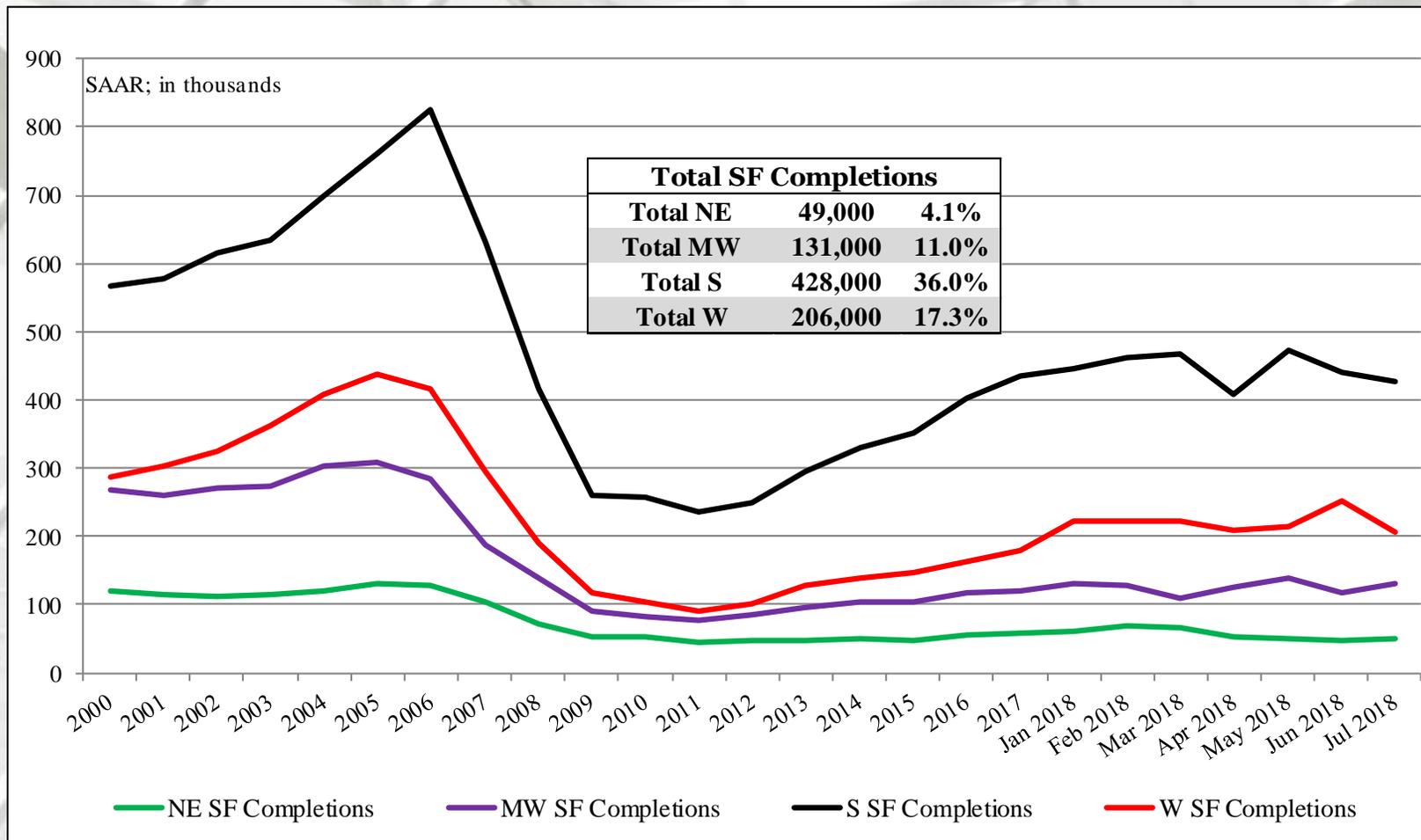
New Housing Completions by Region

	S Total	S SF	S MF**
June	565,000	428,000	137,000
May	601,000	441,000	160,000
2017	640,000	474,000	166,000
M/M change	-6.0%	-2.9%	-14.4%
Y/Y change	-11.7%	-9.7%	-17.5%
	W Total	W SF	W MF
June	313,000	206,000	107,000
May	361,000	252,000	109,000
2017	280,000	192,000	88,000
M/M change	-13.3%	-18.3%	-1.8%
Y/Y change	11.8%	7.3%	21.6%

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 SF Completions by Region

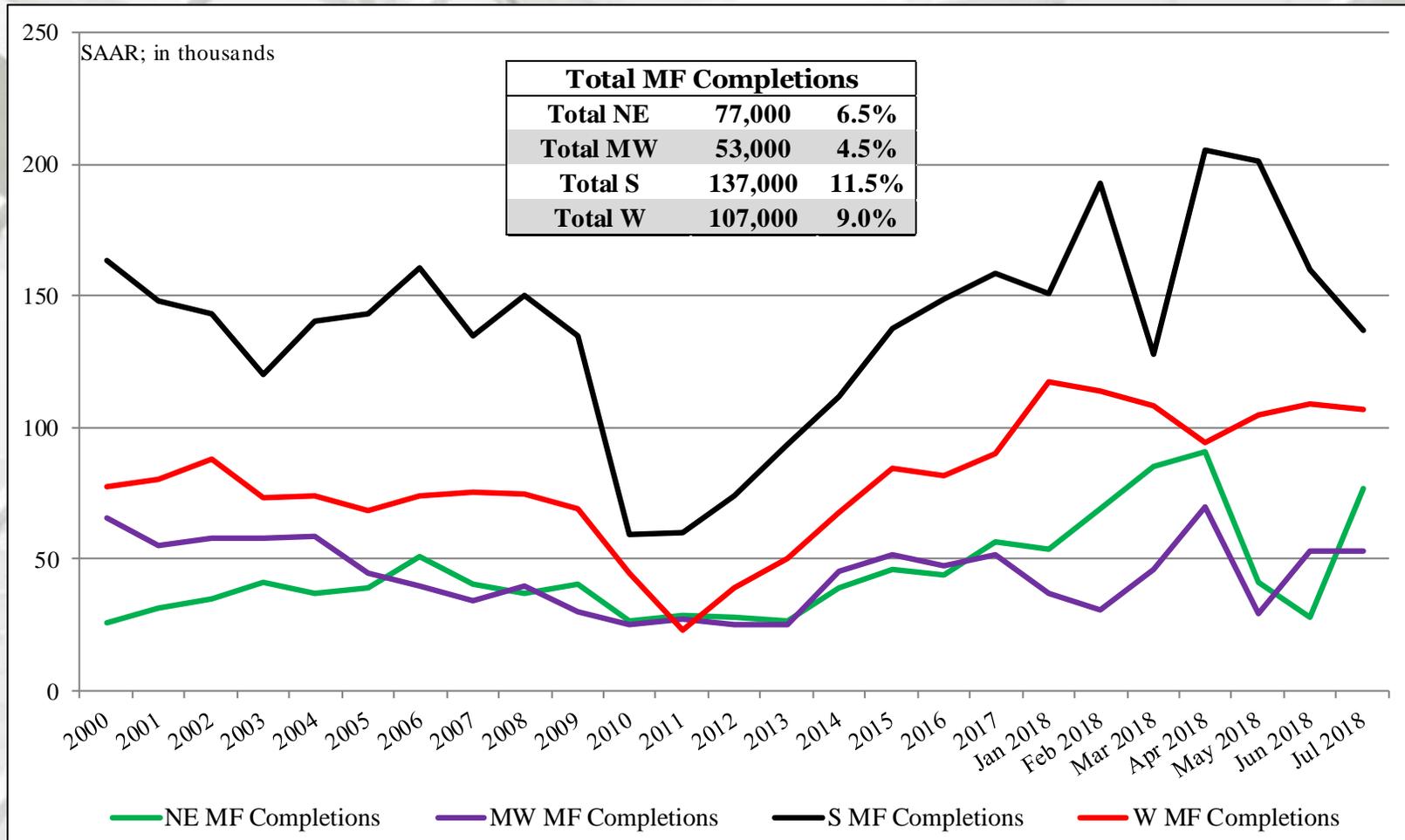


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

New Housing MF Completions by Region



NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total housing completions

All data are SAAR; NE = Northeast and MW = Midwest; * Percentage of total housing completions.

New Single-Family House Sales

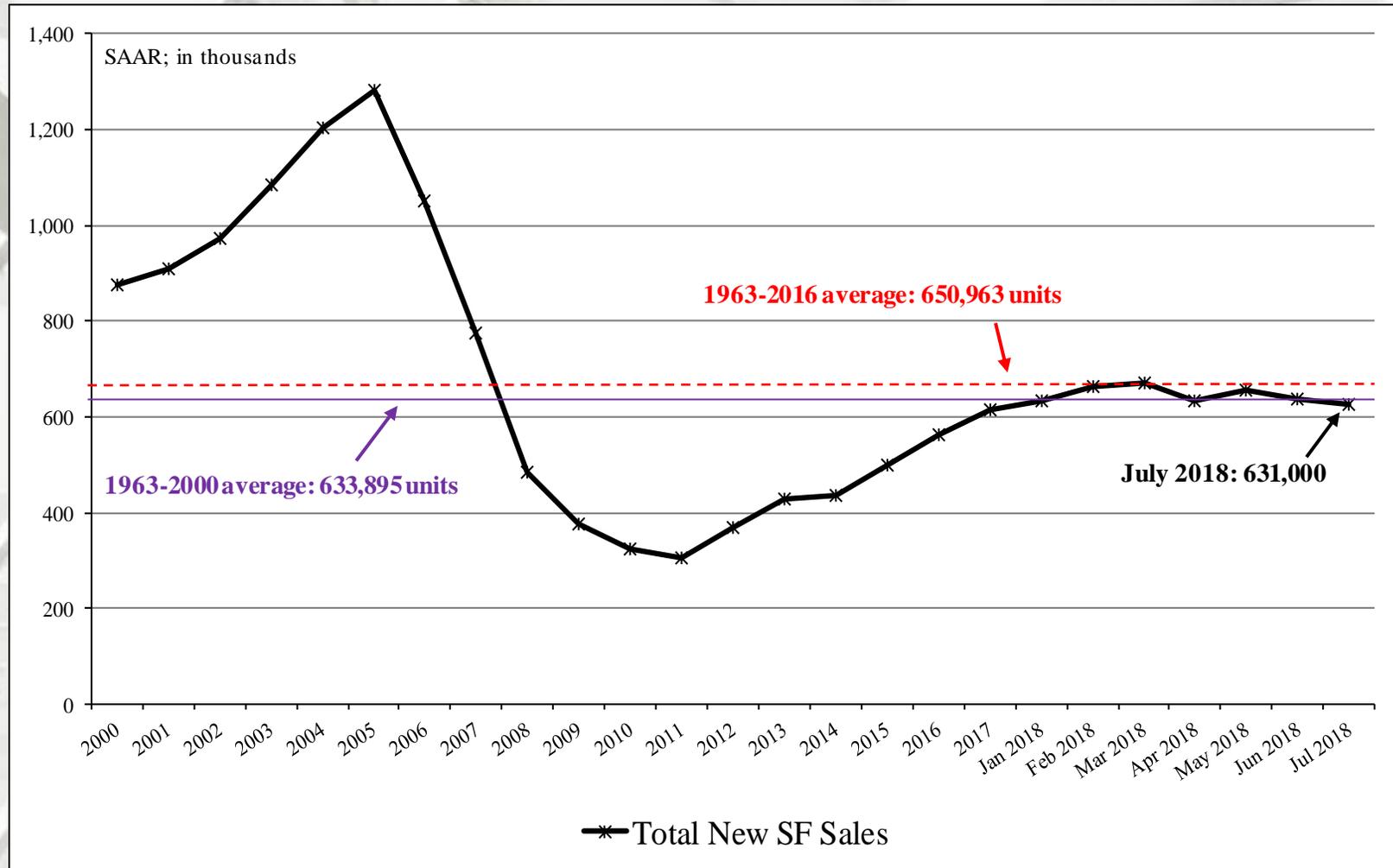
	New SF Sales*	Median Price	Mean Price	Month's Supply
July	627,000	\$328,700	\$394,300	5.9
June	638,000	\$310,000	\$369,500	5.7
2017	556,000	\$322,900	\$372,400	6.0
M/M change	-1.7%	6.0%	6.7%	3.5%
Y/Y change	12.8%	1.8%	5.9%	-1.7%

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

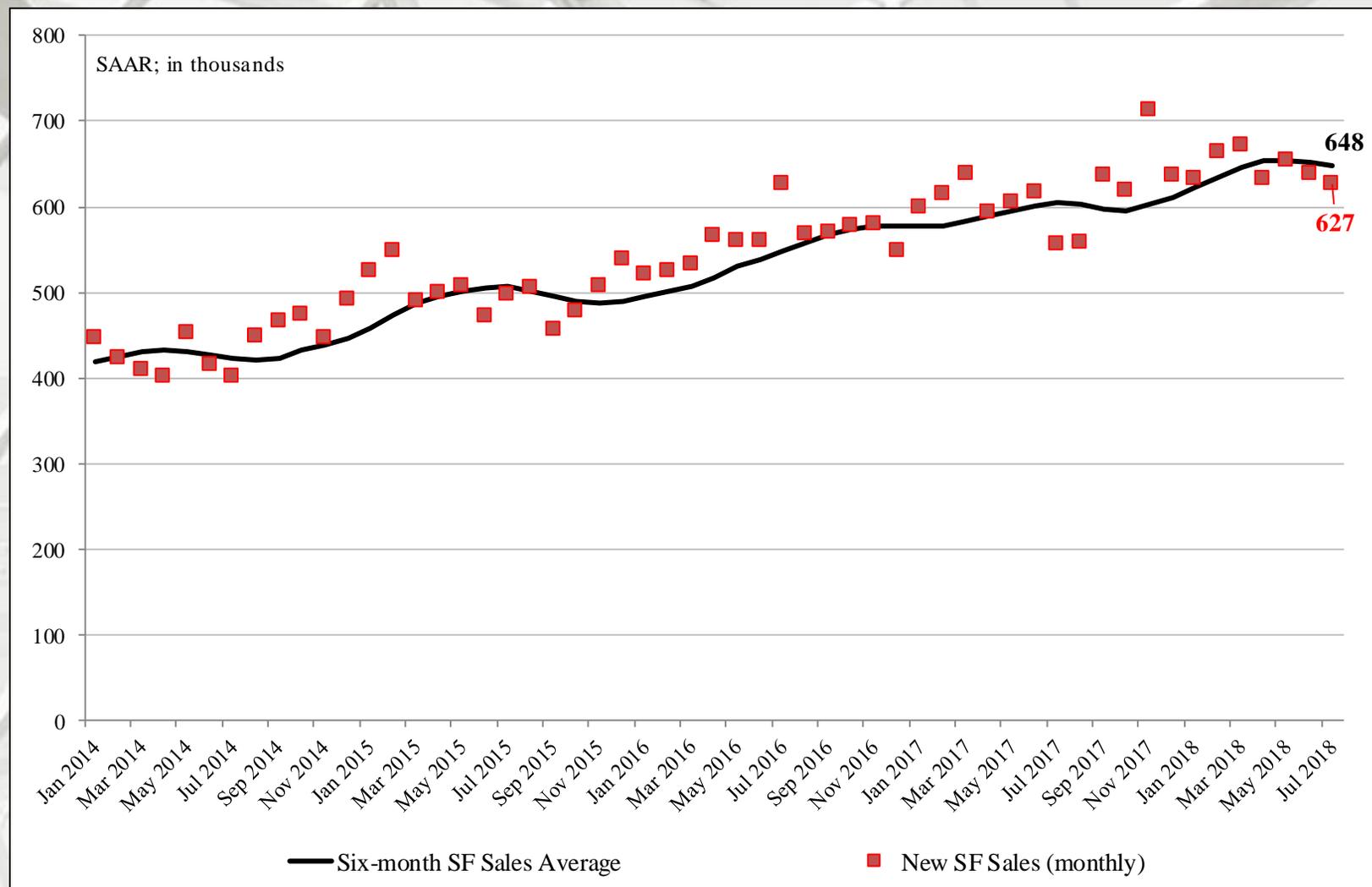
New SF sales were much less than the consensus forecast of 649 m³. The past three month's new SF sales data were revised:

April initial:	662 m revised to 633 m;
May initial:	689 m revised to 654 m.
June initial:	631 m revised to 638 m

New SF House Sales



New SF Housing Sales: Six-month average & monthly



New SF House Sales by Region and Price Category

	NE SF Sales	MW SF Sales	S SF Sales	W SF Sales
July	21,000	78,000	355,000	173,000
June	44,000	71,000	367,000	156,000
2017	41,000	66,000	303,000	146,000
M/M change	-52.3%	9.9%	-3.3%	10.9%
Y/Y change	-48.8%	18.2%	17.2%	18.5%

	≤ \$150m	\$150 - \$199.9m	\$200 - 299.9m	\$300 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m
July ^{1,2,3,4}	1,000	5,000	15,000	17,000	6,000	5,000	4,000
June	2,000	6,000	21,000	13,000	8,000	7,000	2,000
2017	1,000	5,000	14,000	13,000	7,000	5,000	3,000
M/M change	-50.0%	-16.7%	-28.6%	30.8%	-25.0%	-28.6%	100.0%
Y/Y change	0.0%	0.0%	7.1%	30.8%	-14.3%	0.0%	33.3%
New SF sales: %	1.9%	9.4%	28.3%	32.1%	11.3%	9.4%	7.5%

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.

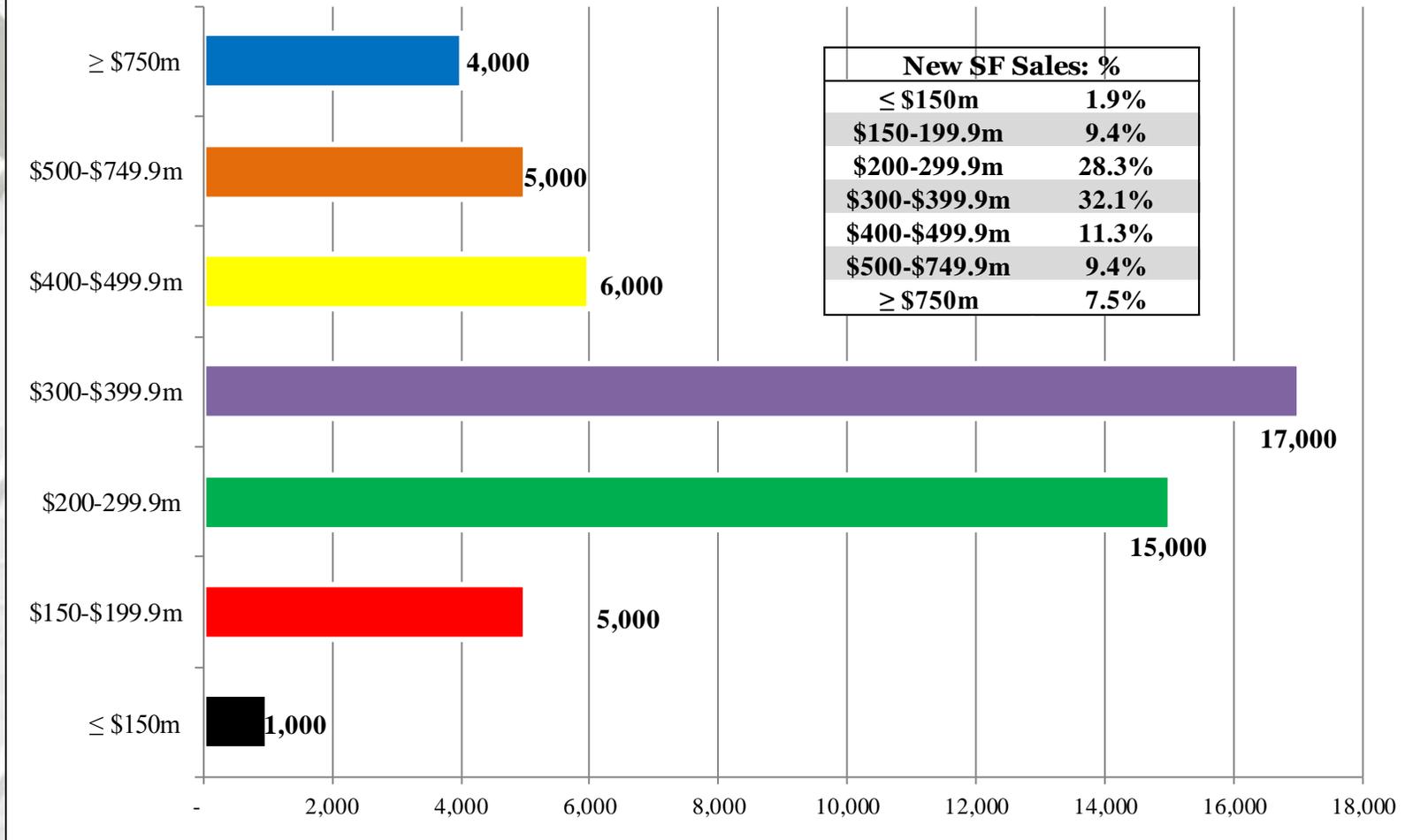
⁴ Housing prices are adjusted at irregular intervals.

Sources: ^{1,2,3} <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 8/23/18;

⁴ https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf

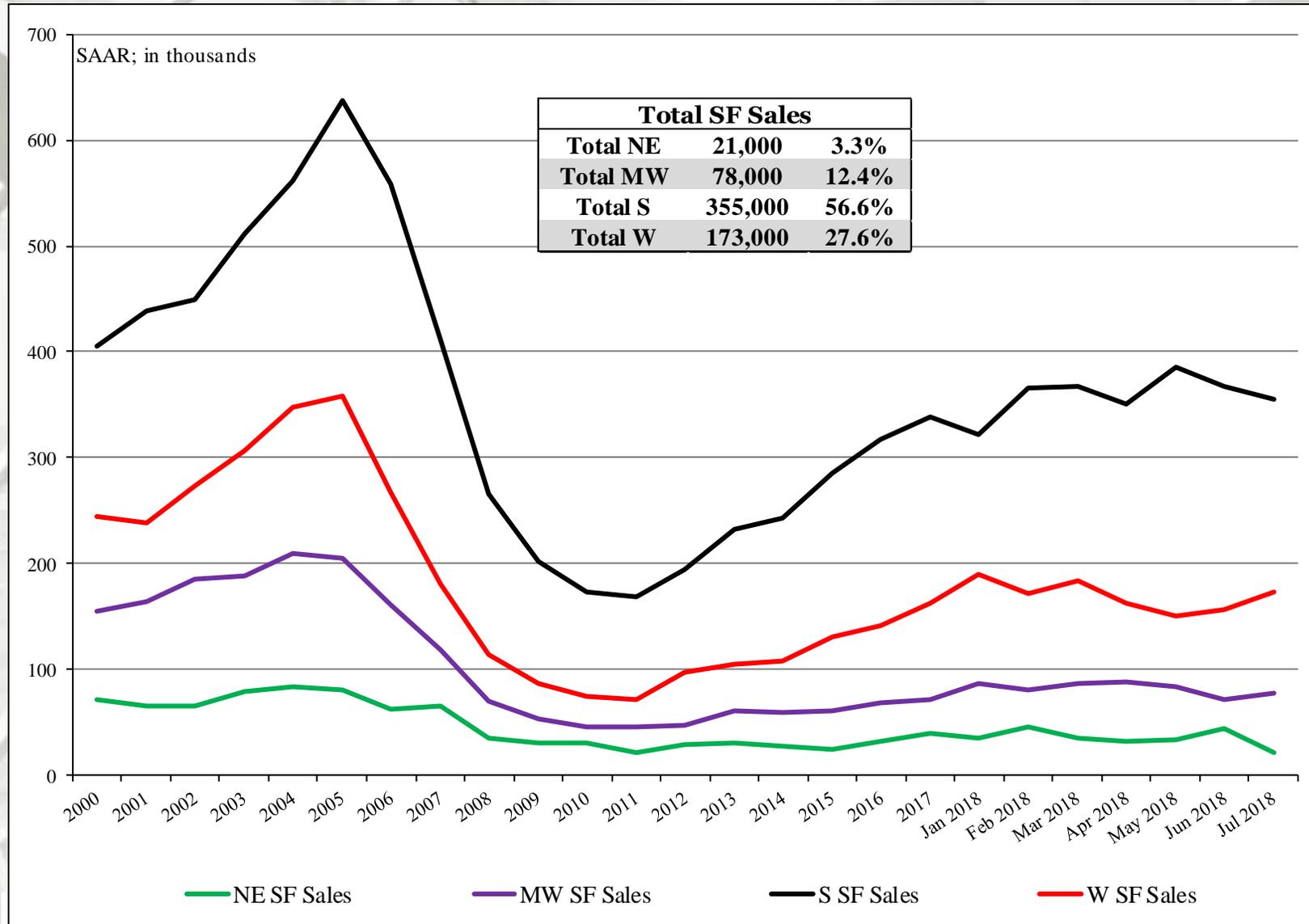
New SF House Sales

July New SF Sales*

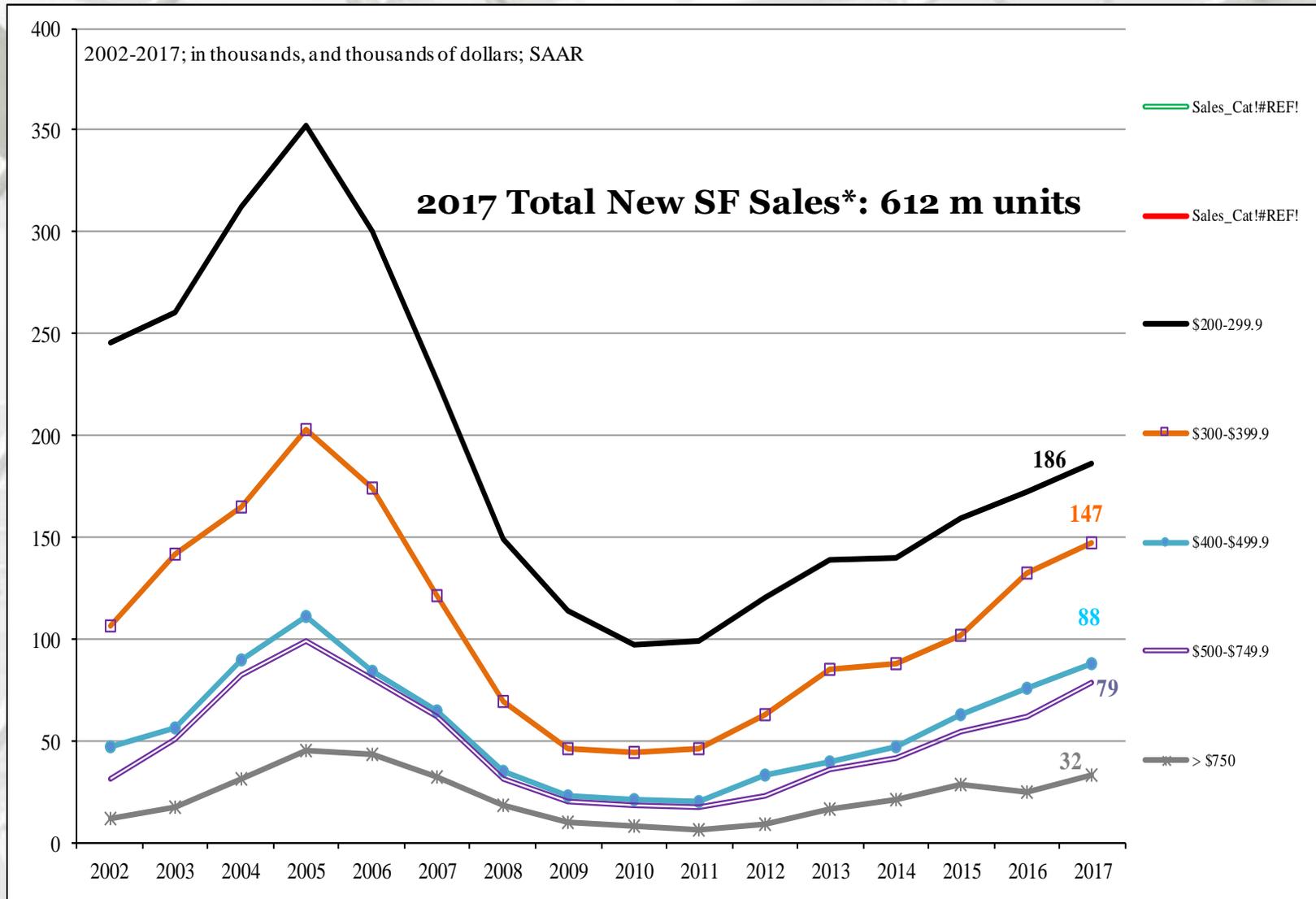


* Total new sales by price category and percent.

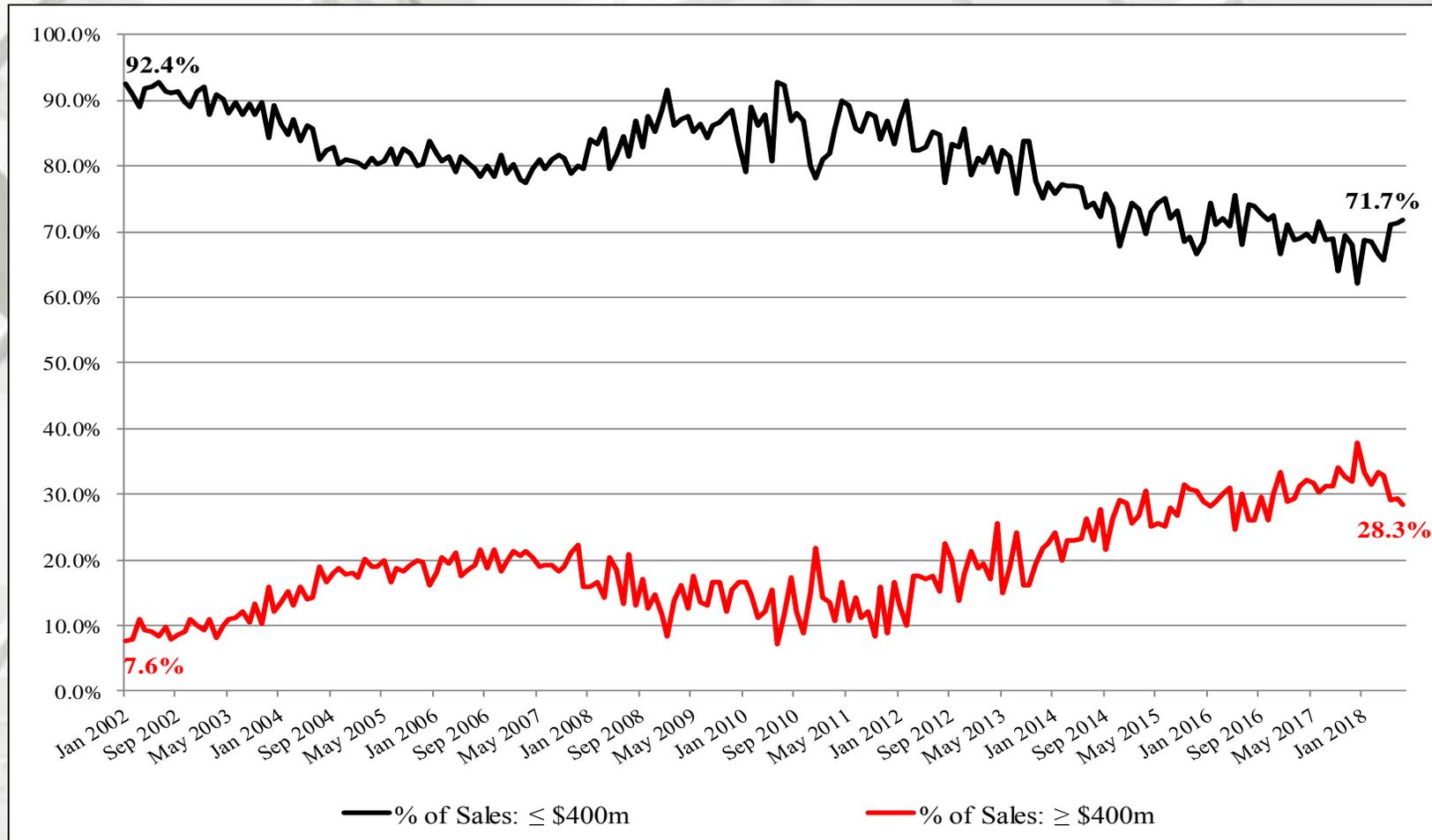
New SF House Sales by Region



New SF House Sales by Price Category



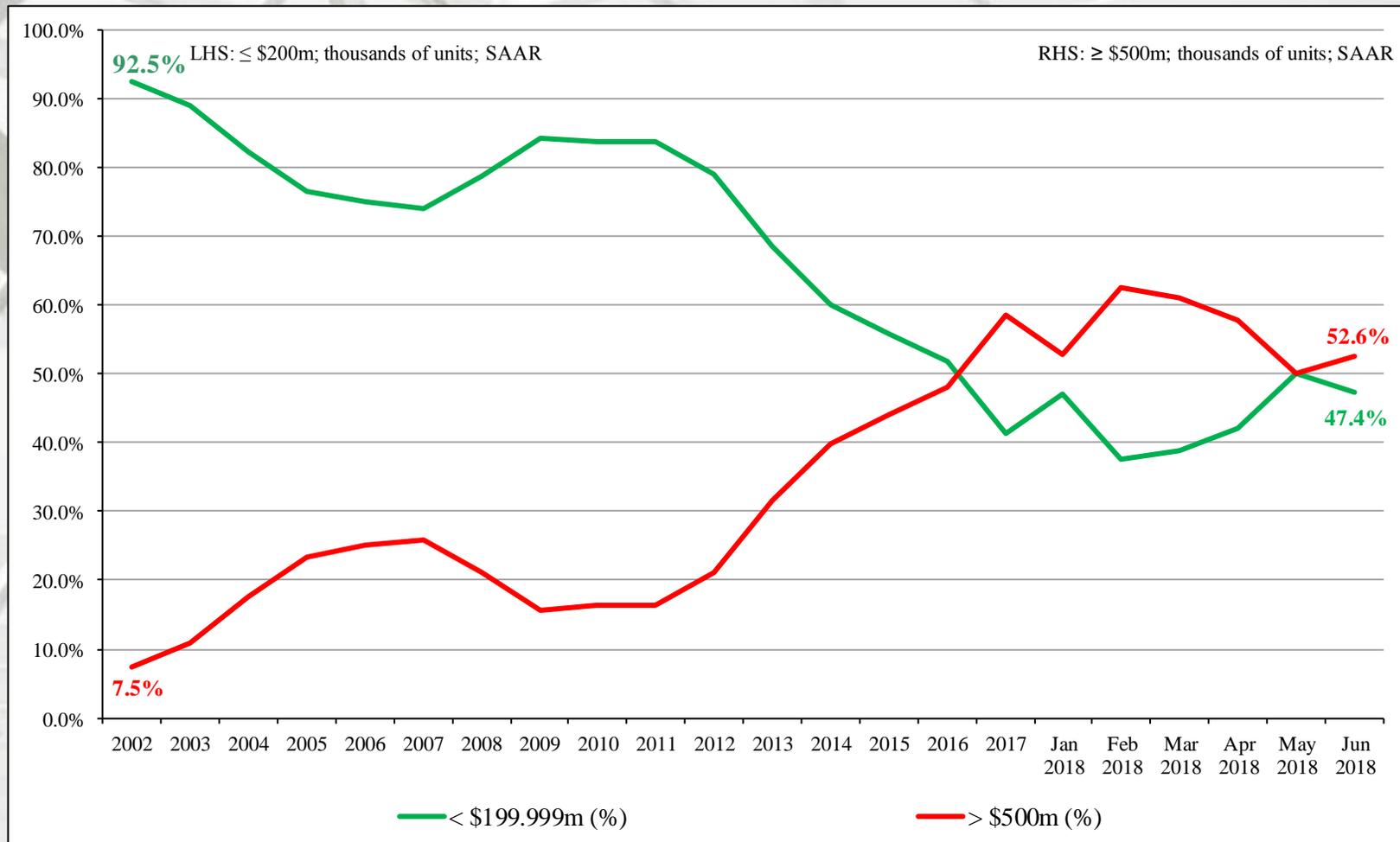
New SF House Sales



New SF Sales \$400m houses: 2002 – July 2018

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. A decreasing spread indicates that more high-end luxury homes are being 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.

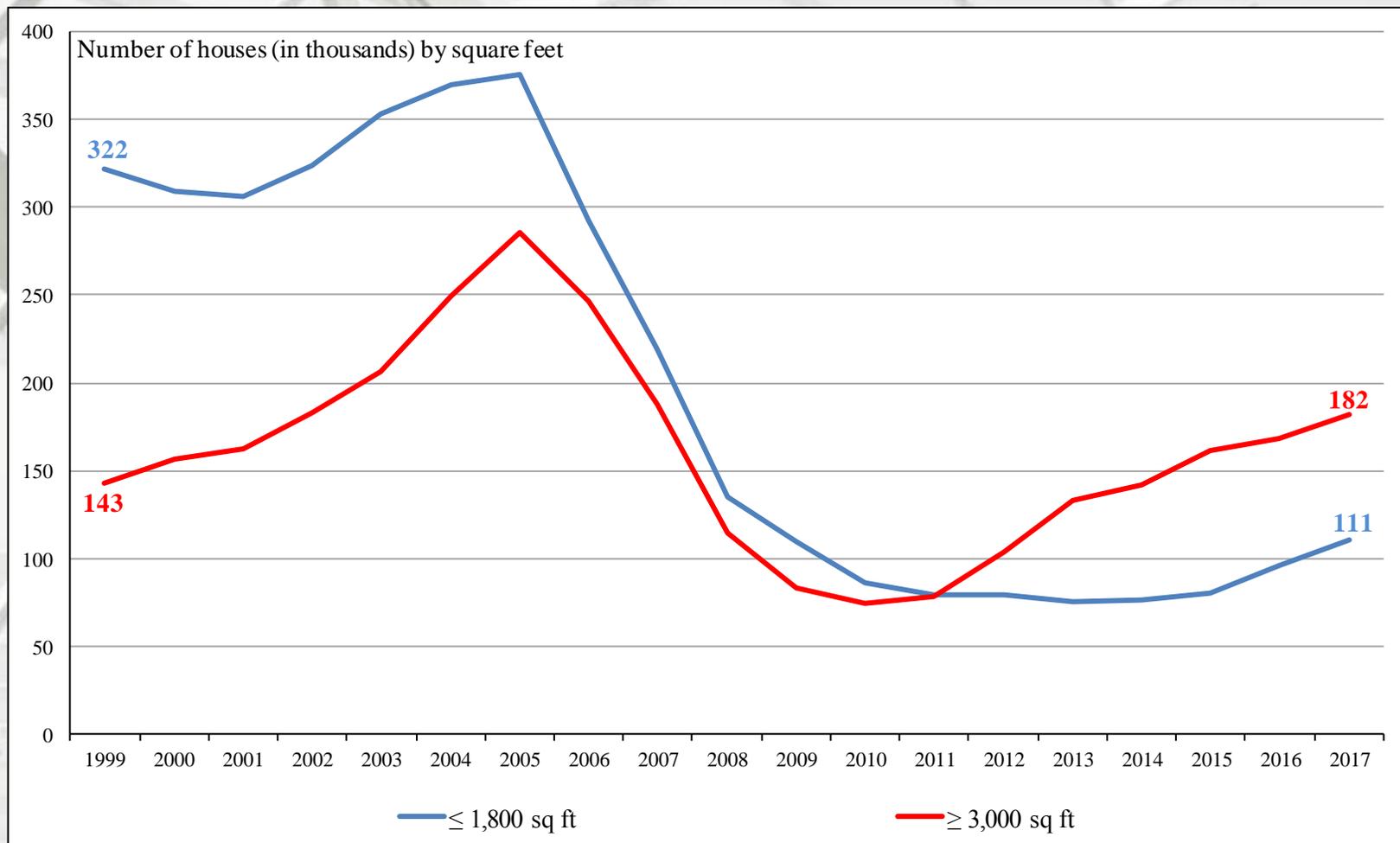
New SF House Sales



New SF Sales: ≤ \$ 200m and ≥ \$500m: 2002 to July 2018

The number of ≤ \$200 thousand plus SF houses has declined dramatically since 2002^{1,2}. Subsequently, from 2012 onward, the ≥ \$500 thousand class has soared (on a percentage basis) in contrast to the ≤ \$200m class. One of the most oft mentioned reasons for this occurrence is builder margins. Note: Sales values not adjusted for inflation.

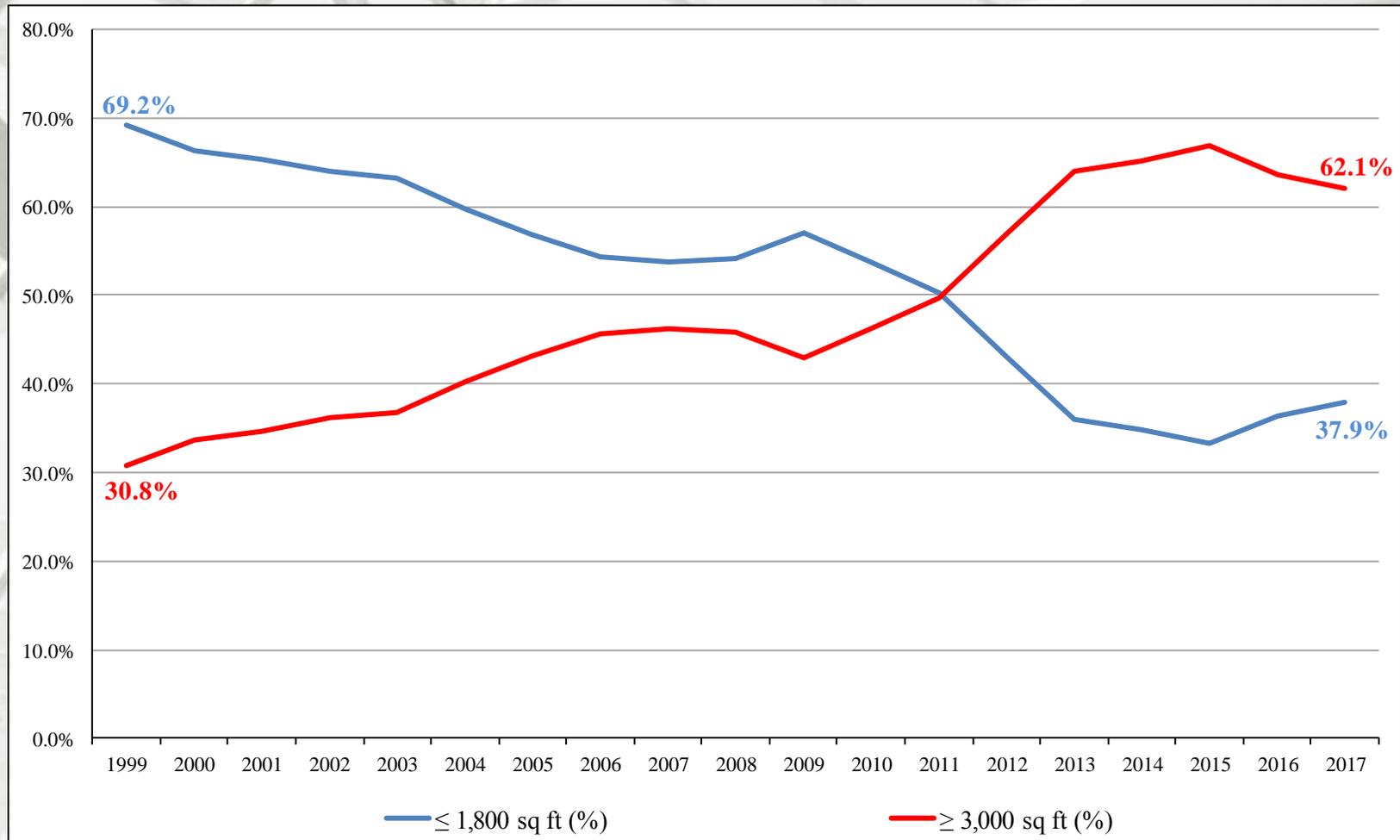
New SF House Sales



New SF Sales by Square Feet: $\leq 1,800$ and $\geq 3,000$: 1999 to 2017

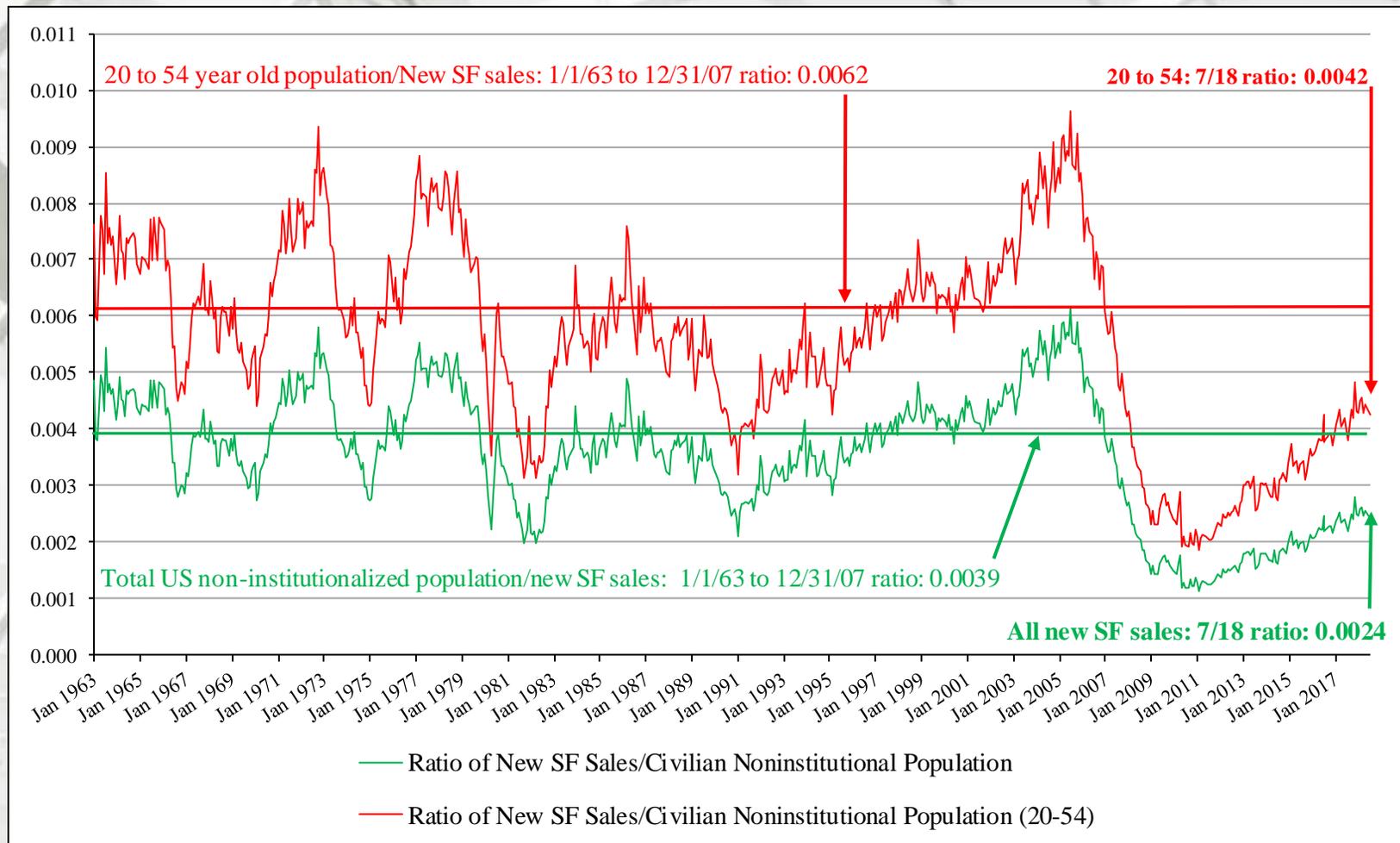
The number of $\leq 1,800$ square foot SF houses has declined markedly since 1999¹. From 2011 onward the number of $\geq 3,000$ square foot SF house market has risen substantially.

New SF House Sales



New SF Sales by Square Feet: ≤ 1,800 and ≥ 3,000: 1999 to 2017

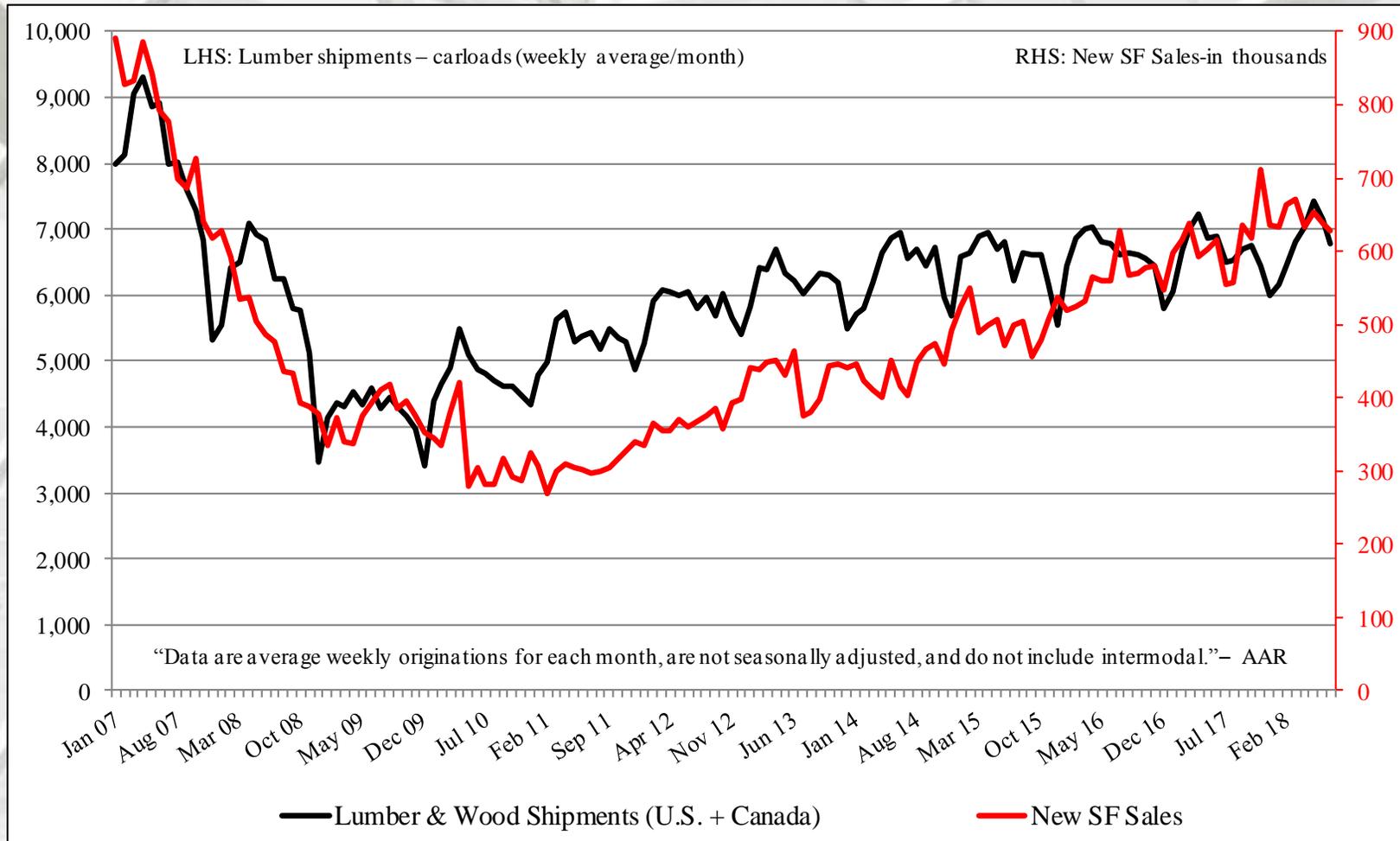
New SF House Sales



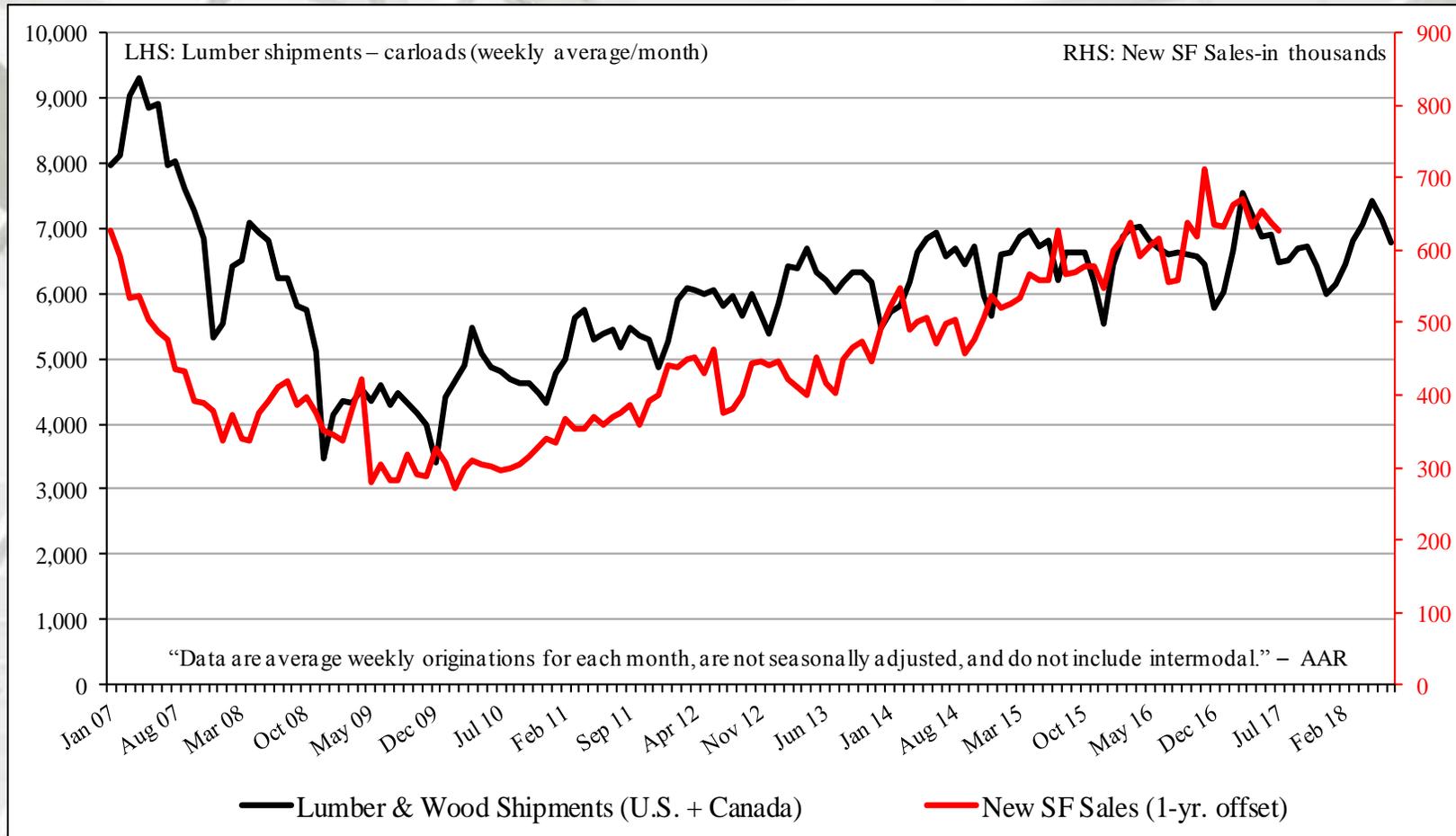
New SF sales adjusted for the US population

From July 1963 to November 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in July 2018 it was 0.0024 – a decrease from May (0.0025). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in July 2018 it was 0.0042 – also a decline from May (0.0043). All are non-adjusted data. From a population viewpoint, construction is less than what is necessary for changes in the population (i.e., under-building).

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

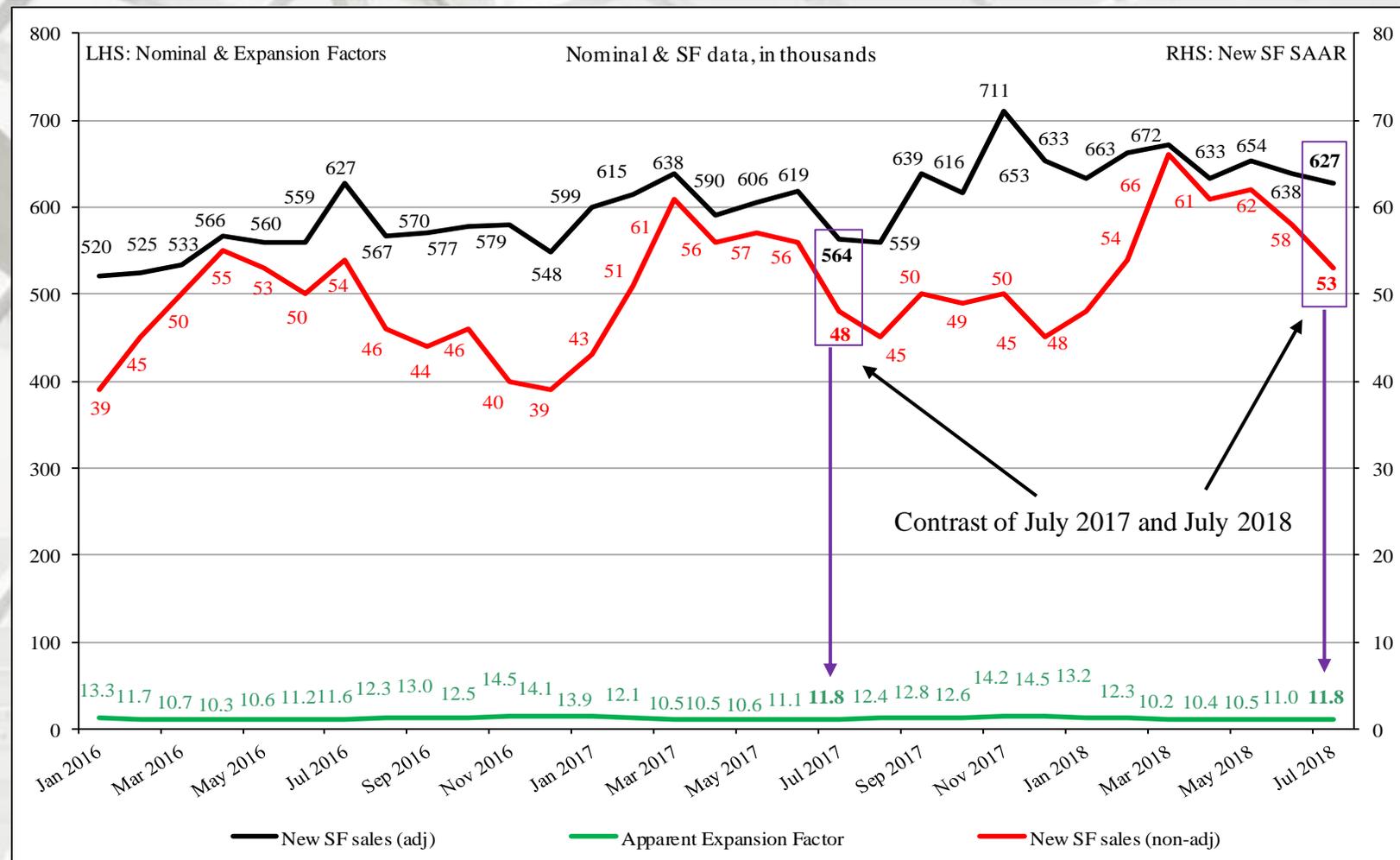


Railroad Lumber & Wood Shipments vs. U.S. SF Housing Sales: 1-year Offset



In this graph, January 2007 lumber shipments are contrasted with January 2008 SF sales, and continuing through July 2018. The purpose is to discover if lumber shipments relate to future single-family sales. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

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 Houses Sold During Period

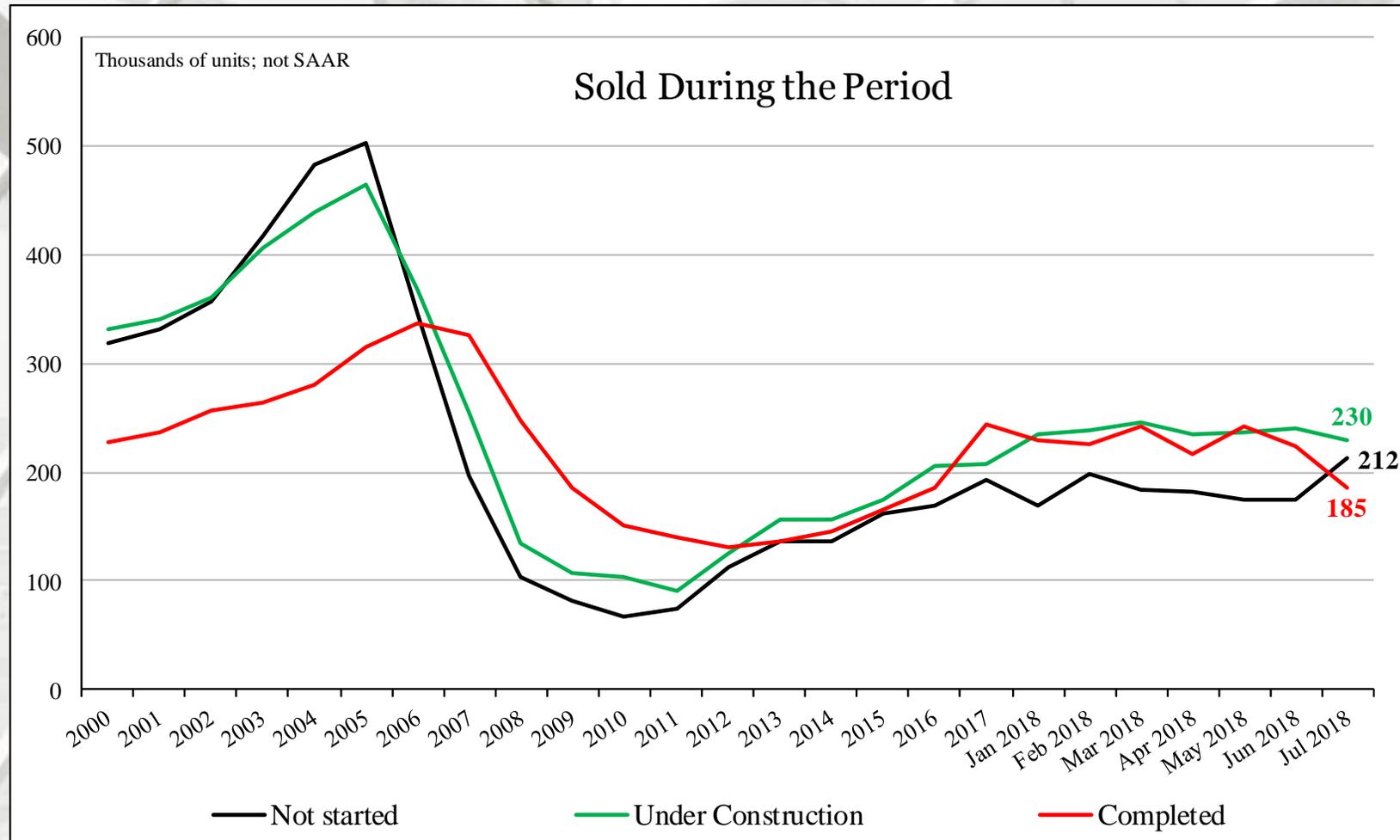
	Total	Not started	Under Construction	Completed
June	627,000	212,000	230,000	185,000
July	638,000	174,000	241,000	223,000
2017	556,000	166,000	198,000	192,000
M/M change	-1.7%	21.8%	-4.6%	-17.0%
Y/Y change	12.8%	27.7%	16.2%	-3.6%
Total percentage		33.8%	36.7%	29.5%

New SF Houses Sold During Period

In July 2018, a substantial portion of new sales – 33.8% – have not been started.

* Not SAAR

New SF House Sales



Not SAAR

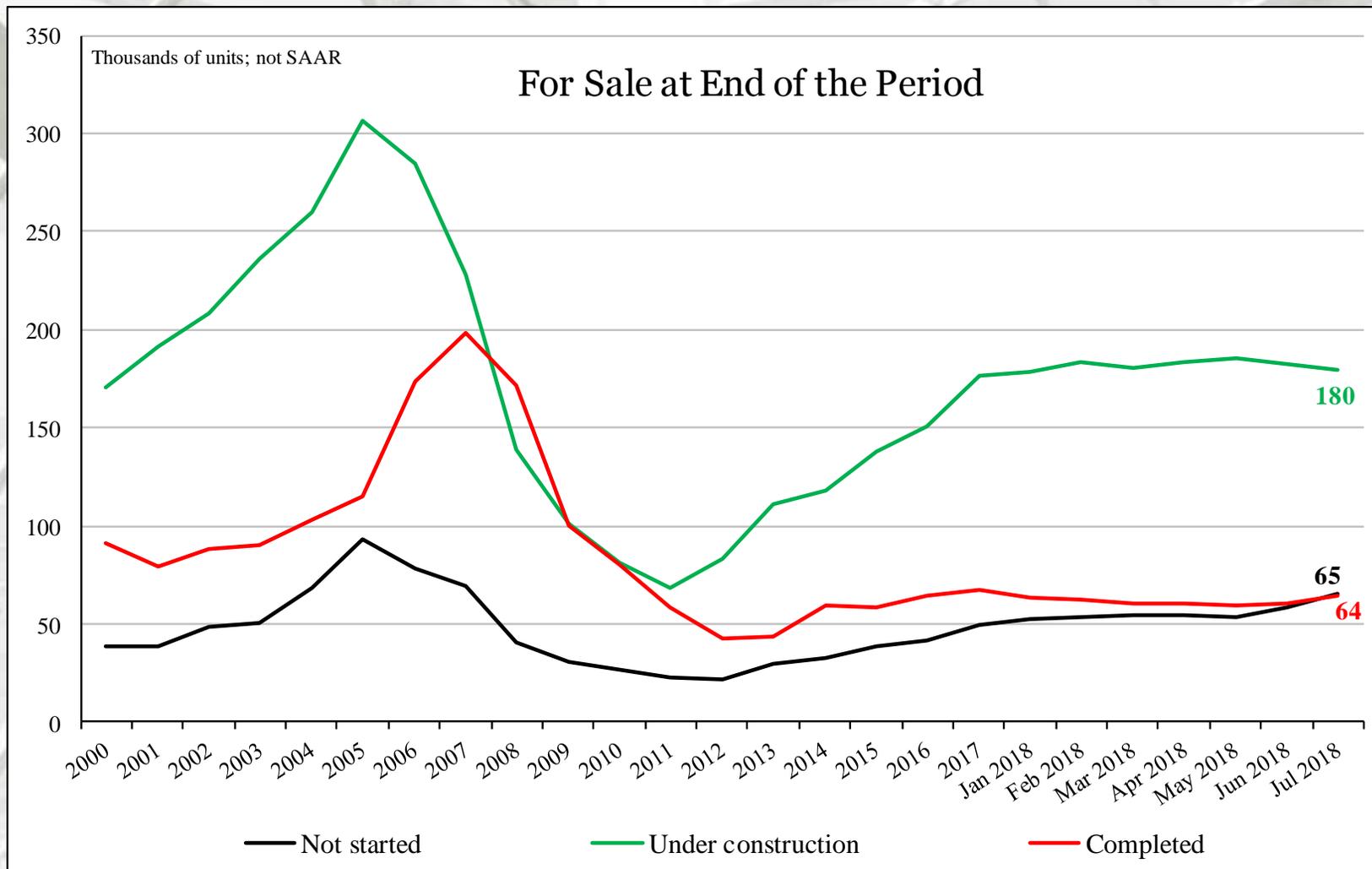
New SF House Sales

New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
June	309,000	65,000	180,000	64,000
July	303,000	59,000	183,000	61,000
2017	275,000	44,000	170,000	61,000
M/M change	2.0%	10.2%	-1.6%	4.9%
Y/Y change	12.4%	47.7%	5.9%	4.9%
Total percentage		21.0%	58.3%	20.7%

Not SAAR

New SF House Sales



Not SAAR

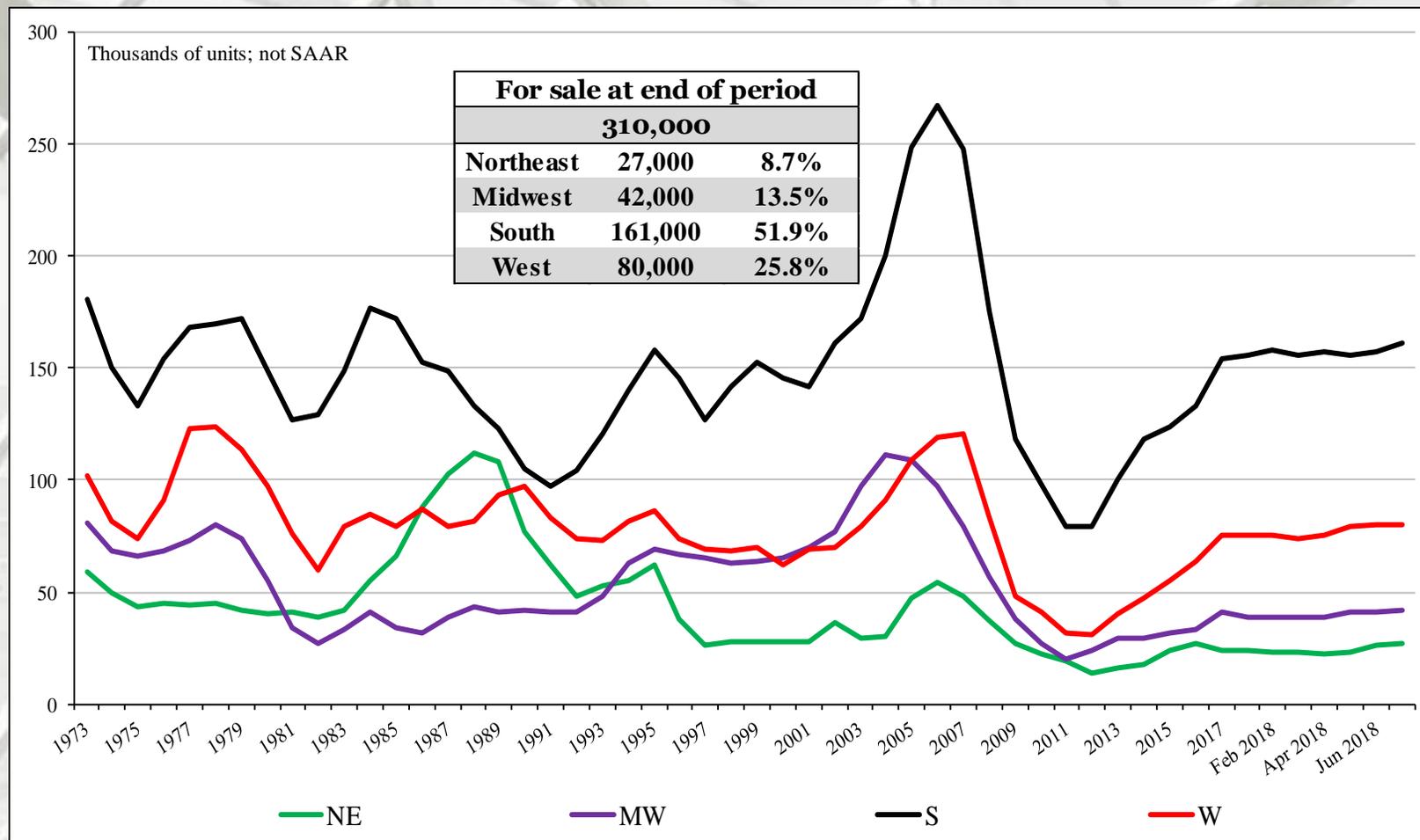
New SF House Sales

New SF Houses for Sale at the end of the Period by Region*

	Total	NE	MW	S	W
June	310,000	27,000	42,000	161,000	80,000
July	304,000	26,000	41,000	157,000	80,000
2017	275,000	24,000	37,000	149,000	66,000
M/M change	2.0%	3.8%	2.4%	2.5%	0.0%
Y/Y change	12.7%	12.5%	13.5%	8.1%	21.2%

* Not SAAR

New SF Houses Sale at End of Period by Region



July 2018 Construction Spending

	Total Private Residential*	SF	MF	Improvement**
July	\$560,088	\$287,064	\$58,940	\$214,084
June	\$556,688	\$287,882	\$59,203	\$209,603
2017	\$524,880	\$270,813	\$58,299	\$195,768
M/M change	0.6%	-0.3%	-0.4%	2.1%
Y/Y change	6.7%	6.0%	1.1%	9.4%

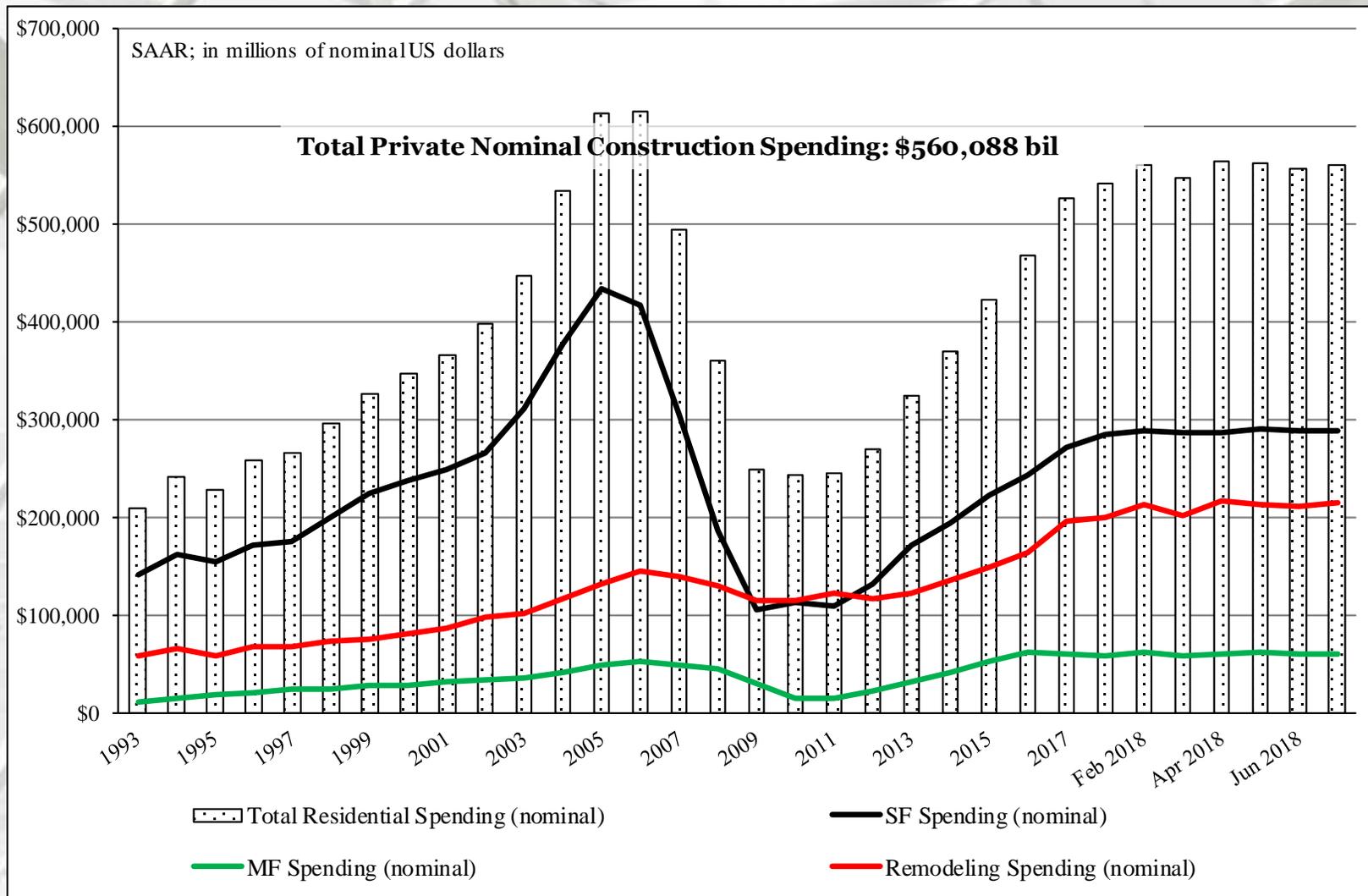
* Millions

** 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\$.

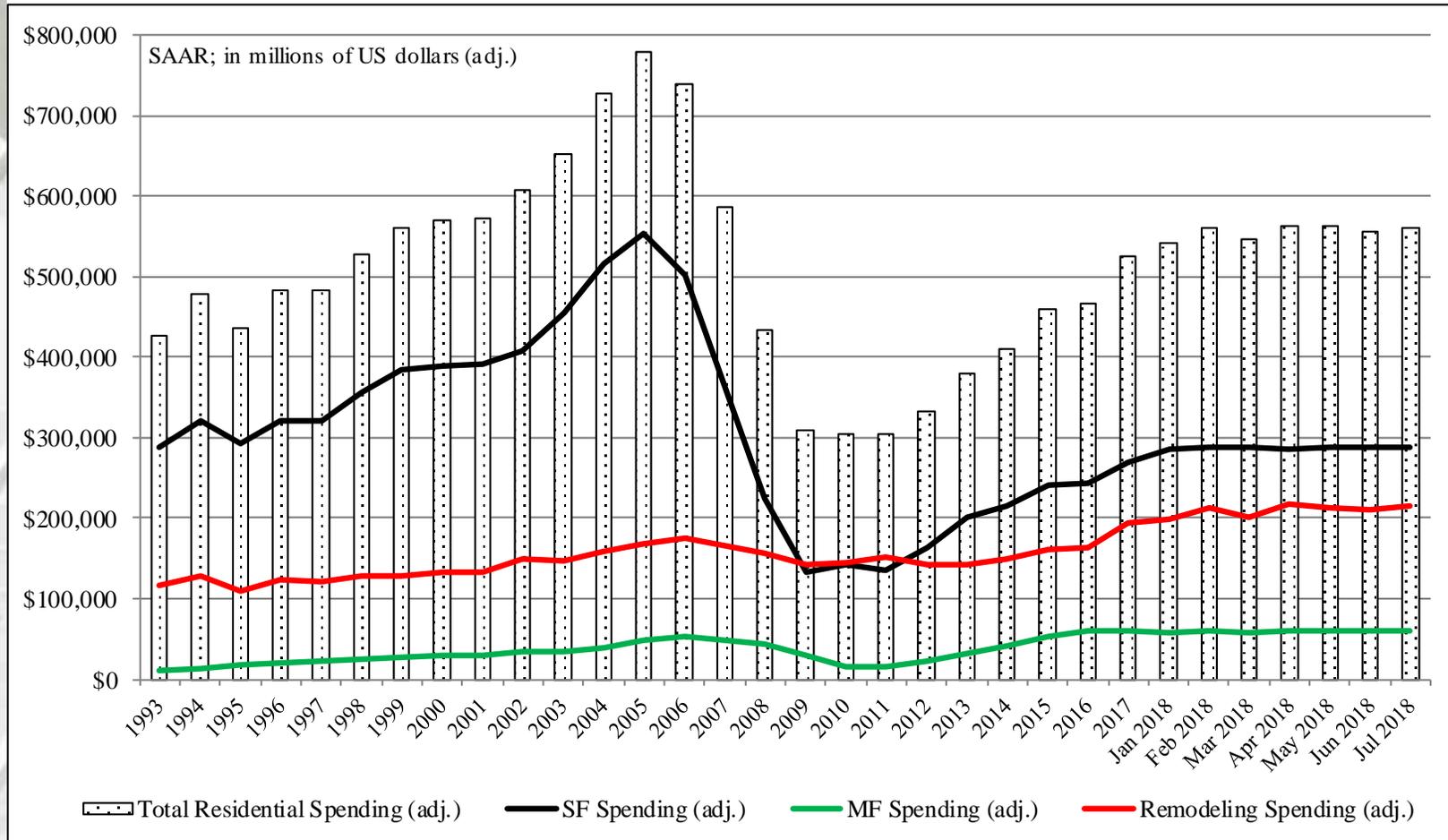
Total Construction Spending (nominal): 1993 – July 2018



Reported in nominal US\$.

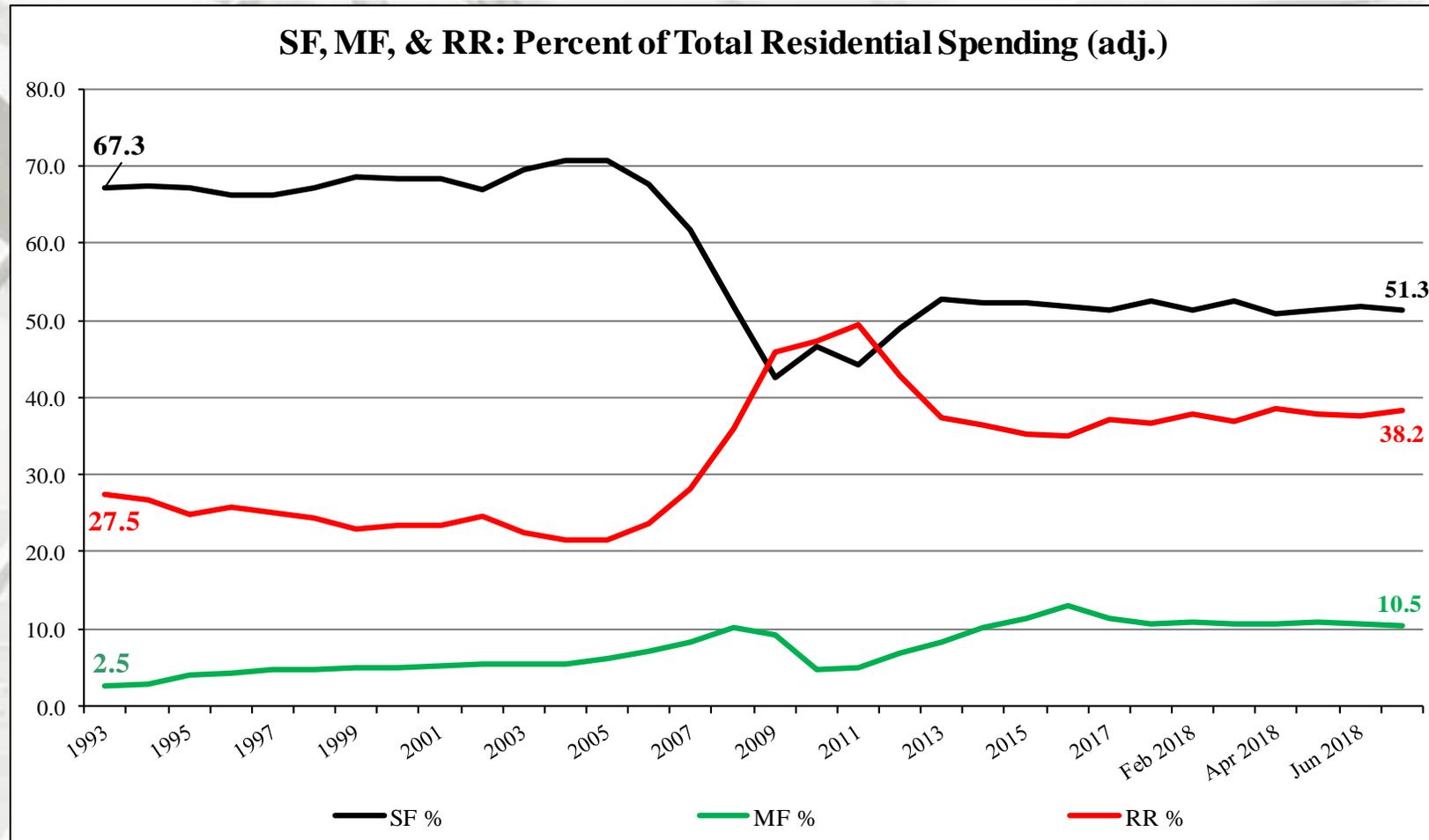
The US DOC does not report improvement spending directly, this is a monthly estimation for 2018.

Total Construction Spending (adjusted): 1993-2018*



Reported in adjusted US\$: 1993 – 2017 (adjusted for inflation, BEA Table 1.1.9); *January 2018 to July 2018 reported in nominal US\$.

Construction Spending Shares: 1993 to July 2018



Total Residential Spending: 1993 through 2006

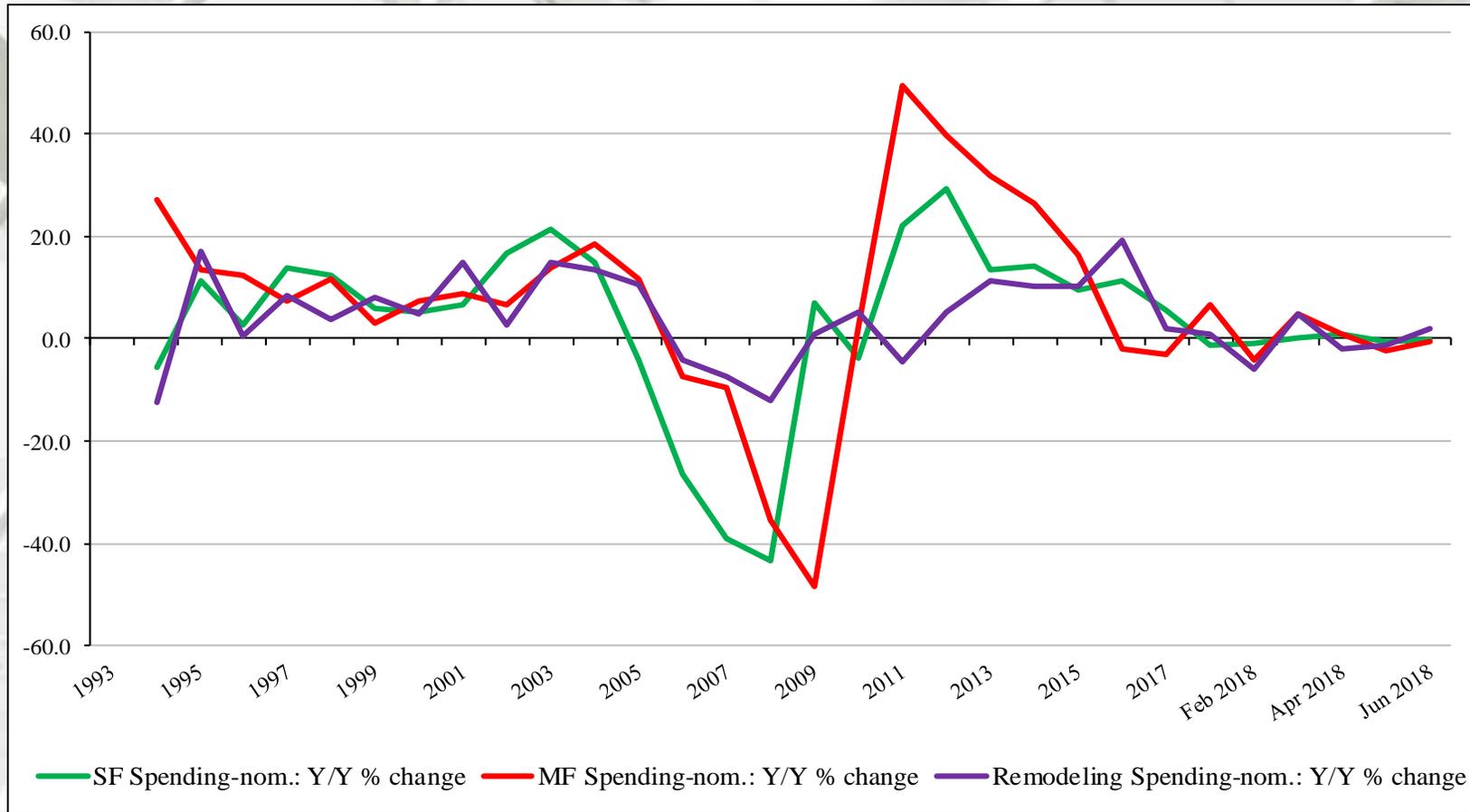
SF spending average: 69.2%

MF spending average: 7.5%

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

Note: 1993 to 2017 (adjusted for inflation, BEA Table 1.1.9); Jan-July 2018 reported in nominal US\$.

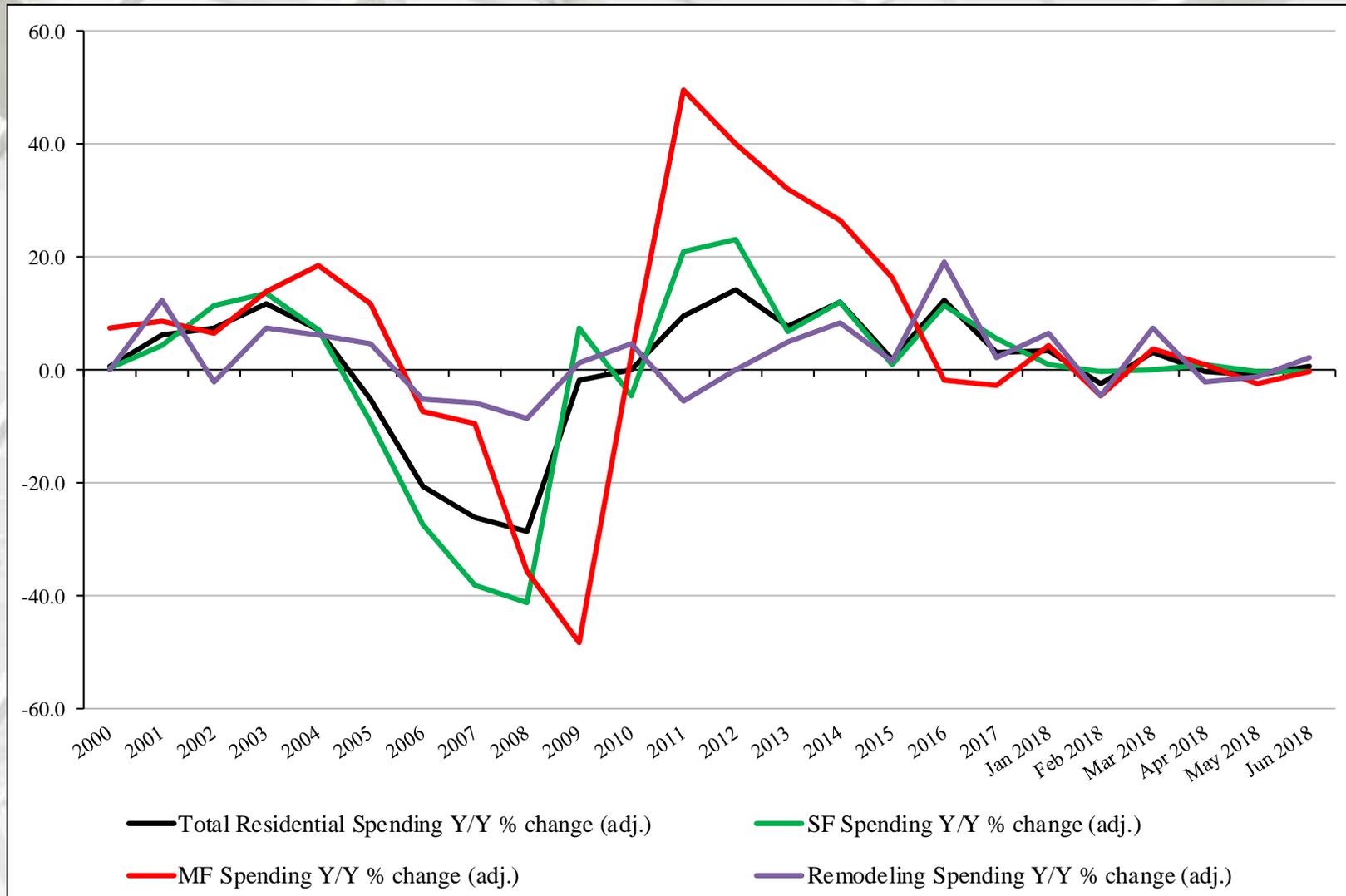
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to July 2018



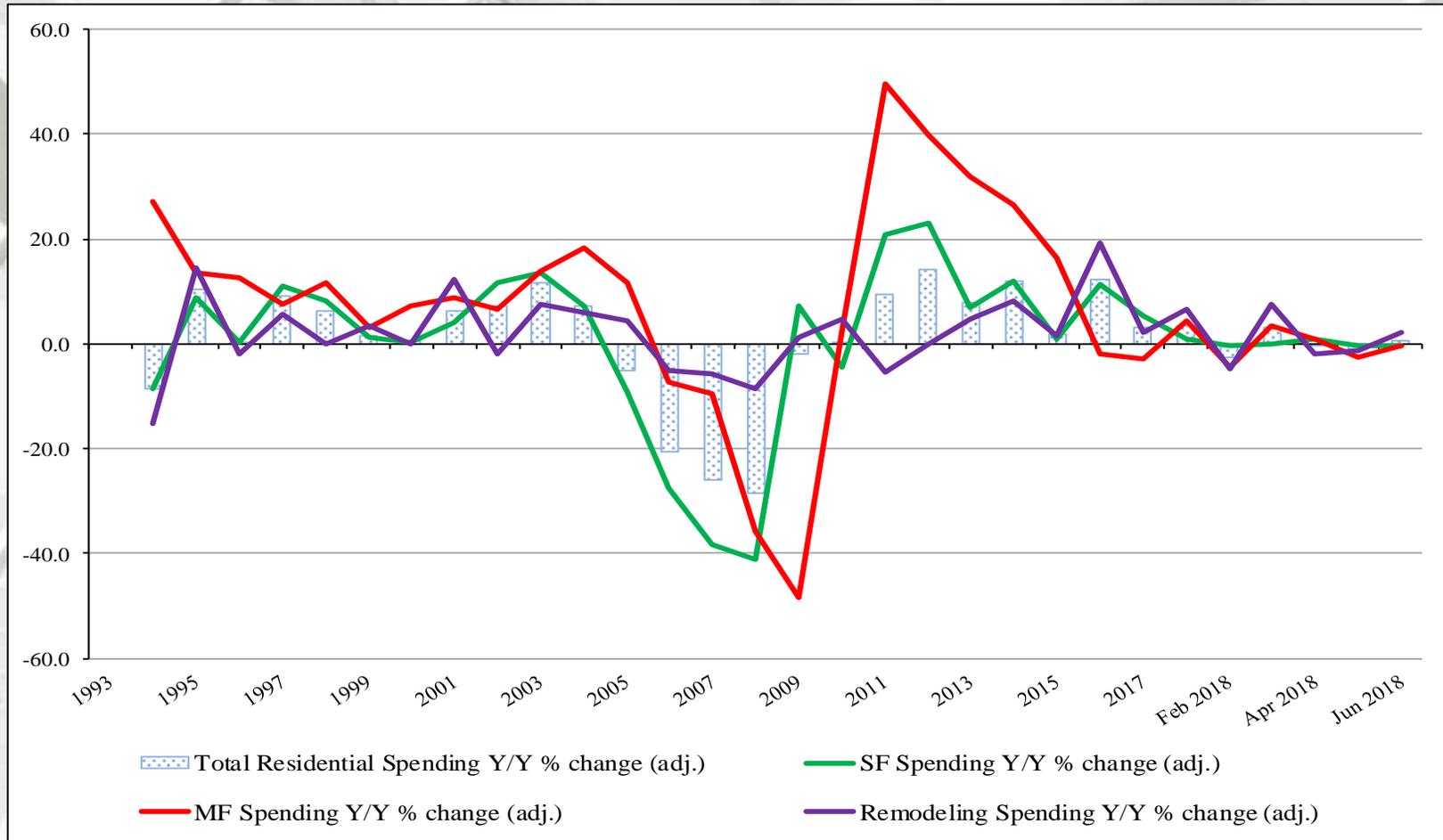
Residential Construction Spending: Percentage Change, 1993 to July 2018

Presented above is the percentage change of inflation adjusted Y/Y construction spending. All spending measures declined, on a percentage basis, year-over-year.

Adjusted Construction Spending: Y/Y Percentage Change, 2000 to July 2018



Total Adjusted Construction Spending: Y/Y Percentage Change, 1993 to July 2018



Residential Construction Spending: Percentage Change, 1993 to July 2018

Total, MF, and remodeling spending indicate a slight uptick in spending – however, SF appears to have leveled-off.

Remodeling

BuildFax

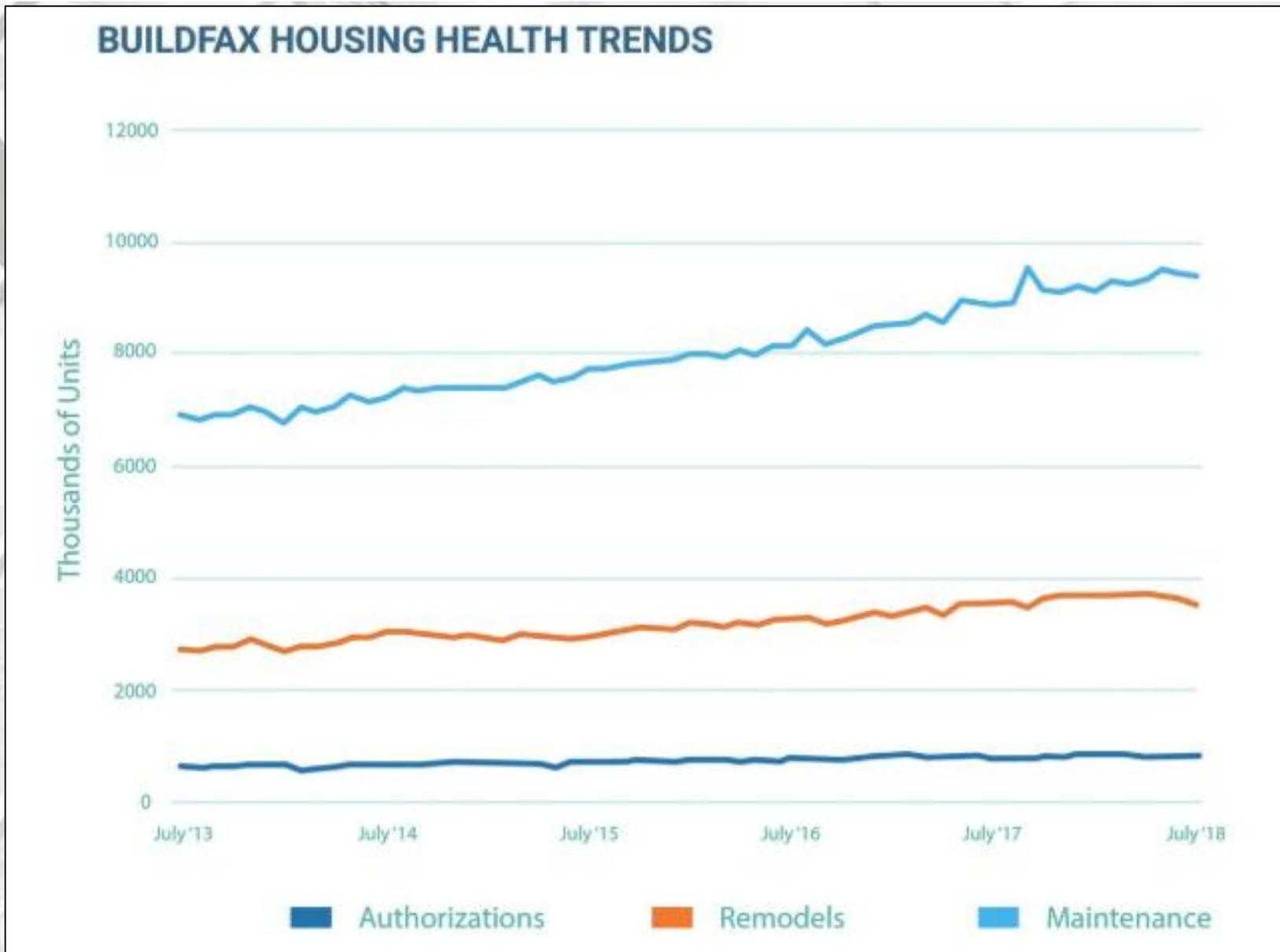
“Remodeling alone is up 30% in the last five years. The slight dip in remodeling volume may be an early indicator of a leveling off of the very hot housing construction market we’ve seen in the last few years. We will be keeping a close eye in the coming months to look for the leveling off trend or a further softening.

Single-family housing authorizations increased by just 0.62% from June to July, and by a seasonally adjusted annual rate of 4.77% since July 2017, the report showed.

Existing housing maintenance, however, increased at a much faster pace, as the chart below shows. The annual rate of housing maintenance volume increased by 5.23%, while housing maintenance spend increased at an annual rate of 8.04% in July

The annual rate of existing home remodels dropped slightly from last year, falling 0.26%, however remodel spend increased at an annual rate of 8.96%.” – Jonathan Kanarek, Chief Operating Officer, BuildFax

Remodeling



Remodeling

Metrostudy

Remodeling Activity Will Continue Its Record Growth in 2018, RRI Finds

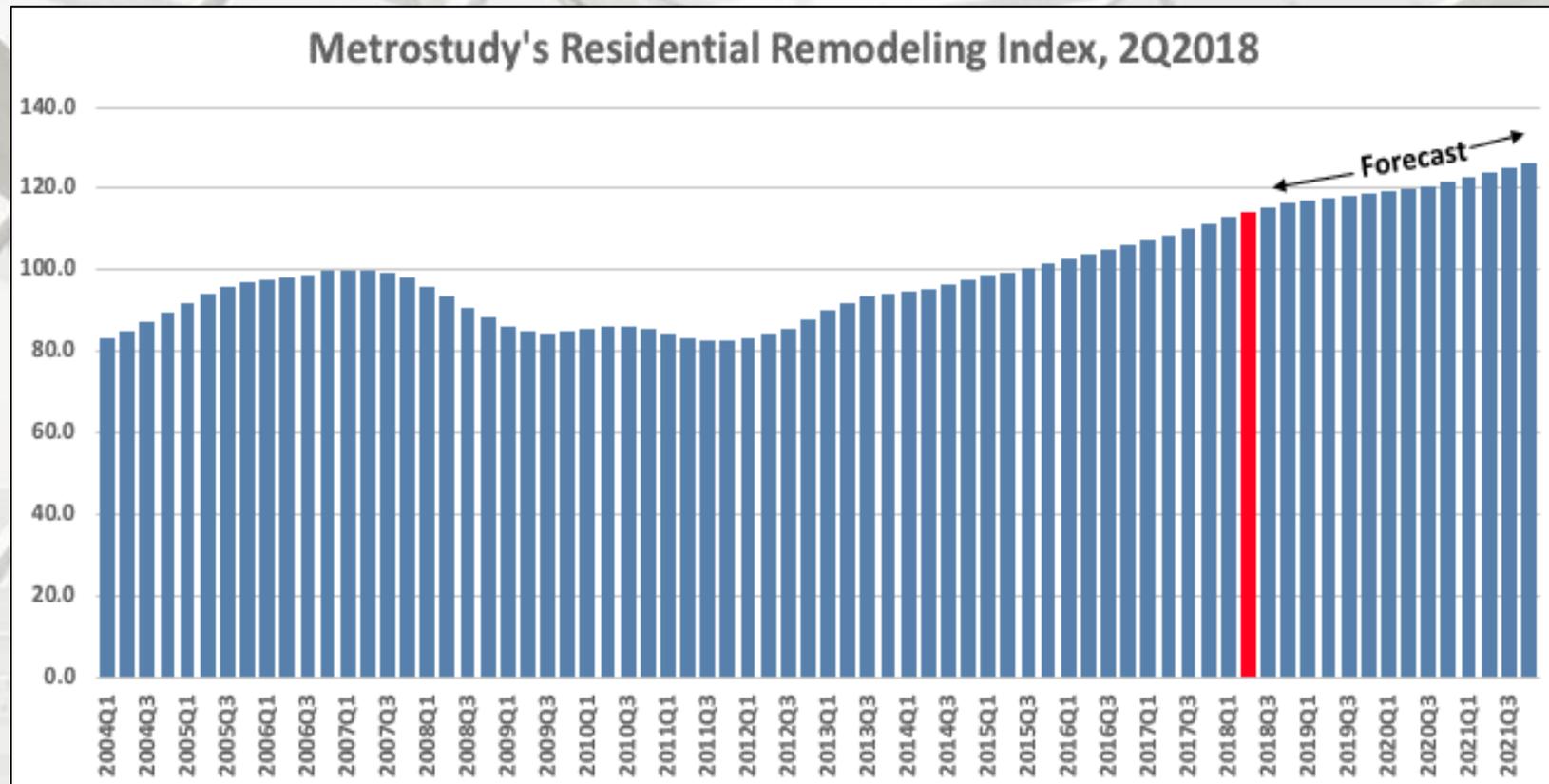
Index up 5.2% over year earlier and projects positive growth through 2021

“Big-ticket residential remodeling activity nationwide rose 1.3% in the second quarter from the first, Metrostudy said today as it released its latest Residential Remodeling Index (RRI). The second quarter of 2018 was the RRI's 25th consecutive quarter of year-over-year gains since 2011.

The RRI as of the second quarter of 2018 stood at 114.4, its highest ever reading. The number means the economic conditions known to influence remodeling activity are 14.4% better than the old peak in early 2007, just before the Great Recession. As of the second quarter of 2018, the [RRI](#) was 5.2% above the year-earlier level. Metrostudy, a sister company of *REMODELING*, projects the number of remodeling projects worth \$1,000 or more will rise to 12.6 million, a 5% increase from last year. The continued strong growth in the RRI is fueled by the long economic expansion and a still-strong housing market, according to Metrostudy.

The index is based on a statistical model that takes into account such data as household level remodeling permits, employment statistics, and a market's economic health. It then uses that model to predict the number and dollar volume of home improvement and replacement projects worth at least \$1,000.” – Vincent Salandro, Assistant Editor, *Remodeling and ProSales*

Remodeling



Remodeling

Metrostudy

Remodeling Activity Will Continue Its Record Growth in 2018

“Metrostudy predicts the inflation-adjusted value of big-ticket remodeling projects in 2018 will rise 6.7% to \$194.2 billion. Metrostudy projects that the index should rise 2.7% in 2019 and is projected to experience positive growth through 2021. According to Metrostudy, all 381 of the nation’s Metropolitan Statistical Areas will see growth in 2018 project volume and the average rate of growth will be about 4.3%.” – Vincent Salandro, Assistant Editor, *Remodeling* and *ProSales*

“The U.S. economy is in the midst of its longest streak of consecutive monthly job growth in history, and, the median existing home price has recorded seventy-six consecutive months of year-over-year gains. With record setting levels in employment growth and home equity, it is little wonder that Americans are investing in home upgrades. We expect the remodeling industry to close strong in 2018, with more moderate, but still-steady growth in 2019.

While the good times roll, there are still some headwinds for the industry. Slowing home sales amid tight inventory is limiting remodeling growth potential, as is the acute shortage of construction labor. And more recently, even before the steel and aluminum tariffs were initiated, we saw a sharp rise in costs for residential construction materials. Rising costs and effects of tariffs will need to be watched carefully over the next several quarters.” – Mark Boud, Chief Economist, Metrostudy

Remodeling

Harvard Joint Center for Housing Studies

Major Metro Remodeling Markets Projected To Heat Up Across The U.S.

“Annual growth in home improvement spending is expected to be widespread across the country’s largest metropolitan areas in 2018, according to a new model developed by the Remodeling Futures Program at the Joint Center. The model, described in a [new research note](#), produces short-term projections of remodeling activity for 50 major metropolitan areas. The development of the model utilized two decades of home improvement spending in several of the nation’s largest metro areas as benchmark data.

As shown in the interactive map below, the Joint Center projects that improvement spending by homeowners will increase in all 50 metros this year, and increase by at least 5 percent in 41 of the 50 metros. Moreover, the Joint Center projects that annual spending will grow by 10 percent or more in 11 of these major metros, led by Kansas City, Charlotte, San Antonio, Dallas, and Sacramento (**Figure 1**).

These projections mirror the national projections from the Remodeling Futures’ quarterly Leading Indicator of Remodeling Activity (**LIRA**), which predicts that national spending on remodeling will grow by over 7 percent in 2018. The metro projections suggest that the national increase is likely to be broad-based, rather than being concentrated in any one area of the country.” – Elizabeth La Jeunesse, Senior Research Analyst, Harvard Joint Center for Housing Studies

Remodeling



Remodeling

Major Metro Remodeling Markets Projected To Heat Up Across The U.S.

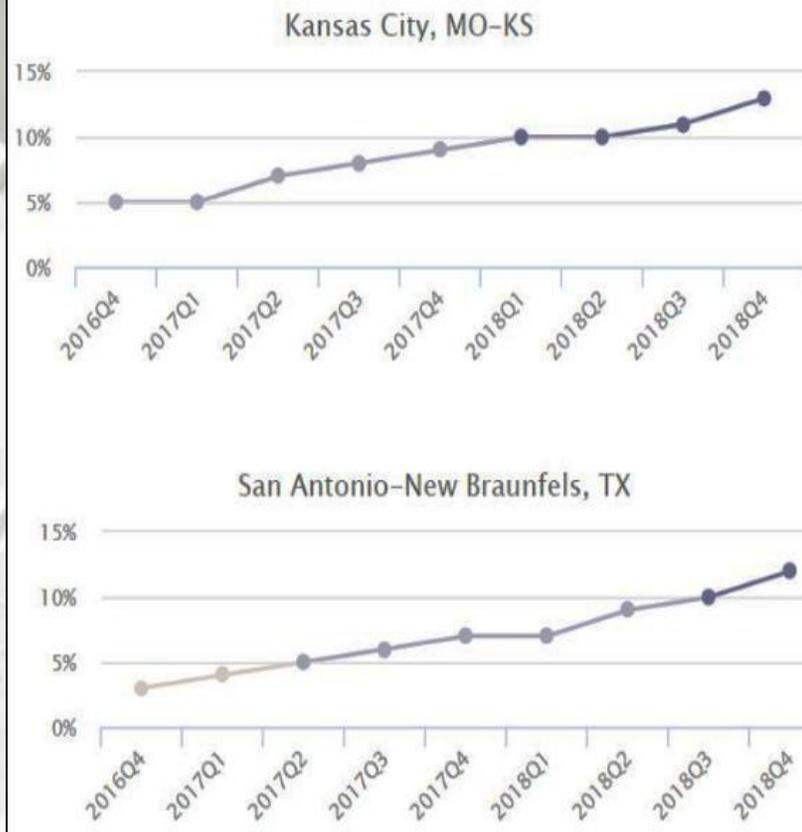
“These new metro-level projections draw on over a year of research into what drives homeowner remodeling activity at the local level, an effort that relied on home improvement data from 1995-2015 in the Detroit, Chicago, Los Angeles, and Philadelphia metro areas. As the research note explains, about two-thirds of the variation in these metros’ historical growth rates is closely correlated with such factors as gains in local home prices, home sales activity, housing starts, retail sales of building materials, and remodeling permitting activity. Importantly, changes in these inputs also tend to lead remodeling activity by several quarters. Drawing on these findings, we developed a model to predict spending patterns in any metro for which we had reliable data on these inputs.

In addition to offering projections on future spending, the model and the map allow us to take a retrospective look at how modeled growth rates have been trending over the past several quarters in each metro. For example, in some metros where especially strong growth is projected by year end – such as Kansas City, San Antonio, Tucson, Pittsburgh, and Austin – the model suggests that annual growth rates have been accelerating in recent quarters. In contrast, in such metros as San Diego, Las Vegas, and Portland, the model indicates that while growth should remain positive this year, it will be lower than it was in late 2016 or early 2017 (**Figure 2**). Additional estimates for all 50 metro areas are available in online [appendix tables](#), which were published as part of the research note.

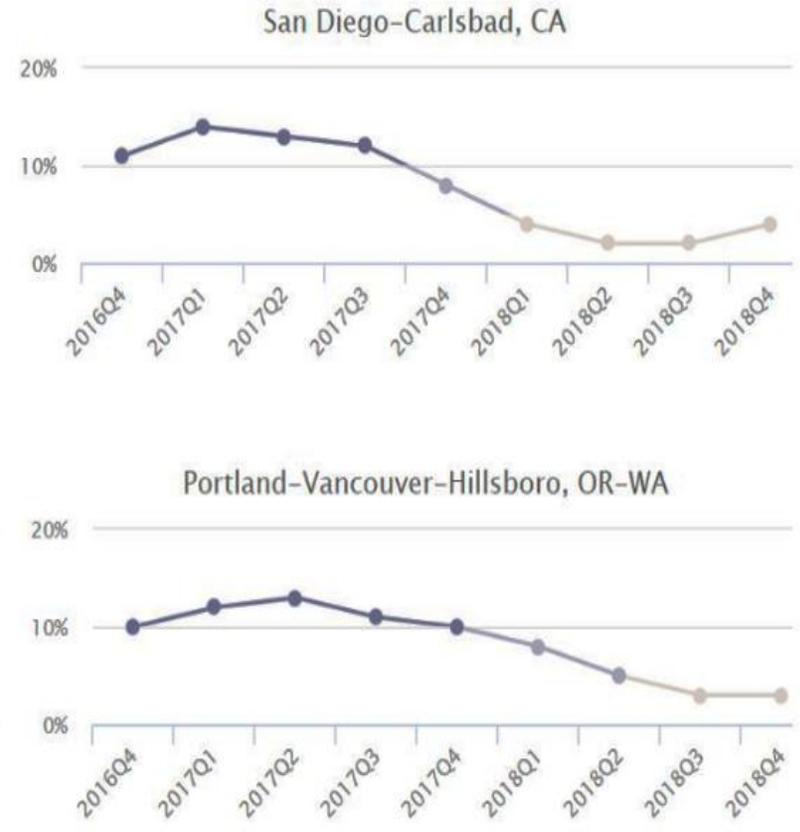
Going forward, we will routinely monitor and assess the model’s performance for any adjustments that might improve our metro-level remodeling projections over time. We plan to release 2019 projections for metro area growth in home improvement spending early next year.” – Elizabeth La Jeunesse, Senior Research Analyst, Harvard Joint Center for Housing Studies

Remodeling

Accelerating Growth



Slower, But Still Positive Growth



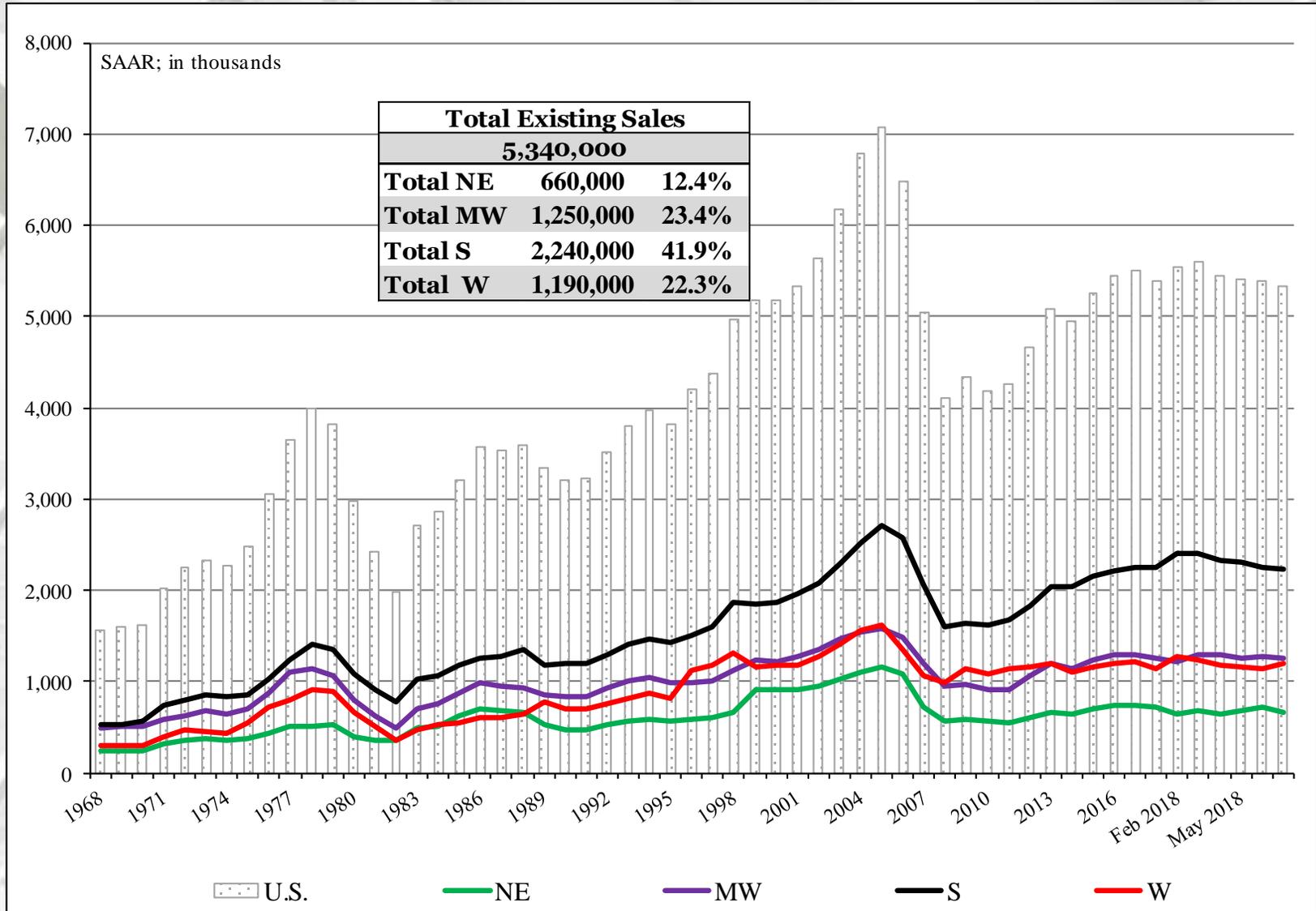
Existing House Sales

National Association of Realtors
July 2018 sales: 5.340 thousand

	Existing Sales*	Median Price	Mean Price	Month's Supply
July	5,340,000	\$269,600	\$307,800	4.3
June	5,380,000	\$273,800	\$311,900	4.3
2017	5,420,000	\$258,100	\$298,800	4.3
M/M	-0.7%	-1.5%	-1.3%	0.0%
Y/Y change	-1.5%	4.5%	3.0%	0.0%
	NE Sales	MW Sales	S Sales	W Sales
July	660,000	1,250,000	2,240,000	1,190,000
June	720,000	1,270,000	2,250,000	1,140,000
2017	670,000	1,260,000	2,250,000	1,240,000
M/M change	-8.3%	-1.6%	-0.4%	4.4%
Y/Y change	-1.5%	-0.8%	-0.4%	-4.0%

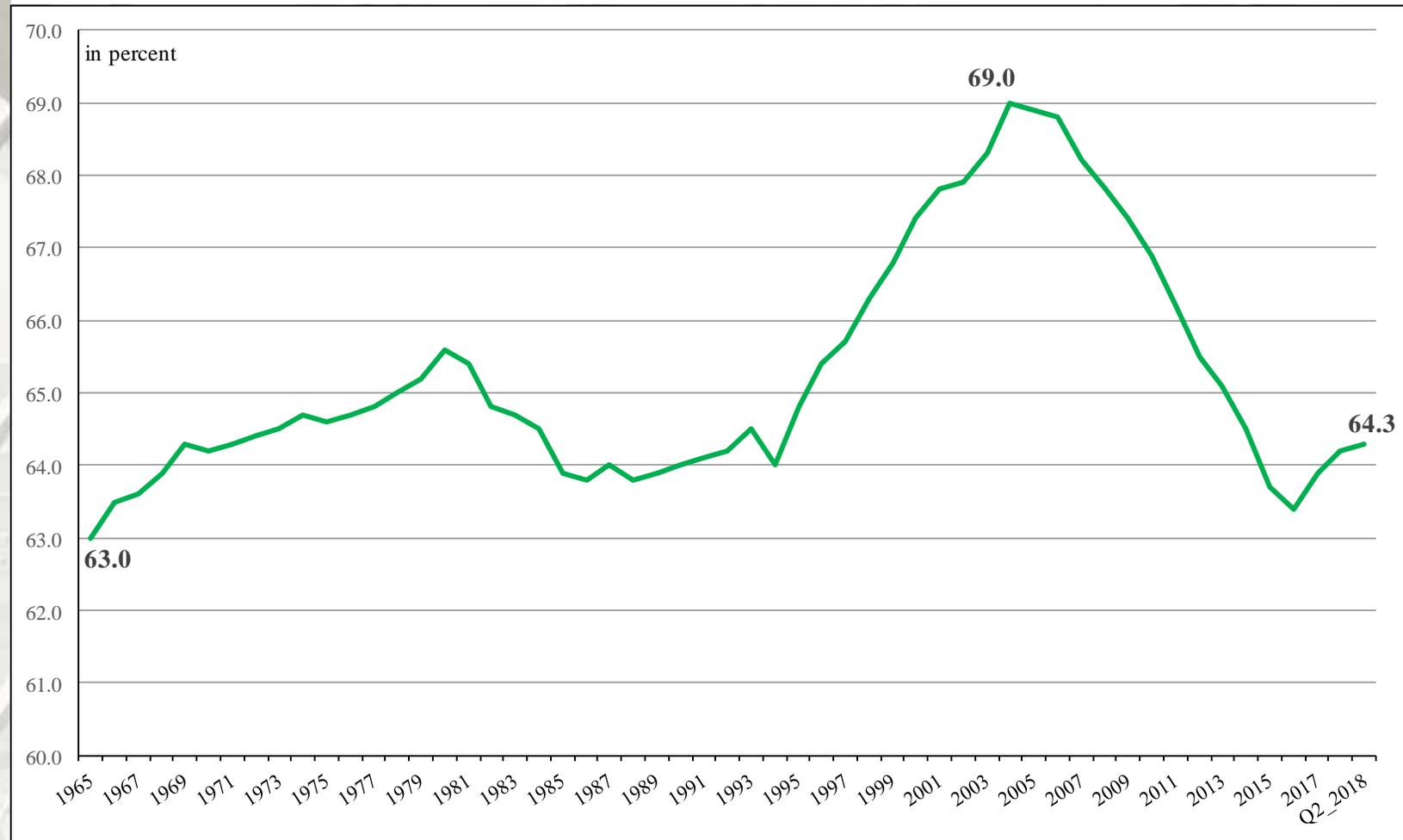
* All sales data: SAAR

Existing House Sales



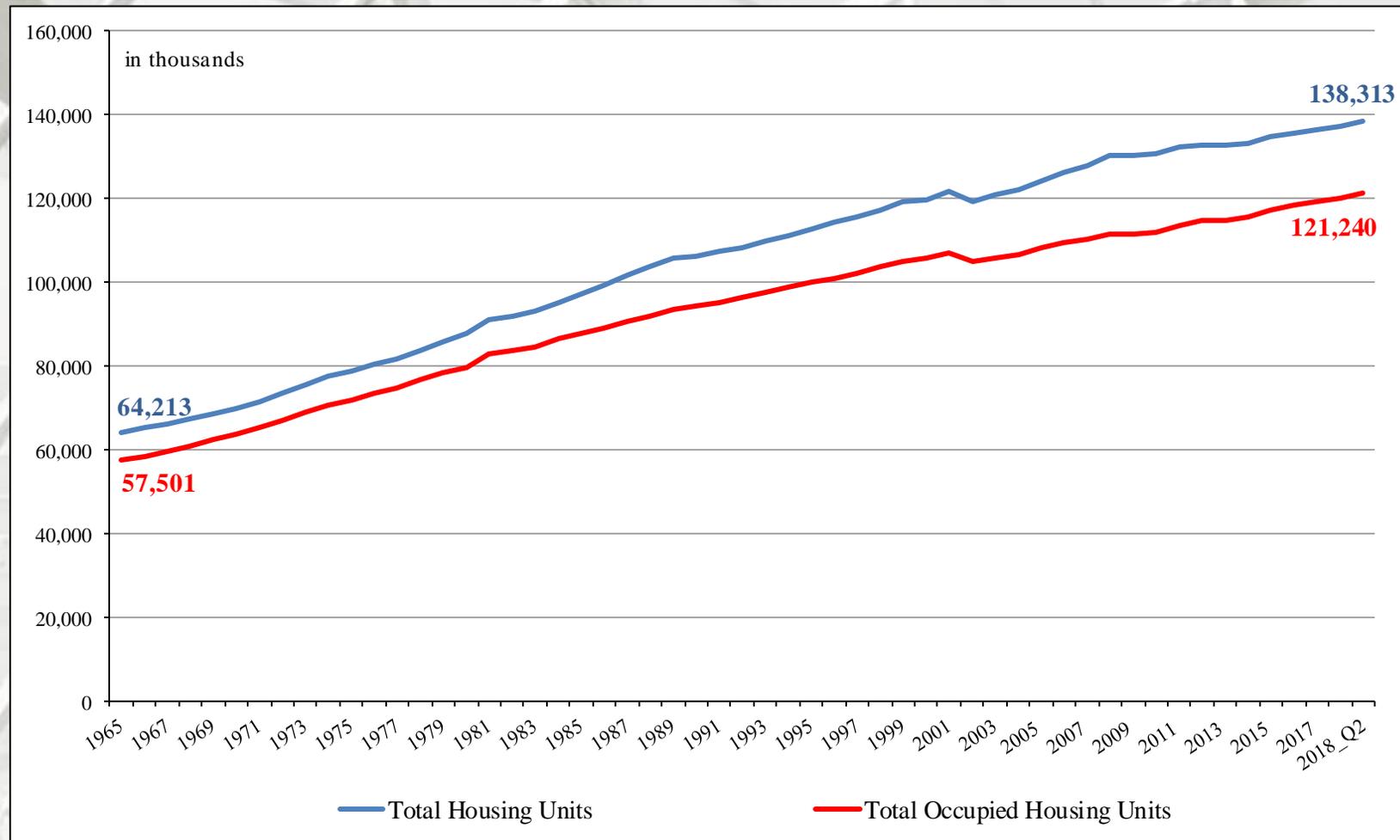
House Ownership

House Ownership: 1965 to Q2 2018



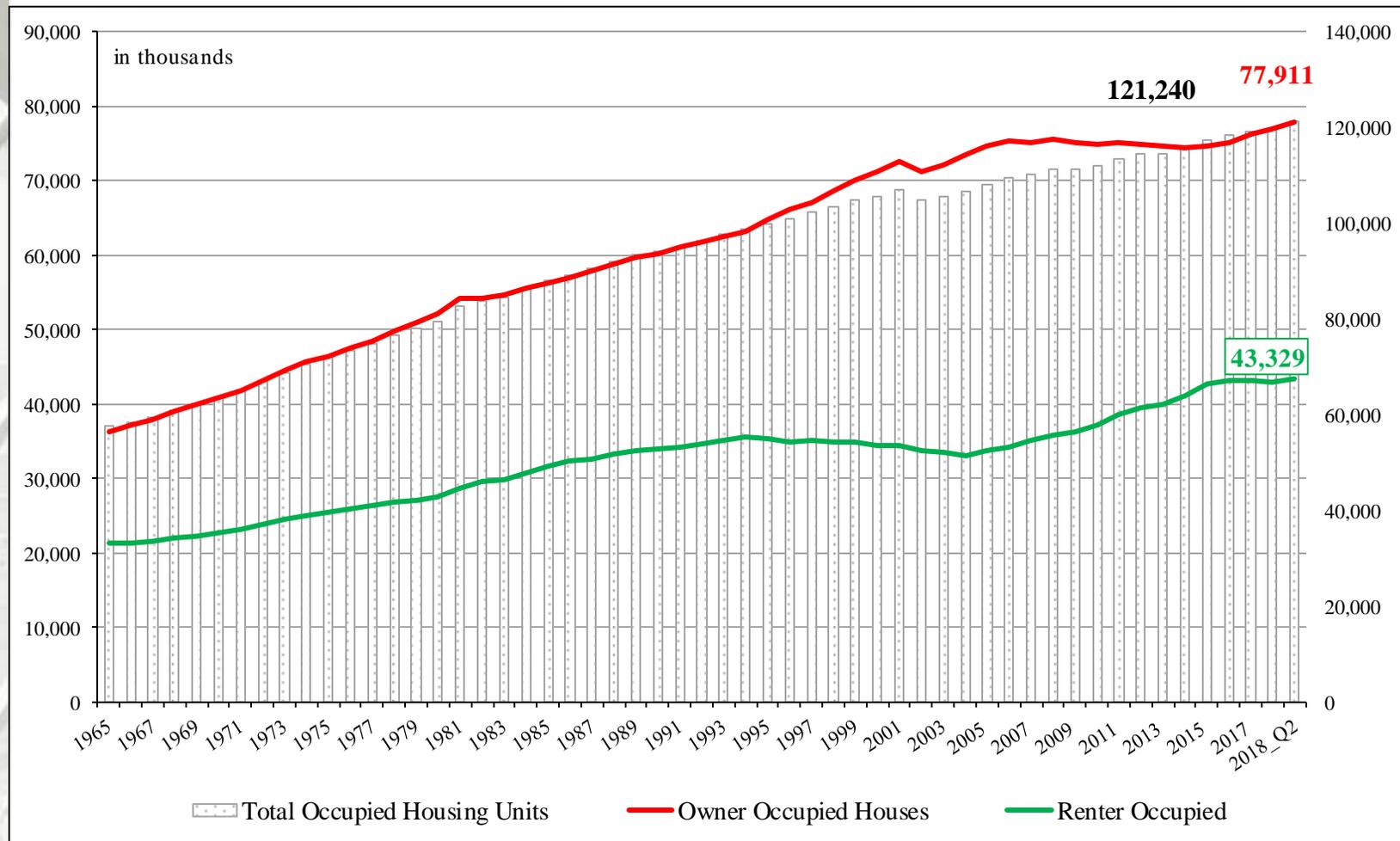
House Ownership

Total Units and Occupied Houses: 1965 to Q2 2018



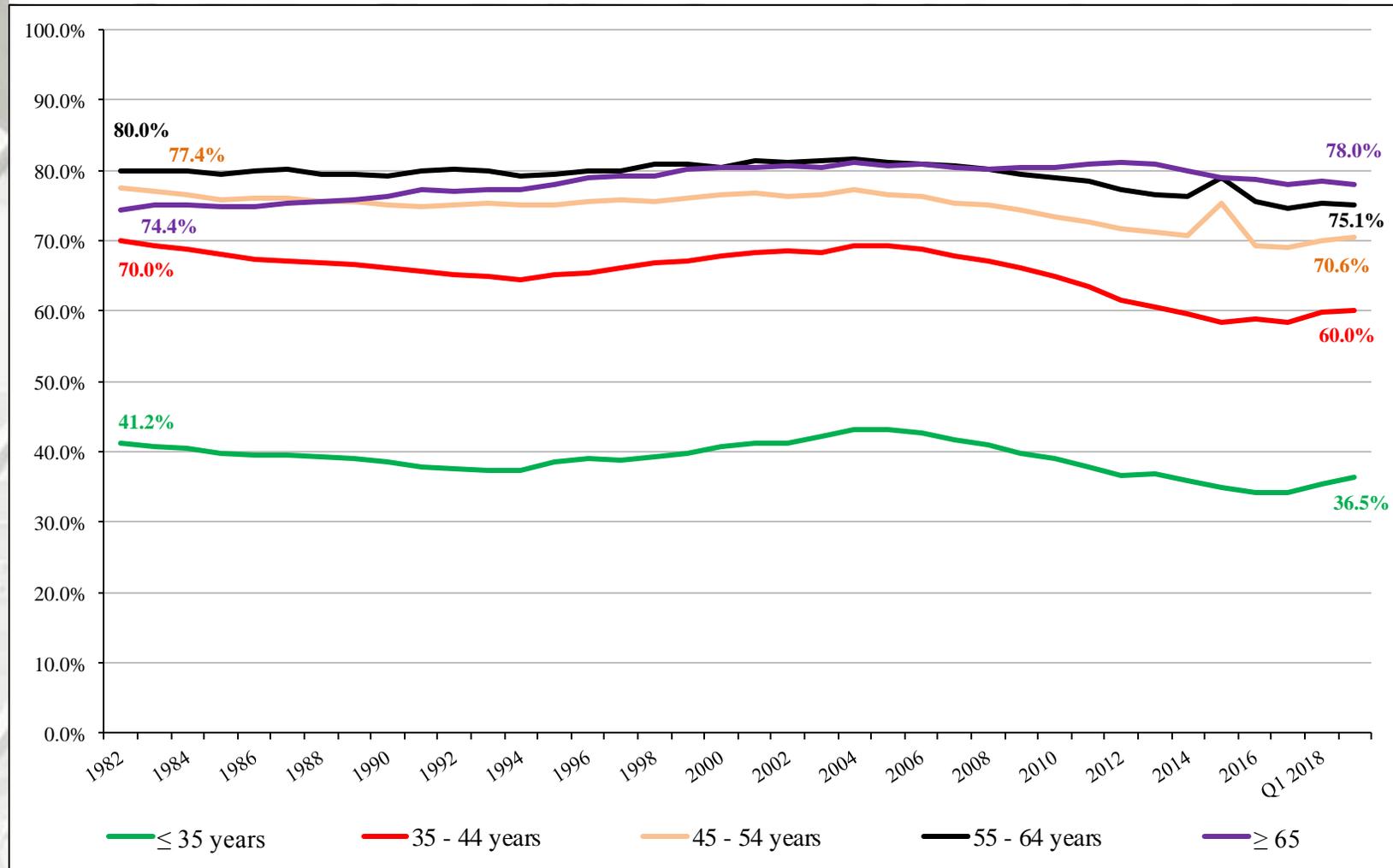
House Ownership

Total, Owner, and Renter Occupied Houses: 1965 to Q2 2018



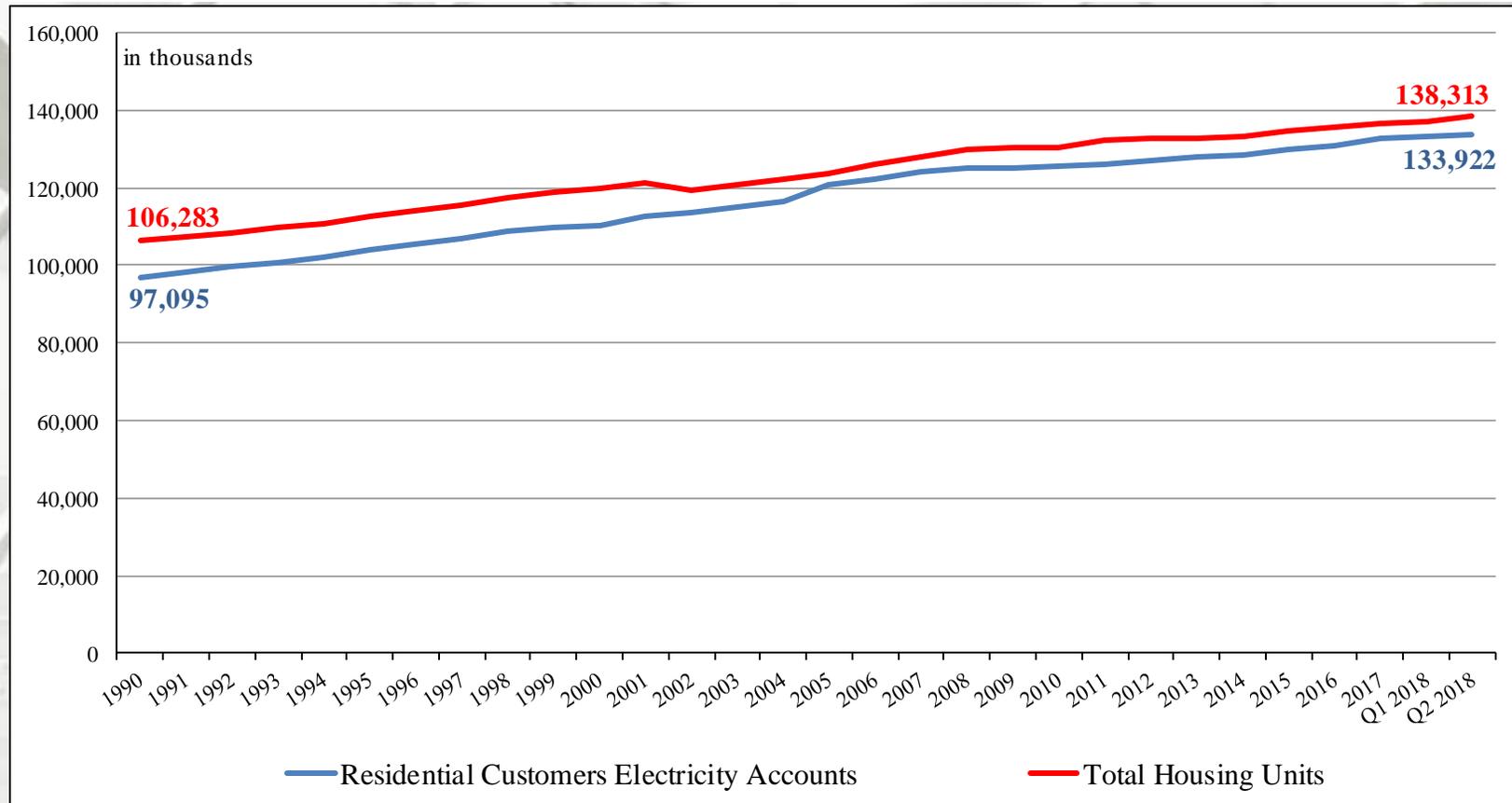
House Ownership

House Occupation by Age-Class: 1982 to Q2 2018



House Ownership

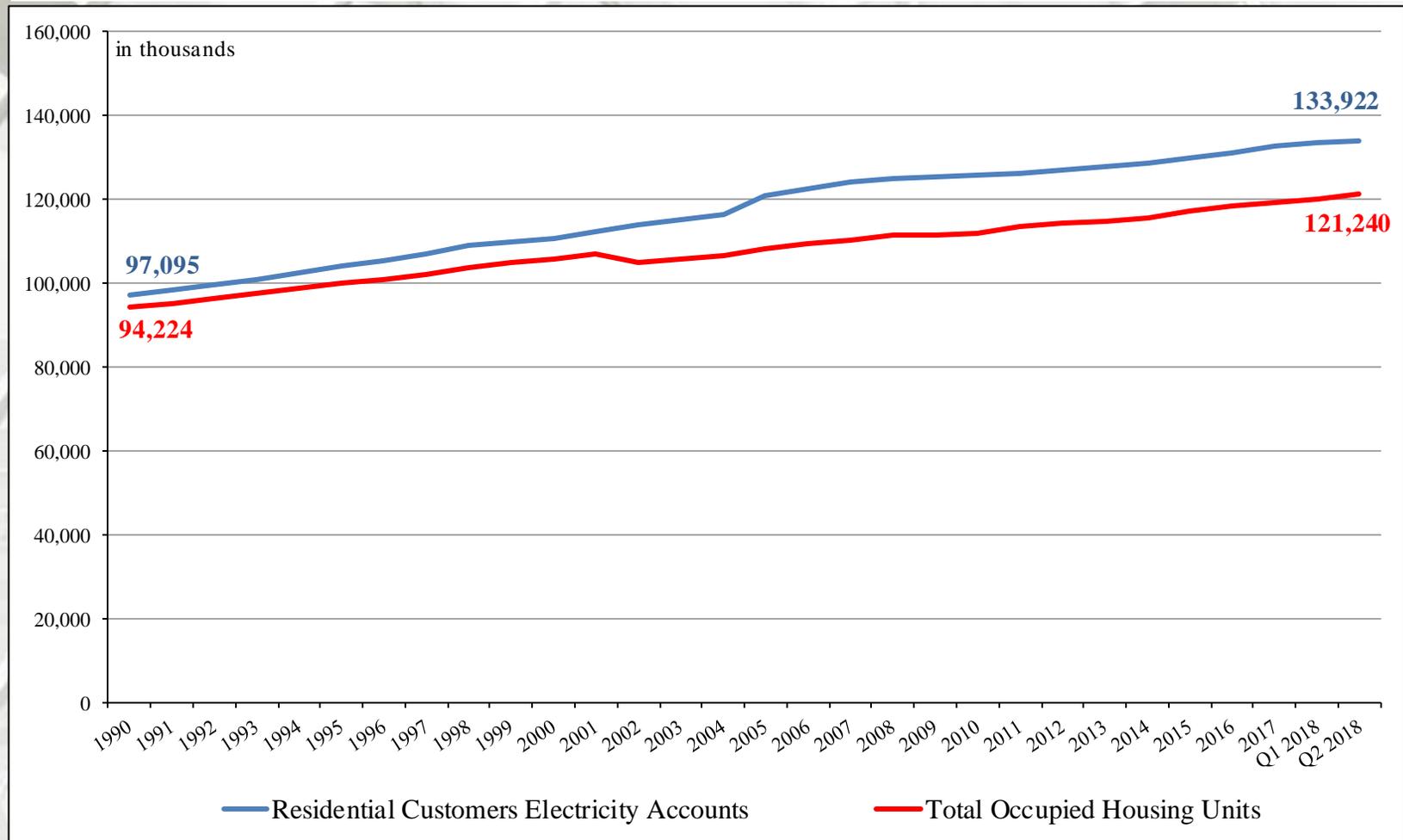
Residential Electricity Customers & Total Housing Units: 1990 to Q2 2018



Residential electricity customer accounts are a component of the “Annual Electric Power Industry Report” collected by the US EIA. The US Census has four separate programs to collect, in part, estimates of household attributes and the number of vacant houses: American Housing Survey (AHS); Current Population Survey (CPS); Housing Vacancy Survey (HVS); and the Annual Social and Economic Supplement (ASEC). These differing surveys, including different objectives and timing, may account for the discrepancy between US Census and US EIA estimates.

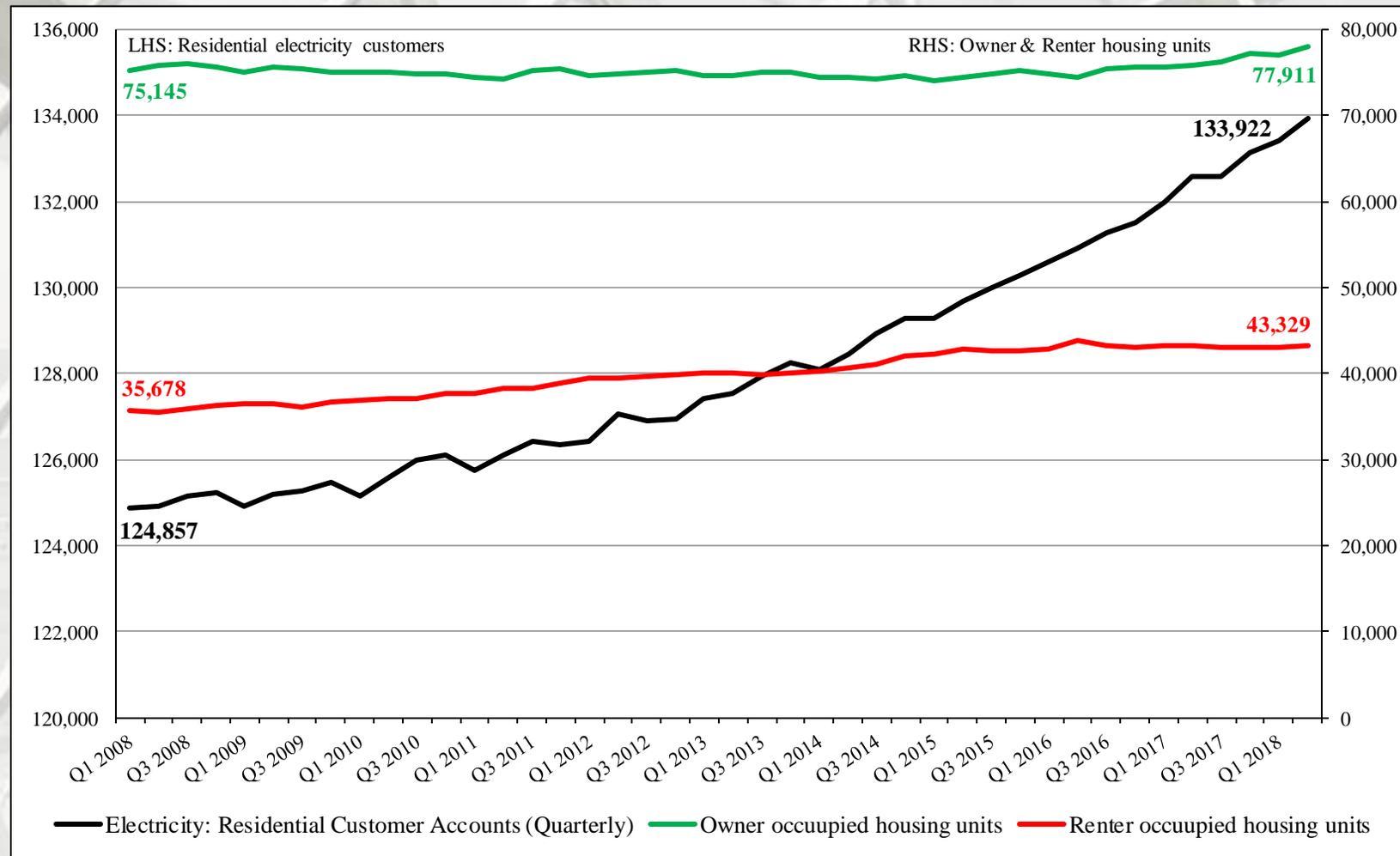
House Ownership

Residential Electricity Customers & Total Occupied Housing Units: 1990 to Q2 2018



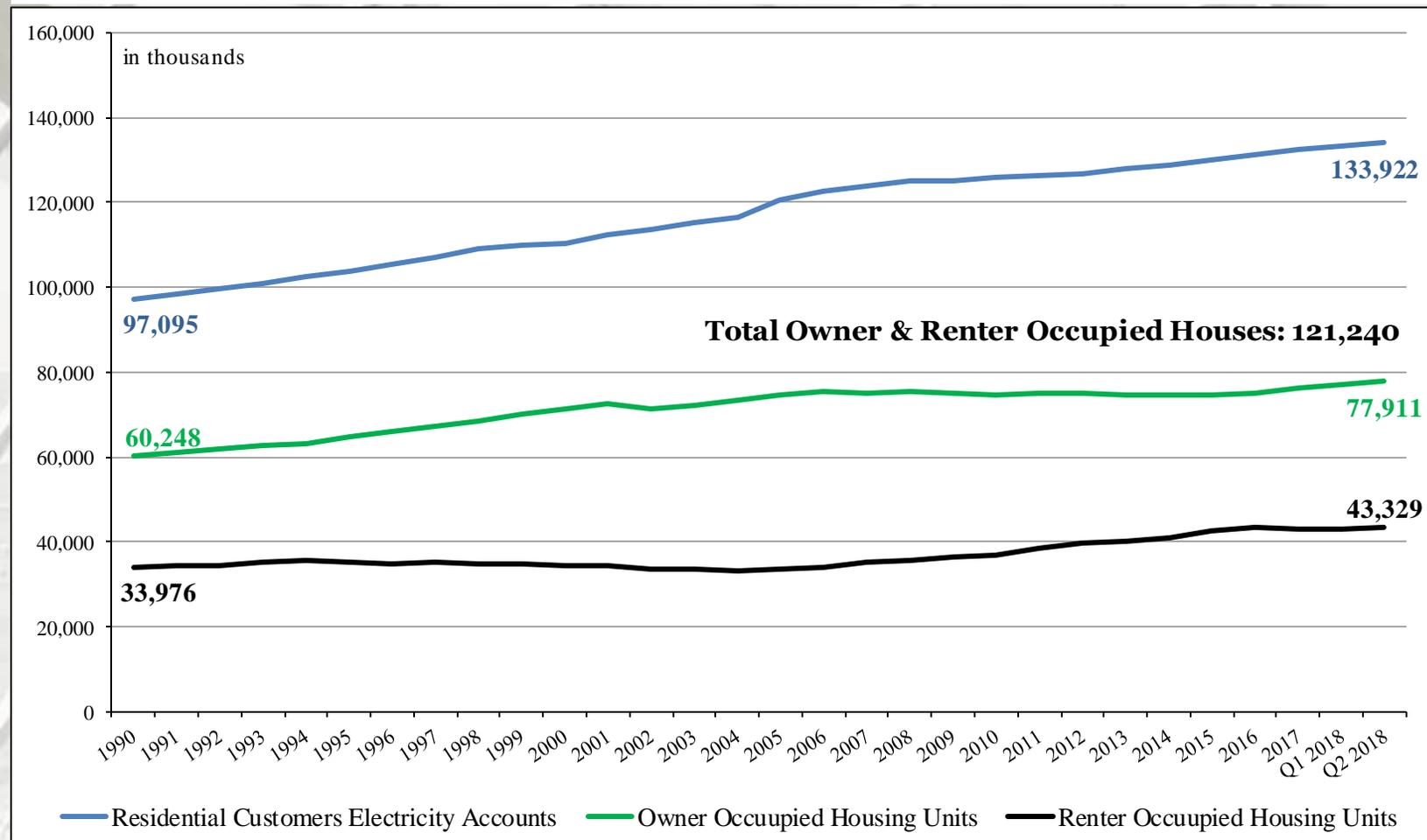
House Ownership

Residential Electricity Customers, Owner & Renter Occupied Housing Units: Q1 2008 to Q2 2018

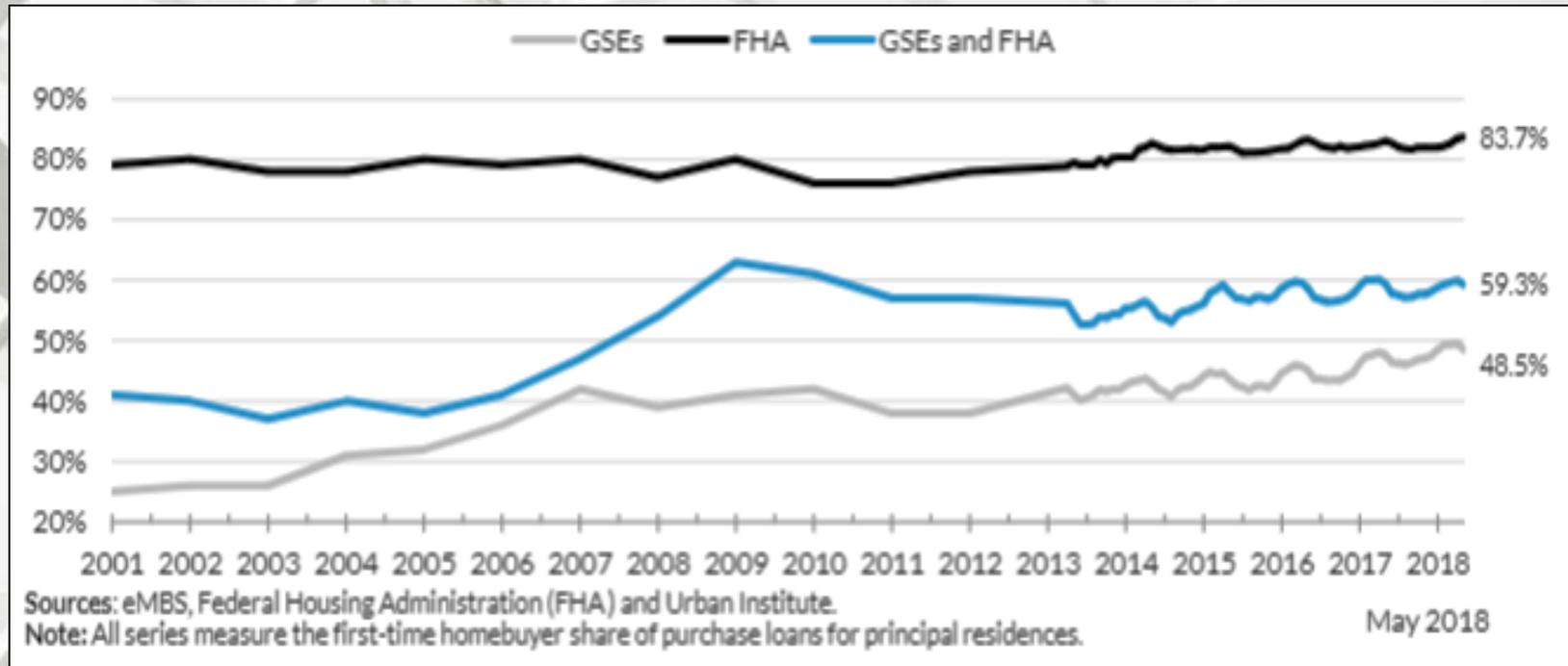


House Ownership

Residential Electricity Customers, Owner & Renter Occupied Housing Units: 1990 to Q2 2018



First-Time Purchasers



Urban Institute

“In May 2018, the first-time homebuyer share of GSE purchase loans was 48.5 percent, slightly down from its 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; it stood at 83.7 percent in May 2018. The bottom table shows that based on mortgages originated in May 2018, 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

Housing Affordability

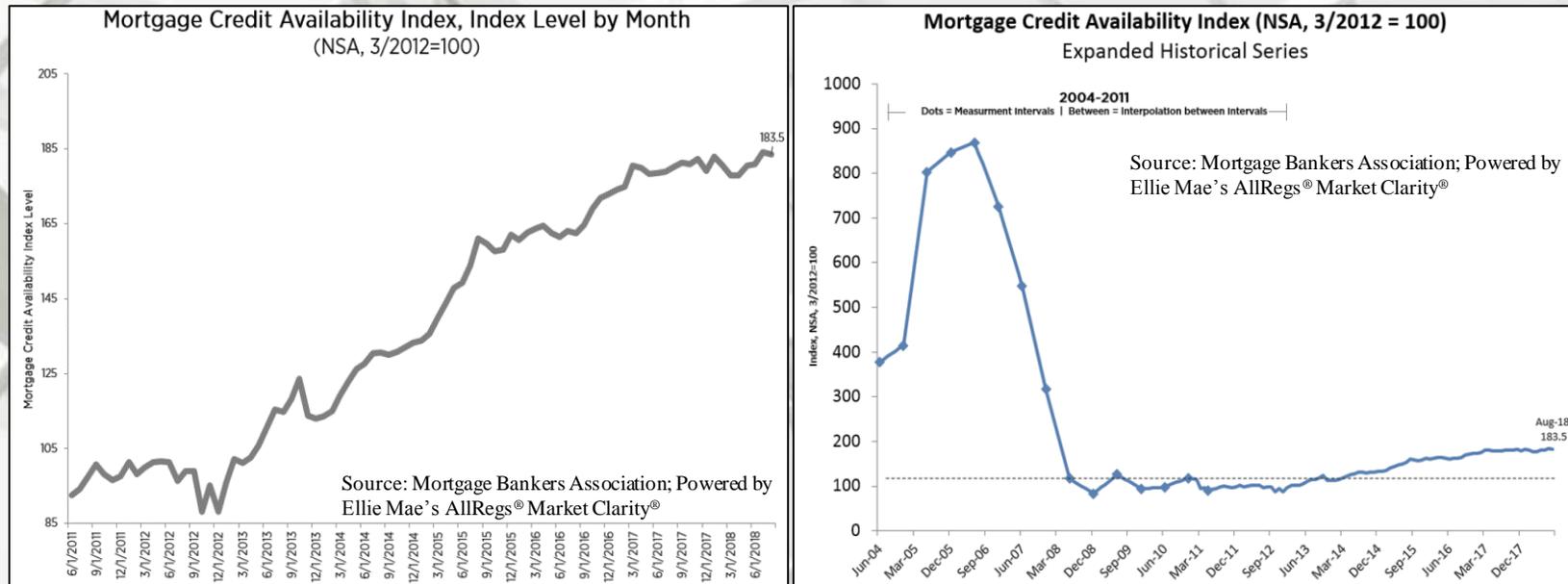
National Housing Affordability Over Time



Urban Institute

“Home prices remain affordable by historic standards, despite price increases over the last five years and the recent interest rate hikes. As of June 2018, with 20% down, the share of median income needed for the monthly mortgage payment stood at 23%; with 3.5% down, it is 27%. If interest rates rise to 5.1%, the housing expenses to income share with both a 20 percent and a 3.5 percent down payment would be the same as the 2001-03 averages (24 and 28 percent, respectively). As shown in the bottom picture, mortgage affordability varies widely across MSAs.” – Bing Lai, Research Associate, Housing Finance Policy Center

Mortgage Credit Availability



Mortgage Credit Availability Decreased in August

“Mortgage credit availability decreased in August according to the Mortgage Credit Availability Index (MCAI), a report from the Mortgage Bankers Association (MBA) which analyzes data from Ellie Mae's AllRegs® Market Clarity® business information tool.

The MCAI decreased 0.3 percent to 183.5 in August. 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. The Conventional MCAI decreased (down 0.9 percent) and the Government MCAI increased slightly (up 0.1 percent). Of the component indices of the Conventional MCAI, the Jumbo MCAI decreased by 2.1 percent while the Conforming MCAI increased by 0.8 percent.

Overall credit availability saw a slight decrease in August, for the first time in four months, as the jumbo index retreated from its record high in July. Strong month-over-month increases in the jumbo index reversed because of a reduction in the number of jumbo programs. The decline in jumbo credit availability was offset partially by an increase in the conforming index, which increased over the month due to the addition of low down payment programs.” – Joel Kan, Vice President of Economic and Industry Forecasting, MBA

Summary

In summary:

The U.S. housing construction market was mostly positive in July. Total permits and starts, including single-family permits and starts “inched” into positive territory. Total starts were negative on a year-over-year basis. Housing under construction also crept into positive territory on a monthly basis. Total and single-family housing completions were negative on a month-over-month basis. New single-family sales declined month-over-month and were robust on a year-over-year basis. Existing sales continued their declining trend, monthly and yearly. New single-family construction spending indicated a minimal negative change on a monthly basis. Once again, new SF lower-priced tier house sales were less than historical averages. The new SF construction 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) Housing affordability remains good – but is deteriorating in certain metros in 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) Increasing interest rates;
- 3) Household formations are still lagging historical averages;
- 4) Changing attitudes towards SF ownership;
- 5) Job creation is improving and consistent but some economists question the quantity and types of jobs being created;
- 6) Debt: Corporate, personal, government – United States and globally;
- 7) Other global uncertainties.

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