

The Virginia Tech – U.S. Forest Service

May 2019

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 Delton.R.Alderman@usda.gov

Opening Remarks

May 2019 United States housing data was largely negative, with only total housing and single-family permits, and existing sales positive on month-over-month basis. The year-over-year data also was similar; with total and single-family under construction, and single-family completions being positive. The July 10th Atlanta Fed GDPNow™ model for June 2019 projects a 2.2% increase for permanent site expenditures; the improvement spending forecast was a 2.2% decrease; and the manufactured/mobile housing projection was an 8.7% increase (all: quarterly log change and seasonally adjusted annual rate)¹.

“... I believe new home sales and construction have “run out of steam,” at levels many deem to be too low. What’s different this time from prior cycles includes:

- **Banks** – Two banking regulation laws (Dodd-Frank and FIRREA) that have held mortgage lending and construction lending, respectively, in check
- **Municipalities** – Local regulations, which have significantly reduced market rate affordable housing in good locations
- **New business models** – An institutional class single-family rental industry whose company values already rival the largest home builders in the country, as well as the proven viability of supplemental rental income thanks to Airbnb
- **Societal aspirations** – A shift to living closer to work and a willingness to make compromises to do so.”² – John Burns, CEO, John Burns Real Estate Consulting, LLC

This month’s commentary contains applicable housing data: Section I contains data and commentary. Section II includes regional Federal Reserve analysis, private indicators, and demographic commentary.

Sources: ¹ www.frbatlanta.org/cqer/research/gdpnow.aspx; 7/10/19;

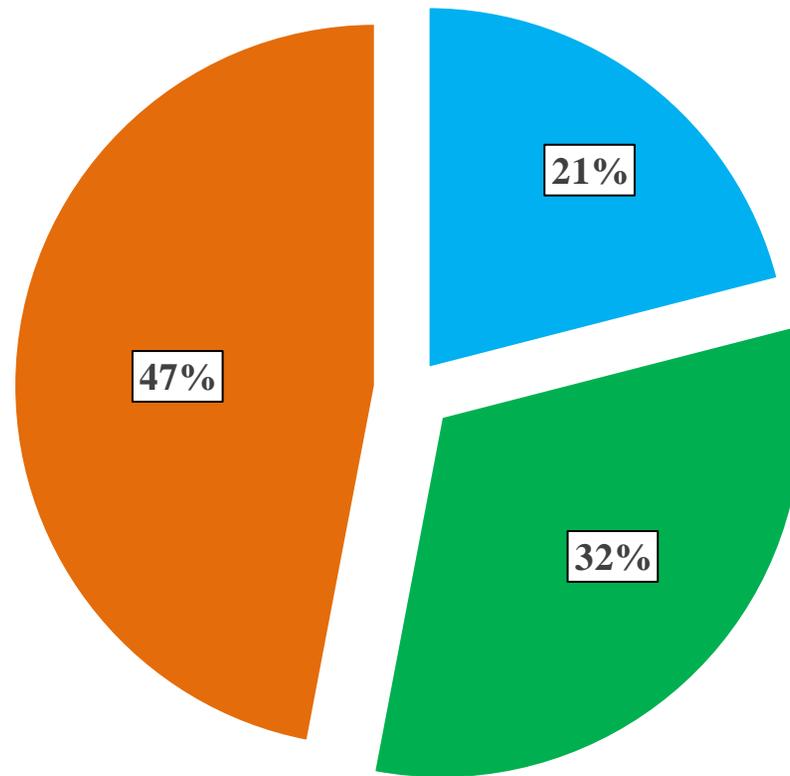
² <https://www.realestateconsulting.com/successful-pivots-as-the-housing-market-runs-out-of-steam/>; 6/20/19

May 2019 Housing Scorecard

		M/M	Y/Y
Housing Starts	?	0.9%	? 4.7%
Single-Family (SF) Starts	?	6.4%	? 12.5%
Housing Permits	△	0.3%	? 0.5%
SF Permits	△	3.7%	? 3.3%
Housing Under Construction		NC	△ 0.3%
SF Under Construction	?	1.1%	△ 0.6%
Housing Completions	?	9.5%	? 2.8%
SF Completions	?	5.0%	△ 1.6%
New SF House Sales	?	7.8%	? 3.7%
Private Residential Construction Spending	?	0.6%	? 11.2%
SF Construction Spending	?	0.8%	? 7.6%
Existing House Sales ¹	△	2.5%	? 1.1%

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

New Construction's Percentage of Wood Products Consumption

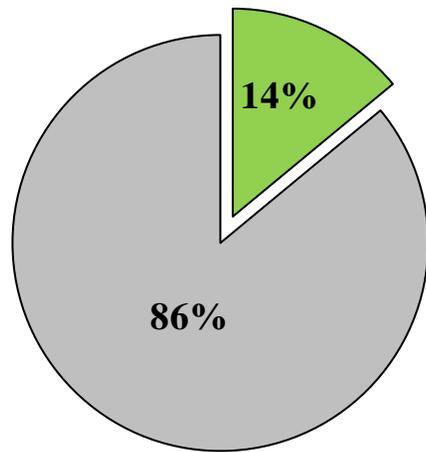


■ Non-structural panels

■ Total Sawnwood

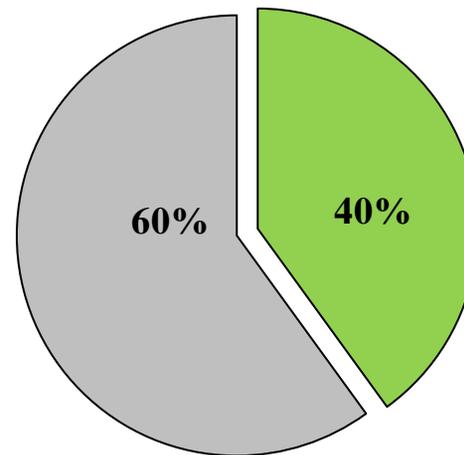
■ Structural panels

New SF Construction Percentage of Wood Products Consumption



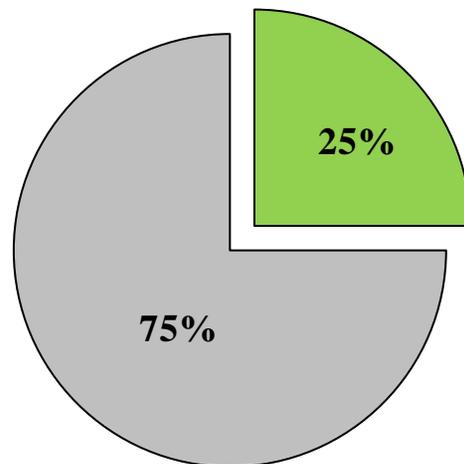
■ Non-structural panels:
New Housing

■ Other markets



■ Structural panels:
New housing

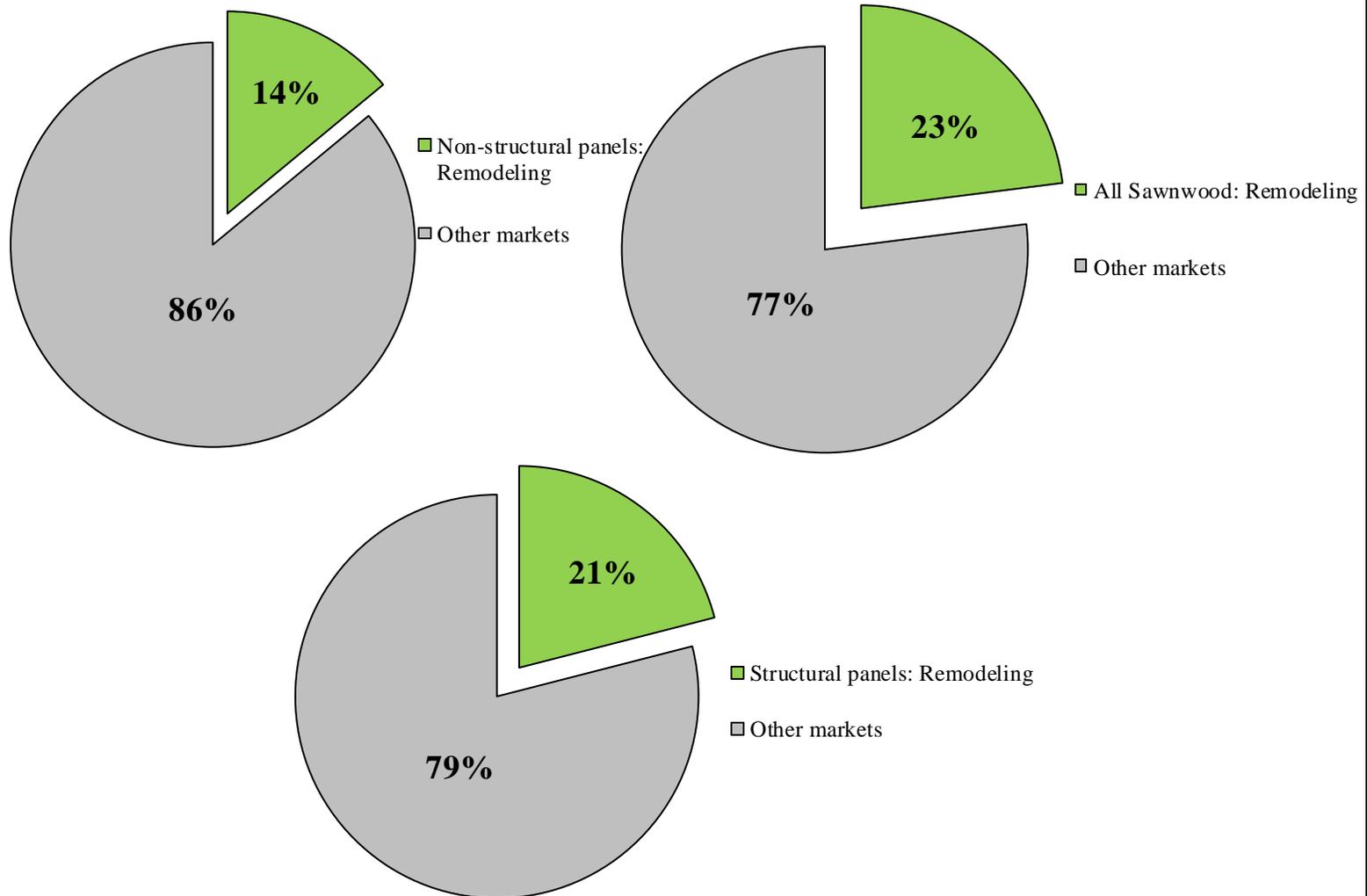
■ Other markets



■ All Sawnwood: New housing

■ Other markets

Repair and Remodeling's Percentage of Wood Products Consumption



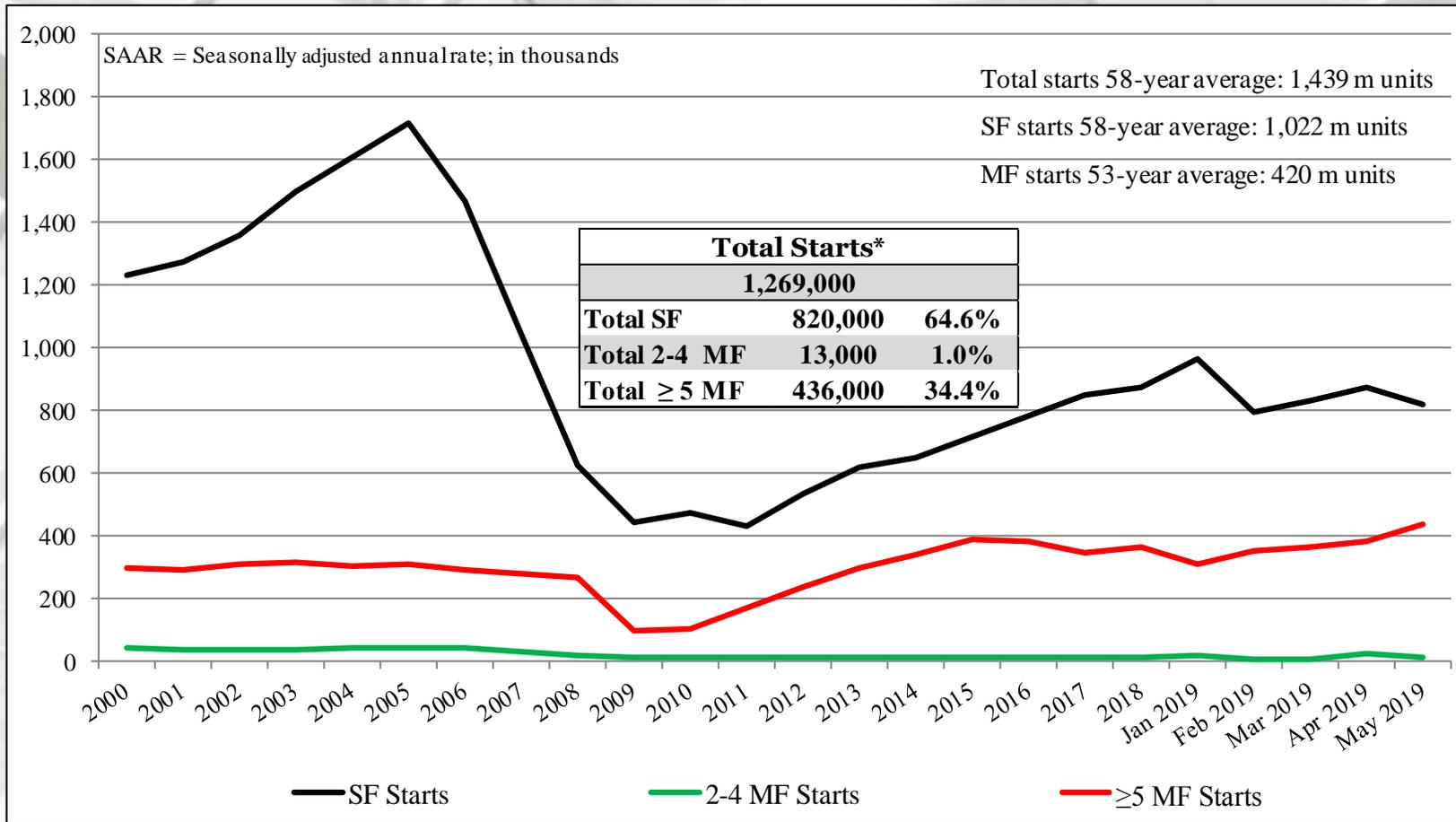
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
May	1,269,000	820,000	13,000	436,000
April	1,281,000	876,000	22,000	383,000
2018	1,332,000	937,000	12,000	383,000
M/M change	-0.9	-6.4	-40.9	13.8
Y/Y change	-4.7	-12.5	8.3	13.8

* 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)).

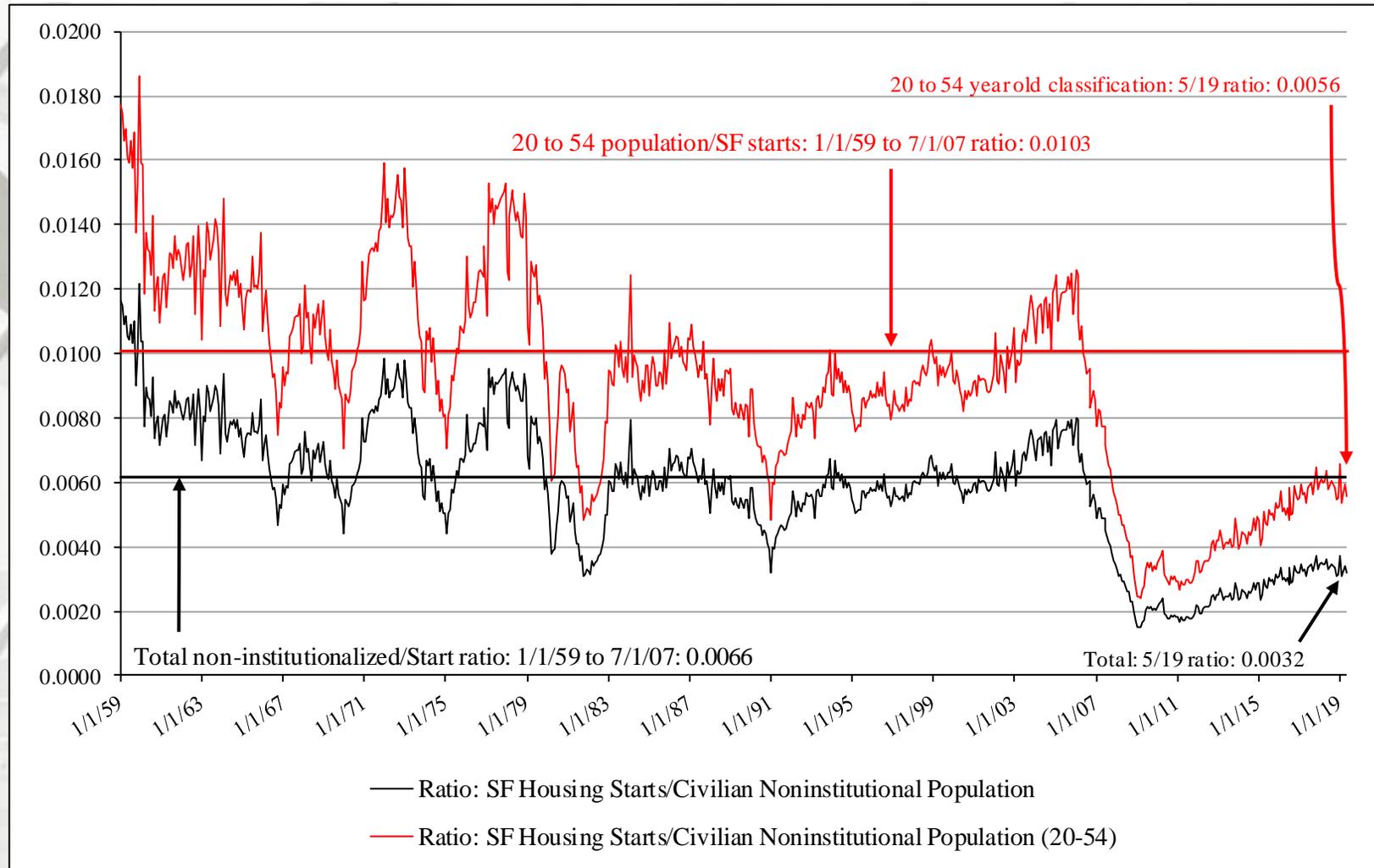
Total Housing Starts



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

* Percentage of total starts.

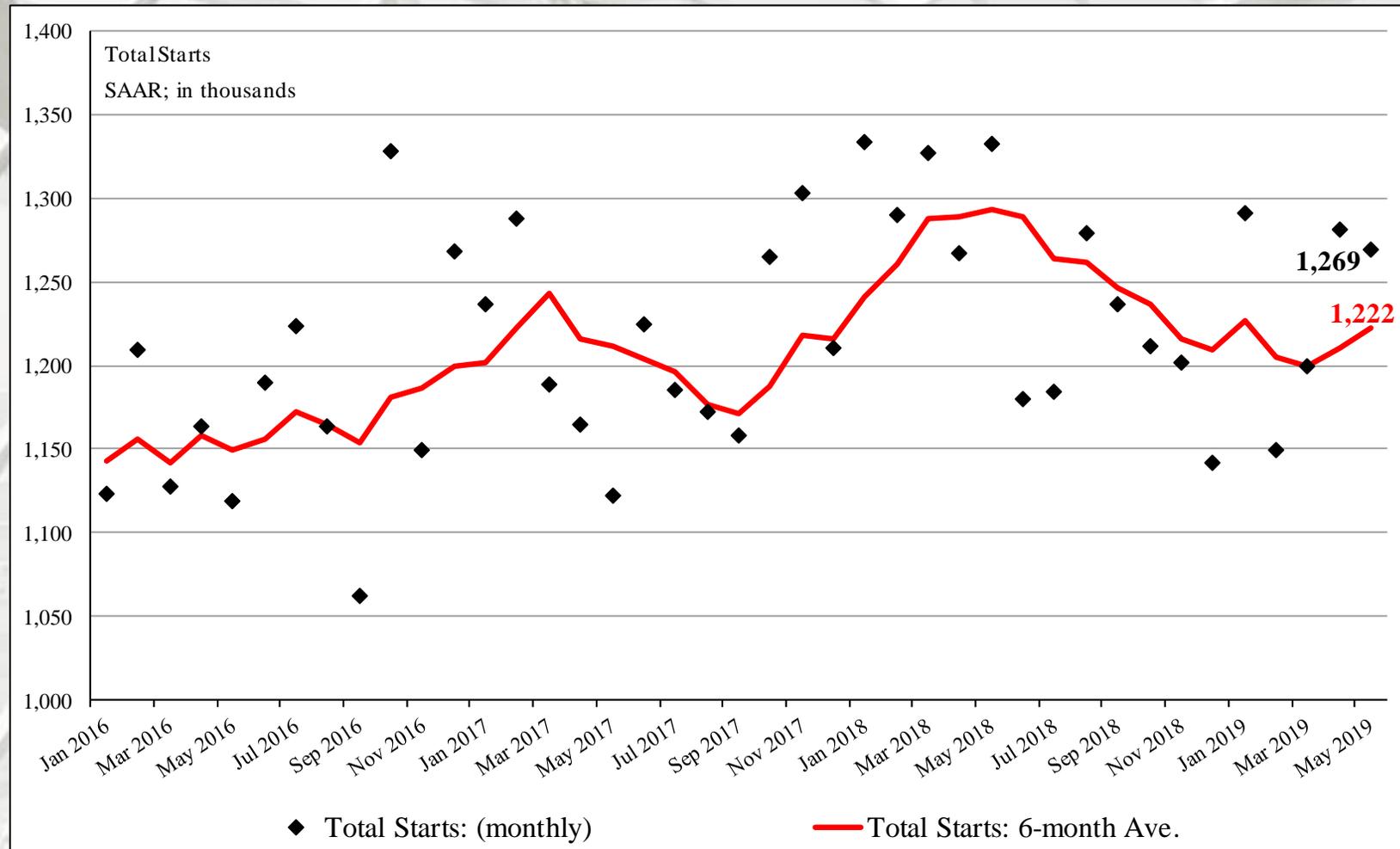
New SF Starts



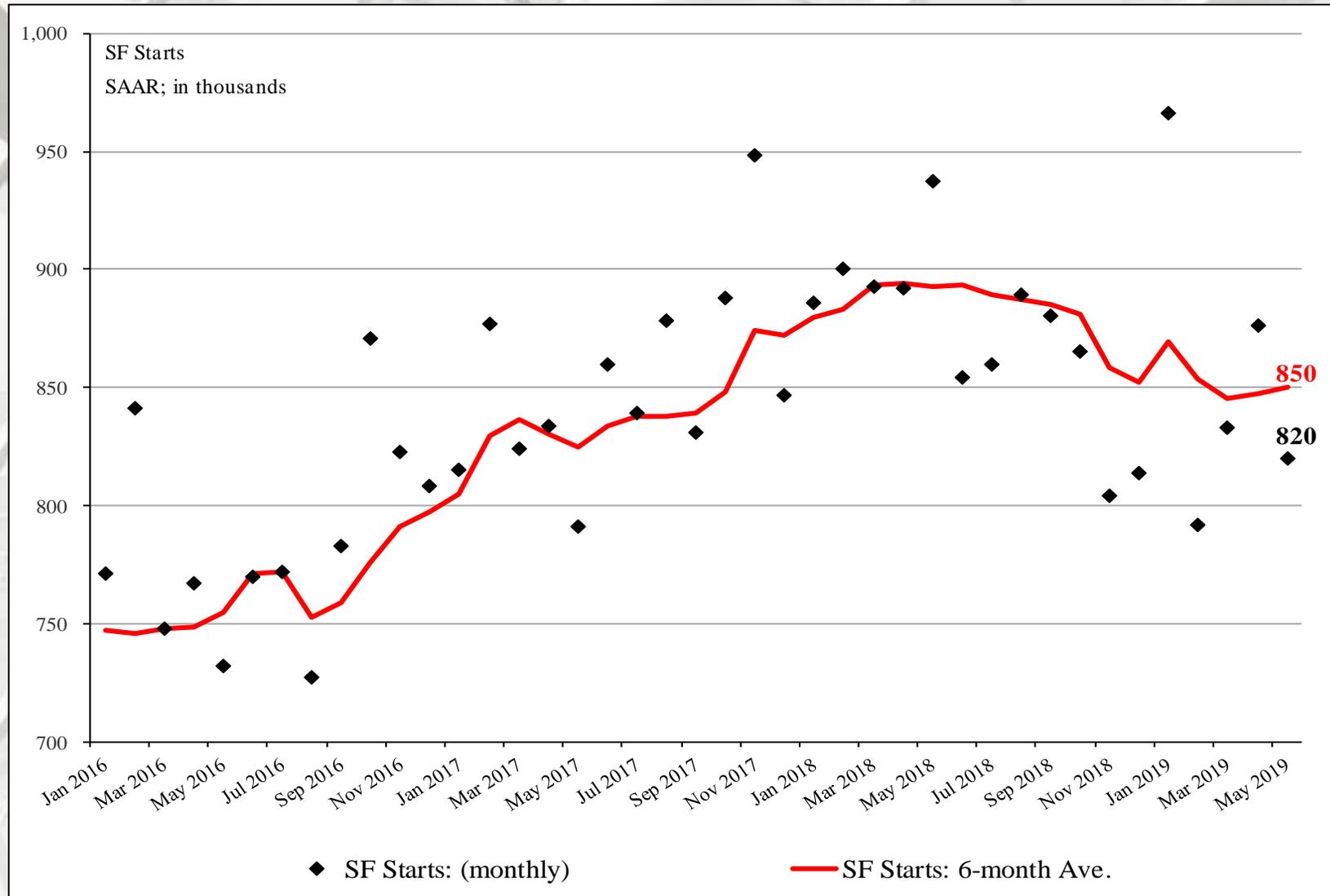
New SF starts adjusted for the US population

From May 1959 to May 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in May 2019 it was 0.0032 – a decrease from April. The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in May 2018 was 0.0056 – also a decrease from April. From a population worldview, new SF construction is less than what is necessary for changes in population (i.e., under-building).

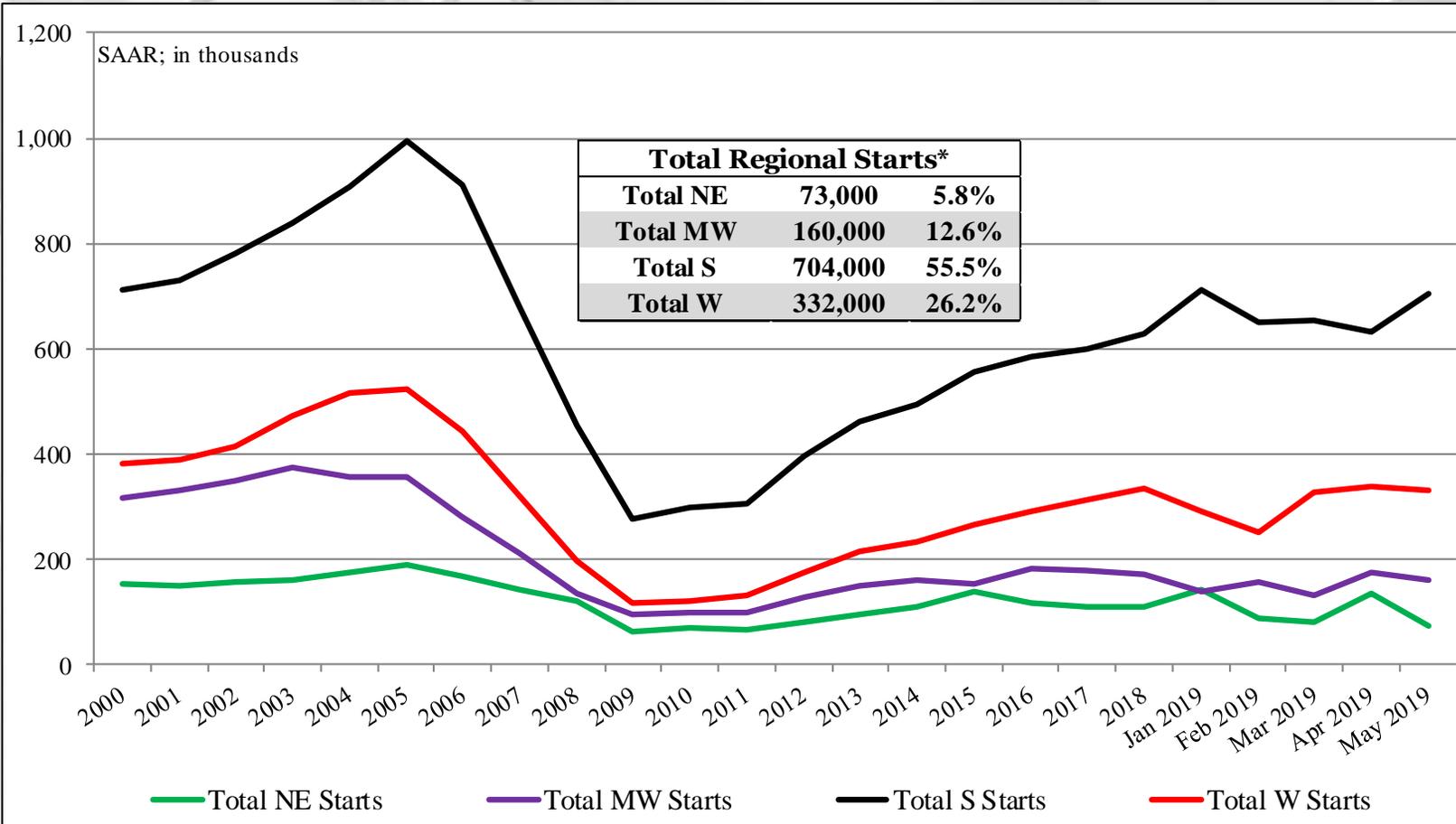
Total Housing Starts: Six-Month Average



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 starts directly, this is an estimation (Total starts - (SF + ≥ 5 MF starts)).

* Percentage of total starts.

New Housing Starts by Region

	NE Total	NE SF	NE MF**
May	73,000	49,000	24,000
April	134,000	66,000	68,000
2018	108,000	66,000	42,000
M/M change	-45.5	-25.8	-64.7
Y/Y change	-32.4	-25.8	-42.9
	MW Total	MW SF	MW MF
May	160,000	113,000	47,000
April	174,000	120,000	54,000
2018	239,000	156,000	83,000
M/M change	-8.0	-5.8	-13.0
Y/Y change	-33.1	-27.6	-43.4

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).

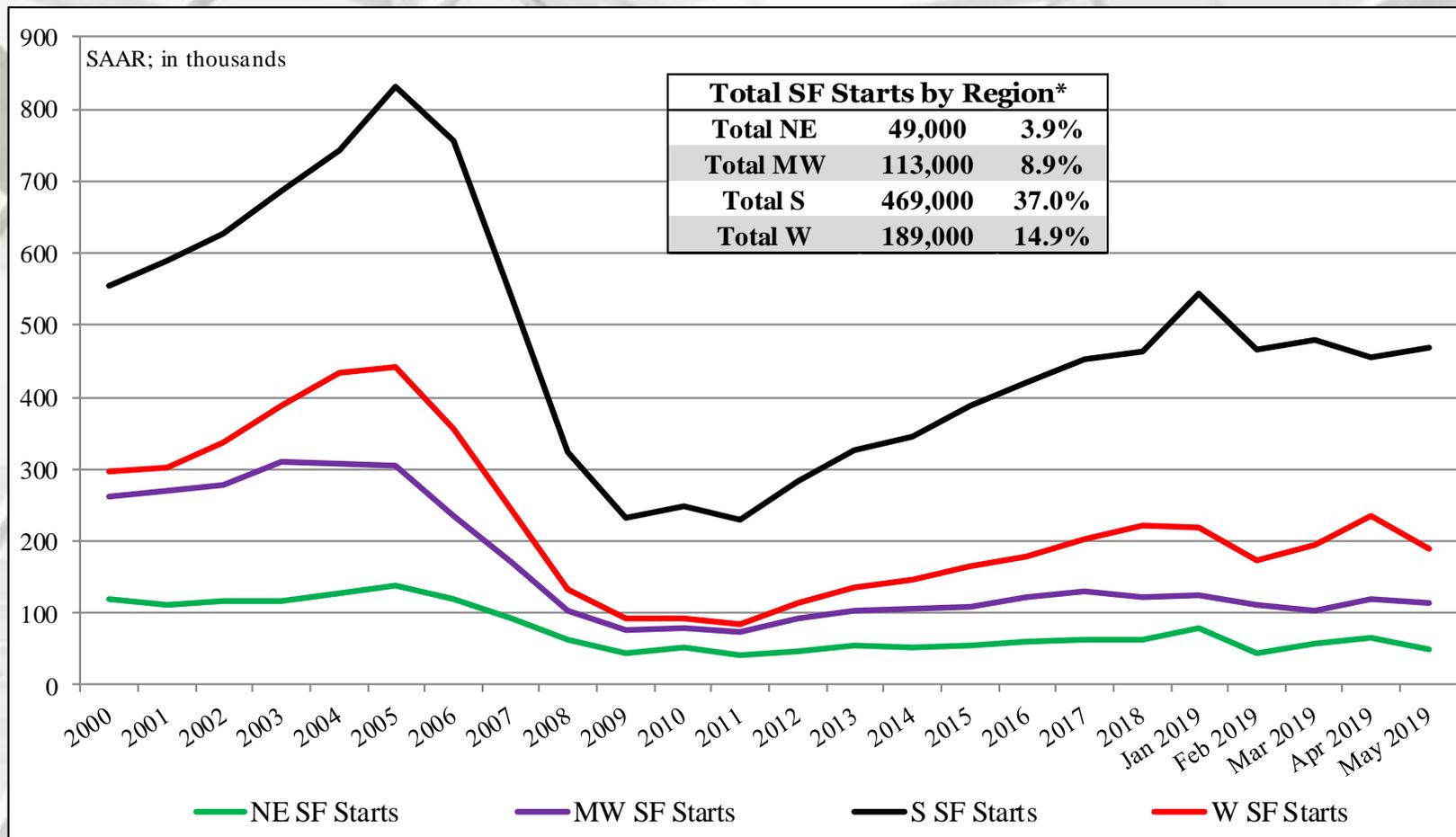
New Housing Starts by Region

	S Total	S SF	S MF**
May	704,000	469,000	235,000
April	633,000	454,000	179,000
2017	651,000	494,000	157,000
M/M change	11.2	3.3	31.3
Y/Y change	8.1	-5.1	49.7
	W Total	W SF	W MF
May	332,000	189,000	143,000
April	340,000	236,000	104,000
2018	334,000	221,000	113,000
M/M change	-2.4	-19.9	37.5
Y/Y change	-0.6	-14.5	26.5

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

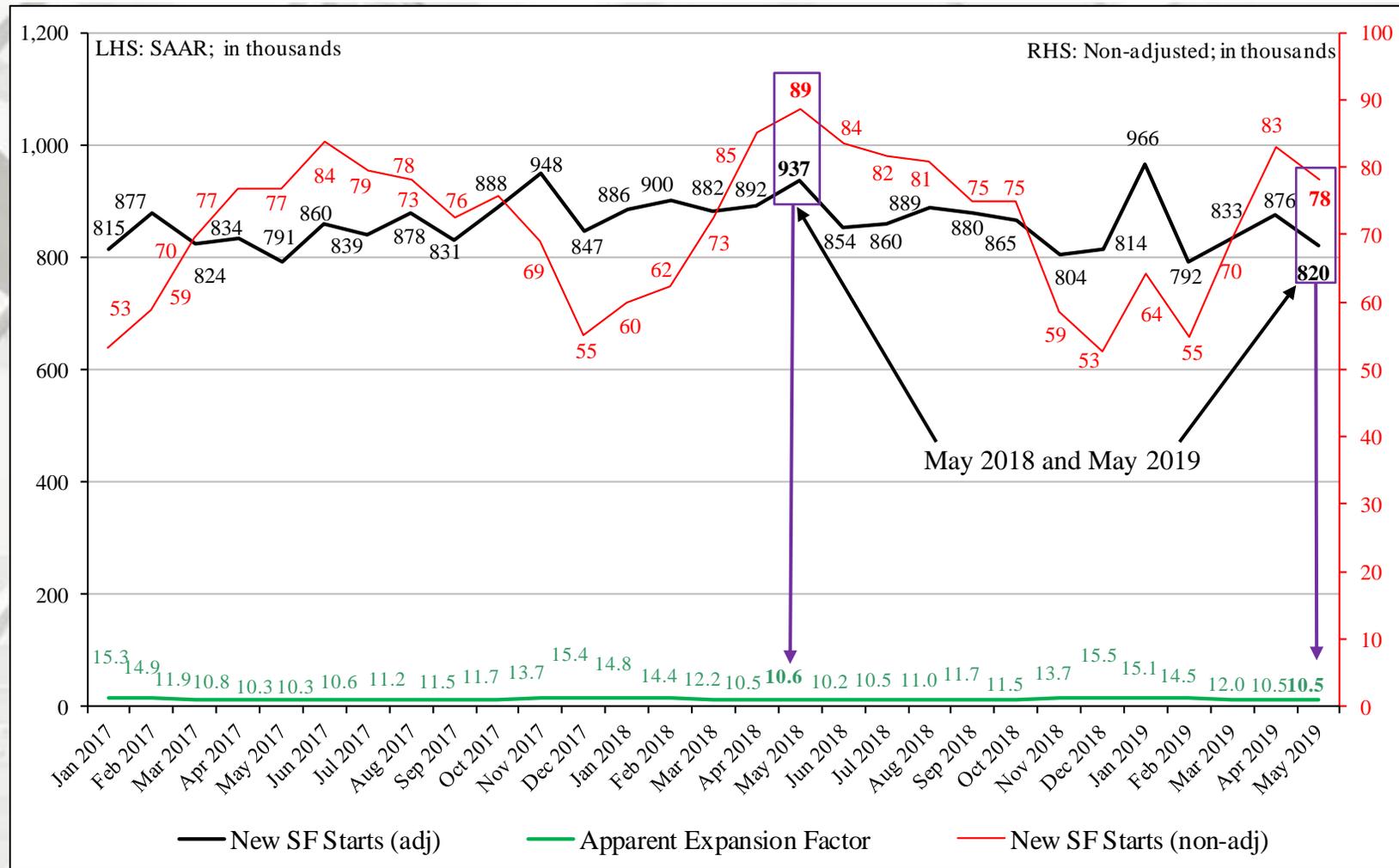


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family starts directly, this is an estimation (Total starts - (SF + ≥ 5 MF starts)).

* Percentage of total starts.

Nominal & SAAR SF Starts

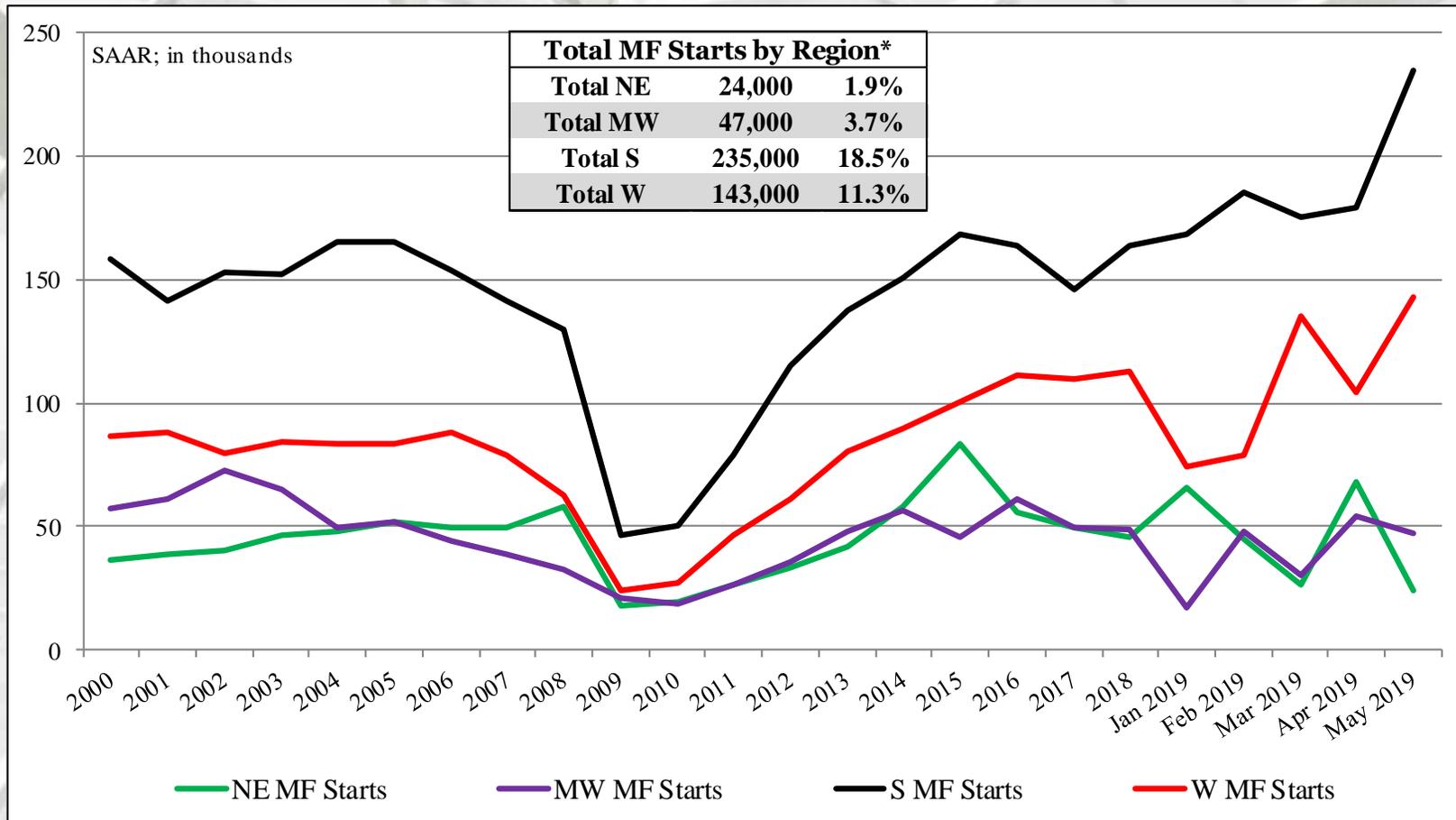


Nominal and Adjusted New SF Monthly Starts

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

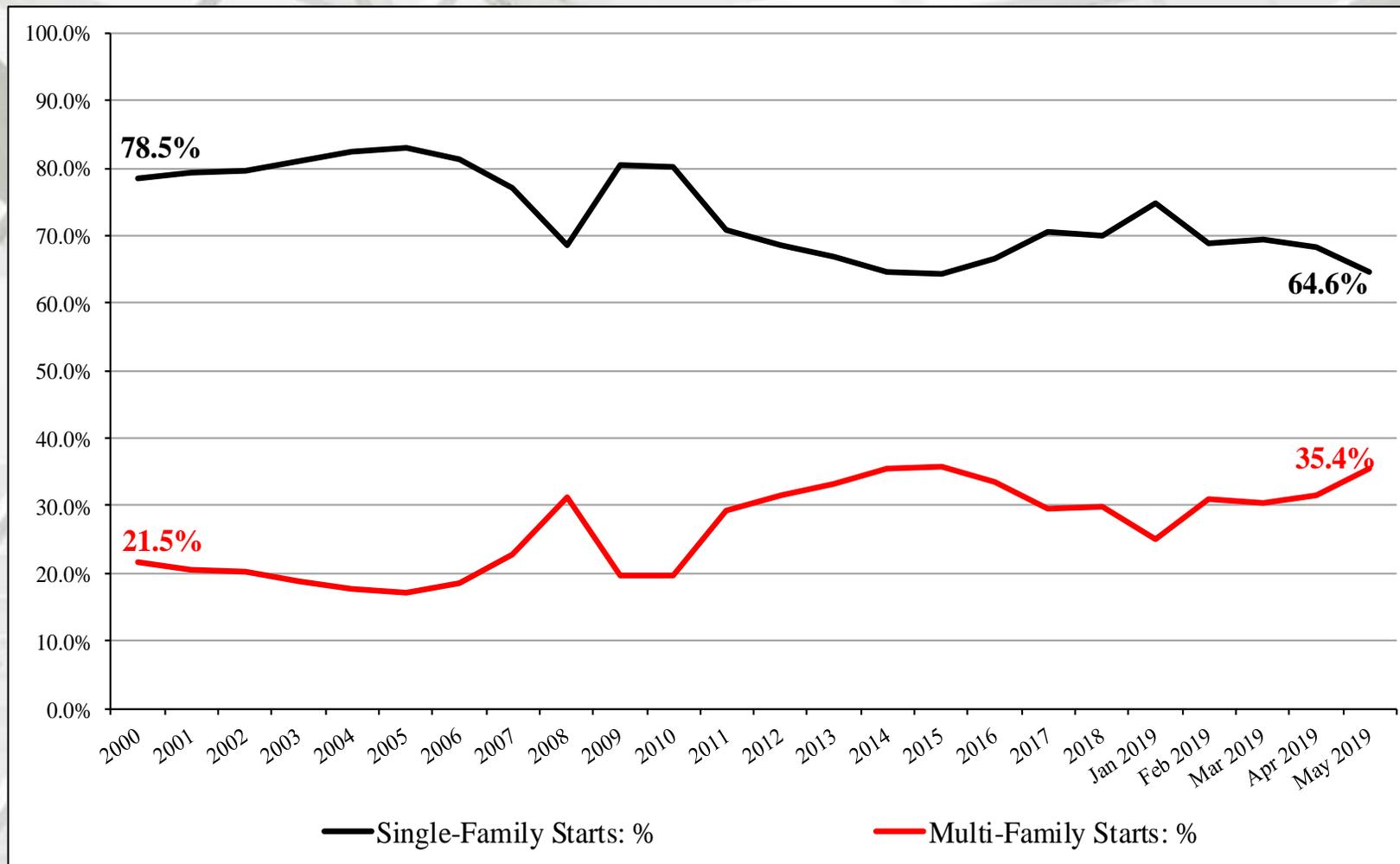


NE = Northeast, MW = Midwest, S = South, W = West

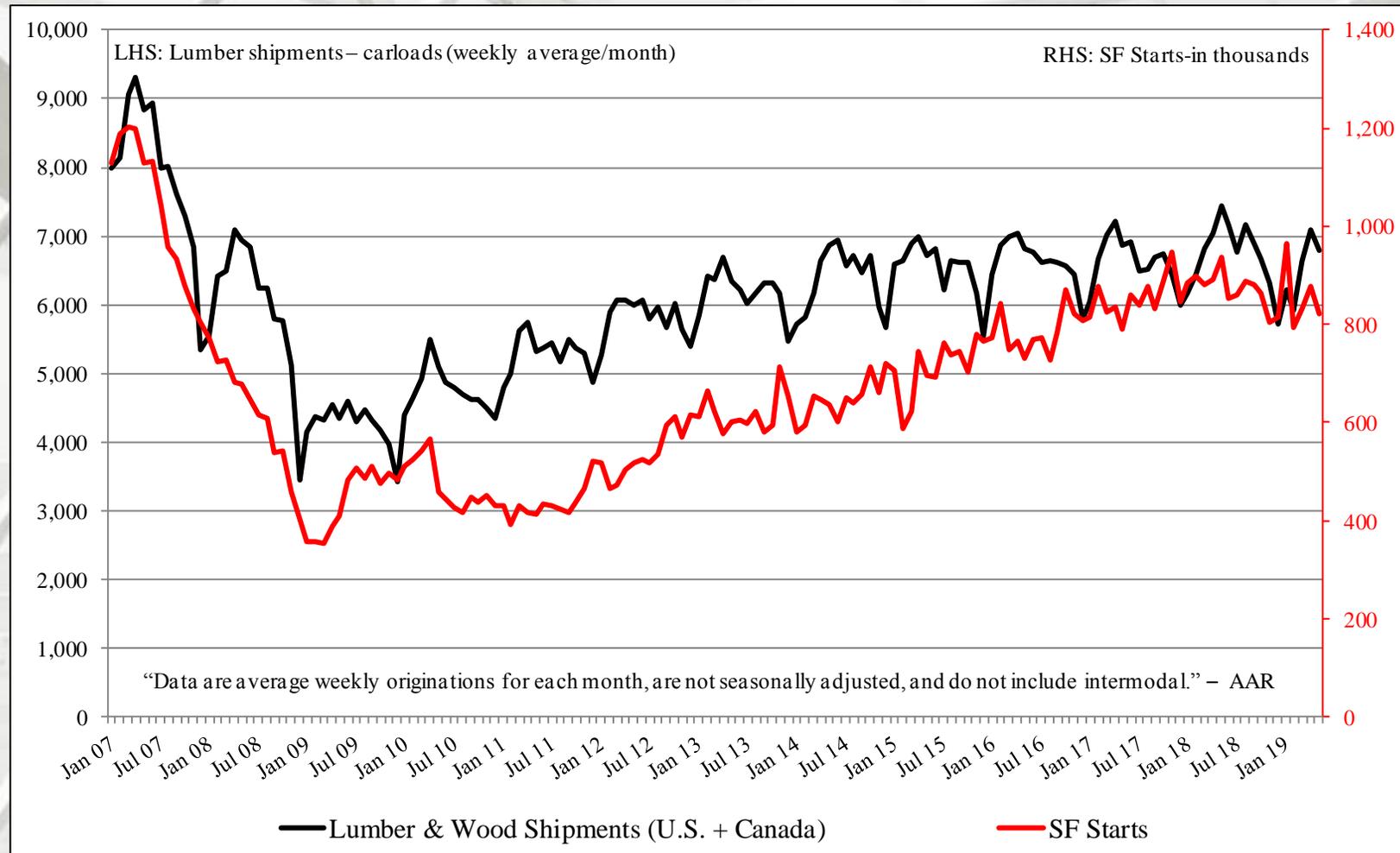
US DOC does not report 2 to 4 multi-family starts directly, this is an estimation (Total starts - (SF + ≥ 5 MF starts)).

* Percentage of total starts.

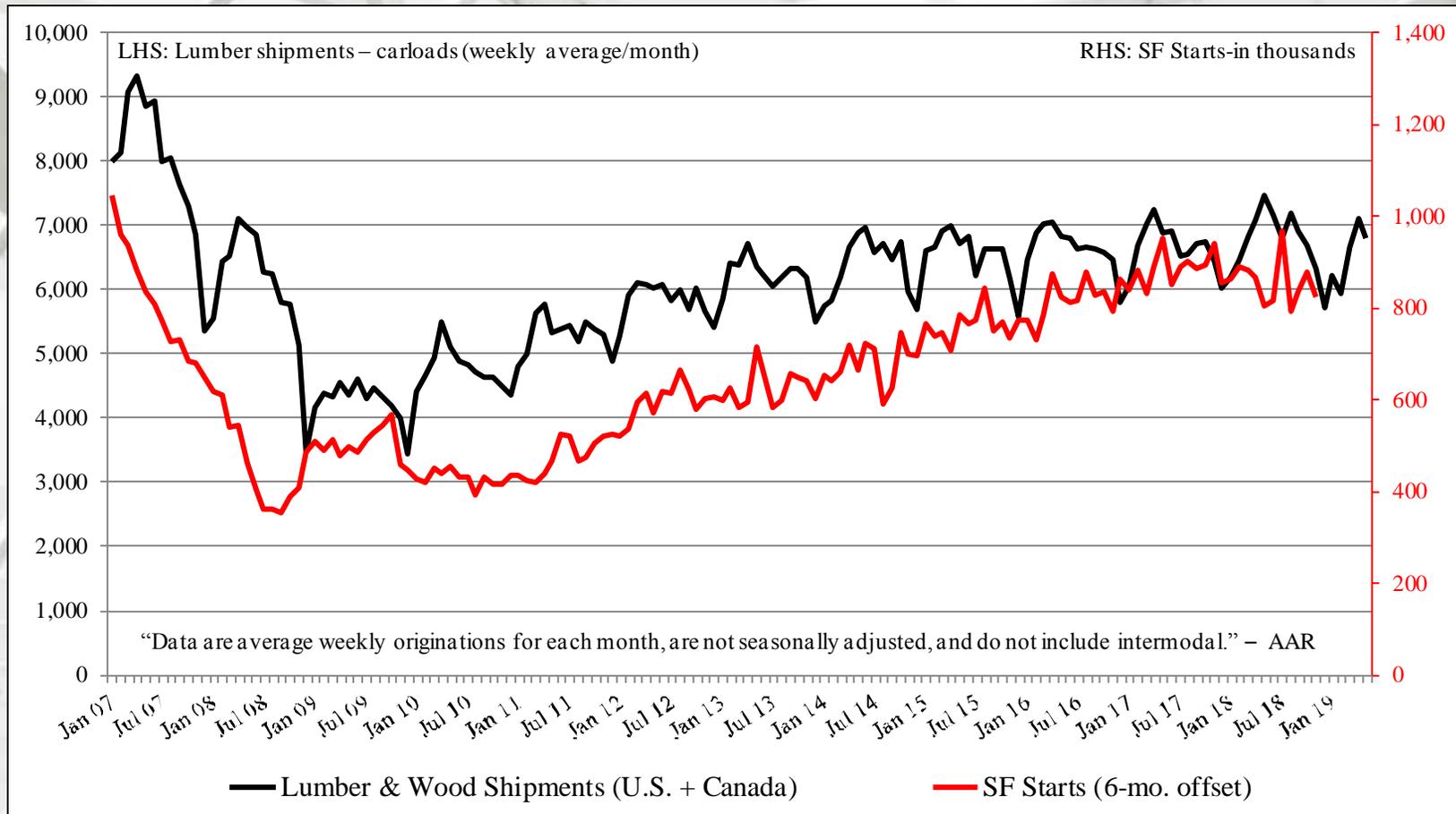
SF vs. MF Housing Starts (%)



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



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



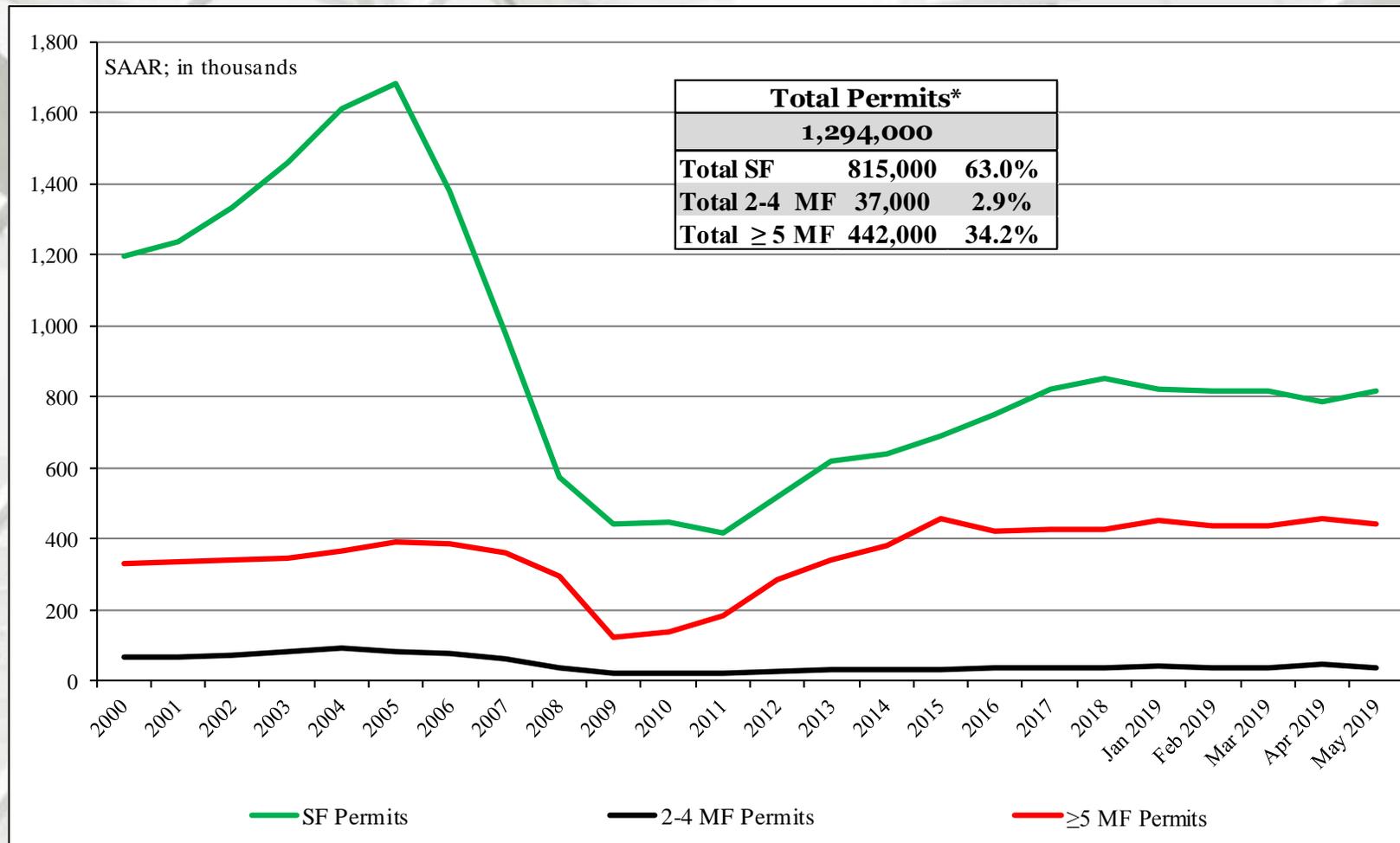
In this graph, May 2007 lumber shipments are contrasted with May 2007 SF starts, and continuing through May 2019 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
May	1,294,000	815,000	37,000	442,000
April	1,290,000	786,000	45,000	459,000
2018	1,301,000	843,000	34,000	424,000
M/M change	0.3	3.7	-17.8	-3.7
Y/Y change	-0.5	-3.3	8.8	4.2

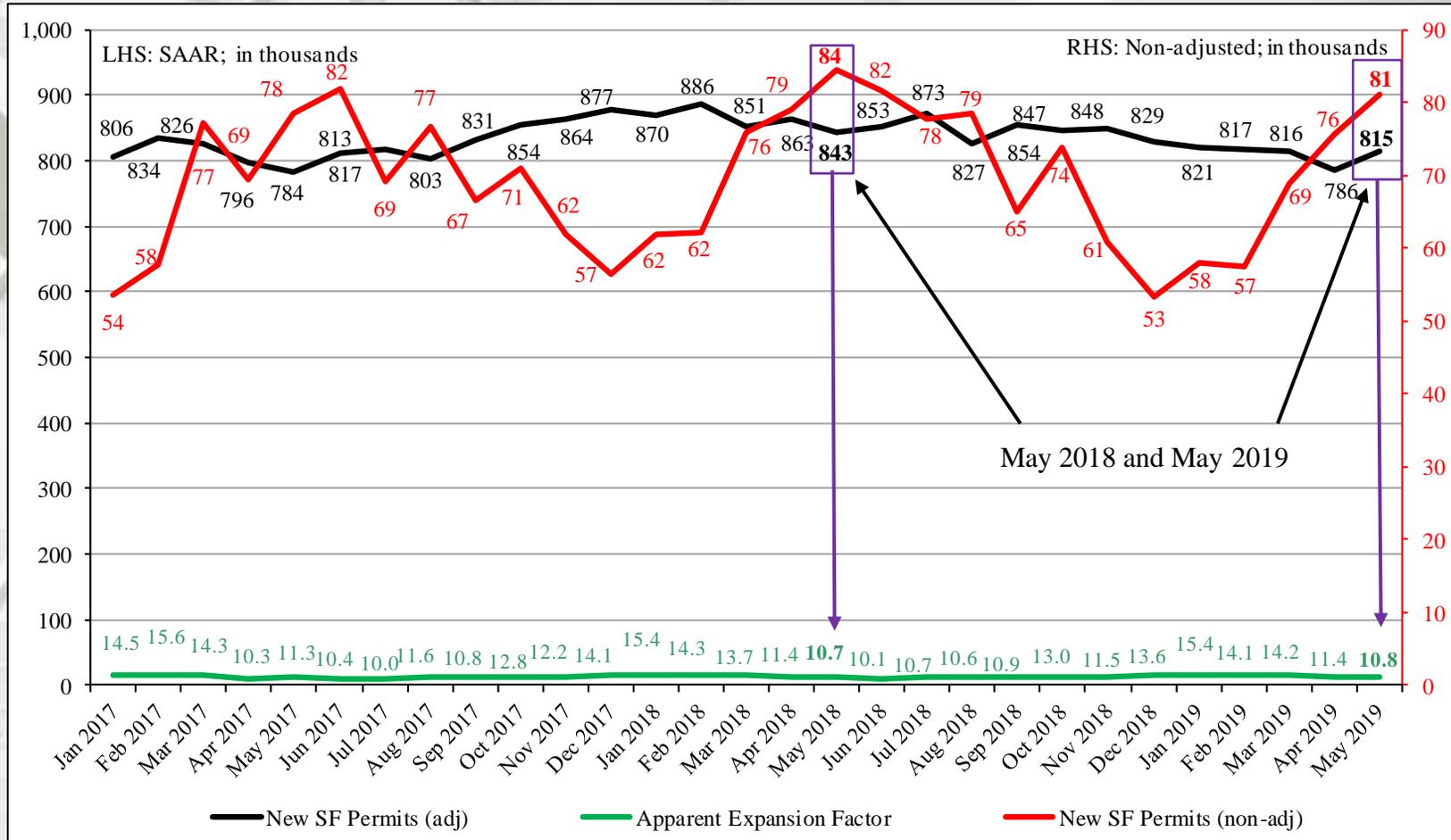
* All permit data are presented at a seasonally adjusted annual rate (SAAR).

Total New Housing Permits



* 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**
May	92,000	48,000	44,000
April	122,000	49,000	73,000
2018	134,000	57,000	77,000
M/M change	-24.6	-2.0	-39.7
Y/Y change	-31.3	-15.8	-42.9
	MW Total*	MW SF	MW MF**
May	174,000	113,000	61,000
April	190,000	114,000	76,000
2018	209,000	122,000	87,000
M/M change	-8.4	-0.9	-19.7
Y/Y change	-16.7	-7.4	-29.9

NE = Northeast; ME = Midwest

* All data are SAAR

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

New Housing Permits by Region

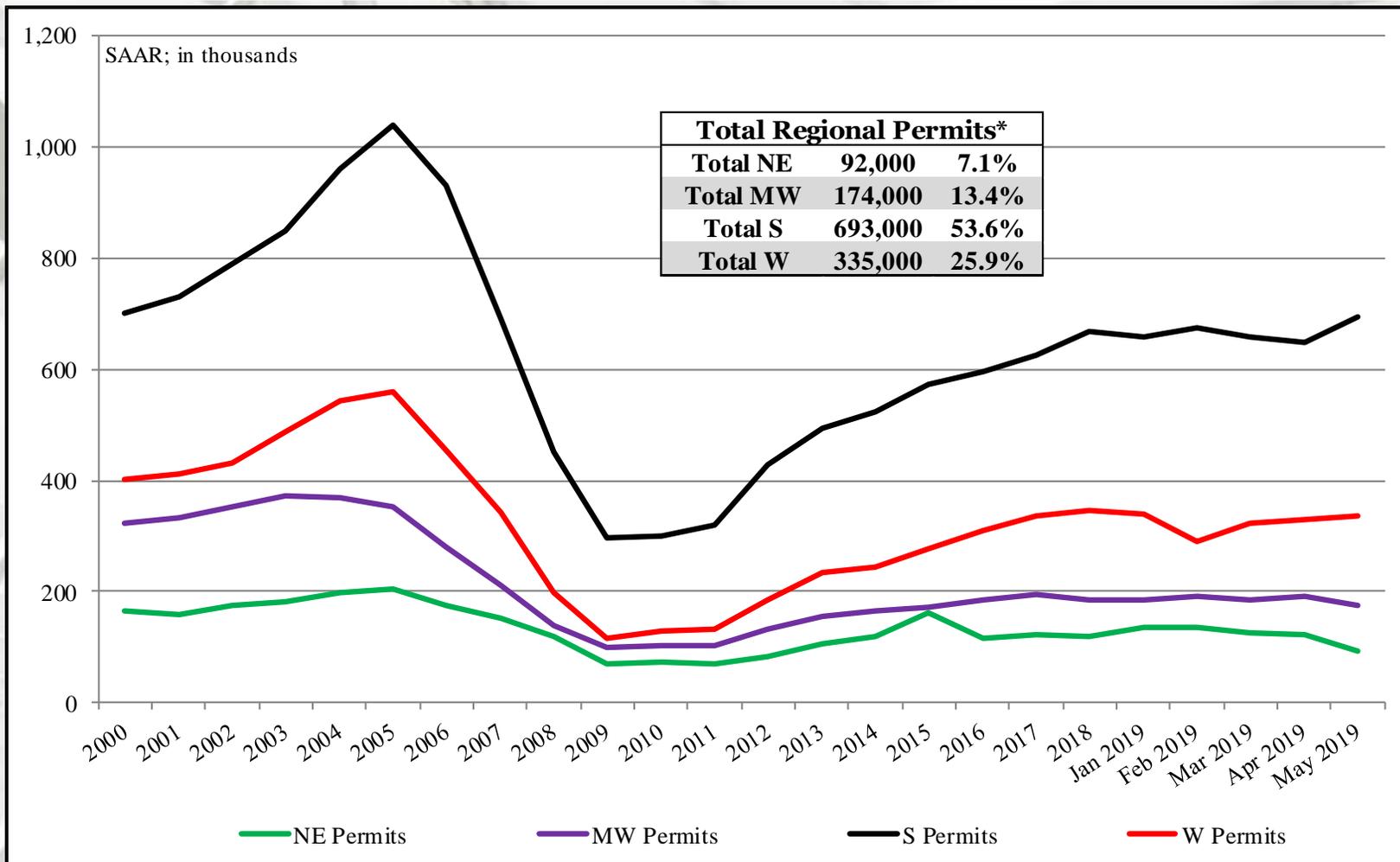
	S Total*	S SF	S MF**
May	693,000	463,000	230,000
April	649,000	430,000	219,000
2018	625,000	458,000	167,000
M/M change	6.8	7.7	5.0
Y/Y change	10.9	1.1	37.7
	W Total*	W SF	W MF**
May	335,000	191,000	144,000
April	329,000	193,000	136,000
2018	333,000	206,000	127,000
M/M change	1.8	-1.0	5.9
Y/Y change	0.6	-7.3	13.4

S = South; W = West

* All data are SAAR

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

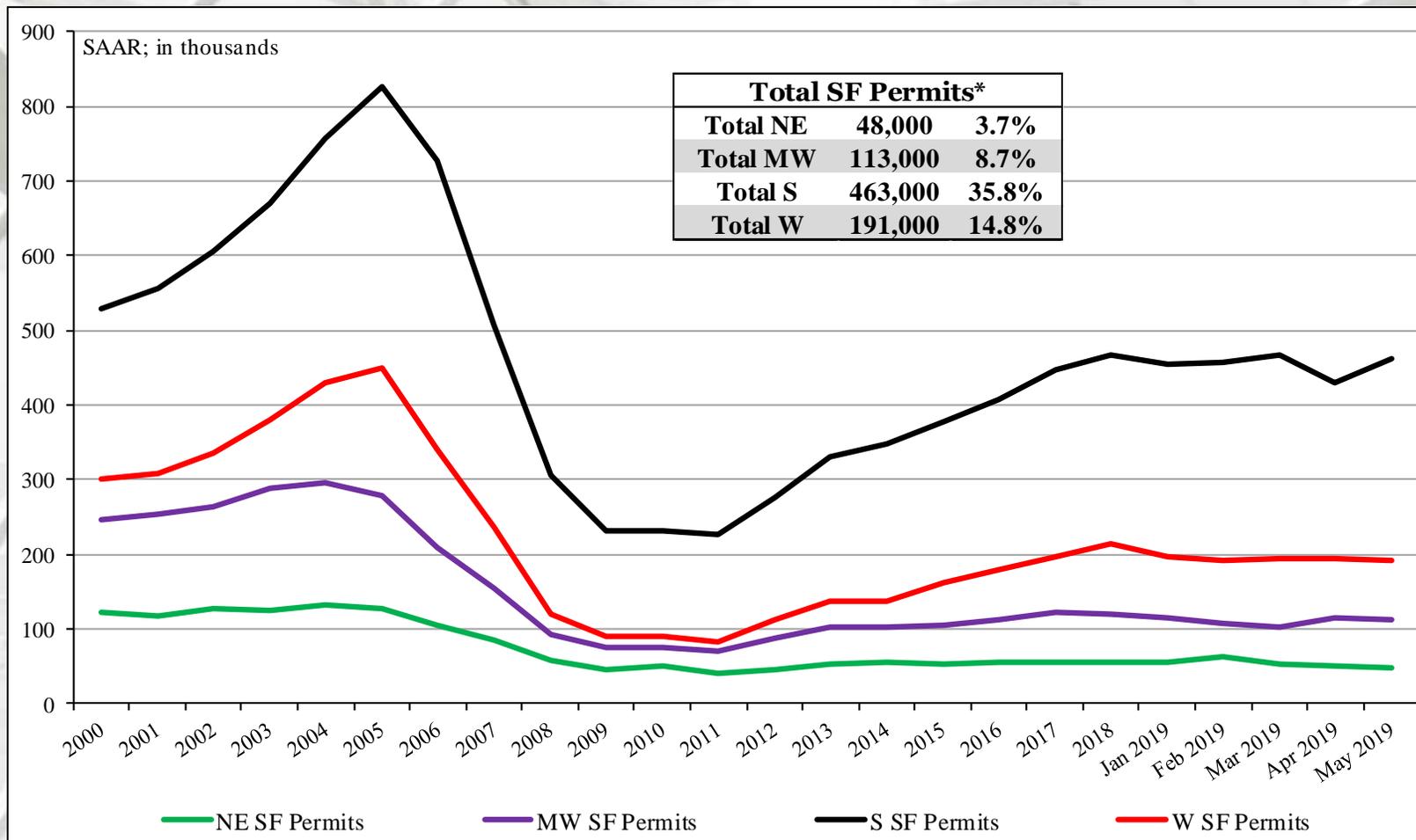
Total Housing Permits by Region



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

* Percentage of total permits.

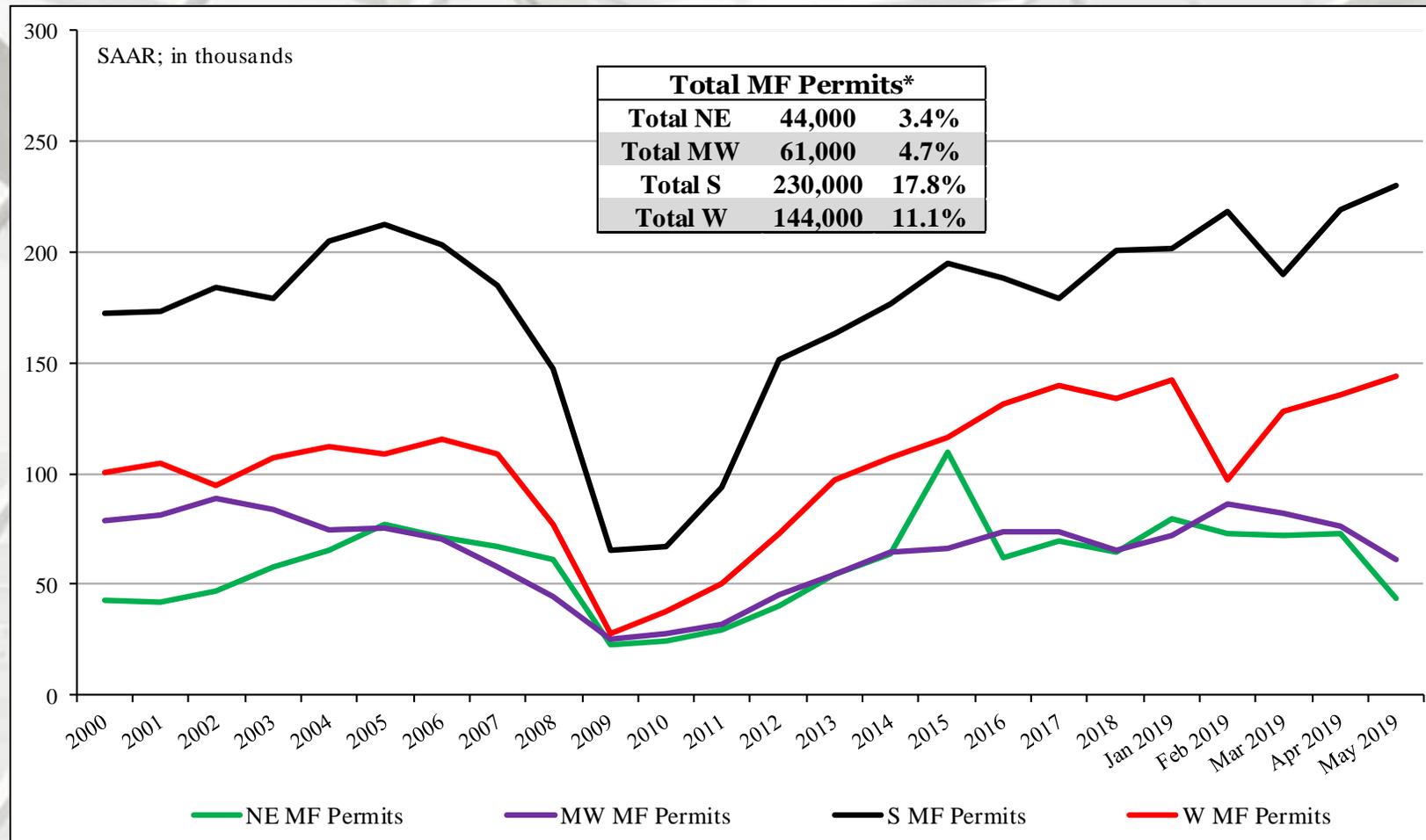
SF Housing Permits by Region



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

* Percentage of total permits.

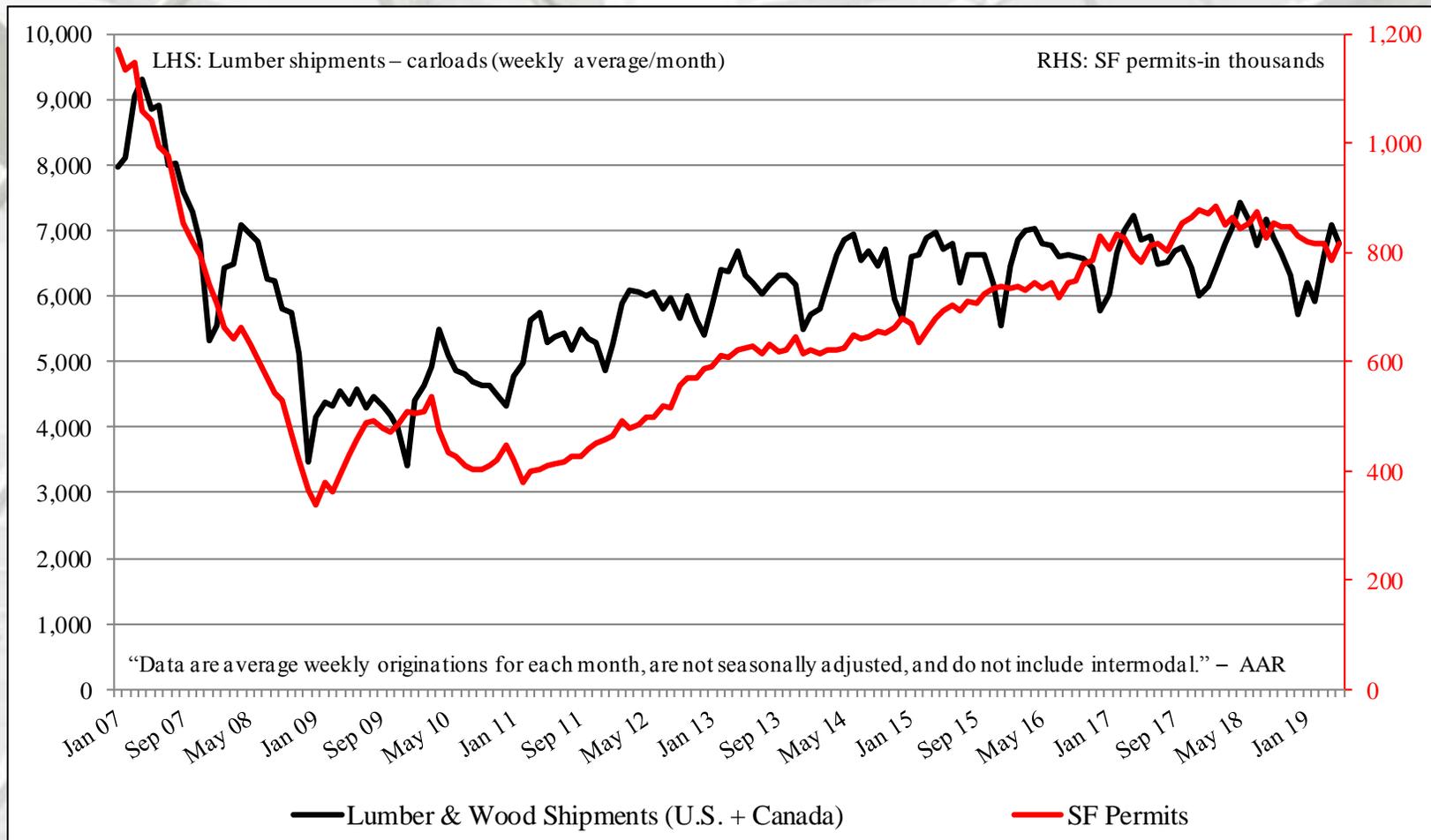
MF Housing Permits by Region



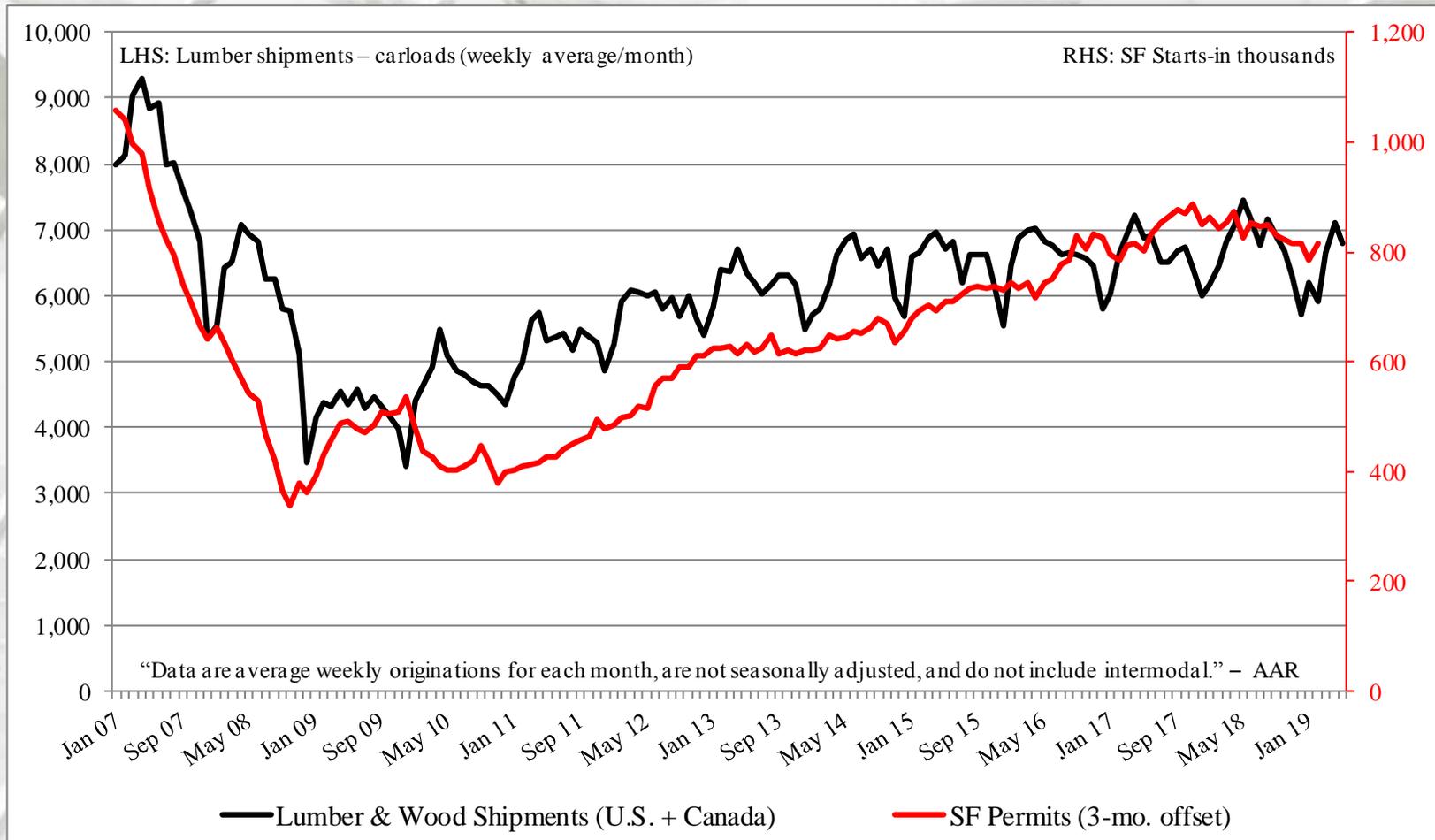
NE = Northeast, MW = Midwest, S = South, W = West

* 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, May 2007 lumber shipments are contrasted with May 2007 SF permits, continuing through May 2019. 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.

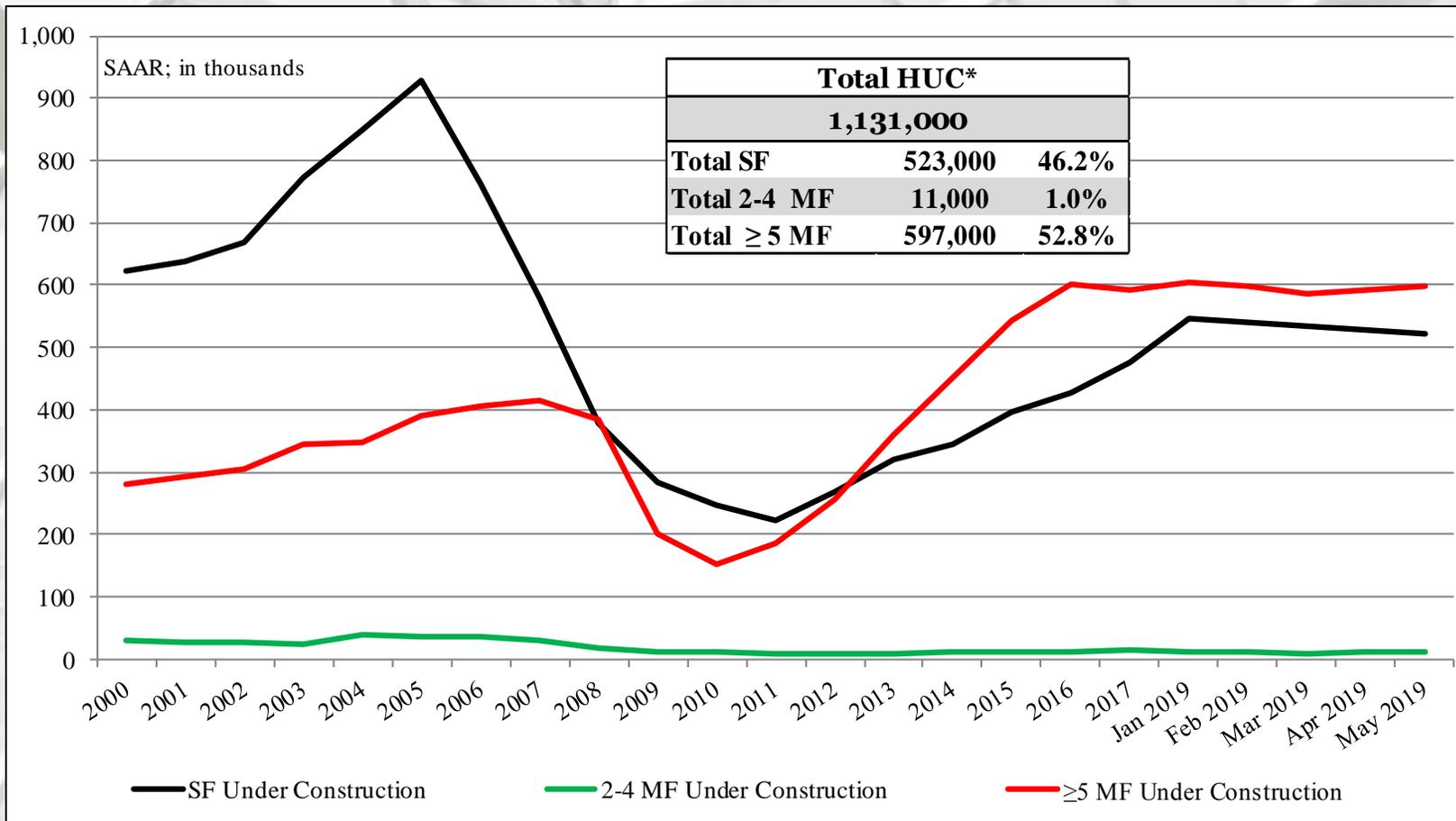
New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	MF 2-4 unit** Under Construction	MF ≥ 5 unit Under Construction
May	1,131,000	523,000	11,000	597,000
April	1,131,000	529,000	11,000	591,000
2018	1,128,000	520,000	7,400	600,600
M/M change	0.0	-1.1	0.0	1.0
Y/Y change	0.3	0.6	48.6	-0.6

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



US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF under construction)).

* Percentage of total housing under construction units.

New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
May	184,000	65,000	119,000
April	188,000	67,000	121,000
2018	182,000	54,000	128,000
M/M change	-2.1	-3.0	-1.7
Y/Y change	1.1	20.4	-7.0
	MW Total	MW SF	MW MF
May	141,000	76,000	65,000
April	146,000	77,000	69,000
2018	157,000	83,000	74,000
M/M change	-3.4	-1.3	-5.8
Y/Y change	-10.2	-8.4	-12.2

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).

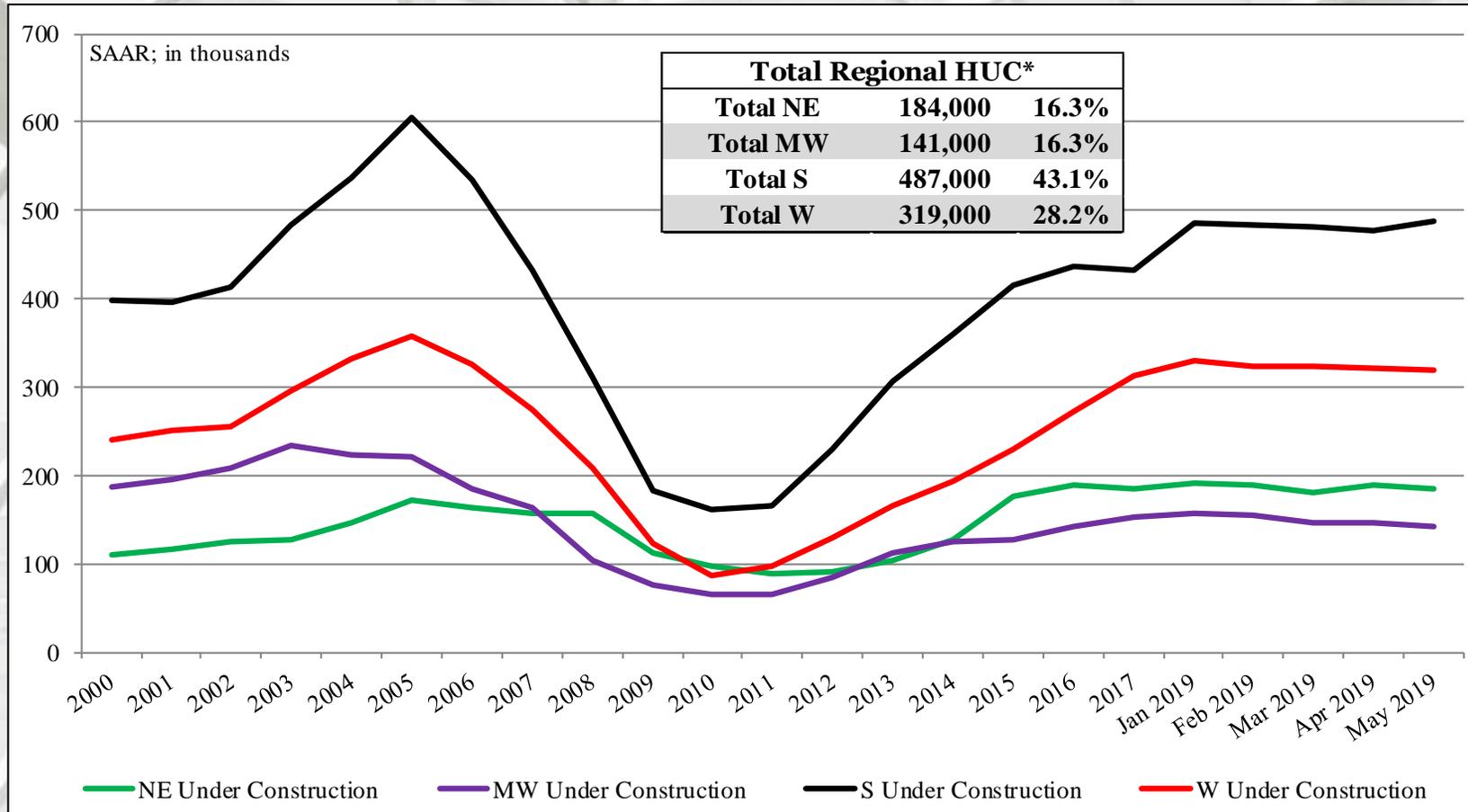
New Housing Under Construction by Region

	S Total	S SF	S MF**
May	487,000	249,000	238,000
April	476,000	249,000	227,000
2018	453,000	242,000	211,000
M/M change	2.3	0.0	4.8
Y/Y change	7.5	2.9	12.8
	W Total	W SF	W MF
May	319,000	133,000	186,000
April	321,000	136,000	185,000
2018	336,000	141,000	195,000
M/M change	-0.6	-2.2	0.5
Y/Y change	-5.1	-5.7	-4.6

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

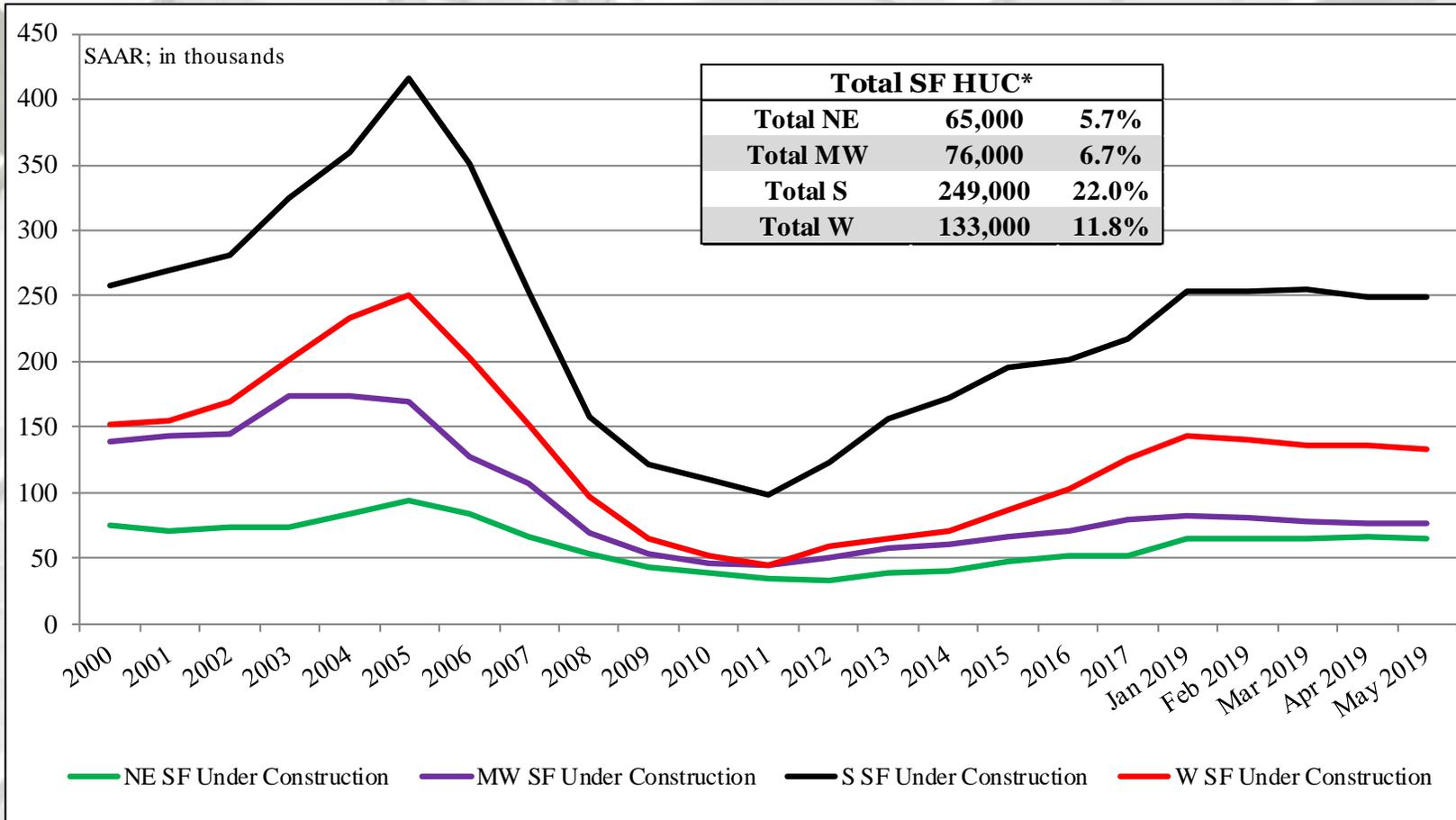


NE = Northeast, MW = Midwest, S = South, W = West

US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF under construction)).

* Percentage of total housing under construction units.

SF Housing Under Construction by Region

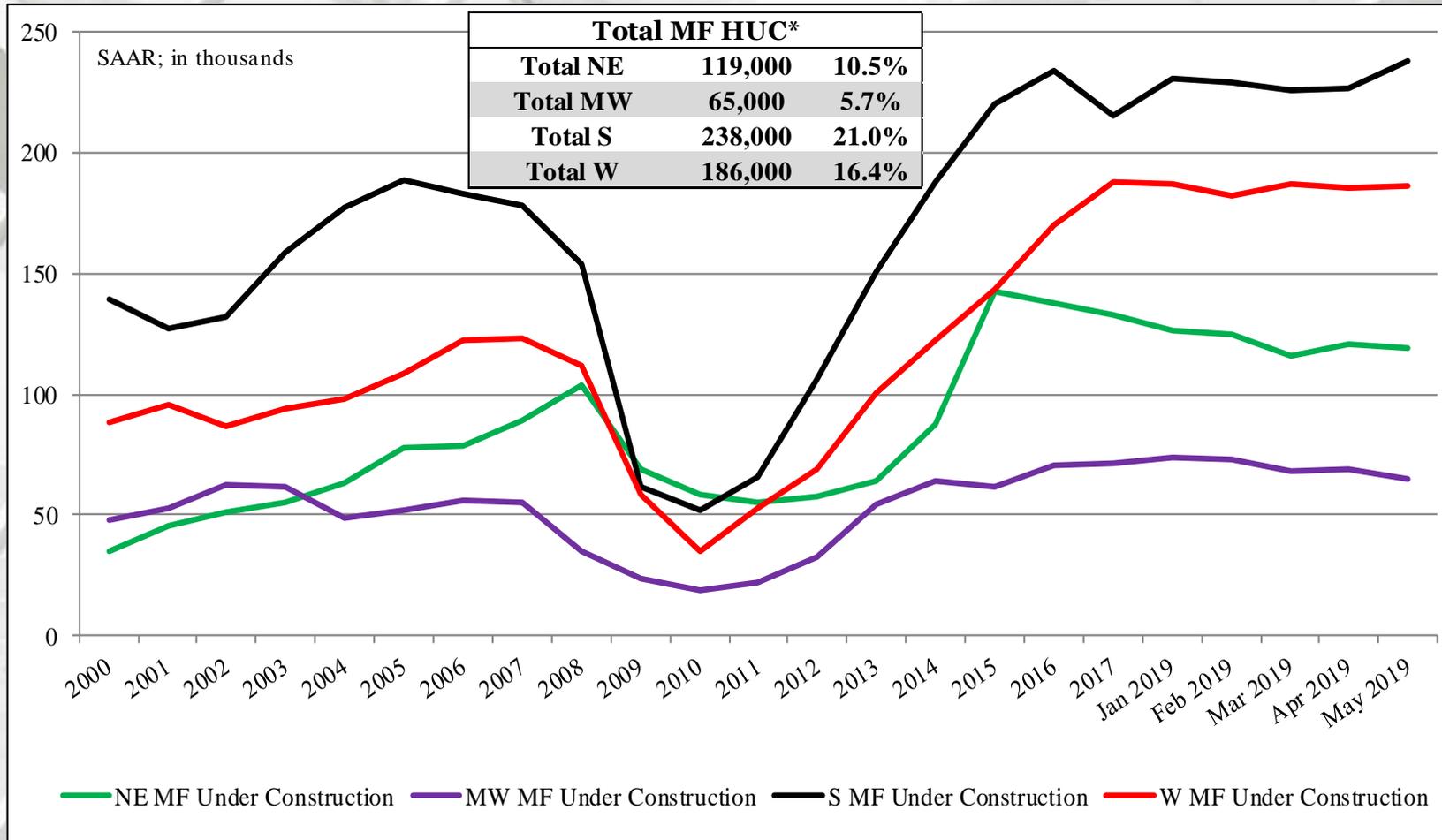


NE = Northeast, MW = Midwest, S = South, W = West.

US DOC does not report 2 to 4 multi-family under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF under construction)).

* 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 under construction directly, this is an estimation (Total under constructions – (SF + ≥ 5 MF under construction)).

* Percentage of total housing under construction units.

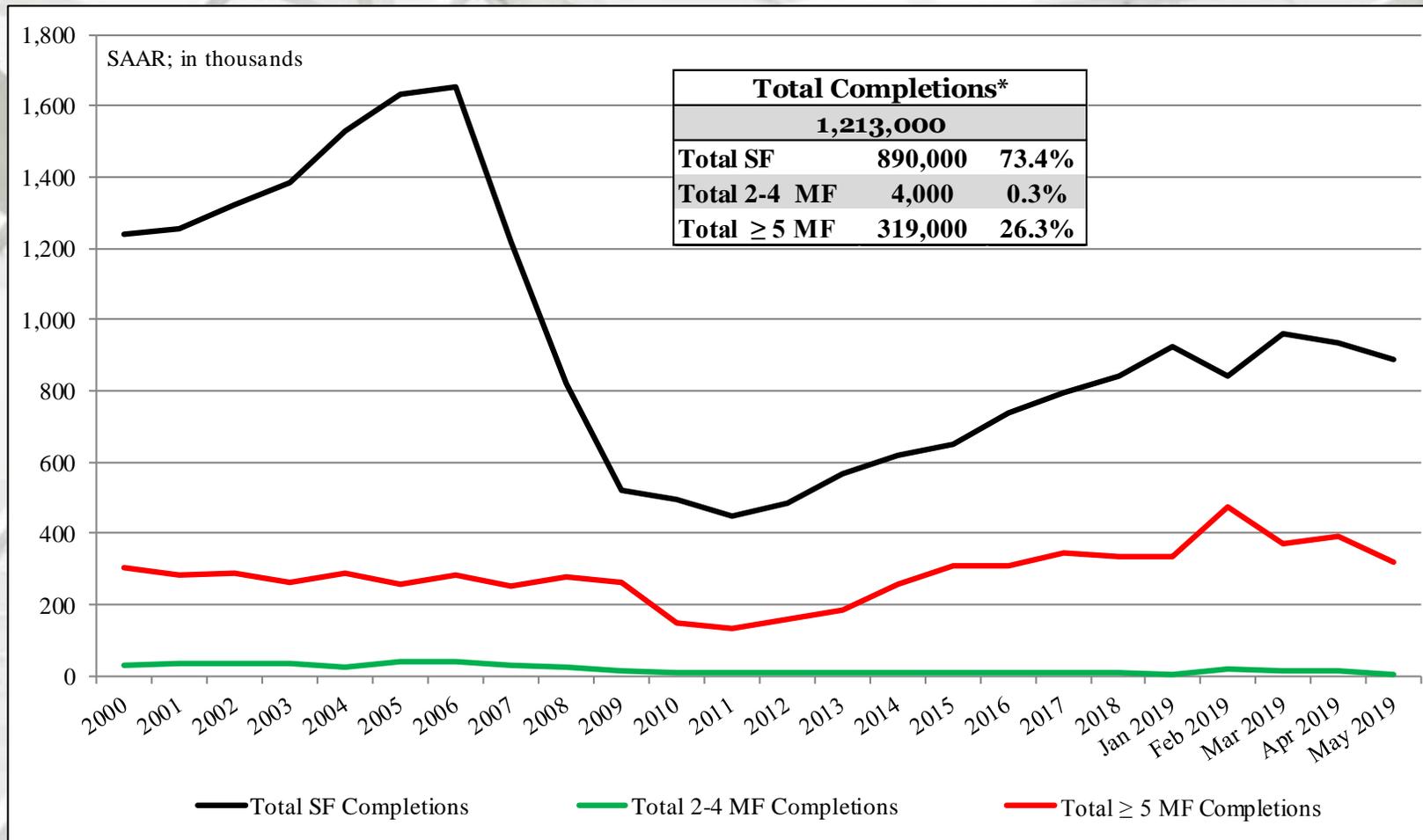
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
May	1,213,000	890,000	4,000	319,000
April	1,340,000	937,000	13,000	390,000
2018	1,248,000	876,000	12,000	360,000
M/M change	-9.5%	-5.0%	-69.2%	-18.2%
Y/Y change	-2.8%	1.6%	-66.7%	-11.4%

* 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 multifamily completions directly, this is an estimation ((Total completions – (SF + ≥ 5 unit MF)).

* Percentage of total housing completions

New Housing Completions by Region

	NE Total	NE SF	NE MF**
May	98,000	73,000	25,000
April	124,000	51,000	73,000
2018	92,000	51,000	41,000
M/M change	-21.0%	43.1%	-65.8%
Y/Y change	6.5%	43.1%	-39.0%
	MW Total	MW SF	MW MF
May	189,000	108,000	81,000
April	189,000	136,000	53,000
2018	170,000	141,000	29,000
M/M change	0.0%	-20.6%	52.8%
Y/Y change	11.2%	-23.4%	179.3%

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

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

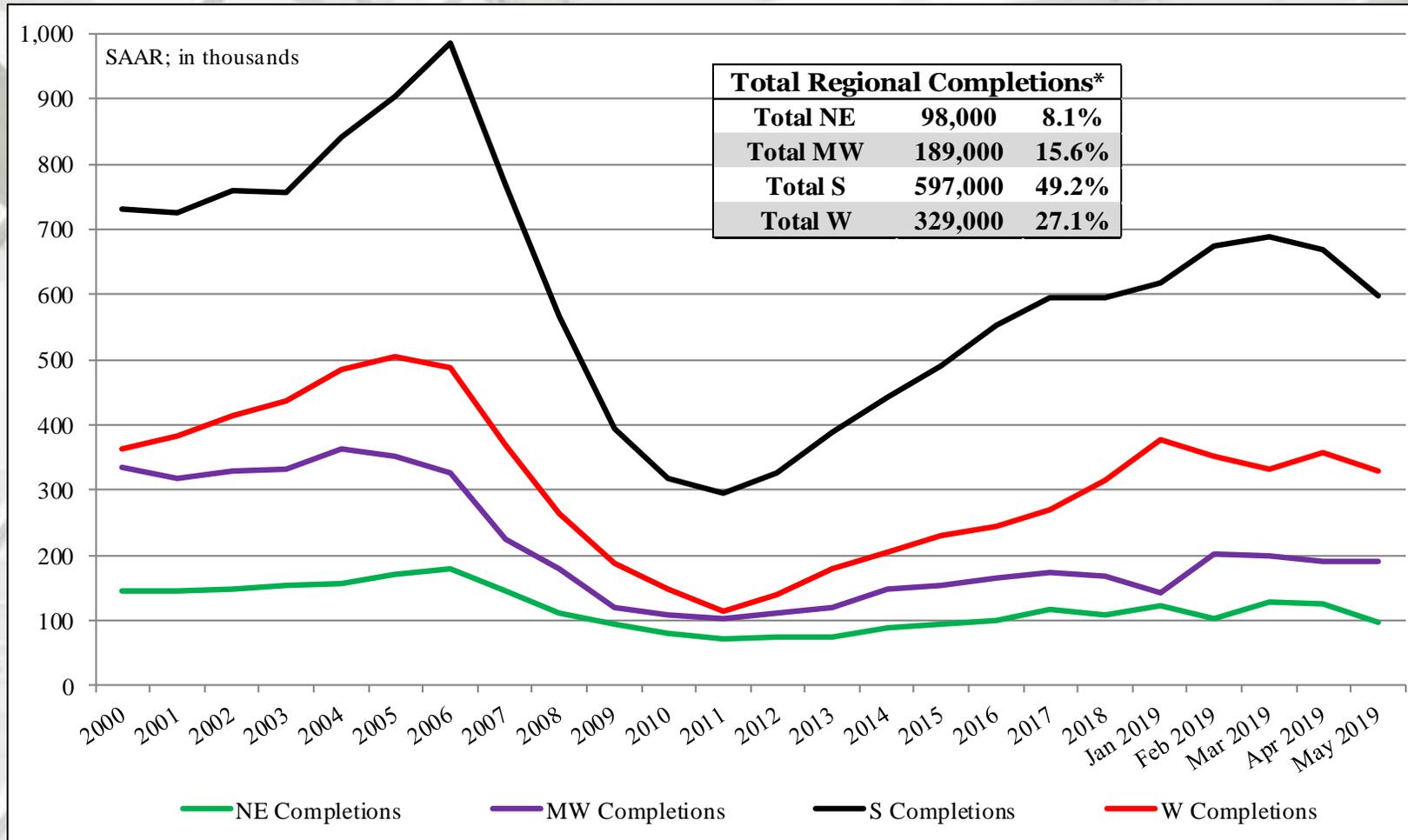
New Housing Completions by Region

	S Total	S SF	S MF**
May	597,000	488,000	109,000
April	669,000	523,000	146,000
2018	668,000	470,000	198,000
M/M change	-10.8%	-6.7%	-25.3%
Y/Y change	-10.6%	3.8%	-44.9%
	W Total	W SF	W MF
May	329,000	221,000	108,000
April	358,000	227,000	131,000
2018	318,000	214,000	104,000
M/M change	-8.1%	-2.6%	-17.6%
Y/Y change	3.5%	3.3%	3.8%

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

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

Total Housing Completions by Region

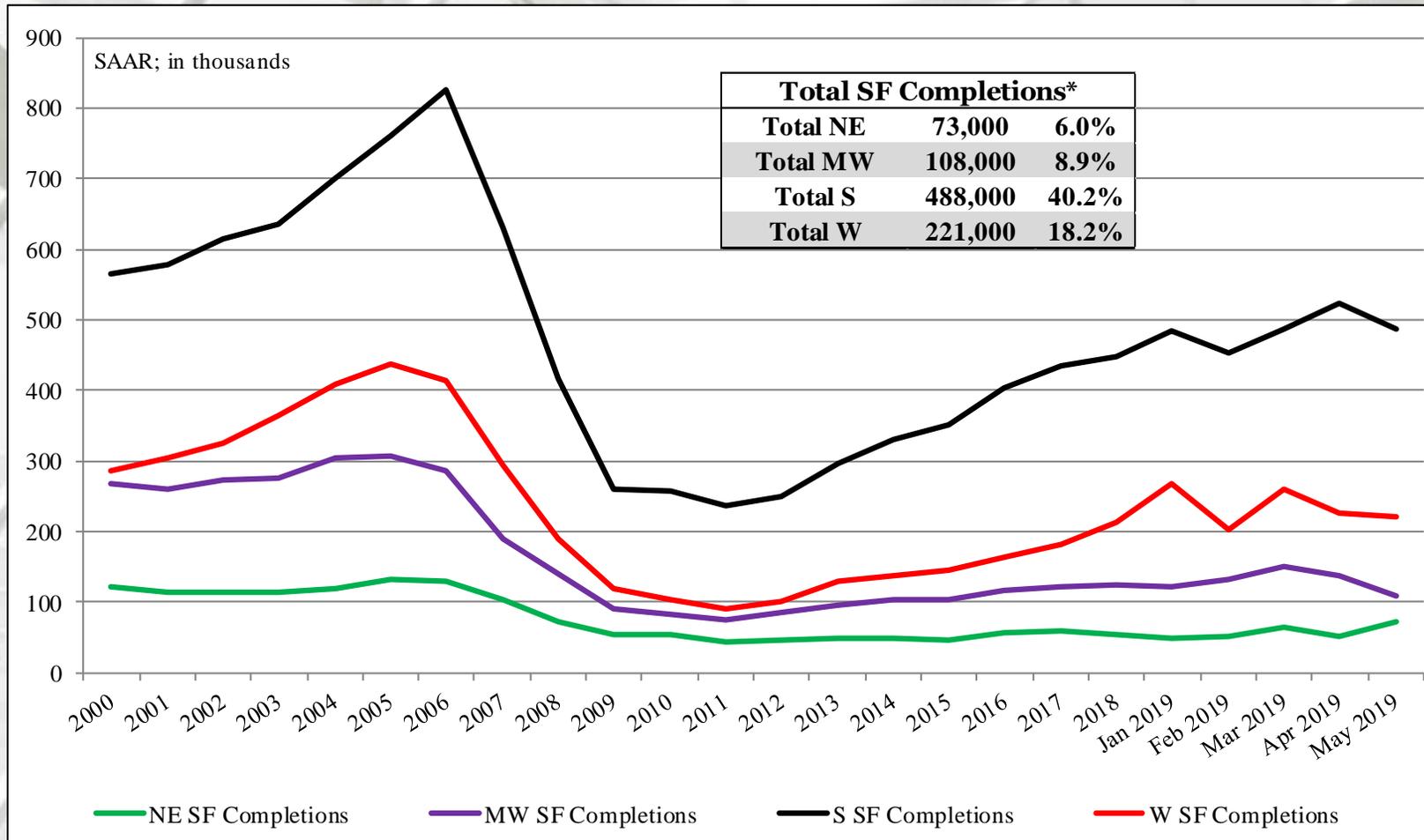


NE = Northeast, MW = Midwest, S = South, W = West

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

SF Housing Completions by Region

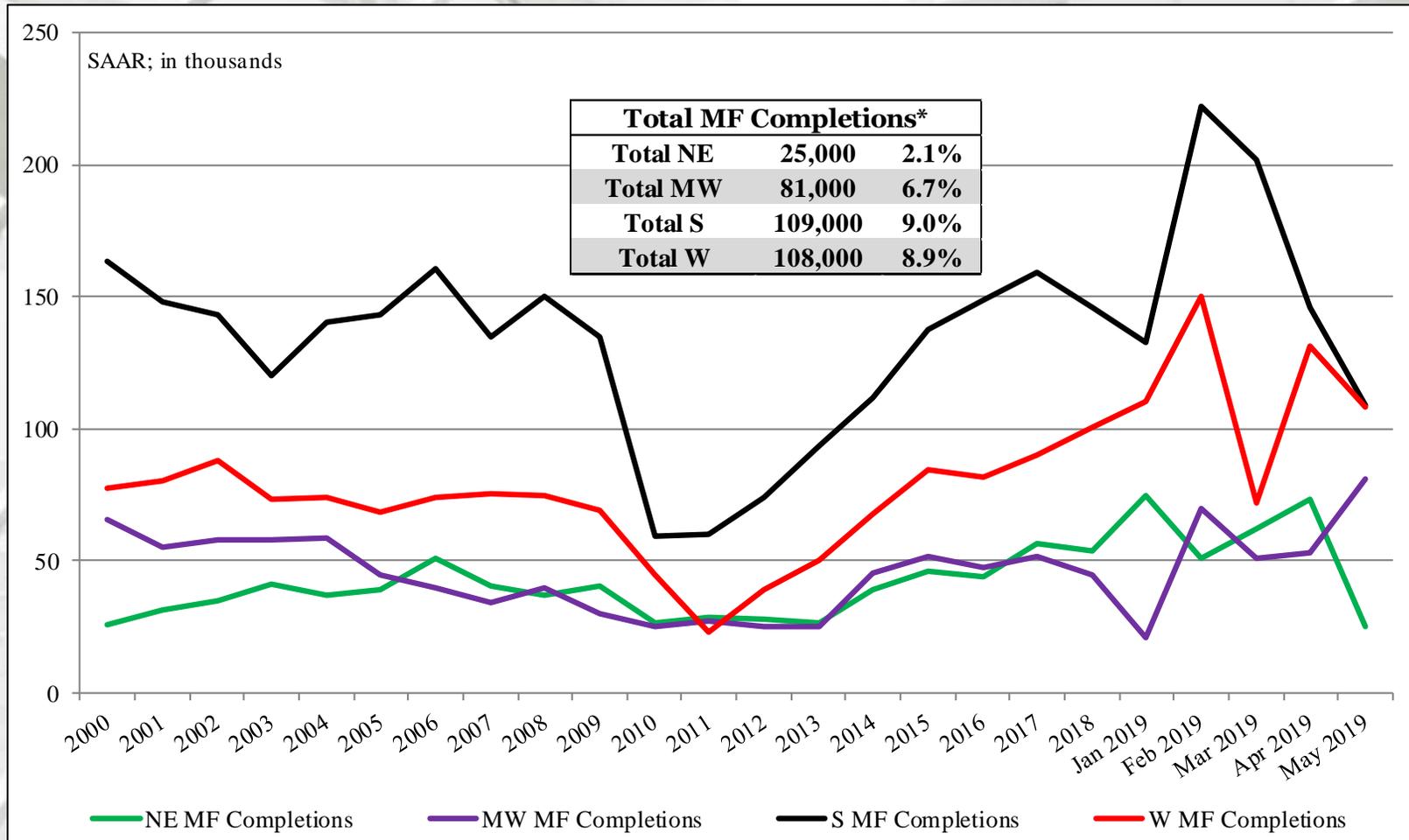


NE = Northeast, MW = Midwest, S = South, W = West

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

MF 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 Single-Family House Sales

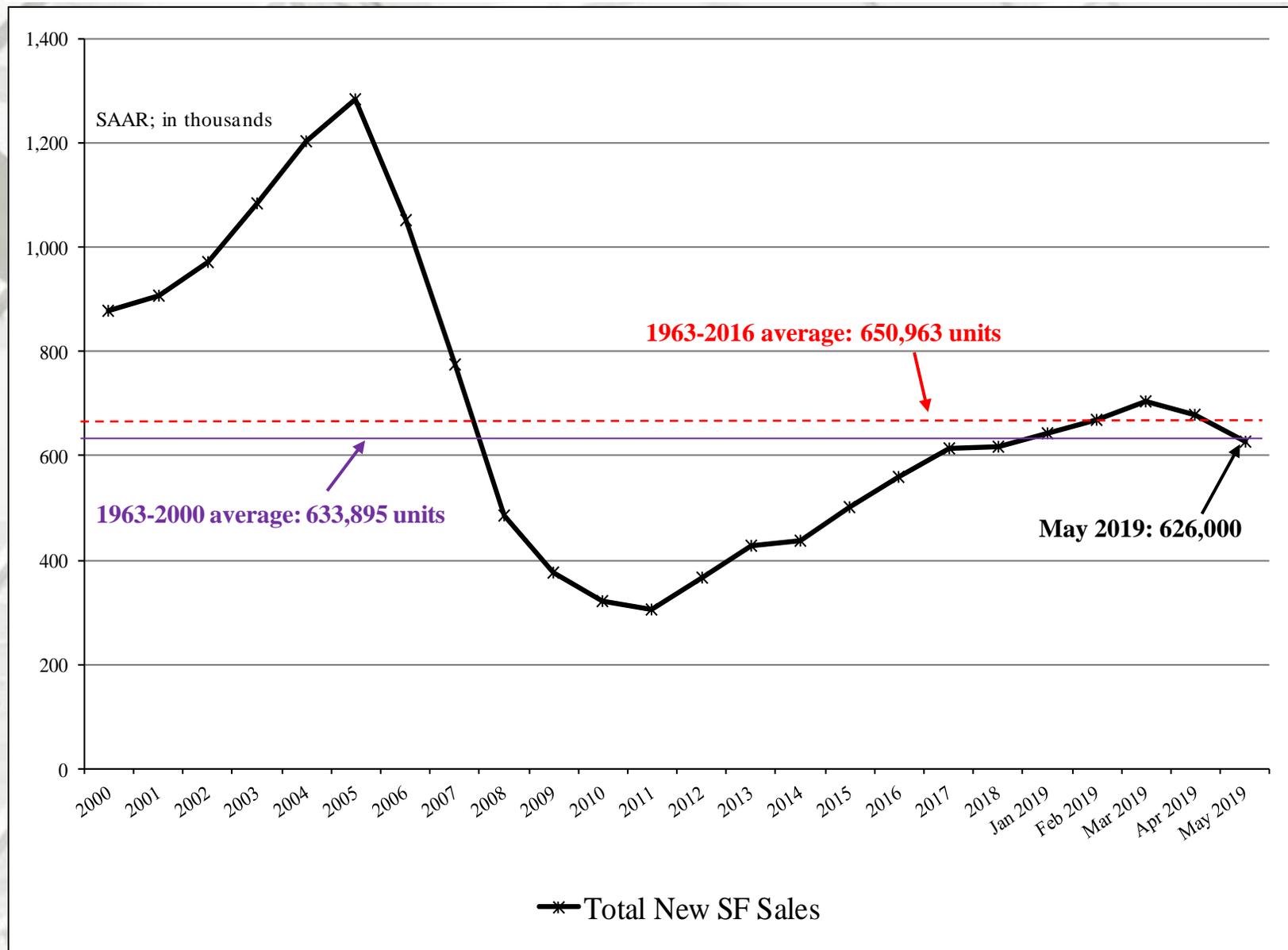
	New SF Sales*	Median Price	Mean Price	Month's Supply
May	626,000	\$308,000	\$377,200	6.4
April	679,000	\$335,100	\$386,500	5.9
2018	650,000	\$316,700	\$372,600	5.6
M/M change	-7.8%	-8.1%	-2.4%	8.5%
Y/Y change	-3.7%	-2.7%	1.2%	14.3%

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

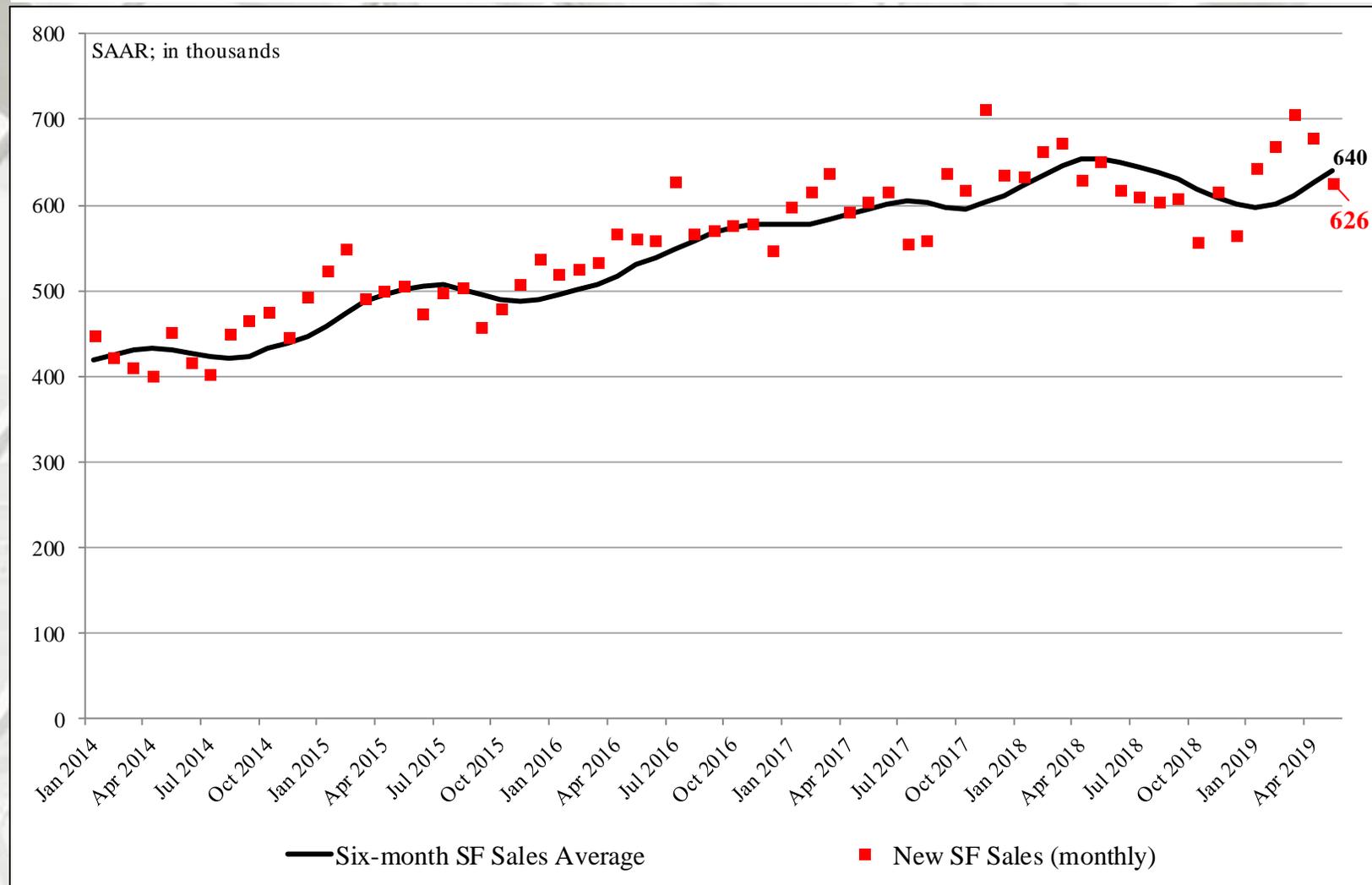
New SF sales were much less than the consensus forecast³ of 680 m (range: 649 m to 710 m). The past three month's new SF sales data also were revised:

February initial:	667 m revised to 669 m;
March initial:	667 m revised to 692 m;
April initial:	673 m revised to 679 m.

New SF House Sales



New SF Housing Sales: Six-month average & monthly



New SF House Sales by Region and Price Category

	NE	MW	S	W			
May	28,000	84,000	389,000	125,000			
April	34,000	79,000	371,000	195,000			
2018	33,000	82,000	384,000	151,000			
M/M change	-17.6%	6.3%	4.9%	-35.9%			
Y/Y change	-15.2%	2.4%	1.3%	-17.2%			
	\$150 - ≤ \$150m	\$200 - \$199.9m	\$300 - 299.9m	\$400 - \$399.9m	\$500 - \$499.9m	\$750 - \$749.9m	≥ \$750m
May ^{1,2,3,4}	2,000	5,000	22,000	14,000	8,000	6,000	4,000
April	2,000	5,000	19,000	18,000	11,000	9,000	3,000
2018	2,000	8,000	18,000	15,000	7,000	7,000	4,000
M/M change	0.0%	0.0%	15.8%	-22.2%	-27.3%	-33.3%	33.3%
Y/Y change	0.0%	-37.5%	22.2%	-6.7%	14.3%	-14.3%	0.0%
New SF sales: %	3.3%	8.3%	36.7%	23.3%	13.3%	10.0%	6.7%

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

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;

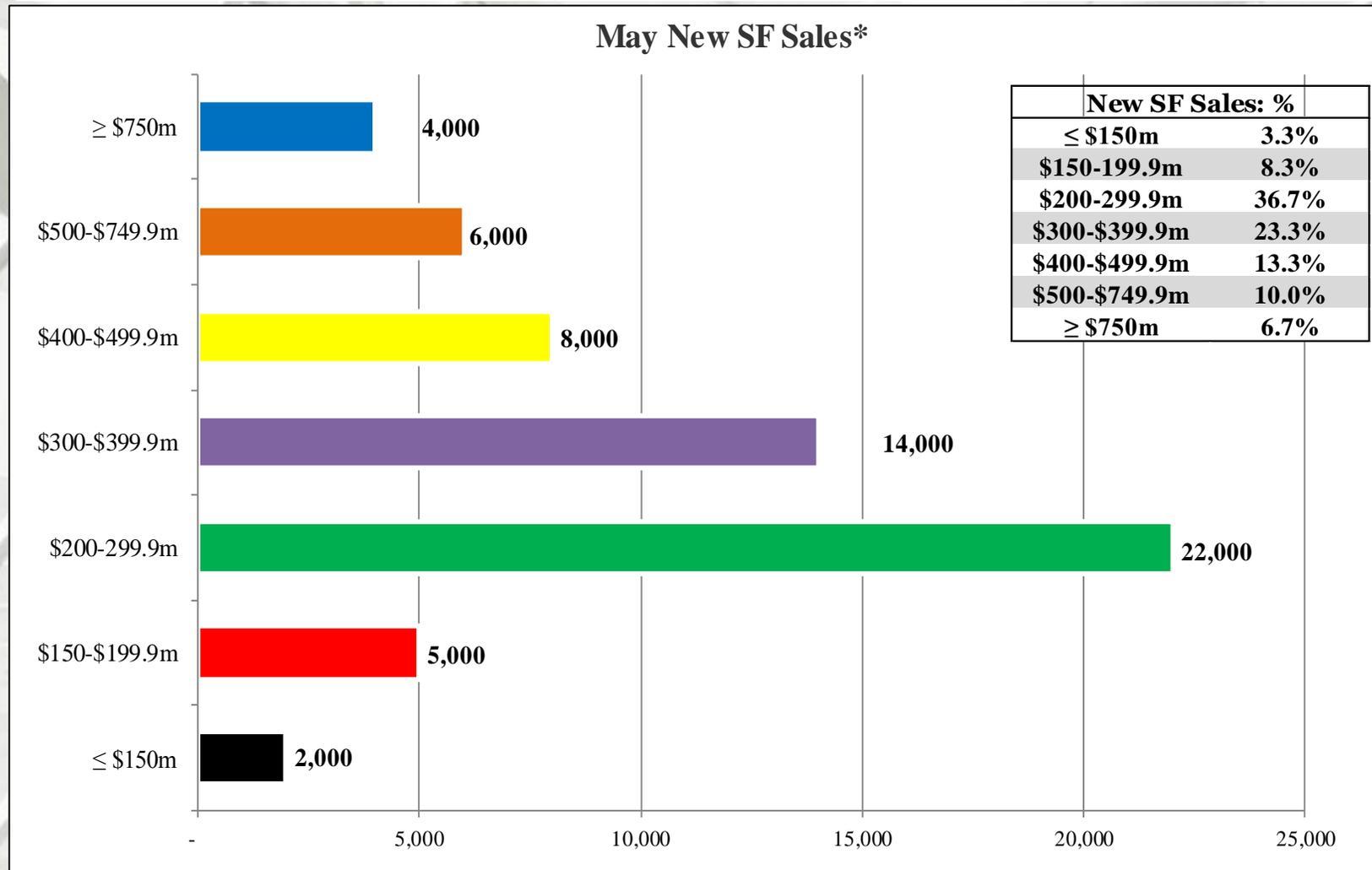
³ Detail may not add to total because of rounding.

⁴ Housing prices are adjusted at irregular intervals.

Sources: ^{1,2,3} <https://www.census.gov/construction/nrs/index.html>; 6/25/19;

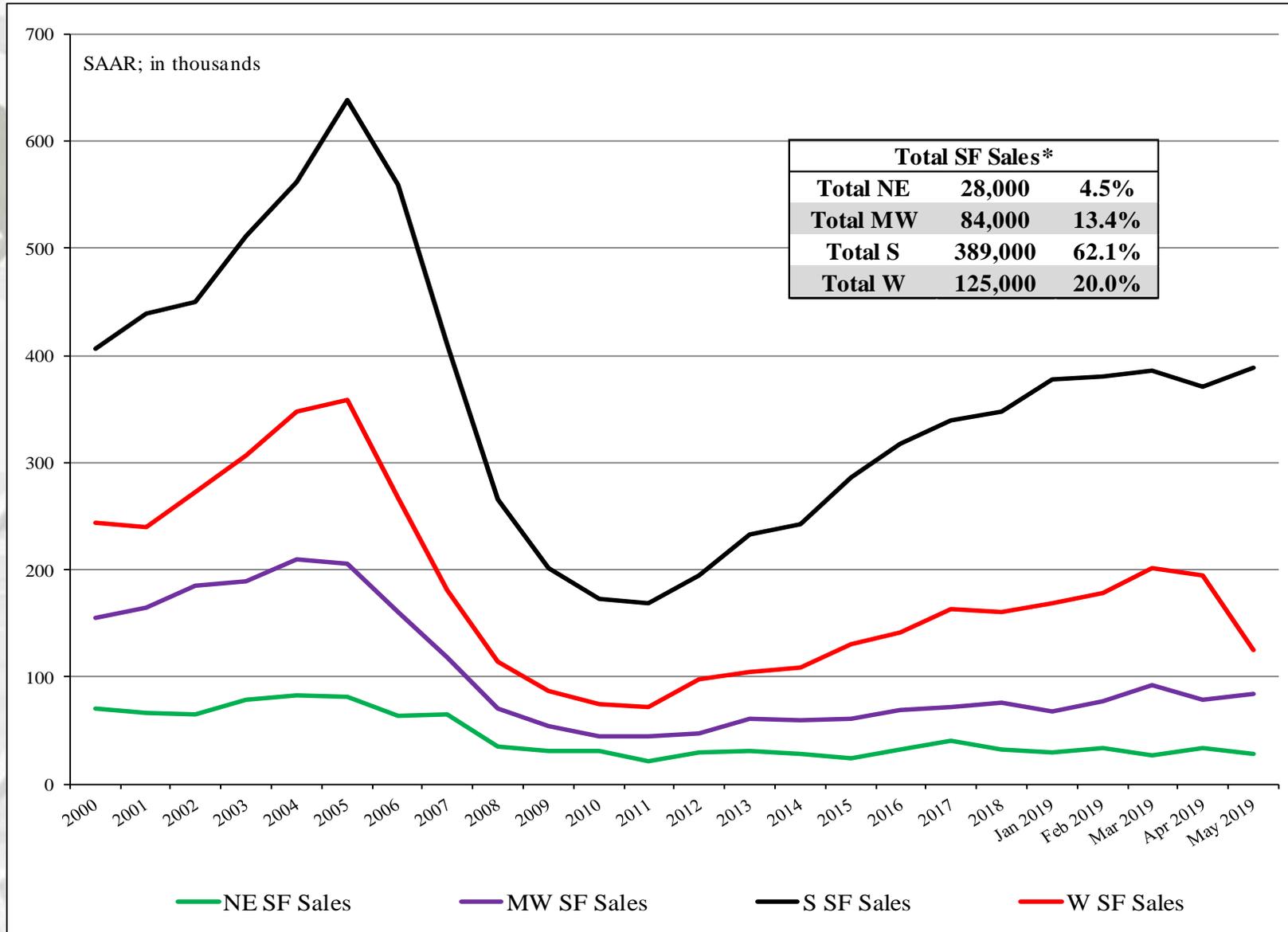
⁴ https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf

New SF House Sales



* Total new sales by price category and percent.

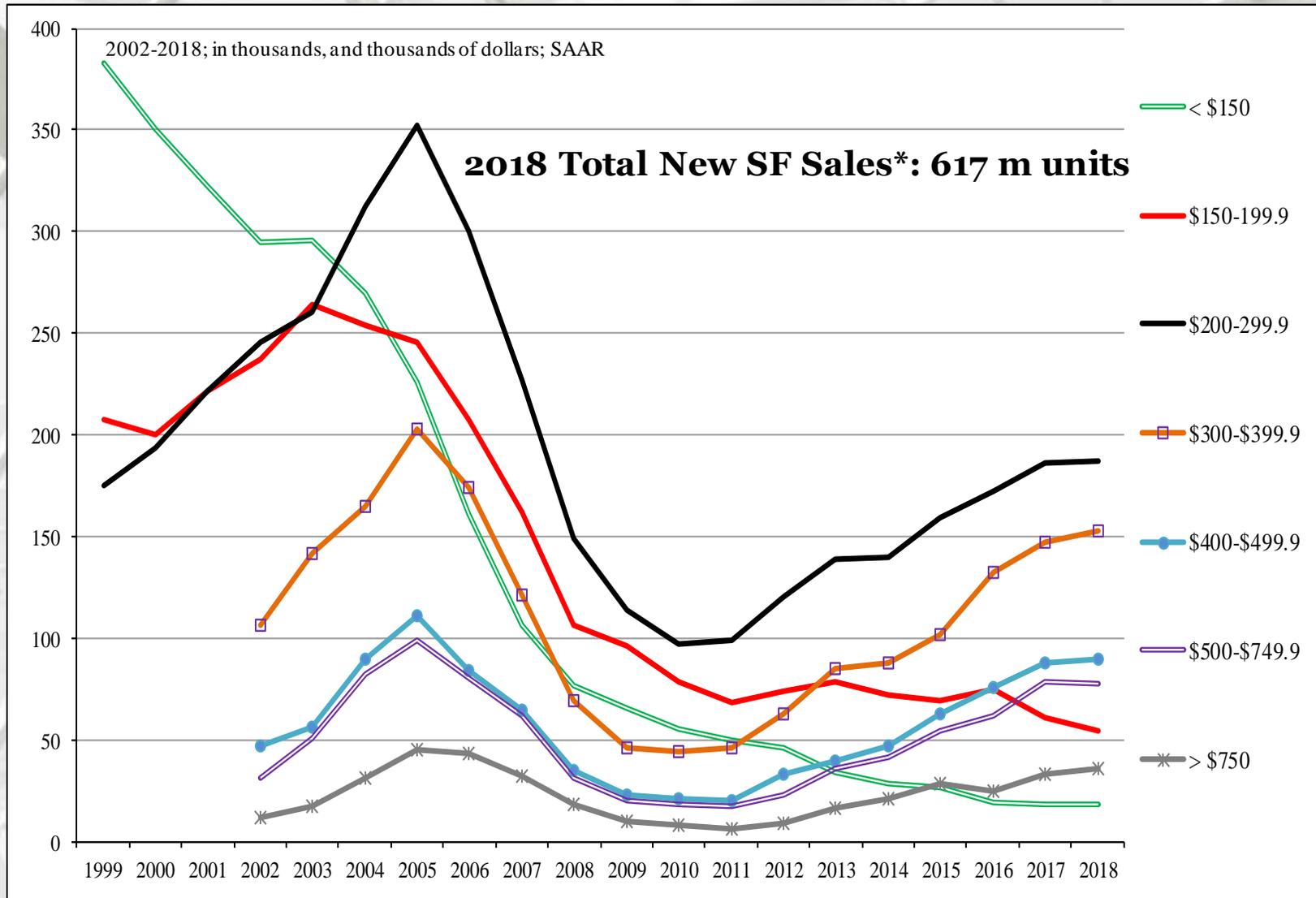
New SF House Sales by Region



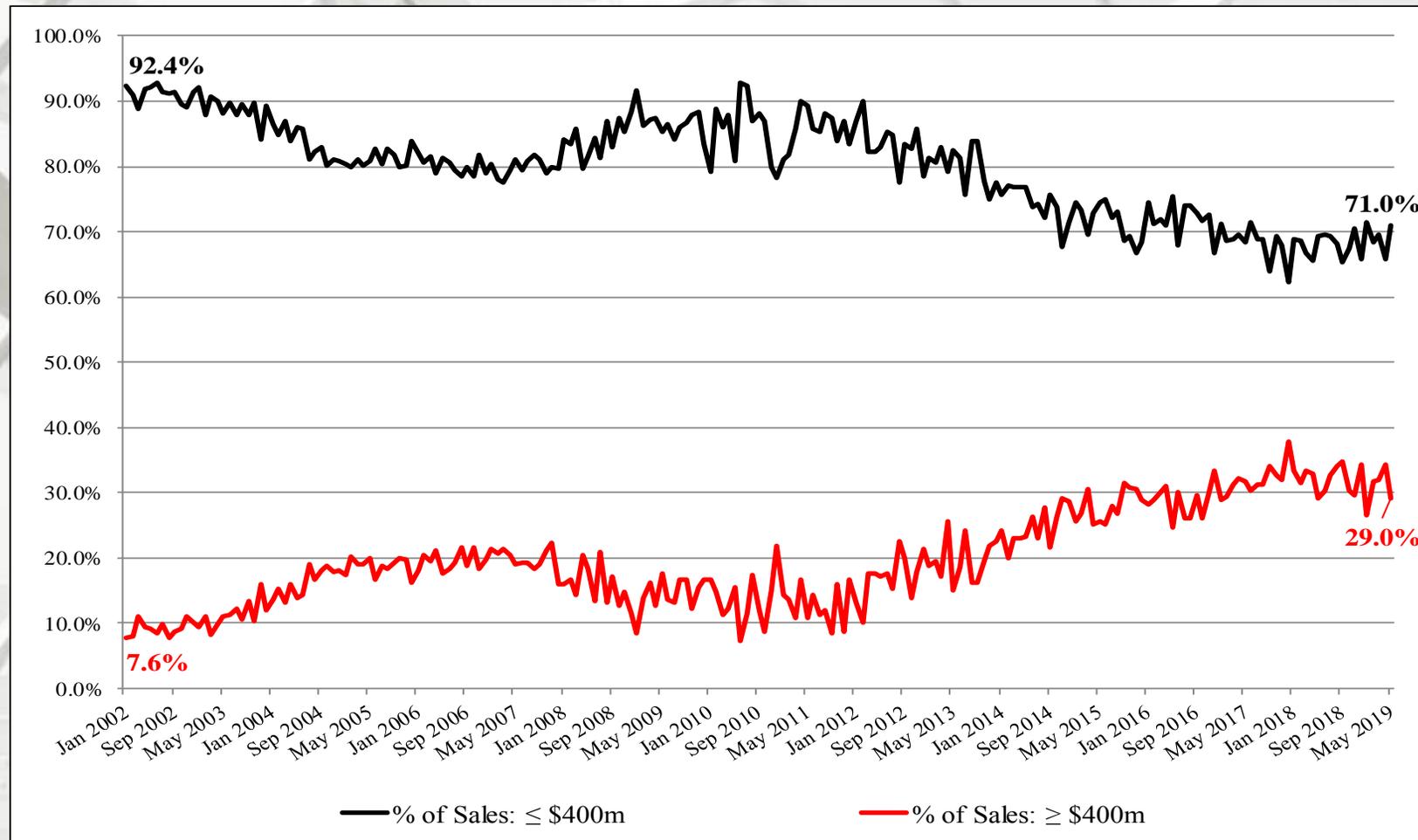
NE = Northeast; MW = Midwest; S = South; W = West

* Percentage of total new sales.

New SF House Sales by Price Category



New SF House Sales



New SF Sales \$400m houses: 2002 – May 2019

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

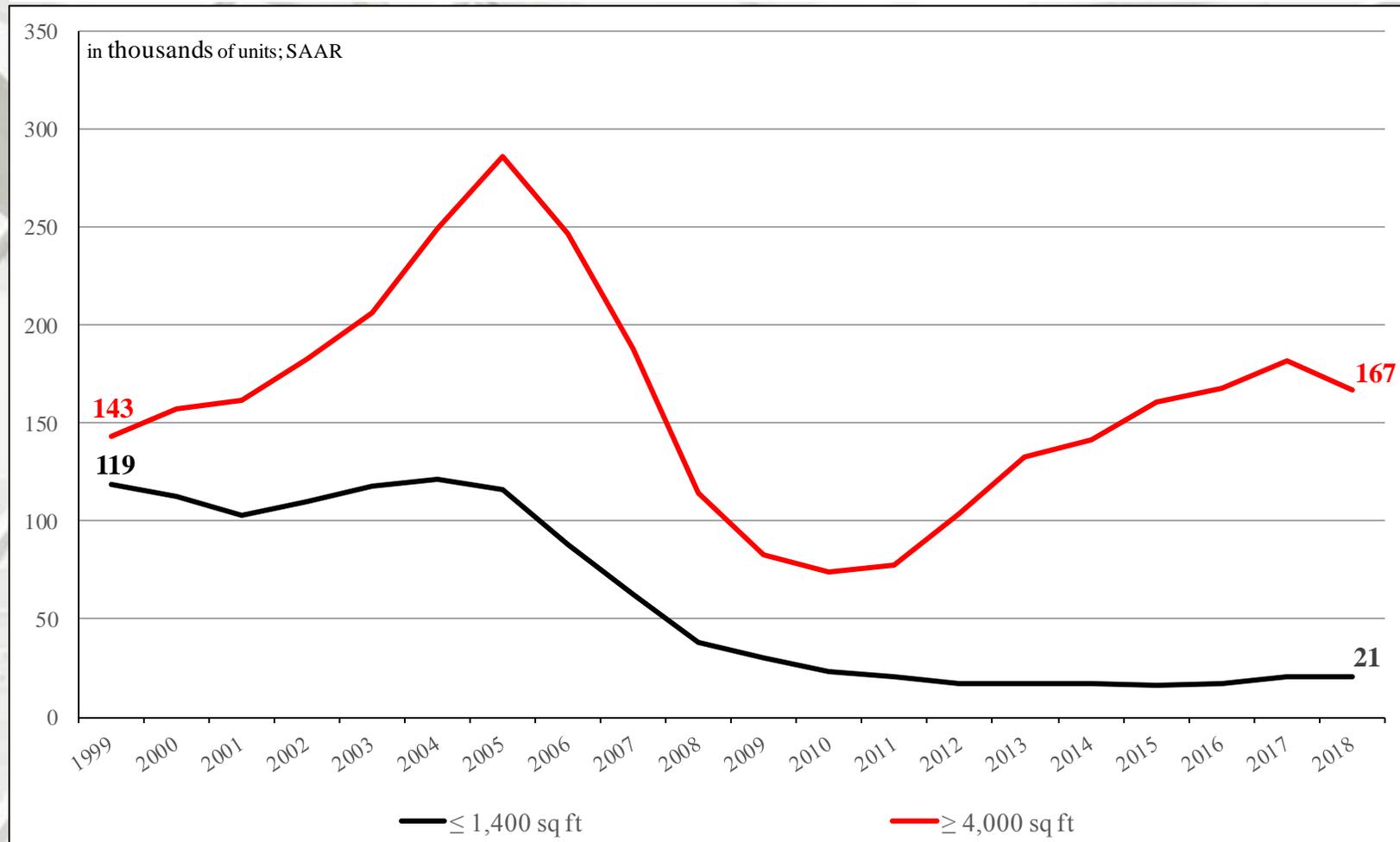


New SF Sales: ≤ \$ 200m and ≥ \$500m: 2002 to May 2019

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 net margins.

Note: Sales values are not adjusted for inflation.

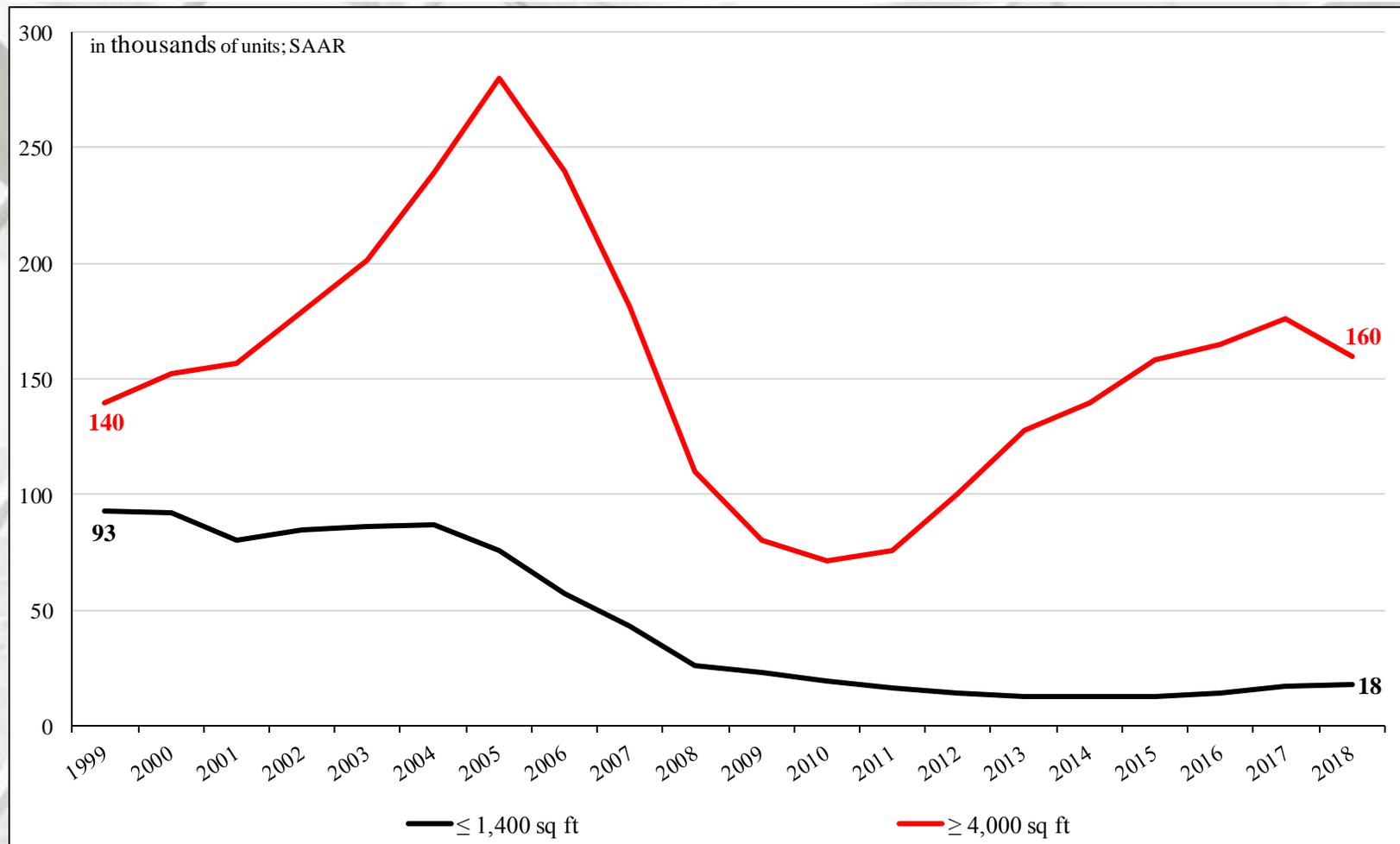
Total New SF House Sales by Square Feet of Floor Area



Total new SF Sales: ≤ 1,400 square feet and ≥ 4,000 square feet: 1999 to 2018

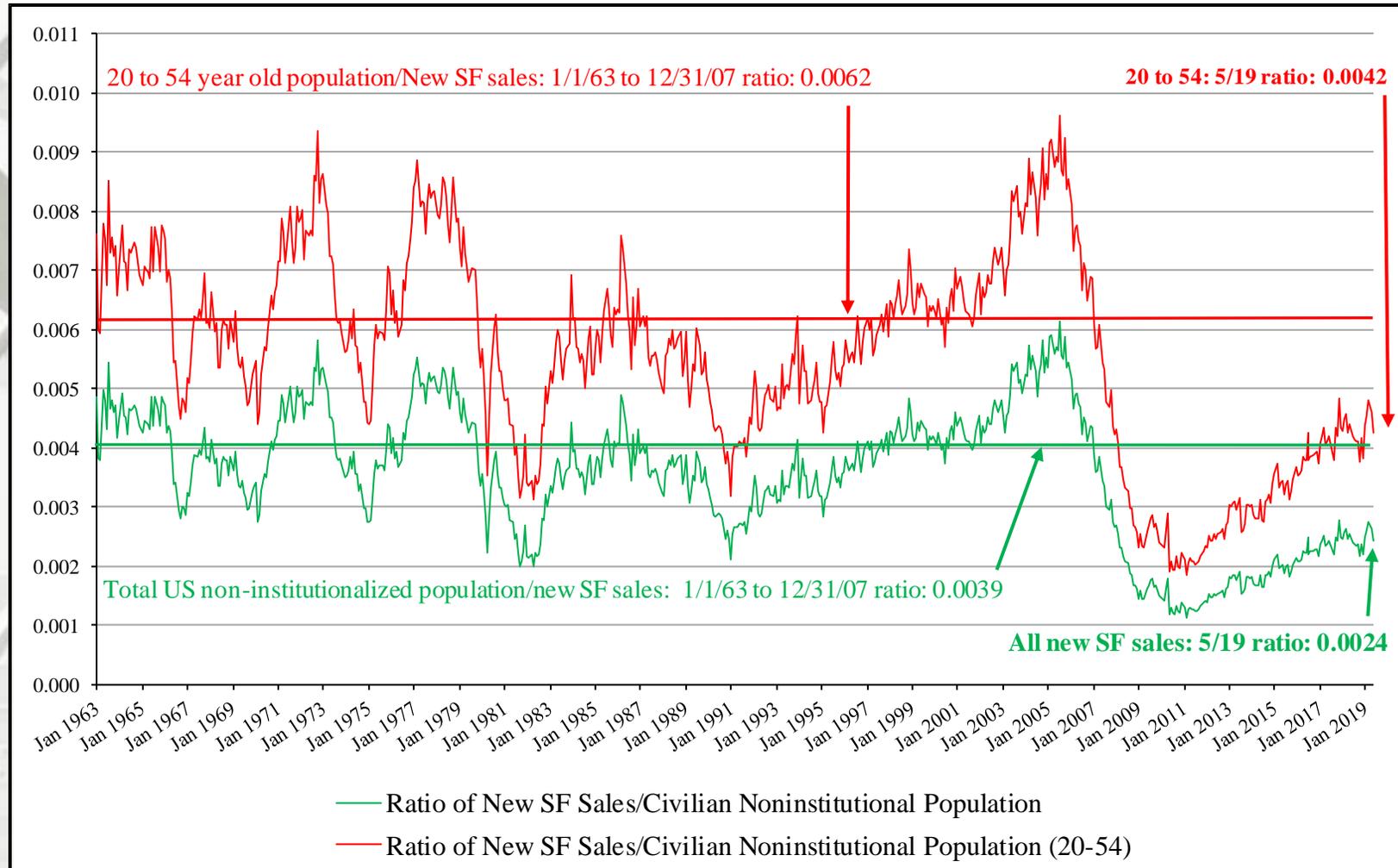
The number of SF houses sold ($\geq 4,000$ sq ft) has risen dramatically since 2010 in comparison to the $\leq 1,400$ sq ft houses. Some of the most oft mentioned reasons for this is builder net margins and regulation.

New Detached SF House Sales by Square Feet of Floor Area



New Detached SF Sales: ≤ 1,400 square feet and ≥ 4,000 square feet: 1999 to 2018

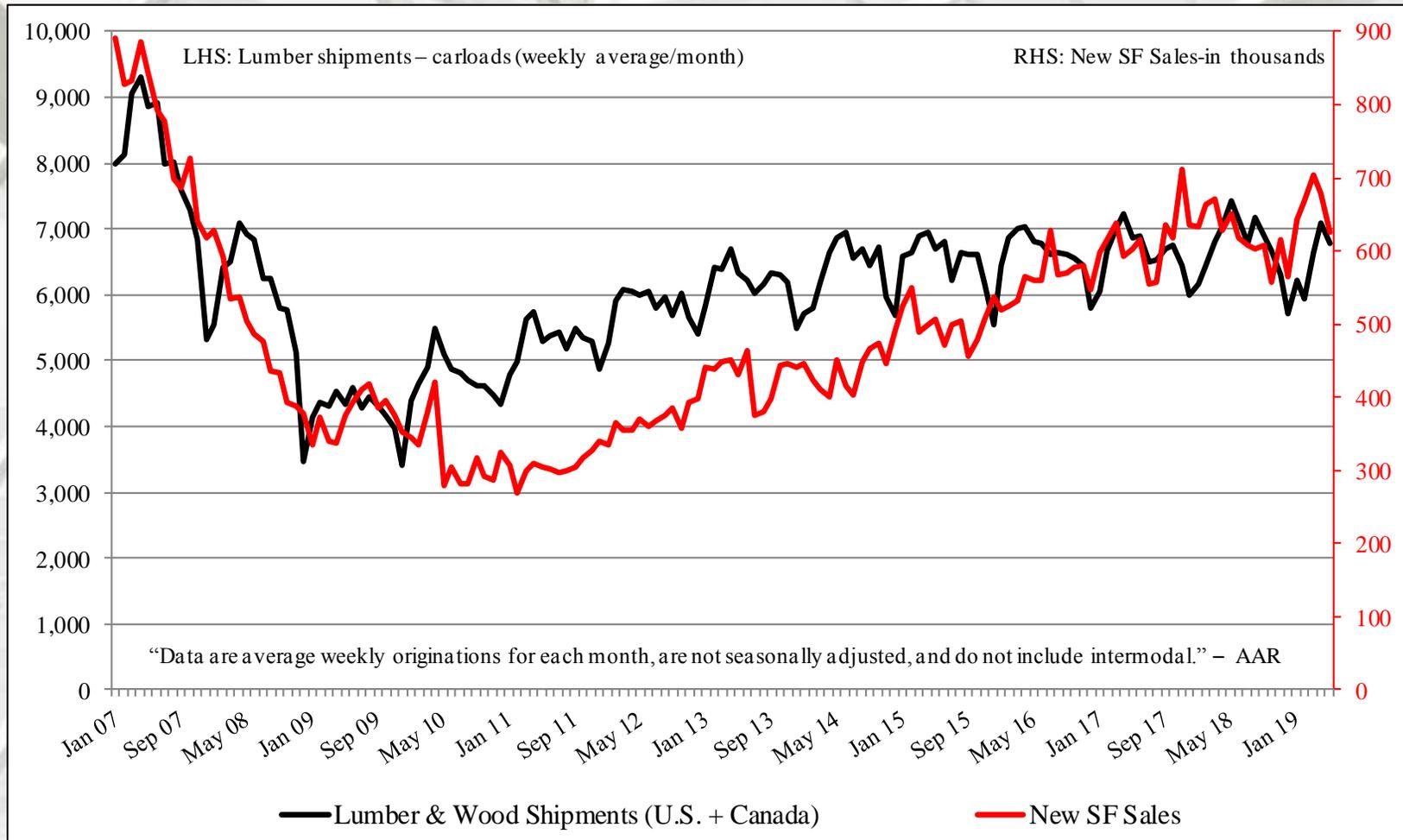
New SF House Sales



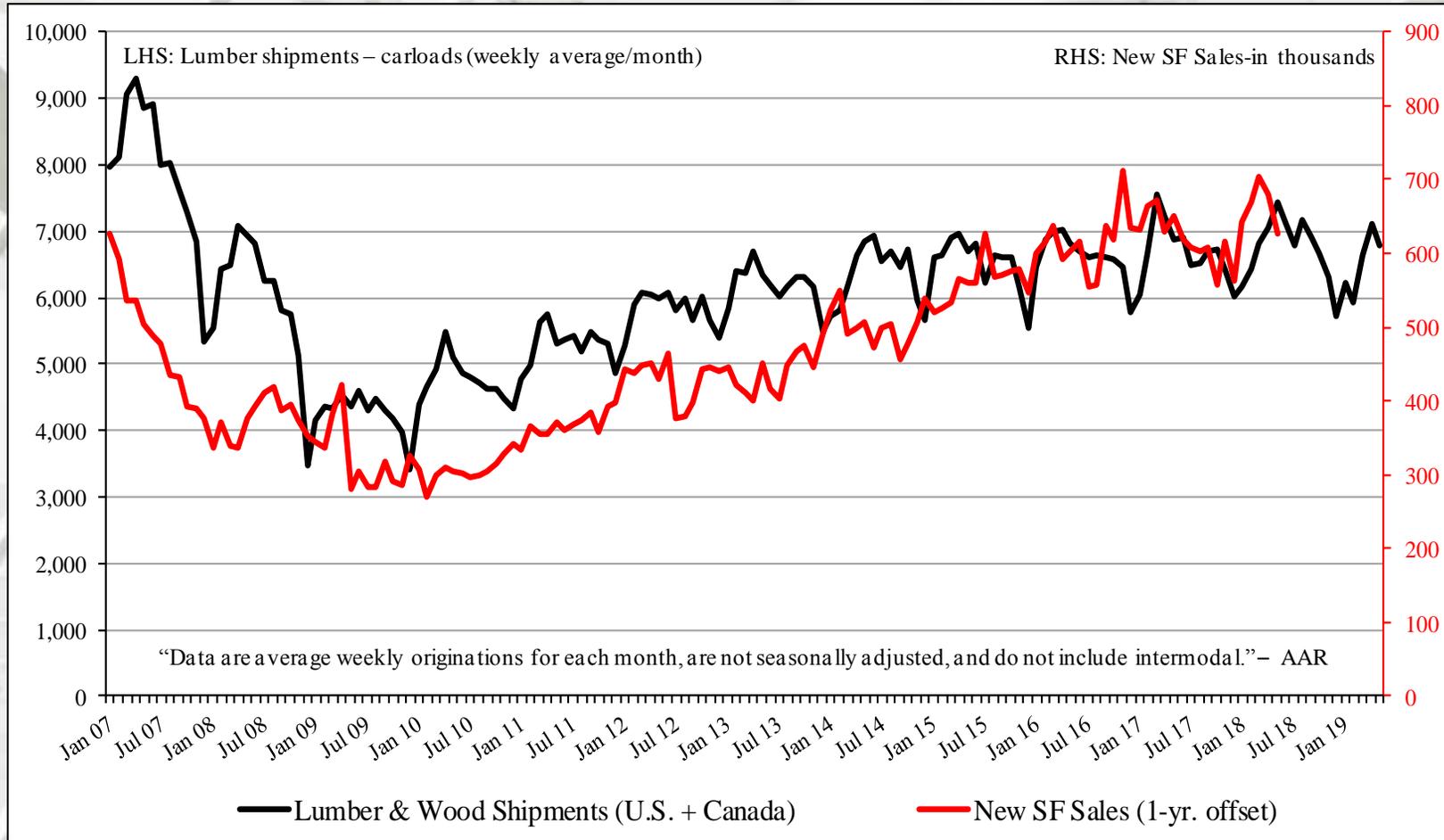
New SF sales adjusted for the US population

From May 1963 to May 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in May 2019 it was 0.0024 – an decrease from April (0.0026). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in May 2019 it was 0.0042 – an decrease from April (0.0042). 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

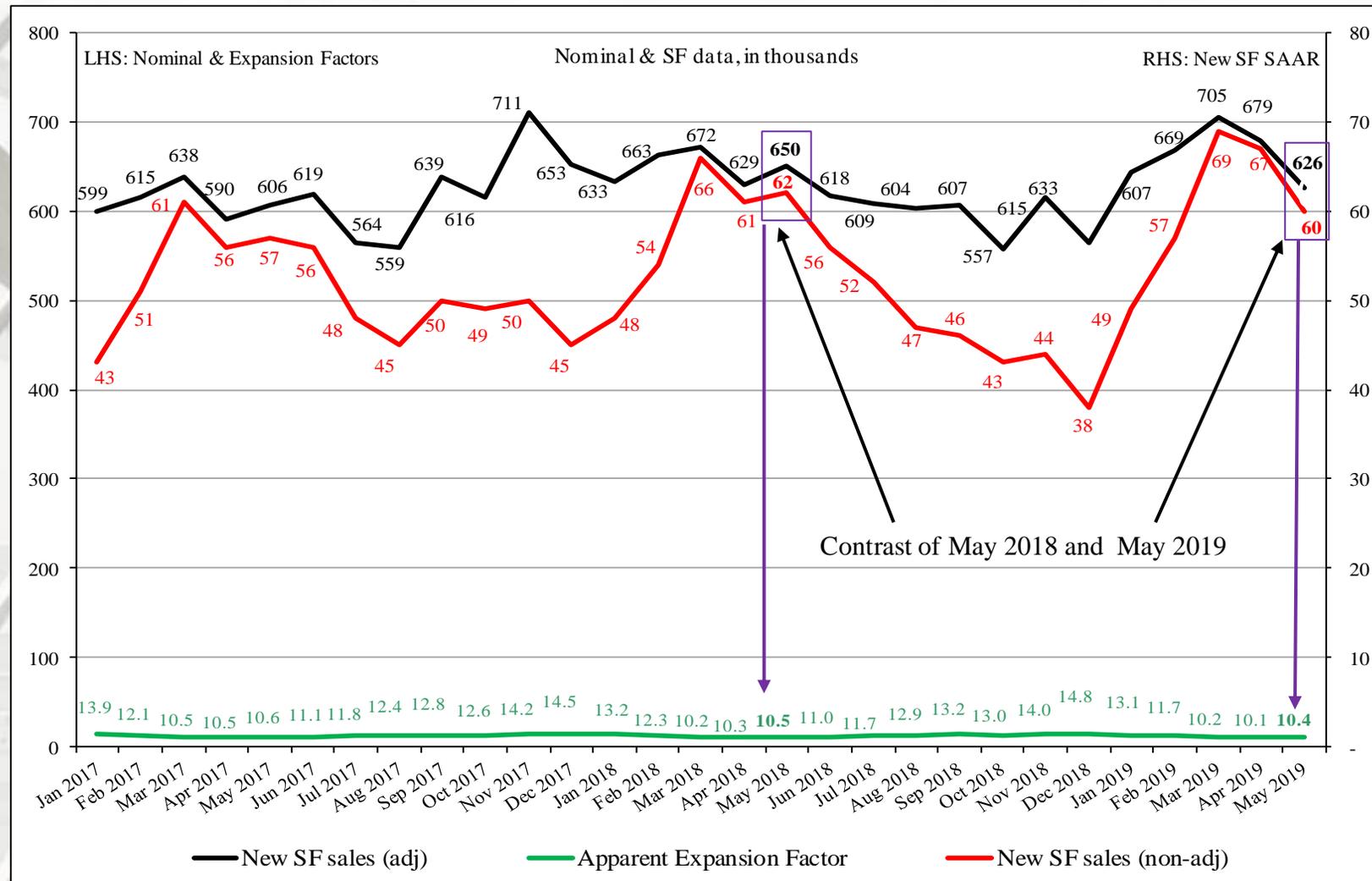


Railroad Lumber & Wood Shipments vs. U.S. SF Housing Sales: 1-year Offset



In this graph, May 2007 lumber shipments are contrasted with May 2008 SF sales, and continuing through May 2019. 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

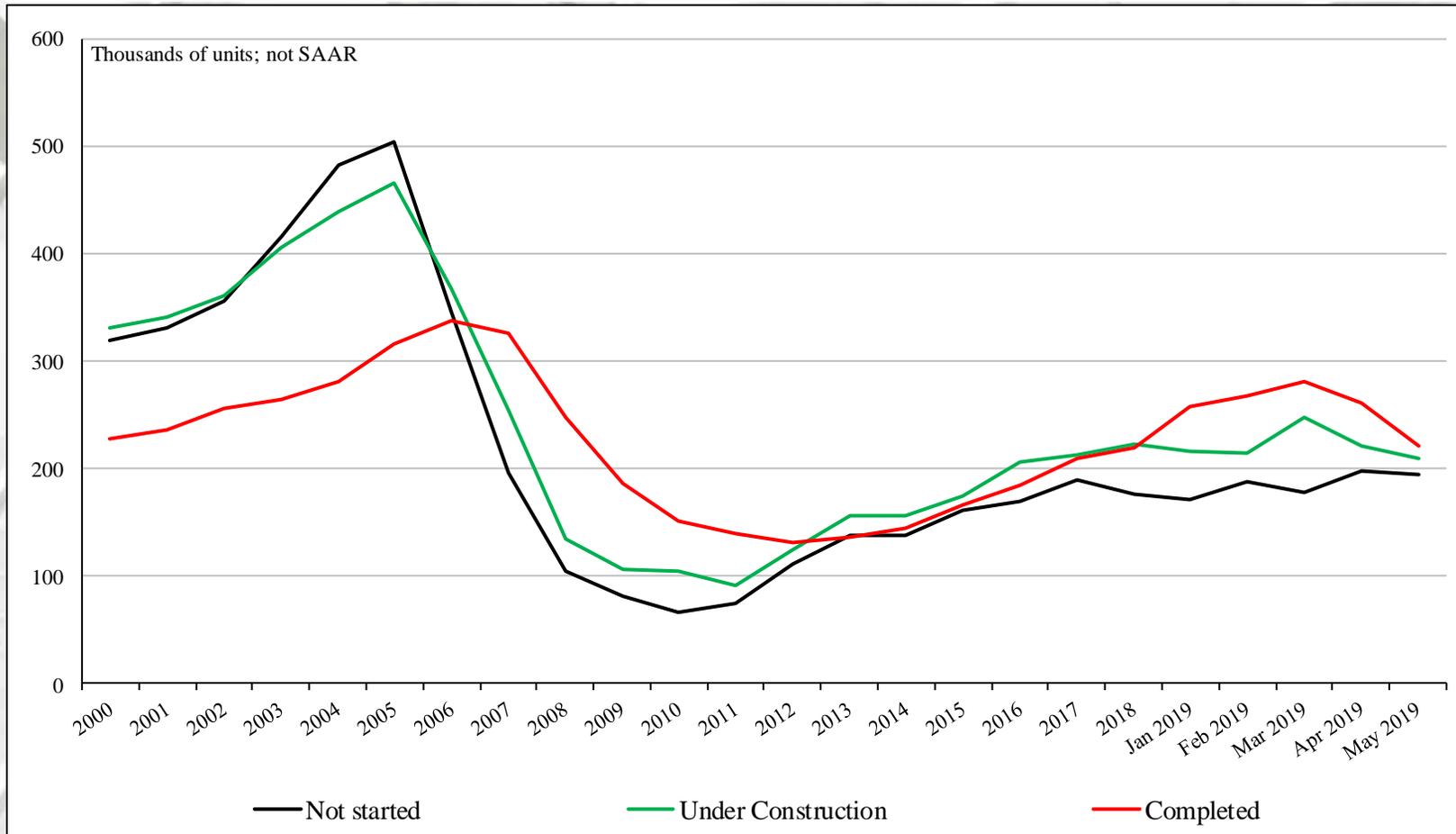
	Total	Not started	Under Construction	Completed
May	626,000	195,000	210,000	221,000
April	679,000	197,000	221,000	261,000
2018	650,000	169,000	233,000	248,000
M/M change	-7.8%	-1.0%	-5.0%	-15.3%
Y/Y change	-3.7%	15.4%	-9.9%	-10.9%
Total percentage		31.2%	33.5%	35.3%

New SF Houses Sold During Period

In May 2018, a substantial portion of new sales, 31.2% – have not been started; a decrease from April.

Not SAAR

New SF House Sales: Sold During Period



Not SAAR

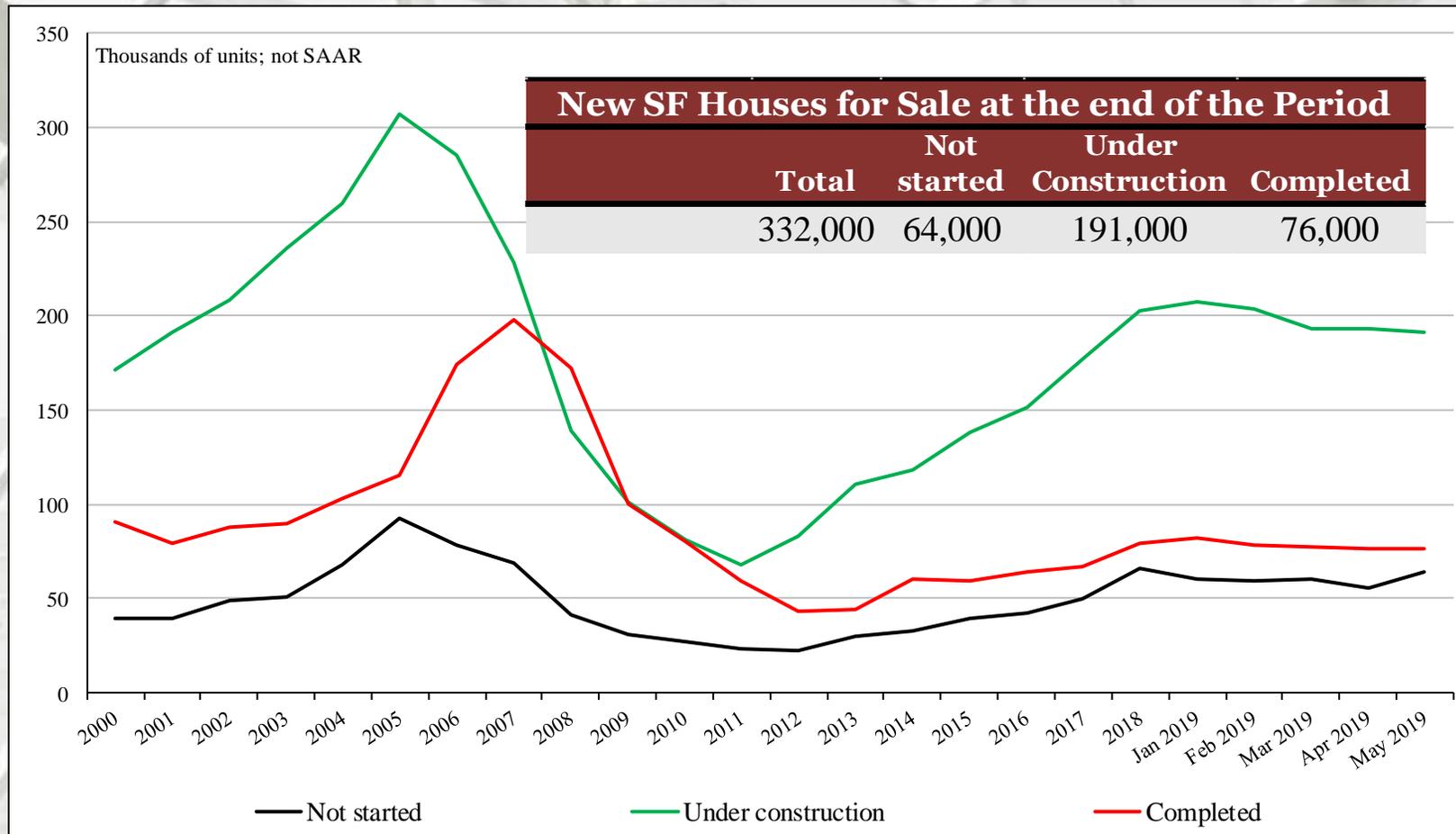
New SF House Sales

New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
May	332,000	64,000	191,000	76,000
April	325,000	56,000	193,000	76,000
2018	302,000	53,000	189,000	60,000
M/M change	2.2%	14.3%	-1.0%	0.0%
Y/Y change	9.9%	20.8%	1.1%	26.7%
Total percentage		19.3%	57.5%	22.9%

Not SAAR

New SF House Sales: For Sale at End of Period



Not SAAR

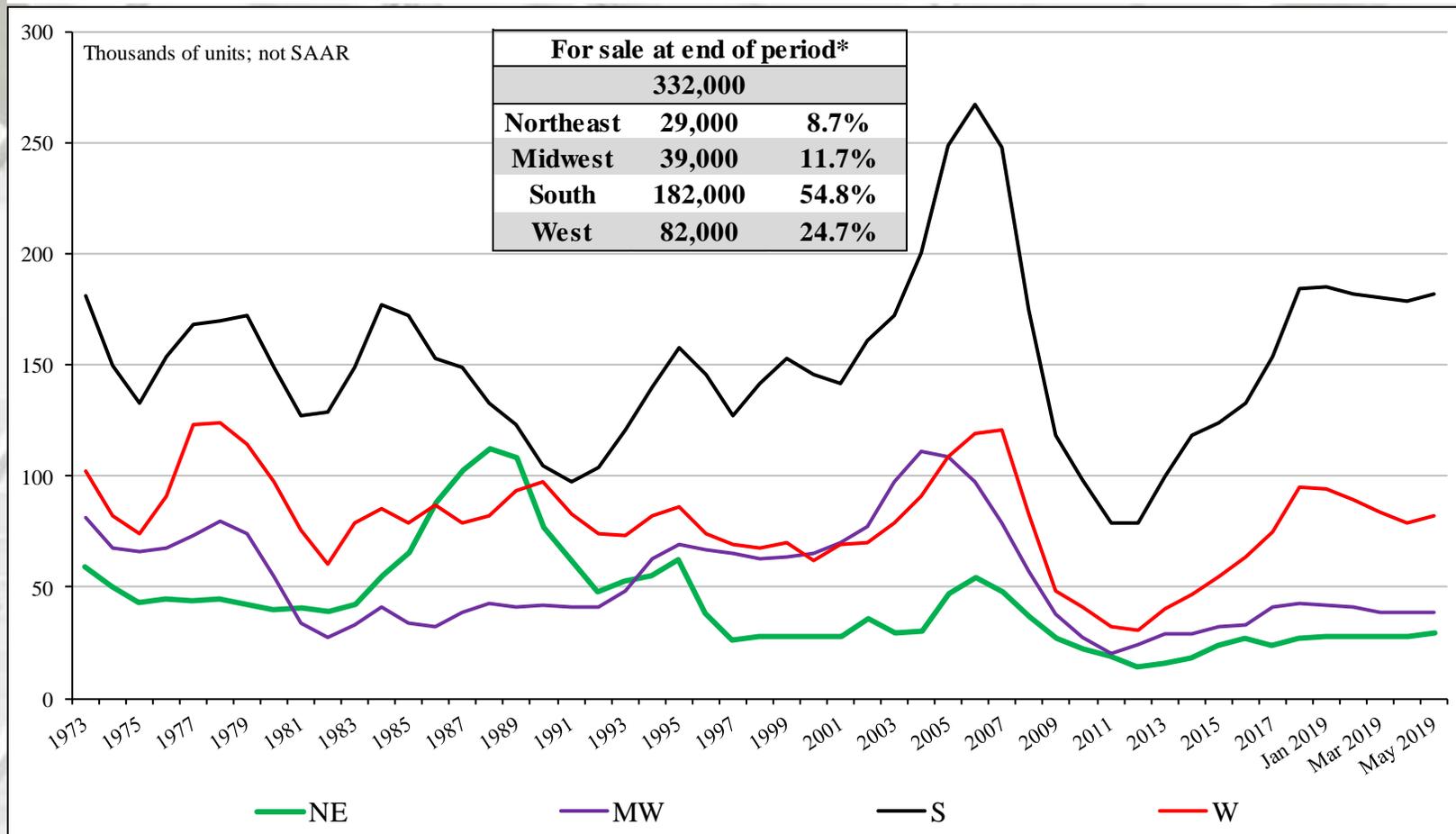
New SF House Sales

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

	Total	NE	MW	S	W
May	332,000	29,000	39,000	182,000	82,000
April	325,000	28,000	39,000	179,000	79,000
2018	299,000	23,000	41,000	156,000	79,000
M/M change	2.2%	3.6%	0.0%	1.7%	3.8%
Y/Y change	11.0%	26.1%	-4.9%	16.7%	3.8%

NE = Northeast; MW = Midwest; S = South; W = West
Not SAAR

New SF Houses Sale at End of Period by Region



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

* Percentage of new SF sales.

May 2019 Construction Spending

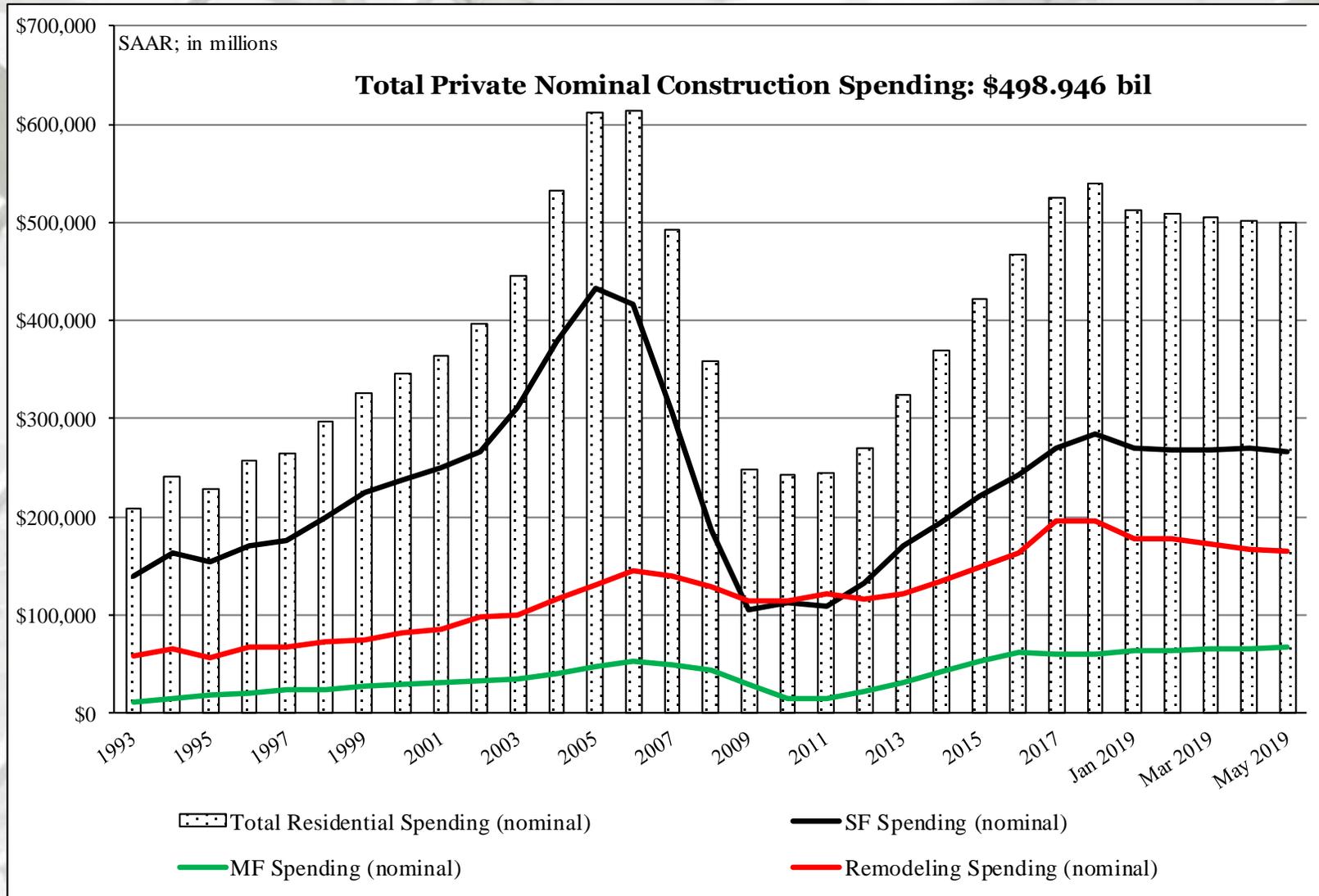
	Total Private Residential*	SF	MF	Improvement**
May	\$498,946	\$267,038	\$66,332	\$165,576
April	\$501,748	\$269,089	\$65,123	\$167,536
2018	\$561,940	\$288,944	\$60,682	\$212,314
M/M change	-0.6%	-0.8%	1.9%	-1.2%
Y/Y change	-11.2%	-7.6%	9.3%	-22.0%

* billion.

** The US DOC does not report improvement spending directly, this is a monthly estimation:
((Total Private Spending – (SF spending + MF spending)).

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

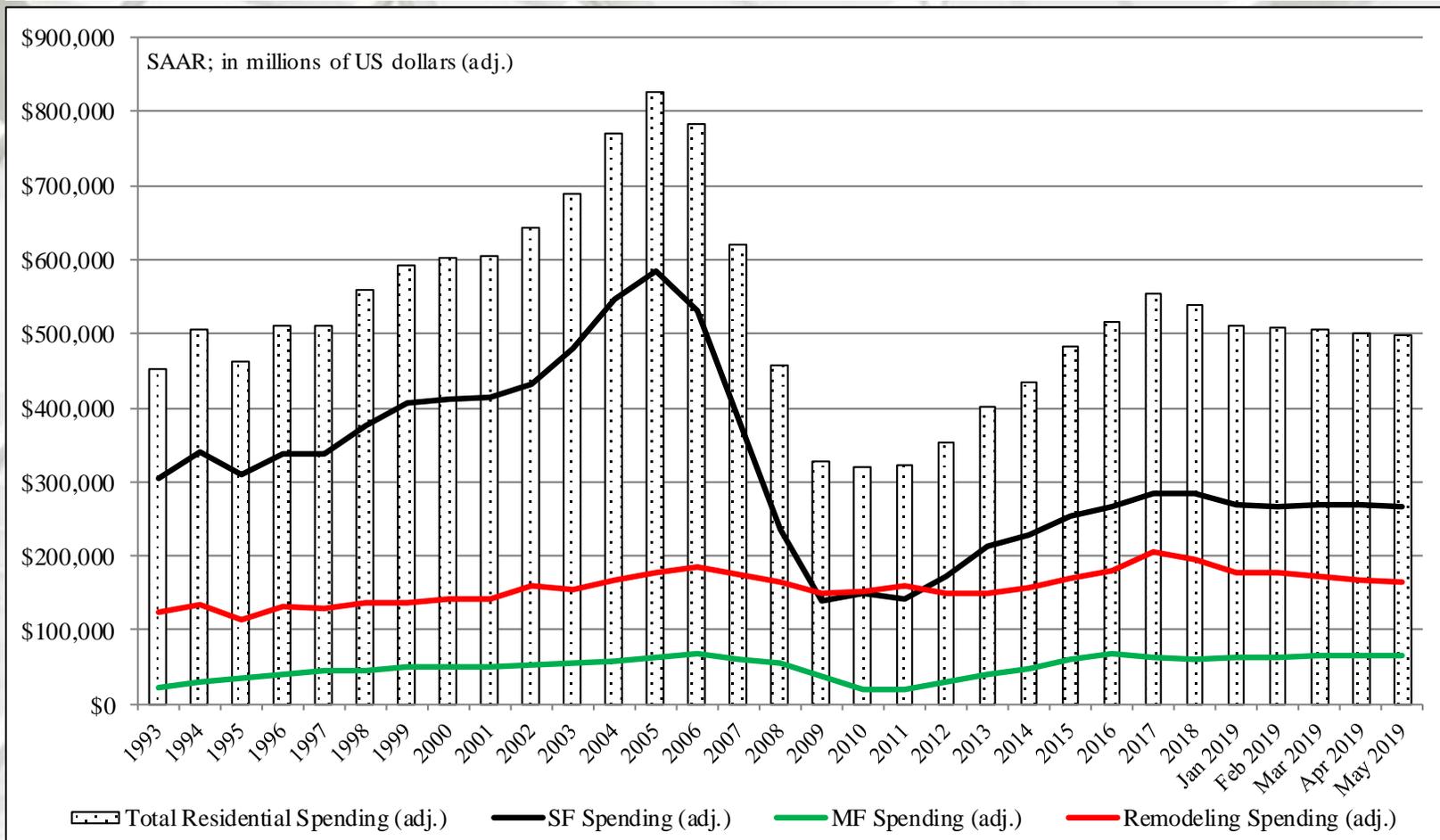
Total Construction Spending (nominal): 1993 – May 2019



Reported in nominal US\$.

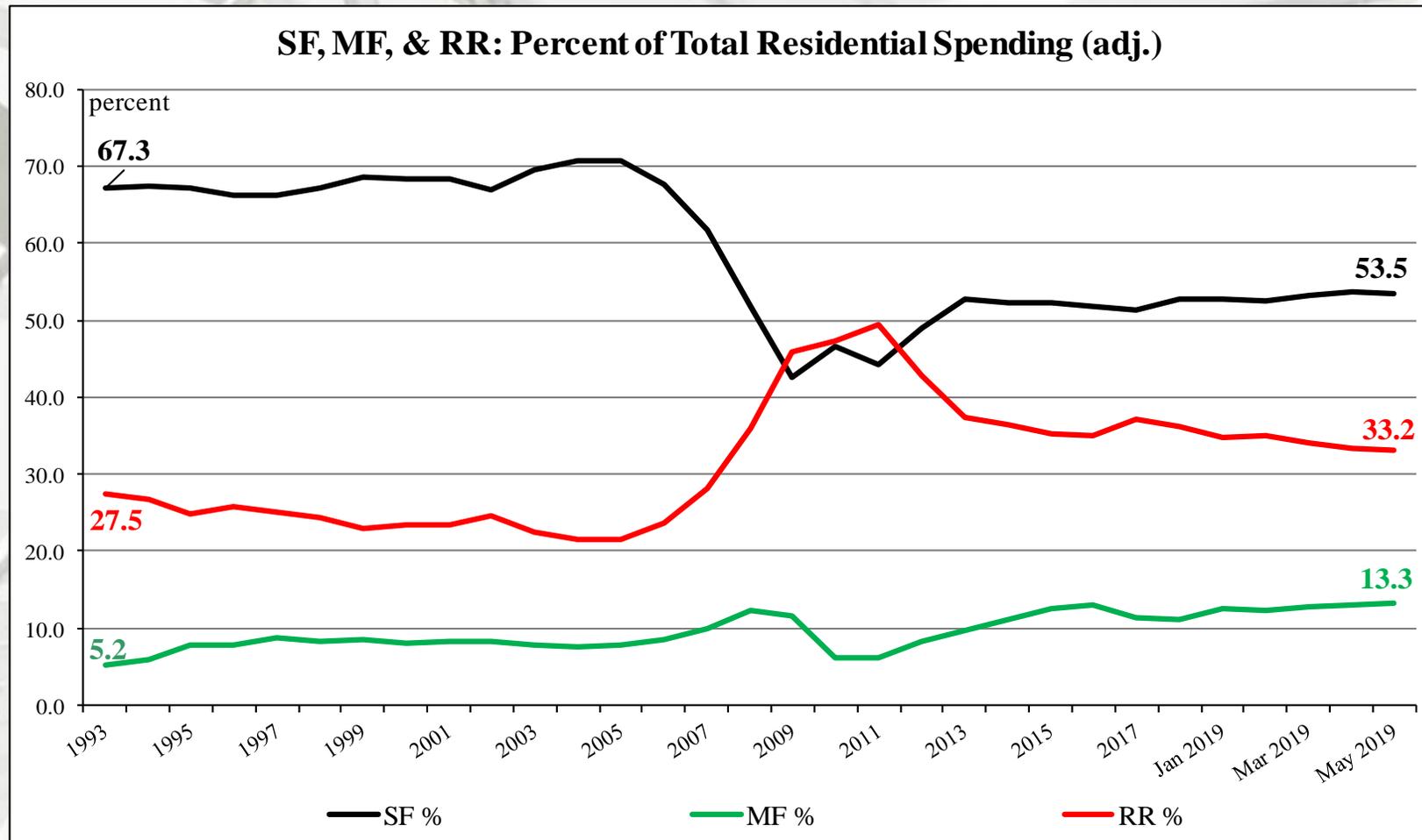
The US DOC does not report improvement spending directly, this is a monthly estimation for 2019.

Total Construction Spending (adjusted): 1993-2019*



Reported in adjusted US\$: 1993 – 2018 (adjusted for inflation, BEA Table 1.1.9); *January to May 2019 reported in nominal US\$.

Construction Spending Shares: 1993 to May 2019



Total Residential Spending: 1993 through 2006

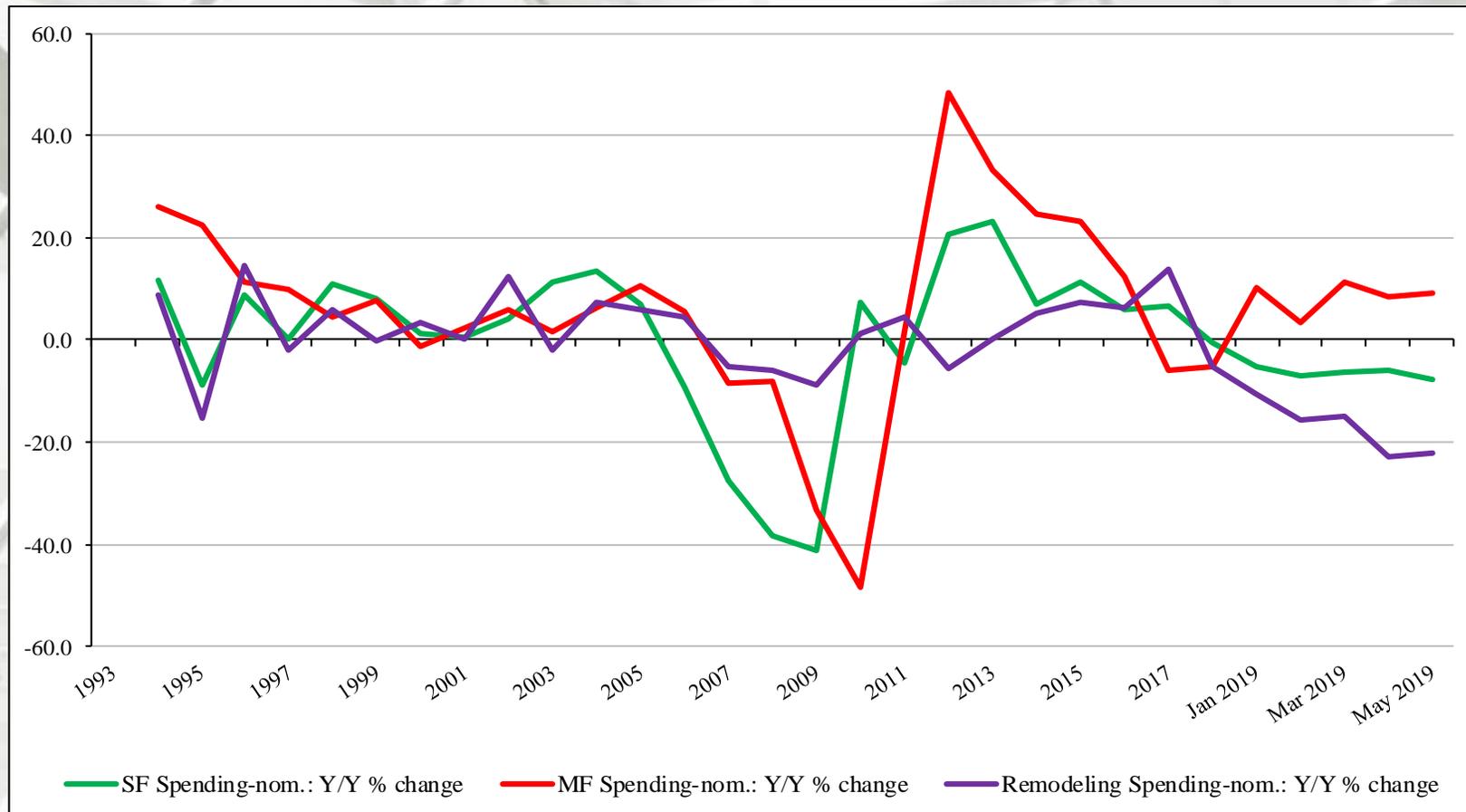
SF spending average: 69.2%

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-May 2018 reported in nominal US\$.

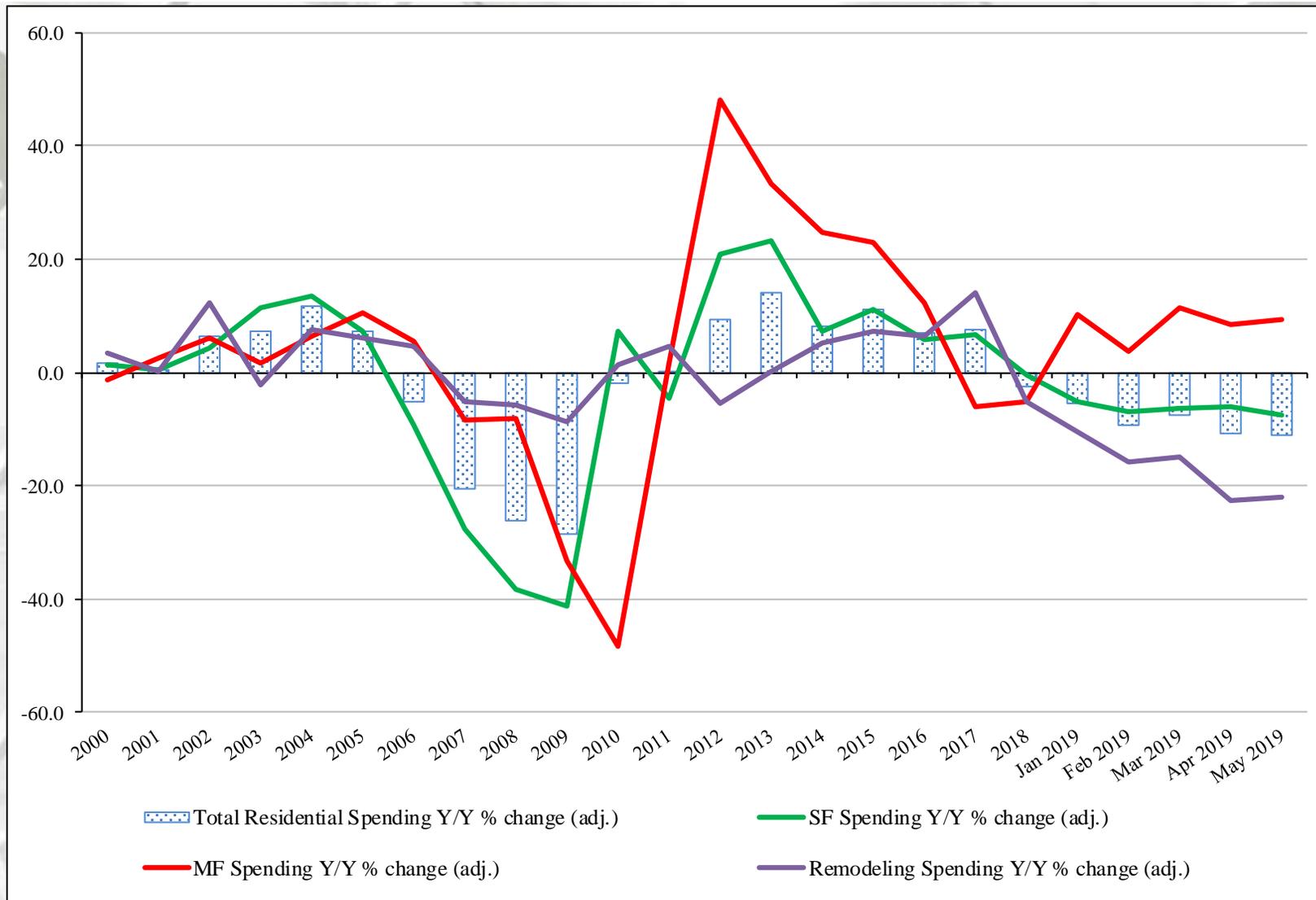
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to May 2019



Nominal Residential Construction Spending: Y/Y percentage change, 1993 to May 2019

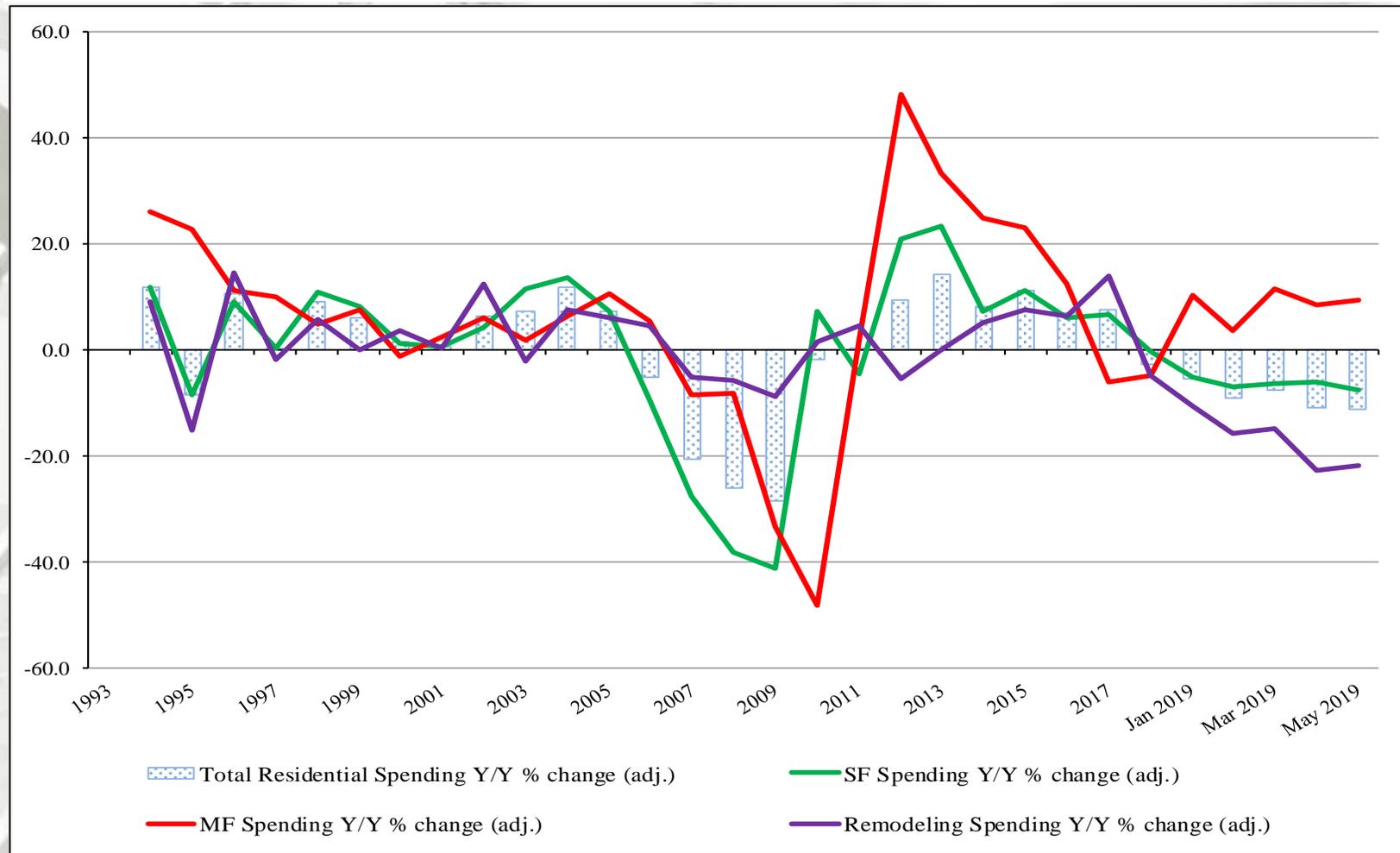
Presented above is the percentage change of inflation adjusted Y/Y construction spending. Only MF expenditures were positive on a percentage basis, year-over-year. 2019 data reported in nominal dollars.

Adjusted Construction Spending: Y/Y Percentage Change, 2000 to May 2019



Adjusted dollar values; except 2019 data – reported in nominal dollars.

Total Adjusted Construction Spending: Y/Y Percentage Change, 1993 to May 2019



Inflation Adjusted Residential Construction Spending: Y/Y percentage change, 1993 to May 2019

All expenditures declined in May, with only MF spending increasing and remaining positive. 2019 data reported in nominal dollars.

Remodeling

Harvard Joint Center for Housing Studies

Remodeling Spending Growth To Slow In Most Major Metros In 2019

“Annual gains in homeowner spending on improvements are expected to moderate across more than half of the nation’s largest metropolitan areas in 2019, according to new projections. While no major metros are projected to see spending levels decline in 2019, our model indicates that the pace of spending by homeowners will slow in 29 of the 49 major metros tracked relative to their estimated 2018 gains. Indeed, annual growth in improvement expenditures is projected to fall to the lowest rate in three years in nearly half (22) of these metros. Metros with cooling home prices and sales activity are not able to sustain the same pace of investment in home improvements as in recent years. Our projections show especially pronounced slowing in markets such as San Antonio, Kansas City, Pittsburgh, Buffalo, and Dallas.

Despite the broader deceleration, remodeling gains should remain strong and even accelerate through year-end in some areas of the country including Orlando and Las Vegas where remodeling permitting, house prices, and homebuilding have picked up. Regionally, the strongest growth in 2019 is expected to be among metros in the West, paced by projected growth of 8 percent or more in Sacramento, Denver, Seattle, Tucson, San Jose, and Las Vegas.” – Elizabeth La Jeunesse, Senior Research Analyst, Joint Center for Housing Studies

Remodeling

BuildFax

Remodeling Spending Growth To Slow In Most Major Metros In 2019

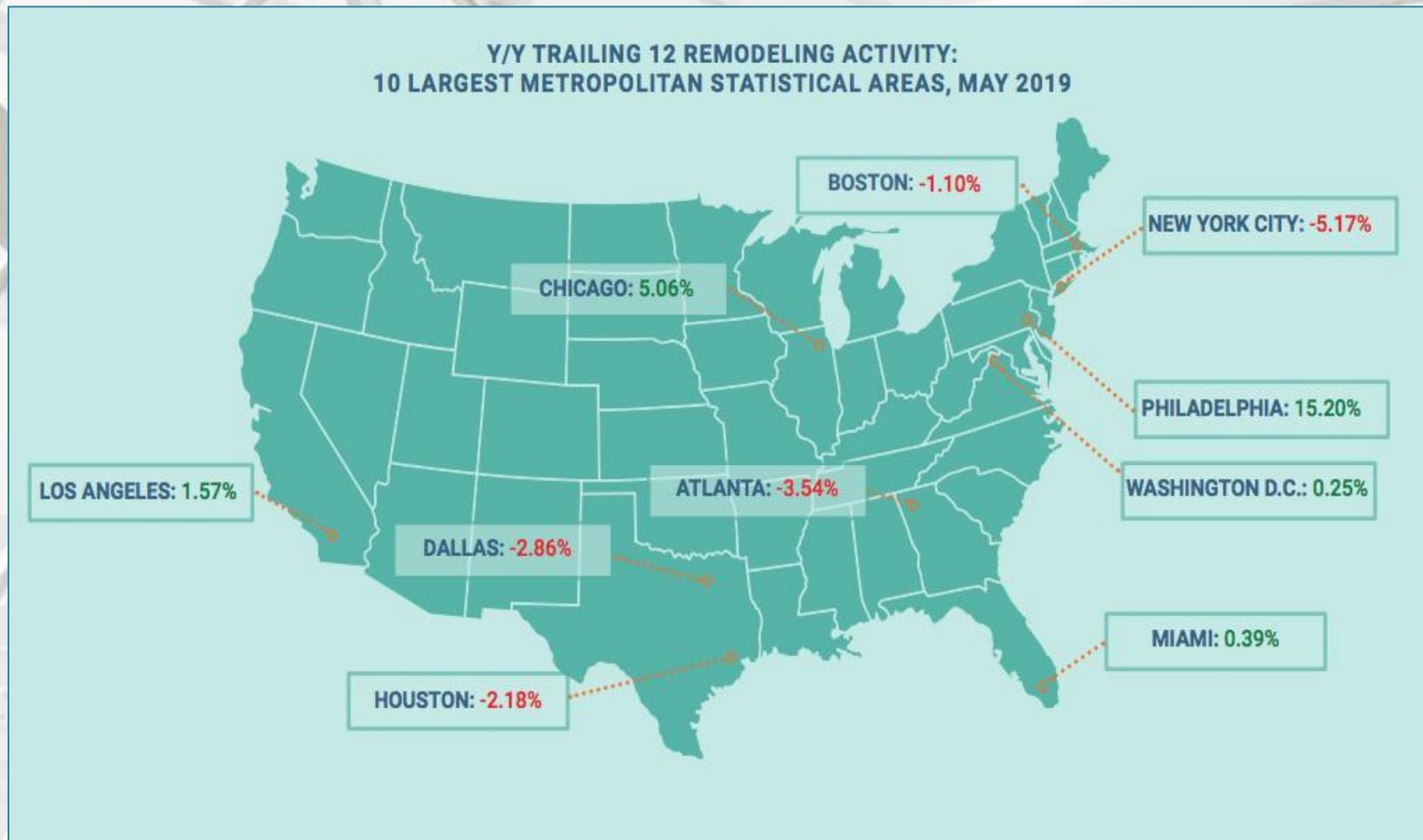
“According to the latest from housing data and analytics company BuildFax, remodeling activity increased in May in five of the top 10 metropolitan statistical areas – Philadelphia, Chicago, Los Angeles, Miami and Washington, D.C.

Philadelphia and Chicago saw the largest greatest gains year over year in remodeling activity, rising 15.2% and 5.06% respectively. Remodeling also grew a modest 1.57% in Los Angeles, 0.39% in Miami and 0.25% in Washington, D.C., according to BuildFax.

According to the report, Philadelphia stands out for resisting the national trend, posting gains and beating records for the number of houses sold from October to December 2018 when the rest of the country saw its housing activity decline. BuildFax said this could be attributed to increased domestic migration to the city or housing investments.

In Chicago and Los Angeles, where new construction activity has declined in the last year, we are likely seeing gains in remodeling because buyers are hesitant to enter the market and would rather reinvest in their current properties.” – Jessica Guerin, Editor, HousingWire

Remodeling



Existing House Sales

National Association of Realtors

May 2019 sales: 5.340 thousand

	Existing Sales	Median Price	Mean Price	Month's Supply
June	5,340,000	\$277,700	\$314,000	4.3
May	5,210,000	\$266,900	\$305,000	4.2
2018	5,400,000	\$265,100	\$303,700	4.2
M/M change	2.5%	4.0%	3.0%	2.4%
Y/Y change	-1.1%	4.8%	3.4%	2.4%

All sales data: SAAR

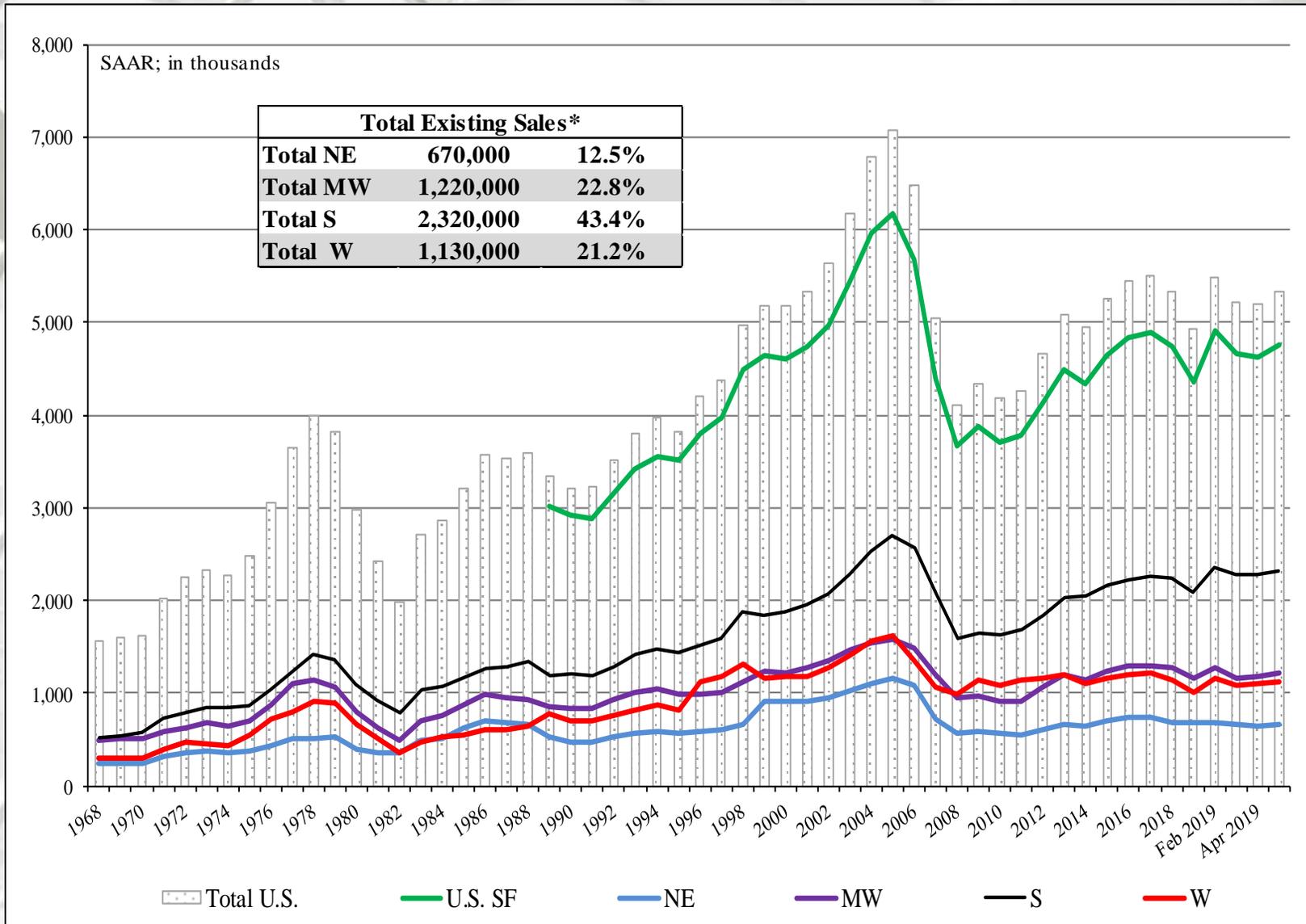
Existing House Sales

	Existing SF Sales	SF Median Price	SF Mean Price
May	4,750,000	280,200	315,600
April	4,670,000	269,100	306,100
2018	4,790,000	267,800	305,200
M/M change	1.7%	4.0%	3.1%
Y/Y change	-0.8%	4.6%	3.4%

	NE	MW	S	W
May	670,000	1,220,000	2,320,000	1,130,000
April	640,000	1,180,000	2,280,000	1,110,000
2018	670,000	1,270,000	2,290,000	1,170,000
M/M change	4.7%	3.4%	1.8%	1.8%
Y/Y change	0.0%	-3.9%	1.3%	-3.4%

All sales data: SAAR.

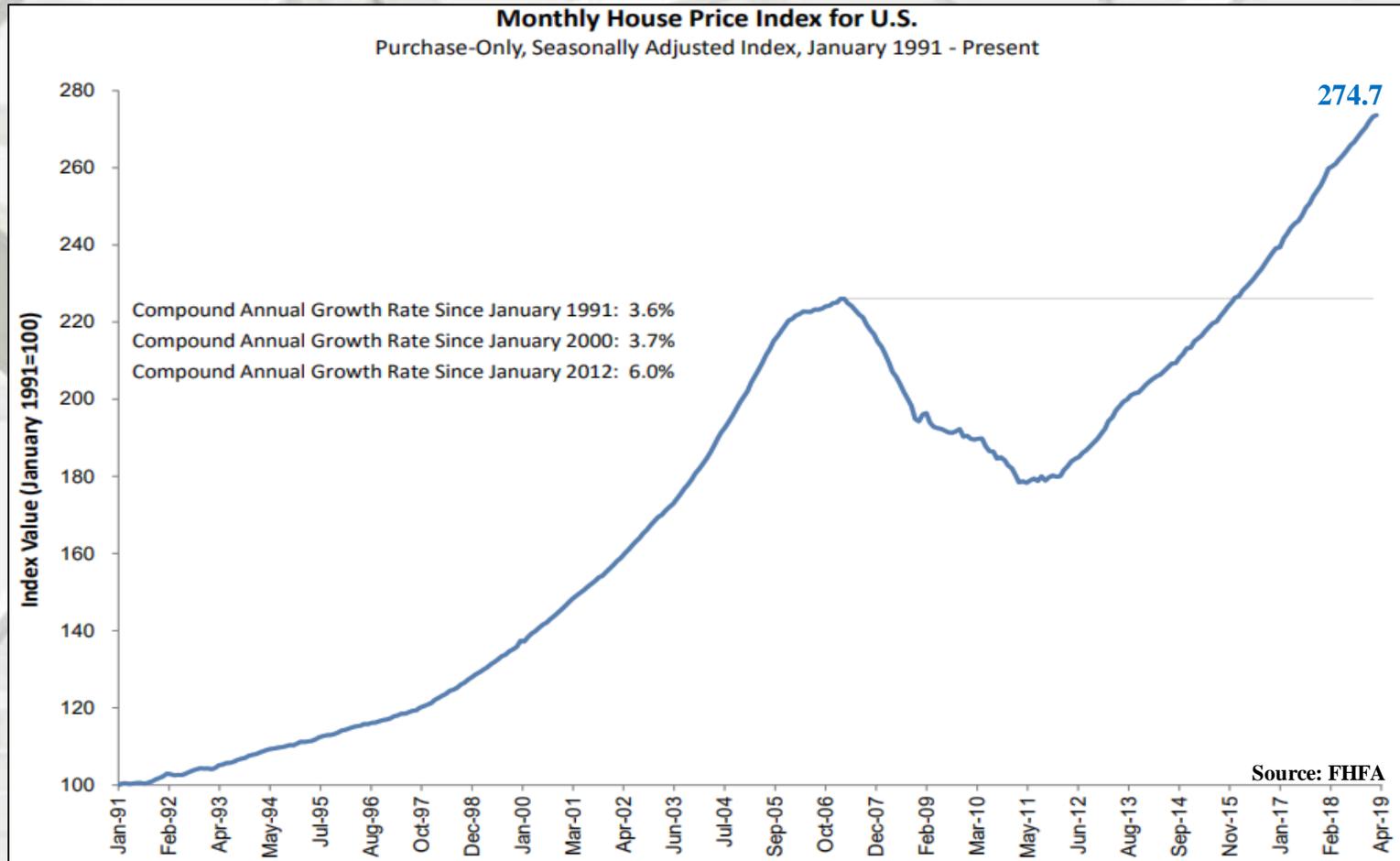
Existing House Sales



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

* Percentage of existing sales.

U.S. Housing Prices



FHFA House Price Index Up 0.4 Percent in April; Up 5.2 Percent from Last Year

“U.S. house prices rose in April, up **0.4 percent** from the previous month, according to the Federal Housing Finance Agency (FHFA) seasonally adjusted monthly House Price Index (HPI). The previously reported 0.1 percent increase for March 2019 remained unchanged. From April 2018 to April 2019, house prices were up **5.2 percent**.” – Corinne Russell and Stefanie Johnson, FHFA

U.S. Housing Prices

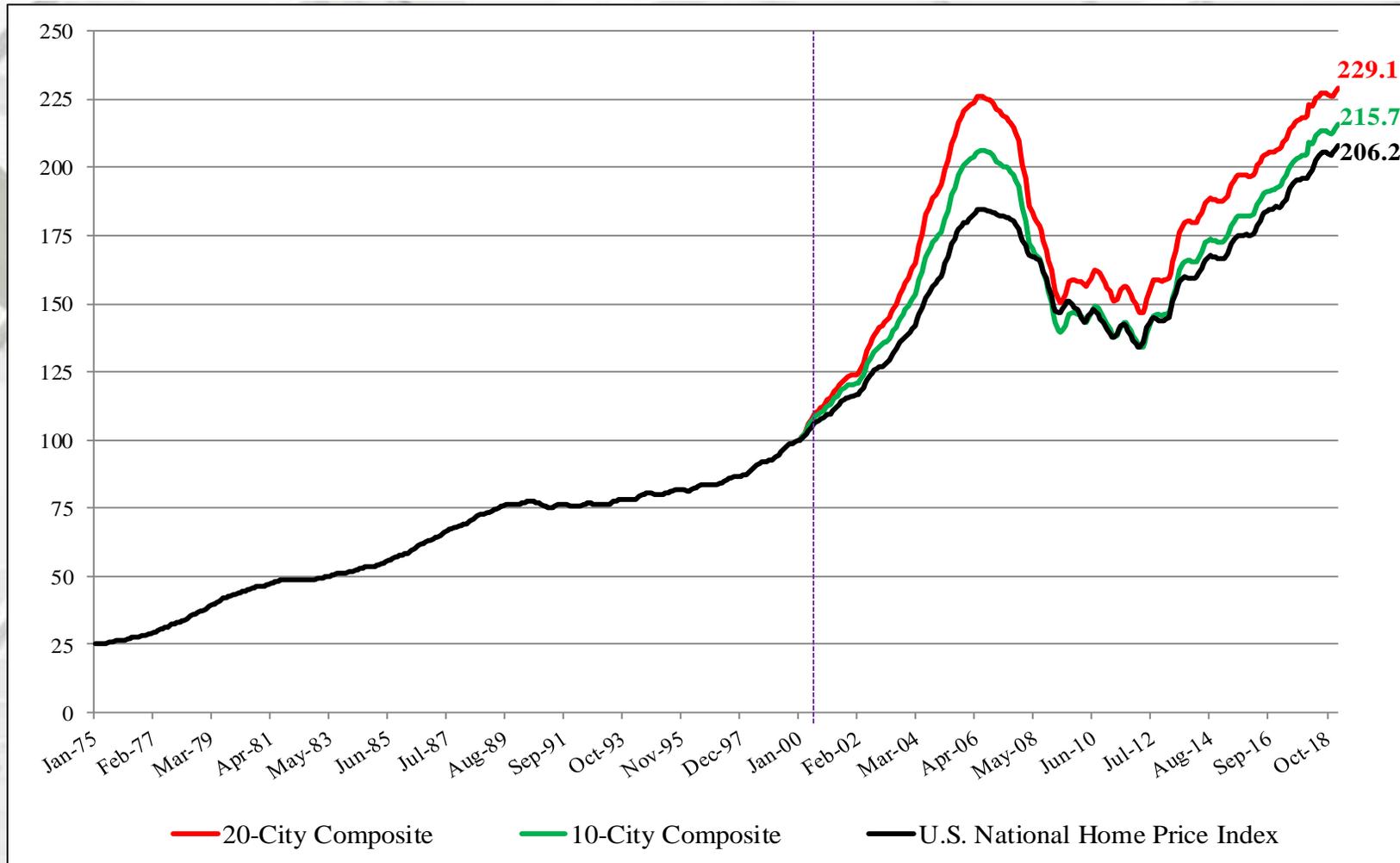
“The S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, covering all nine U.S. census divisions, reported a 3.5% annual gain in April, down from 3.7% in the previous month. The 10-City Composite annual increase came in at 2.3%, up from 2.2% in the previous month. The 20-City Composite posted a 2.5% year-over-year gain, down from 2.6% in the previous month.

Annual Home Price Gains Continue To Fall According To S&P CoreLogic Case-Shiller Index

“Home price gains continued in a trend of broad-based moderation. Year-over-year price gains remain positive in most cities, though at diminishing rates of change. Seattle is a notable exception, where the YOY change has decreased from 13.1% in April 2018 to 0.0% in April 2019

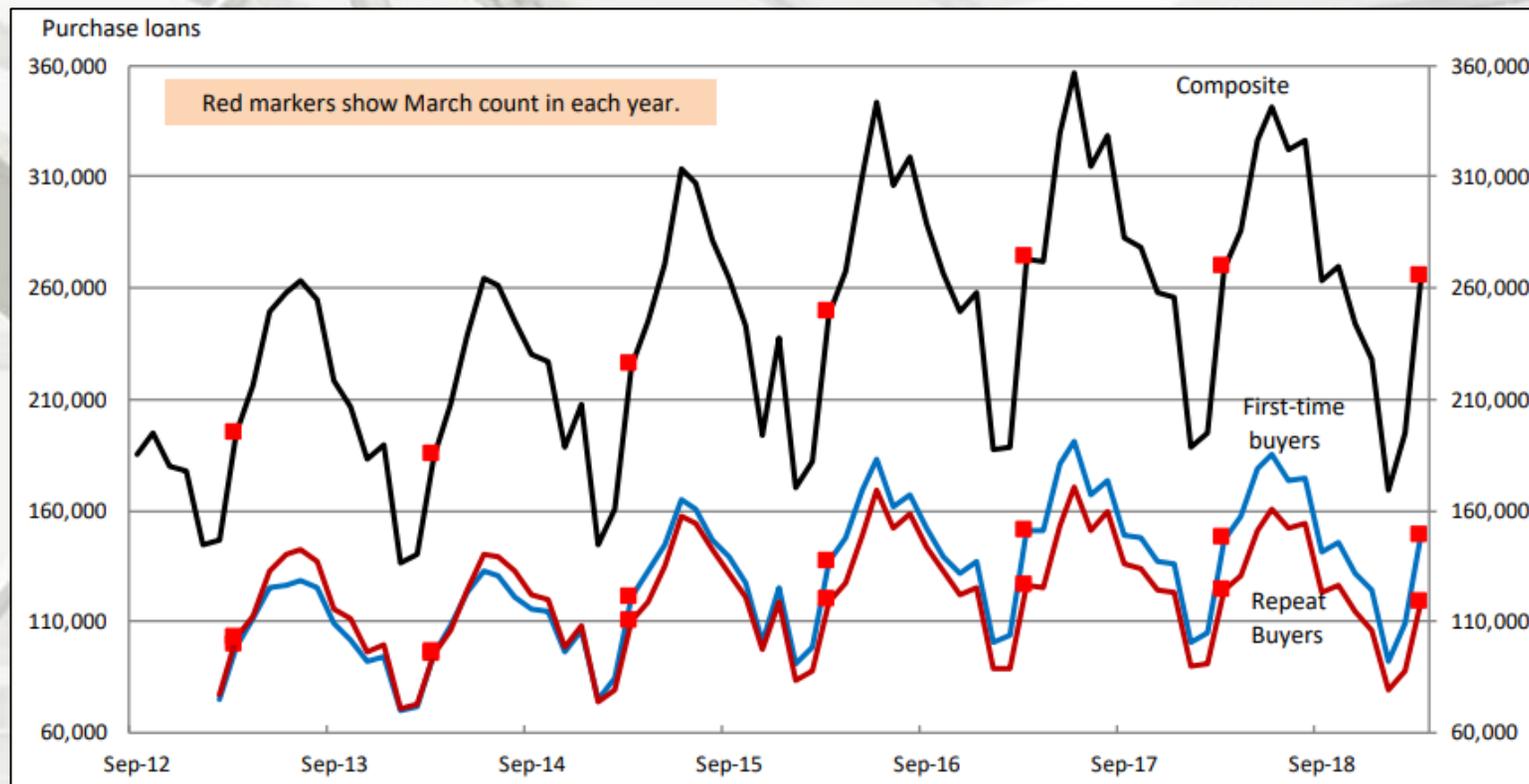
The national average 30-year fixed mortgage rate rose from below 4% in late 2017 to briefly reaching almost 5% by the latter part of 2018. Peak YOY changes in the 20-City Composite coincided with the upward turn in mortgage rates during the first quarter of 2018. In 2019, mortgage rates reversed course again and the 30-year fixed mortgage rate is again under 4%, yet the YOY house price moderation that coincided with the 2018 uptick in rates has not changed course. Other industry statistics are consistent with this observation. For example, the national supply of housing is trending upward and suggesting weaker demand. Perhaps the trend for the moment is toward normalization around the real long run average annual price increase. Comparing the YOY National Index nominal change of 3.5% to April’s inflation rate of 2.0% yields a real house price change of 1.5% - edging closer to the real long run average of 1.2% cited by David Blitzer last month.” – Philip Murphy, Managing Director and Global Head of Index Governance, S&P Dow Jones Indices

S&P/Case-Shiller Home Price Indices



“Las Vegas, Phoenix and Tampa reported the highest year-over-year gains among the 20 cities. In April, Las Vegas led the way with a 7.1% year-over-year price increase, followed by Phoenix with a 6.0% increase, and Tampa with a 5.6% increase. Nine of the 20 cities reported greater price increases in the year ending April 2019 versus the year ending March 2019.” – Soogyung Jordan, Global Head of Communications, S&P CoreLogic

First-Time House Buyers

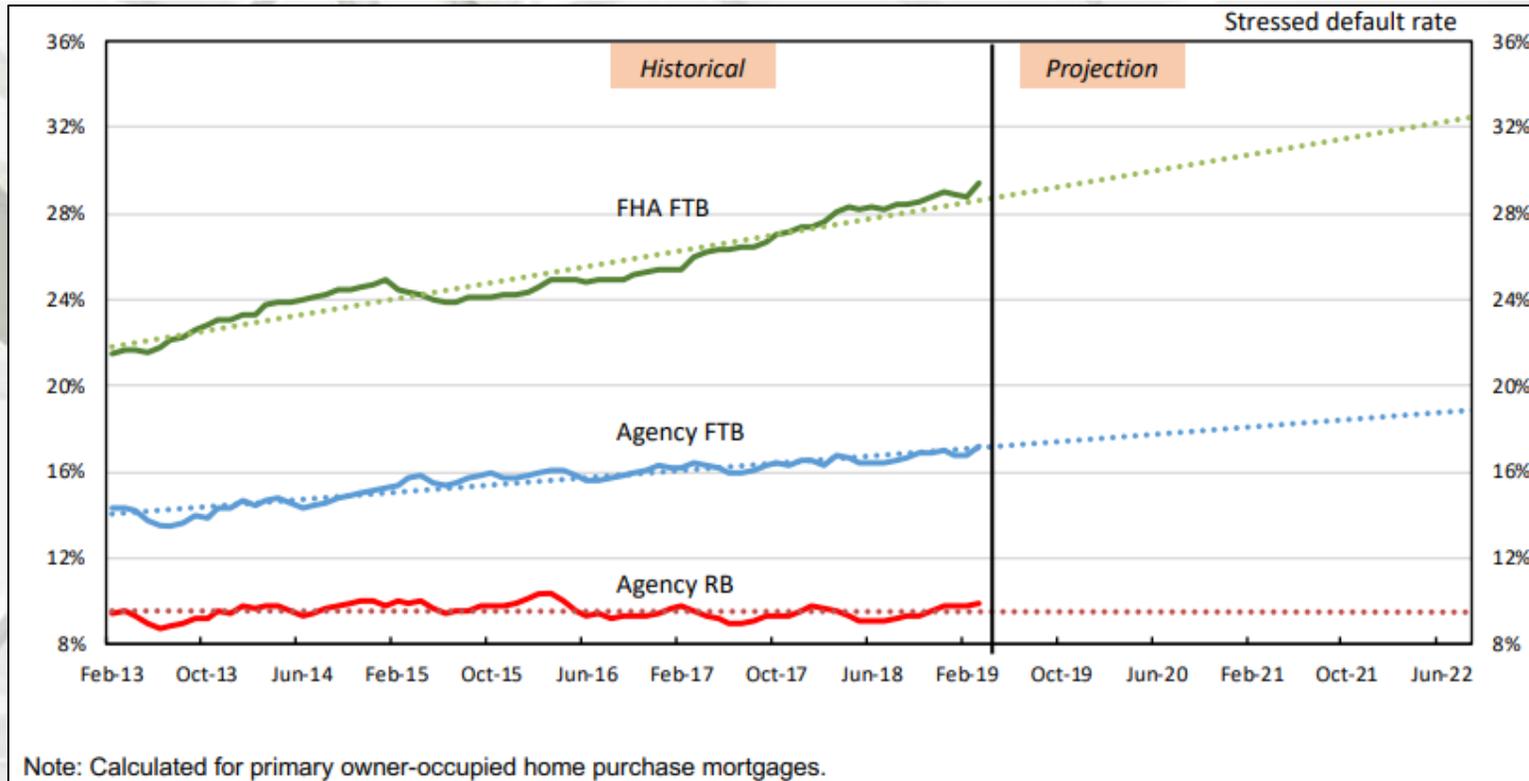


Leverage Fueled Housing Demand Powered with Lower Rates

“Purchase volume in March 2019 declined 1.6 percent from a year earlier but rose 36 percent from 6 years ago. First-time buyer volume was up 0.9 percent, while repeat buyer volume was down 4.2%. Greater access to credit is allowing first-time buyers to offset higher mortgage rates and higher house prices, while move-up buyers, with less access to credit, are electing to stay put in larger numbers and some may be poached by private portfolio lenders.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

Note: First-time buyer volume not available before February 2013.

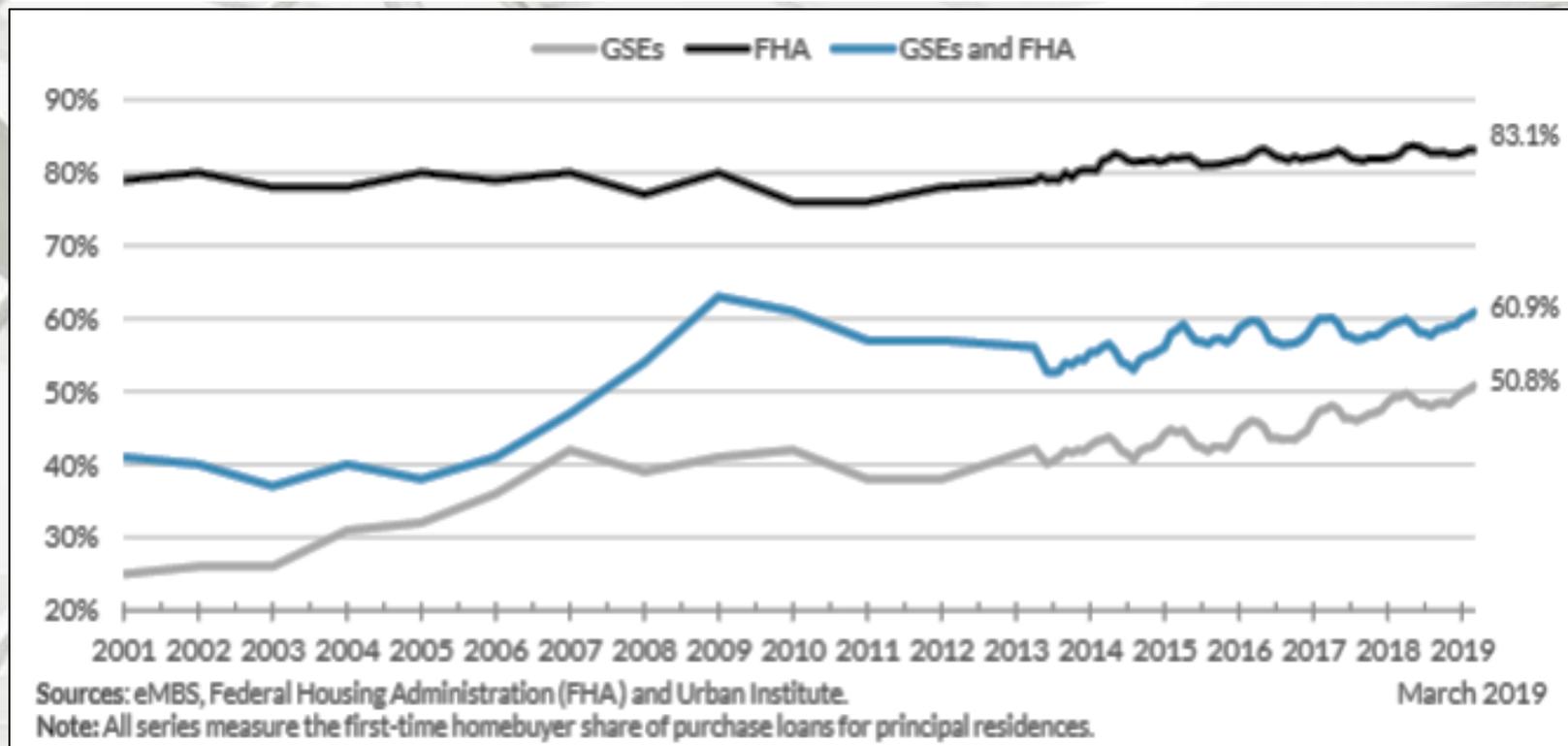
First-Time House Buyers



Eased Underwriting Standards Only Available to Agency First-time Buyers

“The Agency First-time Buyer MRI stood at 17.2% in March, up 0.4 ppt from a year earlier and up 2.8 pts. from 6 years earlier. This trend has been powered by ever increasing risk from FHA. The Agency Repeat Buyer MRI (RBMRI) has been largely flat over the last 6 years. The Agency FBMRI is 7.3 pts higher than the Agency Repeat Buyer MRI, 0.1 ppt. wider than the gap a year earlier. Unless FHA and FHFA end their competition to add leverage, it will reach almost 20% by August 2022.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

First-Time House Buyers

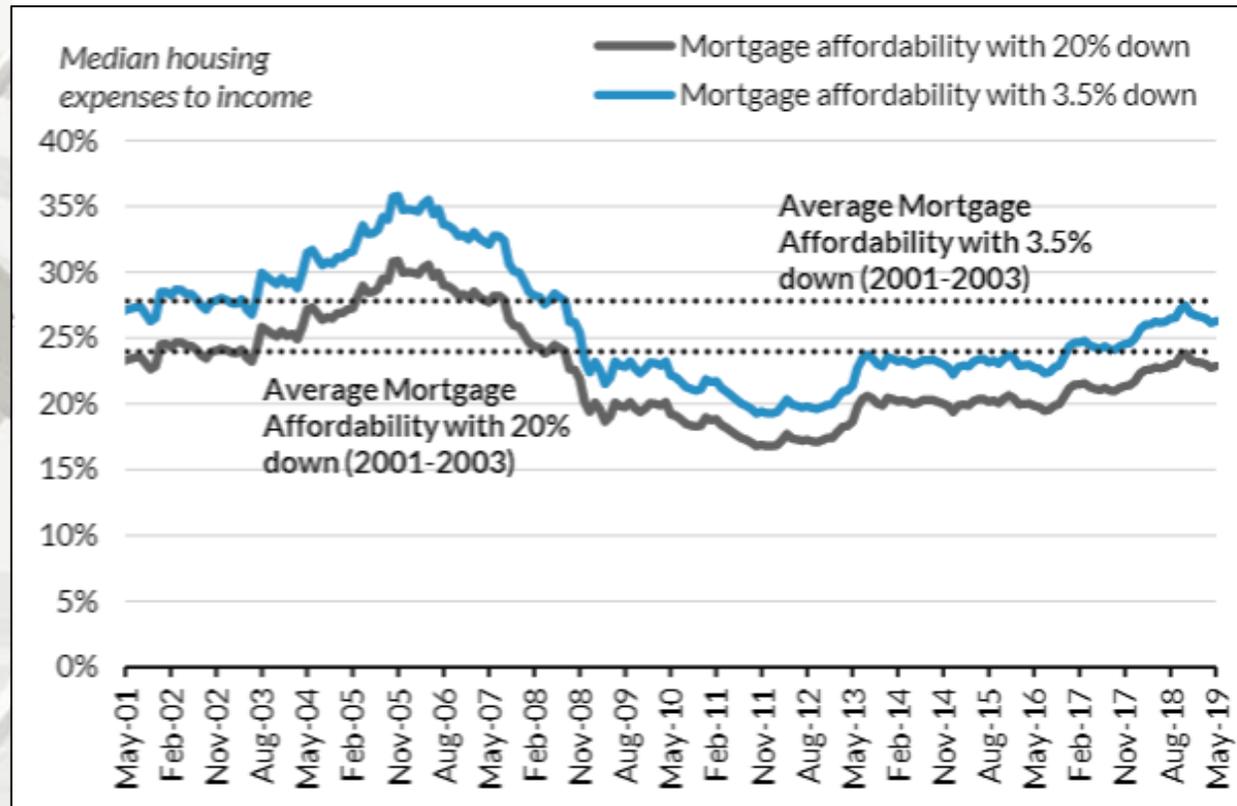


Urban Institute

“In March 2019, the first-time homebuyer (FTHB) share for FHA and GSE purchase loans both increased, with the combined FTHB share reaching 60.9 percent, the highest level in the last decade. The FTHB share for FHA, which has always been more focused on first time homebuyers, remained at 83.1 percent in March 2019. The GSE FTHB share in March was 50.8 percent, an historic high. The bottom table shows that based on mortgages originated in March 2019, the average FTHB was more likely than an average repeat buyer to take out a smaller loan, have a lower credit score, and higher LTV and higher DTI, thus paying a higher interest rate.” – Bing Lai, Research Associate, Housing Finance Policy Center

Housing Affordability

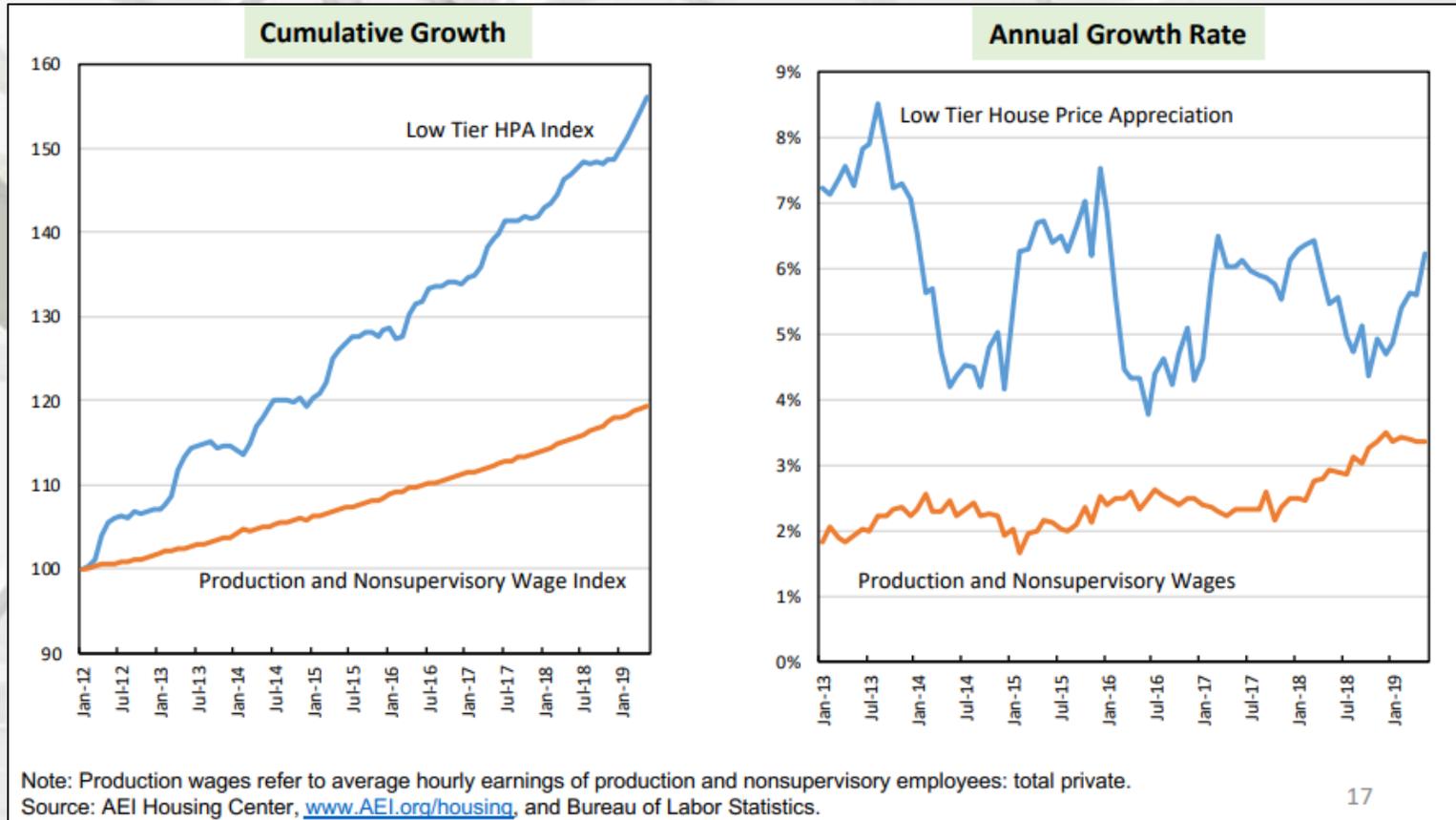
National Housing Affordability Over Time



Urban Institute

“Home prices remain affordable by historic standards, despite price increases over the last 7 years, as interest rates remain relatively low in an historic context. As of May 2019, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 22.9 percent; with 3.5 down, it is 26.3 percent. Since February, the median housing expenses to income ratio has been slightly lower than the 2001-2003 average. As shown in the bottom picture, mortgage affordability varies widely by MSA.” – Laurie Goodman, VP, Housing Finance Policy Center

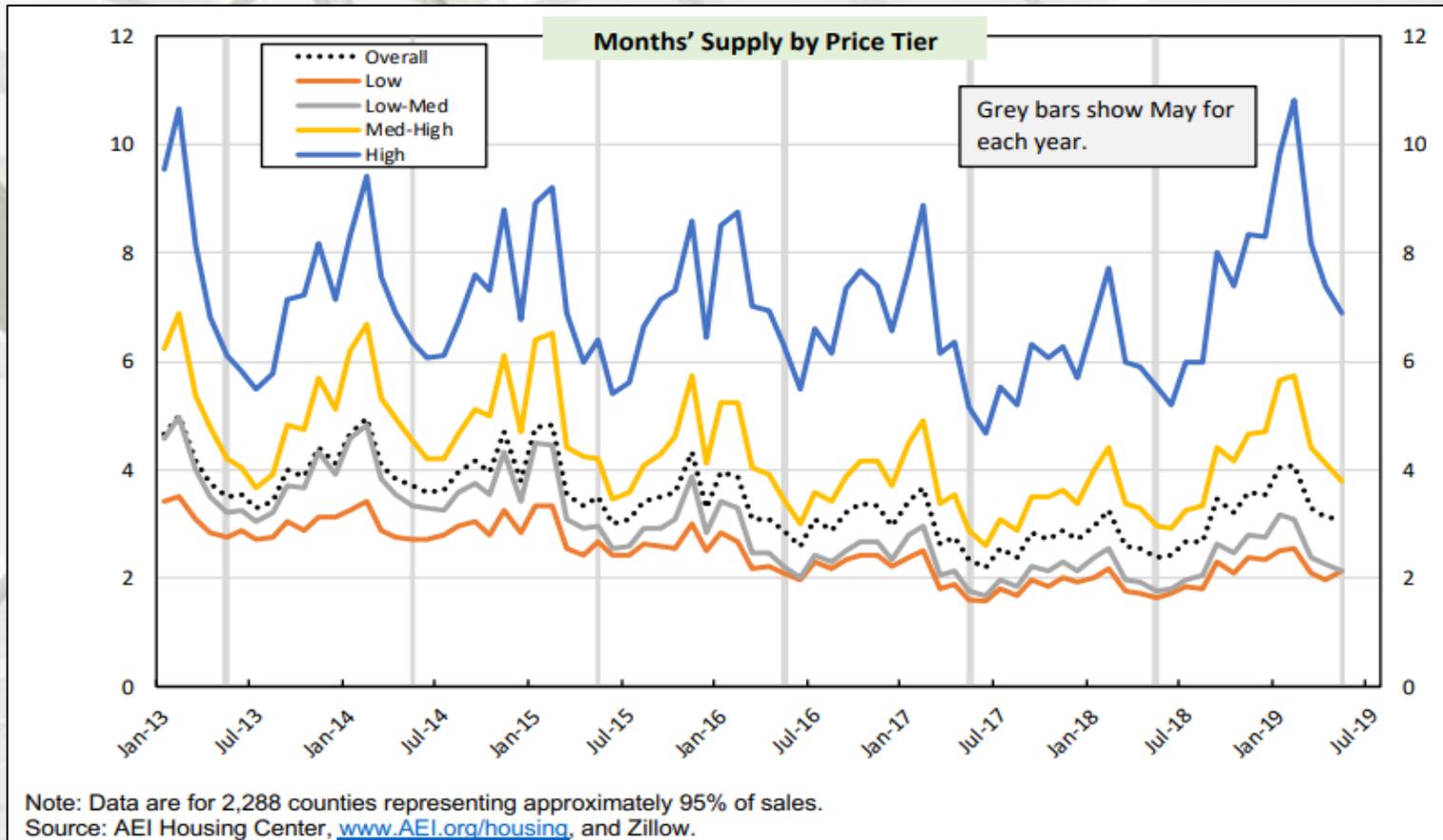
Housing Affordability



Wage Growth relative to House Price Growth

“Affordability has worsened as gains in house prices have far outpaced gains in wages. This wedge between prices and wages is most pronounced for the low price tier. With house price appreciation again picking up steam, this wedge will only further increase. This trend has been worsened through the availability of leverage, which has enabled less credit-worthy buyers to stay in the market and drive up prices.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

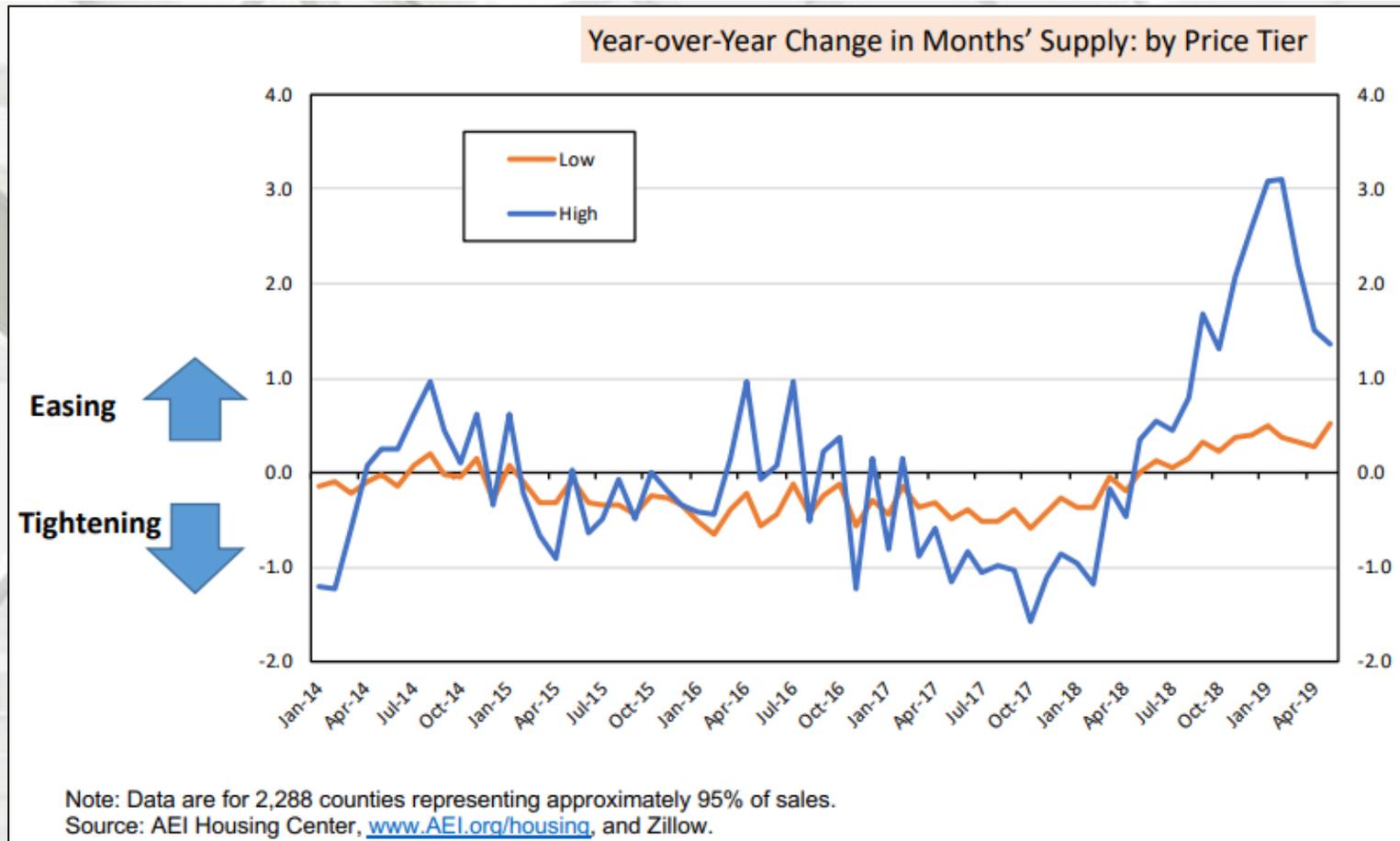
Housing Affordability



Supply-Demand Imbalance Is Greatest in the Low Price Tier

“There is a growing bifurcation on months’ supply in the market by entry-level (low and low-med) vs. move-up (med-high and high). From a year ago, the supply-imbalance has improved at all price points, but most at the upper end of the market. Inventories remain historically tight at the lower end, continuing the strong seller’s market, which implies that house prices will continue to increase, thereby worsening affordability.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

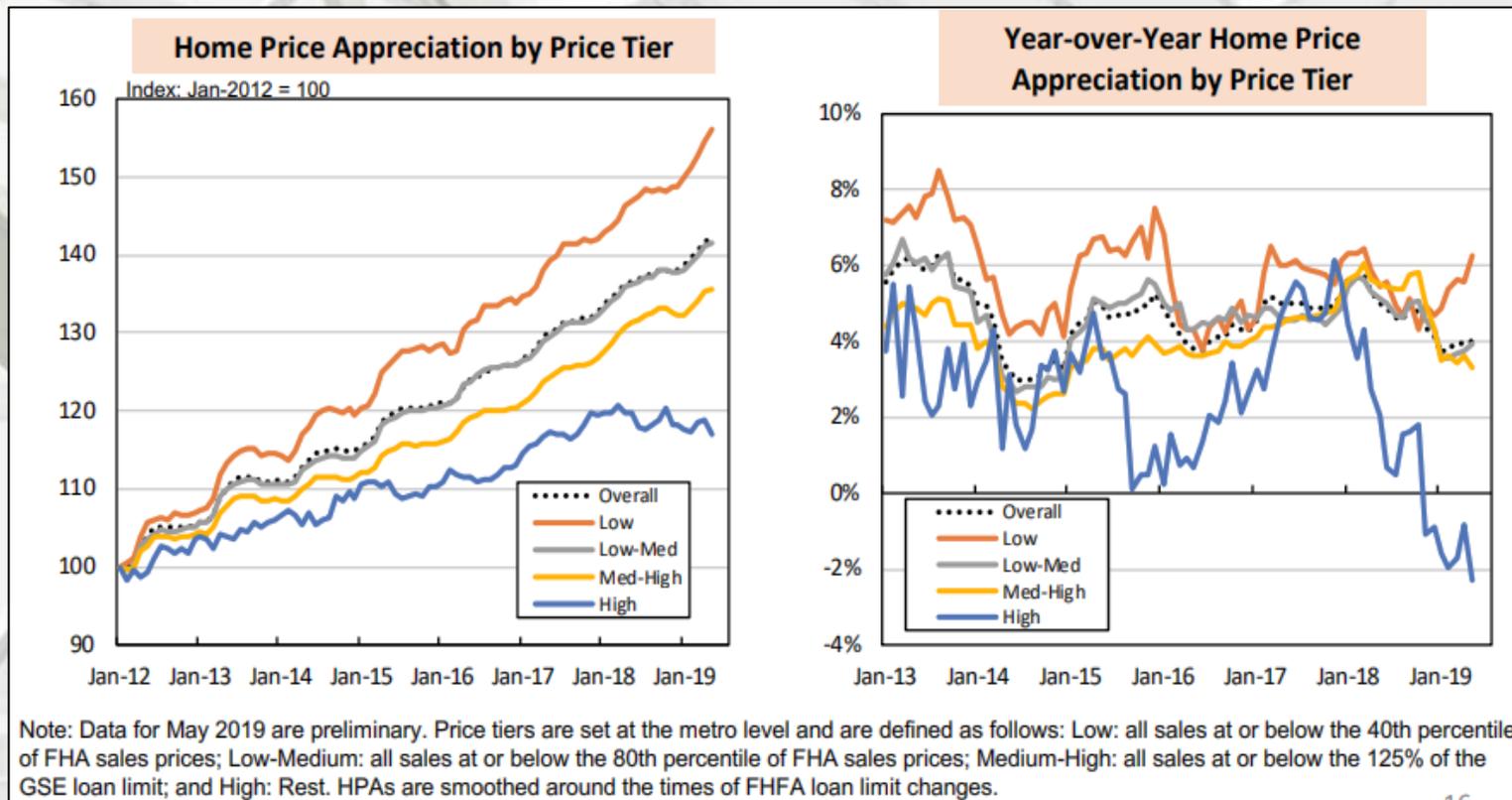
Housing Affordability



Supply-Demand Imbalance & the Two Punchbowls

“Months’ supply metric is more volatile at the high price tier, where borrowers only have access to the monetary punchbowl. When rates rise dramatically as from May to Nov. 2018, supply conditions start to ease as borrowers get discouraged. Contrast that with the low price tier where the easing of supply is more muted because borrowers can offset higher mortgage rates through the leverage punchbowl.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

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National House Price Appreciation (HPA) by Price Tier

“In May 2019, overheating of the low price tier not only continued, but reaccelerated (left panel). HPA in the low price tier appreciated at 6.2% year-over-year (yoy) – the strongest rate of growth since March 2018 (right panel). In the low-medium and medium-high tiers, HPA increased by 3.9% and 3.3%, respectively. HPA in the high tier (about 8% of the market) continued to decline at a yoy rate of 2.3% (this is the market segment the media focuses on). The return to ultra-low rates poses a threat to FHA, even more rapid (and unsustainable) growth in the low- and low-medium price tiers; 80% of FHA's business is in these two tiers.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

Mortgage Credit Availability

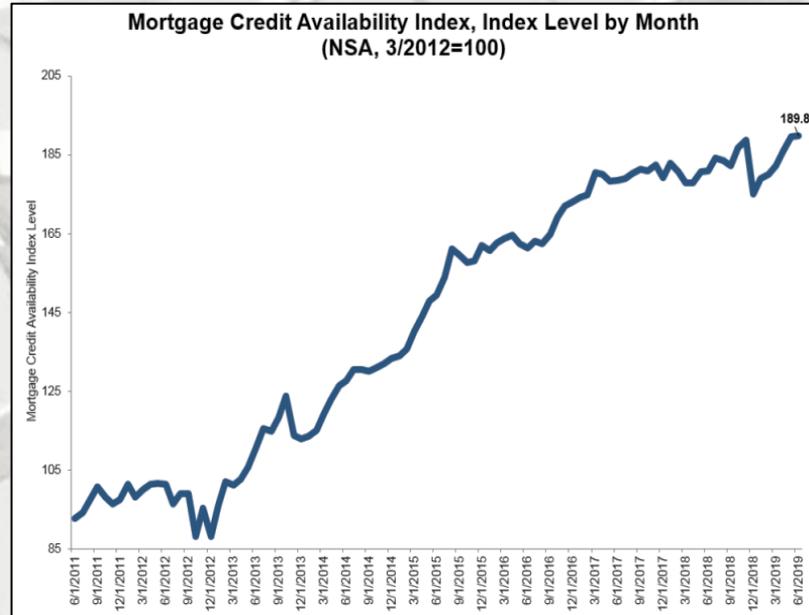
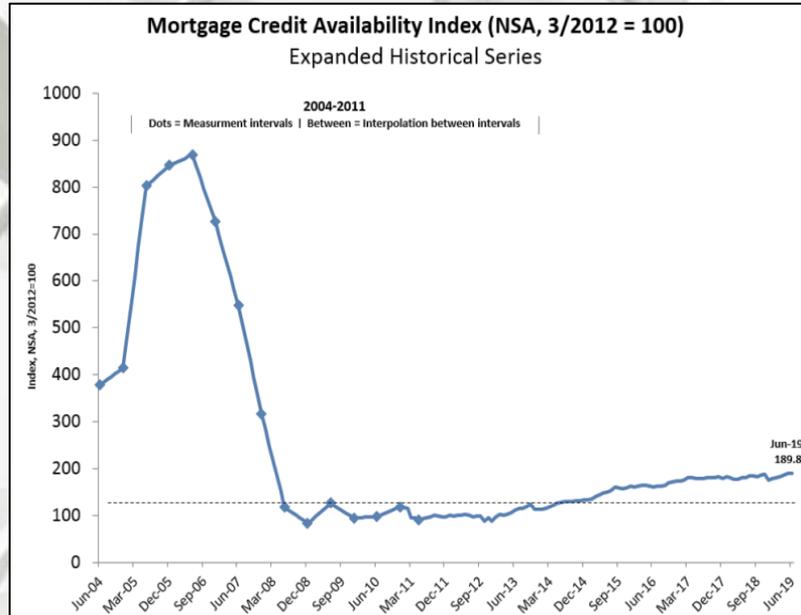
Mortgage Credit Availability Increased in June

“Mortgage credit availability increased in June 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 rose 0.2 percent to 189.8 in June. 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 increased 0.3 percent, while the Government MCAI decreased slightly (0.1 percent). Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 0.6 percent, and the Conforming MCAI fell by 0.1 percent.

Overall credit availability increased only slightly in June over May's levels. Jumbo credit availability increased for the sixth month in a row and is at its highest level since 2011, when the survey began. Credit availability has generally increased in 2019 as lenders have worked to meet affordability challenges. Because mortgage rates have recently fallen and home price growth has decelerated in many markets, credit availability may stabilize at its current levels.”– Joel Kan, Associate Vice President of Economic and Industry Forecasting, MBA

Mortgage Credit Availability



Source: Mortgage Bankers Association; Powered by Ellie Mae's AllRegs® Market Clarity®

Summary

In conclusion:

May 2019 United States housing data was largely negative, with only total housing and single-family permits, and existing sales positive on month-over-month basis. The year-over-year data also was similar; with total and single-family under construction, and single-family completions being positive.

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

Pros:

- 1) Historically low interest rates are still in place;
- 2) Select builders are beginning to focus on entry-level houses.

Cons:

- 1) Housing affordability shows minimal improvement;
- 2) Lot availability and building regulations (according to several sources);
- 3) Laborer shortages;
- 4) Household formations still lag historical averages;
- 5) Changing attitudes towards SF ownership;
- 6) Job creation is improving and consistent but some economists question the quantity and types of jobs being created;
- 7) Debt: Corporate, personal, government – United States and globally;
- 8) Other global uncertainties.

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