

The Virginia Tech – U.S. Forest Service

February 2019

Housing Commentary: Section I



Urs Buehlmann

Department of Sustainable Biomaterials
College of Natural Resources & Environment

Virginia Tech
Blacksburg, VA

540.231.9759

buehlmann@gmail.com

Delton Alderman

Forest Products Marketing Unit
Forest Products Laboratory

U.S. Forest Service
Madison, WI

304.431.2734

dalderman@fs.fed.us



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

Opening Remarks

The weather in many regions of the United States in February was bleak. Housing data reported for February mirrored the weather – dreary. However, it is a winter month and past history suggests February has not been a strong month for construction, or sales. Total and single-family starts declined substantially on a monthly and a yearly bases. Single-family and total housing permits also were uninspiring. Housing under construction, completions, and new single-family sales also were mixed. The one bright data point was monthly existing sales, which rebounded substantially on a monthly basis. New construction expenditures were tepid as well. The April 12th Atlanta Fed GDPNow™ model for Q1 2019 projects an aggregate 4.0% increase for residential investment spending. New private permanent site expenditures were projected at a 7.5% decrease; the improvement spending forecast was a 7.2% increase; and the manufactured/mobile housing projection was a 15.4% increase (all: quarterly log change and seasonally adjusted annual rate)¹.

“There have been persistent declines across key housing indicators for four consecutive months. However, we anticipate some economic relief as we head into 2019’s spring home buying season. Mortgage rates have reached recent lows leading to increased potential for home sales, which is oftentimes followed by a surge in remodeling activity. The performance of single-family housing authorizations, maintenance, and remodeling activity through this next season will shed light on whether declines in the housing market will spread to the broader economy.”² – Holly Tachovsky, CEO, BuildFax

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

Sources: ¹ www.frbatlanta.org/cqer/research/gdpnow.aspx; 4/12/19;

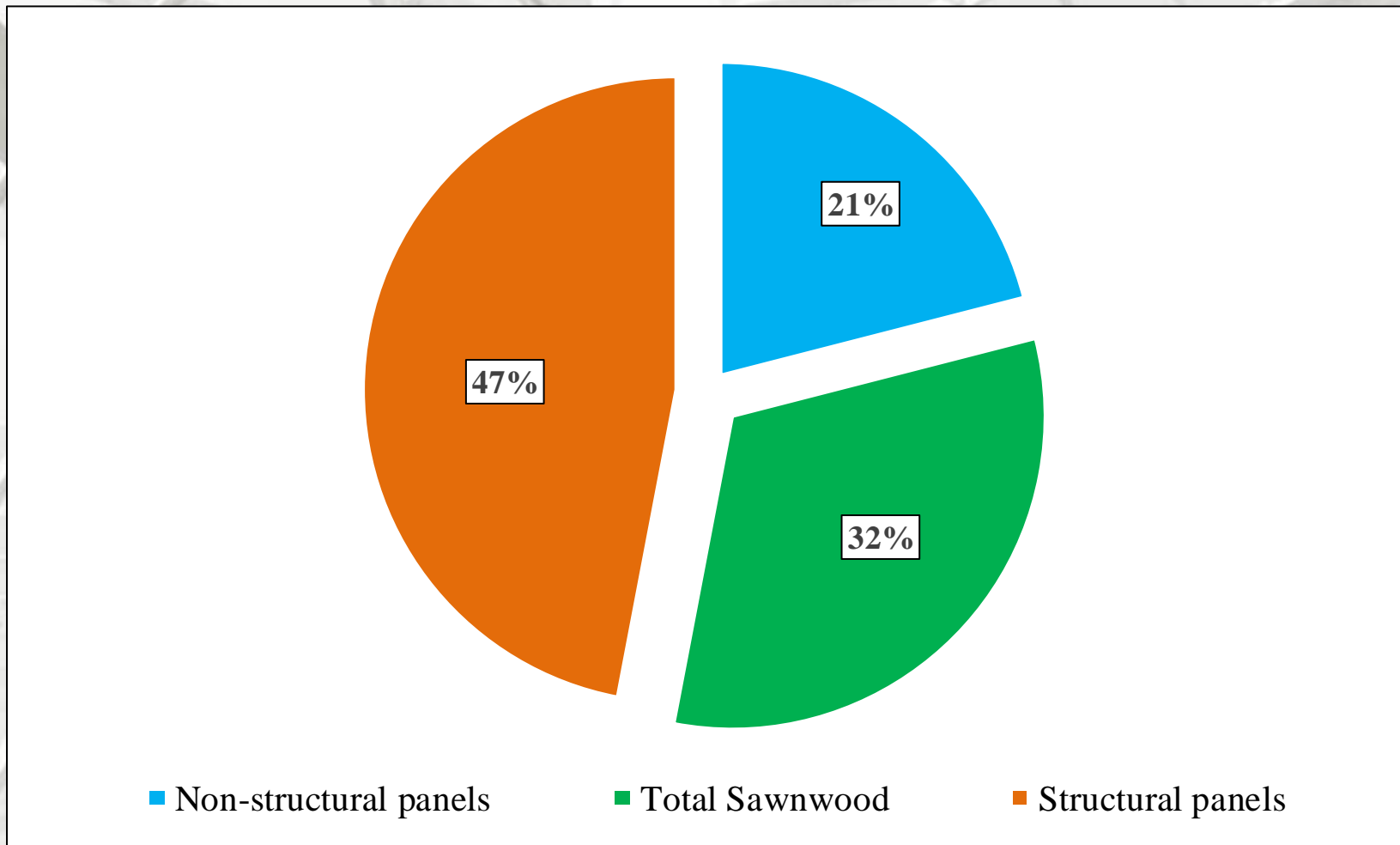
² <https://www.buildfax.com/buildfax-housing-health-report-february-2019/>; 3/18/19

February 2019 Housing Scorecard

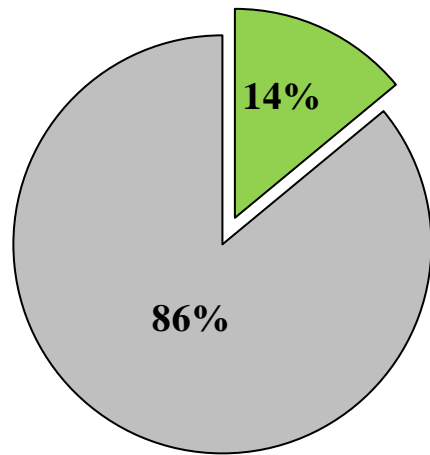
	M/M	Y/Y
Housing Starts	▽ 8.7%	▽ 9.9%
Single-Family (SF) Starts	▽ 17.0%	▽ 10.6%
Housing Permits	▽ 1.6%	▽ 2.0%
SF Permits	NC	▽ 7.3%
Housing Under Construction	▽ 0.9%	△ 2.6%
SF Under Construction	NC	△ 8.2%
Housing Completions	△ 4.5%	△ 1.1%
SF Completions	▽ 10.0%	▽ 7.5%
New SF House Sales	△ 4.9%	△ 0.6%
Private Residential Construction Spending	△ 0.7%	▽ 3.4%
SF Construction Spending	▽ 1.1%	▽ 7.1%
Existing House Sales ¹	△ 11.8%	▽ 1.8%

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

New Construction's Percentage of Wood Products Consumption

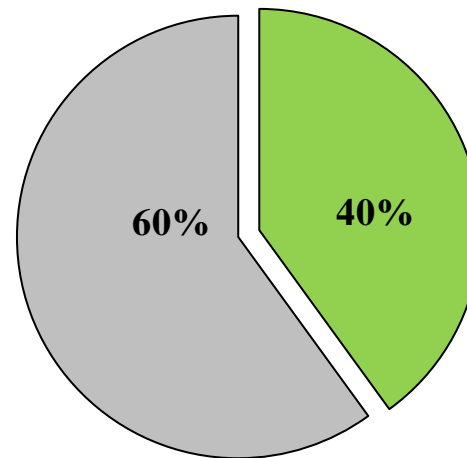


New SF Construction Percentage of Wood Products Consumption



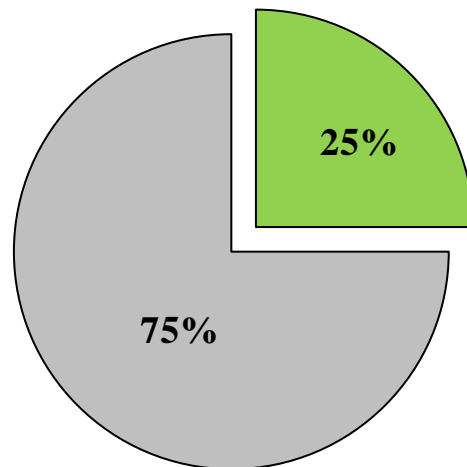
■ Non-structural panels:
New Housing

■ Other markets



■ Structural panels:
New housing

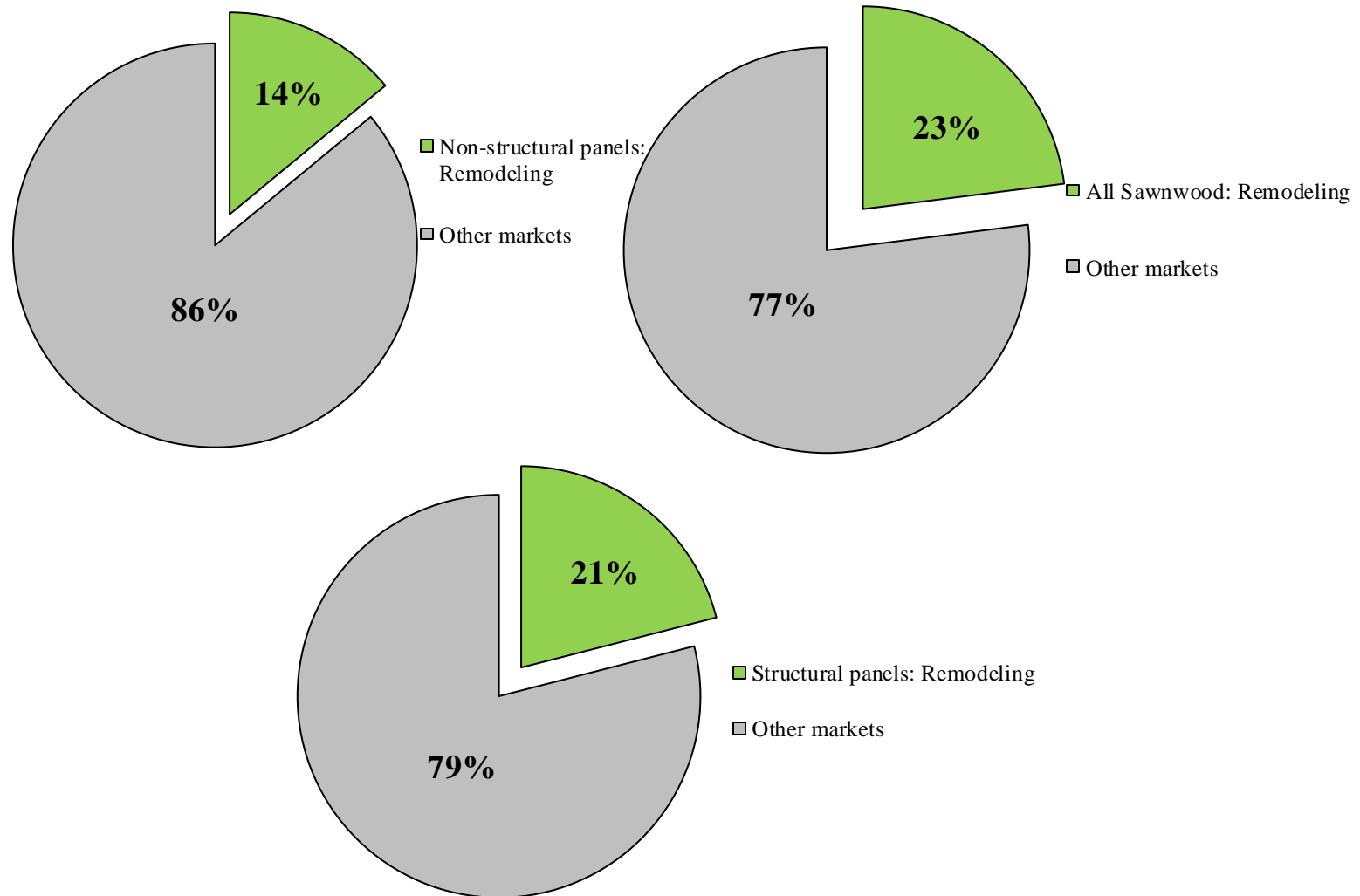
■ Other markets



■ All Sawnwood: New housing

■ Other markets

Repair and Remodeling's Percentage of Wood Products Consumption



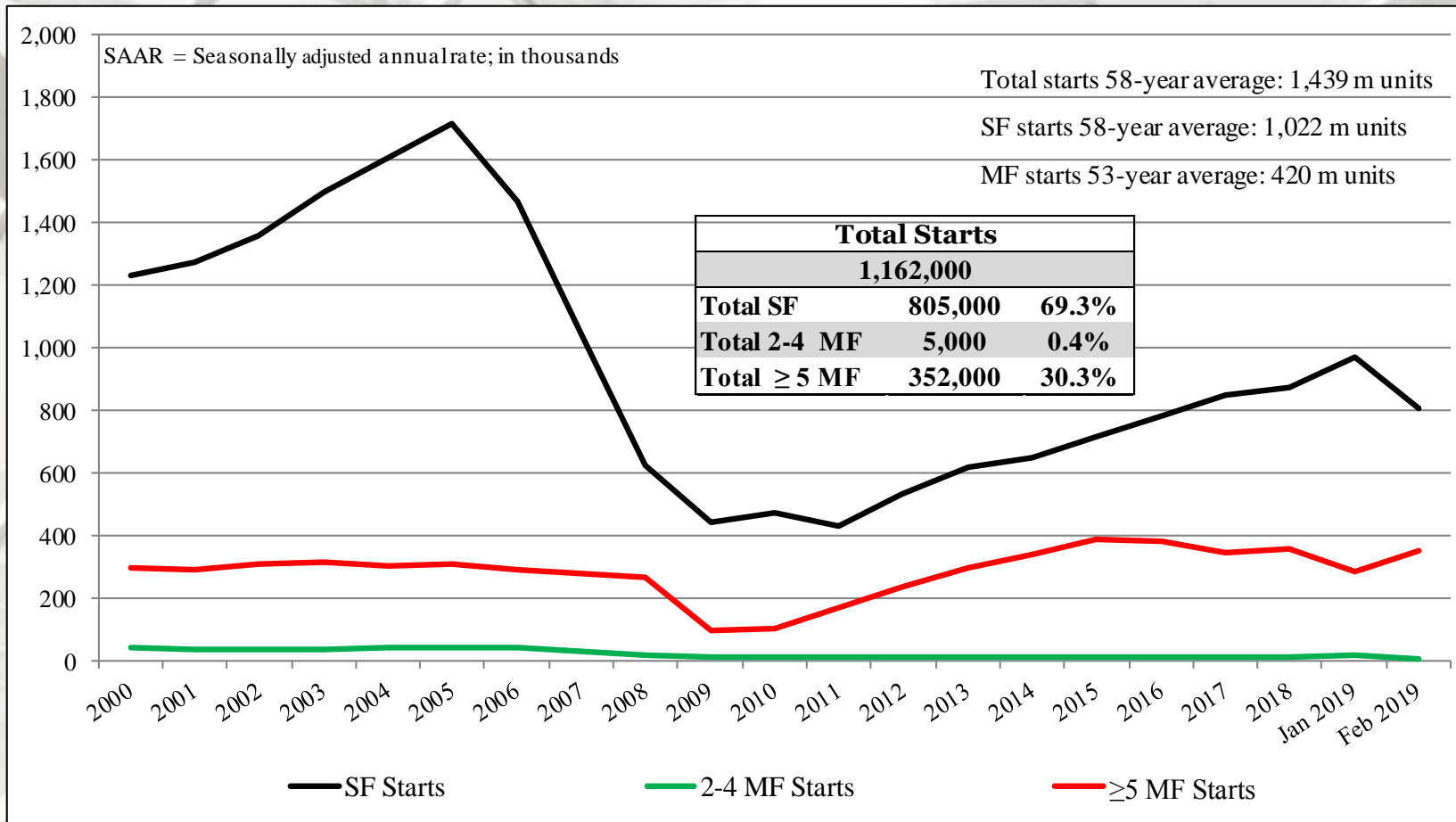
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
February	1,162,000	805,000	5,000	352,000
January	1,273,000	970,000	18,000	285,000
2018	1,290,000	900,000	18,000	372,000
M/M change	-8.7	-17.0	-72.2	23.5
Y/Y change	-9.9	-10.6	-72.2	-5.4

* 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)).

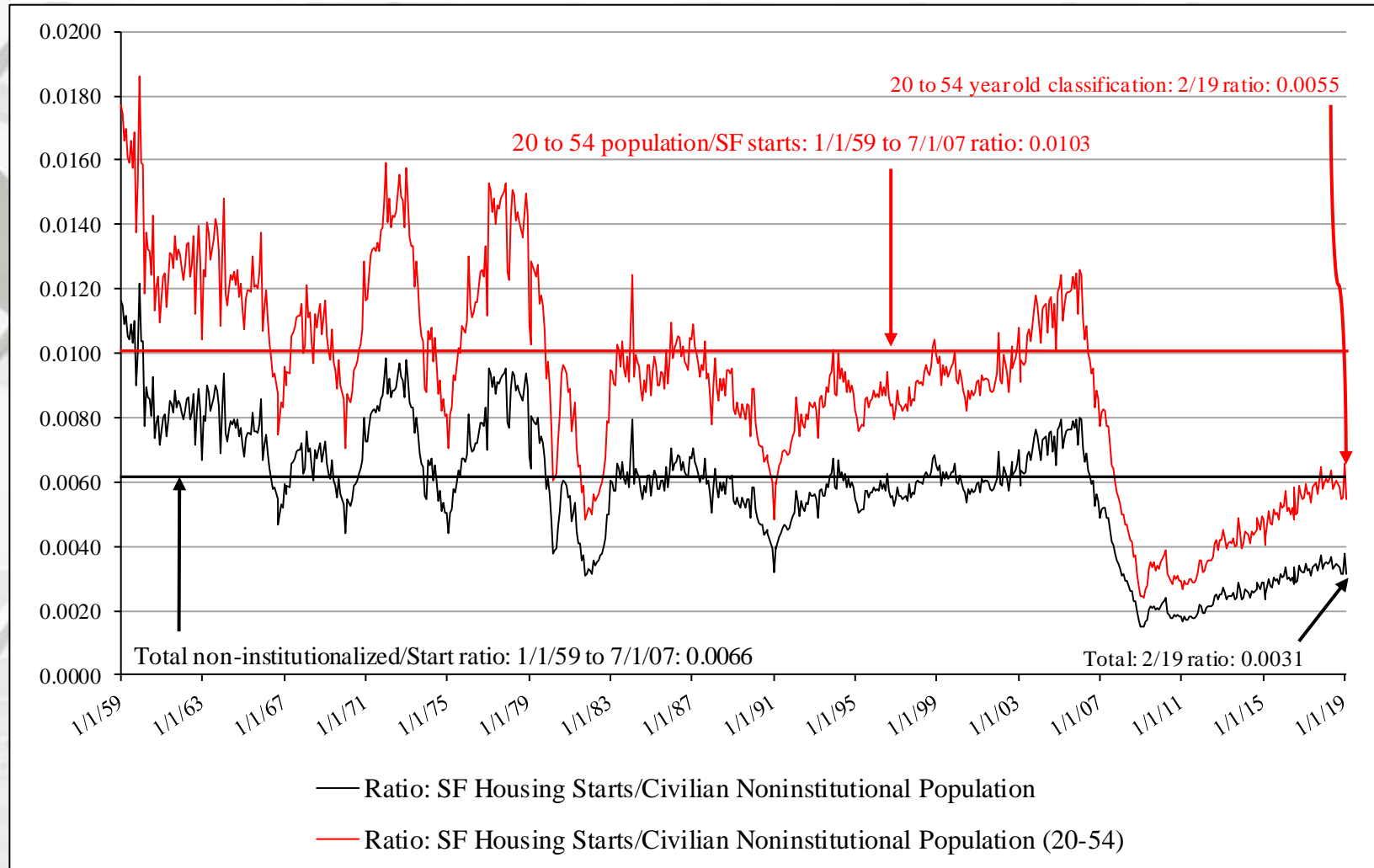
Total Housing Starts



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

* Percentage of total starts.

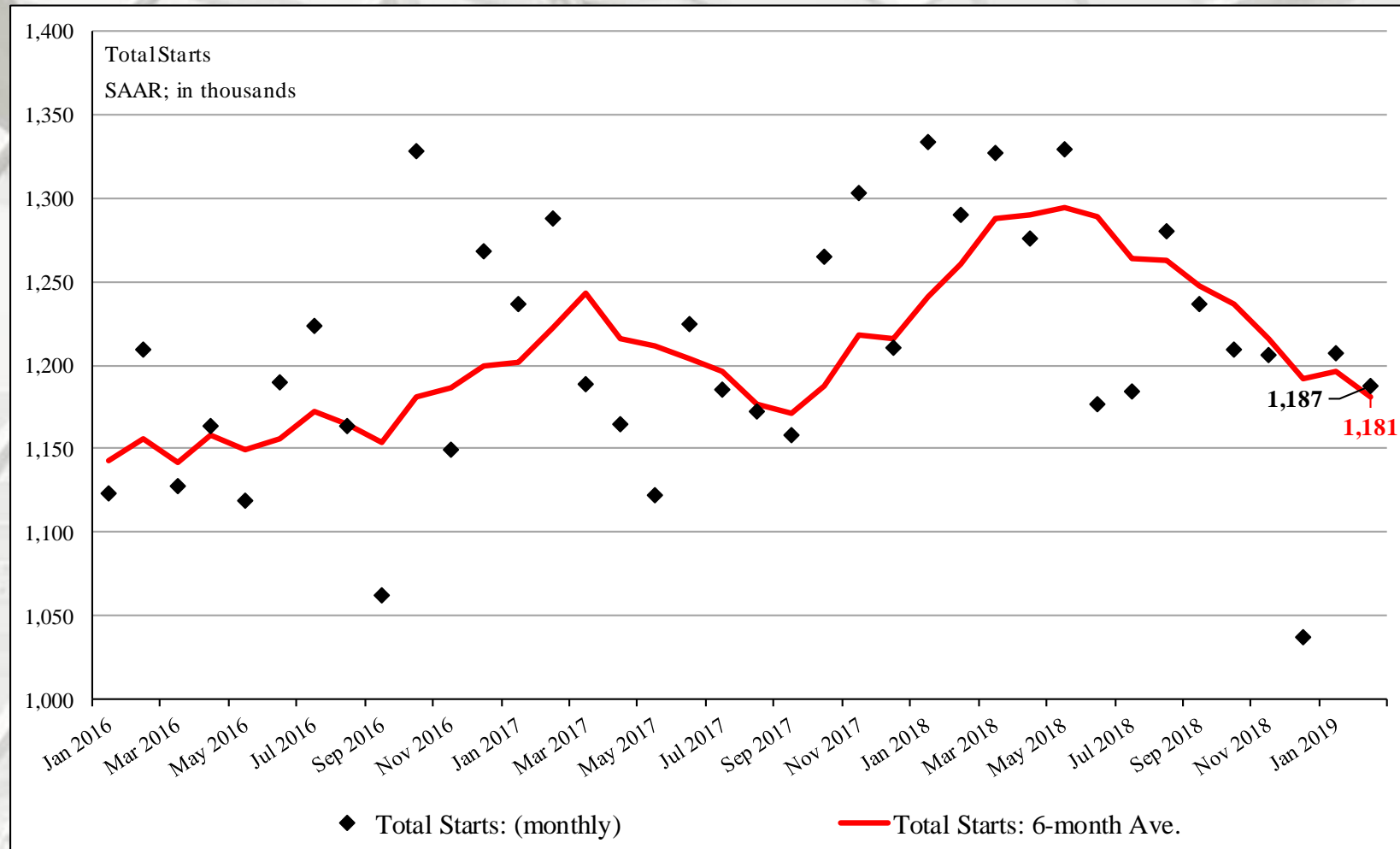
New SF Starts



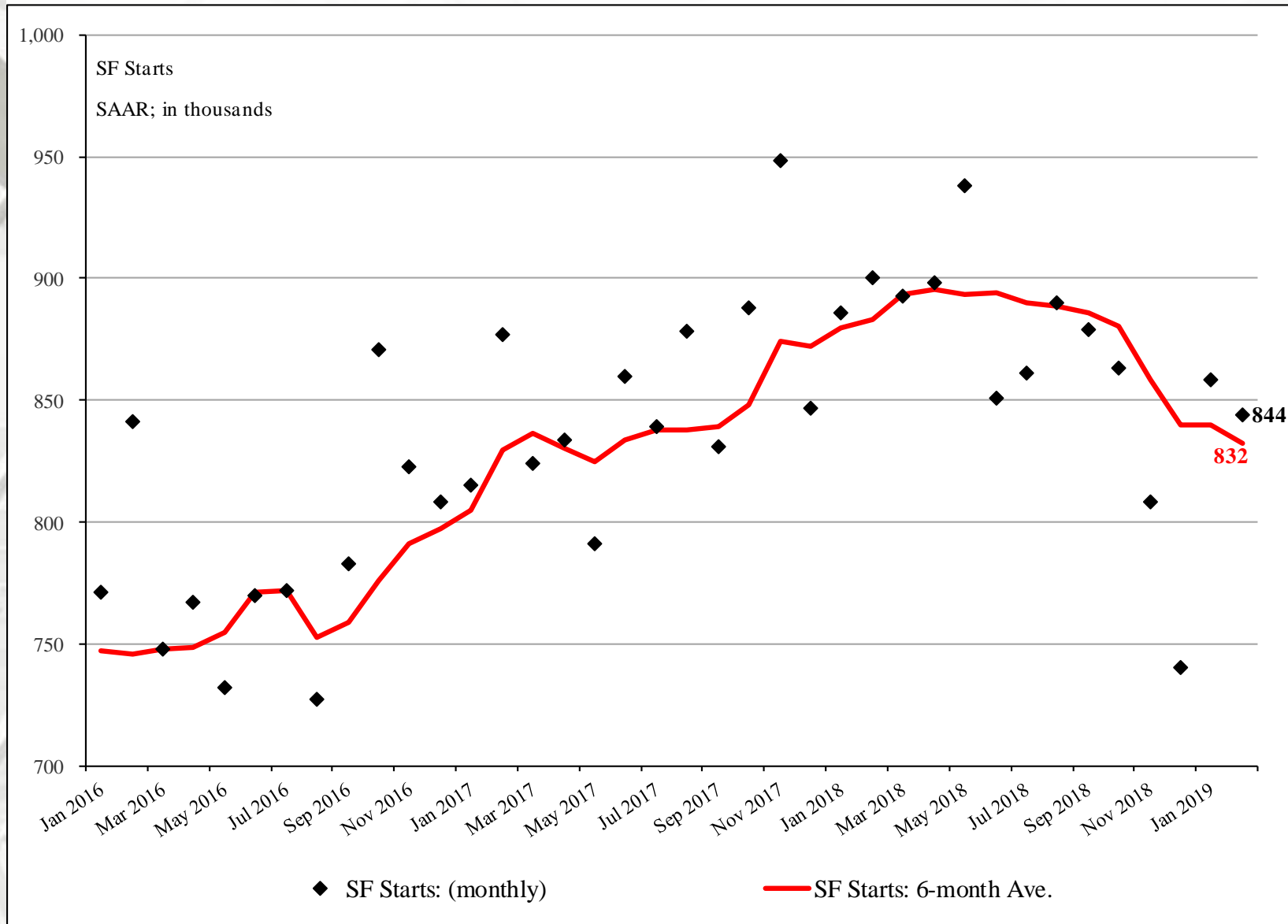
New SF starts adjusted for the US population

From February 1959 to February 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in February 2019 it was 0.0031 – a decrease from January (0.0038). The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in February 2018 was 0.0055 – also a decrease from January (0.0066). From a population worldview, new SF construction is less than what is necessary for changes in population (i.e., under-building).

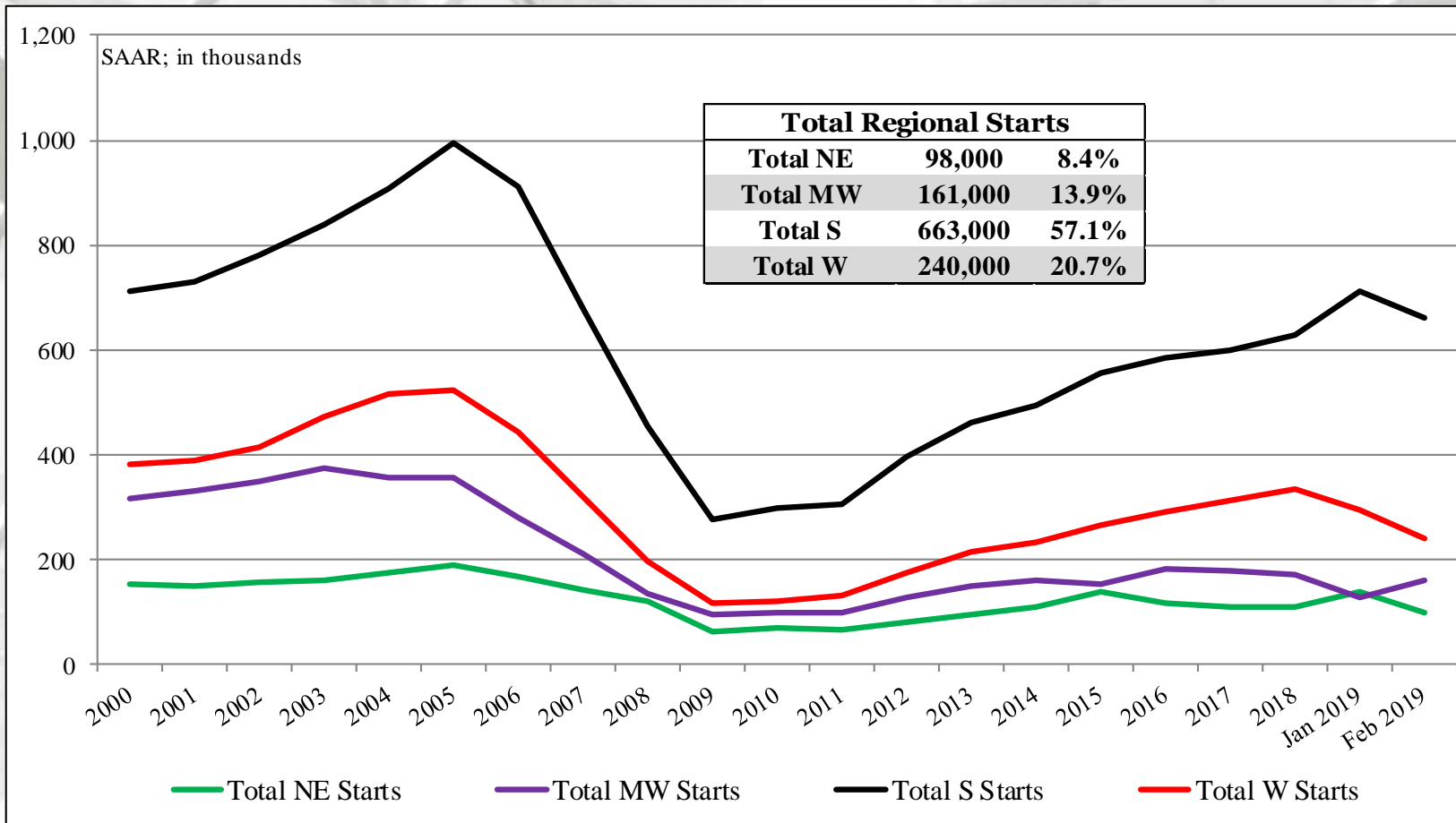
Total Housing Starts: Six-Month Average



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**
February	98,000	47,000	51,000
January	139,000	81,000	58,000
2018	132,000	65,000	67,000
M/M change	-29.5	-42.0	-12.1
Y/Y change	-25.8	-27.7	-23.9
	MW Total	MW SF	MW MF
February	161,000	110,000	51,000
January	127,000	120,000	7,000
2018	154,000	109,000	45,000
M/M change	26.8	-8.3	628.6
Y/Y change	4.5	0.9	13.3

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).

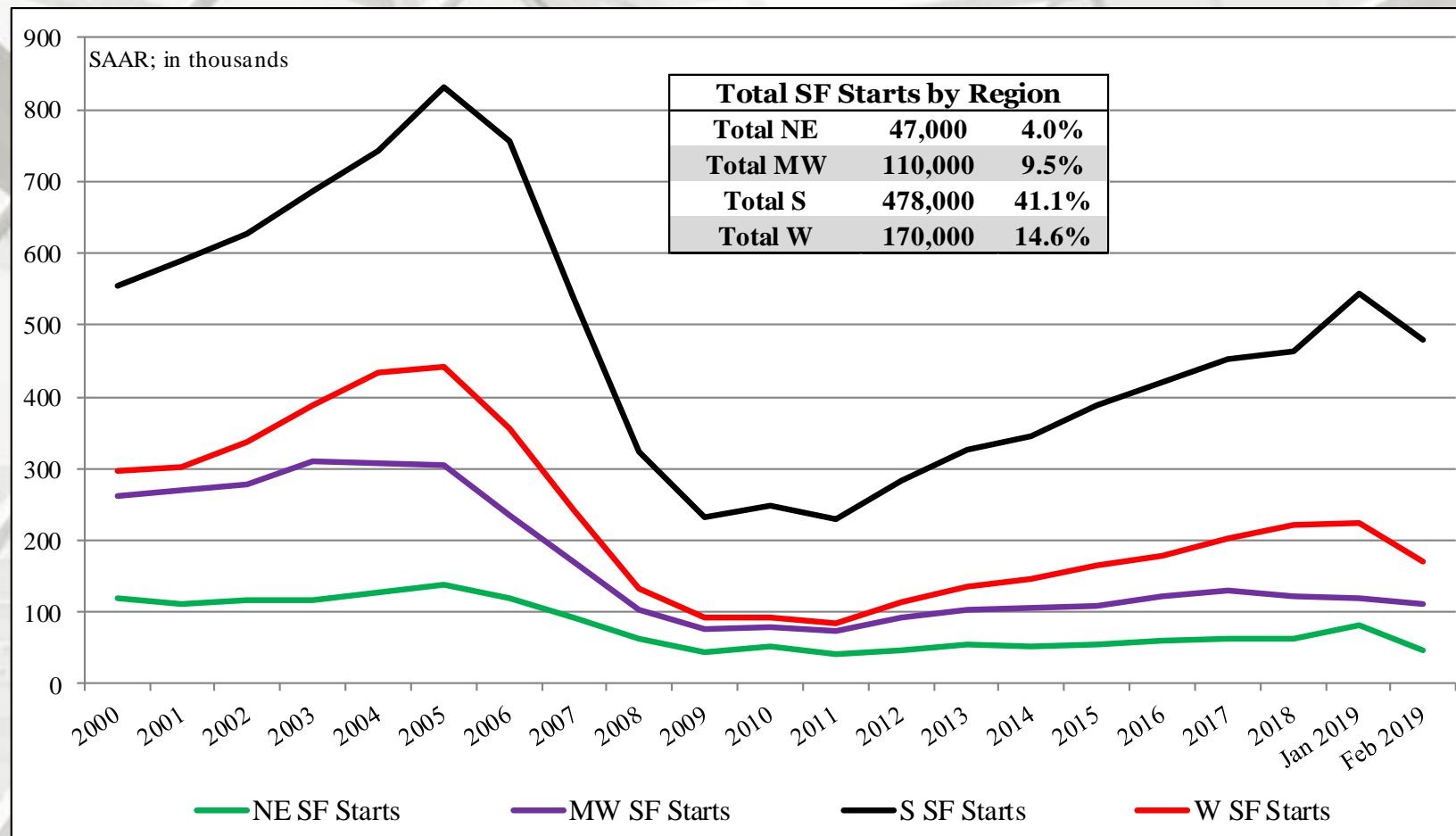
New Housing Starts by Region

	S Total	S SF	S MF**
February	663,000	478,000	185,000
January	711,000	544,000	167,000
2017	615,000	476,000	139,000
M/M change	-6.8	-12.1	10.8
Y/Y change	7.8	0.4	33.1
	W Total	W SF	W MF
February	240,000	170,000	70,000
January	296,000	225,000	71,000
2018	389,000	250,000	139,000
M/M change	-18.9	-24.4	-1.4
Y/Y change	-38.3	-32.0	-49.6

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

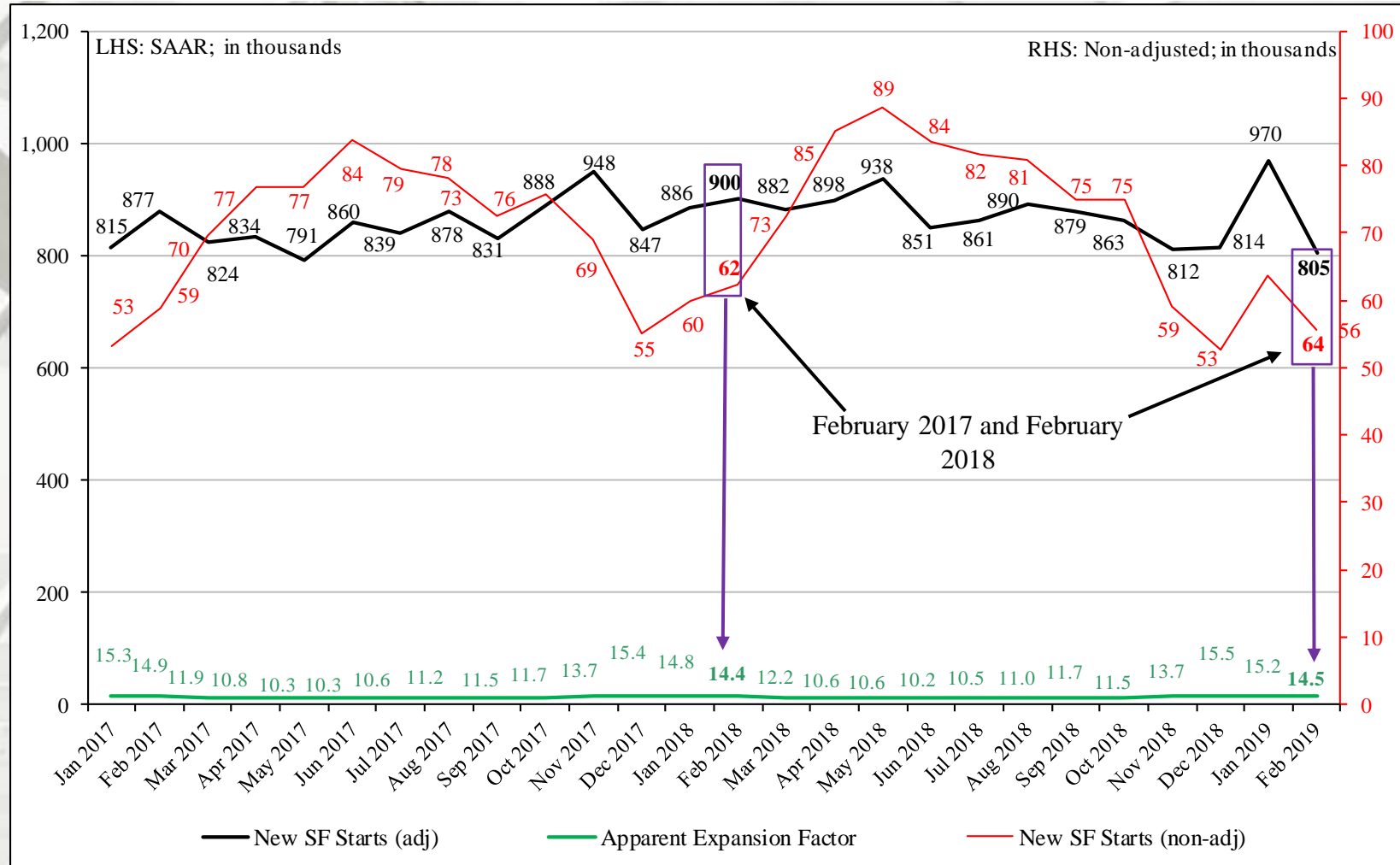


NE = Northeast, MW = Midwest, S = South, W = West

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

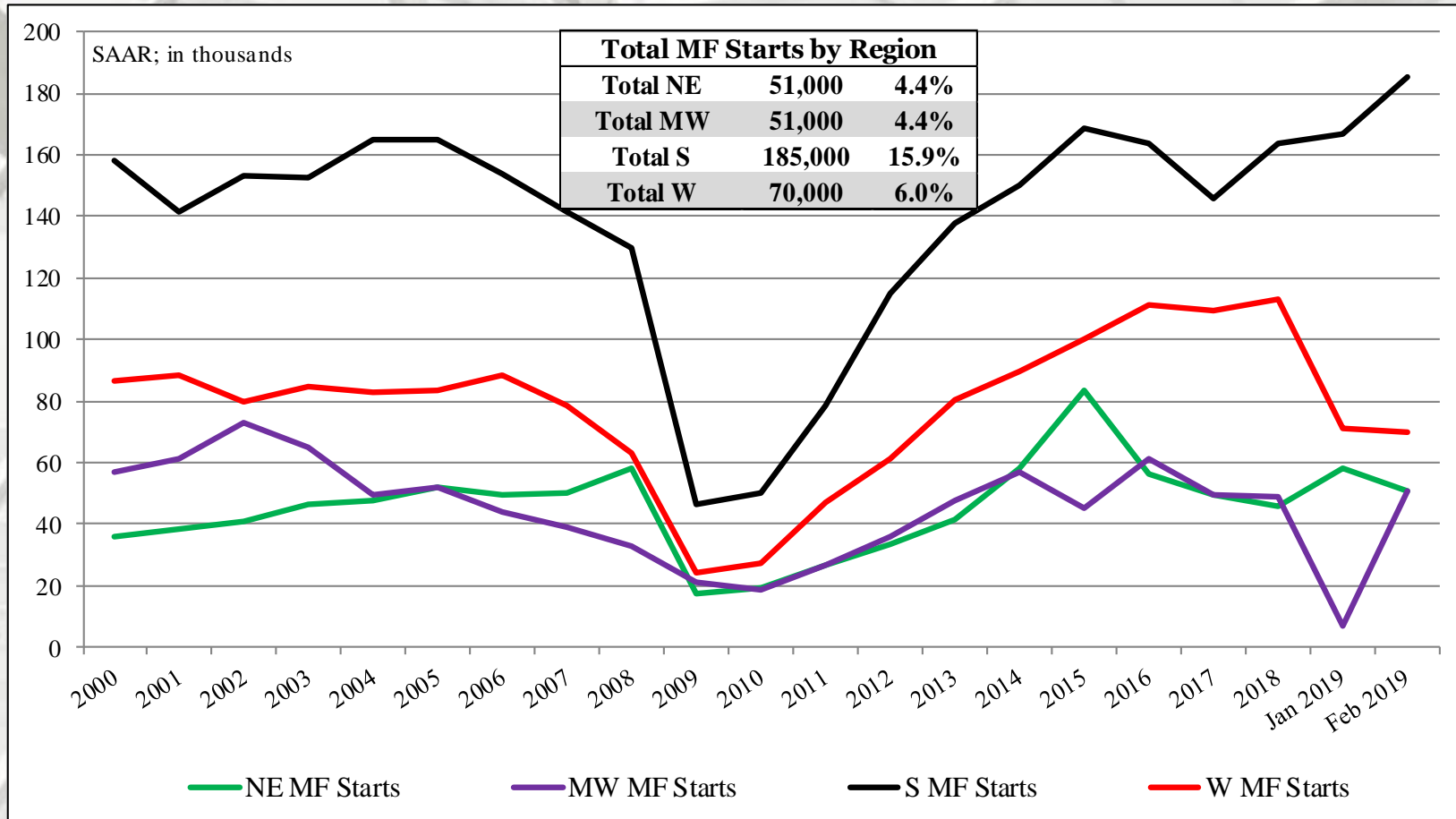


Nominal and Adjusted New SF Monthly Starts

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

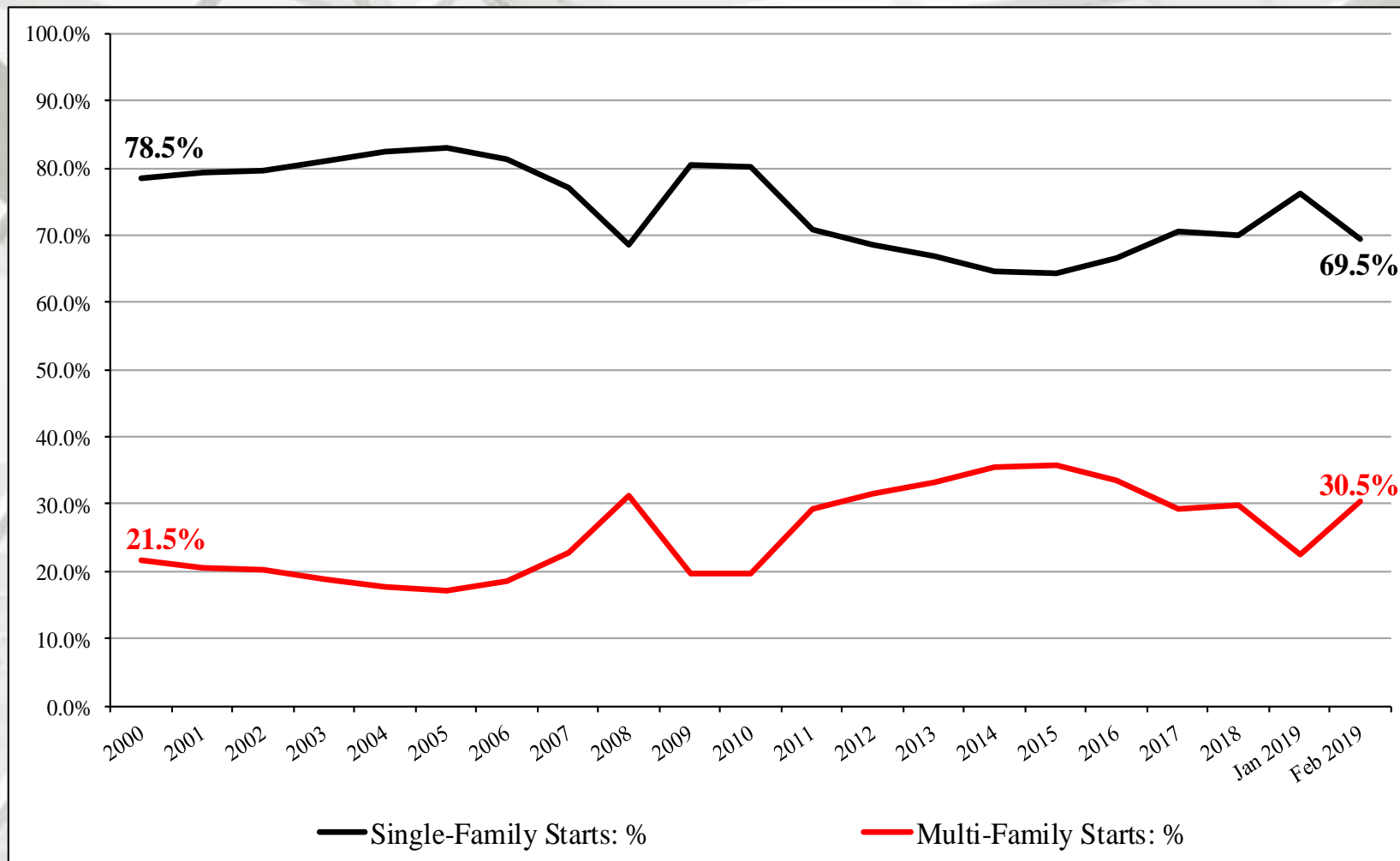


NE = Northeast, MW = Midwest, S = South, W = West

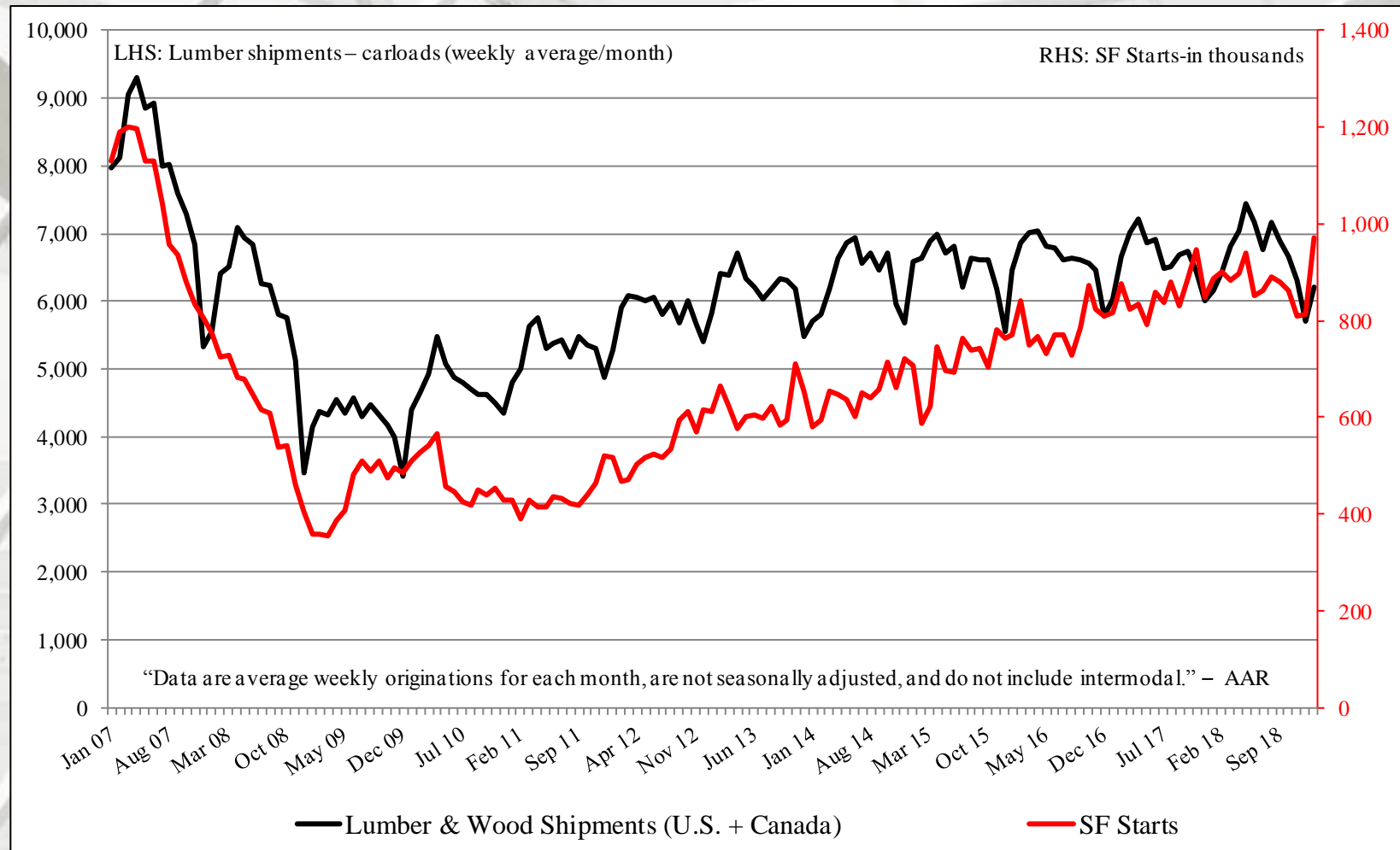
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

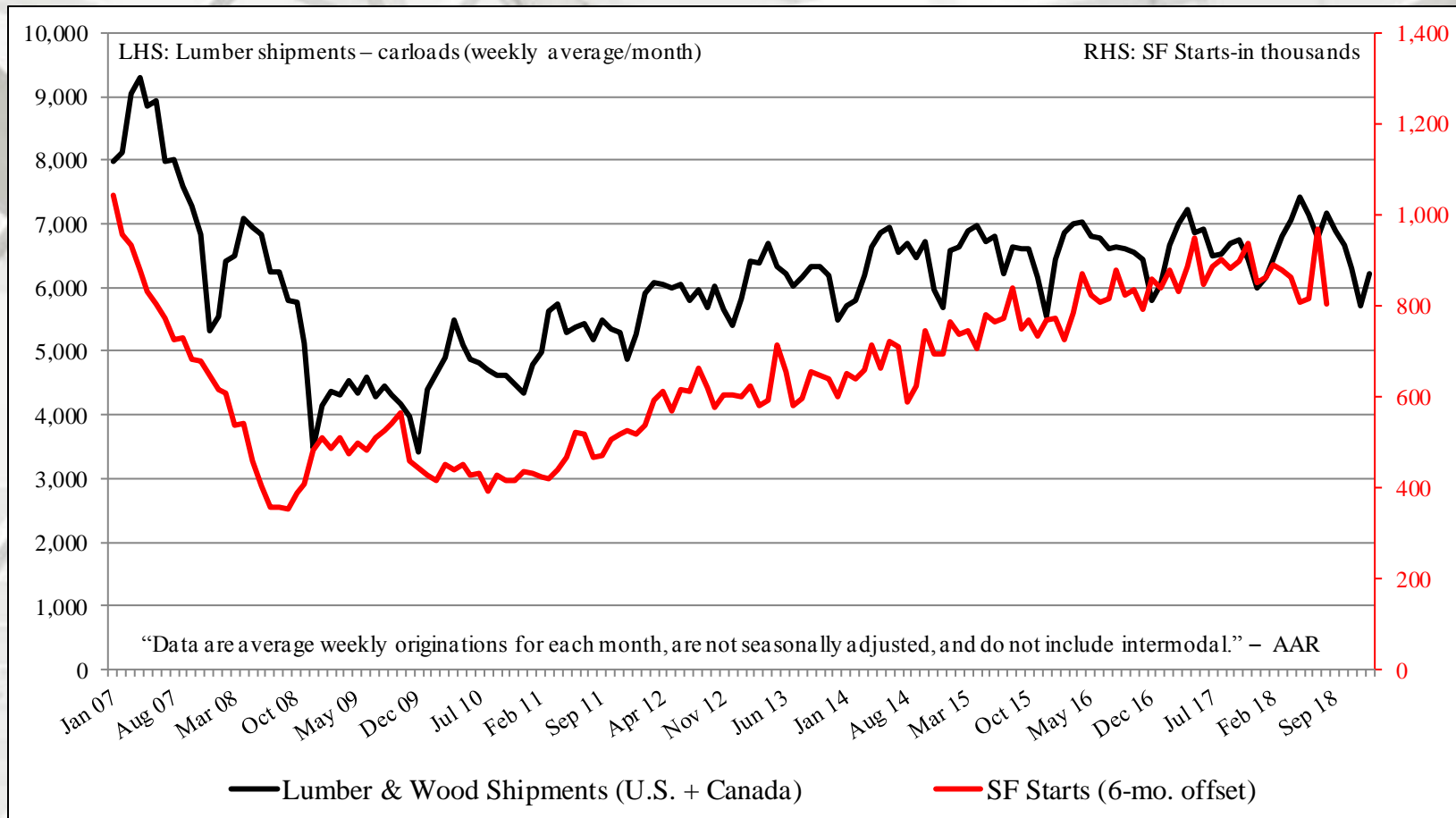
SF vs. MF Housing Starts (%)



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



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



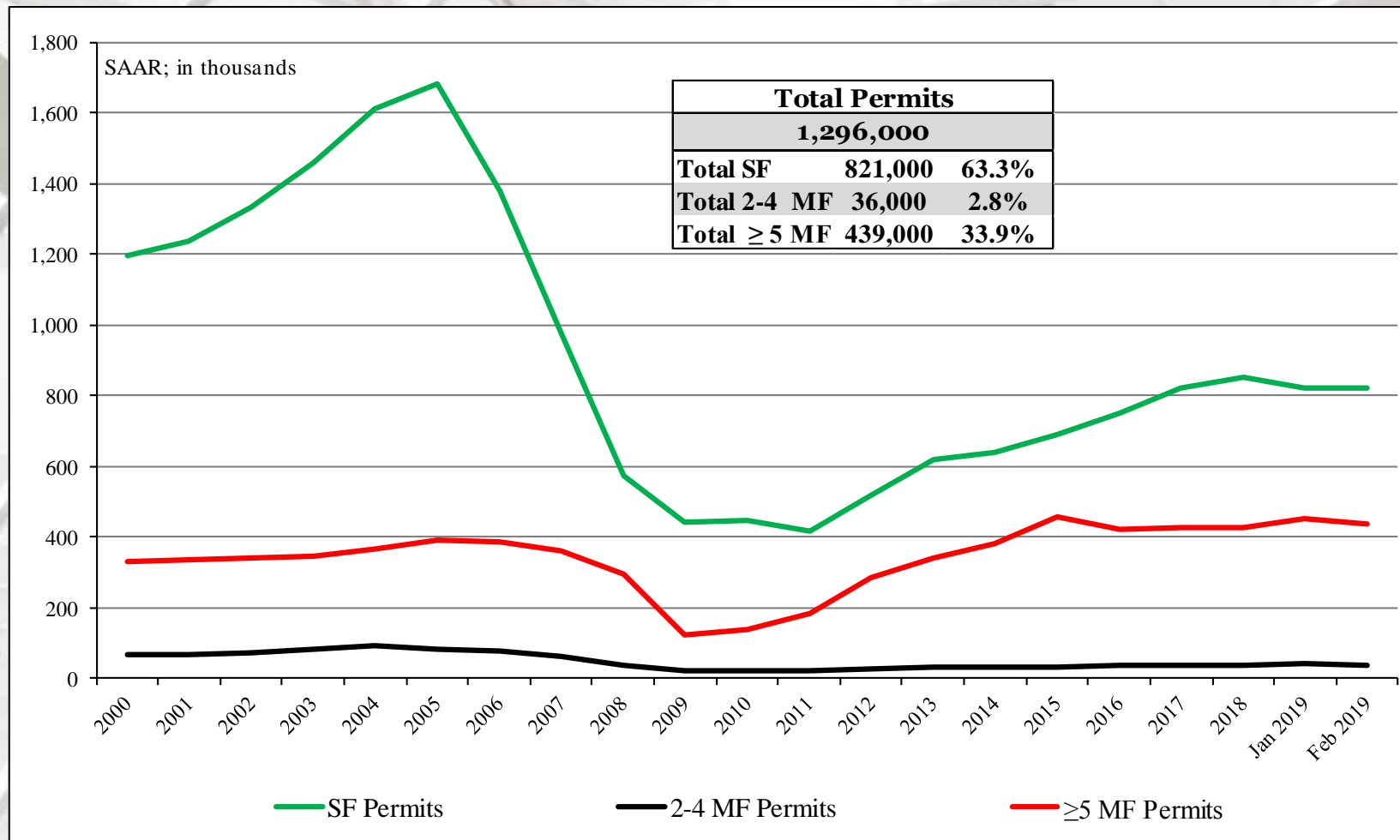
In this graph, February 2007 lumber shipments are contrasted with February 2007 SF starts, and continuing through February 2019 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to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

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
February	1,296,000	821,000	36,000	439,000
January	1,317,000	821,000	44,000	452,000
2018	1,323,000	886,000	46,000	391,000
M/M change	-1.6	0.0	-18.2	-2.9
Y/Y change	-2.0	-7.3	-21.7	12.3

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

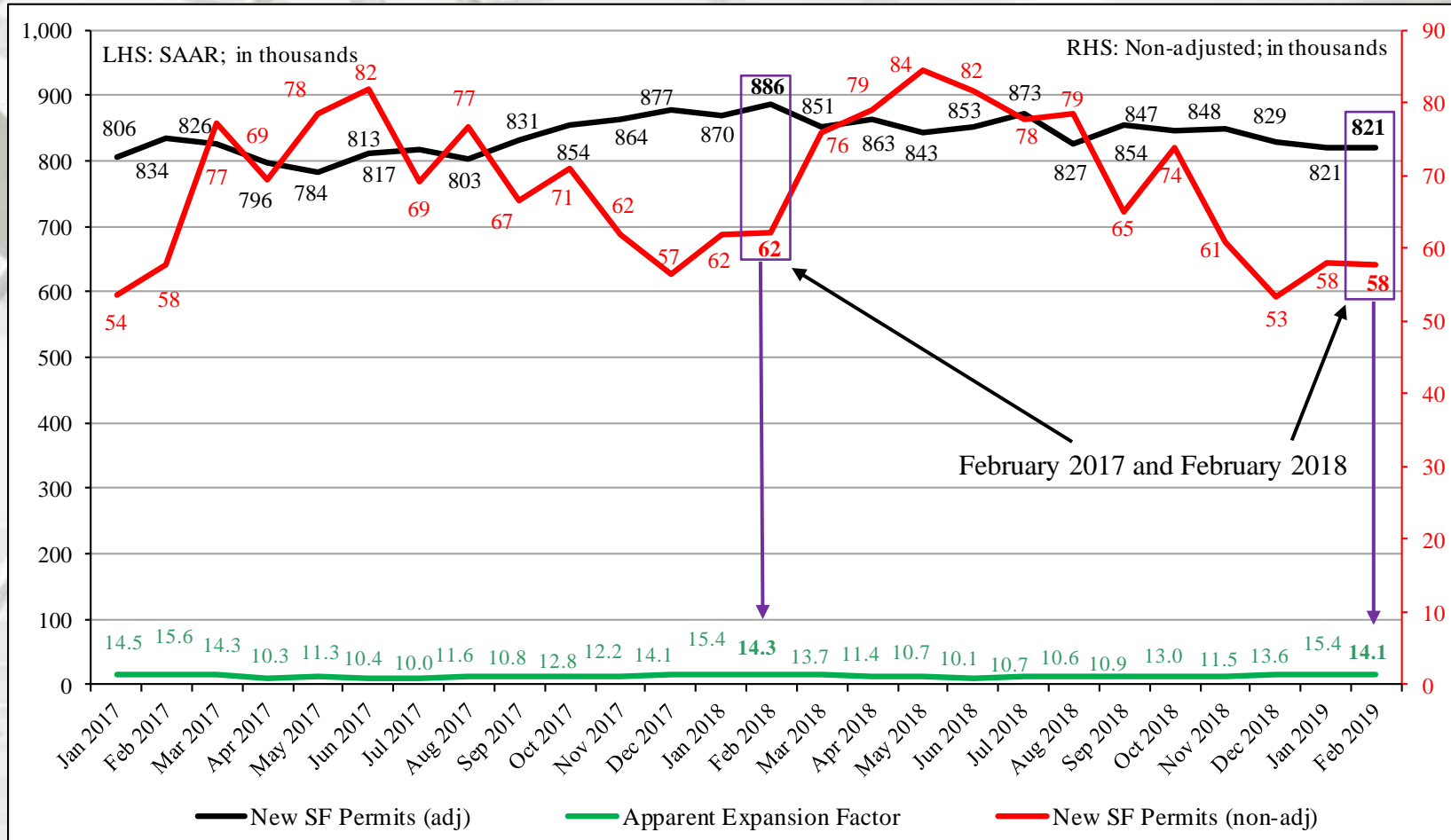
Total New Housing Permits



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**
February	137,000	64,000	73,000
January	135,000	55,000	80,000
2018	145,000	63,000	82,000
M/M change	1.5	16.4	-8.8
Y/Y change	-5.5	1.6	-11.0
	MW Total*	MW SF	MW MF**
January	188,000	105,000	83,000
December	186,000	114,000	72,000
2018	192,000	127,000	65,000
M/M change	1.1	-7.9	15.3
Y/Y change	-2.1	-17.3	27.7

NE = Northeast; ME = Midwest

* 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

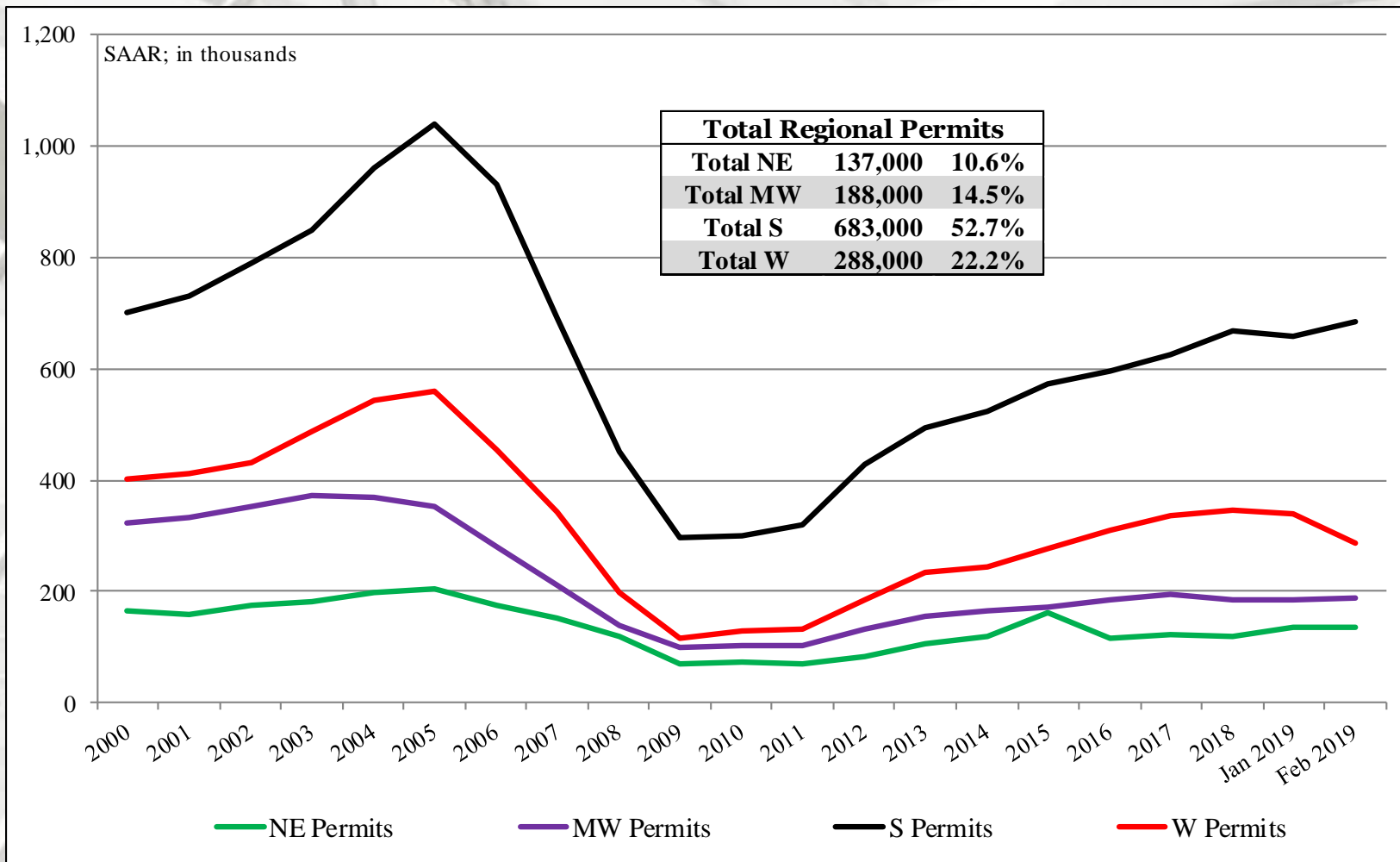
	S Total*	S SF	S MF**
January	683,000	458,000	225,000
December	657,000	455,000	202,000
2018	617,000	471,000	146,000
M/M change	4.0	0.7	11.4
Y/Y change	10.7	-2.8	54.1
	W Total*	W SF	W MF**
January	288,000	194,000	94,000
December	339,000	197,000	142,000
2018	369,000	225,000	144,000
M/M change	-15.0	-1.5	-33.8
Y/Y change	-22.0	-13.8	-34.7

S = South; W = West

* 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

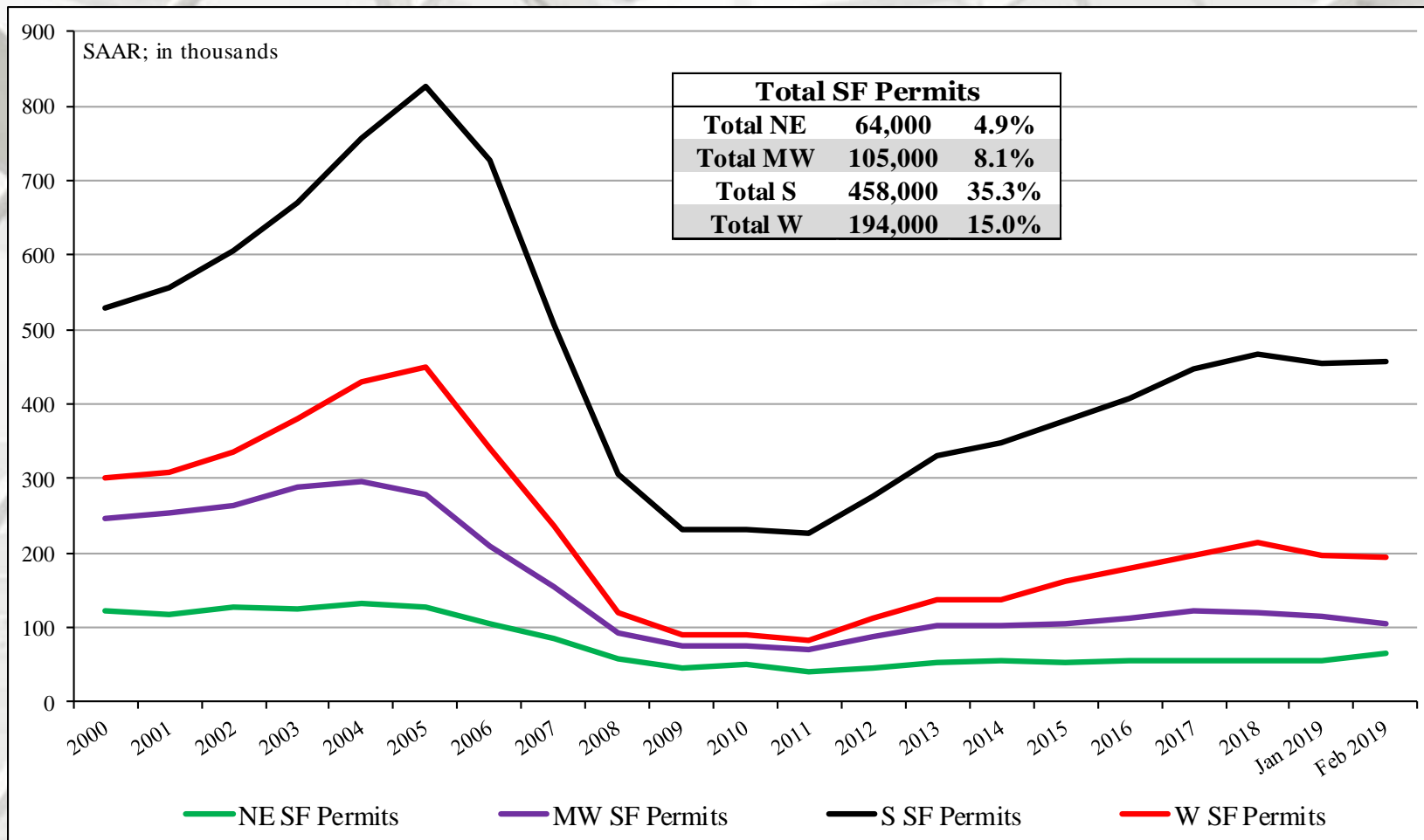


NE = Northeast, MW = Midwest, S = South, W = West

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

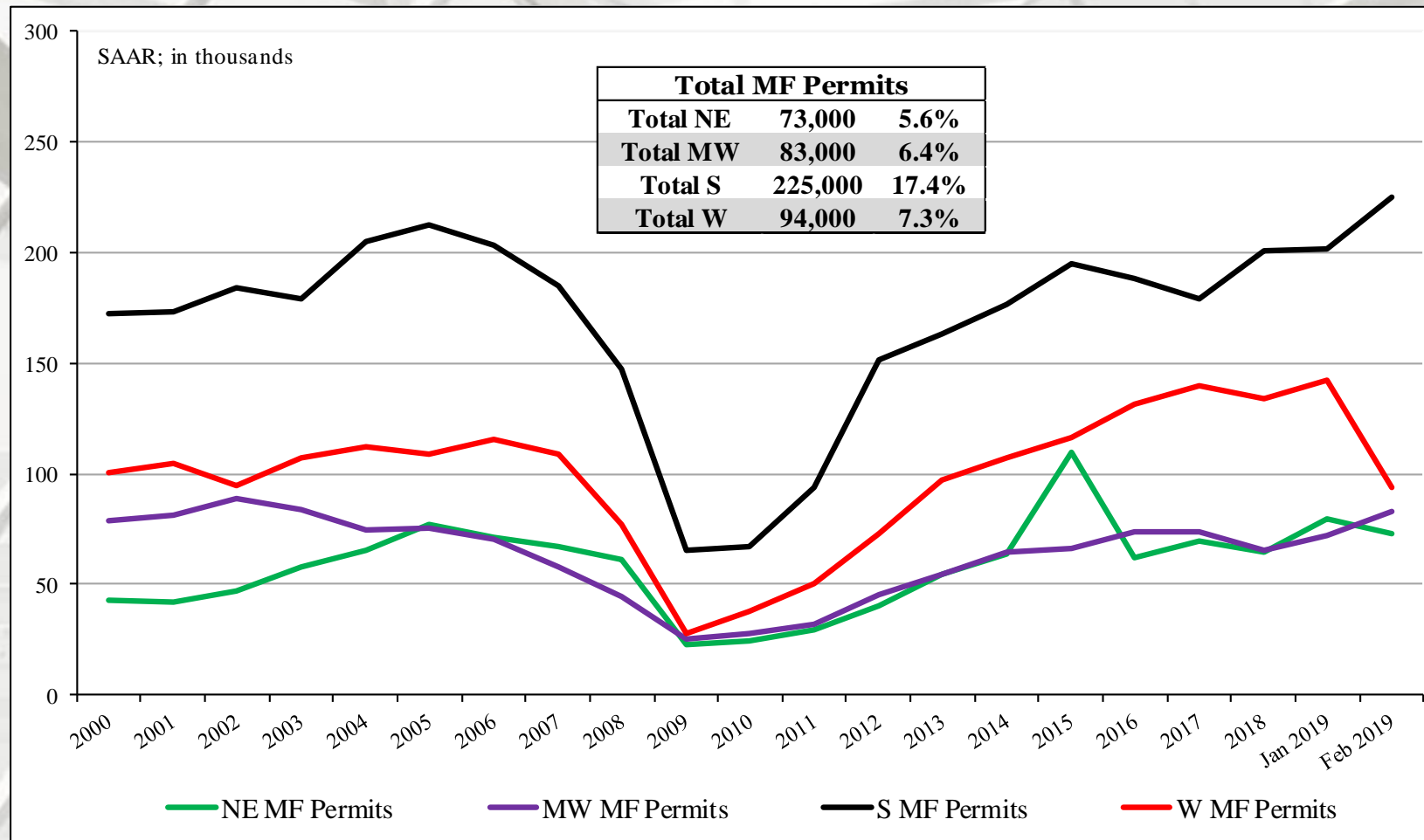


NE = Northeast, MW = Midwest, S = South, W = West

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

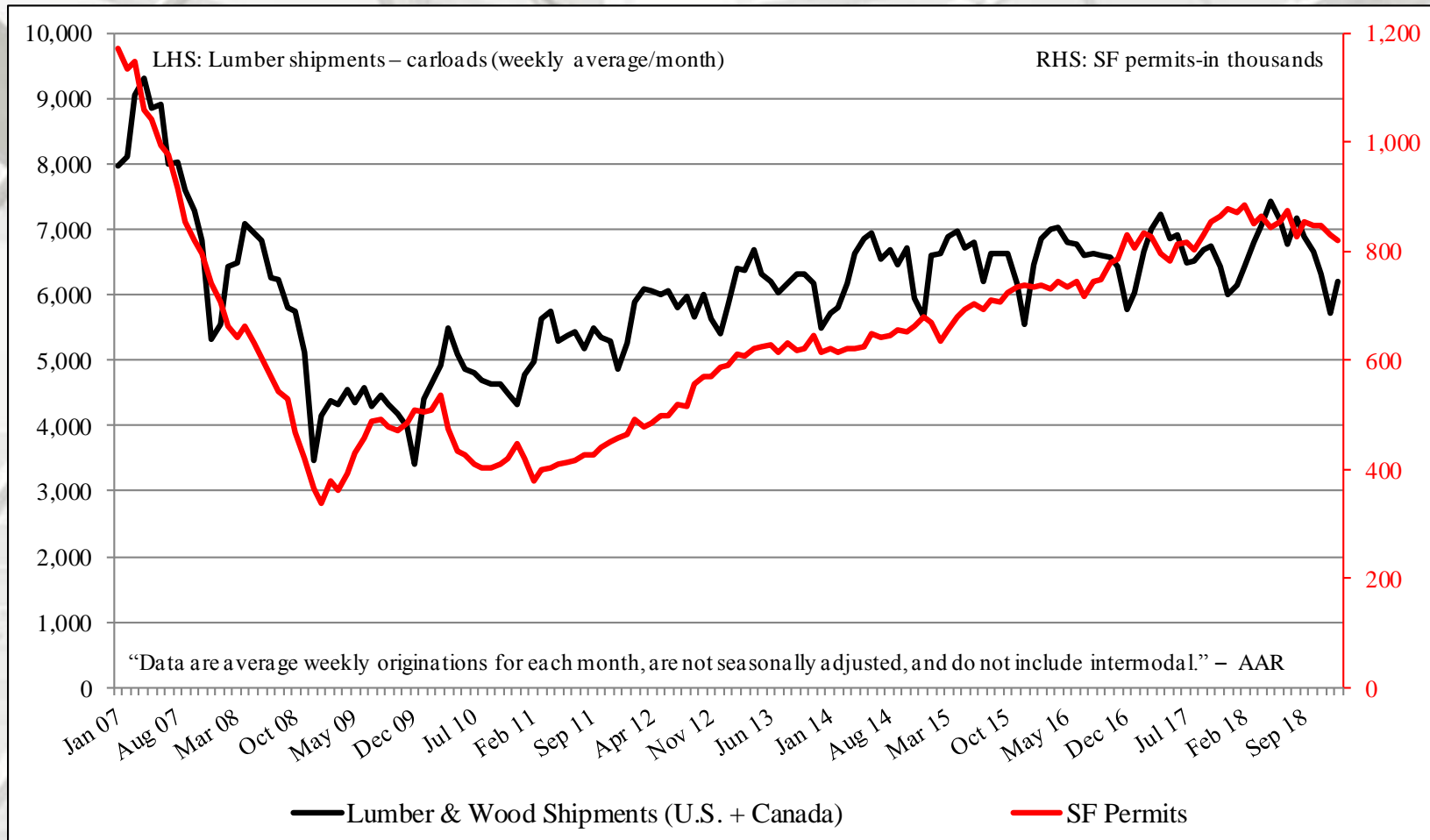


NE = Northeast, MW = Midwest, S = South, W = West

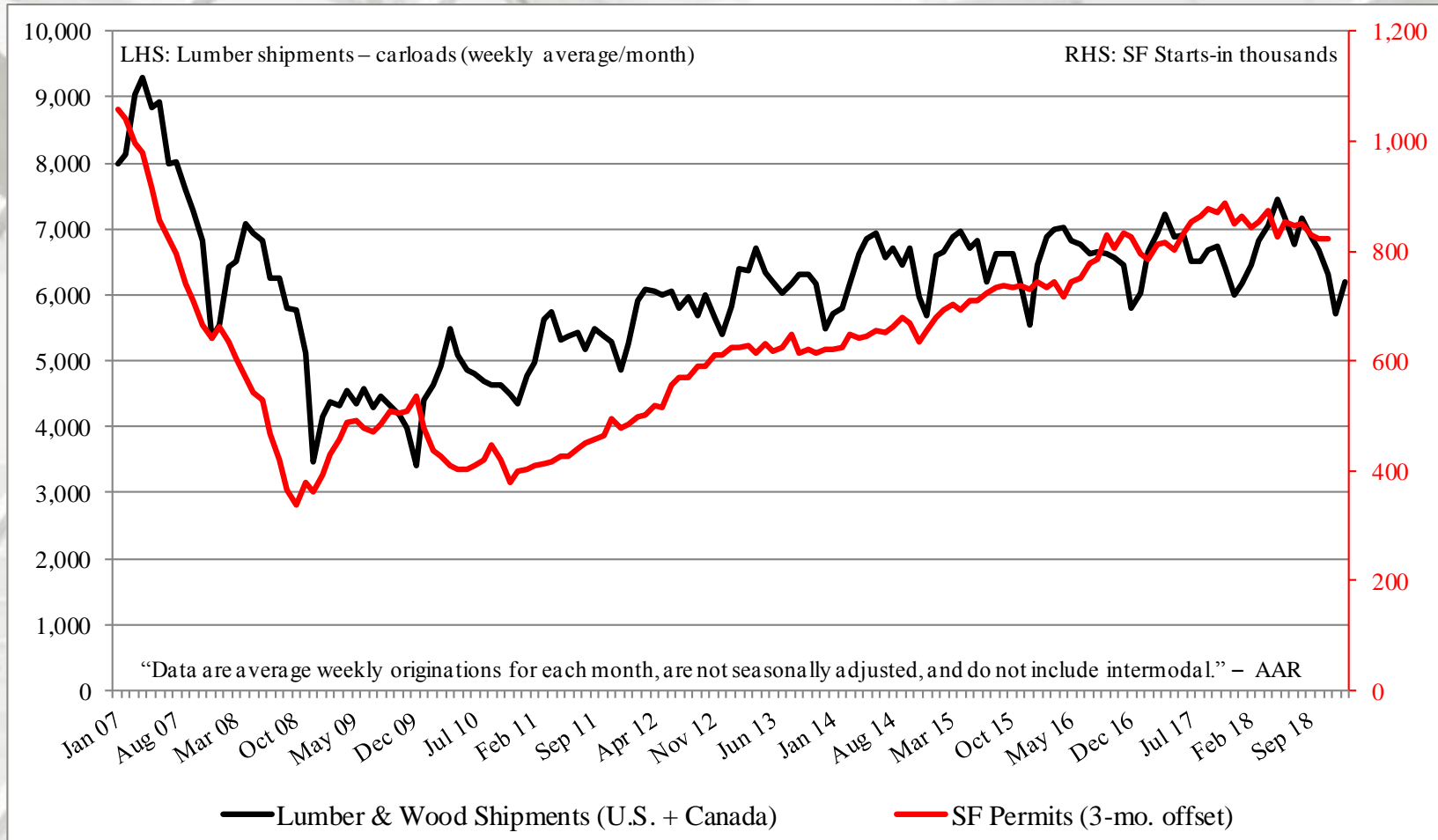
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

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

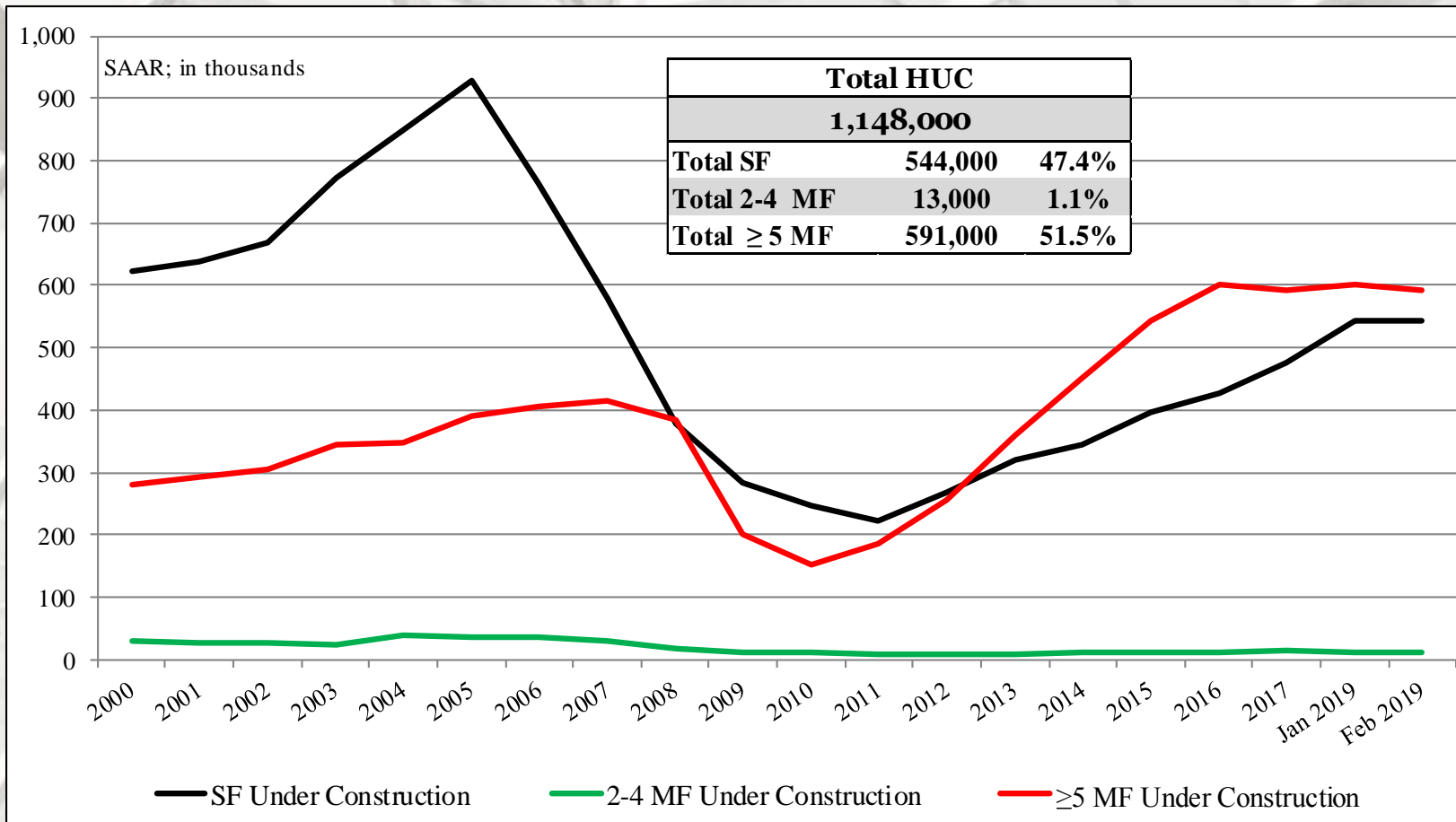
New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	MF 2-4 unit** Under Construction	MF ≥ 5 unit Under Construction
Febuary	1,148,000	544,000	13,000	591,000
January	1,159,000	544,000	13,000	602,000
2018	1,119,000	503,000	11,000	605,000
M/M change	-0.9	0.0	0.0	-1.8
Y/Y change	2.6	8.2	18.2	-2.3

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 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**
February	189,000	65,000	124,000
January	191,000	65,000	126,000
2018	189,000	52,000	137,000
M/M change	-1.0	0.0	-1.6
Y/Y change	0.0	25.0	-9.5
	MW Total	MW SF	MW MF
February	155,000	82,000	73,000
January	155,000	83,000	72,000
2018	152,000	80,000	72,000
M/M change	0.0	-1.2	1.4
Y/Y change	2.0	2.5	1.4

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).

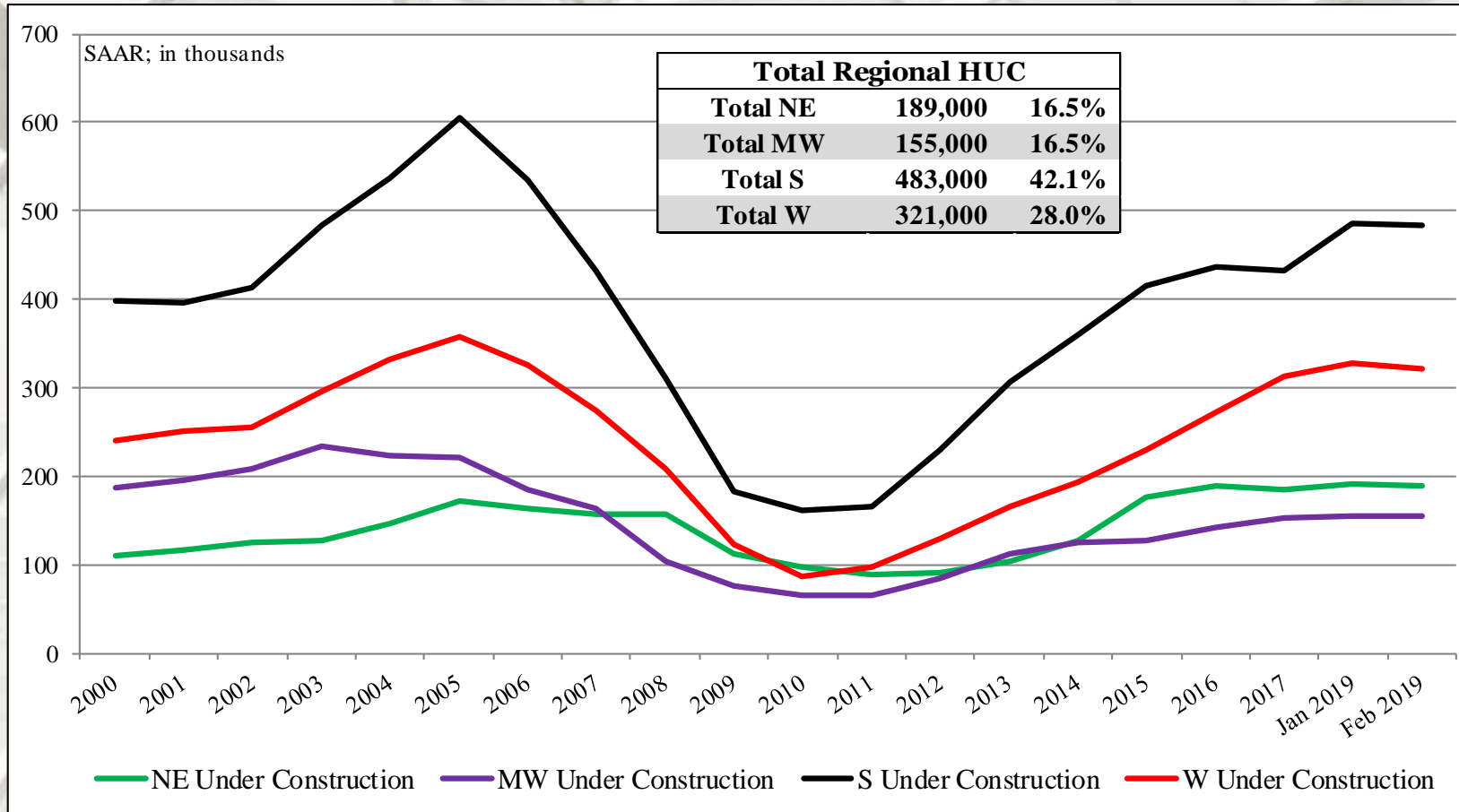
New Housing Under Construction by Region

	S Total	S SF	S MF**
February	483,000	254,000	229,000
January	486,000	254,000	232,000
2018	451,000	234,000	217,000
M/M change	-0.6	0.0	-1.3
Y/Y change	7.1	8.5	5.5
	W Total	W SF	W MF
February	321,000	143,000	178,000
January	327,000	142,000	185,000
2018	327,000	137,000	190,000
M/M change	-1.8	0.7	-3.8
Y/Y change	-1.8	4.4	-6.3

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

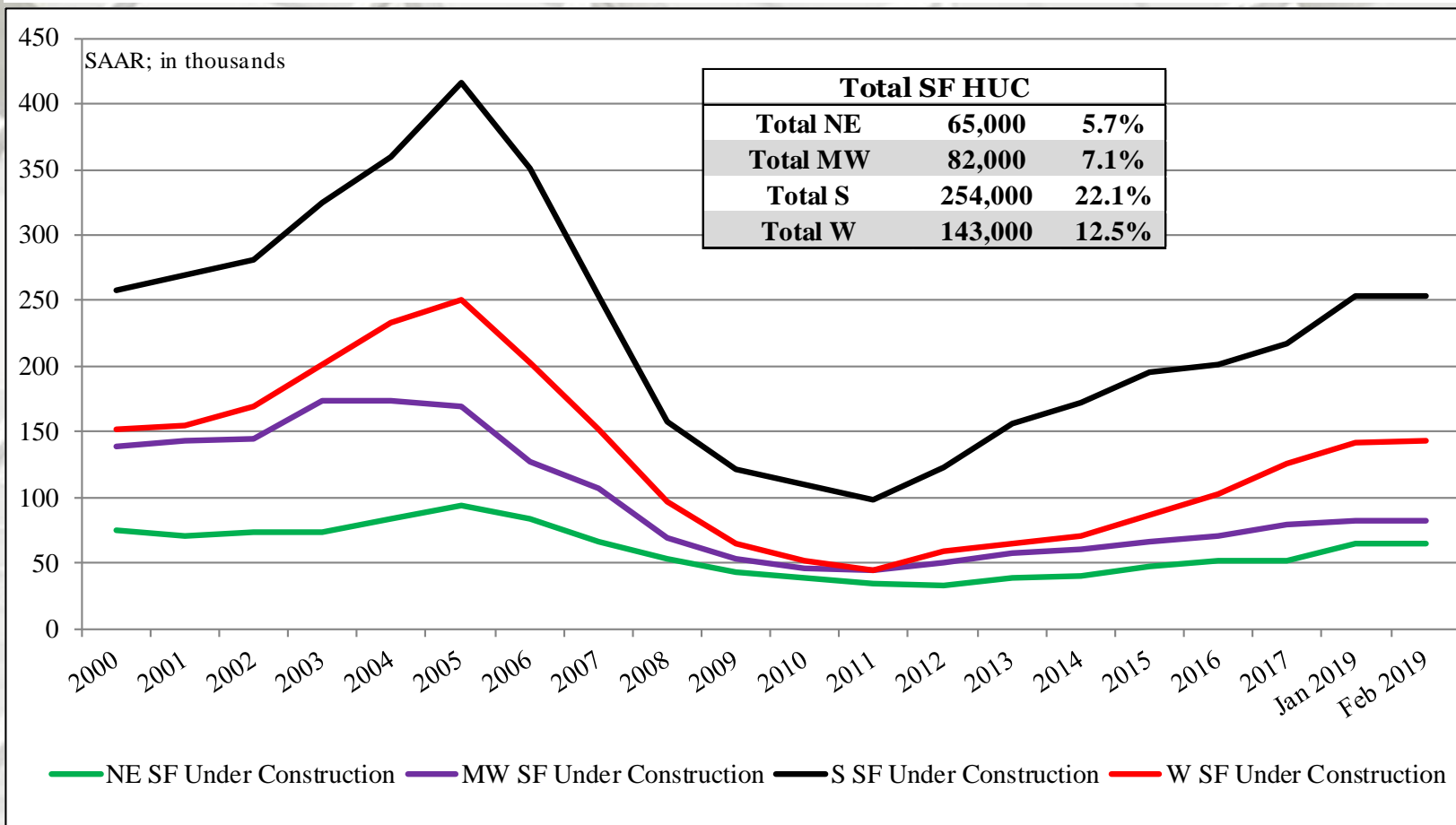


NE = Northeast, MW = Midwest, S = South, W = West

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

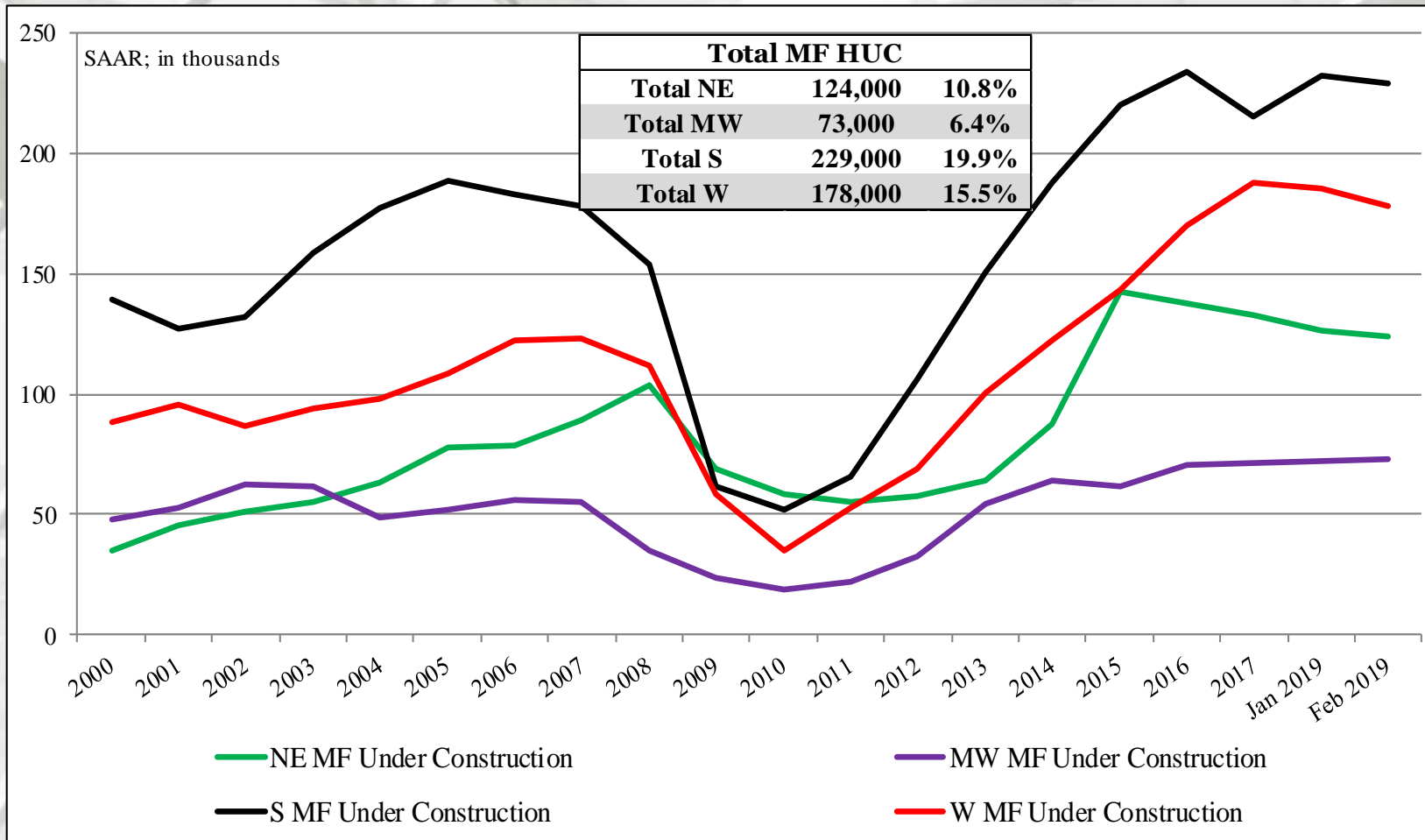


NE = Northeast, MW = Midwest, S = South, W = West

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.

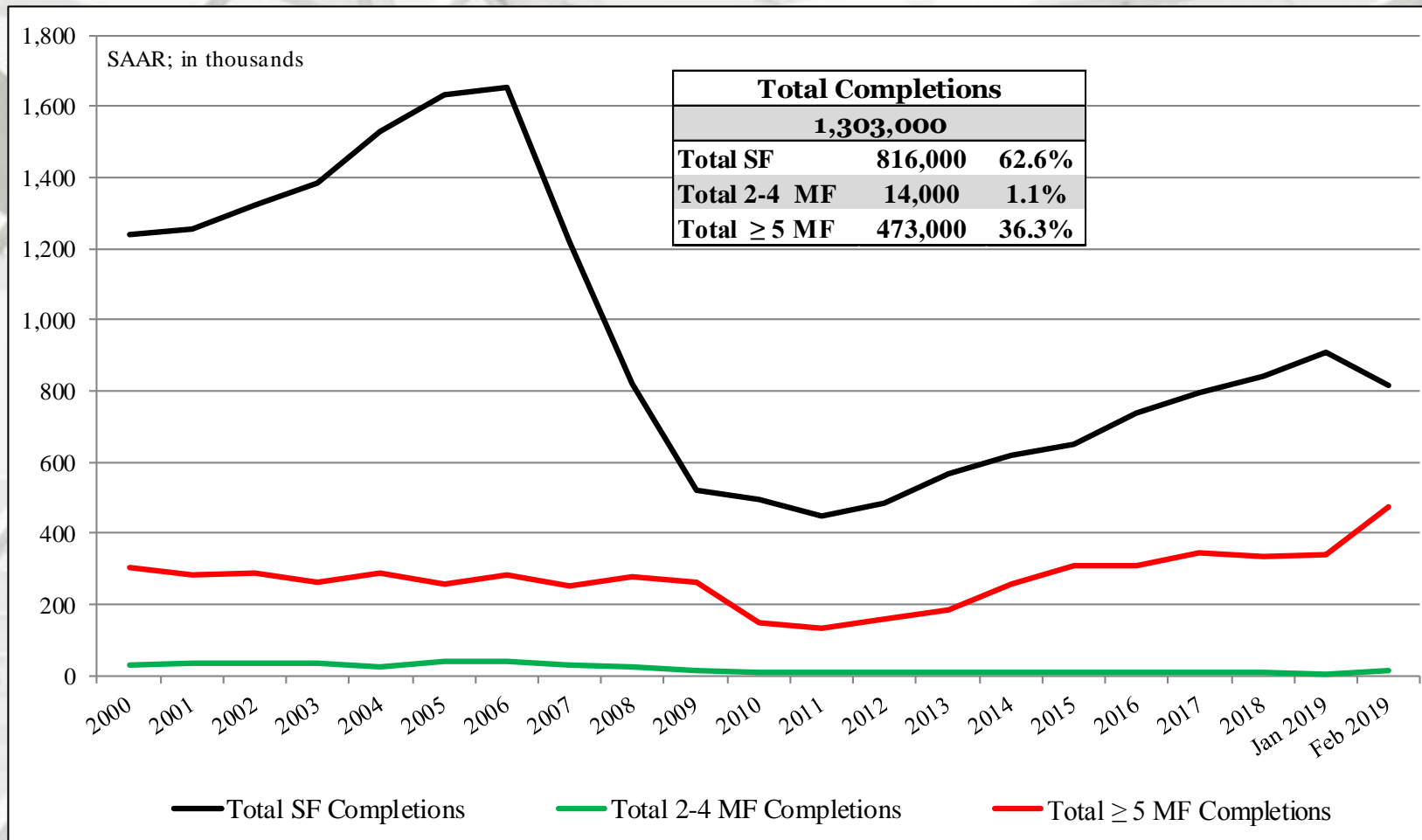
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
February	1,303,000	816,000	14,000	473,000
January	1,247,000	907,000	3,000	337,000
2018	1,289,000	882,000	7,000	400,000
M/M change	4.5%	-10.0%	366.7%	40.4%
Y/Y change	1.1%	-7.5%	100.0%	18.3%

* 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

New Housing Completions by Region

	NE Total	NE SF	NE MF**
February	116,000	57,000	59,000
January	126,000	49,000	77,000
2018	138,000	69,000	69,000
M/M change	-7.9%	16.3%	-23.4%
Y/Y change	-15.9%	-17.4%	-14.5%
	MW Total	MW SF	MW MF
February	162,000	129,000	33,000
January	133,000	115,000	18,000
2018	160,000	129,000	31,000
M/M change	21.8%	12.2%	83.3%
Y/Y change	1.3%	0.0%	6.5%

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).

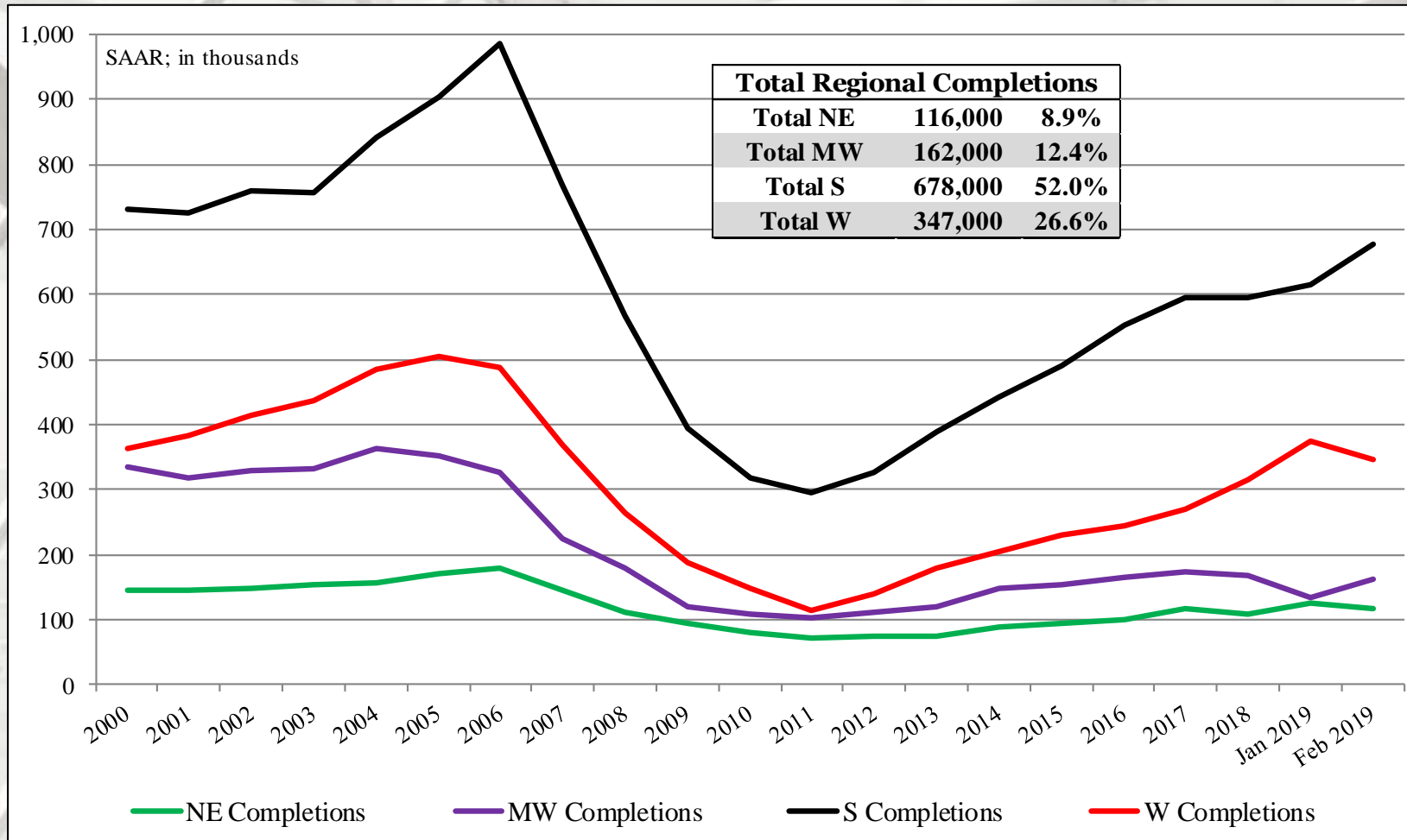
New Housing Completions by Region

	S Total	S SF	S MF**
February	678,000	456,000	222,000
January	615,000	481,000	134,000
2018	655,000	462,000	193,000
M/M change	10.2%	-5.2%	65.7%
Y/Y change	3.5%	-1.3%	15.0%
	W Total	W SF	W MF
February	347,000	174,000	173,000
January	373,000	262,000	111,000
2018	336,000	222,000	114,000
M/M change	-7.0%	-33.6%	55.9%
Y/Y change	3.3%	-21.6%	51.8%

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 Completions by Region

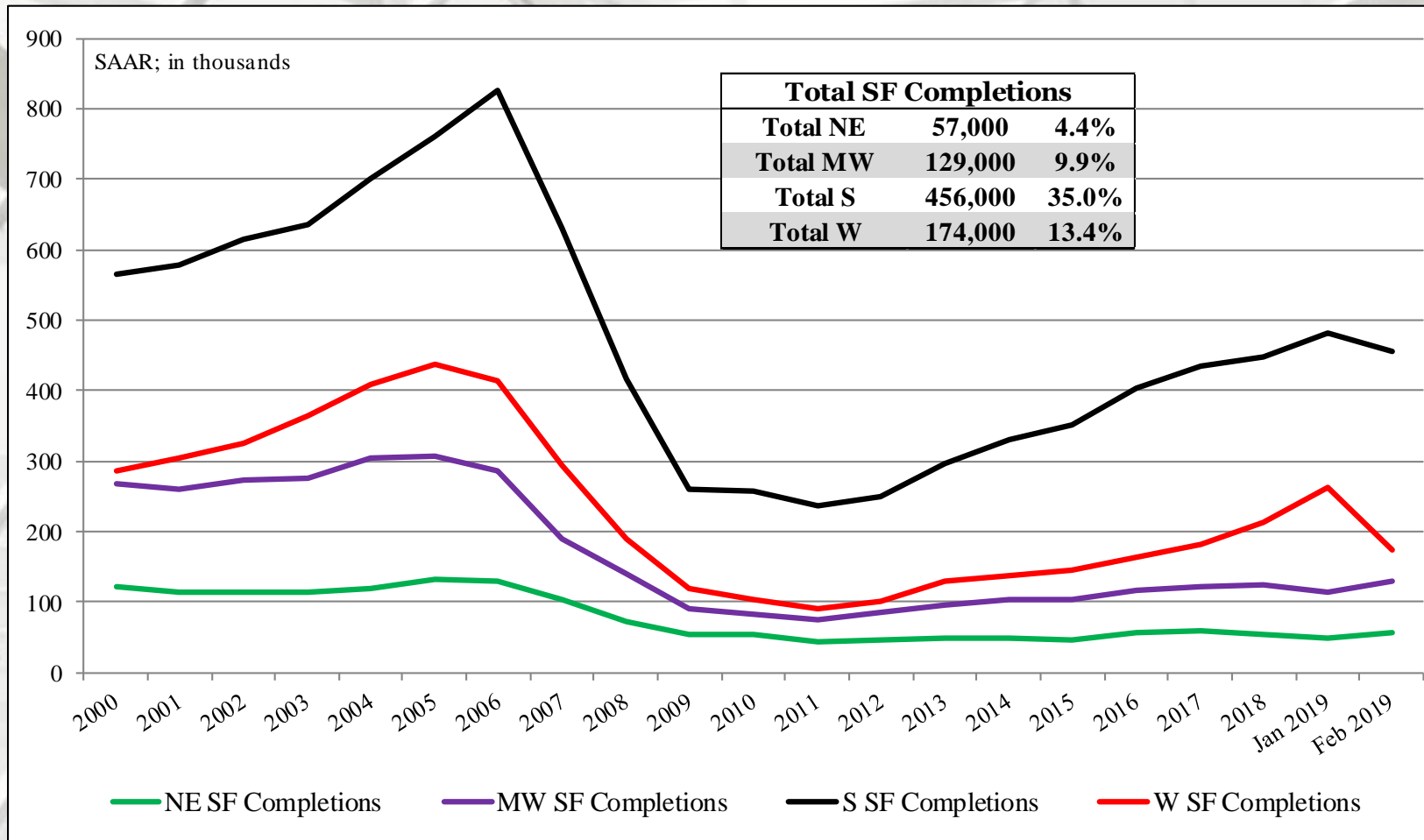


NE = Northeast, MW = Midwest, S = South, W = West

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

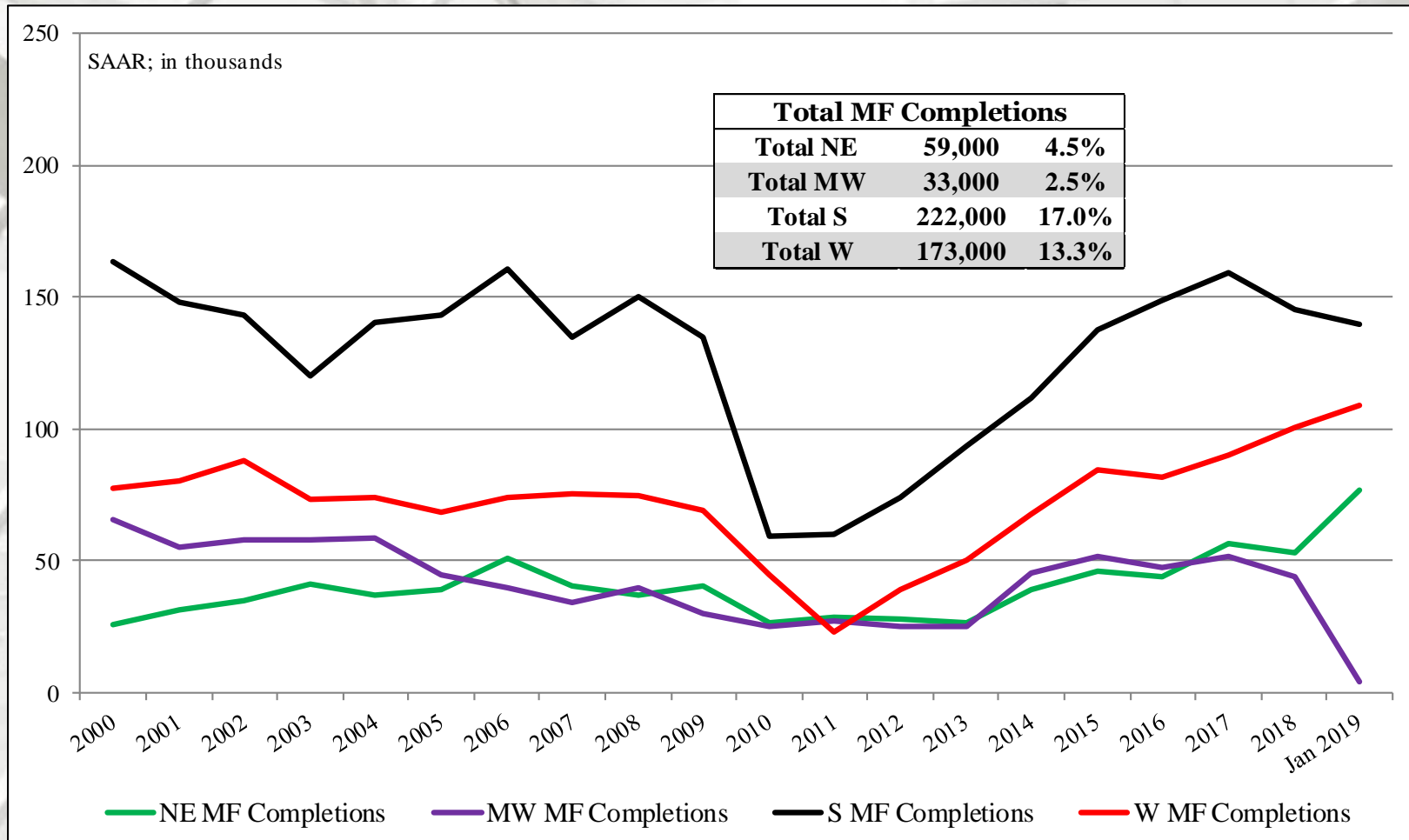


NE = Northeast, MW = Midwest, S = South, W = West

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

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

New Single-Family House Sales

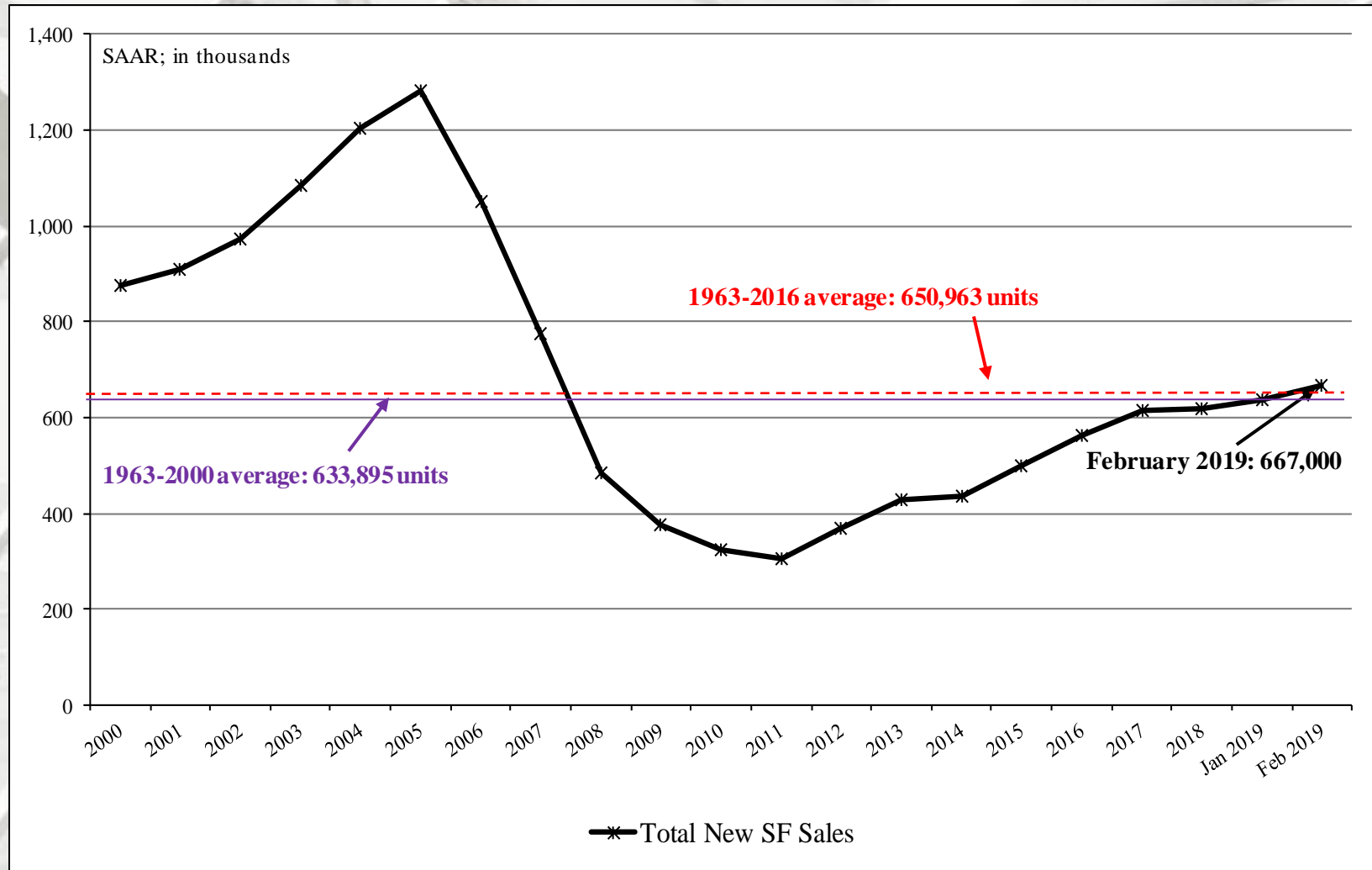
	New SF Sales*	Median Price	Mean Price	Month's Supply
February	667,000	\$315,300	\$379,600	5.9
January	636,000	\$303,900	\$358,000	7.1
2018	663,000	\$327,200	\$373,600	5.4
M/M change	4.9%	3.8%	6.0%	-16.9%
Y/Y change	0.6%	-3.6%	1.6%	9.3%

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

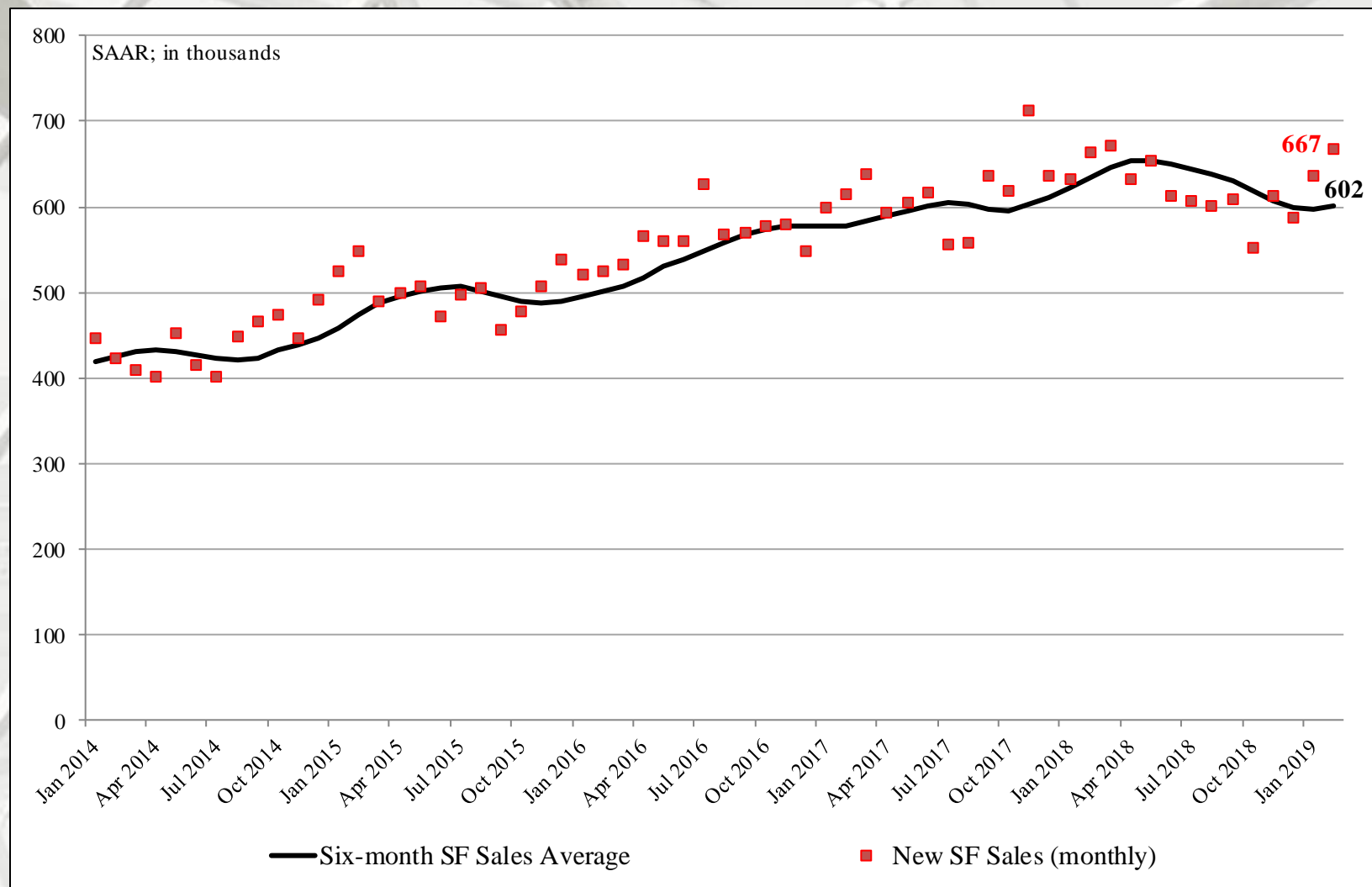
New SF sales were greater than the consensus forecast³ of 636 m. The past three month's new SF sales data also were revised:

November initial:	657 m revised to 612 m;
December initial:	621 m revised to 588 m;
January initial:	607 m revised to 636 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			
February	33,000	77,000	391,000	166,000			
January	26,000	60,000	384,000	166,000			
2018	46,000	80,000	366,000	171,000			
M/M change	26.9%	28.3%	1.8%	0.0%			
Y/Y change	-28.3%	-3.8%	6.8%	-2.9%			
	\$150 - ≤ \$150m	\$200 - \$199.9m	\$300 - 299.9m	\$400 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m
February ^{1,2,3,4}	1,000	3,000	19,000	12,000	6,000	5,000	2,000
January	2,000	3,000	12,000	10,000	7,000	5,000	1,000
2018	2,000	6,000	13,000	12,000	7,000	7,000	2,000
M/M change	100.0%	66.7%	5.3%	16.7%	16.7%	20.0%	0.0%
Y/Y change	0.0%	25.0%	17.6%	0.0%	0.0%	-14.3%	-33.3%
New SF sales: %	2.0%	6.1%	38.8%	24.5%	12.2%	10.2%	4.1%

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.

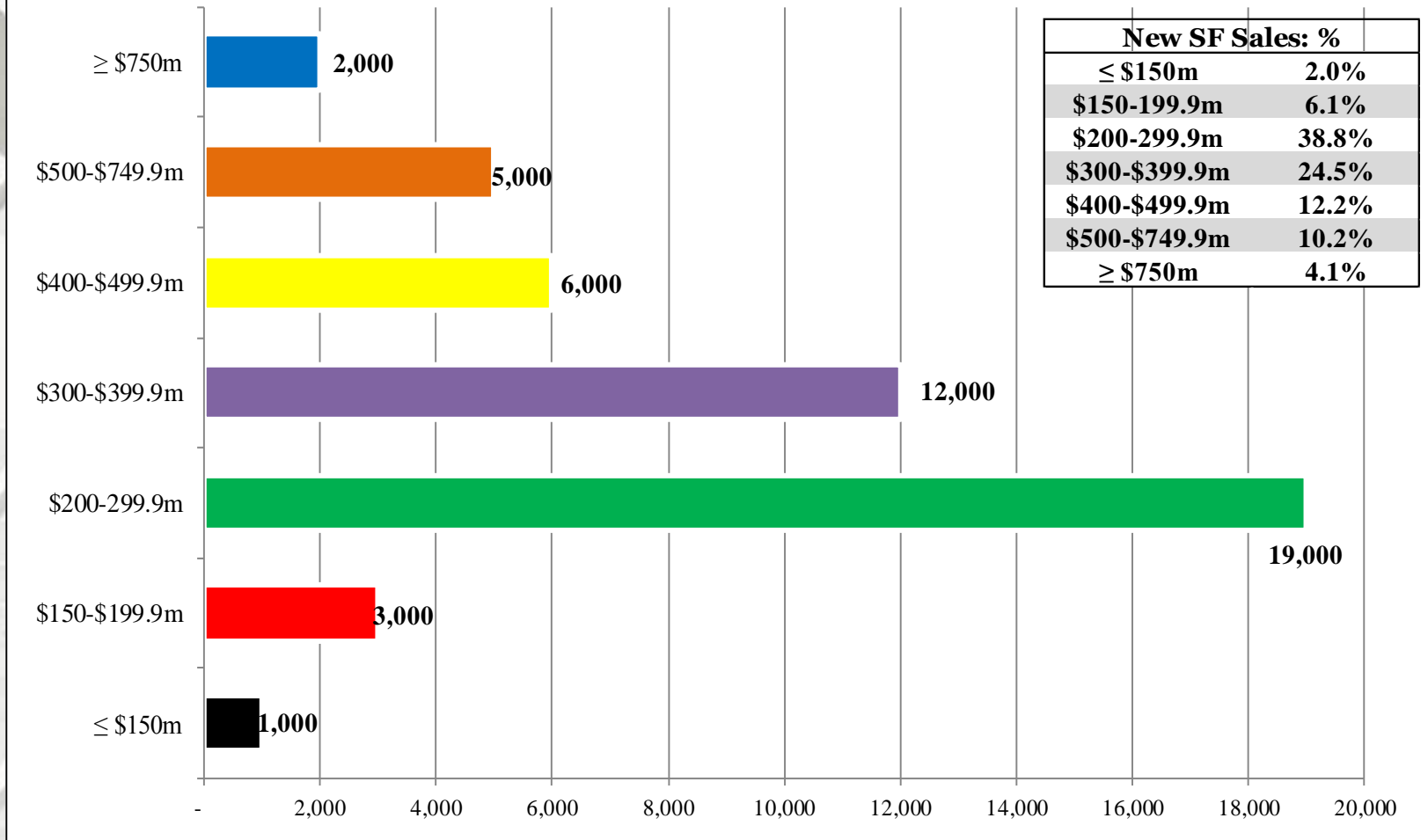
⁴ Housing prices are adjusted at irregular intervals.

Sources: ^{1,2,3} <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 3/29/19;

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

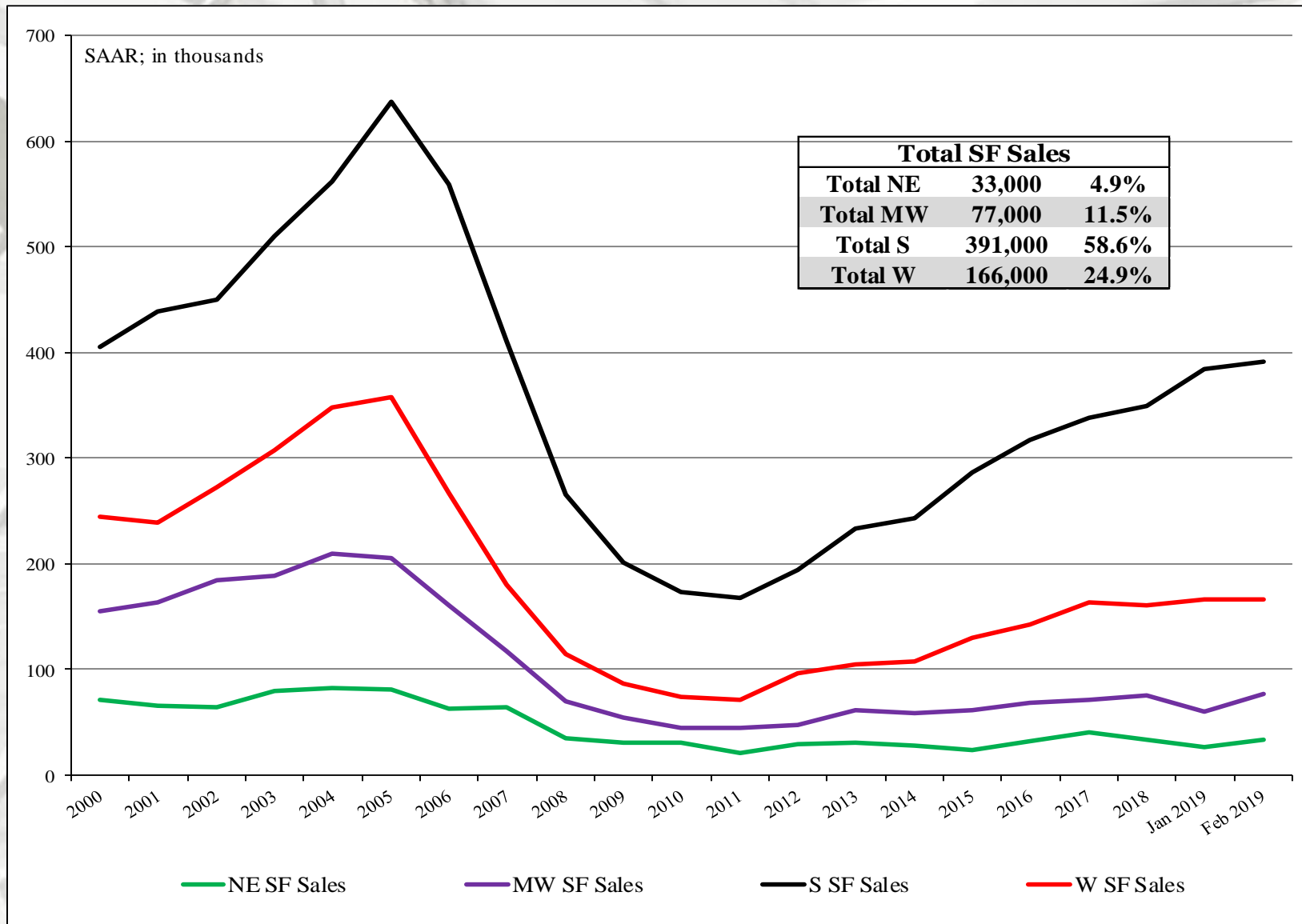
New SF House Sales

February New SF Sales*



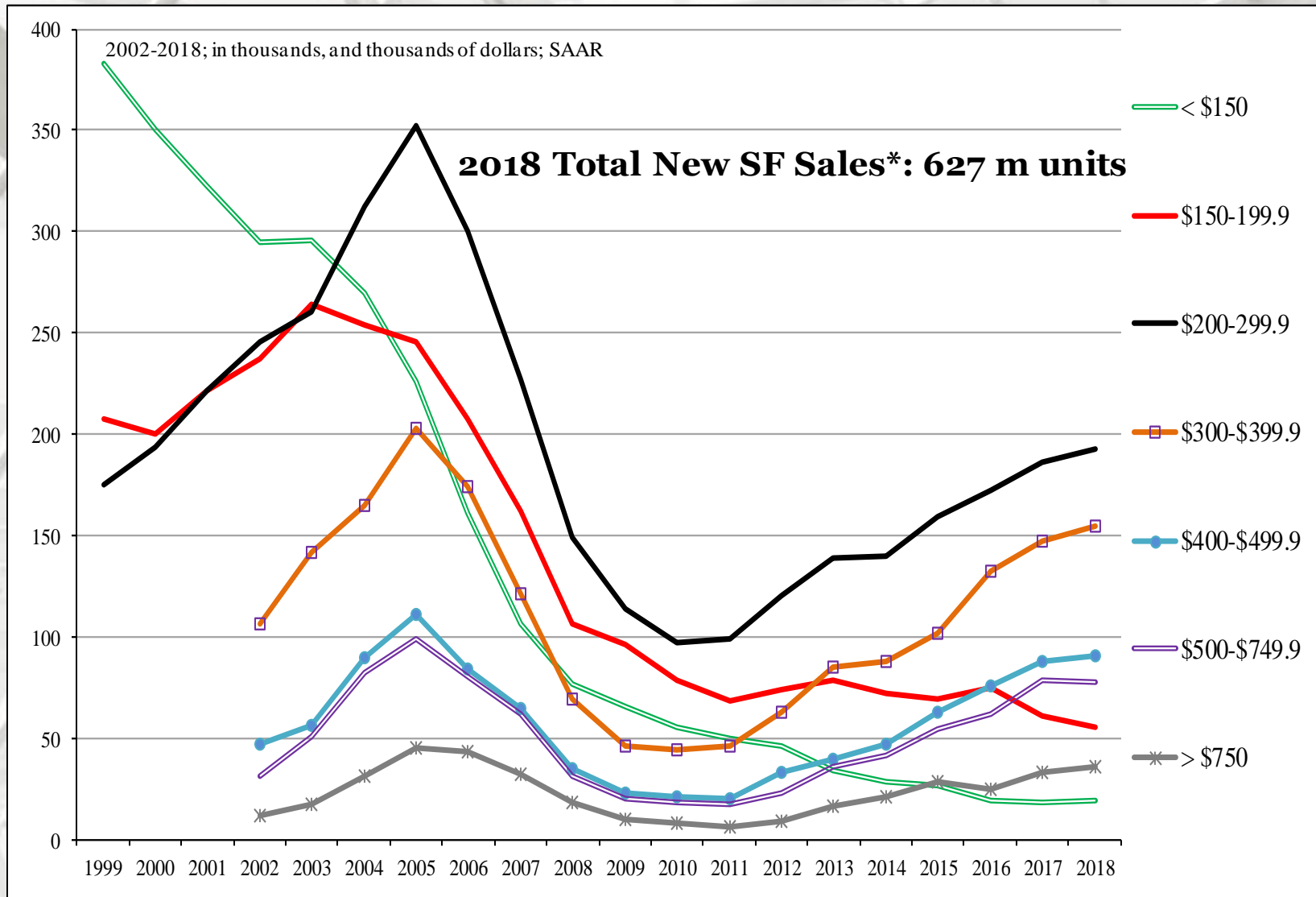
* Total new sales by price category and percent.

New SF House Sales by Region

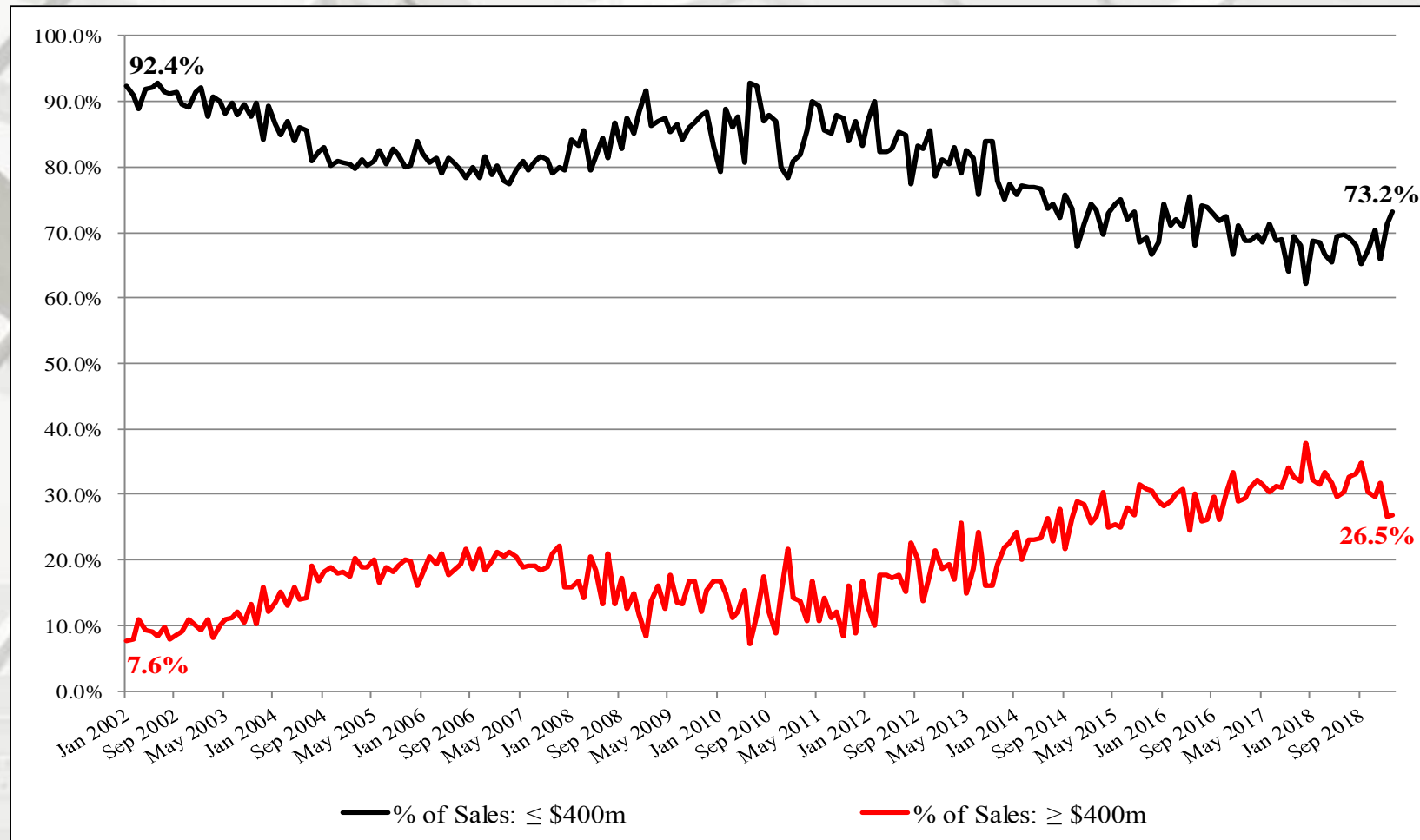


NE = Northeast; MW = Midwest; S = South; W = West
 * Percentage of total new sales.

New SF House Sales by Price Category



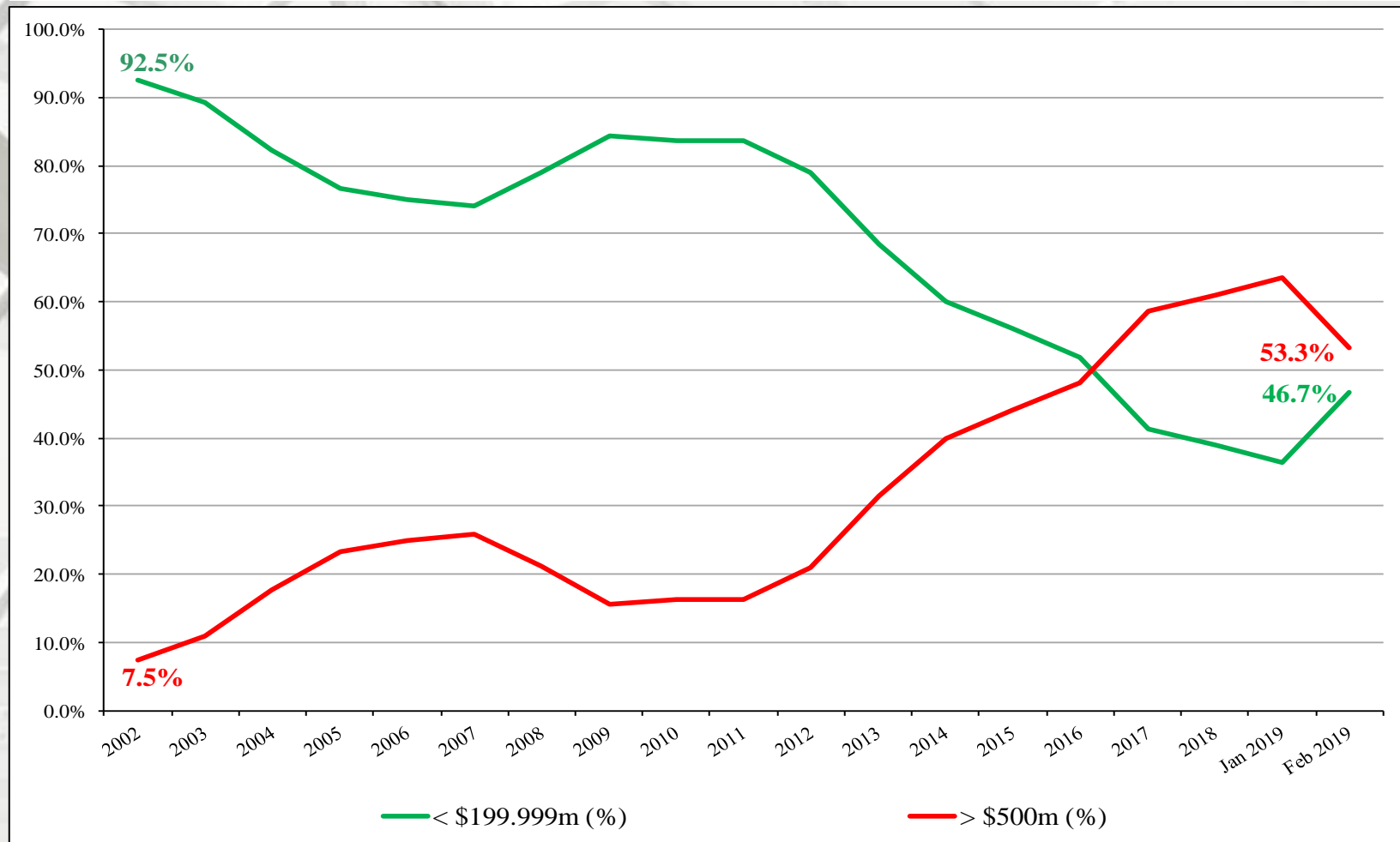
New SF House Sales



New SF Sales \$400m houses: 2002 – February 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

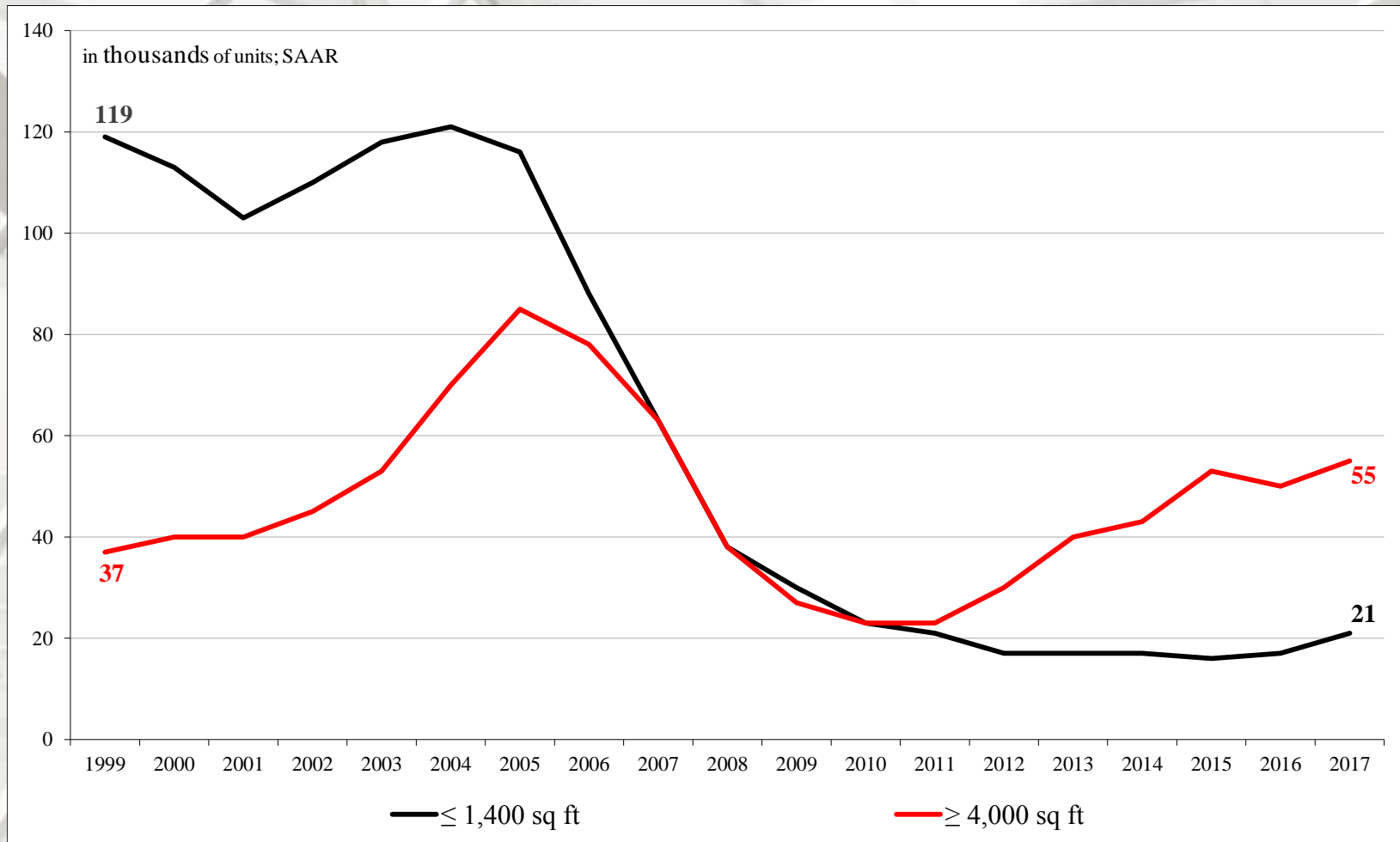


New SF Sales: ≤ \$ 200m and ≥ \$500m: 2002 to February 2019

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.

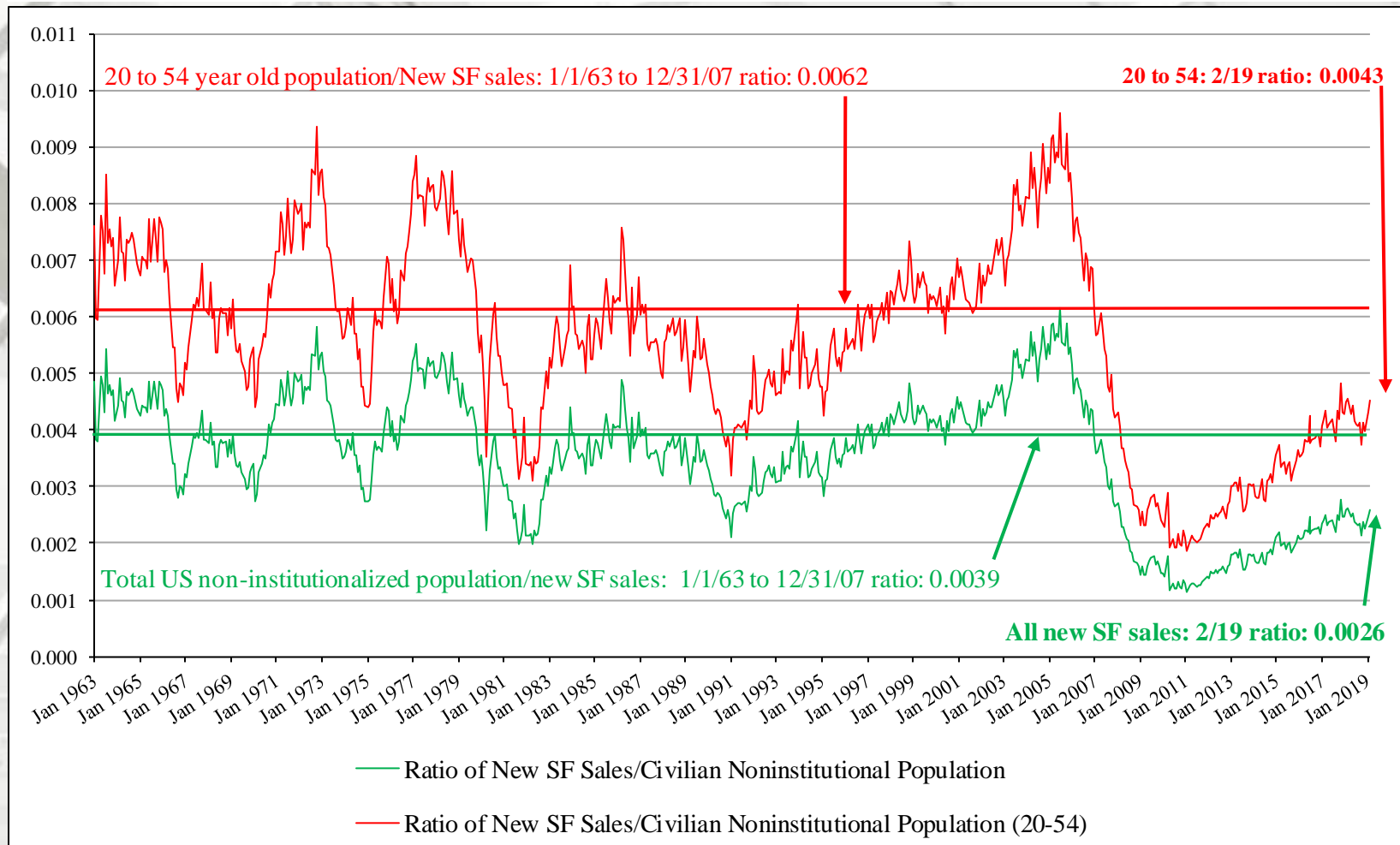
New SF House Sales by Square Feet of Floor Area



New SF Sales: ≤ 1,400 square feet and ≥ 4,000 square feet: 1999 to 2017

The number of SF houses sold ($\geq 4,000$ sq ft) has risen dramatically since 2010. Some of the most oft mentioned reasons for this is builder net margins; regulations, and finance availability.

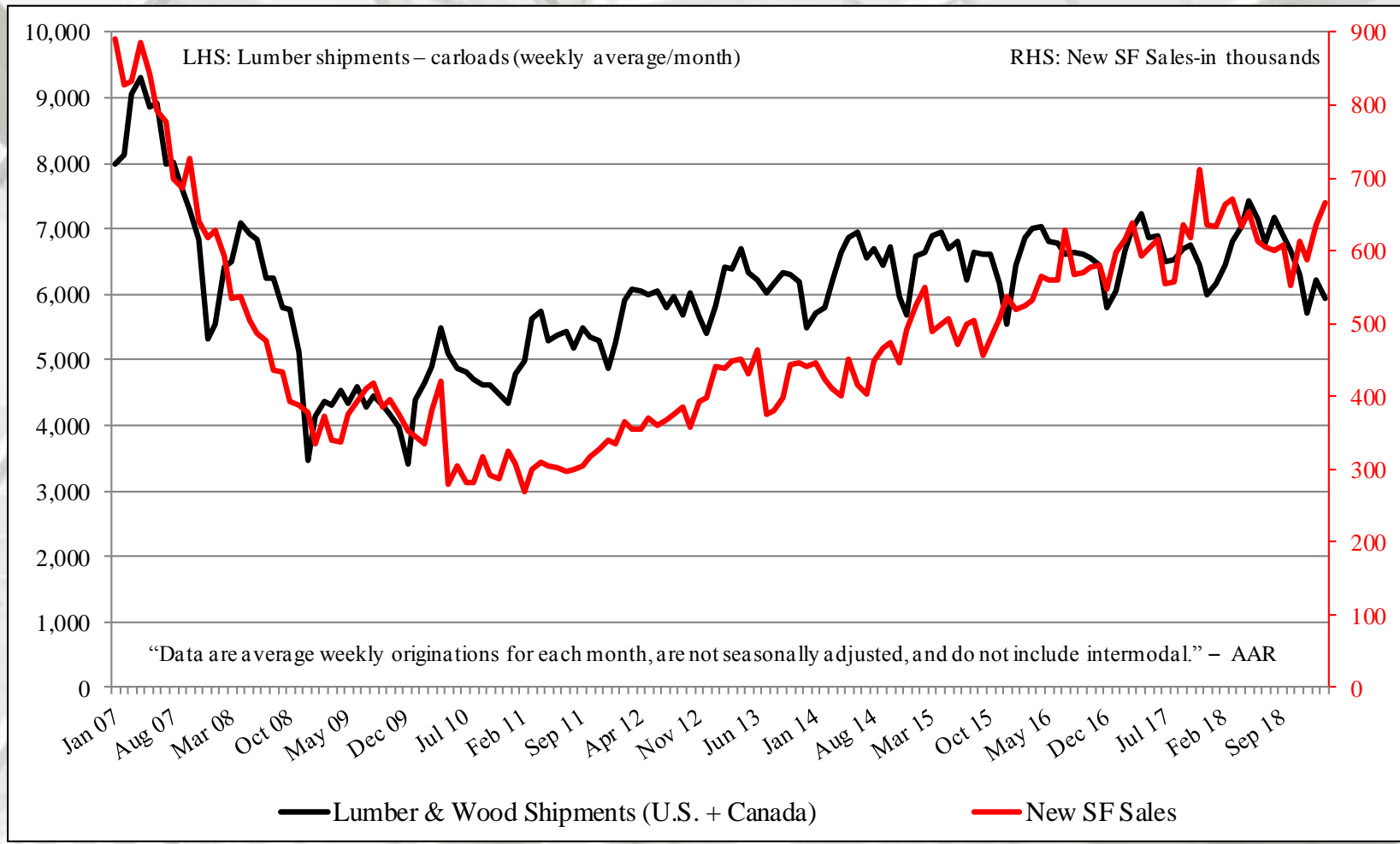
New SF House Sales



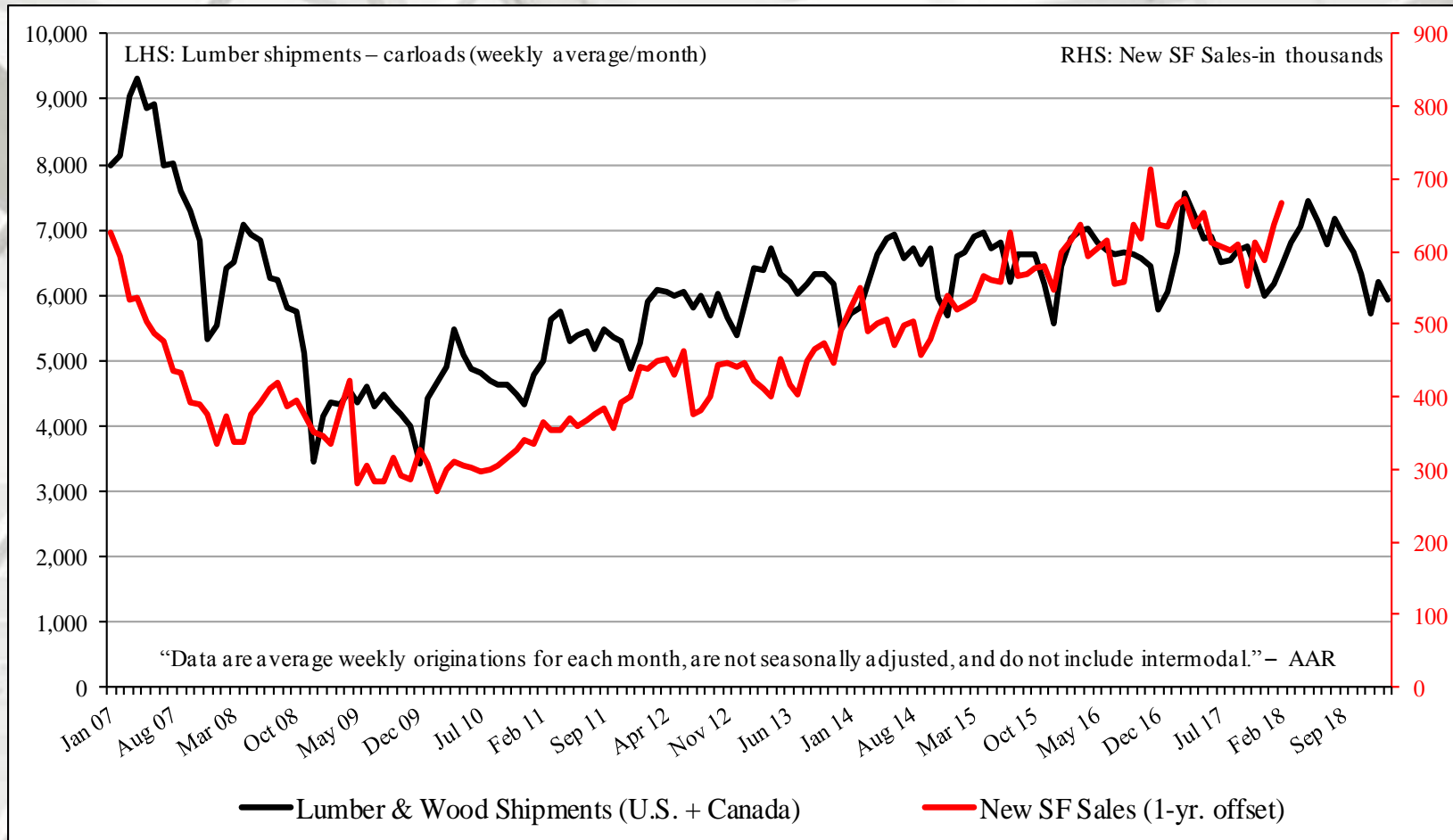
New SF sales adjusted for the US population

From February 1963 to February 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in February 2019 it was 0.0026 – an increase from January (0.0025). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in February 2019 it was 0.0045 – also an increase from January (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

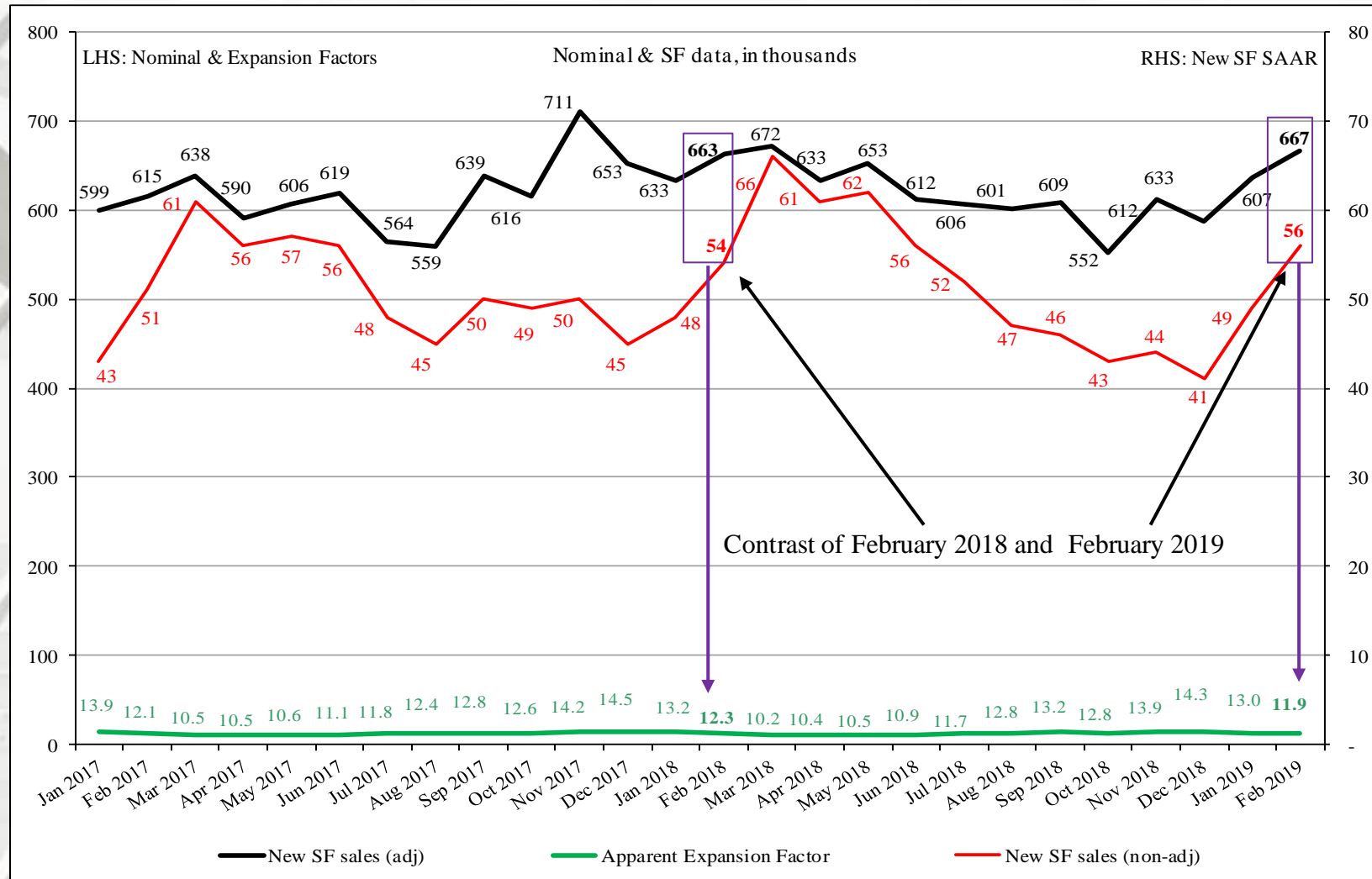


Railroad Lumber & Wood Shipments vs. U.S. SF Housing Sales: 1-year Offset



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

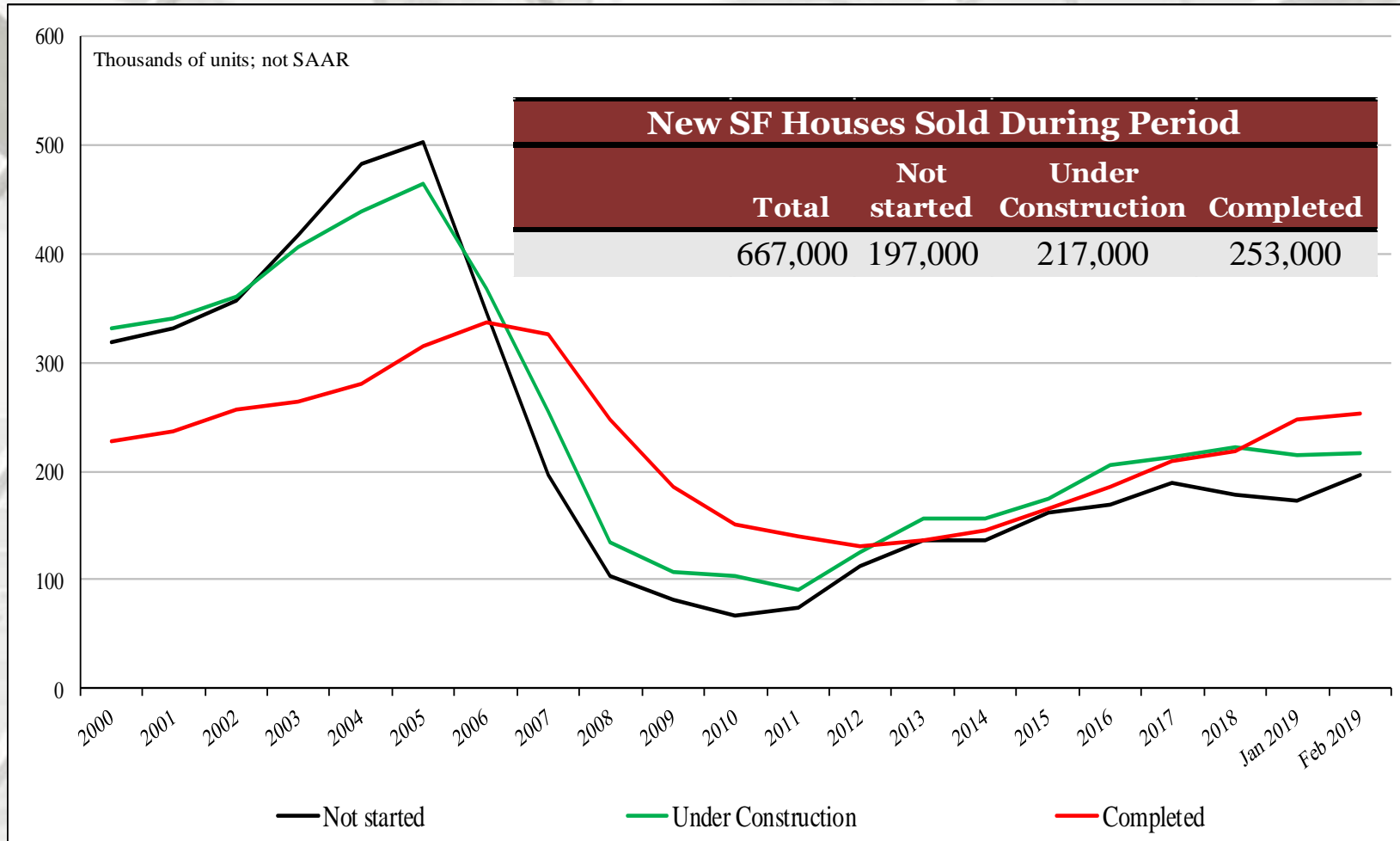
	Total	Not started	Under Construction	Completed
February	667,000	197,000	217,000	253,000
January	636,000	173,000	215,000	248,000
2018	663,000	198,000	239,000	226,000
M/M change	4.9%	13.9%	0.9%	2.0%
Y/Y change	0.6%	-0.5%	-9.2%	11.9%
Total percentage		29.5%	32.5%	37.9%

New SF Houses Sold During Period

In February 2018, a substantial portion of new sales, 29.5% – have not been started; a decrease from January.

* Not SAAR

New SF House Sales



Not SAAR

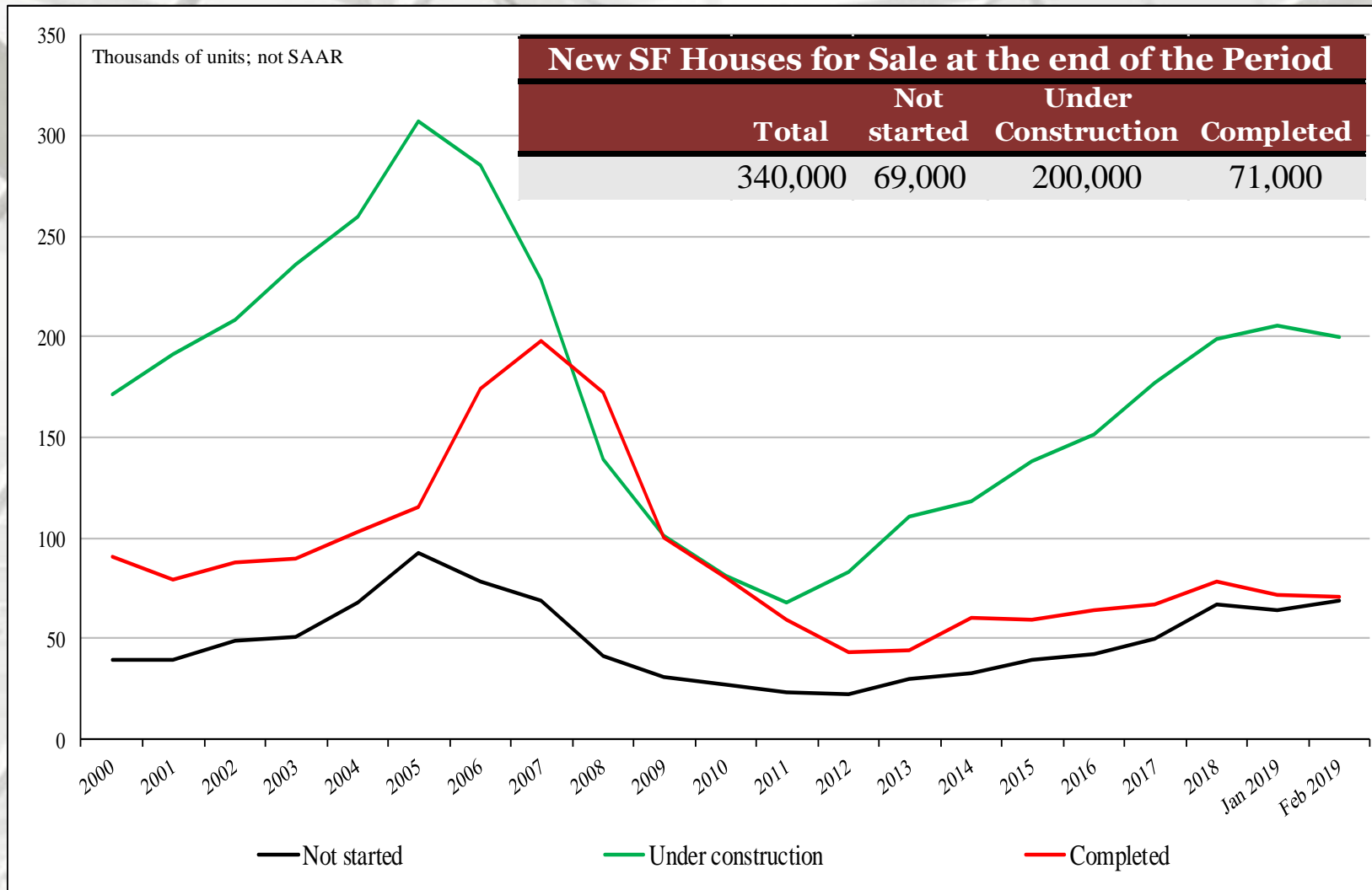
New SF House Sales

New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
February	340,000	69,000	200,000	71,000
January	342,000	64,000	206,000	72,000
2018	300,000	54,000	184,000	62,000
M/M change	-0.6%	7.8%	-2.9%	-1.4%
Y/Y change	13.3%	27.8%	8.7%	14.5%
Total percentage		20.3%	58.8%	20.9%

Not SAAR

New SF House Sales



Not SAAR

New SF House Sales

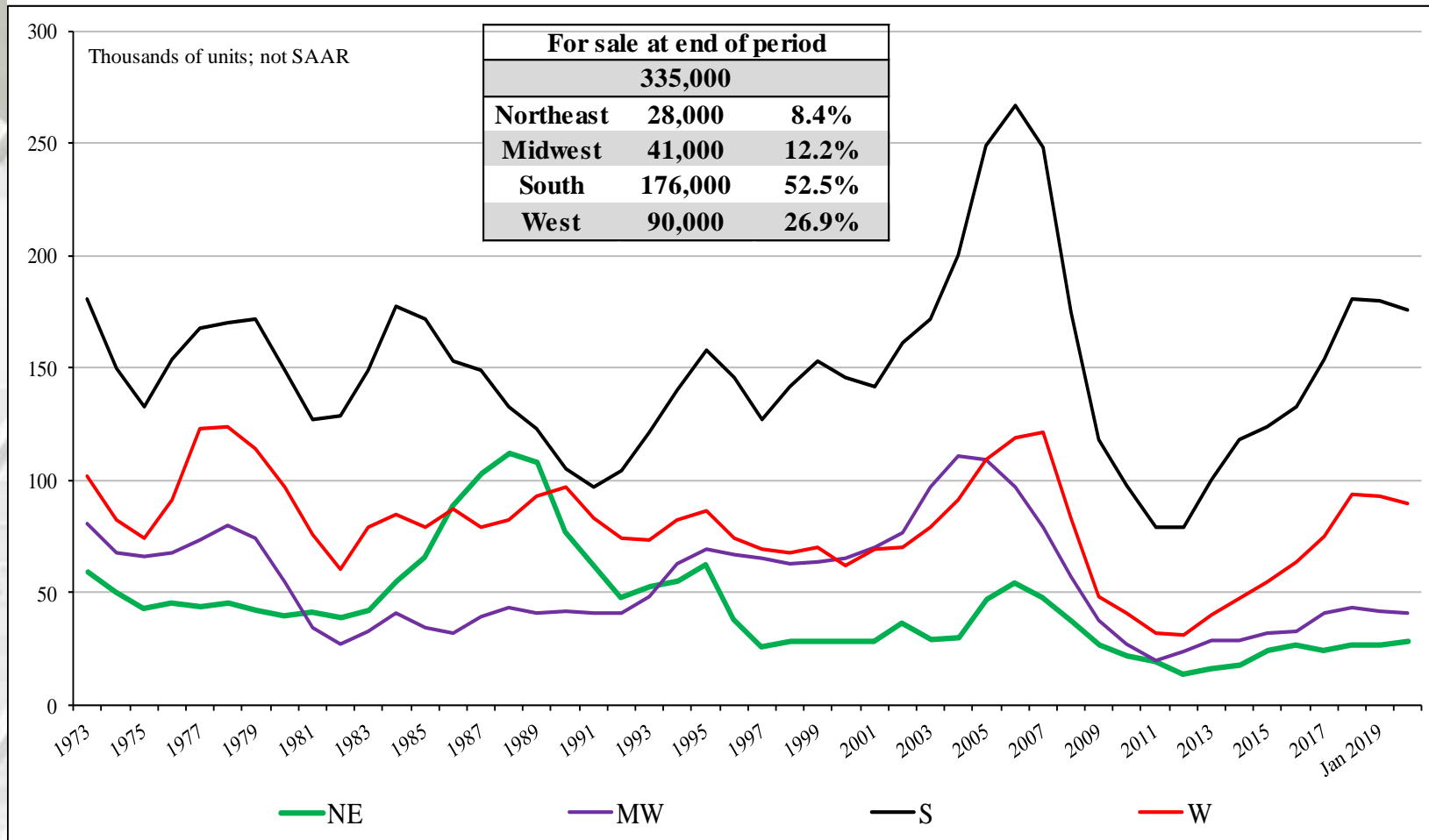
New SF Houses for Sale at the end of the Period by Region*

	Total	NE	MW	S	W
February	335,000	28,000	41,000	176,000	90,000
January	343,000	27,000	42,000	180,000	93,000
2018	295,000	23,000	39,000	158,000	75,000
M/M change	-2.3%	3.7%	-2.4%	-2.2%	-3.2%
Y/Y change	13.6%	21.7%	5.1%	11.4%	20.0%

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

February 2019 Construction Spending

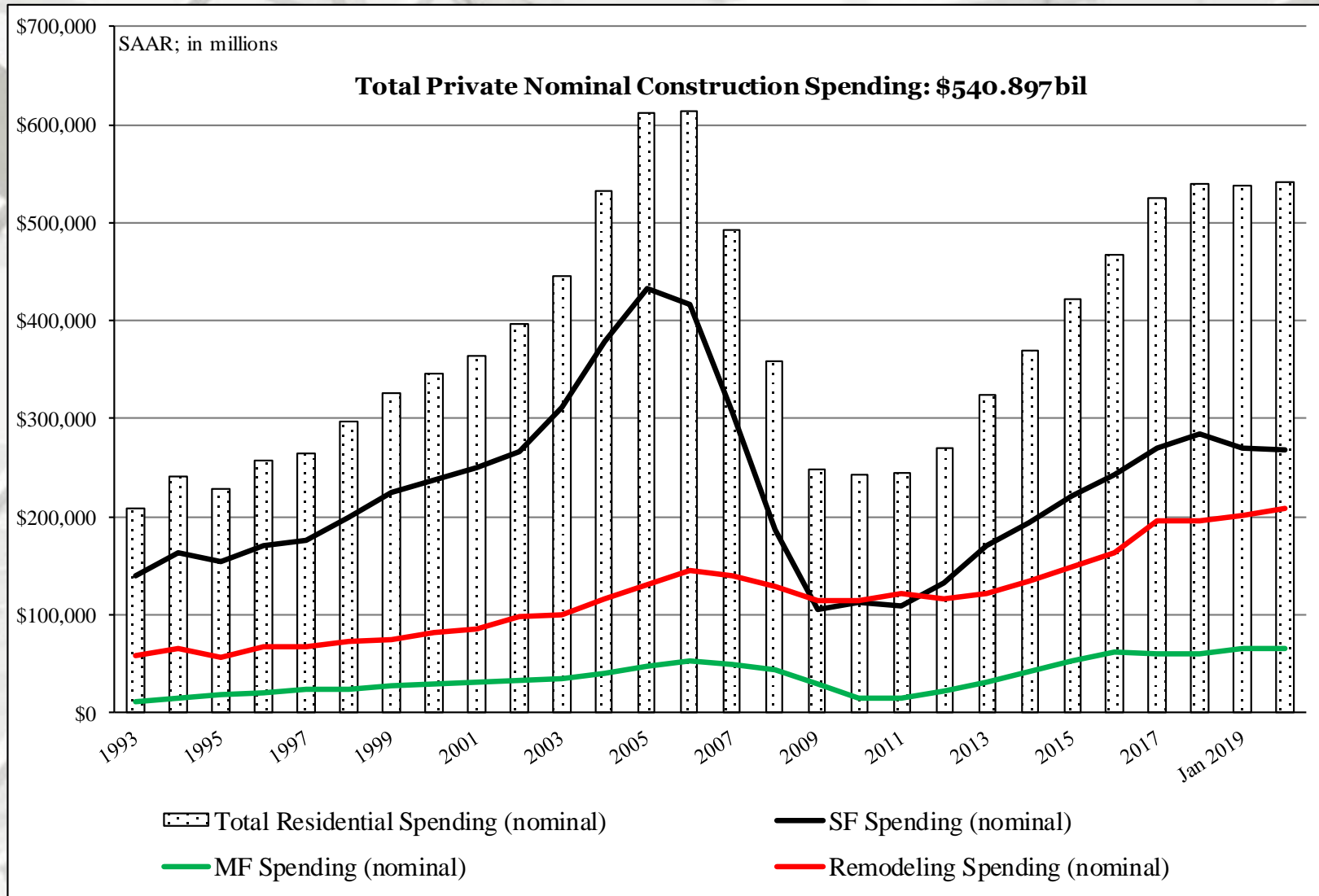
	Total Private Residential*	SF	MF	Improvement**
February	\$540,897	\$267,179	\$65,274	\$208,444
January	\$536,941	\$270,133	\$65,557	\$201,251
2018	\$560,173	\$287,710	\$60,745	\$211,718
M/M change	0.7%	-1.1%	-0.4%	3.6%
Y/Y change	-3.4%	-7.1%	7.5%	-1.5%

* 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\$.

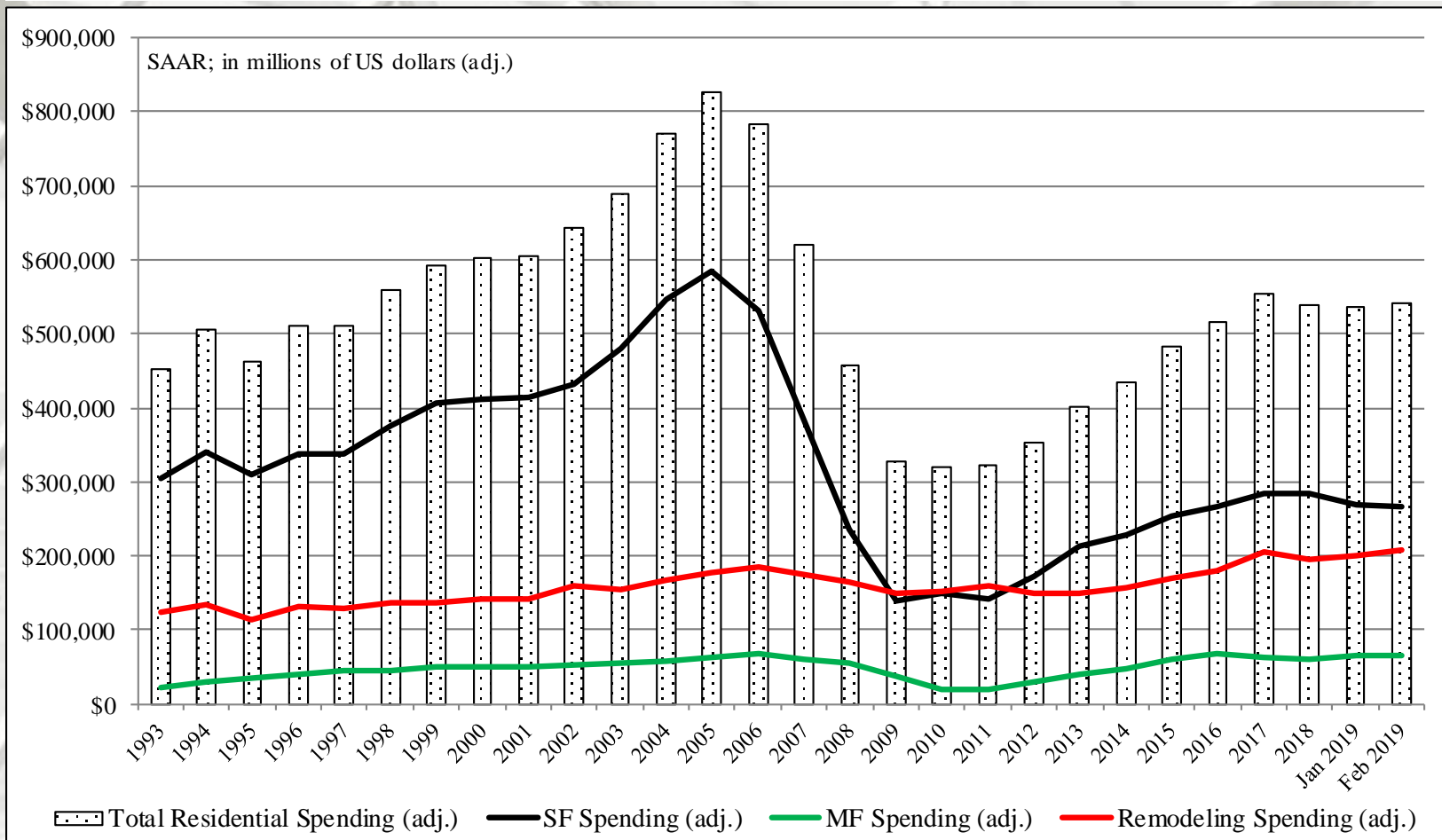
Total Construction Spending (nominal): 1993 – February 2019



Reported in nominal US\$.

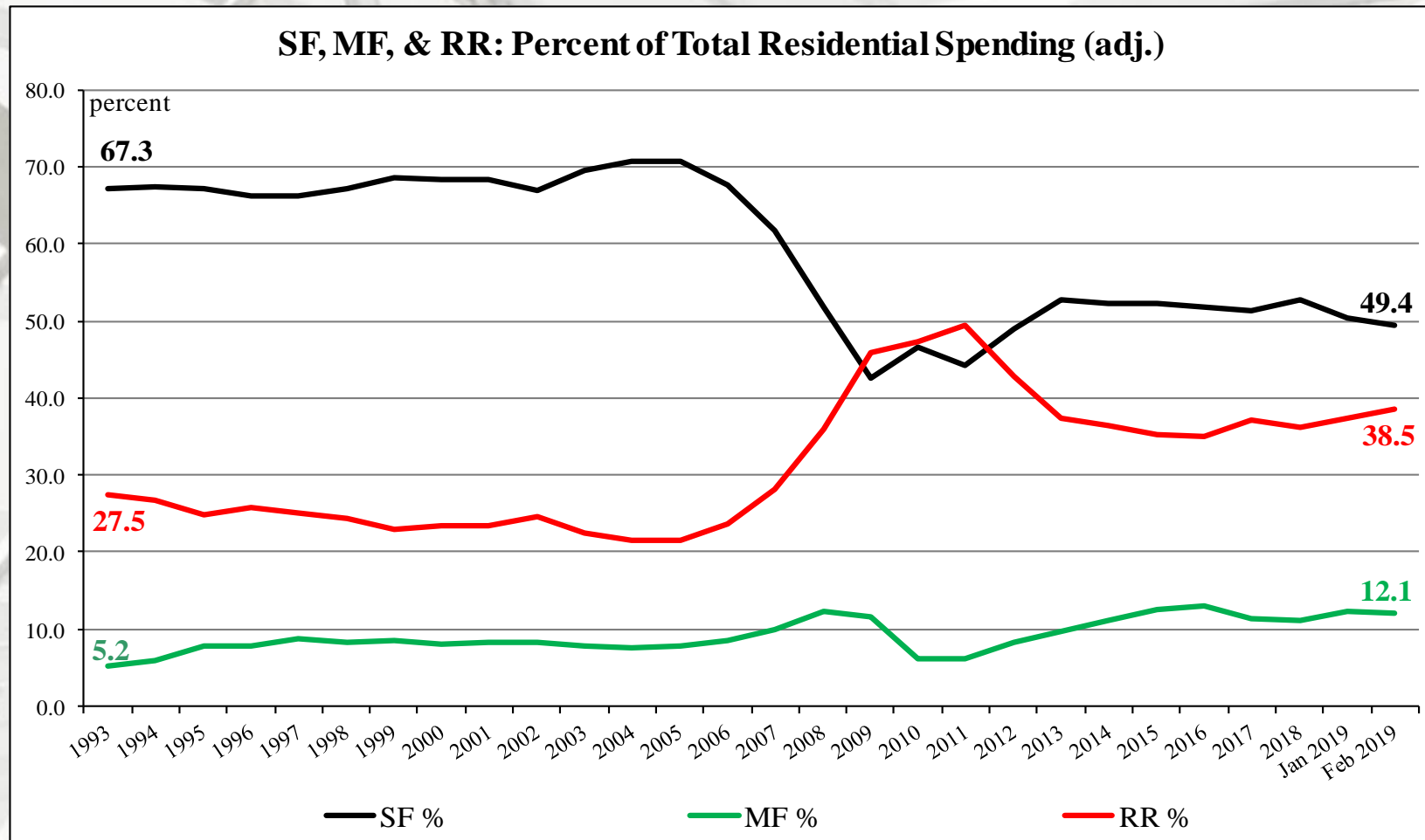
The US DOC does not report improvement spending directly, this is a monthly estimation for 2018.

Total Construction Spending (adjusted): 1993-2019*



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

Construction Spending Shares: 1993 to February 2019



Total Residential Spending: 1993 through 2006

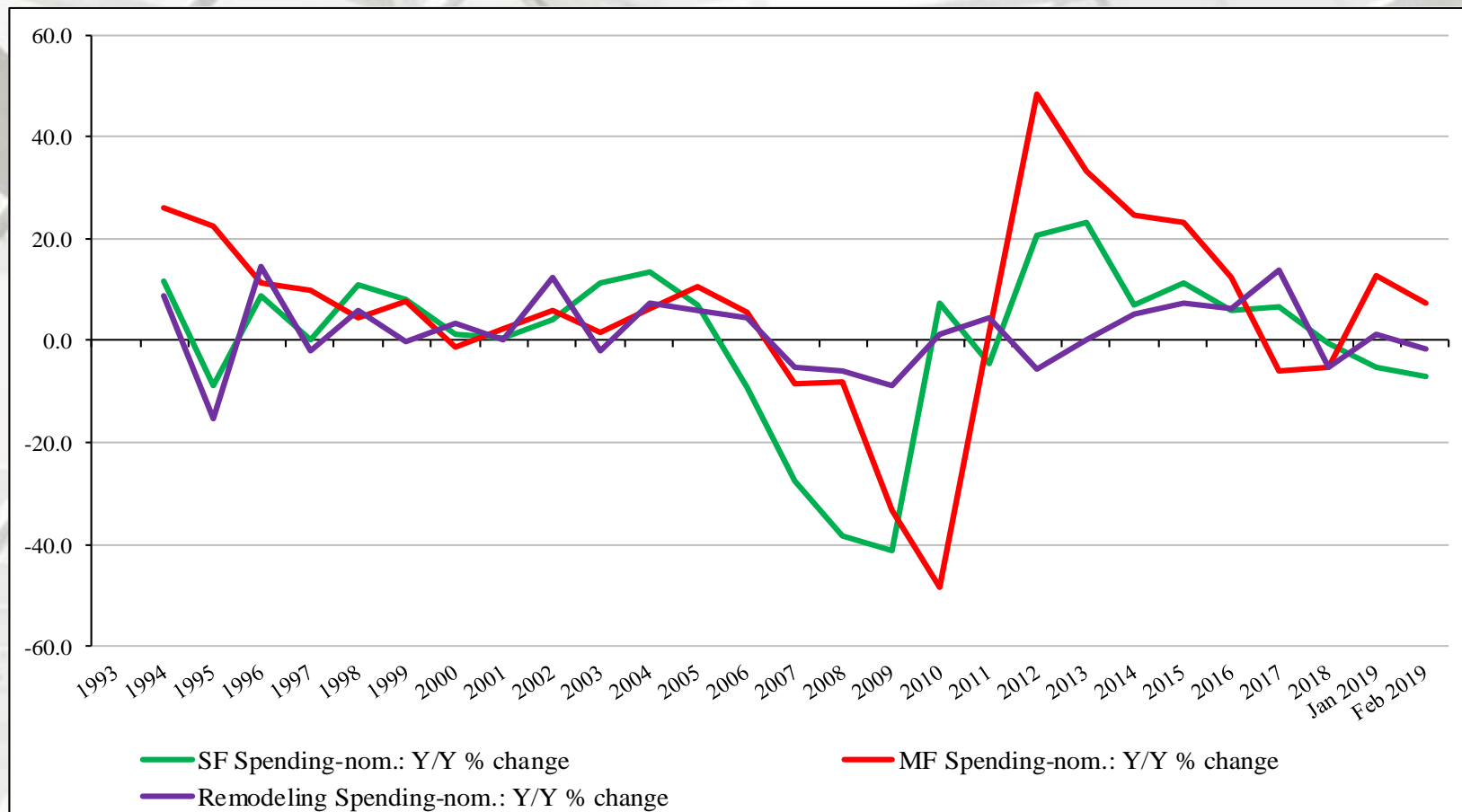
SF spending average: 69.2%

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-February 2018 reported in nominal US\$.

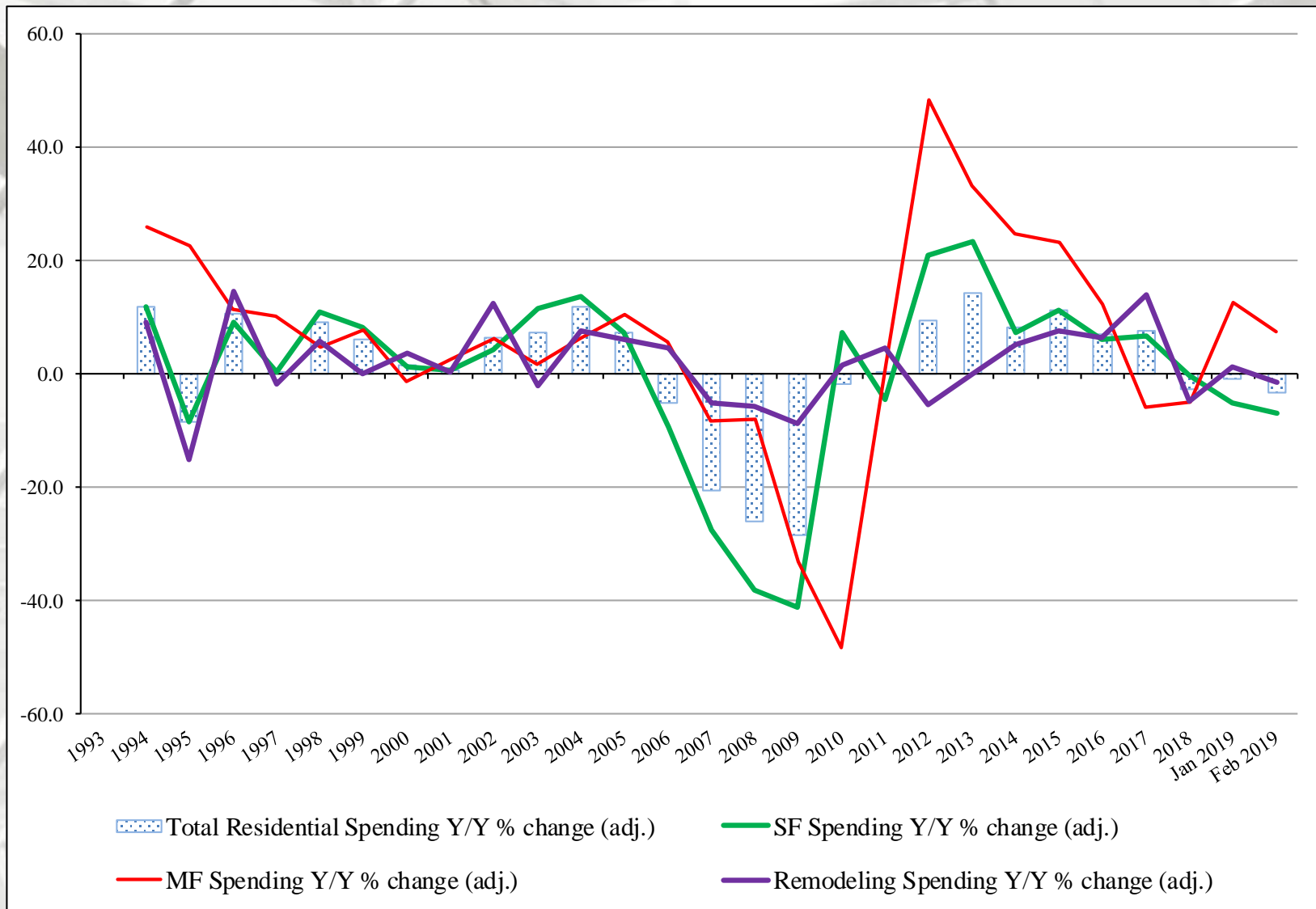
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to February 2019



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

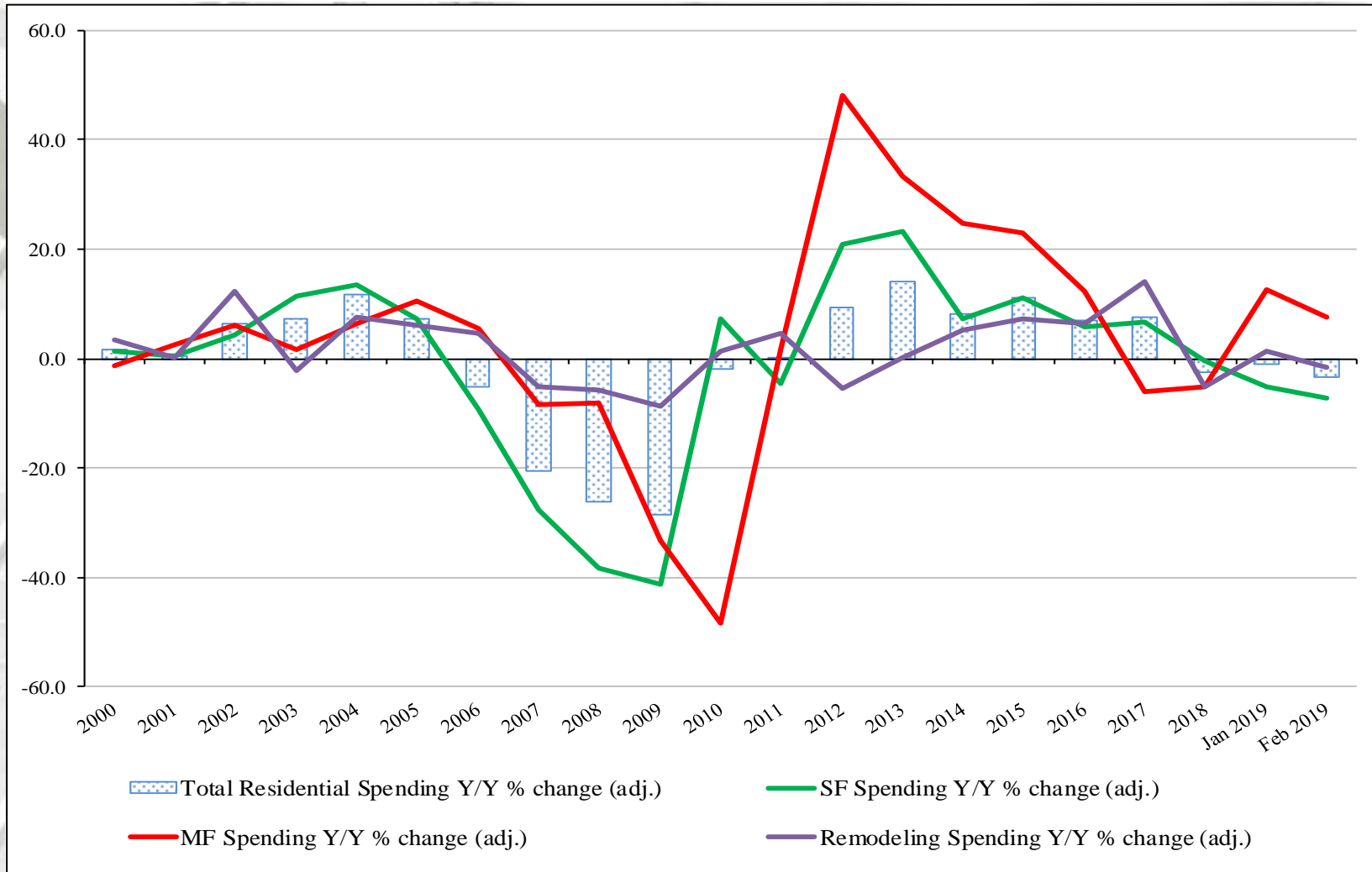
Presented above is the percentage change of inflation adjusted Y/Y construction spending. Only MF expenditures were positive on a percentage basis, year-over-year. 2019 data reported in nominal dollars

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



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

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



Y/Y percentage change, 1993 to February 2019

All expenditures were declined in February, with only MF spending remaining positive. 2019 data reported in nominal dollars.

Remodeling

Remodeling Outlook Remains Positive for 2019, RRI Finds

Index posted strong year-to-year increase, however moderate gains are expected over the next 24 months.

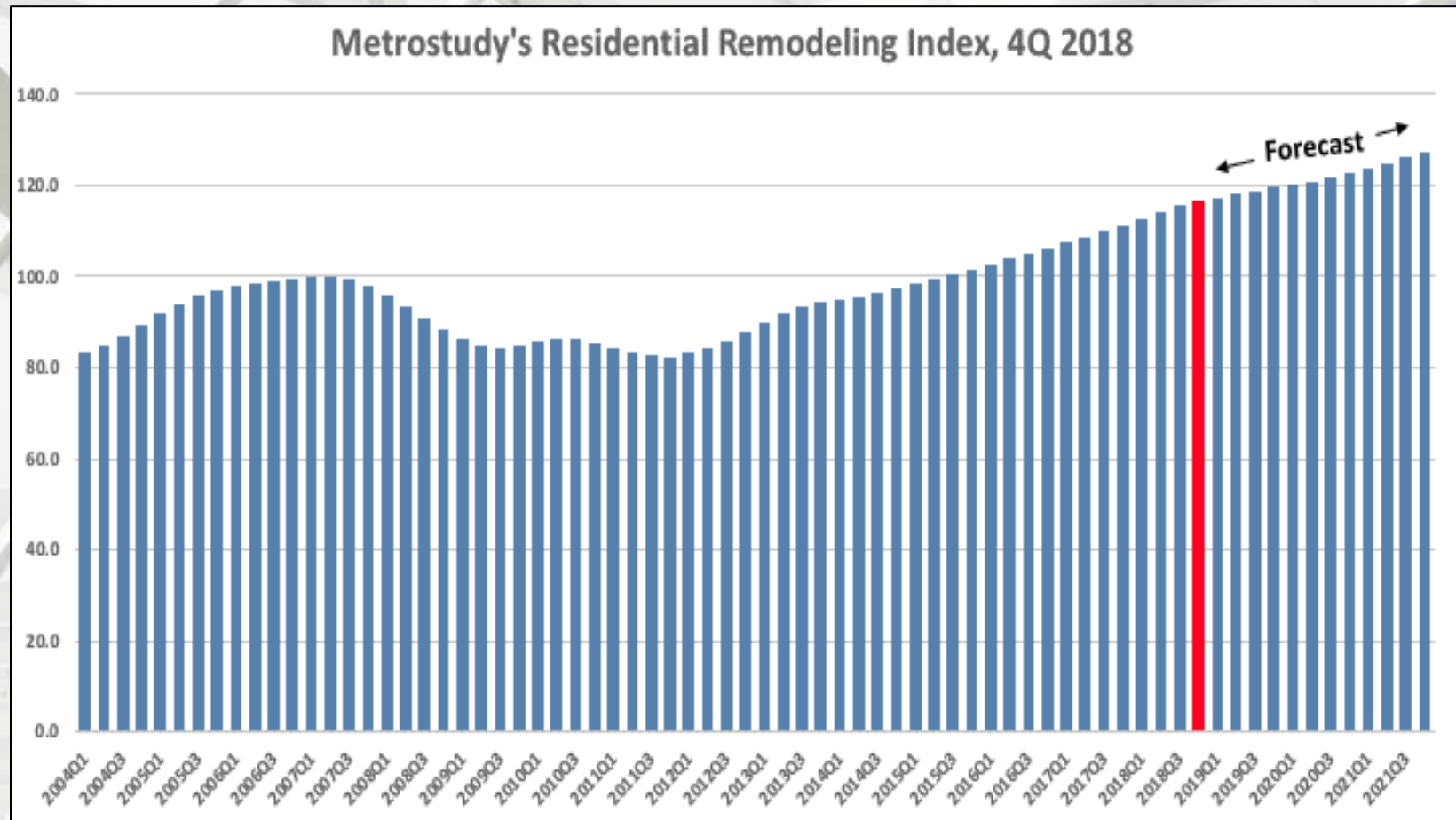
“Big ticket residential remodeling activity nationwide in the fourth quarter of 2018 rose 4.8% from the year-earlier period, Metrostudy announced in their release of the latest Residential Remodeling Index (RRI). The index reached an all-time high of 116.7 in the quarter, a 0.8% increase from the third quarter of 2018.

The RRI value means that the economic conditions known to influence remodeling activity are 16.7% better than the old peak in early 2007, just before the Great Recession. The growth of the RRI from the third quarter marks the 27th consecutive quarter of year-over-year growth for the index.

The forecast projects continued growth in the RRI over the next several years, but growth in 2019 and 2020 is expected to be at slower rates compared to the past several years of the index. The moderate gains projected will be closely tied to the maturation of the housing cycle, according to Metrostudy.” – Vincent Salandro, Assistant Editor, Remodeling

“The remodeling market remains busy as the nation continues to see strong job growth and record levels of home equity, especially in equity rich coastal markets. We expect continued growth for the industry in 2019, with some stabilization, mostly due to the slowing in existing home sales, which will sap some potential.” – Mark Boud, Chief Economist, Metrostudy

Remodeling



Existing House Sales

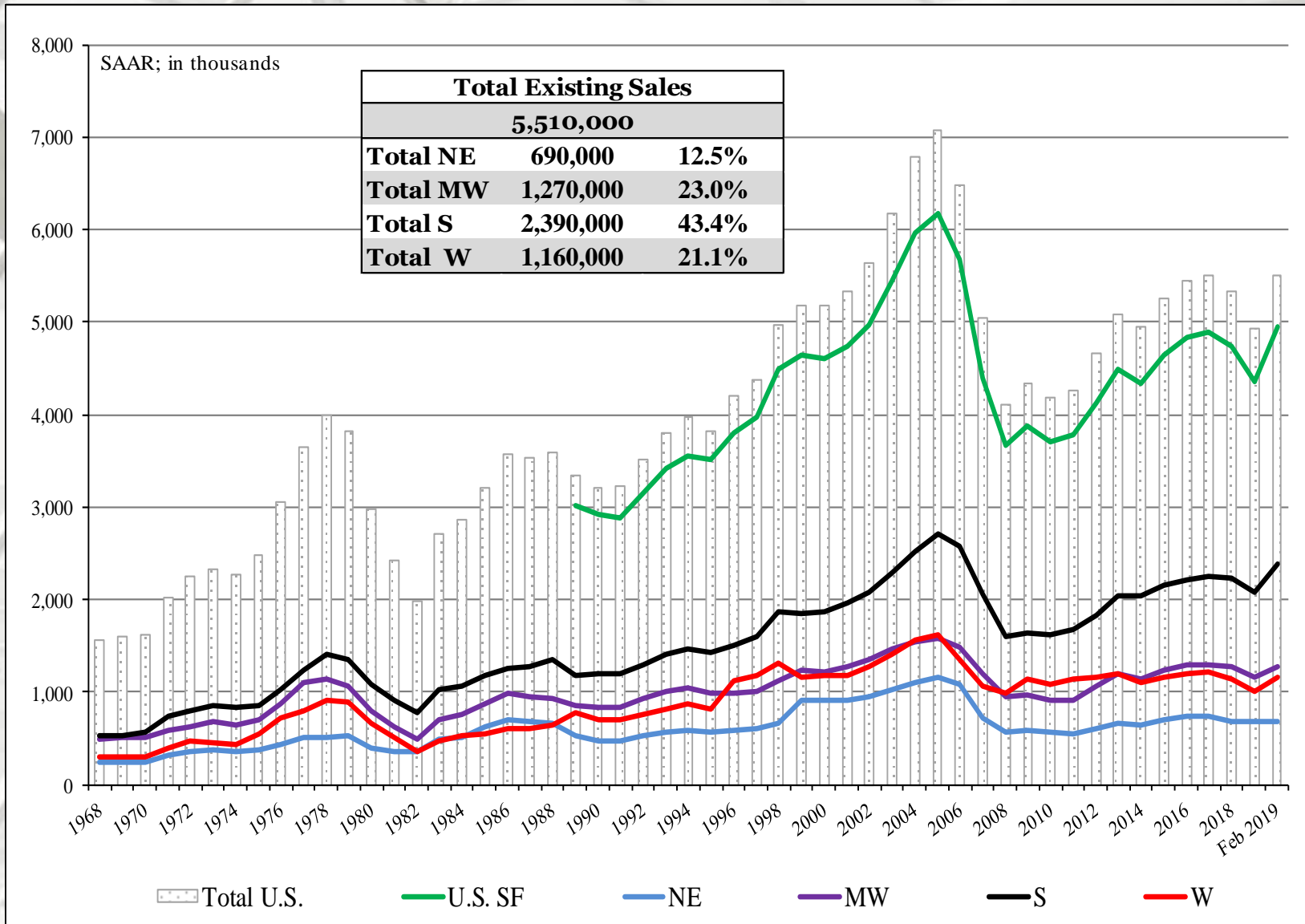
National Association of Realtors
February 2019 sales: 5.510 thousand

	Existing Sales*	Median Price	Mean Price	Month's Supply
February	5,510,000	\$249,500	\$288,200	3.5
January	4,930,000	\$249,300	\$288,100	3.9
2018	5,610,000	\$240,800	\$280,600	3.4
M/M	11.8%	0.1%	0.0%	-10.3%
Y/Y change	-1.8%	3.6%	2.7%	2.9%

	Existing SF Sales*	SF Median Price	SF Mean Price
February	4,940,000	\$251,400	\$289,000
January	4,360,000	\$251,200	\$288,900
2018	5,010,000	\$242,600	\$281,300
M/M change	13.3%	0.1%	0.0%
Y/Y change	-1.4%	3.6%	2.7%

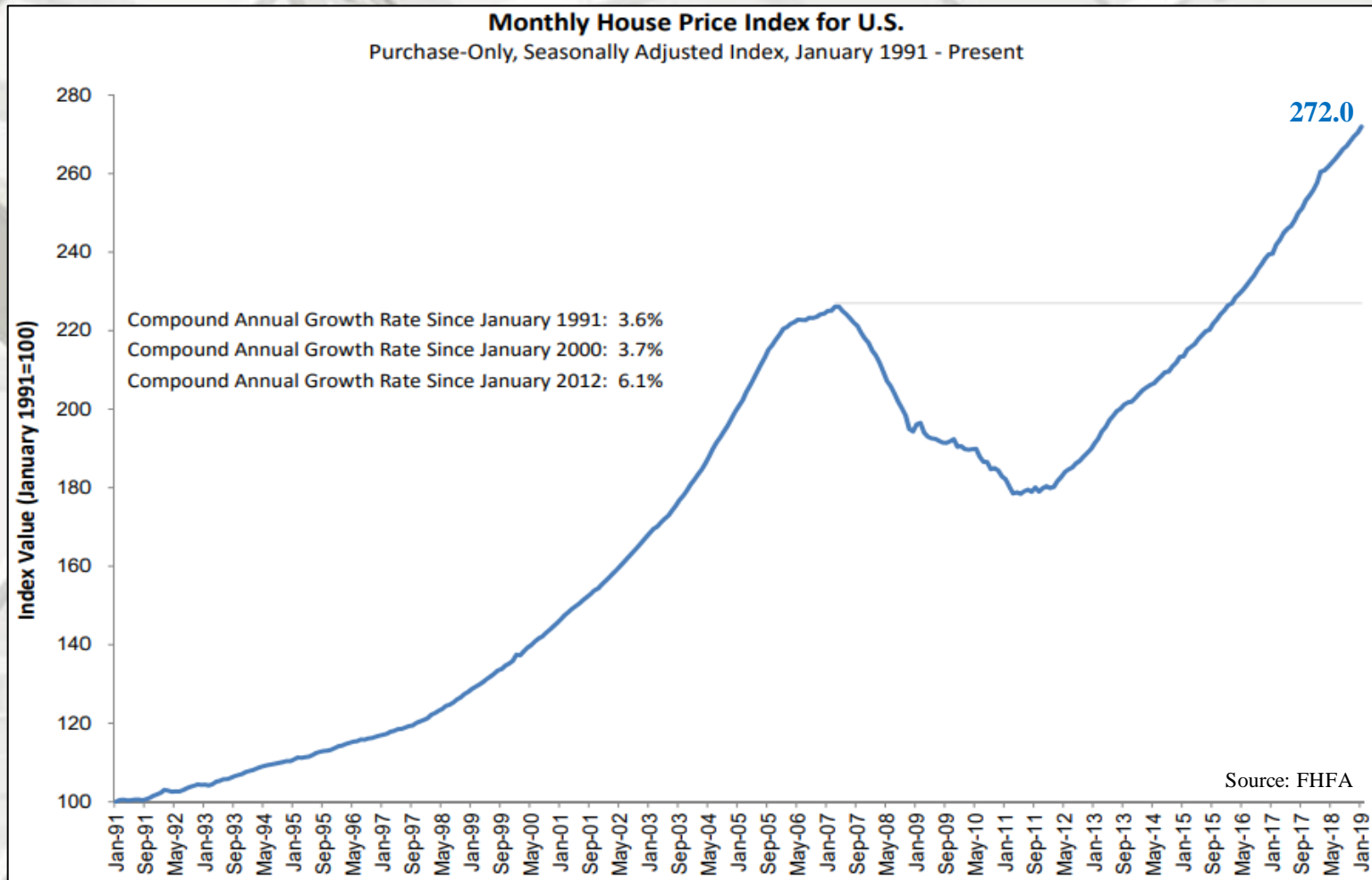
* All sales data: SAAR

Existing House Sales



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

U.S. Housing Prices



FHFA House Price Index Up 0.6 Percent in January; Up 5.6 Percent from Last Year

“U.S. house prices rose in January, up **0.6 percent** from the previous month, according to the Federal Housing Finance Agency (FHFA) seasonally adjusted monthly House Price Index (HPI). The previously reported 0.3 percent increase for December 2018 remained unchanged. From January 2018 to January 2019, house prices were up 5.6 percent.” – Stefanie Johnson and Corinne Russell, FHFA

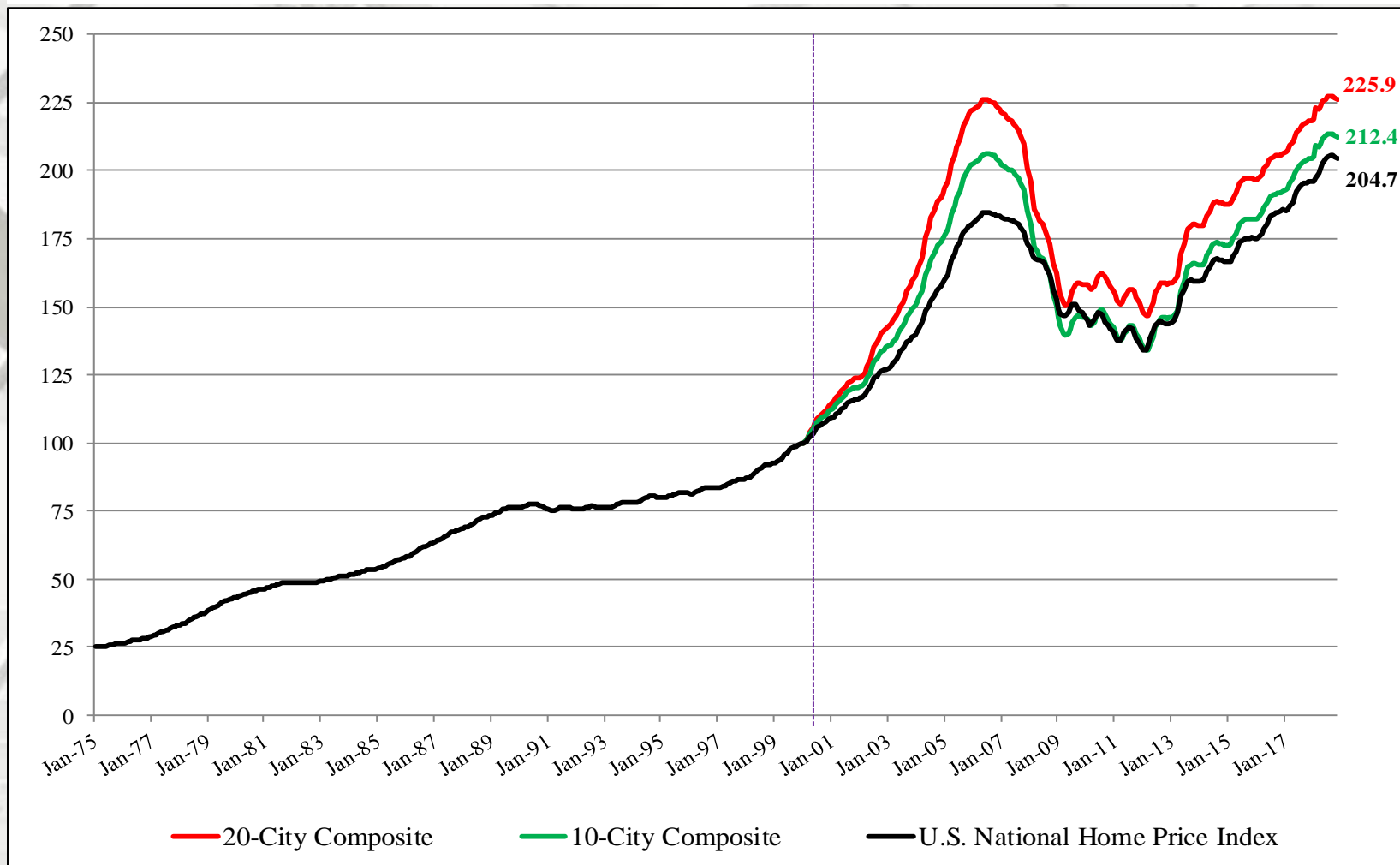
U.S. Housing Prices

“The S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, covering all nine U.S. census divisions, reported a 4.3% annual gain in January, down from 4.6% in the previous month. The 10-City Composite annual increase came in at 3.2%, down from 3.7% in the previous month. The 20-City Composite posted a 3.6% year-over-year gain, down from 4.1% in the previous month.

S&P CoreLogic Case-Shiller Index Shows Annual Gains Lowest Since 2015

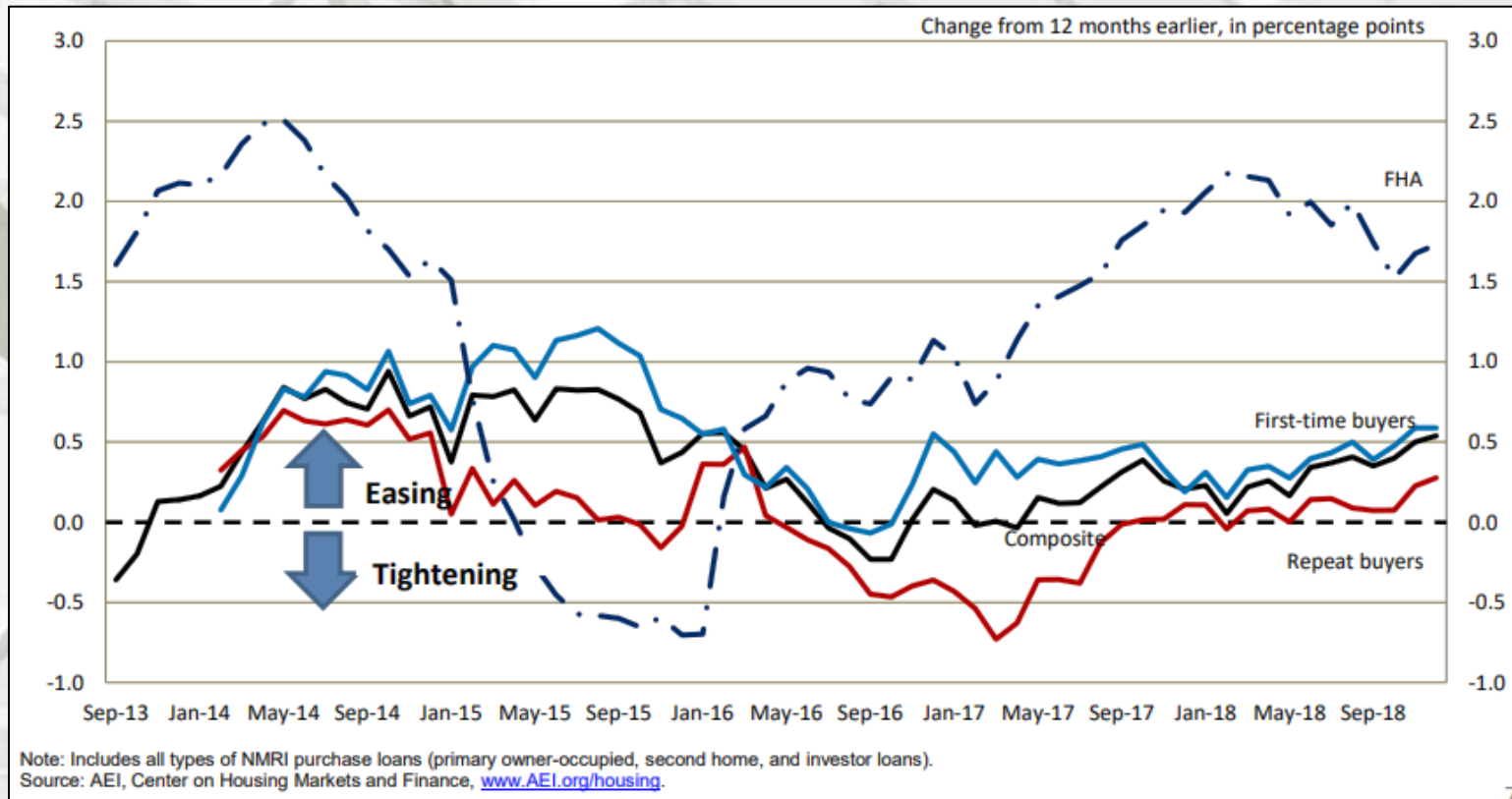
Home price gains continue to shrink. In the year to January, the S&P CoreLogic Case-Shiller National Index rose 4.3%, two percentage points slower than its pace in January 2018. The last time it advanced this slowly was April 2015. In 16 of the 20 cities tracked, price gains were smaller in January 2019 than in January 2018. Only Phoenix saw any appreciable acceleration. Some cities where prices surged in 2017-2018 now face much smaller increases: in Seattle, annual price gains dropped from 12.8% to 4.1% from January 2018 to January 2019. San Francisco saw annual price increases shrink from 10.2% to 1.8% over the same time period. Mortgage rates are as important as prices for many home buyers. Mortgage rates climbed from 3.95% in January 2018 to a peak of 4.95% in November 2018. Since then, rates have dropped to 4.28% as of mid-March. Sales of existing single-family homes slid gently downward from the 2017 fourth quarter until January of this year before jumping higher in February 2019. Home sales annual rate dropped from 5 million units in February 2018 to 4.36 million units in January 2019 before popping to 4.94 in February. It remains to be seen if recent low mortgage rates and smaller price gains can sustain improved home sales.” – David Blitzer, Managing Director and Chairman of the Index Committee, S&P Dow Jones Indices

S&P/Case-Shiller Home Price Indices



“Las Vegas, Phoenix and Minneapolis reported the highest year-over-year gains among the 20 cities. In January, Las Vegas led the way with a 10.5% year-over-year price increase, followed by Phoenix with a 7.5% increase and Minneapolis with a 5.1% increase. Only one of the 20 cities reported greater price increases in the year ending January 2019 versus the year ending December 2018.” – Soogyung Jordan, Global Head of Communications, S&P CoreLogic

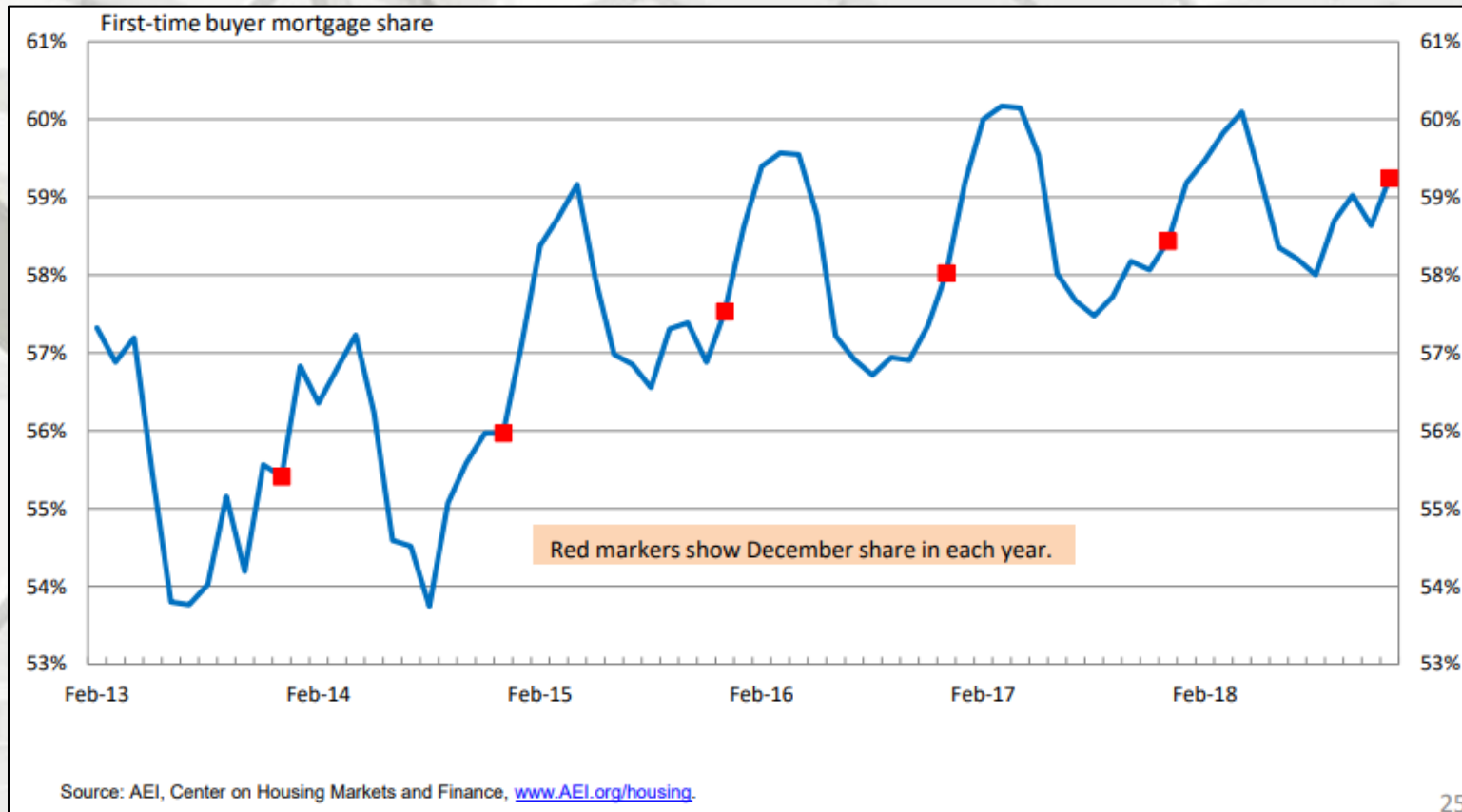
First-Time House Buyers



Credit Easing = Punchbowl Spiking Continues, Led by FHA

“The Composite NMRI for purchase loans increased from already elevated levels a year ago. For FHA, the index is rising at a rate of 1.7% year-over-year. First-time buyers have consistently been taking on greater leverage and default risk, which has helped fuel accelerating house price growth for entry-level homes. Higher default risk combined with unsustainable home price increases will lead to unnecessarily high default rates during the eventual market correction.” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

First-Time House Buyers

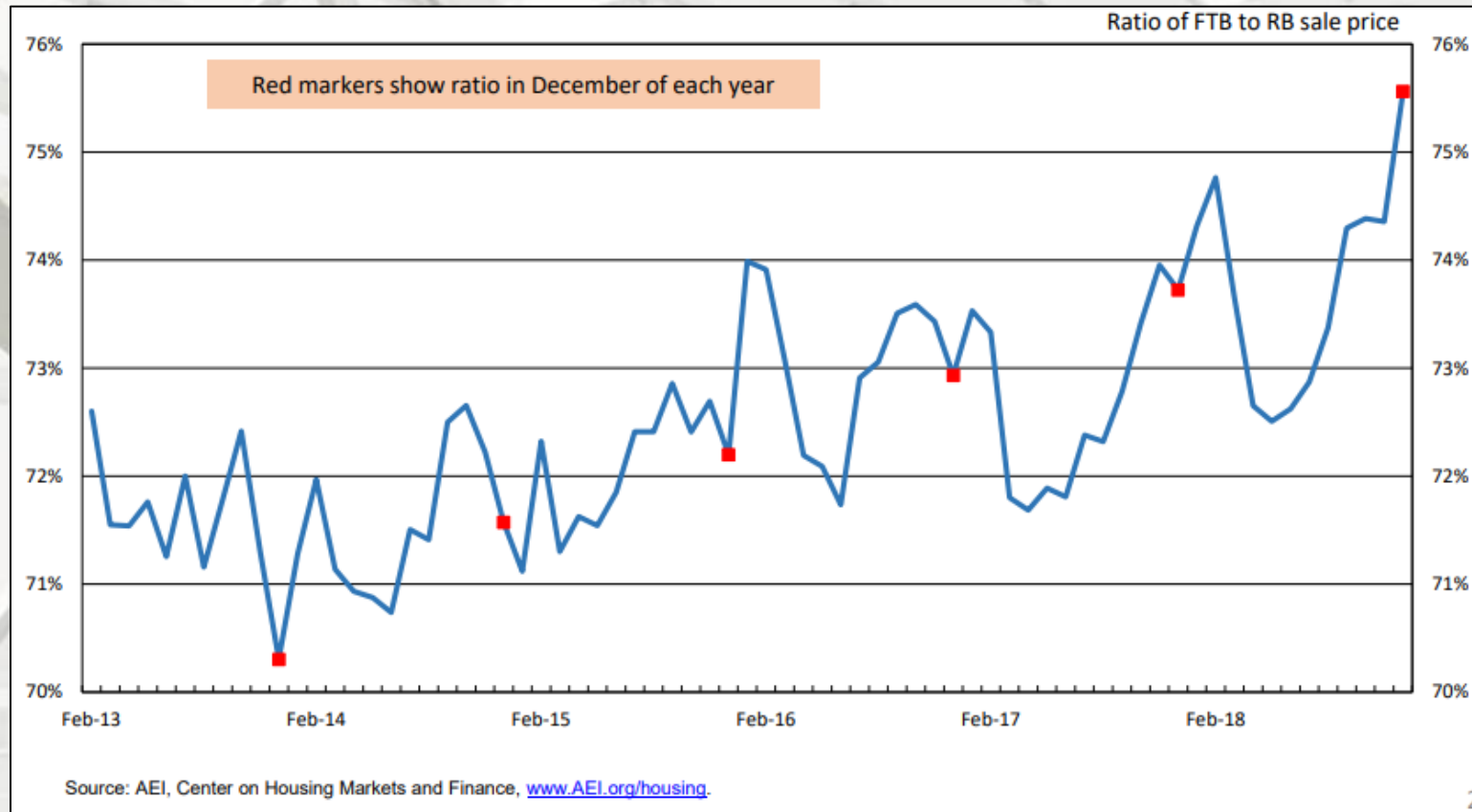


Agency First-Time Buyer Mortgage Share

“The Agency First-Time Buyer Mortgage Share Index (FBMSI) for December 2018 stood at 59.2%, up 0.8 ppt and setting a new series’ high for the month of December. Compared to five years ago, the FBMSI is up 3.8 ppts. from 55.4%. It appears that the index has increased from its already high level due to repeat buyers’ greater sensitivity to higher rates.”

– Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

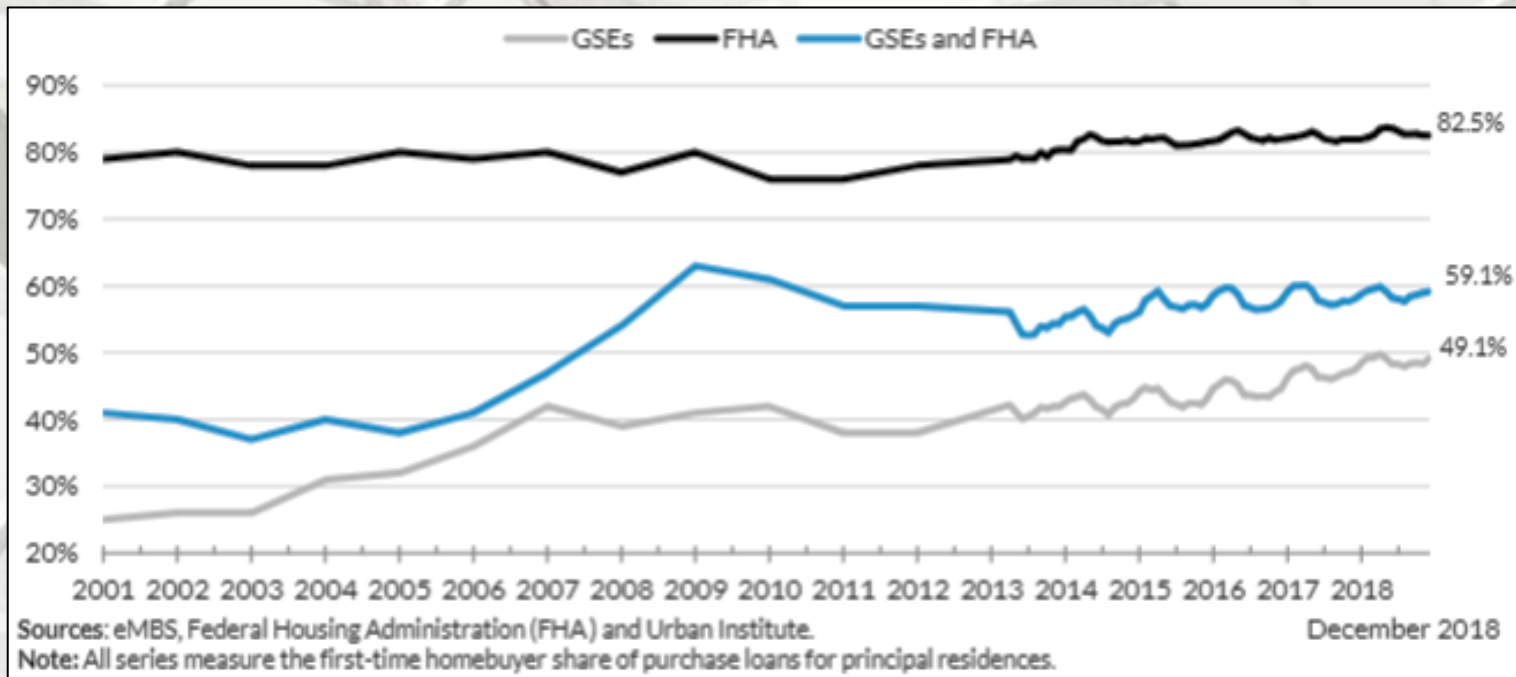
First-Time House Buyers



Ratio of Sales Price for First-time to Repeat Buyers

“The trend upward is towards higher first-time buyer (FTB) prices relative to repeat buyers (RBs). FTBs have access to the leverage punchbowl, thereby greatly reducing the tendency to make downward quality adjustments to offset rapid home price appreciation. RBs without access to this punchbowl, tend to make downward quality adjustments to offset home price appreciation. This adds to demand at lower price tiers. ” – Edward Pinto and Tobias Peter, AEI Center on Housing Markets and Finance

First-Time House Buyers

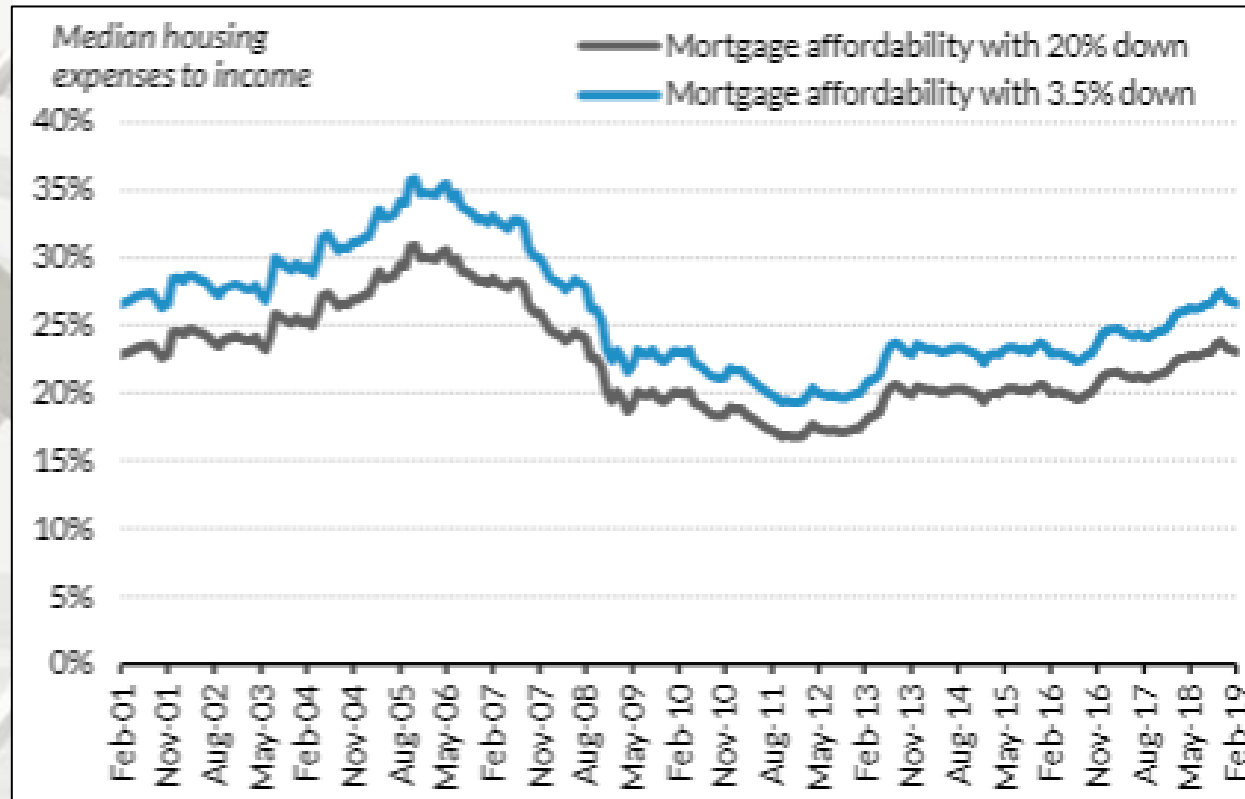


Urban Institute

“In December 2018, the first time homebuyer (FTHB) share of purchase loans increased very slightly for conventional mortgages and remained flat for FHA mortgages compared to the previous month. The FTHB share for FHA, which has always been more focused on first time homebuyers, stood at 82.5 percent in December 2018. The GSE FTHB share in December 2018 was 49.1 percent. ...based on mortgages originated in December 2018, 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

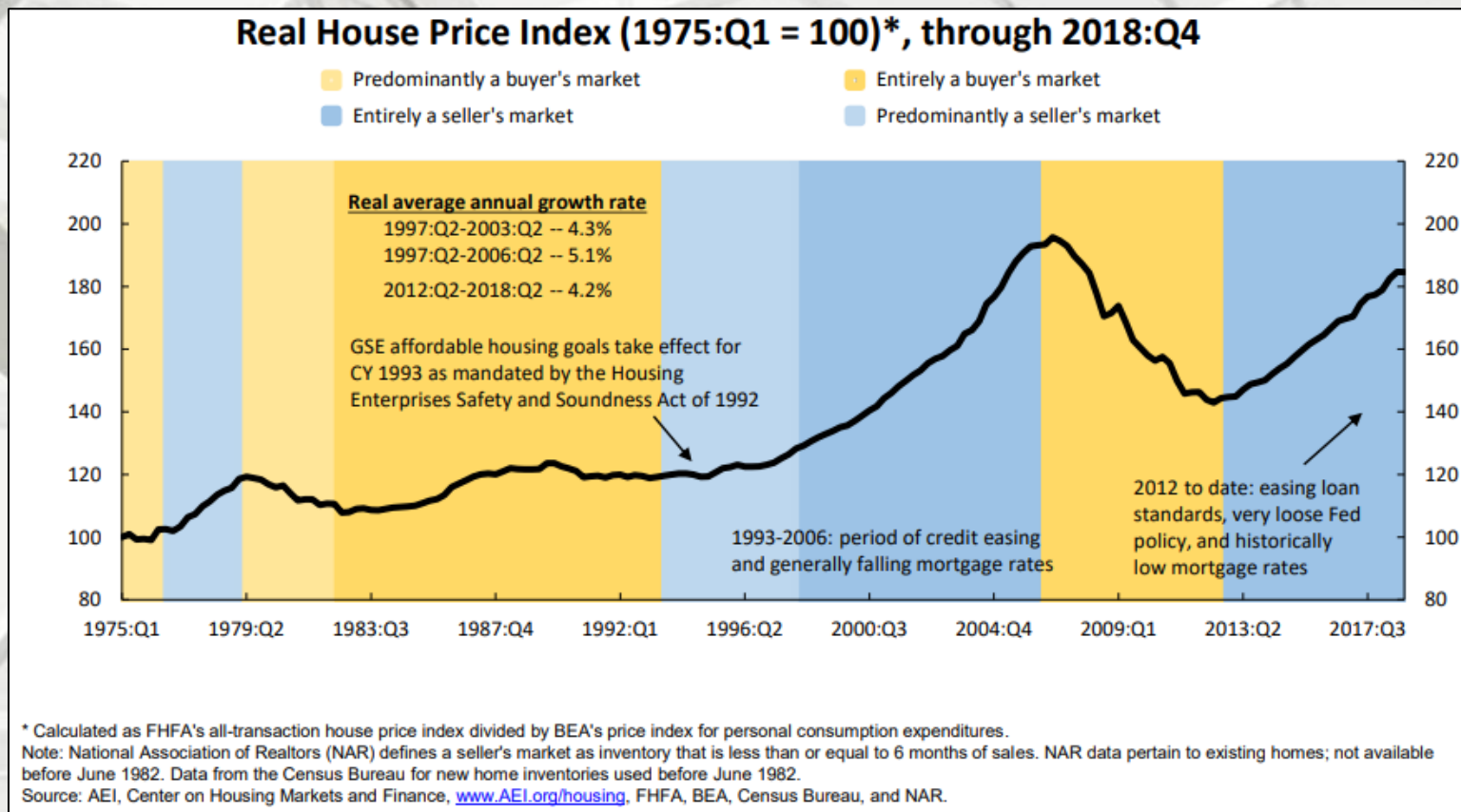
National Housing Affordability Over Time



Urban Institute

“Home prices remain affordable by historical standards, despite price increases over the last 6.5 years and interest rate increases. As of February 2019, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 23.1 percent; with 3.5 down, it is 26.6 percent. As of February, the median housing expenses to income ratio was slightly lower than the 2001-2003 average. As shown in the picture, mortgage affordability varies widely by MSA.” – Bing Lai, Research Associate, Housing Finance Policy Center

Housing Affordability



Unforgiving Home Price Cycles: Booms Fueled by Increasing Leverage in a Seller's Market, Followed by Mean Reversion

“Fueled by growing loan leverage and tight supplies, real home prices have increased 29% since the early 2012 trough. Contrary to prevailing view, post-crisis underwriting/regulatory changes promote rather than constrain a boom. The pattern is similar to the initial years of the price boom that began in 1998. If it continues, the risk of a serious house price correction increases.” – Edward Pinto and Tobias Peter, Center on Housing Markets and Finance, AEI

Mortgage Credit Availability

Mortgage Credit Availability Increased in March

“Mortgage credit availability increased in March 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 1.1 percent to 182.1 in March. 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 (3.6 percent), while the Government MCAI declined (1.2 percent). Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 5.2 percent, while the Conforming MCAI increased by 1.4 percent.

Credit availability increased in March, primarily due to a spike in jumbo mortgage offerings. The jumbo sub-index increased 5 percent and reached its highest level since last November, as the recent decline in mortgage rates led to a jump in refinances from borrowers with larger loans. The credit supply for government loans decreased in March, as investors continue to reduce FHA and VA streamline refi offerings.” – Joel Kan, Associate Vice President of Economic and Industry Forecasting, MBA

Summary

In summary:

February's housing data was bleak and categorically mixed. Total and single-family starts declined substantially on a monthly and a yearly bases. Single-family and total housing permits also were uninspiring and indicated declines. Housing under construction, completions, and new single-family sales also were mixed. The one bright data point was monthly existing sales, which rebounded substantially on a monthly basis. New SF construction expenditures were tepid as well.

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 place, though in aggregate rates are incrementally rising;
- 2) Housing affordability shows minimal improvement;
- 3) Select builders are beginning to focus on entry-level houses.

Cons:

- 1) Lot availability and building regulations (according to several sources);
- 2) Laborer shortage;
- 3) Household formations still lag 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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