

# The Virginia Tech – U.S. Forest Service March 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](mailto: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](mailto:dalderman@fs.fed.us)



2019

Virginia Polytechnic Institute and State University

CNRE-54P

Virginia Cooperative Extension programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, veteran status, or any other basis protected by law. An equal opportunity/affirmative action employer. Issued in furtherance of Cooperative Extension work, Virginia Polytechnic Institute and State University, Virginia State University, and the U.S. Department of Agriculture cooperating. Edwin J. Jones, Director, Virginia Cooperative Extension, Virginia Tech, Blacksburg; M. Ray McKinnie, Administrator, 1890 Extension Program, Virginia State University, Petersburg.

# Table of Contents

Slide 3: <a href="#">Opening Remarks</a>	Slide 50: <a href="#">Region SF House Sales &amp; Price</a>
Slide 4: <a href="#">Housing Scorecard</a>	Slide 55: <a href="#">New SF Sales-Population Ratio</a>
Slide 5: <a href="#">Wood Use in Construction</a>	Slide 65: <a href="#">Construction Spending</a>
Slide 8: <a href="#">New Housing Starts</a>	Slide 68: <a href="#">Construction Spending Shares</a>
Slide 12: <a href="#">Regional Housing Starts</a>	Slide 74: <a href="#">Existing House Sales</a>
Slide 21: <a href="#">New Housing Permits</a>	Slide 79: <a href="#">House Ownership</a>
Slide 25: <a href="#">Regional New Housing Permits</a>	Slide 87: <a href="#">First-Time Purchasers</a>
Slide 33: <a href="#">Housing Under Construction</a>	Slide 92: <a href="#">Affordability</a>
Slide 33: <a href="#">Regional Under Construction</a>	Slide 97: <a href="#">Summary</a>
Slide 38: <a href="#">Housing Completions</a>	Slide 98: <a href="#">Virginia Tech Disclaimer</a>
Slide 41: <a href="#">Regional Housing Completions</a>	Slide 99: <a href="#">USDA Disclaimer</a>
Slide 45: <a href="#">New Single-Family House Sales</a>	

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](mailto:buehlmann@gmail.com) or [dalderman@fs.fed.us](mailto:dalderman@fs.fed.us)

# Opening Remarks

March 2019 United States housing data was brutal, with only single-family completions and new sales reported as positive on month-over-month basis. The bell weather cue for new construction health – single-family starts – were positive only in the South region. The year-over-year data was also unpleasant: Total starts, permits, and private residential construction spending; and single-family starts, single-family permits, and construction spending were all decidedly negative. The bright spot was completions, as total and single-family completions were positive on a monthly and yearly basis. The May 9th Atlanta Fed GDPNow™ model for Q2 2019 projects an aggregate 2.1% decrease for residential investment spending. New private permanent site expenditures were projected at an 11.0% decrease; the improvement spending forecast was a 1.7% increase; and the manufactured/mobile housing projection was a 9.2% increase (all: quarterly log change and seasonally adjusted annual rate)<sup>1</sup>.

“The recent declines in mortgage rates will increase demand during the spring buying season which has just begun. Since inventories remain fairly tight across the nation, this combination points towards higher house price growth in the months ahead. Reports of the end of current housing boom are exaggerated. The data we are releasing demonstrates that inventories remain tight nationally, especially for entry-level homes. This trend, along with continued credit easing for first-time buyers and a significant decline in mortgage rates, all point to a continuation of the boom for entry-level buyers.”<sup>2</sup> – Edward Pinto, Co-director and Tobias Peter, Senior Research Analyst; American Enterprise Institute’s (AEI) Housing Center

This month’s commentary contains applicable housing data: Section I contains data and commentary; an analysis of home ownership and residential electricity customers. Section II includes regional Federal Reserve analysis, private indicators, and demographic and economic commentary.

Sources: <sup>1</sup> [www.frbatlanta.org/cqer/research/gdpnow.aspx](http://www.frbatlanta.org/cqer/research/gdpnow.aspx); 5/9/19;

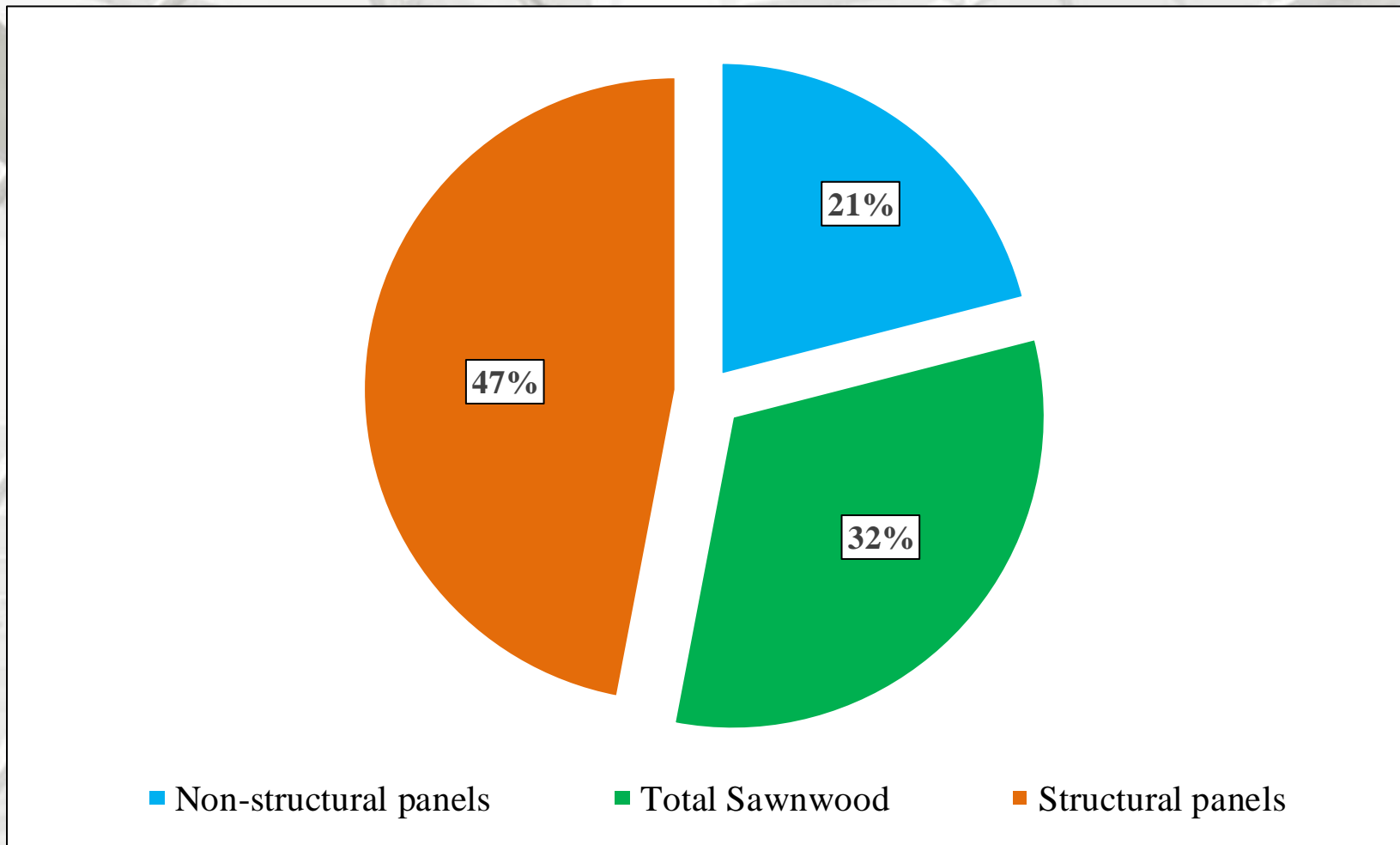
<sup>2</sup> <https://www.aei.org/multimedia/national-and-metro-housing-market-indicators/>; 4/9/19

# March 2019 Housing Scorecard

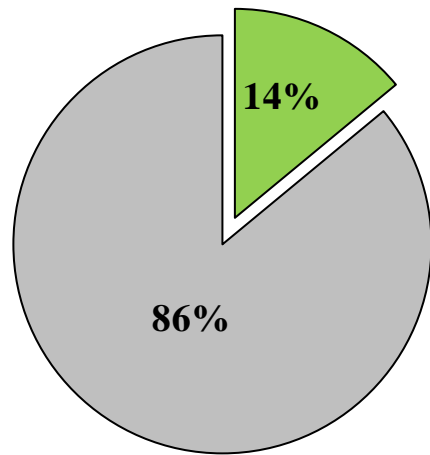
	M/M	Y/Y
Housing Starts	▽ 0.3%	▽ 14.2%
Single-Family (SF) Starts	▽ 0.4%	▽ 11.1%
Housing Permits	▽ 1.7%	▽ 7.8%
SF Permits	▽ 1.1%	▽ 5.1%
Housing Under Construction	▽ 1.6%	△ 0.1%
SF Under Construction	▽ 1.7%	△ 4.5%
Housing Completions	▽ 1.9%	△ 6.8%
SF Completions	△ 11.9%	△ 8.8%
New SF House Sales	△ 4.5%	△ 3.0%
Private Residential Construction Spending	▽ 1.8%	▽ 8.4%
SF Construction Spending	▽ 1.5%	▽ 8.2%
Existing House Sales <sup>1</sup>	▽ 4.9%	▽ 5.4%

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

# New Construction's Percentage of Wood Products Consumption

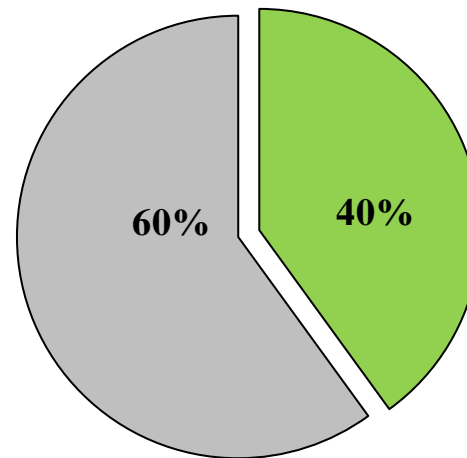


# New SF Construction Percentage of Wood Products Consumption



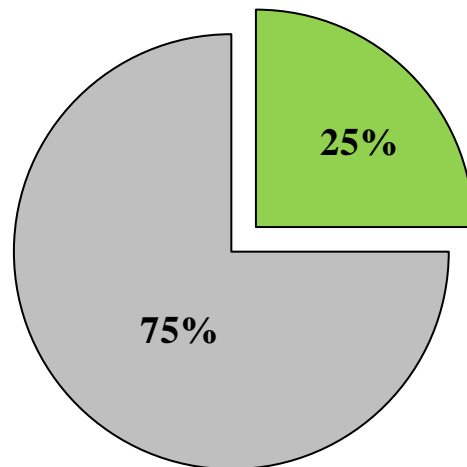
■ Non-structural panels:  
New Housing

■ Other markets



■ Structural panels:  
New housing

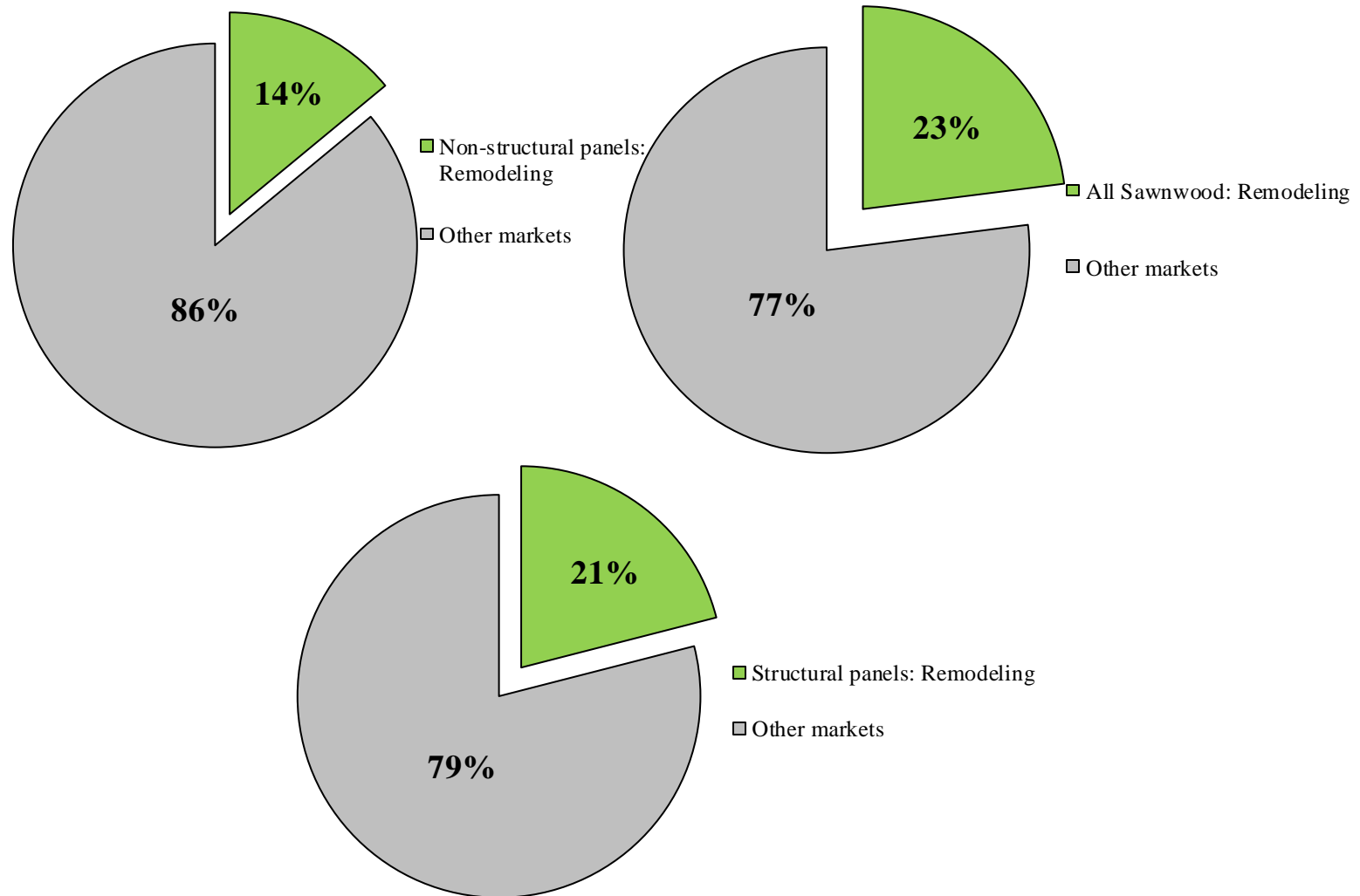
■ Other markets



■ All Sawnwood: New housing

■ Other markets

# Repair and Remodeling's Percentage of Wood Products Consumption



# New Housing Starts

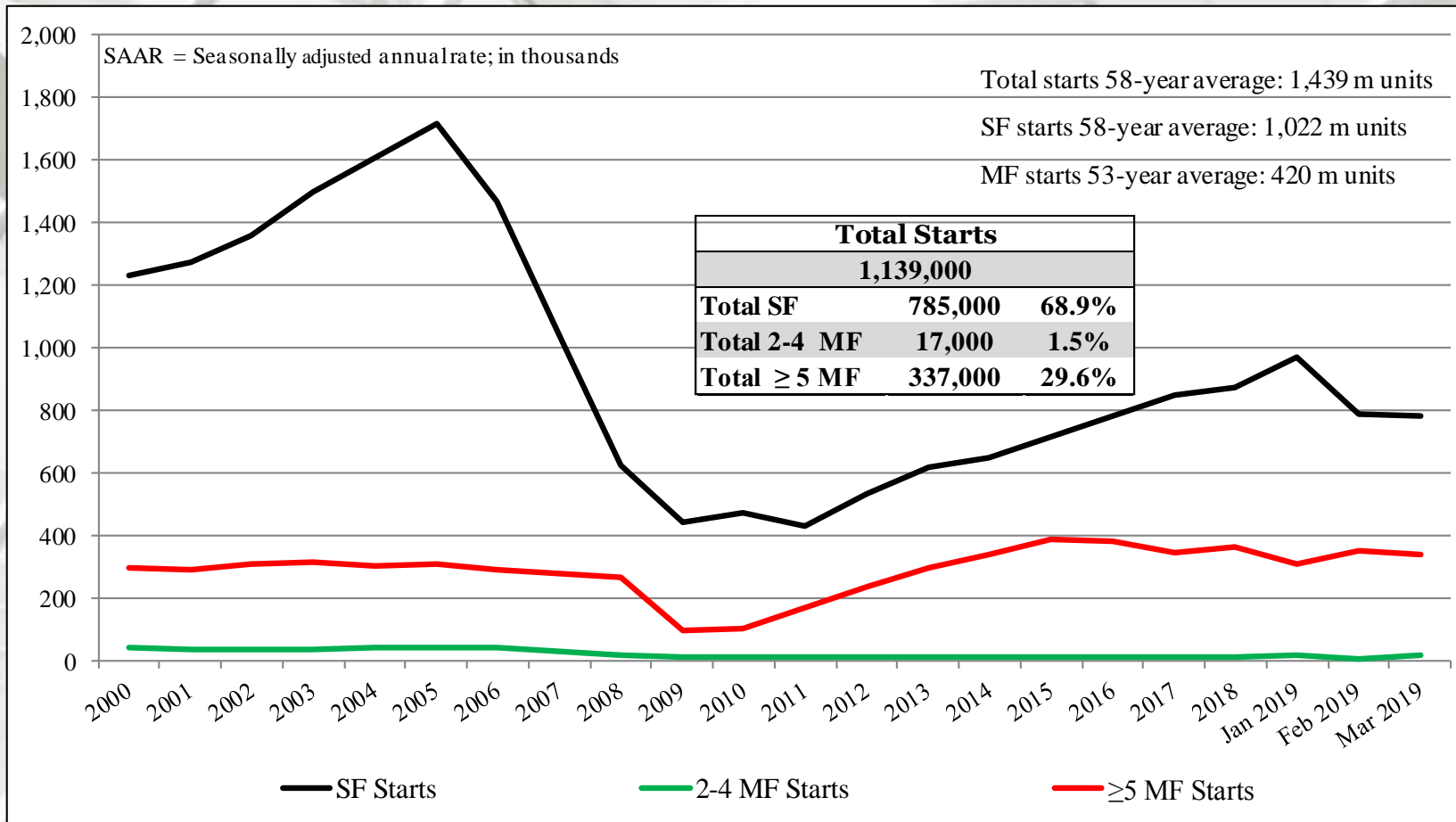
	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
March	1,139,000	785,000	17,000	337,000
February	1,142,000	788,000	5,000	349,000
2018	1,327,000	882,000	14,000	431,000
M/M change	-0.3	-0.4	240.0	-3.4
Y/Y change	-14.2	-11.0	21.4	-21.8

\* 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)).



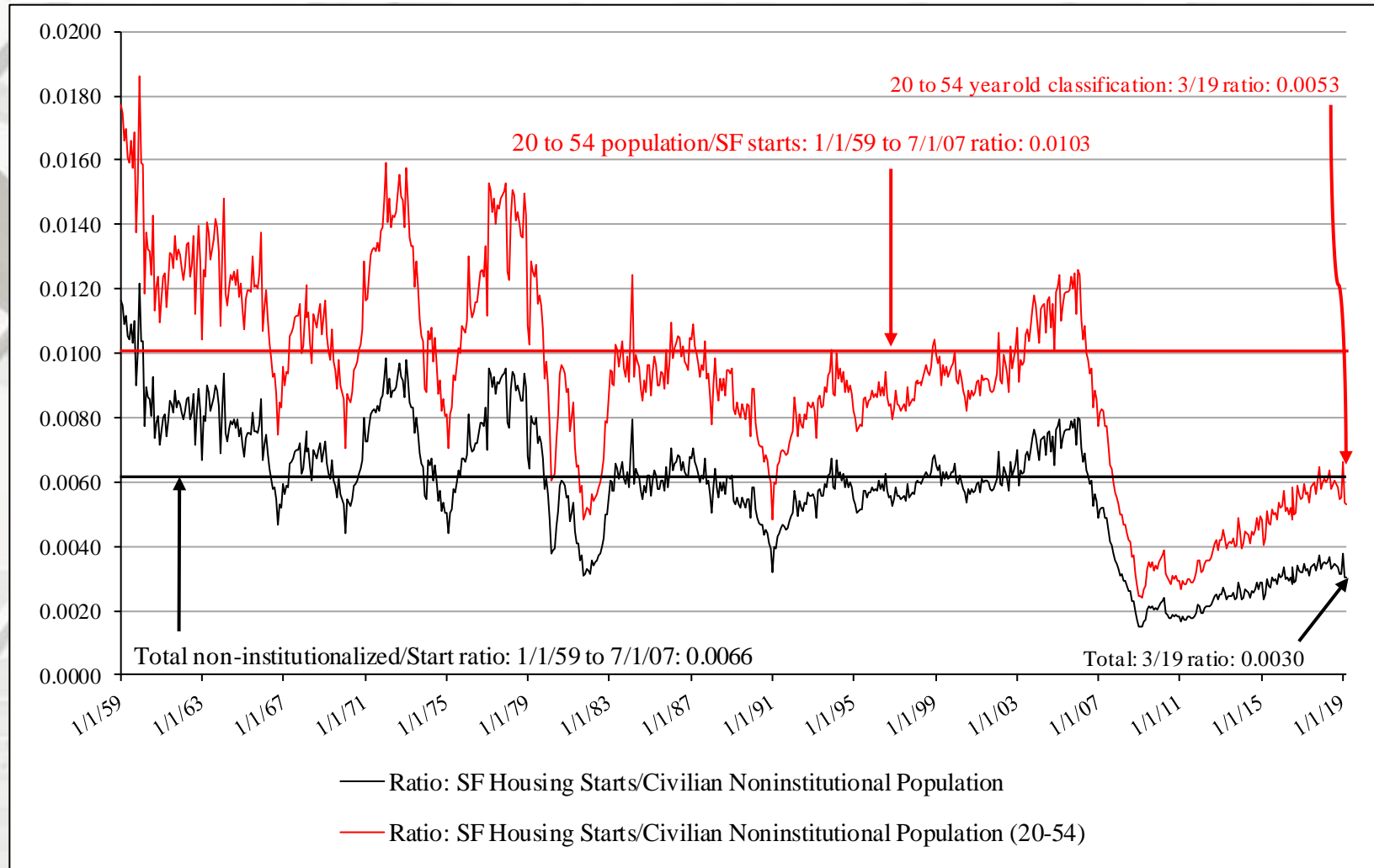
# Total Housing Starts



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

\* Percentage of total starts.

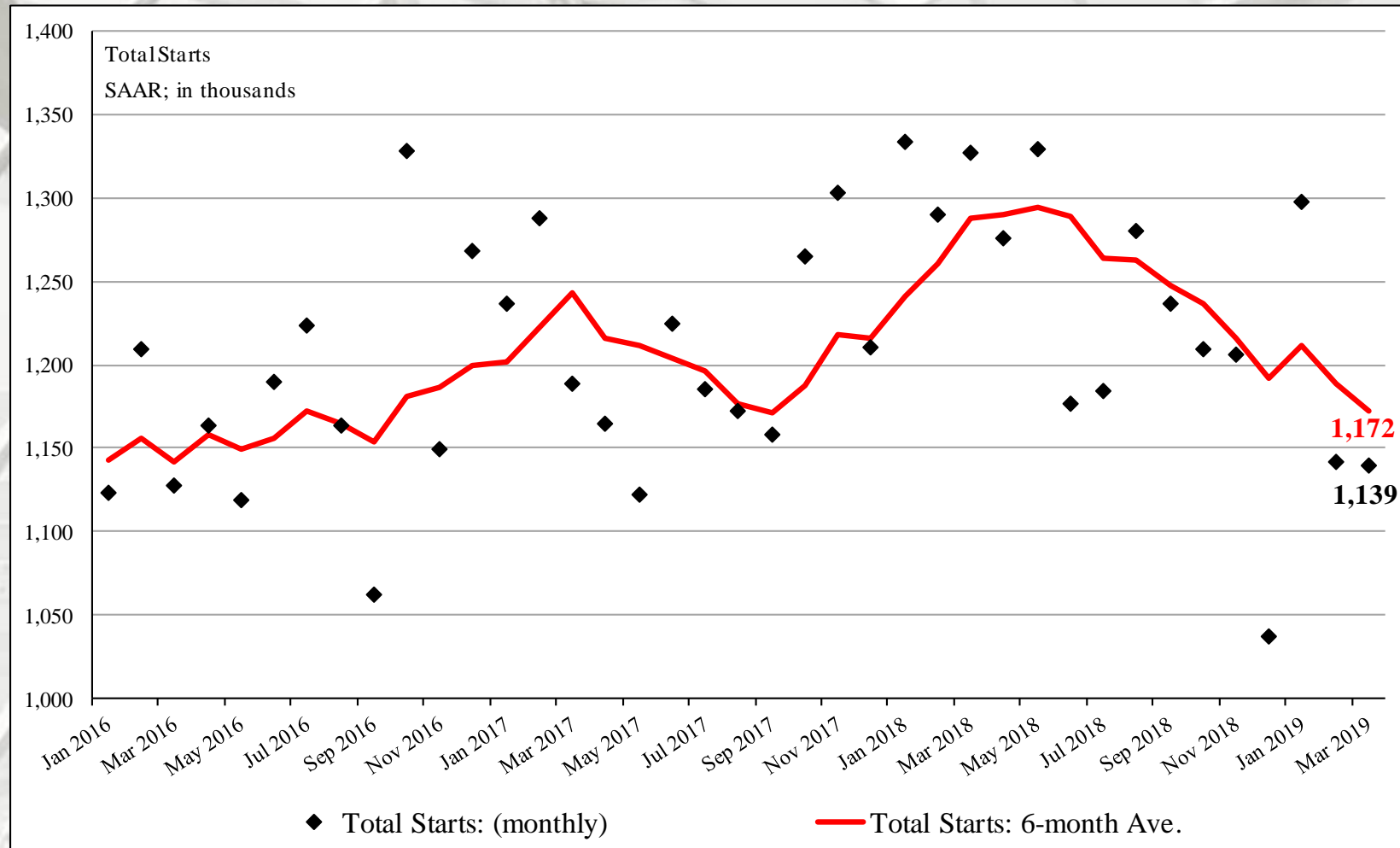
# New SF Starts



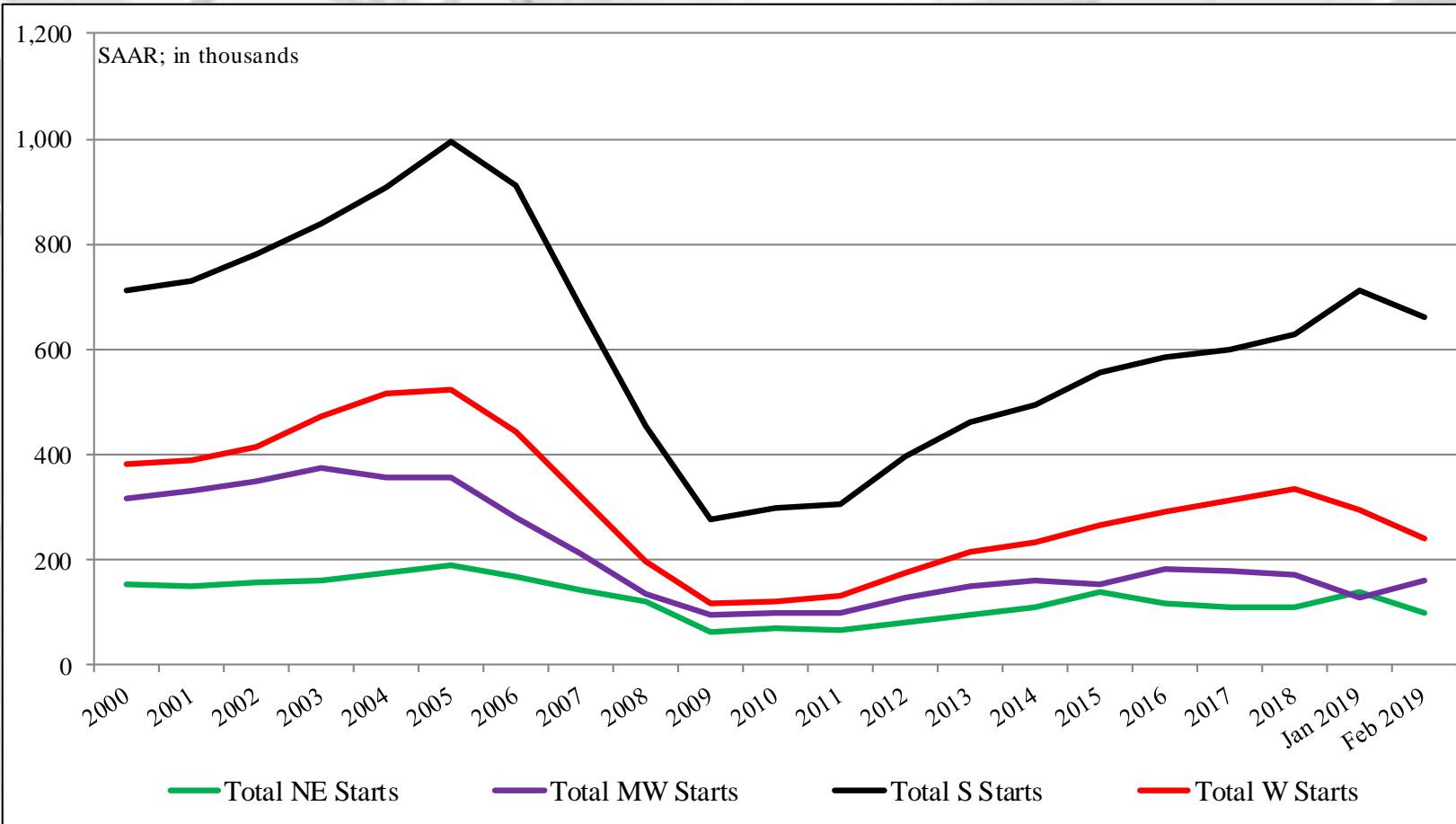
## New SF starts adjusted for the US population

From March 1959 to March 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in March 2019 it was 0.0030 – no change from February. The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in March 2018 was 0.0053 – also no change from February. 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



# 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

	<b>NE Total</b>	<b>NE SF</b>	<b>NE MF**</b>
March	86,000	57,000	29,000
February	90,000	48,000	42,000
2018	120,000	61,000	59,000
M/M change	-4.4	18.8	-31.0
Y/Y change	-28.3	-6.6	-50.8
	<b>MW Total</b>	<b>MW SF</b>	<b>MW MF</b>
March	131,000	82,000	49,000
February	159,000	104,000	55,000
2018	182,000	140,000	42,000
M/M change	-17.6	-21.2	-10.9
Y/Y change	-28.0	-41.4	16.7

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).

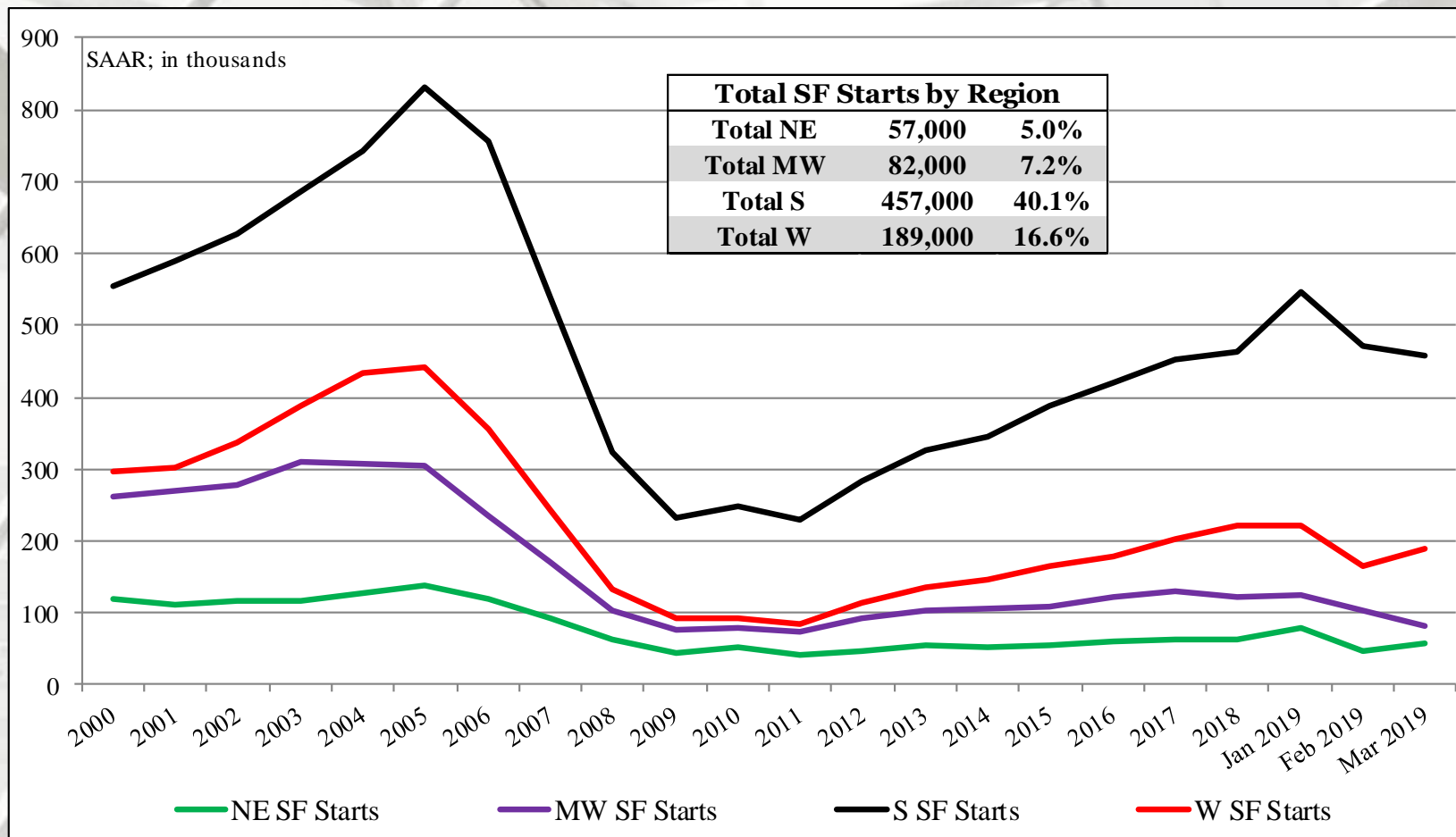
# New Housing Starts by Region

	<b>S Total</b>	<b>S SF</b>	<b>S MF**</b>
March	604,000	457,000	147,000
February	651,000	470,000	181,000
2017	630,000	440,000	190,000
M/M change	-7.2	-2.8	-18.8
Y/Y change	-4.1	3.9	-22.6
	<b>W Total</b>	<b>W SF</b>	<b>W MF</b>
March	318,000	189,000	129,000
February	242,000	166,000	76,000
2018	395,000	241,000	154,000
M/M change	31.4	13.9	69.7
Y/Y change	-19.5	-21.6	-16.2

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

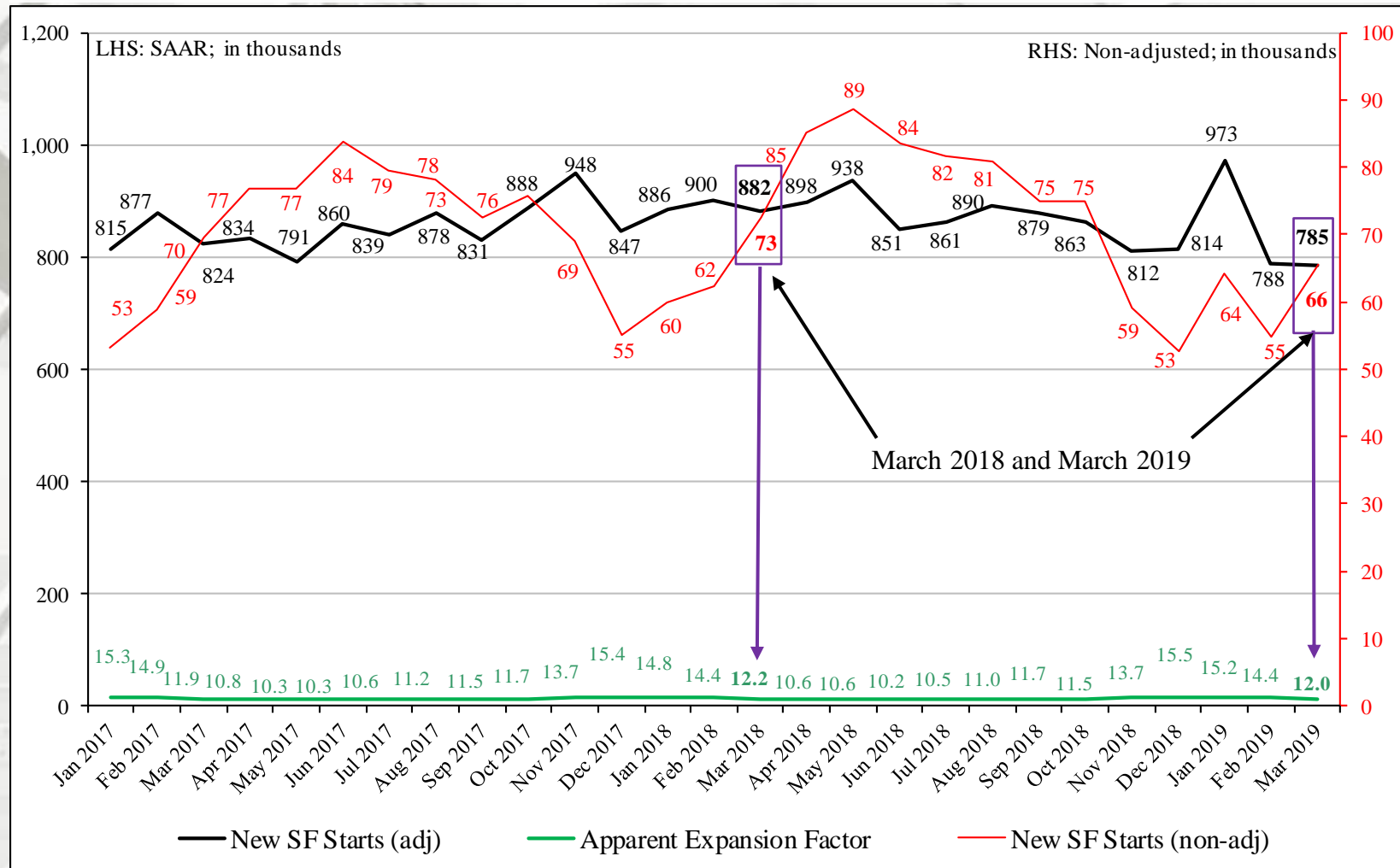


NE = Northeast, MW = Midwest, S = South, W = West

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



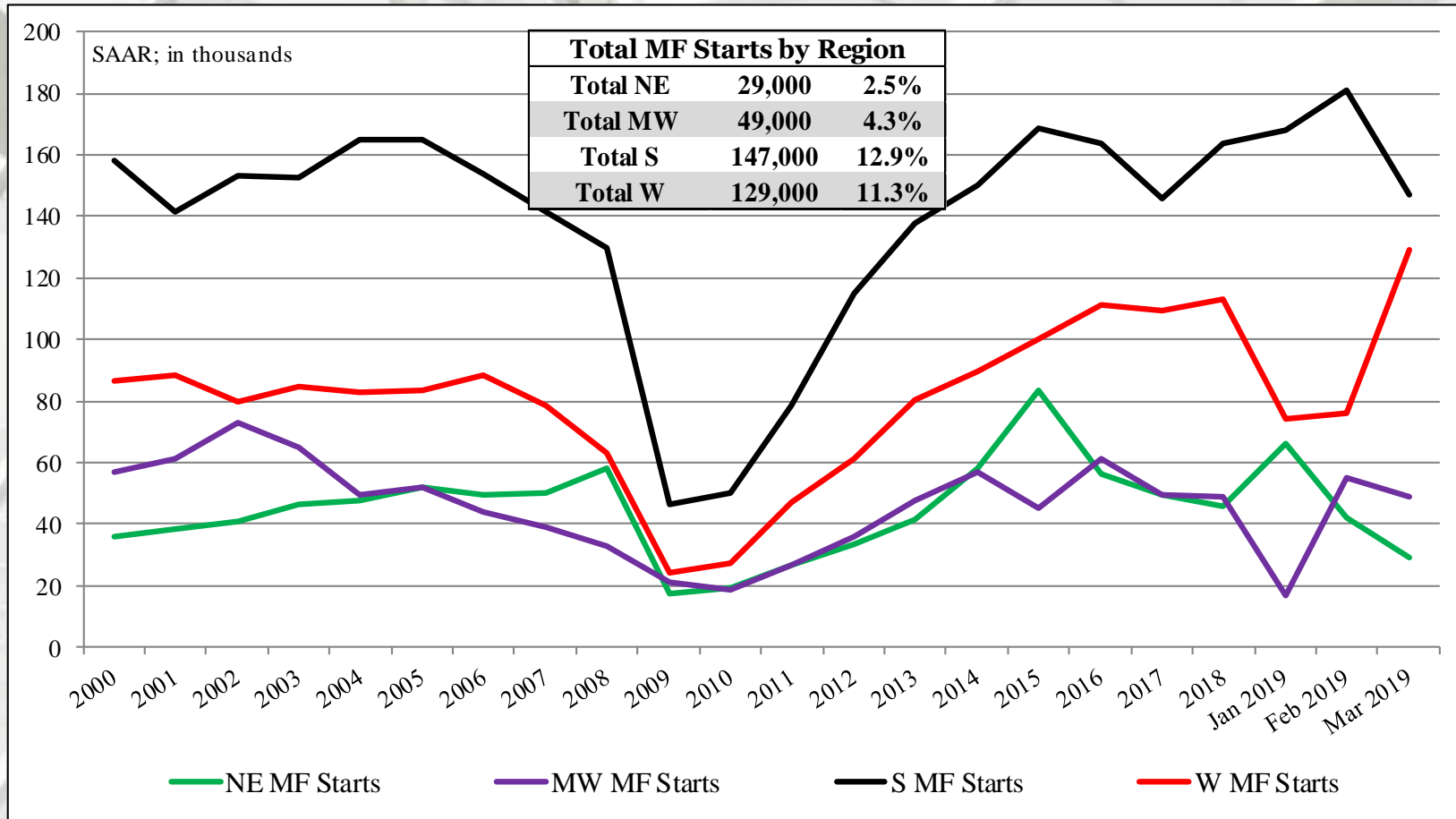
## Nominal and Adjusted New SF Monthly Starts

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

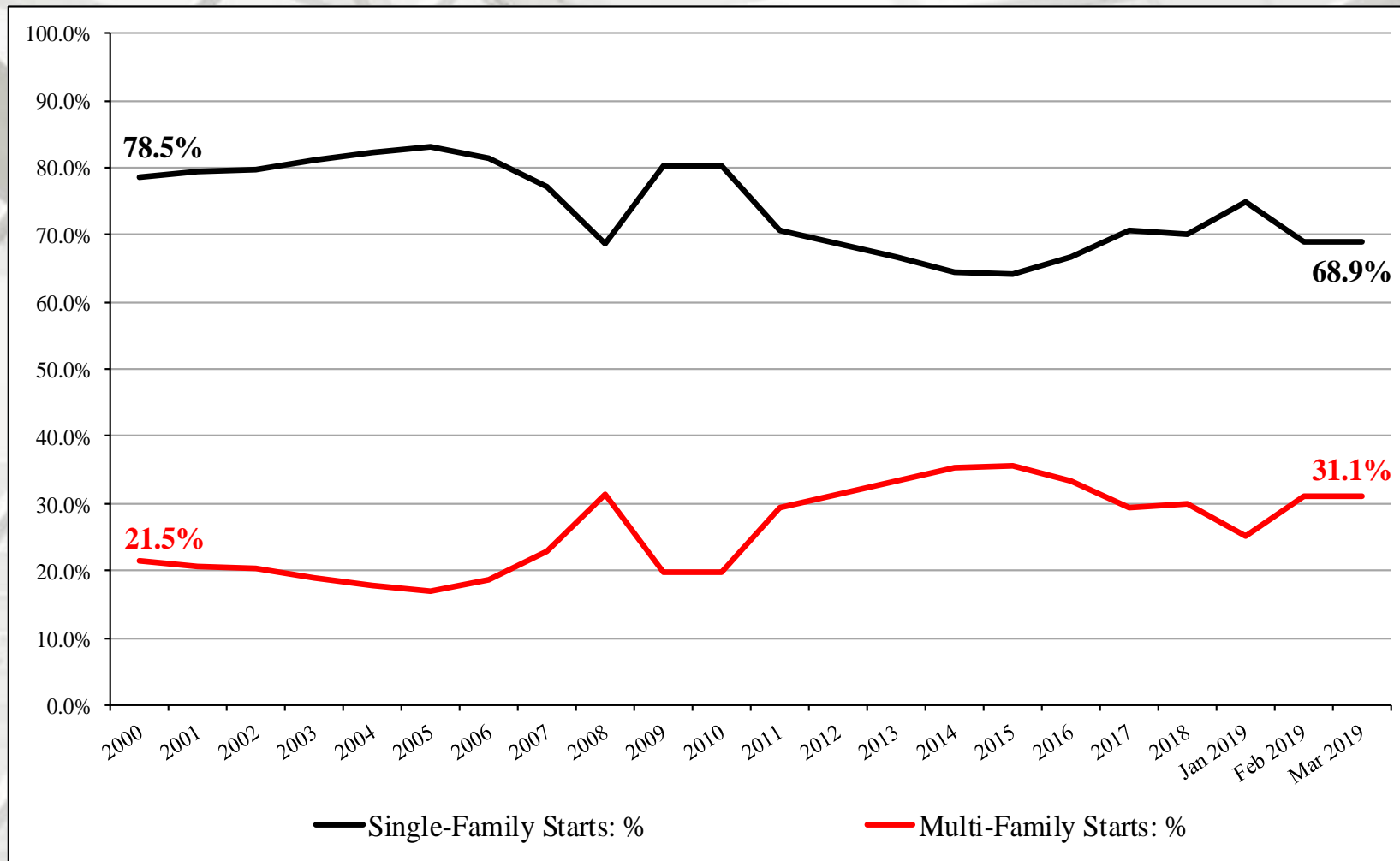


NE = Northeast, MW = Midwest, S = South, W = West

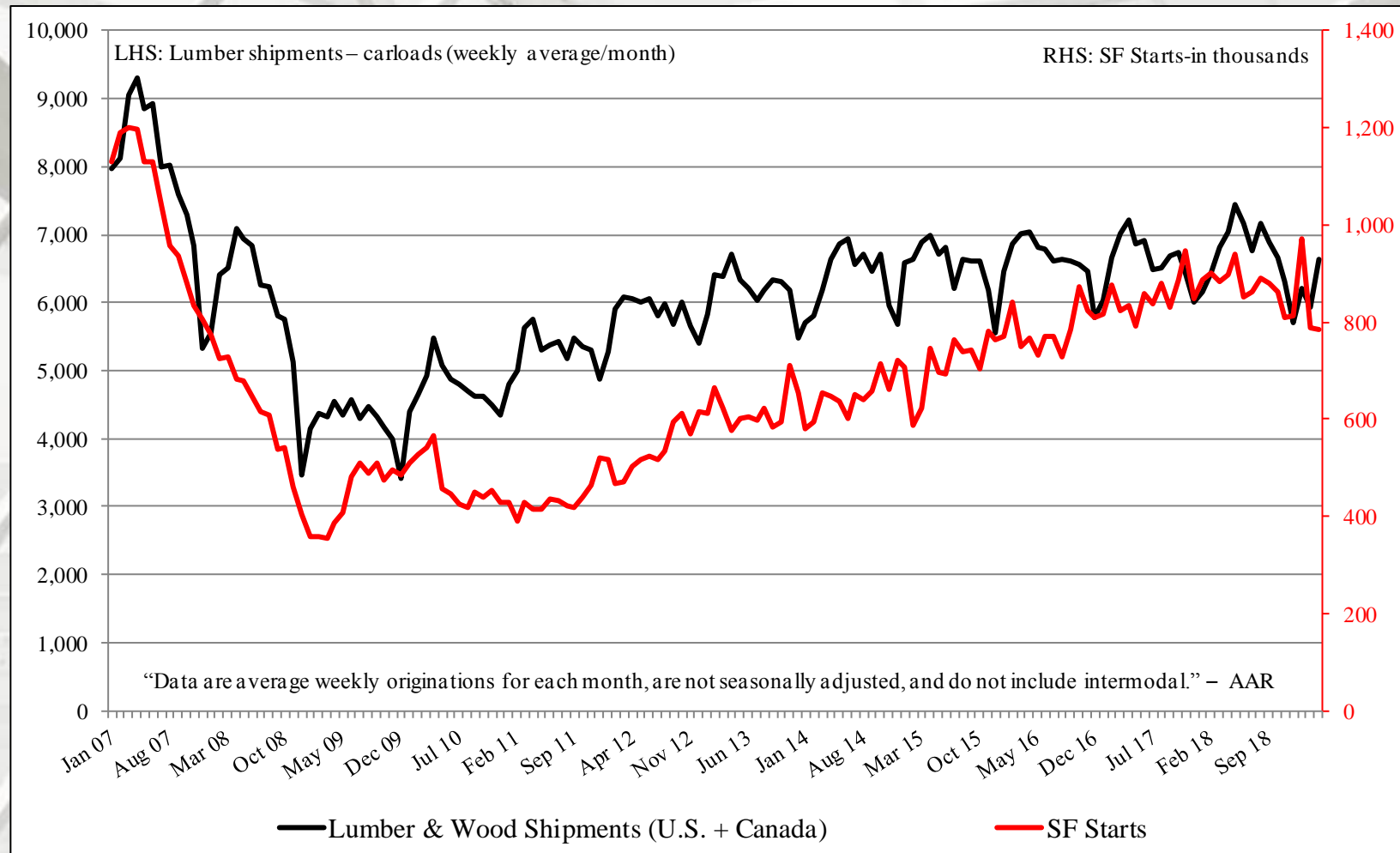
US DOC does not report 2 to 4 multi-family starts directly, this is an estimation (Total starts - (SF + ≥ 5 MF starts)).

\* Percentage of total starts.

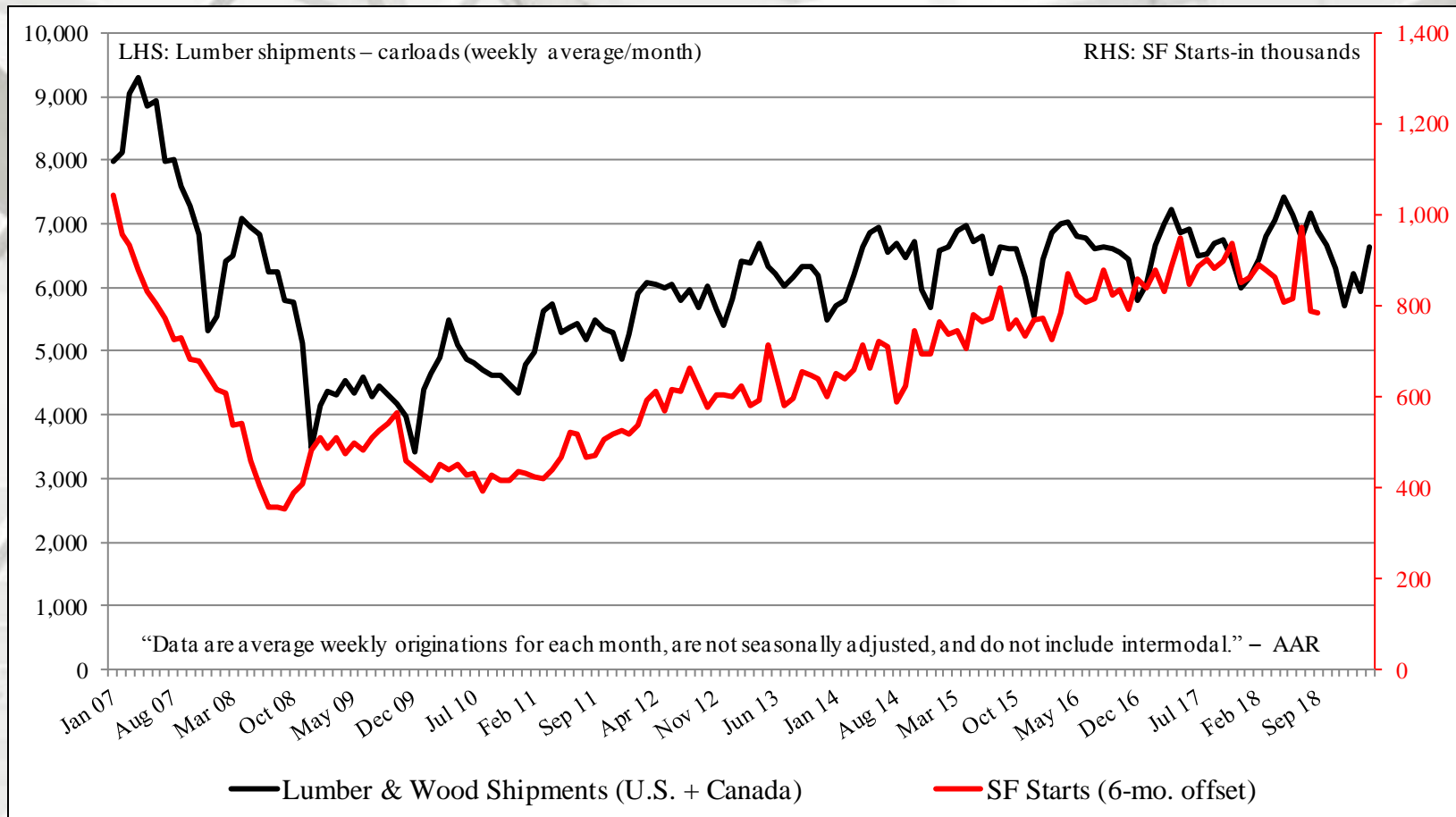
# SF vs. MF Housing Starts (%)



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



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



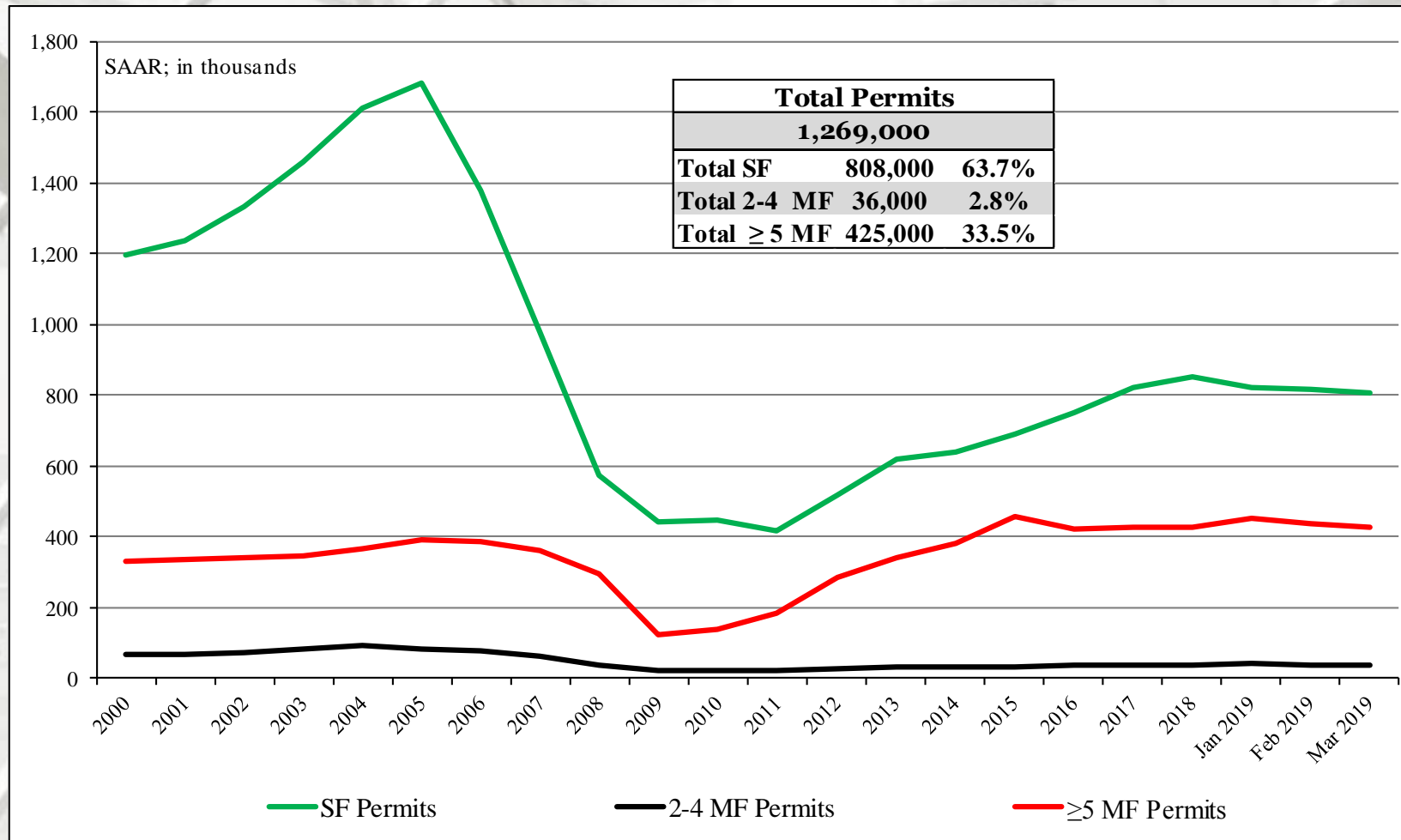
In this graph, March 2007 lumber shipments are contrasted with March 2007 SF starts, and continuing through March 2019 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge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

# New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
March	1,269,000	808,000	36,000	425,000
February	1,291,000	817,000	37,000	437,000
2018	1,377,000	851,000	40,000	486,000
M/M change	-1.7	-1.1	-2.7	-2.7
Y/Y change	-7.8	-5.1	-10.0	-12.6

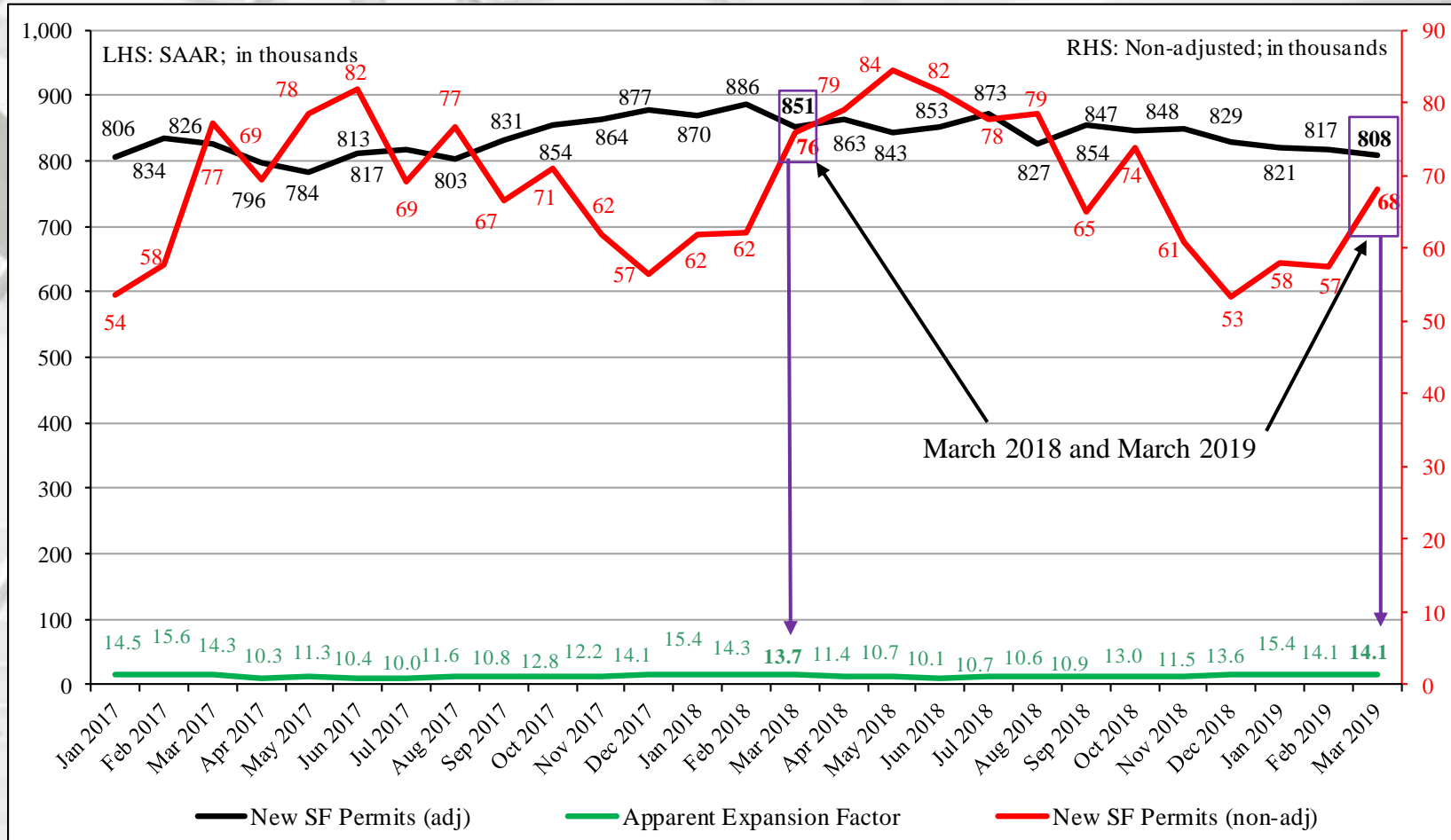
\* All permit data are presented at a seasonally adjusted annual rate (SAAR).

# 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

	<b>NE Total*</b>	<b>NE SF</b>	<b>NE MF**</b>
March	122,000	53,000	69,000
February	135,000	62,000	73,000
2018	135,000	51,000	84,000
M/M change	-9.6	-14.5	-5.5
Y/Y change	-9.6	3.9	-17.9
	<b>MW Total*</b>	<b>MW SF</b>	<b>MW MF**</b>
March	185,000	102,000	83,000
February	192,000	106,000	86,000
2018	203,000	119,000	84,000
M/M change	-3.6	-3.8	-3.5
Y/Y change	-8.9	-14.3	-1.2

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

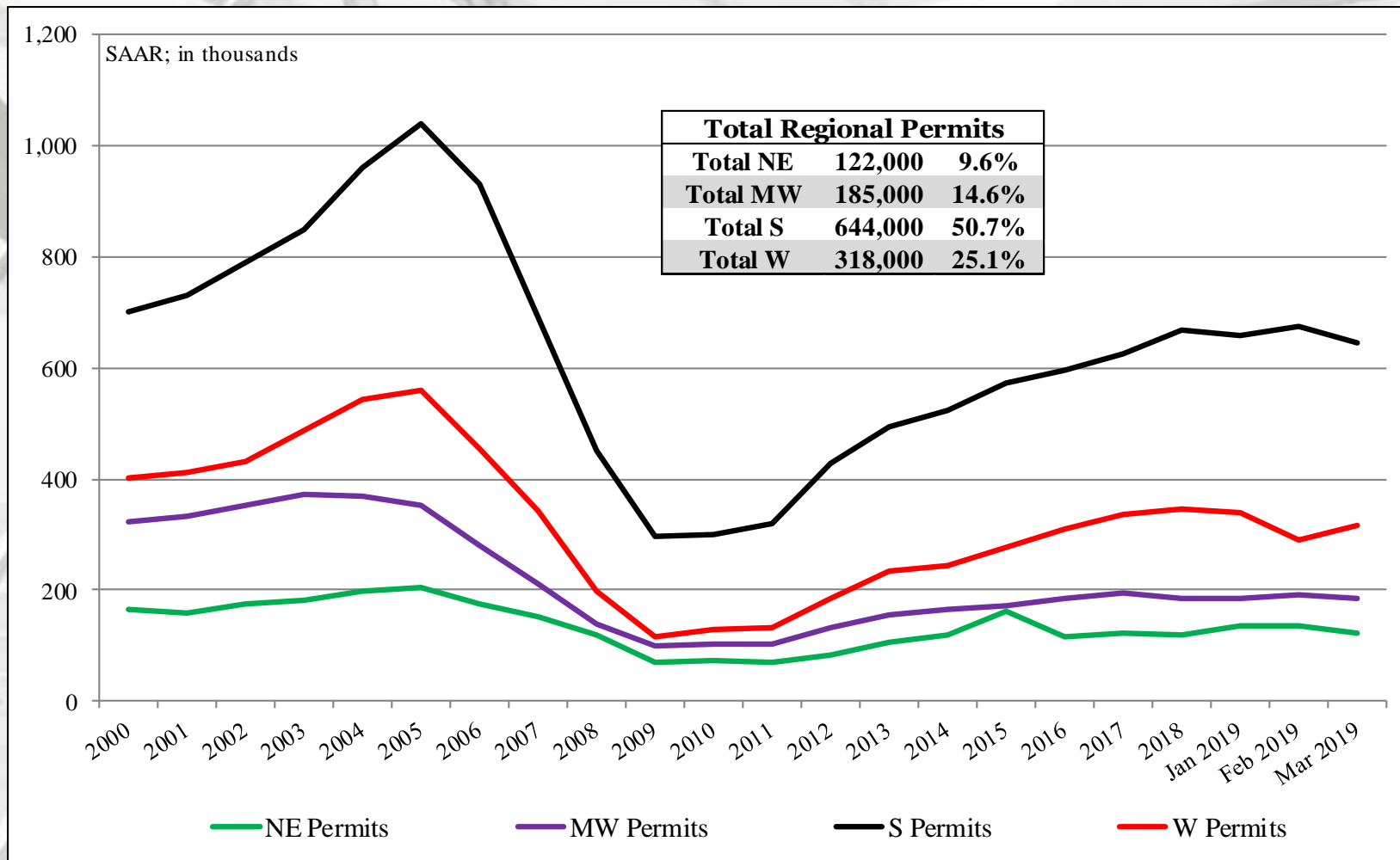
	<b>S Total*</b>	<b>S SF</b>	<b>S MF**</b>
March	644,000	461,000	183,000
February	675,000	457,000	218,000
2018	652,000	456,000	196,000
M/M change	-4.6	0.9	-16.1
Y/Y change	-1.2	1.1	-6.6
	<b>W Total*</b>	<b>W SF</b>	<b>W MF**</b>
March	318,000	192,000	126,000
February	289,000	192,000	97,000
2018	387,000	225,000	162,000
M/M change	10.0	0.0	29.9
Y/Y change	-17.8	-14.7	-22.2

S = South; W = West

\* All data are SAAR

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

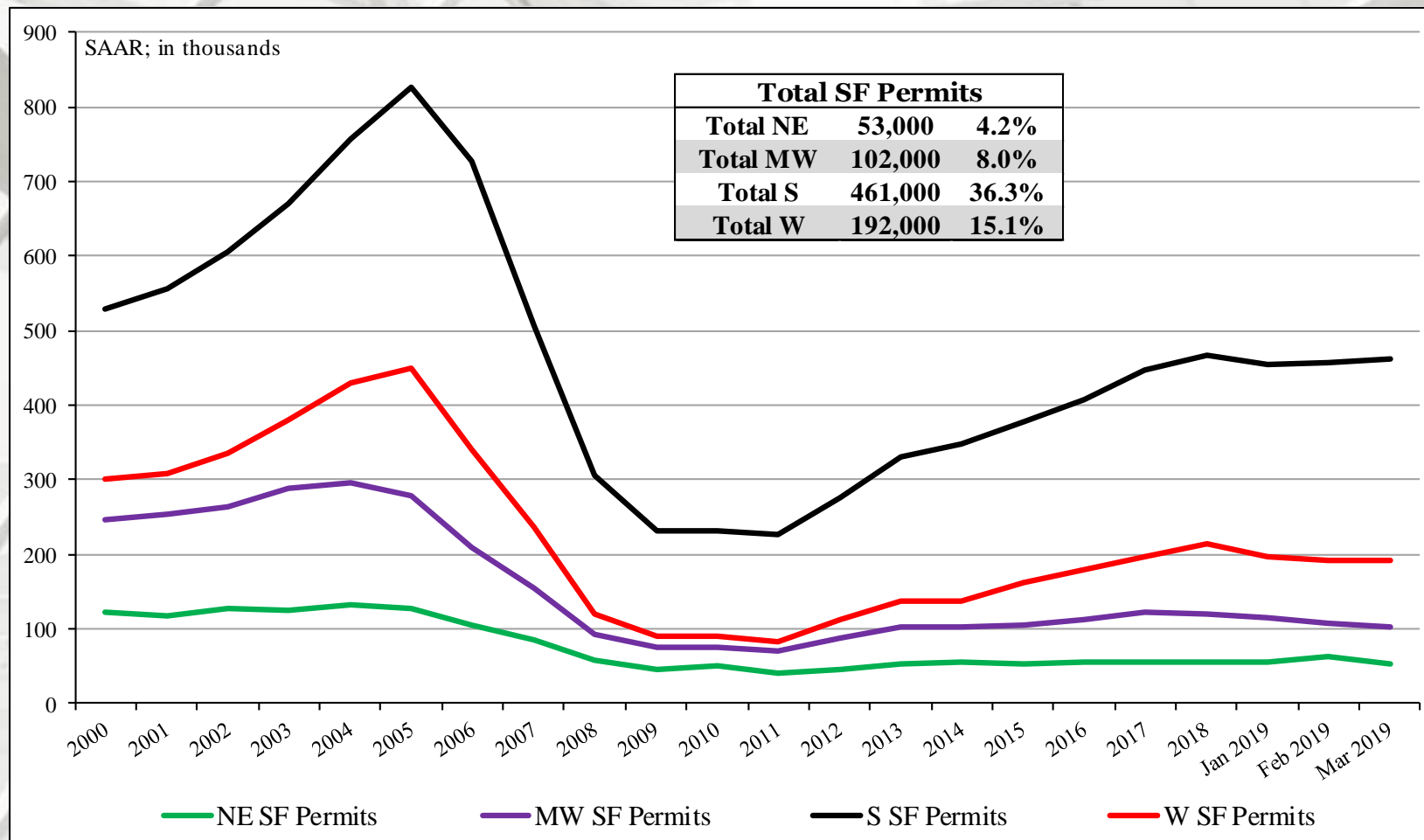
# Total Housing Permits by Region



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

\* Percentage of total permits.

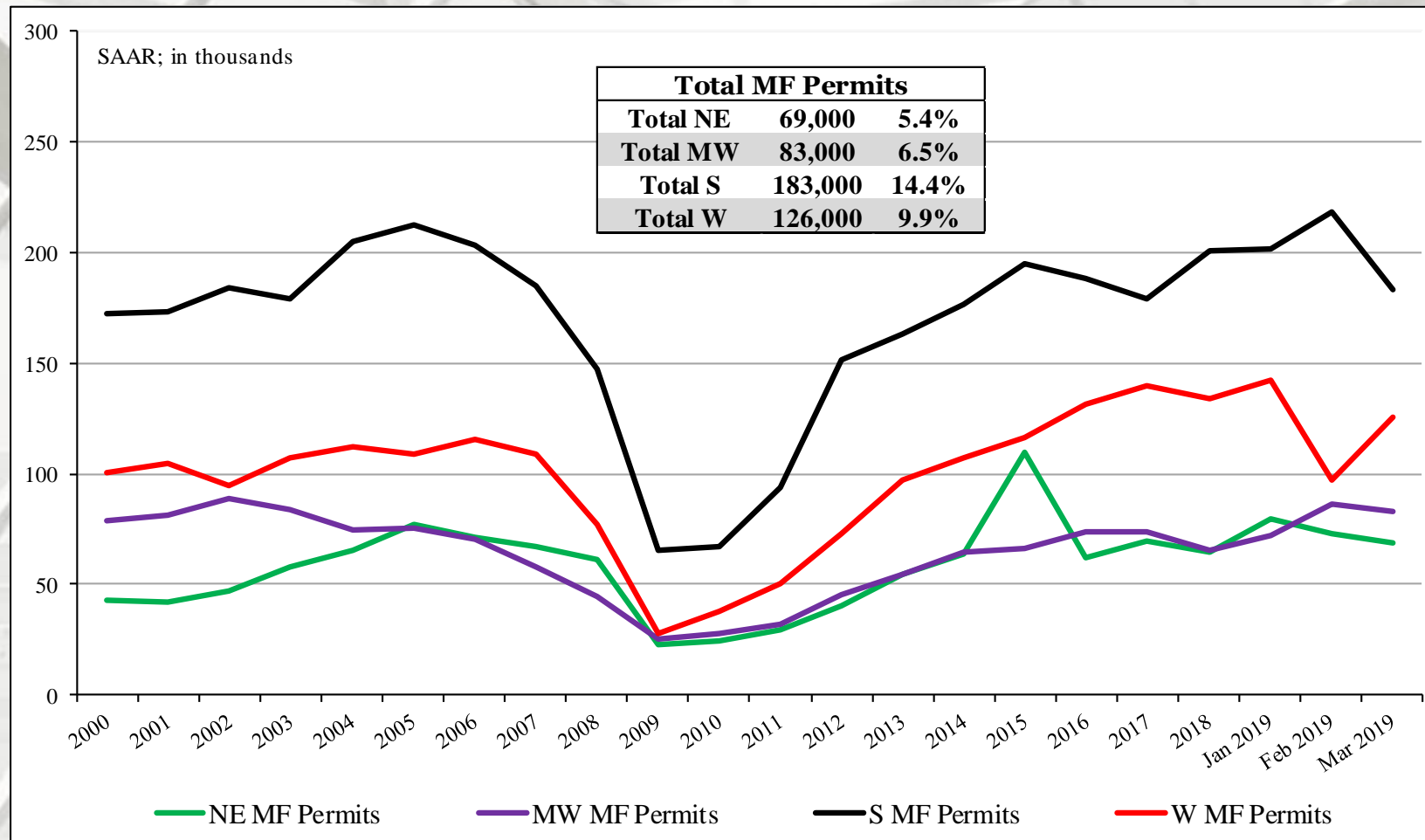
# SF Housing Permits by Region



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

\* Percentage of total permits.

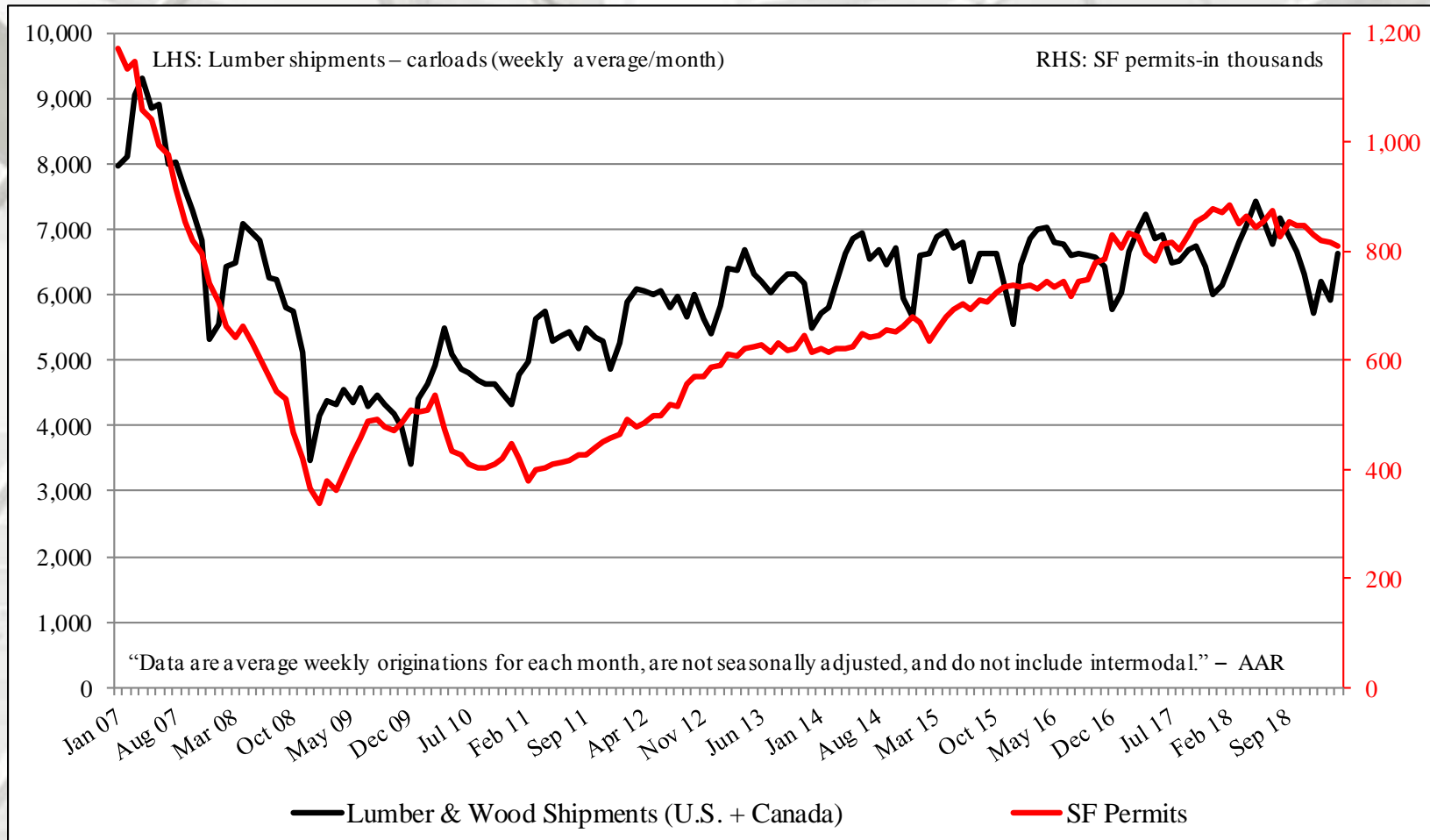
# MF Housing Permits by Region



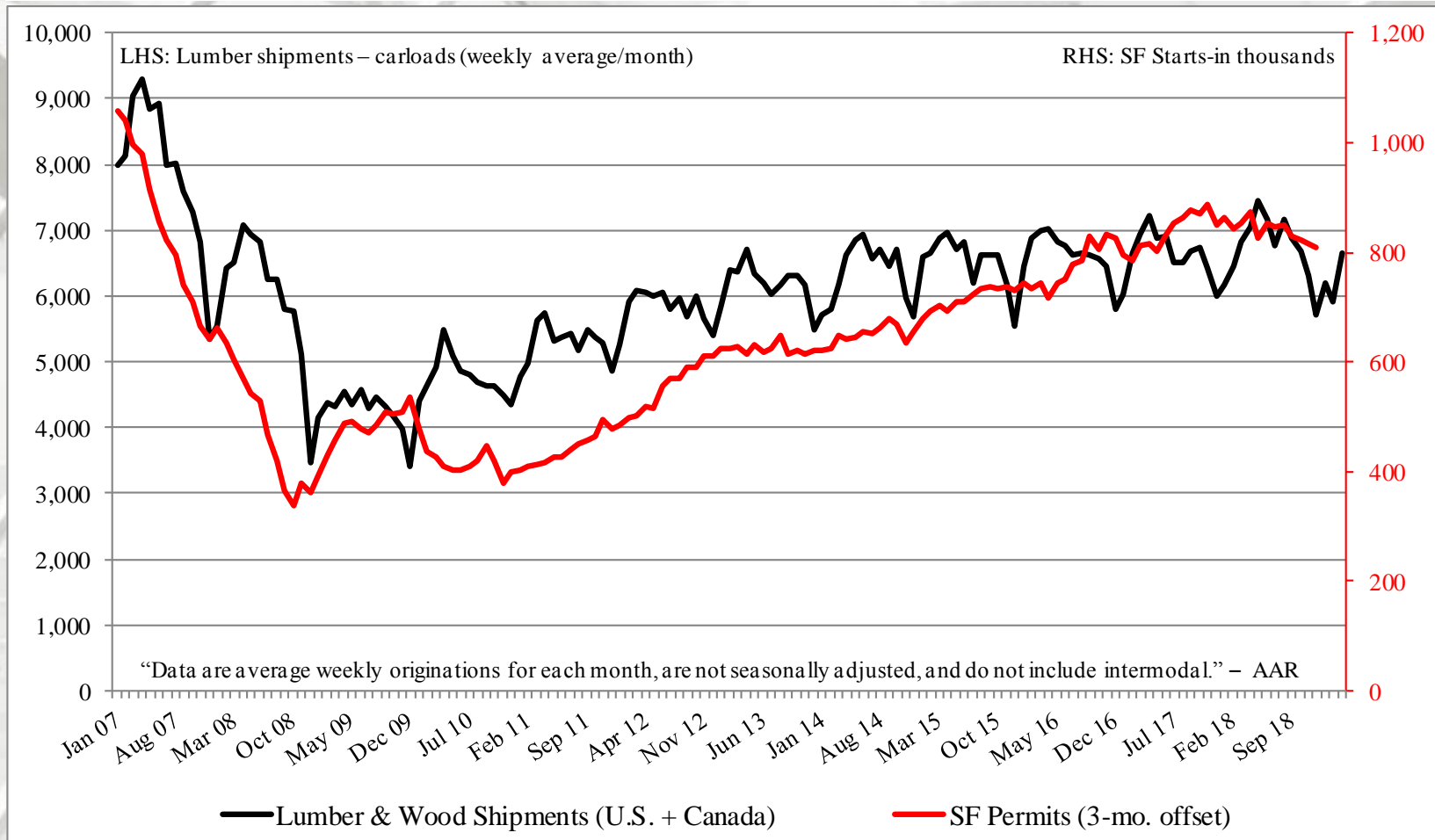
NE = Northeast, MW = Midwest, S = South, W = West

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

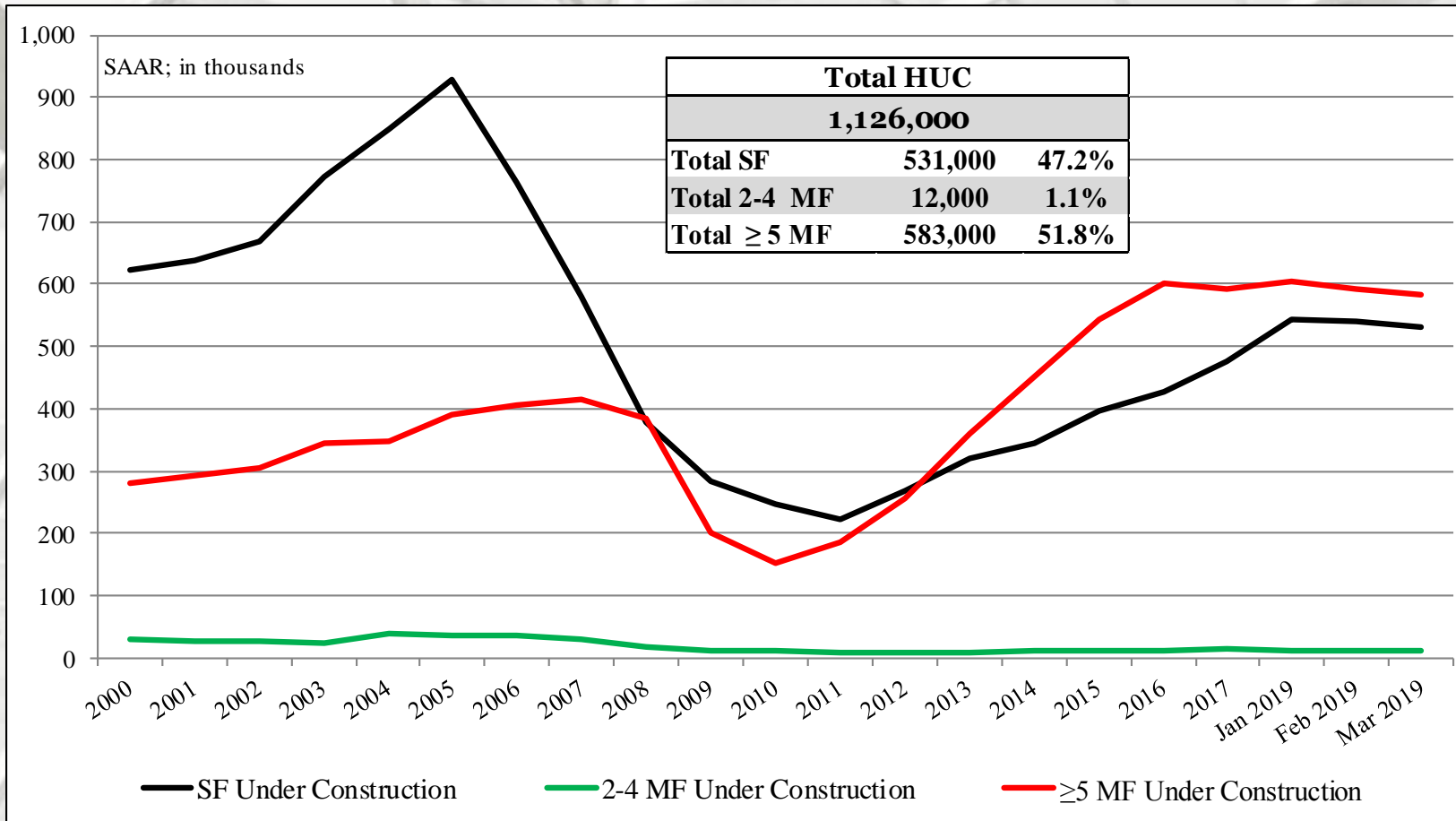
# New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	MF 2-4 unit** Under Construction	MF ≥ 5 unit Under Construction
March	1,126,000	531,000	12,000	583,000
February	1,144,000	540,000	12,000	592,000
2018	1,125,000	508,000	11,000	606,000
M/M change	-1.6	-1.7	0.0	-1.5
Y/Y change	0.1	4.5	9.1	-3.8

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 +  $\geq 5$  MF under construction)).

\* Percentage of total housing under construction units.



# New Housing Under Construction by Region

	<b>NE Total</b>	<b>NE SF</b>	<b>NE MF**</b>
March	184,000	65,000	119,000
February	189,000	65,000	124,000
2018	185,000	53,000	132,000
M/M change	-2.6	0.0	-4.0
Y/Y change	-0.5	22.6	-9.8
	<b>MW Total</b>	<b>MW SF</b>	<b>MW MF</b>
March	149,000	79,000	70,000
February	154,000	81,000	73,000
2018	156,000	83,000	73,000
M/M change	-3.2	-2.5	-4.1
Y/Y change	-4.5	-4.8	-4.1

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).

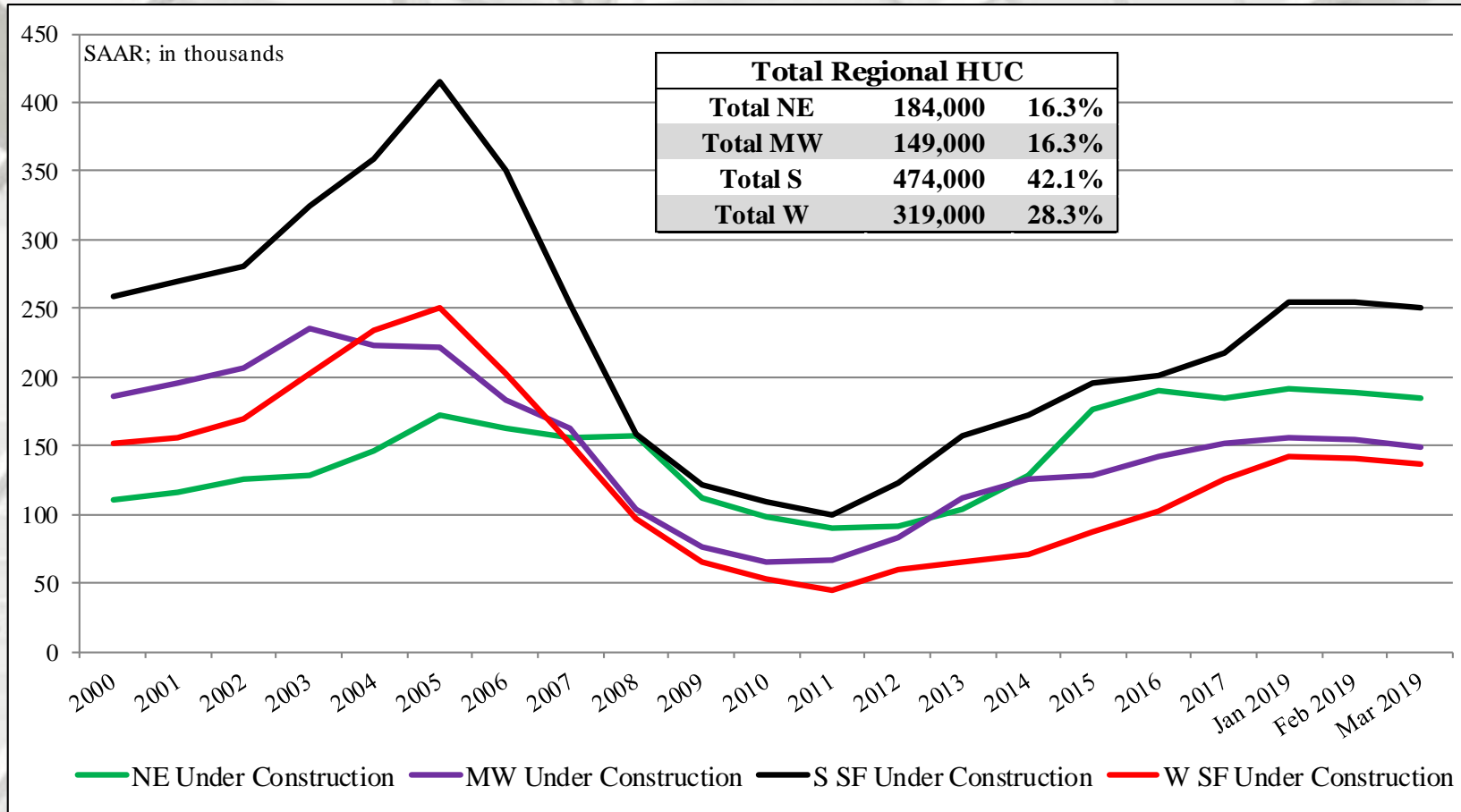
# New Housing Under Construction by Region

	<b>S Total</b>	<b>S SF</b>	<b>S MF**</b>
March	474,000	251,000	223,000
February	480,000	254,000	226,000
2018	450,000	231,000	219,000
M/M change	-1.3	-1.2	-1.3
Y/Y change	5.3	8.7	1.8
	<b>W Total</b>	<b>W SF</b>	<b>W MF</b>
March	319,000	136,000	183,000
February	321,000	140,000	181,000
2018	334,000	141,000	193,000
M/M change	-0.6	-2.9	1.1
Y/Y change	-4.5	-3.5	-5.2

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

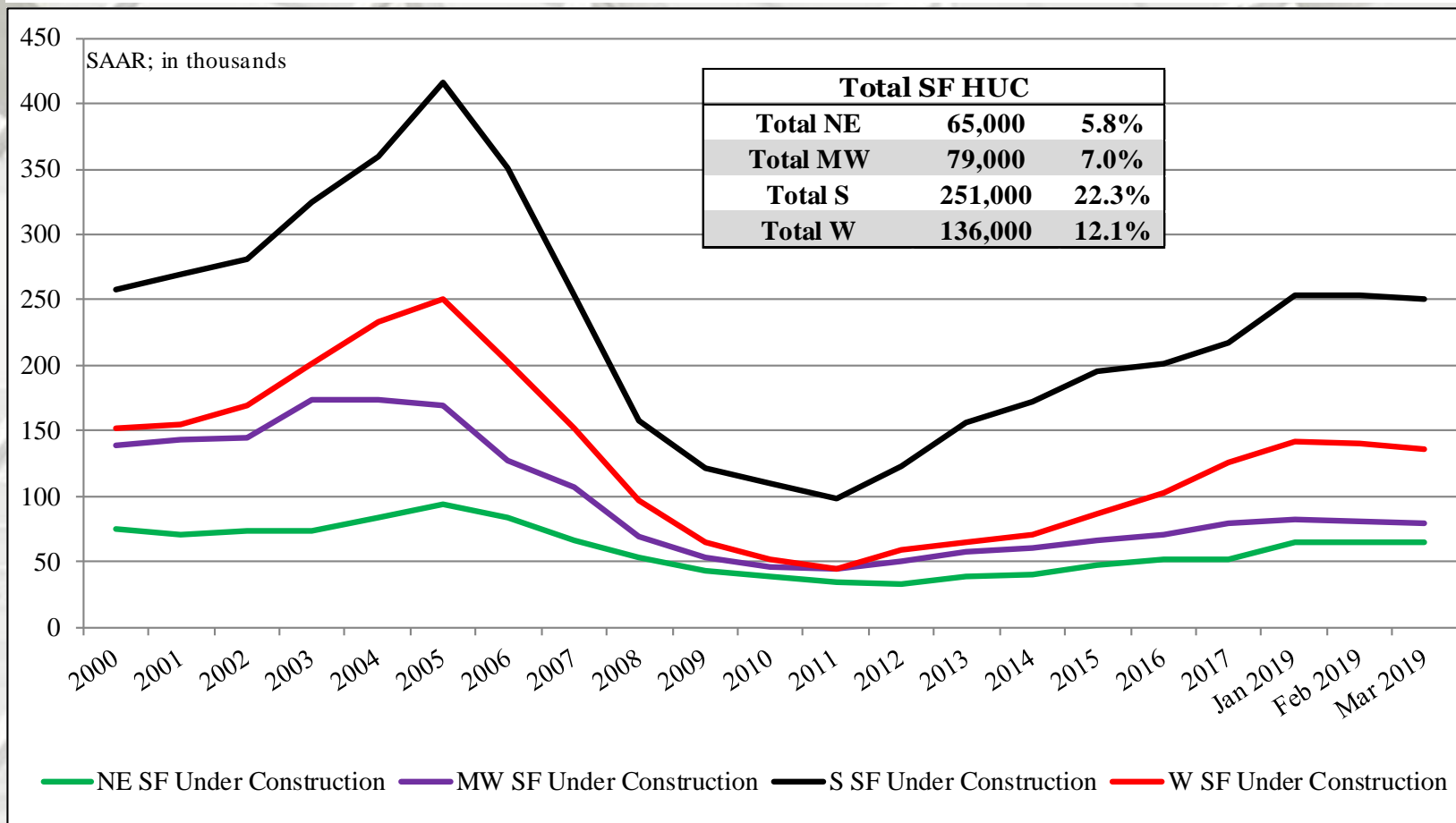


NE = Northeast, MW = Midwest, S = South, W = West

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

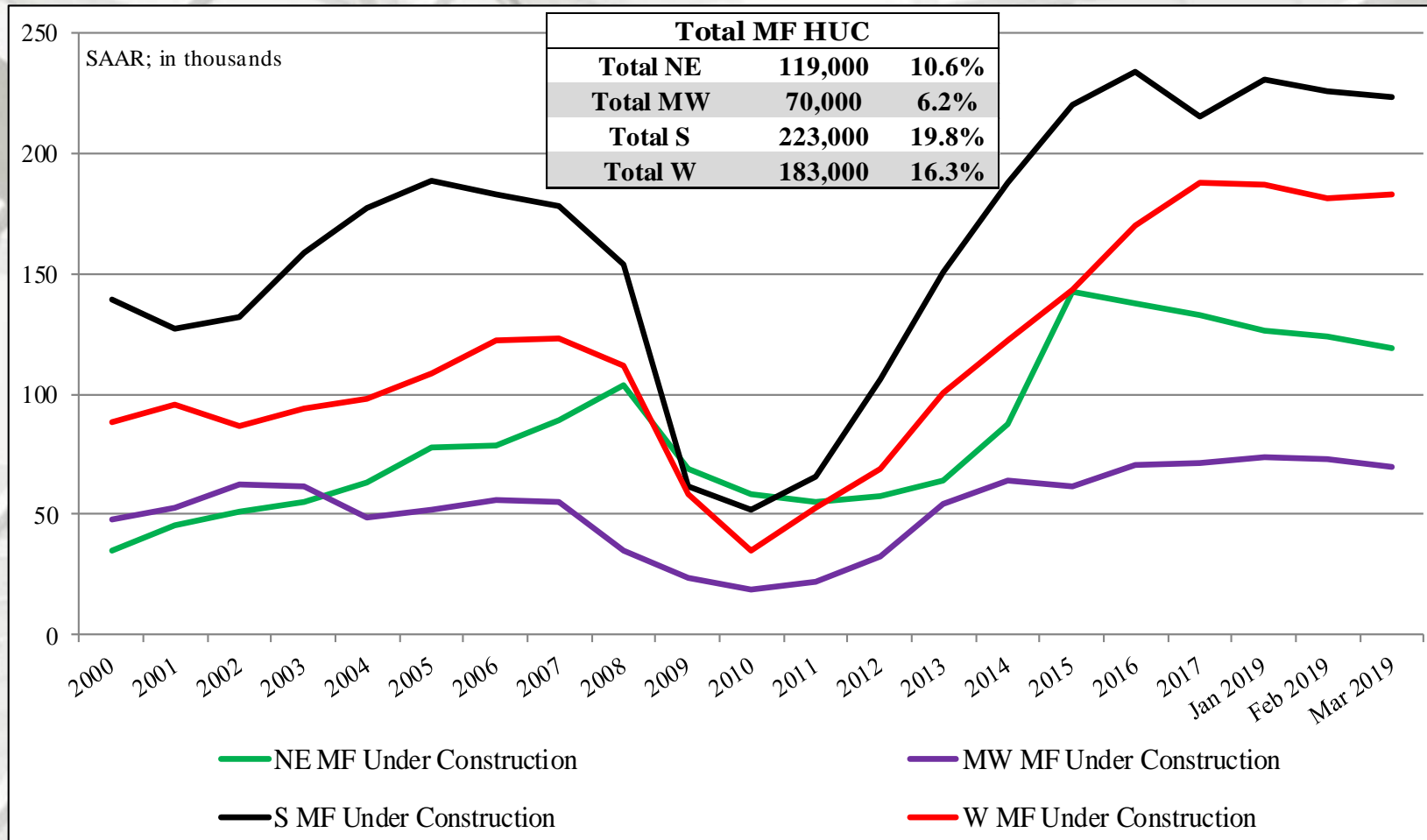


NE = Northeast, MW = Midwest, S = South, W = West.

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.

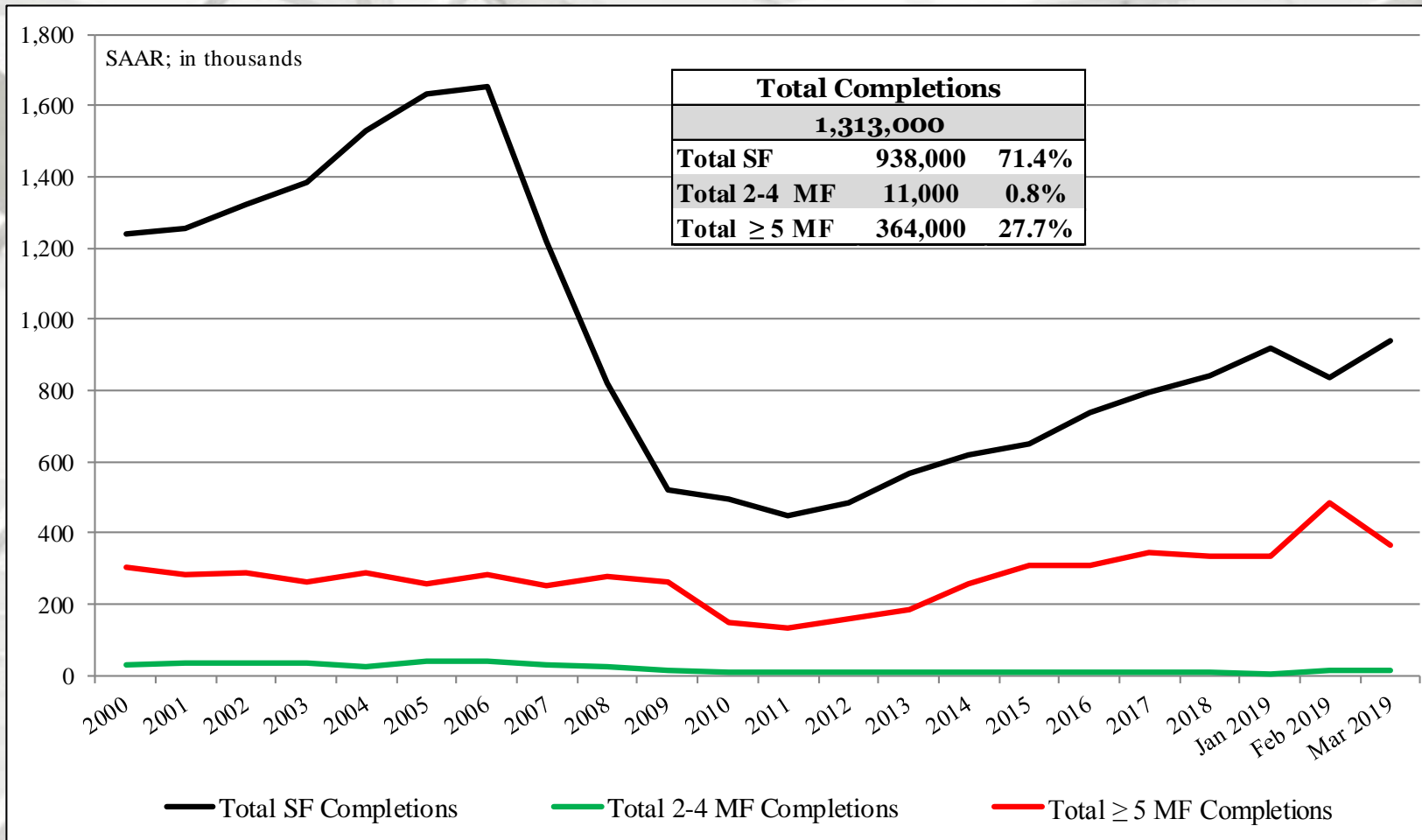
# New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
March	1,313,000	938,000	11,000	364,000
February	1,338,000	838,000	14,000	486,000
2018	1,229,000	862,000	11,000	356,000
M/M change	-1.9%	11.9%	-21.4%	-25.1%
Y/Y change	6.8%	8.8%	0.0%	2.2%

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

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

# Total Housing Completions



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

\* Percentage of total housing completions

# New Housing Completions by Region

	<b>NE Total</b>	<b>NE SF</b>	<b>NE MF**</b>
March	138,000	64,000	74,000
February	111,000	56,000	55,000
2018	150,000	65,000	85,000
M/M change	24.3%	14.3%	34.5%
Y/Y change	-8.0%	-1.5%	-12.9%
	<b>MW Total</b>	<b>MW SF</b>	<b>MW MF</b>
March	184,000	137,000	47,000
February	190,000	129,000	61,000
2018	154,000	108,000	46,000
M/M change	-3.2%	6.2%	-23.0%
Y/Y change	19.5%	26.9%	2.2%

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).



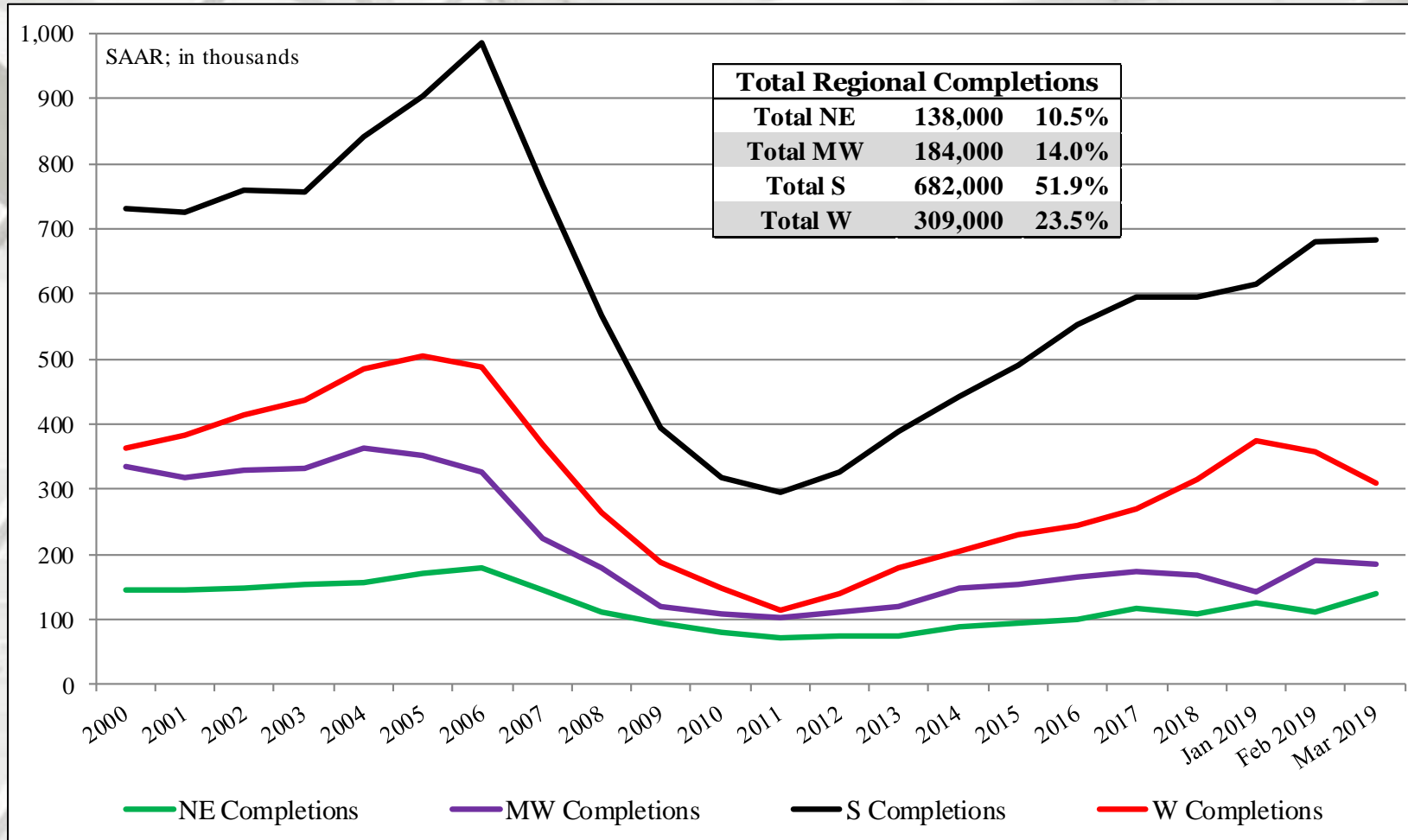
# New Housing Completions by Region

	<b>S Total</b>	<b>S SF</b>	<b>S MF**</b>
March	682,000	492,000	190,000
February	680,000	452,000	228,000
2018	595,000	467,000	128,000
M/M change	0.3%	8.8%	-16.7%
Y/Y change	14.6%	5.4%	48.4%
	<b>W Total</b>	<b>W SF</b>	<b>W MF</b>
March	309,000	245,000	64,000
February	357,000	201,000	156,000
2018	330,000	222,000	108,000
M/M change	-13.4%	21.9%	-59.0%
Y/Y change	-6.4%	10.4%	-40.7%

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

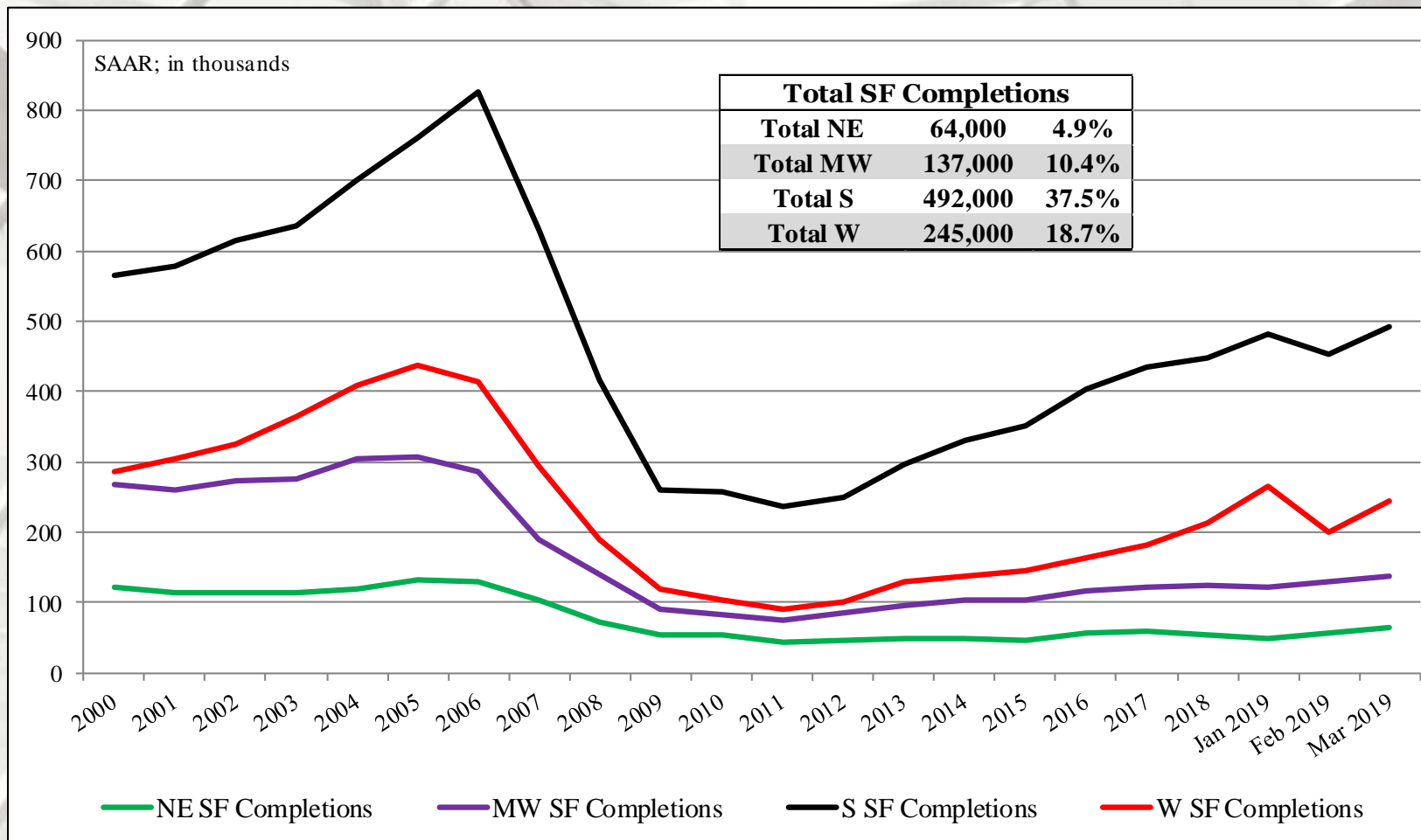


NE = Northeast, MW = Midwest, S = South, W = West

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

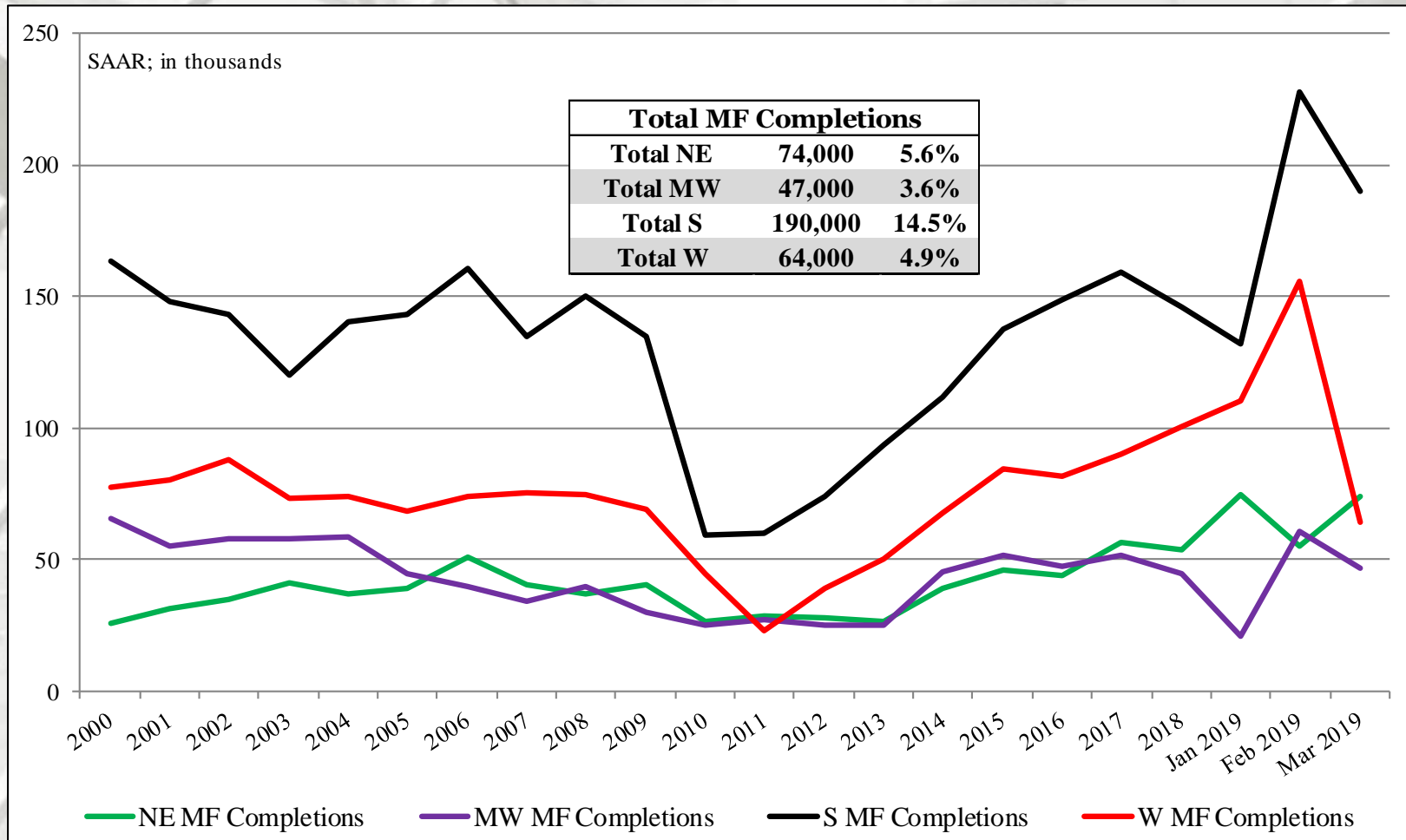


NE = Northeast, MW = Midwest, S = South, W = West

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

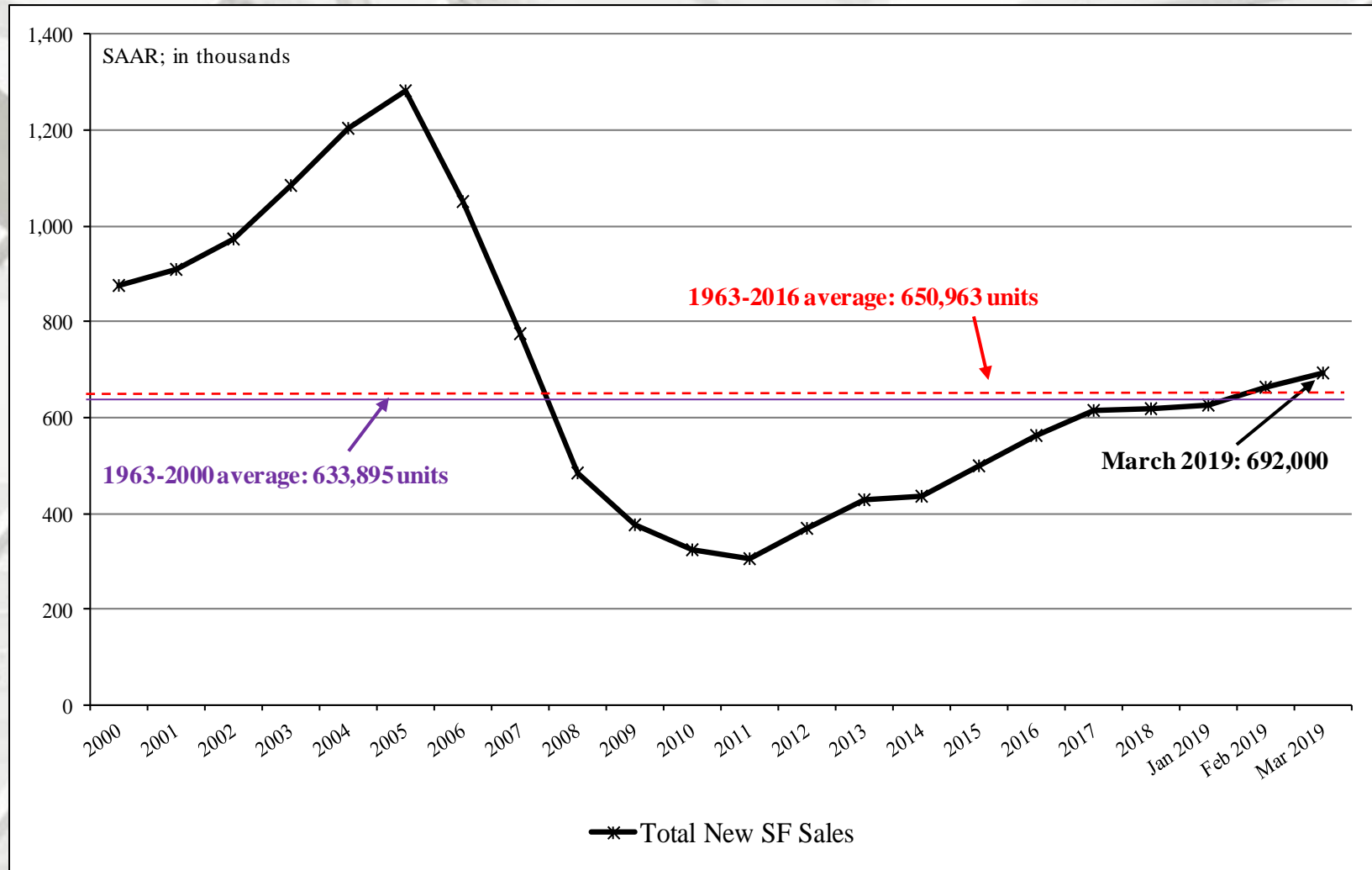
	New SF Sales*	Median Price	Mean Price	Month's Supply
March	692,000	\$302,700	\$376,000	6.0
February	662,000	\$315,200	\$385,300	6.3
2018	672,000	\$335,400	\$369,200	5.3
M/M change	4.5%	-4.0%	-2.4%	-4.8%
Y/Y change	3.0%	-9.7%	1.8%	13.2%

\* All new sales data are presented at a seasonally adjusted annual rate (SAAR)<sup>1</sup> and housing prices are adjusted at irregular intervals<sup>2</sup>.

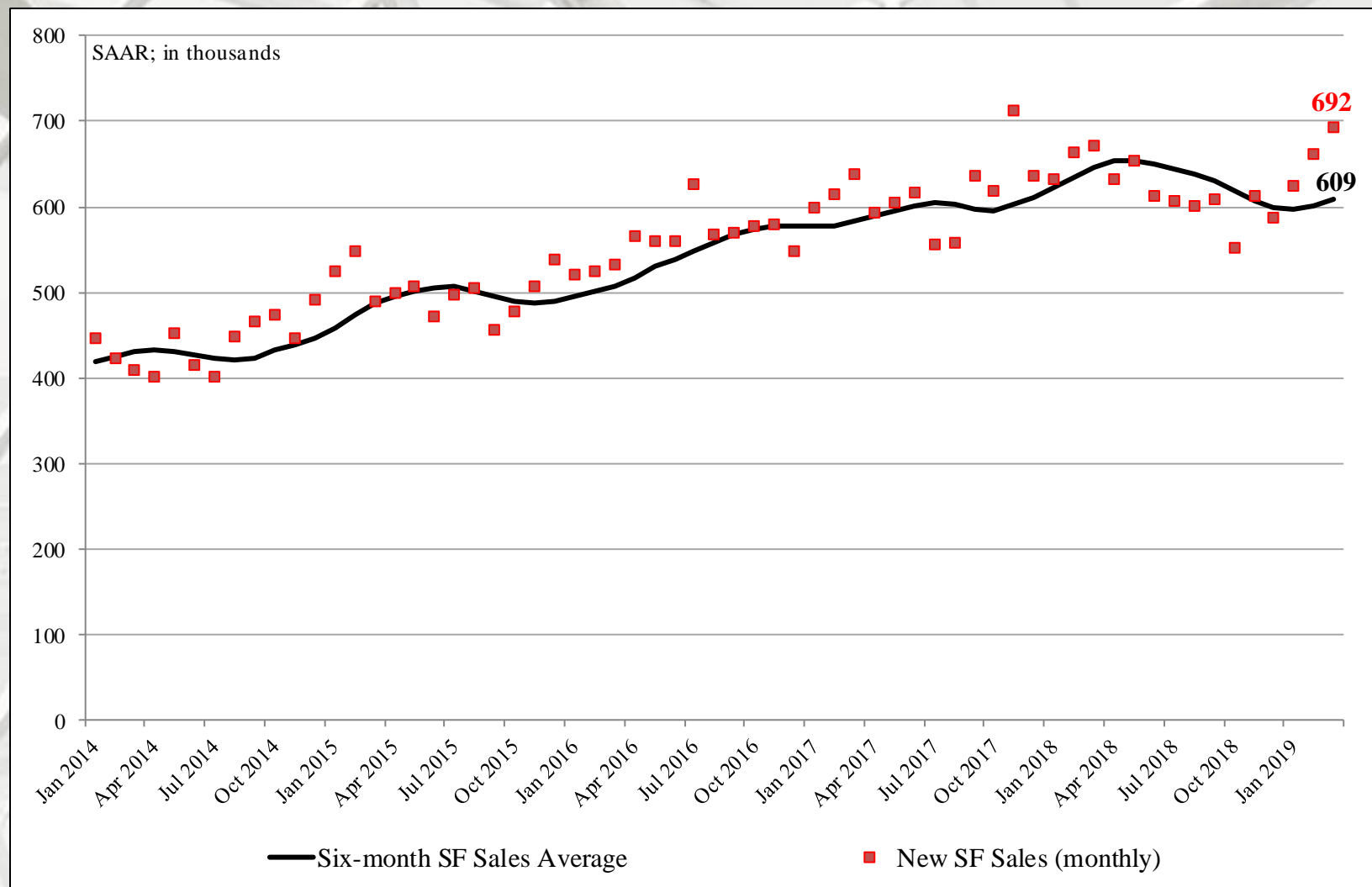
New SF sales were much greater than the consensus forecast<sup>3</sup> of 645 m (range: 630m to 660 m). The past three month's new SF sales data also were revised:

December initial:	621 m revised to 562 m;
January initial:	607 m revised to 662 m;
February initial:	667 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			
March	28,000	87,000	401,000	176,000			
February	36,000	74,000	387,000	165,000			
2018	35,000	86,000	367,000	184,000			
M/M change	-22.2%	17.6%	3.6%	6.7%			
Y/Y change	-20.0%	1.2%	9.3%	-4.3%			
	\$150 - ≤ \$150m	\$200 - \$199.9m	\$300 - 299.9m	\$400 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m
March <sup>1,2,3,4</sup>	4,000	7,000	23,000	15,000	8,000	8,000	3,000
February	1,000	4,000	20,000	14,000	7,000	7,000	2,000
2018	2,000	5,000	18,000	19,000	11,000	8,000	3,000
M/M change	300.0%	75.0%	15.0%	7.1%	14.3%	14.3%	50.0%
Y/Y change	100.0%	40.0%	27.8%	-21.1%	-27.3%	0.0%	0.0%
New SF sales: %	5.9%	10.3%	33.8%	22.1%	11.8%	11.8%	4.4%

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

<sup>1</sup> All data are SAAR

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

<sup>3</sup> Detail may not add to total because of rounding.

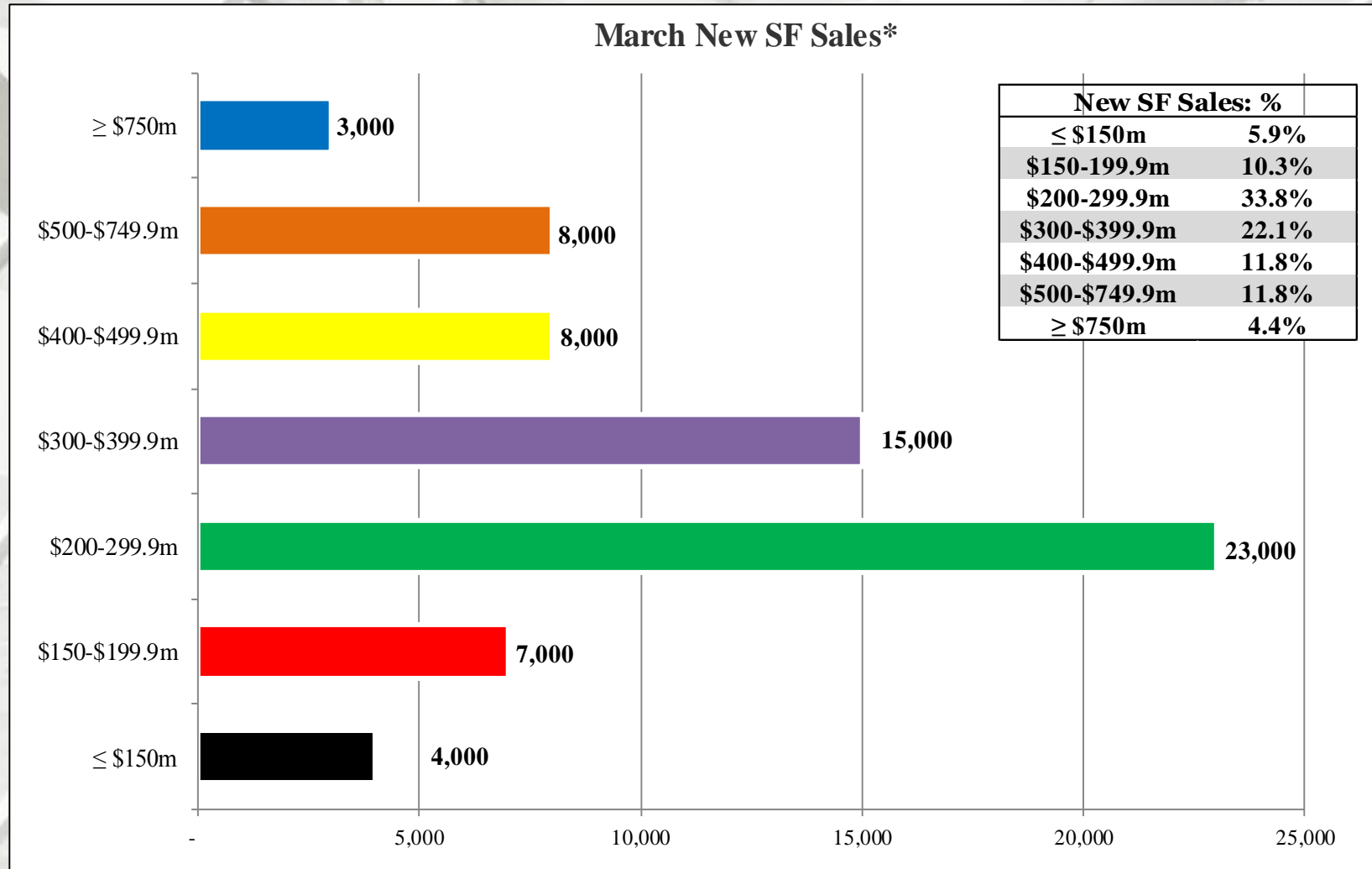
<sup>4</sup> Housing prices are adjusted at irregular intervals.

Sources: <sup>1,2,3</sup> <https://www.census.gov/construction/nrs/index.html>; 4/23/19;

<sup>4</sup> [https://www.census.gov/construction/cpi/pdf/descpi\\_sold.pdf](https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf)

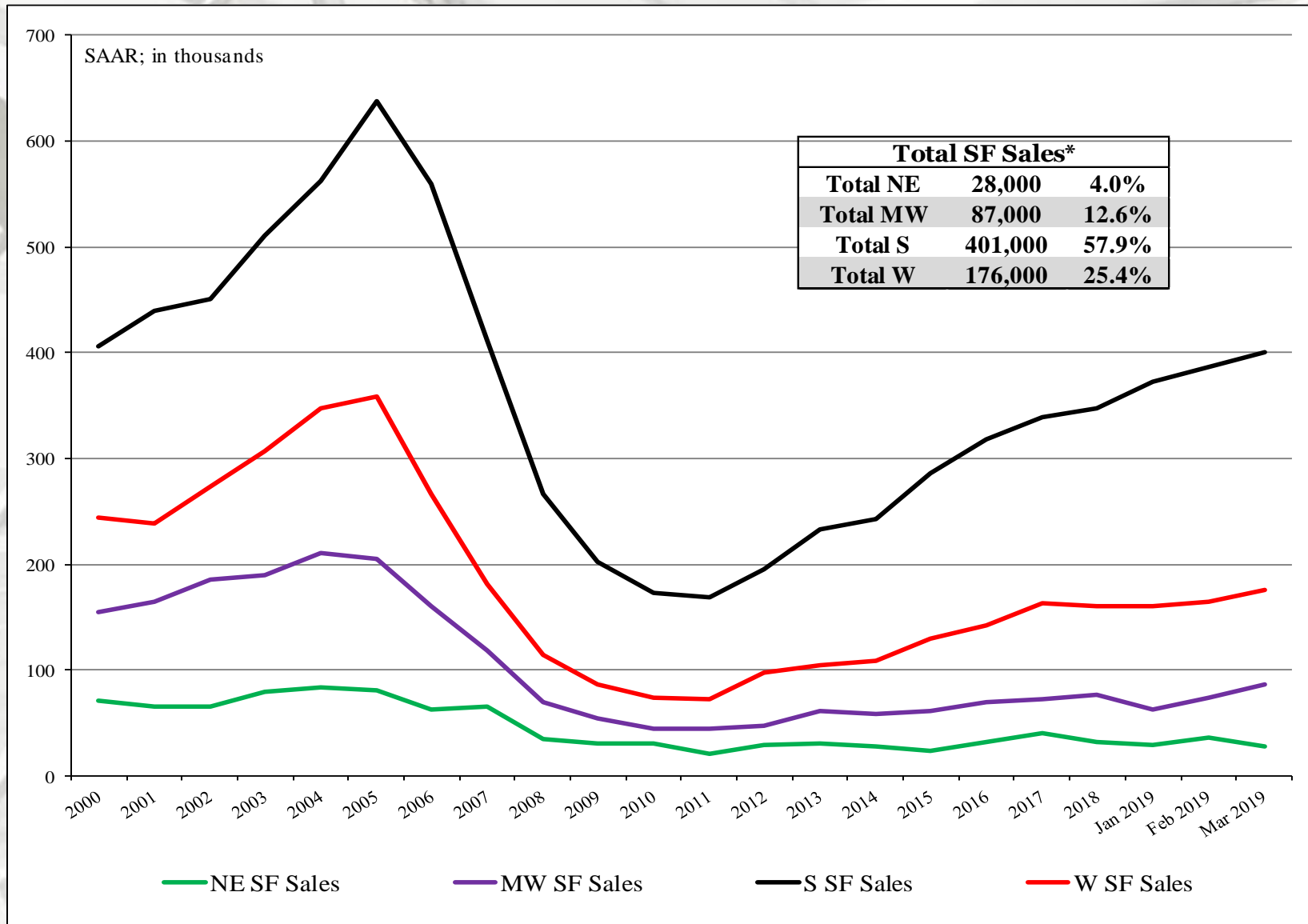


# New SF House Sales



\* Total new sales by price category and percent.

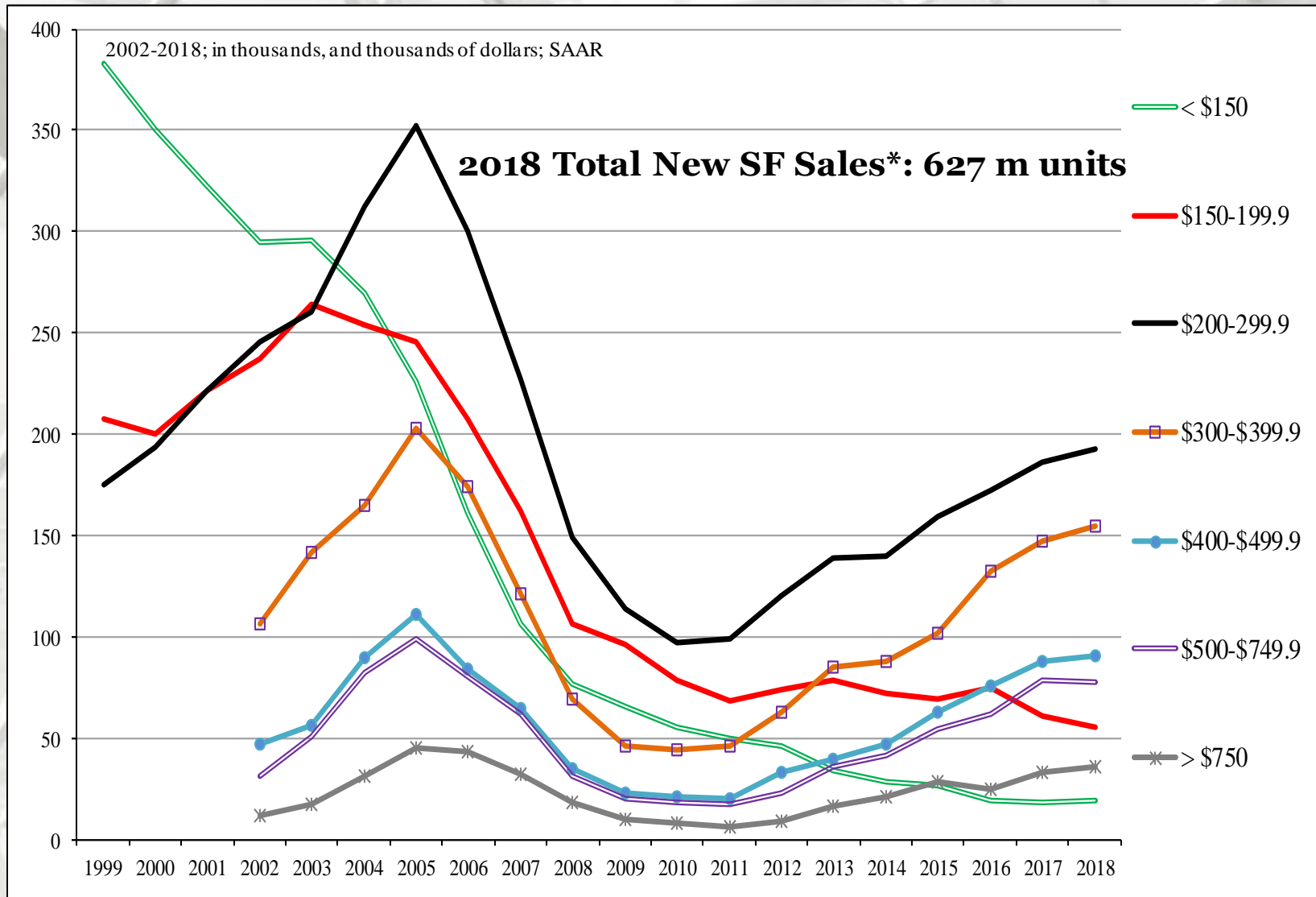
# New SF House Sales by Region



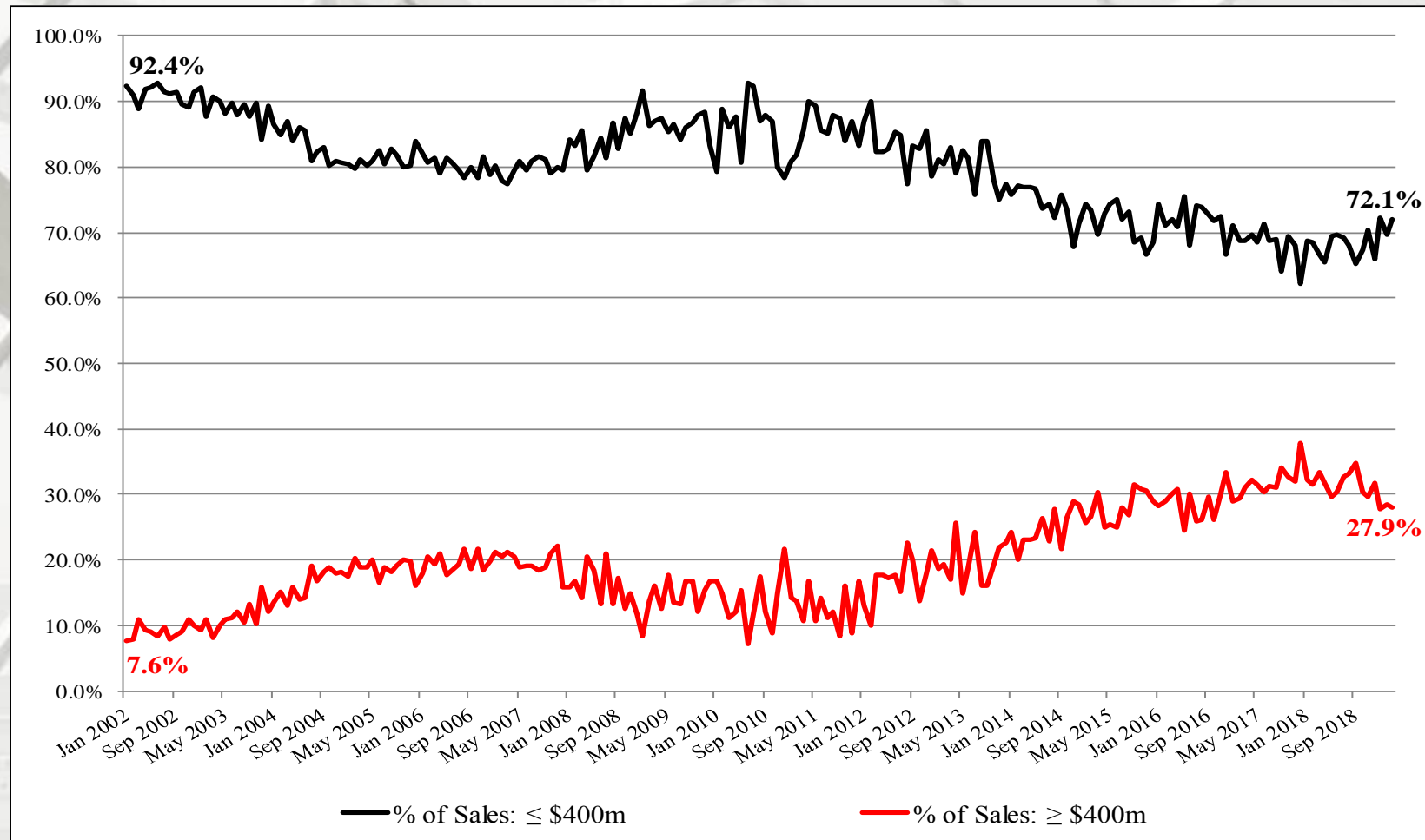
NE = Northeast; MW = Midwest; S = South; W = West

\* Percentage of total new sales.

# New SF House Sales by Price Category



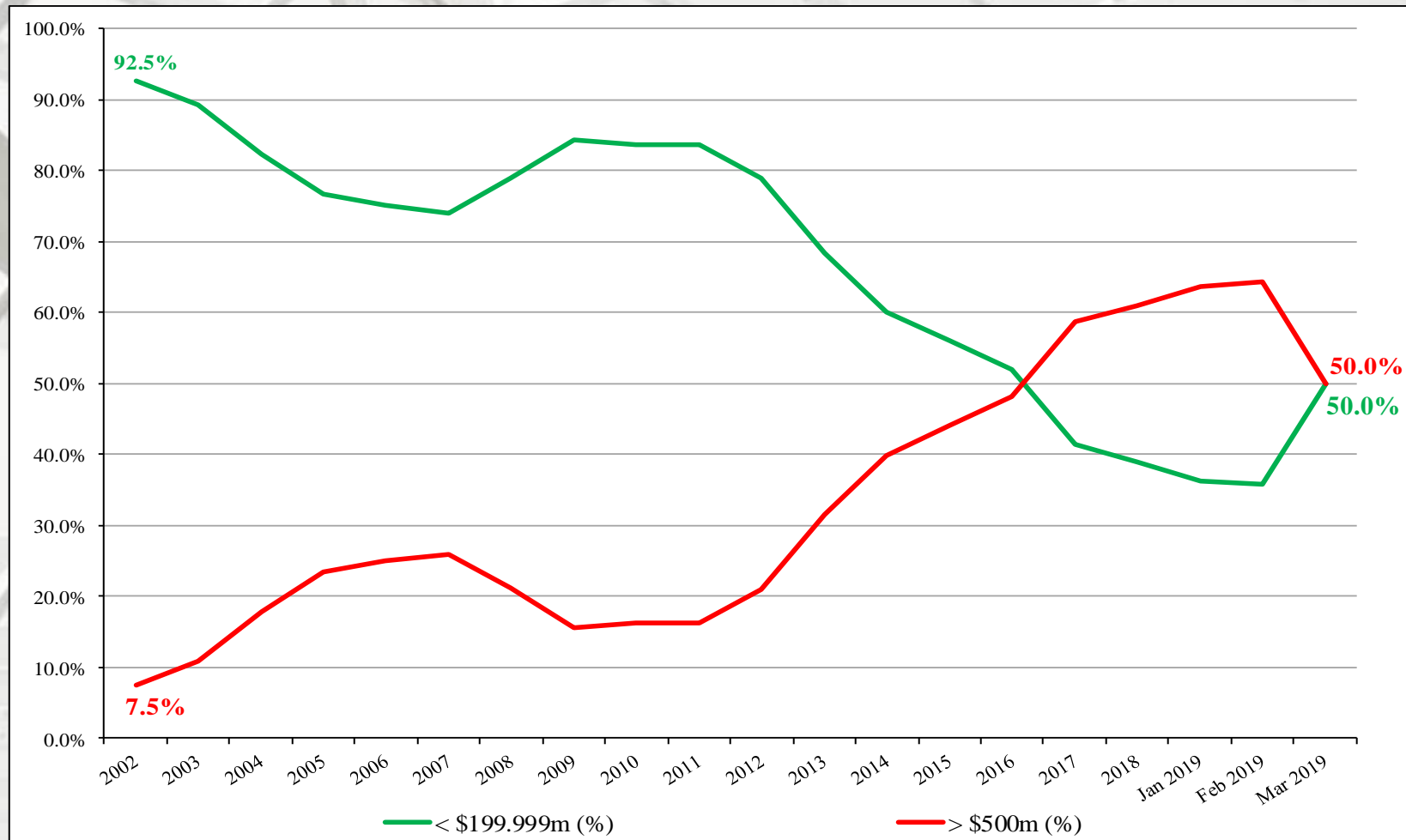
# New SF House Sales



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

The sales share of \$400 thousand plus SF houses is presented above<sup>1,2</sup>. 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

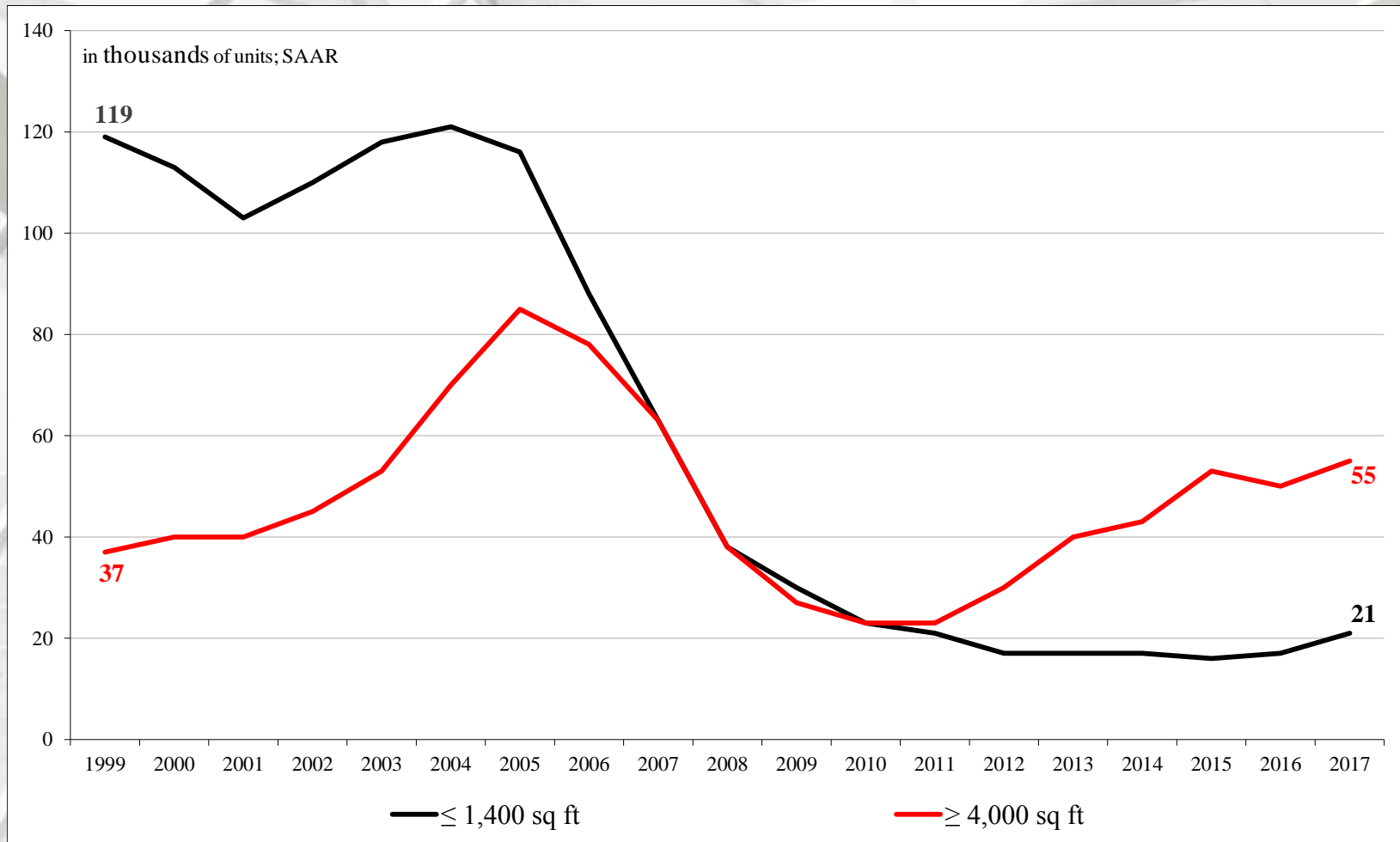


## New SF Sales: $\leq$ \$ 200m and $\geq$ \$500m: 2002 to March 2019

The number of  $\leq$  \$200 thousand plus SF houses has declined dramatically since 2002<sup>1,2</sup>. Subsequently, from 2012 onward, the  $\geq$  \$500 thousand class has soared (on a percentage basis) in contrast to the  $\leq$  \$200m class. One of the most oft mentioned reasons for this occurrence is builder net margins.

Note: Sales values are not adjusted for inflation.

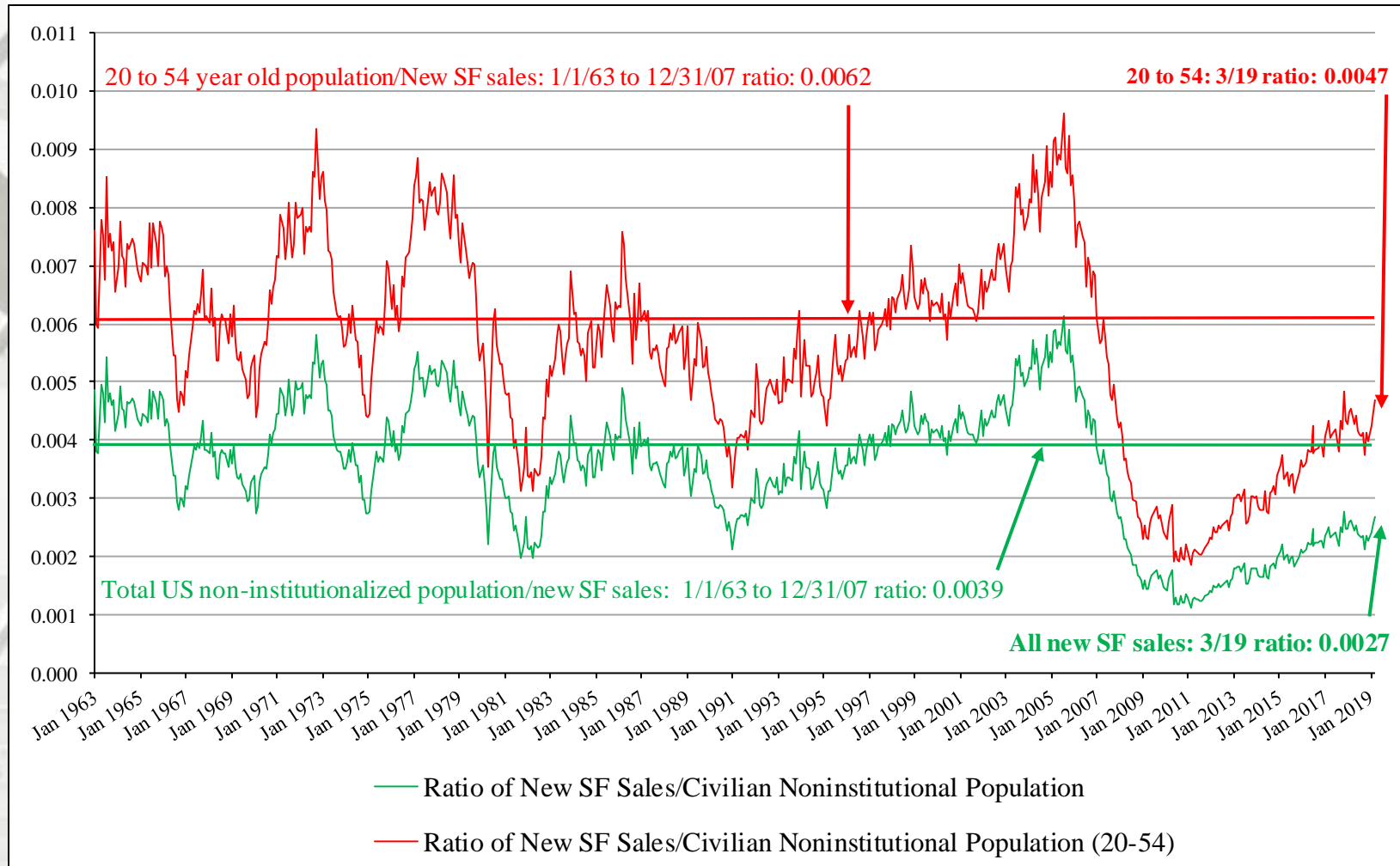
# New SF House Sales by Square Feet of Floor Area



## 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.

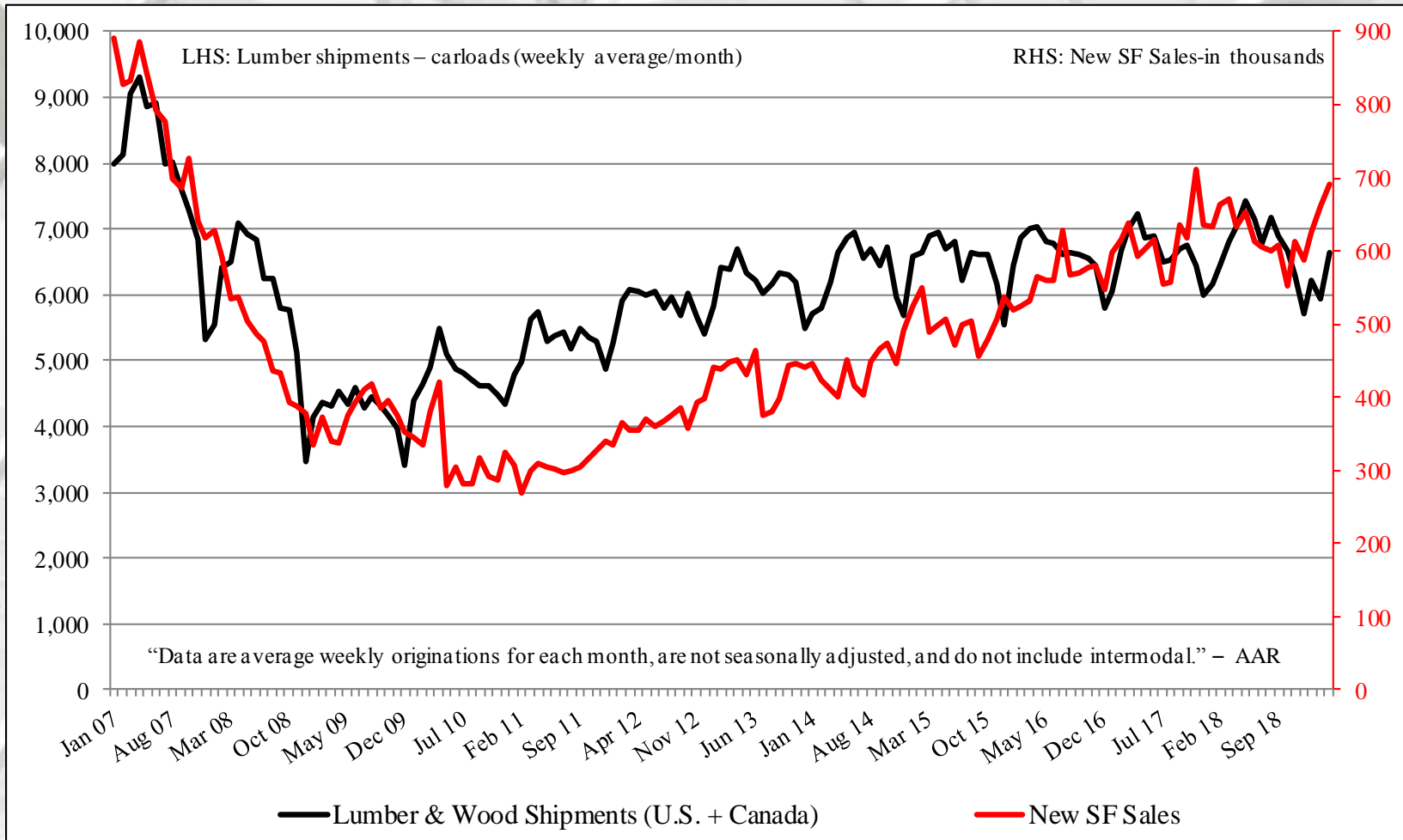
# New SF House Sales



## New SF sales adjusted for the US population

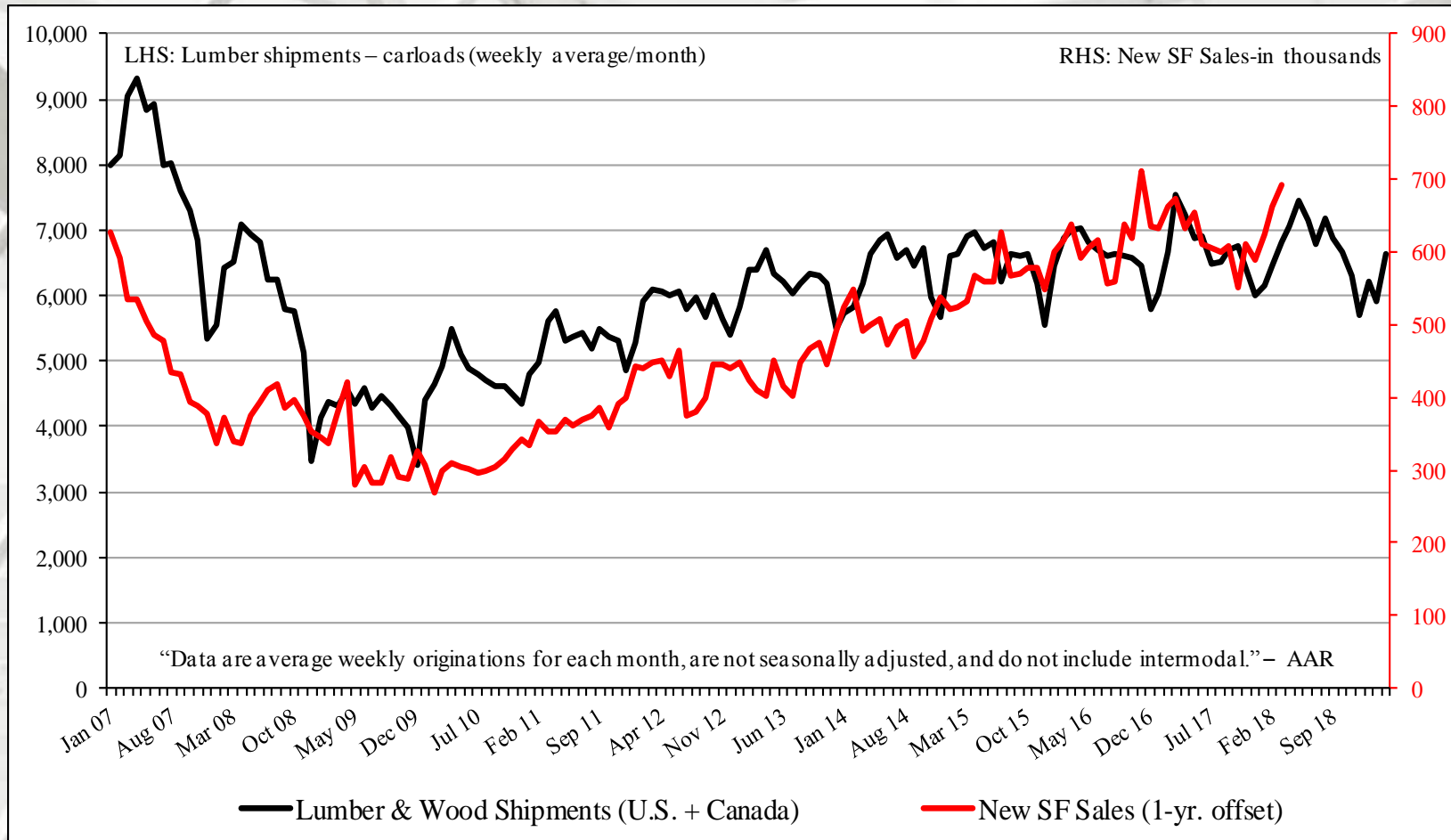
From March 1963 to March 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in March 2019 it was 0.0027 – an increase from February (0.0026). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in March 2019 it was 0.0047 – also an increase from February (0.0045). 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



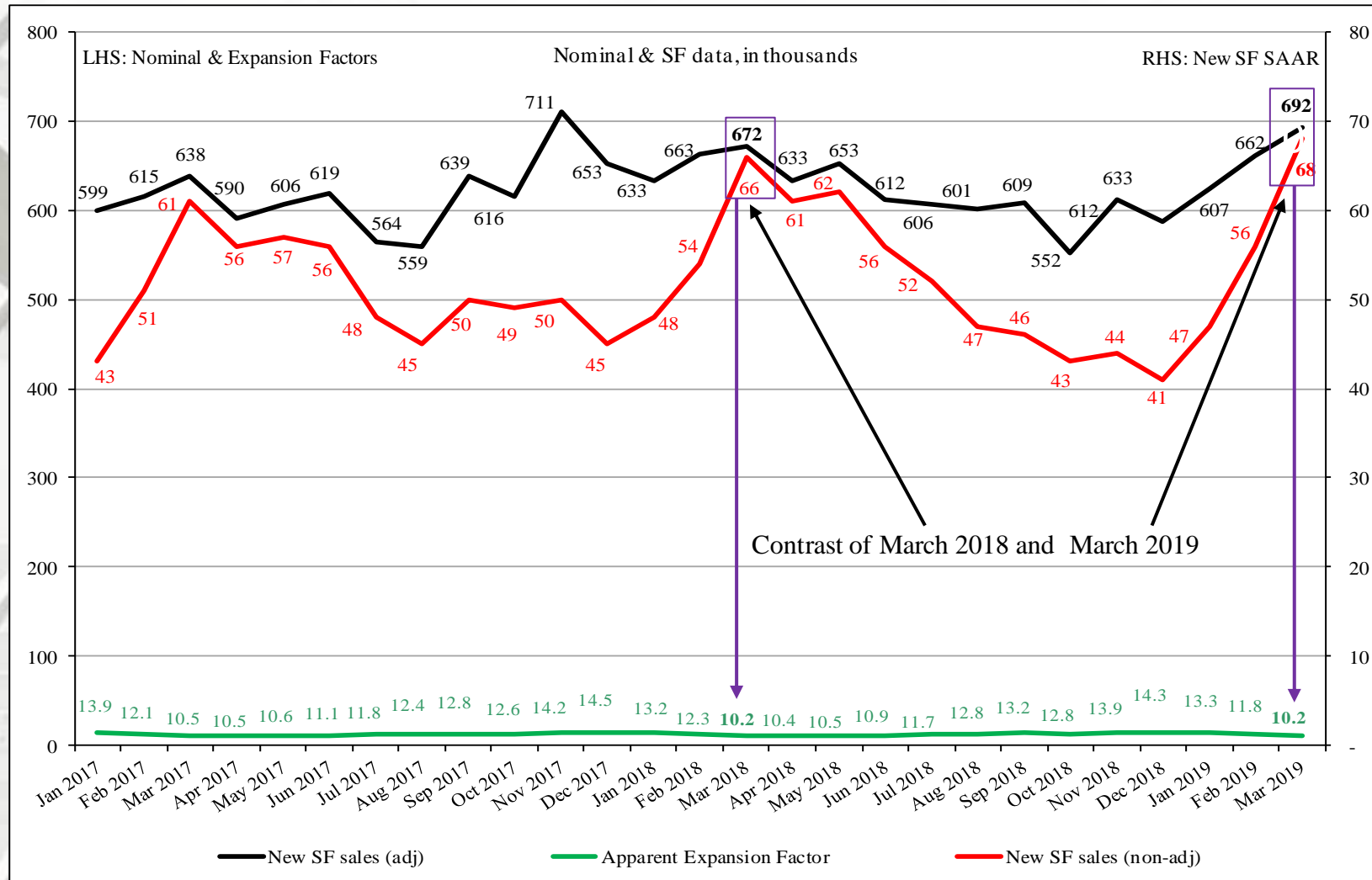


# Railroad Lumber & Wood Shipments vs. U.S. SF Housing Sales: 1-year Offset



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

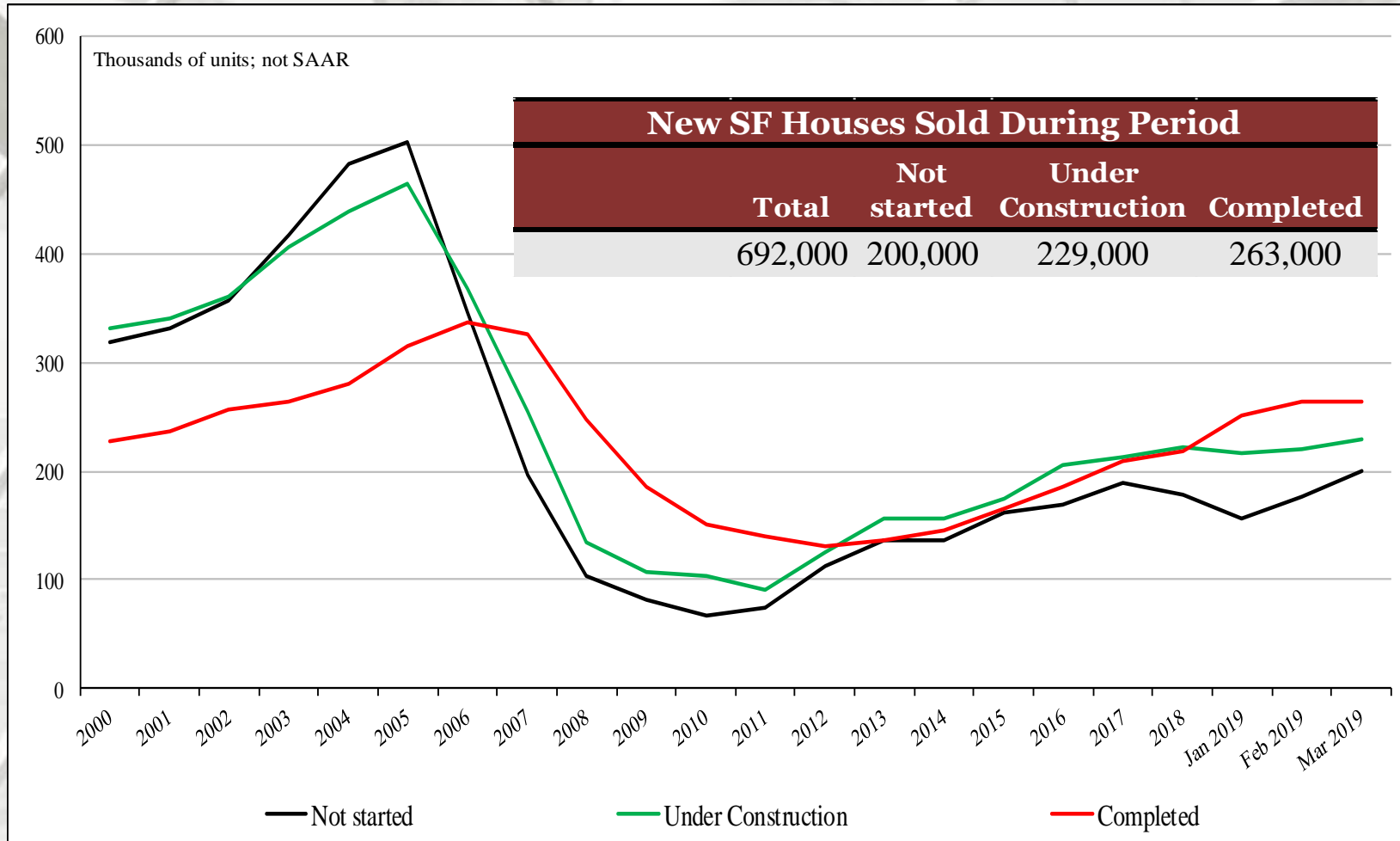
	Total	Not started	Under Construction	Completed
March	692,000	200,000	229,000	263,000
February	662,000	177,000	221,000	264,000
2018	672,000	184,000	246,000	242,000
M/M change	4.5%	13.0%	3.6%	-0.4%
Y/Y change	3.0%	8.7%	-6.9%	8.7%
Total percentage		28.9%	33.1%	38.0%

## New SF Houses Sold During Period

In March 2018, a substantial portion of new sales, 28.9% – have not been started; a decrease from February.

Not SAAR

# New SF House Sales



Not SAAR

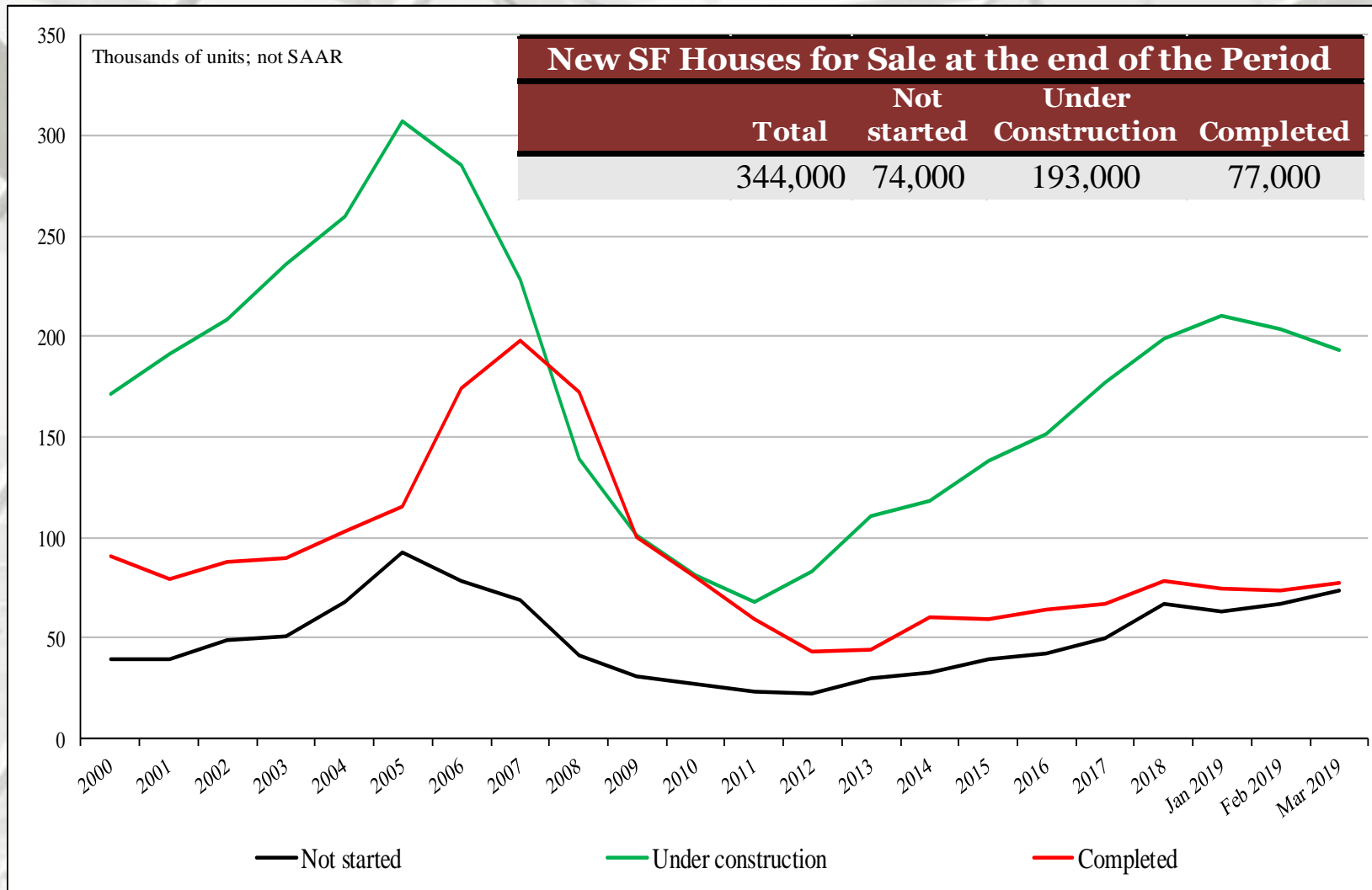
# New SF House Sales

## New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
March	344,000	74,000	193,000	77,000
February	345,000	67,000	204,000	74,000
2018	297,000	55,000	181,000	61,000
M/M change	-0.3%	10.4%	-5.4%	4.1%
Y/Y change	15.8%	34.5%	6.6%	26.2%
Total percentage		21.5%	56.1%	22.4%

Not SAAR

# New SF House Sales



Not SAAR

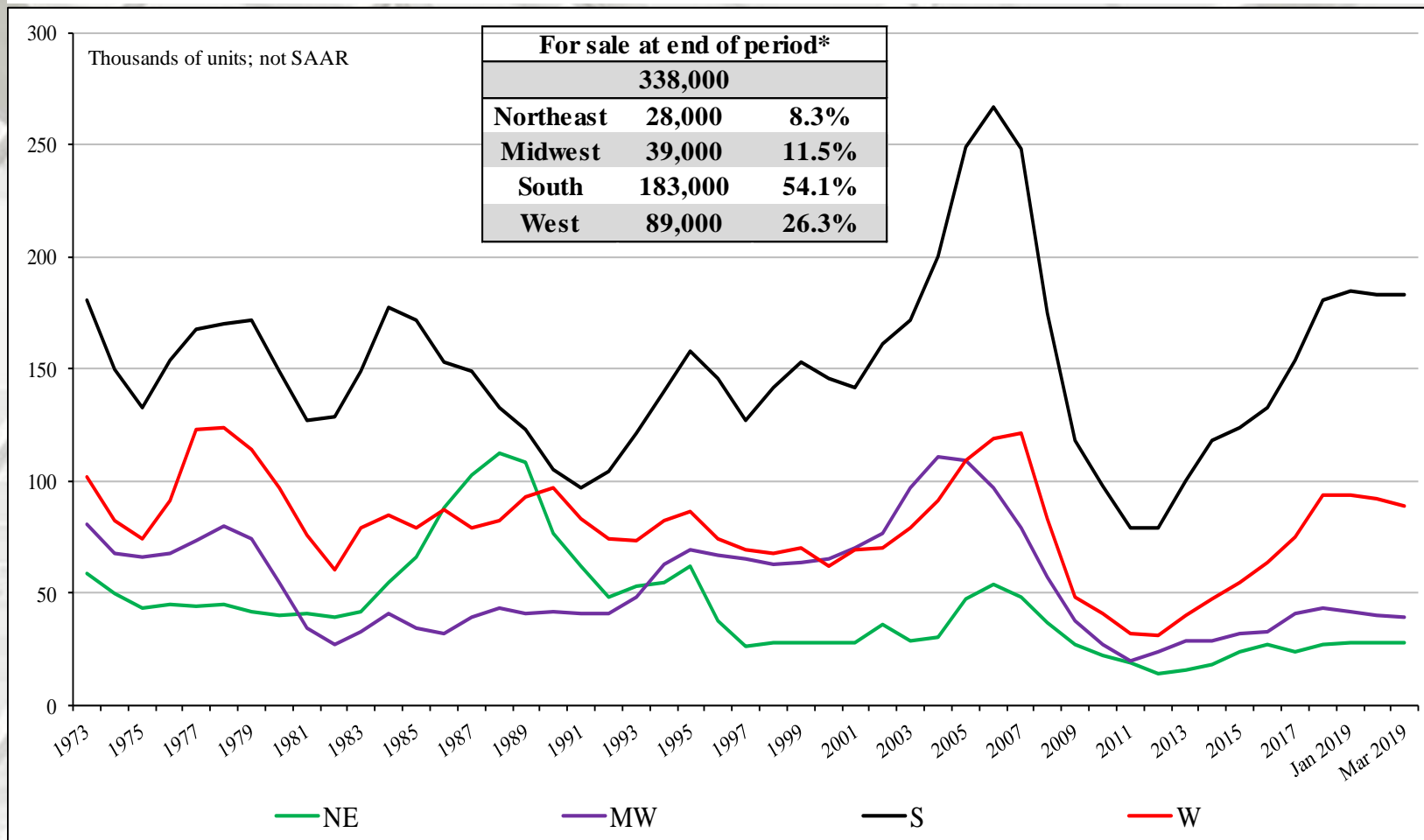
# New SF House Sales

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

	Total	NE	MW	S	W
March	338,000	28,000	39,000	183,000	89,000
February	342,000	28,000	40,000	183,000	92,000
2018	293,000	23,000	39,000	156,000	74,000
M/M change	-1.2%	0.0%	-2.5%	0.0%	-3.3%
Y/Y change	15.4%	21.7%	0.0%	17.3%	20.3%

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.



# March 2019 Construction Spending

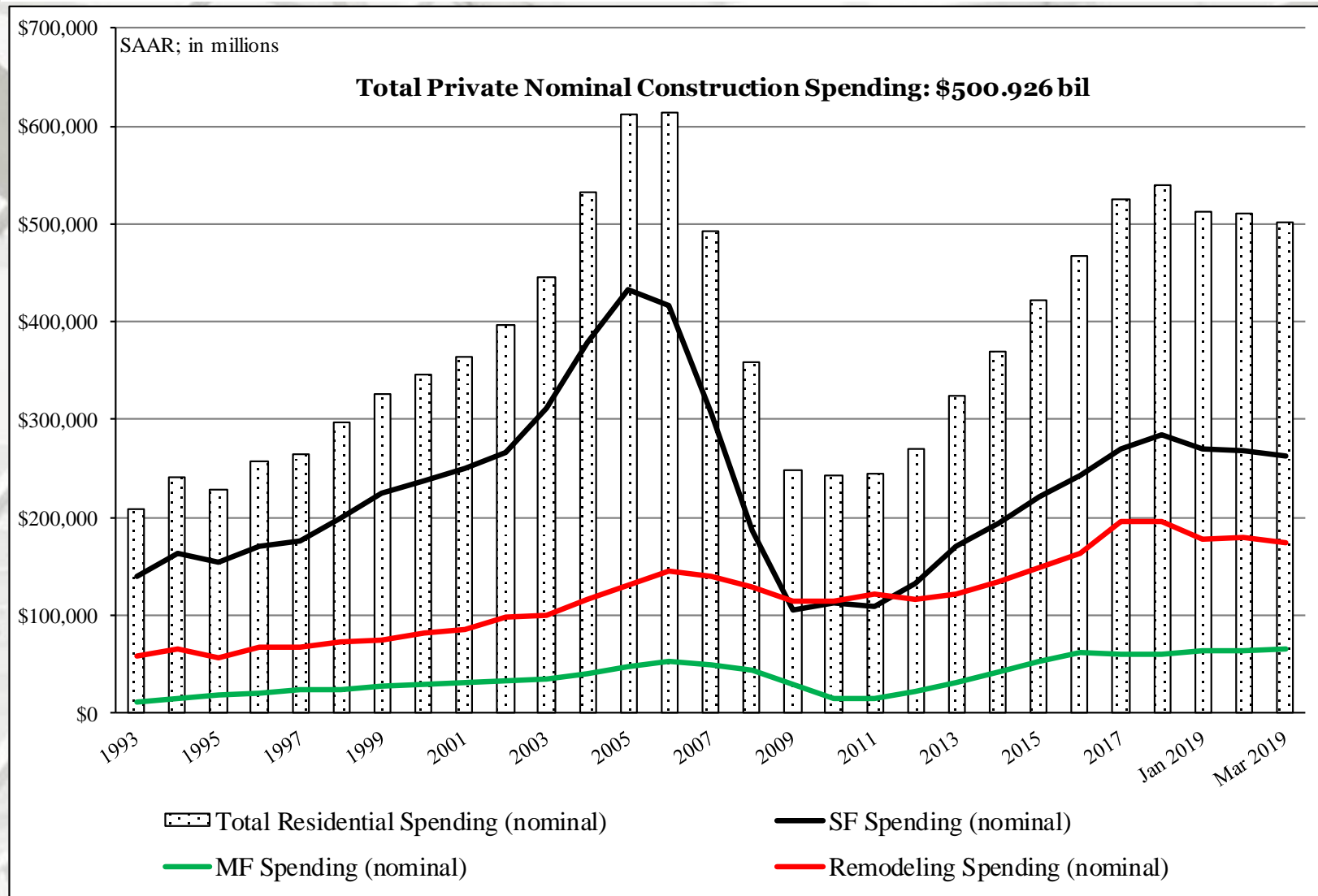
	Total Private Residential*	SF	MF	Improvement**
March	\$500,926	\$263,153	\$64,479	\$173,294
February	\$510,076	\$267,170	\$64,022	\$178,884
2018	\$546,575	\$286,742	\$58,018	\$201,815
M/M change	-1.8%	-1.5%	0.7%	-3.1%
Y/Y change	-8.4%	-8.2%	11.1%	-14.1%

\* 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\$.

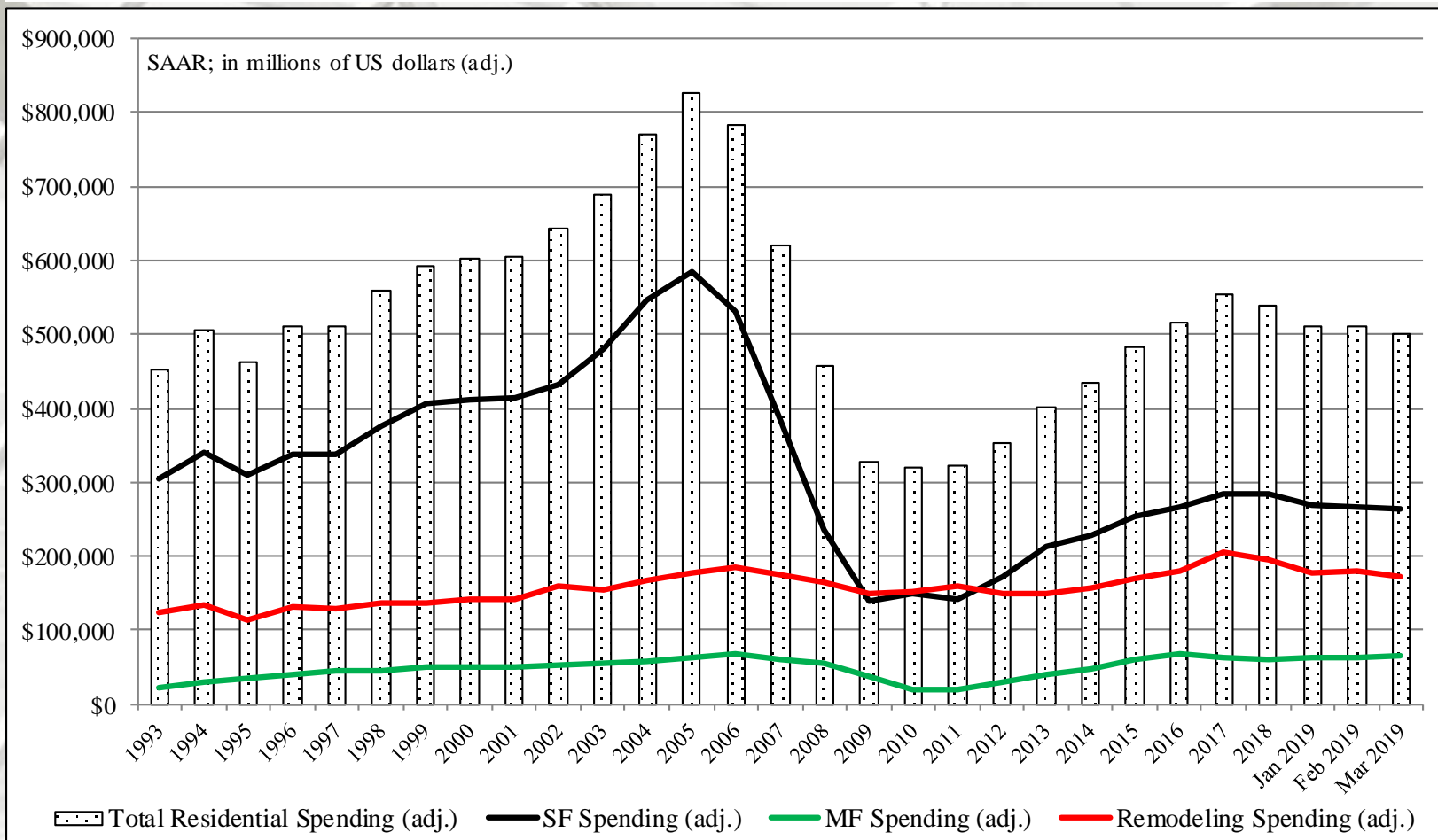
# Total Construction Spending (nominal): 1993 – March 2019



Reported in nominal US\$.

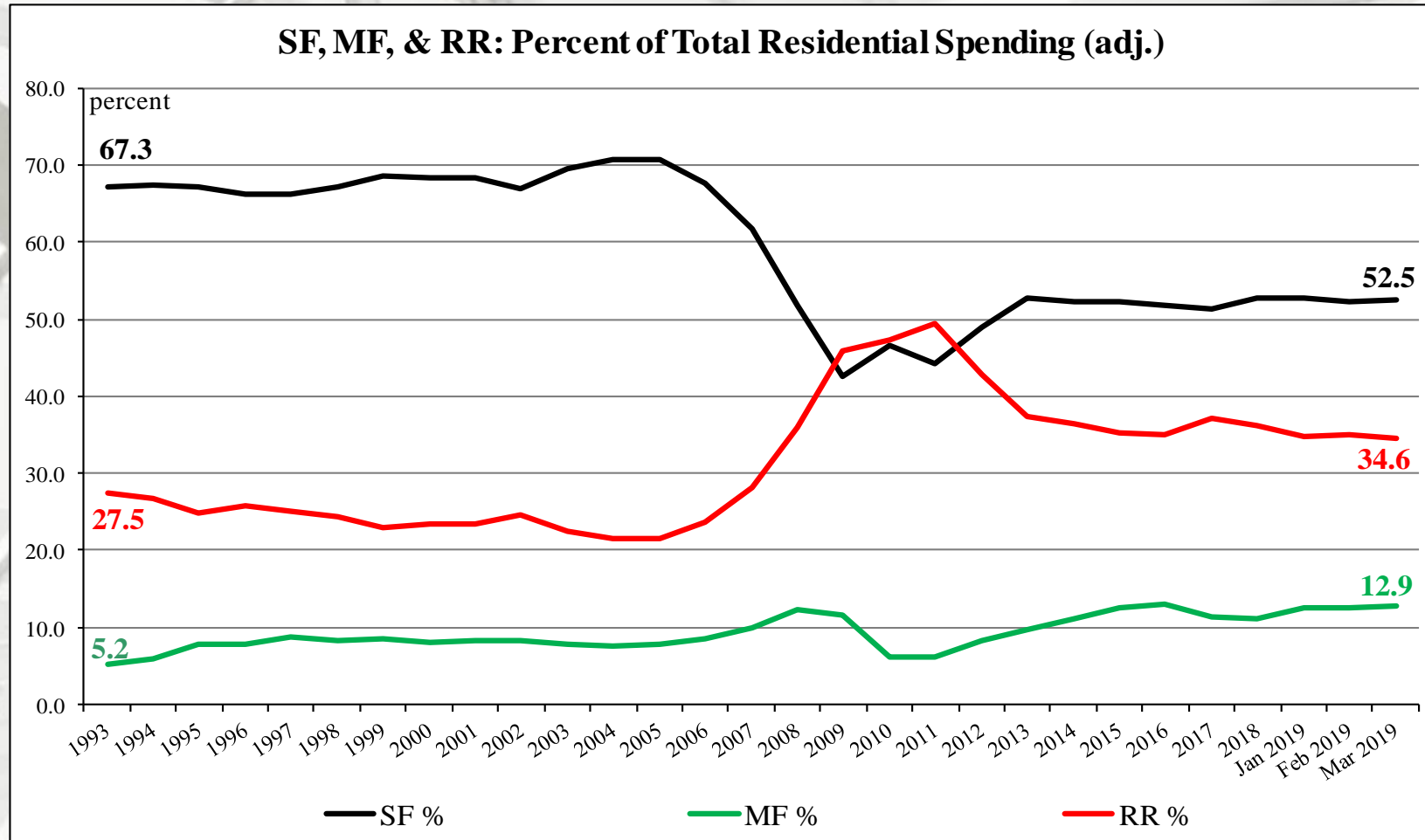
The US DOC does not report improvement spending directly, this is a monthly estimation for 2019.

# Total Construction Spending (adjusted): 1993-2019\*



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

# Construction Spending Shares: 1993 to March 2019



**Total Residential Spending: 1993 through 2006**

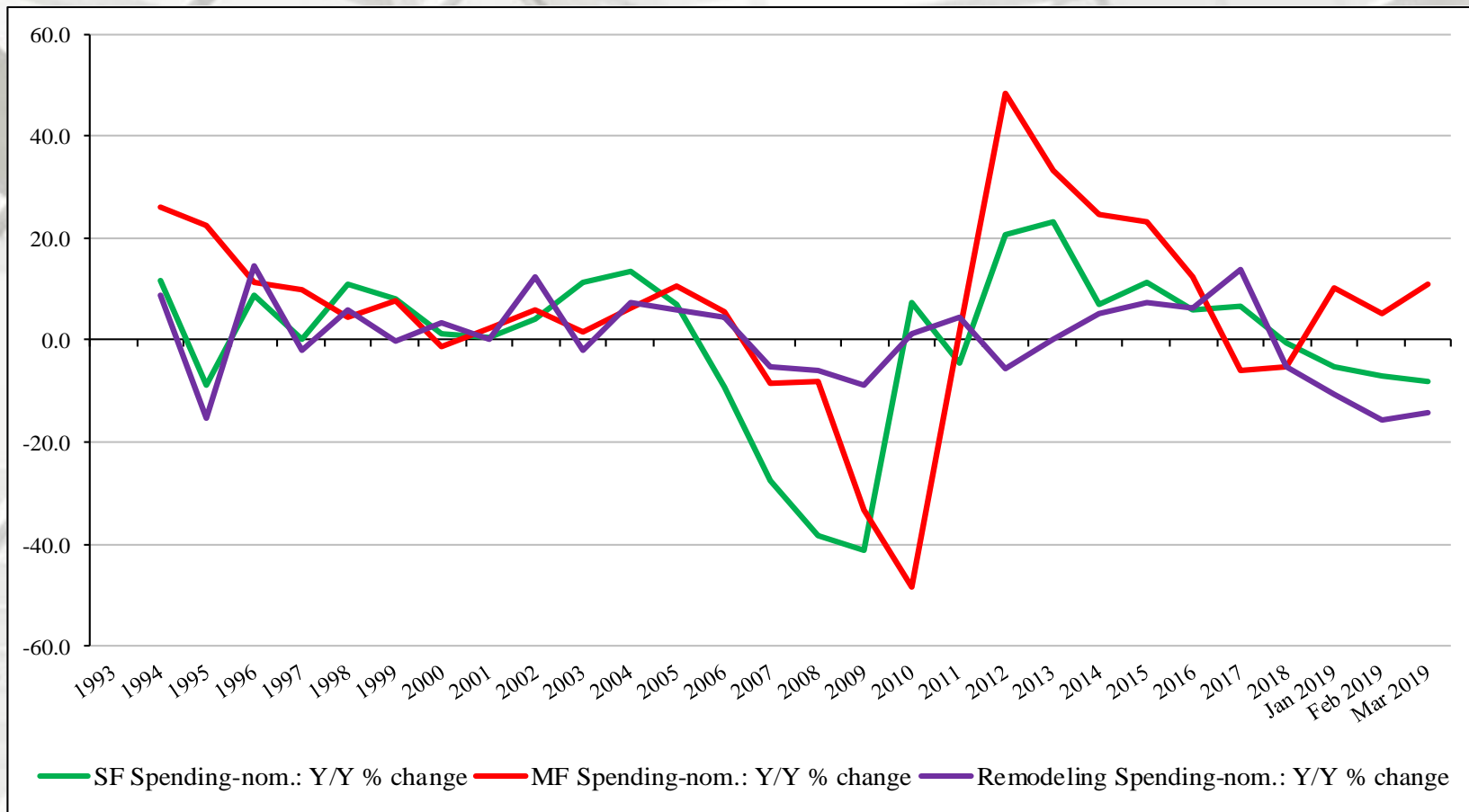
SF spending average: 69.2%

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-March 2018 reported in nominal US\$.

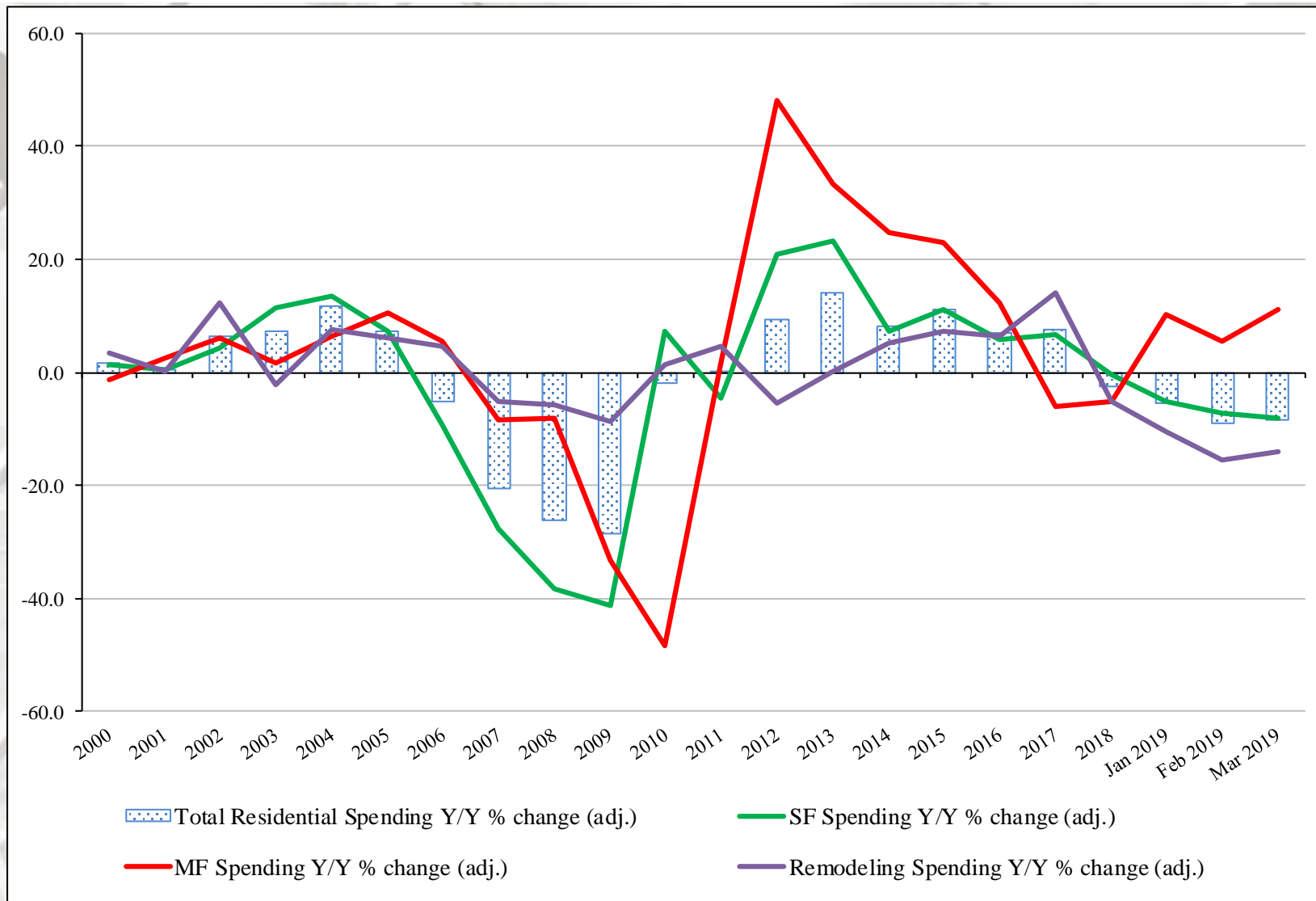
# Adjusted Construction Spending: Y/Y Percentage Change, 1993 to March 2019



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

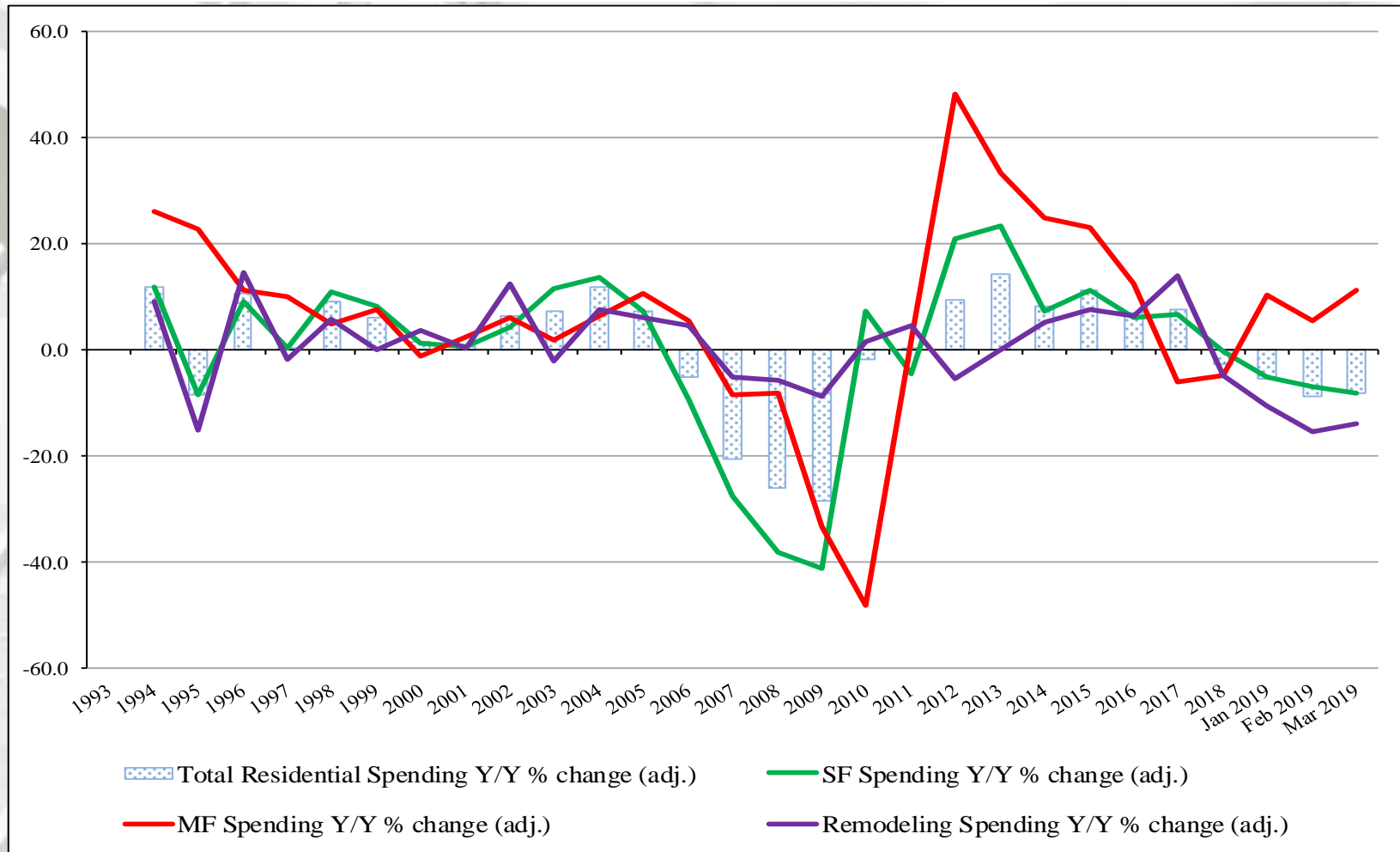
Presented above is the percentage change of inflation adjusted Y/Y construction spending. Only MF expenditures were positive on a percentage basis, year-over-year. 2019 data reported in nominal dollars

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



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

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



## Inflation Adjusted Residential Construction Spending:

### Y/Y percentage change, 1993 to March 2019

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

# Remodeling

## Joint Center for Housing Studies

### Below-Average Growth In Home Remodeling Expected By 2020

“Annual gains in improvement and repair spending on the owner-occupied housing stock are projected to continue decelerating through early next year, according to our latest [Leading Indicator of Remodeling Activity \(LIRA\)](#). The LIRA forecasts that year-over-year growth in homeowner remodeling expenditure will slow from about 7 percent today to 2.6 percent by the first quarter of 2020.

Cooling house price gains, home sales activity, and remodeling permitting are lowering our expectations for home improvement and repair spending this year and next. Yet, more favorable mortgage rates could still give a boost to home sales and refinancing this spring and summer, which could help buoy remodeling activity.

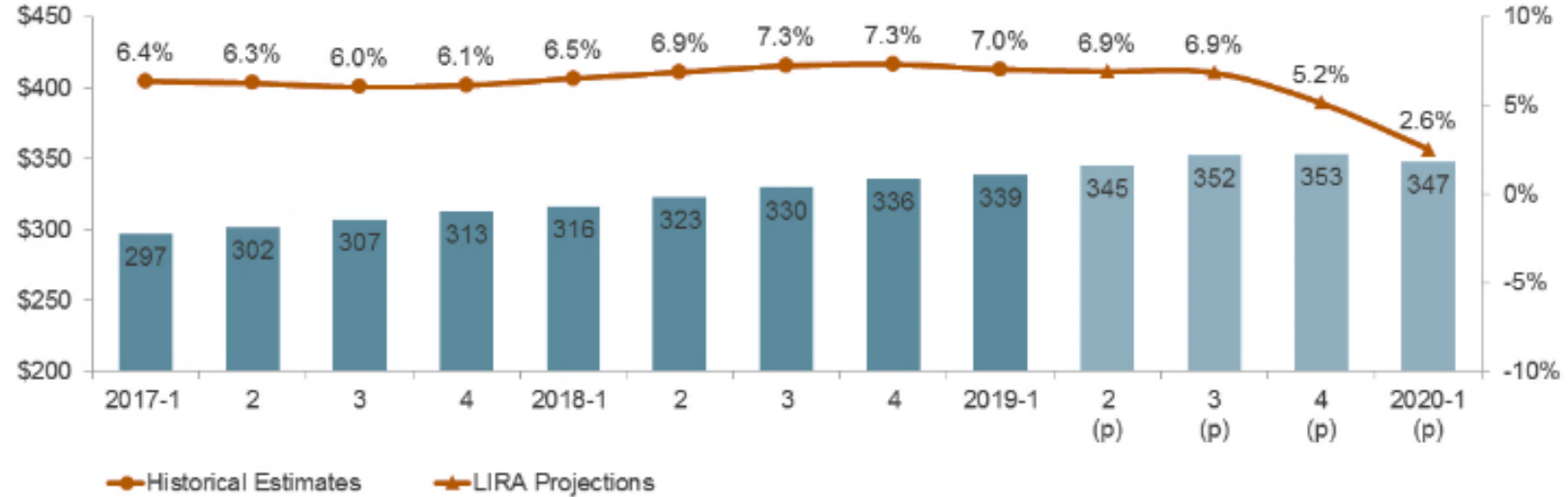
Home improvement and repair spending has been in an extended period of above trend growth for several years, due to weak homebuilding, aging homes, and other factors. However, growth in remodeling is expected to fall below the market’s historical average of 5 percent for the first time since 2013.” – Abbe Will, Research Analyst, Joint Center for Housing Studies



# Remodeling

## Leading Indicator of Remodeling Activity – First Quarter 2019

Homeowner Improvements & Repairs  
Four-Quarter Moving Totals  
Billions



Note: Historical estimates since 2015 are produced using the LIRA model until American Housing Survey data become available.

# Existing House Sales

**National Association of Realtors**  
**March 2019 sales: 5.210 thousand**

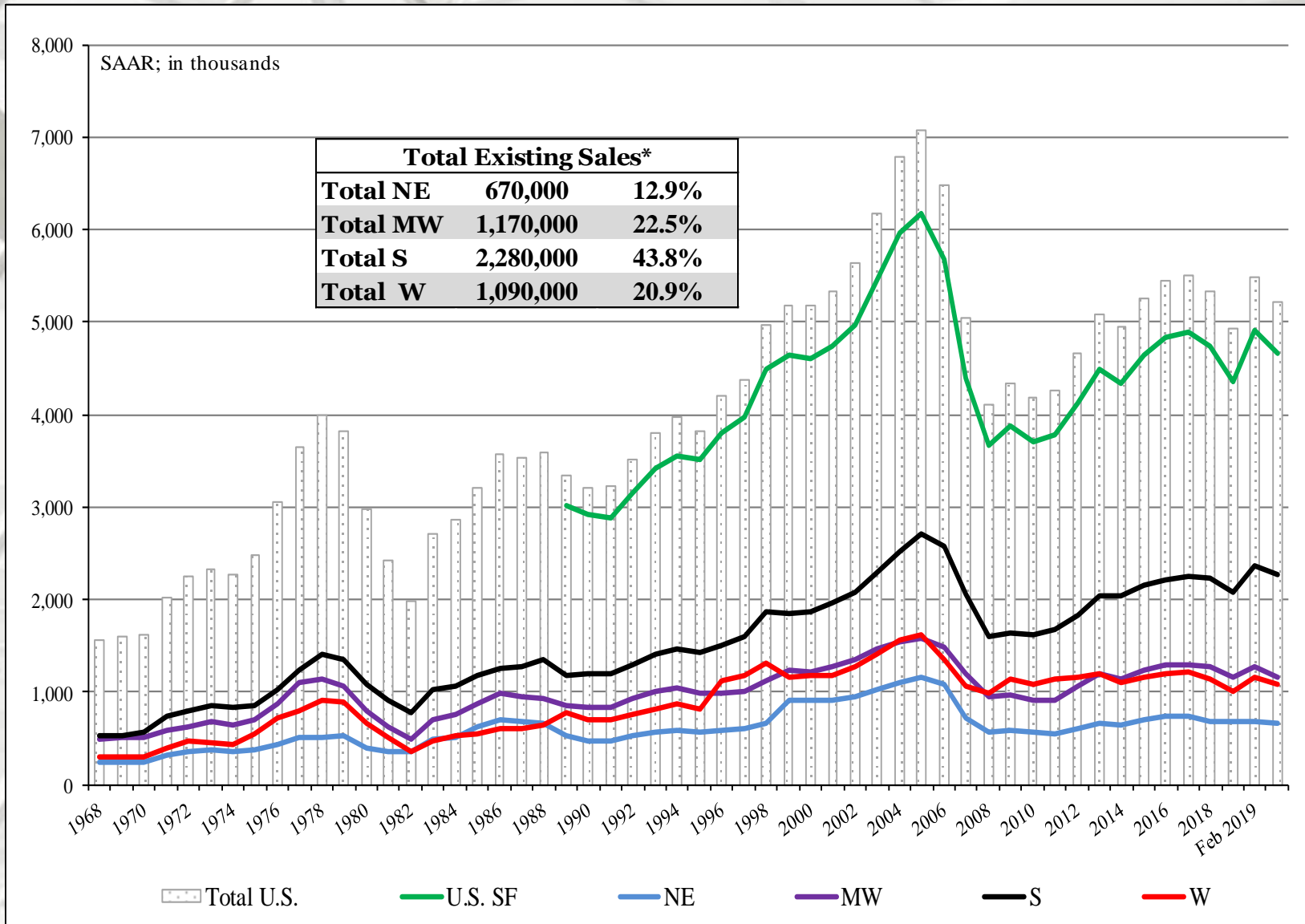
	<b>Existing Sales*</b>	<b>Median Price</b>	<b>Mean Price</b>	<b>Month's Supply</b>
March	5,210,000	259,400	297,200	3.9
February	5,480,000	250,100	288,500	3.6
2018	5,510,000	251,500	289,900	3.6
M/M change	-4.9%	3.7%	3.0%	8.3%
Y/Y change	-5.4%	3.1%	2.5%	8.3%

	<b>Existing SF Sales*</b>	<b>SF Median Price</b>	<b>SF Mean Price</b>
March	4,670,000	261,100	298,100
February	4,910,000	252,000	289,300
2018	4,900,000	251,500	290,600
M/M change	-4.9%	3.6%	3.0%
Y/Y change	-4.7%	3.8%	2.6%

All sales data: SAAR

\* Percentage of existing sales.

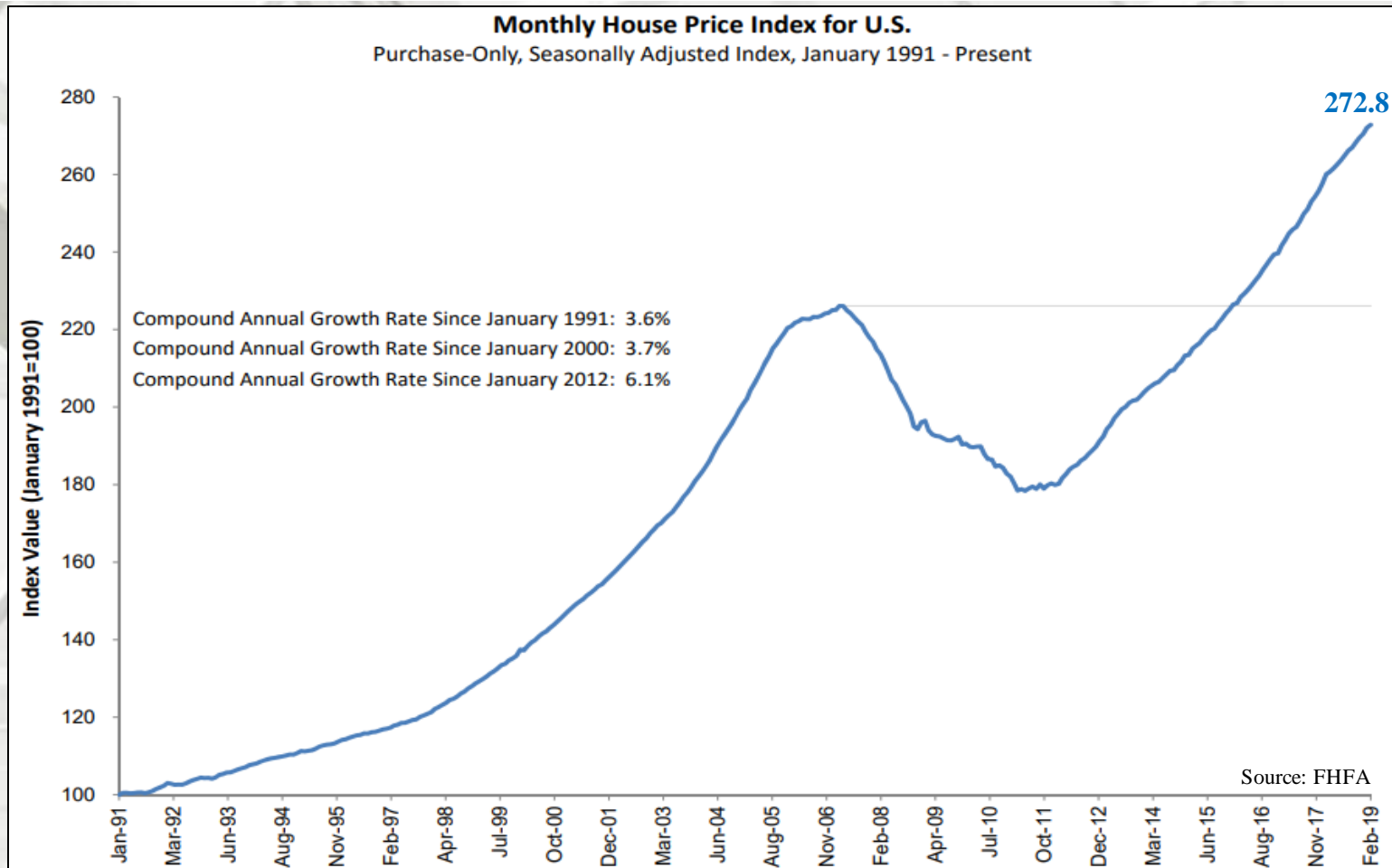
# Existing House Sales



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

\* Percentage of existing sales.

# U.S. Housing Prices



## U.S. House Price Index - February 2019

“The FHFA House Price Index (HPI) reported a **0.3 percent increase** in U.S. house prices in February from the previous month. From February 2018 to **February 2019, house prices were up 4.9 percent**. For the nine census divisions, seasonally adjusted monthly price changes from January 2019 to February 2019 ranged from -1.2 percent in the Middle Atlantic division to +1.4 percent in the East South Central division. The 12-month changes were all positive, ranging from +3.5 percent in the West South Central division to +6.5 percent in the Mountain division.” – Stefanie Johnson and Corinne Russell, FHFA

# U.S. Housing Prices

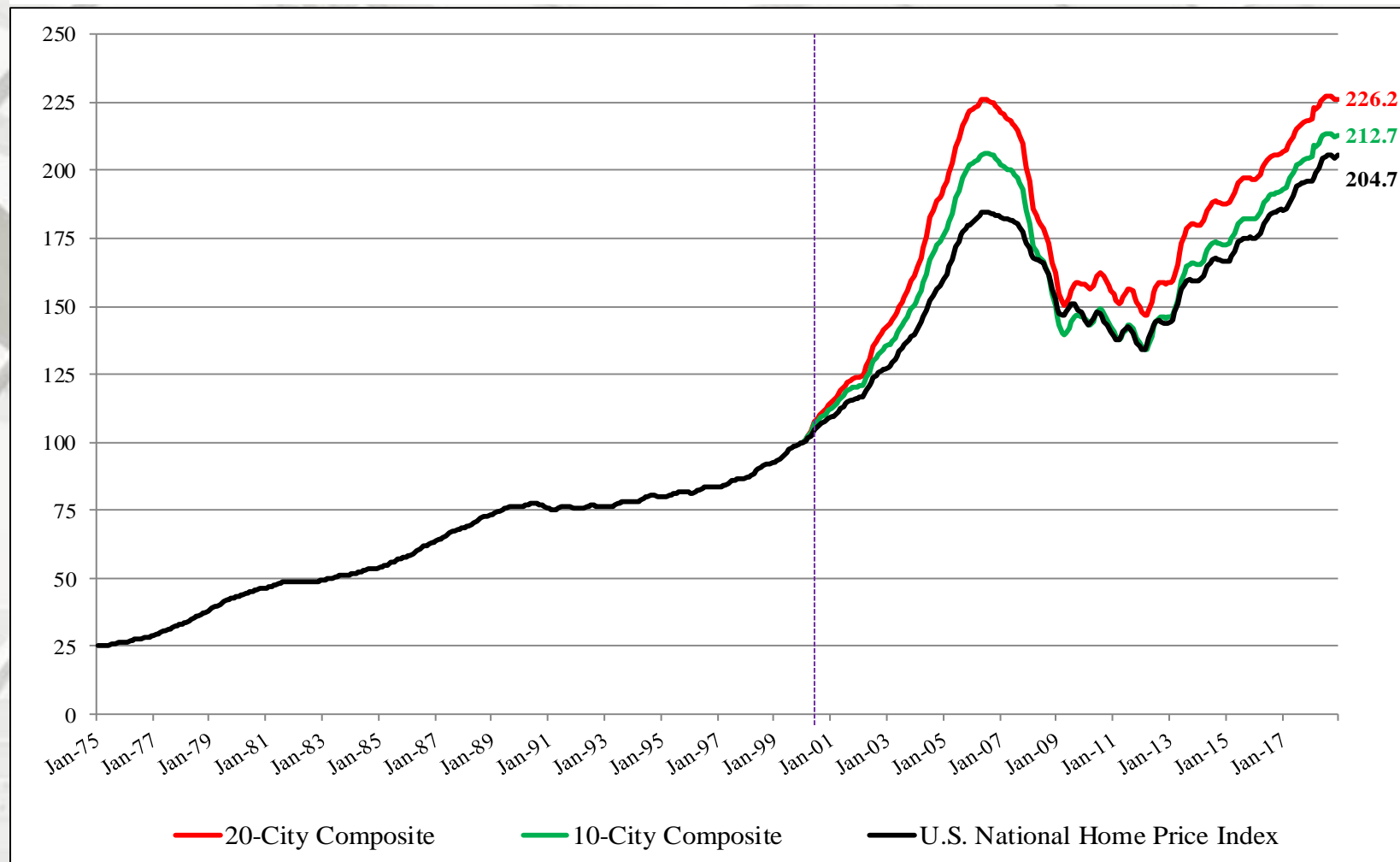
“The S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index, covering all nine U.S. census divisions, reported a 4.0% annual gain in February, down from 4.2% in the previous month. The 10-City Composite annual increase came in at 2.6%, down from 3.1% in the previous month. The 20-City Composite posted a 3.0% year-over-year gain, down from 3.5% in the previous month.

## **S&P CoreLogic Case-Shiller Index Shows Annual Gains Continue To Decline**

The pace of increases for home prices continues to slow. Homes began their climb in 2012 and accelerated until late 2013 when annual increases reached double digits. Subsequently, increases slowed until now when the National Index is up 4% in the last 12 months. Sales of existing single family homes have recovered since 2010 and reached their peak one year ago in February 2018. Home sales drifted down over the last year except for a one-month pop in February 2019. Sales of new homes, housing starts, and residential investment had similar weak trajectories over the last year. Mortgage rates are down one-half to three-quarters of a percentage point since late 2018.

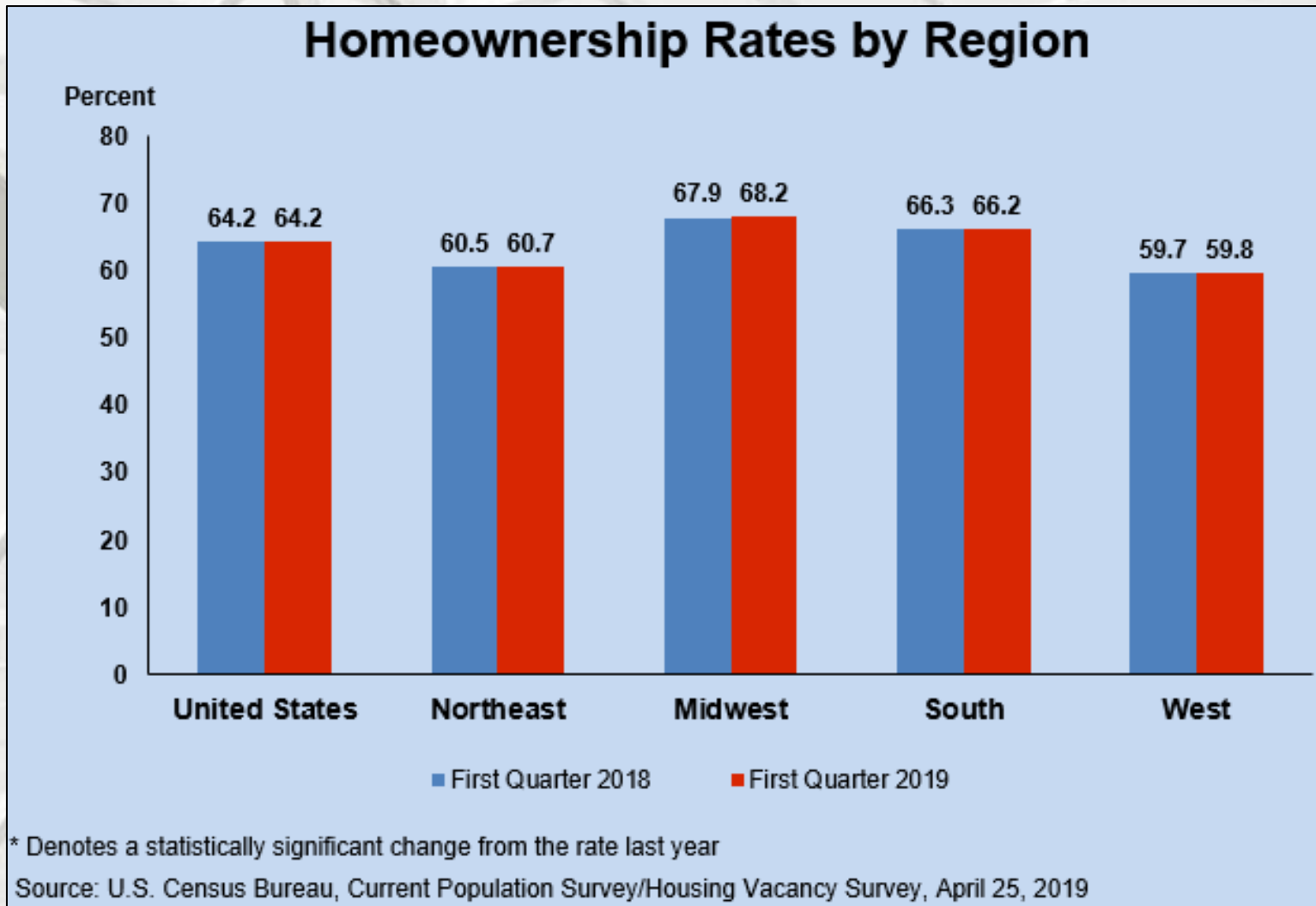
The largest year-over-year price increase is 9.7% in Las Vegas; last year, the largest gain was 12.7% in Seattle. Regional patterns are shifting. The three California cities of Los Angeles, San Francisco and San Diego have the three slowest price increases over the last year. Chicago, New York and Cleveland saw only slightly larger price increases than California. Prices generally rose faster in inland cities than on either the coasts or the Great Lakes. Aside from Las Vegas, Phoenix, and Tampa, which saw the fastest gains, Atlanta, Denver, and Minneapolis all saw prices rise more than 4% -- twice the rate of inflation.” – David Blitzer, Managing Director and Chairman of the Index Committee, S&P Dow Jones Indices

## S&P/Case-Shiller Home Price Indices

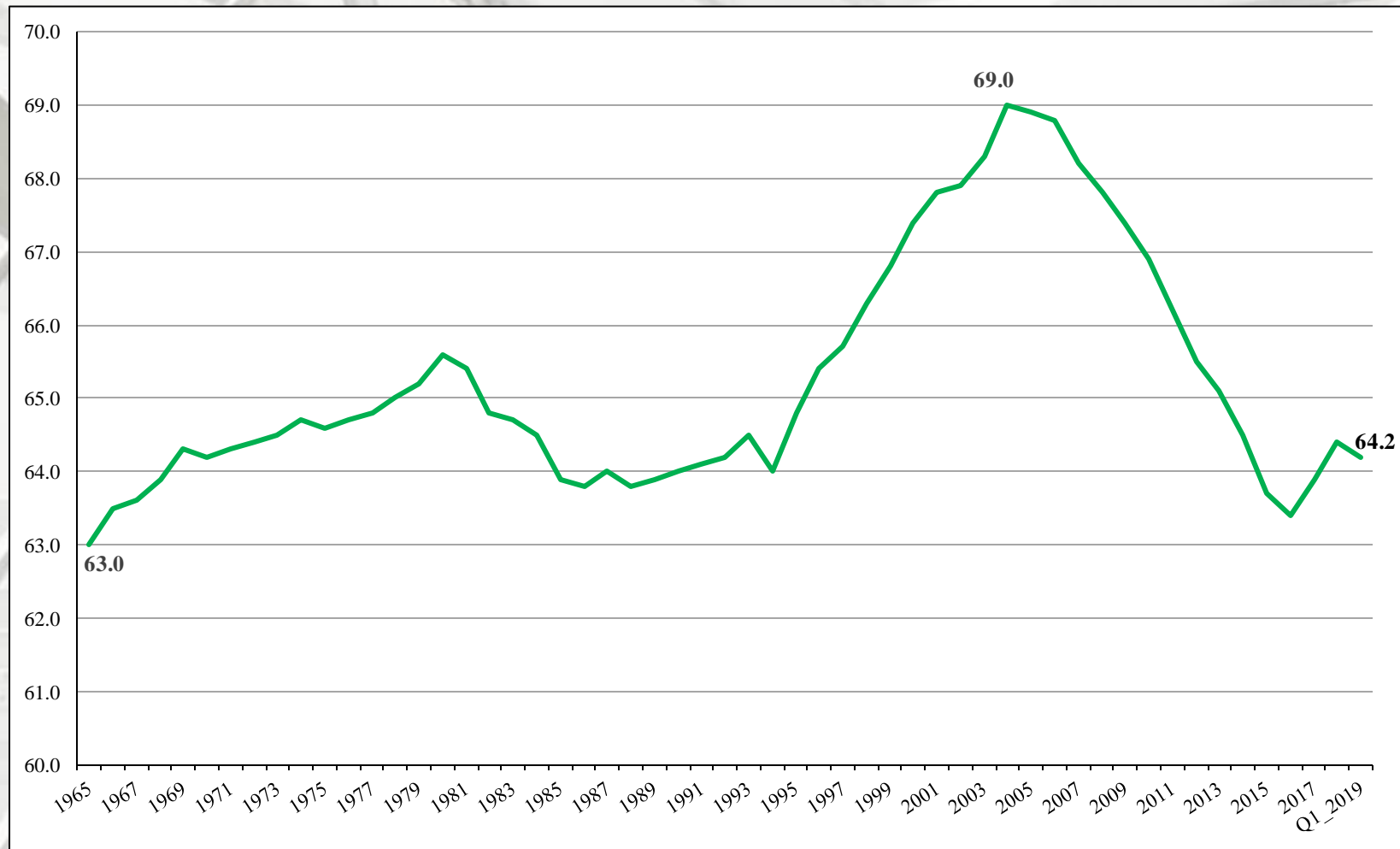


“Las Vegas, Phoenix and Tampa reported the highest year-over-year gains among the 20 cities. In February, Las Vegas led the way with a 9.7% year-over-year price increase, followed by Phoenix with a 6.7% increase, and Tampa with a 5.4% increase. Only one of the 20 cities reported greater price increases in the year ending February 2019 versus the year ending January 2019.” – Soogyung Jordan, Global Head of Communications, S&P CoreLogic

# Housing Vacancies & Home Ownership

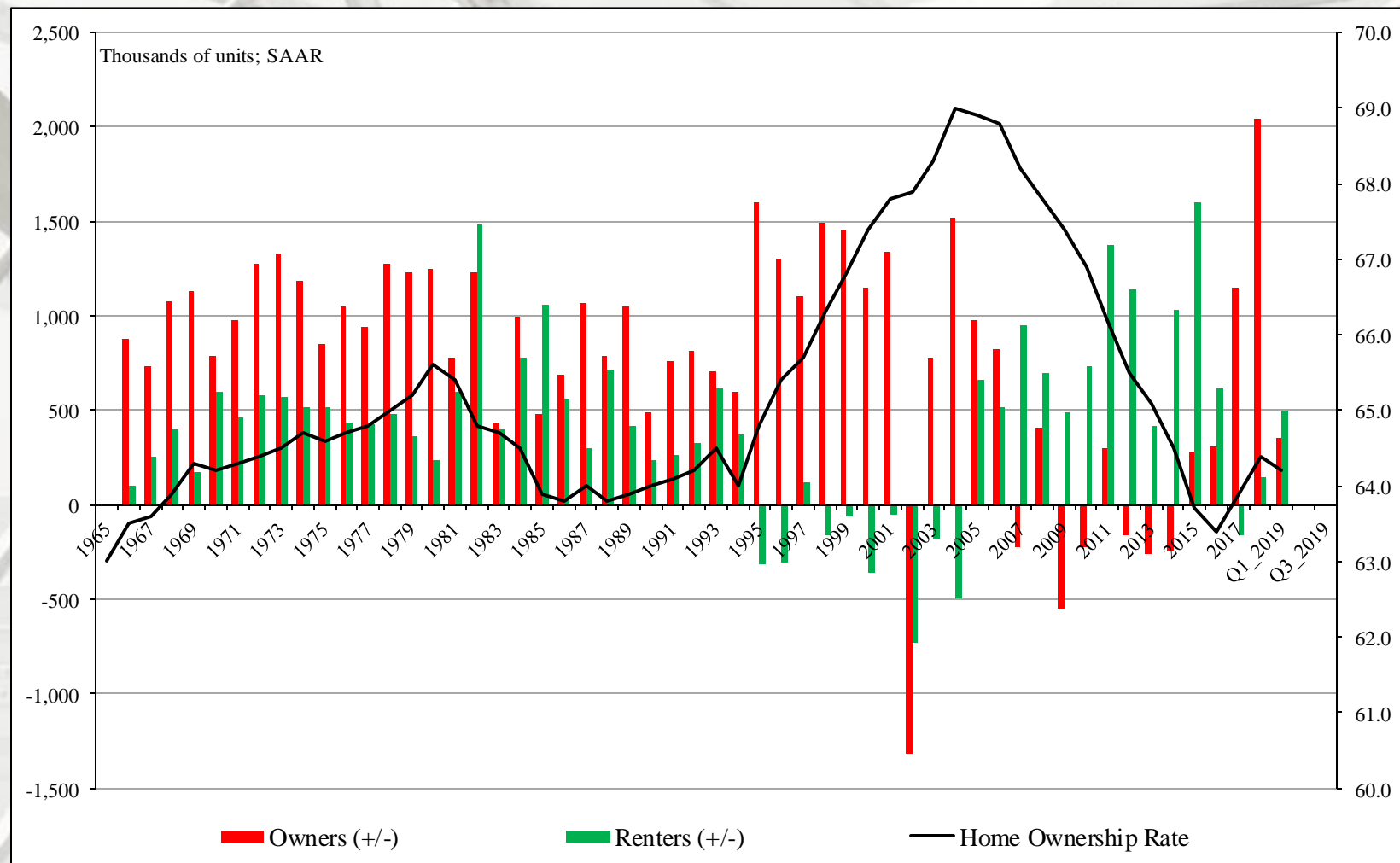


# Housing Vacancies & Home Ownership





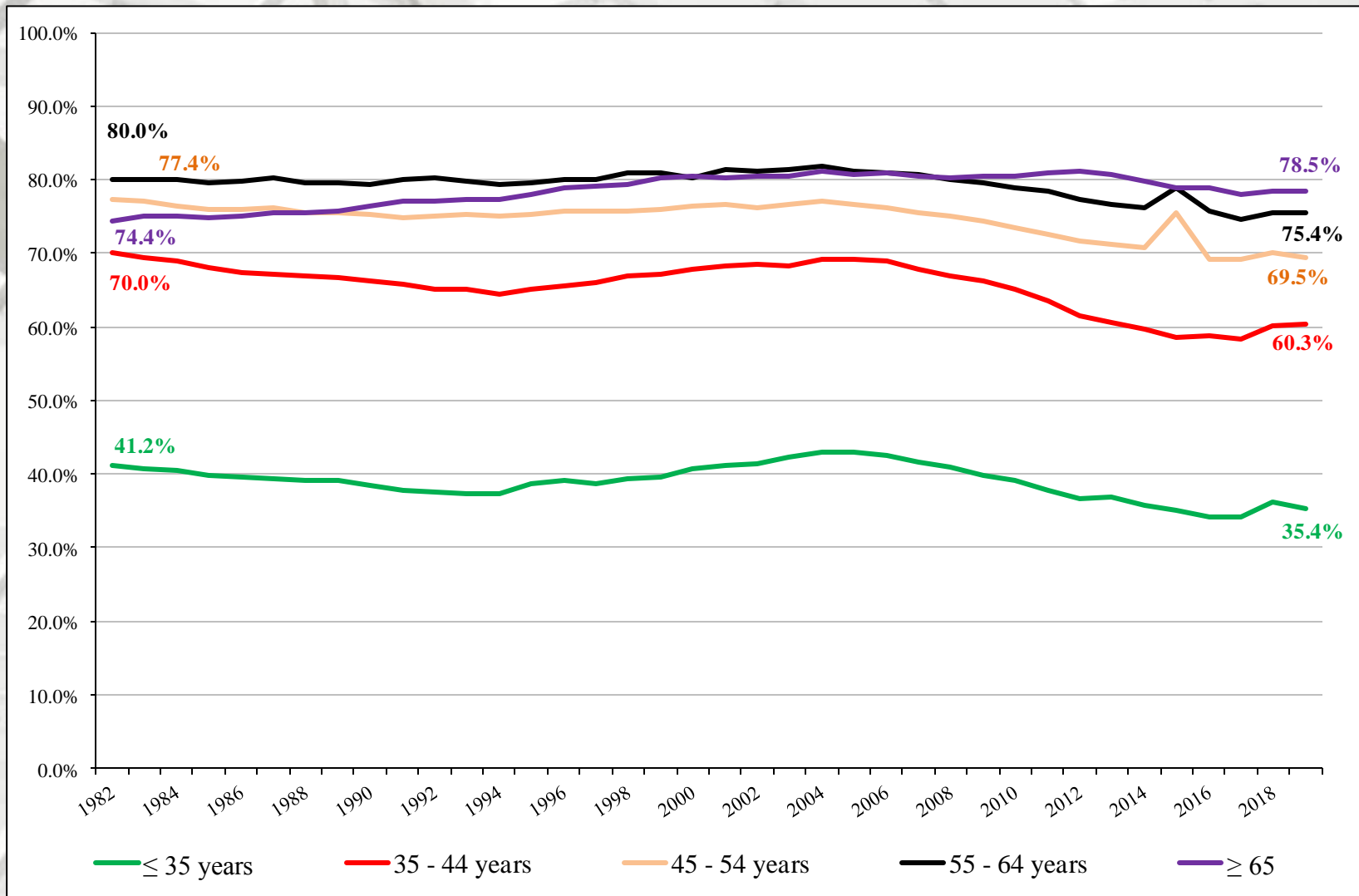
# Housing Vacancies & Home Ownership



## Owner-, Renter-Occupied, & Home Ownership Rate

The number of owner-occupied houses has been increasing in the past quarters and this is reflected in an improve home ownership rate since 2016.

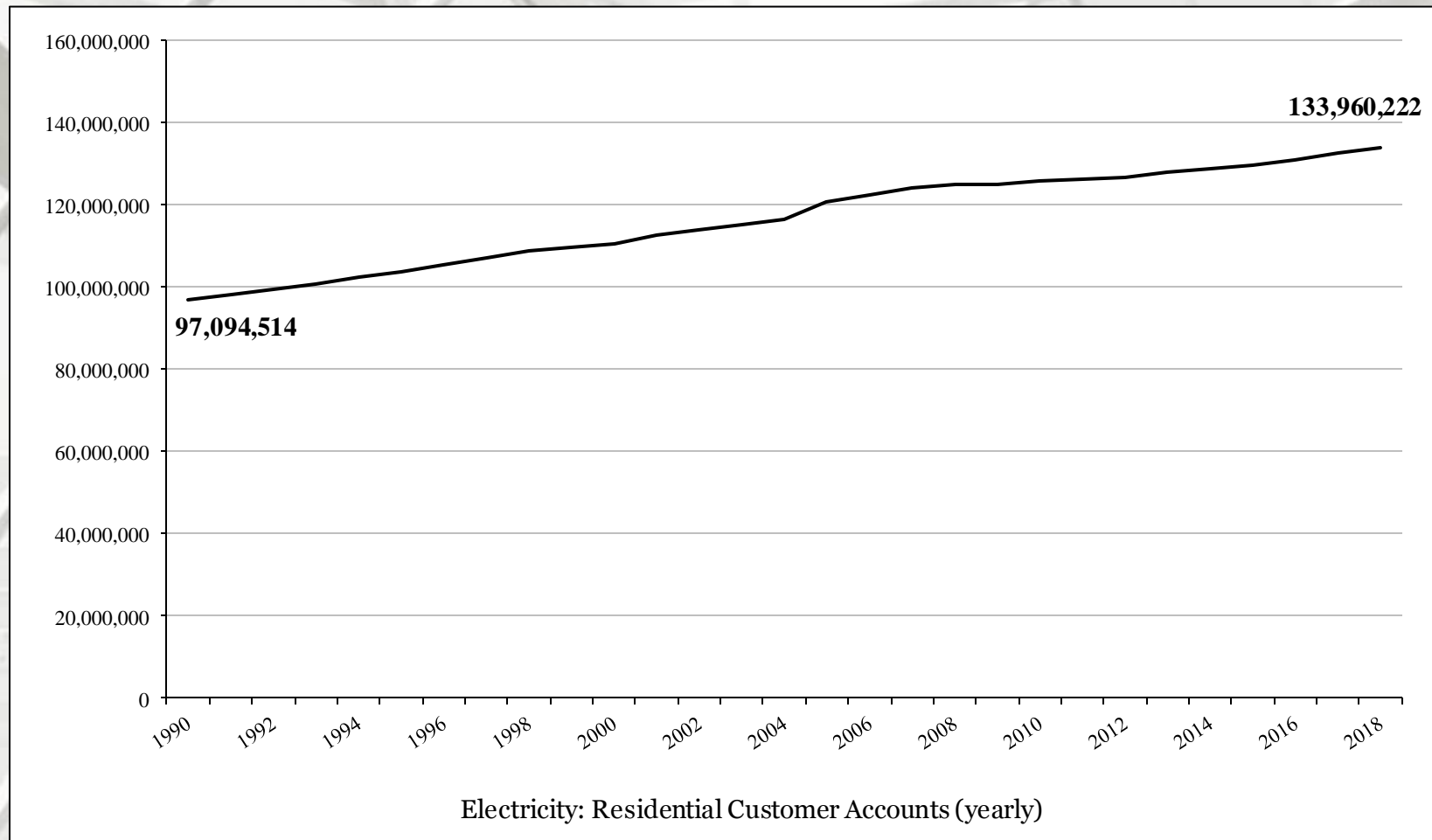
# Housing Vacancies & Home Ownership



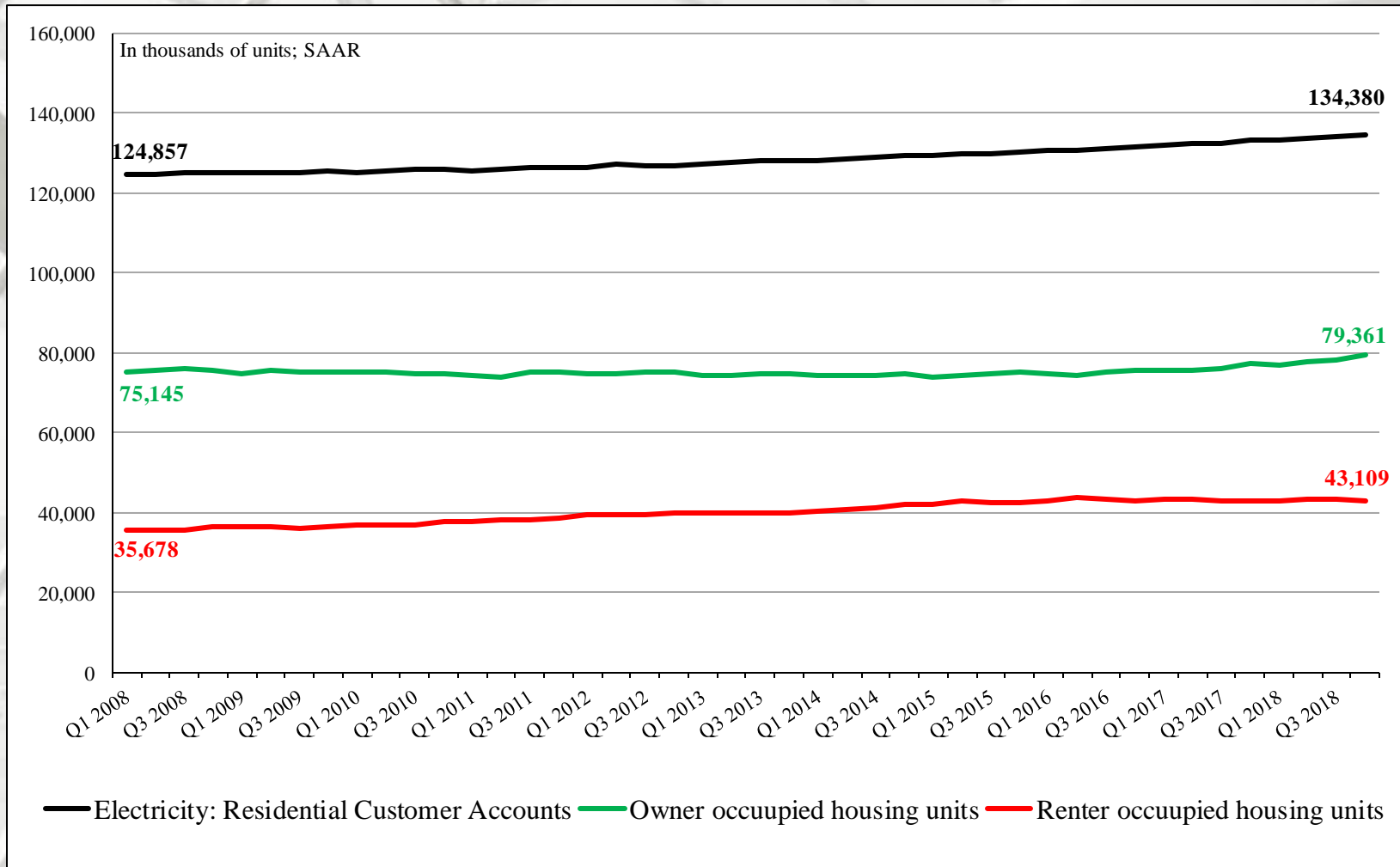
## Home Ownership Rate x Age Class

All age cohorts have seen a decline in home ownership. However, the declines are worse for the ≤ 35-year old age group and the +35 to 44 cohort.

# Residential Electricity Customer Accounts (yearly)



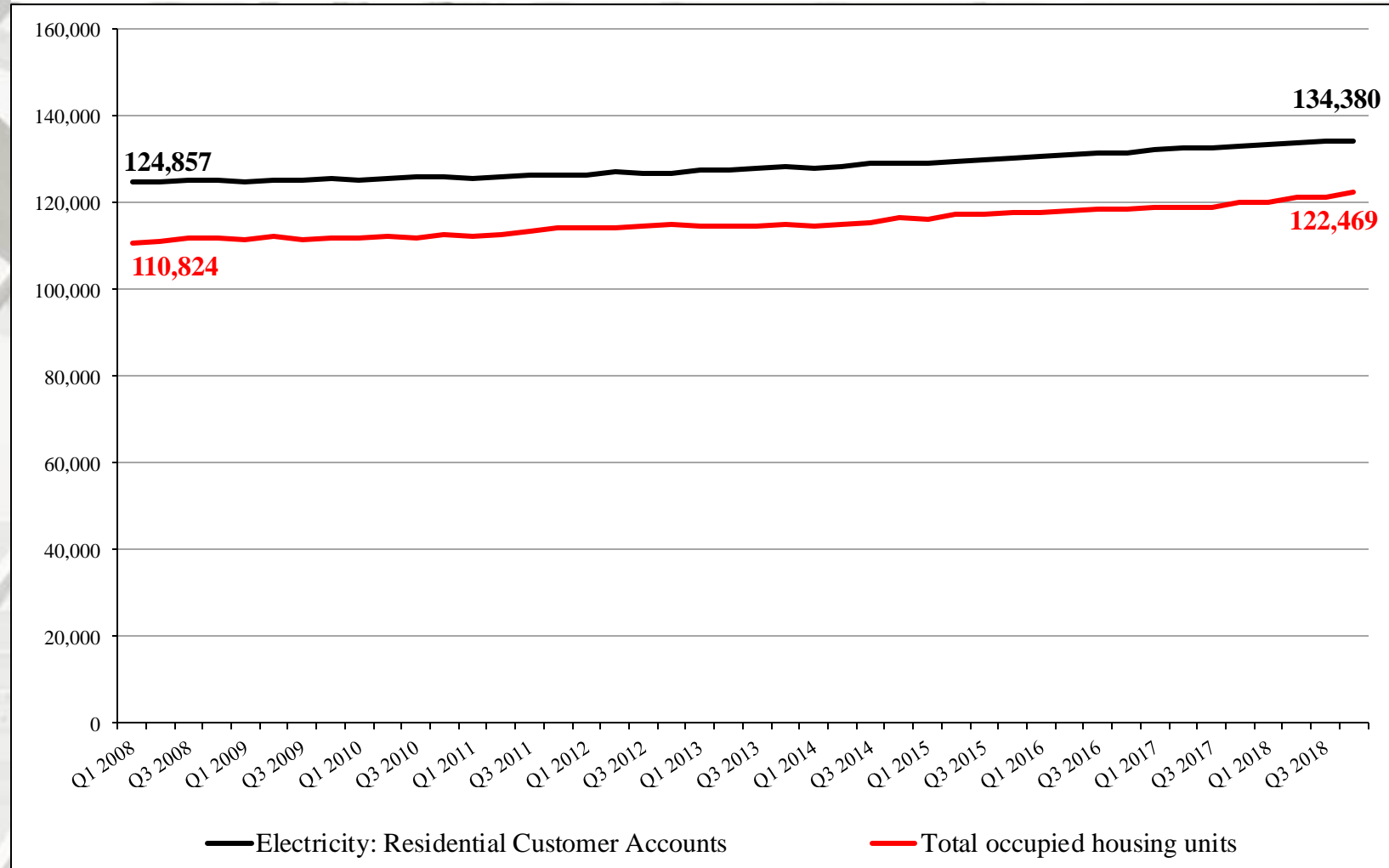
# Residential Electricity Customers & Occupied + Renter Houses



## Electricity vs. Occupied Count

EIA reported a total of 134.4 mm electricity accounts for 2018; the U.S. Census reported a total of 121.5mm occupied houses.

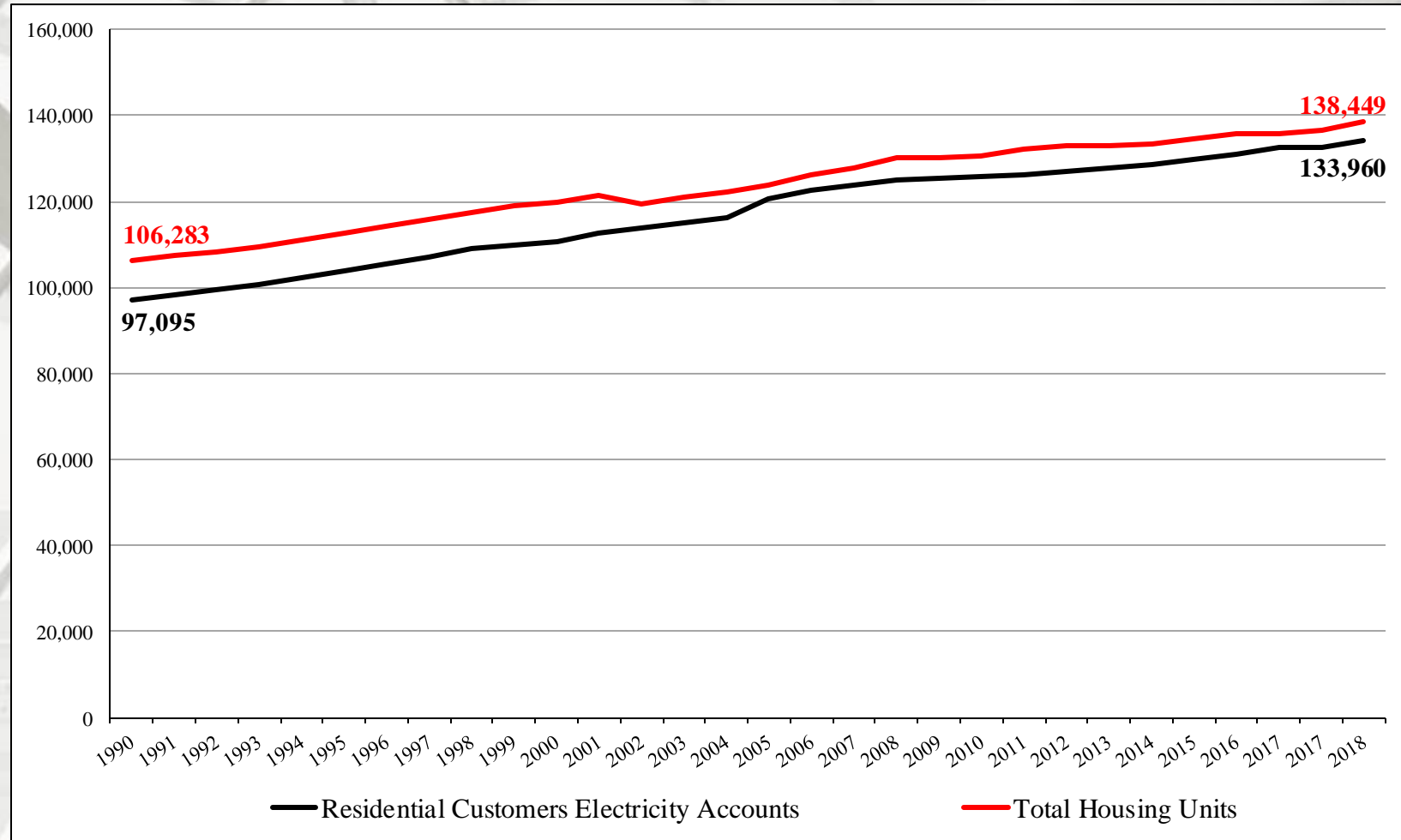
# Residential Electricity Customers vs. Occupied Houses



## Electricity Accounts vs. Occupied Count

EIA reported a total of 134.4 mm electricity accounts for 2018; the U.S. Census reported a total of 121.5 mm occupied houses. In some sense, they may be viewed as a slight positive. Note that this is not a Census count of ALL housing units in the U.S.

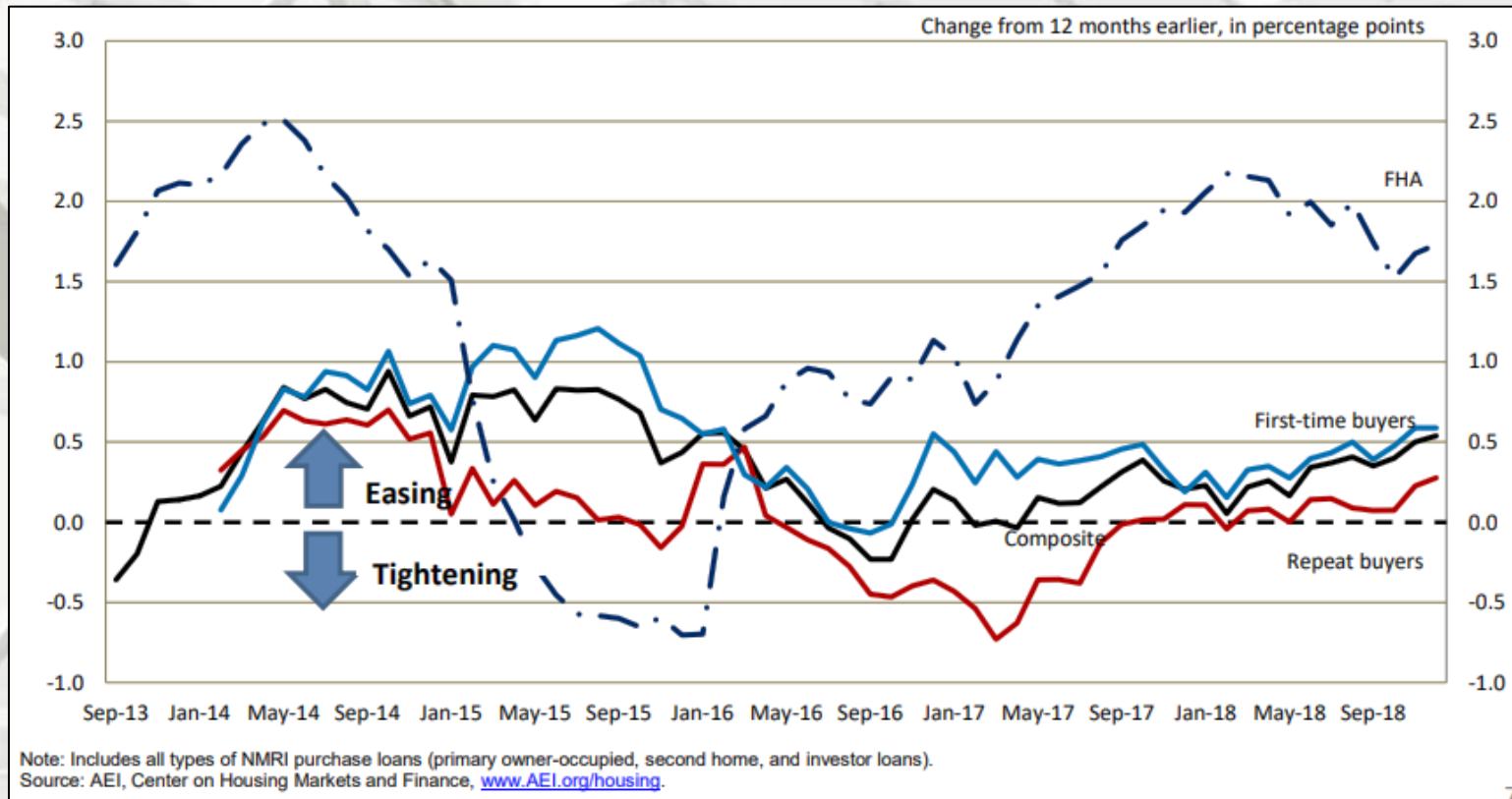
# Residential Electricity Customers & Total Housing Units



## Electricity Accounts vs. Total House Count

Census reported a total of 138.449 mm housing units and EIA reported a total of 134.4 mm electricity accounts for 2018.

# First-Time House Buyers



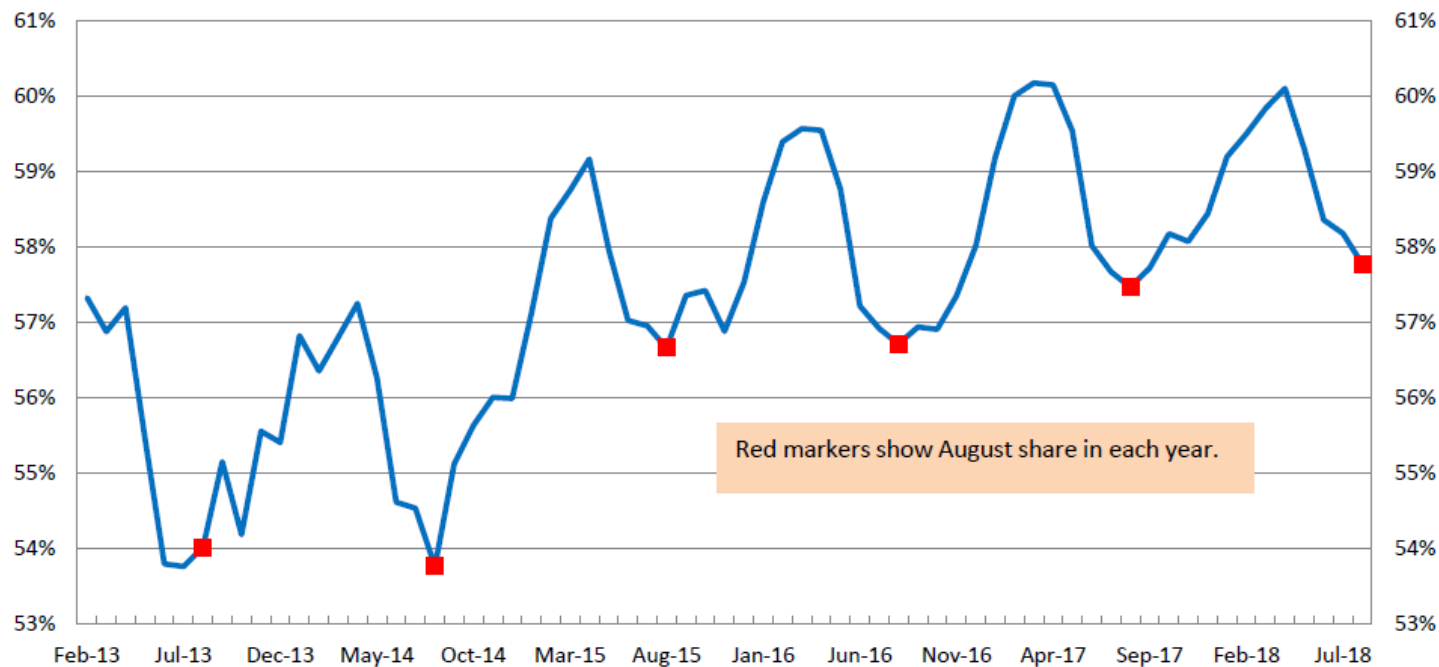
## Credit Easing = Punchbowl Spiking Continues, Led by FHA

“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 Purchase Loan Share

*Agency FTB share for August stood at 57.8%, up 0.3 ppt from a year ago. FTB share has likely reached saturation with tight inventory holding back buyers. An expanding economy and further credit easing will help maintain current levels as they offset higher prices and higher mortgage rates.*



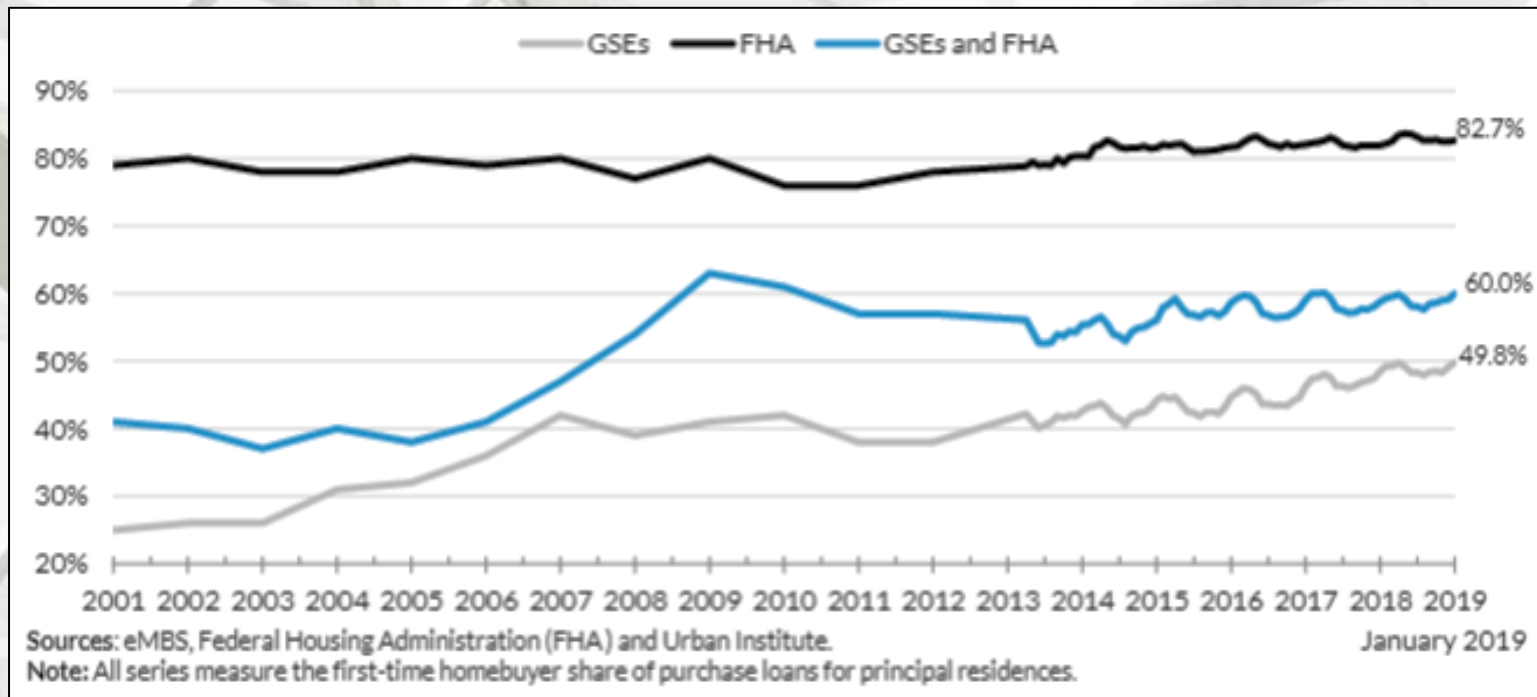
Note: First-time buyer volume not available before February 2013.

Source: AEI Housing Center, [www.AEI.org/housing](http://www.AEI.org/housing).

170



# First-Time House Buyers



## Urban Institute

“In January 2019, the first-time homebuyer (FTHB) share of FHA and GSE purchase loans both increased, with the combined FTHB share reaching 60.0 percent in January 2019, the highest level in two years. The FTHB share for FHA, which has always been more focused on first time homebuyers, stood at 82.7 percent in January 2019. The GSE FTHB share in January was 49.8 percent. The bottom table shows that based on mortgages originated in January 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

# First-Time House Buyers

## The Federal Reserve of New York

### A Better Measure of First-Time Homebuyers

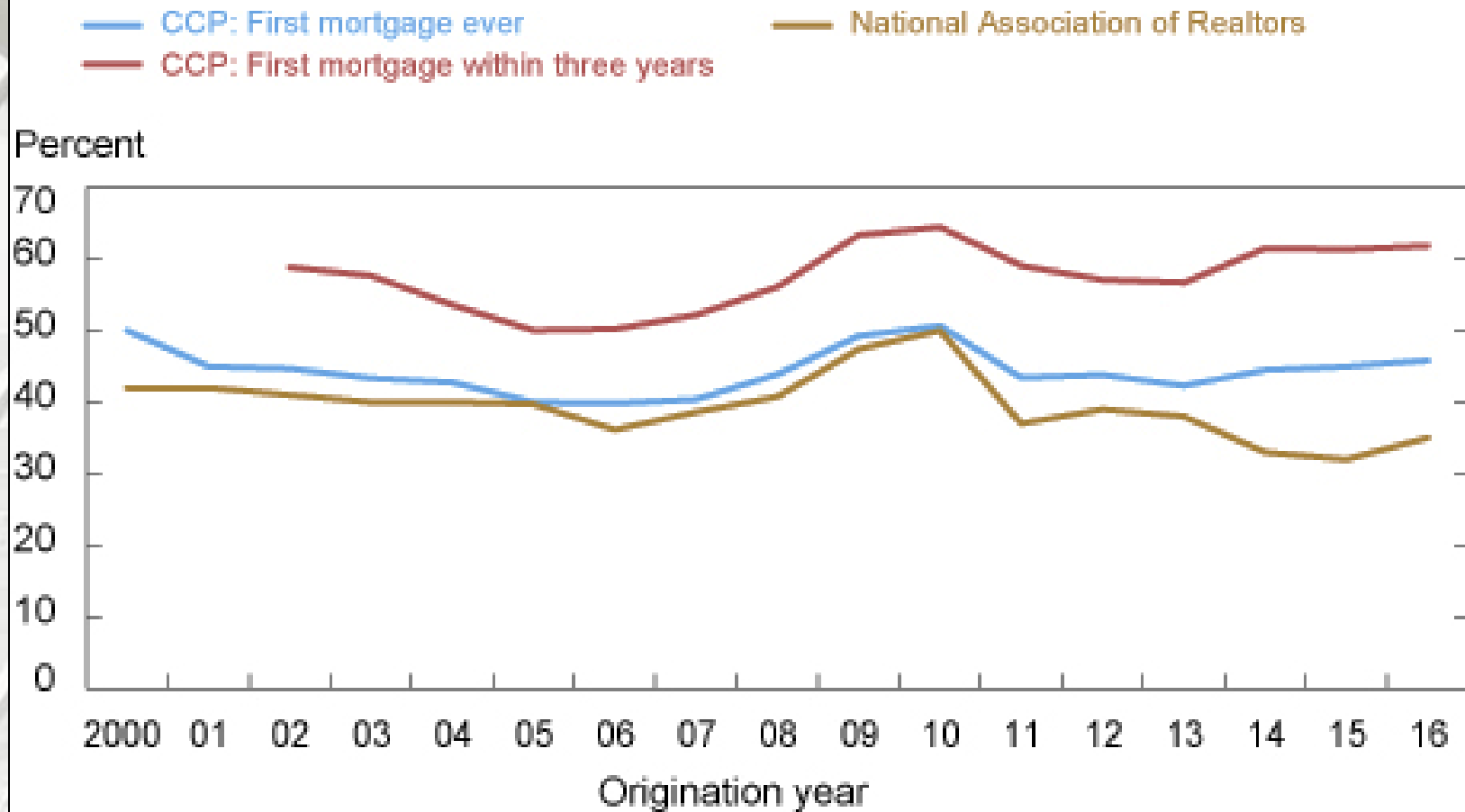
“Despite the rapid increase in house prices in the early 2000s, according to the CCP data the first-time share declined only slightly, from 44 percent in 2001 to 40 percent in 2005. As house prices declined during the housing bust, the first-time share increased and exceeded 50 percent in 2010. Over the next three years, the first-time share trended back down into the mid-40s. Since 2013, the first-time share edged higher, reaching 46 percent in 2016. Note that when we recalculate the first-time share using the official three-year look back, we consistently get a higher share, by around 10 percentage points. This result illustrates the degree to which the official data overstate the relative importance of first-time buyers in the market. The NAR survey measure of the first-time share closely tracked the CCP share from 2001 to 2010. Since then, however, the NAR first-time share has fallen below the CCP share, with an 11 percentage point gap emerging in 2016. The recent NAR data could convey a concern about credit availability for first-time buyers as evidenced by their apparent declining share. However, this decline is not present in the CCP data.

And so, using this new measure of first-time buyers to analyze the dynamics of first-time buyers over the last seventeen years, and the source of mortgage funding for this important and interesting group, we find that despite ups and downs resulting from the housing boom and bust, the first-time buyer share in 2016 is similar to its level in the early 2000s. In our next post, we will look at the changing characteristics of first-time buyers themselves over time.” – Donghoon Lee, Officer, Research and Statistics Group, The Federal Reserve Bank of New York and Joseph Tracy, Executive Vice President and Senior Advisor to the President of the Federal Reserve Bank of Dallas

# First-Time House Buyers

The Federal Reserve of New York

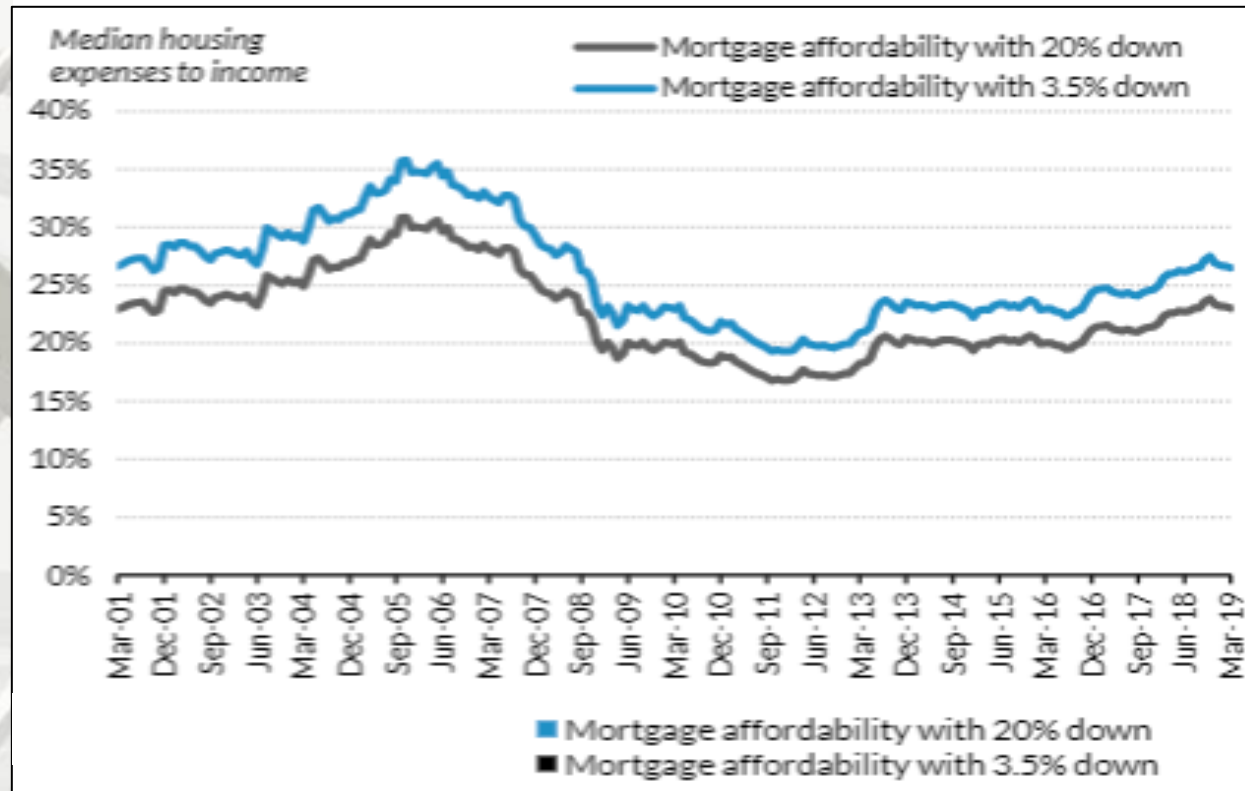
First-Time Buyer Share Has Been Relatively Stable



Sources: National Association of Realtors surveys; New York Fed CCP/Equifax data; authors' calculations.

# Housing Affordability

## National Housing Affordability Over Time



### Urban Institute

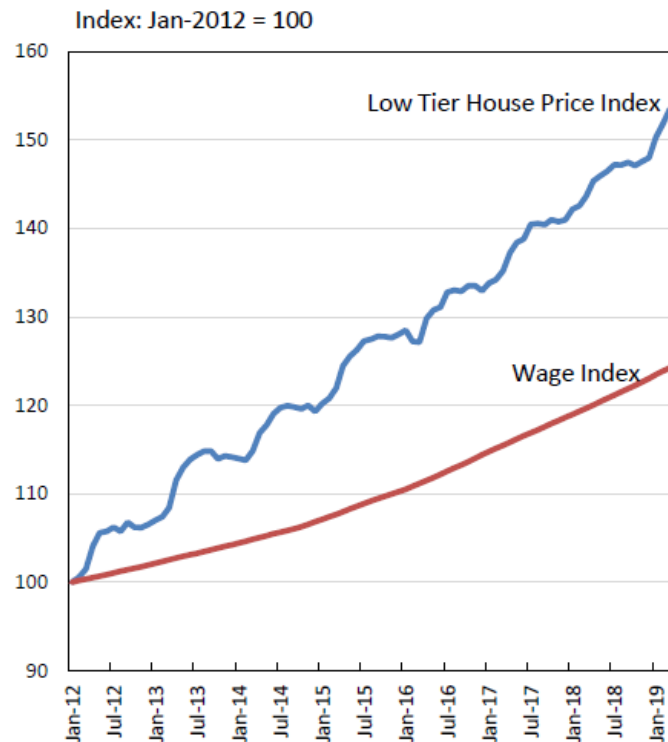
“Home prices remain affordable by historical standards, despite price increases over the last 7 years, as interest rates remain relatively low in a historical context. As of March 2019, with a 20 percent down payment, the share of median income needed for the monthly mortgage payment stood at 23.0 percent; with 3.5 down, it is 26.5 percent. As of February, the median housing expenses to income ratio was 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

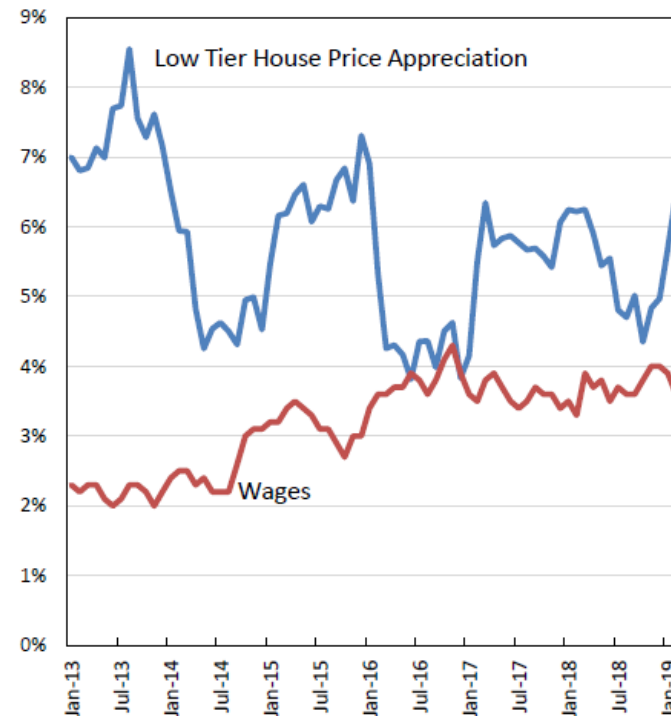
## Wage Growth relative to House Price Growth

***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 picking up steam again, 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.***

Cumulative Growth



Annual Growth Rate



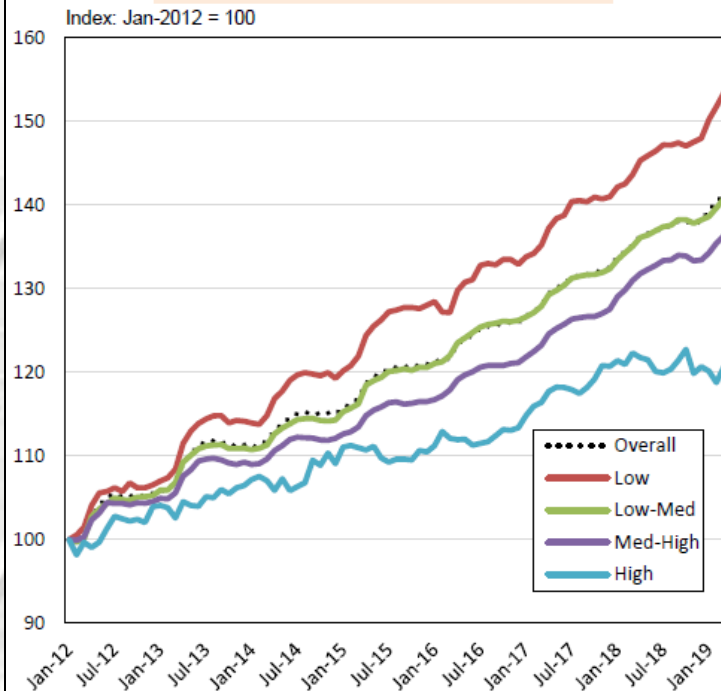
Source: Current Population Survey, Bureau of Labor Statistics, and Federal Reserve Bank of Atlanta Calculations. AEI Housing Center, [www.AEI.org/housing](http://www.AEI.org/housing).

# Housing Affordability

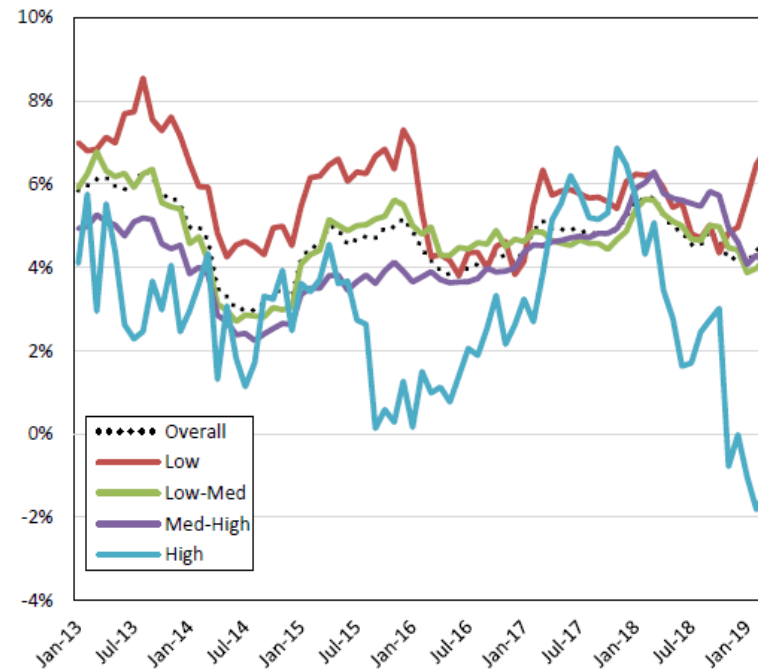
## National House Price Appreciation (HPA) by Price Tier

*In March, the low price tier not only continued, but reaccelerated its unsustainable trend (left panel). In March 2019, house prices in the low price tier appreciated at 6.8% year-over-year (yoy) - the strongest rate of growth since January 2016 (right panel). In the low-medium and medium-high tiers, they increased at 4.2% and 4.1%, respectively. House prices in the high tier (about 8% of the market) continued to decline at a yoy rate of 1.4%.*

Home Price Appreciation by Tier



Year-over-Year HPA - by Tier



Note: Data for 2019:Q1 are preliminary. Price tiers are set at the metro level and are defined as follows: Low: all sales at or below the 40th percentile of FHA sales prices; Low-Medium: all sales at or below the 80th percentile of FHA sales prices; Medium-High: all sales at or below the 125% of the GSE loan limit; and High: Rest. HPAs are smoothed around the times of FHFA loan limit changes. Source: AEI Housing Center, [www.aei.org/housing](http://www.aei.org/housing).

# Mortgage Credit Availability

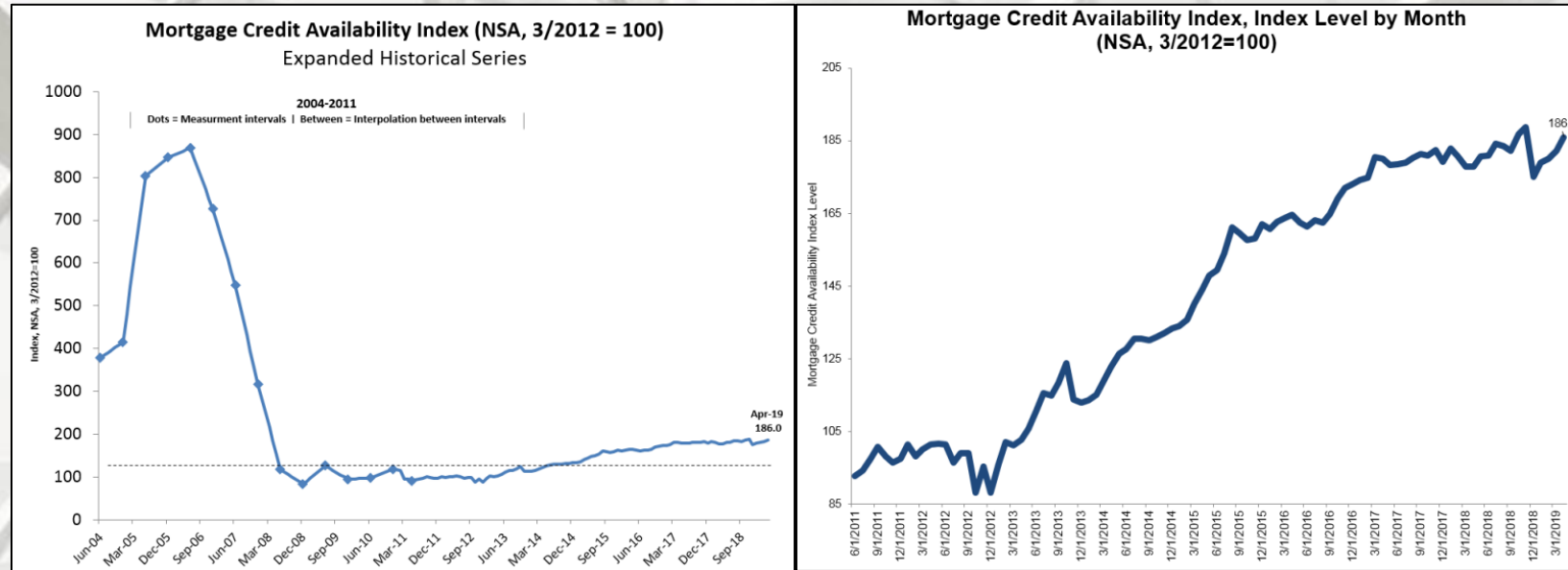
## Mortgage Credit Availability Increased in April

“Mortgage credit availability increased in April 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 2.1 percent to 186.0 in April. 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 (4.3 percent), while the Government MCAI was unchanged. Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 6.8 percent, and the Conforming MCAI increased by 1.2 percent.

Credit supply increased 2 percent in April and was driven by a 7 percent gain in the jumbo index, which reached its highest level since the beginning of the MCAI in 2011. Additionally, investors continued a trend from March of further increasing their willingness to purchase more non-QM and non-agency jumbo loans. The high-end of the purchase market had shown weakness earlier this year, before the recent decline in mortgage rates, and it appears investors are trying to remain competitive in that segment of the market.” – Joel Kan, Associate Vice President of Economic and Industry Forecasting, MBA

# Mortgage Credit Availability





# Summary

## **In conclusion:**

March 2019 United States housing data was brutal, with only single-family completions and new single-family sales reported as positive on month-over-month basis. The bell weather cue for new construction health – single-family starts – were positive only in the South region. The year-over-year data was unpleasant as well. Total starts, permits, and private residential construction spending; and single-family starts, permits, and construction spending were all decidedly negative. The bright spot was completions, as total and single-family completions were positive on a monthly and yearly basis.

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.

# Virginia Tech Disclaimer

## **Disclaimer of Non-endorsement**

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement, recommendation, or favoring by Virginia Tech. The views and opinions of authors expressed herein do not necessarily state or reflect those of Virginia Tech, and shall not be used for advertising or product endorsement purposes.

## **Disclaimer of Liability**

With respect to documents sent out or made available from this server, neither Virginia Tech nor any of its employees, makes any warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

## **Disclaimer for External Links**

The appearance of external hyperlinks does not constitute endorsement by Virginia Tech of the linked web sites, or the information, products or services contained therein. Unless otherwise specified, Virginia Tech does not exercise any editorial control over the information you March find at these locations. All links are provided with the intent of meeting the mission of Virginia Tech's web site. Please let us know about existing external links you believe are inappropriate and about specific additional external links you believe ought to be included.

## **Nondiscrimination Notice**

Virginia Tech prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the author. Virginia Tech is an equal opportunity provider and employer.

# **U.S. Department of Agriculture Disclaimer**

## **Disclaimer of Non-endorsement**

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.

## **Disclaimer of Liability**

With respect to documents available from this server, neither the United States Government nor any of its employees, makes any warranty, express or implied, including the warranties of merchantability and fitness for a particular purpose, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

## **Disclaimer for External Links**

The appearance of external hyperlinks does not constitute endorsement by the U.S. Department of Agriculture of the linked web sites, or the information, products or services contained therein. Unless otherwise specified, the Department does not exercise any editorial control over the information you may find at these locations. All links are provided with the intent of meeting the mission of the Department and the Forest Service web site. Please let us know about existing external links you believe are inappropriate and about specific additional external links you believe ought to be included.

## **Nondiscrimination Notice**

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202.720.2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call 800.795.3272 (voice) or 202.720.6382 (TDD). The USDA is an equal opportunity provider and employer.