

The Virginia Tech – U.S. Forest Service

March 2018

Housing Commentary: Section I



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

Opening Remarks

March's permits and starts data were varied, which is typical, especially for a “tweener” month. New single-family starts declined (month-over-month) basis); yet, remained positive on a yearly basis. New single-family sales returned to a positive reading. Private and single-family, multi-family, and remodeling construction spending declined on a monthly basis. Regionally, data were mixed across all sectors. The May 9th Atlanta Fed GDPNow™ residential investment spending model projects an aggregate 2.2% increase for June 2018. New private permanent site expenditures were projected for a decline of -4.6%; the improvement spending forecast was a 3.6% increase; and the manufactured/mobile housing estimate was a decrease of -6.9% (all: quarterly log change and seasonally adjusted annual rate).¹

“Useful perspective comes from looking at twelve-month moving totals, in this case the twelve months ending March 2018 versus the twelve months ending March 2017. On this basis, total construction starts were up 1%. By major sector, residential building advanced 3%, with single family housing up 7%, while multifamily housing retreated 6%.”² – Robert A. Murray, Chief Economist, Dodge Data & Analytics

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

Sources: ¹ <https://www.frbatlanta.org/-/media/Documents/cqer/researchcq/gdpnow/GDPTrackingModelDataAndForecasts.xlsx>; 5/9/18;

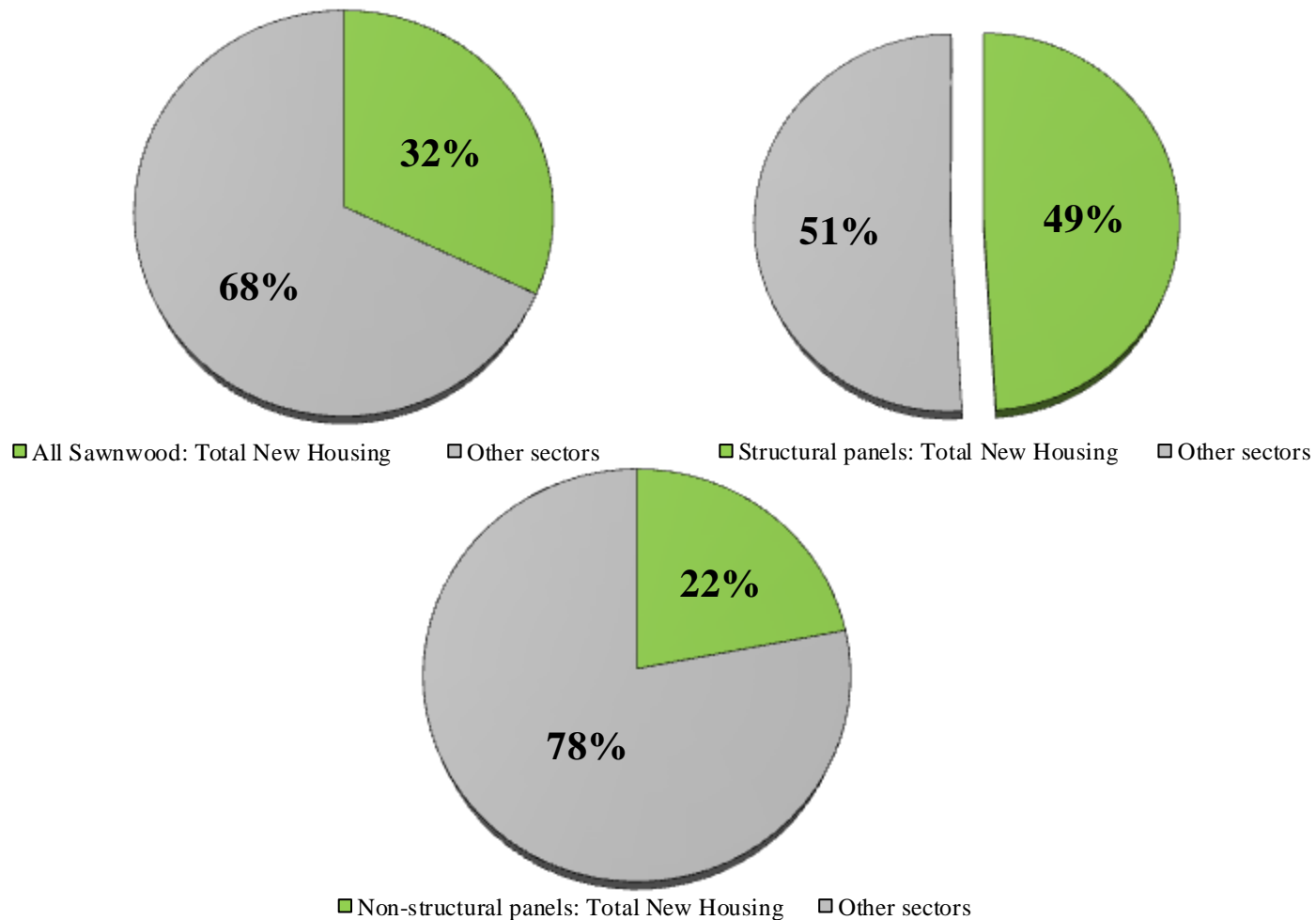
² <https://www.construction.com/news/march-construction-starts-advance-11-percent-apr-2018/>; 5/20/18

March 2018

Housing Scorecard

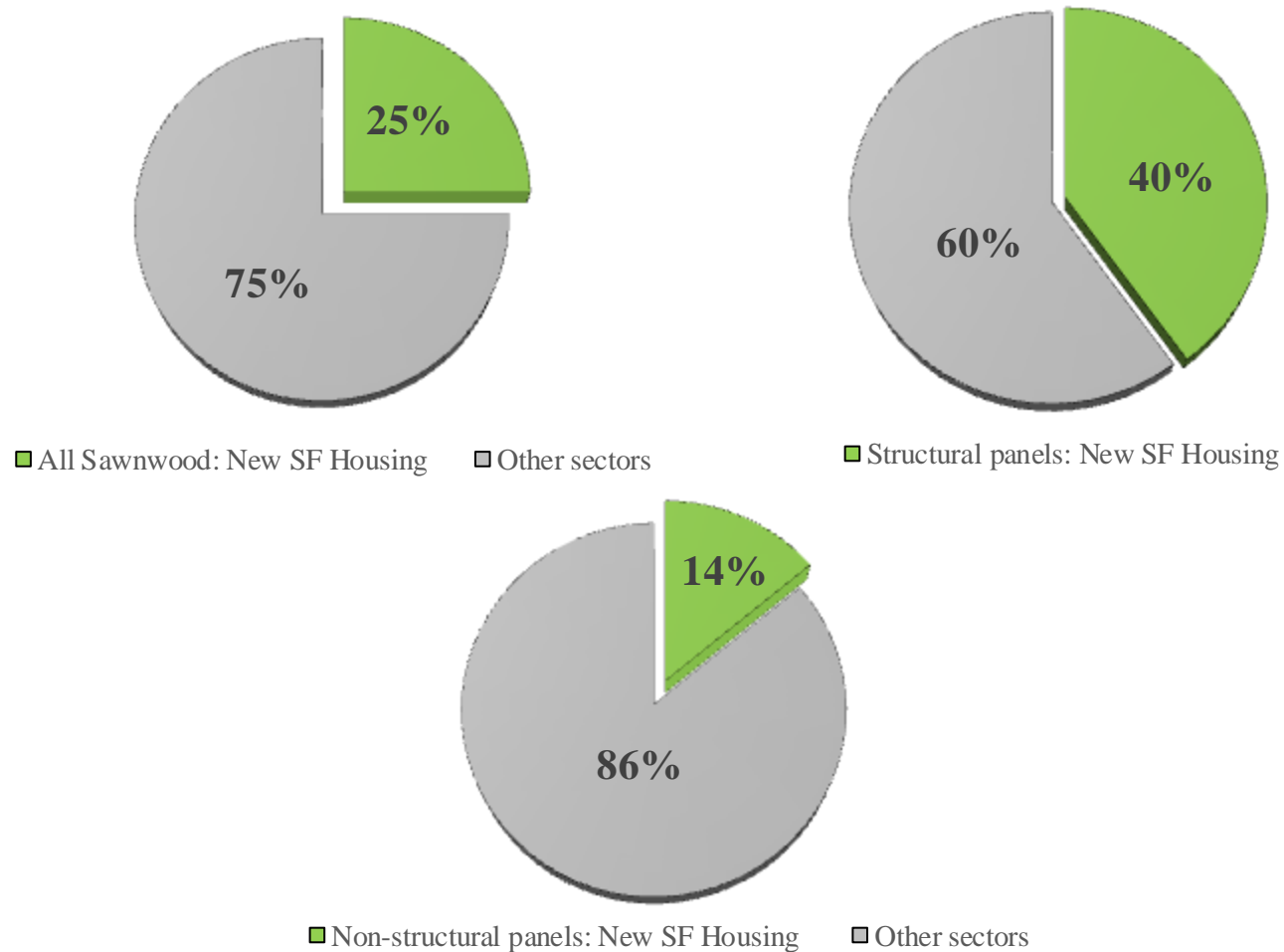
	M/M	Y/Y
Housing Starts	△ 1.9%	△ 10.9%
Single-Family Starts	▽ 3.7%	△ 5.2%
Housing Permits	△ 2.5%	△ 7.5%
Single-Family Permits	▽ 5.5%	△ 1.7%
Housing Under Construction	△ 0.3%	△ 4.7%
Single-Family Under Construction	△ 0.2%	△ 11.0%
Housing Completions	▽ 5.1%	△ 1.9%
Single-Family Completions	▽ 4.7%	△ 3.7%
New Single-Family House Sales	△ 4.0%	△ 8.8%
Private Residential Construction Spending	▽ 3.5%	△ 5.3%
Single-Family Construction Spending	▽ 0.4%	△ 9.7%
Existing House Sales ¹	△ 1.1%	▽ 1.2%

New Construction Percentage of Wood Products Consumption



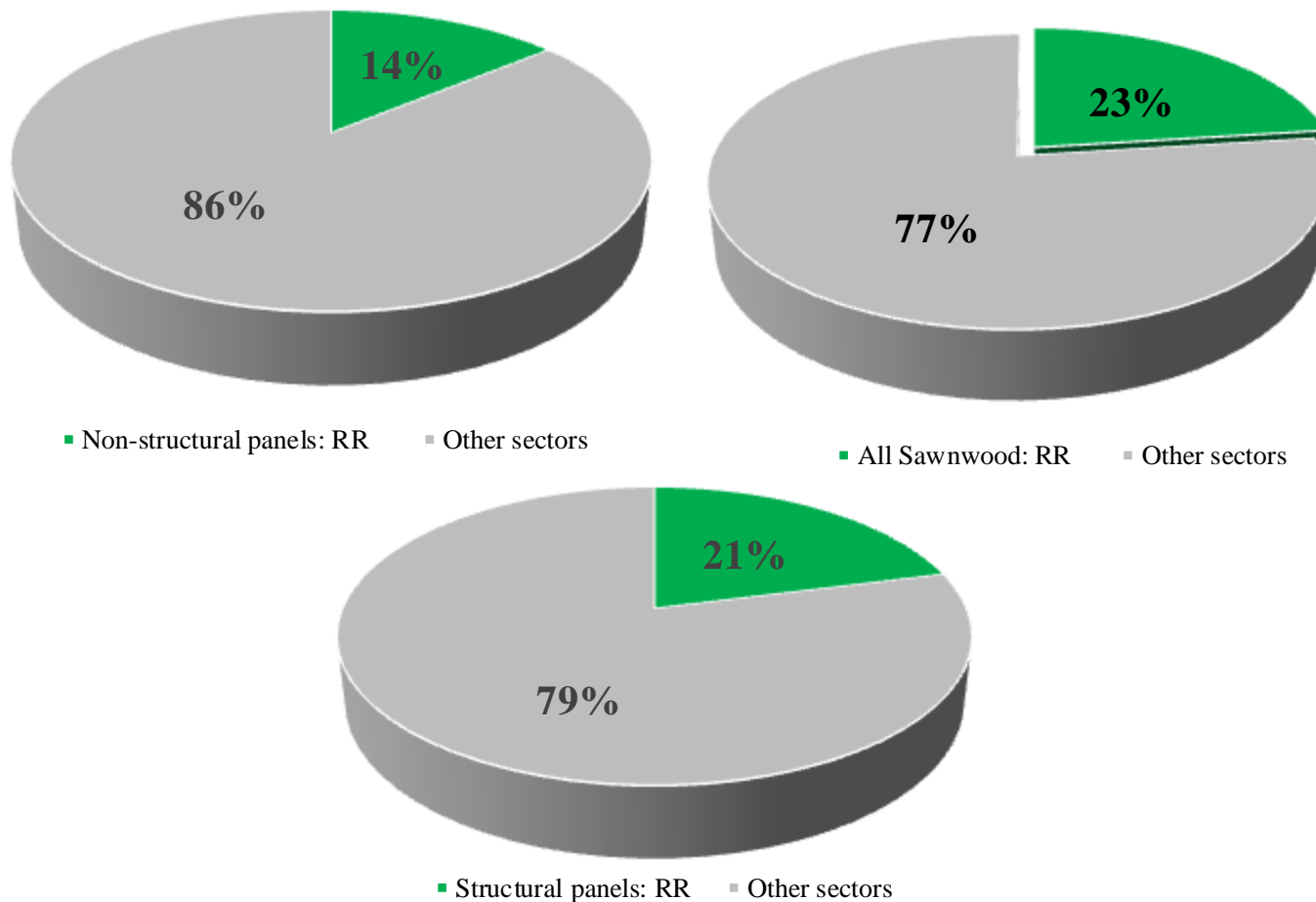
Source: U.S. Forest Service. Howard, J. and D. McKeever. 2017. U.S. Forest Products Annual Market Review and Prospects, 2013-2017

New SF Construction Percentage of Wood Products Consumption



Source: U.S. Forest Service. Howard, J. and D. McKeever. 2017. U.S. Forest Products Annual Market Review and Prospects, 2013-2017

Repair and Remodeling's Percentage of Wood Products Consumption



Source: U.S. Forest Service. Howard, J. and D. McKeever. 2017. U.S. Forest Products Annual Market Review and Prospects, 2013-2017

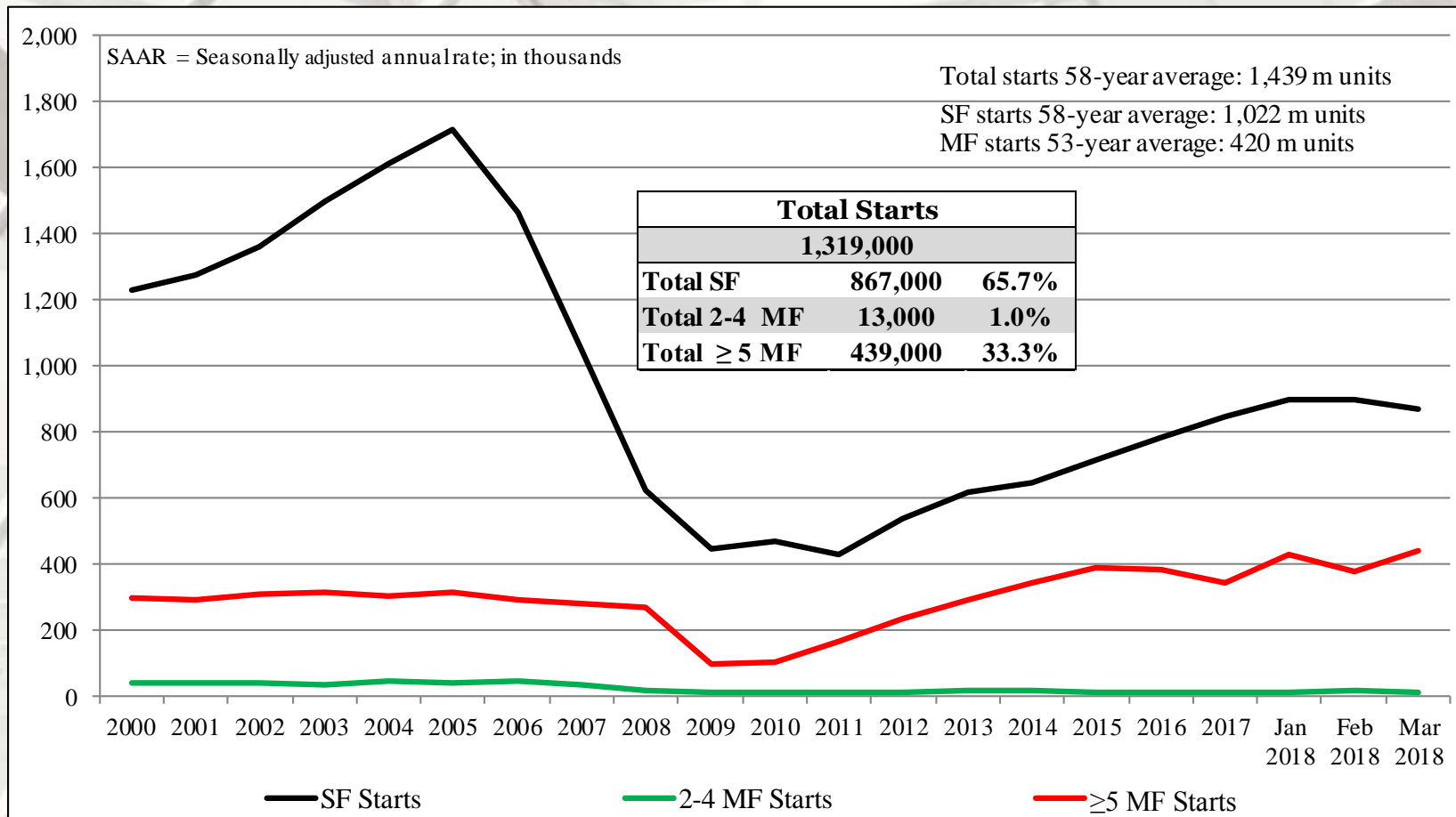
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
March	1,319,000	867,000	13,000	439,000
February	1,295,000	900,000	17,000	378,000
2017	1,189,000	824,000	10,000	355,000
M/M change	1.9	-3.7	-23.5	16.1
Y/Y change	10.9	5.2	30.0	23.7

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

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

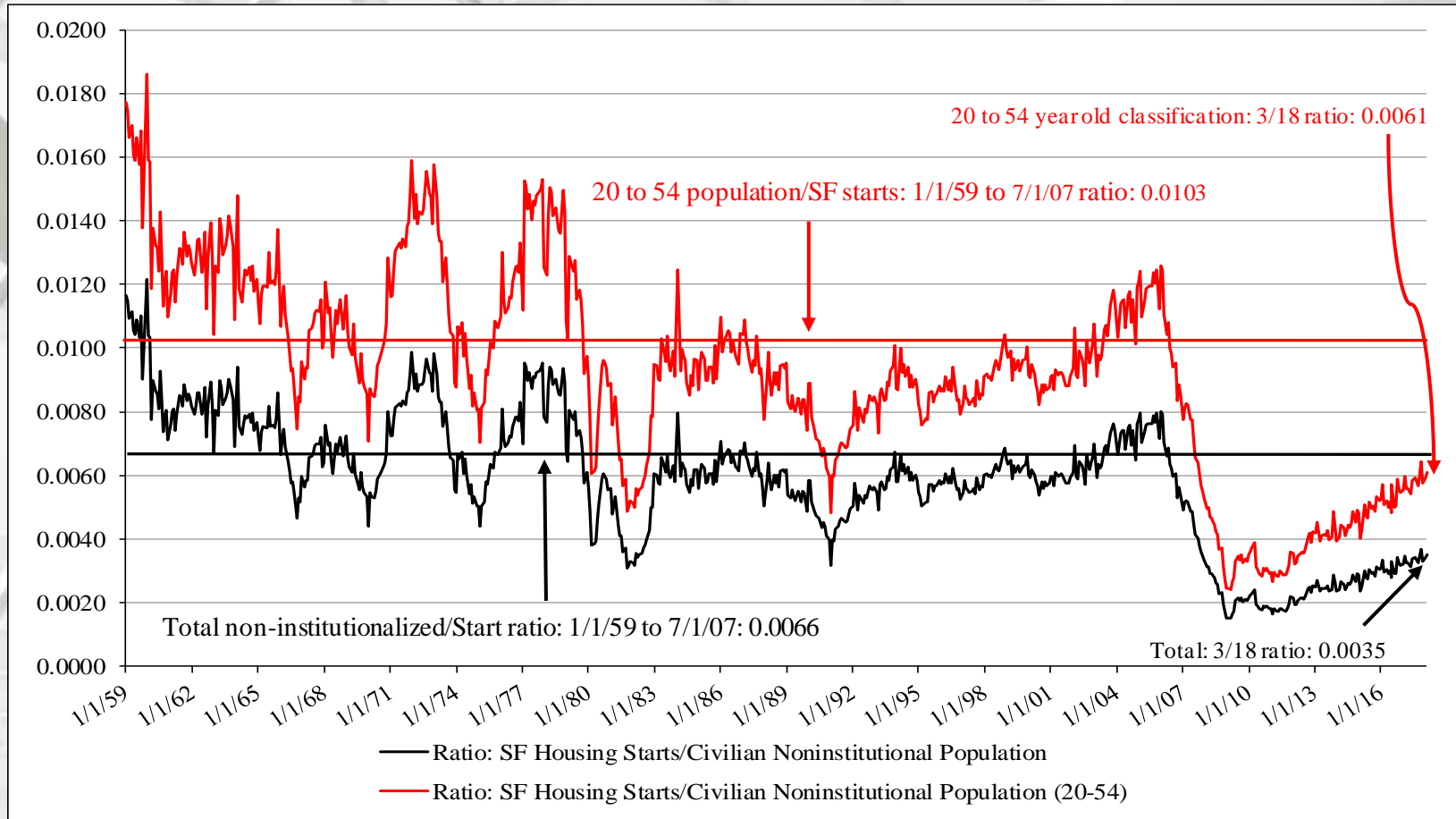
Total Housing Starts



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

* Percentage of total starts.

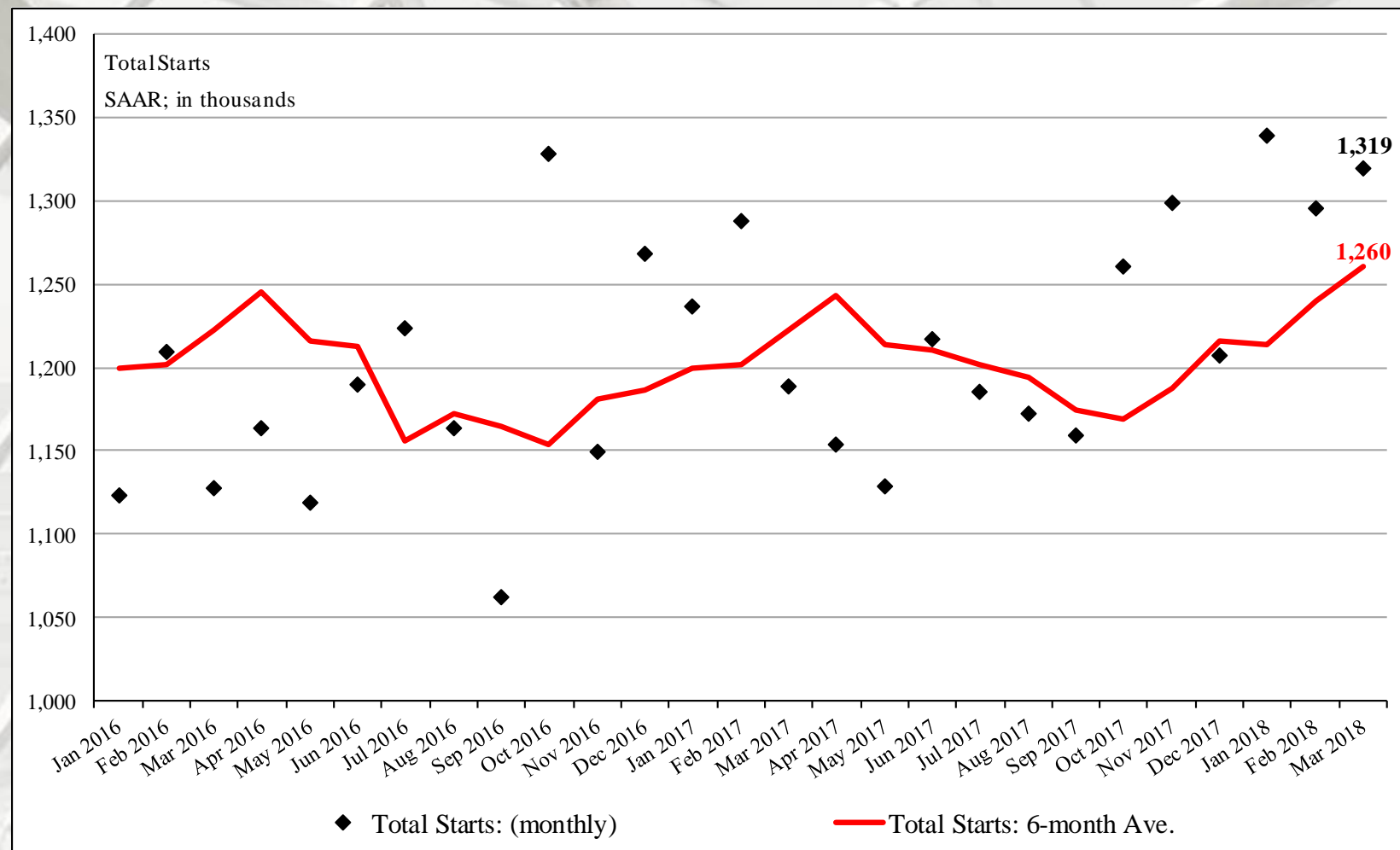
New SF Starts



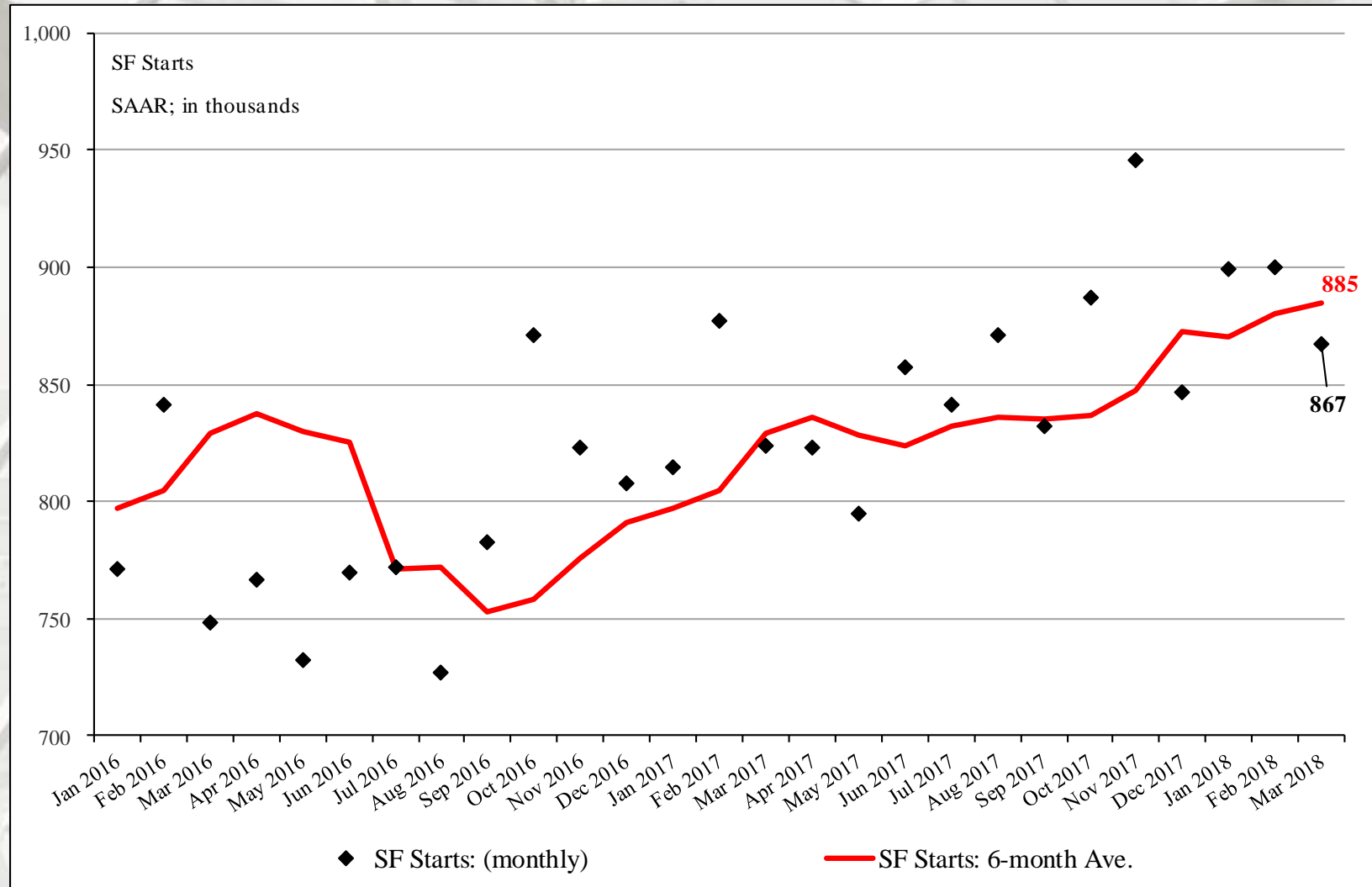
New SF starts adjusted for the US population

From March 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in March 2017 it was 0.0035 – an increase from January (0.0034). The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in March 2017 it was 0.0061 – also an increase from January (0.0059). From a population worldview, construction is less than what is necessary for changes in population (i.e., under-building).

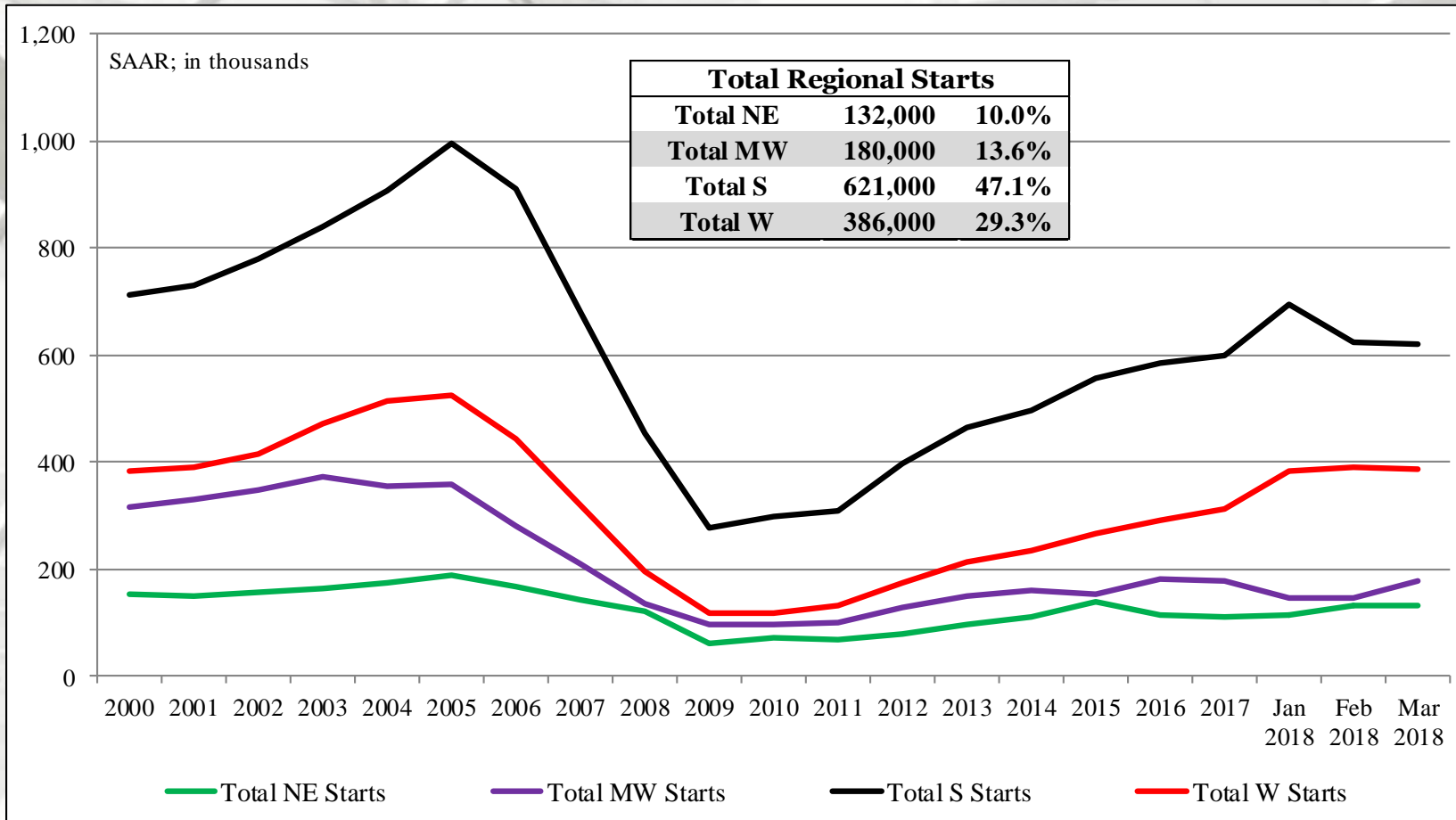
Total Housing Starts: Six-Month Average



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**
March	132,000	58,000	74,000
February	131,000	64,000	67,000
2017	116,000	65,000	51,000
M/M change	0.8	-9.4	10.4
Y/Y change	13.8	-10.8	45.1
	MW Total	MW SF	MW MF
March	180,000	146,000	34,000
February	147,000	106,000	41,000
2017	139,000	105,000	34,000
M/M change	22.4	37.7	-17.1
Y/Y change	29.5	39.0	0.0

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

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

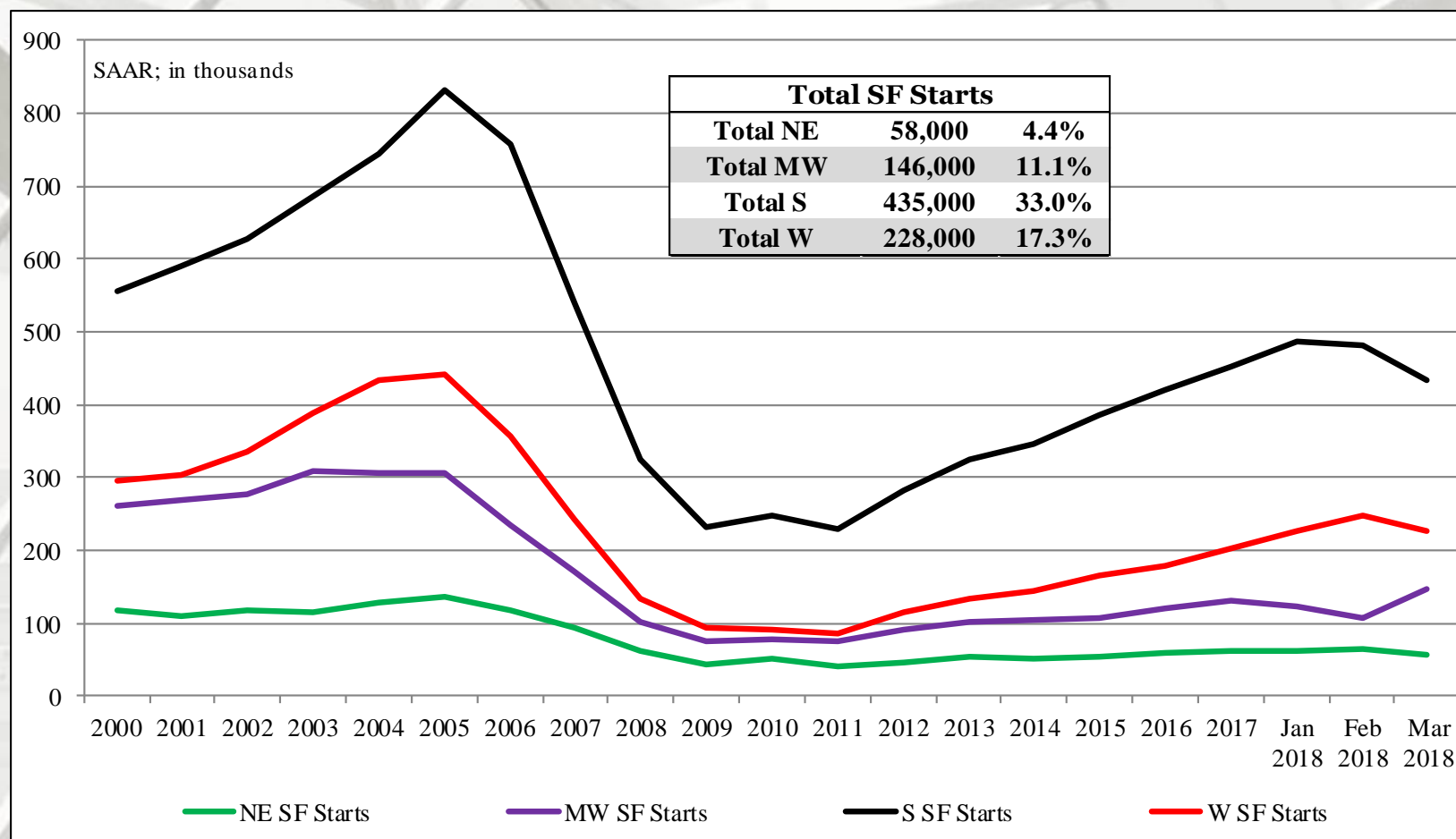
New Housing Starts by Region

	S Total	S SF	S MF**
March	621,000	435,000	186,000
February	625,000	482,000	143,000
2017	633,000	466,000	167,000
M/M change	-0.6	-9.8	30.1
Y/Y change	-1.9	-6.7	11.4
	W Total	W SF	W MF
March	386,000	228,000	158,000
February	392,000	248,000	144,000
2017	301,000	188,000	113,000
M/M change	-1.5	-8.1	9.7
Y/Y change	28.2	21.3	39.8

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

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

Total SF Housing Starts by Region

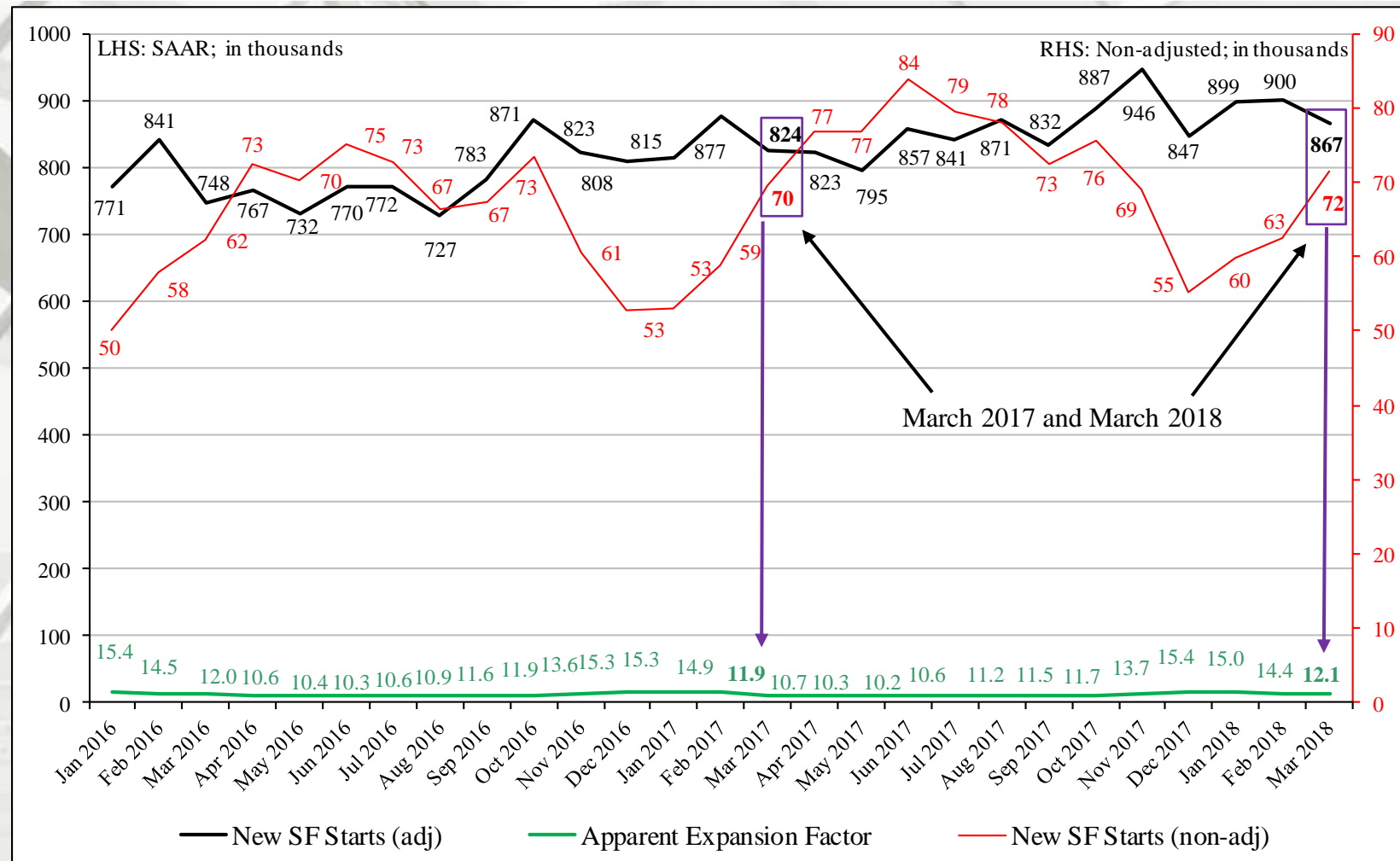


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total starts.

Nominal & SAAR SF Starts

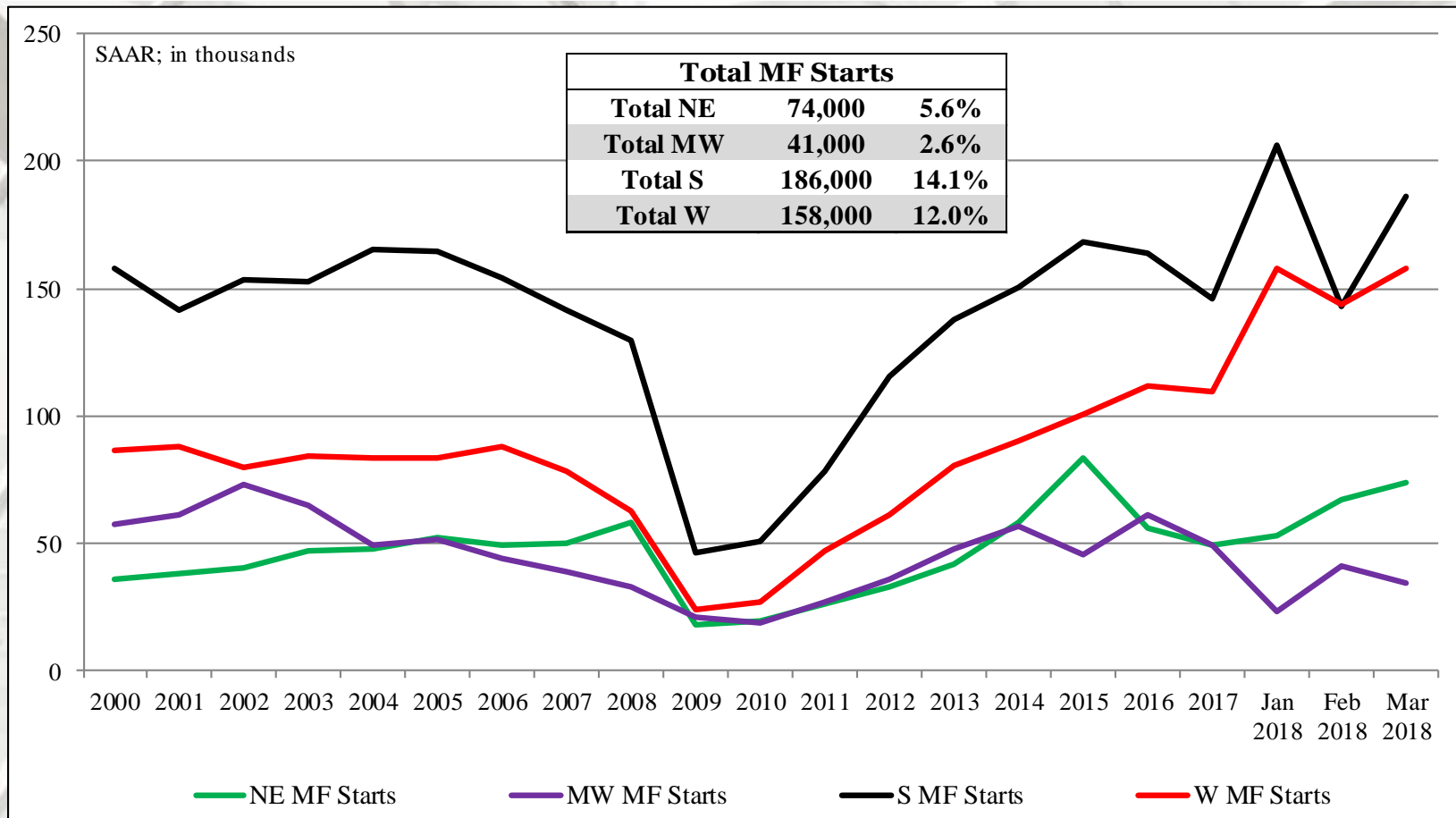


Nominal and Adjusted New SF Monthly Starts

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

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

MF Housing Starts by Region

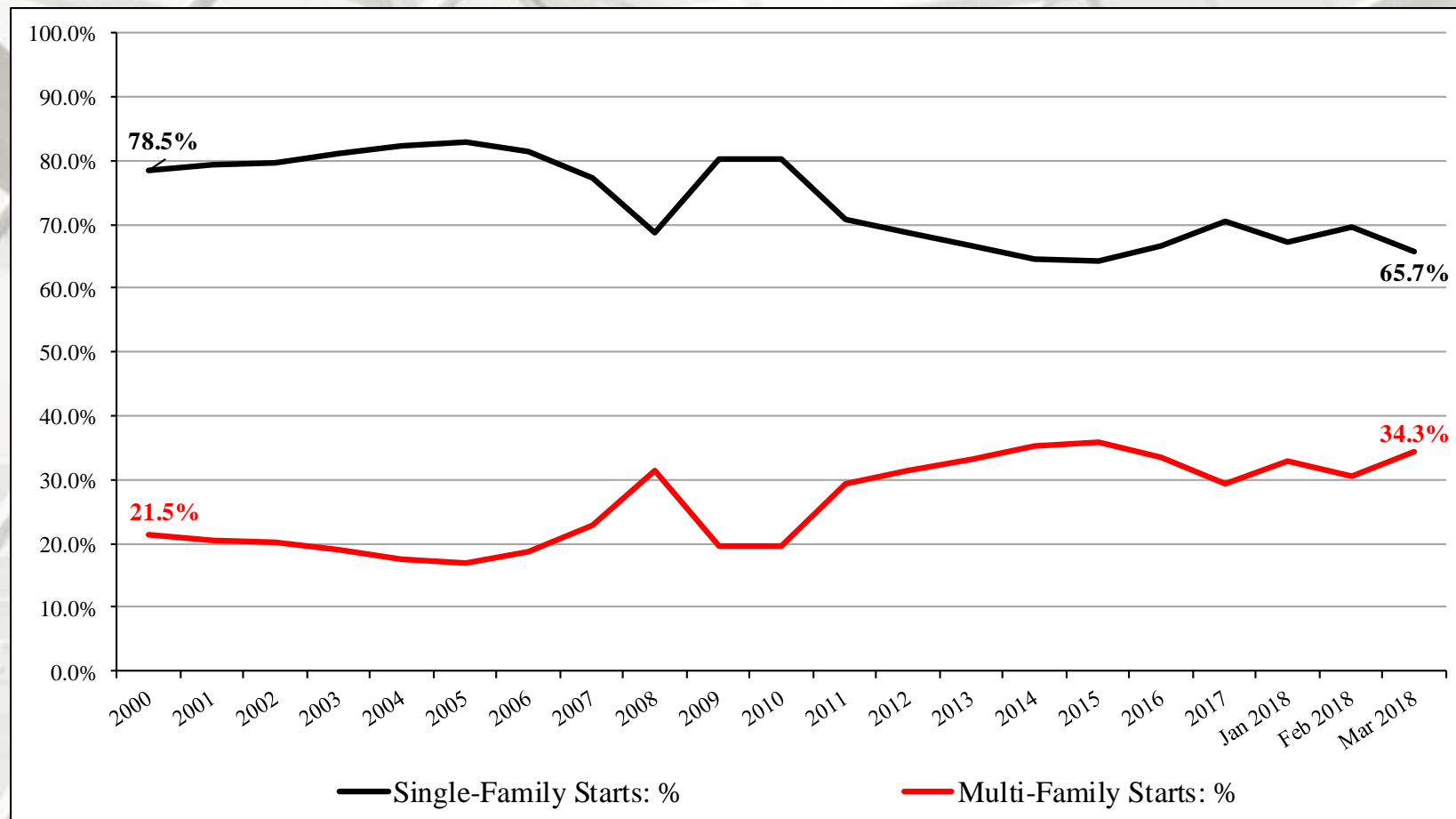


NE = Northeast, MW = Midwest, S = South, W = West

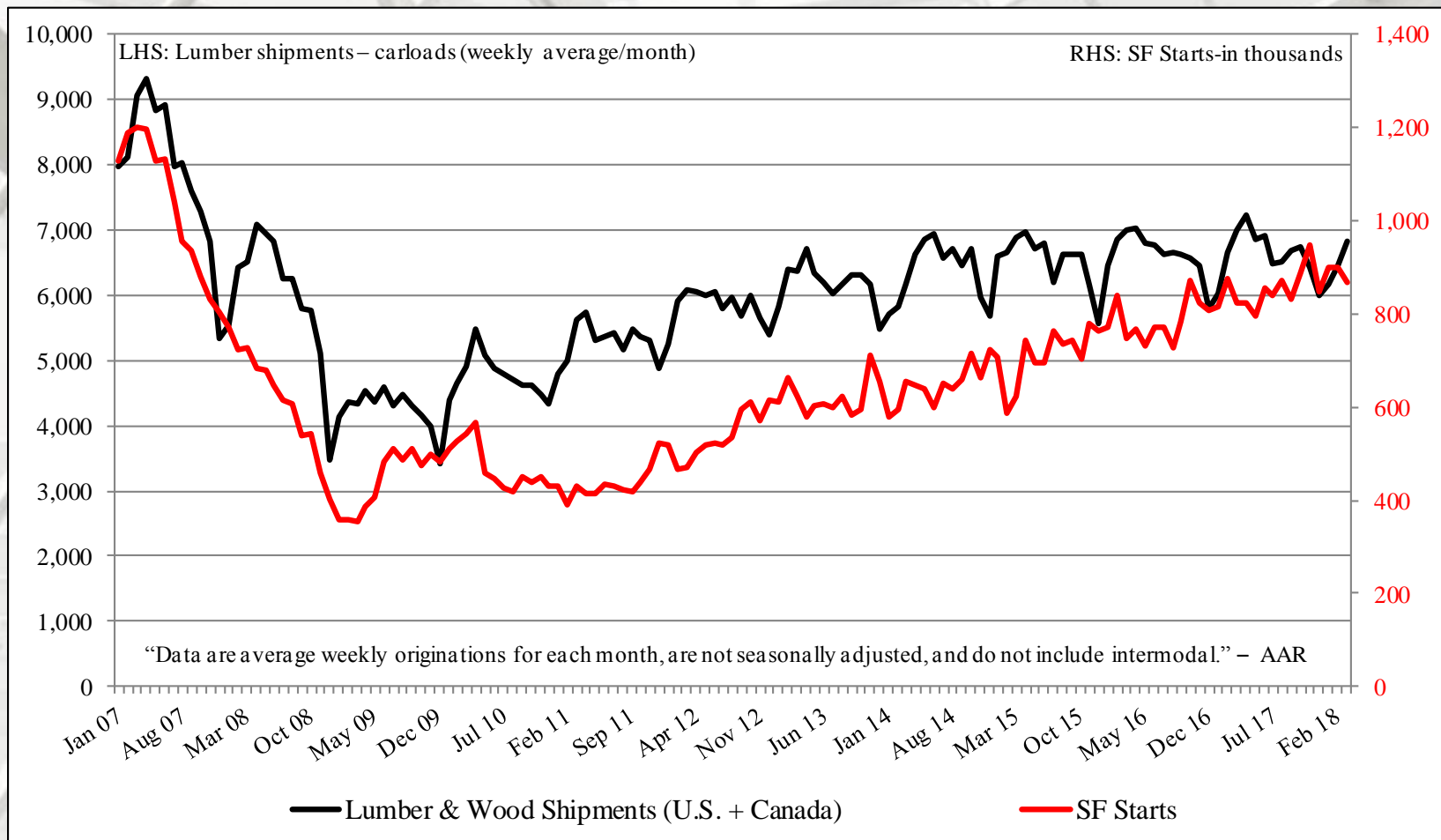
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

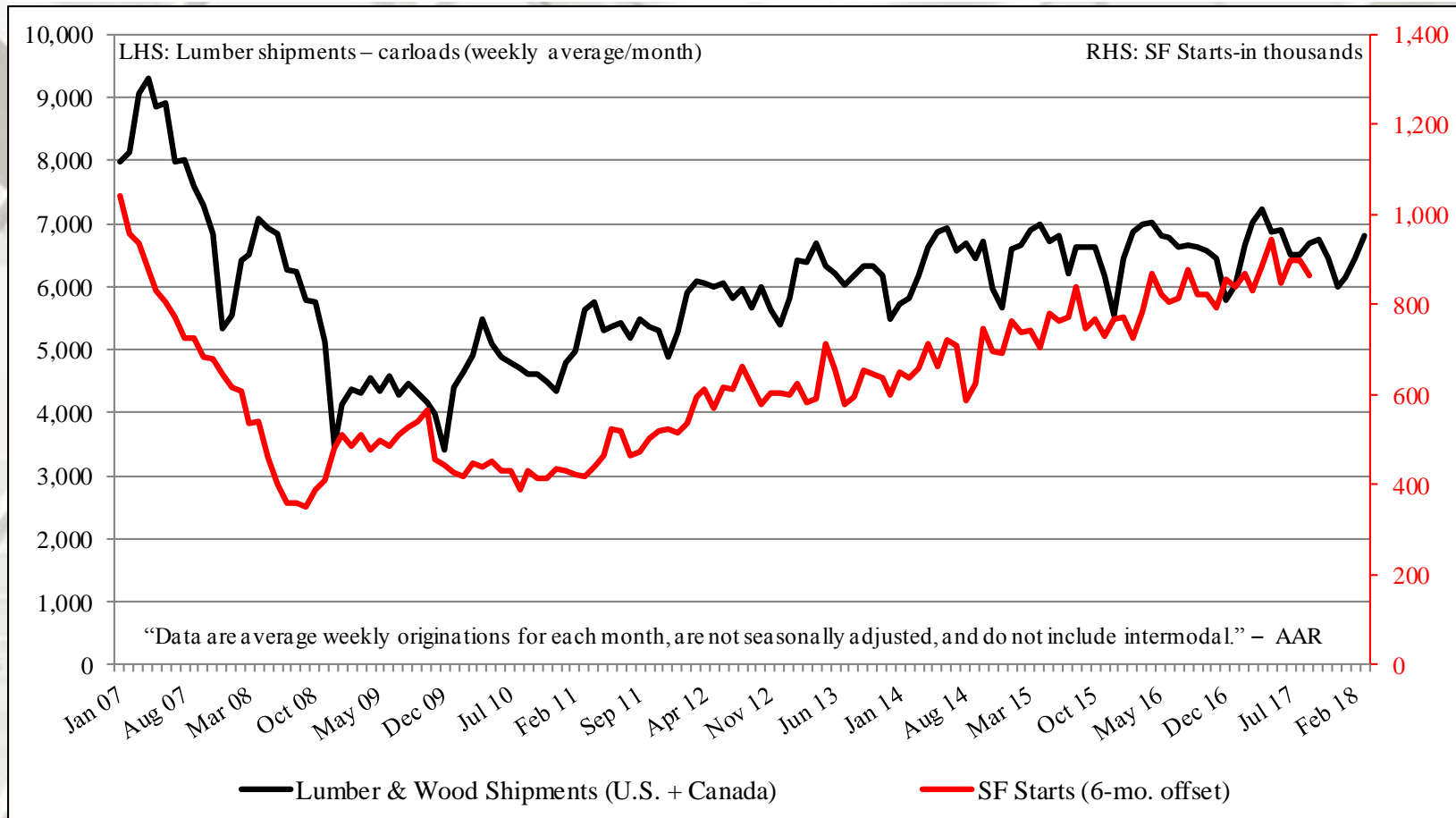
SF & MF Housing Starts (%)



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



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



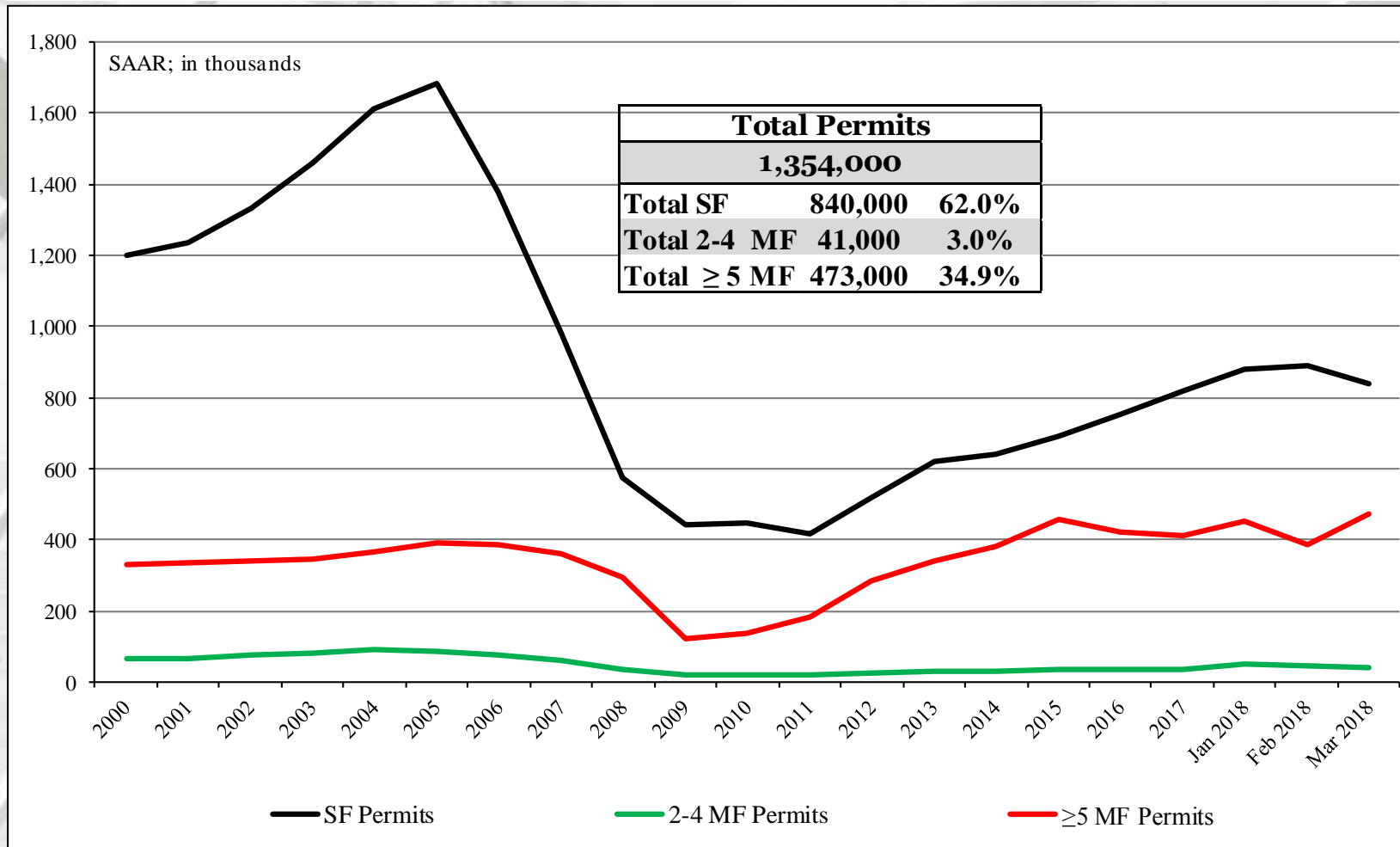
In this graph, January 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through March 2018 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge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

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
March	1,354,000	840,000	41,000	473,000
February	1,321,000	889,000	47,000	385,000
2017	1,260,000	826,000	37,000	397,000
M/M change	2.5%	-5.5%	-12.8%	22.9%
Y/Y change	7.5%	1.7%	10.8%	19.1%

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

Total New Housing Permits

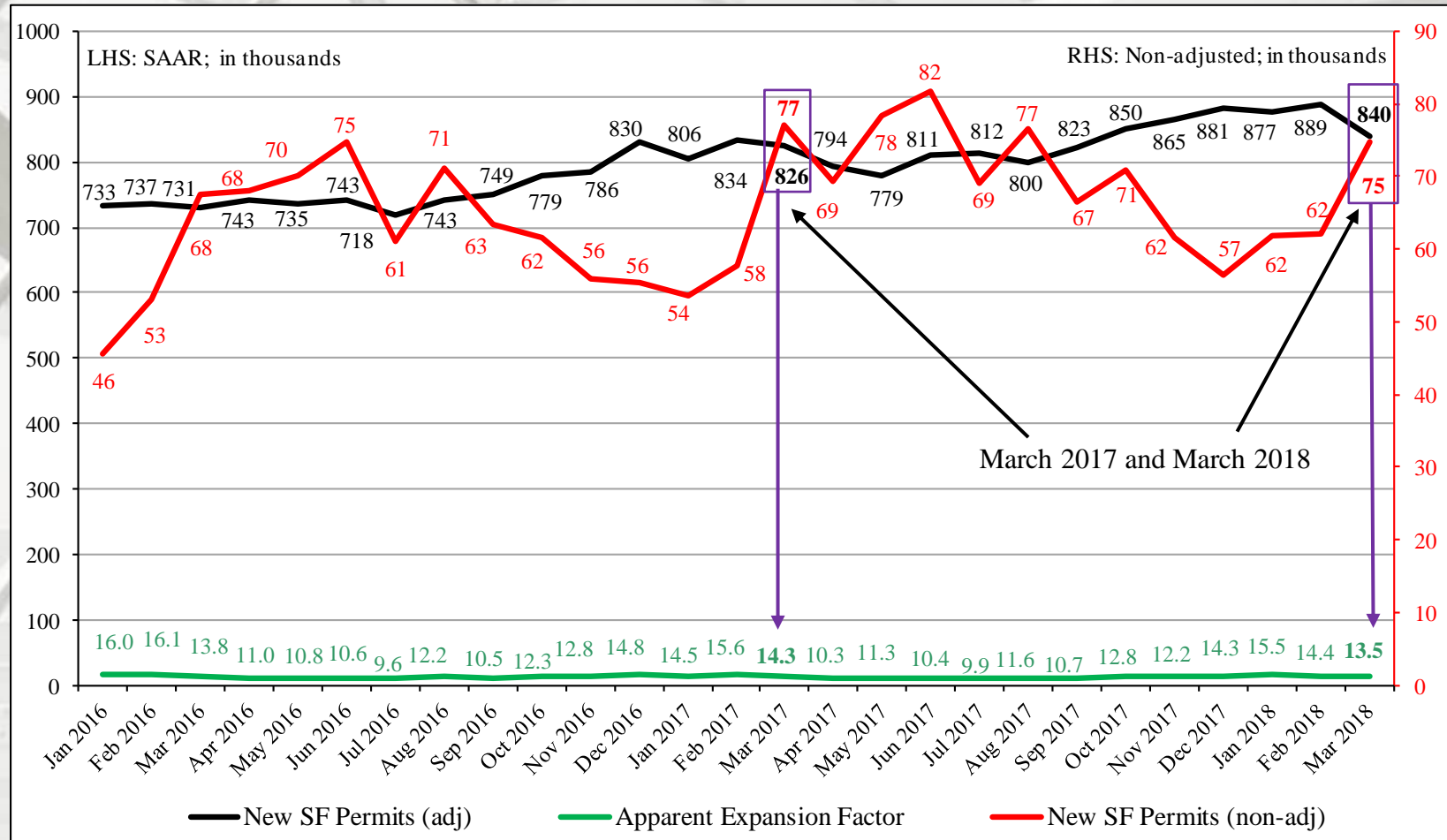


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total permits.

Nominal & SAAR SF Permits



Nominal and Adjusted New SF Monthly Permits

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

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

New Housing Permits by Region

	NE Total*	NE SF	NE MF**
March	138,000	51,000	87,000
February	146,000	63,000	83,000
2017	136,000	53,000	83,000
M/M change	-5.5%	-19.0%	4.8%
Y/Y change	1.5%	-3.8%	4.8%
	MW Total*	MW SF	MW MF**
March	205,000	123,000	82,000
February	188,000	129,000	59,000
2017	192,000	128,000	64,000
M/M change	9.0%	-4.7%	39.0%
Y/Y change	6.8%	-3.9%	28.1%

* All data are SAAR

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

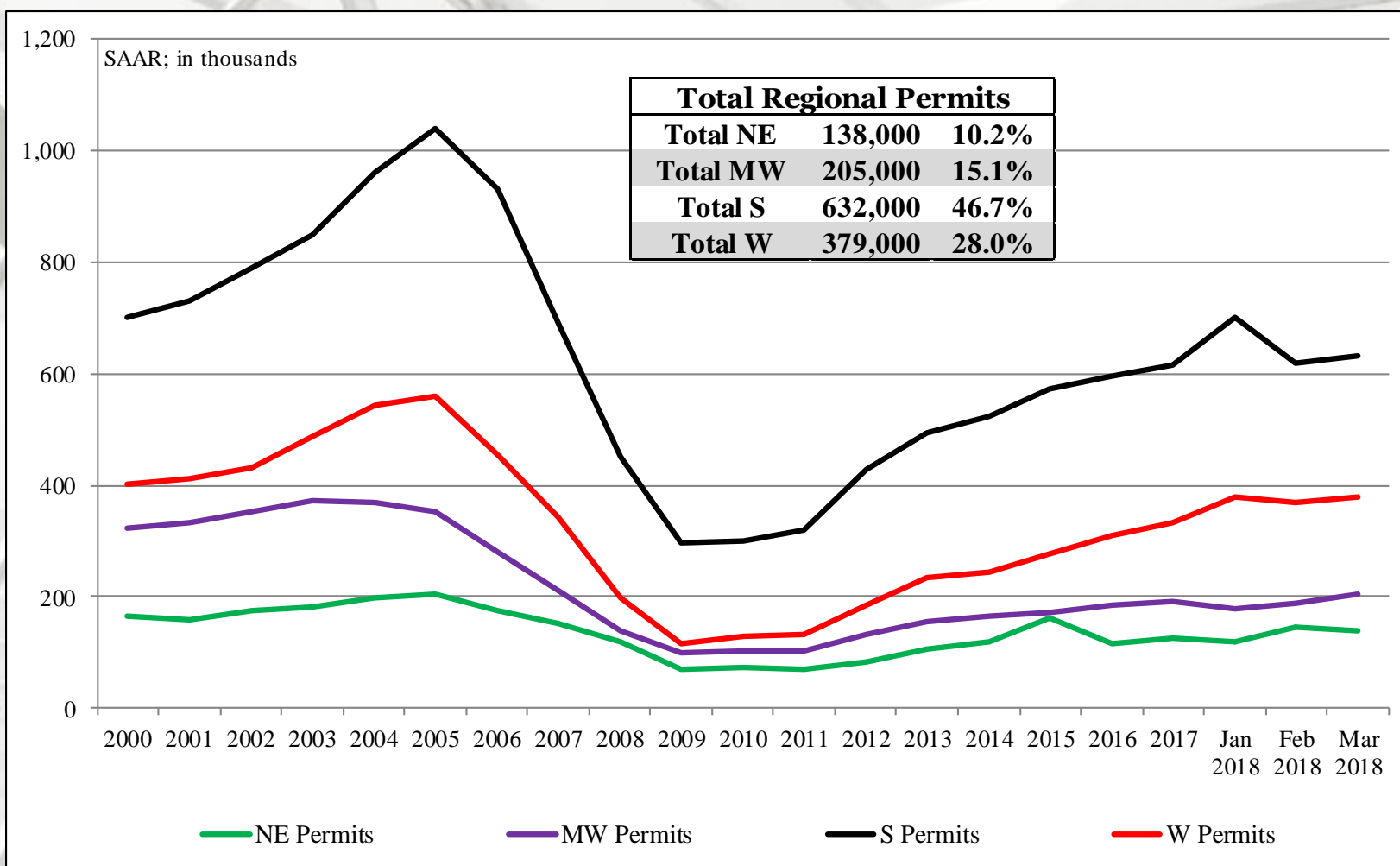
New Housing Permits by Region

	S Total*	S SF	S MF**
March	632,000	449,000	183,000
February	619,000	472,000	147,000
2017	623,000	456,000	167,000
M/M change	2.1%	-4.9%	24.5%
Y/Y change	1.4%	-1.5%	9.6%
	W Total*	W SF	W MF**
March	379,000	217,000	162,000
February	368,000	225,000	143,000
2017	309,000	189,000	120,000
M/M change	3.0%	-3.6%	13.3%
Y/Y change	22.7%	14.8%	35.0%

All data are SAAR

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

Total Housing Permits by Region

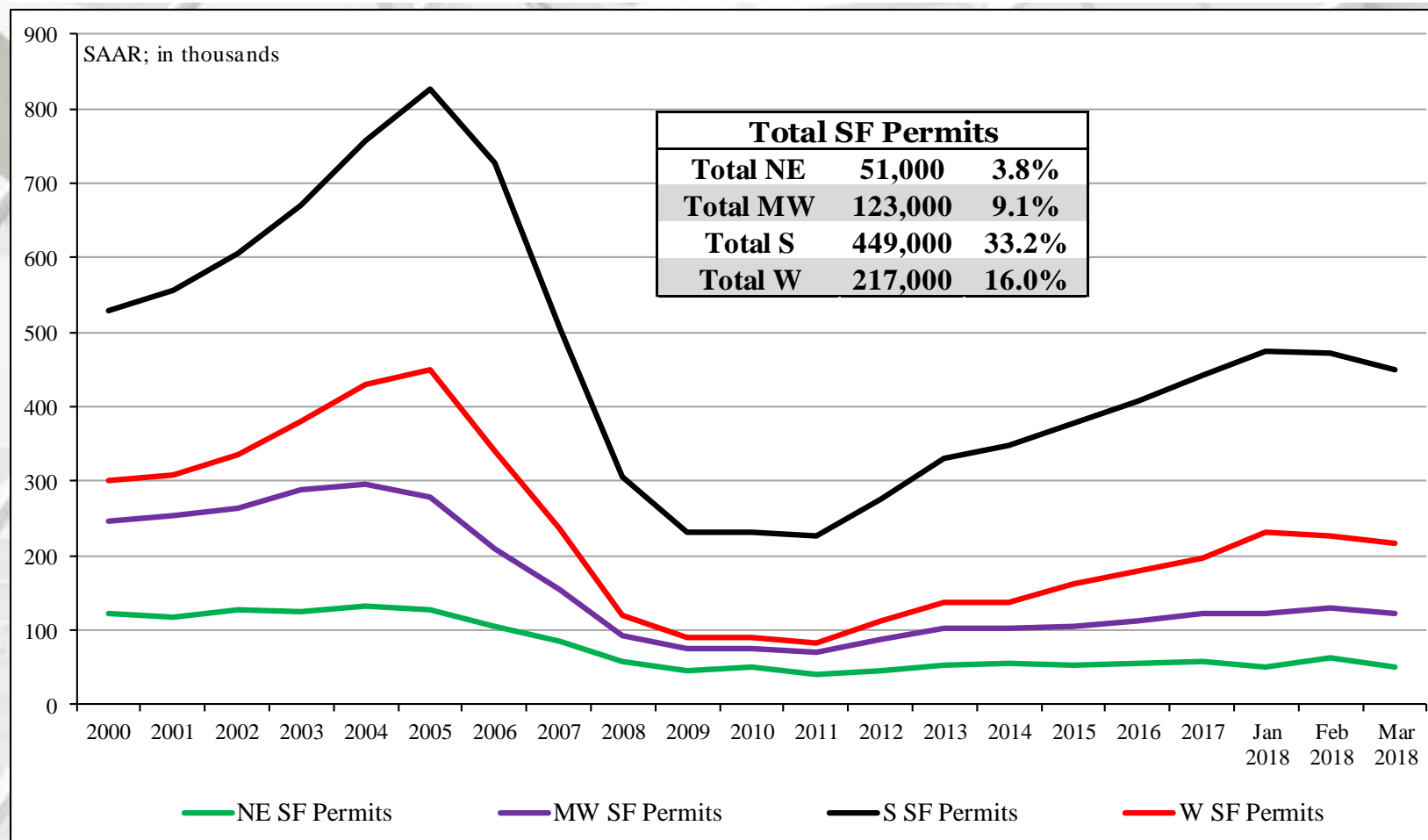


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total permits.

SF Housing Permits by Region

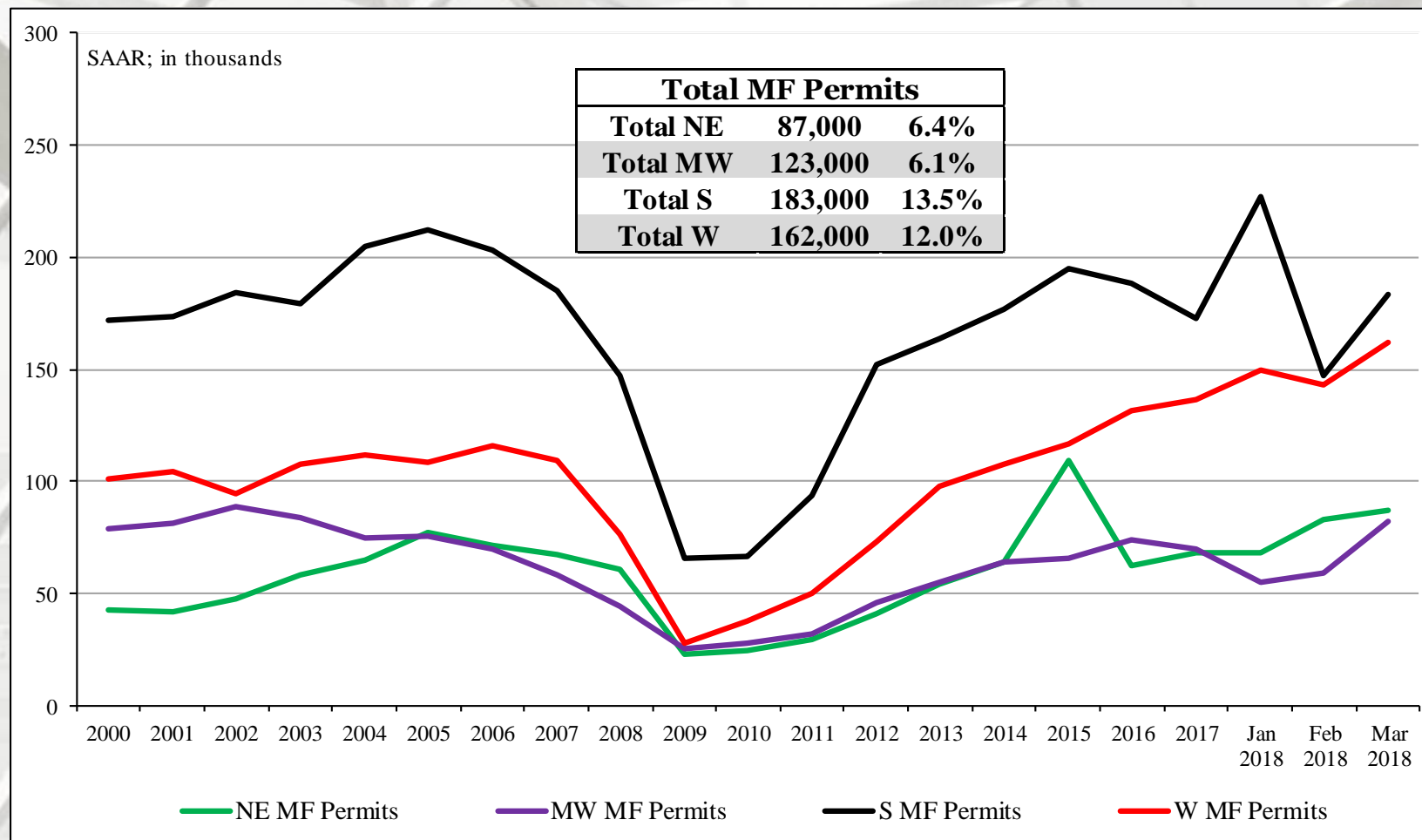


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total permits.

MF Housing Permits by Region

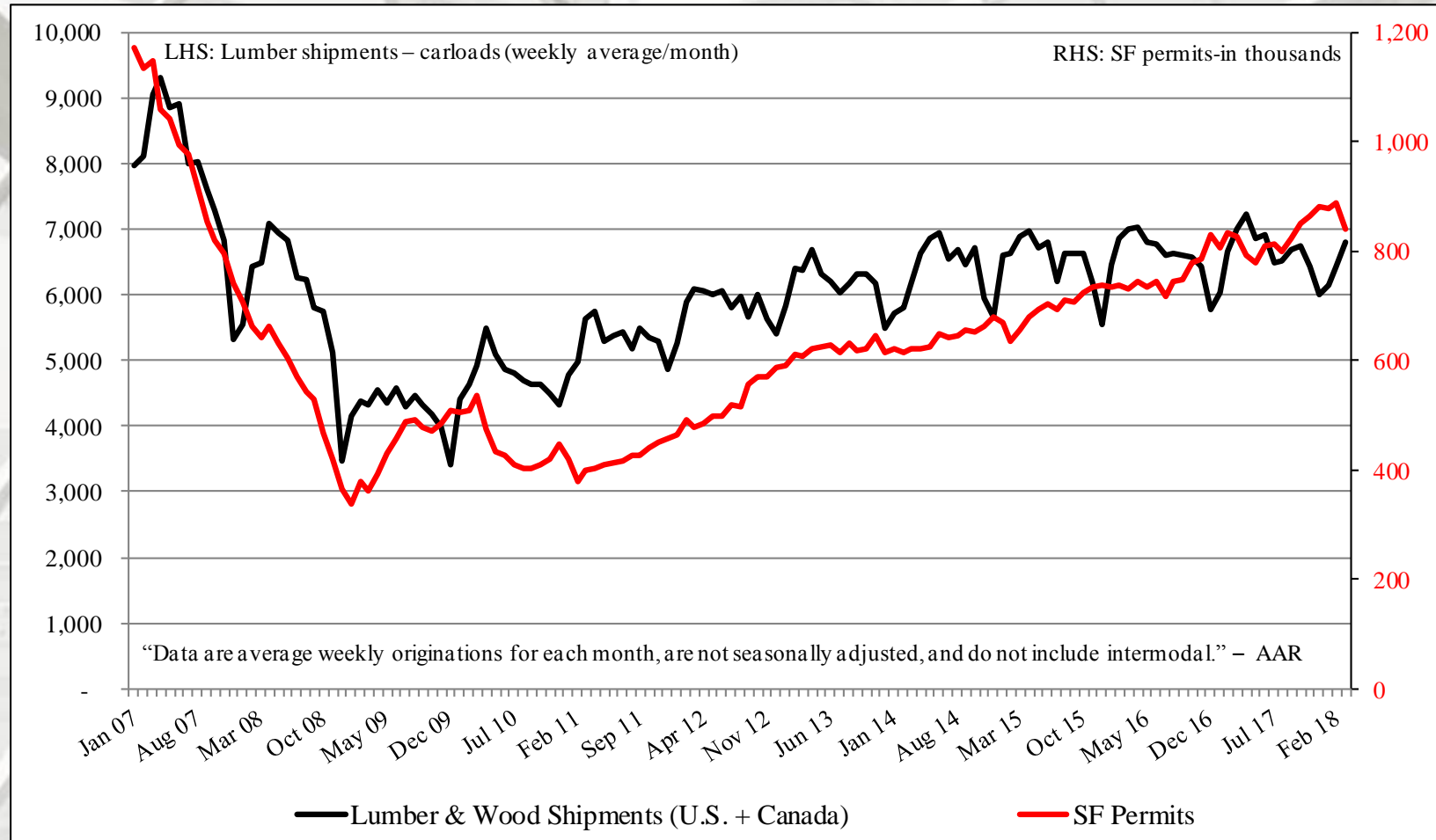


NE = Northeast, MW = Midwest, S = South, W = West

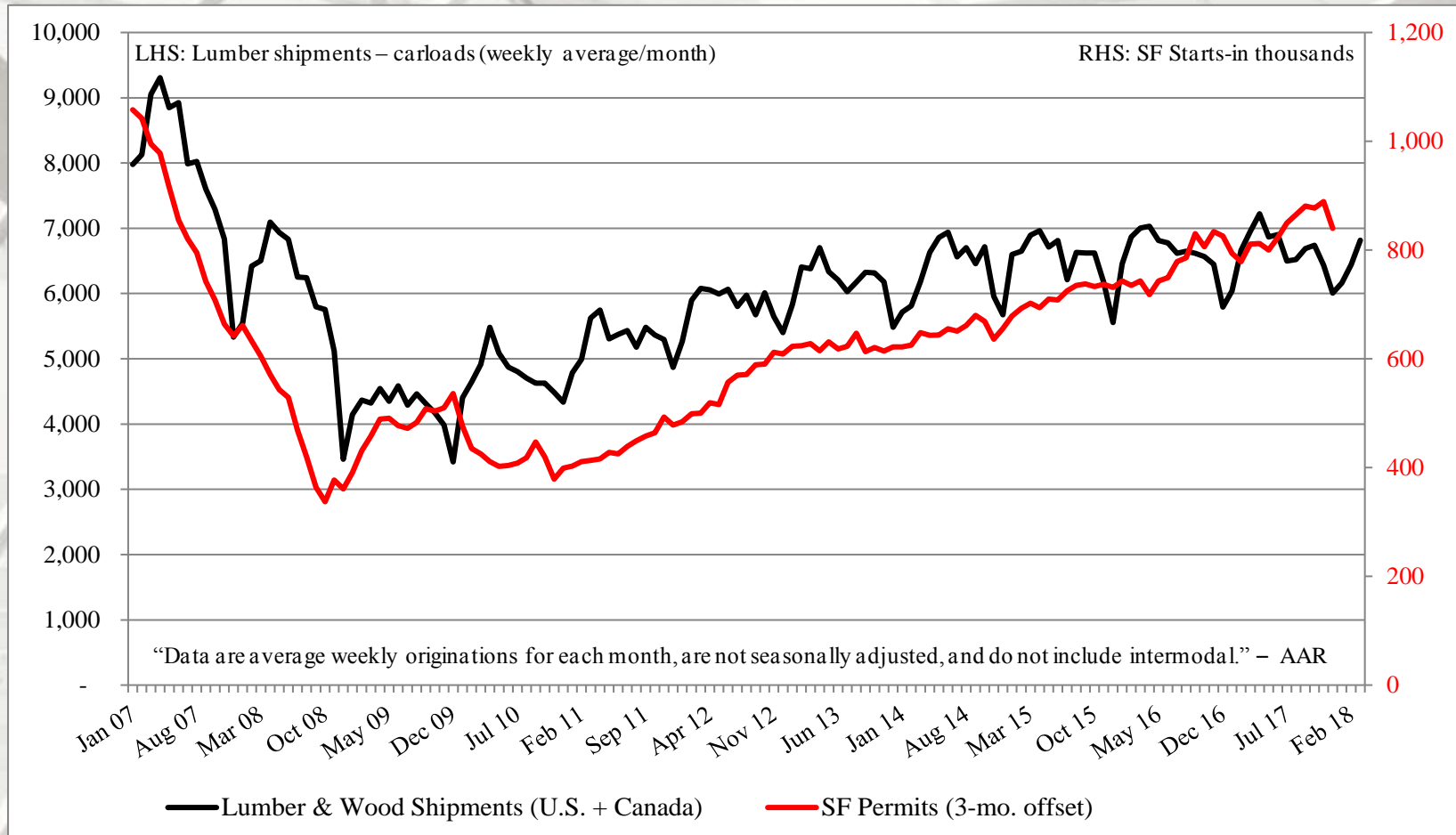
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total permits.

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



Railroad Lumber & Wood Shipments vs. U.S. SF Housing Permits: 3-month Offset



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

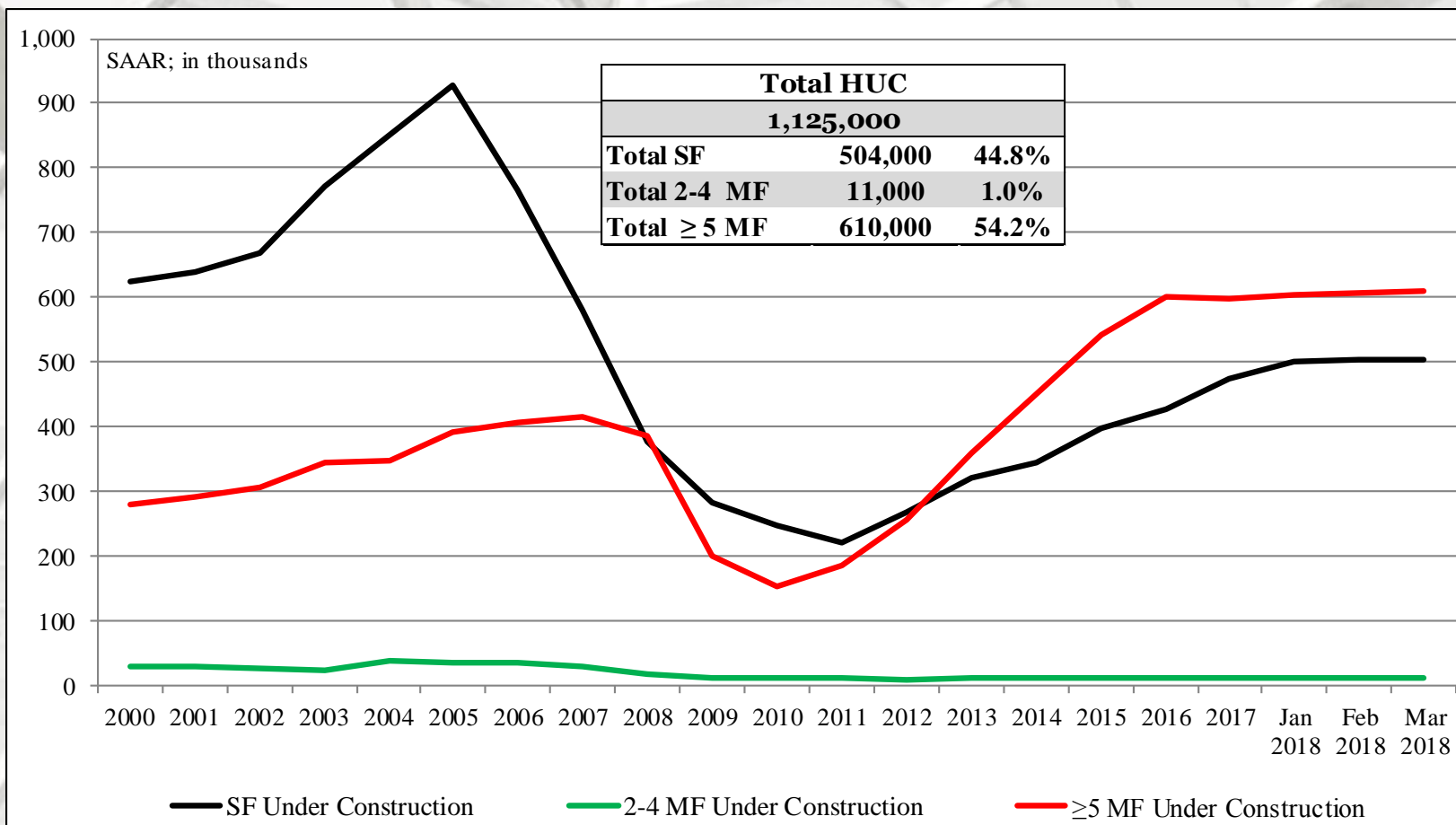
New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	Under Construction	MF ≥ 5 unit Under Construction
March	1,125,000	504,000	11,000	610,000
February	1,122,000	503,000	11,000	608,000
2017	1,074,000	454,000	10,000	610,000
M/M change	0.3%	0.2%	0.0%	0.3%
Y/Y change	4.7%	11.0%	10.0%	0.0%

All housing under construction data are presented at a seasonally adjusted annual rate (SAAR).

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

Total Housing Under Construction



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

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

* Percentage of total housing under construction units.

New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
March	189,000	53,000	136,000
February	190,000	53,000	137,000
2017	189,000	52,000	137,000
M/M change	-0.5%	0.0%	-0.7%
Y/Y change	0.0%	1.9%	-0.7%
	MW Total	MW SF	MW MF
March	152,000	82,000	70,000
February	152,000	81,000	71,000
2017	149,000	73,000	76,000
M/M change	0.0%	1.2%	-1.4%
Y/Y change	2.0%	12.3%	-7.9%

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).

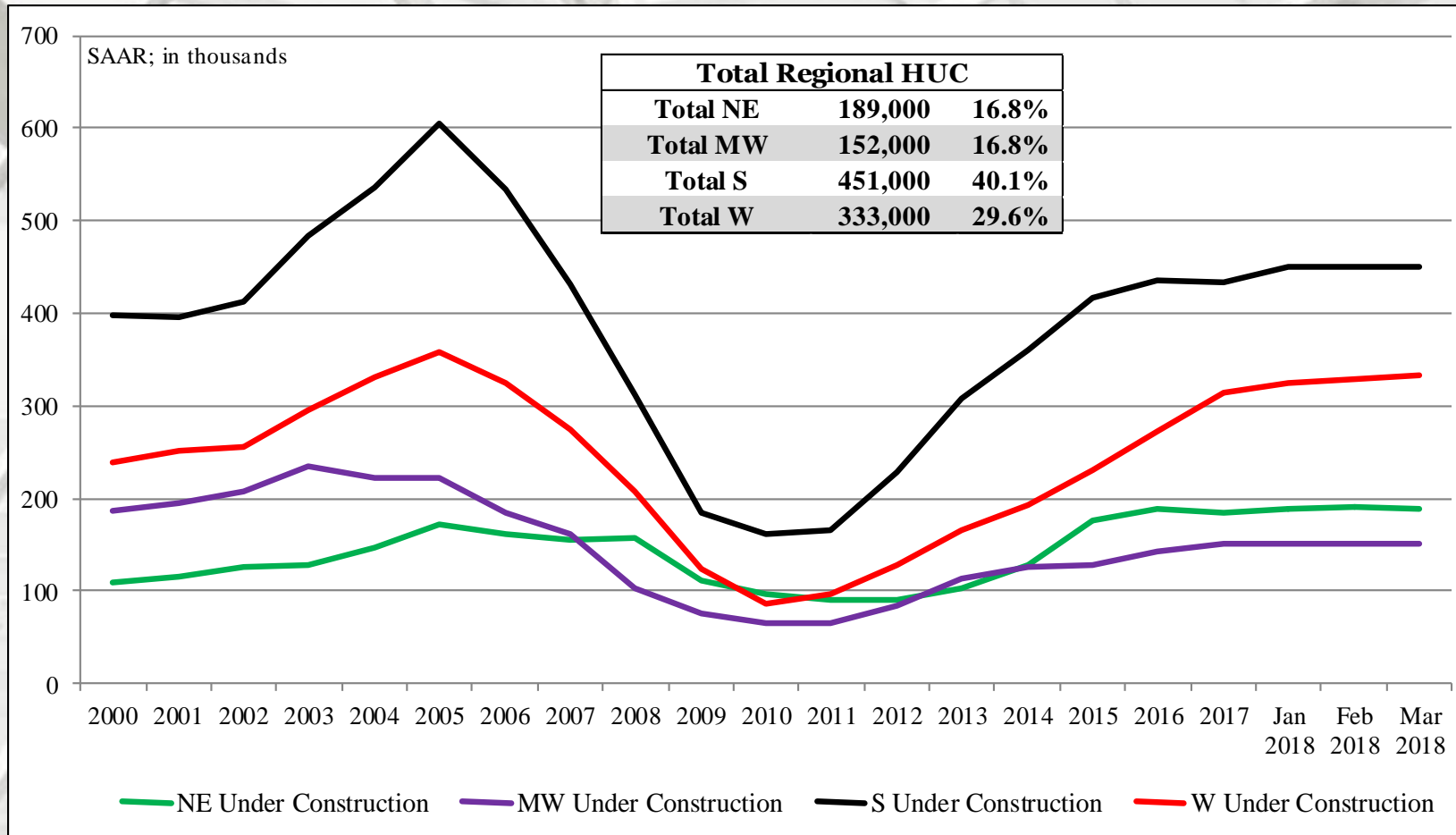
New Housing Under Construction by Region

	S Total	S SF	S MF**
March	451,000	231,000	220,000
February	451,000	232,000	219,000
2017	452,000	218,000	234,000
M/M change	0.0%	-0.4%	0.5%
Y/Y change	-0.2%	6.0%	-6.0%
	W Total	W SF	W MF
March	333,000	138,000	195,000
February	329,000	137,000	192,000
2017	284,000	111,000	173,000
M/M change	1.2%	0.7%	1.6%
Y/Y change	17.3%	24.3%	12.7%

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

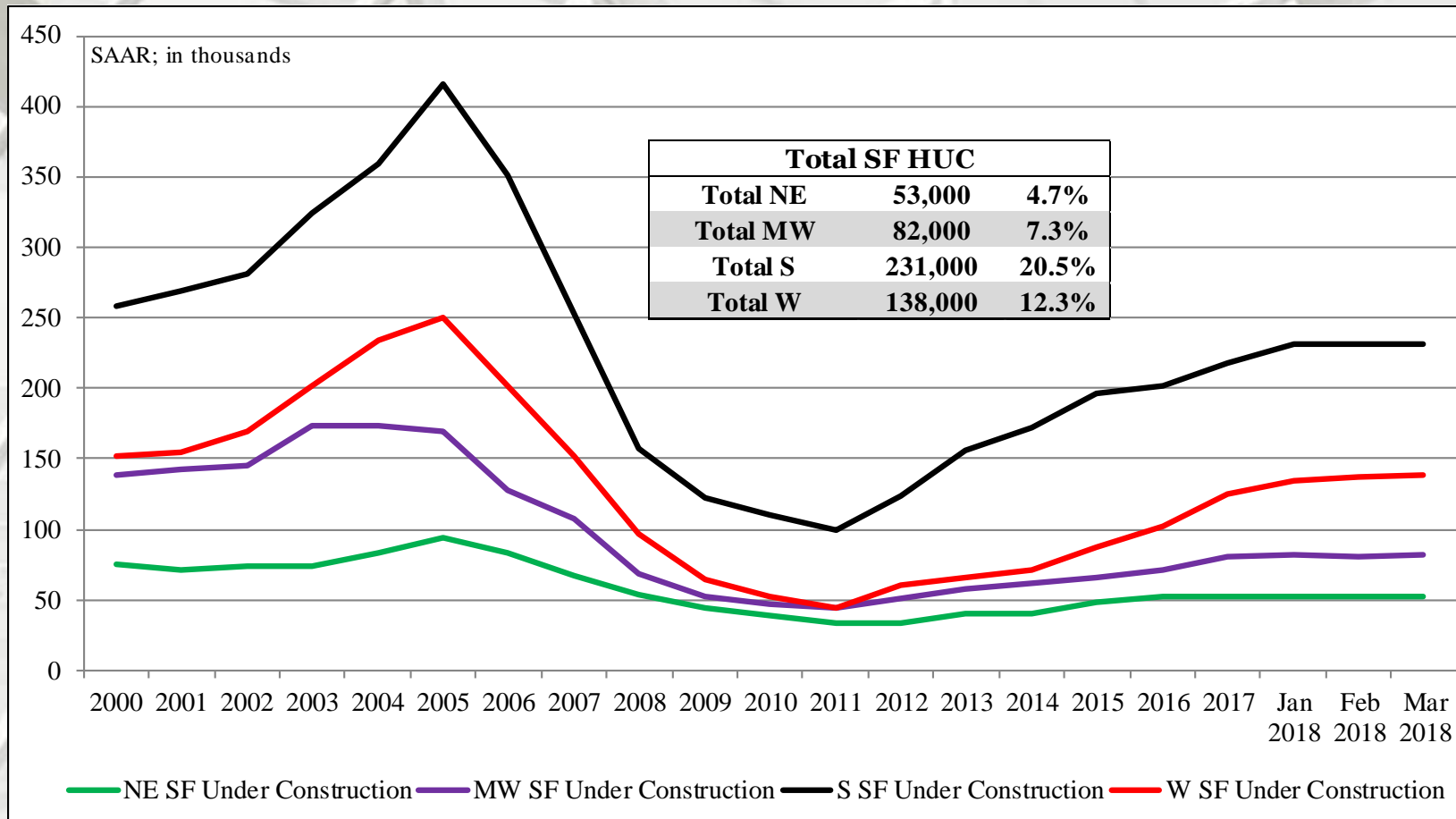


NE = Northeast, MW = Midwest, S = South, W = West

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

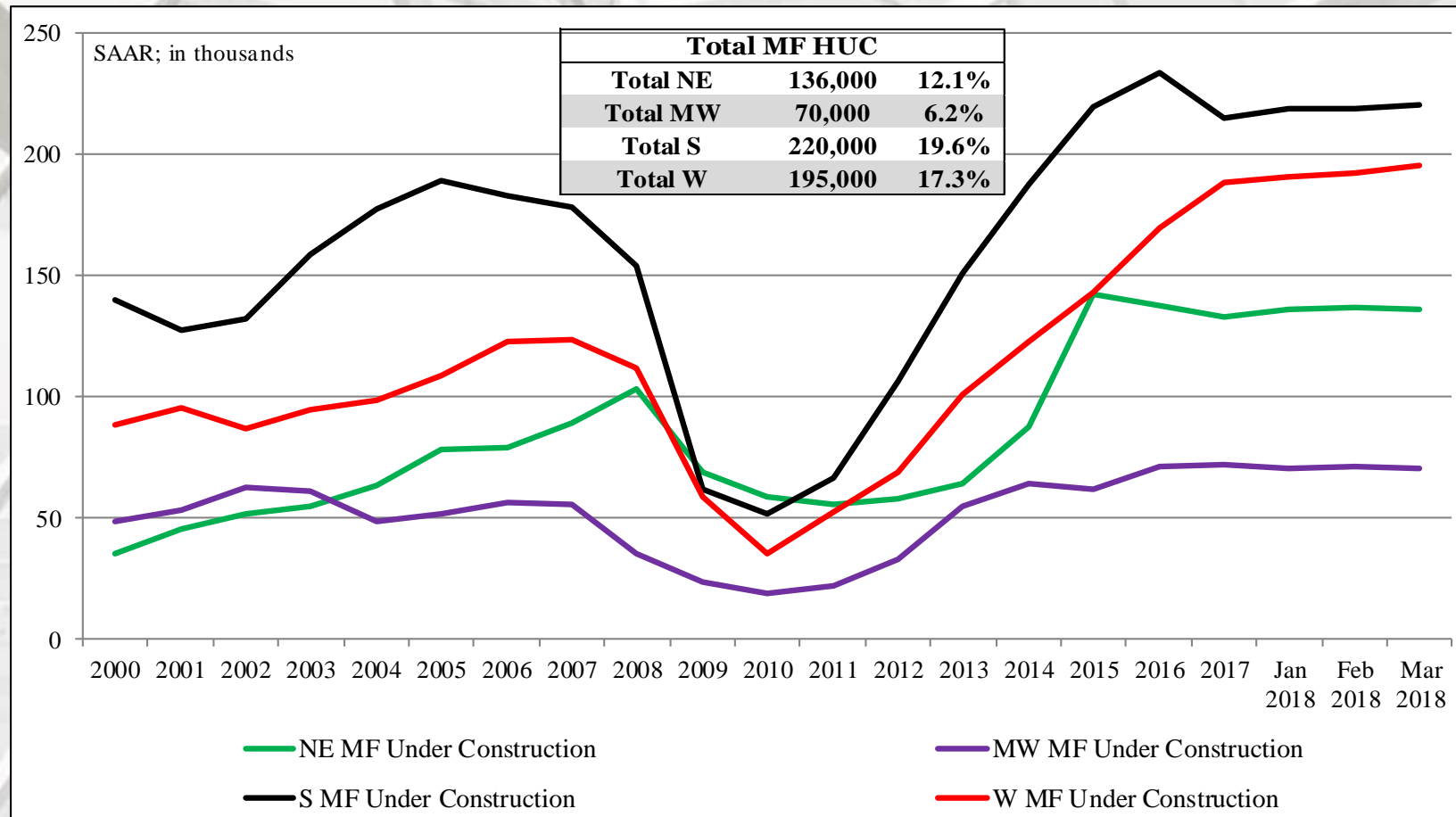


NE = Northeast, MW = Midwest, S = South, W = West

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.

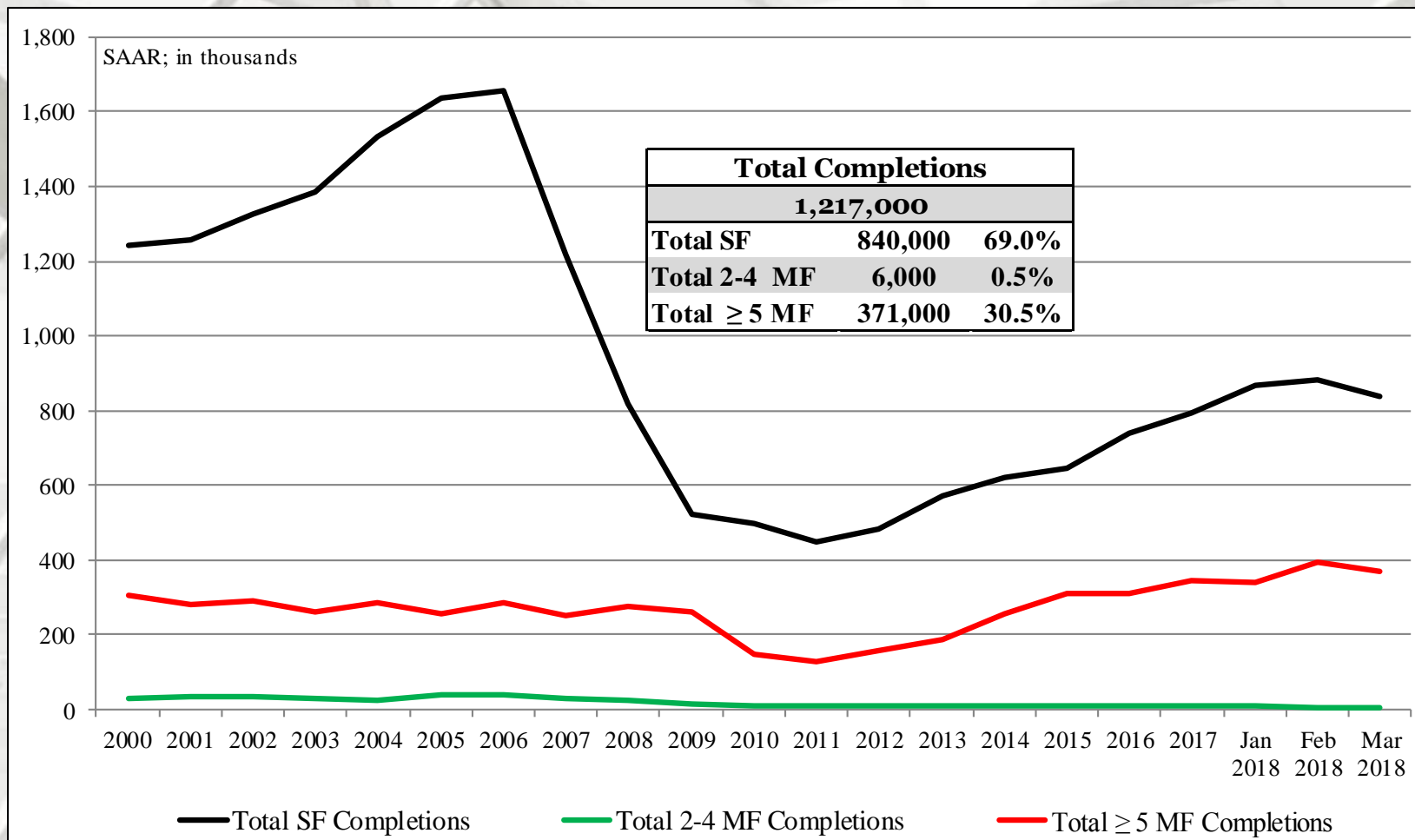
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit** Completions	MF ≥ 5 unit Completions
March	1,217,000	840,000	6,000	371,000
February	1,282,000	881,000	7,000	394,000
2017	1,194,000	810,000	16,000	368,000
M/M change	-5.1%	-4.7%	-14.3%	-5.8%
Y/Y change	1.9%	3.7%	-62.5%	0.8%

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

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

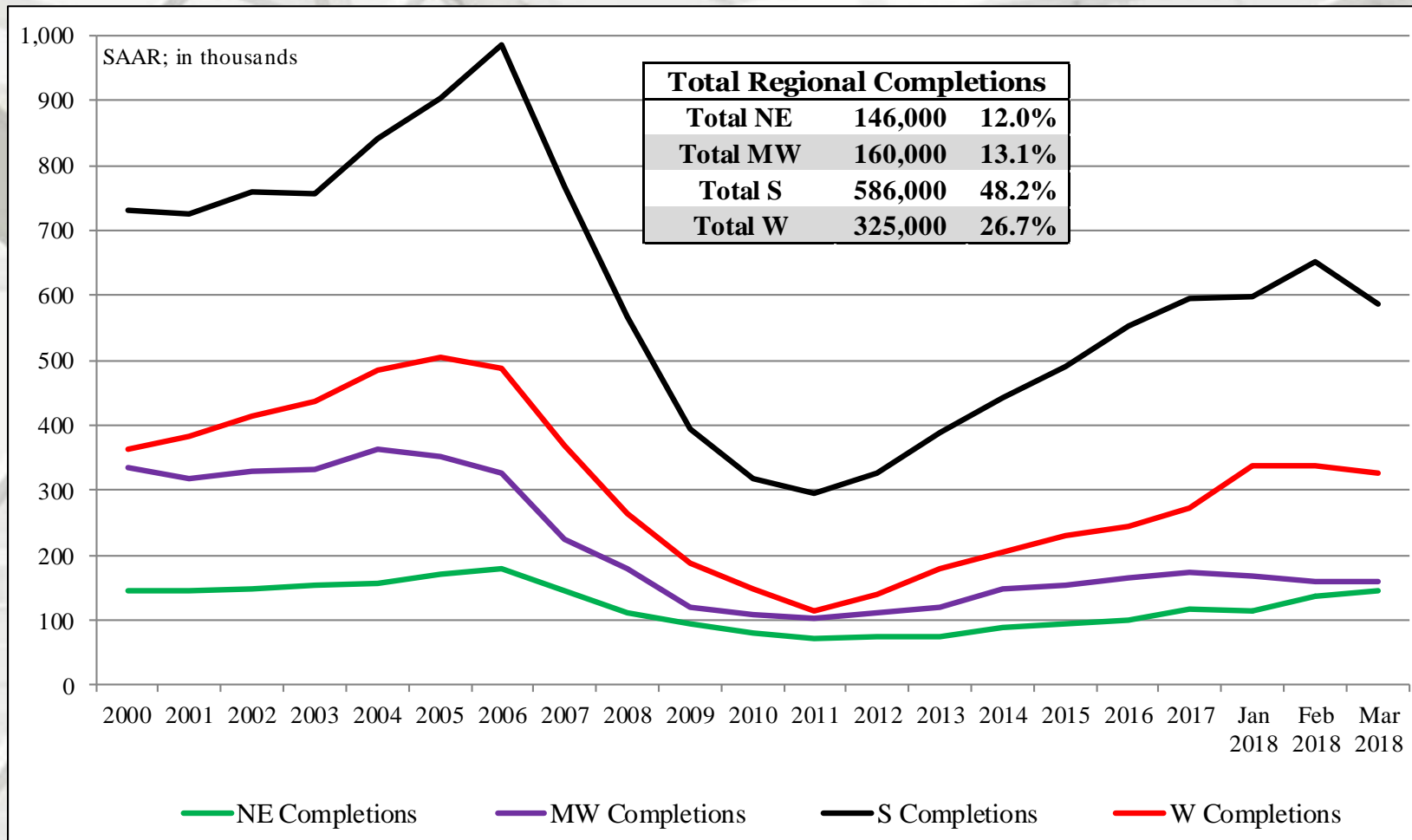
Total Housing Completions



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

* Percentage of total housing completions

Total Housing Completions by Region



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

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

* Percentage of total housing completions

New Housing Completions by Region

	NE Total	NE SF	NE MF**
March	146,000	61,000	85,000
February	136,000	62,000	74,000
2017	111,000	60,000	44,300
M/M change	7.4%	-1.6%	14.9%
Y/Y change	31.5%	1.7%	91.9%
	MW Total	MW SF	MW MF
March	160,000	117,000	43,000
February	159,000	127,000	32,000
2017	188,000	134,000	54,000
M/M change	0.6%	-7.9%	34.4%
Y/Y change	-14.9%	-12.7%	-20.4%

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).

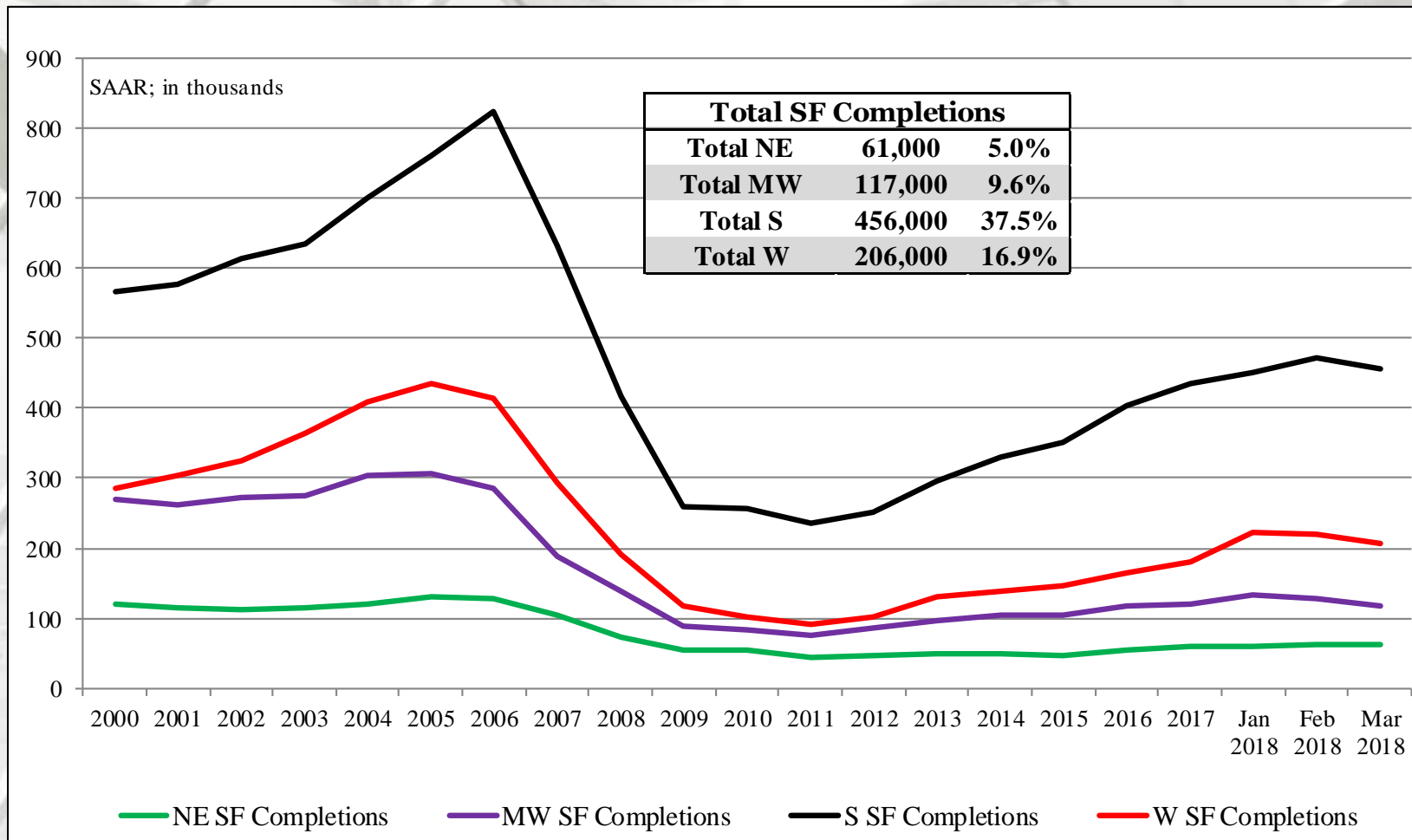
New Housing Completions by Region

	S Total	S SF	S MF**
March	586,000	456,000	130,000
February	651,000	471,000	180,000
2017	629,000	449,000	180,000
M/M change	-10.0%	-3.2%	-27.8%
Y/Y change	-6.8%	1.6%	-27.8%
	W Total	W SF	W MF
March	325,000	206,000	119,000
February	336,000	221,000	115,000
2017	266,000	167,000	99,000
M/M change	-3.3%	-6.8%	3.5%
Y/Y change	22.2%	23.4%	20.2%

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 SF Completions by Region

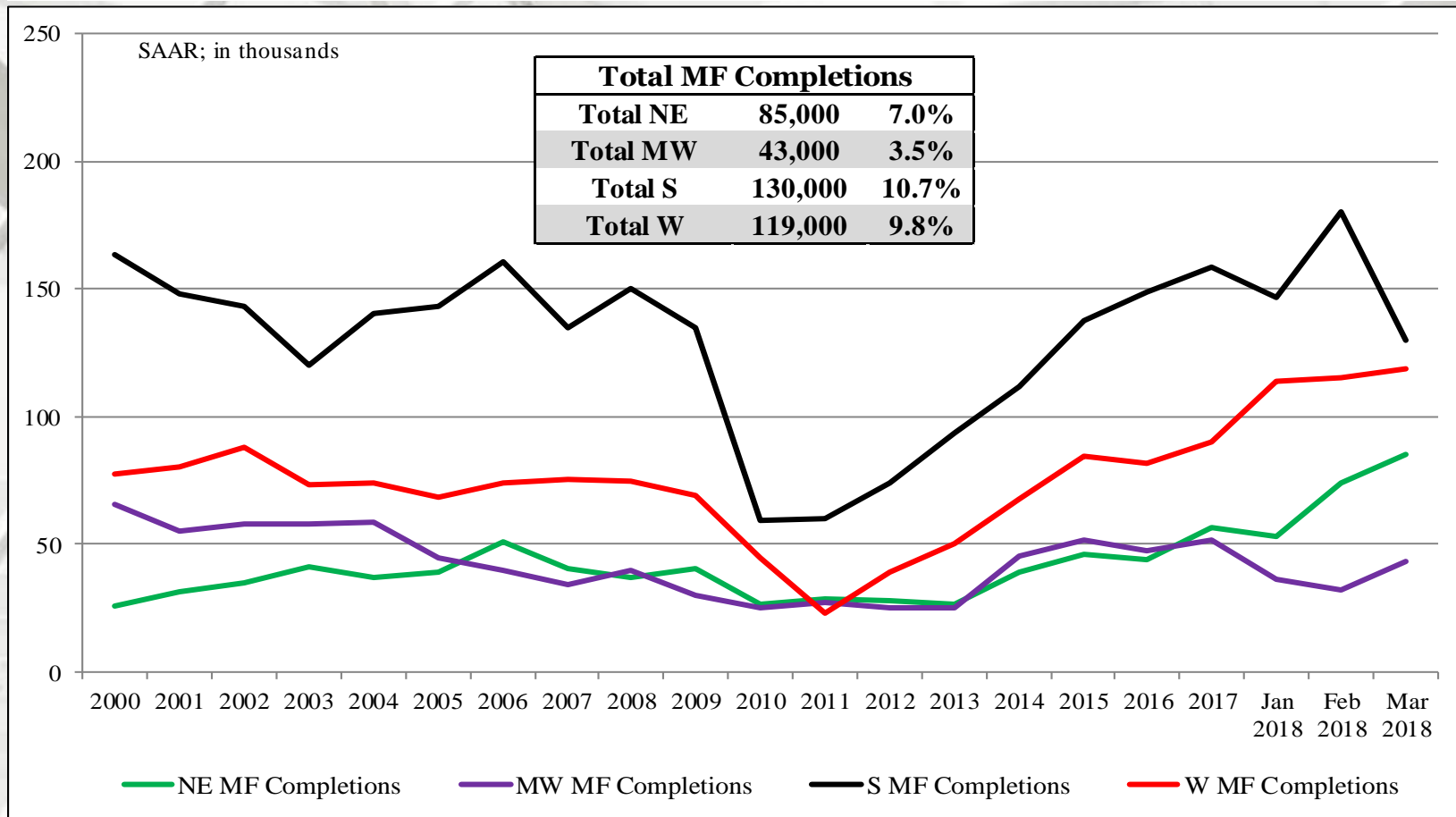


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total housing completions

New Housing MF Completions by Region



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

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

* Percentage of total housing completions

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

New Single-Family House Sales

	New SF Sales*	Median Price	Mean Price	Month's Supply
March	694,000	\$337,200	\$369,900	5.2
February	667,000	\$325,800	\$370,800	5.4
2017	638,000	\$321,700	\$384,400	5.0
M/M change	4.0%	3.5%	-0.2%	-3.7%
Y/Y change	8.8%	4.8%	-3.8%	4.0%

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

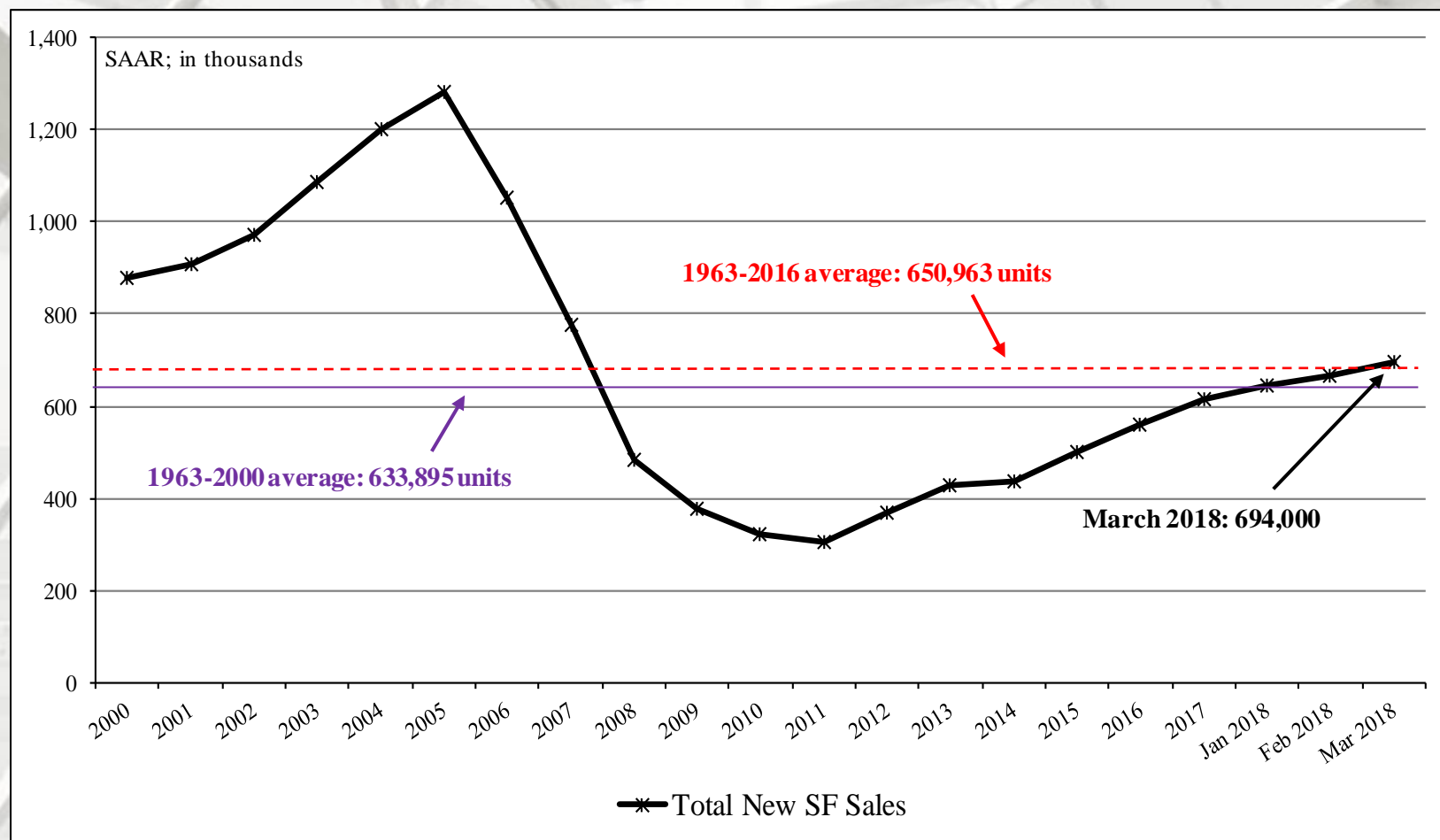
New SF sales were decidedly greater than the consensus forecast (667 m)³. The past three month's new SF sales data were revised upward:

December initial:	733 m revised to 711 m;
January initial:	625 m revised to 653 m;
February initial:	593 m revised to 622 m.

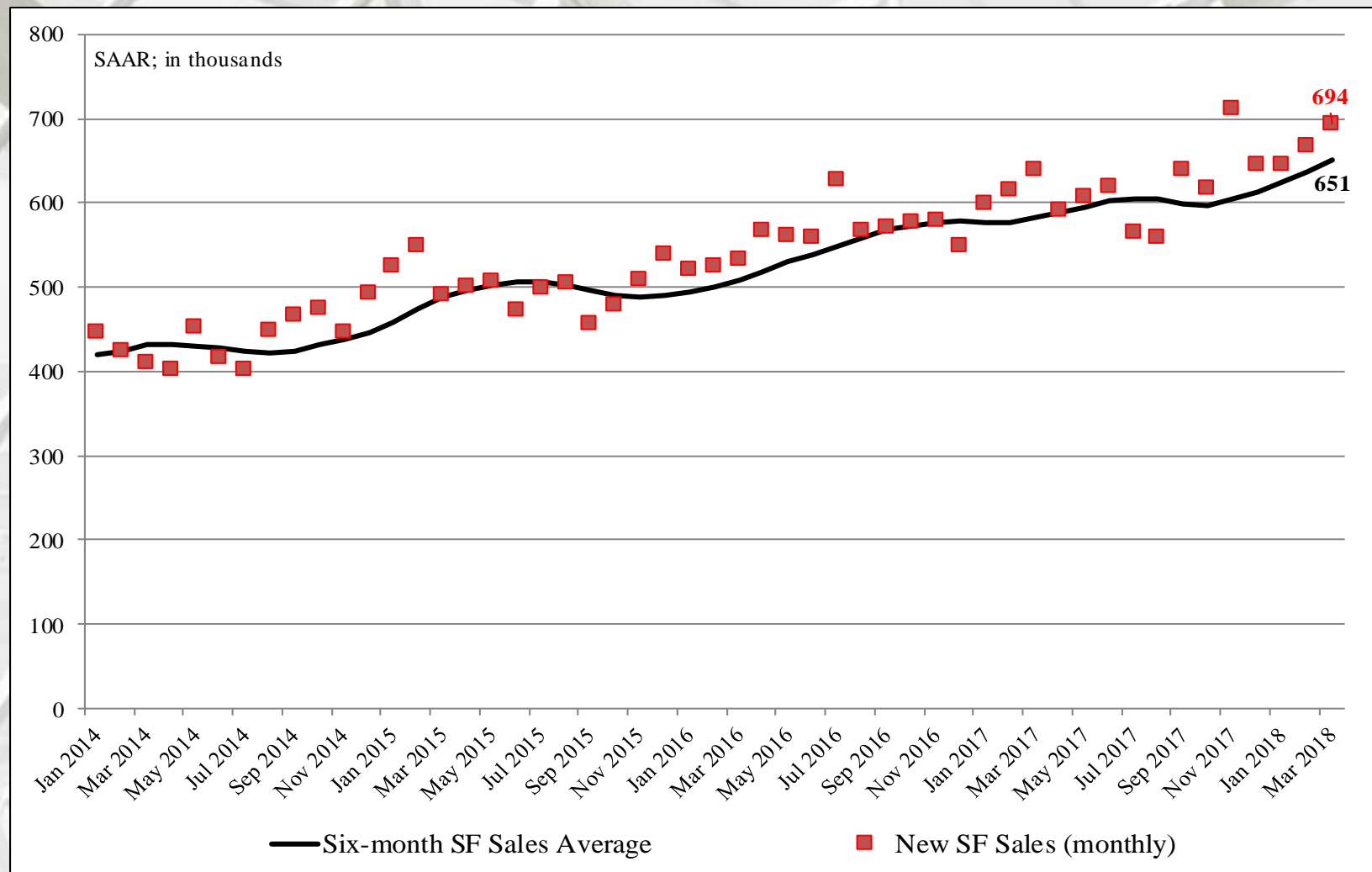
Sources: ¹<http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 4/24/18; ²https://www.census.gov/construction/cpi/pdf/descpi_sold.pdf

³ <http://mam.econoday.com/byshoweventfull.asp>; 4/24/18

New SF House Sales



New SF Housing Sales: Six-month average & monthly



New SF House Sales by Region and Price Category

	NE SF Sales	MW SF Sales	S SF Sales	W SF Sales
March	19,000	82,000	371,000	222,000
February	42,000	84,000	368,000	173,000
2017	40,000	84,000	336,000	178,000
M/M change	-54.8%	-2.4%	0.8%	28.3%
Y/Y change	-52.5%	-2.4%	10.4%	24.7%

		\$150 - ≤ \$150m	\$200 - \$199.9m 299.9m	\$300 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m
March ^{1,2,3,4}	3,000	5,000	18,000	18,000	12,000	8,000	3,000
February	2,000	5,000	18,000	16,000	6,000	7,000	3,000
2017	3,000	6,000	17,000	16,000	8,000	8,000	3,000
M/M change	50.0%	0.0%	0.0%	12.5%	100.0%	14.3%	0.0%
Y/Y change	0.0%	-16.7%	5.9%	12.5%	50.0%	0.0%	0.0%

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.

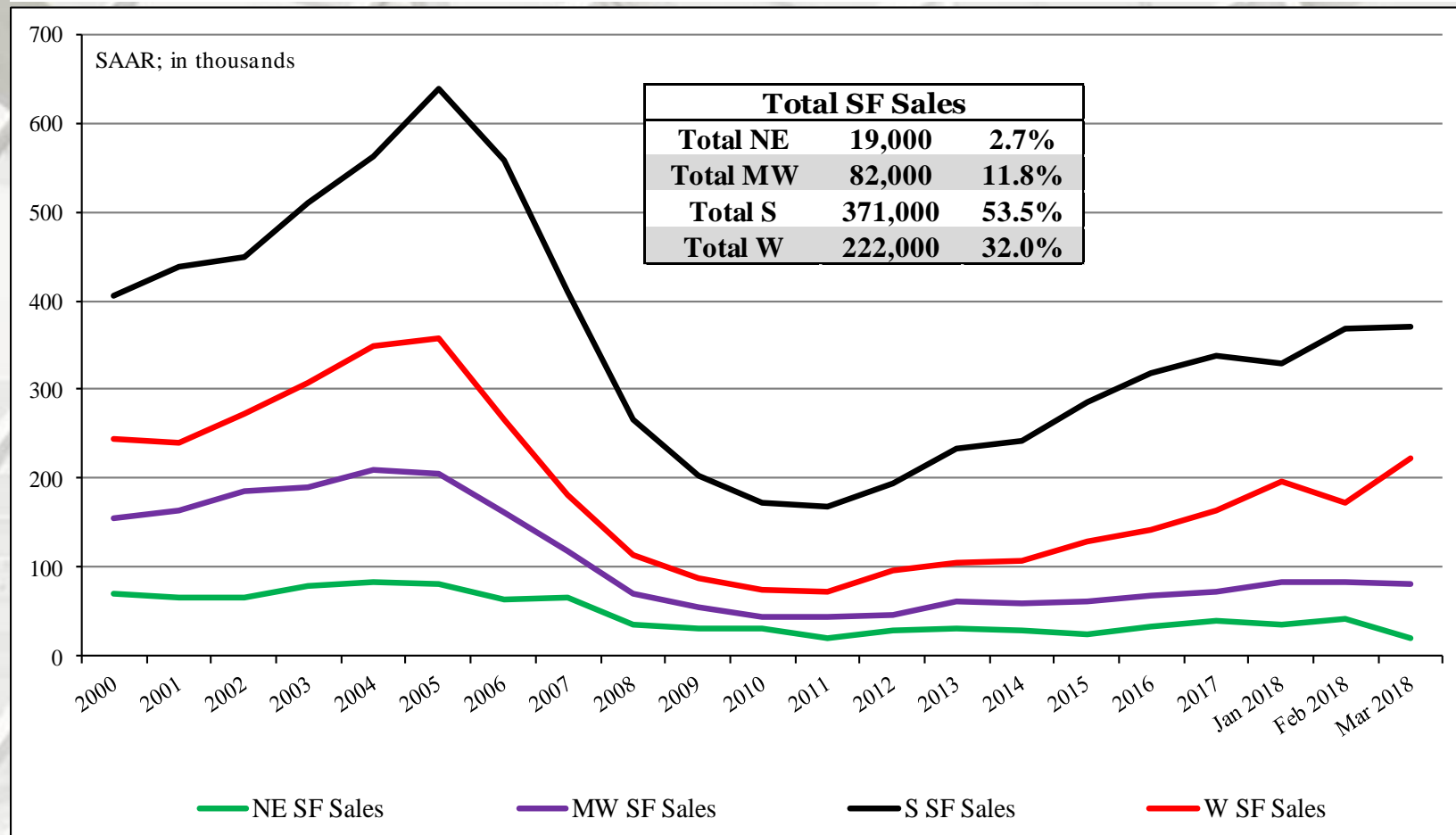
⁴ Housing prices are adjusted at irregular intervals.

Sources: ^{1,2,3} <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 4/24/18;

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

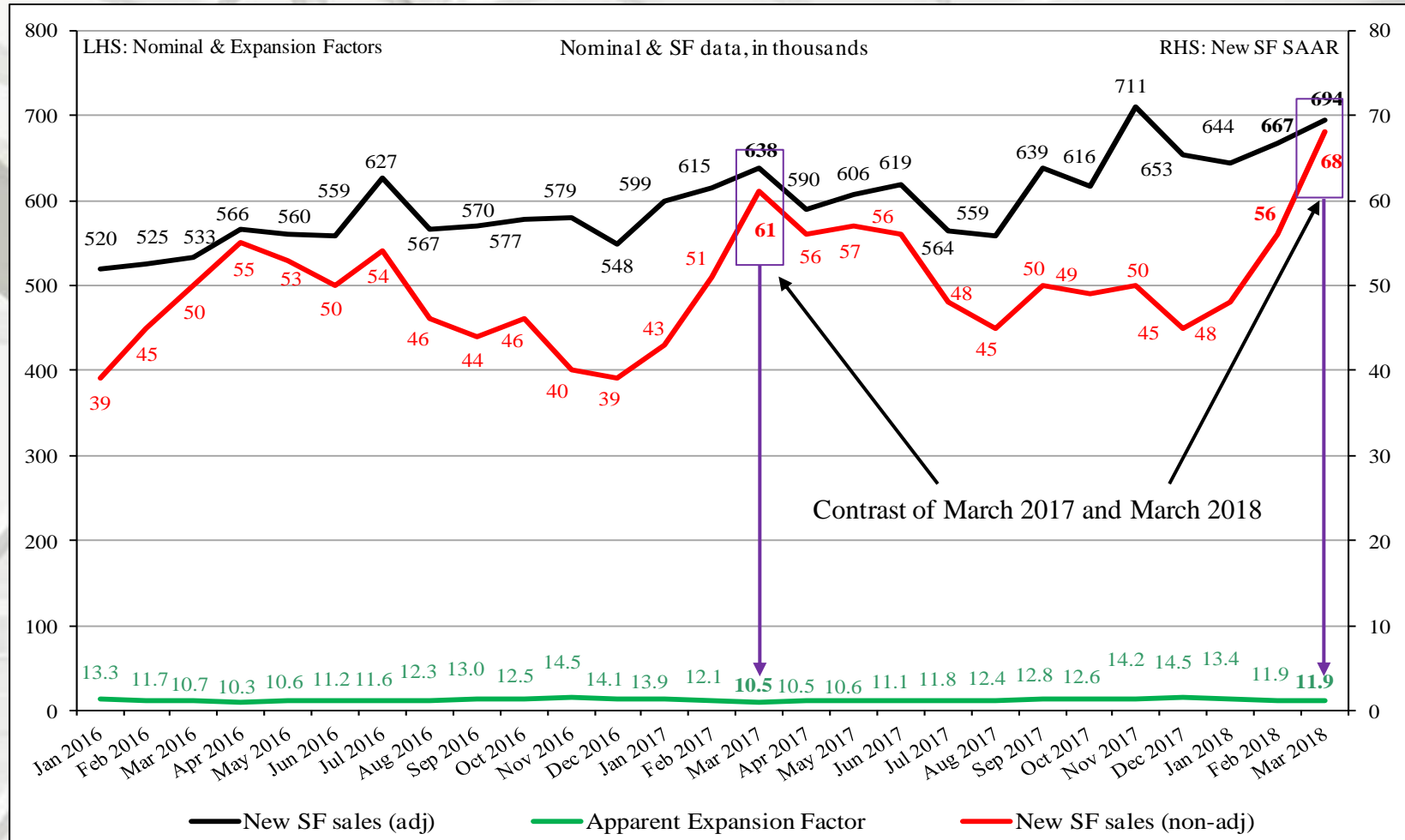
Return TOC

New SF House Sales by Region



* Percentage of total new sales.

Nominal vs. SAAR New SF House Sales

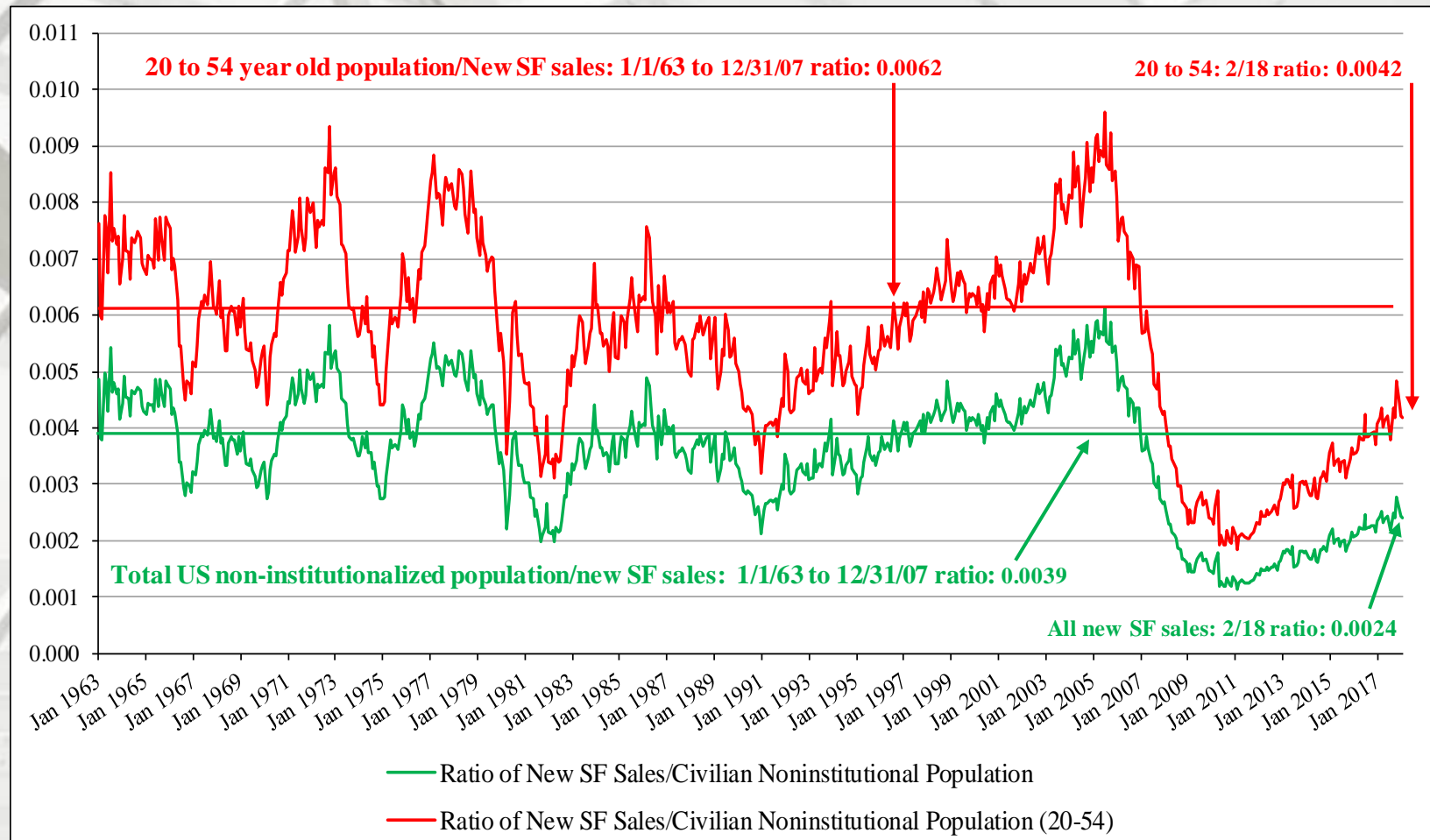


Nominal and Adjusted New SF Monthly Sales

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

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

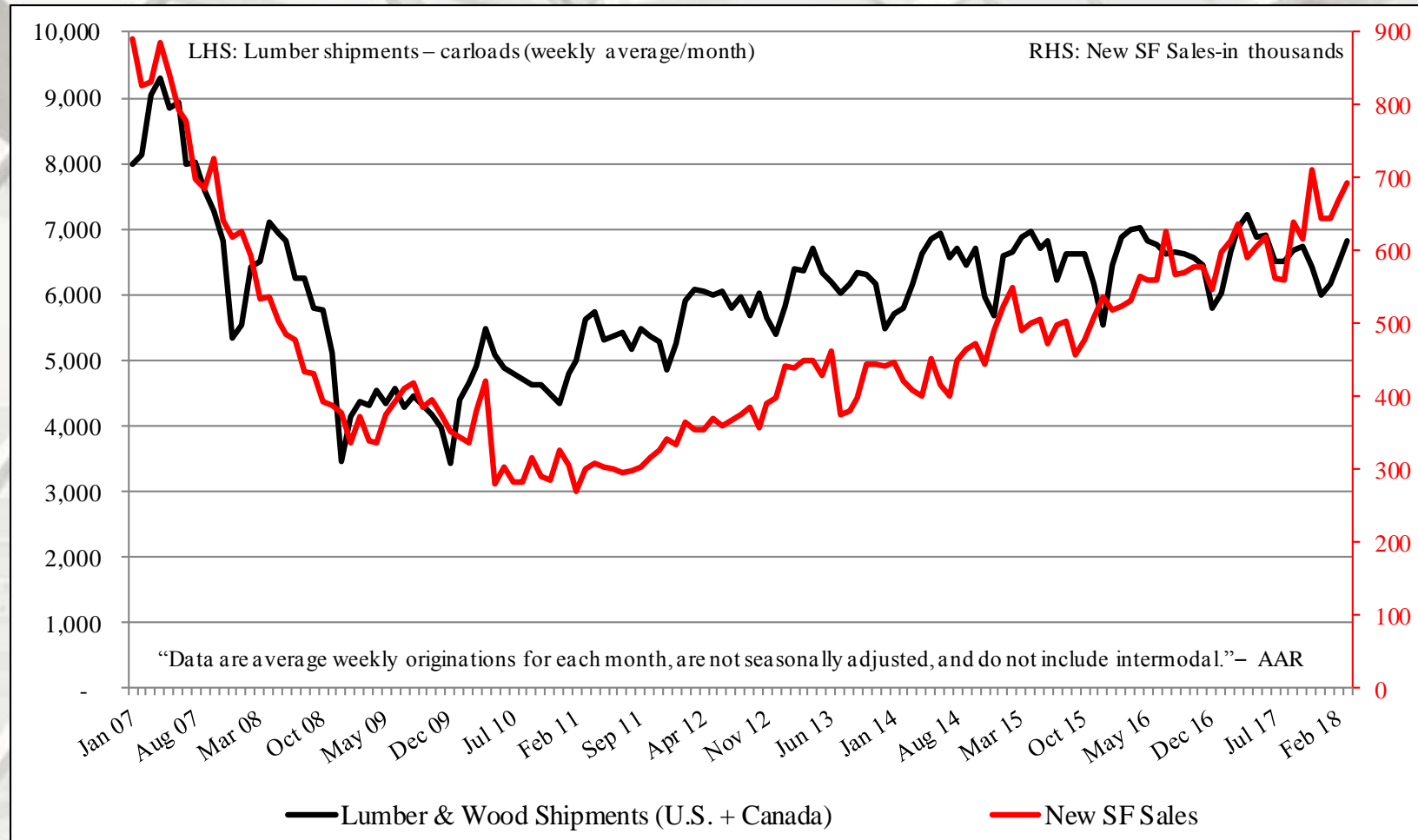
New SF House Sales



New SF sales adjusted for the US population

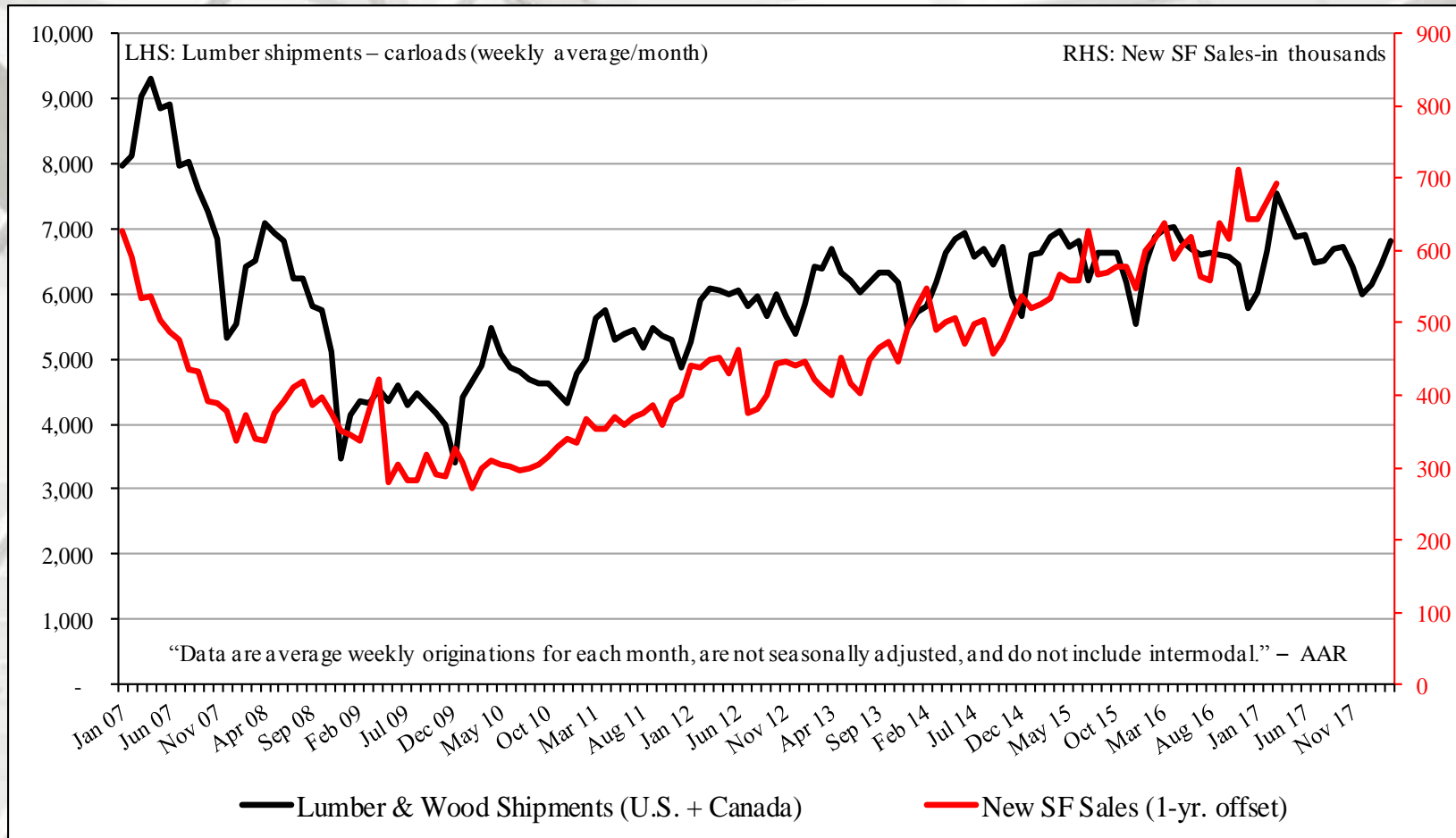
From March 1963 to November 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in March 2018 it was 0.0024 – no change from January. The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in March 2018 it was 0.0042 – also no change from January. All are non-adjusted data. From a population viewpoint, construction is less than what is necessary for changes in population (i.e., under-building).

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



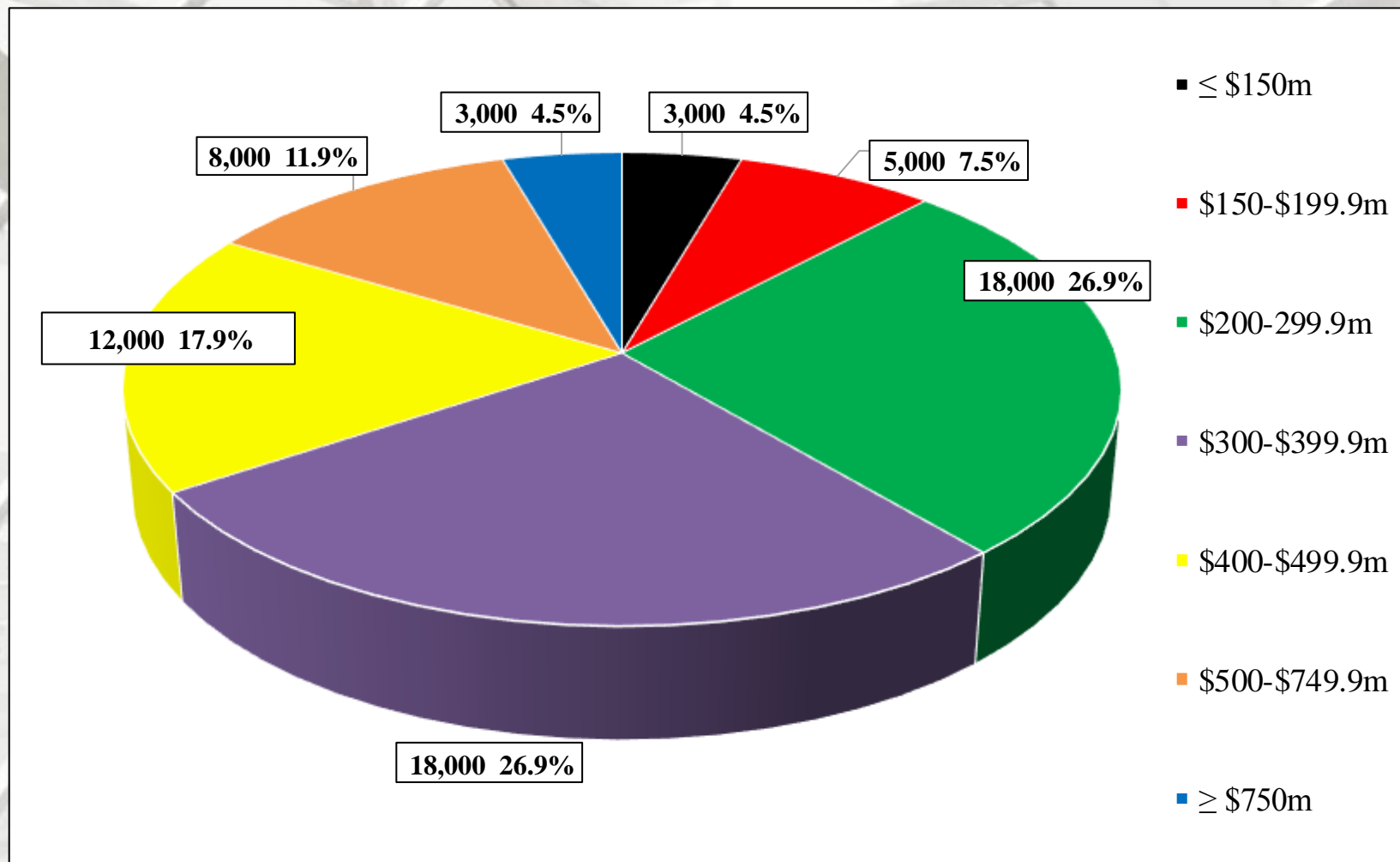
[Return to TOC](#)

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



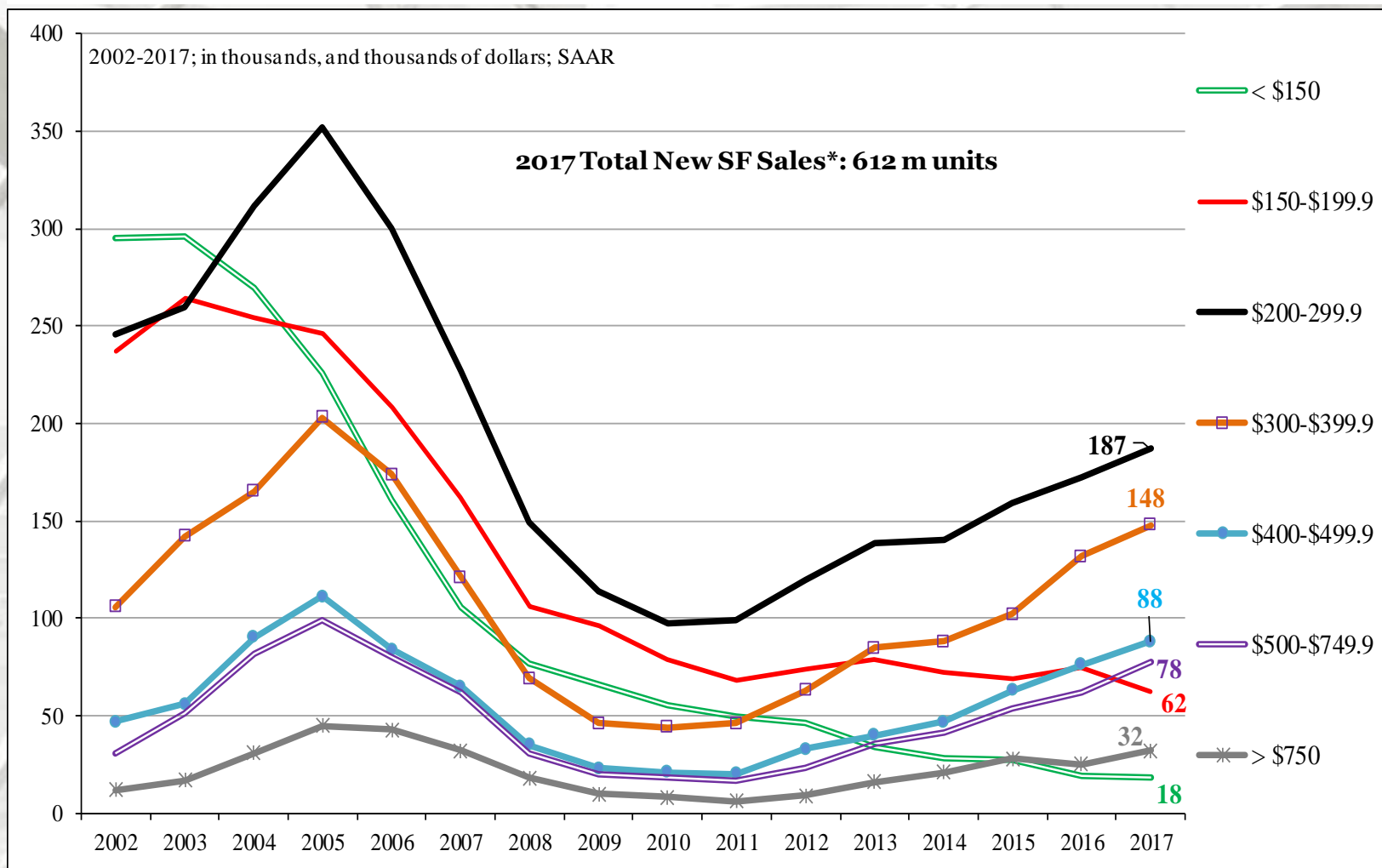
In this graph, January 2007 lumber shipments are contrasted with January 2008 SF sales, and continuing through March 2018. The purpose is to discover if lumber shipments relate to future single-family sales. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive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

March New SF House Sales



* Total and percent of new sales by price category.

New SF House Sales by Price Category



* Sales tallied by price category.

New SF House Sales

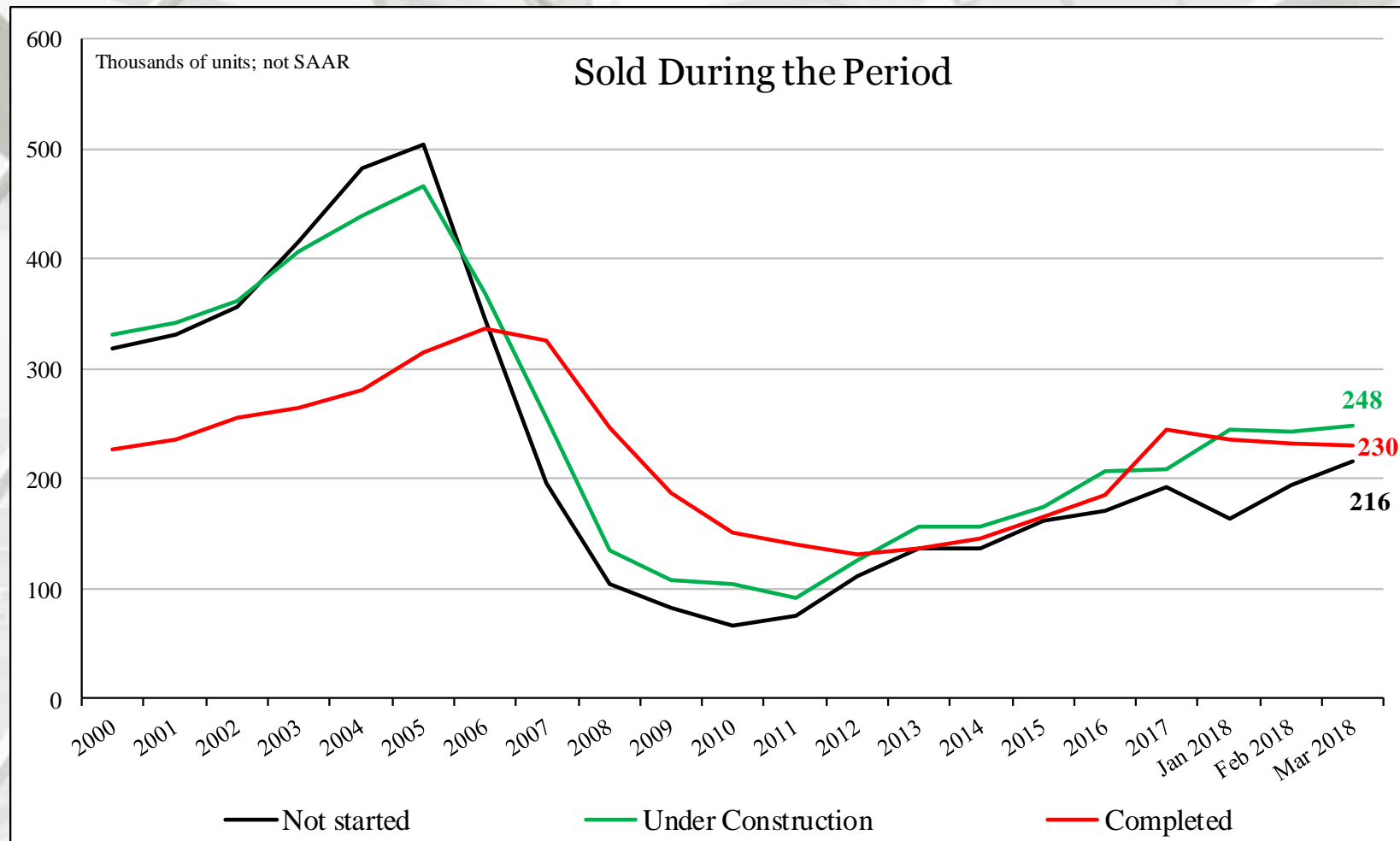
New SF Houses Sold During Period

	Total	Not started	Under Construction	Completed
March	694,000	216,000	248,000	230,000
February	667,000	194,000	242,000	231,000
2017	638,000	188,000	222,000	228,000
M/M change	4.0%	11.3%	2.5%	-0.4%
Y/Y change	8.8%	14.9%	11.7%	0.9%
Total percentage		31.1%	35.7%	33.1%

New SF Houses Sold During Period

In March 2018, a substantial portion of new sales – 31.1% – have not been started.

New SF House Sales

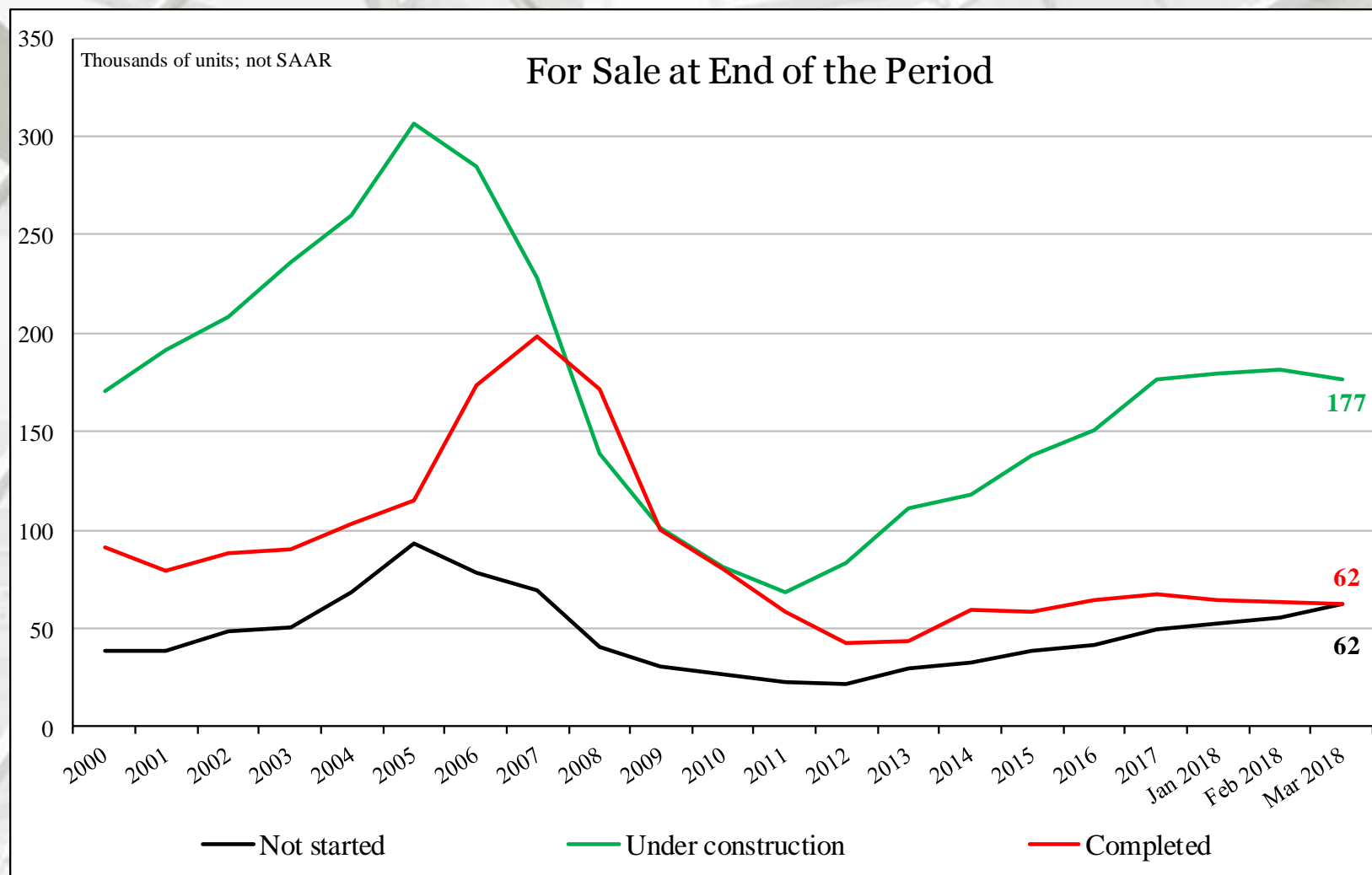


New SF House Sales

New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
March	301,000	62,000	177,000	62,000
February	301,000	56,000	182,000	63,000
2017	266,000	48,000	159,000	59,000
M/M change	0.0%	10.7%	-2.7%	-1.6%
Y/Y change	13.2%	29.2%	11.3%	5.1%
Total percentage		20.6%	58.8%	20.6%

New SF House Sales



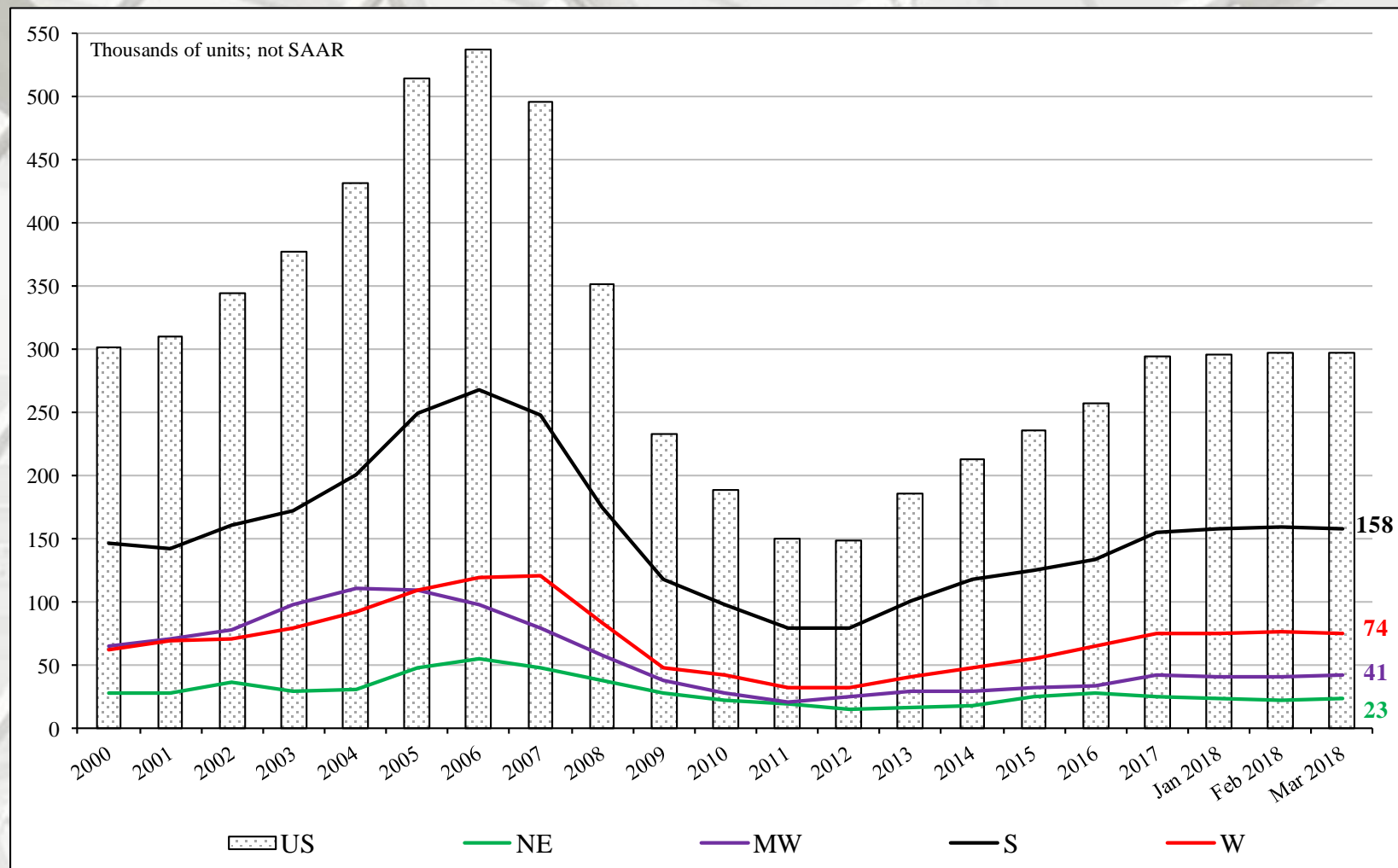
New SF House Sales

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

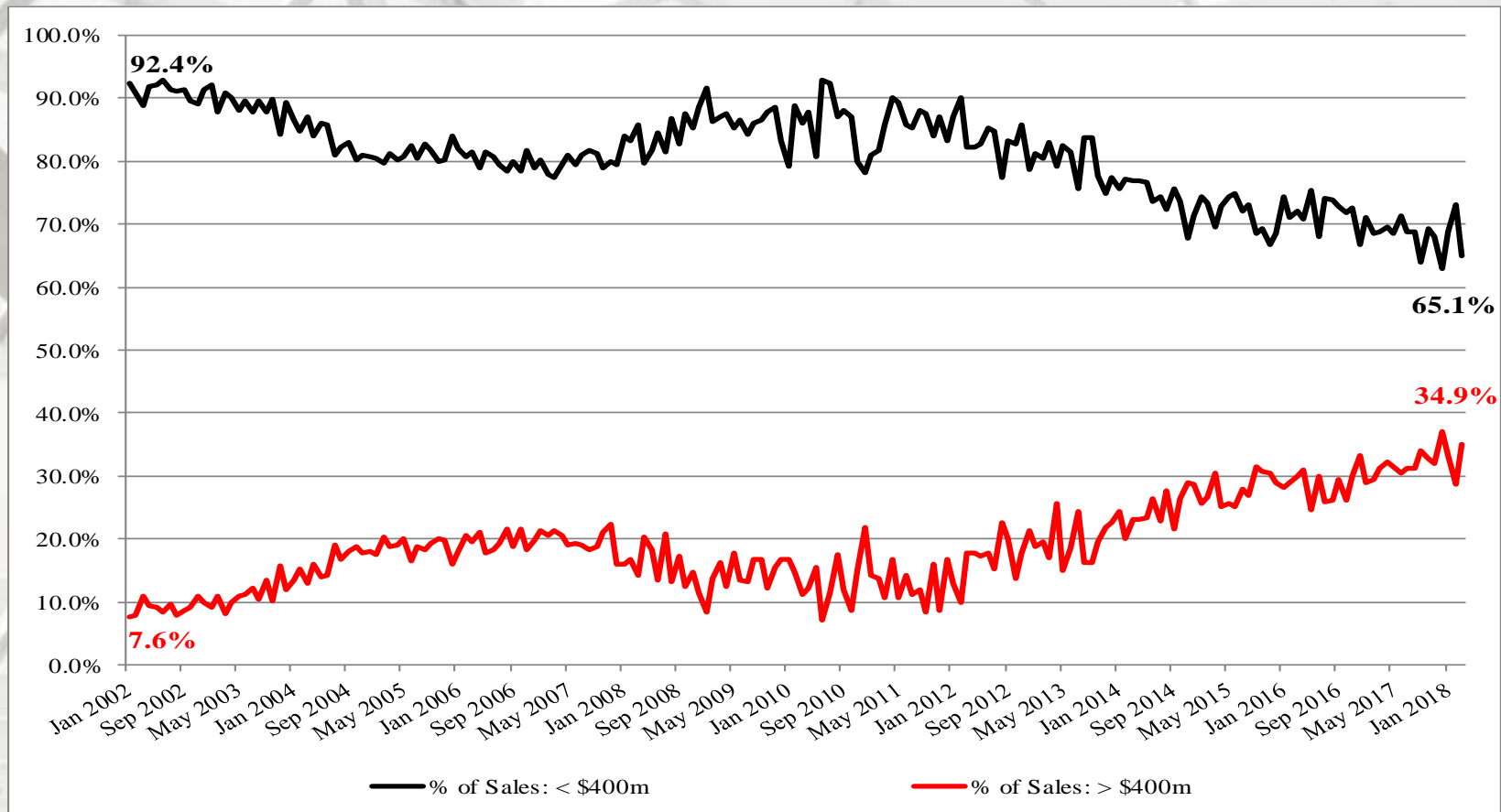
	Total	NE	MW	S	W
March	297,000	23,000	41,000	158,000	74,000
February	297,000	22,000	40,000	159,000	76,000
2017	263,000	26,000	35,000	141,000	62,000
M/M change	0.0%	4.5%	2.5%	-0.6%	-2.6%
Y/Y change	12.9%	-11.5%	17.1%	12.1%	19.4%

* Not SAAR

New SF Houses Sale at End of Period by Region



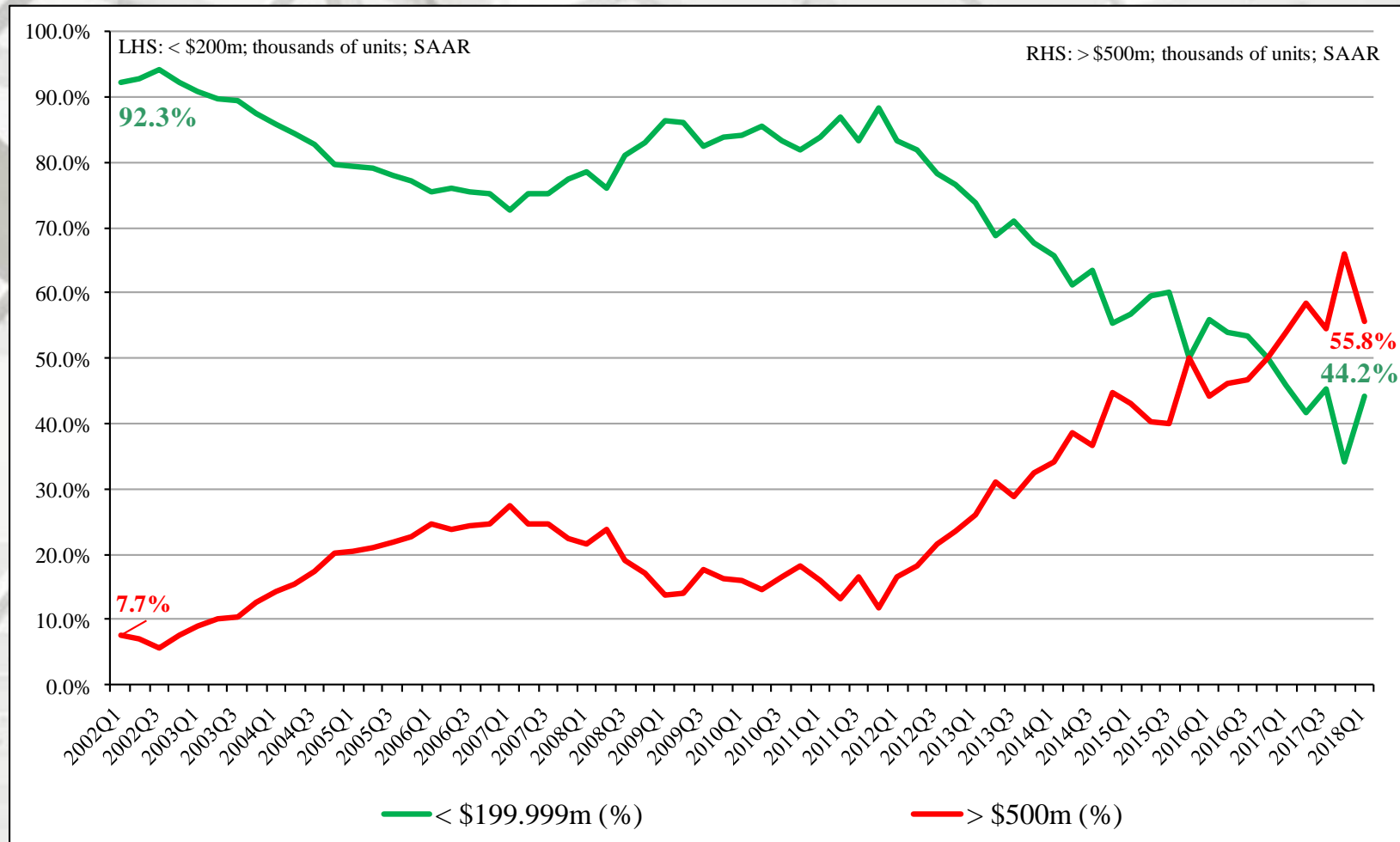
New SF House Sales



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

The sales share of \$400 thousand plus SF houses is presented above^{1,2}. Since the beginning of 2012, the upper priced houses have and are garnering a greater percentage of sales. A decreasing spread indicates that more high-end luxury homes are being sold. Several reasons are offered by industry analysts; 1) builders can realize a profit on higher priced houses; 2) historically low interest rates have indirectly resulted in increasing house prices; and 3) purchasers of upper end houses fared better financially coming out of the Great Recession.

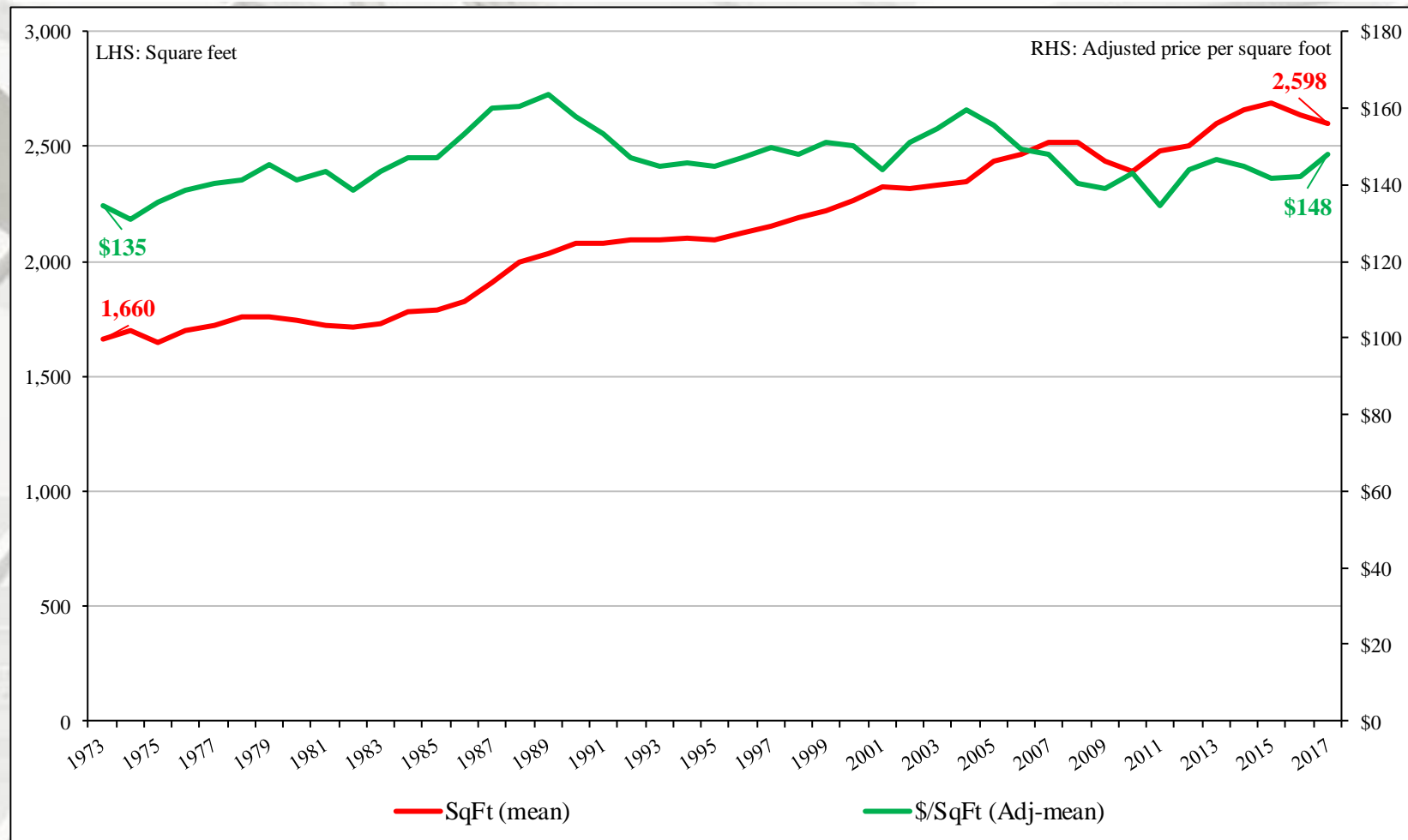
New SF House Sales



New SF Sales: <\$ 200m and > \$500m, Q1 2002 to Q1 2018

The number of < \$200 thousand plus SF houses has declined dramatically since Q1 2002^{1,2}. Since 2012, the > \$500 thousand class has soared (on a percentage basis) in contrast to the < \$200m class. One of the most mentioned reasons for this occurrence are regulations. Note: Sales values not adjusted for inflation.

U.S. Completed SF Housing by Price per Square Foot



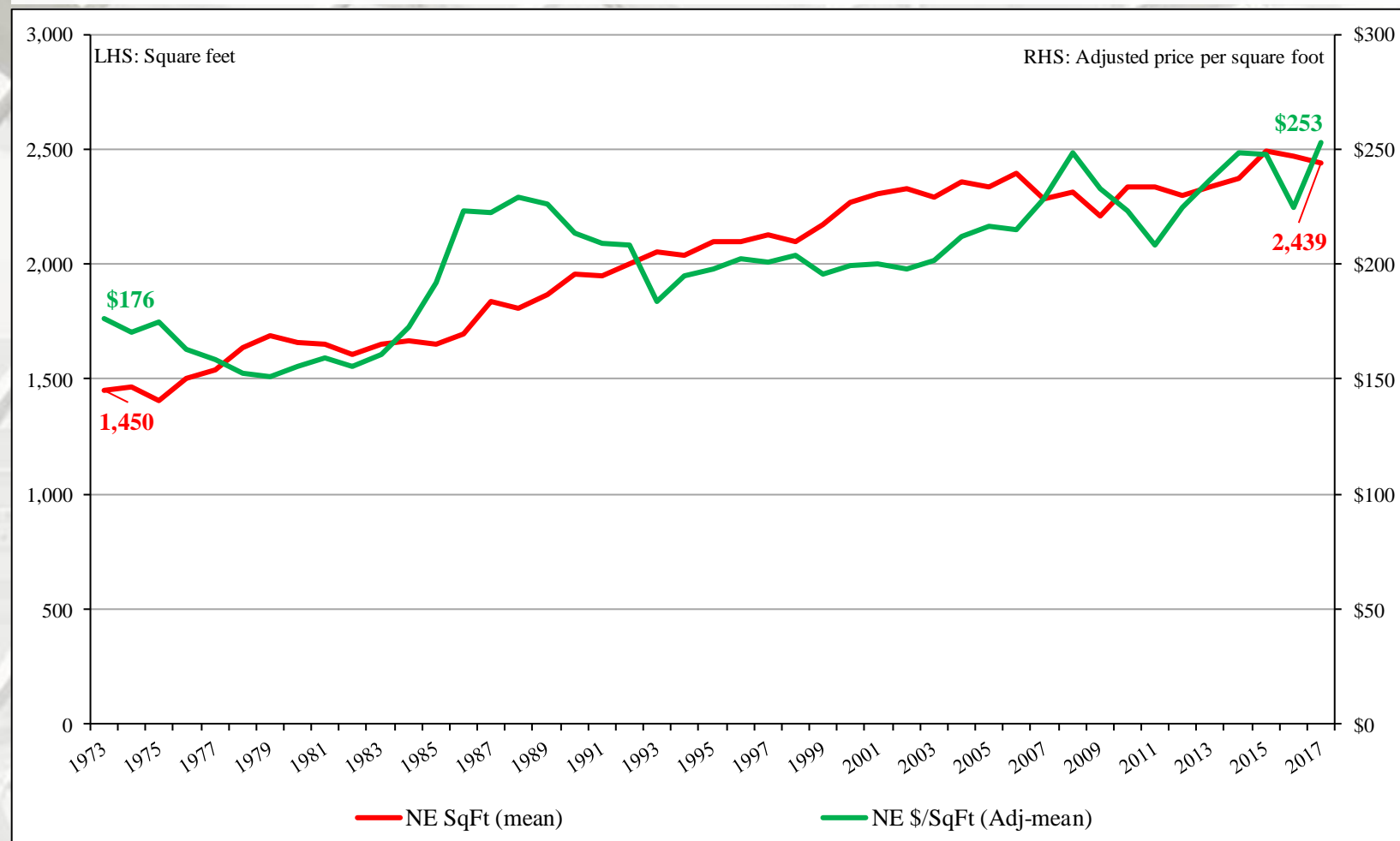
Inflation Adjusted Completed Houses – Price per Square Foot

Using 2017 U.S. Census-Construction completion and sales price data, and the U.S. Bureau of Economic Analysis's residential implicit price deflator (Table 1.1.9) – inflation adjusted values were developed for aggregate U.S., Northeast, Midwest, South, and West SF completions.

Source: ¹ <https://www.census.gov/construction/chars/completed.html>; ² https://www.census.gov/construction/nrs/historical_data/index.html;

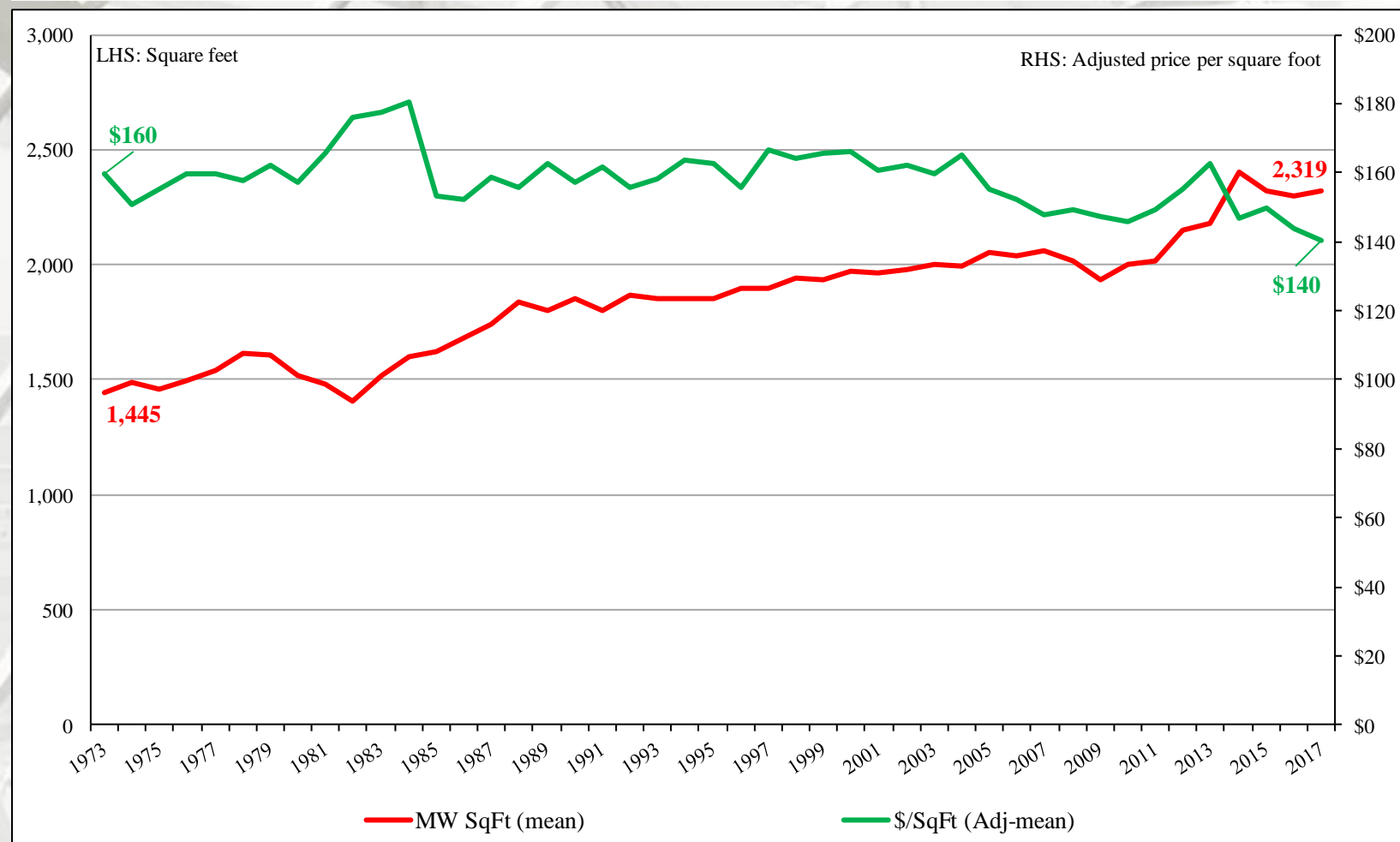
³ https://www.bea.gov/iTable/index_nipa.cfm (Table 1.1.9); 5/8/18

Northeast Completed SF Housing by Price per Square Foot



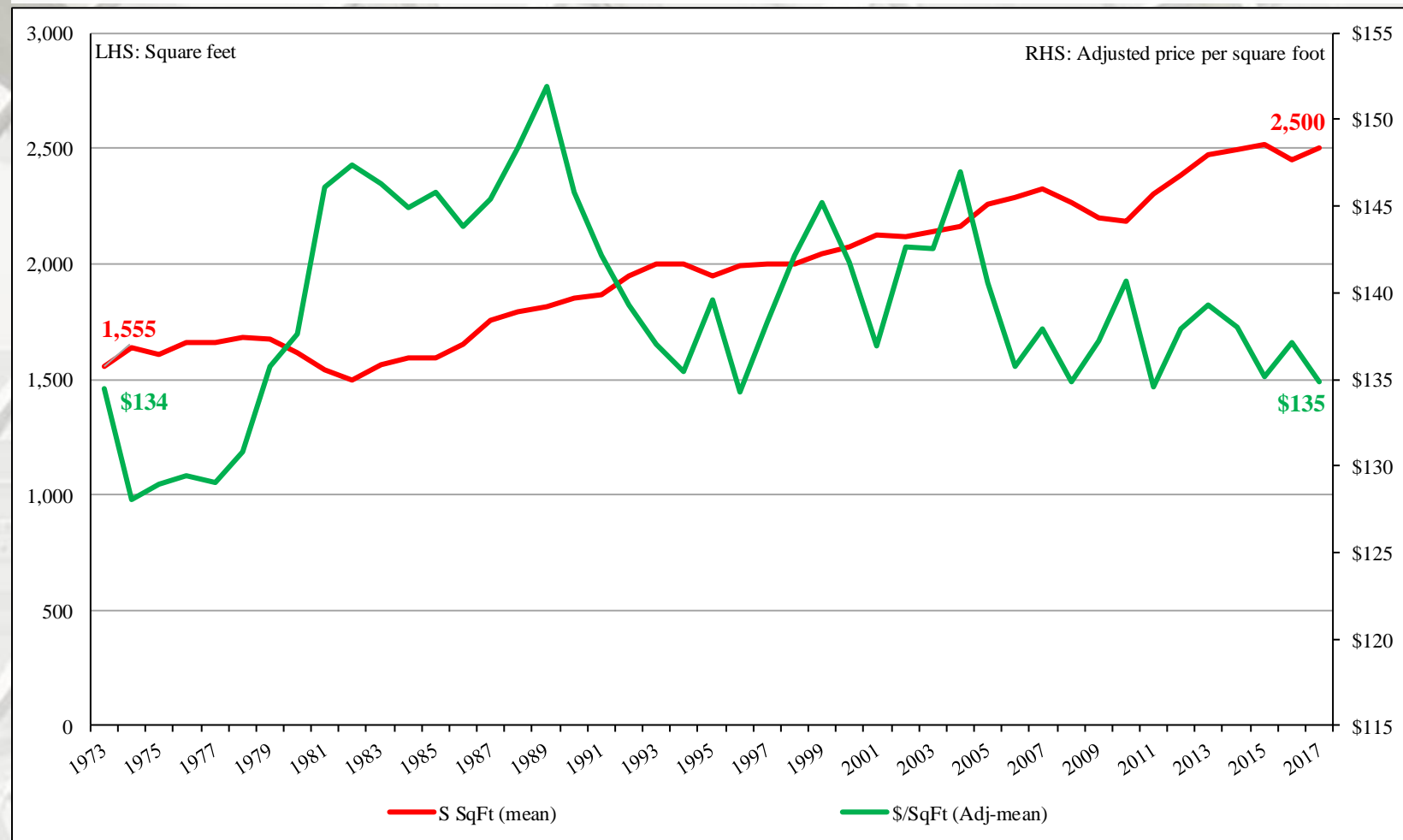
Source: ¹ <https://www.census.gov/construction/charts/completed.html>; ² https://www.census.gov/construction/nrs/historical1_data/index.html; ³ https://www.bea.gov/iTable/index_nipa.cfm (Table 1.1.9); 5/8/18

Midwest Completed SF Housing by Price per Square Foot



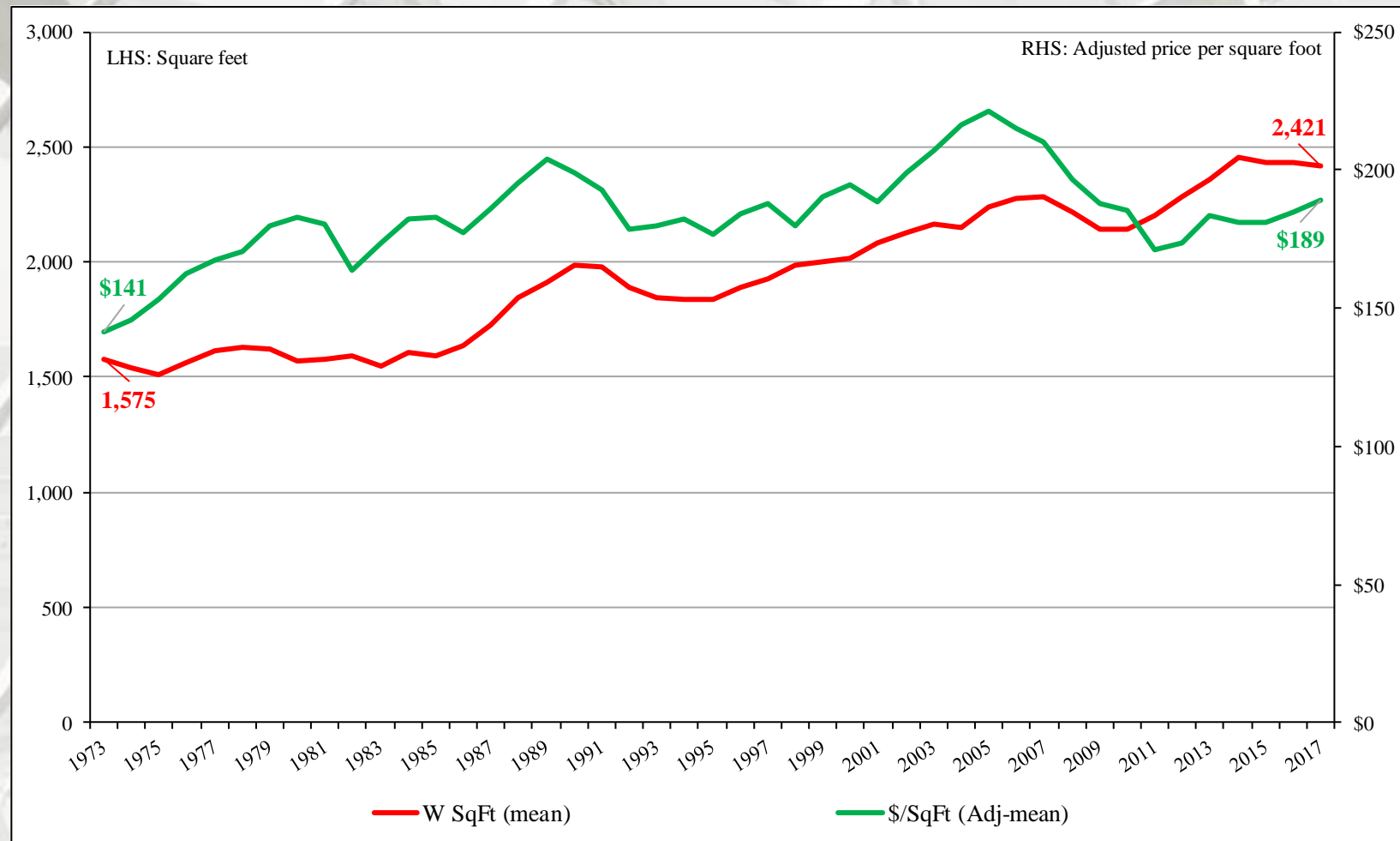
Source: ¹ <https://www.census.gov/construction/charts/completed.html>; ² https://www.census.gov/construction/nrs/historical_data/index.html; ³ https://www.bea.gov/iTable/index_nipa.cfm (Table 1.1.9); 5/8/18

South Completed SF Housing by Price per Square Foot



Source: ¹ <https://www.census.gov/construction/charts/completed.html>; ² https://www.census.gov/construction/nrs/historical_data/index.html; ³ https://www.bea.gov/iTable/index_nipa.cfm (Table 1.1.9); 5/8/18

West Completed SF Housing by Price per Square Foot



Source: ¹ <https://www.census.gov/construction/charts/completed.html>; ² https://www.census.gov/construction/nrs/historical_data/index.html; ³ [https://www.bea.gov/iTable/index_nipa.cfm\(Table 1.1.9\); 5/8/18](https://www.bea.gov/iTable/index_nipa.cfm(Table 1.1.9); 5/8/18)

March 2018

Construction Spending

	Total Private Residential*	SF	MF	Improvement**
March	\$536,788	\$283,536	\$58,932	\$194,320
February	\$556,531	\$284,810	\$60,553	\$211,168
2017	\$509,933	\$258,415	\$64,179	\$187,339
M/M change	-3.5%	-0.4%	-2.7%	-8.0%
Y/Y change	5.3%	9.7%	-8.2%	3.7%

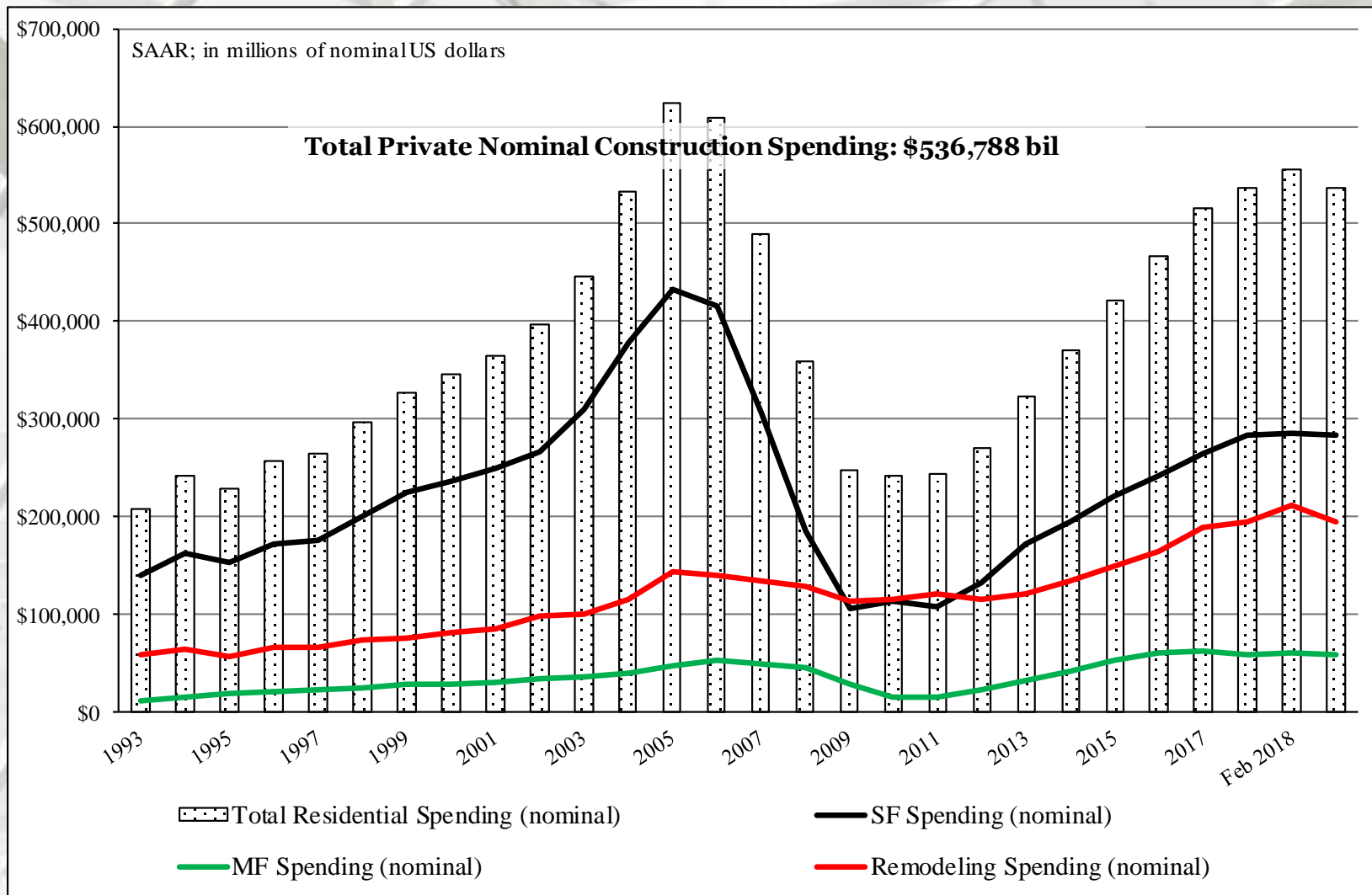
* Millions

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

((Total Private Spending – (SF spending + MF spending)).

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

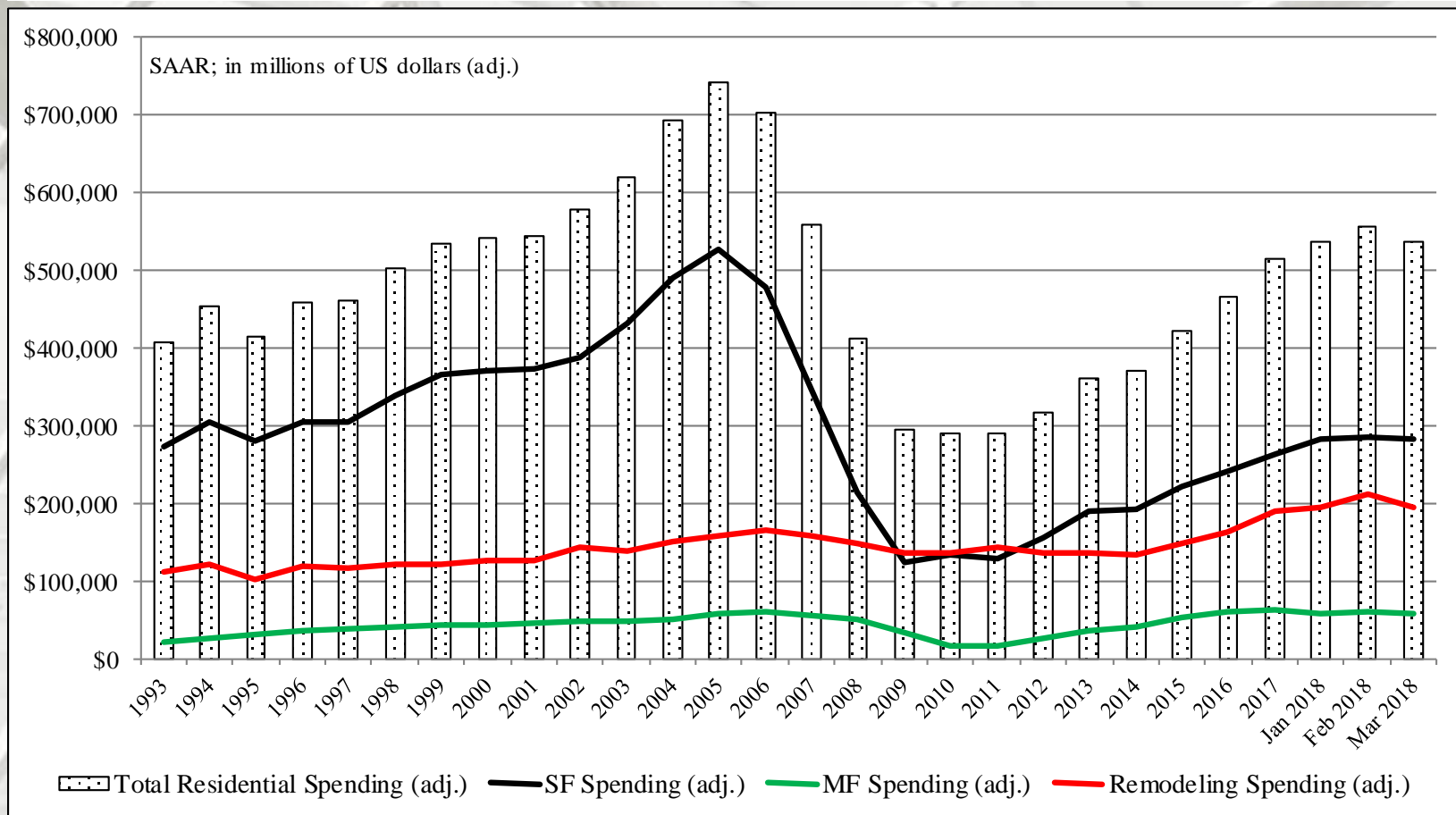
Total Construction Spending (nominal): 1993 – March 2018



Reported in nominal US\$.

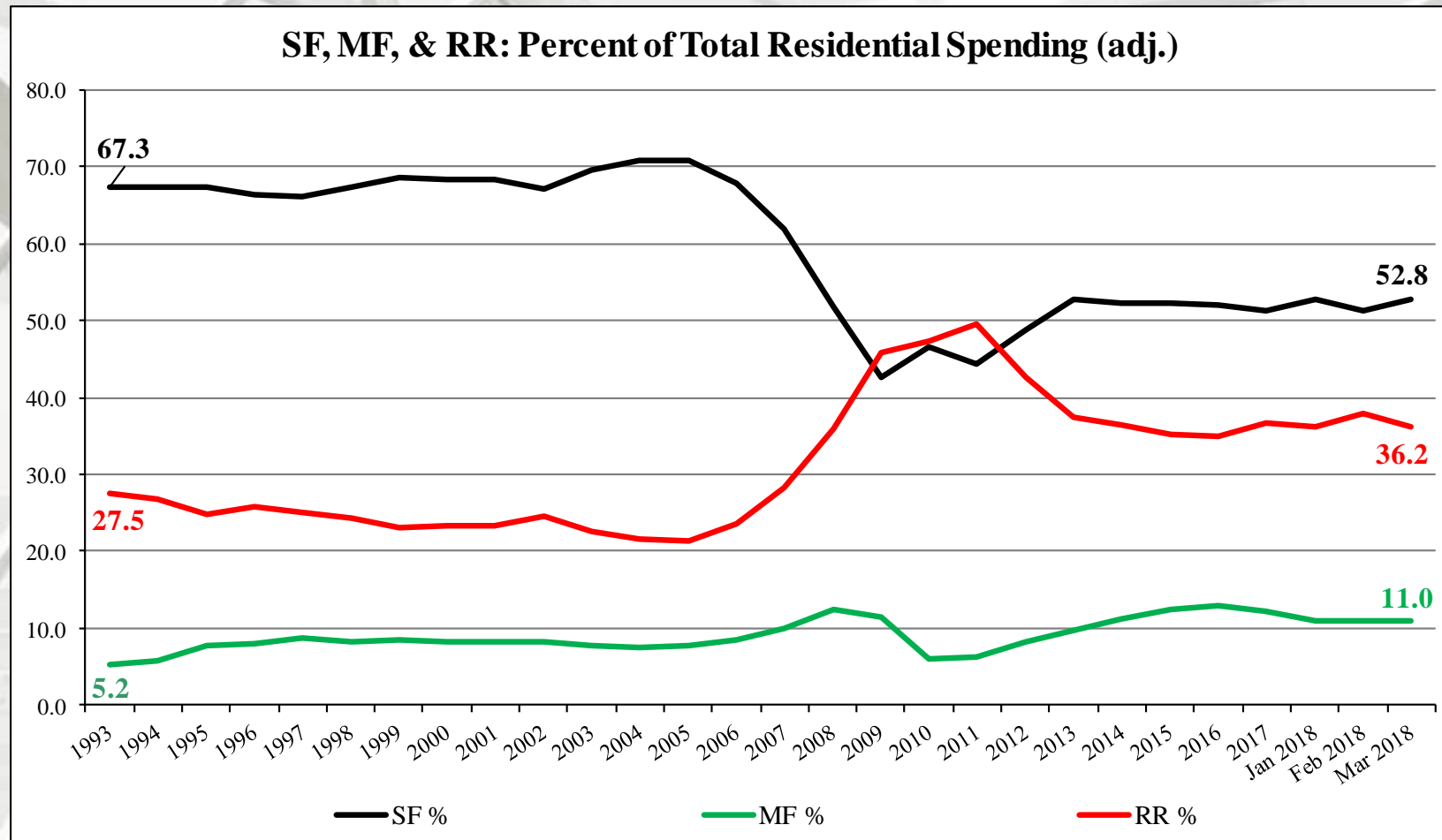
The US DOC does not report improvement spending directly, this is a monthly estimation for 2018.

Total Construction Spending (adjusted): 1993-2018*



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

Construction Spending Shares: 1993 to March 2018



Total Residential Spending: 1993 through 2006

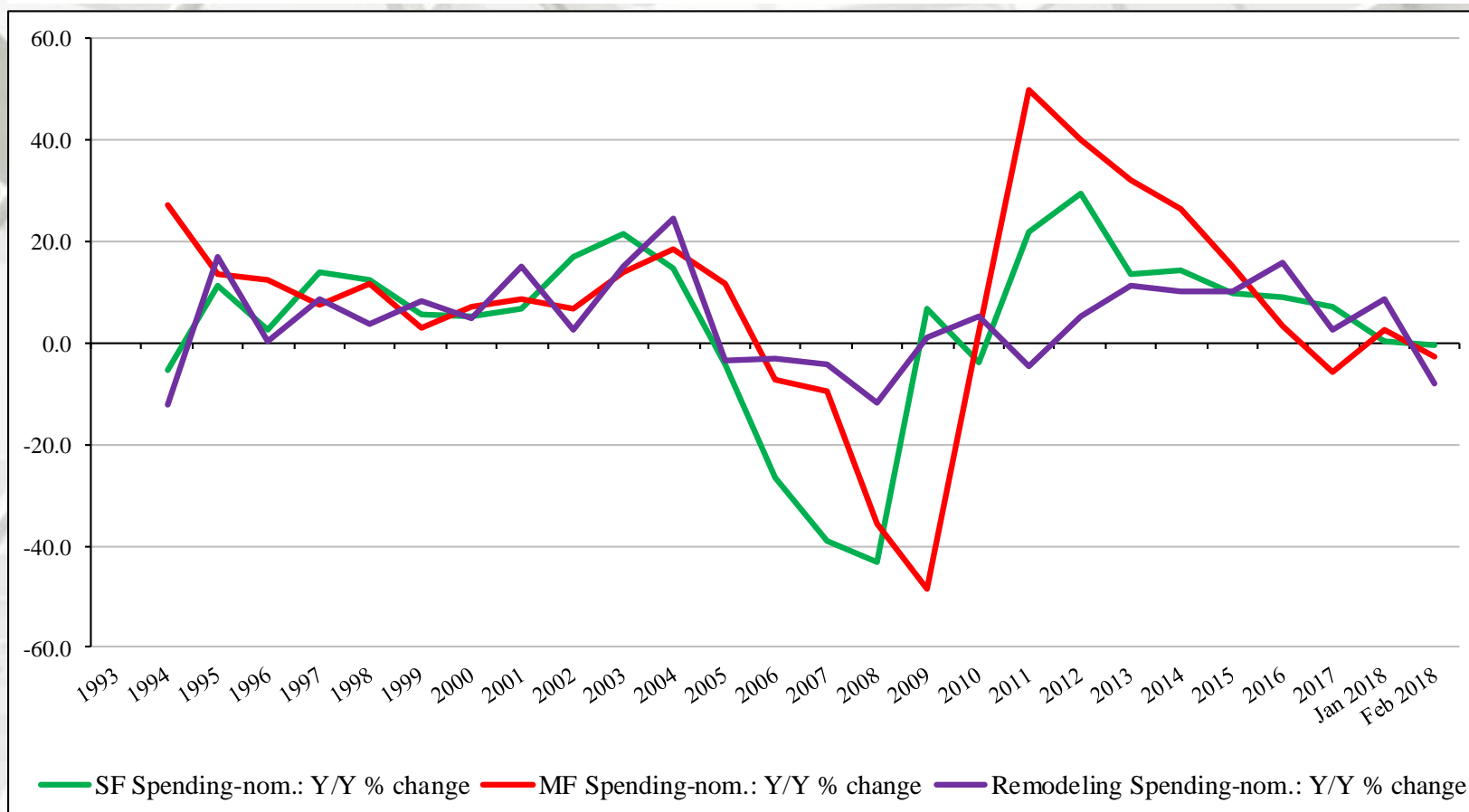
SF spending average: 69.2%

MF spending average: 7.5 %

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

Note: 1993 to 2016 (adjusted for inflation, BEA Table 1.1.9); March-March 2017 reported in nominal US\$.

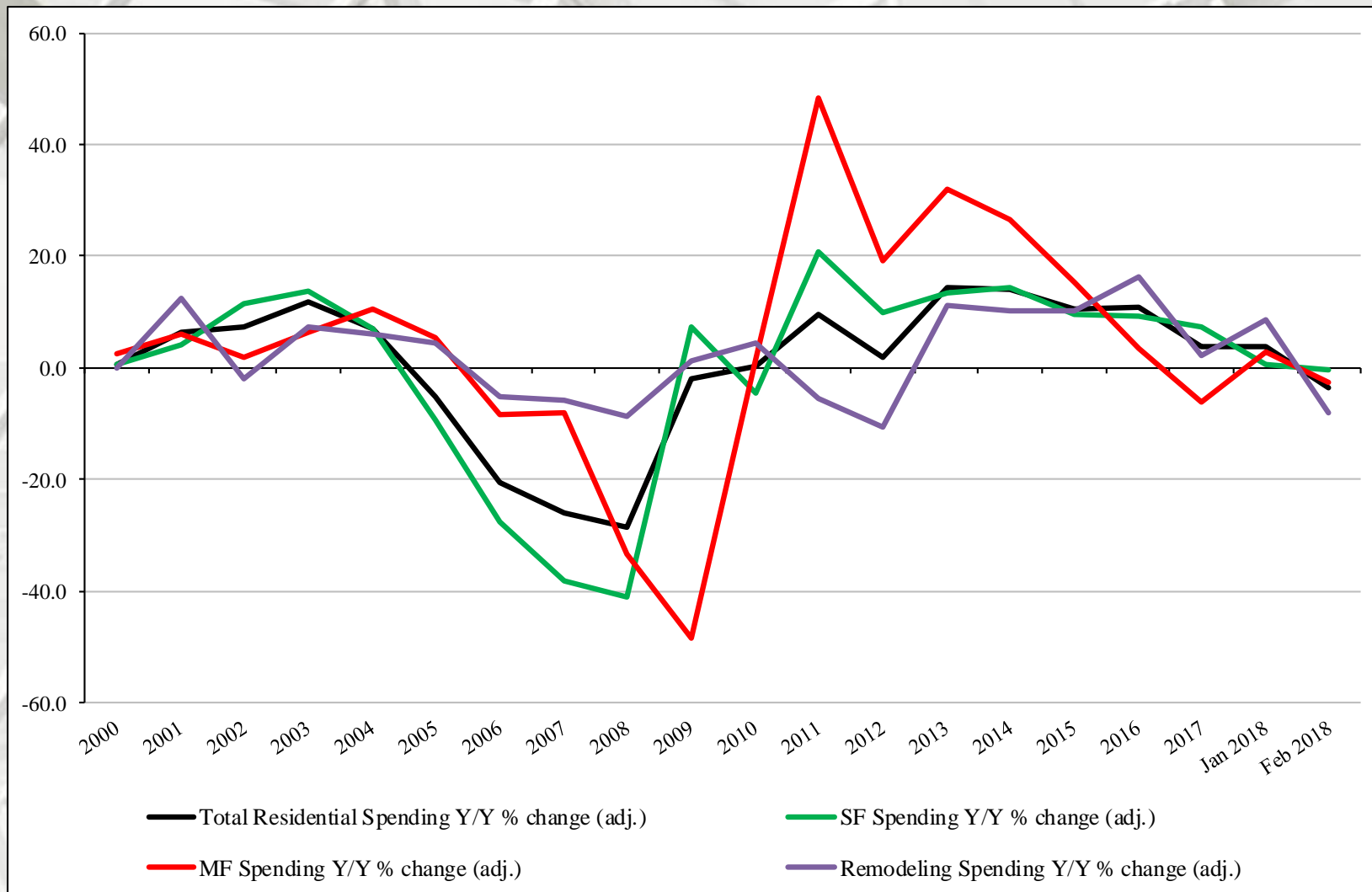
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to March 2018



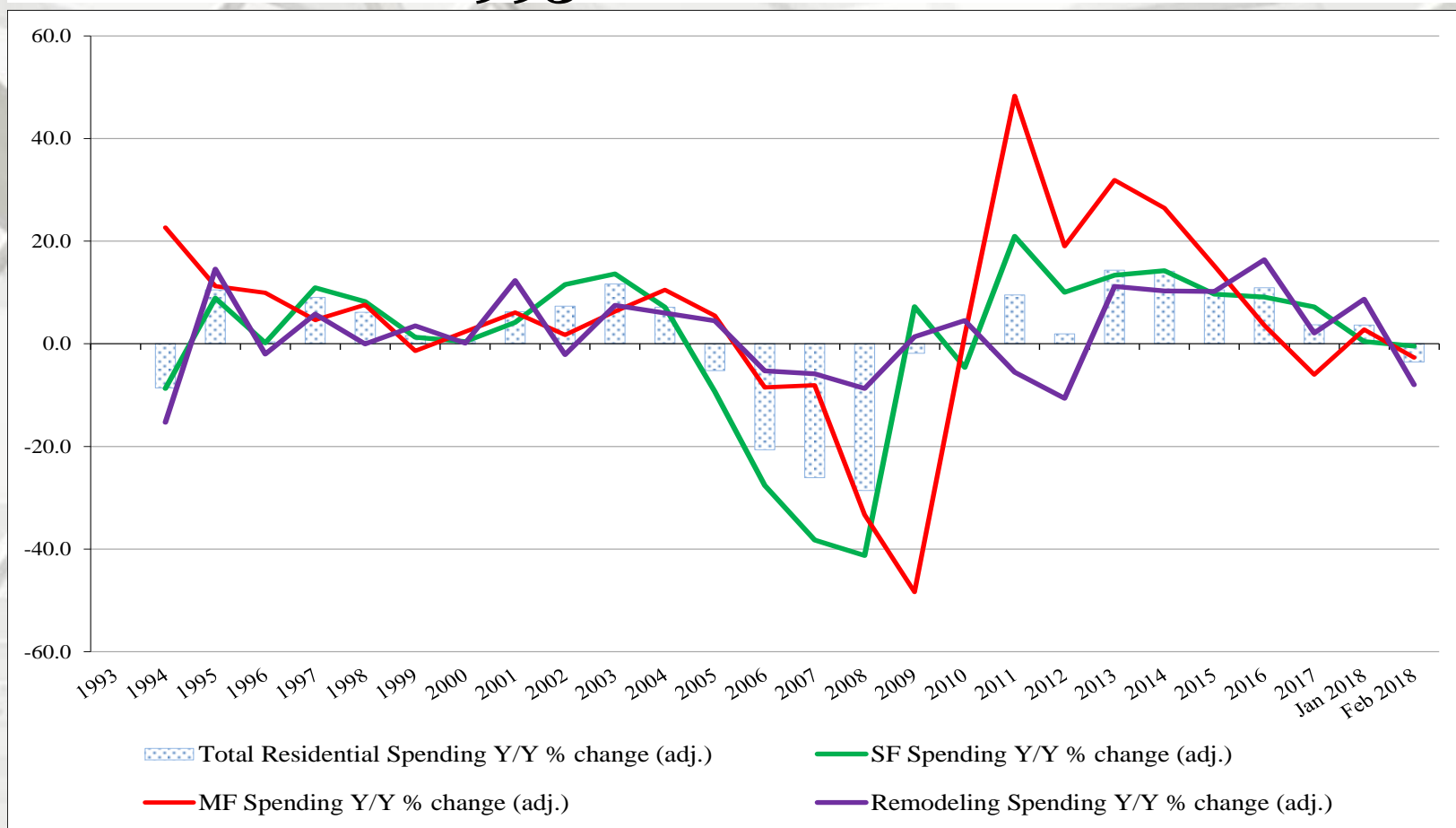
Residential Construction Spending: Percentage Change, 1993 to March 2018

Presented above is the percentage change of inflation adjusted Y/Y construction spending (1993-2017). All spending measures declined, on a percentage basis, year-over-year.

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



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



Residential Construction Spending: Percentage Change, 1993 to March 2018

The questions remain: Is construction spending normalizing? Has housing stalled? Or, are there alternative explanations? The percentage change in construction spending has been slightly negative for the past few months.

Remodeling

Leading Indicator of Remodeling Activity

Home Remodeling Expected To Remain Strong and Steady Into 2019

“The robust pace of spending on home renovations and repairs is expected to stay strong over the coming quarters, according to the Leading Indicator of Remodeling Activity (LIRA) released by the Remodeling Futures Program at the Joint Center for Housing Studies of Harvard University. The LIRA projects that annual growth in homeowner remodeling expenditure will remain above 7 percent throughout the year and into the first quarter of 2019.” – Kerry Donahue, Joint Center for Housing Studies of Harvard University

“Strengthening employment conditions and rising home values are encouraging homeowners to make greater investments in their homes. Upward trends in retail sales of building materials and the growing number of remodeling permits indicate that homeowners are doing more – and larger – improvement projects.” – Chris Herbert, Managing Director of the Joint Center for Housing Studies

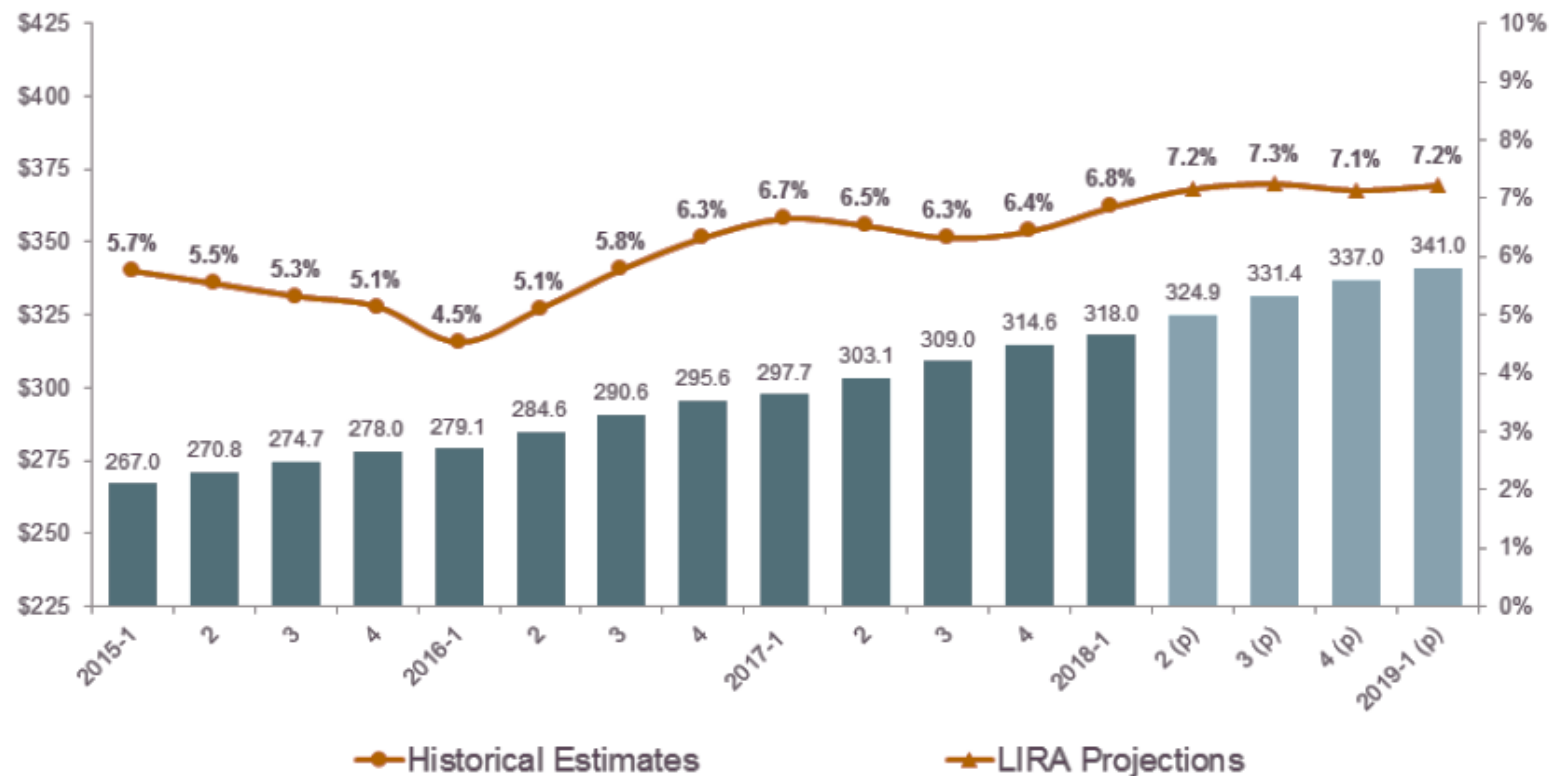
“While the overall outlook is positive, one area of concern is the slowing growth in sales of existing homes, since sales traditionally trigger significant renovation spending by both sellers and buyers. Even with this headwind, annual spending on residential improvements and repairs by homeowners is set to exceed \$340 billion by early next year.” – Abbe Will, Associate Project Director in the Remodeling Futures Program at the Joint Center.

Remodeling

Leading Indicator of Remodeling Activity – First Quarter 2018

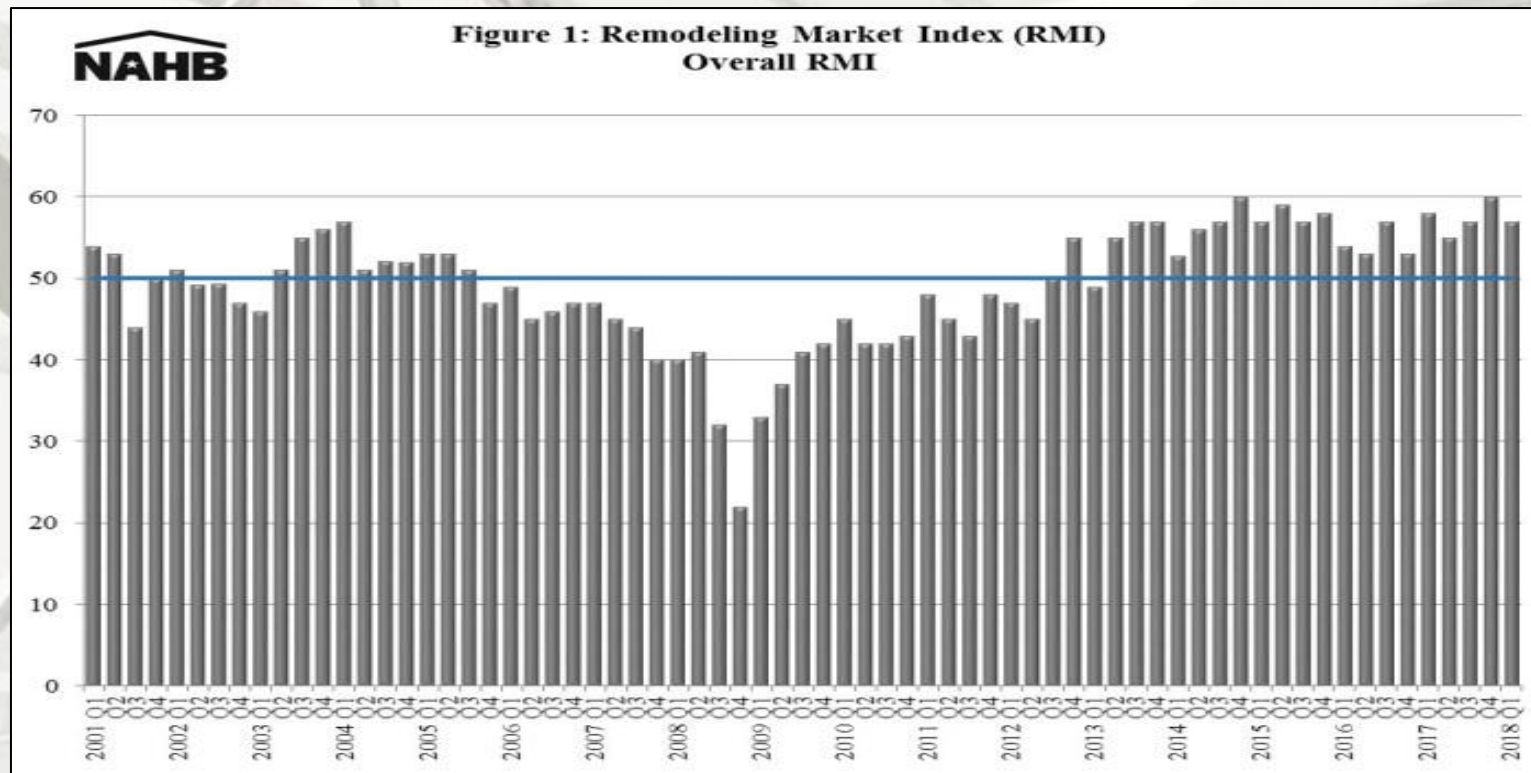
Homeowner Improvements & Repairs
Four-Quarter Moving Totals
Billions

Four-Quarter Moving
Rate of Change



Notes: Historical estimates since 2015 are produced using the LIRA model until American Housing Survey data become available.
Source: Joint Center for Housing Studies.

Remodeling



National Association of Homebuilders Remodeling Market Index Remains in Strong Territory Despite Three Point Slip

“The Remodeling Market Index (RMI) dipped three points to 57 in the first quarter of 2018, according to the National Association of Homebuilders. For 20 consecutive quarters the RMI has been at or above 50, which indicates that more remodelers report market activity is higher compared to the prior quarter than report it is lower (Figure 1).” – Carmel Ford, Economist, National Association of Homebuilders

Existing House Sales

National Association of Realtors

March 2018 sales: 5.600 thousand

	Existing Sales*	Median Price	Mean Price	Month's Supply
March	5,600,000	\$250,400	\$290,100	3.6
February	5,540,000	\$240,900	\$280,600	3.4
2017	5,670,000	\$236,600	\$278,700	3.8
M/M	1.1%	3.9%	3.4%	5.9%
Y/Y change	-1.2%	5.8%	4.1%	-5.3%

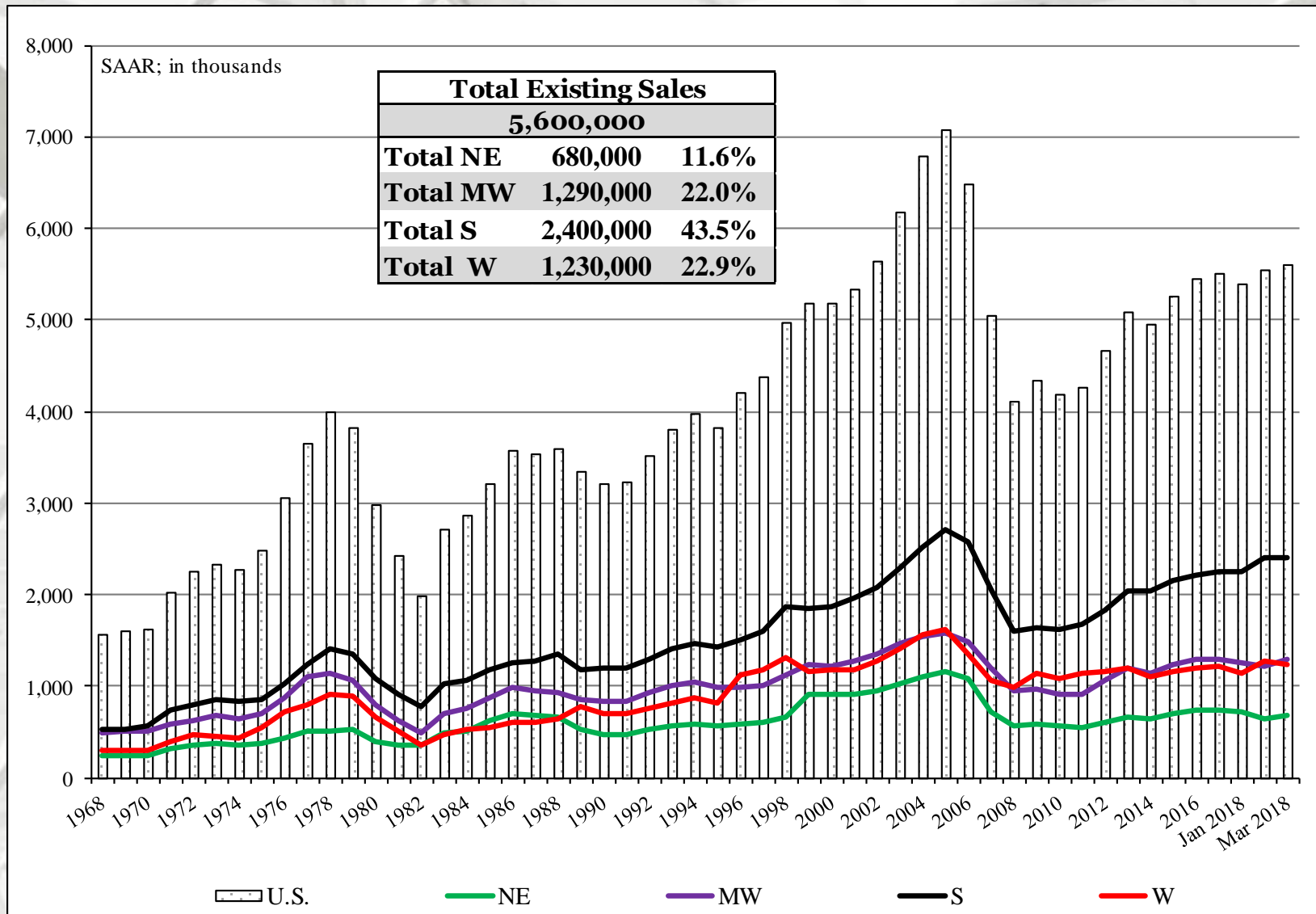
	NE Sales	MW Sales	S Sales	W Sales
March	680,000	1,290,000	2,400,000	1,230,000
February	640,000	1,220,000	2,410,000	1,270,000
2017	750,000	1,310,000	2,390,000	1,220,000
M/M change	6.3%	5.7%	-0.4%	-3.1%
Y/Y change	-9.3%	-1.5%	0.4%	0.8%

* All sales data: SAAR

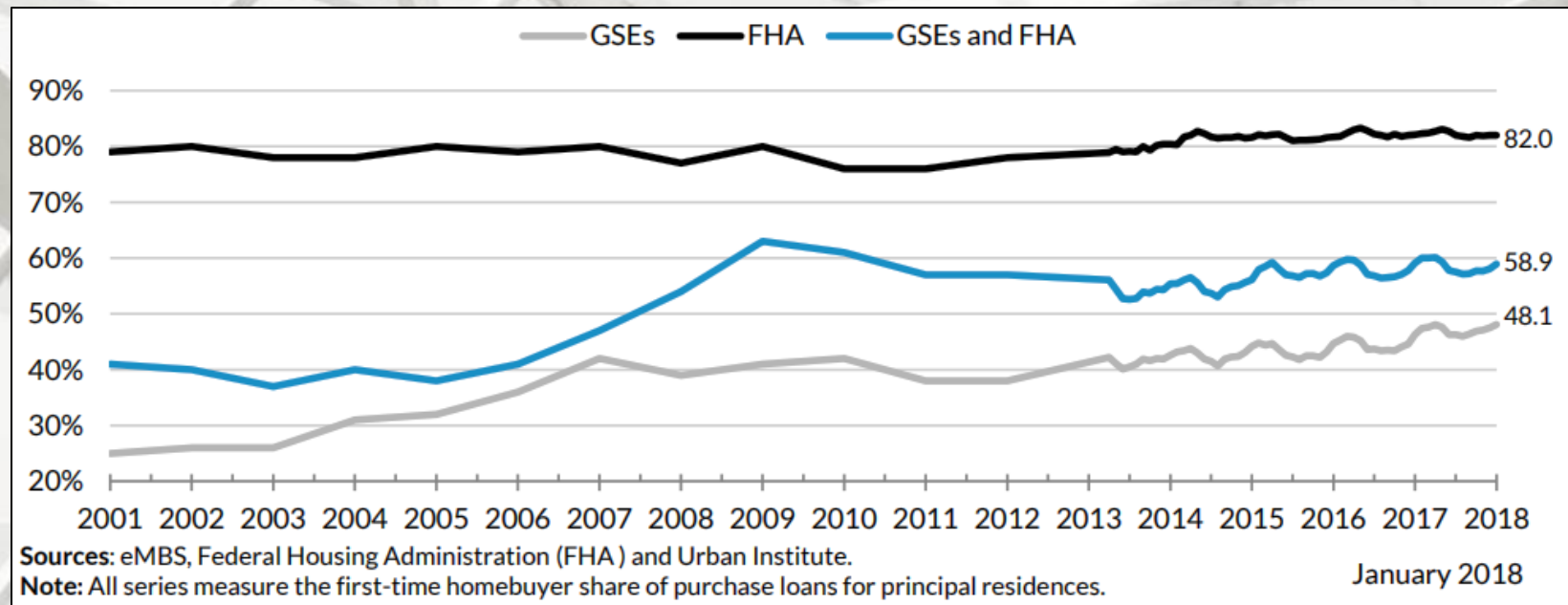
Source: <https://fred.stlouisfed.org/series/EXHOSLUSM495S>; 4/23/18

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Total Existing House Sales



First-Time Purchasers



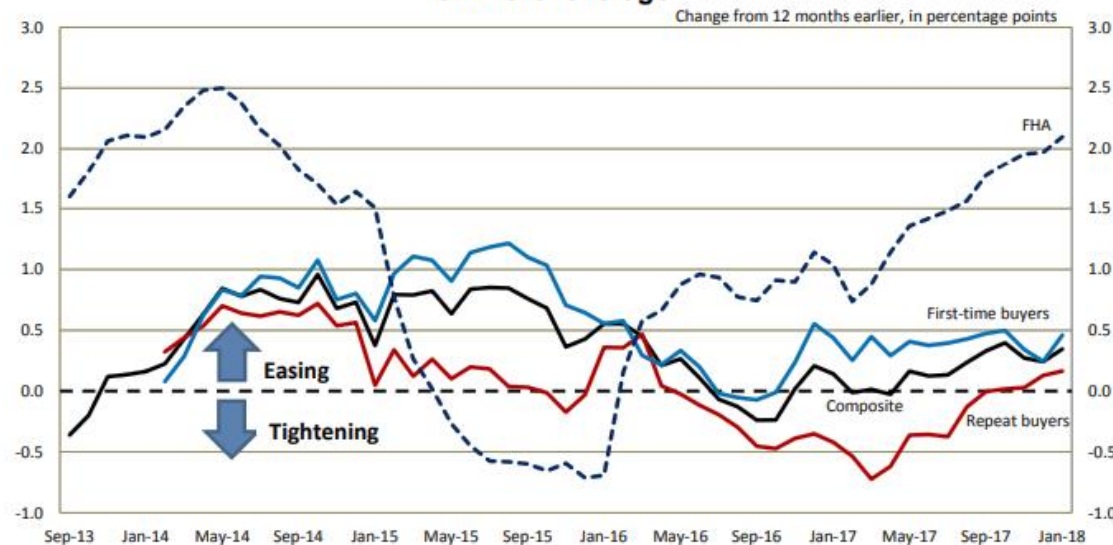
Urban Institute

“In January 2018, the first-time homebuyer share of GSE purchase loans was 48.1 percent, its highest level in recent history. The FHA has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent; it stood at 82.0 percent in January 2018. The bottom table shows that based on mortgages originated in January 2018, the average first-time homebuyer was more likely than an average repeat buyer to take out a smaller loan and have a lower credit score and higher LTV and DTI, thus requiring a higher interest rate.” – Laurie Goodman, *et al.*, Co-director, Housing Finance Policy Center

First-Time Purchasers

Purchase Loan NMRI: Credit Easing Continues for FTBs

Composite NMRI for purchase loans jumped 0.3 ppt from elevated levels a year ago. First-time buyer index jumped 0.5 ppt, primarily due to FHA being up 2.1 ppts. Repeat buyer index was up slightly. Rising prices having a disparate impact on buyers, benefitting repeat buyers through asset appreciation and hurting FTBs who have to take on more leverage.



Note: Includes all types of NMRI purchase loans (primary owner-occupied, second home, and investor loans).
Source: AEI Center on Housing Markets and Finance, www.AEI.org/housing-center.

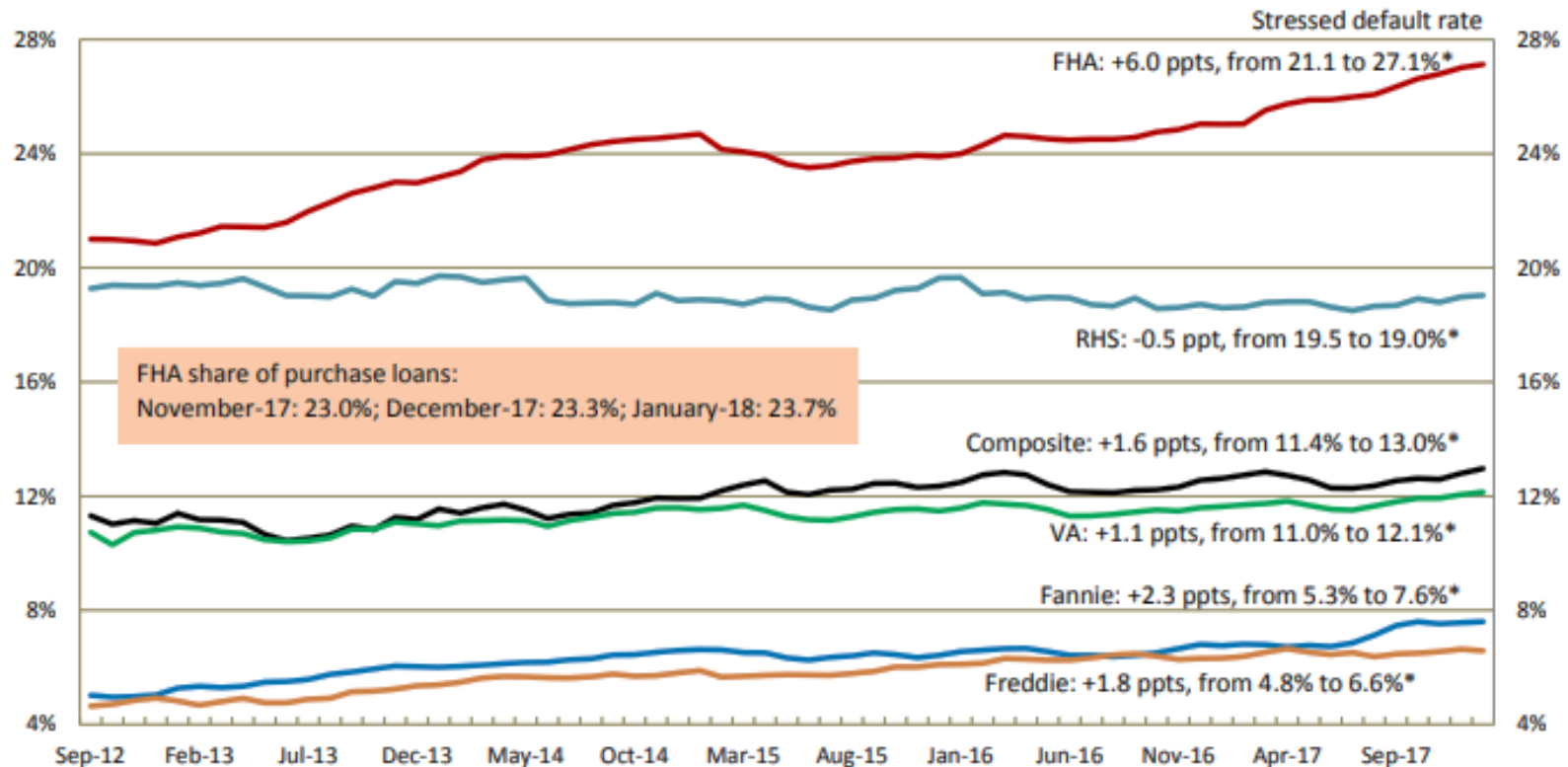
AEI International Center on Housing Risk Mortgage Risk Index release of January 2018 data

“First-time buyers (FTBs) continue to have increasing MRIs that are now almost twice as high as Repeat Buyer MRI and rapidly rising. This is driven by looser lending, particularly by FHA, which is being used to chase burgeoning home prices.” – Edward Pinto and Tobias Peter, AEI International Center on Housing Risk

First-Time Purchasers

NMRI for Home Purchase Loans

Composite index has consistently been trending up since mid-2013, with FHA leading the way. The Composite, FHA, Fannie, and VA indices all set a new series' high in January. Unless household income accelerates, future support for housing market likely to involve further increases in leverage from an already high level.



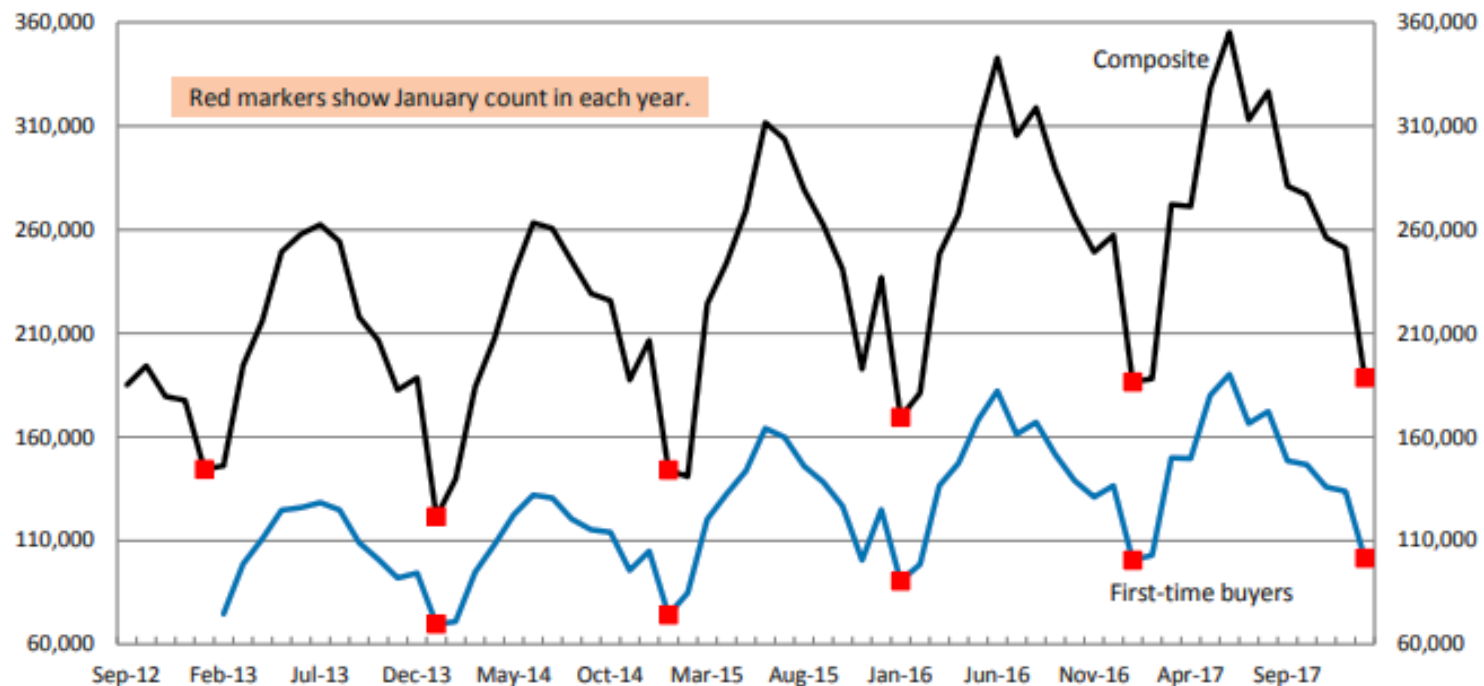
* Change from October 2013 to October 2017.

Source: AEI Center on Housing Markets and Finance, www.AEI.org/housing-center. RHS is Rural Housing Service.

First-Time Purchasers

Leverage Fueled Housing Demand Continues to Climb

Volume was up 1 percent from a year earlier and up 31 percent from 3 years ago; first-time buyer volume was up 1 percent and up 37 percent for the same periods. Maintaining demand continues to be reliant on further agency credit easing, which is needed to offset headwinds from a slightly less accommodative monetary policy and accelerating home price increases.

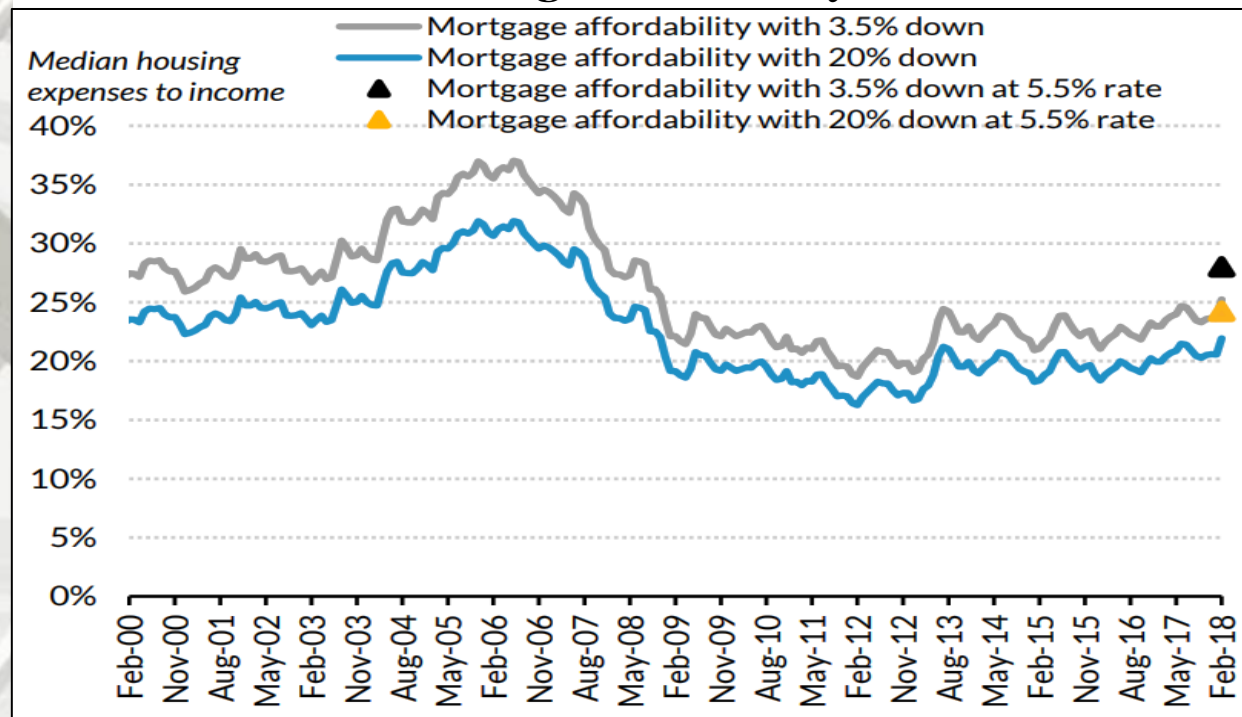


Note: October 2017 count is a preliminary estimate. First-time buyer volume not available before February 2013.
Source: AEI Center on Housing Markets and Finance, www.aei.org/center-housing.

7

Housing Affordability

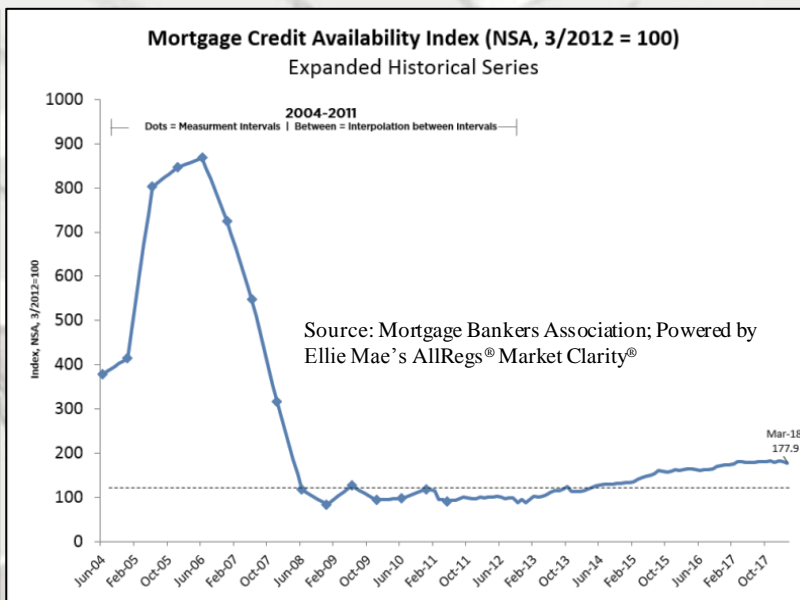
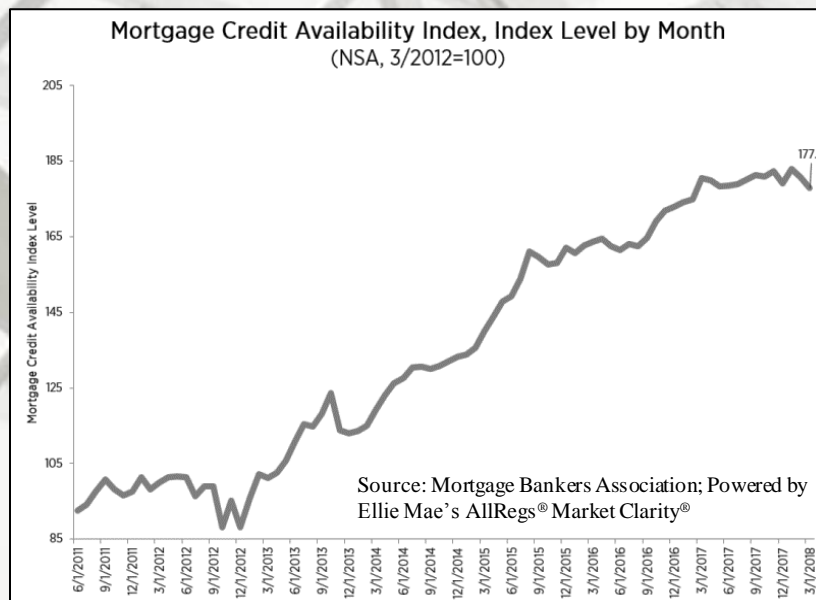
National Housing Affordability Over Time



Urban Institute

“Home prices remain affordable by historic standards, despite increases over the last five years and the recent interest rate hikes. As of January 2018, the share of median income needed for the monthly mortgage payment with a 20% down payment stood at 22 percent. With a 3.5% down payment, the share of income is higher, at 25 percent in January 2018. If interest rates rise to 5.5%, the housing expenses to income share with both a 20 percent and a 3.5 percent down payment would be equivalent to the 2001 -03 averages (24 and 28 percent, respectively).” – Bing Lai, Research Associate, Housing Finance Policy Center

Mortgage Credit Availability



Mortgage Credit Availability Unchanged in April

“Mortgage credit availability was unchanged in April according to the Mortgage Credit Availability Index (MCAI), The MCAI was unchanged at 177.9 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 (up 1.9 percent) while the Government MCAI fell (down 1.4 percent). Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 4.4 percent while the Conforming MCAI fell by 0.9 percent.

Credit availability in April was unchanged overall, but the components told different stories. Government credit tightened slightly as investors continued to pull back on streamline refinance products, while conventional credit availability increased, driven mainly by an expansion in jumbo credit. The jumbo market remains competitive for lenders according to data from our Weekly Application Survey, as the spread between conforming 30 year fixed rate loans and jumbo 30 year fixed rate loans widened to 12 basis points over March and April, the widest this spread has been since early 2016.” – Joel Kan, Vice President of Research and Economics, MBA

United States Housing

New Research Finds Increasing Preference for Renting

“New research by Freddie Mac reveals that despite growing economic confidence among renters, affordability remains dominant in driving renter behavior. The spring “Profile of Today's Renter” finds a total of 67 percent of renters view renting as more affordable than owning a home, including 73 percent of Baby Boomers (aged 53-71). Similarly, 67 percent of renters who will continue renting say they will do so for financial reasons — up from 59 percent just two years ago.

Conducted by Harris Poll, the [survey PDF](#) finds half (50 percent) of Baby Boomers currently renting do not anticipate buying a home in the future, up eight points from the previous Profile taken six months ago. Of that half, **35 percent have no interest in owning, and 15 percent believe they will never be able to afford it.** Similarly, 31 percent of Generation Xers (aged 38-52) expressed that sentiment, up from 28 percent from the previous profile. Of those respondents, 19 percent lack interest and 12 percent believe they will never be able to afford it.

Although the Profile finds a growing number of renters believe their economic situation has improved compared to last summer, it also finds that cost is increasingly driving rental decisions. While 67 percent of renters stated they will continue renting for financial reasons, that number is significantly higher for Millennials (aged 21-37), jumping 15 points from 59 percent in 2016 to 74 percent. Multifamily renters (versus single-family renters) expressing this view jumped eleven points – from 57 percent in 2016 to 68 percent today. And although this increase takes place in all geographic areas, urban renters are increasingly likely to continue renting for financial reasons.

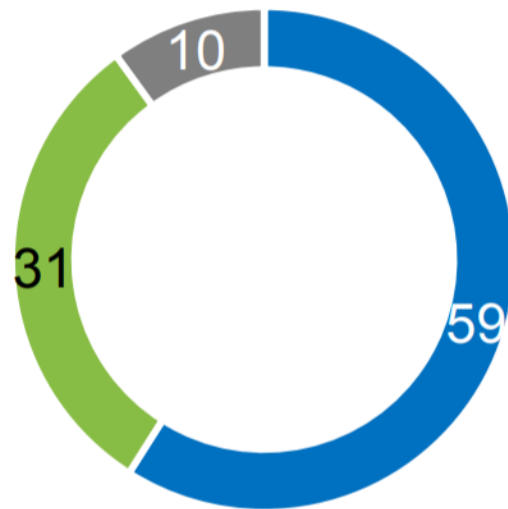
As part of the Profile, a [companion survey PDF](#) conducted by GfK Custom Research was also released today, finding that cost concerns play a major role in mobility and housing choices. The study shows a significant majority, 64 percent, of renters cite price as the most important factor when considering their next home, a theme consistent across all generational cohorts.”” – Freddie Mac Economic & Housing Research

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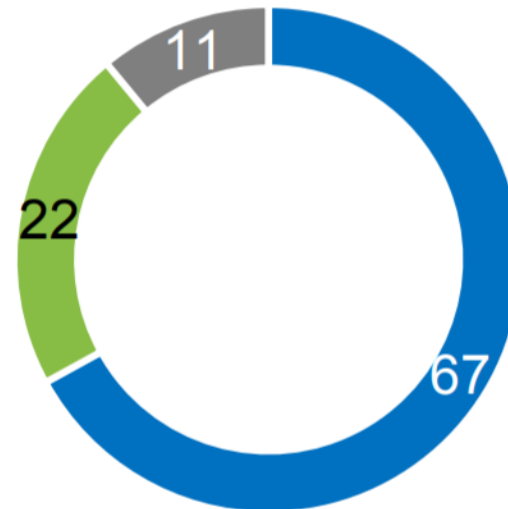
Reason For Renting Next Residence

■ Financial ■ Lifestyle ■ Don't Know

September 2016



February 2018



United States Housing

New Research Finds Increasing Preference for Renting Rental Satisfaction

“Rental satisfaction continues to run high. A significant and growing majority of renters – 66 percent – are satisfied with the overall rental experience, up from 60 percent in August of 2017. Even among renters who have experienced a rent increase in the past two years, a growing number – 64 percent – stated they do not plan to move, up from 49 percent in August 2017. This includes a noteworthy 70 percent of Baby Boomers. In addition, a majority of renters – 54 percent – continue to believe that renting is a good choice for them now, including 71 percent of Millennials.

Renters in the West Facing Added Difficulty

The Profile also shows renters living in the western United States with increasing issues related to affordability and the cost of living. Those living in the West feel the impact of rent increases more than other regions, with 64 percent saying they are now spending less on other essentials due to changes in their rent – which is at least nine points more than any other region. Additionally, renters living in the West perceive homeownership as more difficult to attain than other regions, with 51 percent believing homeownership is less accessible than three years ago.” – Freddie Mac Economic & Housing Research

Summary

In summary:

The collective U.S. housing market was mixed in March and new SF sales improved positive on a monthly basis. SF housing starts, new SF, MF, and remodeling spending were all negative on a monthly basis. Other housing categories appear to have flat-lined on a monthly basis. Regionally, data were mixed across all sectors. Once again, new SF lower-priced tier house sales were less than historical averages. The new SF construction market needs consistent improvement in this category to influence the housing construction market upward.

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

Pros:

- 1) Historically low interest rates are still in effect, though in aggregate rates are incrementally rising (future Fed actions may cause *i*-rates to rise);
- 2) As a result, housing affordability is good for many in the U.S. – but not all of the U.S.;
- 3) Select builders are beginning to focus on entry-level houses.

Cons:

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

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