

The Virginia Tech – U.S. Forest Service September 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

September housing data was tepid with several monthly declines in starts, permits, completions, and new single-family sales. Total private construction spending was minimally positive; conversely, single-family expenditures declined slightly on a monthly basis. All housing start data were positive on year-over-year starts. Housing under construction remained positive except for yearly multi-family data. Single-family housing completions were positive year-over-year, but negative on a monthly basis. Existing sales continued their stagnant trend, monthly and yearly. The November 9th Atlanta Fed GDPNow™ residential investment spending model projects an aggregate -1.5% decline. New private permanent site expenditures were projected for a 1.1% increase; the improvement spending forecast was a 3.3% increase; and the manufactured/mobile housing projection was a 10.1% improvement (all: quarterly log change and seasonally adjusted annual rate)¹.

“This month we slightly adjusted upward our forecast for third-quarter real GDP growth, largely because of an upgraded projection of consumer spending growth; however, our calls for growth on an annual basis remain unchanged – both this year and next. ... Our expectations for housing have become more pessimistic: Rising interest rates and declining housing sentiment from both consumers and lenders led us to lower our home sales forecast over the duration of 2018 and through 2019. Meanwhile, affordability, especially for first-time homebuyers, remains atop the list of challenges facing the housing market.”² – Doug Duncan, Chief Economist, Fannie Mae

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

Sources: ¹ <https://www.frbatlanta.org/cqer/research/gdpnow.aspx>; 11/9/18;

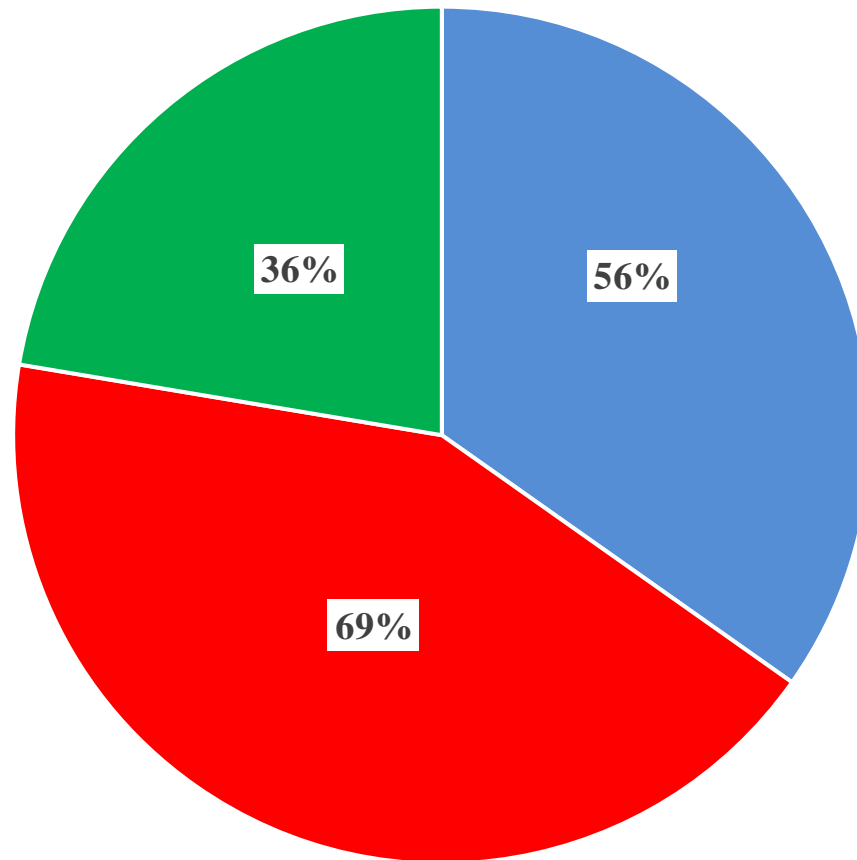
² <http://www.fanniemae.com/portal/research-insights/forecast.htm>; 10/18/18

September 2018 Housing Scorecard

	M/M	Y/Y
Housing Starts	▽ 5.3%	△ 3.7%
Single-family Starts	▽ 0.9%	△ 4.8%
Housing Permits	▽ 0.6%	▽ 1.0%
Single-family Permits	△ 2.9%	△ 2.4%
Housing Under Construction	△ 0.3%	△ 3.7%
Single-family Under Construction	△ 0.4%	△ 9.2%
Housing Completions	▽ 4.1%	△ 7.0%
Single-family Completions	▽ 8.7%	△ 8.6%
New Single-family House Sales	▽ 5.5%	▽ 13.2%
Private Residential Construction Spending	△ 0.6%	△ 5.1%
Single-family Construction Spending	▽ 0.8%	△ 3.1%
Existing House Sales ¹	▽ 3.4%	▽ 4.1%

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

New Construction's Percentage of Wood Products Consumption

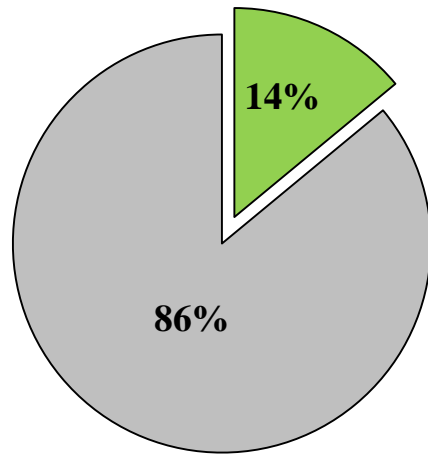


■ All Sawnwood

■ Structural panels

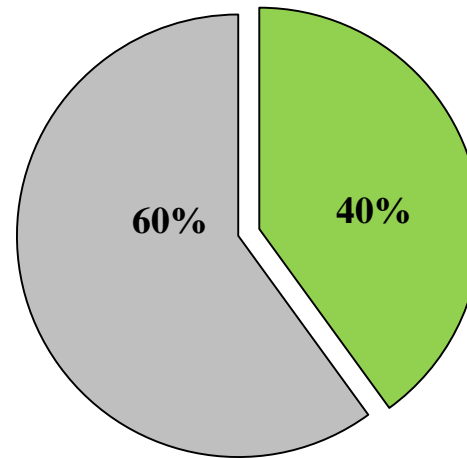
■ Non-structural panels

New SF Construction Percentage of Wood Products Consumption



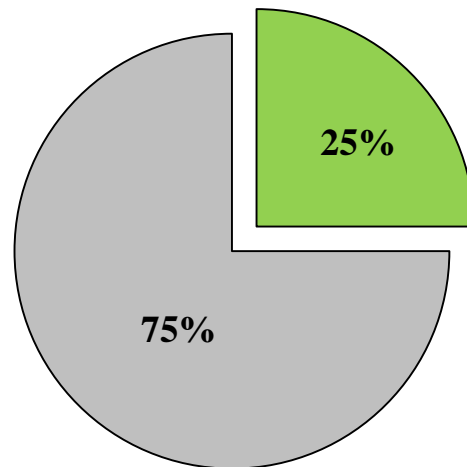
■ Non-structural panels:
New Housing

■ Other markets



■ Structural panels:
New housing

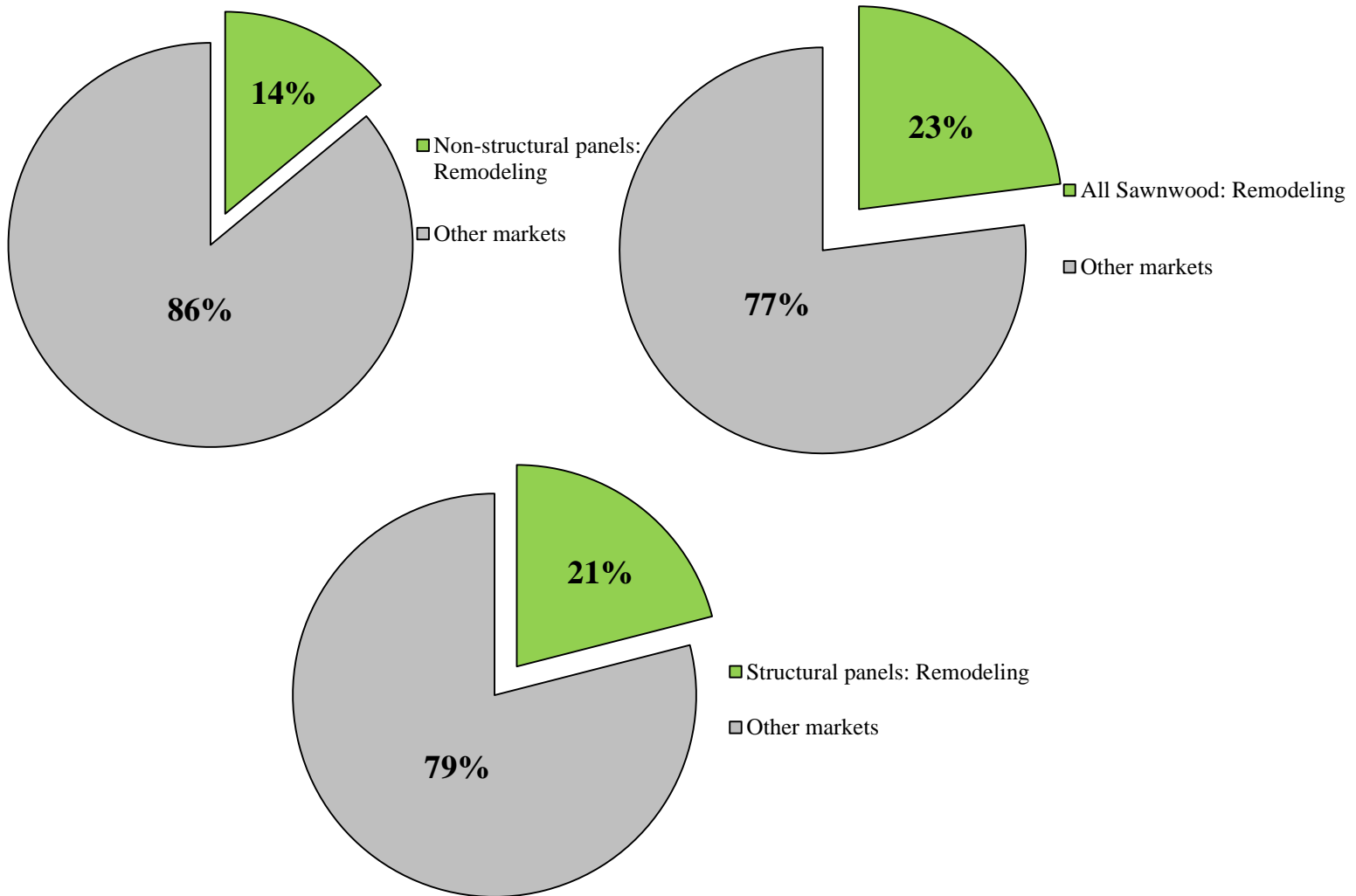
■ Other markets



■ All Sawnwood: New housing

■ Other markets

Repair and Remodeling's Percentage of Wood Products Consumption



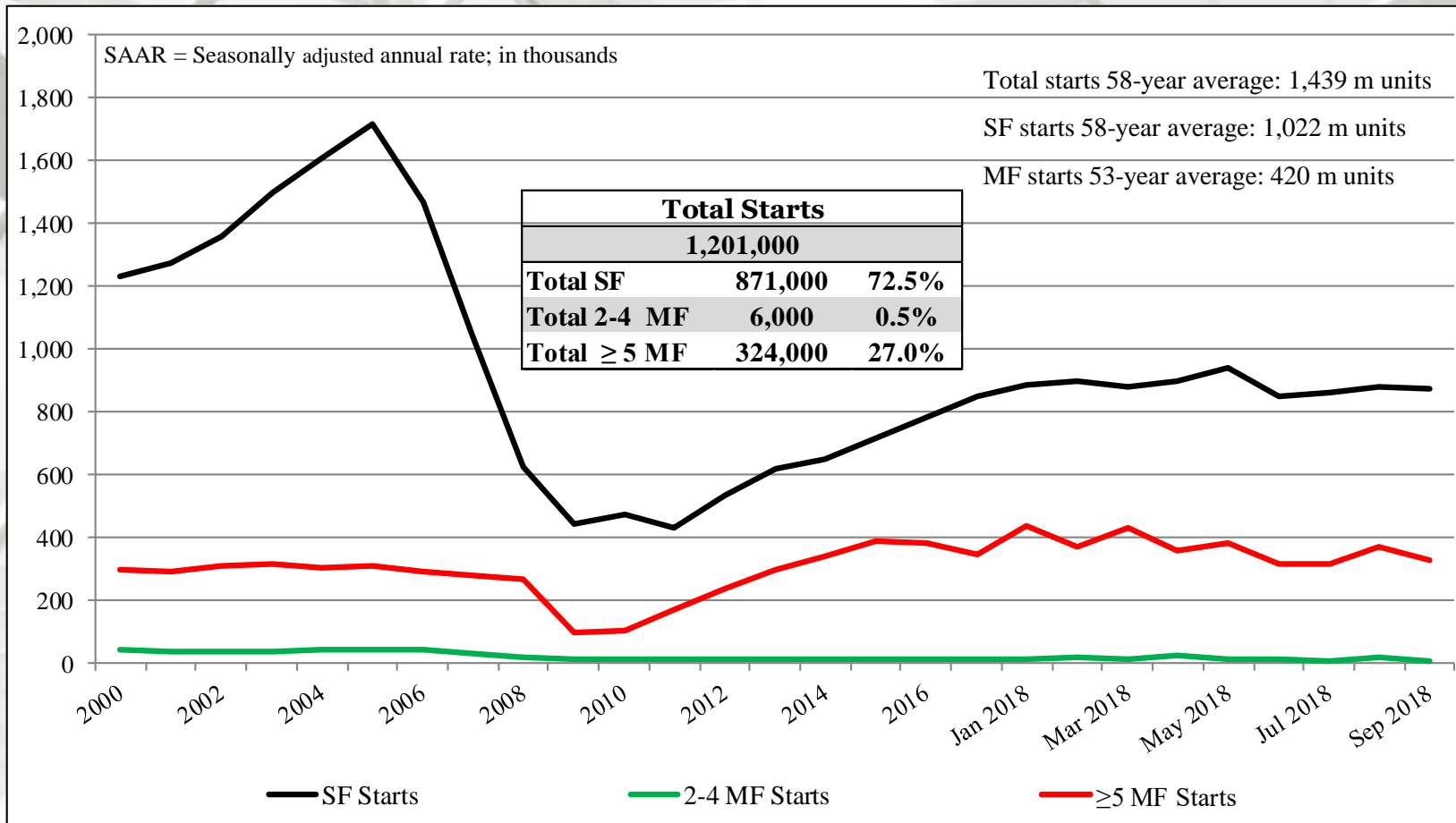
New Housing Starts

	Total Starts*	SF Starts	MF 2-4 Starts**	MF ≥5 Starts
September	1,201,000	871,000	6,000	324,000
August	1,268,000	879,000	17,000	372,000
2017	1,158,000	831,000	17,000	310,000
M/M change	-5.3	-0.9	-64.7	-12.9
Y/Y change	3.7	4.8	-64.7	4.5

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

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

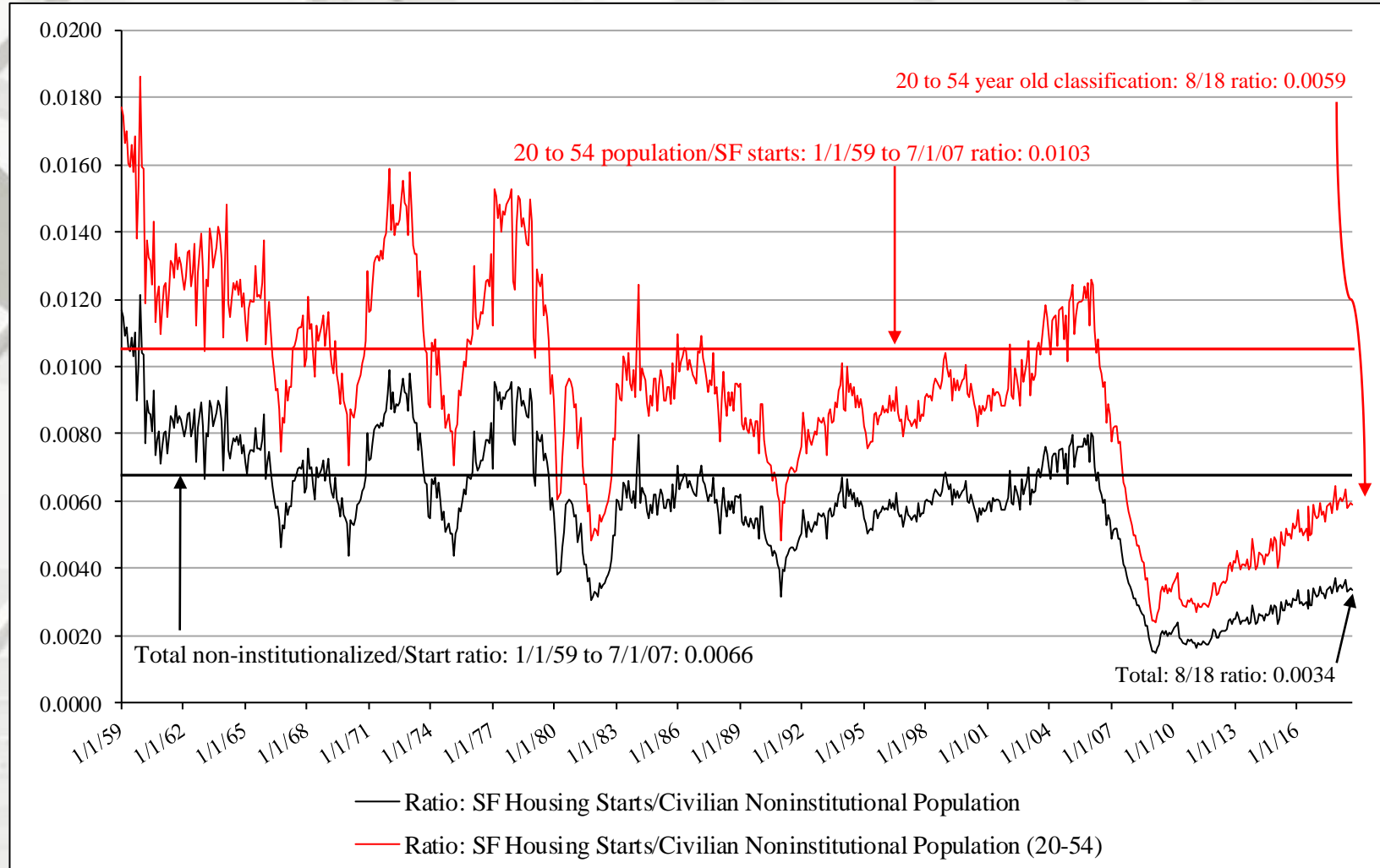
Total Housing Starts



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

* Percentage of total starts.

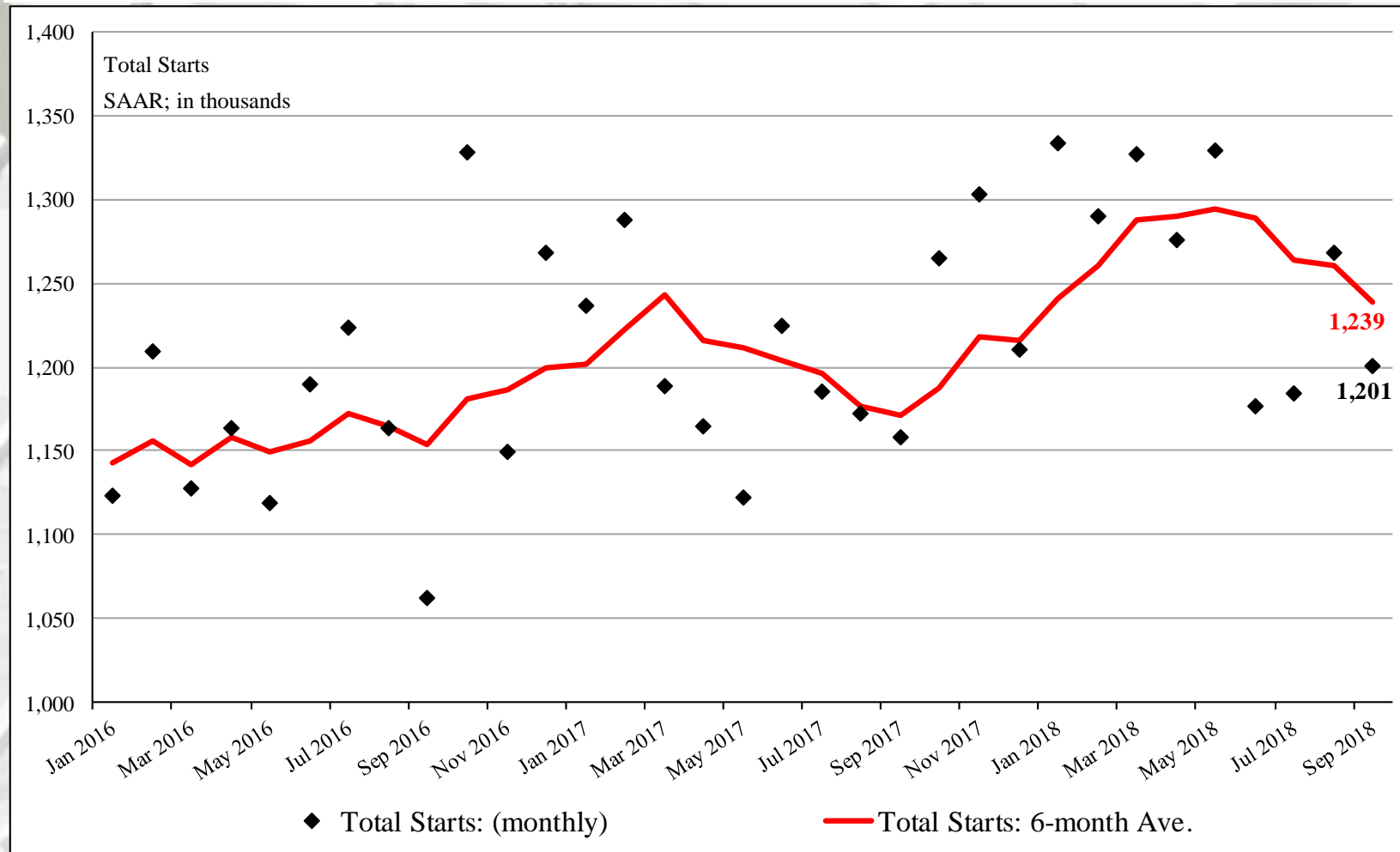
New SF Starts



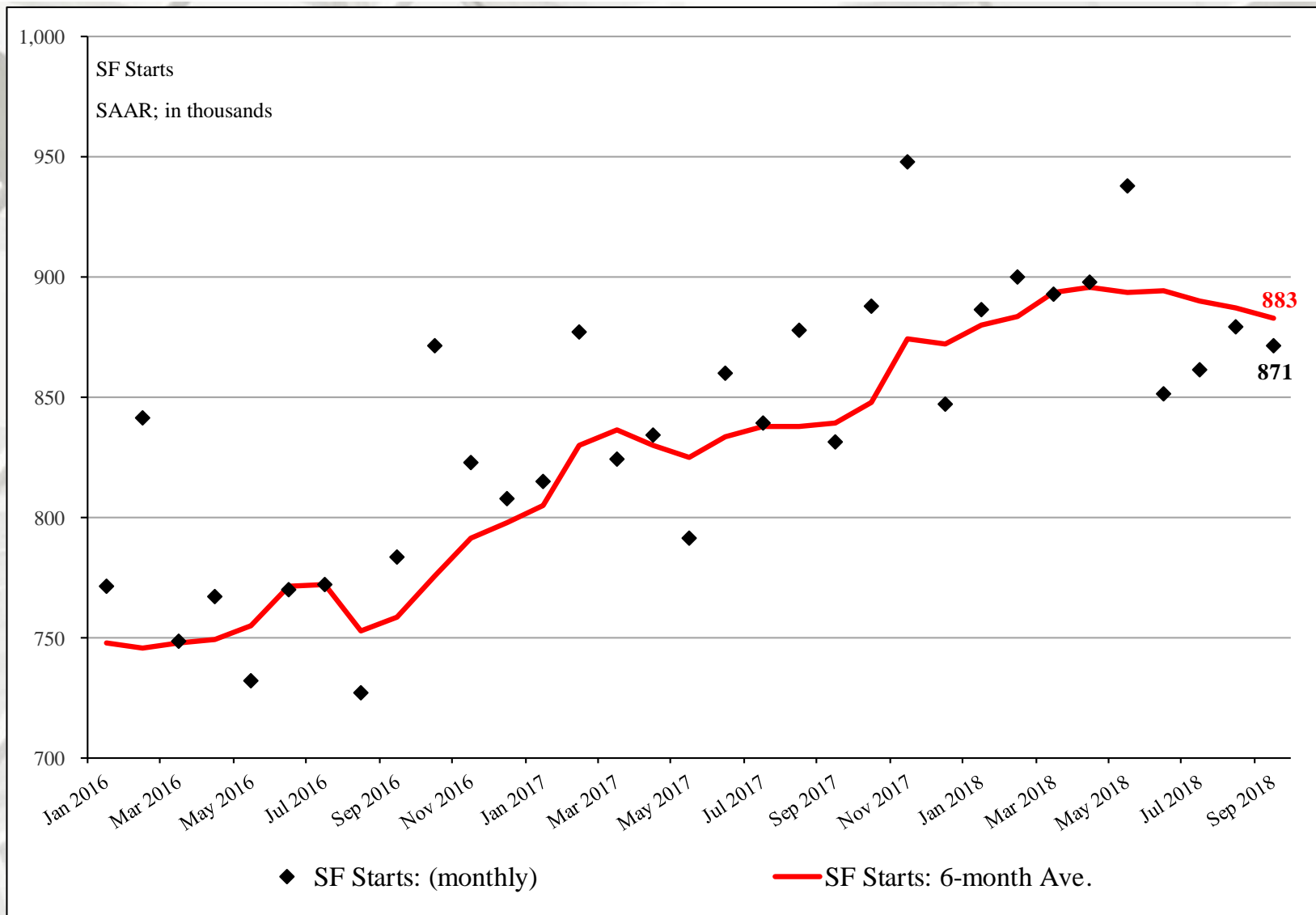
New SF starts adjusted for the US population

From September 1959 to September 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0066; in September 2018 it was 0.0034 – no change from August. The long-term ratio of non-institutionalized population, aged 20 to 54 is 0.0103; in September 2018 was 0.0059 – a minimal decrease from August (0.0059). From a population worldview, new SF construction is less than what is necessary for changes in population (i.e., under-building).

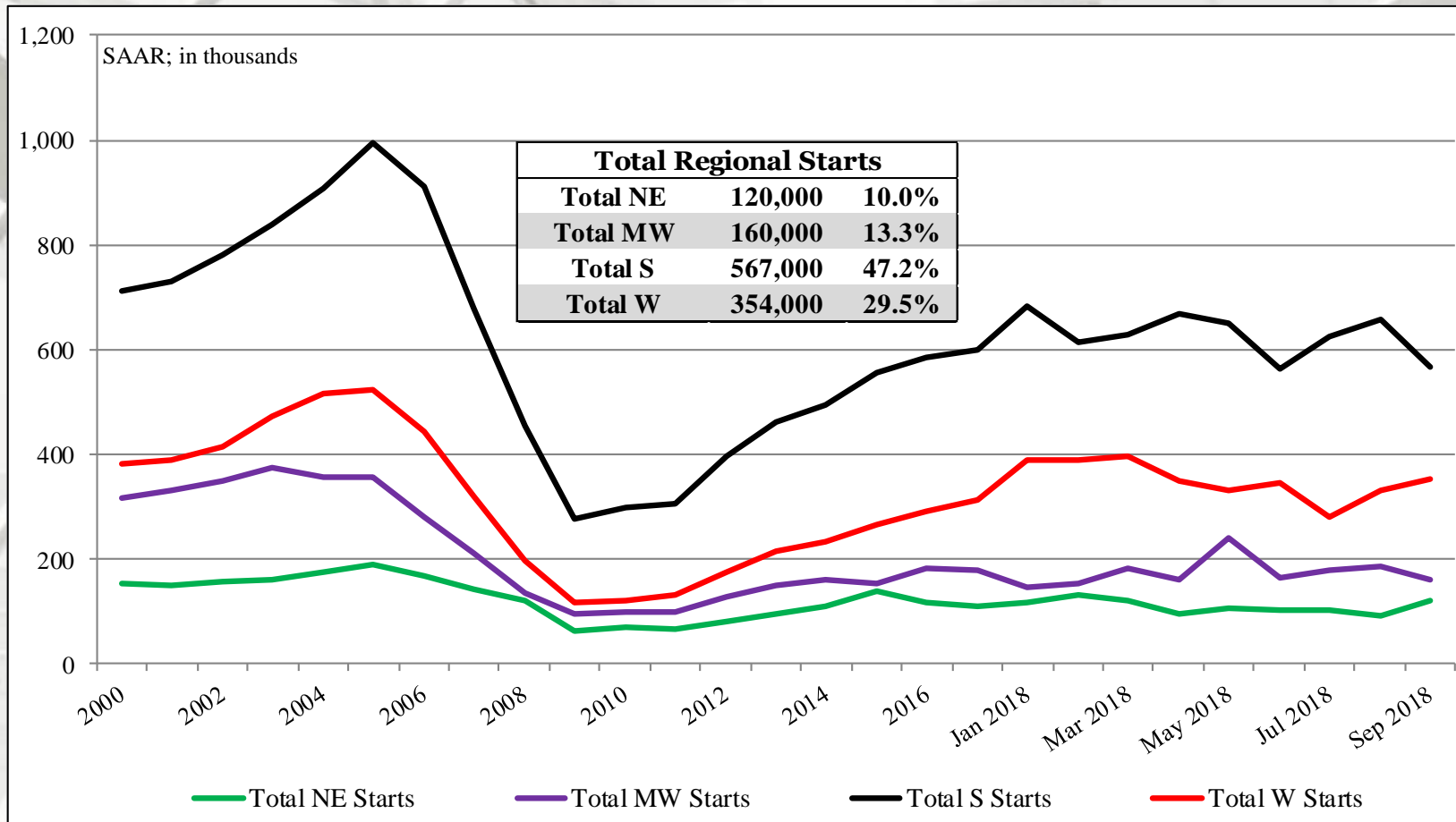
Total Housing Starts: Six-Month Average



SF Housing Starts: Six-Month Average



New Housing Starts by Region



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

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

* Percentage of total starts.

New Housing Starts by Region

	NE Total	NE SF	NE MF**
September	120,000	56,000	64,000
August	93,000	60,000	33,000
2017	101,000	75,000	26,000
M/M change	29.0	-6.7	93.9
Y/Y change	18.8	-25.3	146.2
	MW Total	MW SF	MW MF
September	160,000	130,000	30,000
August	186,000	118,000	68,000
2017	186,000	126,000	60,000
M/M change	-14.0	10.2	-55.9
Y/Y change	-14.0	3.2	-50.0

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

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

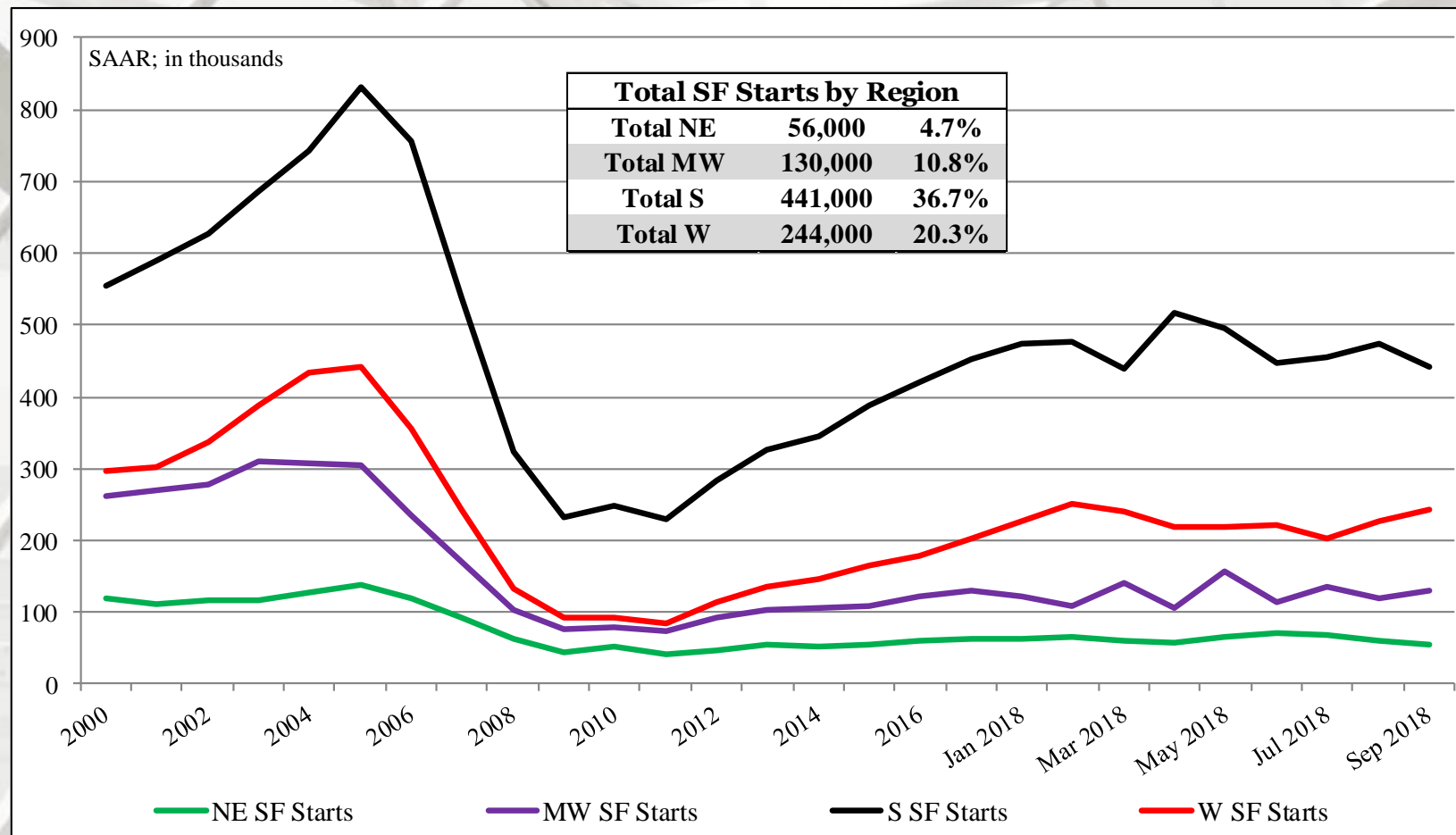
New Housing Starts by Region

	S Total	S SF	S MF**
September	567,000	441,000	126,000
August	657,000	473,000	184,000
2017	543,000	410,000	133,000
M/M change	-13.7	-6.8	-31.5
Y/Y change	4.4	7.6	-5.3
	W Total	W SF	W MF
September	354,000	244,000	110,000
August	332,000	228,000	104,000
2017	328,000	220,000	108,000
M/M change	6.6	7.0	5.8
Y/Y change	7.9	10.9	1.9

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

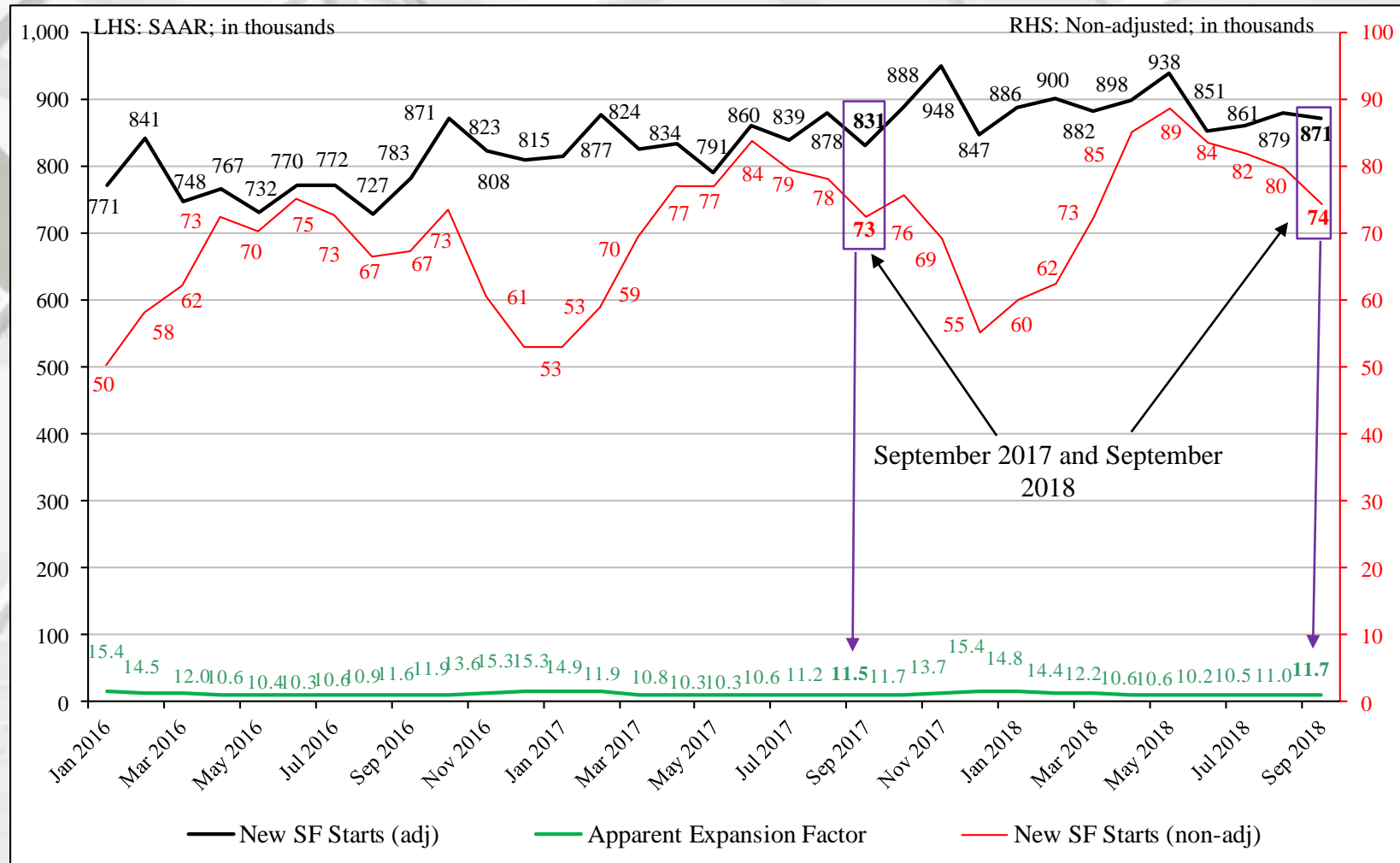


NE = Northeast, MW = Midwest, S = South, W = West

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

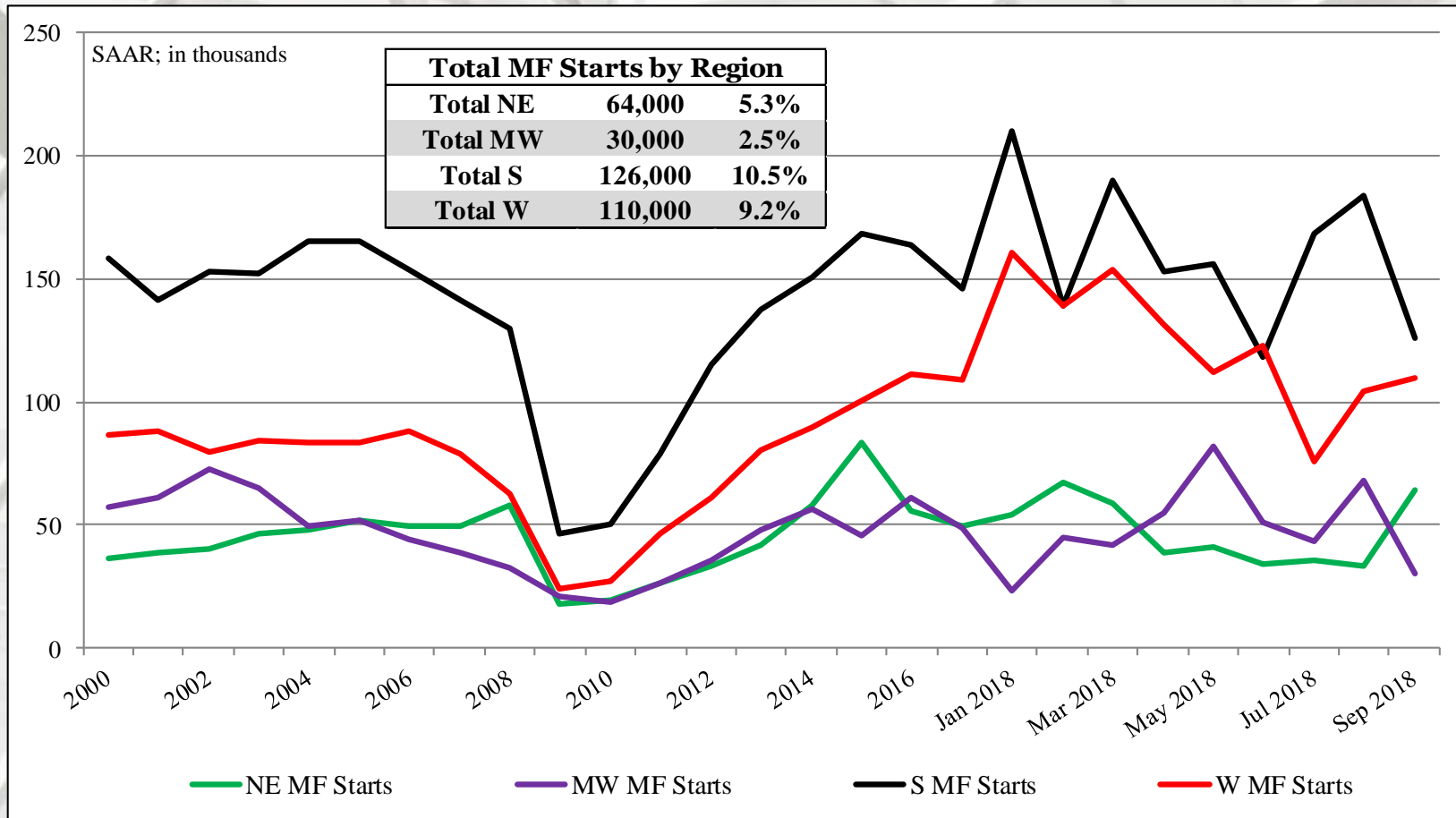


Nominal and Adjusted New SF Monthly Starts

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

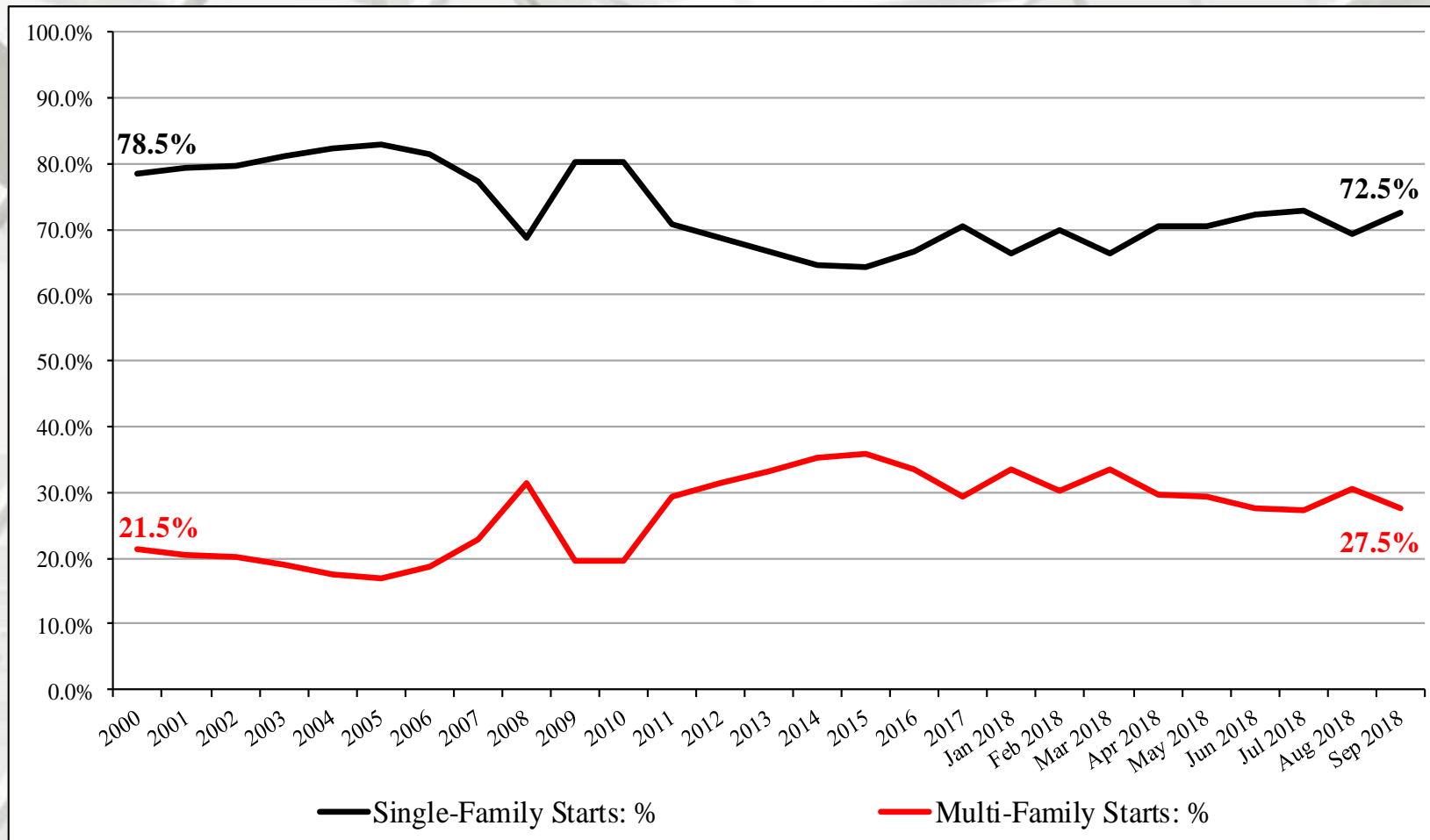


NE = Northeast, MW = Midwest, S = South, W = West

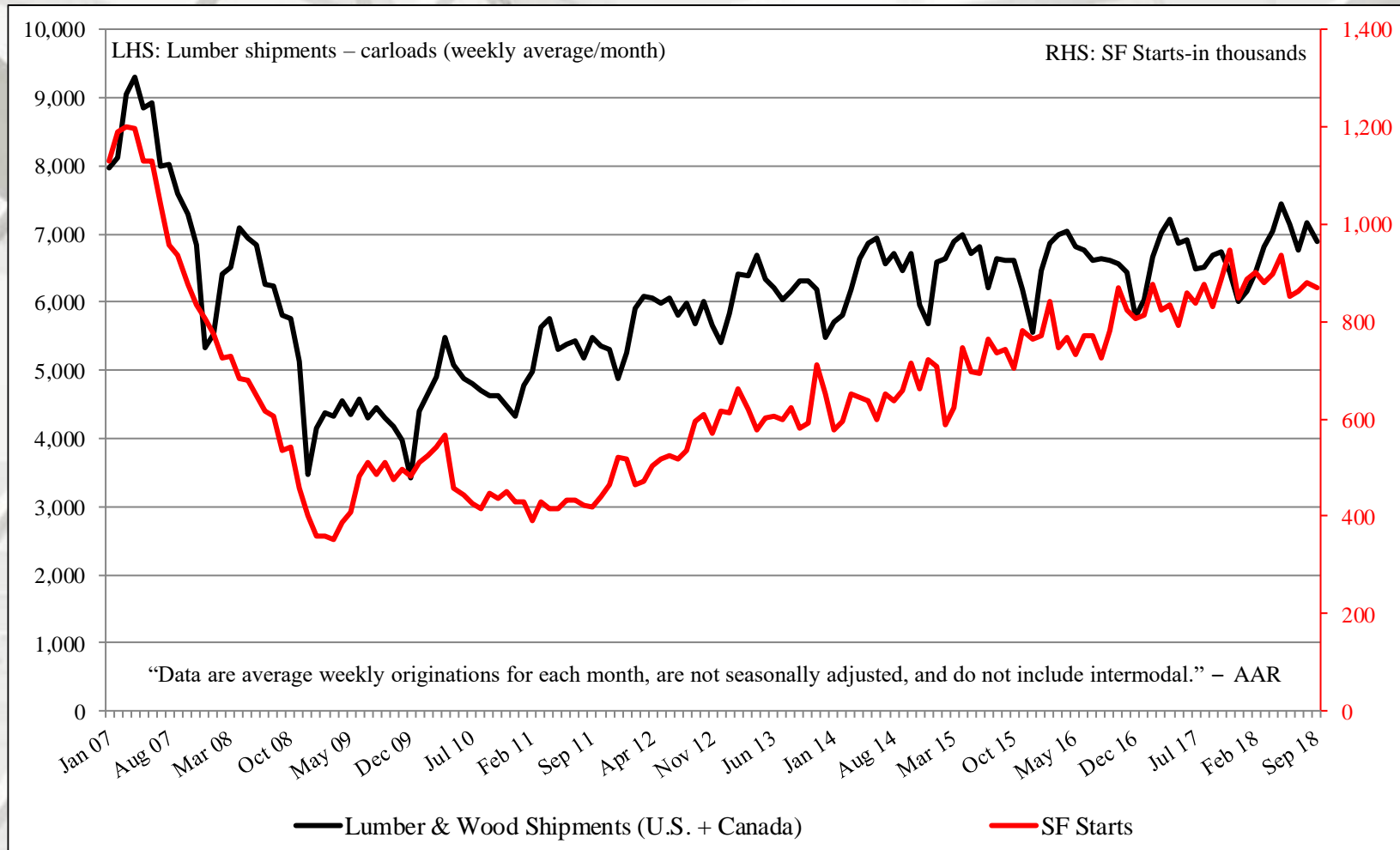
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* Percentage of total starts.

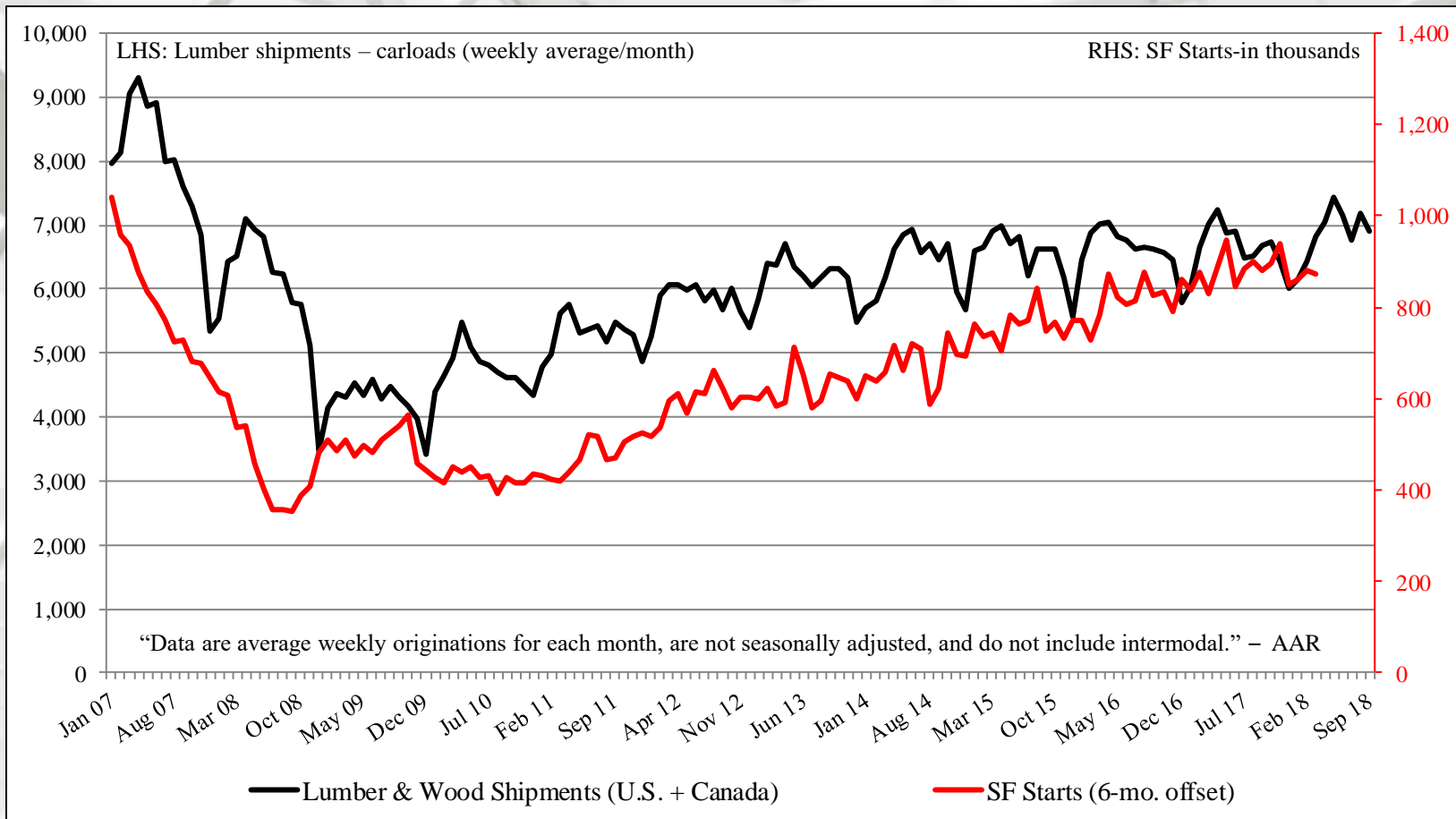
SF & MF Housing Starts (%)



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



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



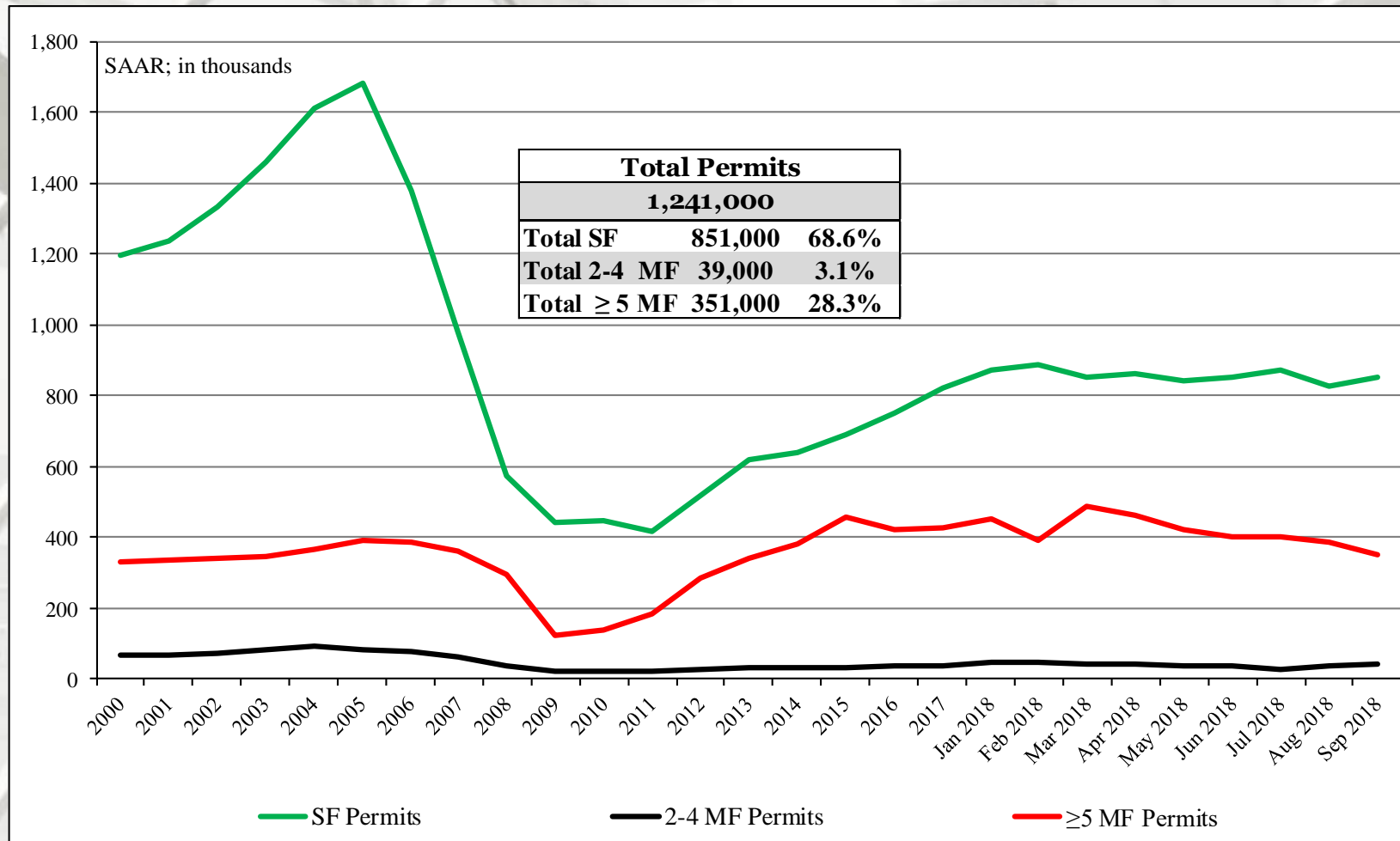
In this graph, January 2007 lumber shipments are contrasted with September 2007 SF starts, and continuing through September 2018 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to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

New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ? 5 unit Permits
September	1,241,000	851,000	39,000	351,000
August	1,249,000	827,000	35,000	387,000
2017	1,254,000	831,000	36,000	387,000
M/M change	-0.6	2.9	11.4	-9.3
Y/Y change	-1.0	2.4	8.3	-9.3

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

Total New Housing Permits

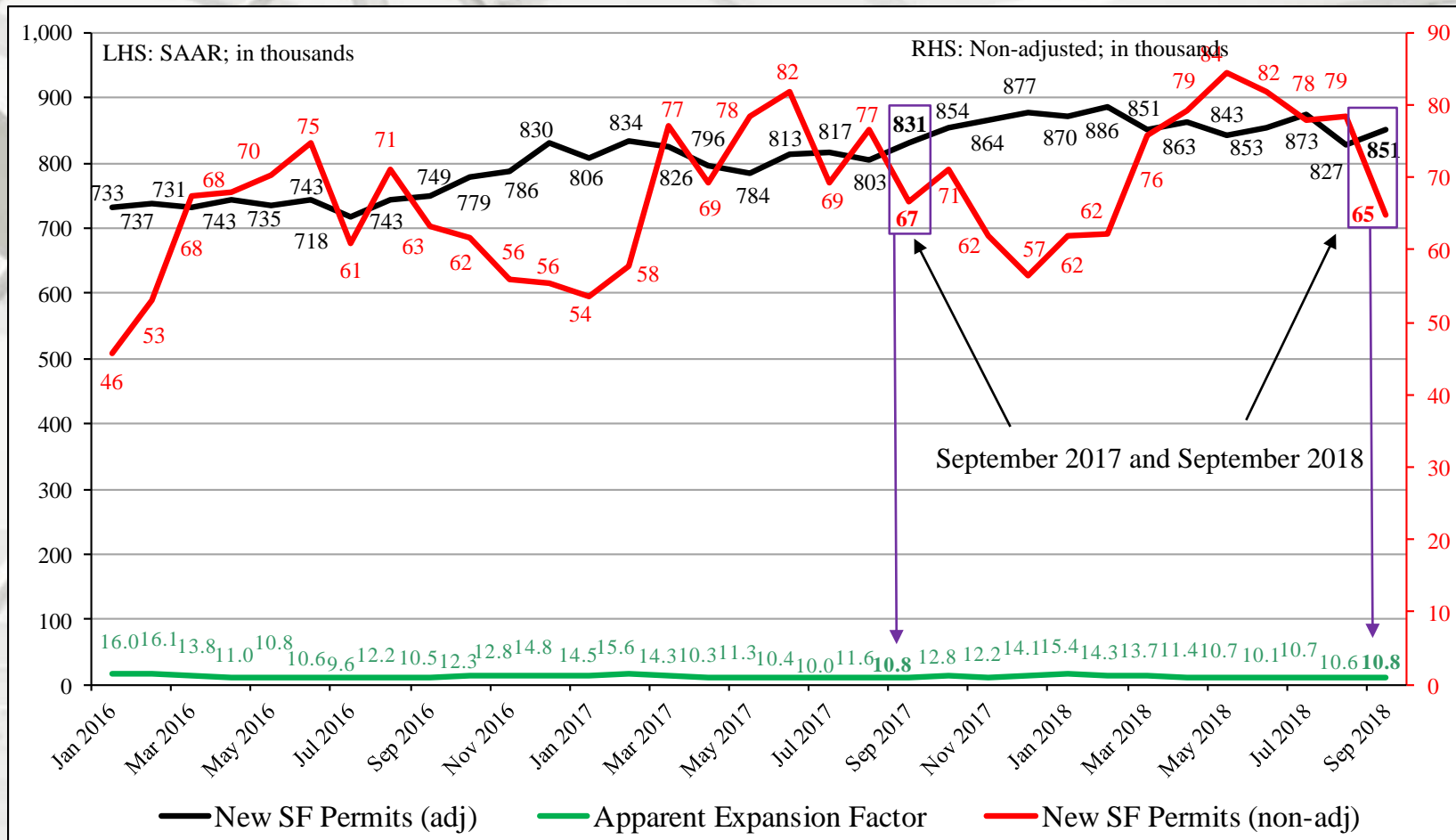


NE = Northeast, MW = Midwest, S = South, W = West

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**
September	92,000	58,000	34,000
August	102,000	51,000	51,000
2017	120,000	70,000	50,000
M/M change	-9.8	13.7	-33.3
Y/Y change	-23.3	-17.1	-32.0

	MW Total*	MW SF	MW MF**
September	154,000	117,000	37,000
August	190,000	119,000	71,000
2017	189,000	123,000	66,000
M/M change	-18.9	-1.7	-47.9
Y/Y change	-18.5	-4.9	-43.9

* 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

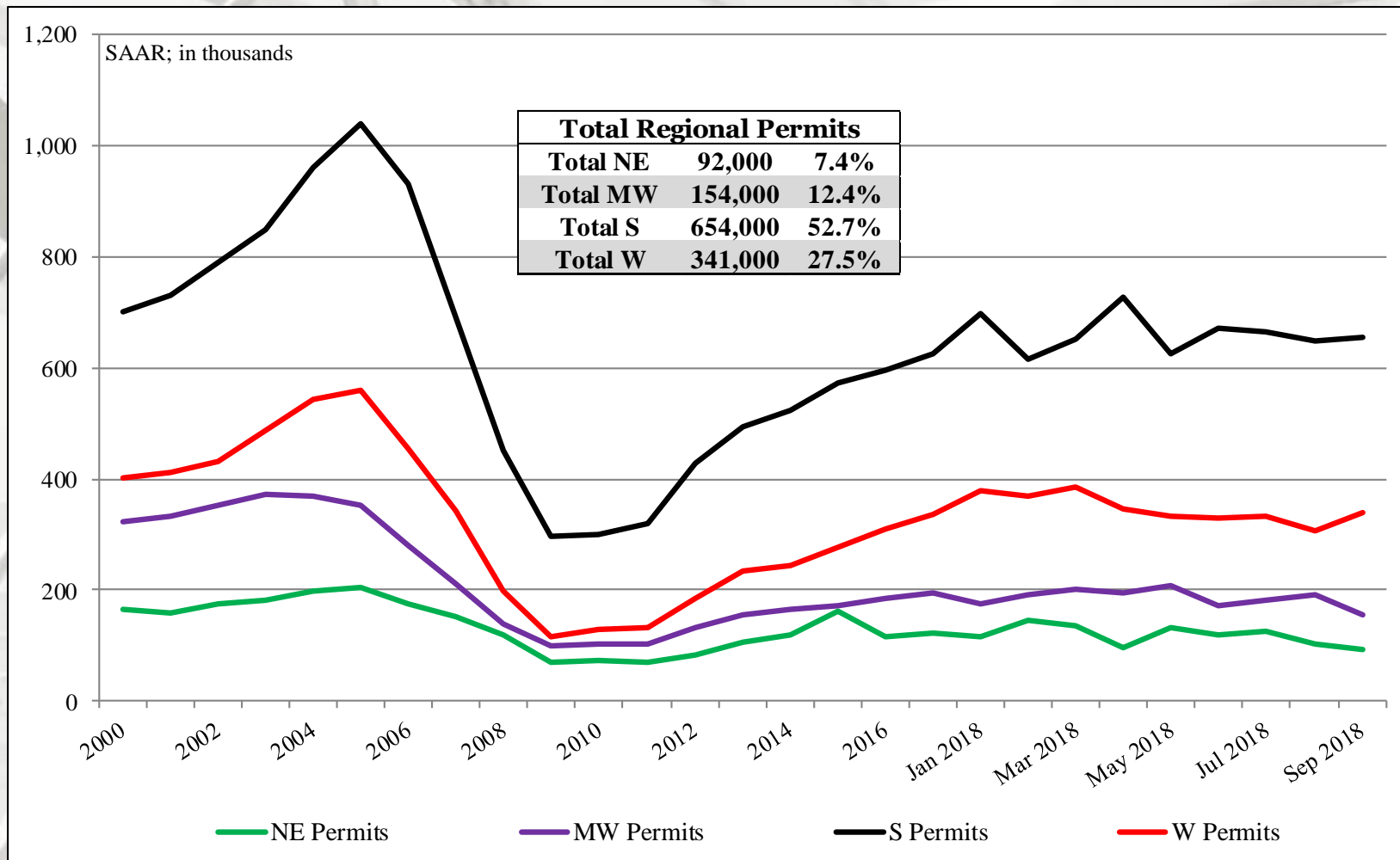
	S Total*	S SF	S MF**
September	654,000	457,000	197,000
August	650,000	450,000	200,000
2017	612,000	434,000	178,000
M/M change	0.6	1.6	-1.5
Y/Y change	6.9	5.3	10.7

	W Total*	W SF	W MF**
September	341,000	219,000	122,000
August	307,000	207,000	100,000
2017	333,000	204,000	129,000
M/M change	11.1	5.8	22.0
Y/Y change	2.4	7.4	-5.4

All data are SAAR

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

Total Housing Permits by Region

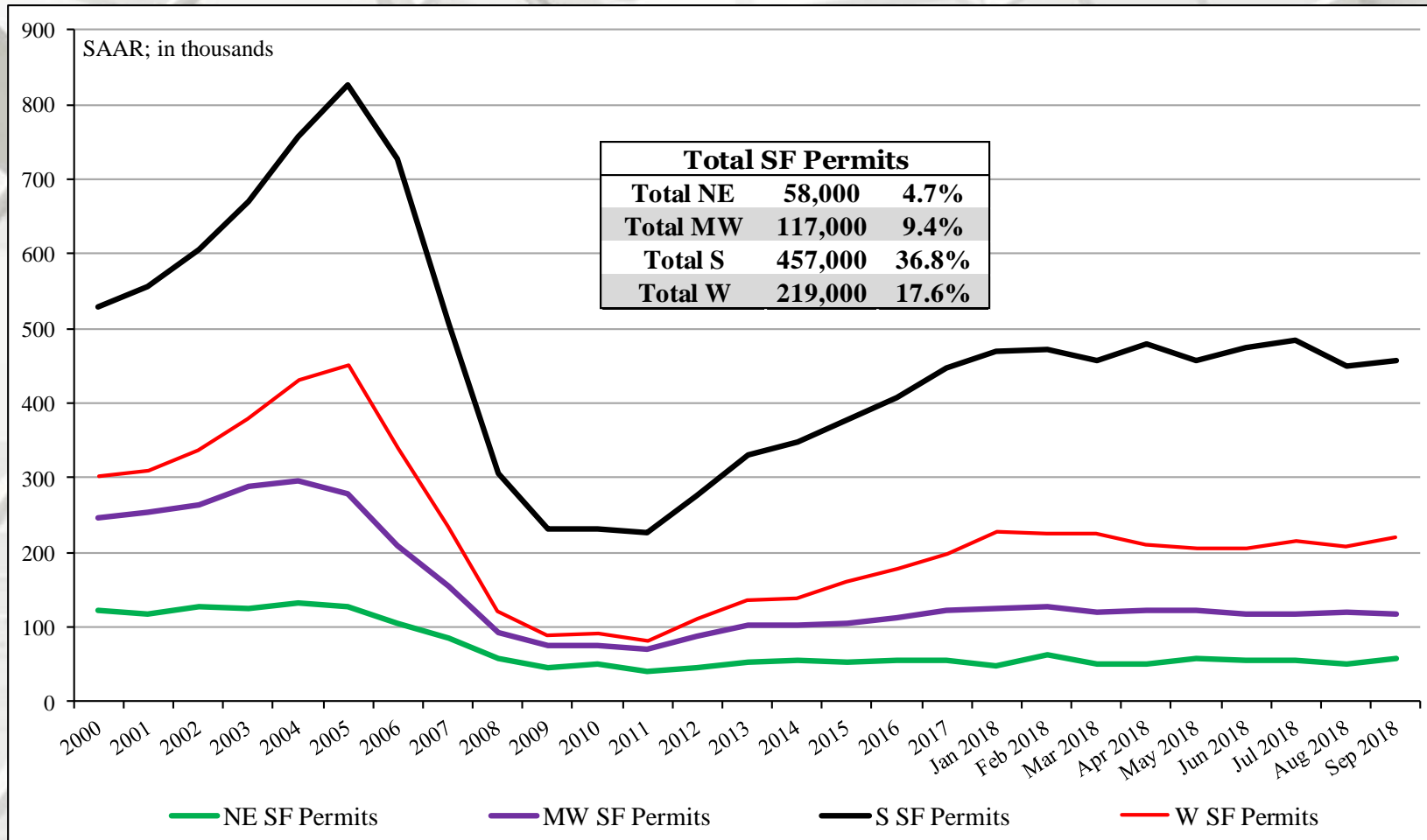


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total permits.

SF Housing Permits by Region

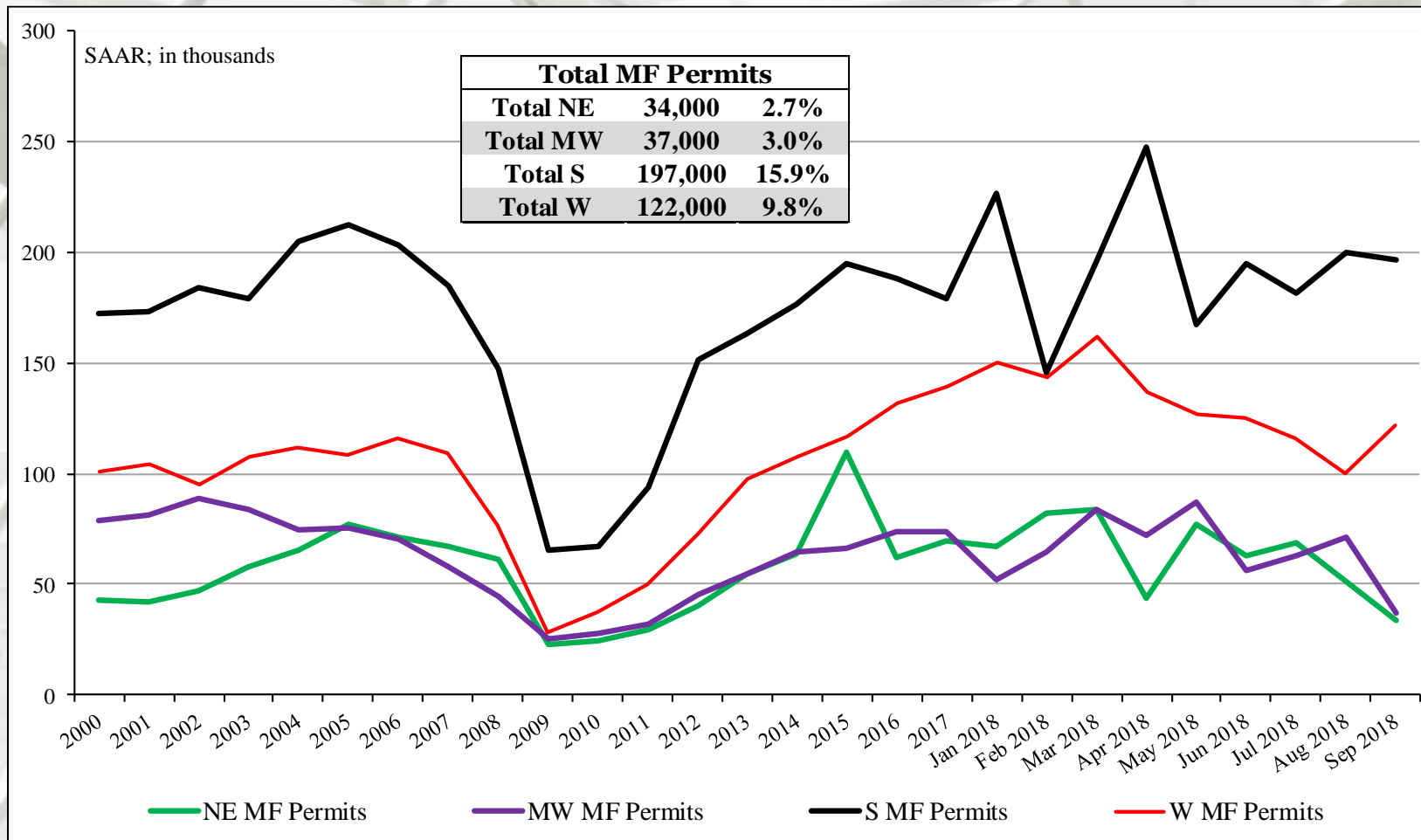


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* Percentage of total permits.

MF Housing Permits by Region

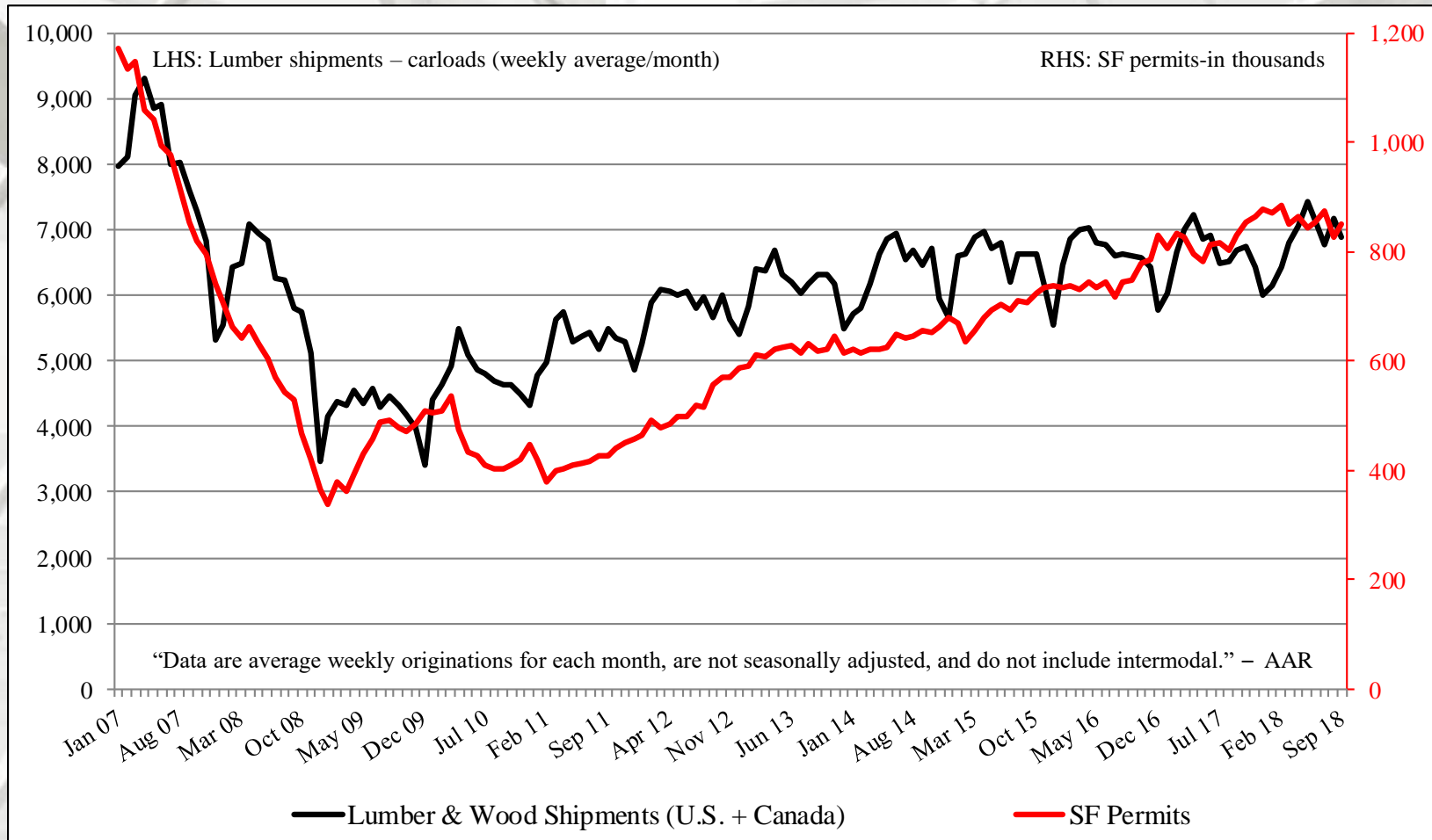


NE = Northeast, MW = Midwest, S = South, W = West

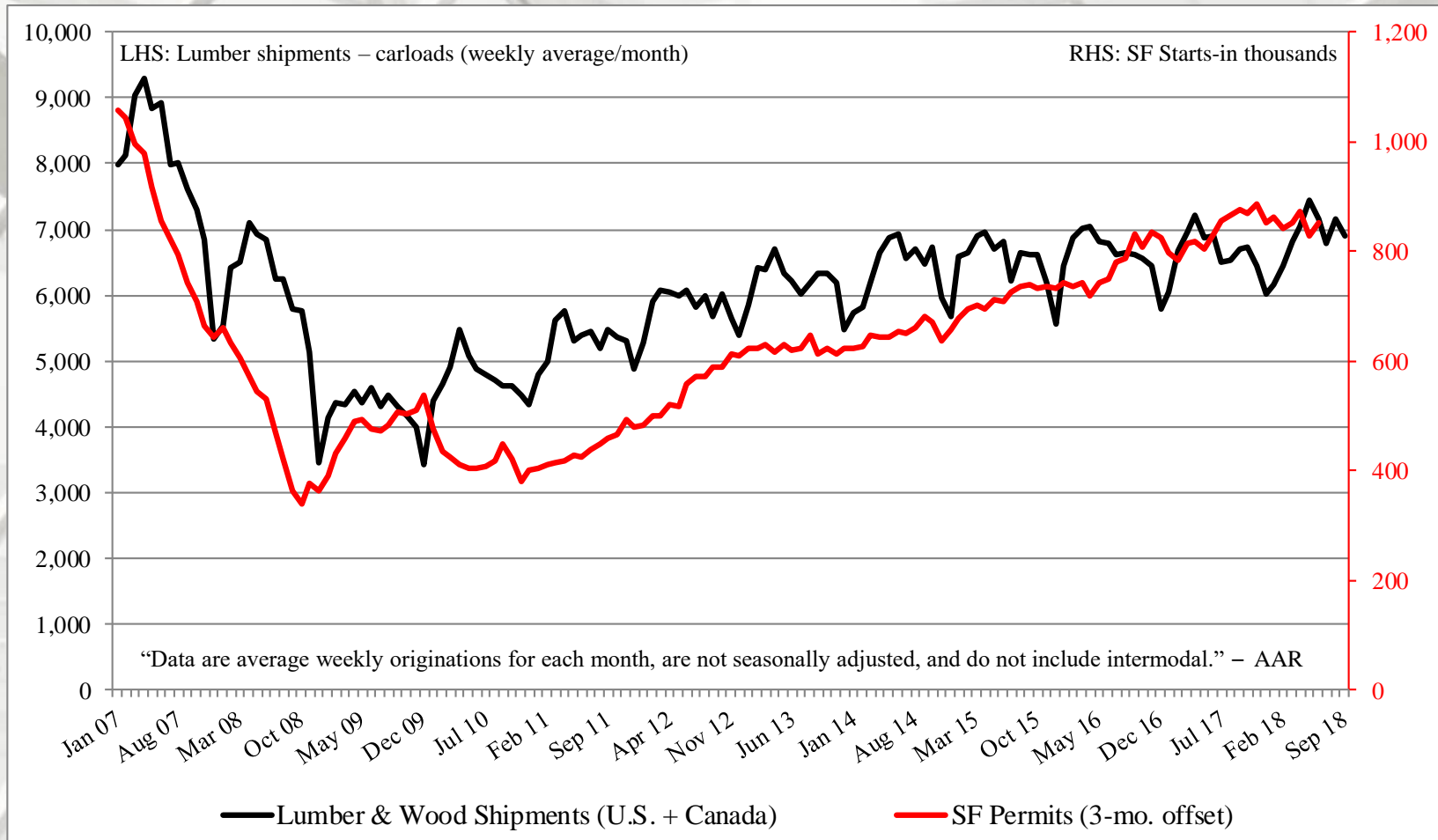
US DOC does not report 2 to 4 multi-family completions directly, this is an estimation (Total completions – SF completions).

* 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 September 2007 SF permits, continuing through September 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.

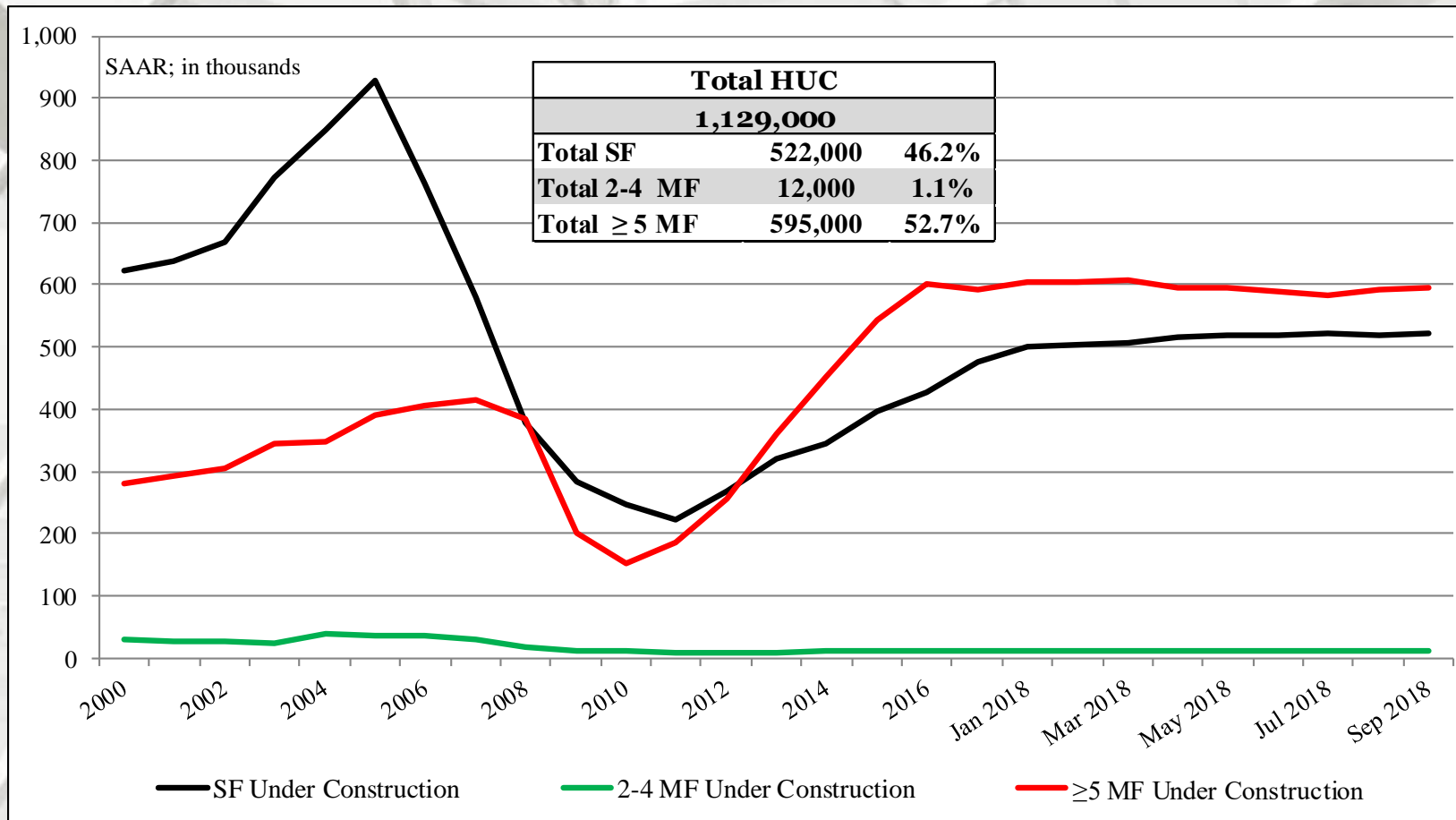
New Housing Under Construction (HUC)

	Total Under Construction*	SF Under Construction	Under Construction	MF ≥ 5 unit Under Construction
September	1,129,000	522,000	12,000	595,000
August	1,126,000	520,000	13,000	593,000
2017	1,089,000	478,000	10,000	601,000
M/M change	0.3	0.4	-7.7	0.3
Y/Y change	3.7	9.2	20.0	-1.0

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**
September	189,000	59,000	130,000
August	190,000	60,000	130,000
2017	189,000	53,000	136,000
M/M change	-0.5	-1.7	0.0
Y/Y change	0.0	11.3	-4.4
	MW Total	MW SF	MW MF
September	151,000	82,000	69,000
August	153,000	82,000	71,000
2017	152,000	78,000	74,000
M/M change	-1.3	0.0	-2.8
Y/Y change	-0.7	5.1	-6.8

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).

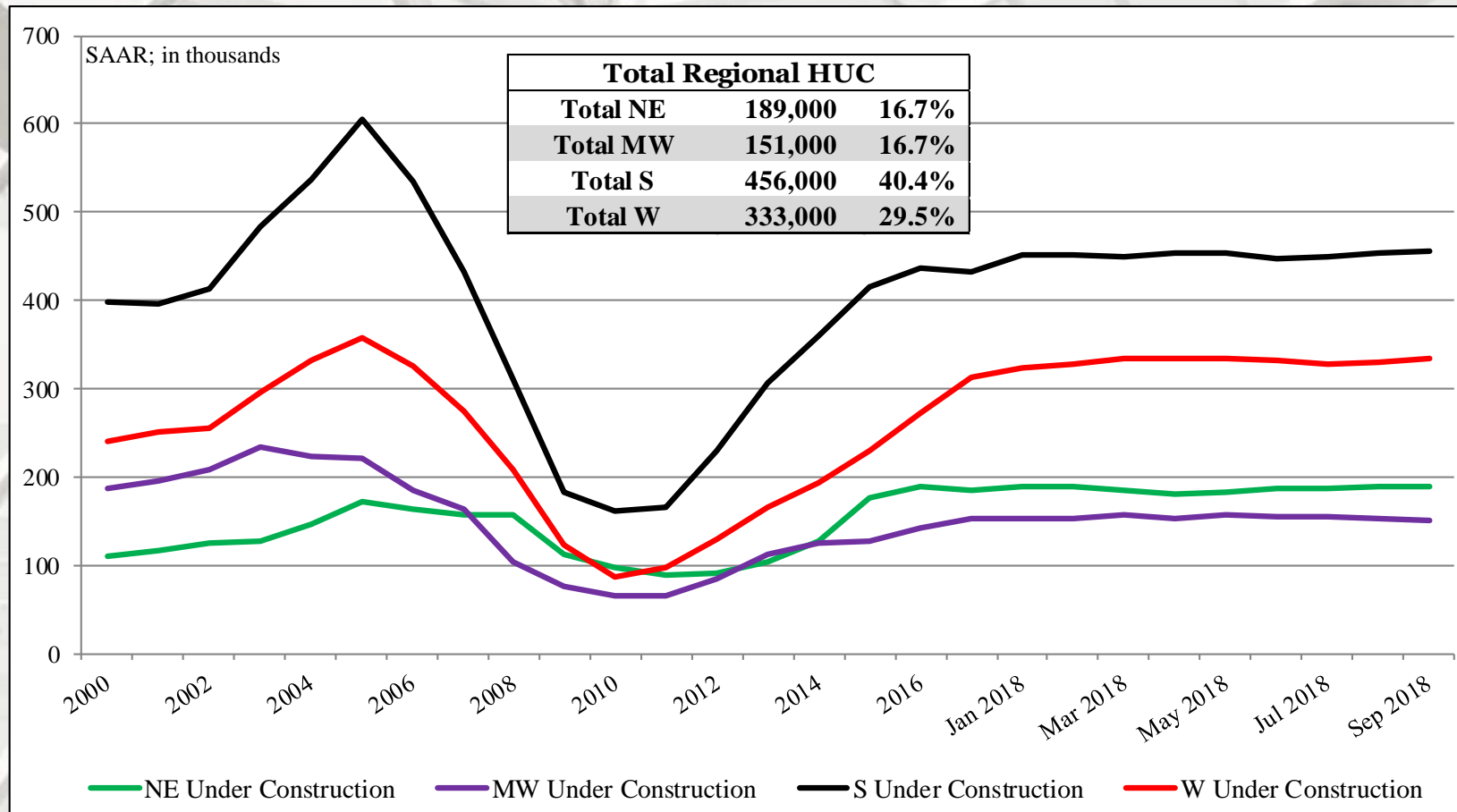
New Housing Under Construction by Region

	S Total	S SF	S MF**
September	456,000	240,000	216,000
August	453,000	239,000	214,000
2017	445,000	226,000	219,000
M/M change	0.7	0.4	0.9
Y/Y change	2.5	6.2	-1.4
	W Total	W SF	W MF
September	333,000	141,000	192,000
August	330,000	139,000	191,000
2017	303,000	121,000	182,000
M/M change	0.9	1.4	0.5
Y/Y change	9.9	16.5	5.5

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

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

Total Housing Under Construction by Region

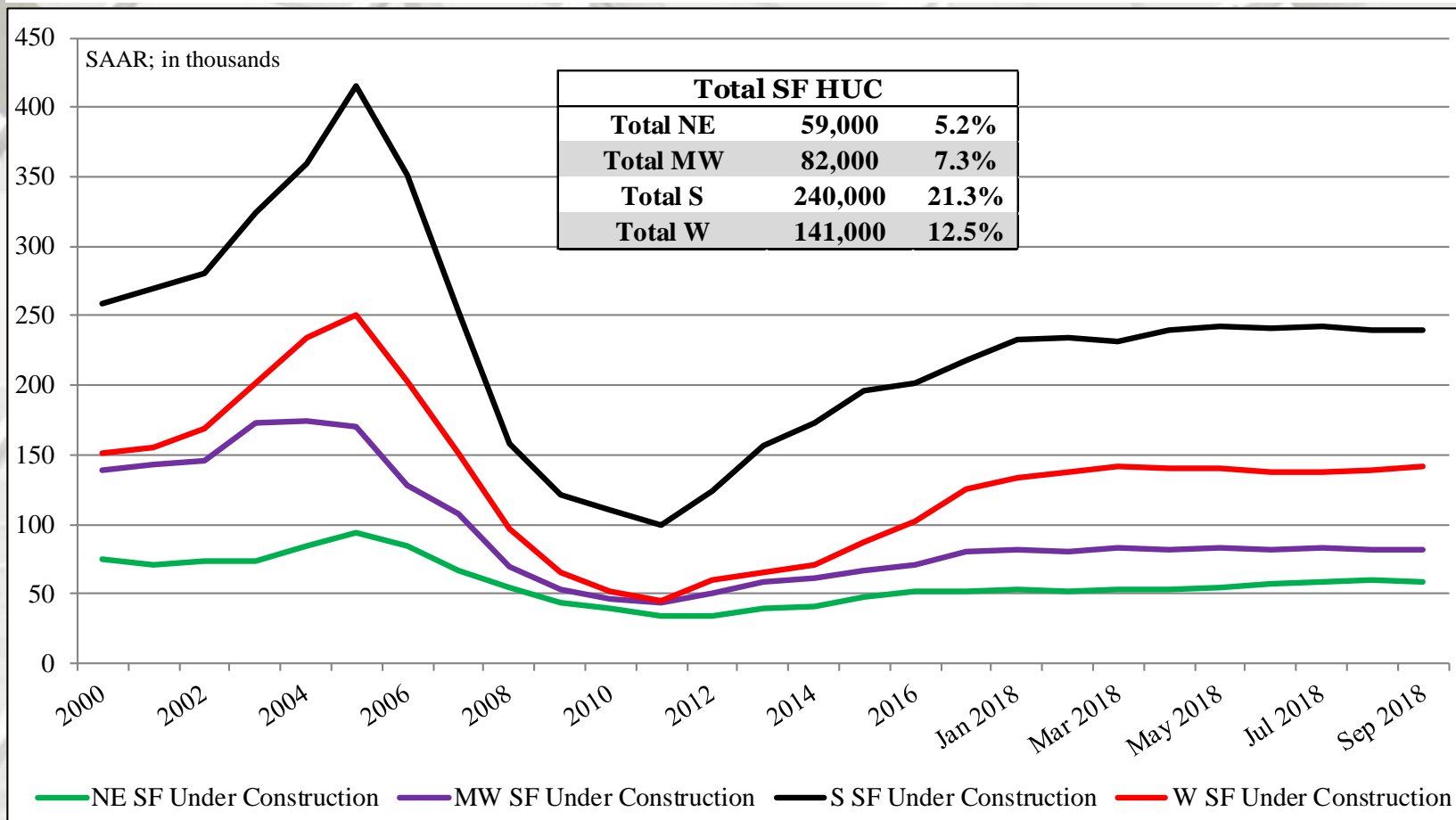


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total housing under construction units.

SF Housing Under Construction by Region

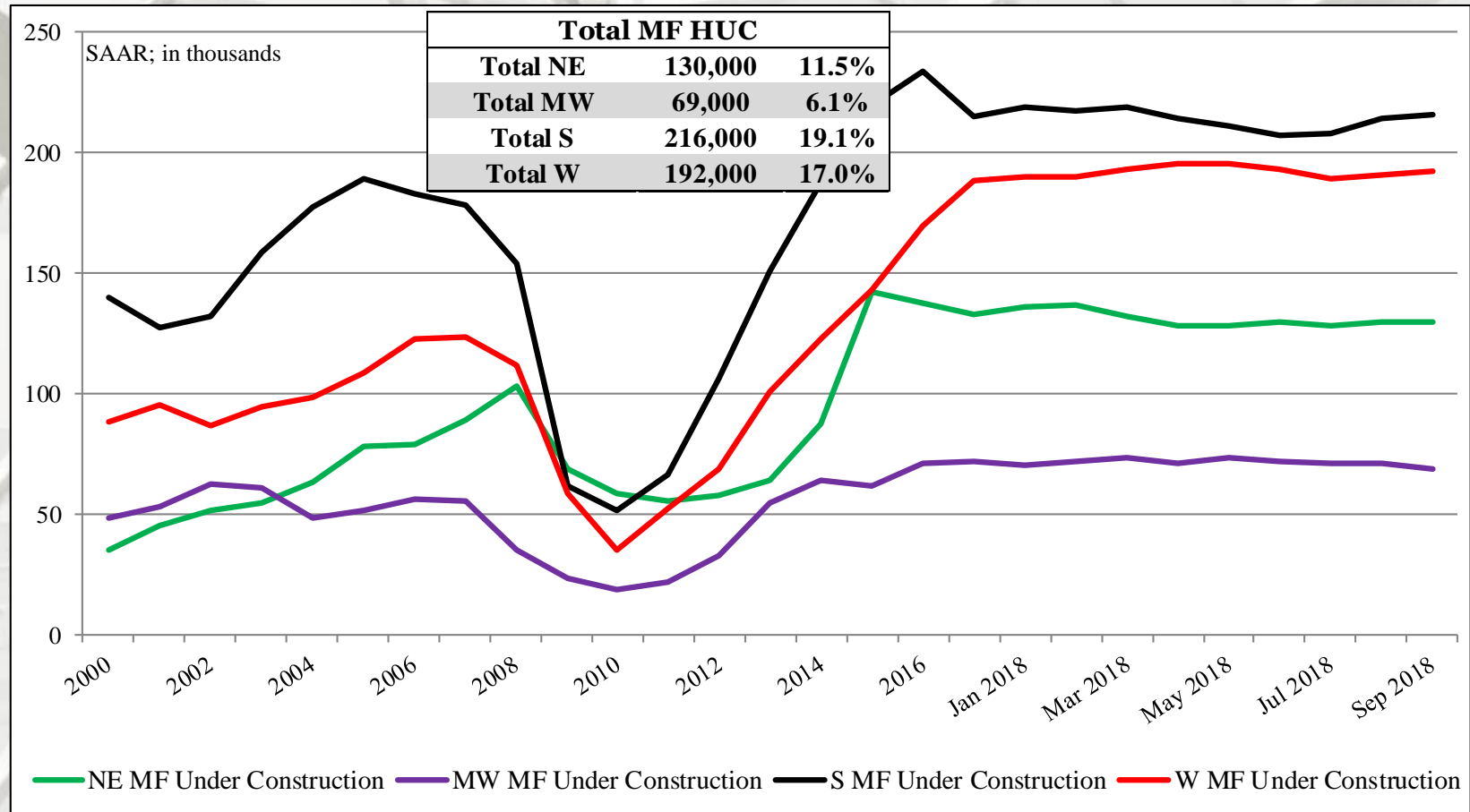


NE = Northeast, MW = Midwest, S = South, W = West

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

* Percentage of total housing under construction units.

MF Housing Under Construction by Region



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

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

* Percentage of total housing under construction units.

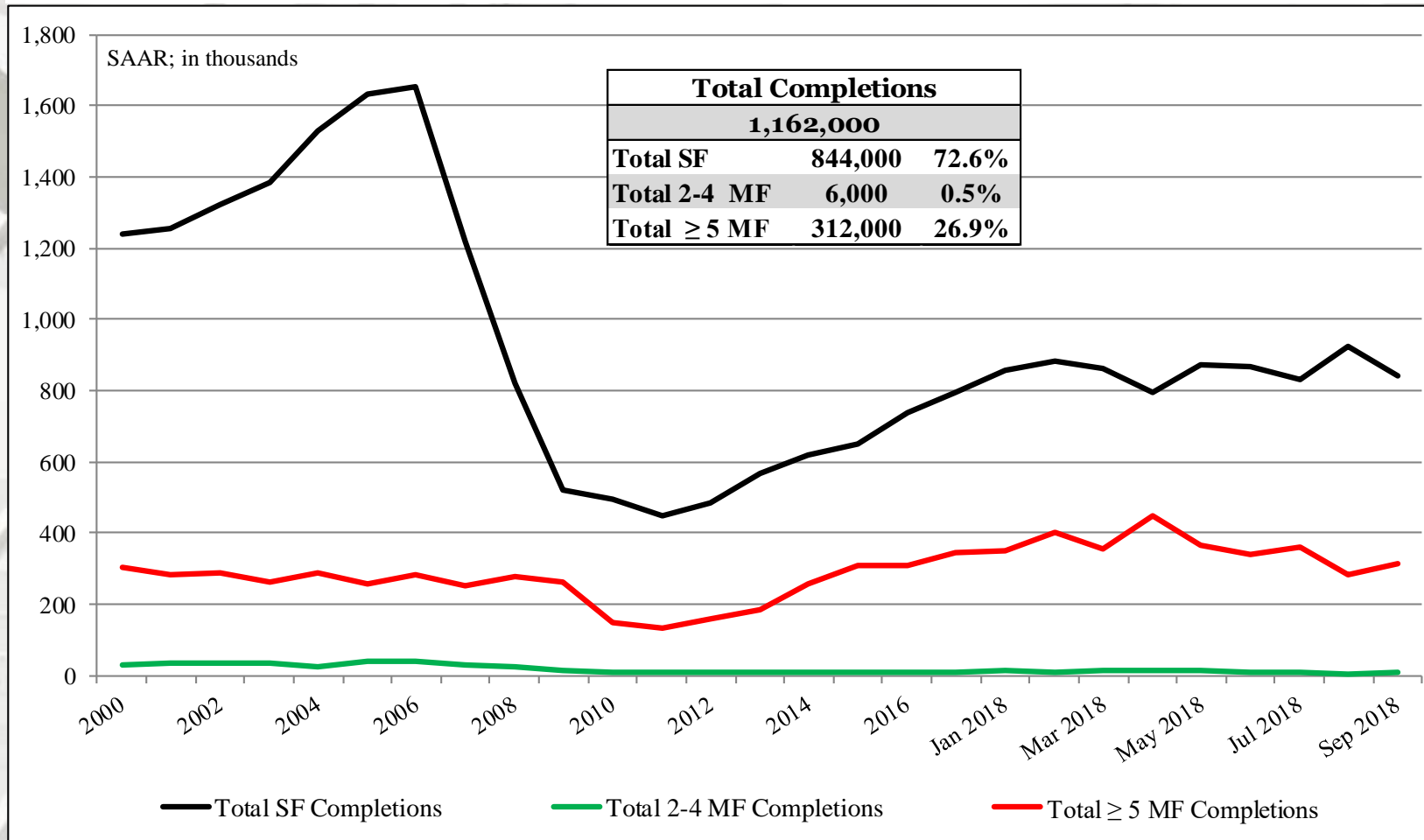
New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit**	MF ≥ 5 unit Completions
September	1,162,000	844,000	6,000	312,000
August	1,212,000	924,000	5,000	283,000
2017	1,086,000	777,000	7,000	302,000
M/M change	-4.1%	-8.7%	20.0%	10.2%
Y/Y change	7.0%	8.6%	-14.3%	3.3%

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

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

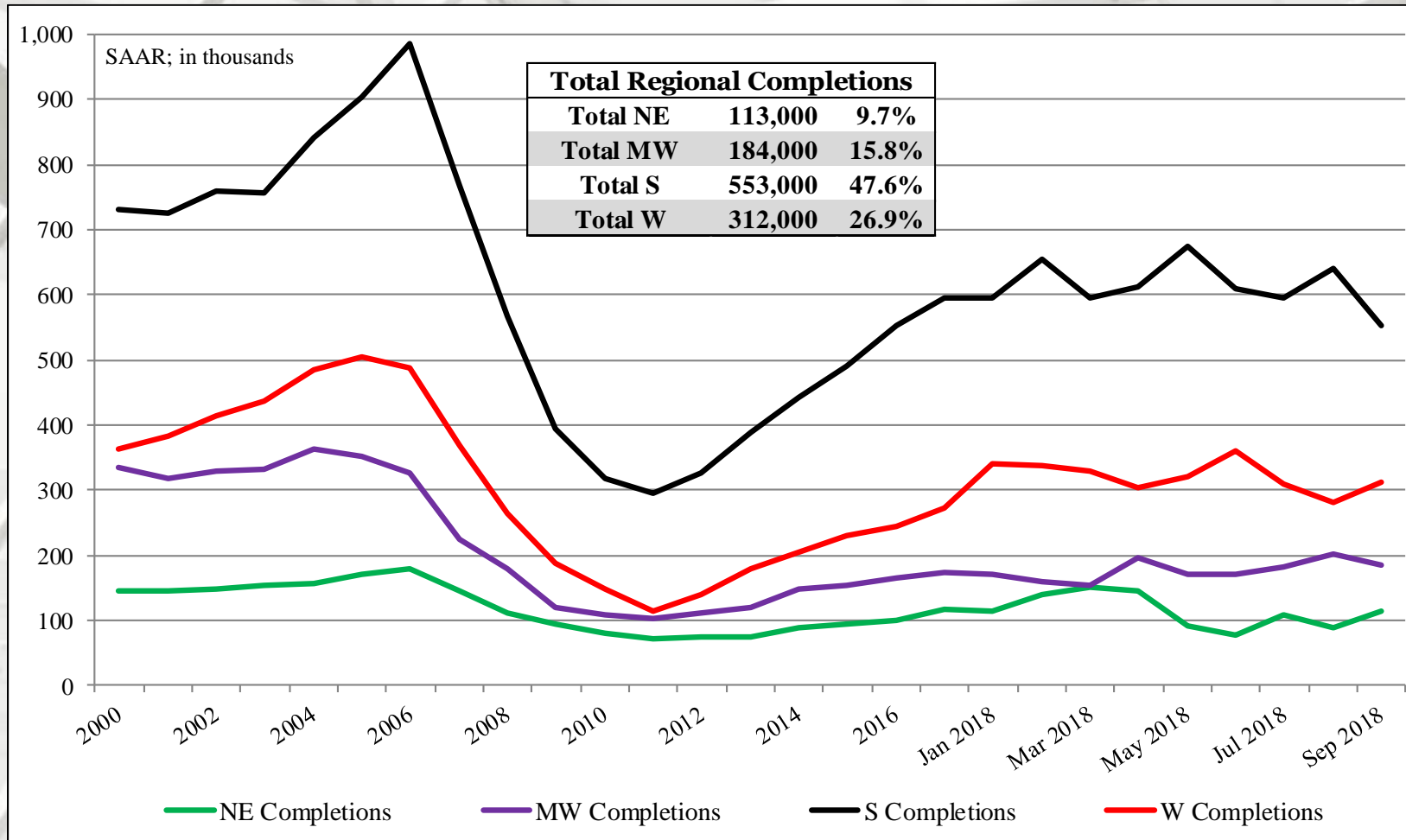
Total Housing Completions



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

* Percentage of total housing completions

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**
September	113,000	63,000	50,000
August	89,000	48,000	41,000
2017	80,000	54,000	26,000
M/M change	27.0%	31.3%	22.0%
Y/Y change	41.3%	16.7%	92.3%
	MW Total	MW SF	MW MF
September	184,000	131,000	53,000
August	202,000	146,000	56,000
2017	179,000	112,000	67,000
M/M change	-8.9%	-10.3%	-5.4%
Y/Y change	2.8%	17.0%	-20.9%

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).

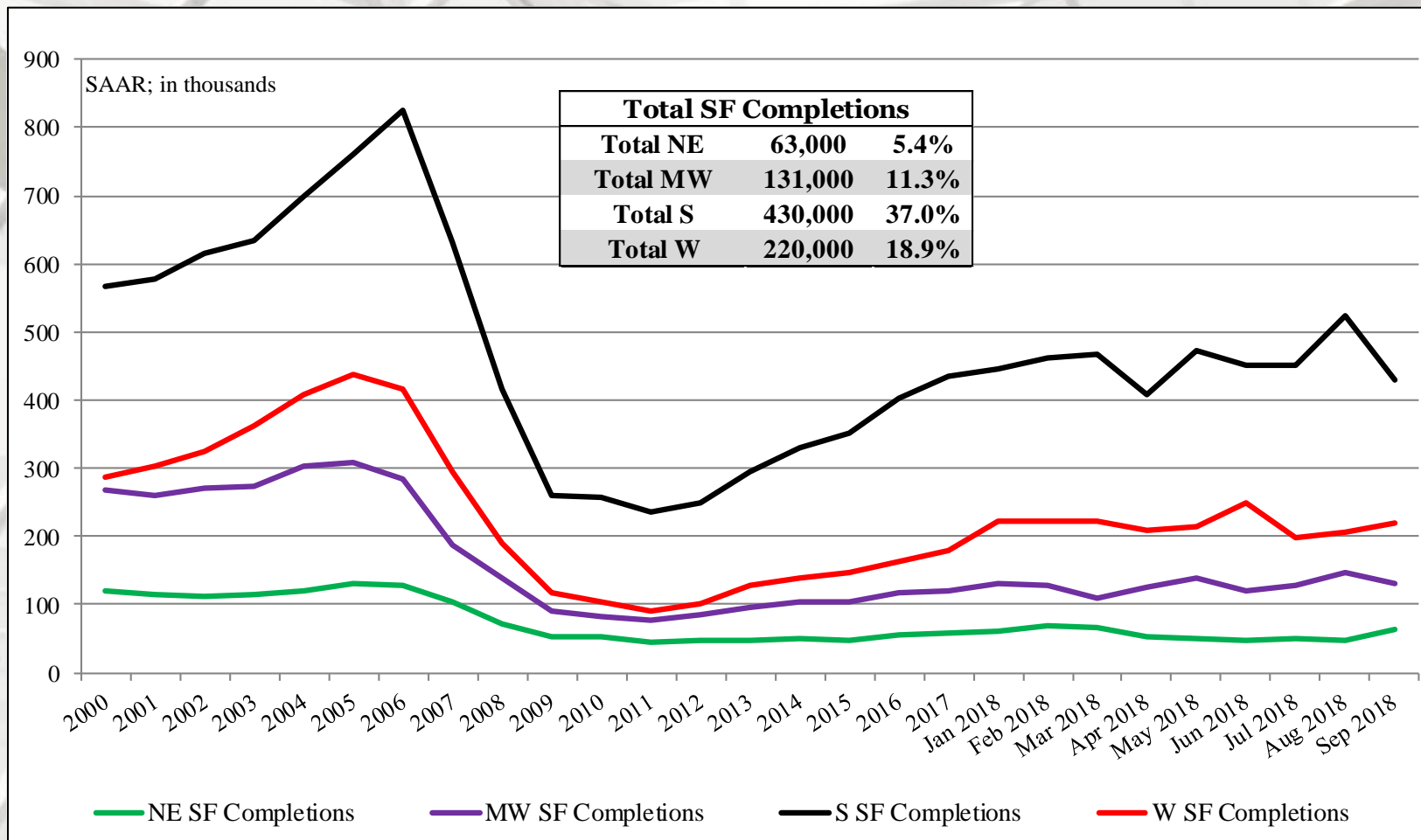
New Housing Completions by Region

	S Total	S SF	S MF**
September	553,000	430,000	123,000
August	640,000	524,000	116,000
2017	595,000	431,000	164,000
M/M change	-13.6%	-17.9%	6.0%
Y/Y change	-7.1%	-0.2%	-25.0%
	W Total	W SF	W MF
September	312,000	220,000	92,000
August	281,000	206,000	75,000
2017	232,000	180,000	52,000
M/M change	11.0%	6.8%	22.7%
Y/Y change	34.5%	22.2%	76.9%

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

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

Total Housing SF Completions by Region

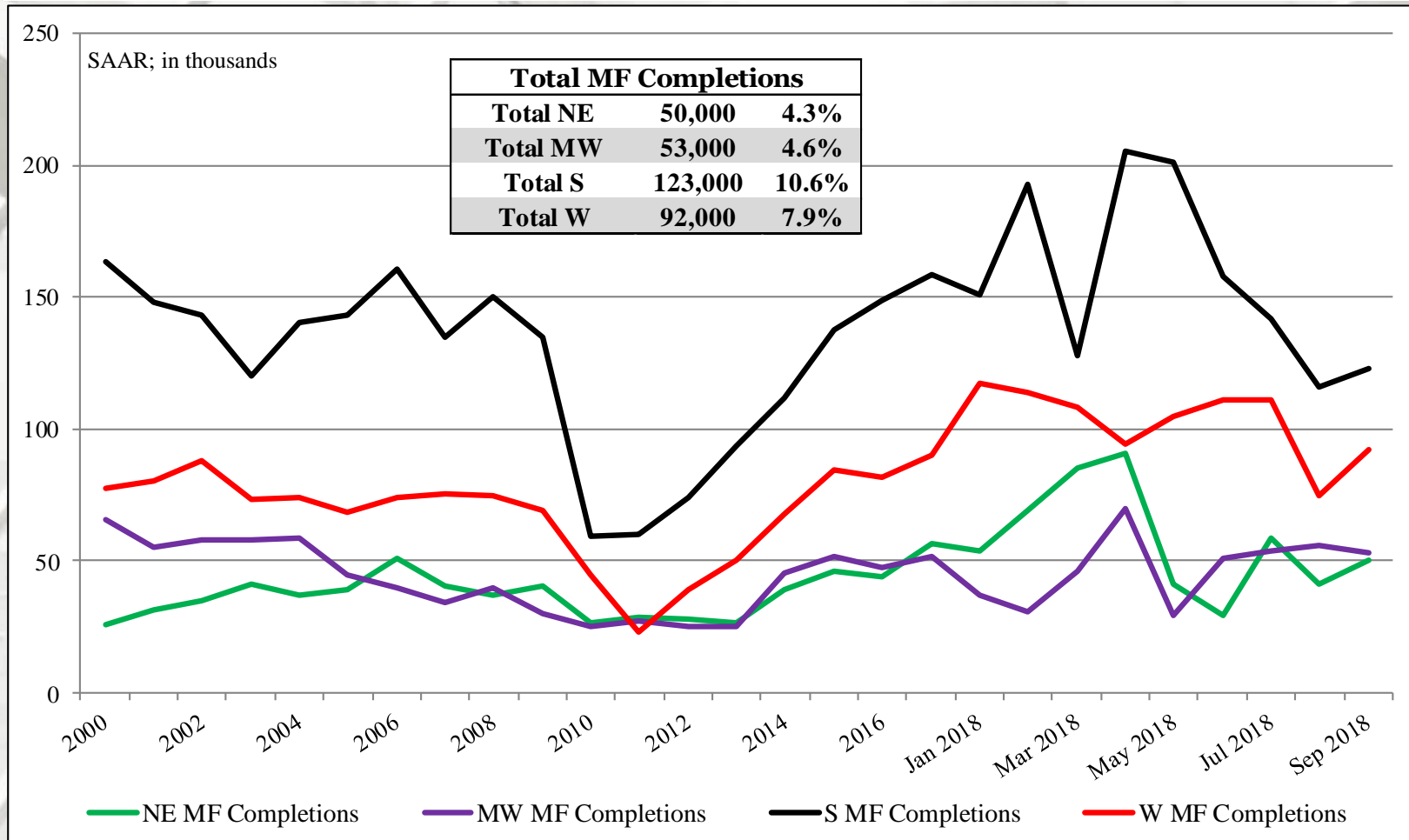


NE = Northeast, MW = Midwest, S = South, W = West

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

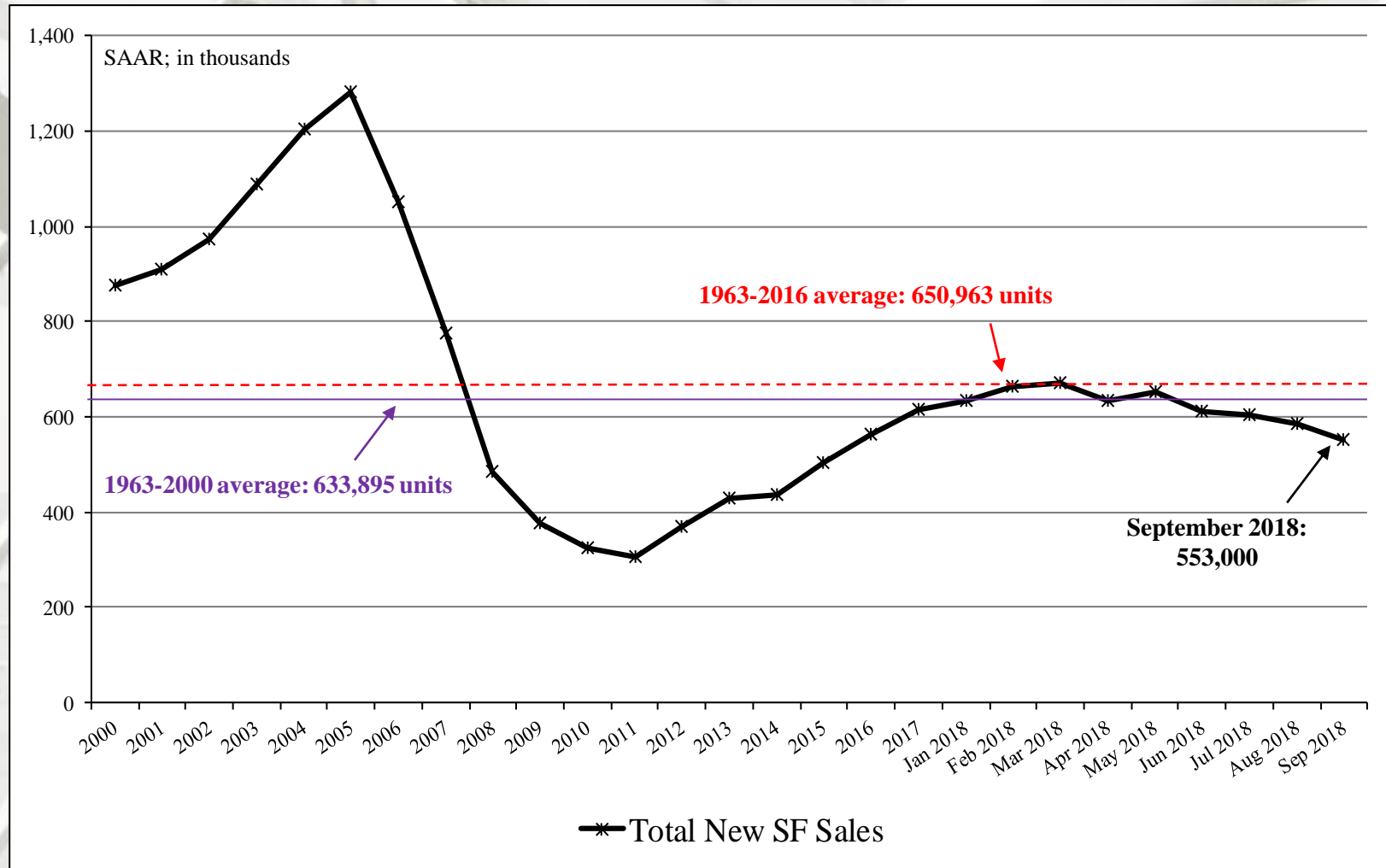
	New SF Sales*	Median Price	Mean Price	Month's Supply
September	553,000	\$320,000	\$377,200	7.1
August	585,000	\$319,200	\$384,500	6.5
2017	637,000	\$331,500	\$379,300	5.3
M/M change	-5.5%	0.3%	-1.9%	9.2%
Y/Y change	-13.2%	-3.5%	-0.6%	34.0%

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

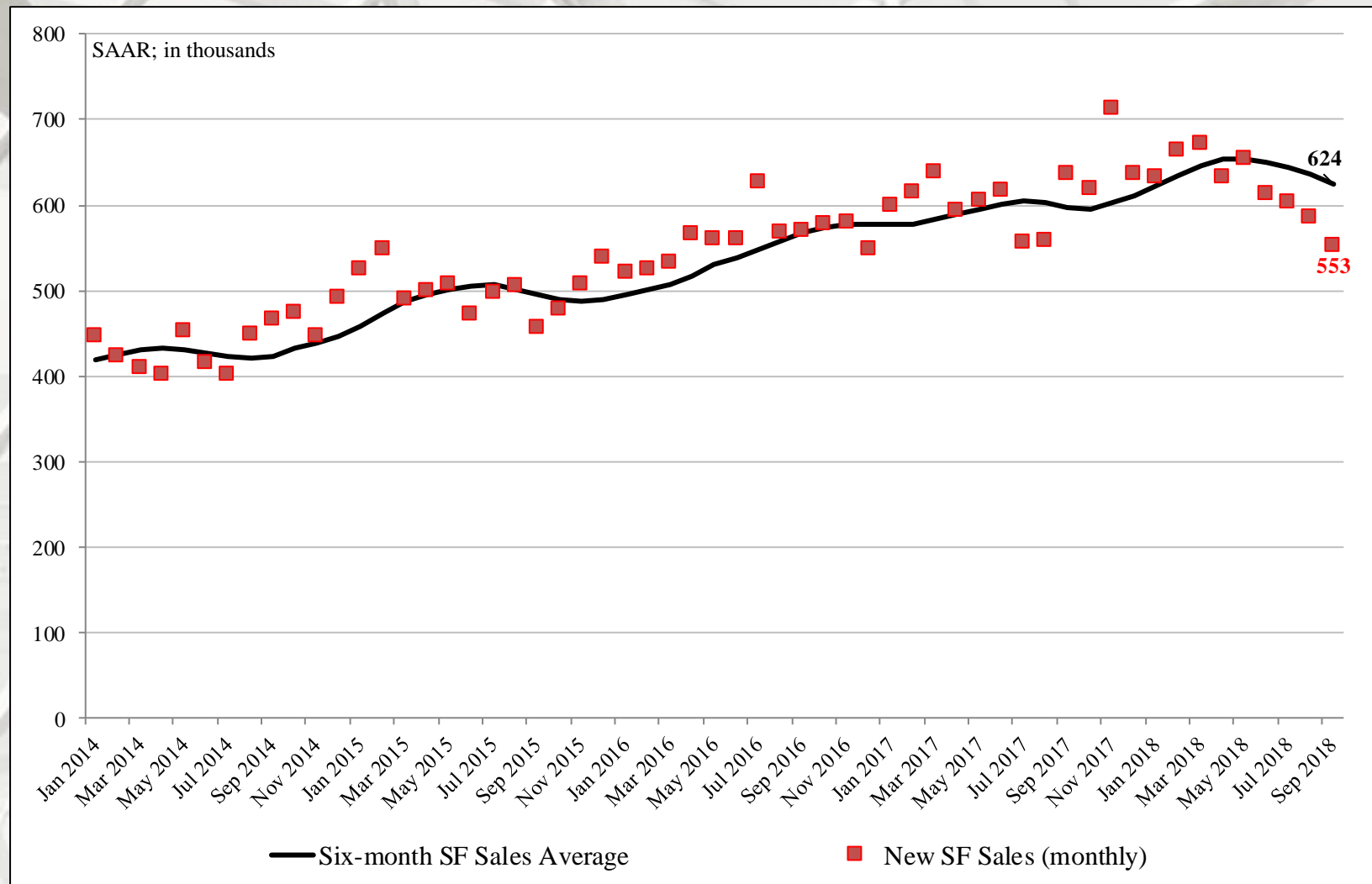
New SF sales were markedly less than the consensus forecast³ of 625 m. The past three month's new SF sales data also were revised downward:

June initial: 631 m revised to 612 m;
 July initial: 627 m revised to 603 m;
 August initial: 629 m revised to 585 m.

New SF House Sales



New SF Housing Sales: Six-month average & monthly



New SF House Sales by Region and Price Category

	NE SF Sales	MW SF Sales	S SF Sales	W SF Sales
September	19,000	77,000	318,000	139,000
August	32,000	72,000	323,000	158,000
2017	39,000	74,000	359,000	165,000
M/M change	-40.6%	6.9%	-1.5%	-12.0%
Y/Y change	-51.3%	4.1%	-11.4%	-15.8%

	≤ \$150m	\$150 - \$199.9m	\$200 - 299.9m	\$300 - \$399.9m	\$400 - \$499.9m	\$500 - \$749.9m	≥ \$750m
September ^{1,2,3,4}	1,000	3,000	15,000	9,000	7,000	4,000	2,000
August	1,000	5,000	15,000	10,000	6,000	6,000	3,000
2017	1,000	5,000	14,000	12,000	8,000	7,000	2,000
M/M change	0.0%	-40.0%	0.0%	-10.0%	16.7%	-33.3%	-33.3%
Y/Y change	0.0%	-40.0%	7.1%	-25.0%	-12.5%	-42.9%	0.0%
New SF sales: %	2.4%	7.3%	36.6%	22.0%	17.1%	9.8%	4.9%

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.

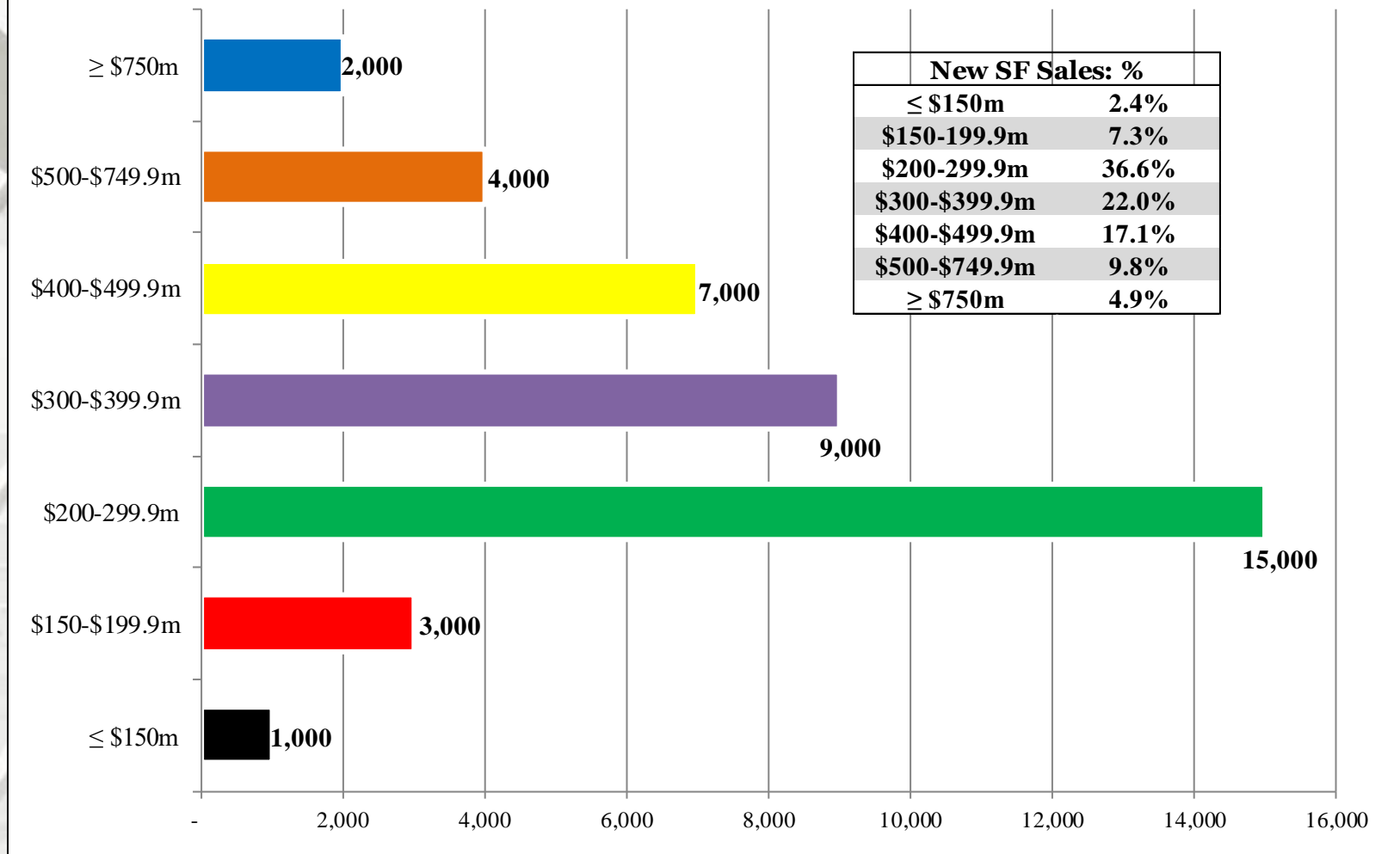
⁴ Housing prices are adjusted at irregular intervals.

Sources: ^{1,2,3} <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 10/24/18;

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

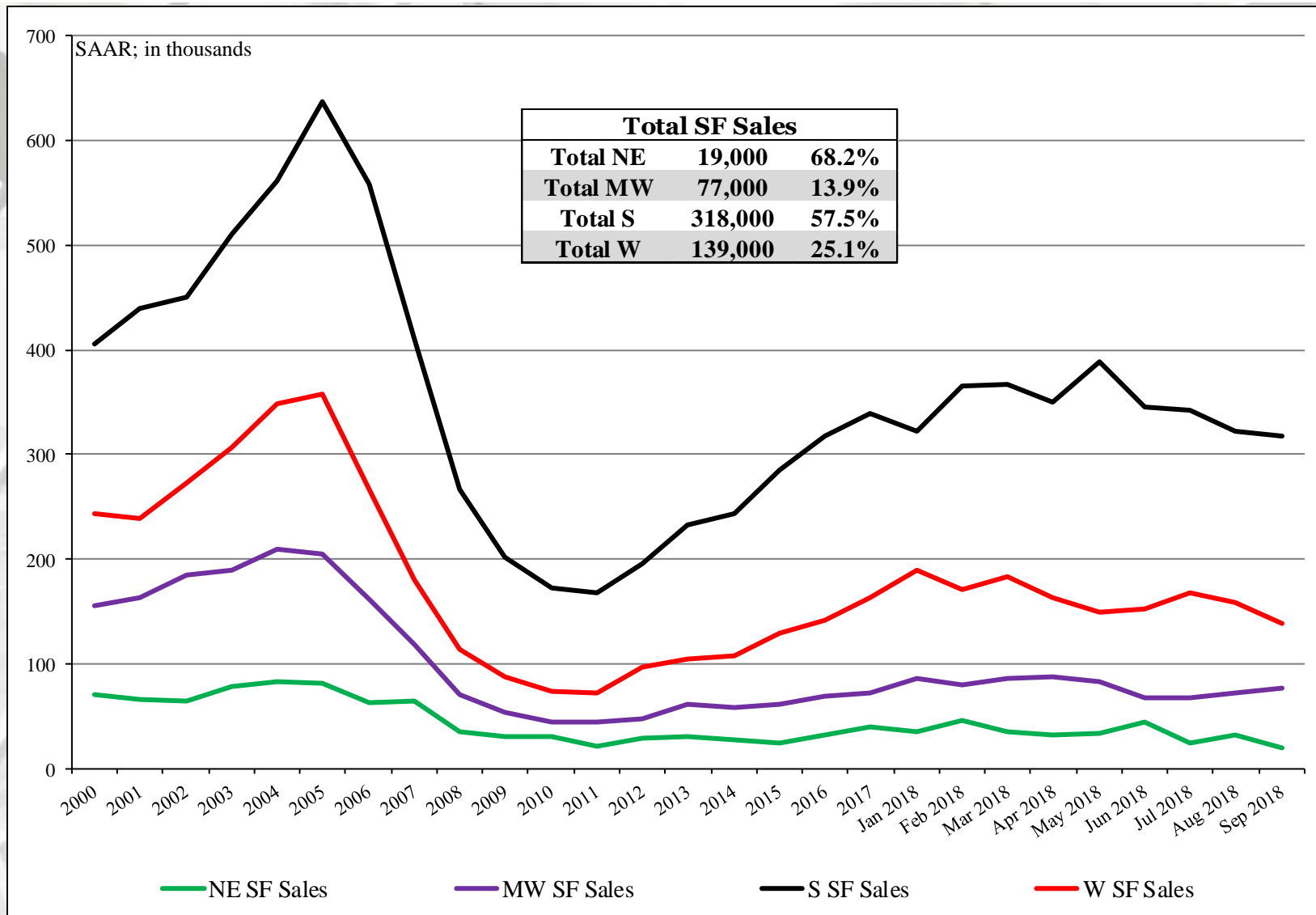
New SF House Sales

September New SF Sales*



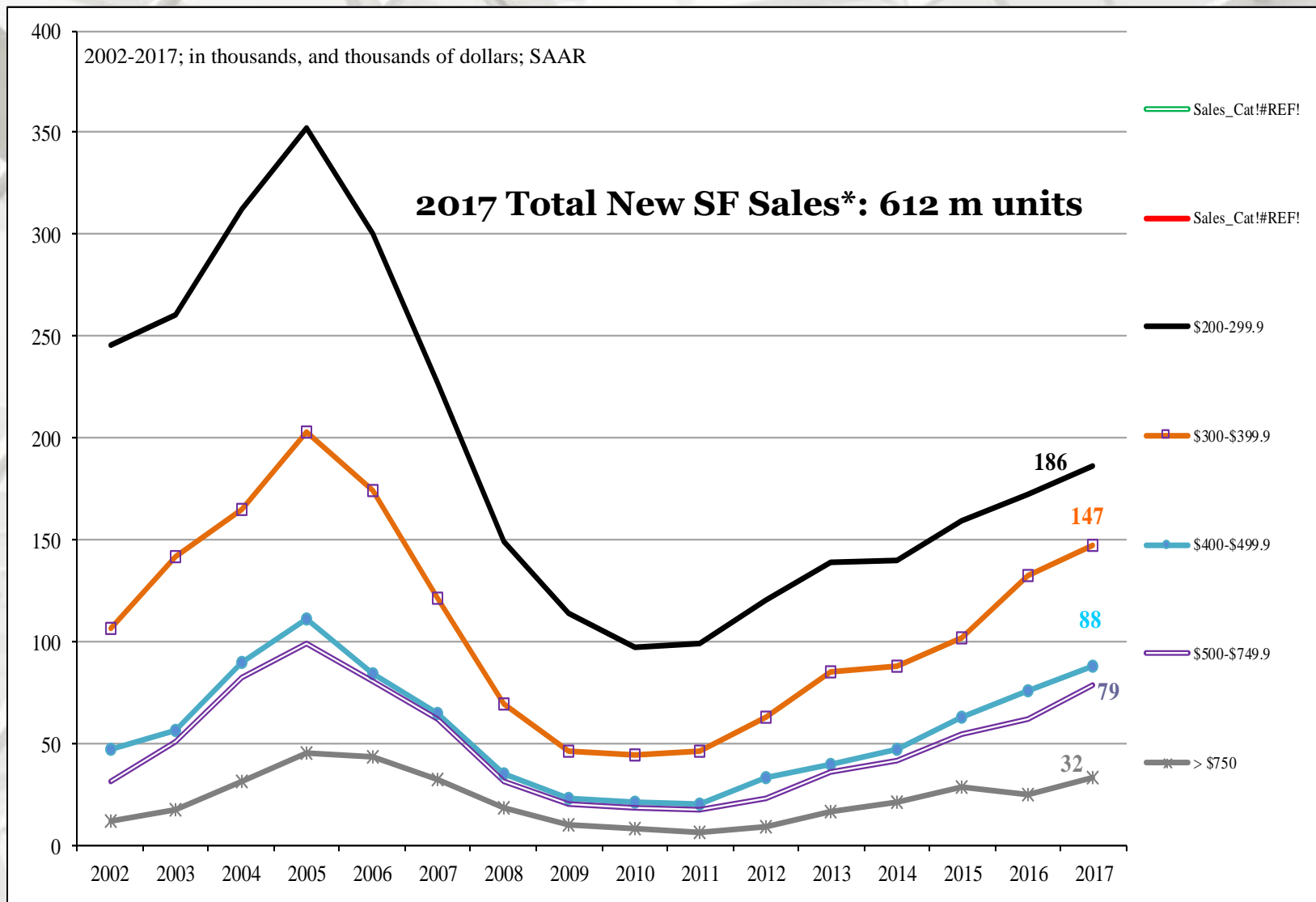
* Total new sales by price category and percent.

New SF House Sales by Region

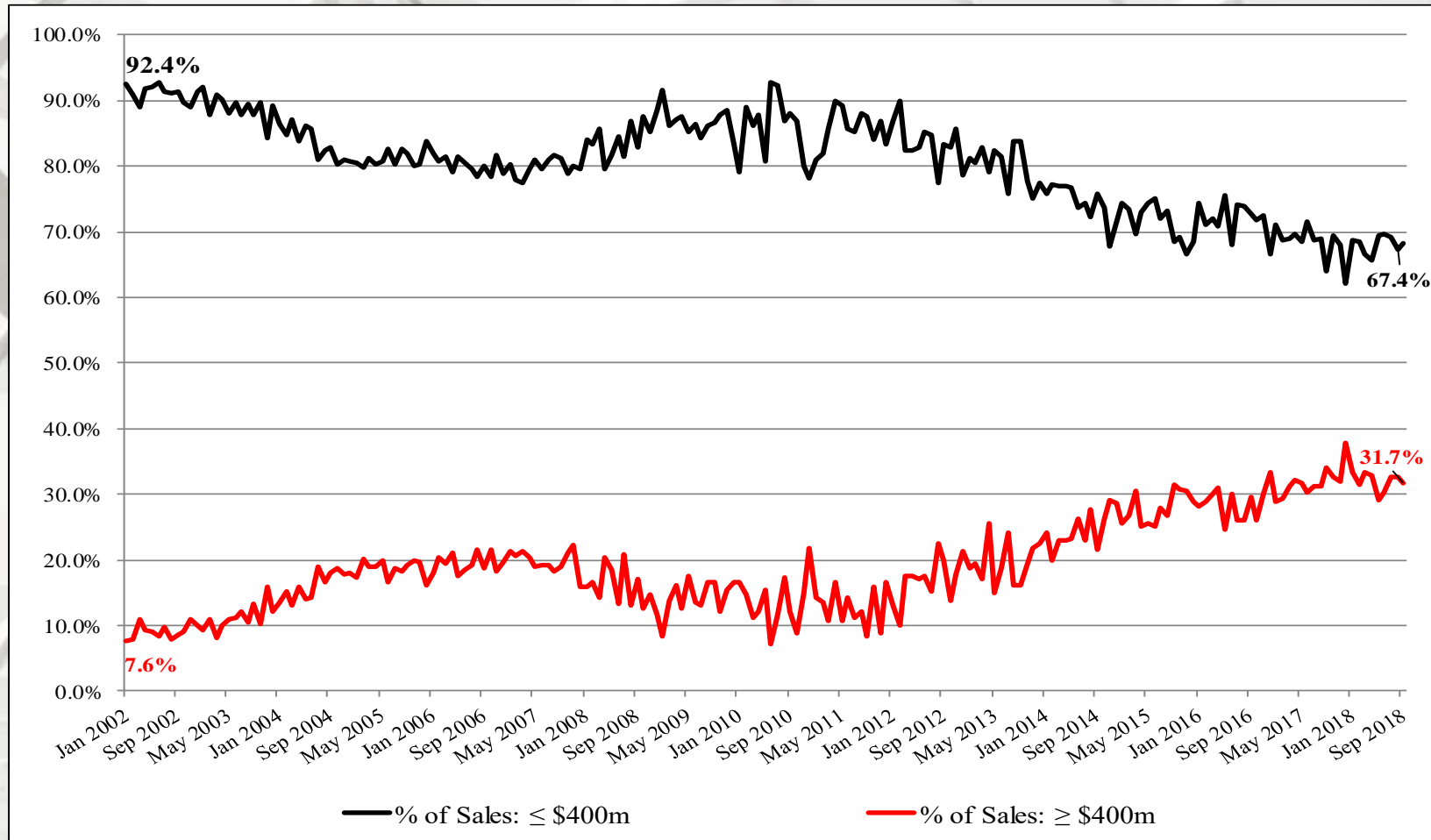


* Percentage of total new sales.

New SF House Sales by Price Category



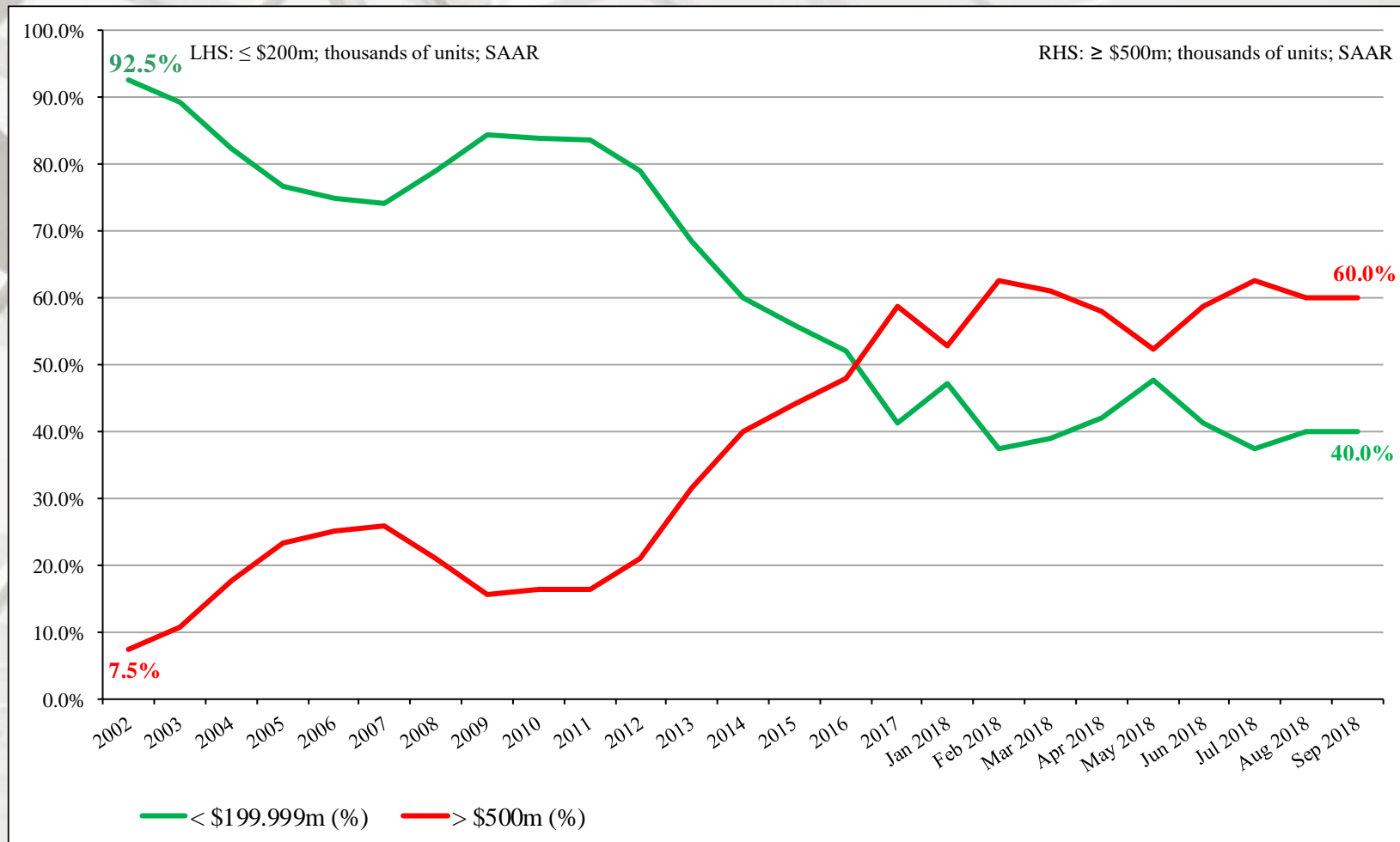
New SF House Sales



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

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

New SF House Sales

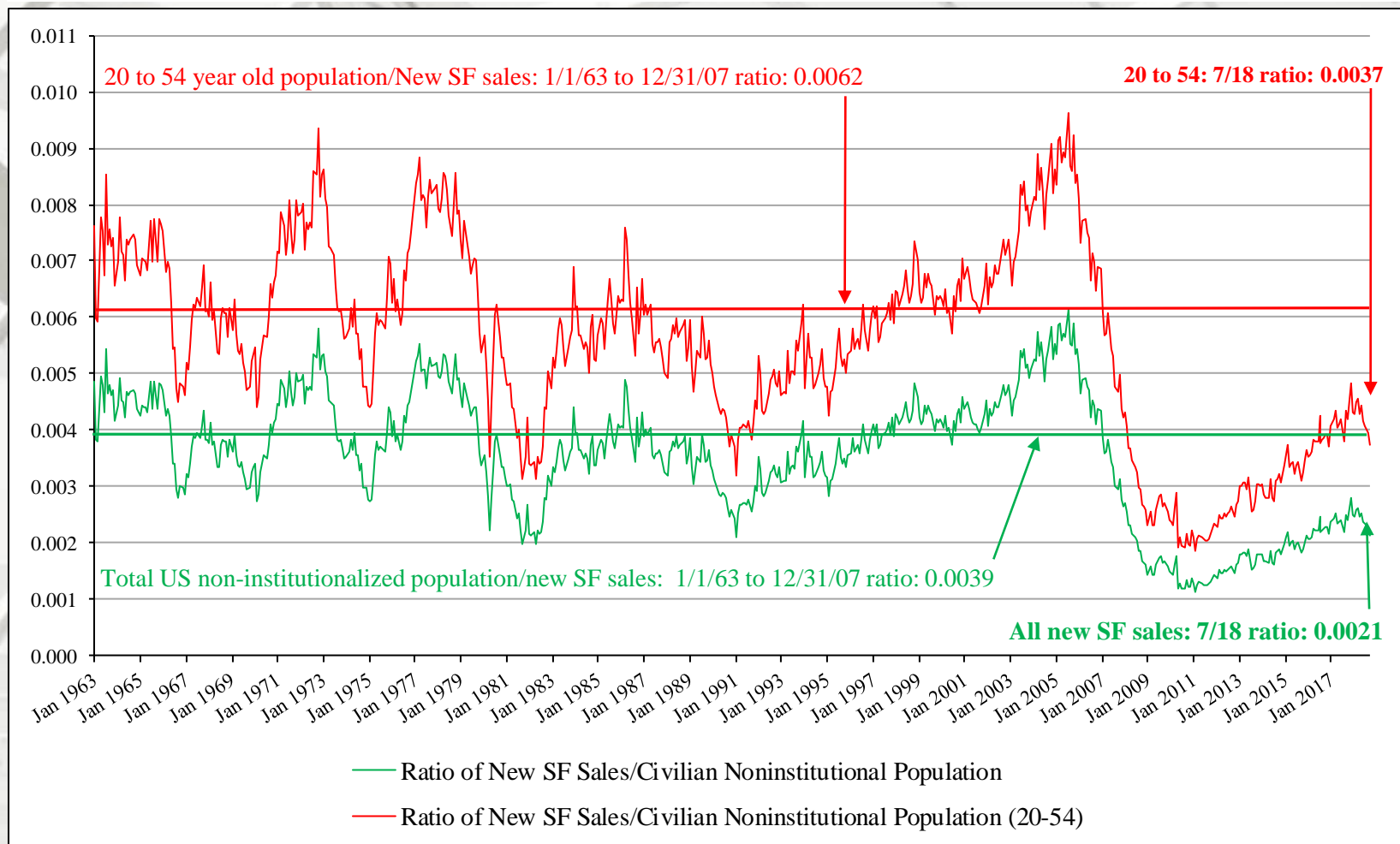


New SF Sales: ≤ \$ 200m and ≥ \$500m: 2002 to September 2018

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

Note: Sales values are not adjusted for inflation.

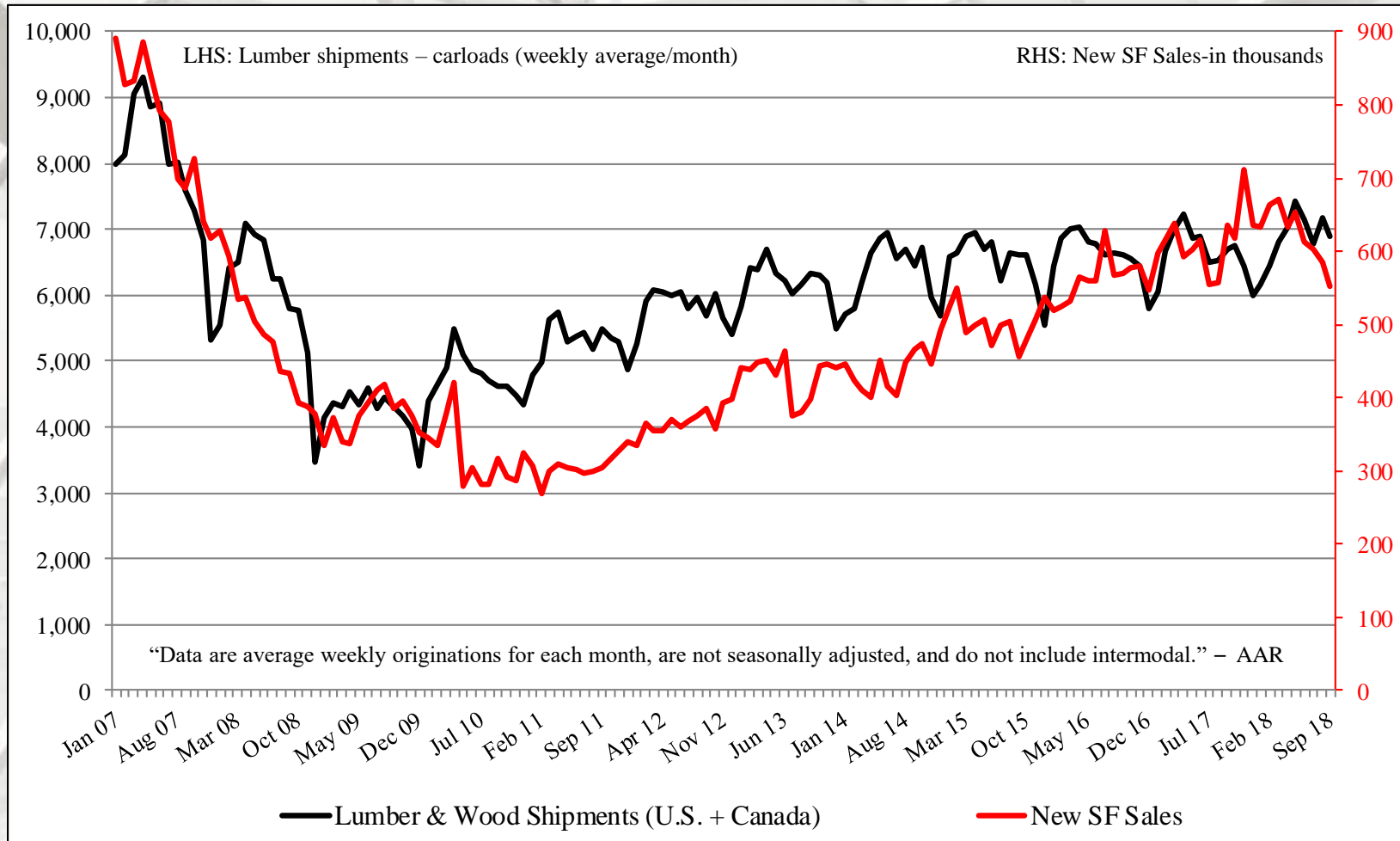
New SF House Sales



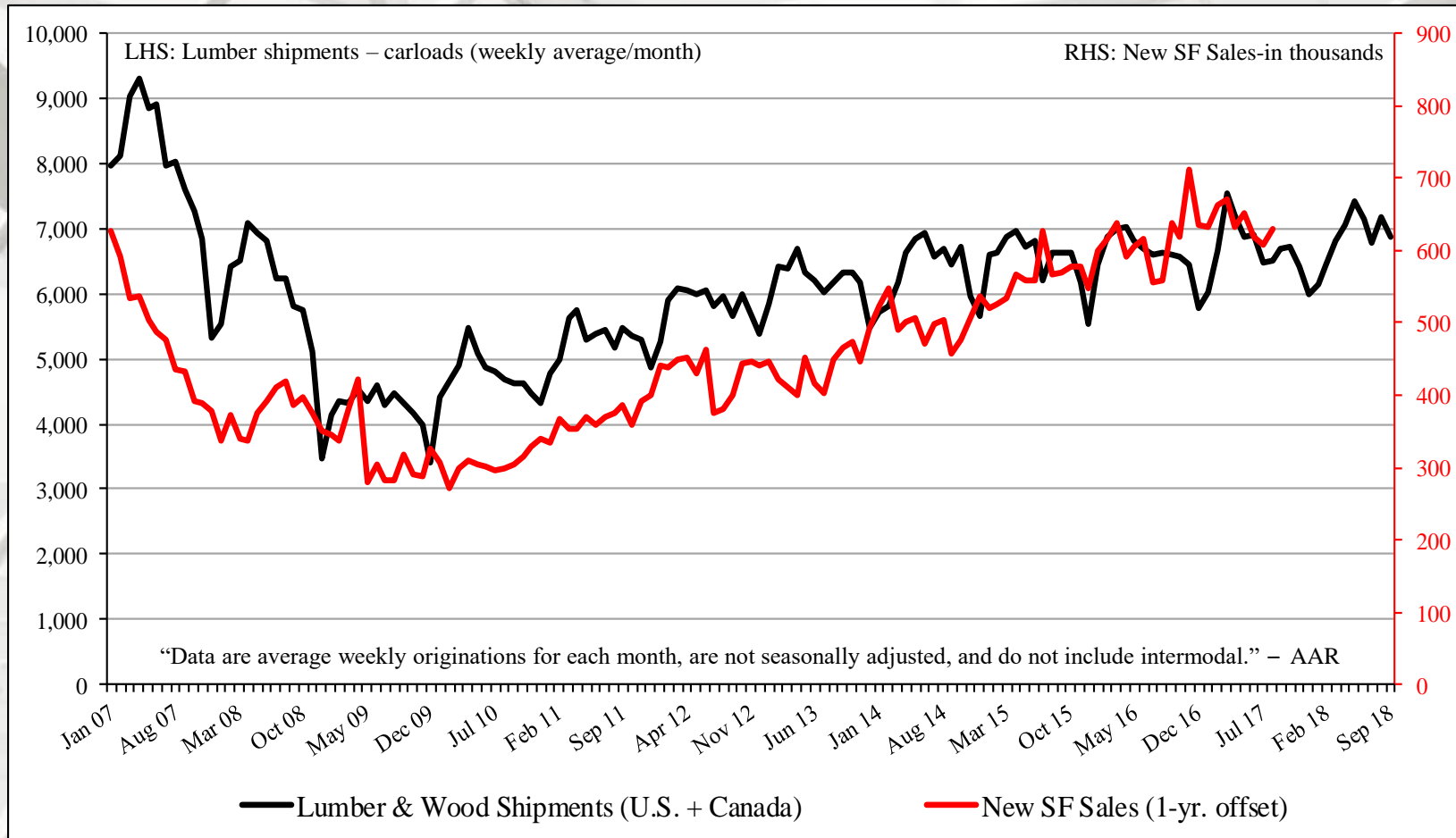
New SF sales adjusted for the US population

From September 1963 to November 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0039; in September 2018 it was 0.0021 – a decrease from August (0.0023). The non-institutionalized population, aged 20 to 54 long-term ratio is 0.0062; in September 2018 it was 0.0037 – also decrease from August (0.0040). All are non-adjusted data. From a population viewpoint, construction is less than what is necessary for changes in the population (i.e., under-building).

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

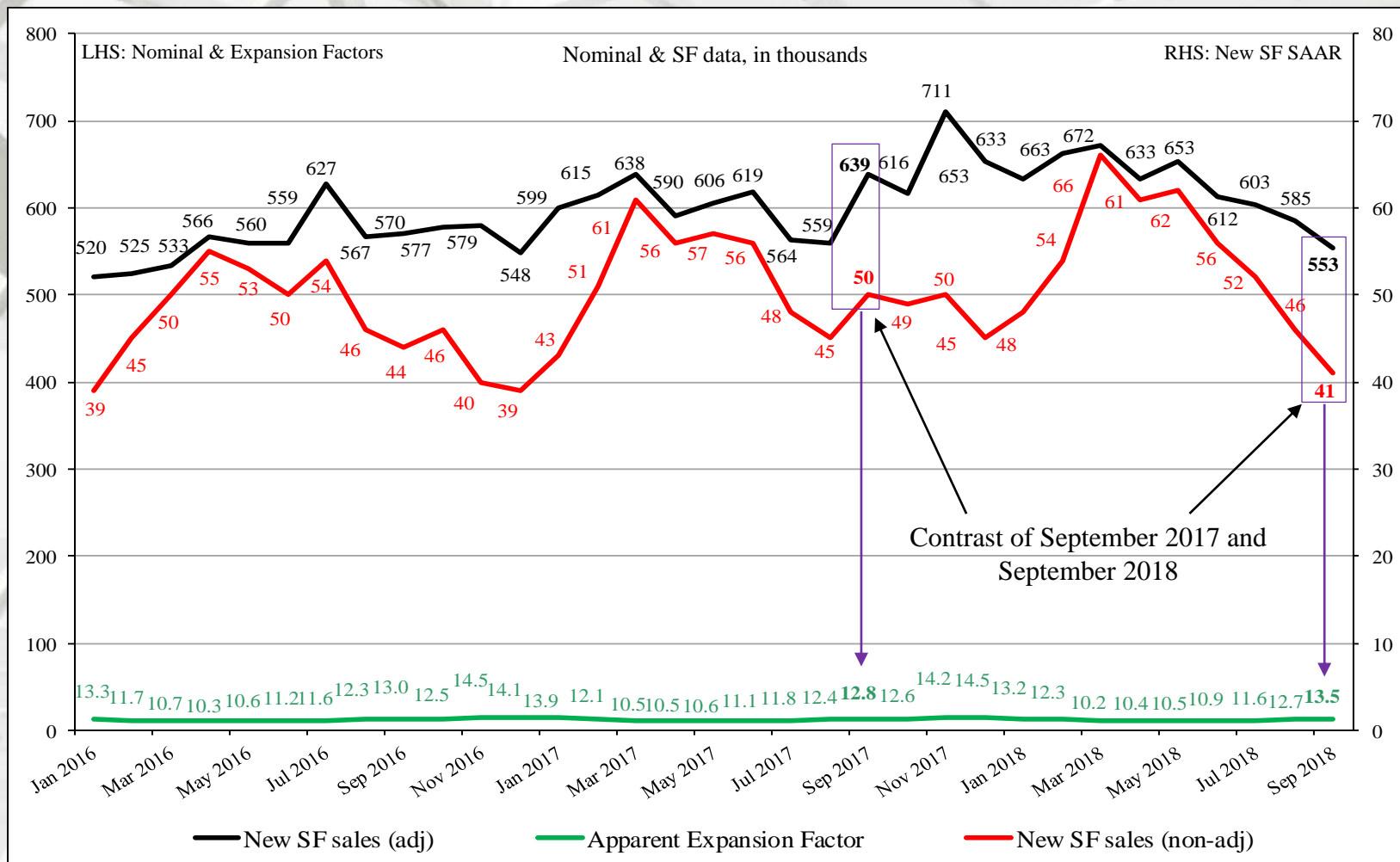


Railroad Lumber & Wood Shipments vs. U.S. SF Housing Sales: 1-year Offset



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

Nominal vs. SAAR New SF House Sales



Nominal and Adjusted New SF Monthly Sales

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

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

New SF House Sales

New SF Houses Sold During Period

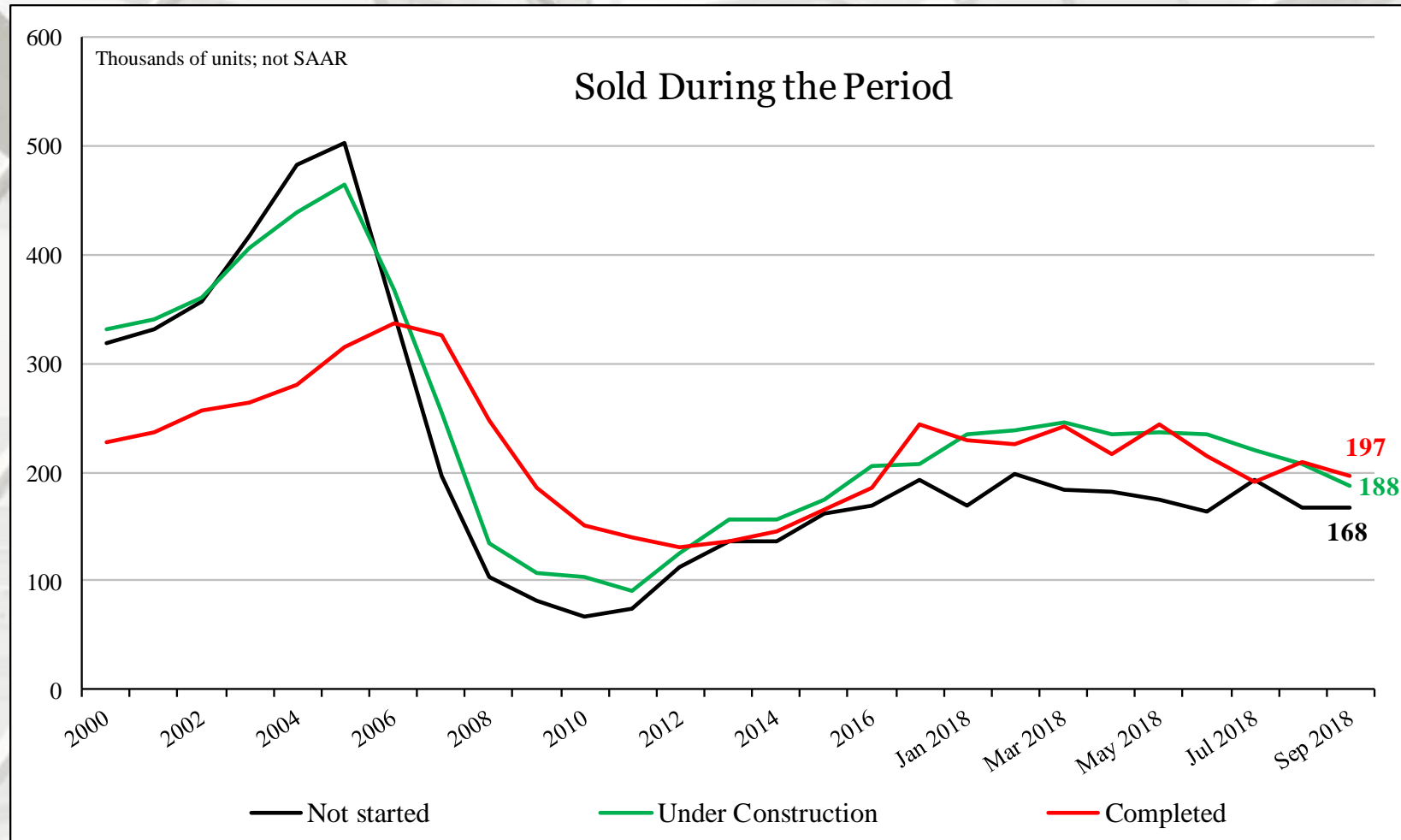
	Total	Not started	Under Construction	Completed
September	553,000	168,000	188,000	197,000
August	585,000	167,000	208,000	210,000
2017	637,000	185,000	228,000	224,000
M/M change	-5.5%	0.6%	-9.6%	-6.2%
Y/Y change	-13.2%	-9.2%	-17.5%	-12.1%
Total percentage		30.4%	34.0%	35.6%

New SF Houses Sold During Period

In September 2018, a substantial portion of new sales – 30.4% – have not been started.

* Not SAAR

New SF House Sales



Not SAAR

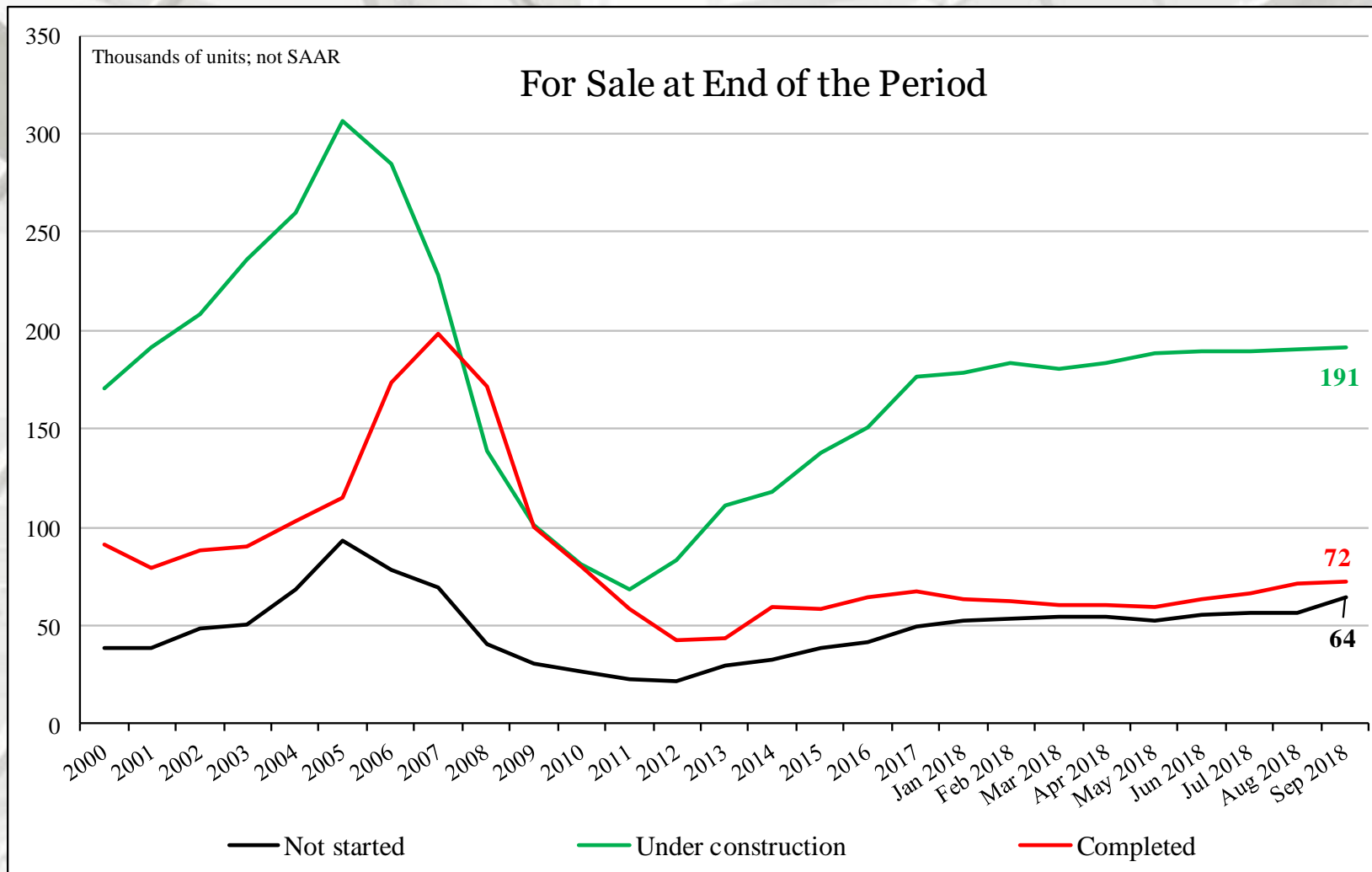
New SF House Sales

New SF Houses for Sale at the end of the Period

	Total	Not started	Under Construction	Completed
September	327,000	64,000	191,000	72,000
August	318,000	57,000	190,000	71,000
2017	285,000	47,000	175,000	63,000
M/M change	2.8%	12.3%	0.5%	1.4%
Y/Y change	14.7%	36.2%	9.1%	14.3%
Total percentage		19.6%	58.4%	22.0%

Not SAAR

New SF House Sales



Not SAAR

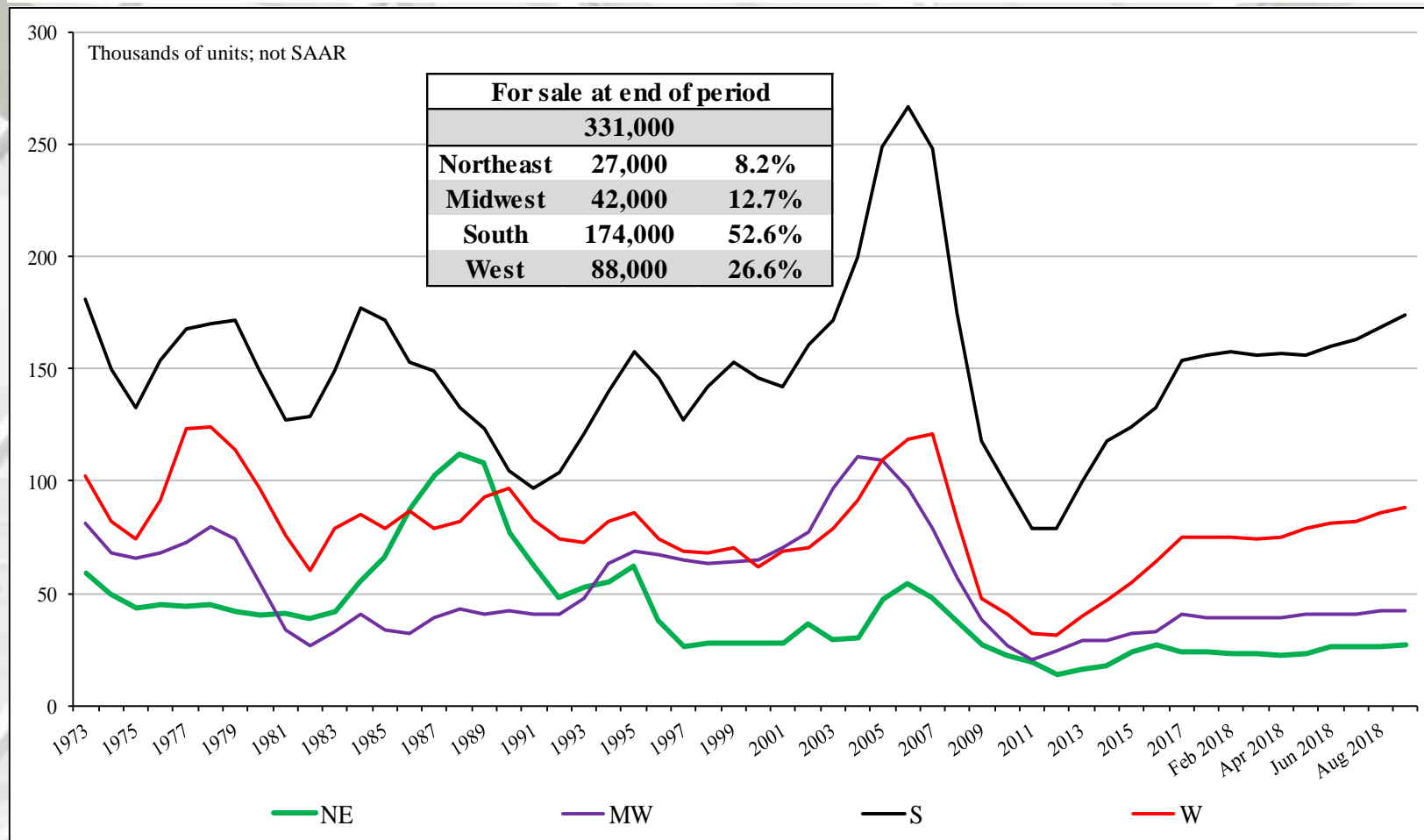
New SF House Sales

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

	Total	NE	MW	S	W
September	331,000	27,000	42,000	174,000	88,000
August	323,000	26,000	42,000	169,000	86,000
2017	285,000	25,000	37,000	153,000	70,000
M/M change	2.5%	3.8%	0.0%	3.0%	2.3%
Y/Y change	16.1%	8.0%	13.5%	13.7%	25.7%

* Not SAAR

New SF Houses Sale at End of Period by Region



September 2018 Construction Spending

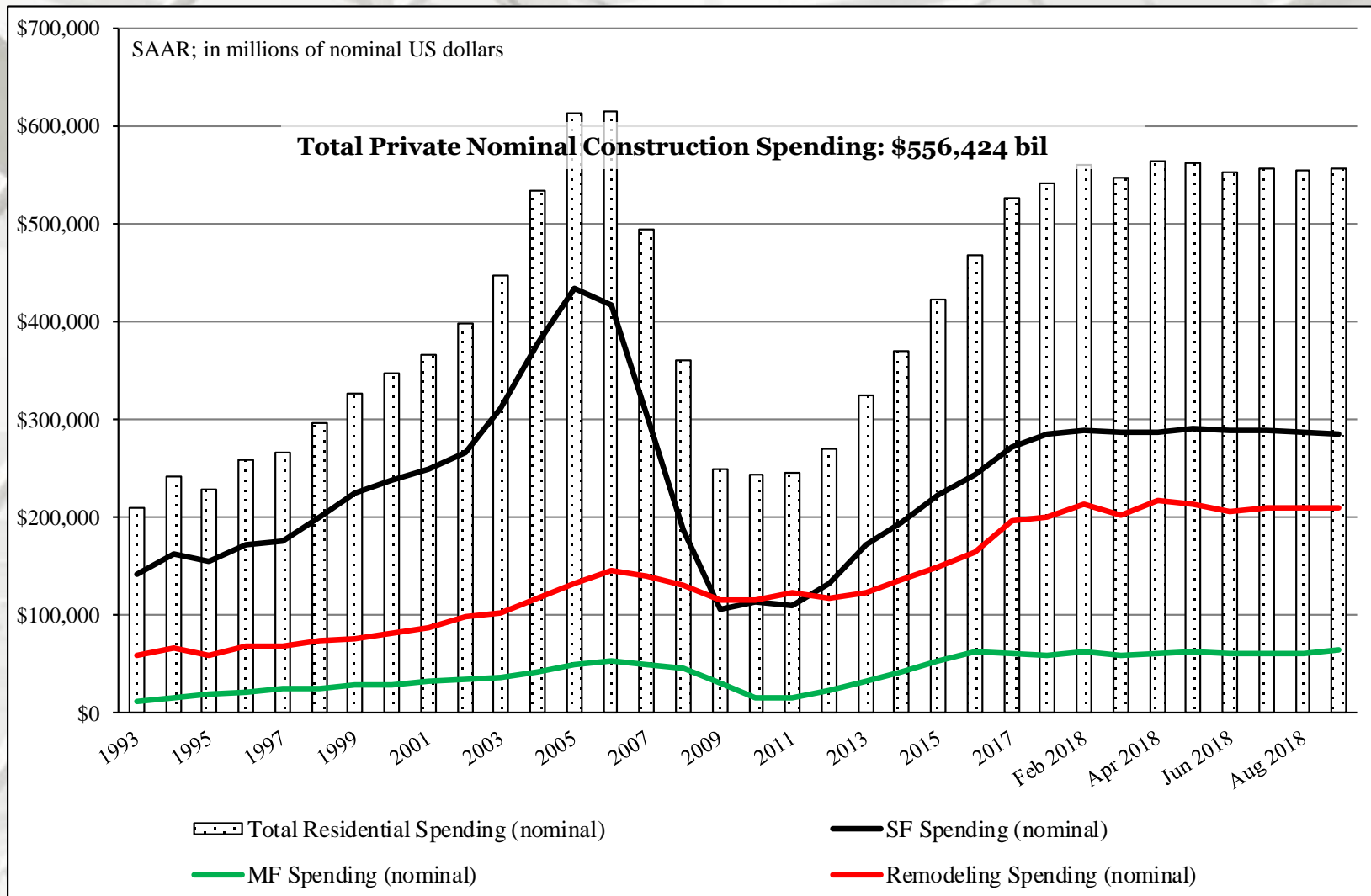
	Total Private Residential*	SF	MF	Improvement**
September	\$556,424	\$283,238	\$64,228	\$208,958
August	\$553,372	\$285,528	\$59,078	\$208,766
2017	\$529,404	\$274,695	\$59,370	\$195,339
M/M change	0.6%	-0.8%	8.7%	0.1%
Y/Y change	5.1%	3.1%	8.2%	7.0%

* billion.

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

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

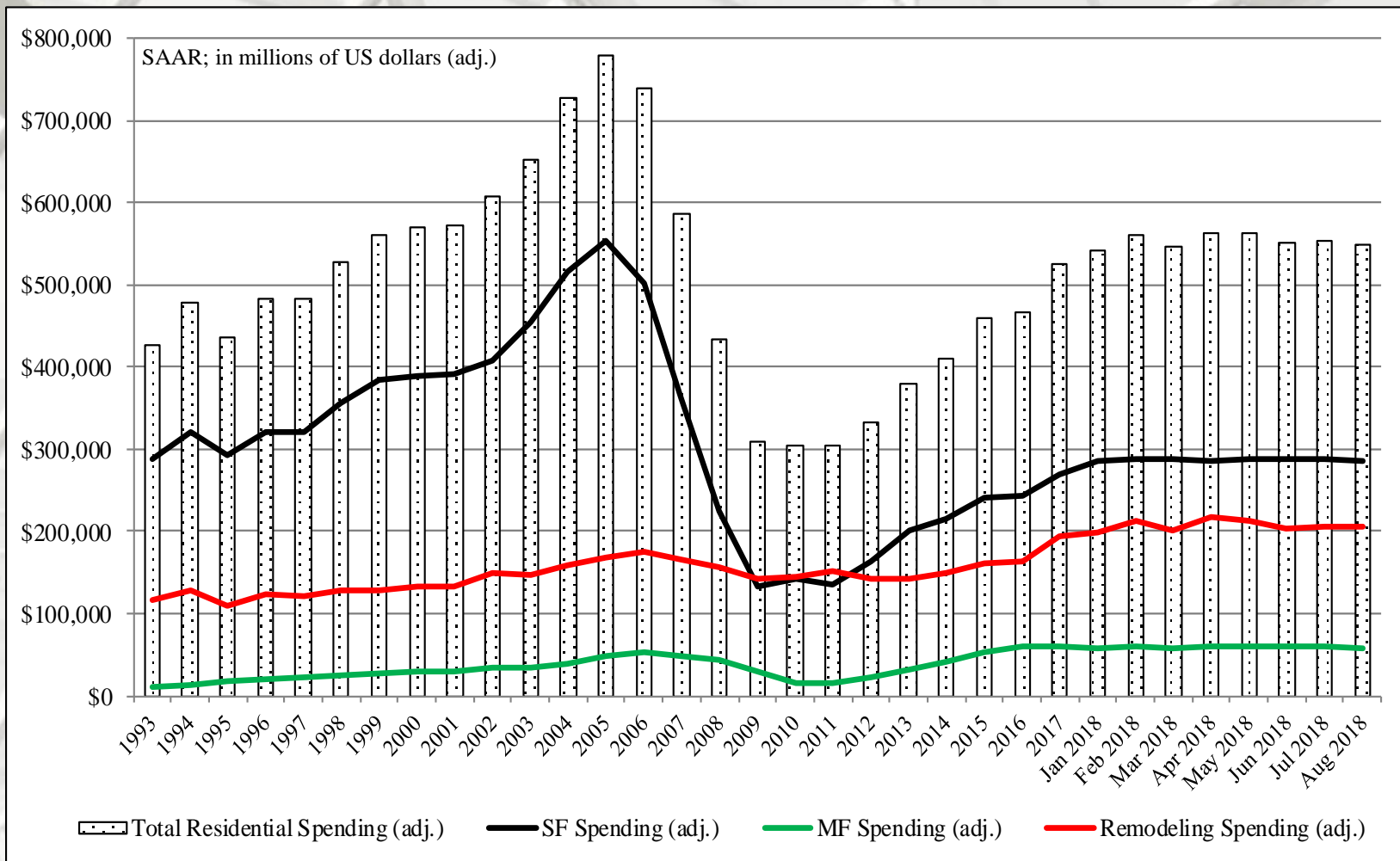
Total Construction Spending (nominal): 1993 – September 2018



Reported in nominal US\$.

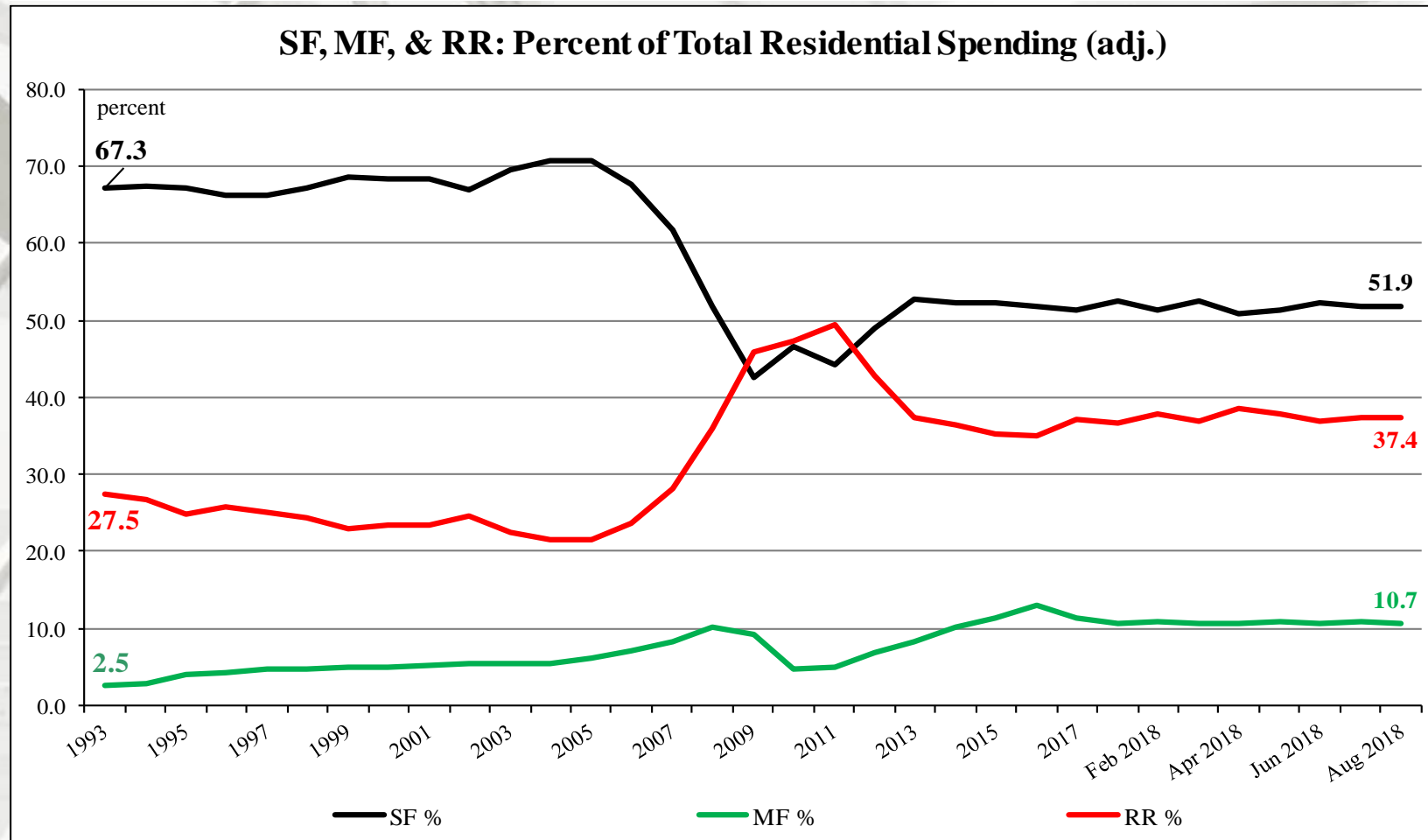
The US DOC does not report improvement spending directly, this is a monthly estimation for 2018.

Total Construction Spending (adjusted): 1993-2018*



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

Construction Spending Shares: 1993 to September 2018



Total Residential Spending: 1993 through 2006

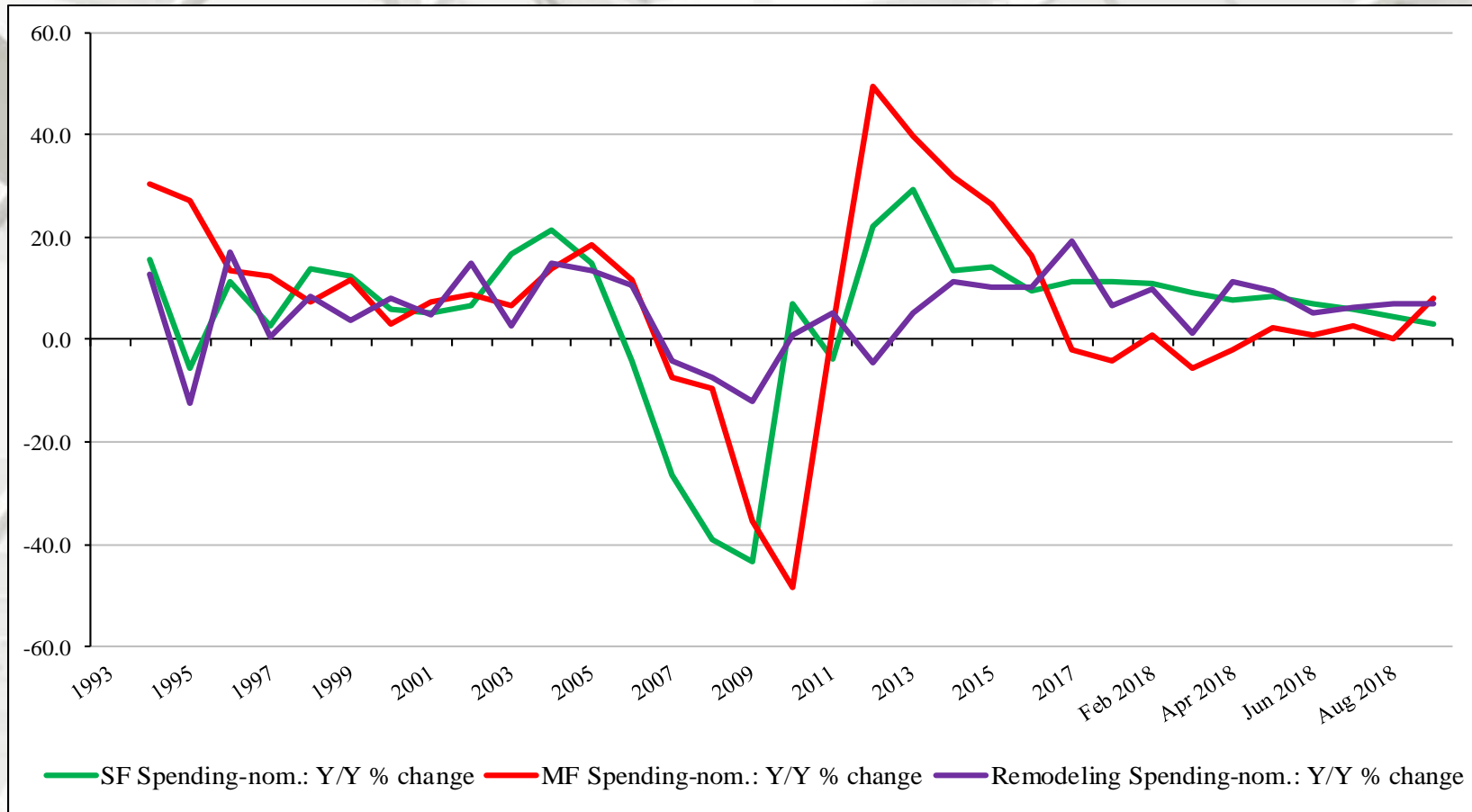
SF spending average: 69.2%

MF spending average: 7.5%

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

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

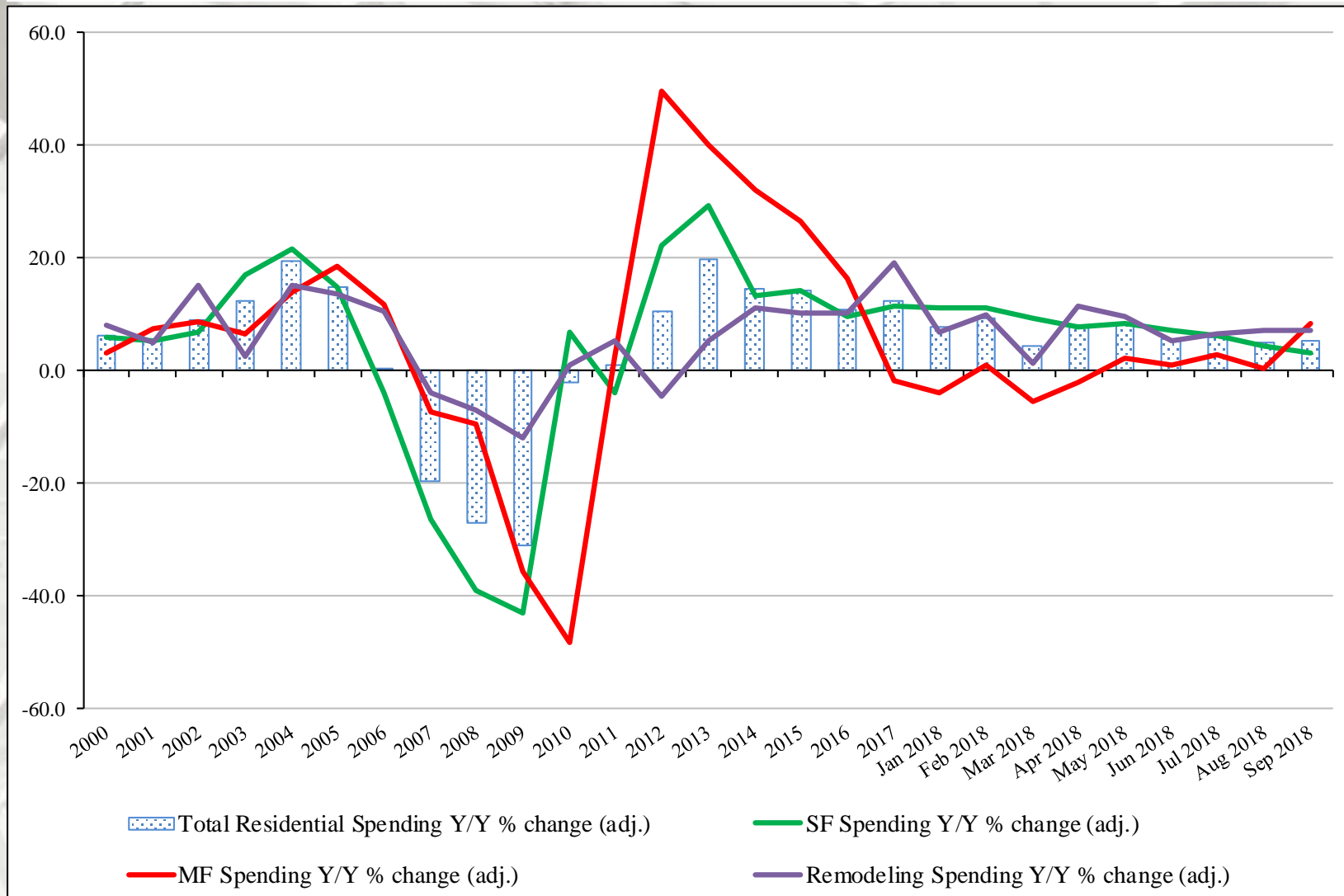
Adjusted Construction Spending: Y/Y Percentage Change, 1993 to September 2018



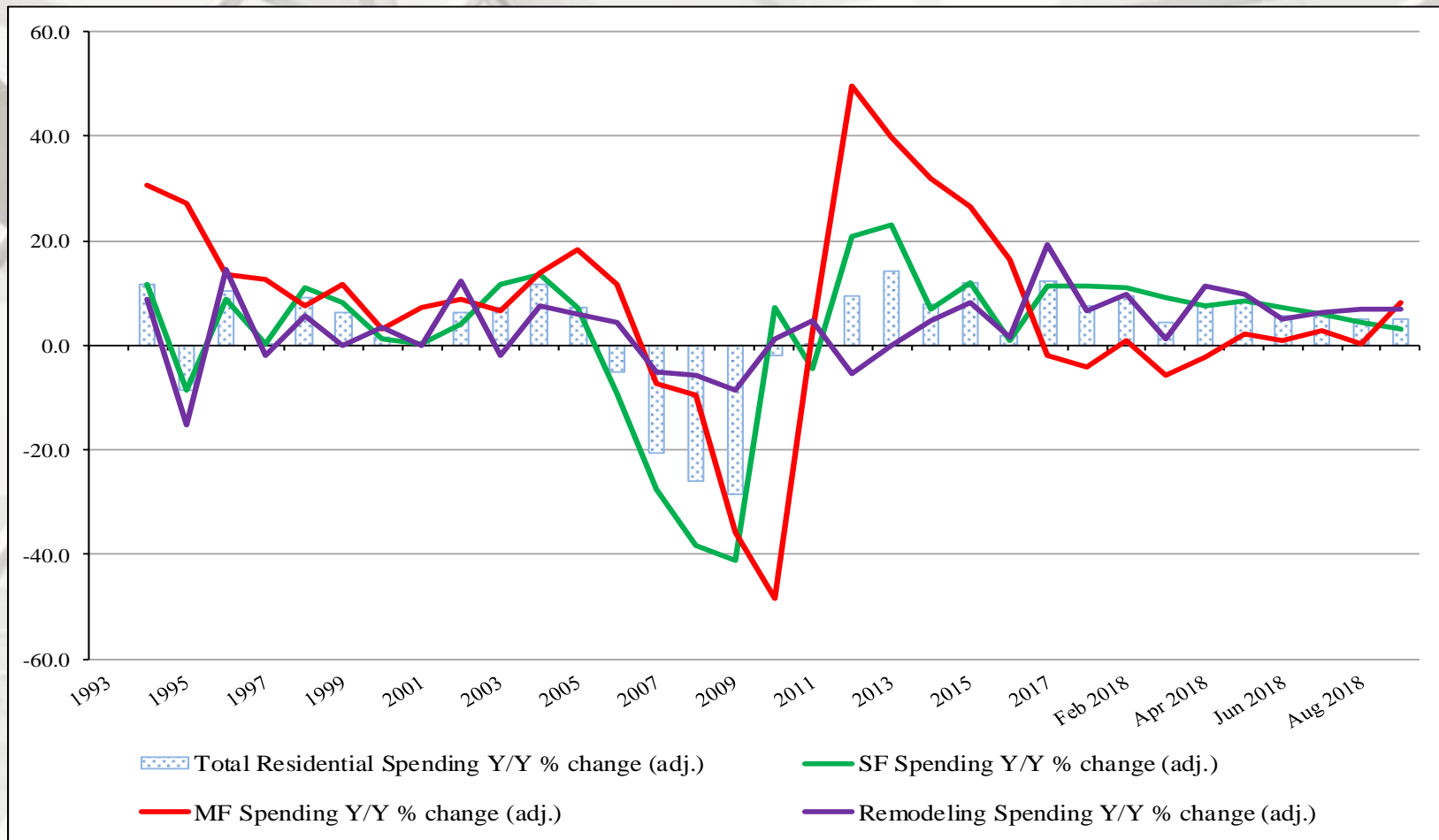
Nominal Residential Construction Spending: Y/Y percentage change, 1993 to September 2018

Presented above is the percentage change of inflation adjusted Y/Y construction spending. MF and remodeling expenditures improved and SF spending declined, on a percentage basis, year-over-year.

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



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



Inflation Adjusted Residential Construction Spending:

Y/Y percentage change, 1993 to September 2018

Total, Remodeling, and MF spending were positive; SF expenditures indicated a slight declines. January to September 2018 reported in nominal percent.

Remodeling

BuildFax Housing Health Report

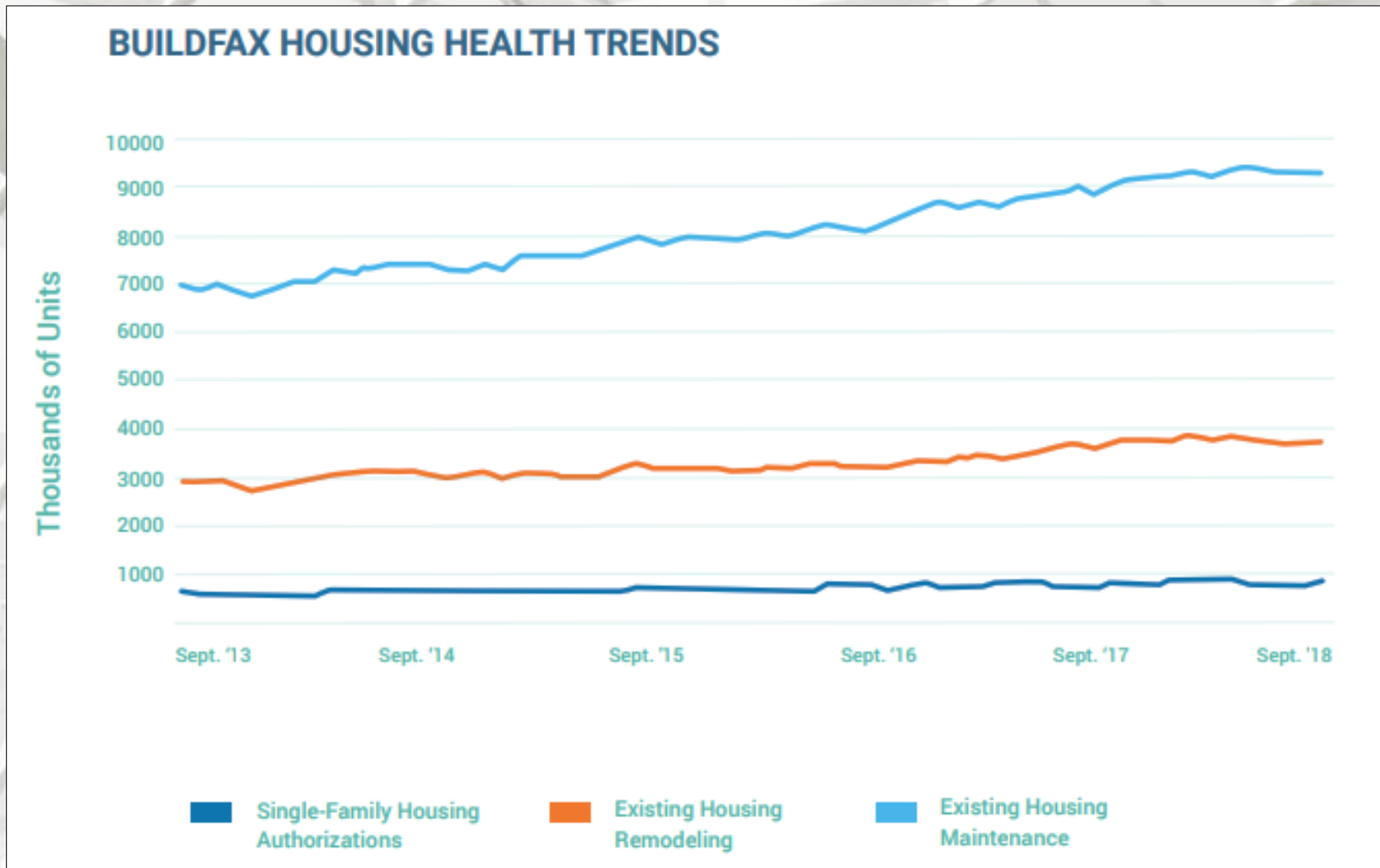
A sharp spike in maintenance activity sees direct impact from 2017 hurricane season

“BuildFax research revealed the annual rate of single-family housing authorizations picks up pace, while the annual rate of single-family housing starts begins to slow in September.

Existing U.S. housing maintenance project volume and spend are still showing annual rate increases at progressively larger margins. However, the pace of remodeling – a subset of maintenance that includes renovations, alterations, and additions to a structure – has shown for a third month in a row that it is leveling out after a few years of steep increases. Gains in remodel and maintenance spend demonstrate continued improvements to the health of the existing housing supply as homeowners look to maintain their properties instead of investing in new homes.

Typically, we see dips in maintenance and remodeling activity immediately following a natural disaster, as we saw in Florida following Hurricane Irma, which caused \$10 billion in insured losses. Irma’s impact on Florida in September 2017 directly contributed to last month’s 5.06 percent increase in maintenance activity,. Hurricane Harvey is a different story. Harris County's non-traditional permitting strategies spiked maintenance activity shortly after landfall. This will likely impact remodeling and maintenance activity well into 2019 and we'll be tracking these trends in depth over time.” – Jonathan Kanarek, COO, BuildFax

Remodeling



Remodeling

THIRD-QUARTER LOOKBACK

	Change Compared to Q3 2017	Change Compared to Q2 2018
Maintenance	4.35%	-0.87%
Remodeling	1.70%	-1.77%

BuildFax Housing Health Report

“Existing Housing Maintenance

- The annual rate of housing maintenance volume increased 5.06%
- In September 2018, housing maintenance spend increased at a year-over-year rate of 18.14% from September 2017

Existing Housing Remodels

- The annual rate of remodel volume has increased 2.39%
- In September 2018, remodel spend increased at a year-over-year rate of 15.96% from September 2017.” – Jonathan Kanarek, COO, BuildFax

Remodeling

Harvard Joint Center for Housing Studies Slower Growth Anticipated In Home Remodeling

“After several years of solid acceleration, annual growth in national home improvement and repair spending is expected to soften in 2019, according to our latest [Leading Indicator of Remodeling Activity](#) (LIRA). The LIRA projects that year-over-year increases in residential remodeling expenditures will reach a decade high of 7.7 percent this year and then start to drift downward to 6.6 percent through the third quarter of 2019.

Rising mortgage interest rates and flat home sales activity around much of the country are expected to pinch otherwise very strong growth in homeowner remodeling spending moving forward. Low for-sale inventories are presenting a headwind because home sales tend to spur investments in remodeling and repair both before a sale and in the years following.

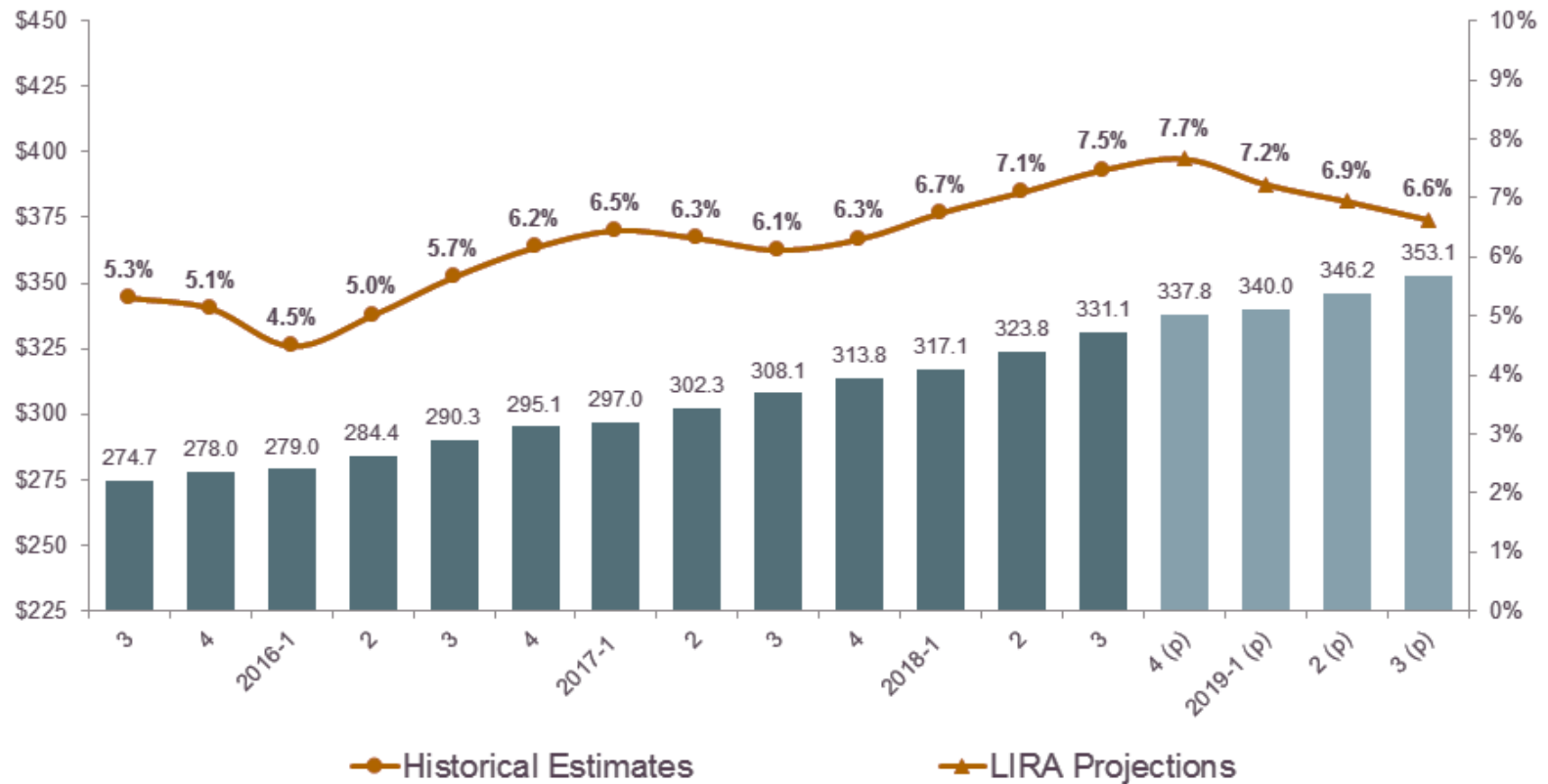
Even so, many other remodeling market indicators including home prices, permit activity, and retail sales of building materials continue to strengthen and will support above-average gains in spending next year. Through the third quarter of 2019, annual expenditures for residential improvements and repairs by homeowners is still expected to grow to over \$350 billion nationally.” – Abbe Will, Research Associate & Associate Project Director, Remodeling Futures, Harvard Joint Center for Housing Studies

Remodeling

Leading Indicator of Remodeling Activity – Third Quarter 2018

Homeowner Improvements & Repairs
Four-Quarter Moving Totals
Billions

Four-Quarter Moving
Rate of Change



Note: 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 Home Builders (NAHB)

Remodeling Confidence Remains Solid

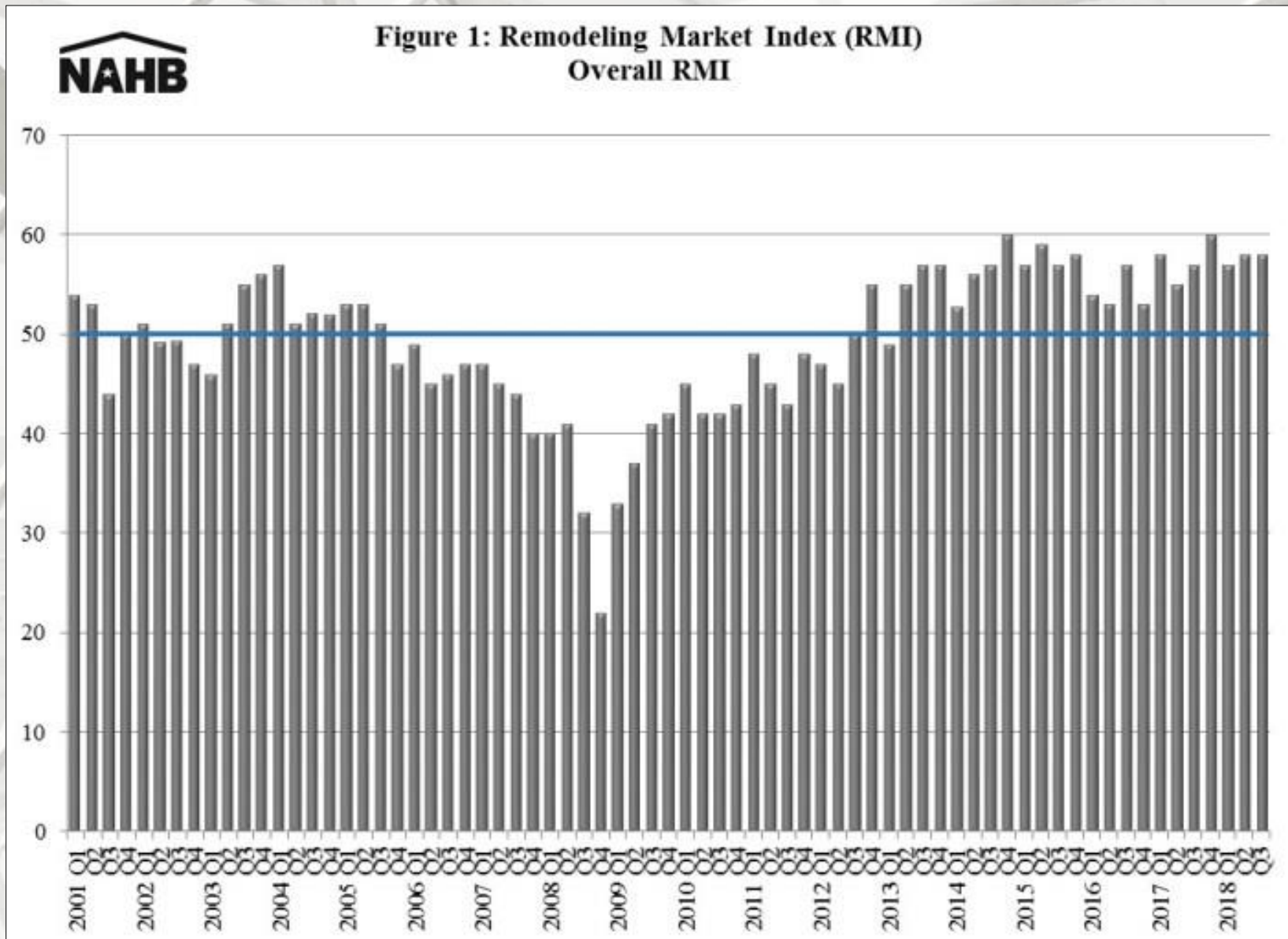
“The Remodeling Market Index (RMI) remained stable with a reading of 58 in the third quarter of 2018, according to the NAHB. The RMI has been at or above 50 since the second quarter of 2013, which indicates that more remodelers report market activity is higher than report it is lower (Figure 1).

The overall RMI is an average of two indices: current markets conditions and future market indicators. In the third quarter of 2018, the current market conditions index rose one point to 58 (Figure 2). Among its components, major additions and alterations rose one point to 56, minor additions and alterations decreased one point to 57, and the home maintenance and repair component rose one point to 60.

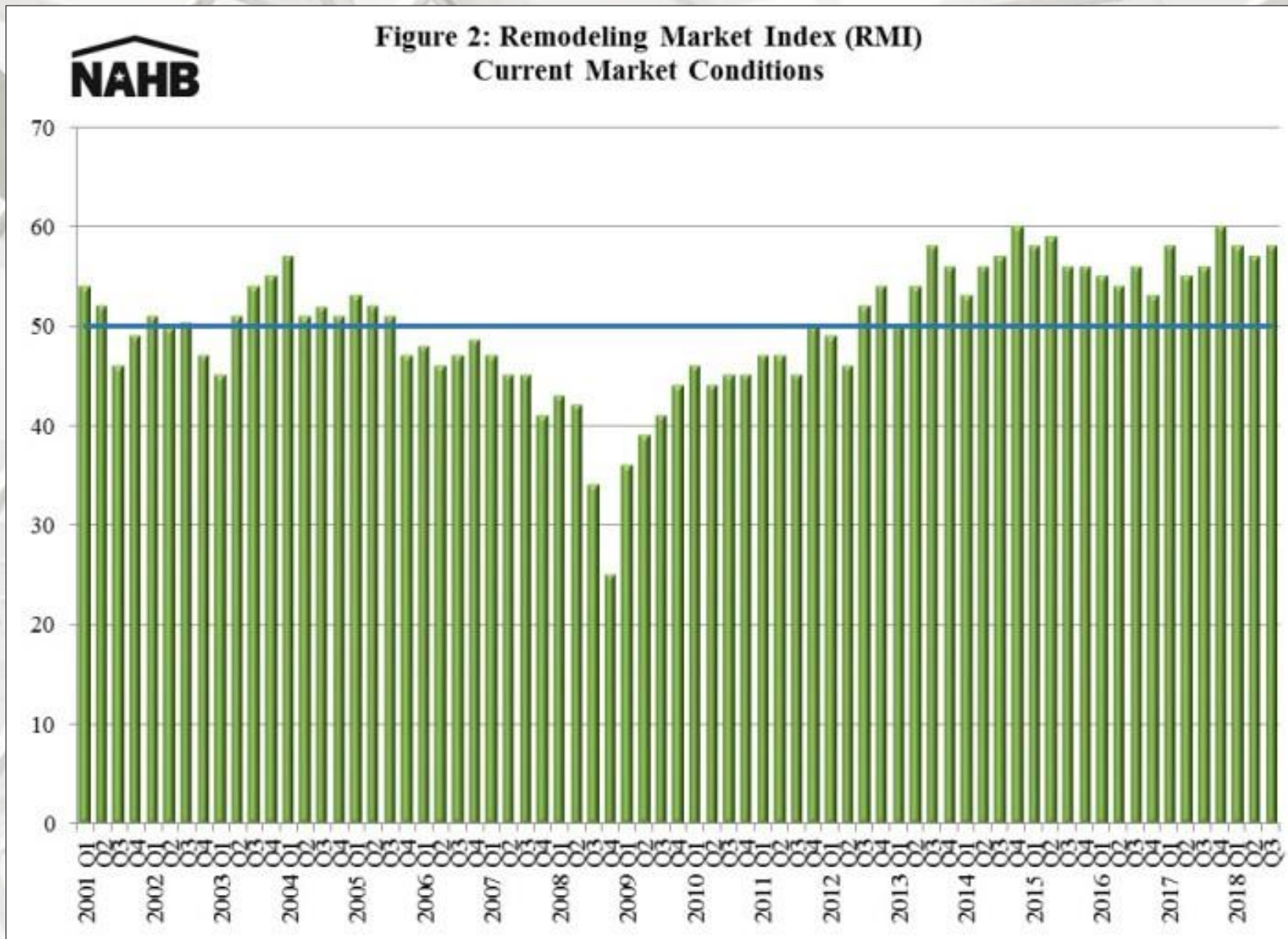
The future market indicators remained unchanged from the previous quarter at 59 (Figure 3). Calls for bids rose two points to 57, amount of work committed for the next three months increased three points to 59, the backlog of remodeling jobs fell four points to 62 and appointments for proposals decreased two points to 59.

Counterbalancing market forces are keeping the RMI steady. A strong economy, coupled with low unemployment and easing lumber prices are being offset by rising interest rates and ongoing labor shortages.” – Carmel Ford, Economist, NAHB

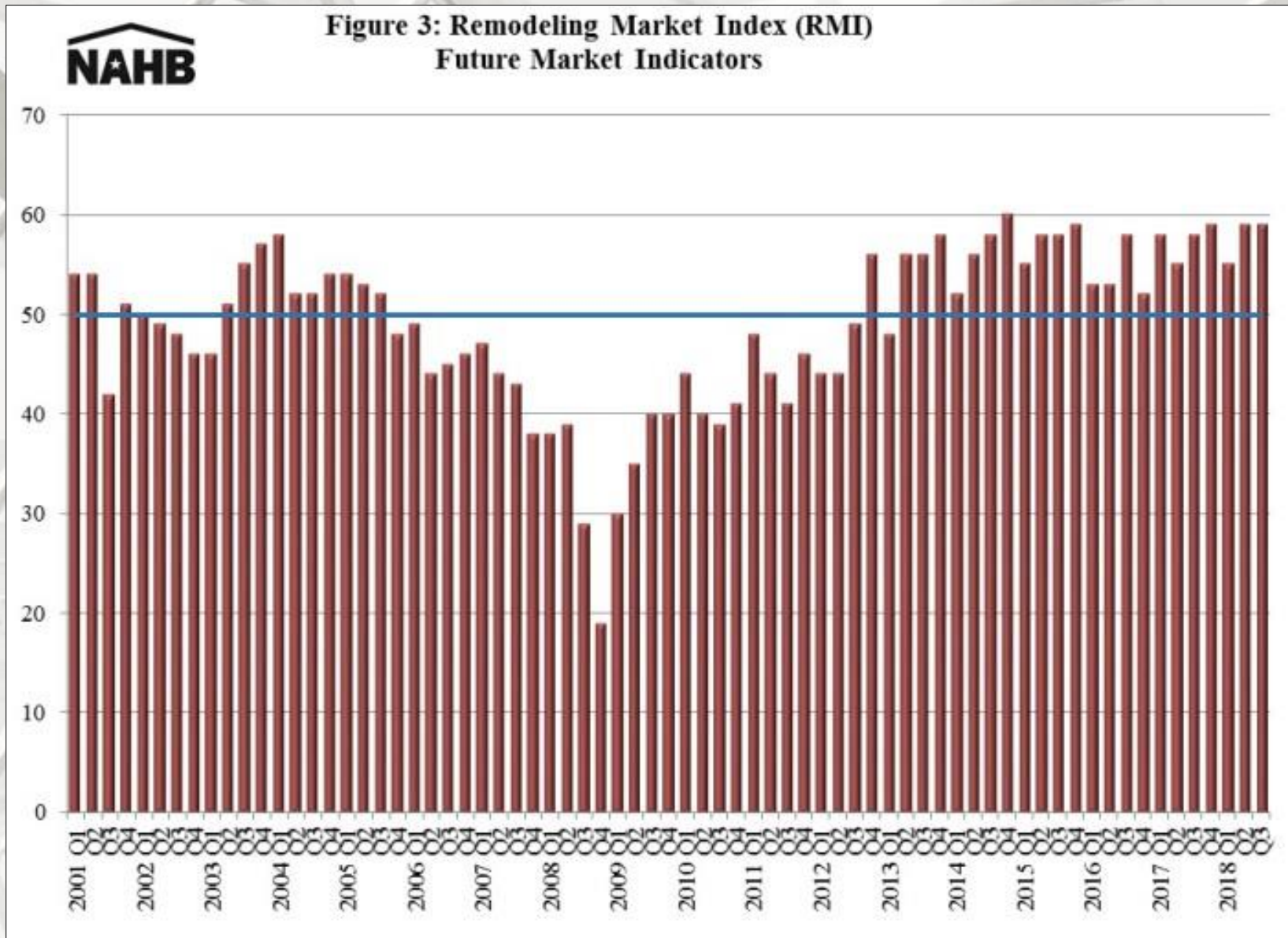
Remodeling



Remodeling



Remodeling



Remodeling

ATTOM Data Solutions

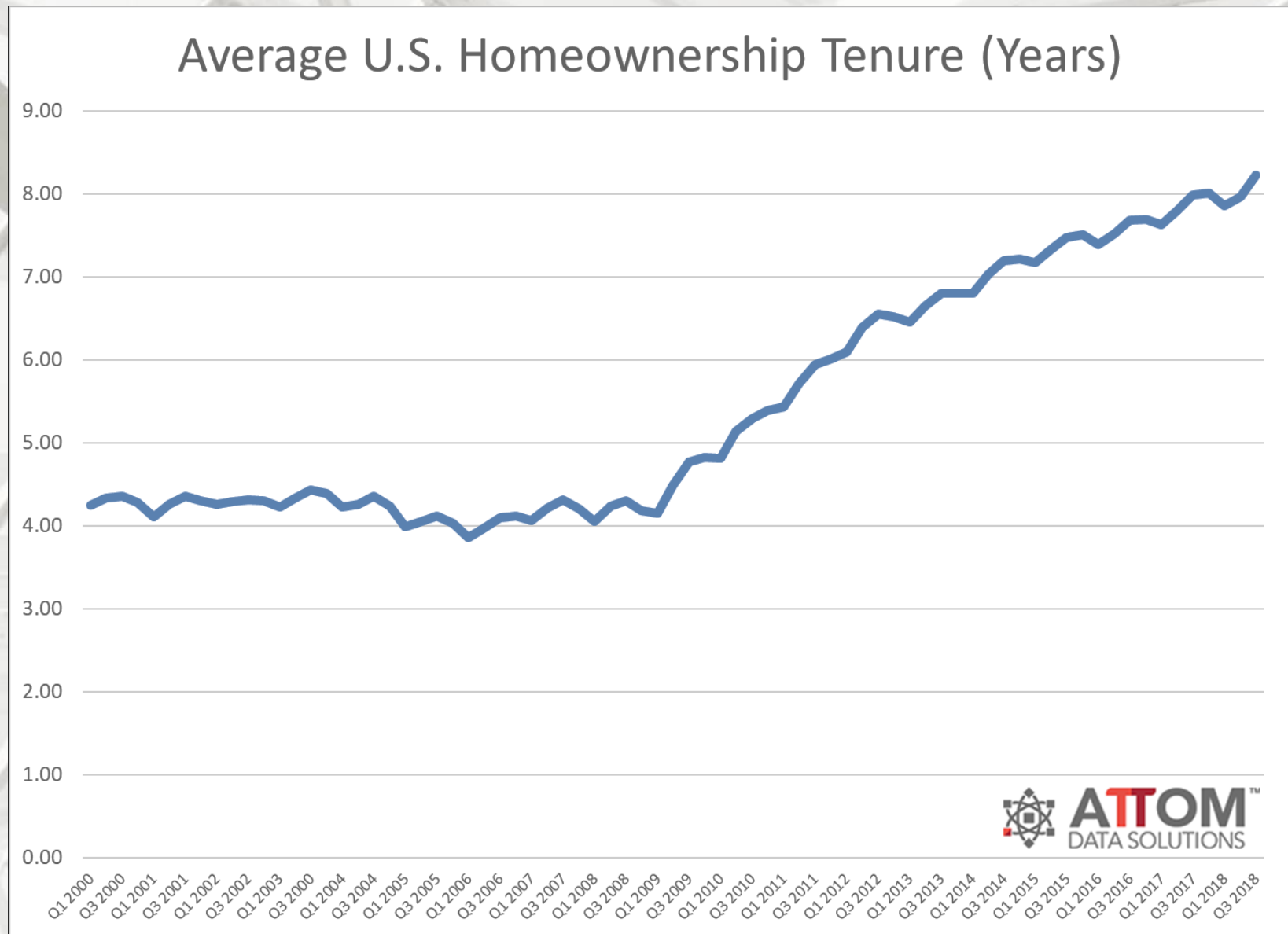
Average homeownership tenure increases to new all-time high of 8.23 years

“U.S. homeowners who sold in Q3 2018 had owned their homes an average of 8.23 years, up from an average homeownership tenure of 7.97 years in Q2 2018 and up from 7.98 years in Q3 2017 to a new record high going back as far as homeownership tenure data is available, Q1 2000.

Among 108 metropolitan statistical areas analyzed for homeownership tenure, those with the shortest average homeownership tenure were Oklahoma City, Oklahoma (6.31 years), Denver, Colorado (7.17 years); Colorado Springs, Colorado (7.18 years); Austin, Texas (7.24 years); and Provo-Orem, Utah (7.24 years).

Counter to the national trend, 19 of the 108 metropolitan statistical areas analyzed for homeownership tenure posted a year-over-year decrease in average homeownership tenure, including Boston, Phoenix, Seattle, Denver and Nashville.” – Daren Blomquist, Senior Vice President, ATTOM Data Solutions

Remodeling



Remodeling

New Geography

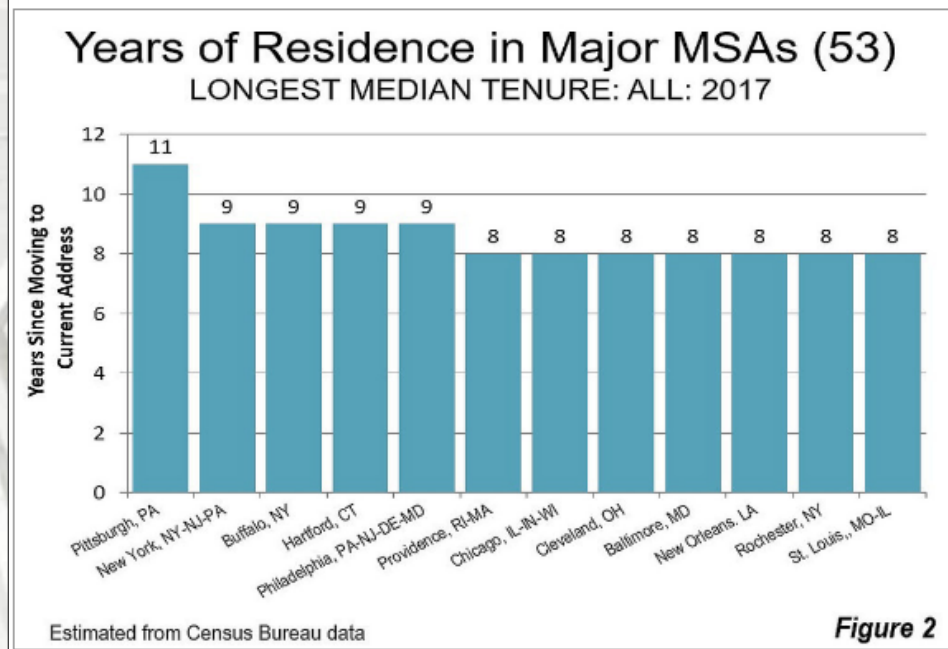
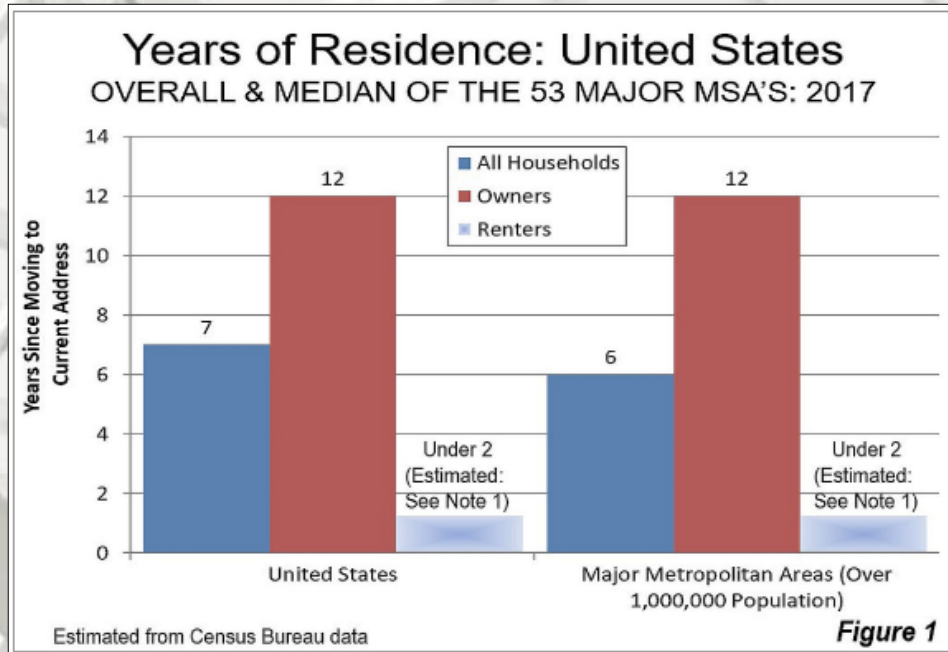
Length of Residential Tenure: Metropolitan Areas, Urban Cores, Suburbs & Exurbs

“America is becoming less mobile than in the past, but there are some major metropolitan areas --- and areas within them --- that have fewer people move in and out than others. US households tend to live longer in their present residences where population growth has been more modest. The data also indicates that across all major metropolitan areas, households tend to have lived longer in suburbs and exurbs than in the urban core.

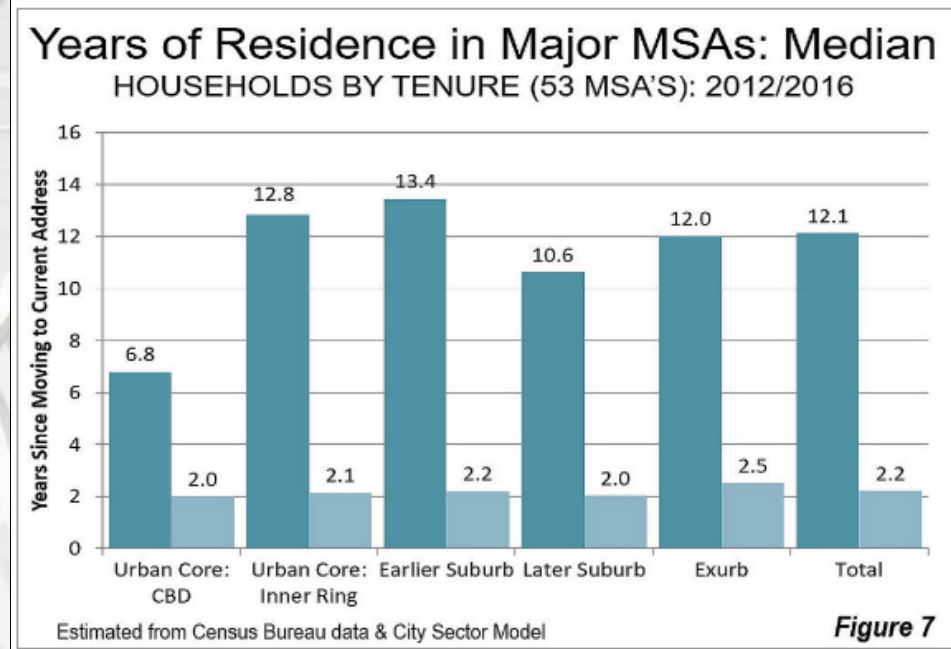
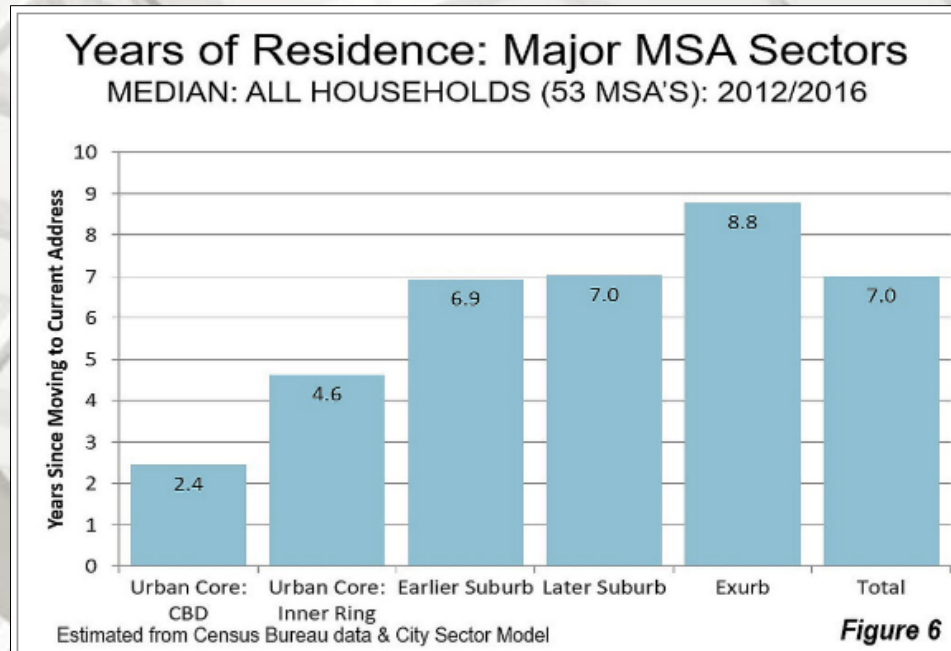
The Census Bureau’s American Community Survey (ACS) reports on the length of time that residents have been living at their current address. This article describes the length of residence tenure data, focusing principally on the 53 metropolitan areas with more than 1,000,000 residents. This includes the latest data (for 2017) at the metropolitan area level as well as the latest data at the small area level using the City Sector Model (Figure 12). This permits examination of length of residential tenure *within* major metropolitan areas.

As of 2017, the median period of residence (tenure) in the United States was 7 years (Figure 1). Among those living in owner-occupied housing (those with and without mortgages), the median was 12 years, while among renters the median tenure was below two years (See Note 1, “Note on the data”). ... ” – Wendell Cox, Contributor and Demographer, New Geography

Remodeling



Remodeling



Remodeling

New Geography

From the Transitional Urban Core to the Longer Tenures in the Suburbs and Exurbs

“Generally, residential tenure tends to be longer in metropolitan areas with slow growth and shorter in fast growing metropolitan areas. Within metropolitan areas, residential tenure tends to be shorter in the urban cores and especially in the central business districts. This reflects the greater incidence of renting in the urban core, a phenomenon that does not follow households to the suburbs.

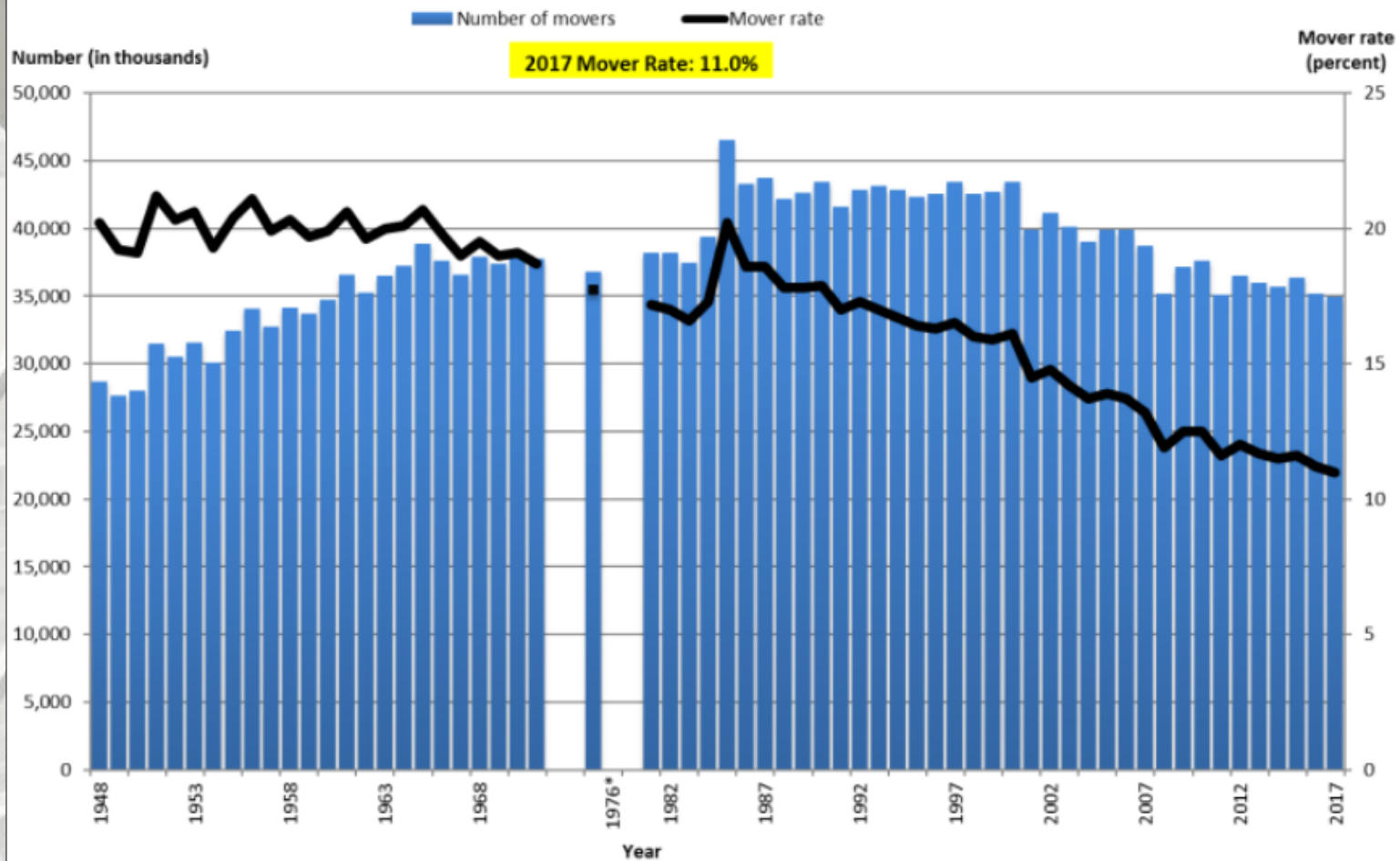
The Census Bureau’s Current Population Survey has long shown that people tend to move less frequently as they become older. The ACS data shows that residential tenures are the longest in the suburbs and exurbs, where most people live ([86 percent](#)) and which account for an even greater percent of the population growth since 2010 ([91 percent](#)). Residential tenures tend to be remarkably shorter in the urban core, particularly in the CBD. With households living only a median of 2.4 years in these areas, communities are necessarily more transitional. The opposite is true in the suburbs and exurbs, where people stay in their homes (and neighborhoods) longer.” – Wendell Cox, Contributor and Demographer, New Geography

Remodeling

U.S. Census

CPS Historical Geographical Mobility/Migration Graphs

Figure A-1. Number of Movers and Mover Rate: 1948-2017



Note: The CPS sample design was generally updated in years ending in "5" based on previous decennial censuses.

* The 1-year geographic mobility question was not asked between 1972-1975 and 1977-1980.

Source: U.S. Census Bureau, Current Population Survey, 1948-2017.

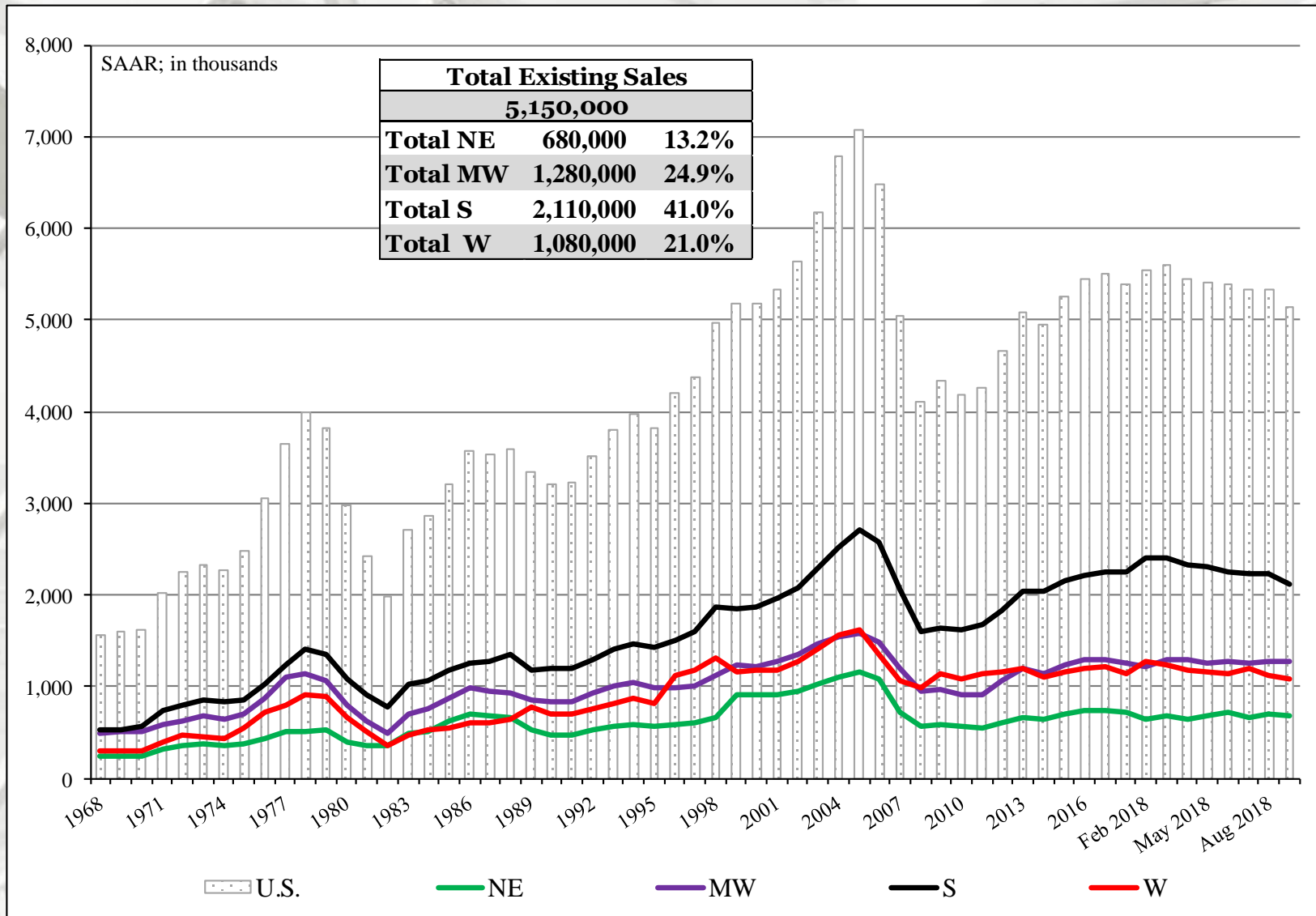
Existing House Sales

National Association of Realtors
September 2018 sales: 5.150 thousand

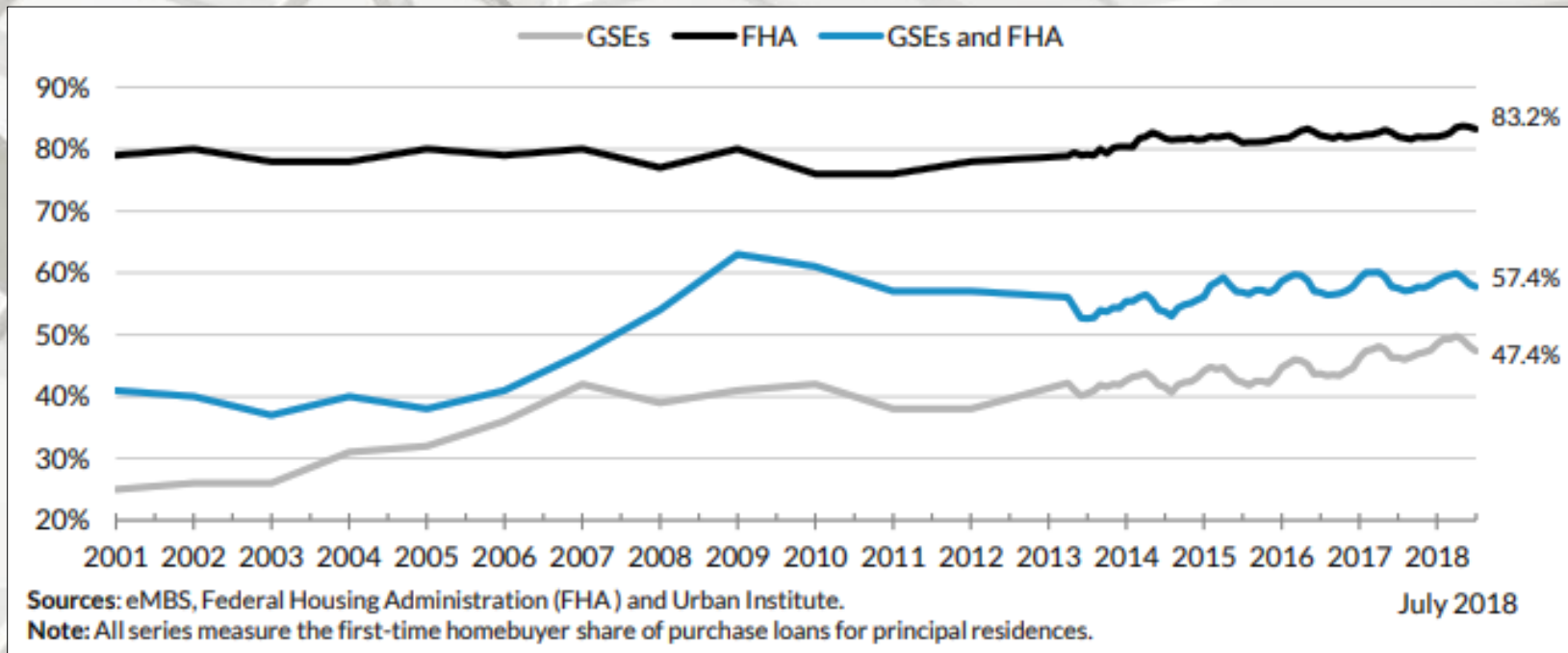
	Existing Sales*	Median Price	Mean Price	Month's Supply
September	5,150,000	\$258,100	\$296,800	4.4
August	5,330,000	\$265,600	\$304,000	4.3
2017	5,370,000	\$247,600	\$289,600	4.2
M/M	-3.4%	-6.0%	-2.4%	2.3%
Y/Y change	-4.1%	4.1%	2.5%	4.8%

* All sales data: SAAR

Existing House Sales



First-Time Purchasers

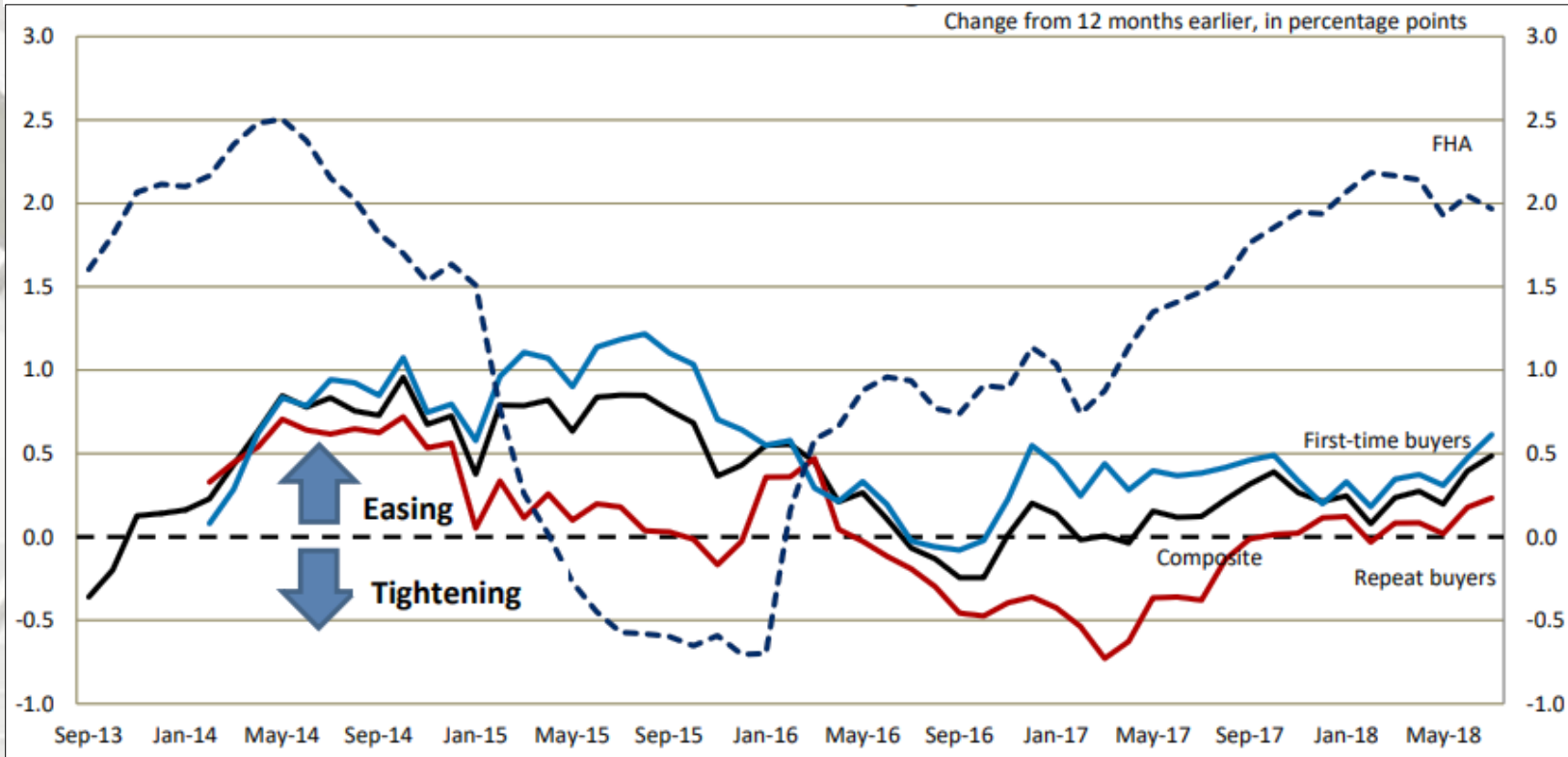


Urban Institute

“In July 2018, the first time homebuyer share of purchase loans fell for both FHA and conventional mortgages, reflecting seasonal factors. FHA, which has always been more focused on first time homebuyers, remains near their record-high first time homebuyer share with 83.2 percent in July 2018; the FHA share has traditionally hovered around 80 percent. The GSE share in July 2018 was 47.4 percent. The bottom table shows that based on mortgages originated in July 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



Note: Includes all types of NMRI purchase loans (primary owner-occupied, second home, and investor loans).

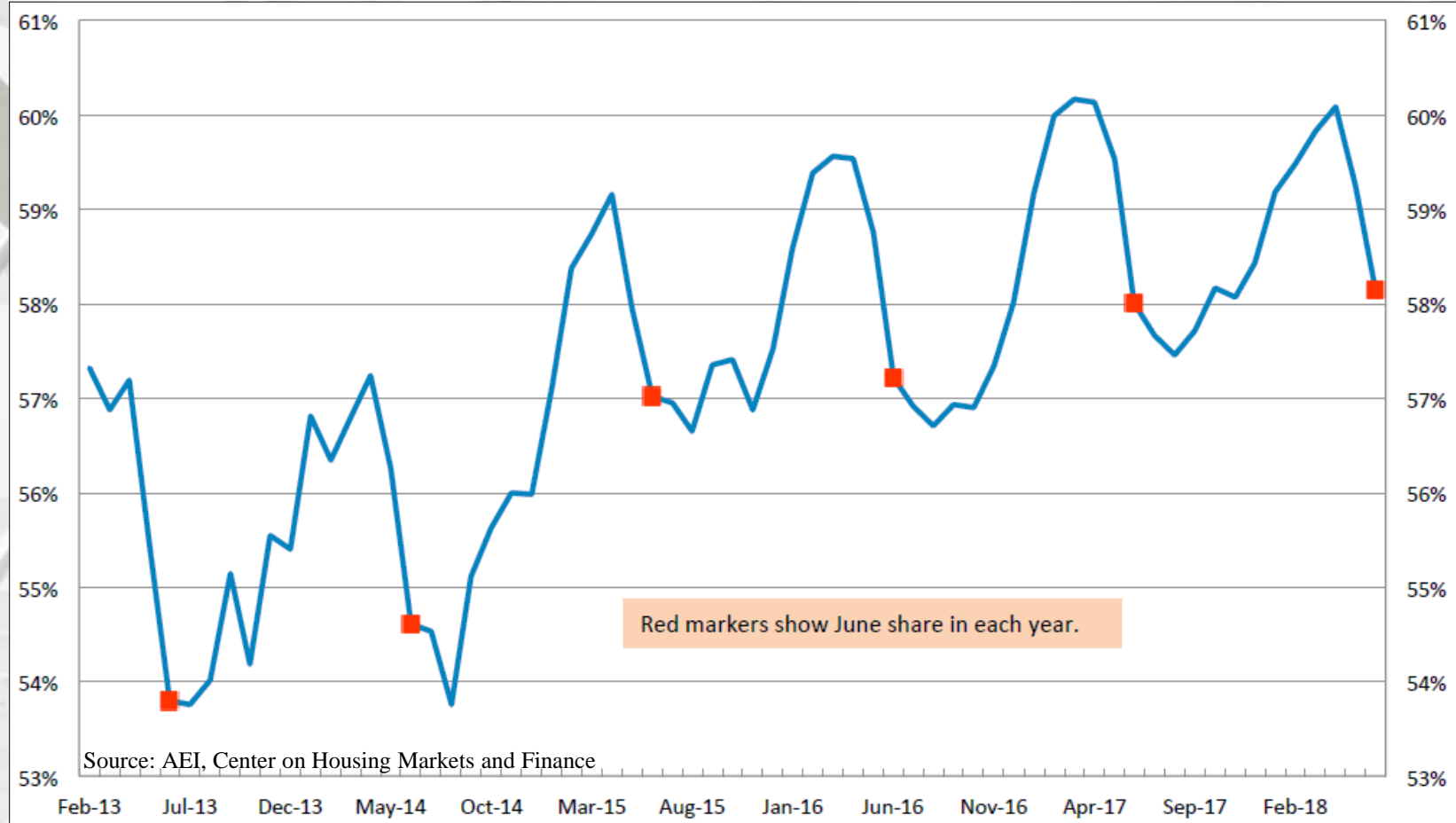
Source: AEI, Center on Housing Markets and Finance

AEI, Center on Housing Markets and Finance

“Composite NMRI for purchase loans jumped 0.5 ppt from elevated levels a year ago. The first-time buyer index jumped 0.6 ppt, primarily due to FHA being up 2.0 pts. The Repeat buyer index was up slightly. Rising prices are having a disparate impact on buyers, benefitting repeat buyers through asset appreciation, and hurting FTBs who have to take on more leverage.” – Edward Pinto and Tobias Peter; AEI, Center on Housing Markets and Finance

First-Time Purchasers

Agency First-Time Buyer Mortgage Share Flat at High Level

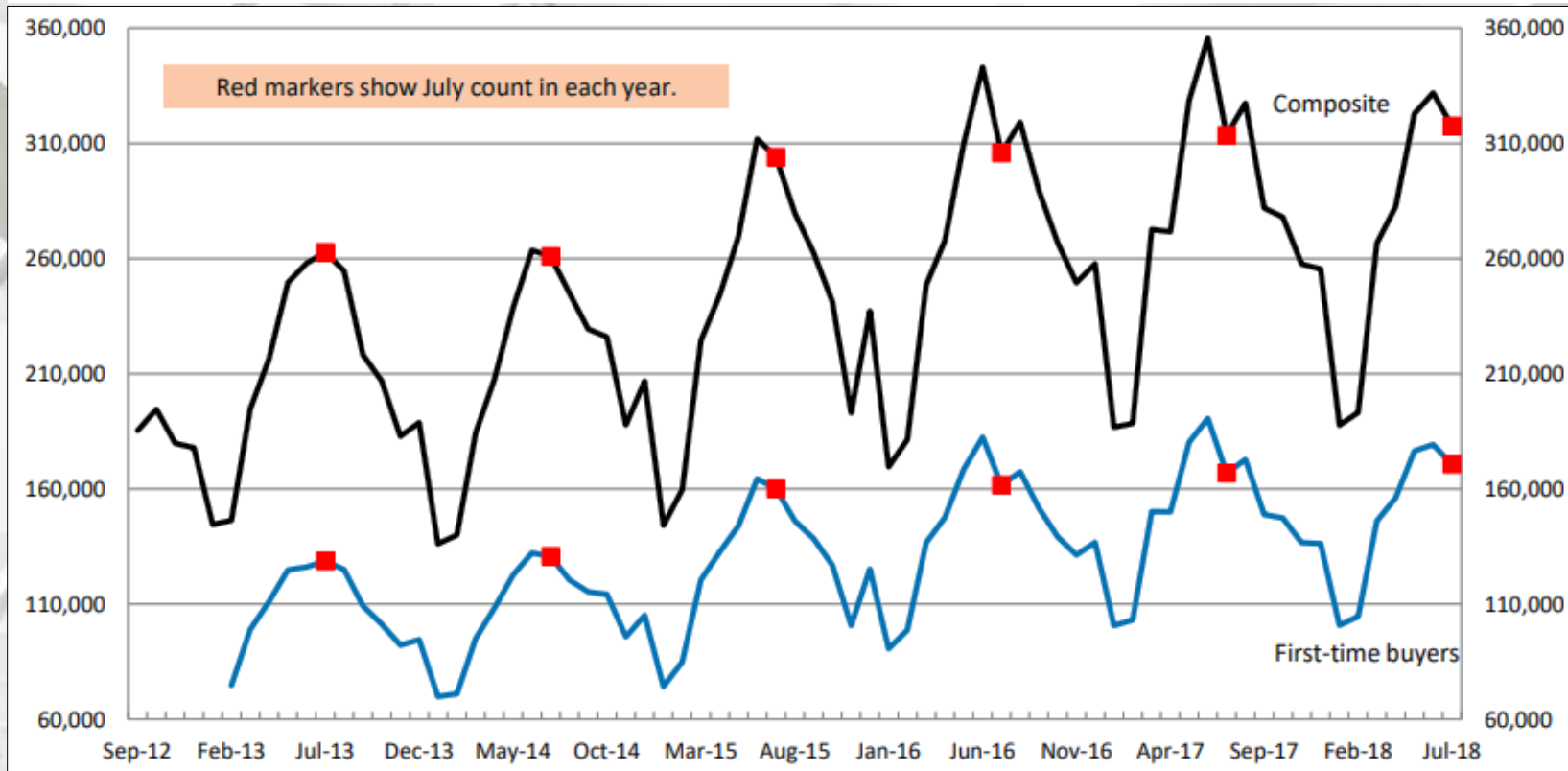


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“The Agency First-Time Buyer Mortgage Share Index (FBMSI) for June 2018 stood at 58.1%, slightly higher than in June 2017 (58.0%). Compared to four years ago, the FBMSI is up 3.5 ppts. from 54.6%. As predicted, it appears that the index has plateaued at its high level.” – Edward Pinto and Tobias Peter; AEI, Center on Housing Markets and Finance

Housing Affordability

Leverage Fueled Housing Demand Continues to Grow



Note: July 2018 count is a preliminary estimate. First-time buyer volume not available before February 2013.

Sources: National Association of Realtors, FHFA, and AEI, Center on Housing Markets and Finance, www.AEL.org/housing.

AEI, Center on Housing Markets and Finance

“Purchase volume was up 1 percent from a year earlier and up 21 percent from 5 years ago; first-time buyer volume was up 2 percent and up 33 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.” – Edward Pinto and Tobias Peter; AEI, Center on Housing Markets and Finance

Housing Affordability

High risk home purchase lending is fueling home price appreciation

High Risk loans by loan type (High risk = >12% Mortgage Risk Index)

	FHA	GSE	Portfolio	RHS*	VA	Total	weighted count
2012	74.4%	10.4%	1.9%	4.9%	8.4%	100.0%	124,052
2013	66.5%	16.8%	2.0%	5.3%	9.5%	100.0%	515,921
2014	60.8%	20.6%	2.4%	5.1%	11.2%	100.0%	555,358
2015	65.9%	18.9%	1.9%	3.3%	10.1%	100.0%	667,255
2016	63.6%	21.5%	2.1%	2.7%	10.1%	100.0%	760,591
2017	58.6%	26.6%	2.2%	2.6%	10.0%	100.0%	762,629
Q1:2018	56.6%	29.9%	3.5%	NA	10.0%	100.0%	132,673

* Unable to identify RHS loans as HMDA data for 2018 not yet available

AEI, Center on Housing Markets and Finance

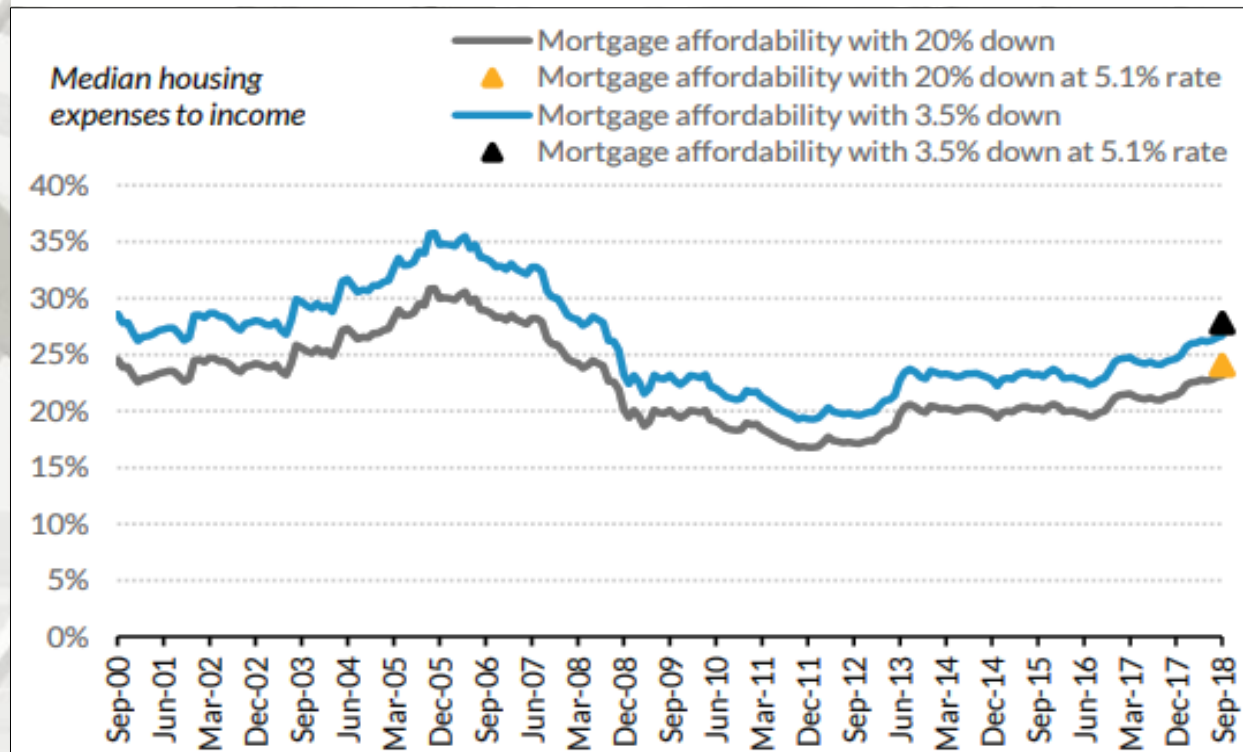
“In the largest 73 metros, currently 41% of agency purchase lending is high risk. FHA accounts for 57% of this high risk lending, which is down from 74% in 2012. Significantly, the GSEs account for nearly all of this high risk share shift. Their high risk share has increased from 10% in 2012 to 30% in 2018.” – Edward Pinto and Tobias Peter; AEI, Center on Housing Markets and Finance

Source: Data are for largest 73 CBSAs and consist of 8.5 million sale transaction study covering 5-years of home price appreciation (HPA) for 41,000 census tracts. Weighting based on HMDA. Shares based on count. Low & med-low price tiers defined respectively as <=40th & >40th to <=80th percentile of FHA sales prices & med-high & high price tiers defined respectively as >80th percentile of FHA sales prices & <= 125% of GSE limit & > 125% of GSE limit, all at county-level. HPIs are smoothed around the times of FHFA loan limit changes. Data for RHS are not available in years for which HMDA data has not yet been published.

Source: AEI, Center on Housing Markets and Finance, www.AEI.org/housing.

Housing Affordability

National Housing Affordability Over Time



Urban Institute

“Home prices remain affordable by historic standards, despite price increases over the last five years and the recent interest rate hikes. As of September 2018, with 20% down payment, the share of median income needed for the monthly mortgage payment stood at 23%; with 3.5% down, it is 27%. If interest rates rise from 4.63% to 5.1%, the housing expenses to income share with both a 20 percent and a 3.5 percent down payment would be the same as the 2001-03 averages (24 and 28 percent, respectively).” – Bing Lai, Research Associate, Housing Finance Policy Center

Mortgage Credit Availability

Mortgage Credit Availability Increased in October

“Mortgage credit availability increased in October 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 increased 2.5 percent to 186.7 in October. 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 5.5 percent) and the Government MCAI decreased (down 0.4 percent). Of the component indices of the Conventional MCAI, the Jumbo MCAI increased by 6.3 percent while the Conforming MCAI increased by 4.6 percent.

Credit availability increased in October, driven largely by an expansion in the supply of conventional credit, while government credit fell slightly over the month. Reversing a trend from last month, lenders made more conventional and low down payment programs available to prospective borrowers. This increase in supply was likely in response to a growing number of first-time home buyers in the market, as home price appreciation has slowed and wage growth has picked up. Jumbo credit availability also expanded last month, with the jumbo index increasing again to its highest level since the survey began” – Joel Kan, Vice President of Economic and Industry Forecasting, MBA

Summary

In summary:

September housing data was tepid with several monthly declines in starts, permits, completions, and new single-family sales. Total private construction spending was minimally positive; conversely, single-family expenditures declined slightly on a monthly basis. All housing start data were positive on year-over-year starts. Housing under construction remained positive except for yearly multi-family data. Single-family housing completions were negative on a month-over-month and positive yearly basis. Existing sales continued their stagnant trend, monthly and yearly. 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. Existing sales continued their stagnating trend, monthly and yearly.

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

Pros:

- 1) Historically low interest rates are still in effect, though in aggregate rates are incrementally rising;
- 2) Housing affordability remains good – but is deteriorating in certain metros in the U.S.;
- 3) Select builders are beginning to focus on entry-level houses.

Cons:

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

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