The Virginia Tech – U.S. Forest Service February 2017 Housing Commentary: Section I

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This report is a free monthly service of Virginia Tech. Past issues can be found at: http://woodproducts.sbio.vt.edu/housing-report. To request the report, please email: buehlmann@gmail.com

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Opening Remarks

In February 2017, in aggregate, monthly housing data were mostly positive. Total permits declined; single-family permits improved and completions month-over-month and year-over-year basis. New single-family (SF) sales improved. The increase in new SF sales was welcomed, one should ask if new sales were pulled forward due to February's tepid temperatures. If so, future new SF data may not indicate February's robustness. Regionally, data were mixed across all sectors. New single-family house construction spending also increased minimally month-over-month. The April 14th Atlanta Fed GDPNow™ model projects aggregate residential investment spending to increase at a 11.4 percent seasonally adjusted annual rate in Quarter 1; new residential investment spending was estimated at 14.2 percent; and improvements were projected 7.0 percent (all declined from the January's estimate).[1]

"Along with an increase in temperatures, the spring season also brings out the buyers and an increase in demand to the housing market, which most often translates to faster price growth and a decrease in marketing times. But what's great news for homeowners – particularly those looking to get out of negative equity or sell outright – is unfortunately bad news for prospective buyers. This springtime uptick in demand is likely to put buyers in a major time pinch in areas where marketing time is already lightning fast. This situation coupled with the already precarious affordability situation for buyers can lead to a self-fulfilling prophecy of sorts for the market as a whole, one where buyers rush to purchase homes at or above asking price in fear of waiting too long and losing out – pushing prices up and pulling marketing times even lower. … ."[2] – Alex Villacorta, Ph.D., Vice President of Research and Analytics, Clear Capital

This month's commentary also contains relevant housing data; data exploration; new single- and multifamily and existing housing data; economic information; and demographics. Section I contains data and commentary and Section II includes Federal Reserve analysis; private indicators; and demographic commentary. We hope you find this commentary beneficial.

Sources: [1] https://www.frbatlanta.org/-/media/Documents/cqer/researchcq/gdpnow/GDPTrackingModelDataAndForecasts.xlsx; 4/8/17;
[2] https://www.clearcapital.com/newsroom/market-reports/flying-off-the-shelves/; 3/27/17

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February 2017
Housing Scorecard

	M/M		Y/Y	
Housing Starts	Δ	3.0%	Δ	6.2%
Single-Family Starts	Δ	6.5%	Δ	3.2%
Housing Permits	∇	6.2%	Δ	4.4%
Single-Family Permits	Δ	3.1%	Δ	13.5%
Housing Completions	Δ	5.4%	Δ	8.7%
New Single-Family House Sales	Δ	6.1%	Δ	12.8%
Private Residential Construction Spending	Δ	1.8%	Δ	6.4%
Single-Family Construction Spending	Δ	1.2%	Δ	3.4%
Existing House Sales[1]	∇	-3.7%	Δ	5.4%

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

Source: U.S. Department of Commerce-Construction; [1]National Association of Realtors® (NAR®)

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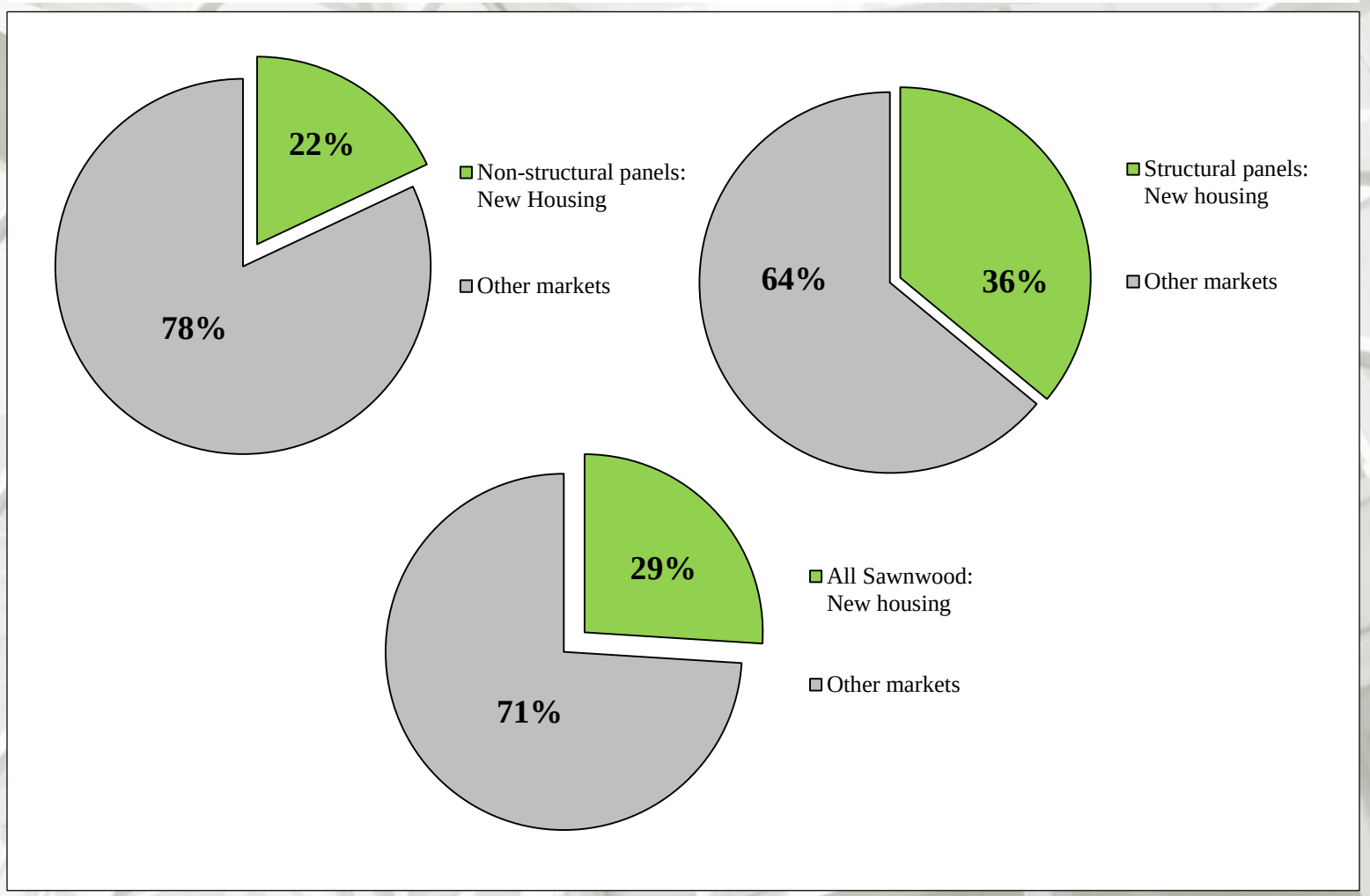
New Construction's Percentage of Wood Products Consumption



Source: U.S. Forest Service. Howard, J. and D. McKeever. 2015. U.S. Forest Products Annual Market Review and Prospects, 2010-2015

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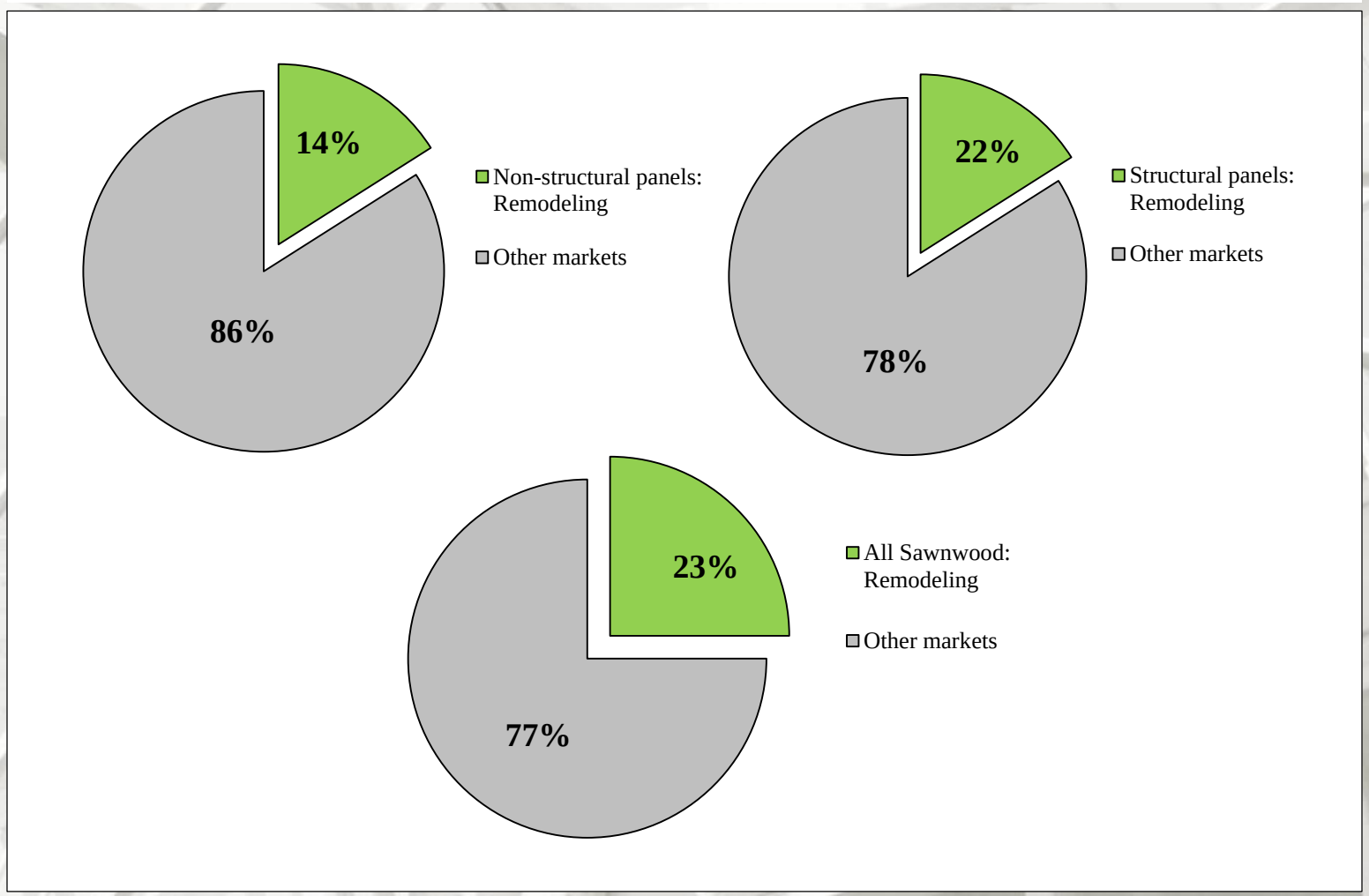
Repair and Remodeling's Percentage of Wood Products Consumption



Source: U.S. Forest Service. Howard, J. and D. McKeever. 2015. U.S. Forest Products Annual Market Review and Prospects, 2010-2015

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New Housing Starts

	Total Starts	SF Starts	MF 2-4 Starts	MF ≥5 Starts
February	1,288,000	872,000	20,000	396,000
January	1,251,000	819,000	3,000	429,000
2016	1,213,000	845,000	12,000	356,000
M/M change	3.0%	6.5%	566.7%	-7.7%
Y/Y change	6.2%	3.2%	66.7%	11.2%

* 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)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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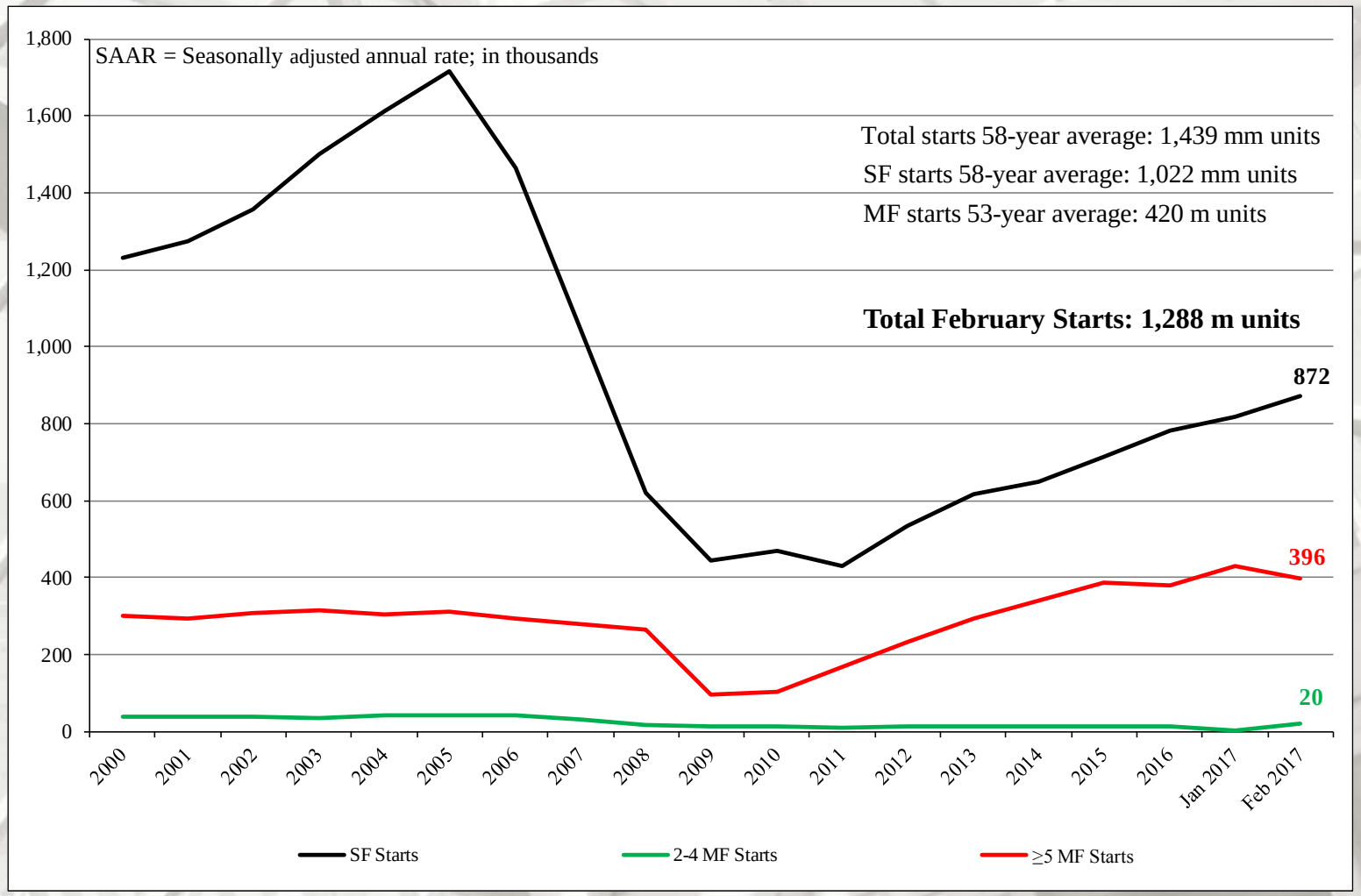
Total Housing Starts



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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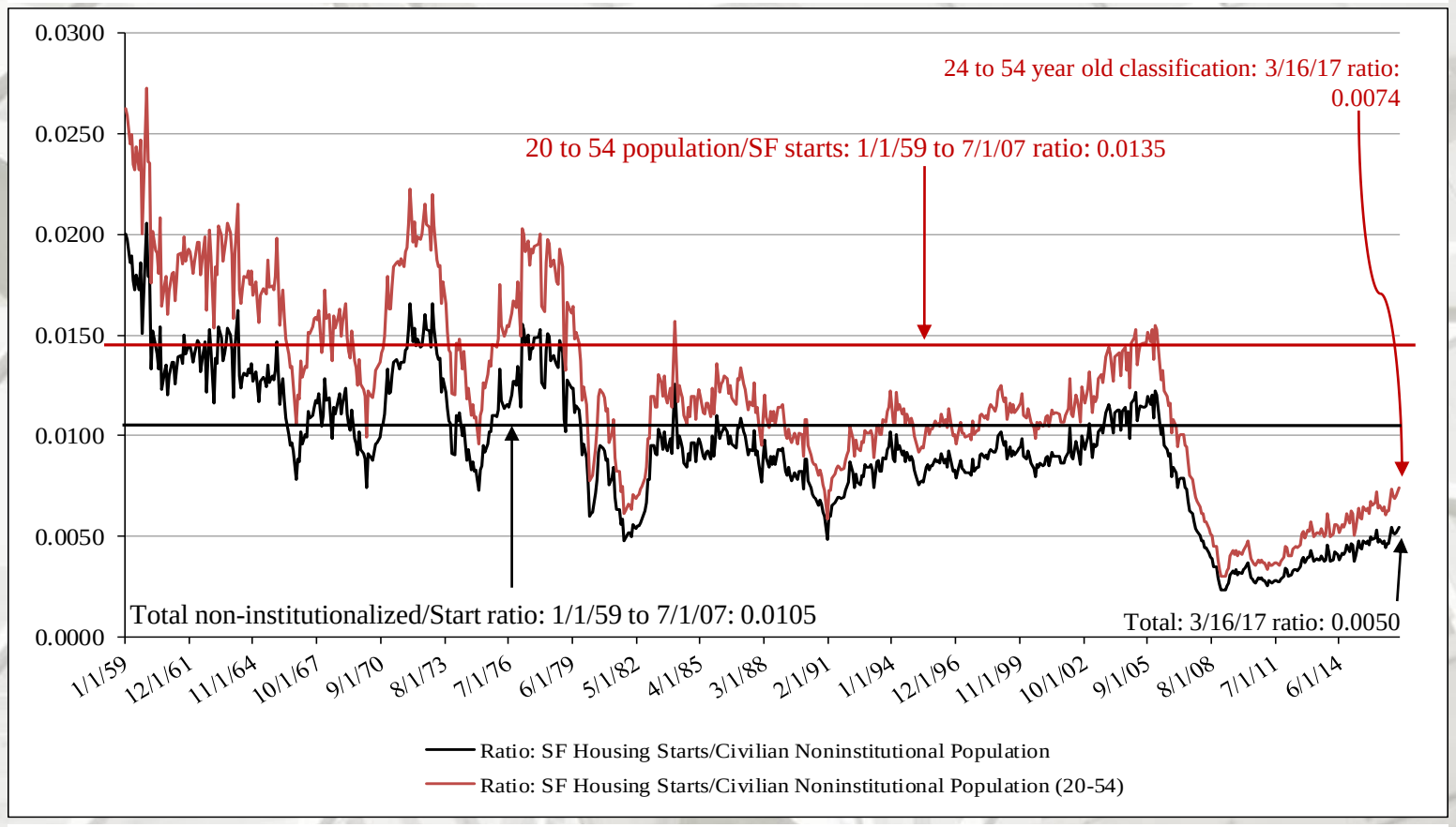
New SF Starts



New SF starts adjusted for the US population

From February 1959 to July 2007, the long-term ratio of new SF starts to the total US non-institutionalized population was 0.0105; in February 2017 it was 0.0055 – an increase from January (0.0052). The long-term ratio of non-institutionalized population, aged 24 to 54 is 0.0135; in February 2017 it was 0.0074 – an increase from January (0.0070). From a population viewpoint, construction is less than what is necessary for changes in population (i.e., under-building).

Sources: http://www.census.gov/construction/nrs/xls/newressales.xls and The Federal Reserve Bank of St. Louis; 3/16/17

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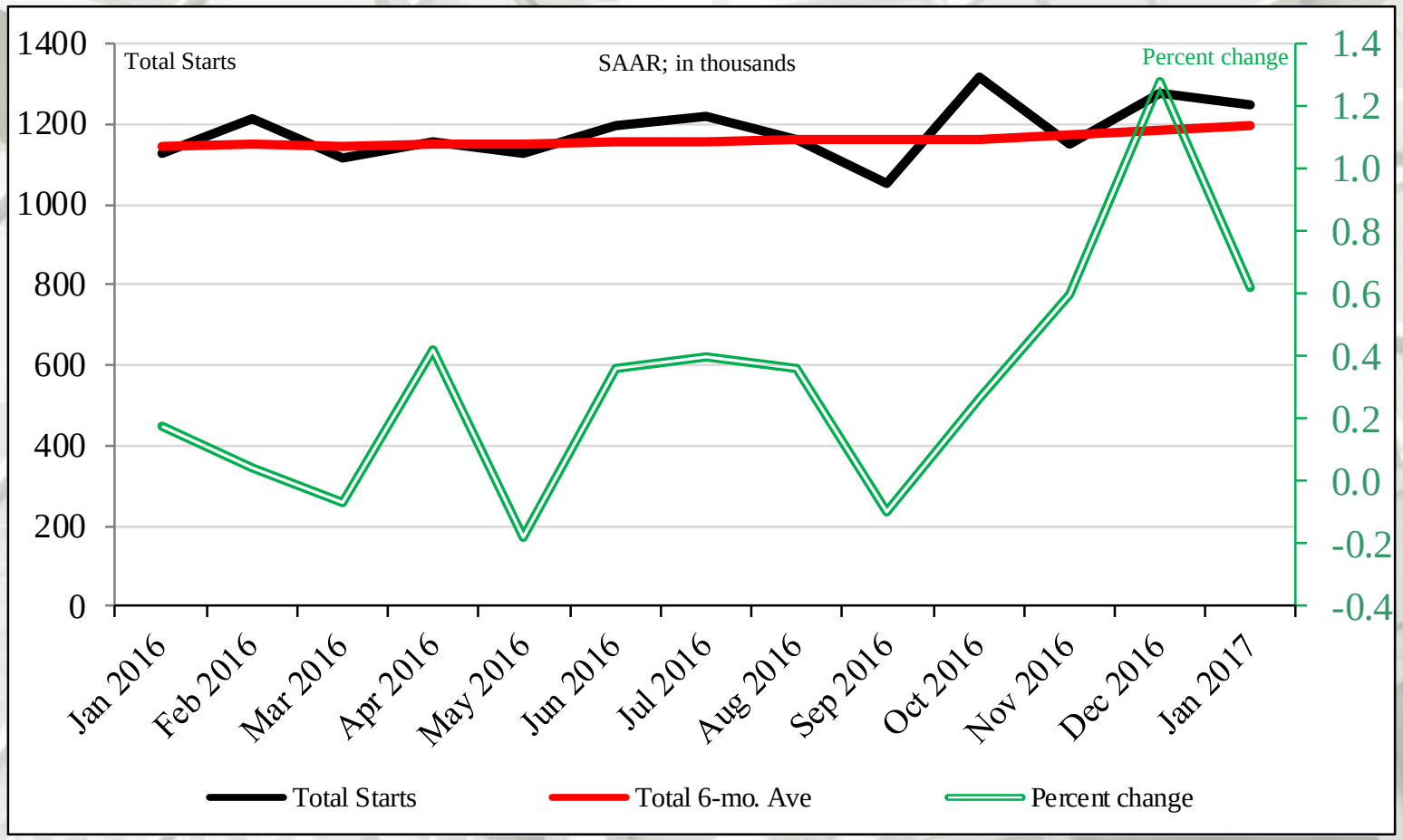
Total Housing Starts: Six-Month Average



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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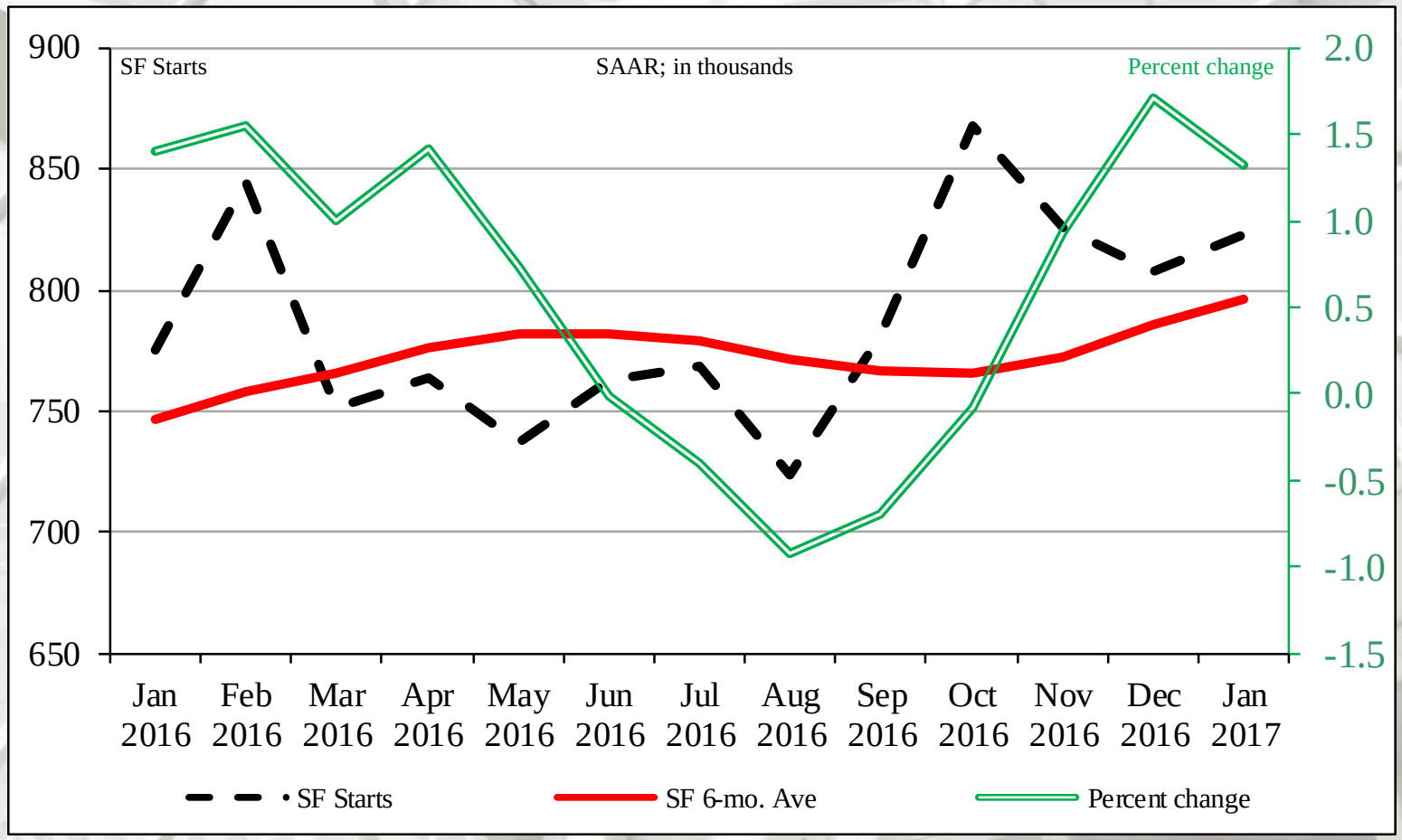
SF Housing Starts: Six-Month Average



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Starts by Region

	NE Total	NE SF	NE MF**
February	119,000	70,000	49,000
January	132,000	60,000	72,000
2016	80,000	57,000	23,000
M/M change	-9.8%	16.7%	-31.9%
Y/Y change	48.8%	22.8%	113.0%

	MW Total	MW SF	MW MF
February	187,000	162,000	25,000
January	196,000	135,000	61,000
2016	211,000	161,000	50,000
M/M change	-4.6%	20.0%	-59.0%
Y/Y change	-11.4%	0.6%	-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).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Starts by Region

	S Total	S SF	S MF**
February	659,000	445,000	214,000
January	685,000	457,000	228,000
2016	612,000	429,000	183,000
M/M change	-3.8%	-2.6%	-6.1%
Y/Y change	7.7%	3.7%	16.9%

	W Total	W SF	W MF
February	323,000	195,000	128,000
January	238,000	167,000	71,000
2016	310,000	198,000	112,000
M/M change	35.7%	16.8%	80.3%
Y/Y change	4.2%	-1.5%	14.3%

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).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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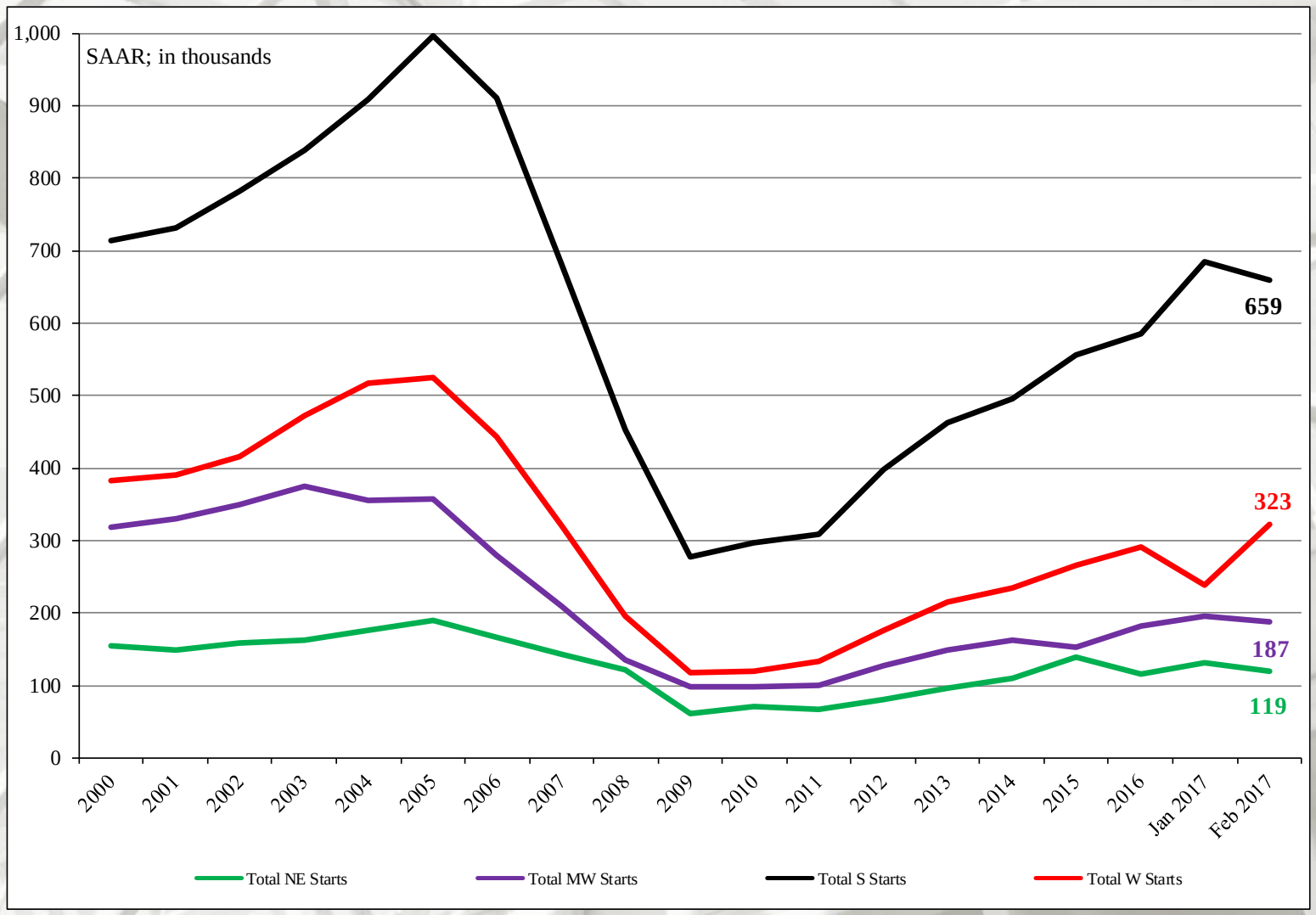
Total Housing Starts by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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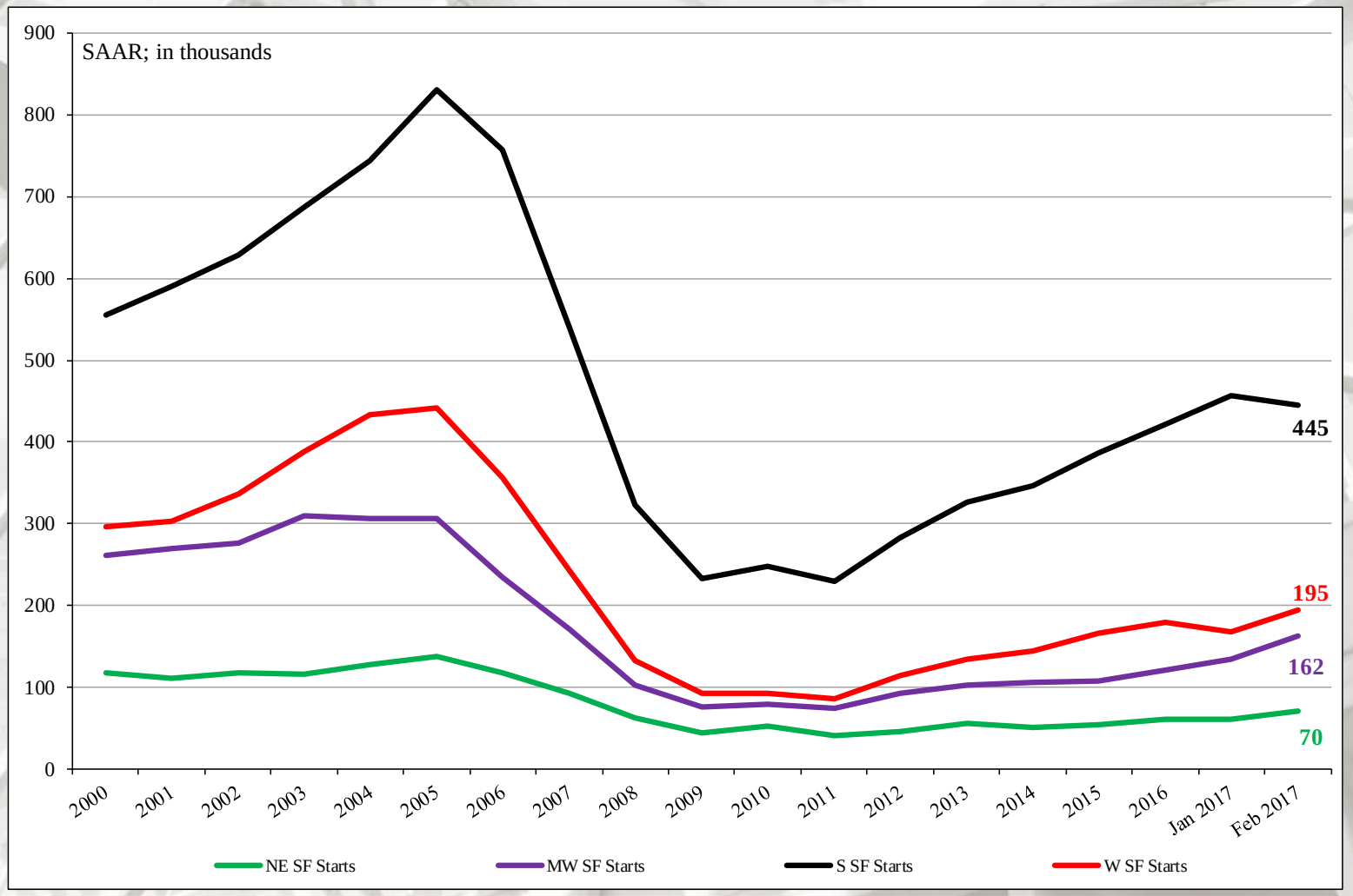
SF Housing Starts by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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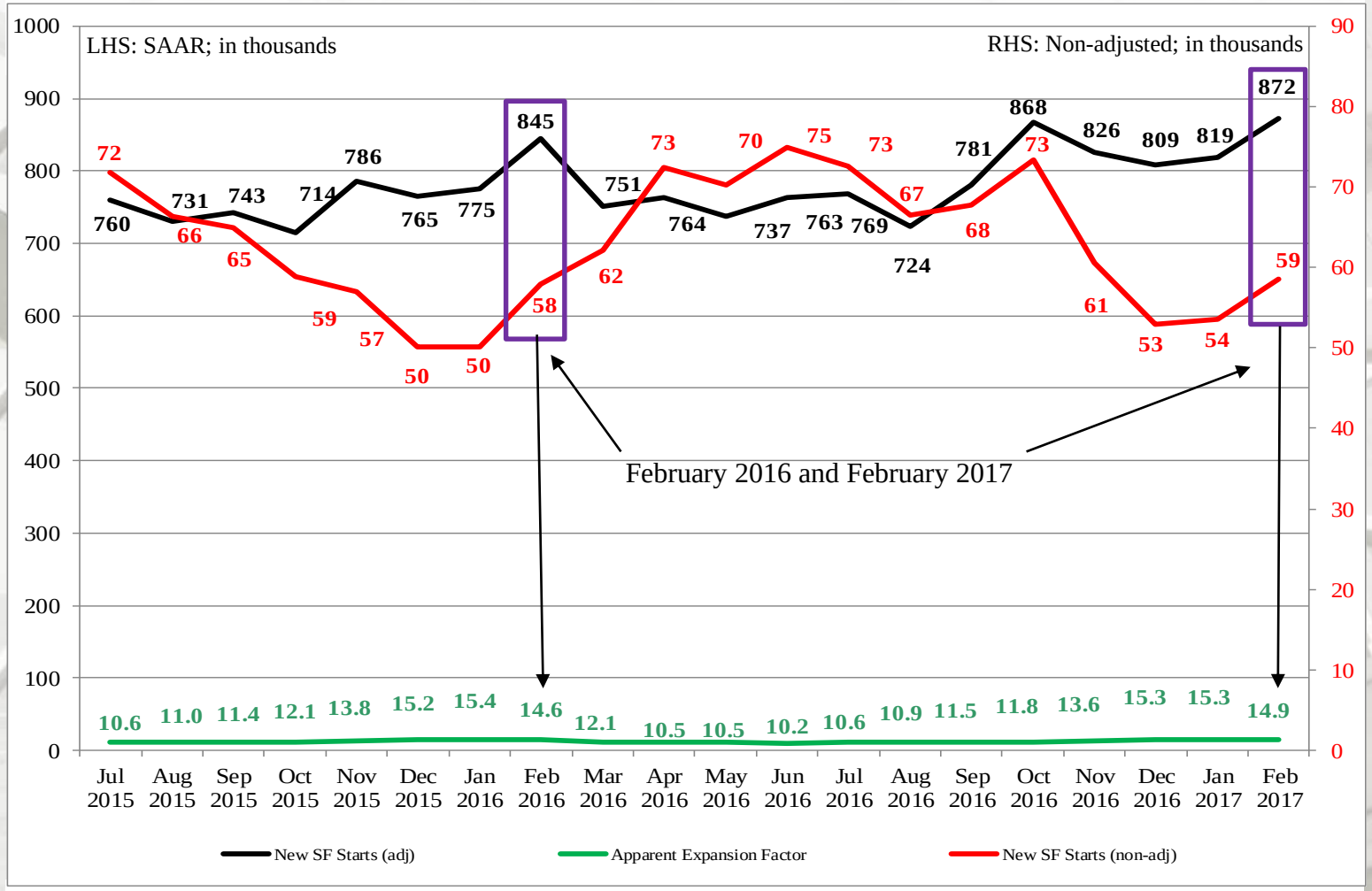
Nominal & SAAR SF Starts



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

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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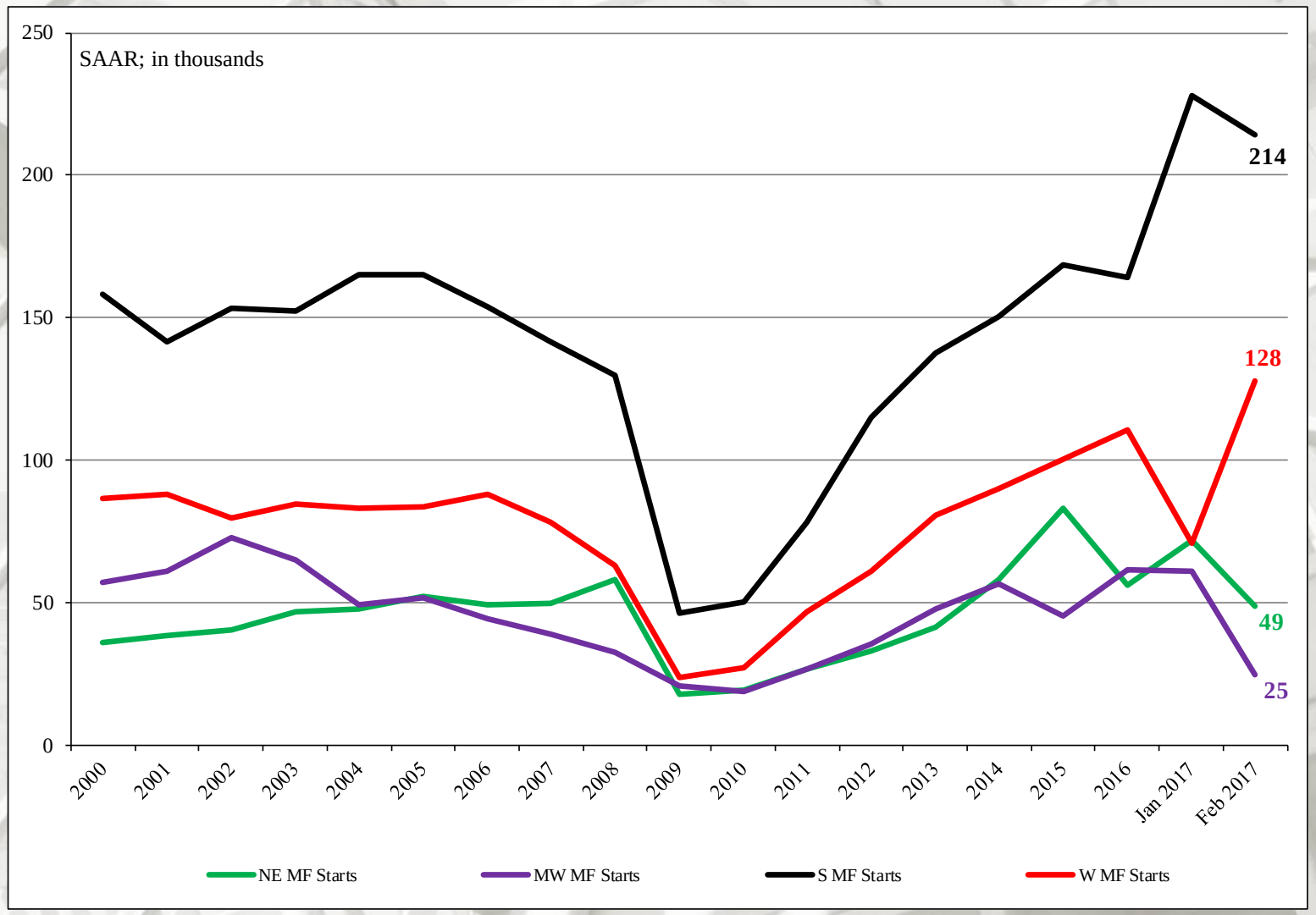
MF Housing Starts by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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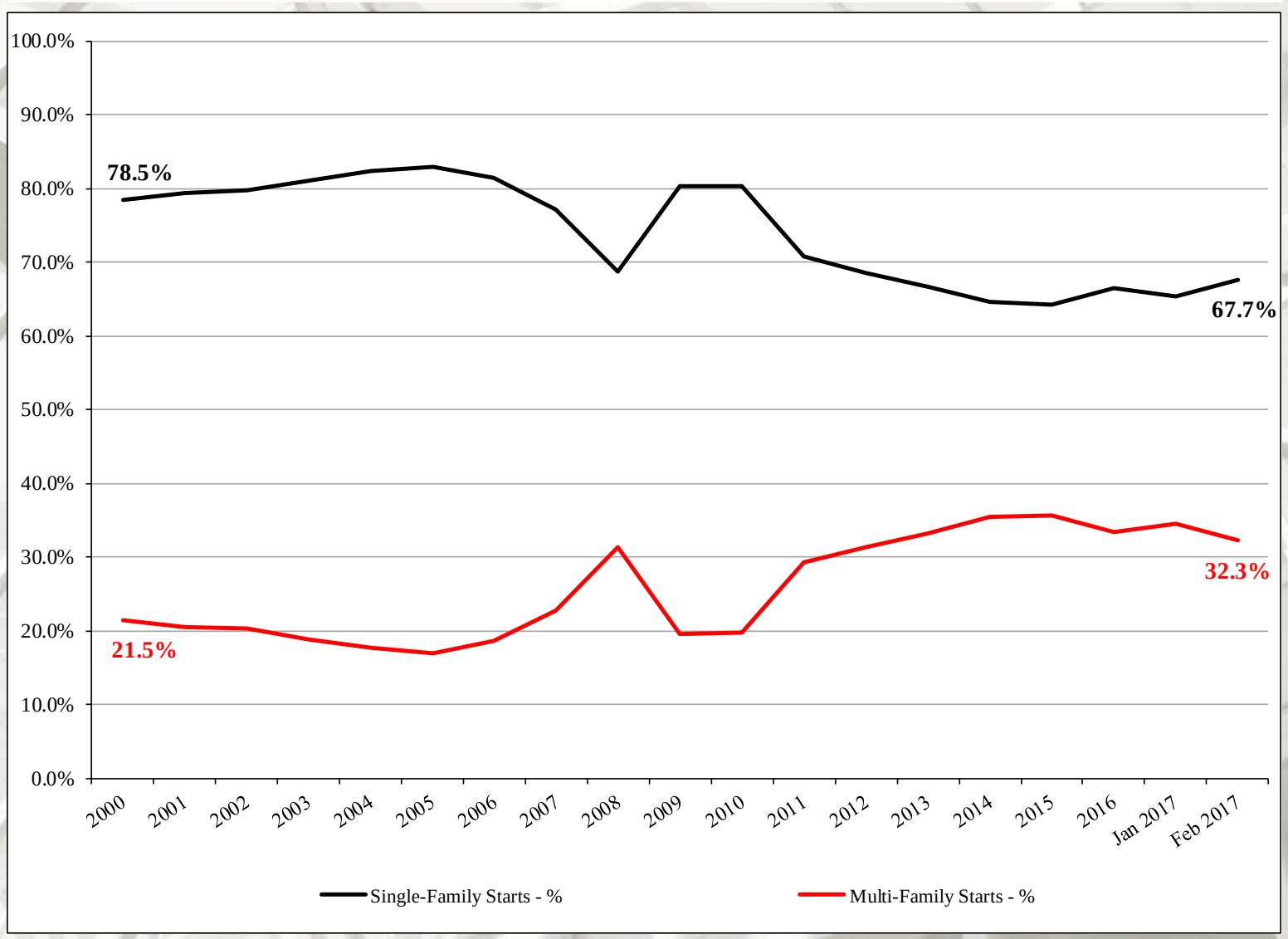
Housing Starts by Percent



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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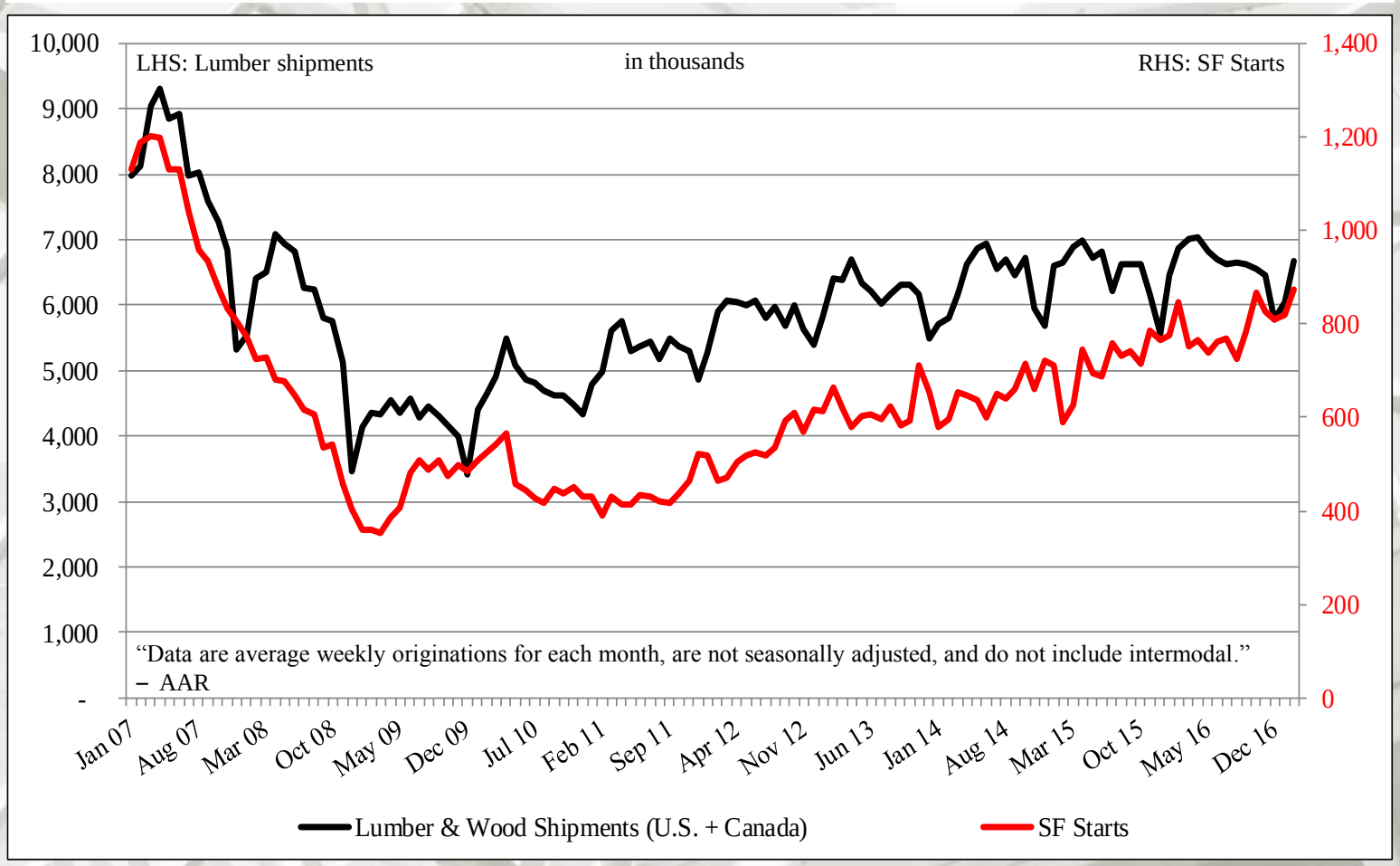
Railroad Lumber & Wood Shipments vs. U.S. SF Housing Starts



Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/6/17; U.S. DOC-Construction; 3/16/17

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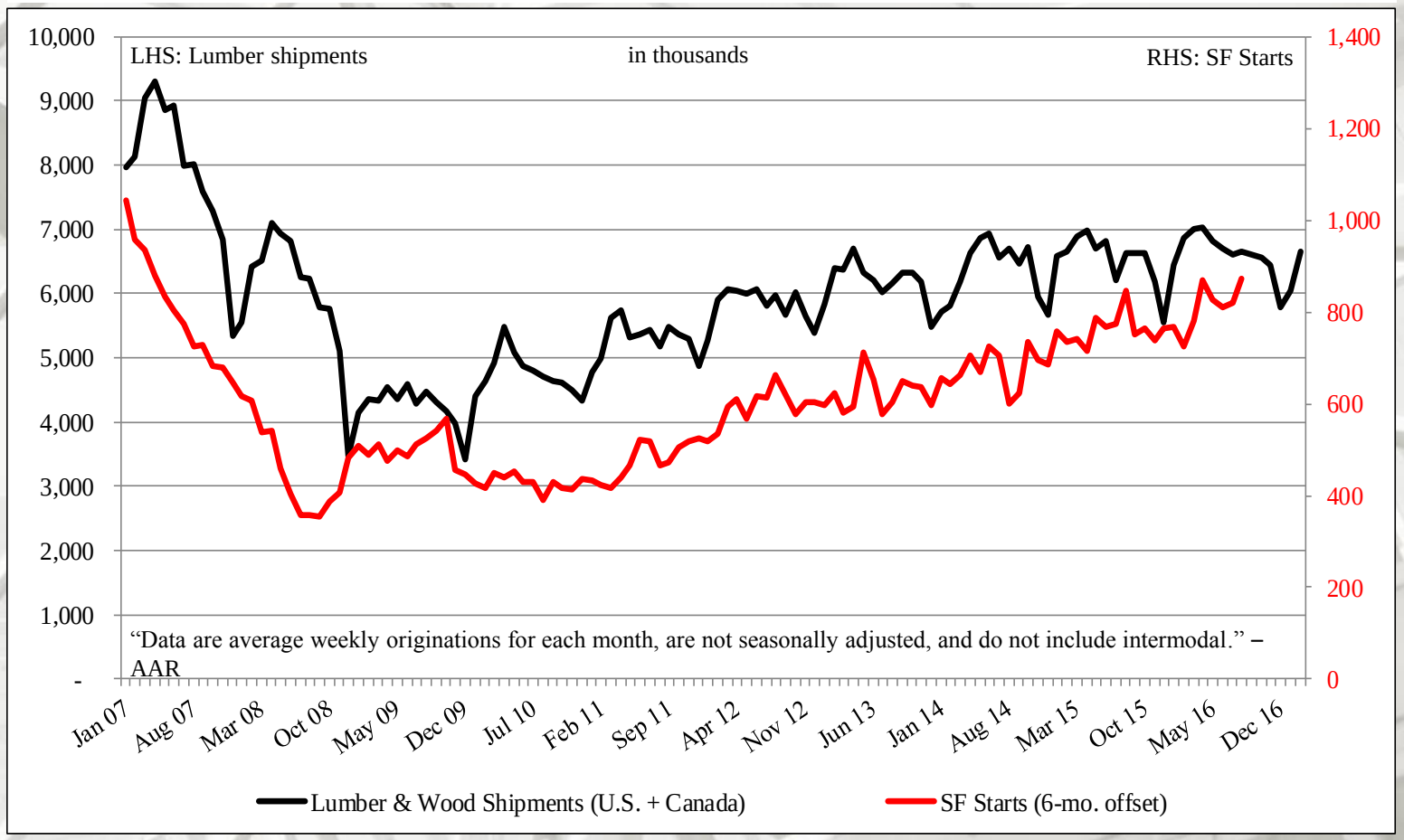
Railroad Lumber & Wood Shipments vs. U.S. SF Housing Starts: 6-month Offset



In this graph, February 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through February 2017 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.

Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/6/17; U.S. DOC-Construction; 3/16/17

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New Housing Permits

	Total Permits*	SF Permits	MF 2-4 unit Permits	MF ≥ 5 unit Permits
February	1,213,000	832,000	47,000	334,000
January	1,293,000	807,000	29,000	457,000
2016	1,162,000	733,000	33,000	396,000
M/M change	-6.2	3.1	62.1	-26.9
Y/Y change	4.4	13.5	42.4	-15.7

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

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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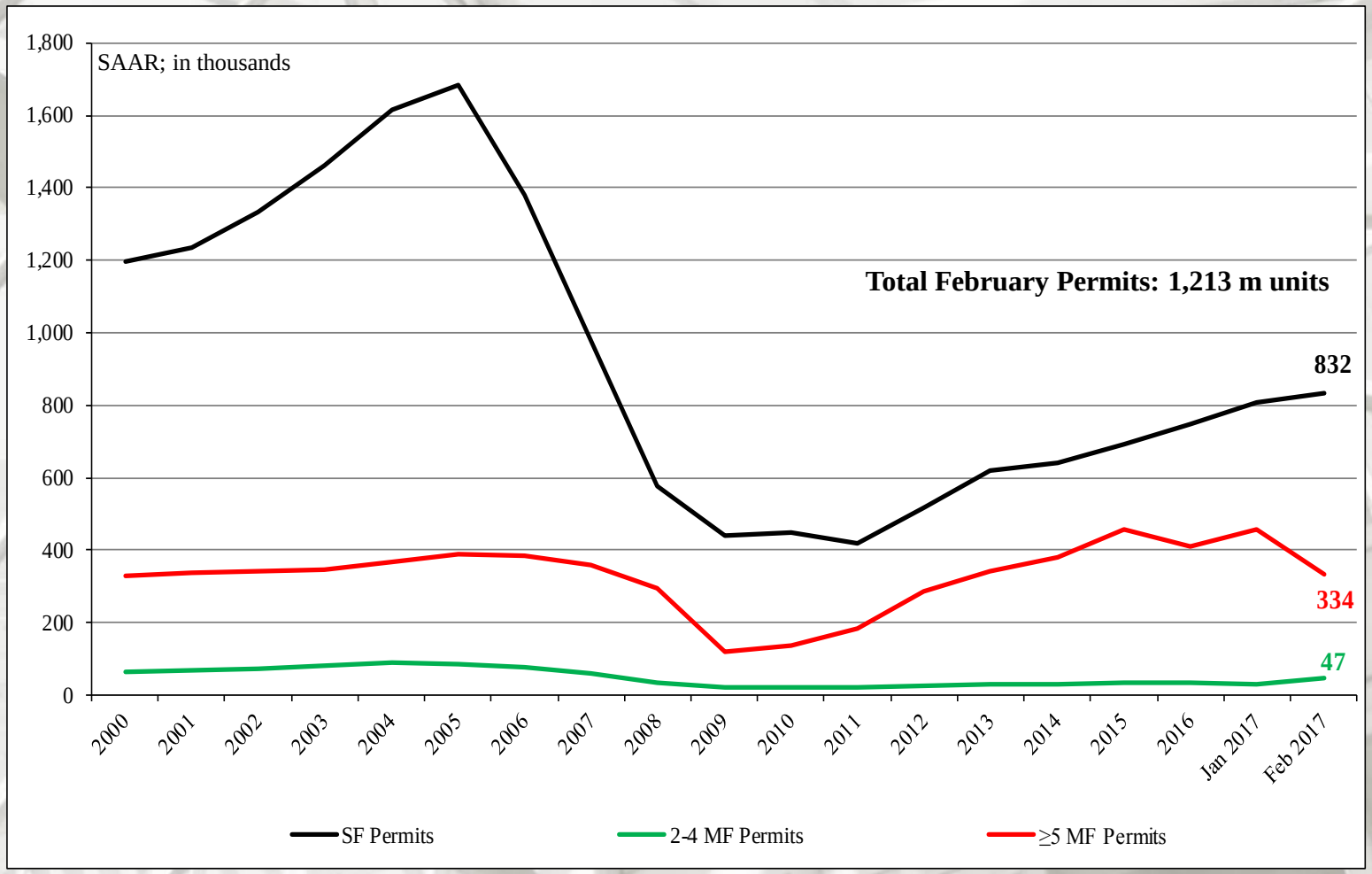
Total New Housing Permits



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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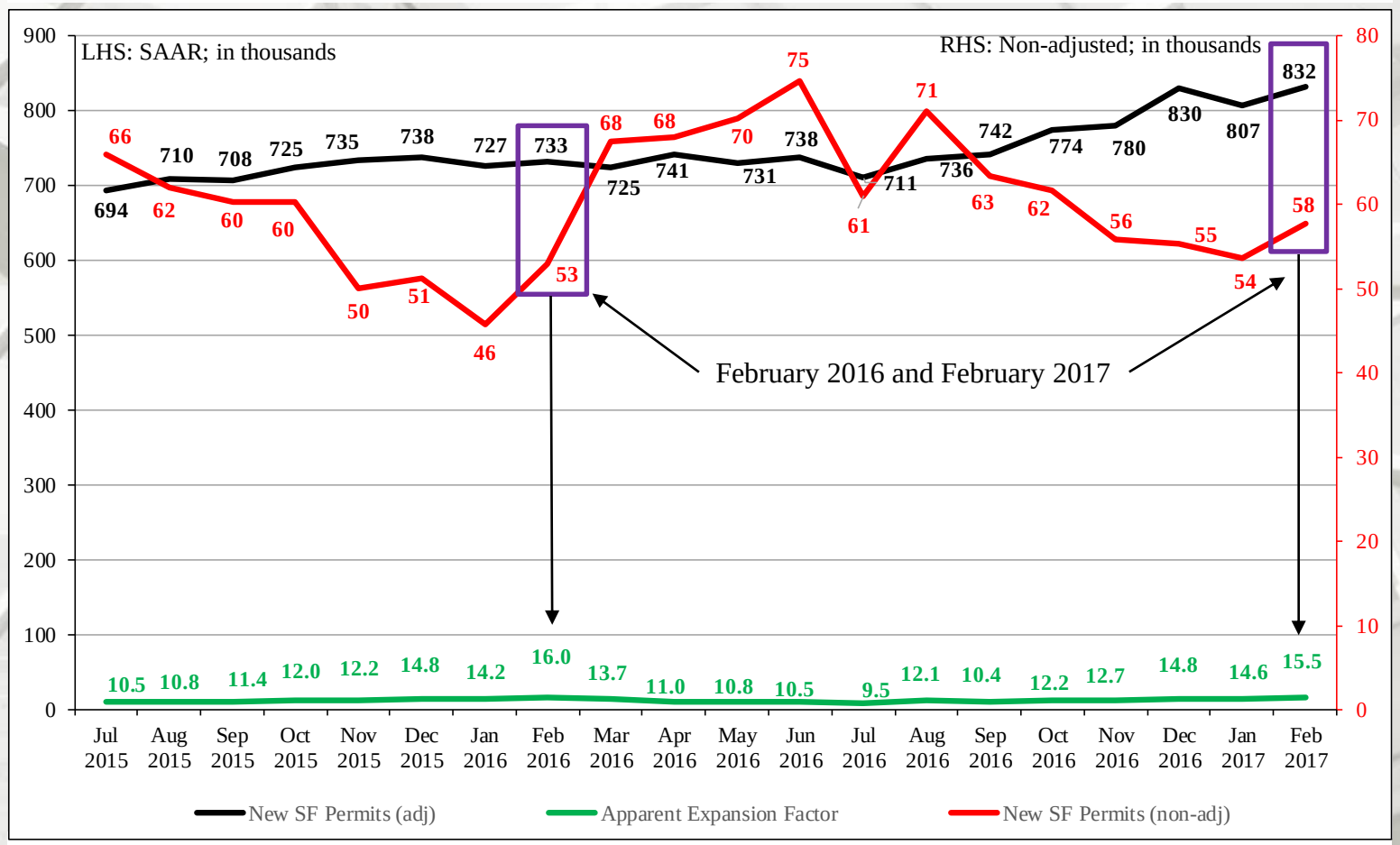
Nominal & SAAR SF Permits



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

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Permits by Region

	NE Total	NE SF	NE MF
February	115,000	54,000	61,000
January	148,000	59,000	89,000
2016	125,000	52,000	73,000
M/M change	-22.3	-8.5	-31.5
Y/Y change	-8.0	3.8	-16.4
	MW Total	**MW SF**	**MW MF**
February	247,000	137,000	110,000
January	197,000	124,000	73,000
2016	186,000	121,000	65,000
M/M change	25.4	10.5	50.7
Y/Y change	32.8	13.2	69.2

* All data are SAAR.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Permits by Region

	S Total	S SF	S MF
February	580,000	446,000	134,000
January	647,000	454,000	193,000
2016	566,000	384,000	182,000
M/M change	-10.4	-1.8	-30.6
Y/Y change	2.5	16.1	-26.4

	W Total	W SF	W MF
February	271,000	195,000	76,000
January	301,000	170,000	131,000
2016	285,000	176,000	109,000
M/M change	-10.0	14.7	-42.0
Y/Y change	-4.9	10.8	-30.3

* All data are SAAR.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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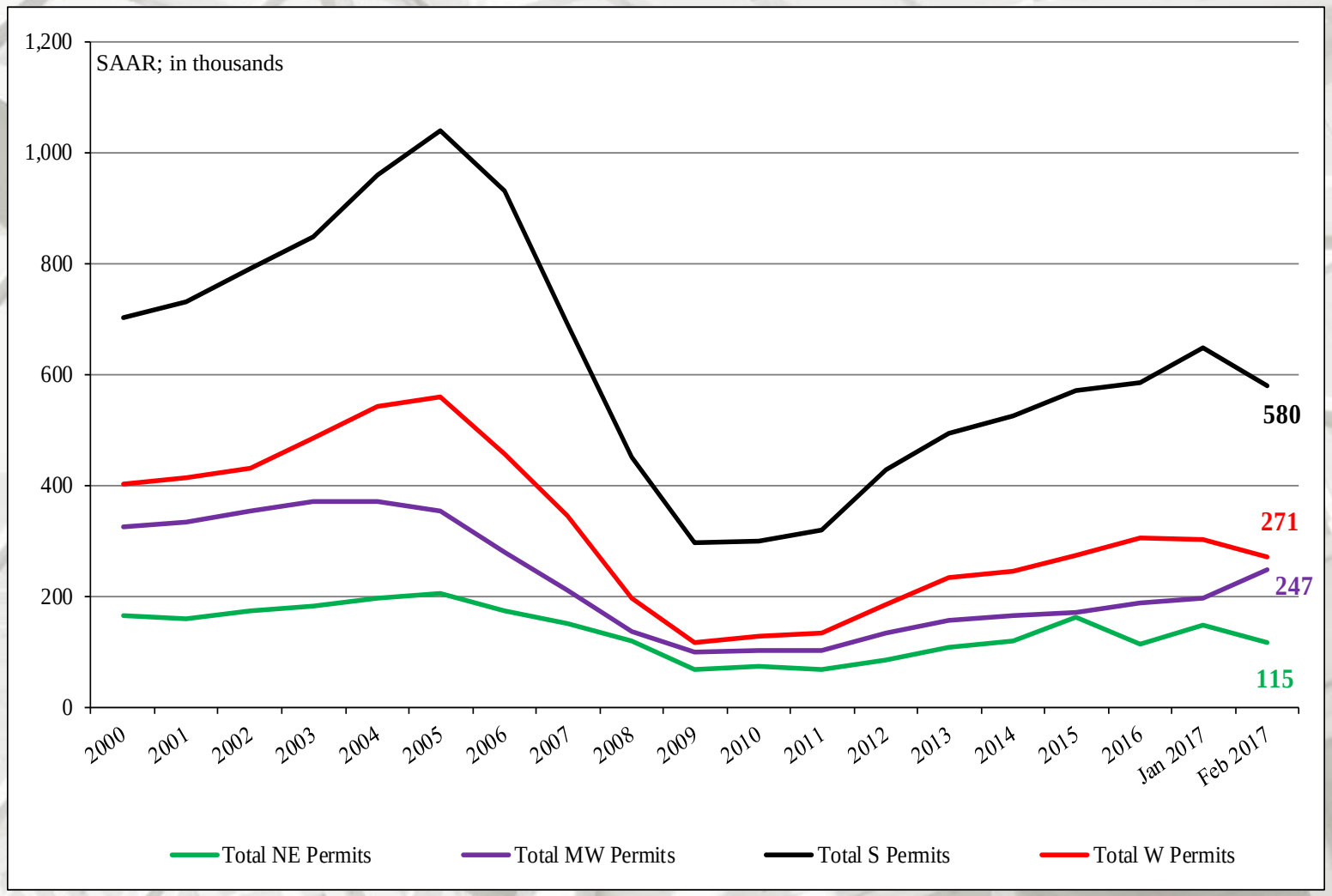
Total Housing Permits by Region



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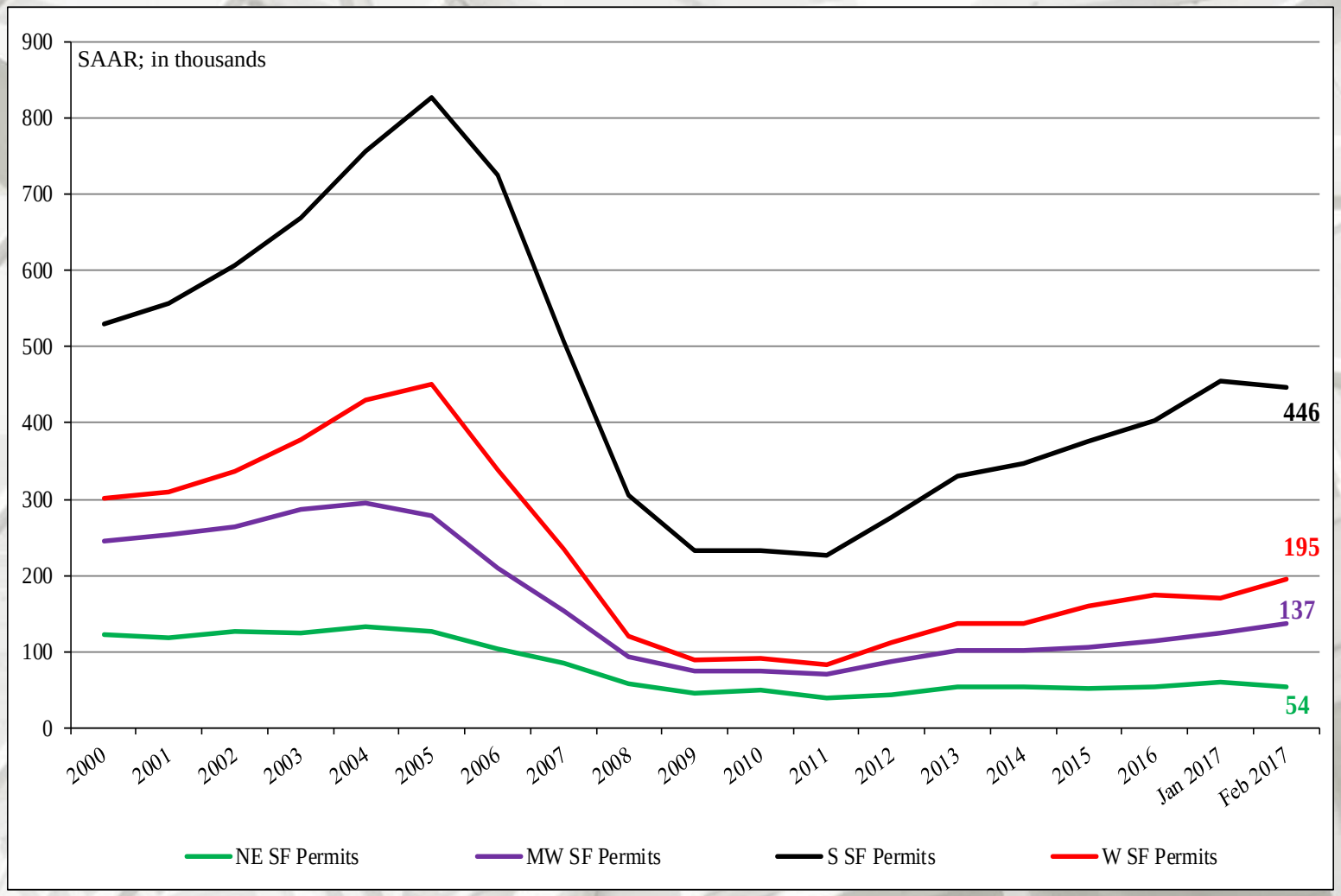
SF Housing Permits by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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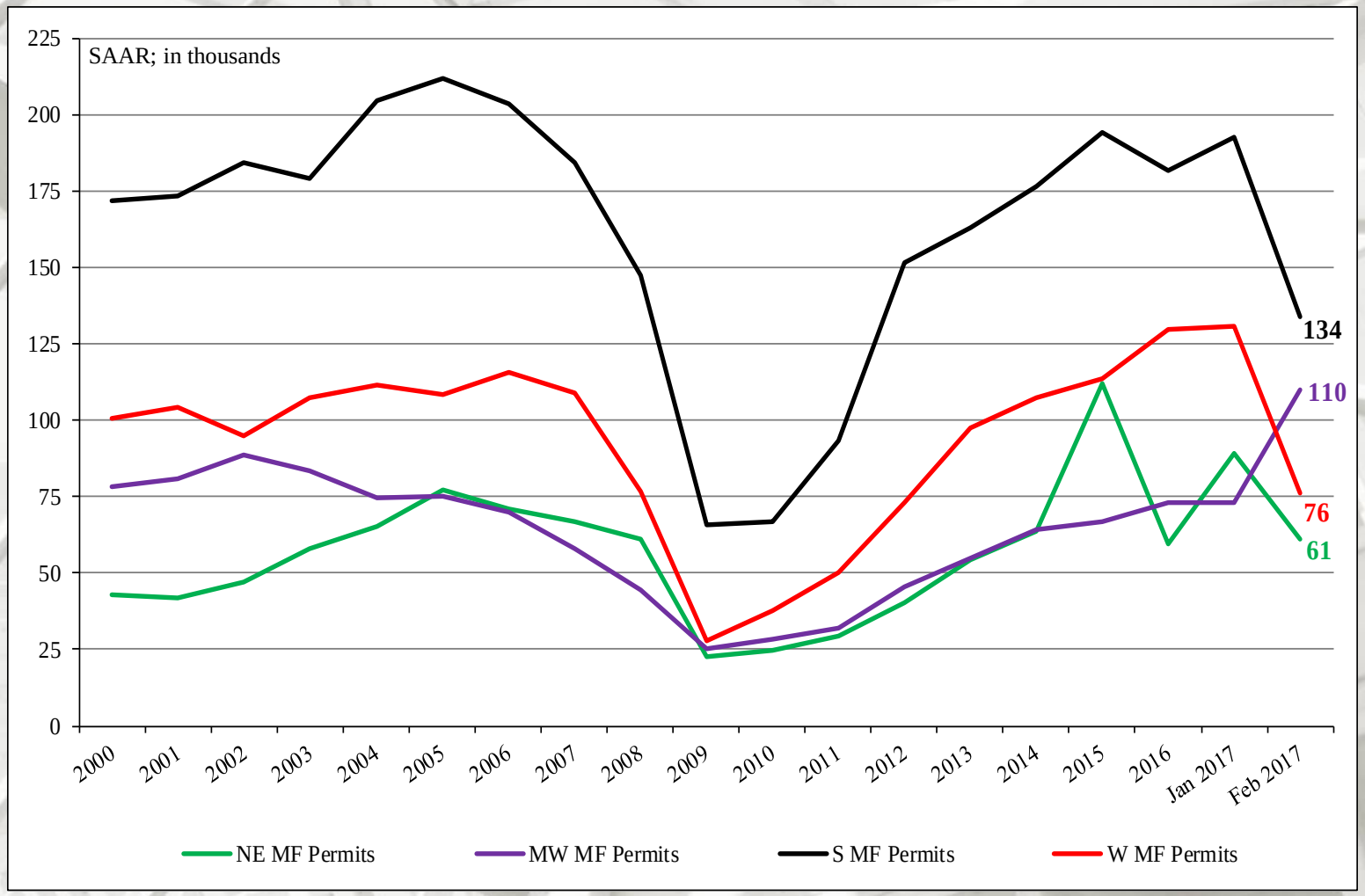
MF Housing Permits by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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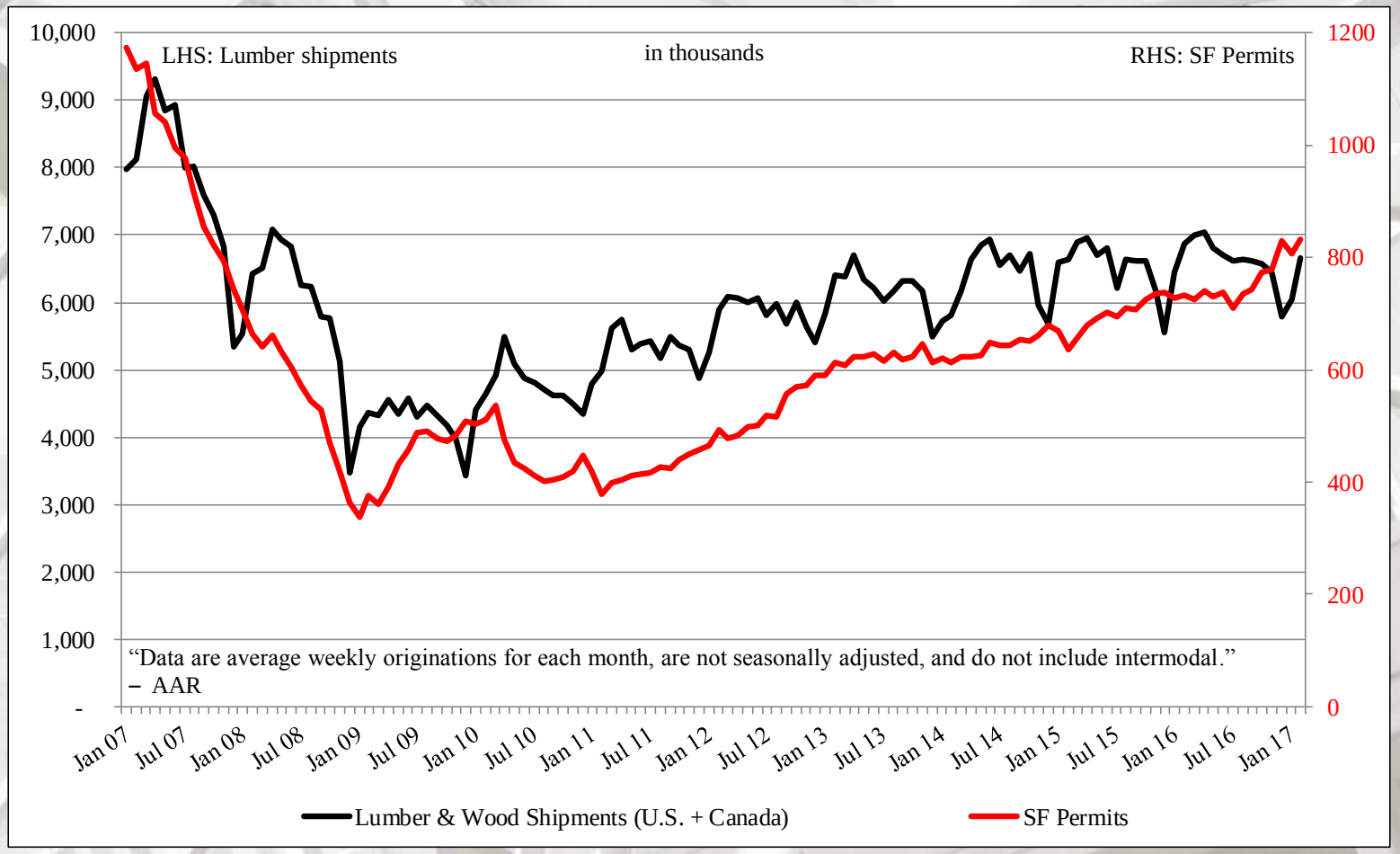
Railroad Lumber & Wood Shipments vs. U.S. SF Housing Permits



Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/3/17; U.S. DOC-Construction; 3/16/17

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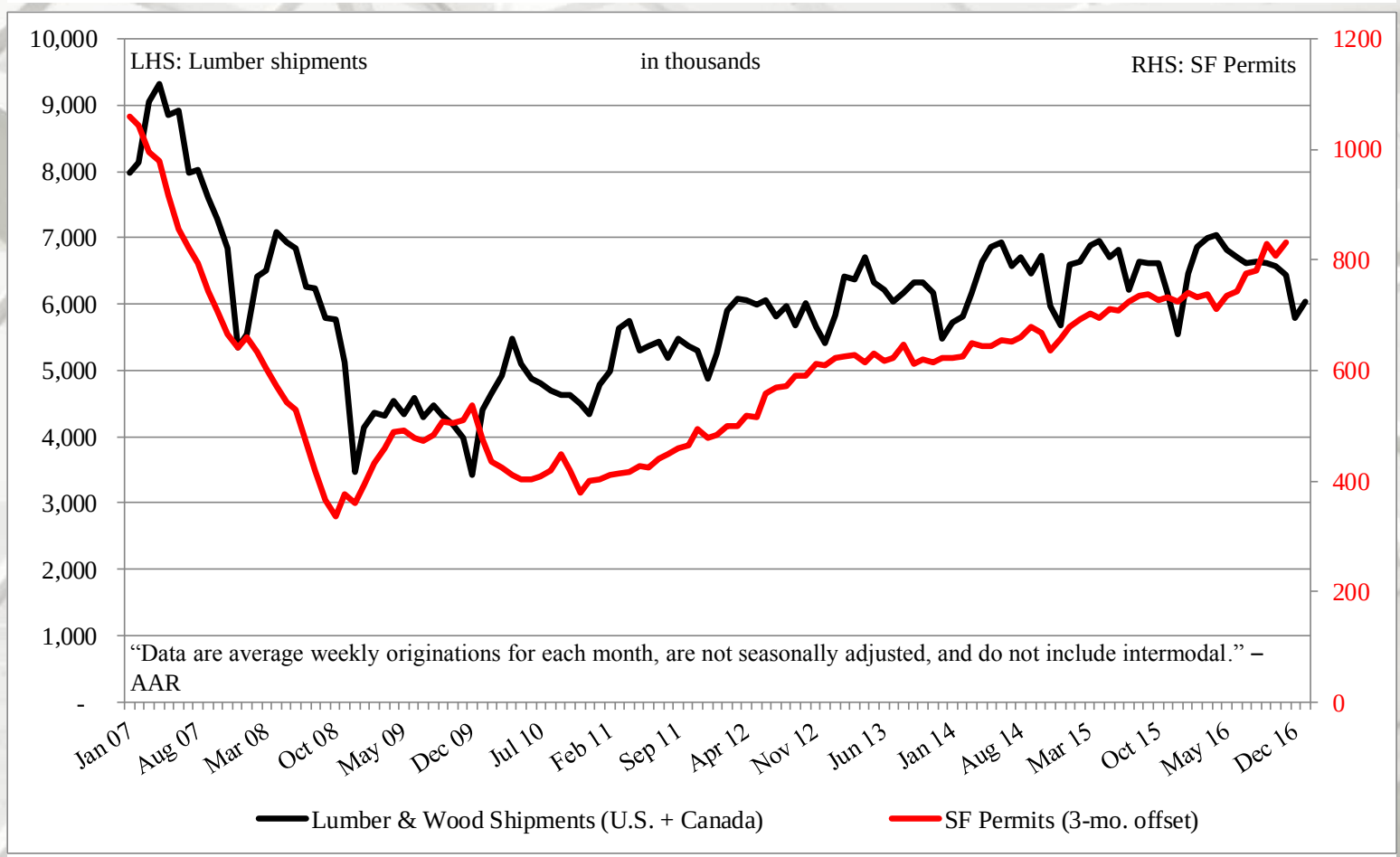
Railroad Lumber & Wood Shipments vs. U.S. SF Housing Permits: 3-month Offset



In this graph, February 2007 lumber shipments are contrasted with April 2007 SF permits, continuing through February 2017 SF permits. 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.

Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/3/17; U.S. DOC-Construction; 3/16/17

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New Housing Under Construction

	Total Under Construction*	SF Under Construction	MF 2-4 unit** Under Construction	Under Construction
February	1,091,000	454,000	11,000	626,000
January	1,077,000	448,000	10,000	619,000
2016	987,000	428,000	10,000	549,000
M/M change	1.3%	1.3%	10.0%	1.1%
Y/Y change	10.5%	6.1%	10.0%	14.0%

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)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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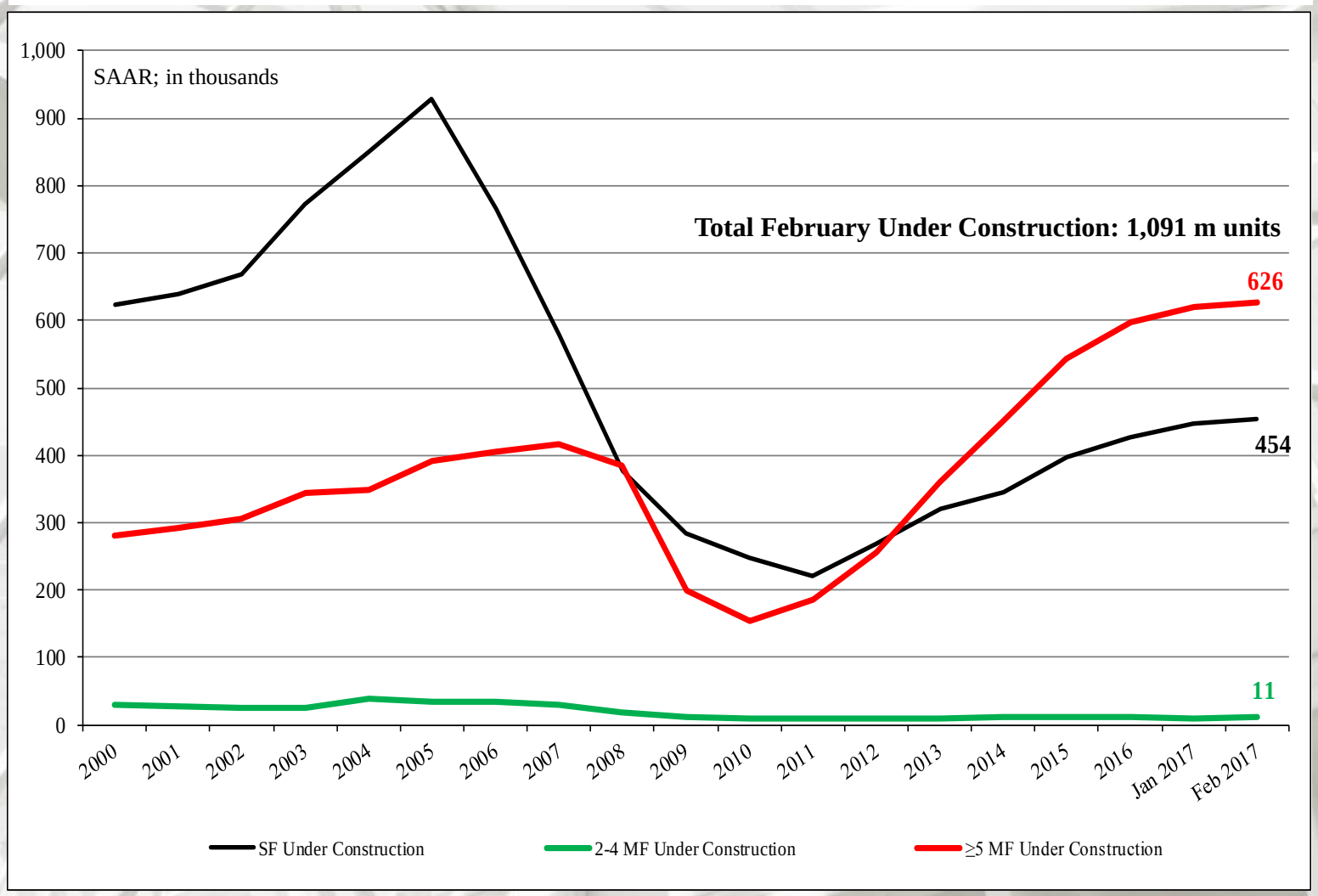
Total Housing Under Construction



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Under Construction by Region

	NE Total	NE SF	NE MF**
February	198,000	54,000	144,000
January	195,000	53,000	142,000
2016	181,000	49,000	132,000
M/M change	1.5%	1.9%	1.4%
Y/Y change	9.4%	10.2%	9.1%

	MW Total	MW SF	MW MF
February	150,000	76,000	74,000
January	147,000	73,000	74,000
2016	136,000	74,000	62,000
M/M change	2.0%	4.1%	0.0%
Y/Y change	10.3%	2.7%	19.4%

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).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Under Construction by Region

	S Total	S SF	S MF**
February	458,000	214,000	244,000
January	452,000	212,000	240,000
2016	431,000	212,000	219,000
M/M change	1.3%	0.9%	1.7%
Y/Y change	6.3%	0.9%	11.4%
	W Total	**W SF**	**W MF**
February	285,000	110,000	175,000
January	283,000	110,000	173,000
2016	239,000	93,000	146,000
M/M change	0.7%	0.0%	1.2%
Y/Y change	19.2%	18.3%	19.9%

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).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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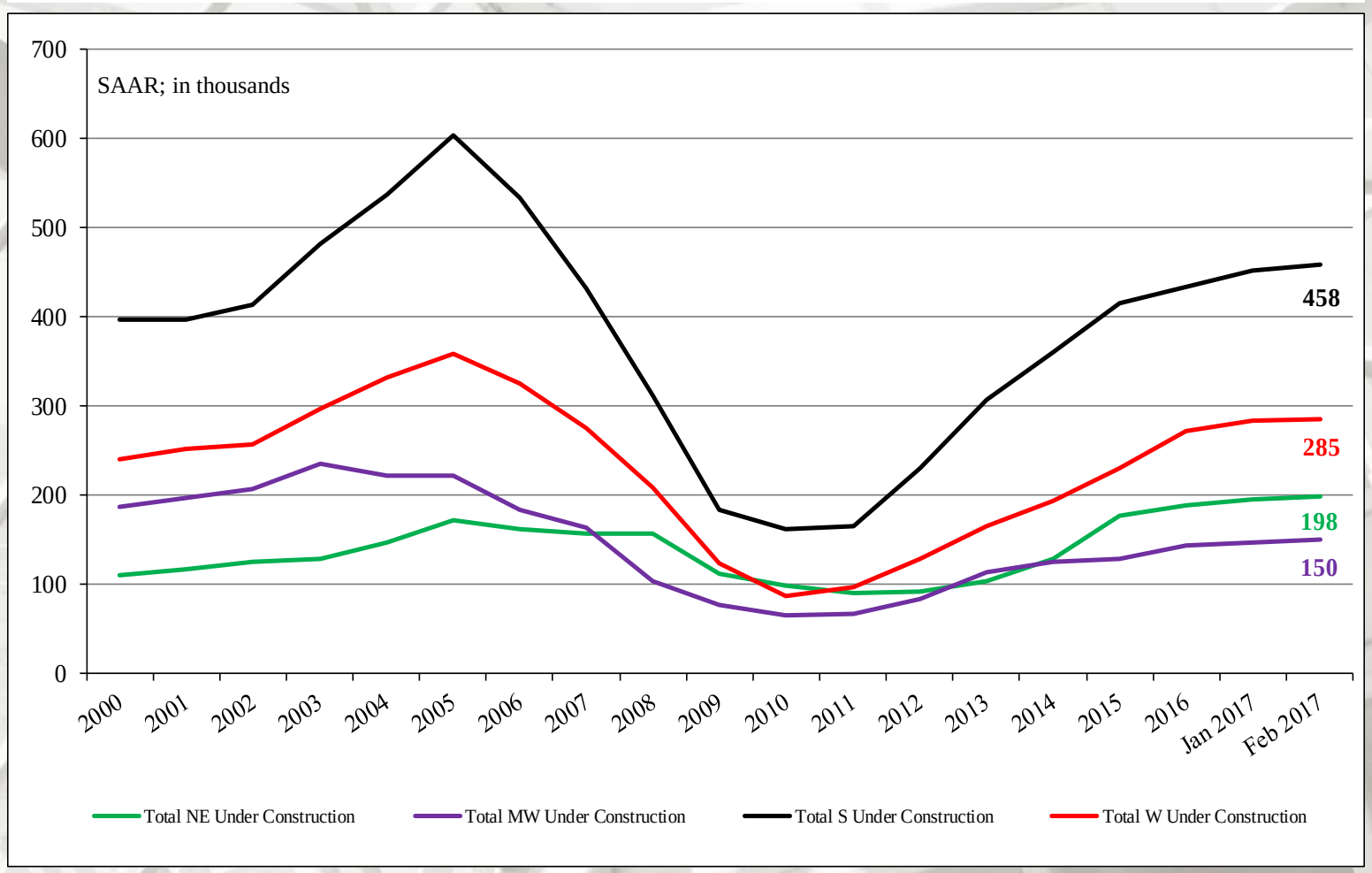
Total Housing Under Construction by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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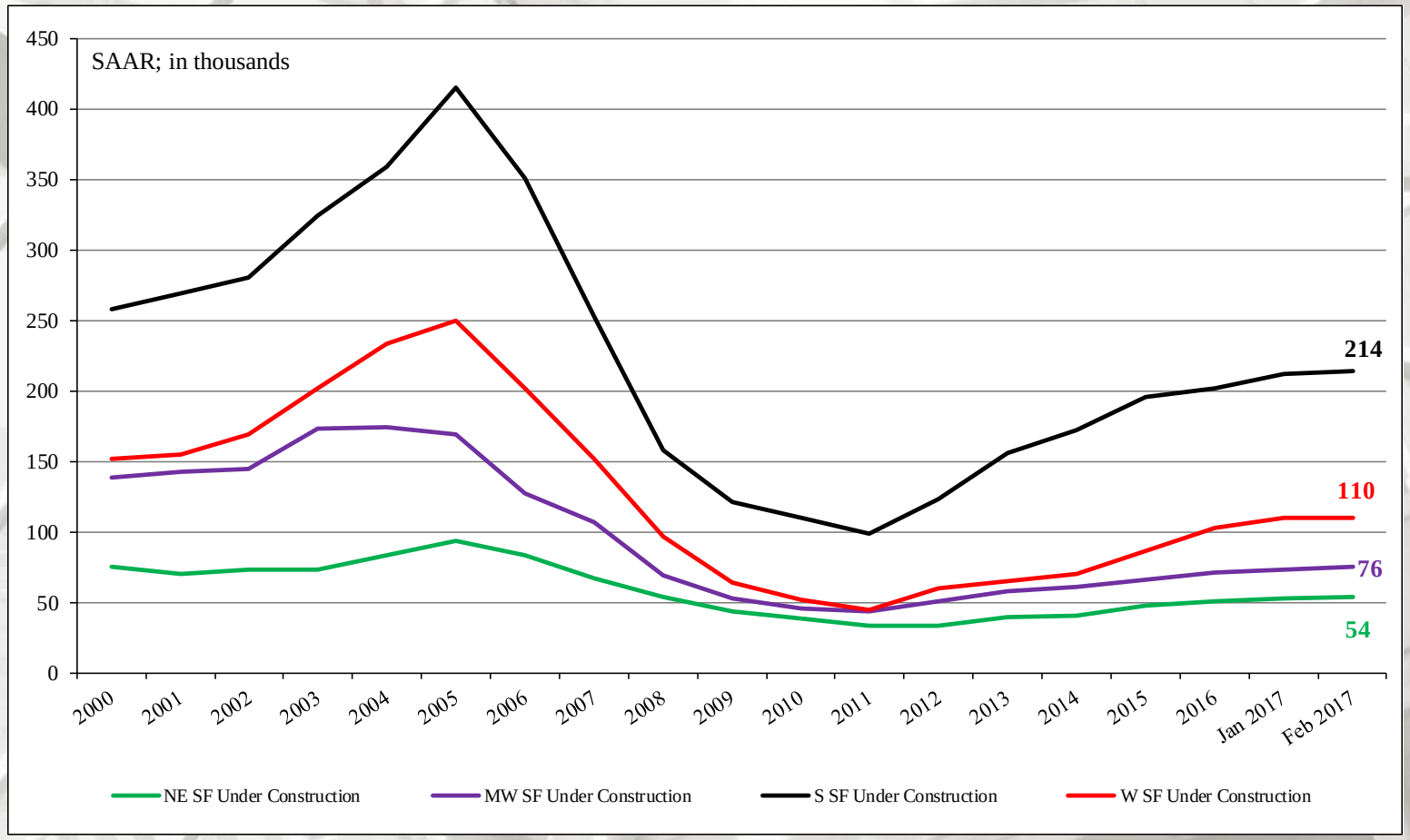
SF Housing Under Construction by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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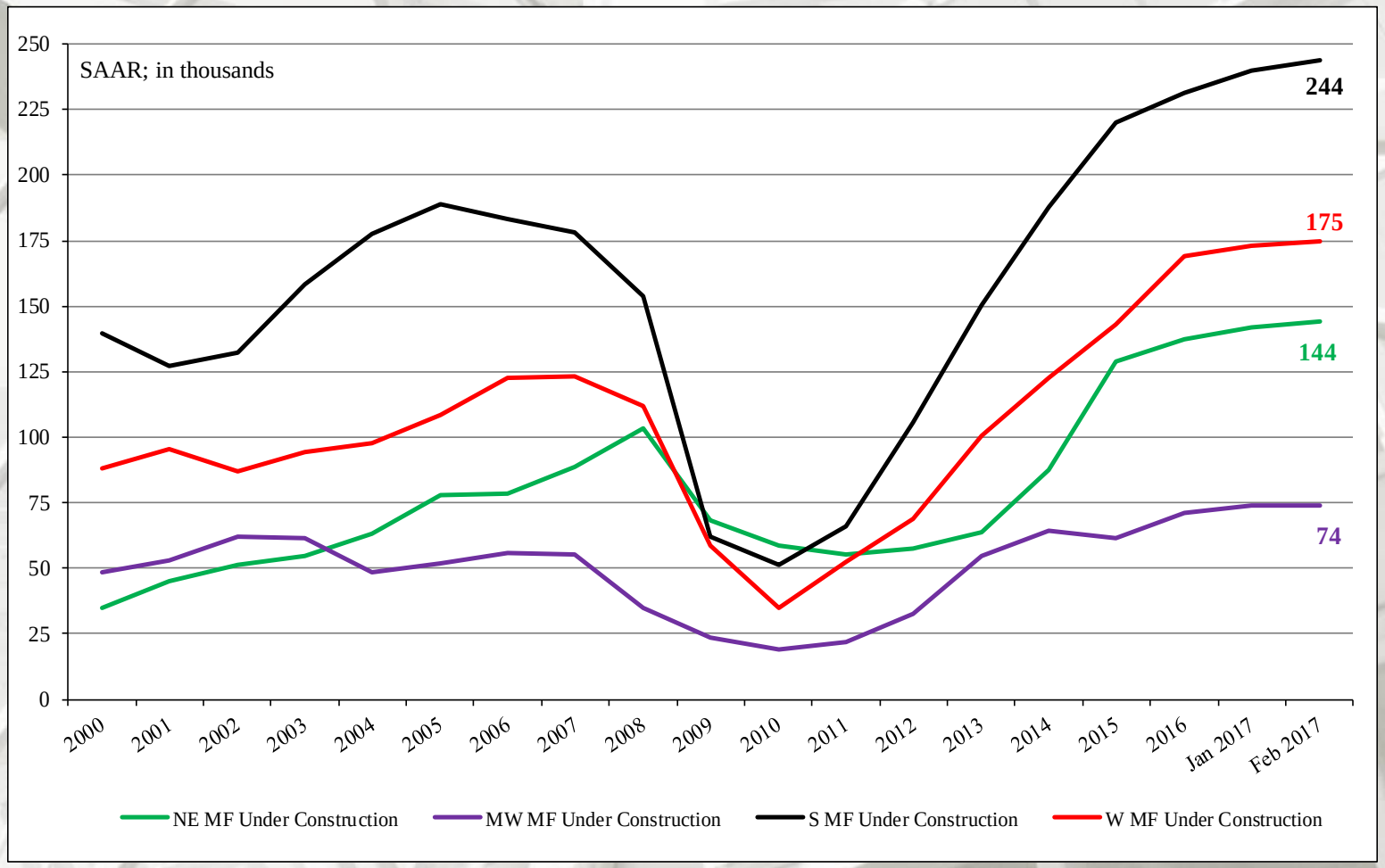
MF Housing Under Construction by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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New Housing Completions

	Total Completions*	SF Completions	MF 2-4 unit** Completions	MF ≥ 5 unit Completions
February	1,114,000	754,000	16,000	344,000
January	1,057,000	806,000	4,000	247,000
2016	1,025,000	732,000	21,000	272,000
M/M change	5.4%	-6.5%	300.0%	39.3%
Y/Y change	8.7%	3.0%	-23.8%	26.5%

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)).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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Total Housing Completions by Region

	NE Total	NE SF	NE MF**
February	99,000	43,000	56,000
January	84,000	68,000	16,000
2016	80,000	57,000	23,000
M/M change	17.9%	-36.8%	250.0%
Y/Y change	23.8%	-24.6%	143.5%
	MW Total	**MW SF**	**MW MF**
February	124,000	107,000	17,000
January	172,000	133,000	39,000
2016	140,000	91,000	49,000
M/M change	-27.9%	-19.5%	-56.4%
Y/Y change	-11.4%	17.6%	-65.3%

All data are SAAR; NE = Northeast and MW = West.
** US DOC does not report multi-family completions directly, this is an estimation (Total completions – SF completions).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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Total Housing Completions by Region

	S Total	S SF	S MF**
February	565,000	390,000	175,000
January	607,000	464,000	143,000
2016	529,000	388,000	141,000
M/M change	-6.9%	-15.9%	22.4%
Y/Y change	6.8%	0.5%	24.1%

	W Total	W SF	W MF
February	326,000	214,000	112,000
January	194,000	141,000	53,000
2016	276,000	196,000	80,000
M/M change	68.0%	51.8%	111.3%
Y/Y change	18.1%	9.2%	40.0%

All data are SAAR; S = South and W = West.
** US DOC does not report multi-family completions directly, this is an estimation (Total completions – SF completions).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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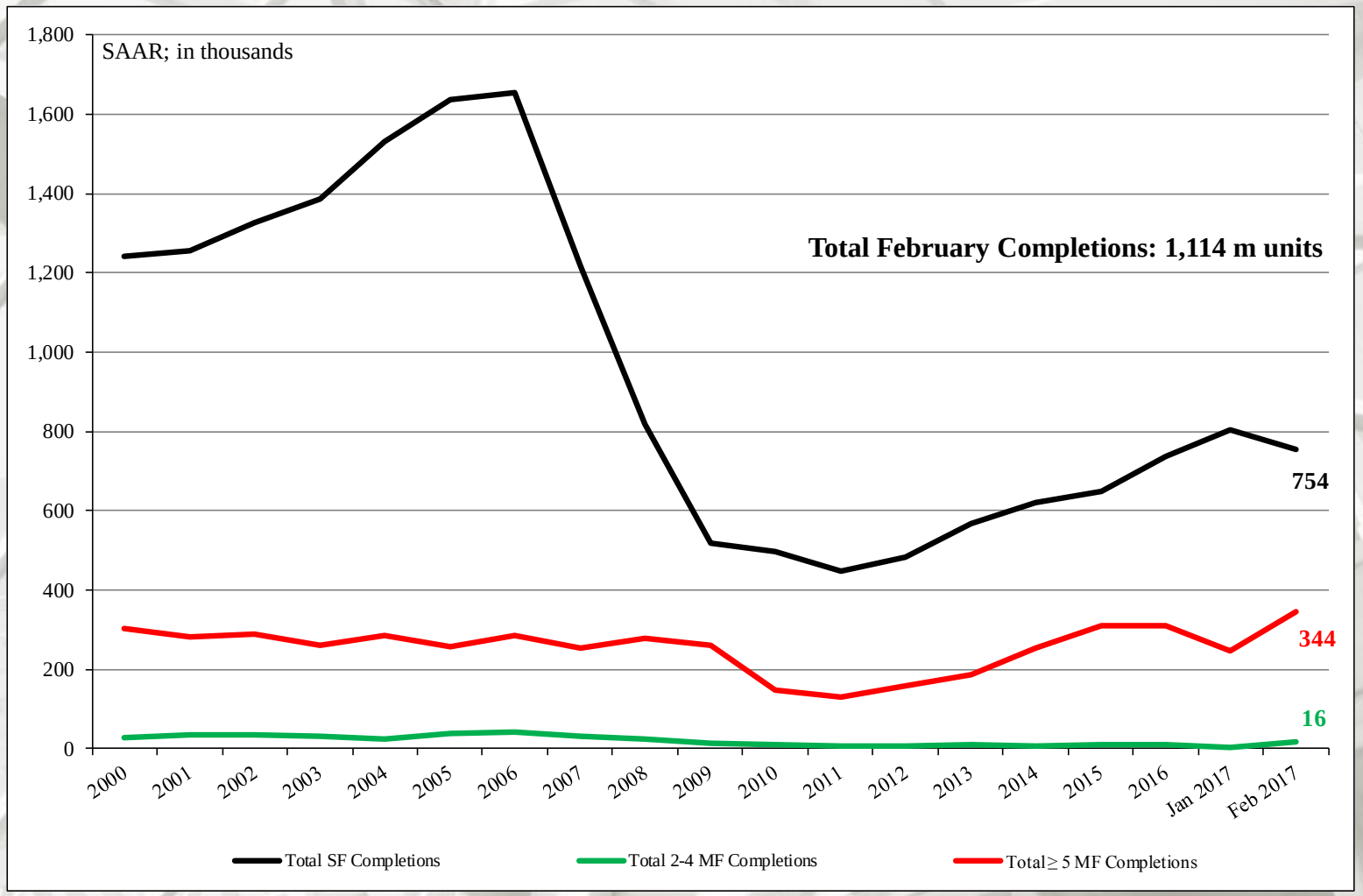
Total Housing Completions



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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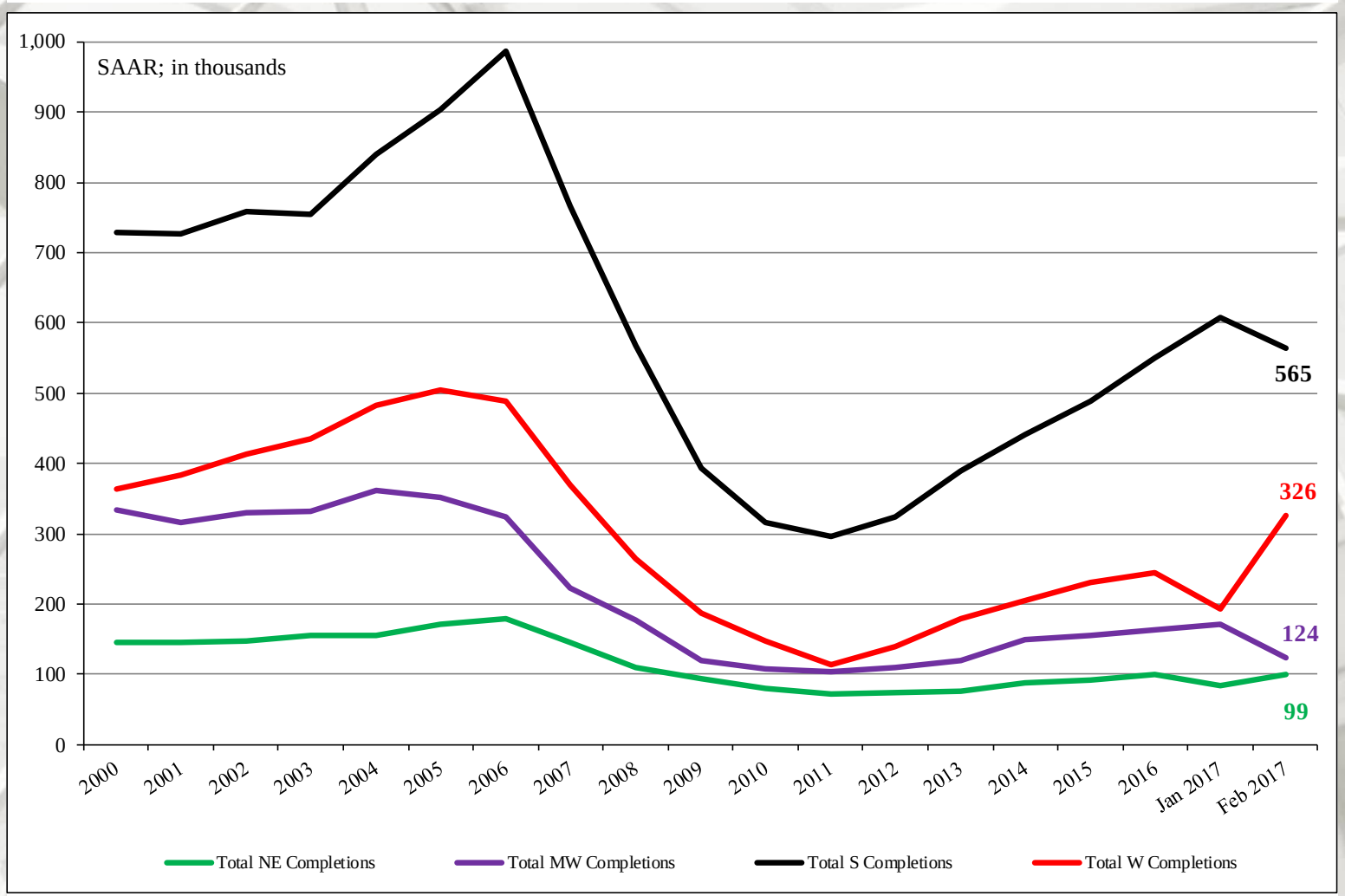
New Housing Completions by Region



All data are SAAR; NE = Northeast and MW = Midwest.
** US DOC does not report multifamily completions directly, this is an estimation (Total completions – SF completions).

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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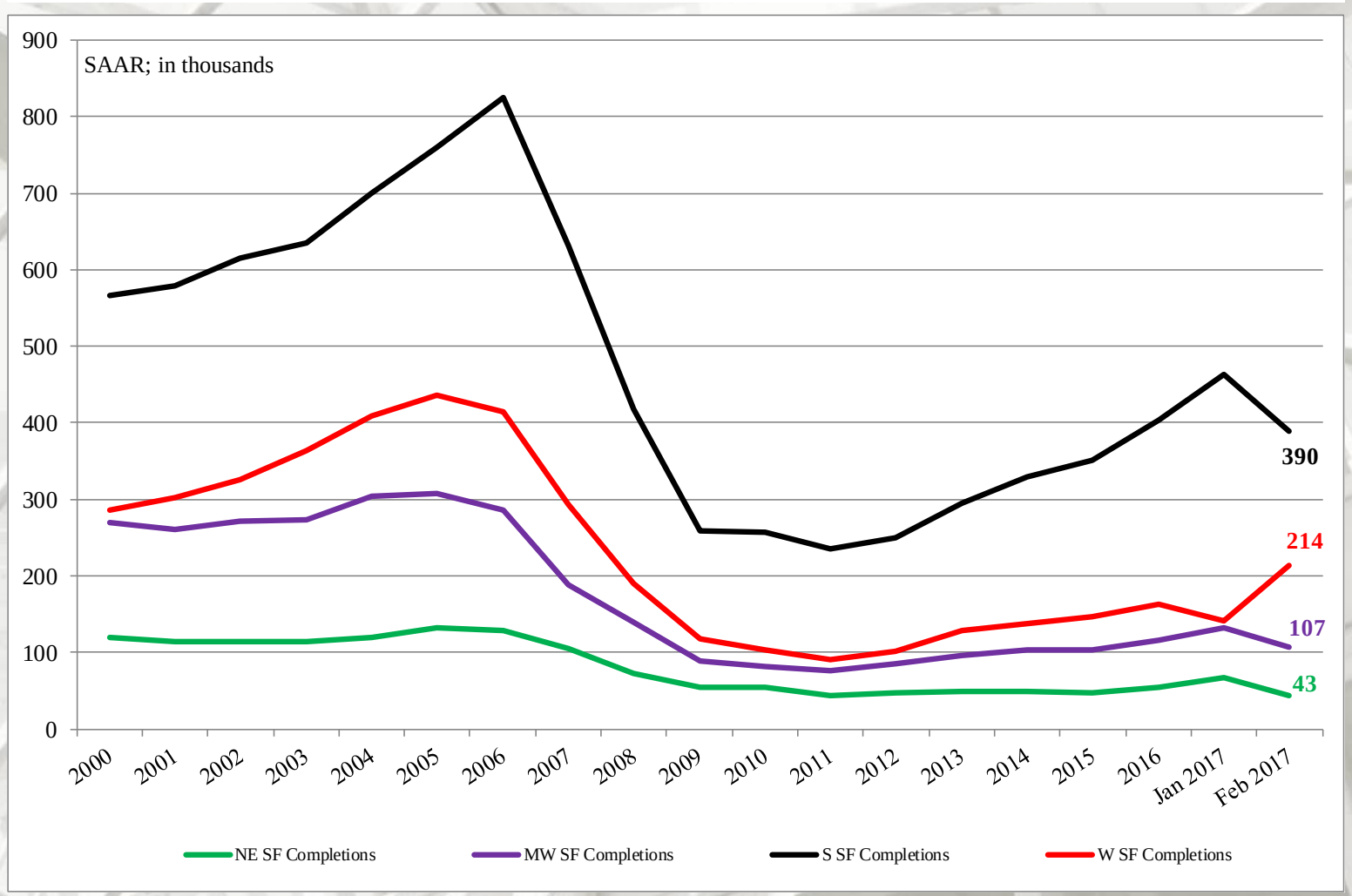
SF Housing Completions by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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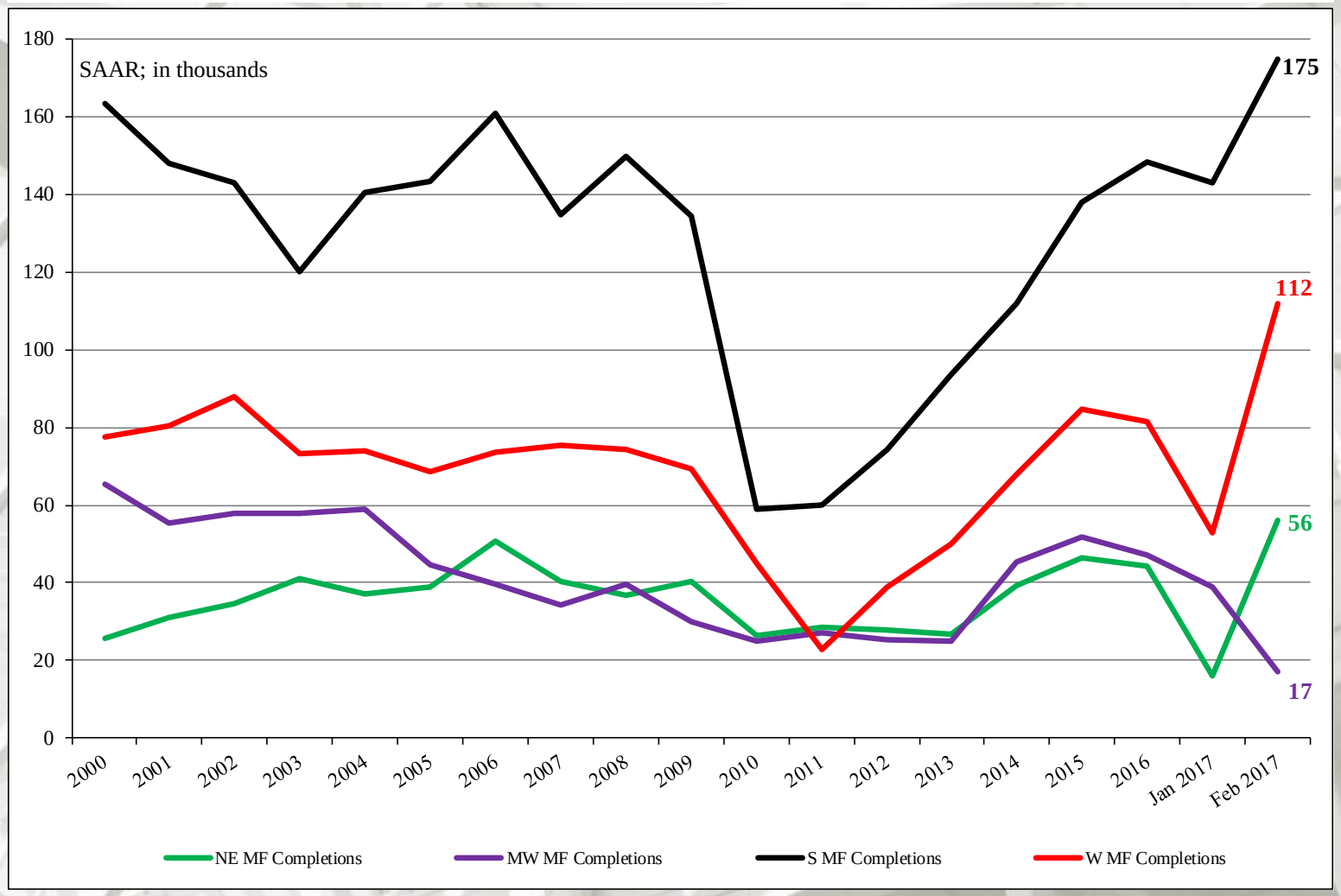
MF Housing Completions by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17

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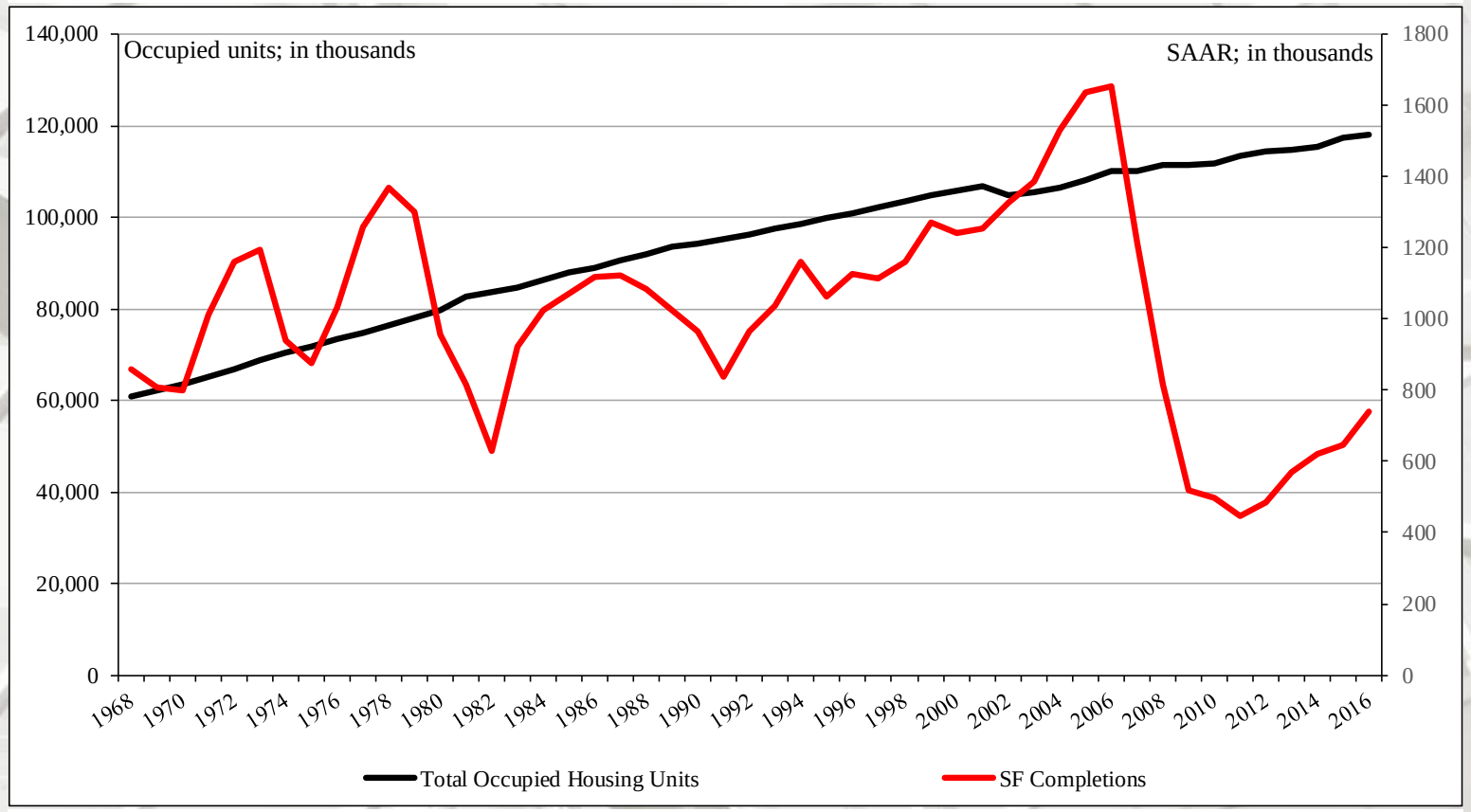
SF Completions vs. Household Formations



New SF completions vs. Total Occupied Housing Units

Another method for assessing over- or under-building is to contrast SF completions against total occupied housing units. As viewed in the graph above, SF completions are not keeping pace with increases in occupied housing units. The Current Population Survey/Housing Vacancy Survey is not designed to develop household formations (HF); yet many analysts use the change in occupied units as a proxy for HFs. Generally the American Community Survey data is used for official HF estimates. From a population viewpoint, new construction is less than what is necessary for changes in population (i.e., under-building).

Sources: http://www.census.gov/construction/nrs/xls/newressales.xls and Current Population Survey/Housing Vacancy Survey, Series H-111; 1/31/17

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Multifamily Completions to Peak in 2017

Is the growth in residential development, coupled with decreasing construction costs, a sign that the industry is reaching the top of the current cycle?

"… Is the growth in residential development a sign that we are at cycle peak? "Yes, we expect multifamily completions to peak in 2017. We've already seen weakness in starts and permits data, meaning that construction will start tapering off in 2018," Paula Munger, director of industry research and analysis at the National Apartment Association, told *Multi-Housing News*.

Though multifamily construction is on the rise, many U.S. markets are dealing with a supply shortage. Industry experts attribute the shortage to developers building the same type of assets in the same areas where they are no longer needed. "The luxury segment in urban core markets like New York (and) San Francisco is getting overbuilt as there's just not enough demand to keep up with the new supply. It's hard to build an affordable product (increasing labor, material and construction costs, regulations, fees etc.), but that's where the biggest mismatch is between supply and demand," Munger added.

However, 2017 will not be a challenging year when it comes to multifamily demand. "The indicators we look at suggest that multifamily demand should continue to be strong in 2017; the age group that traditionally has the highest rentership rate (young adults) still is very large, for example," Caitlin Walter, director of research for the National Multifamily Housing Council (NMHC), told MHN." – Alexandra Pacurar, Senior Writer, *Multi-Housing News*

Source: https://www.multihousingnews.com/post/multifamily-completions-to-peak-in-2017; 3/14/17

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Multifamily Completions to Peak in 2017

"The current market conditions and increase of interest rates might impact first-time buyers. "The supply constraints in the single-family housing market — particularly 'starter' homes — coupled with increasing mortgage rates will turn away some potential first-time buyers," Munger explained. While some buyers might pay attention to the Fed's next move, the same can't be said about developers. Only a substantial increase would influence their decision to build or not, considering the current low interest environment. "That's just not expected in 2017," Munger said.

The multifamily lending market is expected to remain cautious in 2017, though it is not quite clear how selective will lenders become. "Lenders were certainly cautious in 2016 when it came to construction loans, and there was concern about interest rate increases. Our April Quarterly Survey will hopefully shed some more light," Walter added. NMHC's last survey on multifamily construction financing in April 2016 showed two-thirds of respondents (excluding those who answered "don't know") reported slightly or significantly lower construction financing availability than six months earlier, and almost three quarters of respondents reported less favorable (either slightly or significantly) loan terms than six months earlier.

When it comes to the areas experiencing the most development, core markets are definitely the winners of 2017. "Yes, there has been a shift to core (and) downtown. It will continue in markets with strong job growth, but we're also seeing development, and will continue to, in 'close-in' suburbs with good transit links and a strong amenity base. The walkability factor, no matter the location, has become important to many residents," Munger told MHN. Walter believes that new multifamily projects will aim to offer a "town center" feel, where mixed-density and/or mixed-use development is the focus. "Rockville, Md. would be a good example," she said." – Alexandra Pacurar, Senior Writer, *Multi-Housing News*

Source: https://www.multihousingnews.com/post/multifamily-completions-to-peak-in-2017; 3/14/17

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New Single-Family House Sales

	New SF Sales*	Median Price	Mean Price	Month's Supply
February	592,000	$296,200	$390,400	5.4
January	558,000	$308,200	$355,300	5.6
2016	525,000	$311,300	$349,400	5.5
M/M change	6.1	-3.9	9.9	-3.6
Y/Y change	12.8	-4.9	11.7	-1.8

* All sales data are presented at a seasonally adjusted annual rate (SAAR) [1].

New SF sales were substantially more than a consensus forecast (563m)[2]. Yet, for the two of the past three month's, new SF sales data were revised lower:

November initial: 575m revised to 573m;
December initial: 535m revised to 530m.
January initial: 555m revised to 558m.

Source: [1]http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17; [2] https://www.wsj.com/articles/u-s-new-home-sales-rose-in-february-1490278764/; 3/23/17

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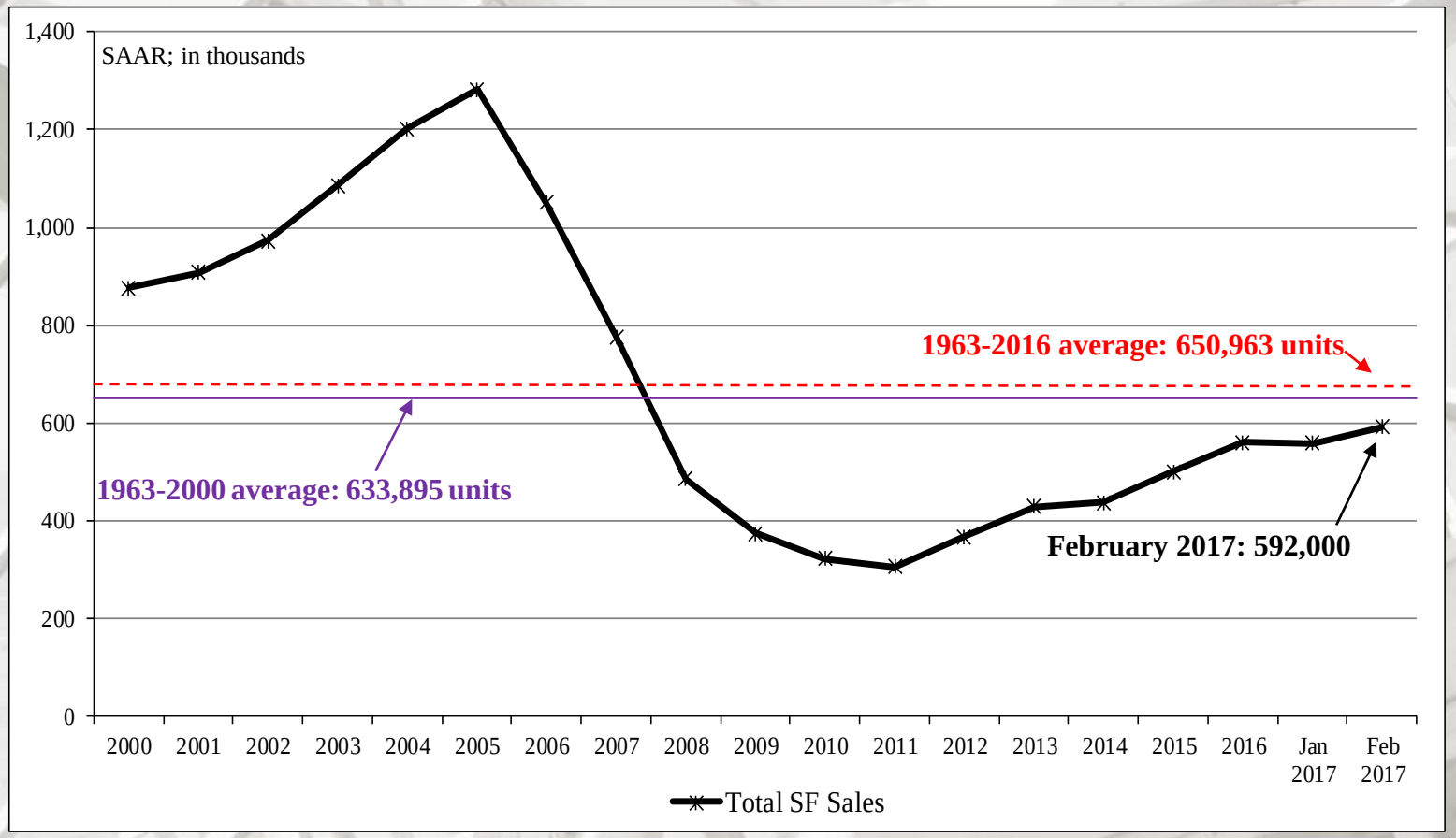
New SF House Sales



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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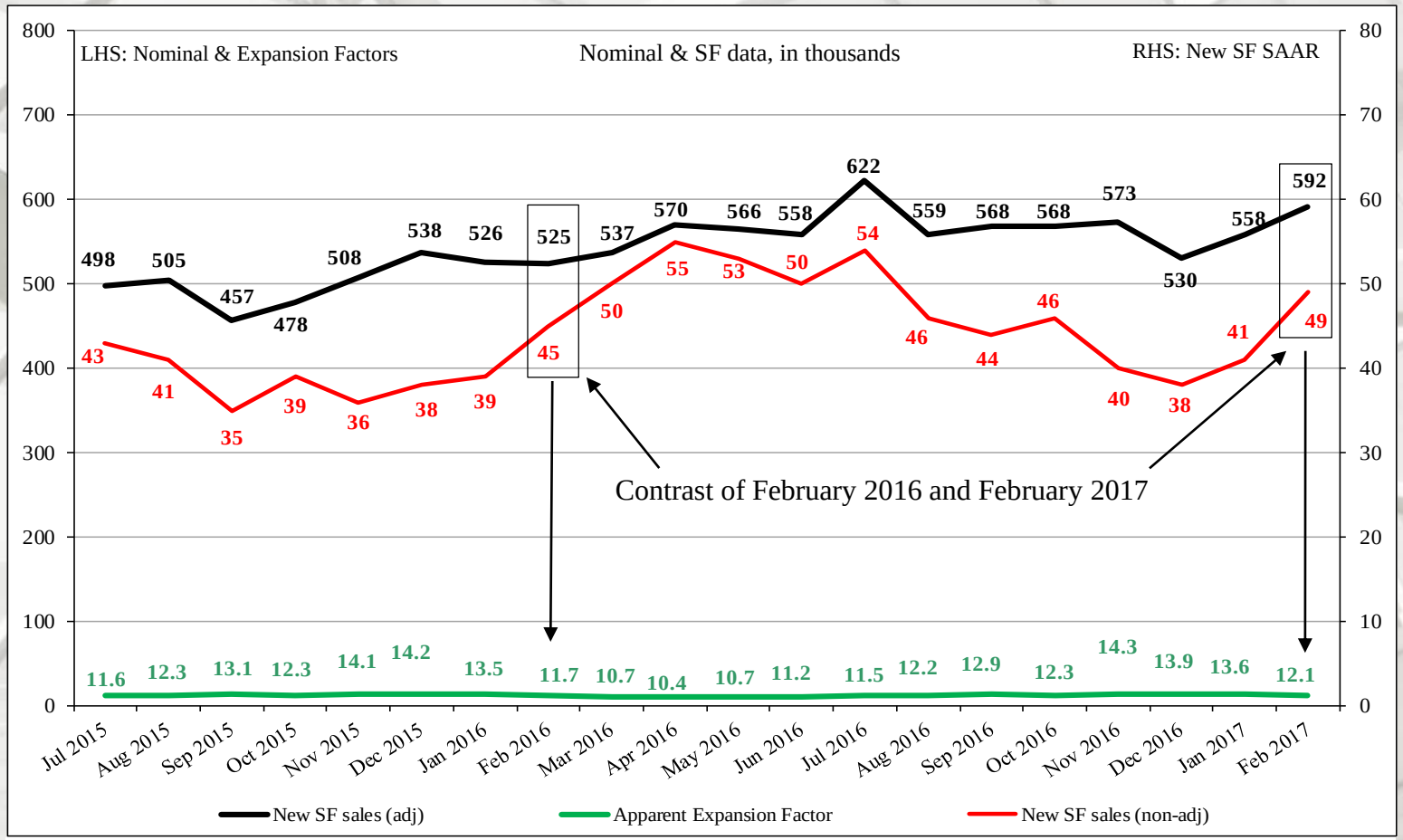
Nominal vs. SAAR New SF House Sales



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

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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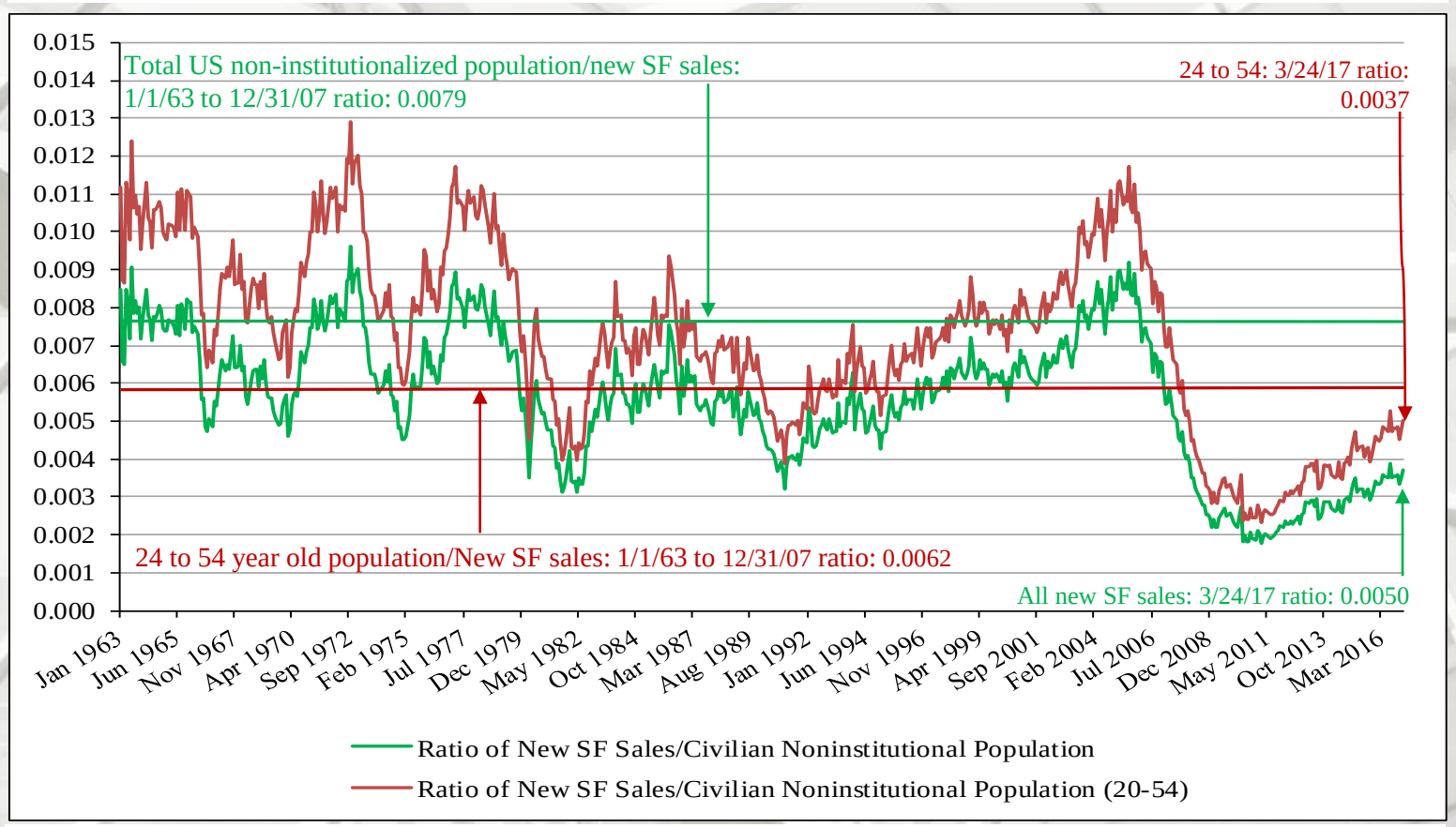
New SF House Sales



New SF sales adjusted for the US population

From February 1963 to February 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0079; in February 2017 it was 0.0056 – a minimal increase from January (0.0048). The non-institutionalized population, aged 24 to 54 long-term ratio is 0.0062; in February 2017 it was 0.0037 – an increase from January (0.0035). All are non-adjusted data. From a population viewpoint, construction is less than what is necessary for changes in population (i.e., under-building).

Sources: http://www.census.gov/construction/nrs/xls/newressales.xls and The Federal Reserve Bank of St. Louis; 3/24/17

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New SF House Sales by Region and Price Category

	NE SF Sales	MW SF Sales	S SF Sales	W SF Sales
February	33,000	89,000	313,000	157,000
January	42,000	68,000	302,000	146,000
2016	29,000	59,000	290,000	147,000
M/M change	-21.4	30.9	3.6	7.5
Y/Y change	13.8	50.8	7.9	6.8

	≤ $150m	$150 - $199.9m	$200 - 299.9m	$300 - $399.9m	$400 - $499.9m	$500 - $749.9m	≥ $750m
February[1,2]	2,000	5,000	13,000	11,000	4,000	5,000	2,000
January	2,000	6,000	17,000	8,000	8,000	5,000	3,000
2016	3,000	4,000	13,000	12,000	8,000	4,000	1,000
M/M change	0.0%	-16.7%	-23.5%	37.5%	-50.0%	0.0%	-33.3%
Y/Y change	-33.3%	25.0%	0.0%	-8.3%	-50.0%	25.0%	100.0%

All data are SAAR.

[1] Houses for which sales price were not reported have been distributed proportionally to those for which sales price was reported;

[2] Detail June not add to total because of rounding.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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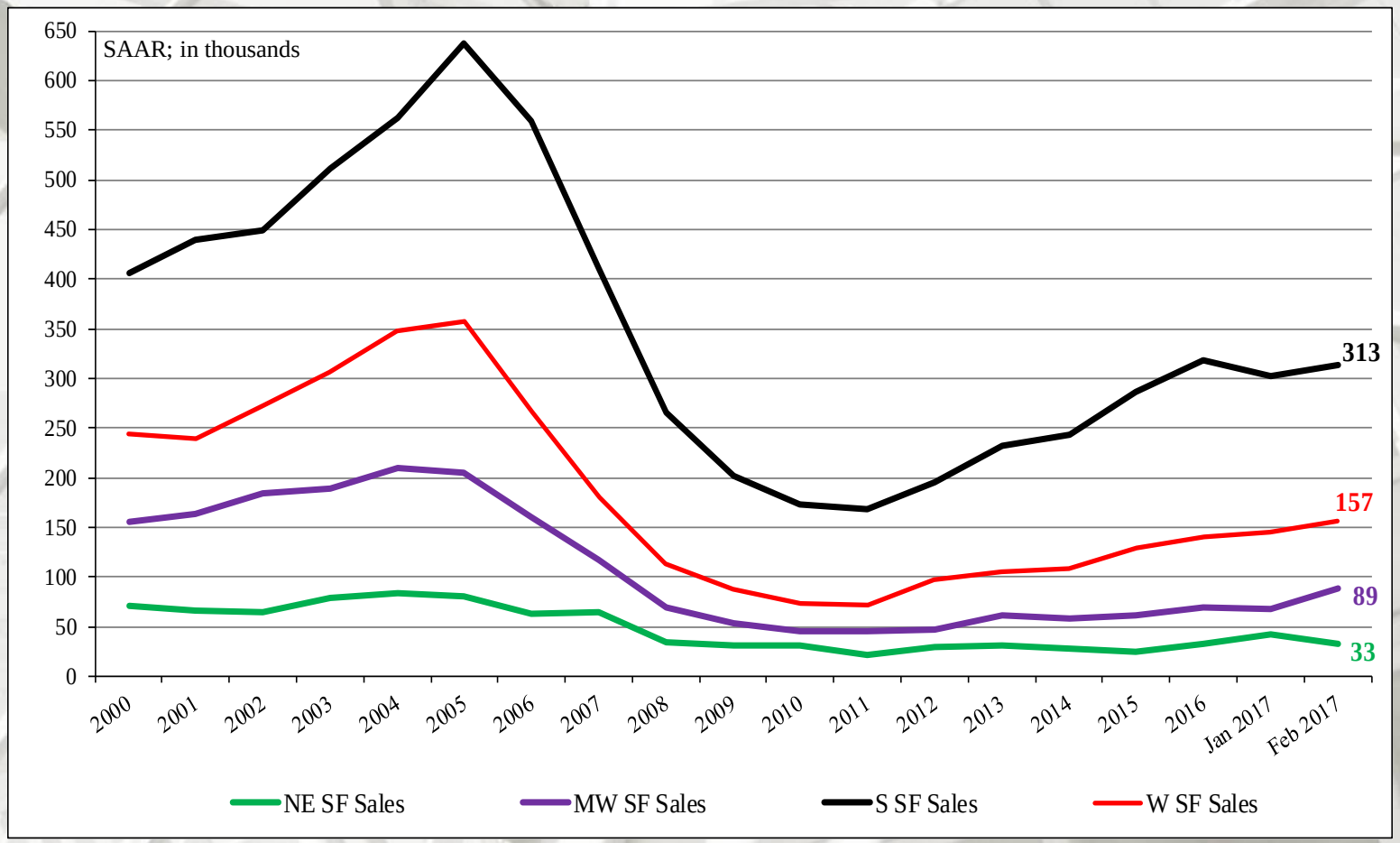
New SF House Sales by Region



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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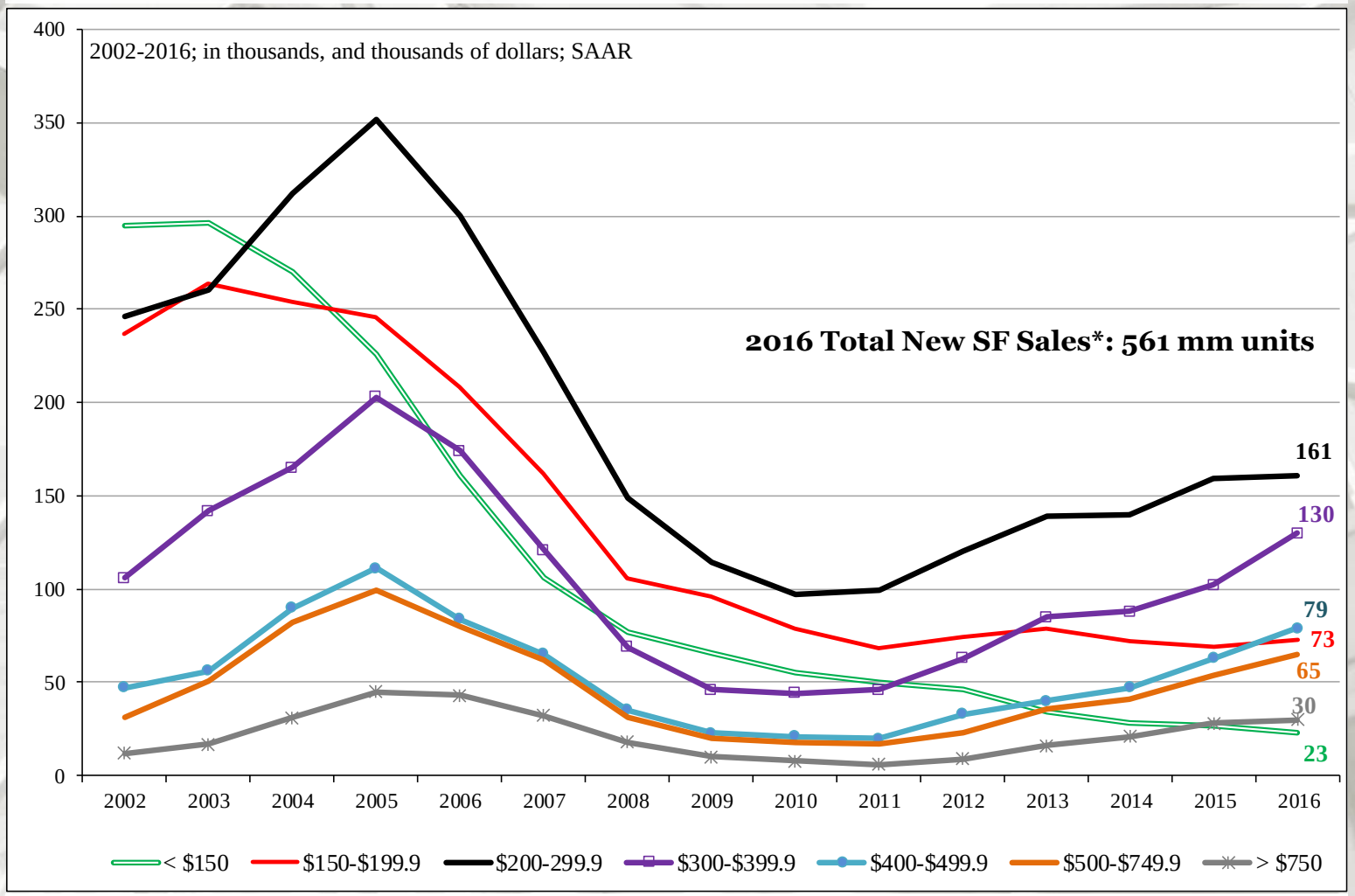
New SF House Sales by Price Category



* Sales tallied by price category.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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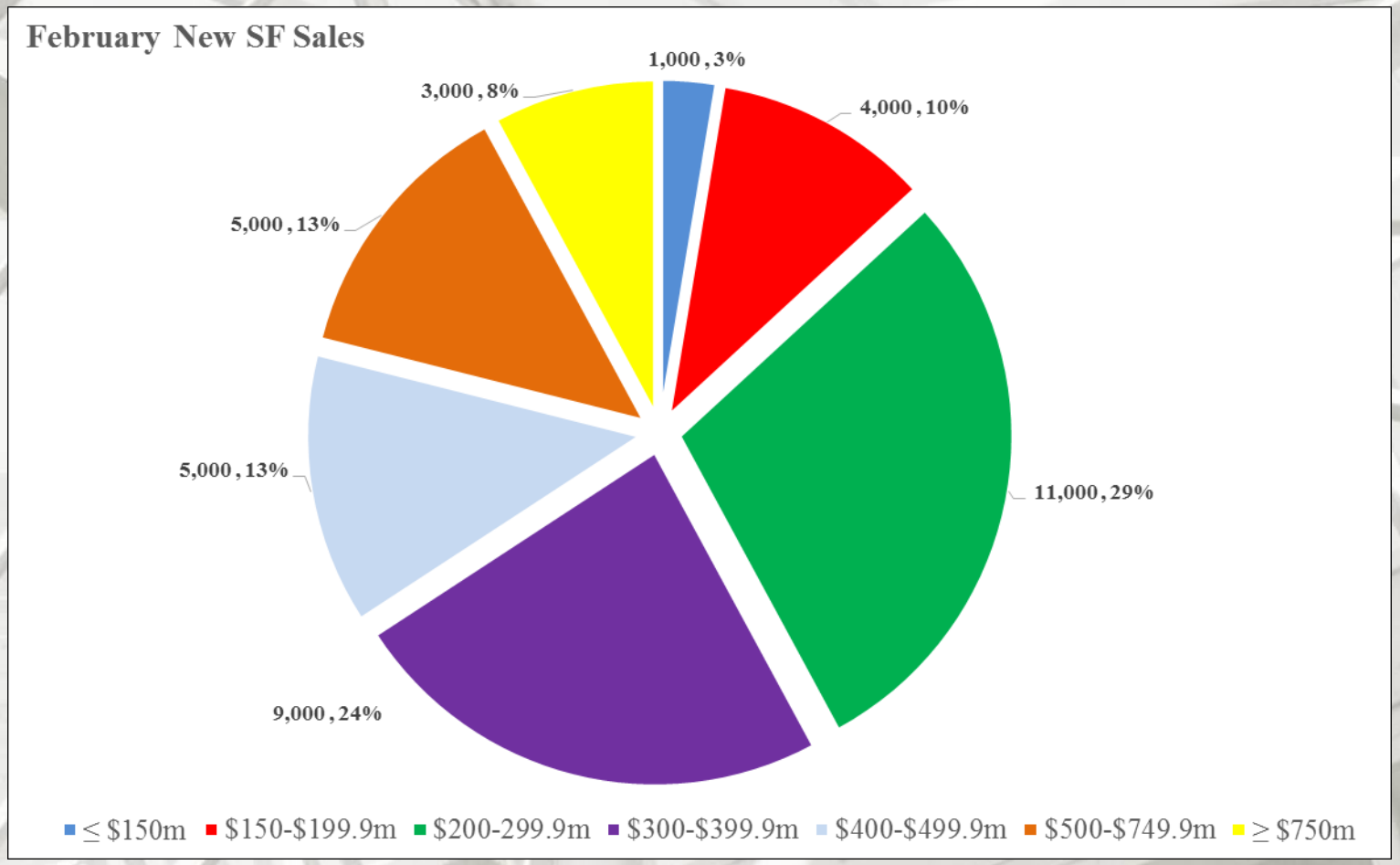
New SF House Sales



Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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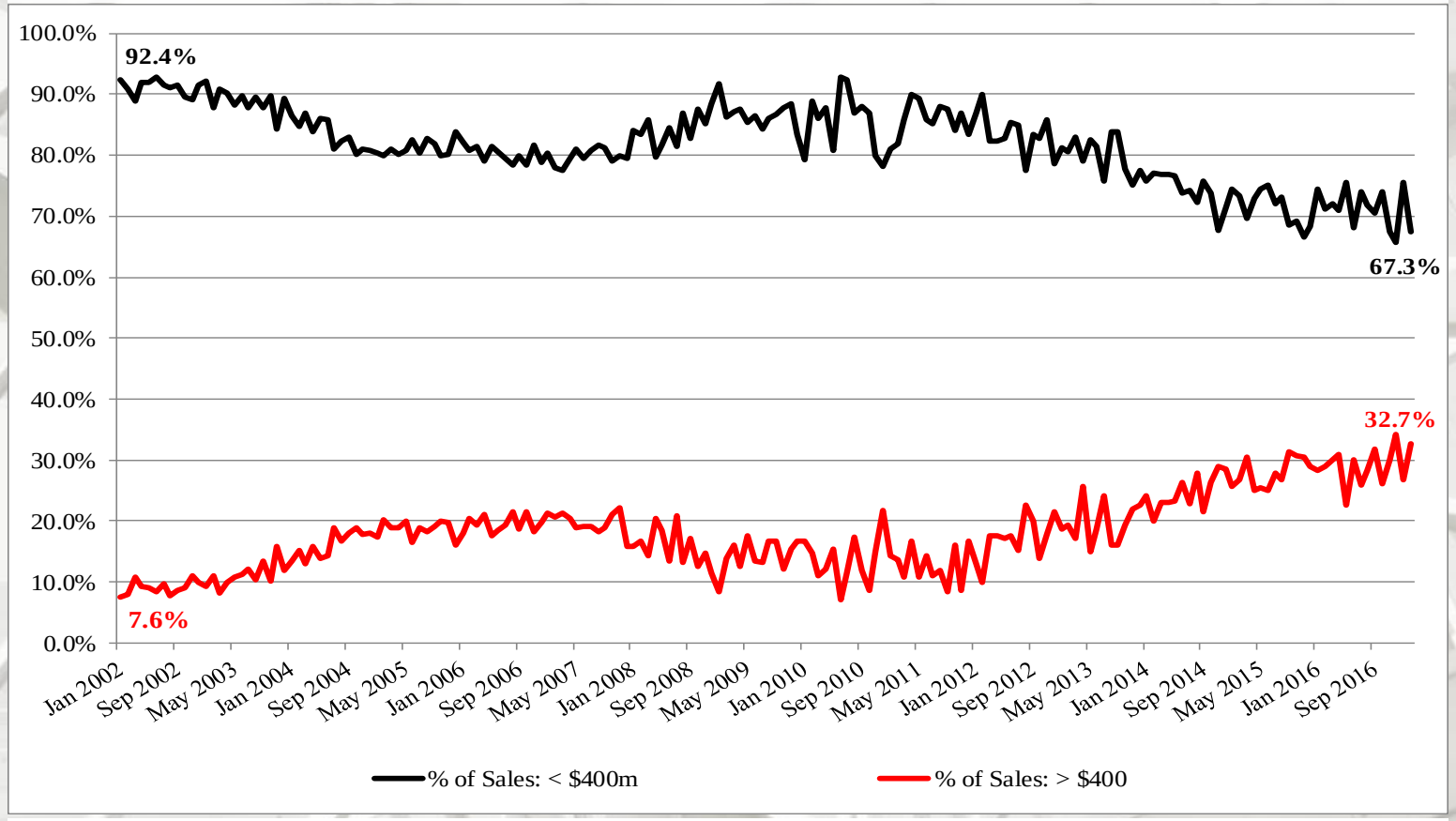
New SF House Sales



New SF Sales: 2002 – February 2017

The sales share of $400 thousand plus SF houses is presented above. Since the beginning of 2012, the upper priced houses have and are garnering a greater percentage of sales. The wider the spread, the more high-end luxury homes were 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.

Source: http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/23/17

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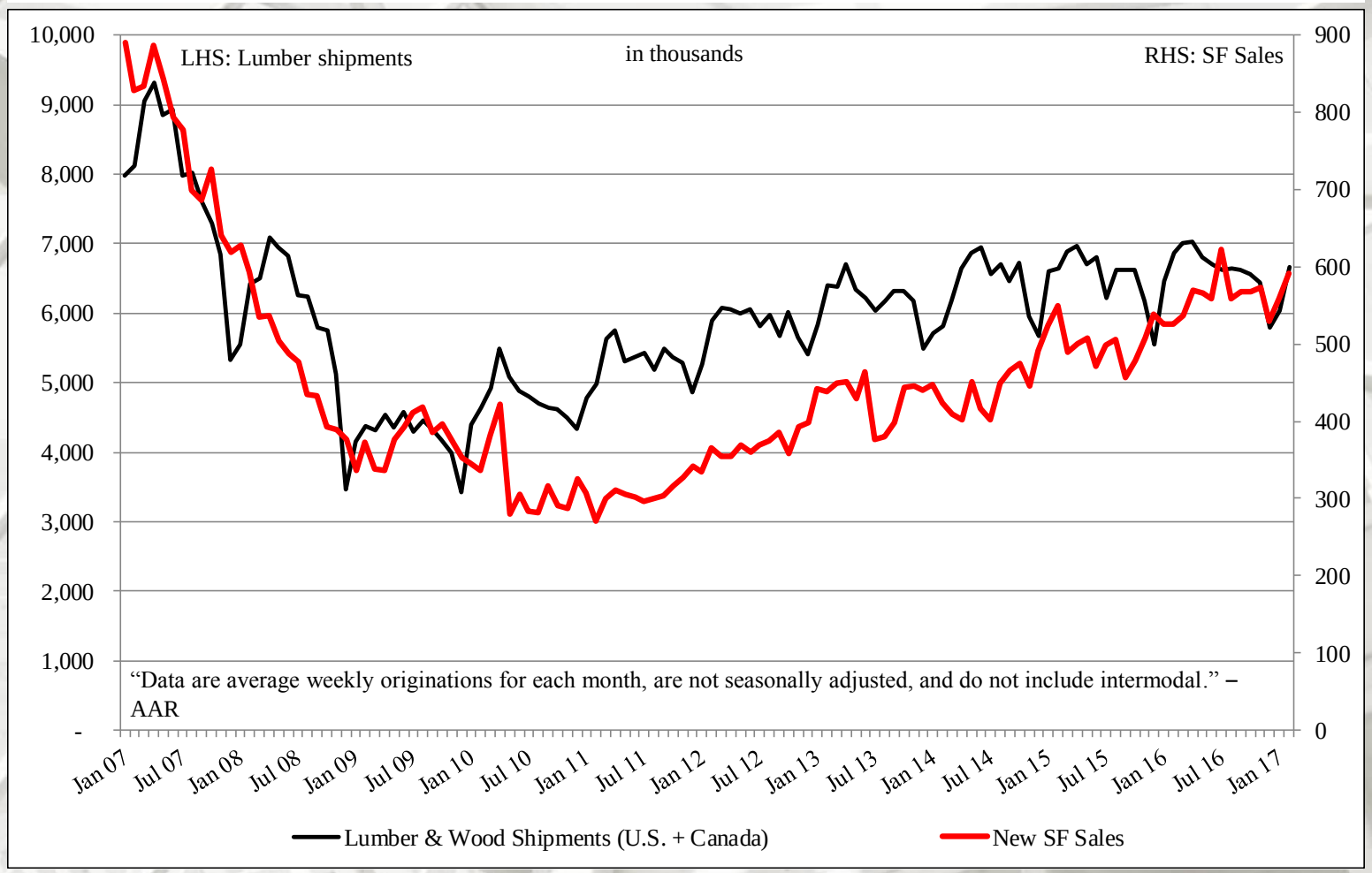
Railroad Lumber & Wood Shipments vs. U.S. New SF House Sales



Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/3/17; U.S. DOC-Construction; 3/23/17

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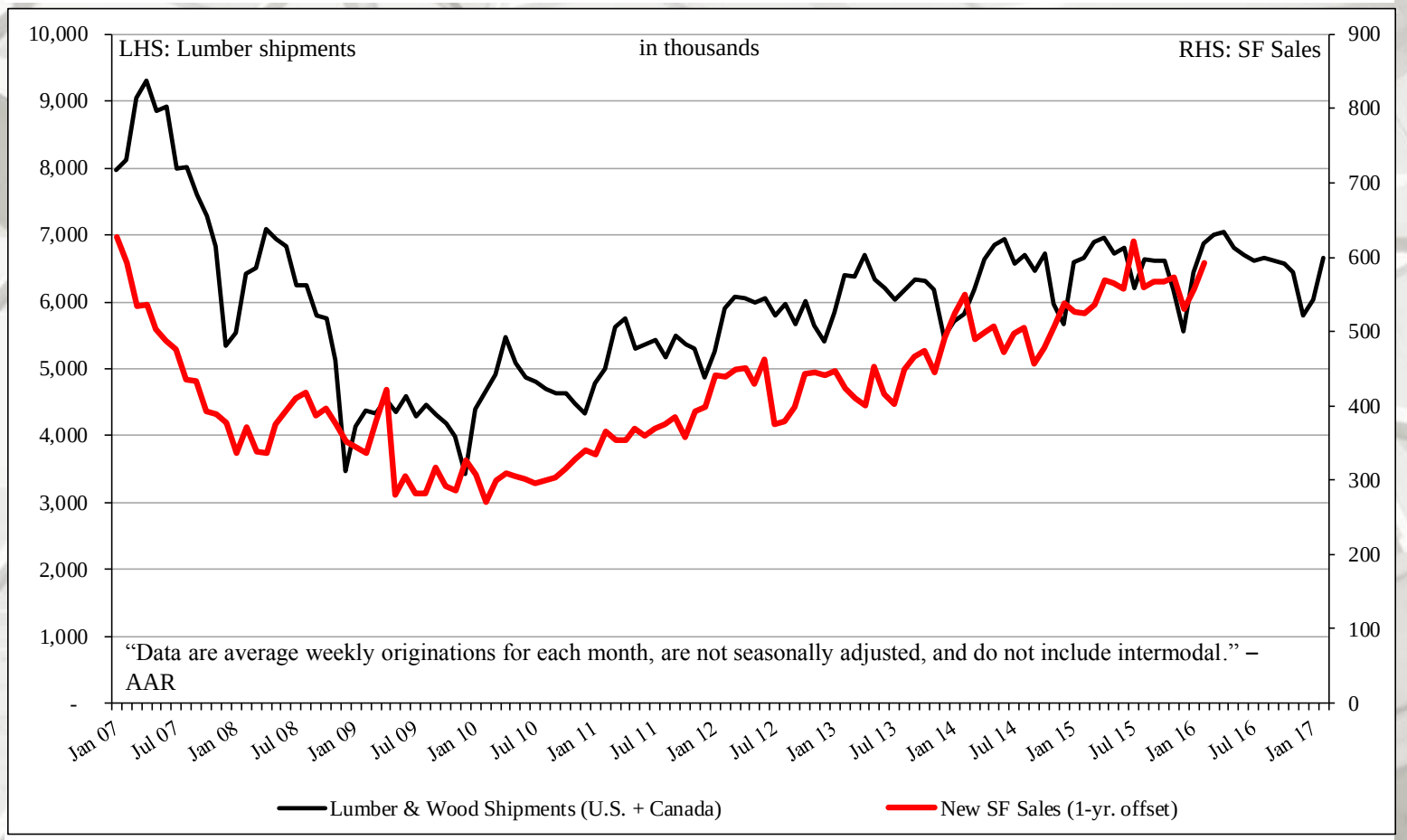
Railroad Lumber & Wood Shipments vs. U.S. New SF House Sales: 1-year offset



In this graph, initially February 2007 lumber shipments are contrasted with February 2008 new SF sales through February 2017 new SF sales. The purpose is to discover if lumber shipments relate to future new SF house sales. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/3/17; U.S. DOC-Construction; 3/37/17

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February 2017 Construction Spending

	Total Private Residential*	SF	MF	Improvement**
February	$484,665	$253,806	$63,537	$159,052
January	$476,148	$251,131	$62,181	$162,836
2016	$455,693	$248,134	$58,312	$149,247
M/M change	1.8%	1.2%	2.0%	2.7%
Y/Y change	6.4%	3.4%	10.6%	9.6%

* Billions

** 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$.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf; 4/3/17

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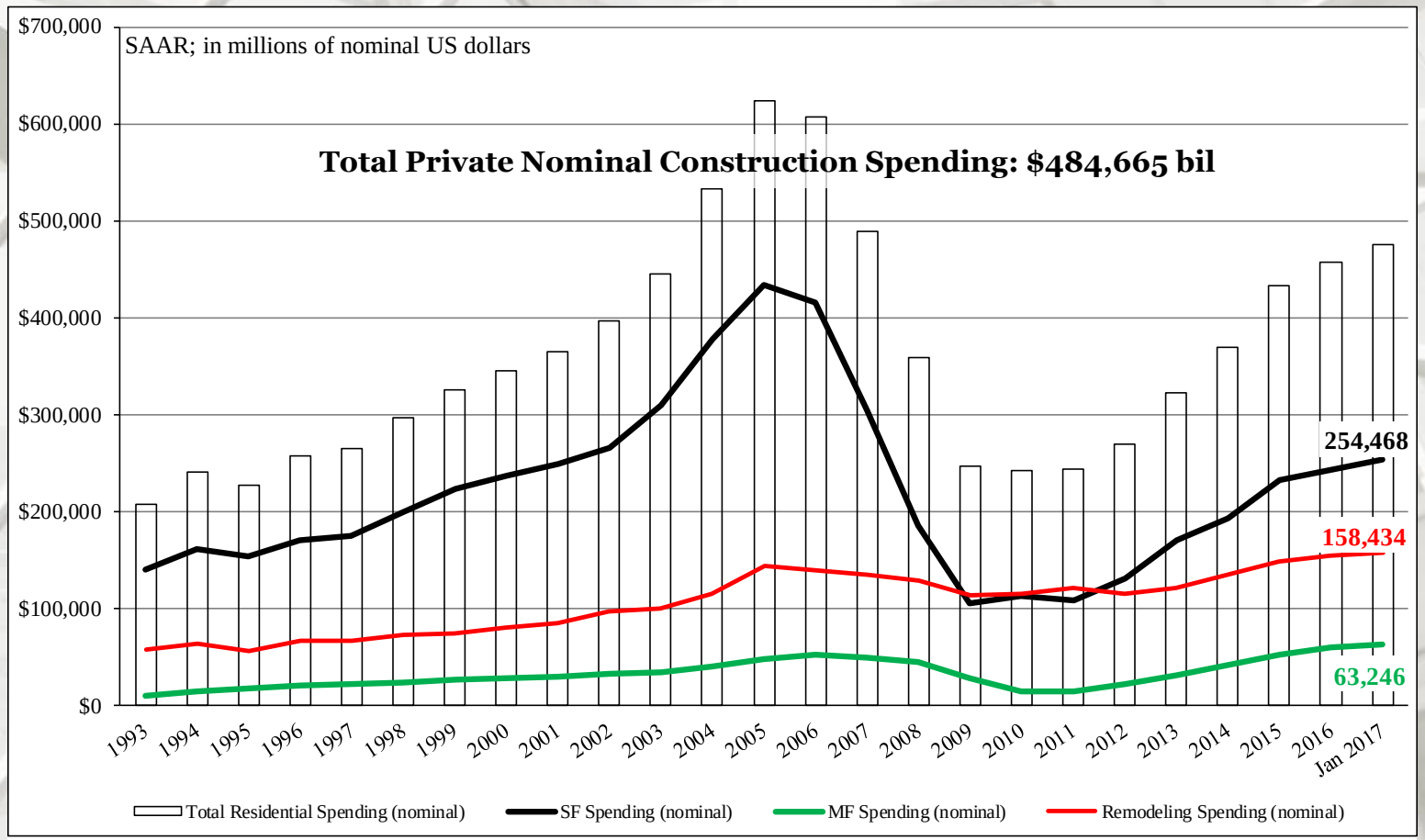
Total Construction Spending (nominal): 1993 – February 2017



Reported in nominal US$.
The US DOC does not report improvement spending directly, this is a monthly estimation for 2017.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf; 4/3/17

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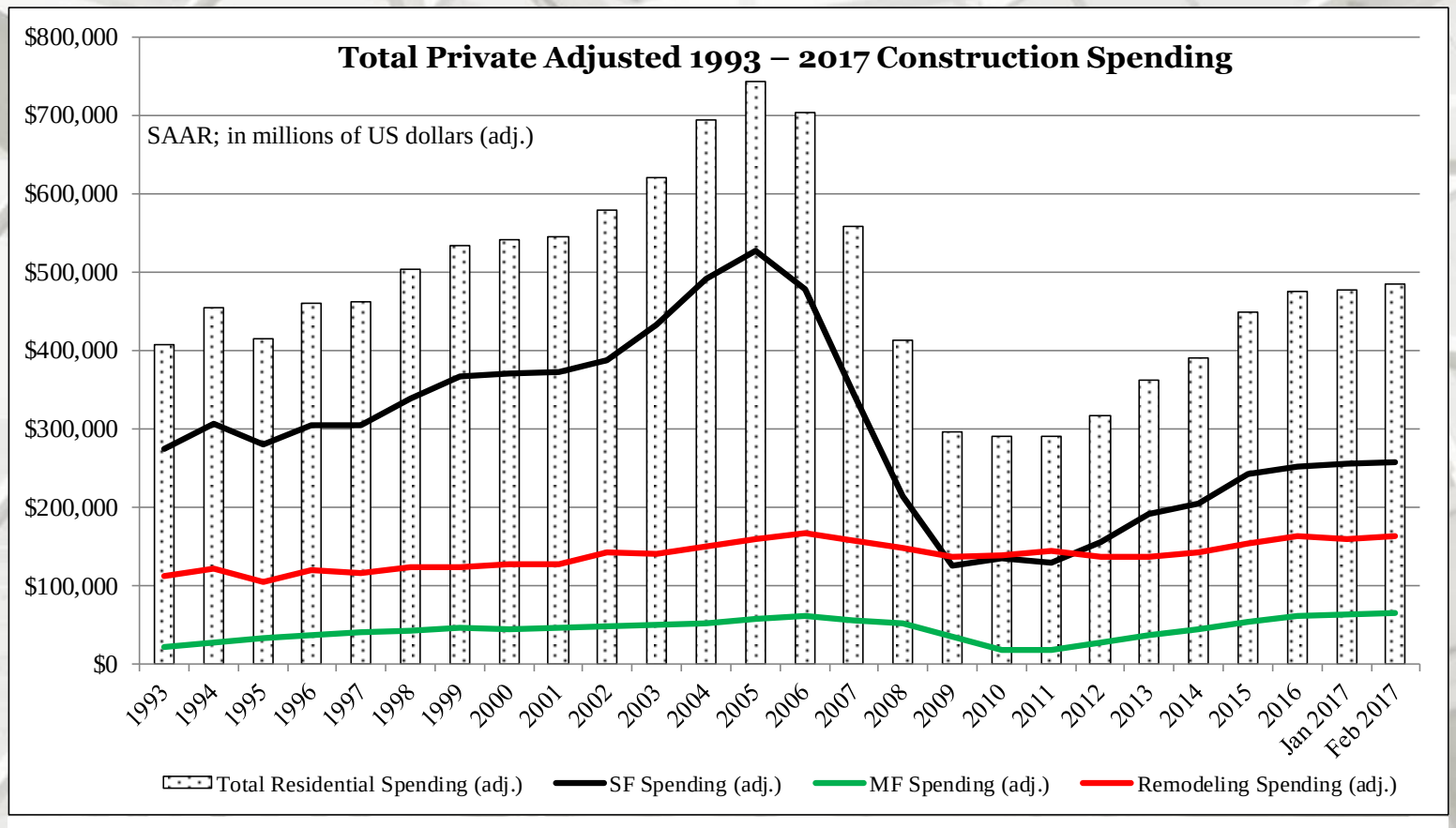
Total Construction Spending (adjusted): 1993-2017*



Reported in adjusted US$: 1993 – 2016 (adjusted for inflation, BEA Table 1.1.9); *February 2017 reported in nominal US$.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf; 4/3/17

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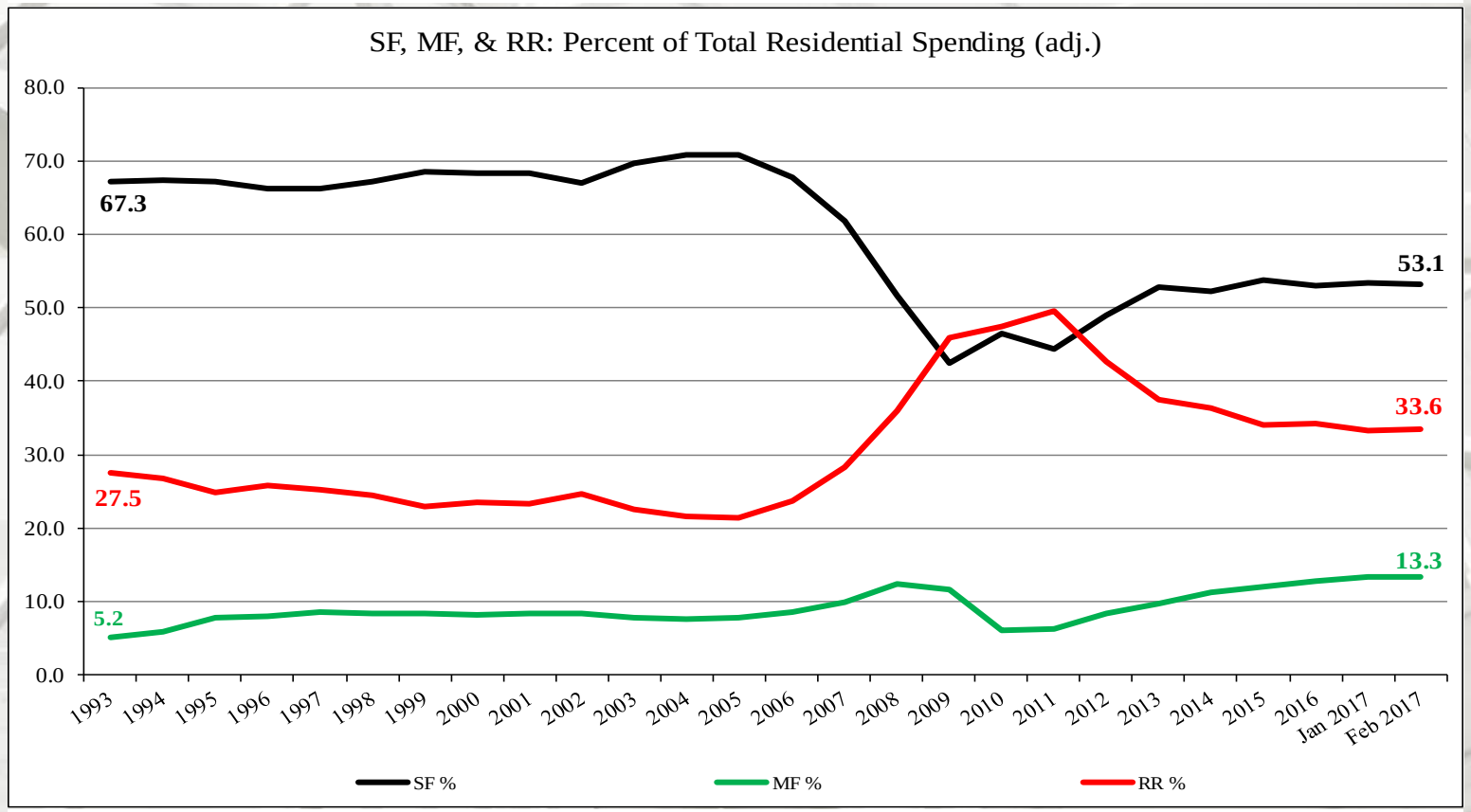
Construction Spending Shares: 1993 to February 2017



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); January-February 2017 reported in nominal US$.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf and http://www.bea.gov/iTable/iTable.cfm; 4/3/17

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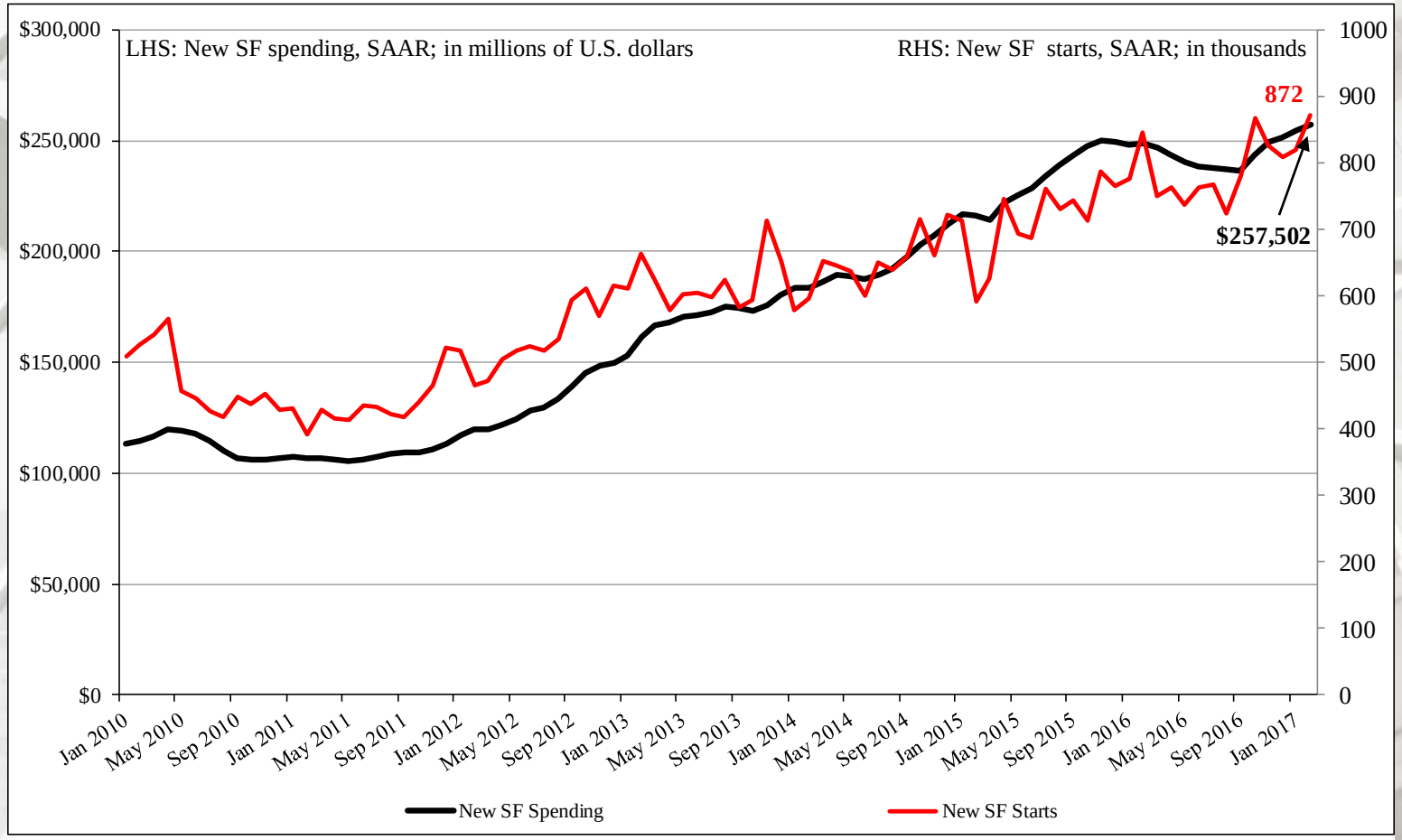
Construction Spending & Starts: 2010 to February 2017



New SF Residential contrasted against New SF Starts: 2010 through 2017

In the above graph, new SF construction spending is compared to new SF starts. Generally, as SF starts increase so does spending. However, there are other factors involved: house size, amenities, lot price, location, etc.

Source: http://www.census.gov/construction/c30/pdf/privsa.pdf and : http://www.census.gov/construction/nrc/pdf/newresconst.pdf; 3/16/17-4/3/17

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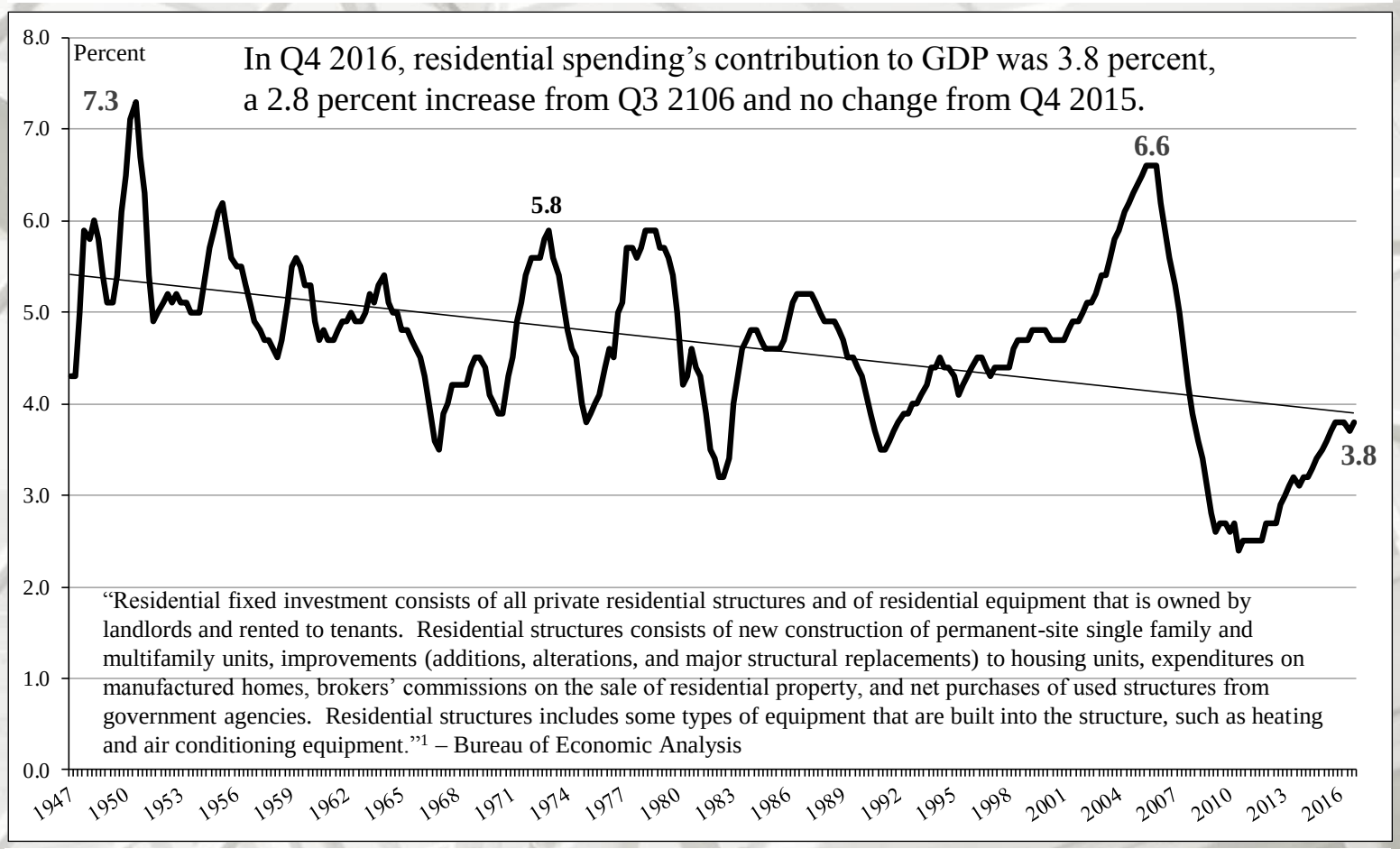
Residential Spending's Contribution to Gross Domestic Product (1947 – 2016)



"NOTE. Quarterly estimates are expressed at seasonally adjusted annual rates, unless otherwise specified. Quarter-to-quarter dollar changes are differences between these published estimates. Percent changes are calculated from unrounded data and are annualized. "Real" estimates are in chained (2009) dollars. Price indexes are chain-type measures."[2] – Bureau of Economic Analysis

Source: https://www.bea.gov/; 3/24/17; [1] https://www.bea.gov/national/pdf/nipaguid.pdf; [2] https://www.bea.gov/, 3/24/17

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Construction Spending

Sluggish Housing Recovery Took $300 Billion Toll on U.S. Economy, Data Show

"The decline in homeownership rates to near 50-year lows is partly to blame for the U.S. economy's sluggish recovery from the last recession, new data suggest. If the home-building industry had returned to the long-term average level of construction, it would have added more than $300 billion to the economy last year, or a 1.8% boost to gross domestic product, according to a study expected to be released Monday by the Rosen Consulting Group, a real-estate consultant." – Laura Kusisto, Reporter, Wall Street Journal

Homeownership rate remains below normal level

"In 2016, total spending on housing declined to 15.6% of GDP, a broad measure of goods and services produced across the U.S., compared with a 60-year average of nearly 19%. The share of spending specifically linked to new-home construction and remodeling likewise declined to 3.6% of GDP, just over half its prerecession peak in 2005.

If lenders were to ease credit standards back to their early 2000s levels, that could jump-start home purchases and construction activity, said Ken Rosen, chairman of Rosen Consulting and chairman of the Fisher Center for Real Estate and Urban Economics at the University of California, Berkeley.

"If you want to get the economy going, housing is typically the flywheel," he said." – Laura Kusisto, Reporter, Wall Street Journal

Source: https://www.wsj.com/articles/banks-retreat-from-apartment-market-1487678401; 3/10/17

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Construction Spending

Sluggish Housing Recovery Took $300 Billion Toll on U.S. Economy, Data Show

"Of course, lax lending standards was a primary culprit of the 2008 financial crisis, and Mr. Rosen isn't suggesting a return to that easy-money era. Still, housing-industry executives say the pendulum has swung too far in the other direction, to the detriment of middle-class families and economic growth.

Housing serves as an economic engine through home construction as well as ancillary activities such as appliance purchases, spending on home renovations and jobs for real-estate agents. Each new single-family housing unit built typically creates three jobs, according to the National Association of Home Builders.

The homeownership rate stood at 63.7% in the fourth quarter of 2016, according to the U.S. Census Bureau. That was down from a high of 69.2% during the housing boom and below the 65% economists say is a normal level.

Strict mortgage lending standards, younger households putting off marriage and children and a lack of inventory of homes for sale are combining to depress homeownership." – Laura Kusisto, Reporter, Wall Street Journal

Source: https://www.wsj.com/articles/banks-retreat-from-apartment-market-1487678401; 3/10/17

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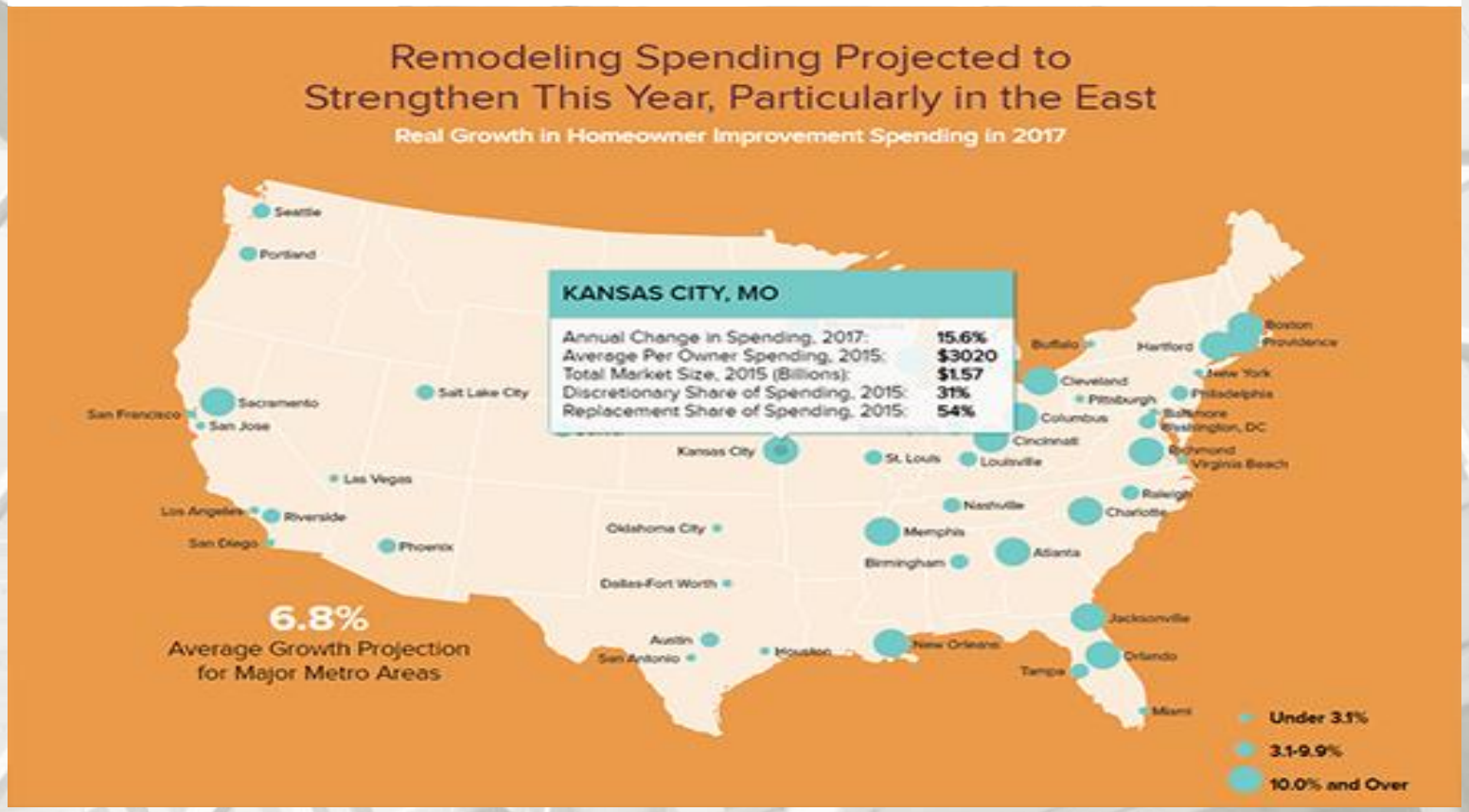
Remodeling

Remodeling Activity Projected to Grow in Most Metropolitan Areas



Source: http://housingperspectives.blogspot.com/2017/03/remodeling-activity-projected-to-grow.html; 3/15/17

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Remodeling

Remodeling Activity Projected to Grow in Most Metropolitan Areas

"Spending on home improvements is expected to increase this year in 43 of the nation's 50 largest metropolitan areas, according to our latest report about the home improvement industry, *Demographic Change and the Remodeling Outlook*. The report projects that, on average, home improvement spending in 2017 in these metro areas will be 6.8 percent higher than it was in 2016, slightly more than the projected 6.1 increase nationwide.

However, as an interactive map released in conjunction with the report shows, the growth rates will vary widely. About a third of major metro areas are expected to see strong growth of 10 percent or more, while a similar number should see declines or slow growth of under 3 percent.

…

These projections are based on two measures of housing demand — single-family starts and growth in existing home sales — that are strong leading indicators of national remodeling activity. The results broadly support our expectation that home improvement expenditures in certain high-cost markets may soon reach a cyclical peak, while spending will increase in markets where house prices are lower but are increasing steadily.

The report also finds that the national market for home improvements is somewhat more concentrated in the nation's 15 largest metropolitan areas, which account for about 29 percent of the nation's homeowners. Illustratively, according to estimates from the 2015 American Housing Survey, average per-owner improvement spending in the same 15 metro areas was $3,500, or more than 30 percent greater than average spending by homeowners outside of these areas. As a result, aggregate spending by homeowners in the same 15 areas totaled over $80 billion, or nearly 37 percent of the total spending by all owners on home improvements nationally." – Elizabeth La Jeunesse, Research Analyst, The Joint Center for Housing Studies, Harvard

Source: http://housingperspectives.blogspot.com/2017/03/remodeling-activity-projected-to-grow.html; 3/15/17

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Existing House Sales

National Association of Realtors (NAR®)

February 2017 sales: **5.480 million** (SAAR)

	Distressed House Sales*	All-Cash Sales	Individual Investor Purchases**
February	7%	27%	17%
January	10%	23%	15%
2016	10%	25%	18%

* 6% foreclosures and 1% short-sales
** 71% of investors paid cash in February

Source: NAR® https://www.nar.realtor/news-releases/2017/03/existing-home-sales-stumble-in-february; 3/22/17

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Existing House Sales

	Existing Sales*	Median Price	Mean Price	Month's Supply
February	5,480,000	$228,400	$270,100	3.5
January	5,690,000	$227,300	$269,500	3.8
2016	5,200,000	$212,100	$255,300	4.0
M/M change	-3.7%	0.5%	0.2%	8.6%
Y/Y change	5.4%	7.7%	5.8%	-11.6%

	NE Sales	MW Sales	S Sales	W Sales
February	690,000	1,200,000	2,340,000	1,250,000
January	800,000	1,290,000	2,310,000	1,290,000
2016	680,000	1,170,000	2,210,000	1,140,000
M/M change	-13.8%	-7.0%	1.3%	-3.1%
Y/Y change	1.5%	2.6%	5.9%	9.6%

* All sales data: SAAR

Source: NAR® https://www.nar.realtor/news-releases/2017/02/existing-home-sales-jump-in-February; 3/22/17

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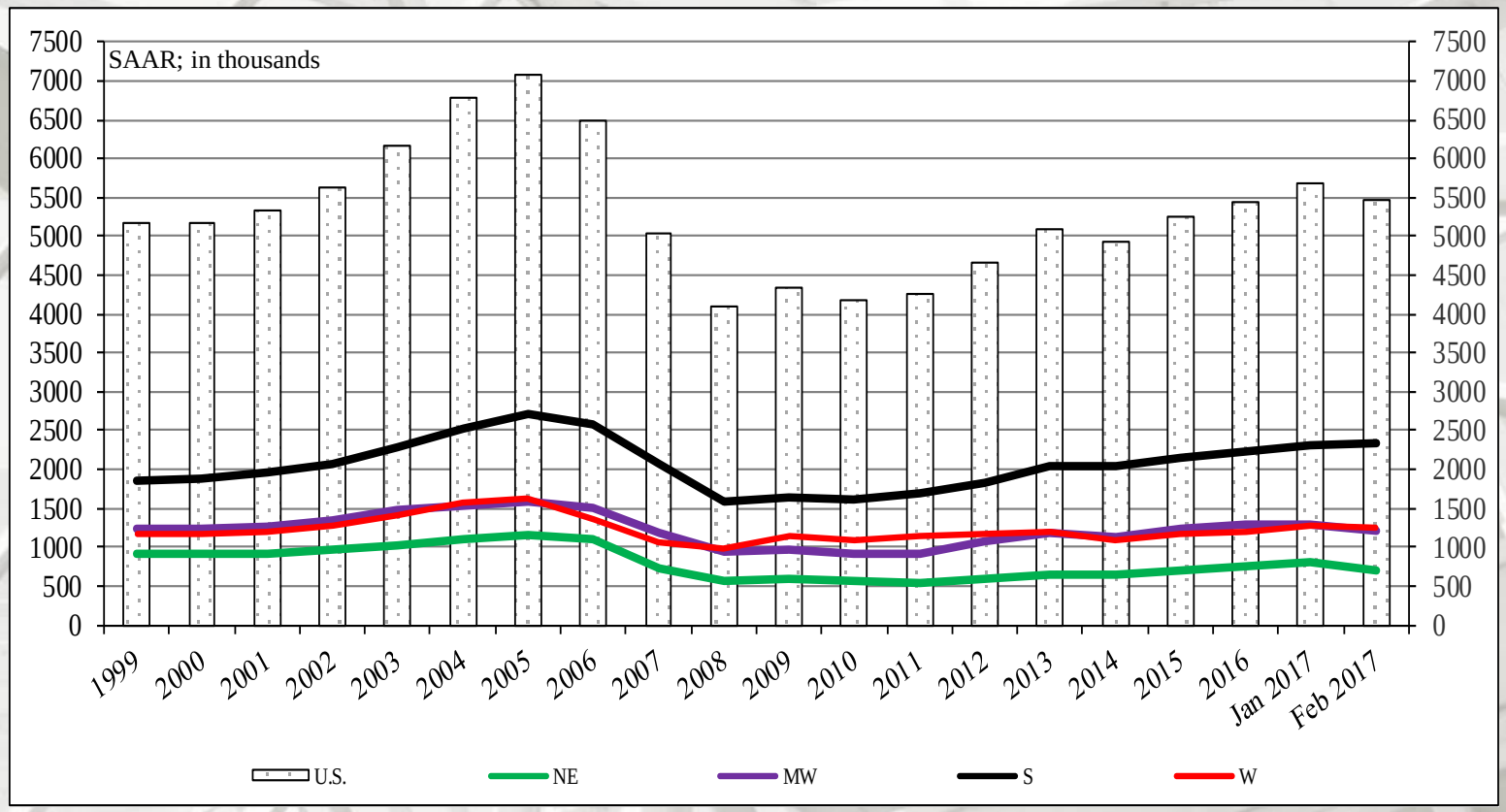
Total Existing House Sales



Source: NAR® https://www.nar.realtor/news-releases/2017/02/existing-home-sales-jump-in-February; 3/22/17

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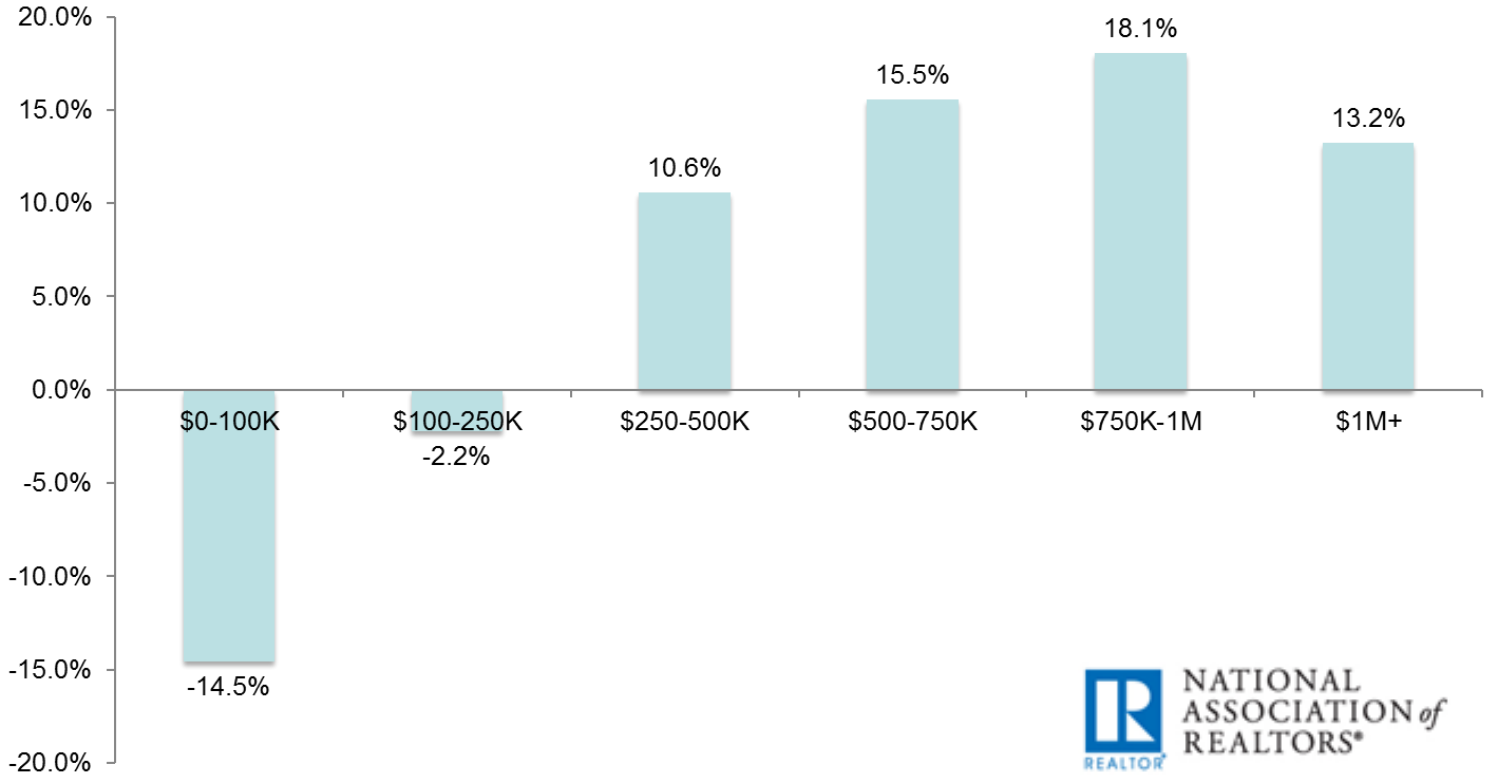
Changes in Existing House Sales

Percent Change in Sales From a Year Ago by Price Range



Source: NAR® https://www.nar.realtor/news-releases/2017/02/existing-home-sales-jump-in-February; 3/22/17

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House Sales

Lack of New Homes Helping Drive New Construction Prices to Record Highs

- "The number of new homes built each year has steadily climbed, but is still well below historical norms
- The new construction market share of single-family home sales has fallen dramatically since the housing collapse
- Buyer competitiveness for the limited supply of new homes has caused the premiums on newly built homes to reach record levels

Anemic new home construction activity in the wake of the housing bust is doing more than constricting overall inventory of homes for sale – it's also helping push up both the price of those new homes that are built and the overall age of homes that do sell.

The number of new housing starts fell off a cliff following the housing collapse, from almost 2 million completed homes in 2006 to just 600,000 by 2011 … . And while the number of new homes constructed nationwide has grown in each year since bottoming out, we are still below the historical average of about 1.5 million new homes built per year.

As a result, the total market share commanded by newly constructed homes has dwindled. Between 2005 and 2007, new construction accounted for 13 percent of single-family home sales. Today, the rate is less than half that – just 6.2 percent … . Generally, markets that experienced the biggest growth in housing construction during the boom years also experienced the biggest declines during the bust. … ." – Jamie Anderson, Data Scientist, Zillow

Source: https://www.zillow.com/research/new-construction-premiums-14485/; 3/16/17

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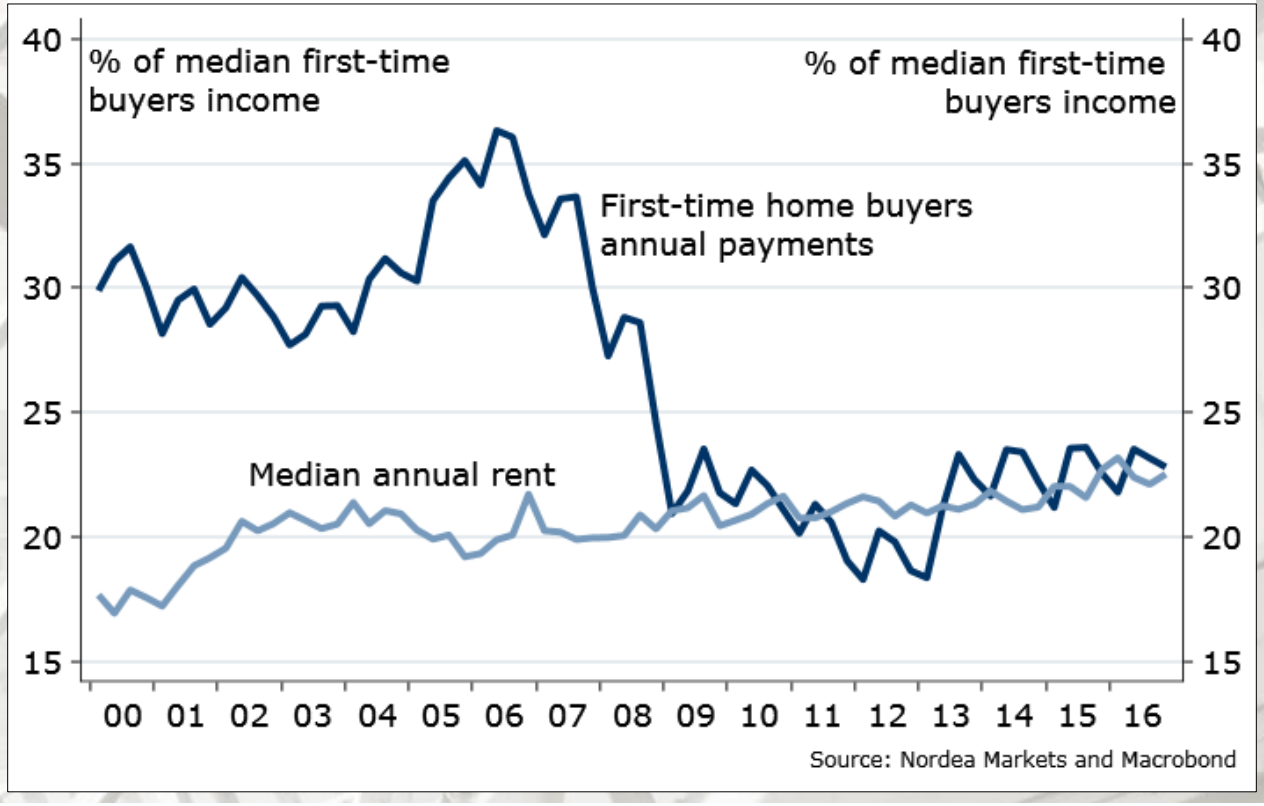
First-Time Purchasers

Percentage Share of Median Rent and Annual Payments for First-Time House Purchasers



Based on the graph above, the percentage share of rents paid and annual mortgage payments are roughly equivalent. This suggests that some renters may possibly be eligible to purchase a house.

Source: https://twitter.com/jbjakobsen; 3/28/17

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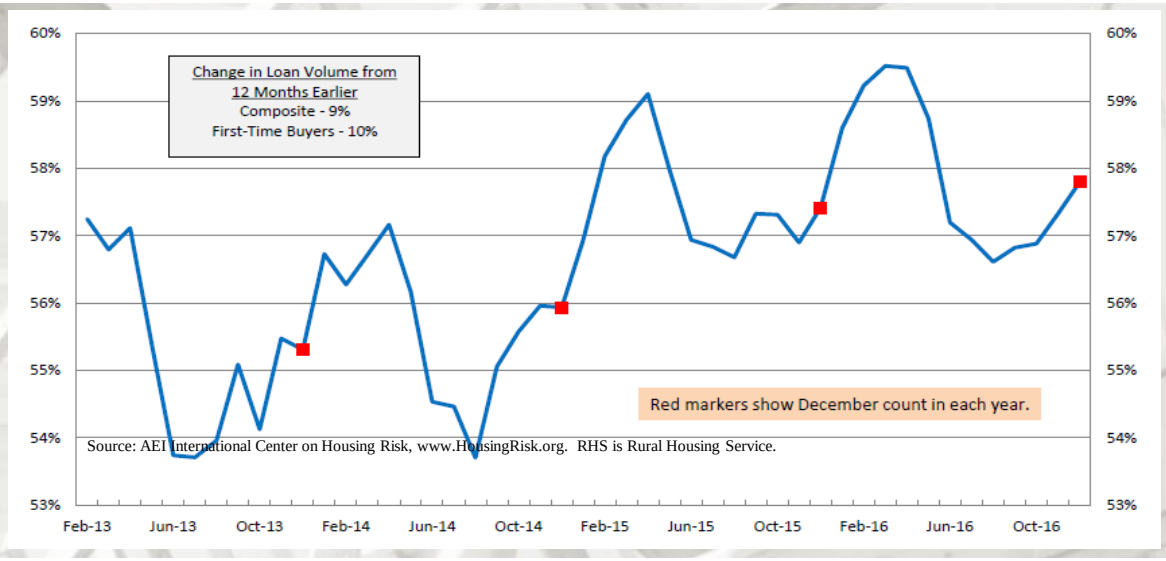
First-Time Purchasers

National Association of Realtors (NAR®)

32% of sales in February 2017 – 33% in January 2016 and 35% in February 2016.

American Enterprise Institute
International Center on Housing Risk



"The Agency First Time Buyer Mortgage Share Index continued to climb in December as first -time buyer volume (by count) surged 10 percent. The index stood at 57.8% in December, up from 57.4% a year ago." – Tobias Peter, Senior Research Analyst, AEI's International Center on Housing Risk

Sources: https://www.nar.realtor/news-releases/2017/03/existing-home-sales-stumble-in-february, 3/22/17; http://www.housingrisk.org/, 3/27/17

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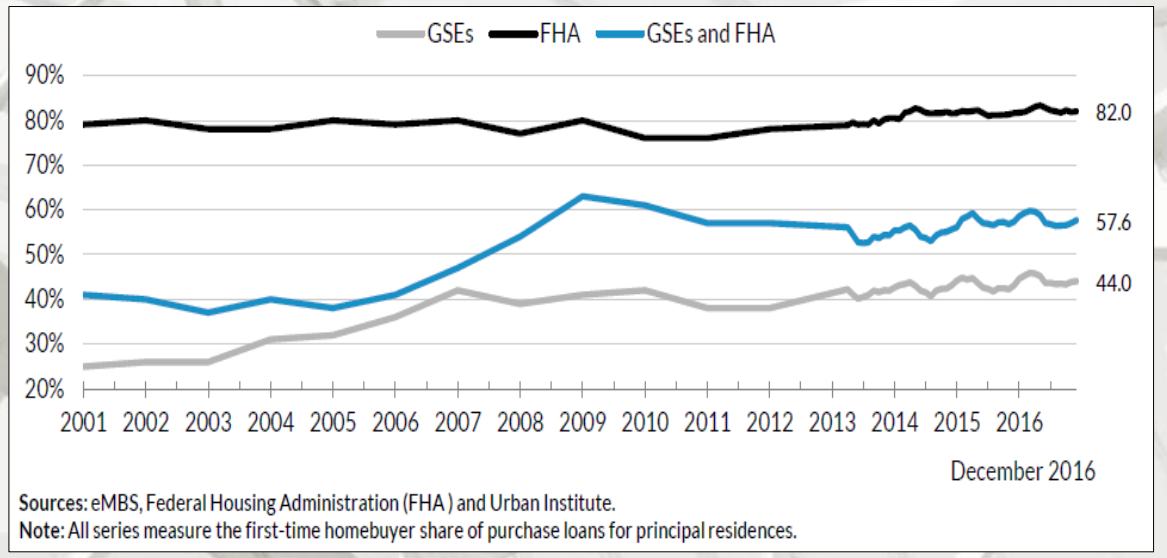
First-Time Purchasers



Sources: eMBS, Federal Housing Administration (FHA) and Urban Institute.
Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

Urban Institute

"In December 2016, the first-time homebuyer share of GSE purchase loans remained stable at 44.0 percent. The FHA has always been more focused on first-time homebuyers, with its first-time homebuyer share hovering around 80 percent and now stood at 82.0 percent in December 2016, down from the peak of 83.3 percent in May 2016. The bottom table shows that based on mortgages originated in December 2016, 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

Source: http://www.urban.org/sites/default/files/publication/89056/march_chartbook_final.pdf; 3/22/17

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Housing Affordability

One in Four U.S. Housing Markets Less Affordable Than Historic Affordability Averages in First Quarter of 2017

"ATTOM Data Solutions, curator of the nation's largest fused property database, today released its Q1 2017 U.S. Home Affordability Index, which shows that one in every four county housing markets analyzed for the report were less affordable than their historic affordability averages in the first quarter of 2017.

A total of 95 counties out of 379 counties analyzed for the report (25 percent) posted an affordability index below 100 in Q1 2017 — the highest share of markets below the normal affordability index of 100 since Q4 2009. An affordability index below 100 means that the share of averages wages needed to buy a median-priced home is above the historic average for a given market … .

Nationally the affordability index in the first quarter of 2017 was 103, down from 108 in the previous quarter and down from 119 a year ago to the lowest level since Q4 2008 — a more than eight-year low. The index of 103 translates to 33.6 percent of average weekly wages needed to buy a median-priced home nationwide, below the historic average of 34.6 percent but the highest share of wages needed since Q4 2008.

Home affordability continued to worsen in the first quarter, not surprising given the continued strong growth in home prices combined with the recent rise in mortgage rates. Stronger wage growth is the silver lining in this report, outpacing home price growth in more than half of the markets for the first time since Q1 2012, when median home prices were still falling nationwide. If that pattern continues, it will help turn the tide in the eroding home affordability trend." – Daren Blomquist, Senior Vice President, ATTOM Data Solutions

Source: http://www.realtytrac.com/news/home-prices-and-sales/home-affordability-index-q1-2017; 3/28/17

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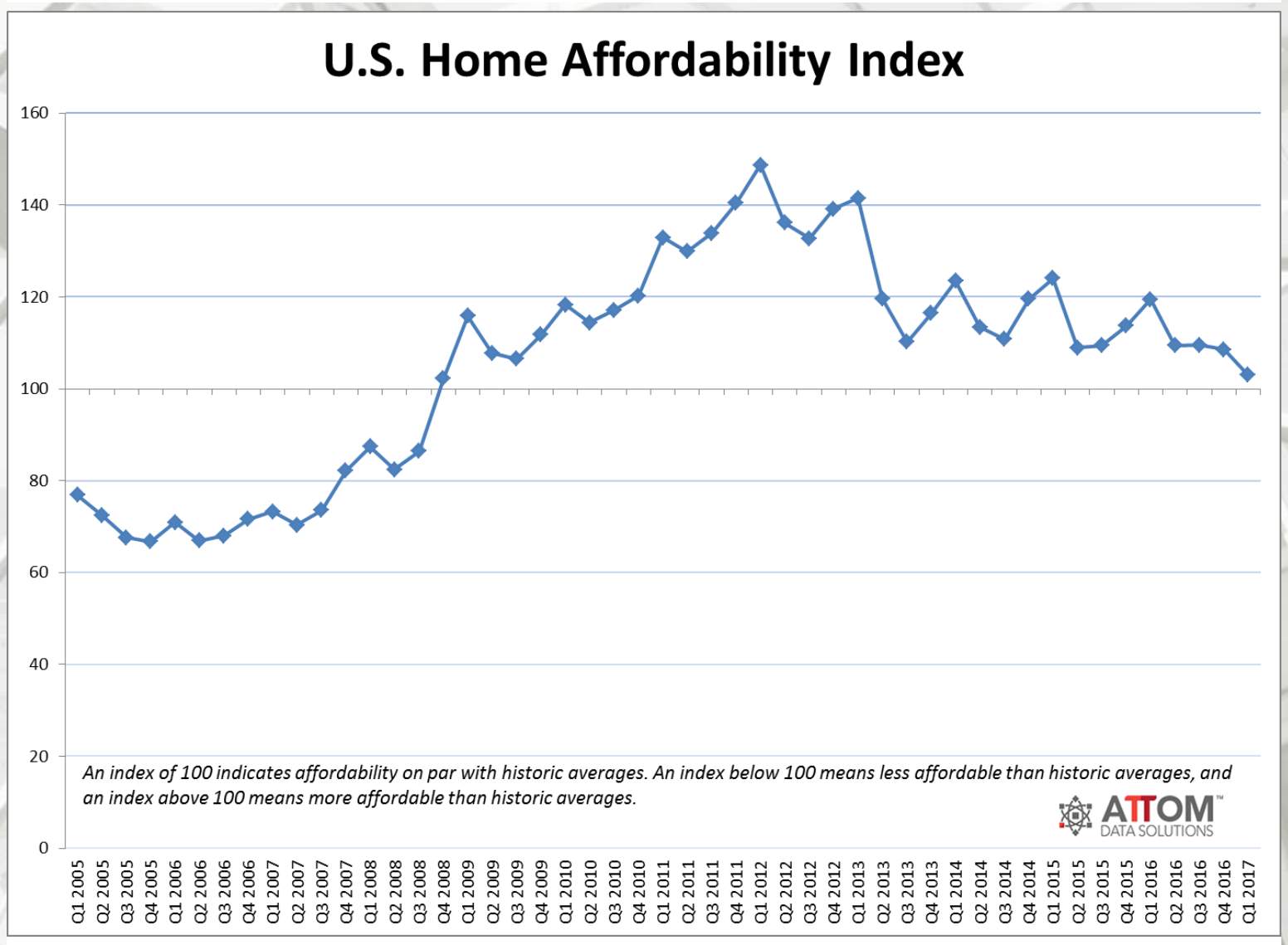
Housing Affordability



Source: http://www.realtytrac.com/news/home-prices-and-sales/home-affordability-index-q1-2017; 3/28/17

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Housing Affordability

How Affordability Affects Housing's Spring Season
On homebuyer affordability and home sales

"Recent indications of stronger growth convinced the Federal Reserve to raise the Federal funds rate this month and to signal further increases later this year. These Fed actions are unlikely to derail the moderate improvements in growth and employment, but rising interest rates will reduce mortgage originations and put a cap on home sales in 2017.

Rising mortgage rates will reduce affordability in 2017. Standard measures of affordability are composed of three ingredients: home prices, interest rates and income. Increased home prices and mortgage rates will decrease affordability and projected income growth will not keep pace.

Since January 2000, home prices have risen a bit faster than incomes (Exhibit 1), though recently home price growth has outpaced income growth by a wider margin. From January 2000 to December 2016, home prices, as measured by the FHFA purchase-only house price index, increased 76 percent, while over that time per capita disposable income increased 72 percent.

But house prices have accelerated in recent years while per capita disposable income growth has been more stable. For example, in 2016, house prices rose 6.2 percent while per capita disposable income increased 3.4 percent.

…

With home prices outpacing incomes and interest rates headed higher, affordability has declined, putting the pinch on prospective homebuyers. As we get into the spring selling season, we expect affordability to start to bite in many markets pushing some prospective buyers to the sidelines and contributing to a modest decline in total home sales in 2017 relative to 2016." – Economic & Housing Research Group, Freddie Mac

Source: http://www.freddiemac.com/finance/report/20170327_affordability_housing_spring_season.html; 3/27/17

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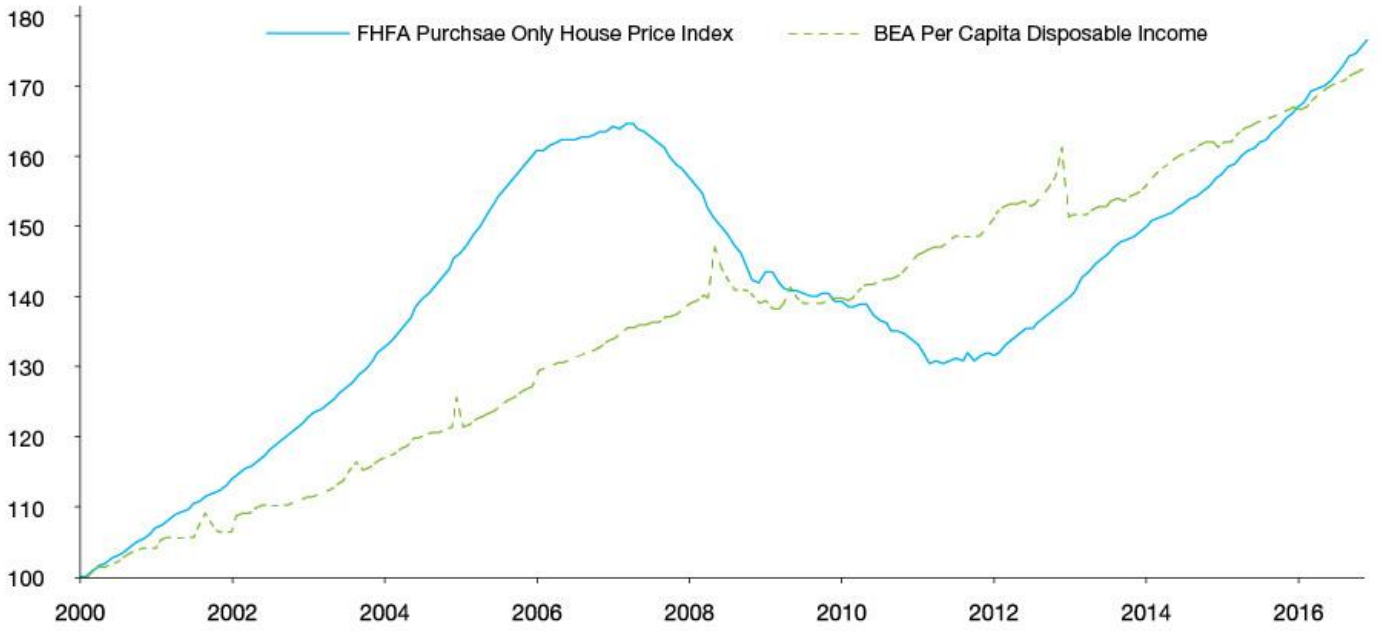
Housing Affordability

Exhibit 1

Since 2000, house prices have risen 76%, per capita disposable income by 72%



Source: http://www.freddiemac.com/finance/report/20170327_affordability_housing_spring_season.html; 3/27/17

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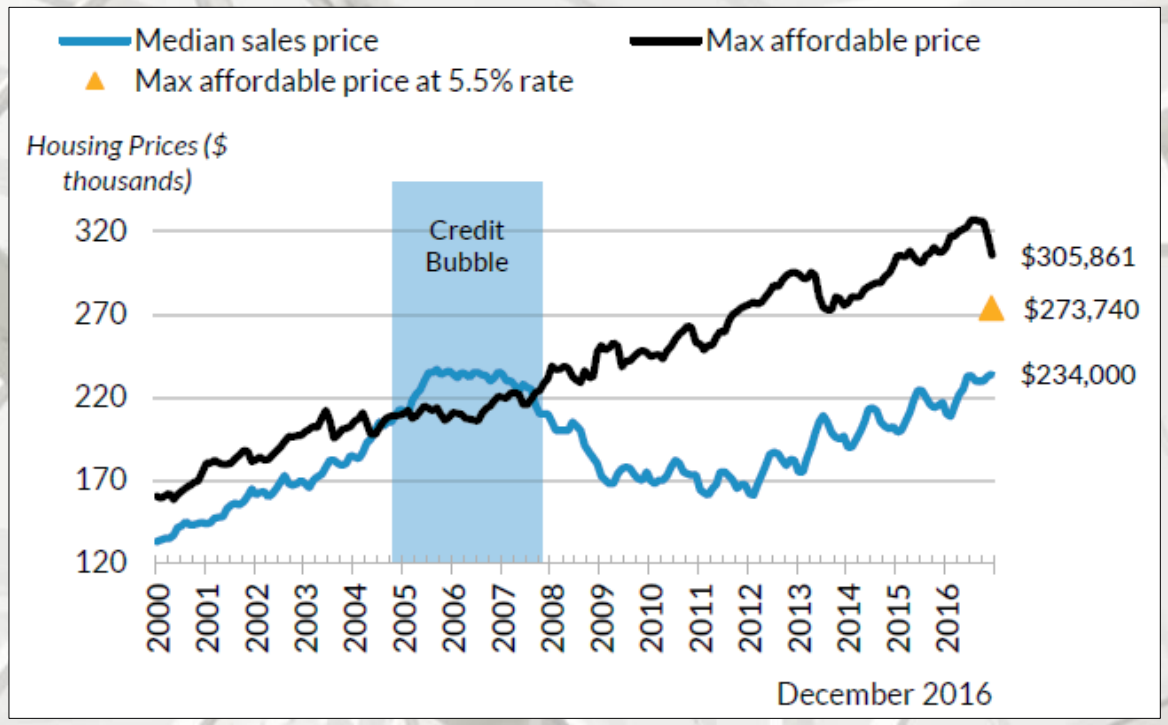
Housing Affordability



National Housing Affordability Over Time

"Home prices are still very affordable by historic standards, despite increases over the last four years. Even if interest rates rise to 5.5 percent, affordability would still be at the long term historical average. The bottom chart shows that some areas are much more affordable than others." – Laurie Goodman, et al., Co-director, Housing Finance Policy Center, Urban Institute

Source: http://www.urban.org/sites/default/files/publication/89056/march_chartbook_final.pdf; 3/22/17

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Summary

In summary:

February's housing data were positive and mixed – typical for this time of year. Overall all data sectors were positive Y/Y, except for completions. Existing sales declined nominally; new SF sales improved; yet, the new SF lower-price tier categories faltered once again. It bears repeating, the market needs consistent improvement in these categories to drive the housing construction market upward.

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

Pros:

1) Historically low interest rates are still in effect, though incrementally rising;
2) As a result, housing affordability is good for most of – 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) Changing attitudes towards SF ownership
3) Gentrification;
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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