

Housing Report & Economic Situation: Analysis of Current and Forecasted Demand for North America & Europe

TIMBER MEASUREMENT SOCIETY

Central Meeting

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Portland, Oregon

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The background of the slide is a photograph of a large pile of cut logs, likely for firewood, stacked in a neat fashion. The logs are of various sizes and are covered in a layer of moss and small plants, suggesting they have been outdoors for some time. The lighting is bright, creating strong shadows and highlights on the wood.

Current and Forecasted Demand for North America & European Housing

Overview

Economies

Housing Markets

Euro area

Canada

United States

Conclusions

Economies

World Bank

Global Outlook

Global Economic Prospects, January 2017:

Weak Investment in Uncertain Times

“Stagnant global trade, subdued investment, and heightened policy uncertainty marked another difficult year for the world economy. Global growth in 2016 is estimated at a post-crisis low of 2.3 percent and is projected to rise to 2.7 percent in 2017. Growth in emerging market and developing economies (EMDEs) is expected to pick up in 2017, reflecting receding obstacles to activity in commodity exporters and continued solid domestic demand in commodity importers. Weak investment and productivity growth are, however, weighing on medium-term prospects across many EMDEs. Downside risks to global growth include increasing policy uncertainty in major advanced economies and some EMDEs, financial market disruptions, and weakening potential growth.”
– World Bank

Economies

TABLE 1.1 Real GDP¹
(percent change from previous year)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Estimates					Projections				
	Percentage point differences from June 2016 projections									
World	2.7	2.7	2.3	2.7	2.9	2.9	0.3	-0.1	-0.1	-0.1
Advanced economies	1.8	2.1	1.8	1.8	1.8	1.7	0.3	-0.1	-0.1	-0.1
United States	2.4	2.6	1.6	2.2	2.1	1.9	0.2	-0.3	0.0	0.0
Euro Area	1.2	2.0	1.6	1.5	1.4	1.4	0.4	0.0	-0.1	-0.1
Japan	0.3	1.2	1.0	0.9	0.8	0.4	0.6	0.5	0.4	0.1
Emerging and developing economies (EMDEs)	4.3	3.9	3.4	4.2	4.6	4.7	0.1	-0.1	-0.1	0.0
Commodity exporting EMDEs	2.1	0.4	0.3	2.3	3.0	3.1	0.2	-0.1	0.0	0.0
Other EMDEs	6.0	6.0	5.6	5.4	5.7	5.8	0.1	-0.2	-0.2	-0.1
Other EMDEs excluding China	4.5	5.0	4.3	4.6	5.0	5.1	0.3	-0.4	-0.3	-0.1
East Asia and Pacific	6.7	6.5	6.3	6.2	6.1	6.1	0.0	0.0	0.0	0.0
China	7.3	6.8	6.7	6.5	6.3	6.3	0.0	0.0	0.0	0.0
Indonesia	5.0	4.8	5.1	5.3	5.5	5.5	0.0	0.0	0.0	0.0
Thailand	0.8	2.8	3.1	3.2	3.3	3.4	0.0	0.6	0.5	0.3
Europe and Central Asia	2.3	0.5	1.2	2.4	2.8	2.9	0.6	0.0	-0.1	0.0
Russia	0.7	-3.7	-0.6	1.5	1.7	1.8	0.0	0.6	0.1	-0.1
Turkey	5.2	6.1	2.9	3.0	3.5	3.7	2.1	-1.0	-0.5	-0.1
Poland	3.3	3.9	2.5	3.1	3.3	3.4	0.3	-1.2	-0.4	-0.2
Latin America and the Caribbean	0.9	-0.6	-1.4	1.2	2.3	2.6	0.1	-0.1	0.0	0.2
Brazil	0.5	-3.8	-3.4	0.5	1.8	2.2	0.0	0.6	0.7	1.0
Mexico	2.3	2.6	2.0	1.8	2.5	2.8	0.1	-0.5	-1.0	-0.5
Argentina	-2.6	2.5	-2.3	2.7	3.2	3.2	0.4	-1.8	-0.4	0.2
Middle East and North Africa	3.3	3.2	2.7	3.1	3.3	3.4	0.4	-0.1	0.0	-0.1
Saudi Arabia	3.6	3.5	1.0	1.5	2.5	2.6	0.1	-0.9	-0.4	0.2
Iran, Islamic Rep.	4.3	1.7	4.6	5.2	4.8	4.9	0.1	0.2	0.3	0.1
Egypt, Arab Rep. ¹	2.9	4.4	4.3	4.0	4.7	5.4	0.2	1.0	0.2	0.1
South Asia	6.7	6.8	6.8	7.1	7.3	7.4	-0.2	-0.3	-0.1	0.0
India ²	7.2	7.4	7.0	7.4	7.8	7.9	0.0	-0.4	-0.1	0.1
Pakistan ³	4.0	4.0	4.7	5.2	5.5	5.8	0.0	0.5	0.7	0.7
Bangladesh ⁴	6.1	6.6	7.1	6.8	6.9	6.7	0.5	0.6	0.5	-0.3
Sub-Saharan Africa	4.7	3.1	1.5	2.9	3.6	3.7	0.1	-1.0	-1.0	-0.7
South Africa	1.6	1.3	0.4	1.1	1.8	1.8	0.0	-0.2	0.0	-0.2
Nigeria	6.3	2.7	-1.7	1.0	2.5	2.5	0.0	-2.5	-2.9	-1.3
Angola	5.4	3.0	0.4	1.2	0.9	0.9	0.2	-0.9	-1.9	-2.5
Memorandum items:										
Real GDP ⁵										
High-income countries	1.9	2.2	1.6	1.8	1.8	1.7	0.3	-0.1	-0.1	-0.1
Developing countries	4.4	3.6	3.5	4.4	4.8	4.9	0.1	-0.1	-0.1	0.0
Low-income countries	6.2	4.8	4.7	5.6	6.0	6.1	0.0	-0.4	-0.7	-0.6
BRICS	5.1	3.8	4.3	5.1	5.4	5.5	0.0	0.1	0.0	0.1
World (2010 PPP weights)	3.5	3.3	3.0	3.5	3.7	3.7	0.2	-0.1	-0.1	0.0
World trade volume ⁶	3.7	2.8	2.5	3.6	4.0	3.9	0.0	-0.5	-0.3	-0.2
Commodity prices										
Oil price ⁷	-7.5	-47.3	-15.1	29.2	8.4	4.6	0.0	4.1	6.3	1.8
Non-energy commodity price index	-4.8	-15.0	-2.6	1.4	2.2	2.1	0.0	2.5	-0.9	-0.1

Global Outlook Subdued Growth, Shifting Policies, Heightened Uncertainty

“Global growth in 2016 is estimated at a post-crisis low of 2.3 percent and is projected to rise to 2.7 percent in 2017. Growth in emerging market and developing economies (EMDEs) is expected to pick up in 2017, reflecting receding obstacles to activity in commodity exporters and continued solid domestic demand in commodity importers.

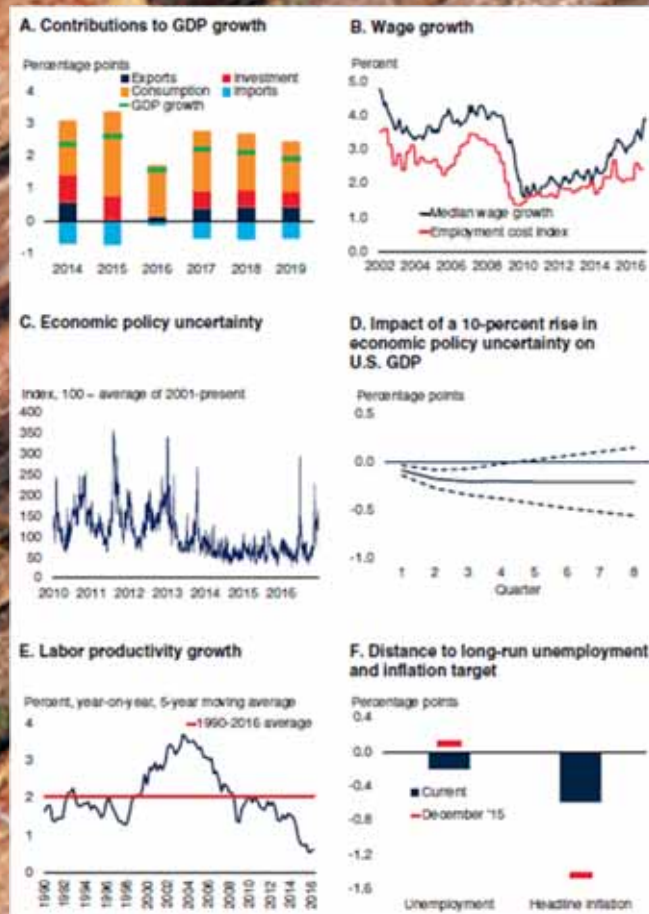
Advanced-economy growth is expected to recover somewhat, to an average pace of **1.8 percent** throughout the forecast period. In the **United States**, manufacturing activity is expected to rebound, contributing to a modest pickup in growth from 1.6 percent in 2016 to an average of 2.2 percent in 2017-18.” – World Bank

Economies

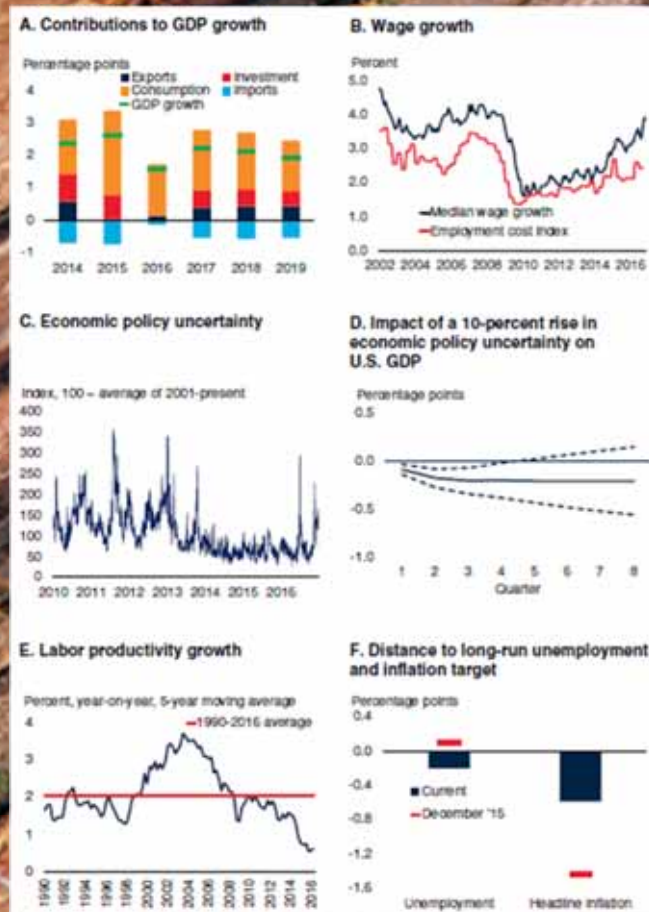
Global Outlook: U.S. Subdued Growth, Shifting Policies, Heightened Uncertainty

“Growth in the United States slowed markedly, **from 2.6 percent in 2015 to an estimated 1.6 percent in 2016**, 0.3 percentage point below previous projections. The U.S. economy was held back in 2016 by soft exports, a continued drawdown in inventories, and a deceleration in private investment (Figure 1.4). In the run-up to the U.S. elections in November, activity had picked up again, and a further tightening of labor markets had led to slowly rising wage growth.

However, the U.S. labor market remained resilient and wage growth accelerated. Policy uncertainty has increased substantially following the elections; if it persists, it could have potential knock-on effects on investment. Baseline forecasts do not incorporate the effects of policy proposals by the new administration, as their scope is still uncertain. Productivity has been stagnant in recent years, constraining potential output growth. Despite generally subdued activity, unemployment and inflation continued to move closer to policy objectives, signaling further policy normalization.” – World Bank



Economies



Global Outlook: Euro area Subdued Growth, Shifting Policies, Heightened Uncertainty

“Euro Area growth slowed from 2 percent in 2015 to 1.6 percent in 2016, as both domestic demand and exports lost momentum. Confidence in the Euro Area has been resilient following the United Kingdom’s vote to exit the European Union (EU) in June 2016 (Figure 1.5).

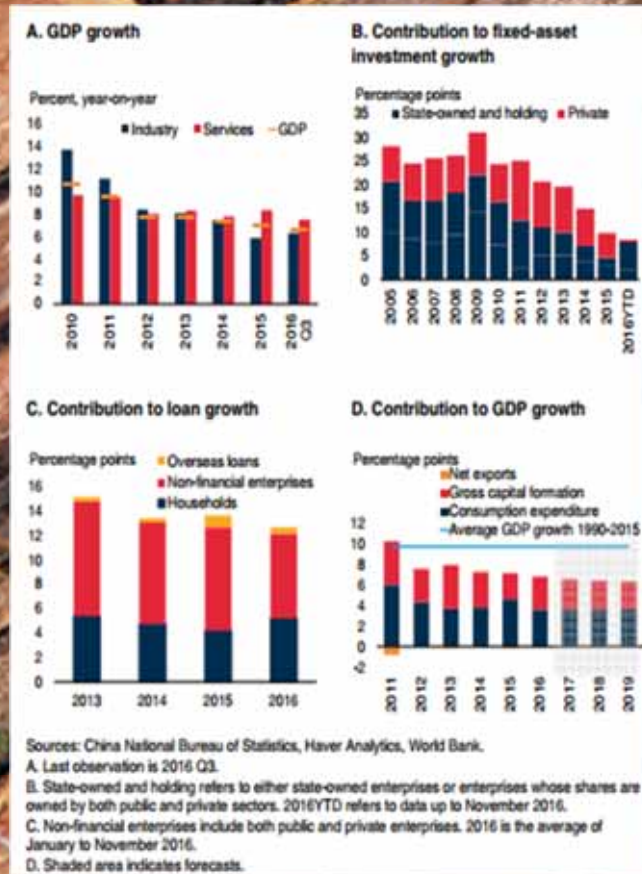
Growth in the Euro Area in 2017 is projected to slow marginally to 1.5 percent, as the unwinding of the income boost associated with lower oil prices, increased policy uncertainties, and lingering banking sector concerns offset the benefit of more favorable financial conditions. Growth is expected to remain broadly stable in 2018 and 2019, at 1.4 percent, leading to a very gradual narrowing of the output gap.” – World Bank

Economies

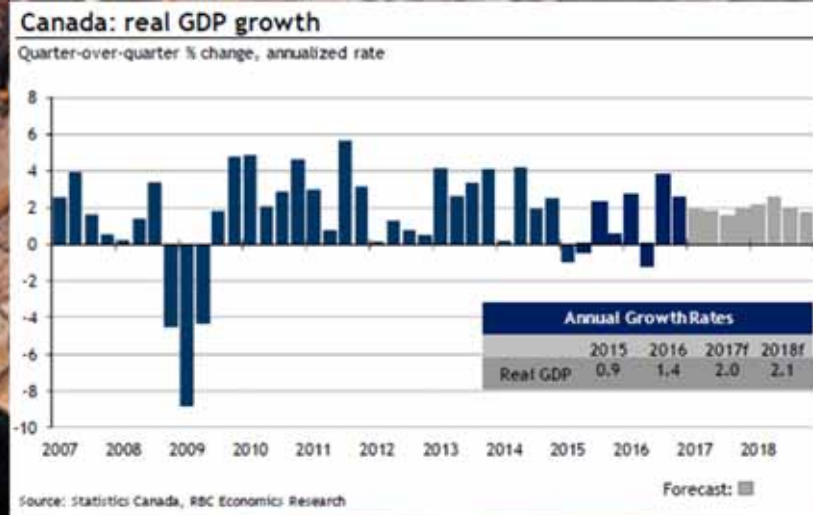
Global Outlook: China Subdued Growth, Shifting Policies, Heightened Uncertainty

“Growth in China is estimated to have slightly decelerated to 6.7 percent in 2016. As part of ongoing economic rebalancing, growth has been concentrated primarily in services, while industrial production has stabilized at moderate levels (Figure 1.7; Zhang 2016). The internal rebalancing is also evident on the demand side: consumption growth has been strong, while investment growth has continued to moderate from the post-crisis peak (Lardy and Huang 2016). The decline in investment growth was concentrated in the private sector; investment by the non-private sector accelerated in 2016. Fiscal and credit-based stimulus measures supported growth in 2016, focusing on infrastructure investment and on efforts to stimulate household credit.

Growth is projected to moderate to 6.5 percent in 2017 and to 6.3 percent in 2018-19, reflecting soft external demand, heightened uncertainty about global trade prospects, and, critically, slower private investment.” – World Bank



Economies



Royal Bank of Canada Economic And Financial Market Outlook

“Canada’s economy is starting the year on firm footing, and we expect real GDP to expand by 2.0% in 2017 and a slightly firmer 2.1% in 2018. After struggling for two years, the economy began to rebound in mid-2016 after the Fort McMurray fire-related decline in the second quarter. Importantly, the momentum continued in the fourth quarter and early data for this year showed strength in employment, housing starts and business sentiment.

A slowing in global activity and shift in the drivers of demand for Canadian exports yielded a subpar increase in sales abroad in 2016. Our analysis points to three main reasons: the currency’s performance relative to those of other countries competing for US demand; the lack of demand from US businesses for industrial goods, and weaker demand for US finished products which reduced the need for Canadian inputs.

In 2017, a pickup in US business investment and modestly firmer U.S. export growth are likely to lift Canadian exports, although the rise will be limited by historical standards.” - Craig Wright, Chief Economist, Dawn Desjardins, Deputy Chief Economist, Paul Ferley, Assistant Chief Economist, Nathan Janzen, Senior Economist

Source: http://www.rbc.com/economics/economic-reports/pdf/quarterly-economic-update/fest_mar2017.pdf

Economies

The international environment

(annual percentage changes)

	March 2017				December 2016			
	2016	2017	2018	2019	2016	2017	2018	2019
World (excluding euro area) real GDP	3.1	3.5	3.8	3.8	3.0	3.5	3.7	3.8
Global (excluding euro area) trade ¹⁾	1.2	3.4	3.7	3.8	0.9	2.8	3.7	3.8
Euro area foreign demand ²⁾	1.6	2.8	3.4	3.5	1.5	2.4	3.4	3.6

1) Calculated as a weighted average of imports.

2) Calculated as a weighted average of imports of euro area trade partners.

European Central Bank

ECB staff macroeconomic projections for the euro area

“Short-term indicators suggest continued robust growth in the near term. Real GDP rose by 0.4% in the fourth quarter of 2016. The recovery is becoming more broad-based, both across sectors and across countries within the euro area. **Over the projection horizon, real GDP is expected to grow by 1.8% in 2017, by 1.7% in 2018 and by 1.6% in 2019.** Domestic demand has been the mainstay of the recovery since mid-2013, including robust private consumption and a positive contribution from investment. A number of favourable factors are expected to continue to support domestic demand over the projection horizon, underpinned by the ECB’s very accommodative monetary policy stance.” - © European Central Bank, 2017

Economies

Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, March 2017

Advance release of table 1 of the Summary of Economic Projections to be released with the FOMC minutes

Percent

Variable	Median ¹				Central tendency ²				Range ³			
	2017	2018	2019	Longer run	2017	2018	2019	Longer run	2017	2018	2019	Longer run
Change in real GDP	2.1	2.1	1.9	1.8	2.0-2.2	1.8-2.3	1.8-2.0	1.8-2.0	1.7-2.3	1.7-2.4	1.5-2.2	1.6-2.2
December projection	2.1	2.0	1.9	1.8	1.9-2.3	1.8-2.2	1.8-2.0	1.8-2.0	1.7-2.4	1.7-2.3	1.5-2.2	1.6-2.2
Unemployment rate	4.5	4.5	4.5	4.7	4.5-4.6	4.3-4.6	4.3-4.7	4.7-5.0	4.4-4.7	4.2-4.7	4.1-4.8	4.5-5.0
December projection	4.5	4.5	4.5	4.8	4.5-4.6	4.3-4.7	4.3-4.8	4.7-5.0	4.4-4.7	4.2-4.7	4.1-4.8	4.5-5.0
PCE inflation	1.9	2.0	2.0	2.0	1.8-2.0	1.9-2.0	2.0-2.1	2.0	1.7-2.1	1.8-2.1	1.8-2.2	2.0
December projection	1.9	2.0	2.0	2.0	1.7-2.0	1.9-2.0	2.0-2.1	2.0	1.7-2.0	1.8-2.2	1.8-2.2	2.0
Core PCE inflation ⁴	1.9	2.0	2.0		1.8-1.9	1.9-2.0	2.0-2.1		1.7-2.0	1.8-2.1	1.8-2.2	
December projection	1.8	2.0	2.0		1.8-1.9	1.9-2.0	2.0		1.7-2.0	1.8-2.2	1.8-2.2	
Memo: Projected appropriate policy path												
Federal funds rate	1.4	2.1	3.0	3.0	1.4-1.6	2.1-2.9	2.6-3.3	2.8-3.0	0.9-2.1	0.9-3.4	0.9-3.9	2.5-3.8
December projection	1.4	2.1	2.9	3.0	1.1-1.6	1.9-2.6	2.4-3.3	2.8-3.0	0.9-2.1	0.9-3.4	0.9-3.9	2.5-3.8

Euro Area Housing

TABLE 11.2.1
Top five Euroconstruct region countries for new construction
and remodelling expenditure, 2015-2018
(€ billion)

Country	2015	2016e	2017f	2018f
<i>New construction</i>				
Germany	49.6	53.3	55.7	56.5
France	43.7	48.8	51.9	54.6
UK	42.2	43.2	44.5	44.1
Spain	18.8	20.7	21.8	22.6
Italy	19.2	19.4	18.8	18.1
<i>Remodelling</i>				
Germany	114.5	114.5	114.5	114.5
France	64.9	65.7	66.1	66.7
UK	53.6	54.7	55.5	55.3
Spain	38.7	39.8	40.4	39.6
Italy	14.1	14.5	15.1	15.5

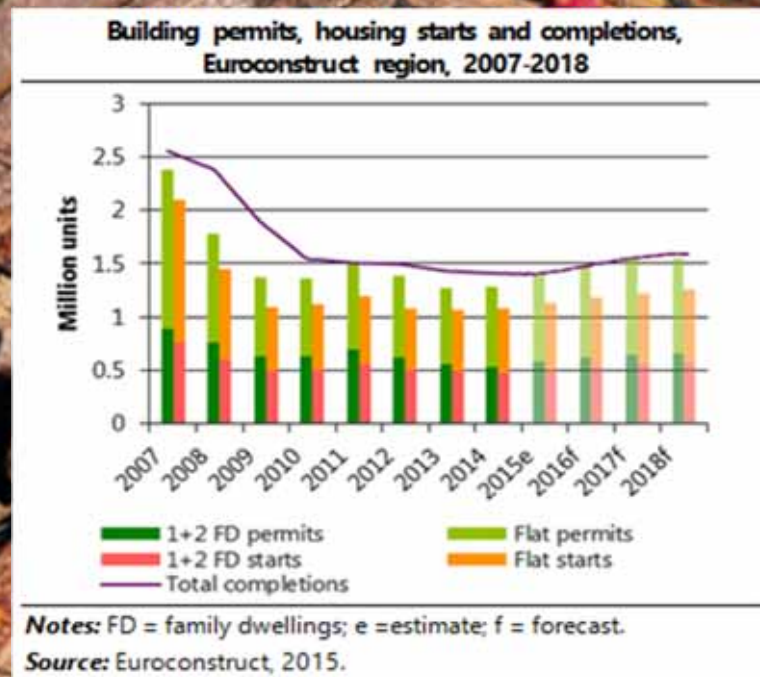
Notes: e = estimate; f = forecast.
Source: Euroconstruct, 2015.

European construction market Review and Outlook: Remodelling

“On a monetary basis, remodelling is the largest component of Euro area residential construction (about 60%). The top five country projections for new construction and remodelling in 2016 are presented in table 11.2.1. Germany ranked first in both remodelling and starts (Euroconstruct, 2015).”

Source: <http://www.unece.org/forests/fpamr2016.html>

Euro Area Housing



European construction market

Review and Outlook: New Construction

“The projected number of new housing permits and starts in 2016 is 1.48 million and 1.19 million units, respectively – nearly the same quantities as in 2011. Nearly 655,600 flats and 528,500 single and multi-unit structures (1 + 2 family dwellings) starts are forecast for 2016. Moreover, 661,600 1 + 2 dwellings and 812,100 flats are projected to be completed in 2016 (Euroconstruct, 2015).”

Euro Area Housing

TABLE 11.2.4

Residential new construction and remodelling spending
forecast for the Euroconstruct region, 2016-2018

(billion €)

Year	New construction	Remodelling	Total residential
2016	269,538	375,132	644,669
2017	280,460	379,332	659,792
2018	287,853	382,227	670,080

Notes: In 2014 prices. Data published in December 2015.

Source: Euroconstruct, 2015.

European construction market

Review and Outlook: Construction Spending

“Residential remodelling is forecast to remain the principal construction activity in the Euro area, increasing from €375.1 billion (\$419.5 billion) in 2016 to €382.2 billion (\$427.5 billion) in 2018. Housing renovation forecasts are all positive: an 1.1% increase in 2017 and a 1.9% increase in 2018. Historically, home renovation projects have been supported by government programs. Total residential construction (new residential plus residential renovation) in 2016 is forecast to attain a value of €644.7 billion (\$721.0 billion) and increasing to €670.1 billion (\$749.3 billion) by 2018 (table 11.2.4) (Euroconstruct, 2015).”

Source: <http://www.unece.org/forests/fpamr2016.html>

Canadian Housing



CMHC's Housing Market Assessment

Housing Starts

“Over the forecast horizon, housing starts are expected to be in a slightly lower range than in 2015, at between 185,100 to 192,900 units in 2016, and from 174,500 to 184,300 units in 2017, before stabilizing in 2018 at between 172,700 and 183,100 units.

Resales

Multiple Listing Service® (MLS®) sales are expected to increase from their 2015 levels, ranging from 517,000 units to 533,400 units in 2016. Resales should decline to levels warranted by demographic fundamentals in 2017 and 2018, with respective ranges of 489,500 to 509,700 units and 488,100 to 511,100 units.” - CMHC Canada

Canadian Housing



RBC ECONOMICS | RESEARCH

HOME RESALE AND PRICE FORECAST

January 2017

Home resales forecast (units)												
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017f	2018f
Canada*	517,700	429,000	457,700	438,300	455,900	451,800	454,800	478,400	504,200	536,100	477,700	455,500
	7.9	-17.1	6.7	-4.2	4.0	-0.9	0.7	5.2	5.4	6.3	-10.9	-4.6
British Columbia	102,800	68,900	85,000	74,600	76,700	67,600	72,900	84,000	102,500	112,200	85,800	77,700
	6.3	-33.0	23.4	-12.2	2.8	-11.9	7.8	15.2	22.0	9.5	-23.5	-9.4
Alberta	71,000	56,000	57,500	49,700	53,800	60,400	66,100	71,800	56,500	52,200	50,100	52,200
	-4.1	-21.1	2.7	-13.6	8.2	12.3	9.4	8.6	-21.3	-7.6	-4.0	4.2
Saskatchewan	12,500	10,400	11,100	10,900	13,100	13,800	13,500	13,700	12,200	11,700	10,600	11,000
	31.6	-16.8	6.7	-1.8	20.2	5.3	-2.2	1.5	-10.9	-4.1	-9.4	3.8
Manitoba	13,900	13,400	13,100	13,100	13,900	13,900	13,700	13,800	14,000	14,600	14,000	13,700
	6.9	-3.6	-2.2	0.0	6.1	0.0	-1.4	0.7	1.4	4.3	-4.1	-2.1
Ontario	210,200	178,600	188,600	187,100	198,000	195,300	195,800	203,300	222,500	243,400	219,600	207,800
	9.4	-15.0	5.6	-0.8	5.8	-1.4	0.3	3.8	9.4	9.4	-9.8	-5.4
Quebec	80,600	76,800	79,100	80,000	77,200	77,400	71,200	70,600	74,100	78,200	75,500	72,300
	12.6	-4.7	3.0	1.1	-3.5	0.3	-8.0	-0.8	5.0	5.5	-3.5	-4.2
New Brunswick	8,200	7,600	7,000	6,700	6,600	6,400	6,300	6,300	6,700	7,200	6,800	6,500
	15.5	-7.3	-7.9	-4.3	-1.5	-3.0	-1.6	0.0	6.3	7.5	-5.6	-4.4
Nova Scotia	11,700	10,700	9,900	10,000	10,300	10,400	9,100	8,900	9,200	9,900	9,400	8,800
	10.4	-8.5	-7.5	1.0	3.0	1.0	-12.5	-2.2	3.4	7.6	-5.1	-6.4
Prince Edward Island	1,800	1,500	1,400	1,500	1,500	1,500	1,400	1,400	1,700	2,000	1,700	1,600
	20.0	-16.7	-6.7	7.1	0.0	0.0	-6.7	0.0	21.4	17.6	-15.0	-5.9
Newfoundland & Labrador	4,500	4,700	4,400	4,200	4,500	4,700	4,300	4,100	4,300	4,200	3,700	3,400
	28.6	4.4	-6.4	-4.5	7.1	4.4	-8.5	-4.7	4.9	-2.3	-11.9	-8.1

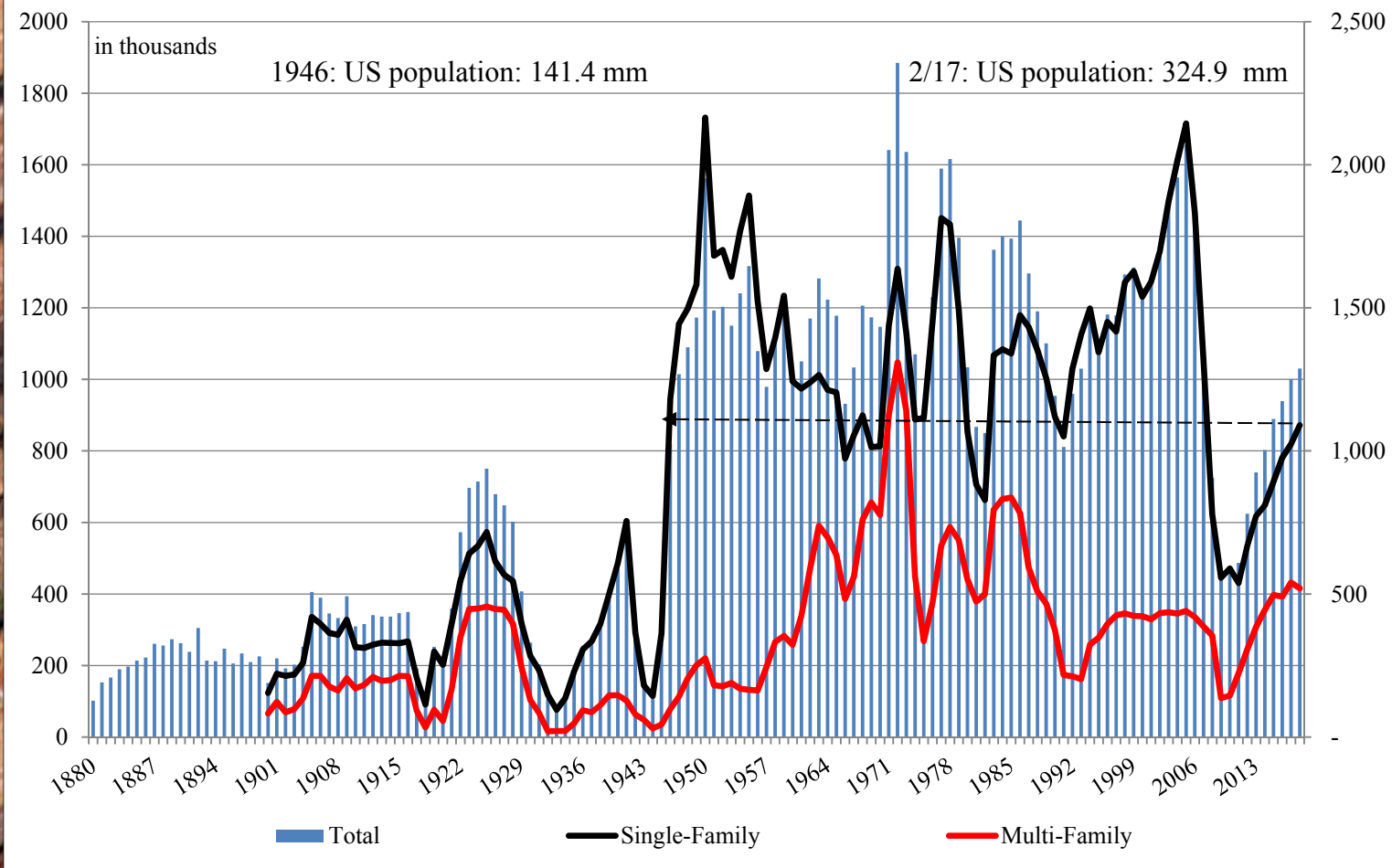
* Includes sales in the Territories.

Annual percent changes are in italics.

Source: Canadian Real Estate Association, RBC Economics Research

United States Housing

Housing Units and Starts – 1880 to February 2017



Source: US Census & DOC-Construction

United States Housing

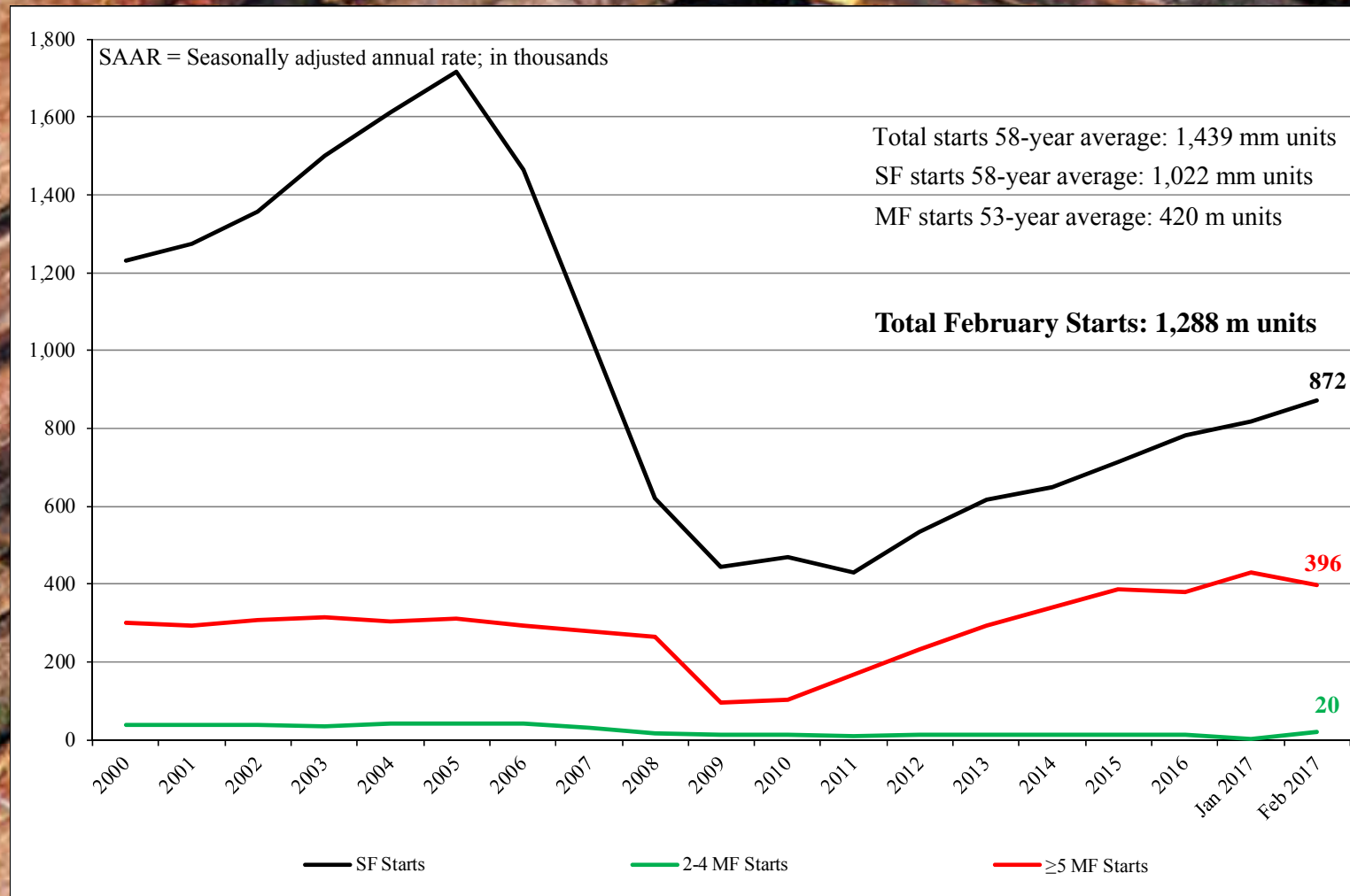
U.S Housing Market – What's Wrong

- Builder Confidence
- Labor
- Lot Availability
- Regulations
- Financing (AD&C loans)
- Lack of inventory
- Debt: Student, auto, revolving credit

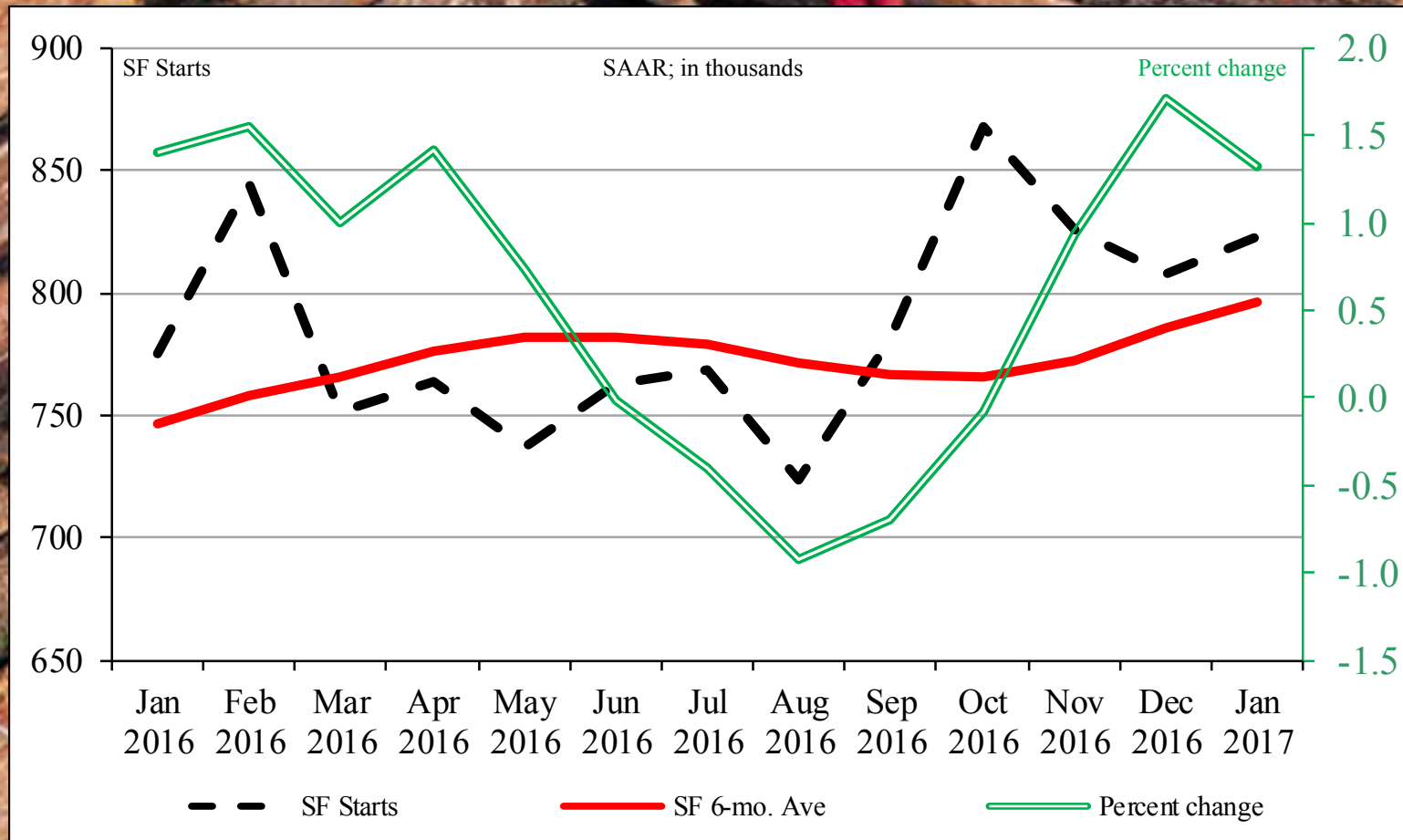
U.S Housing Market – What's Right

- Interest rates remain historically low
- High-end priced housing – still hot
- Multi-family – still strong, may be tapering off
- Mortgages – 20% down is a fallacy
- Consumer and builder confidence relatively strong
- Aging housing stock (97% of houses built: 2009 and earlier)

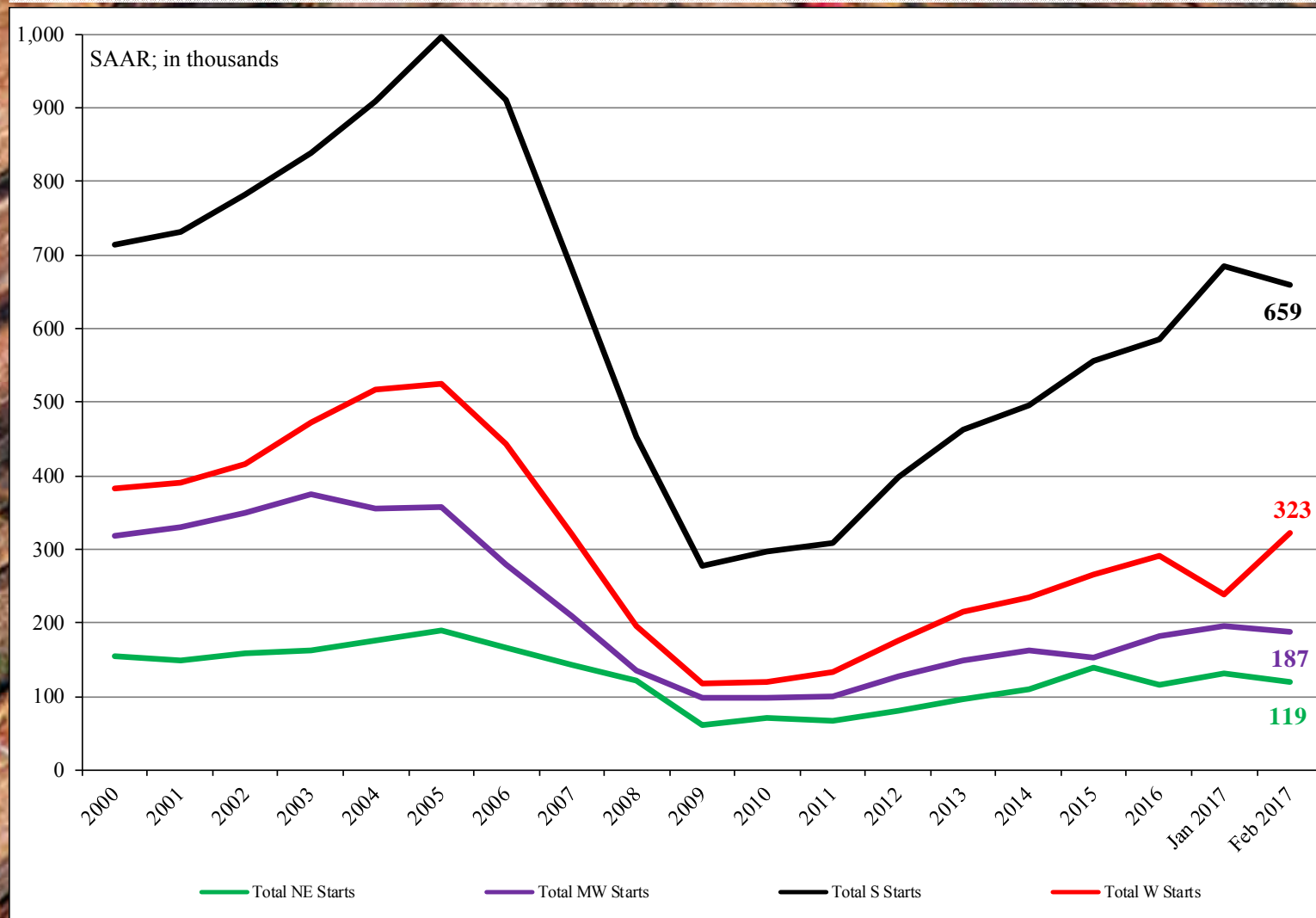
Total U.S. Housing Starts



SF Housing Starts: Six-Month Average

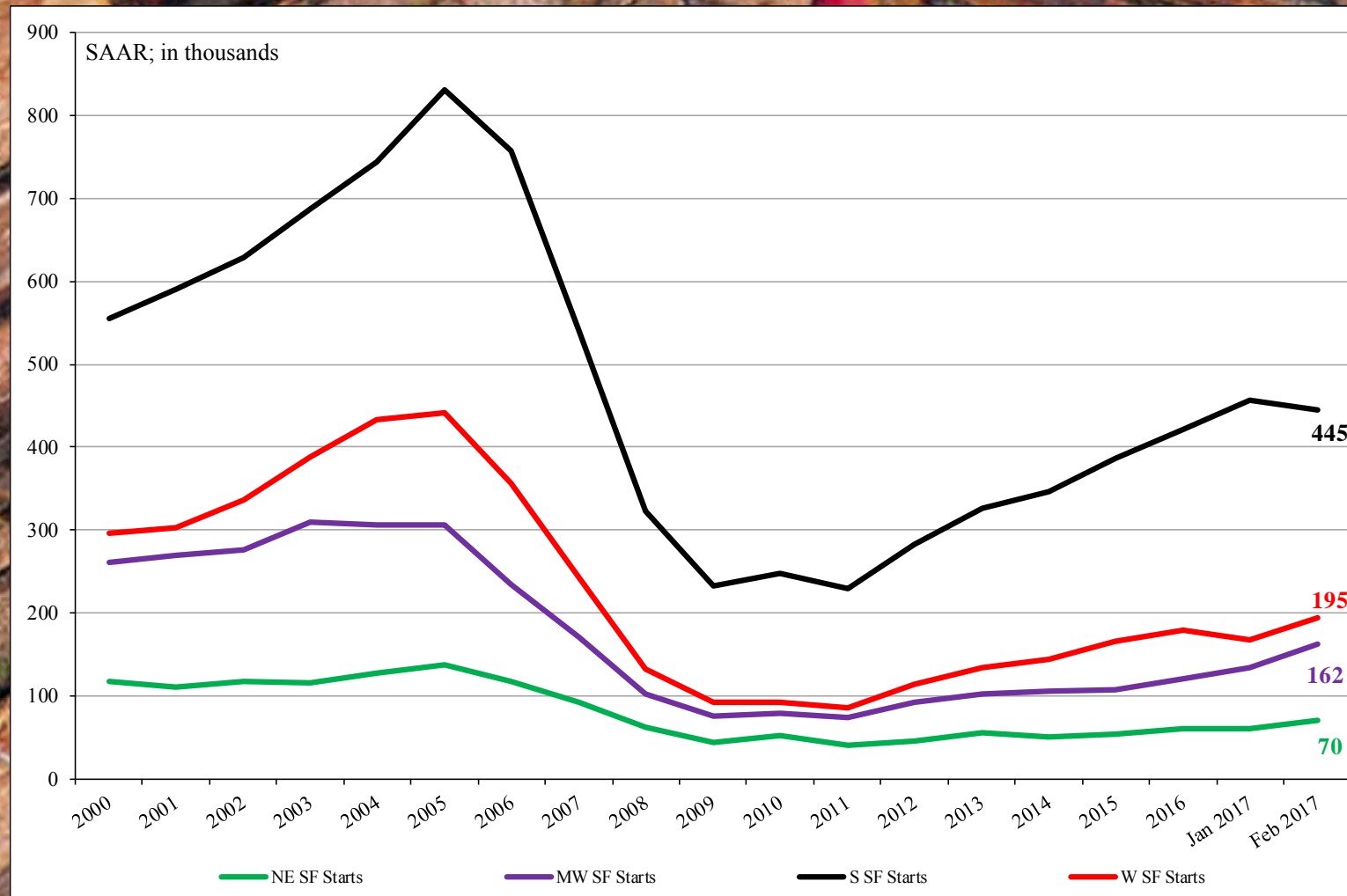


Total U.S. Housing Starts by Region



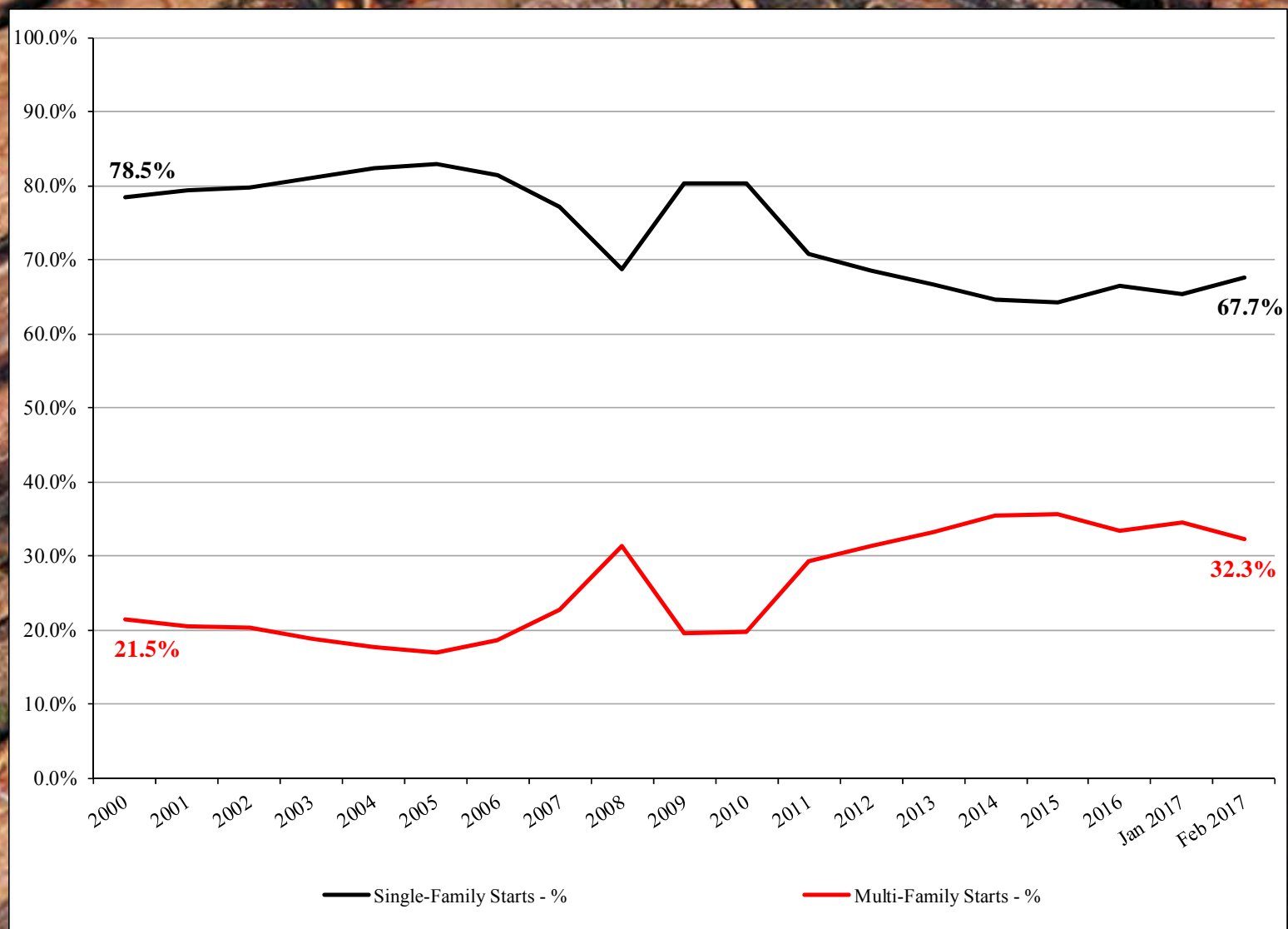
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

U.S. SF Housing Starts by Region



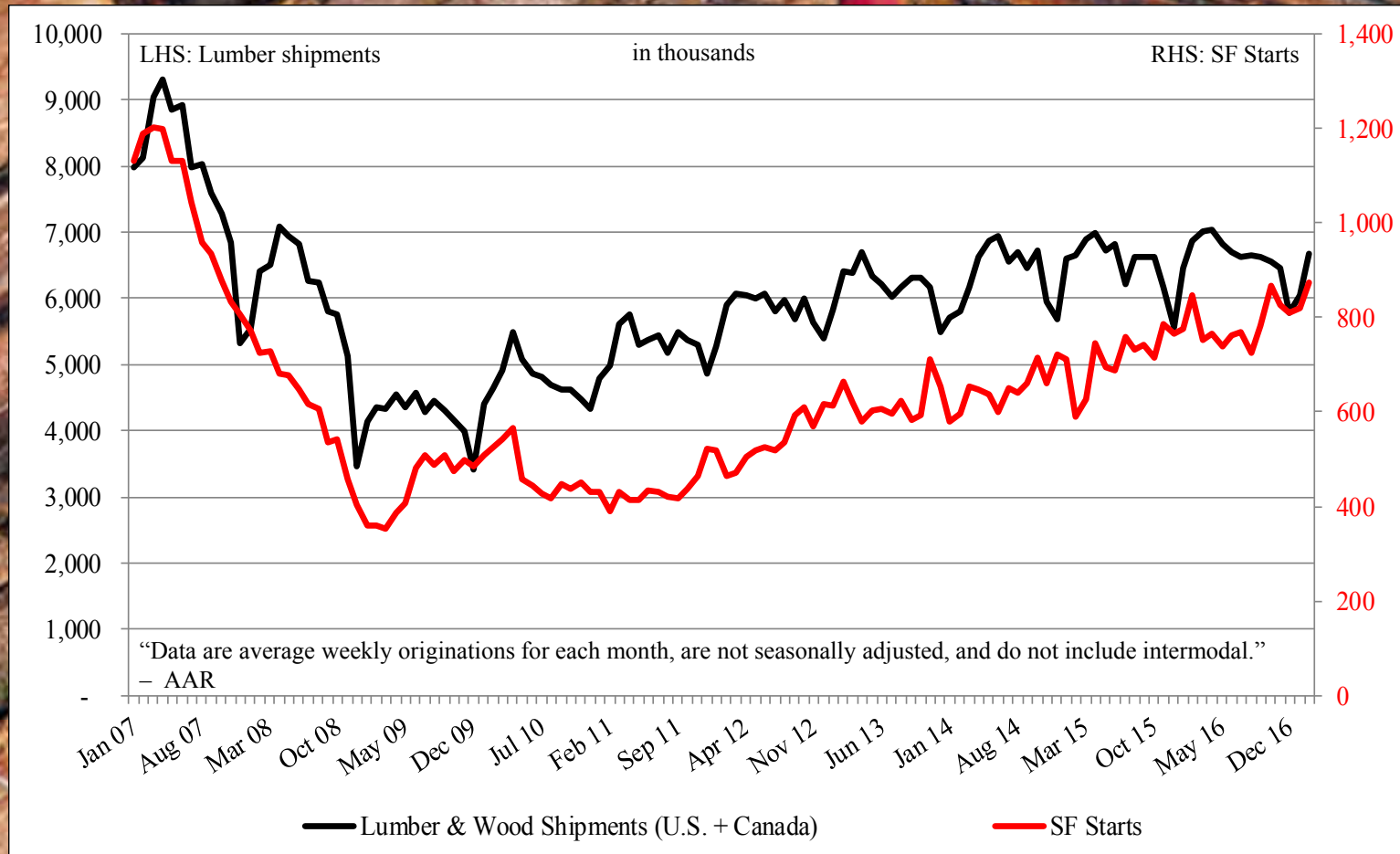
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

Housing Starts by Percent



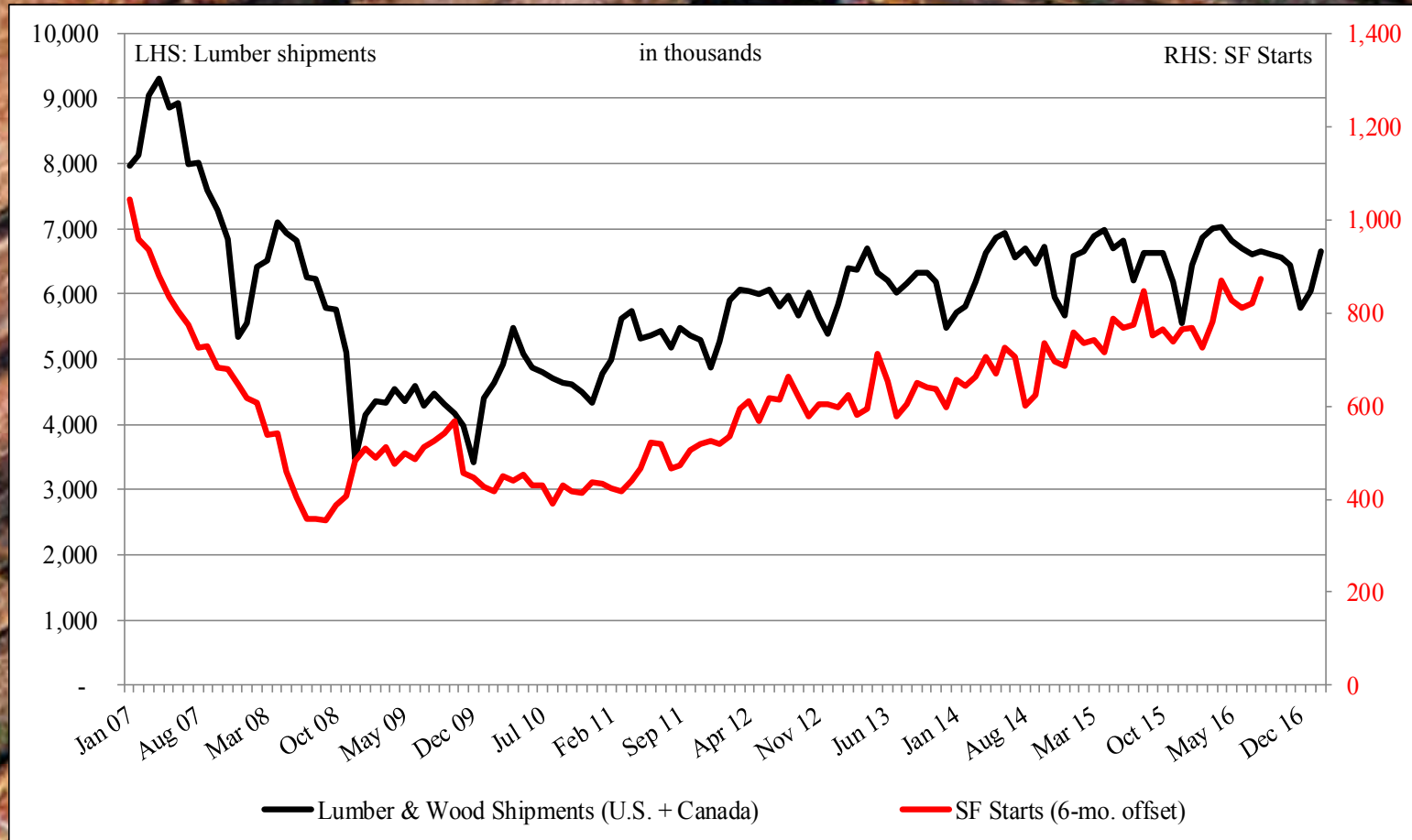
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

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



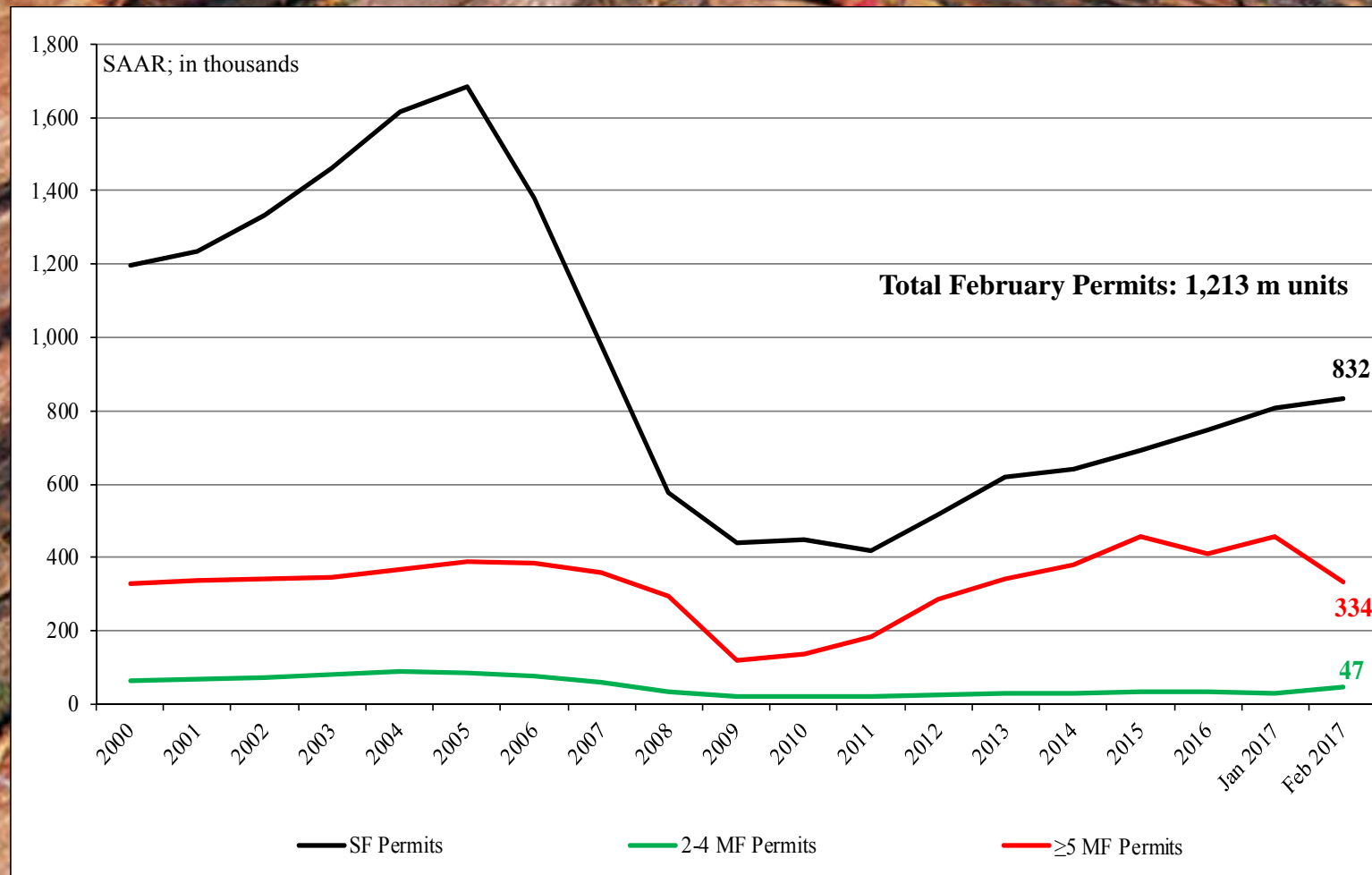
Sources: Association of American Railroads (AAR), *Rail Time Indicators* report 3/6/17; U.S. DOC-Construction; 3/16/17

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



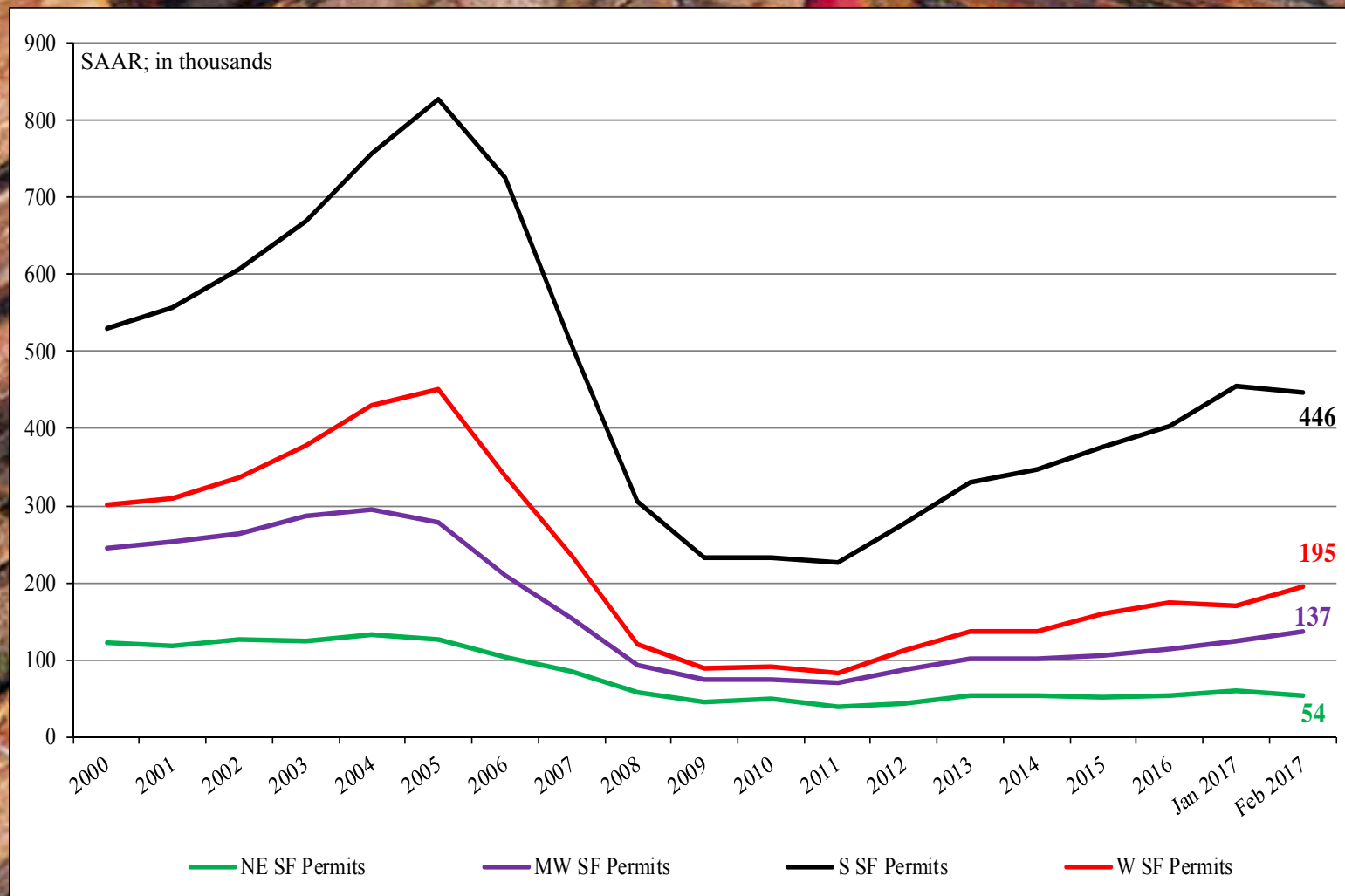
In this graph, February 2007 lumber shipments are contrasted with July 2007 SF starts, and continuing through February 2017 SF starts. The purpose is to discover if lumber shipments relate to future single-family starts. Also, it is realized that lumber and wood products are trucked; however, to our knowledge comprehensive trucking data is not available.

Total U.S. New Housing Permits



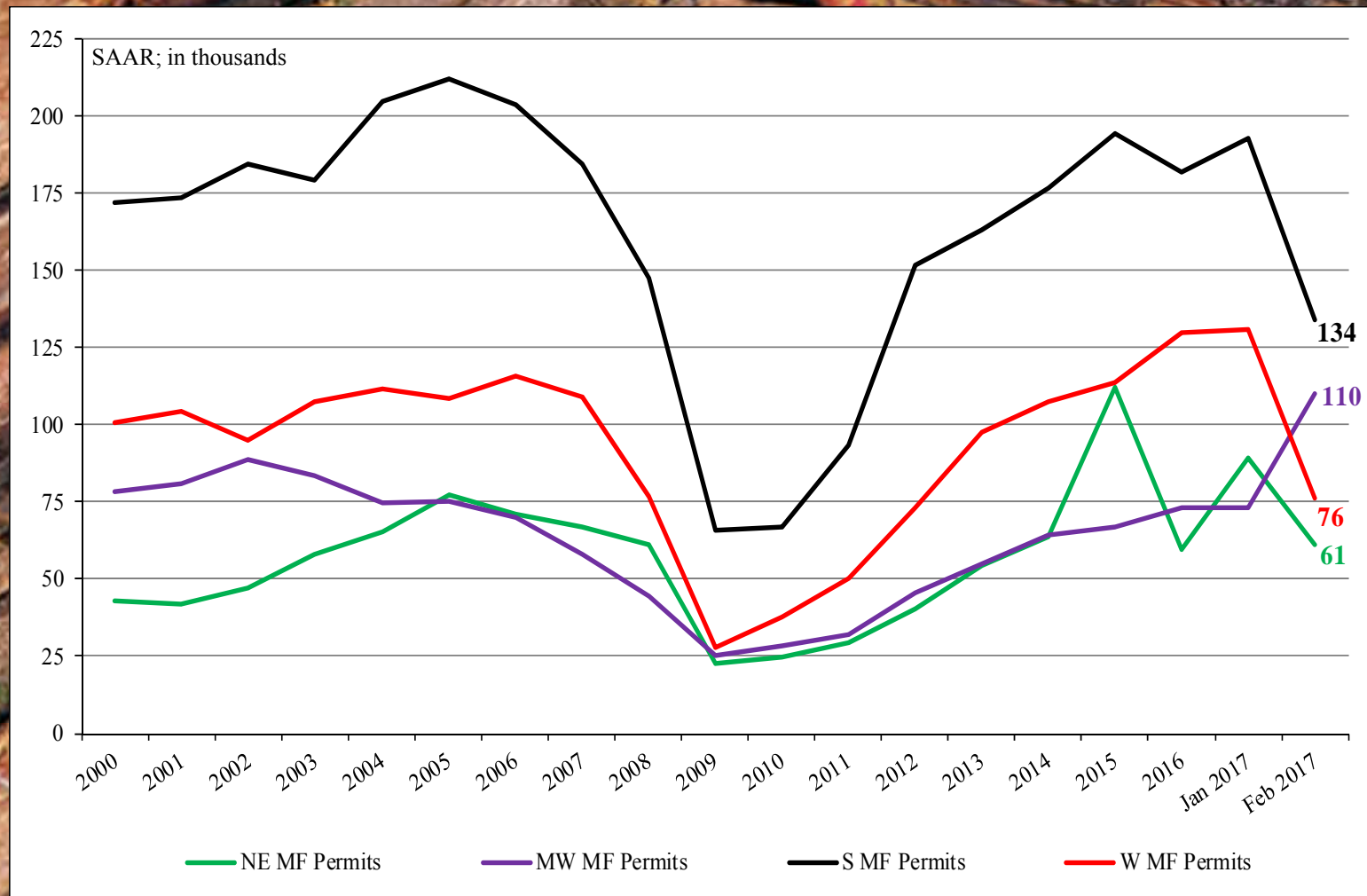
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

SF Housing Permits by Region



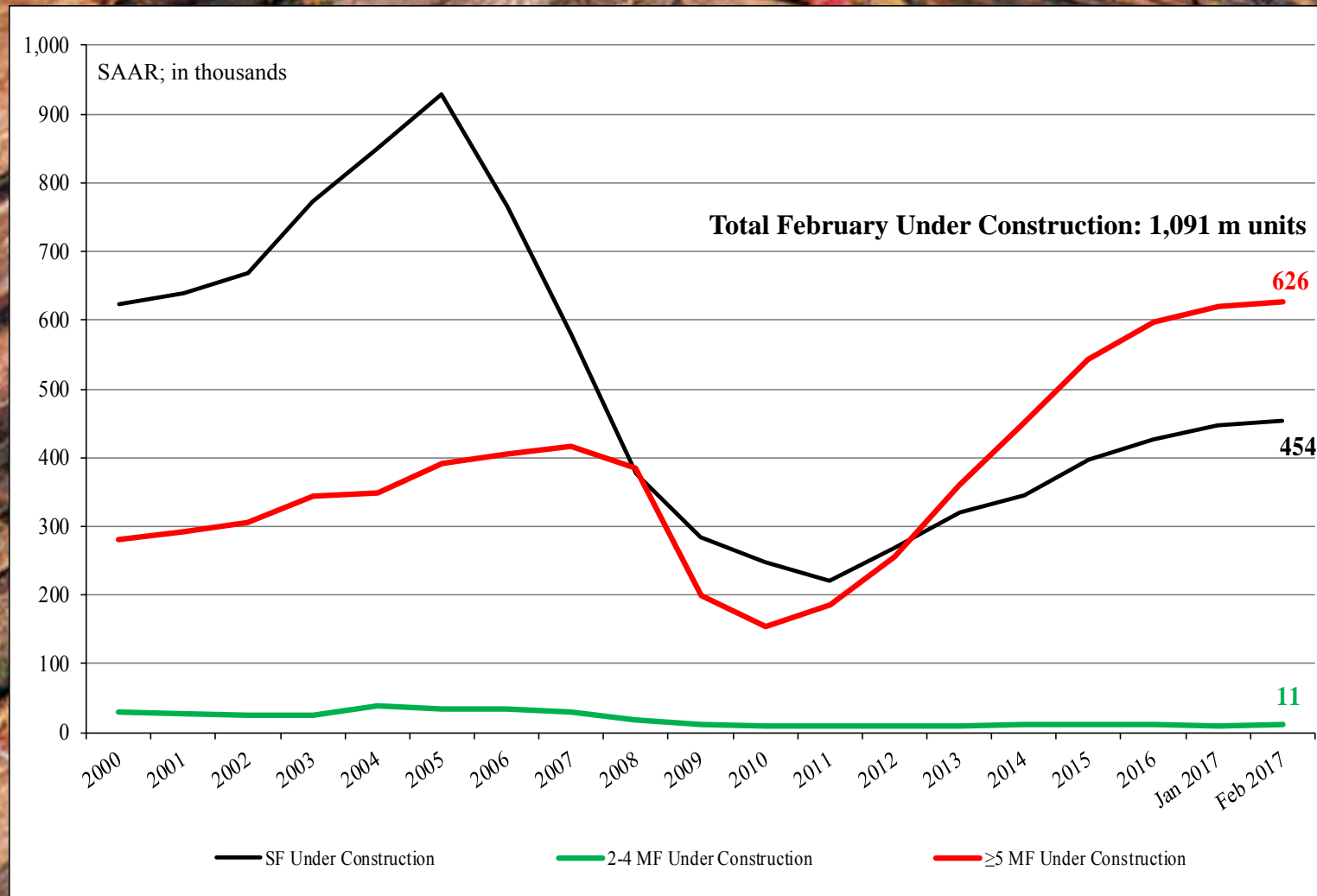
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

MF Housing Permits by Region



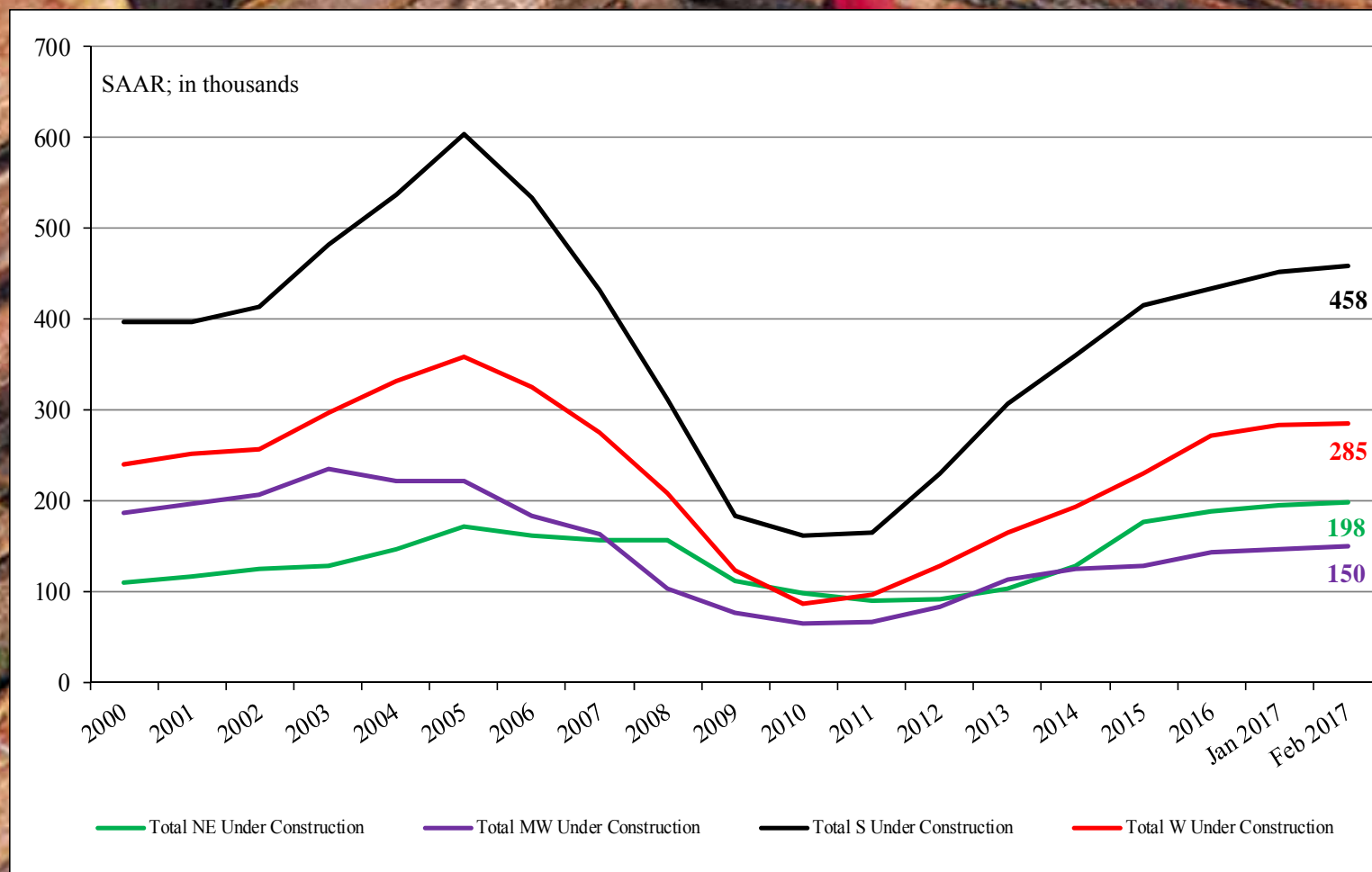
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

Total U.S. Housing Under Construction



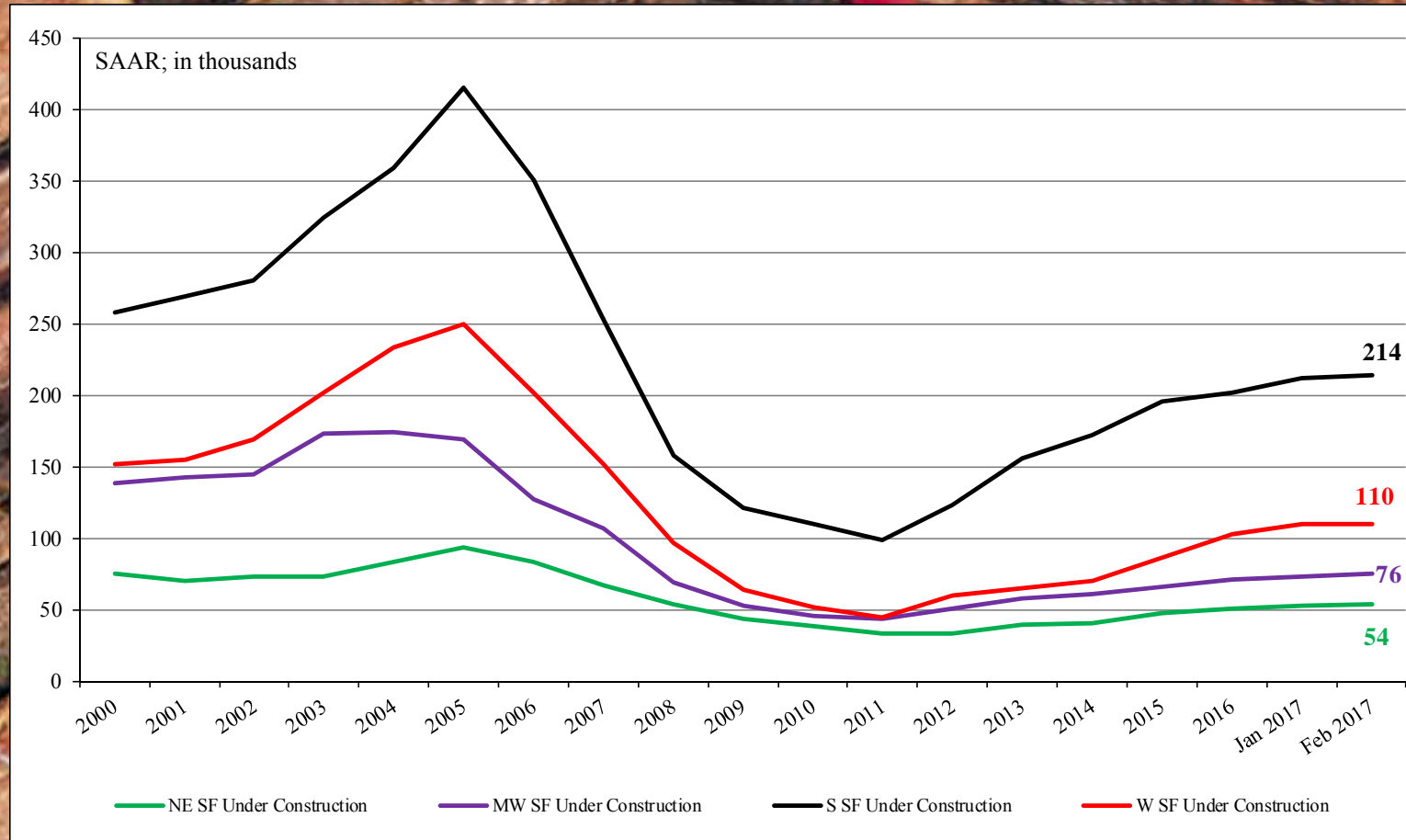
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

Total Housing Under Construction by Region



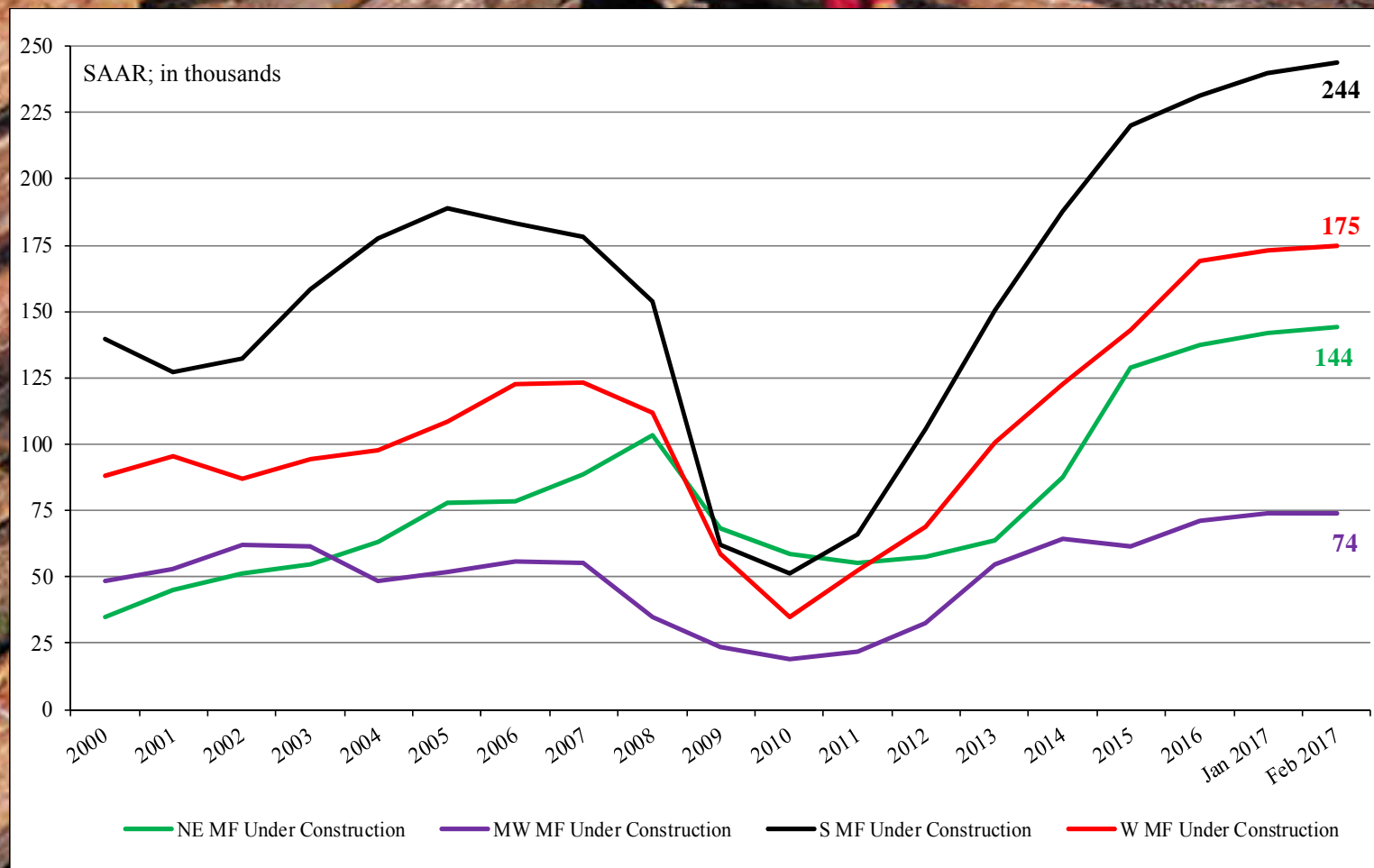
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

SF Housing Under Construction by Region



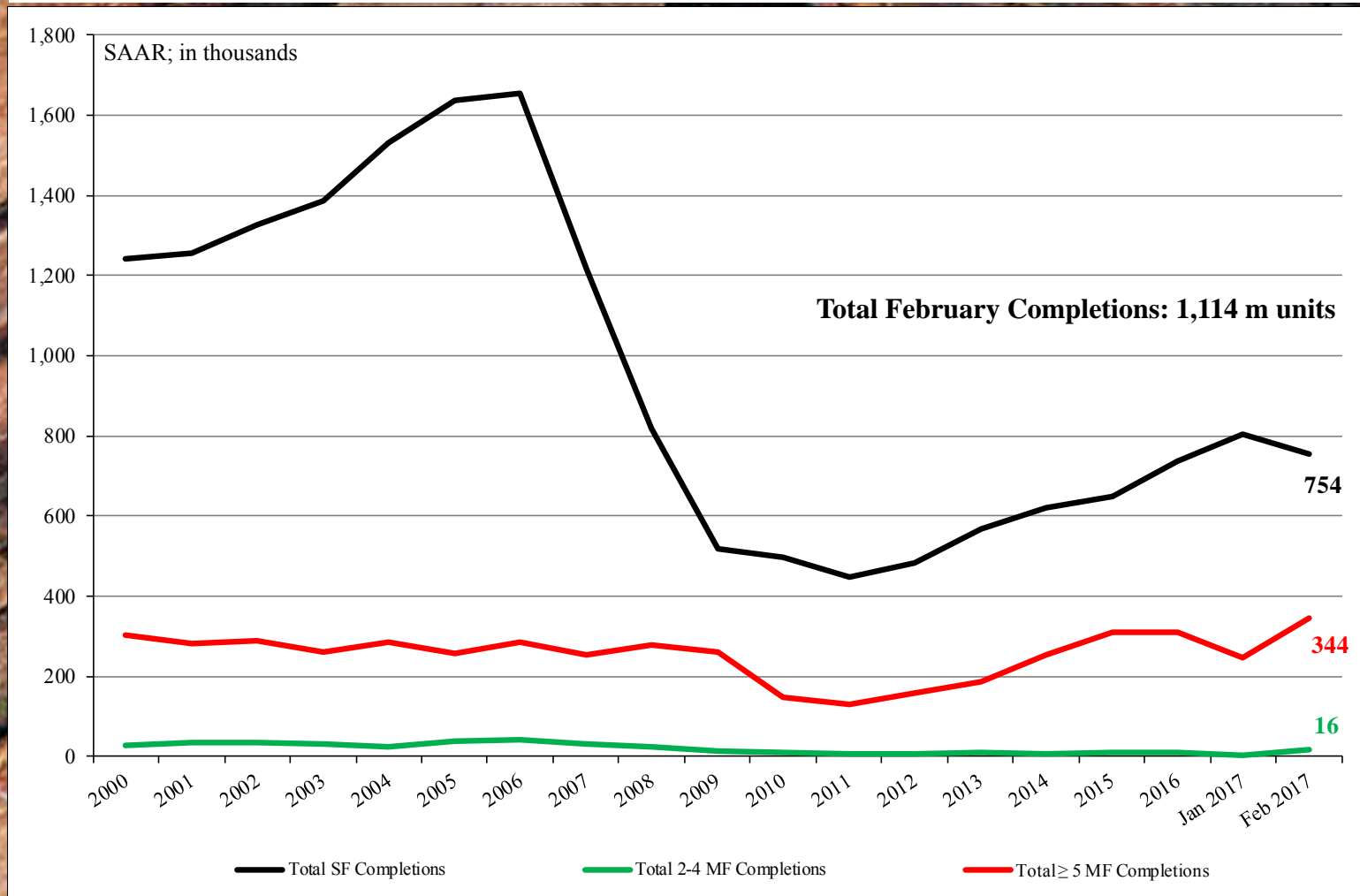
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

MF Housing Under Construction by Region



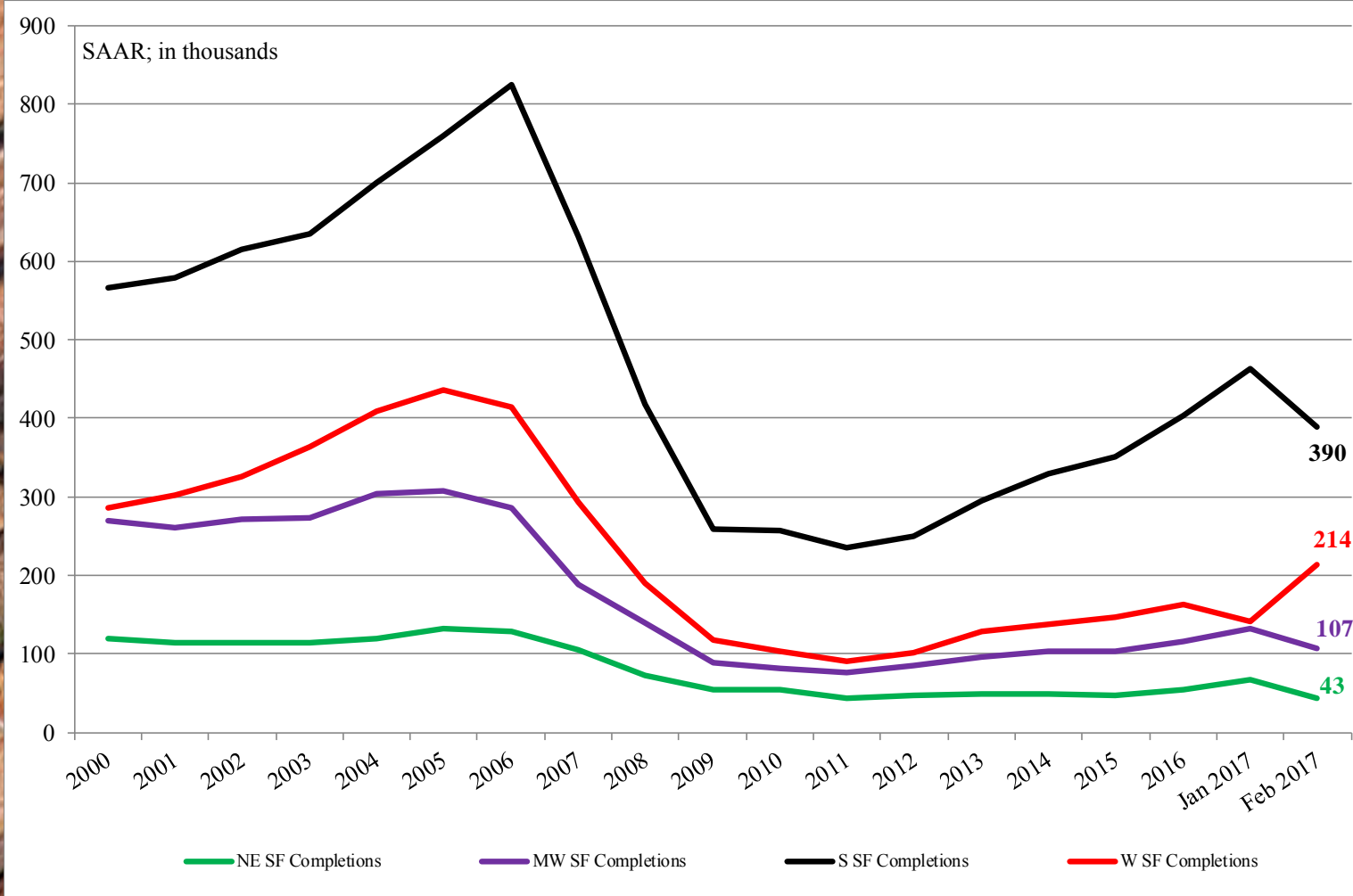
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

Total U.S. Housing Completions



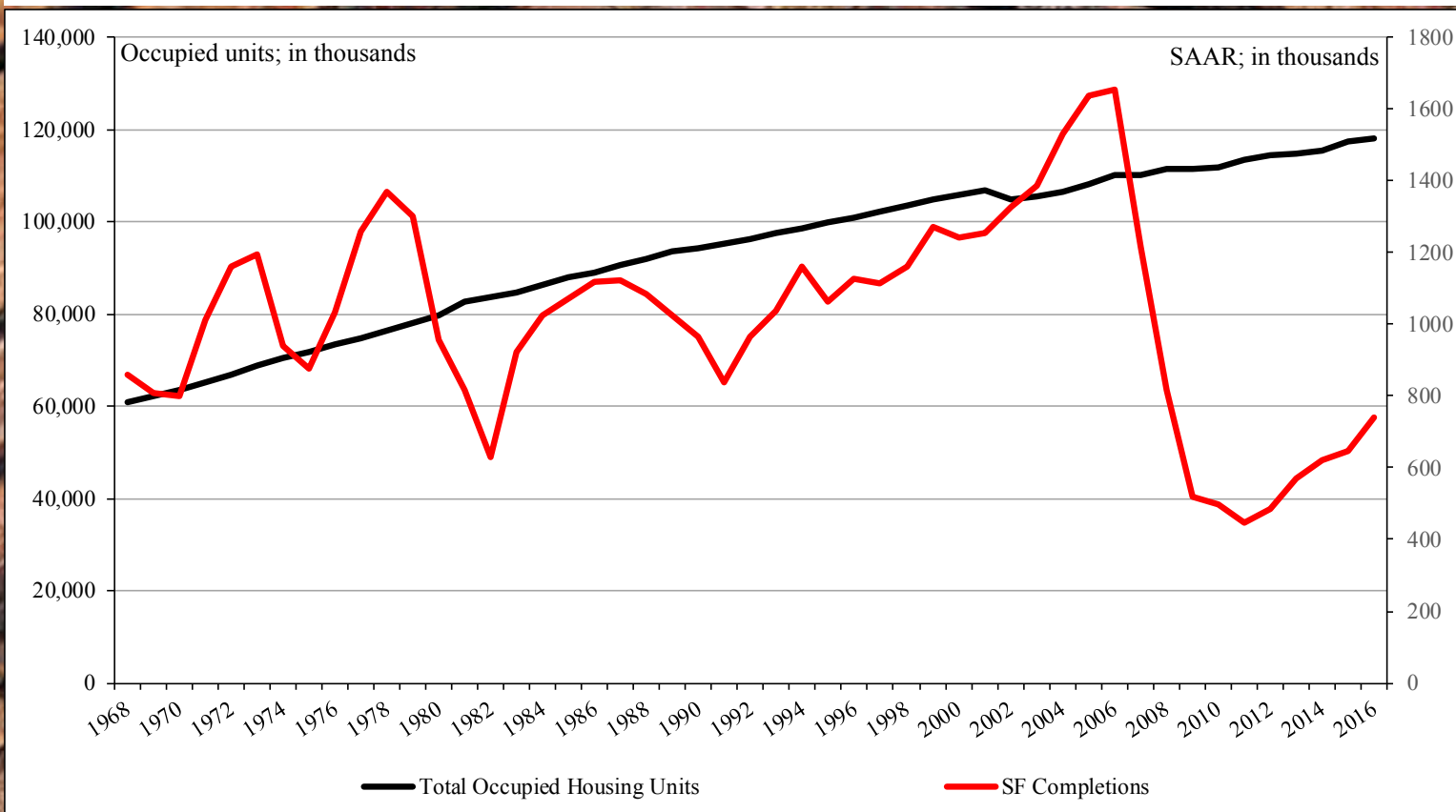
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

U.S. SF Housing Completions by Region



Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/16/17

SF Completions vs. Household Formations

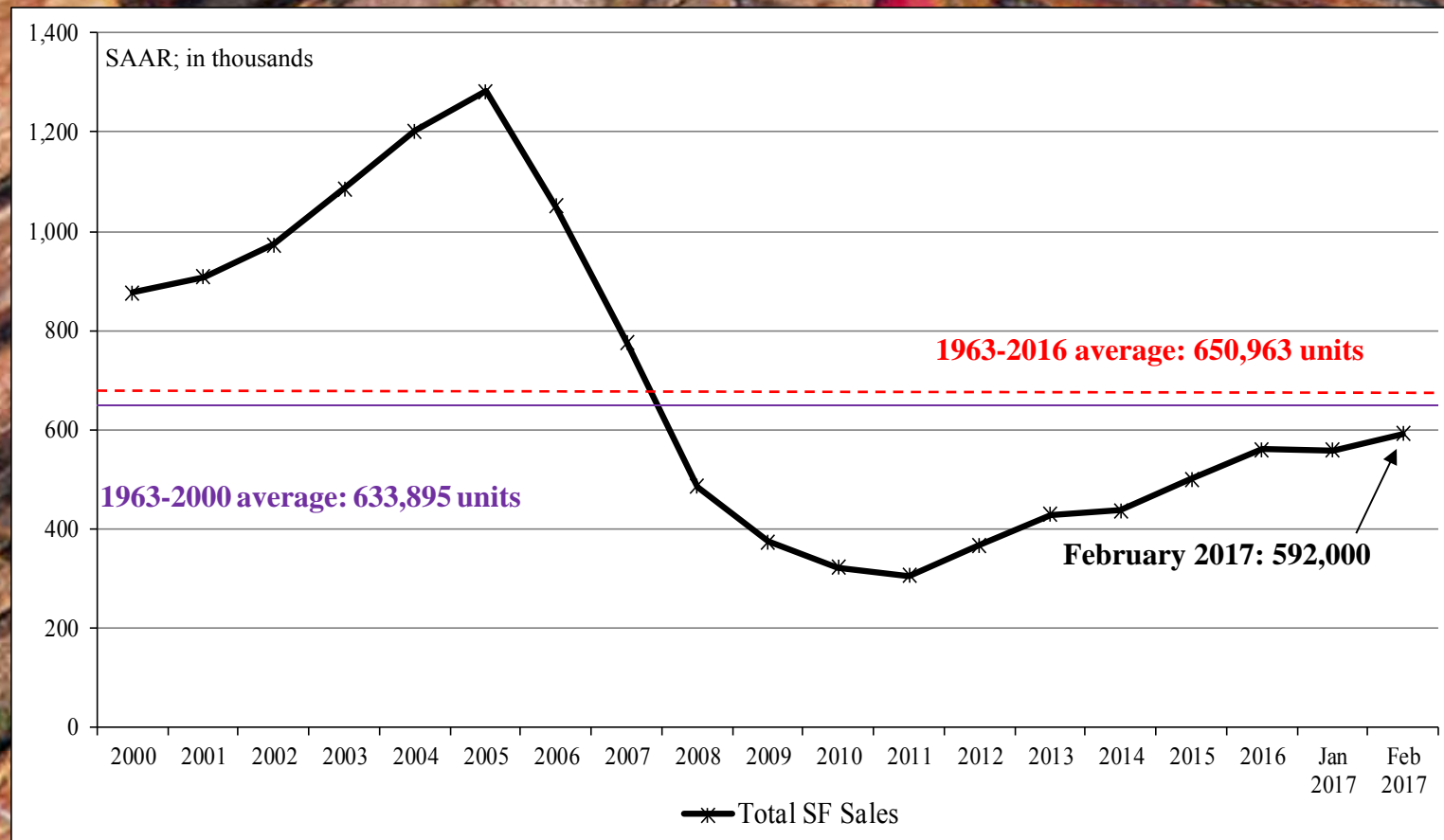


New SF completions vs. Total Occupied Housing Units

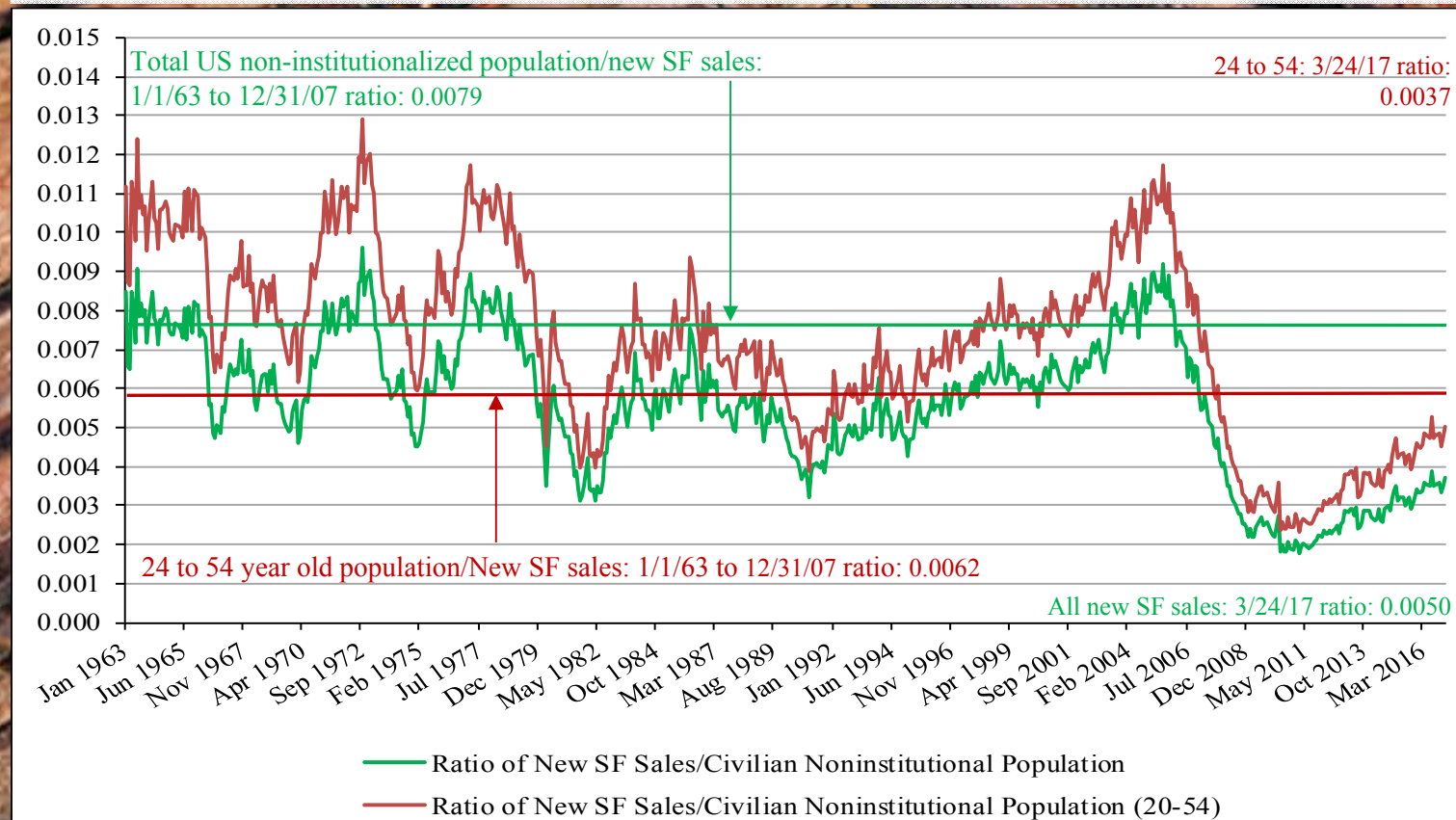
Another method for assessing over- or under building is to contrast SF completions against total occupied housing units. As viewed in the graph above, SF completions are not keeping pace with increases in occupied housing units. The Current Population Survey/Housing Vacancy Survey is not designed to 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

New U.S. SF House Sales



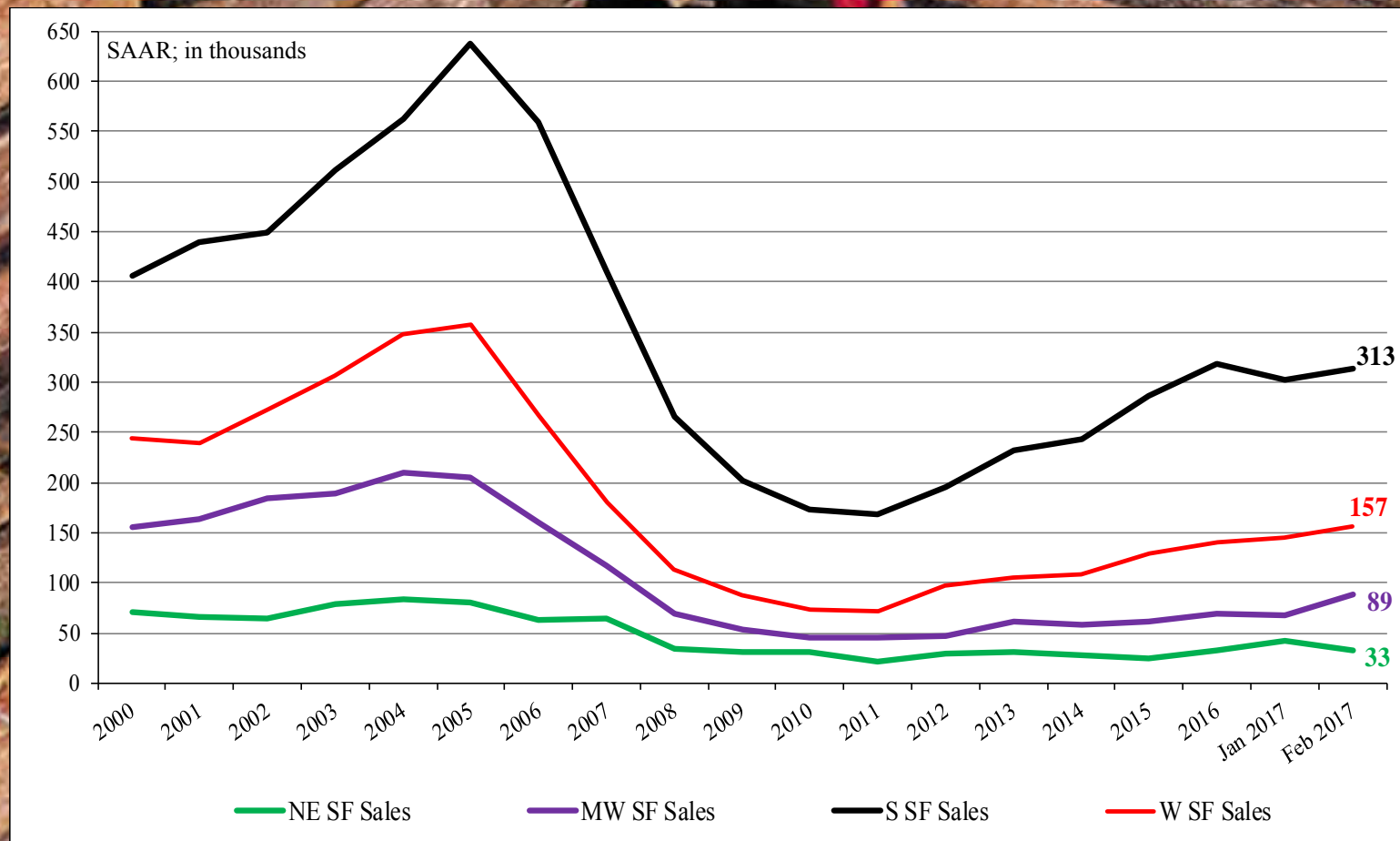
New U.S. SF House Sales



New SF sales adjusted for the US population

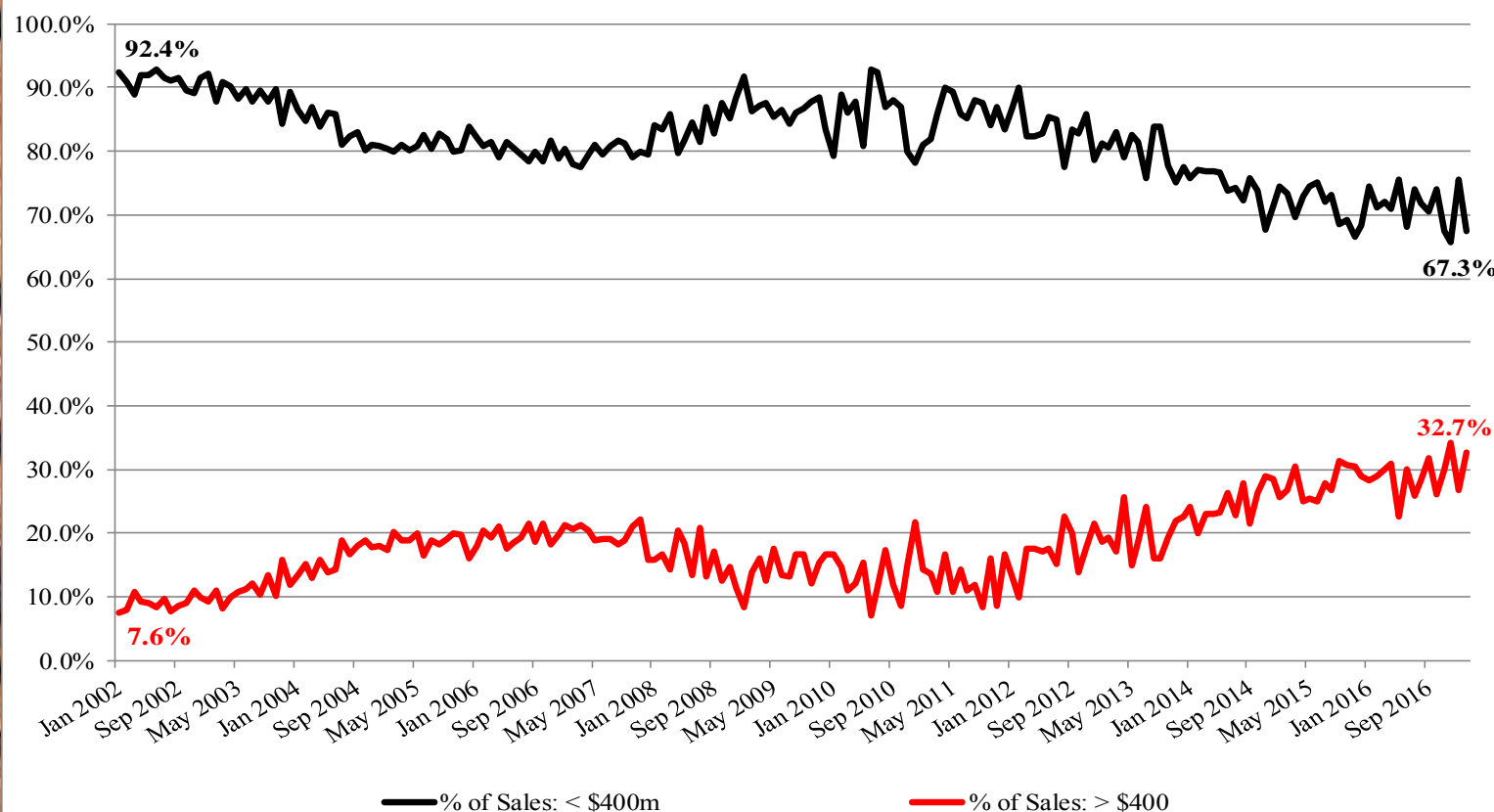
From February 1963 to February 2007, the long-term ratio of new house sales to the total US non-institutionalized population was 0.0079; in February 2017 it was 0.0056 – a minimal increase from January (0.0048). The non-institutionalized population, aged 24 to 54 long-term ratio is 0.0062; in February 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).

New U.S. SF House Sales by Region



Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>, 3/23/17

New U.S. SF House Sales

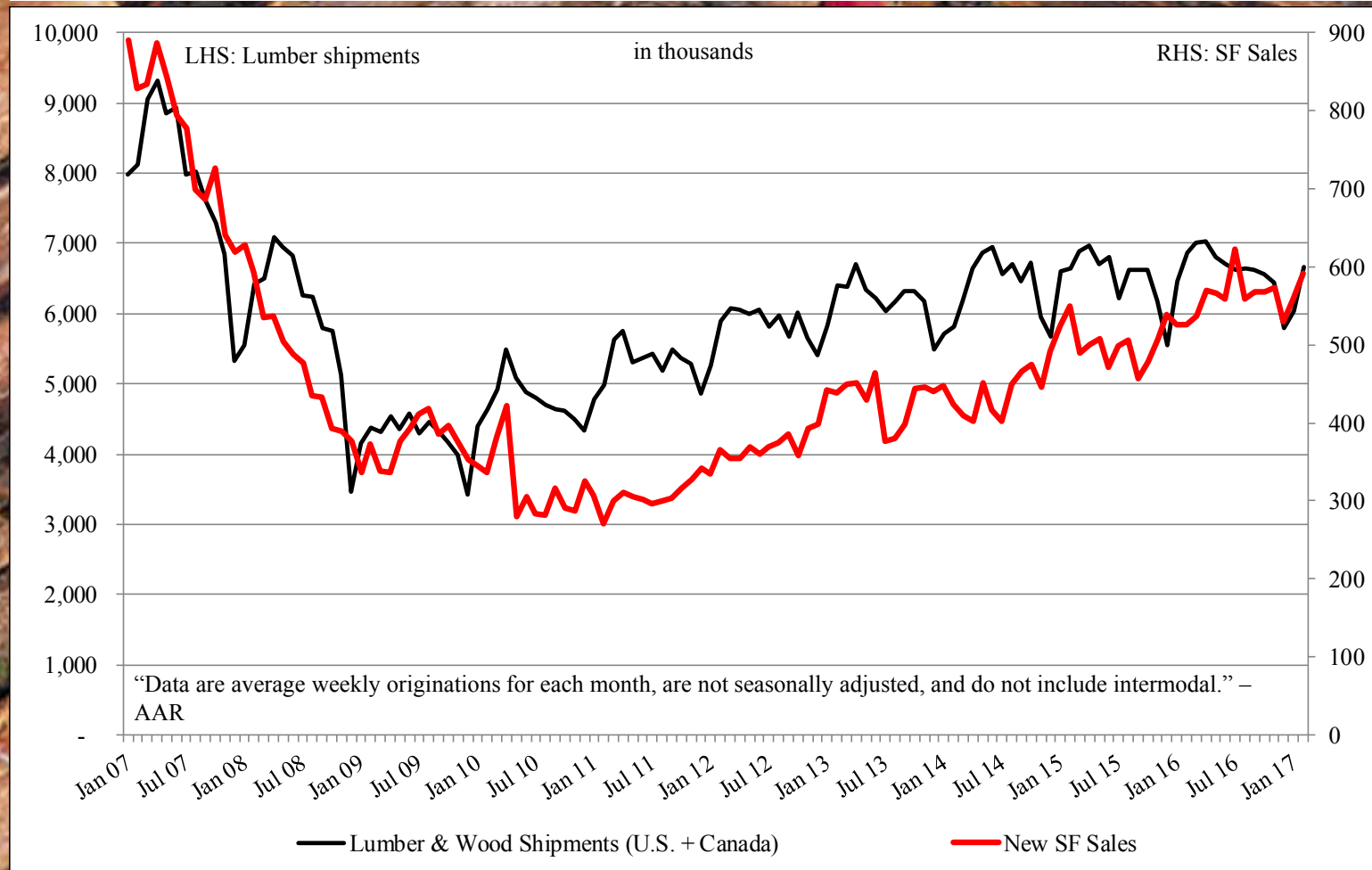


New SF Sales: 2002 – February 2017

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.

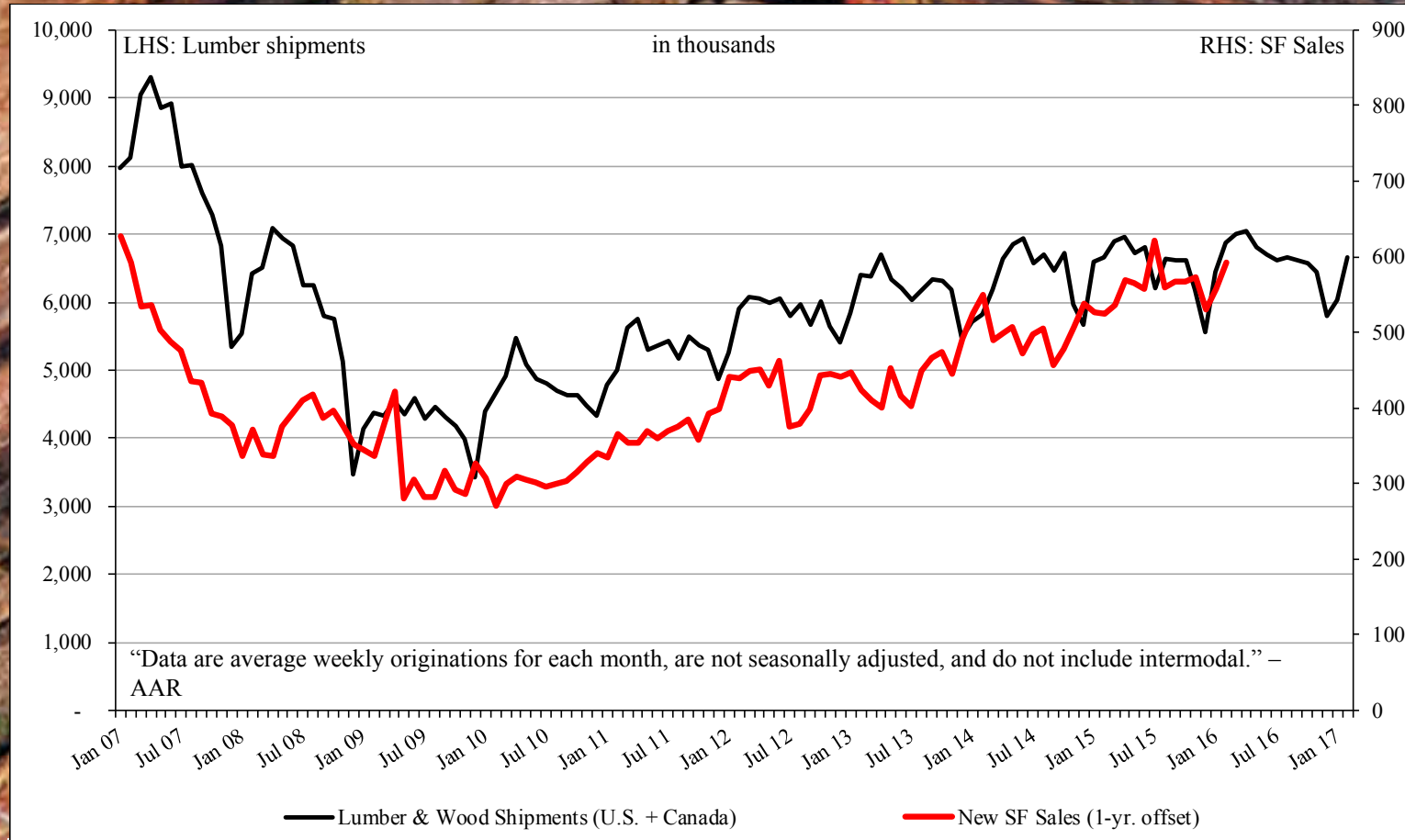
Source: <http://www.census.gov/construction/nrc/pdf/newresconst.pdf>; 3/23/17

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

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.

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%

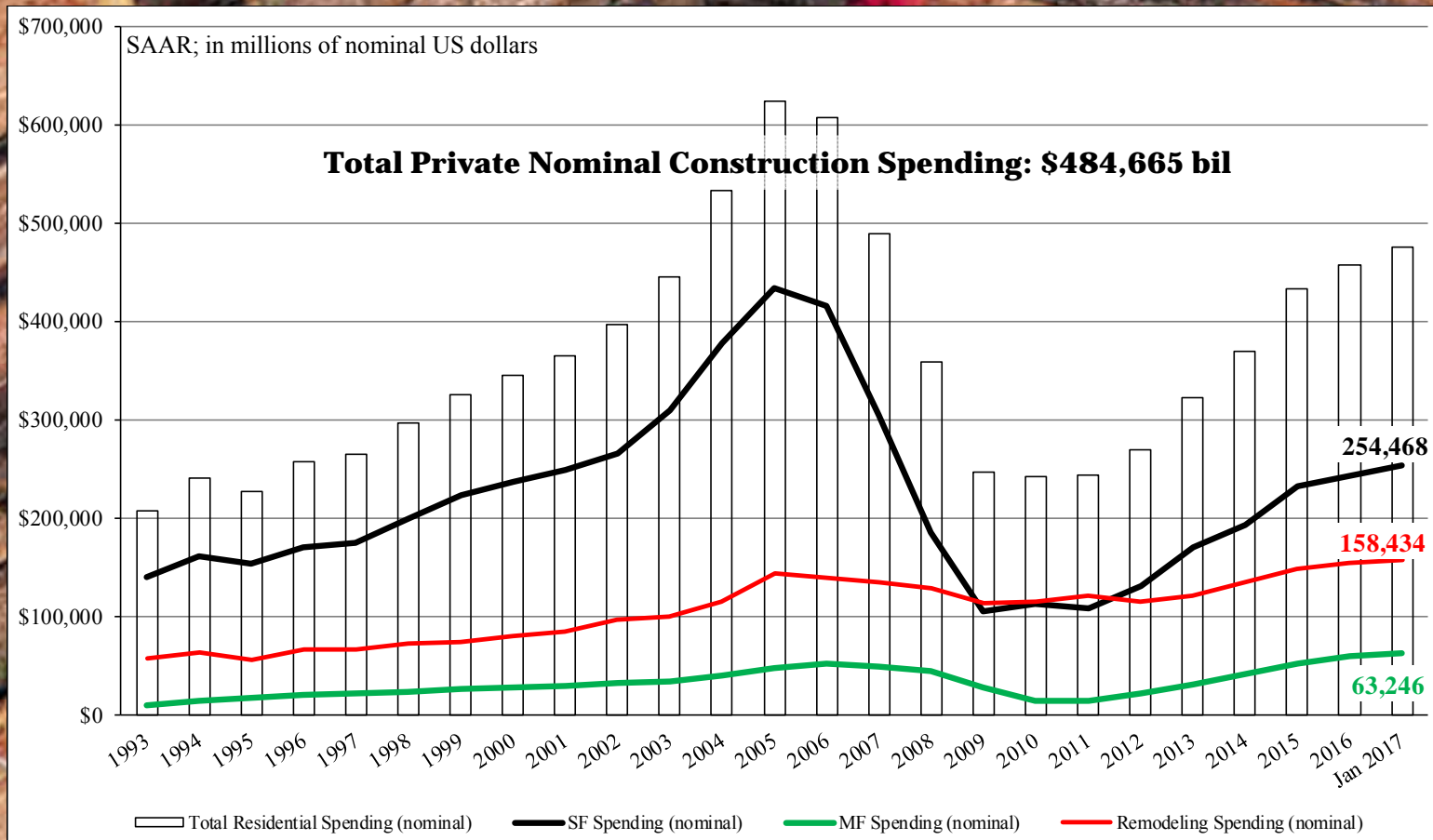
* Billions

** 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\$.

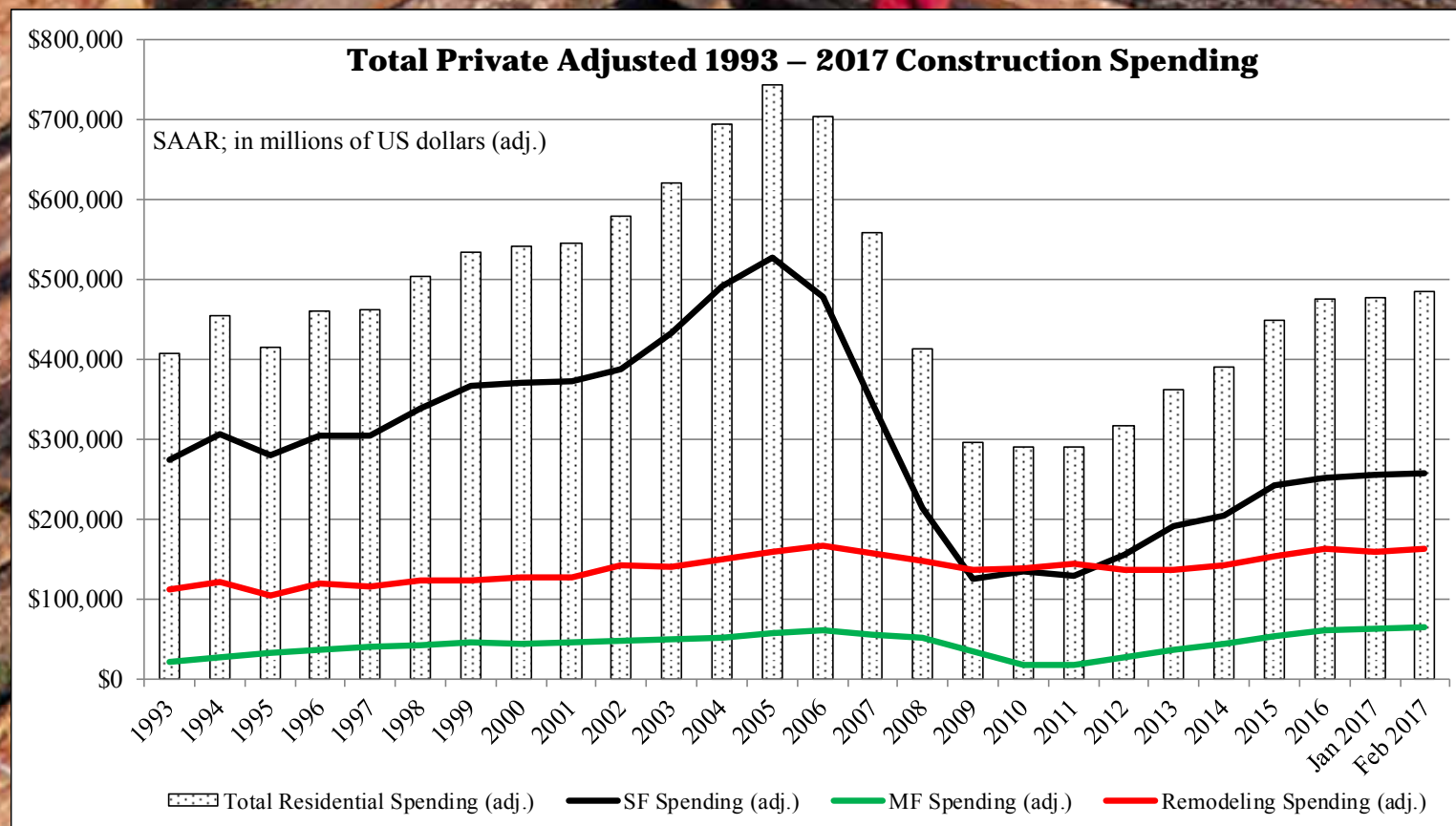
Total Construction Spending (nominal): 1993 – February 2017



Reported in nominal US\$.

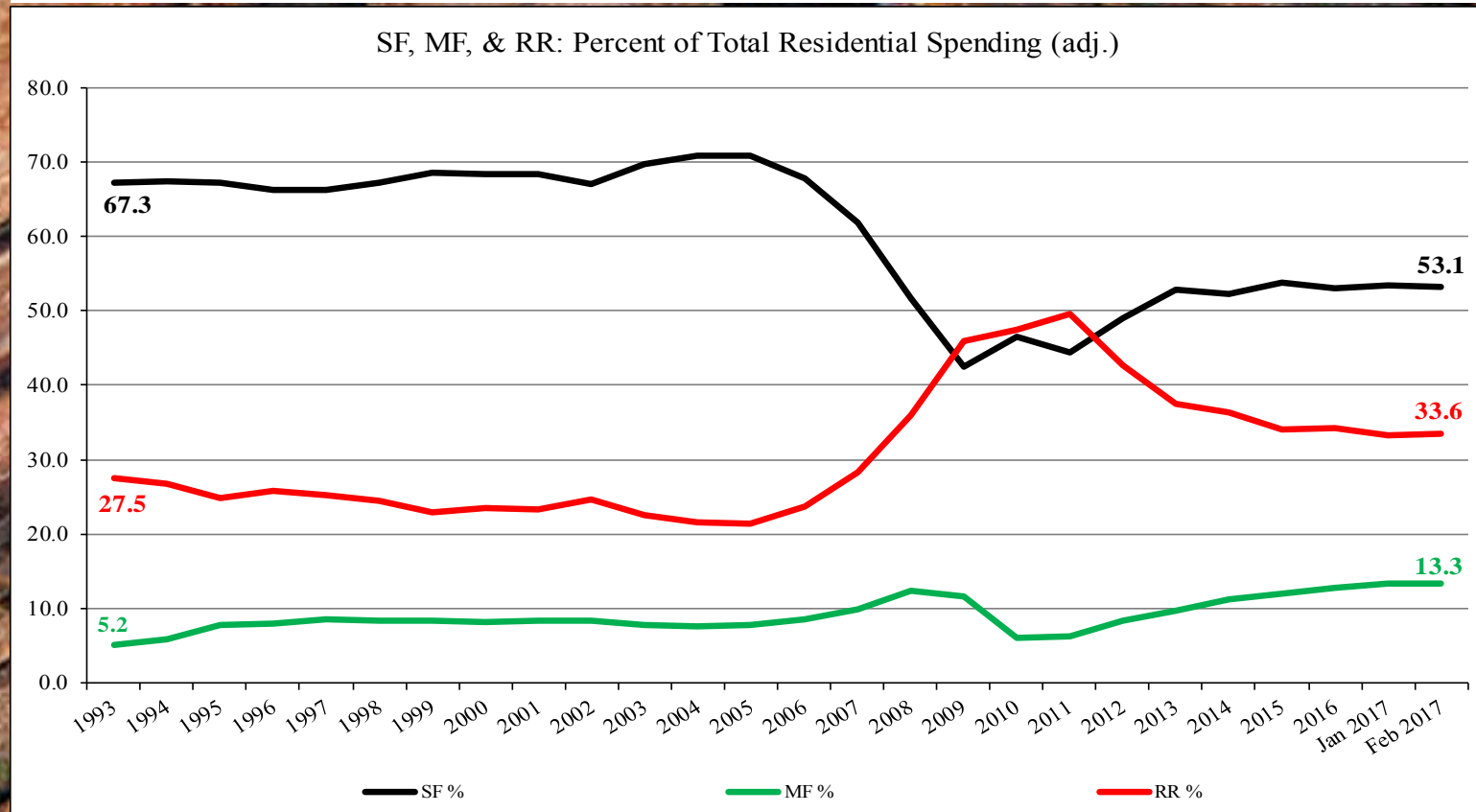
The US DOC does not report improvement spending directly, this is a monthly estimation for 2017.

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\$.

Construction Spending Shares: 1993 to February 2017



Total Residential Spending: 1993 through 2006

SF spending average: 69.2 %

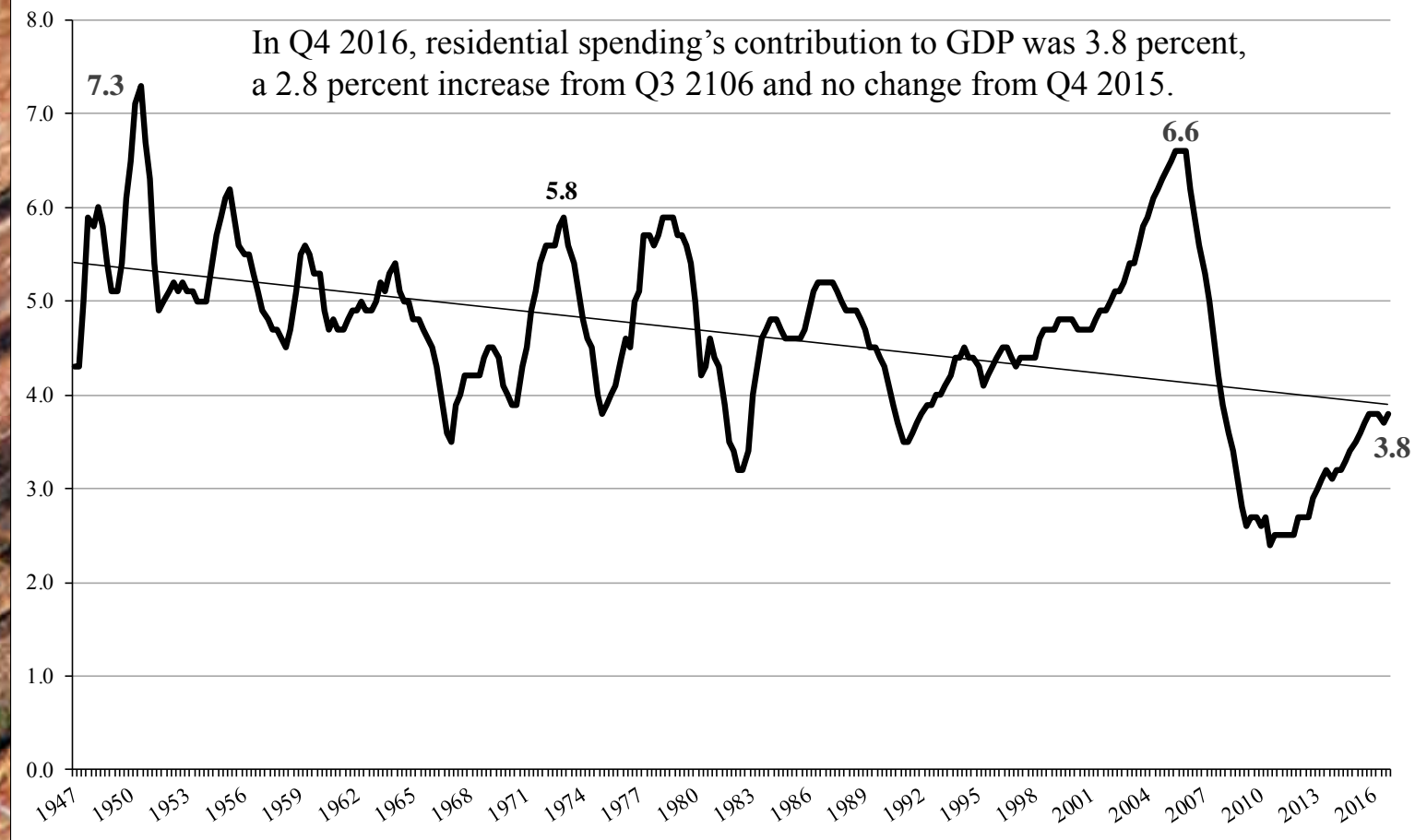
MF spending average: 7.5 %;

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

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

Construction Spending

Smaller Contribution

Share of GDP stemming from home construction and improvement*



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

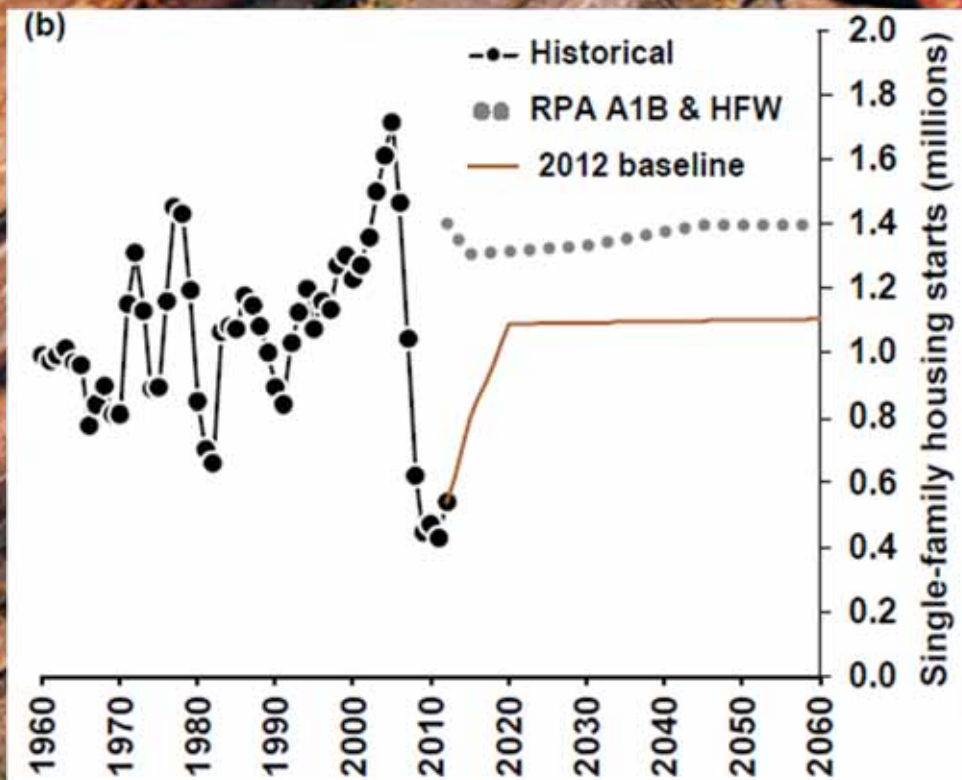
Homeownership rate remains below normal level

“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

Projected U.S. Single-Family Starts



“... a gradual rebound in single-family housing starts, reaching the logarithmic trend line by 2020:

± 1.1 million

close to the long-run historical norm and within the range of current housing expectations

but much lower than recent RPA scenarios with similar or higher population growth.”

Structural change in the housing market include:

- a dramatic correction in median wealth of U.S. households as home values declined
- declining home ownership rates.

An aerial photograph of a large log boom in a river. Numerous large, weathered logs are piled together, creating a complex pattern of brown and grey textures. A person wearing a yellow hard hat and a red shirt is visible standing on the logs in the upper-middle section of the image. The background shows more logs extending towards the horizon.

“Never make predictions, especially about the future.”

The late, great Casey Stengel

and

*“It's tough to make predictions,
especially about the future.”*

The late, great Yogi Berra



Conclusions

Economic forecasts for the U.S., Canada, and the Euro area are tepid

New housing construction appears to be on an incremental path

Remodeling should continue to be a fairly robust sector

Multi-family appears to be leveling off

The single-family sector → more entry level or starter houses.

Several U.S. firms are now targeting the entry level segment

The 3D printing of houses bears watching

Questions?

Thank you

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