

Light Vehicle Sales

Are We at a Turning Point?

Federal Reserve Bank of Chicago
June 3, 2016

Paul Traub
Senior Business Economist



Overview

- U.S. Economy (C + I + G + Nx)
- U.S. Consumer – Ability and Willingness to Buy
- U.S. Auto Industry
 - Changing long-run demand for personal mobility
 - Contractionary determinates
 - Expansionary determinates
- Summary and Questions

Main Economic Indicators

Annual Comparison – 2009, 2015 and 2016 March YTD

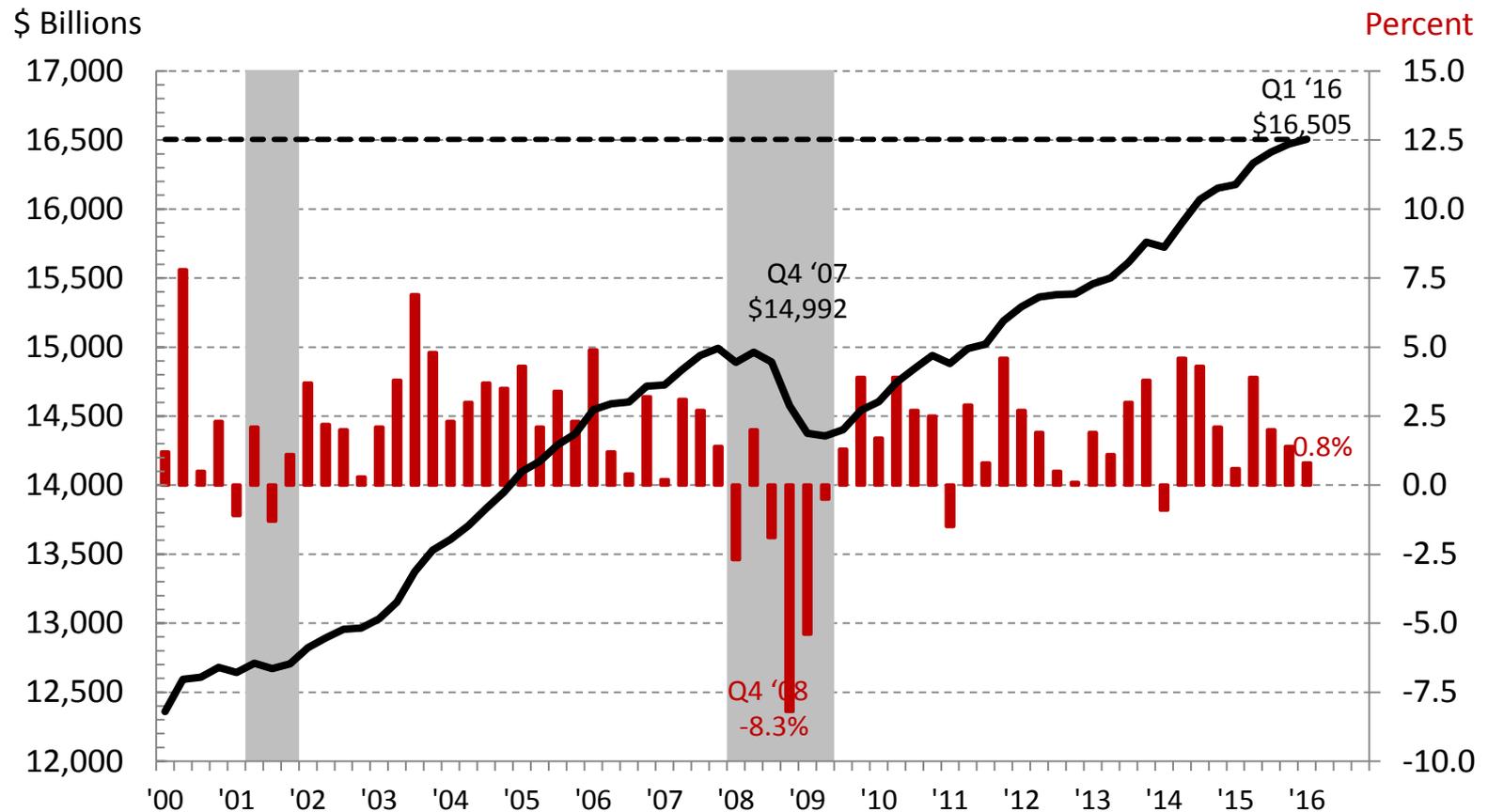
	<u>2009</u>	<u>2015</u>	<u>2016</u>
GDP – Annual Growth Rate	-2.8%	2.4%	1.9% ¹
PCE Core Inflation Yr. / Yr.	1.2%	1.3%	1.7%
Unemployment Rate – Annual Avg.	9.3%	5.3%	4.9%
Participation Rate	65.4%	62.6%	62.9%
Nonfarm Job Growth (Monthly Avg.)	-298,100	228,700	203,000
Initial Unemployment Claims	573,730	278,140	268,767

1. Year-over-year change - Q1 '16 / Q1 '15

Source: U.S. Bureau of Economic Analysis, Census Bureau and Bureau of Labor Statistics

U.S. Real GDP

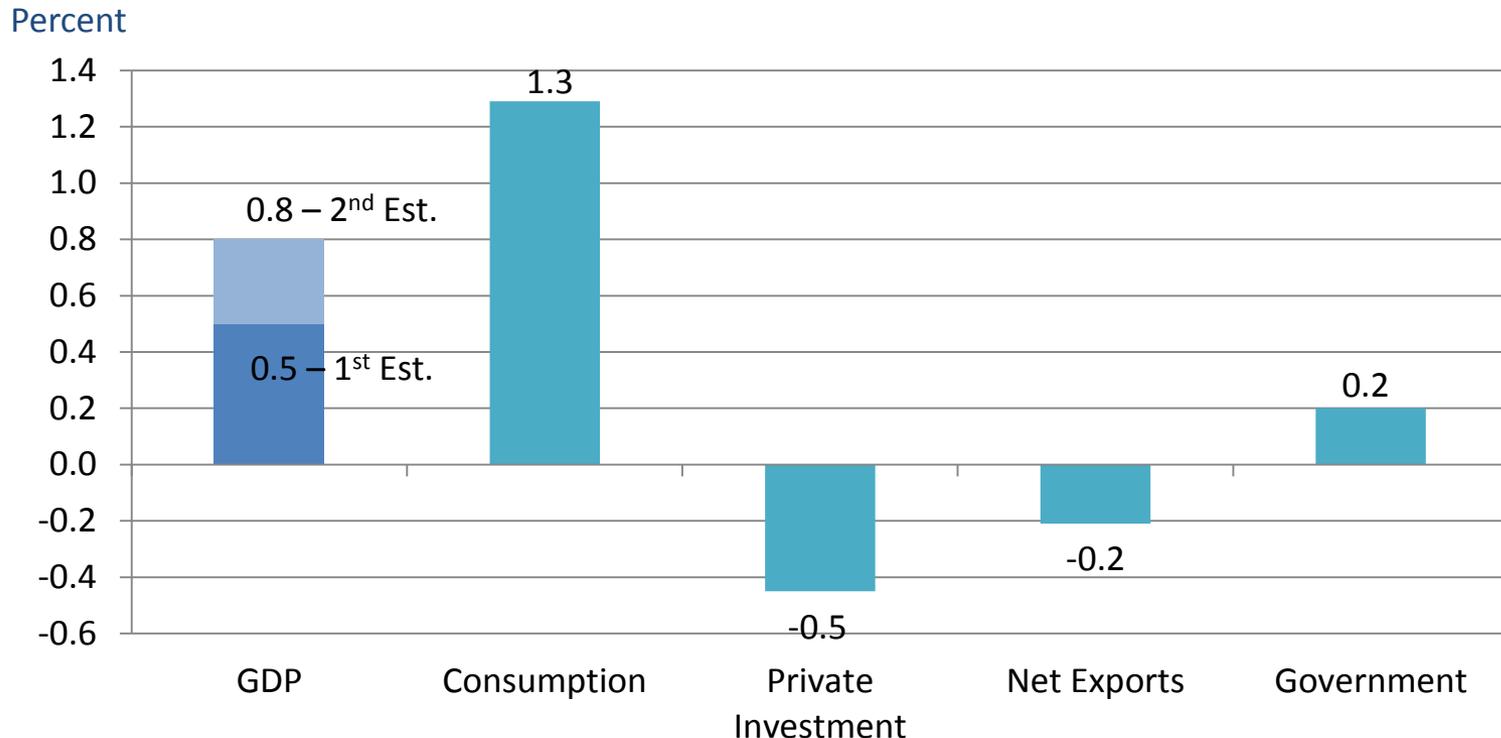
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

U.S. Real GDP

Contribution to Percent Change, Q4, 2015 - Q/Q at SAAR

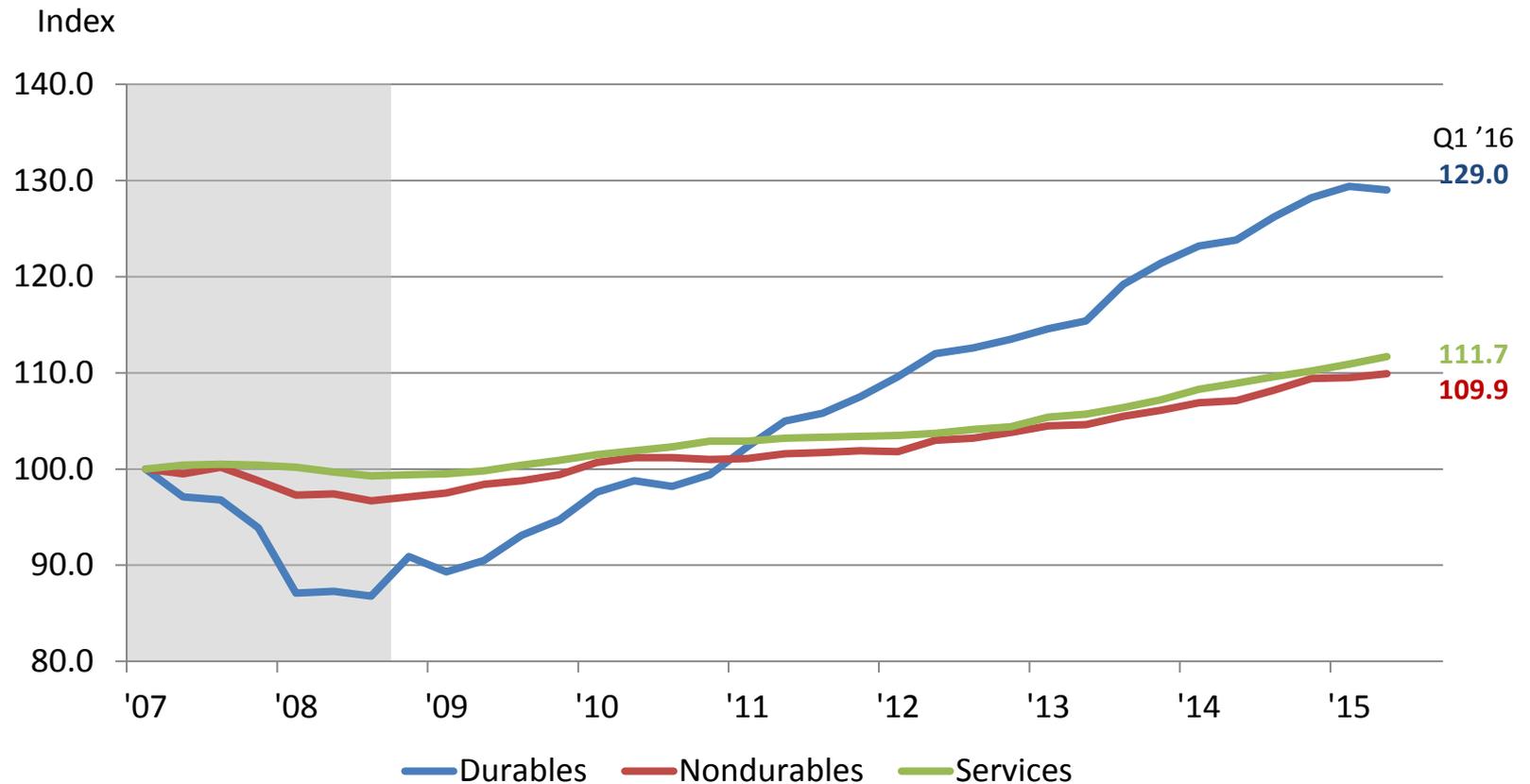


Note: Private domestic investment includes: nonresidential -0.81, residential +0.56, and -0.20 inventory change .
Government Consumption and Investment includes: Federal -0.11 and State and Local 0.31.
Net Exports includes: Exports -0.21 and Imports +0.03.

Source: U.S. Bureau of Economic Analysis

Real Personal Consumption Expenditures

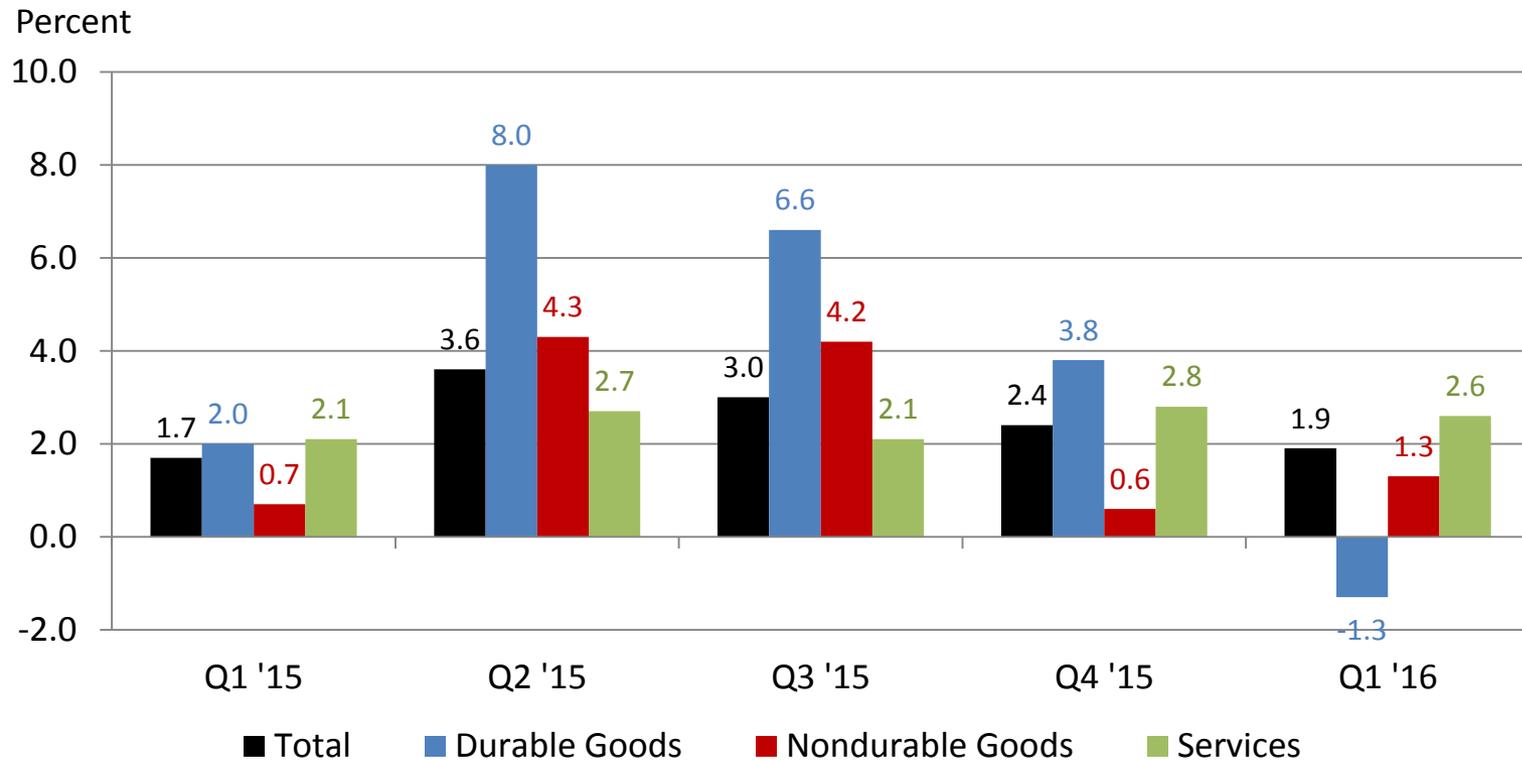
Index, Q4 2007 = 100



Source: Author's calculations using data from the BEA

Real Personal Consumption Expenditures

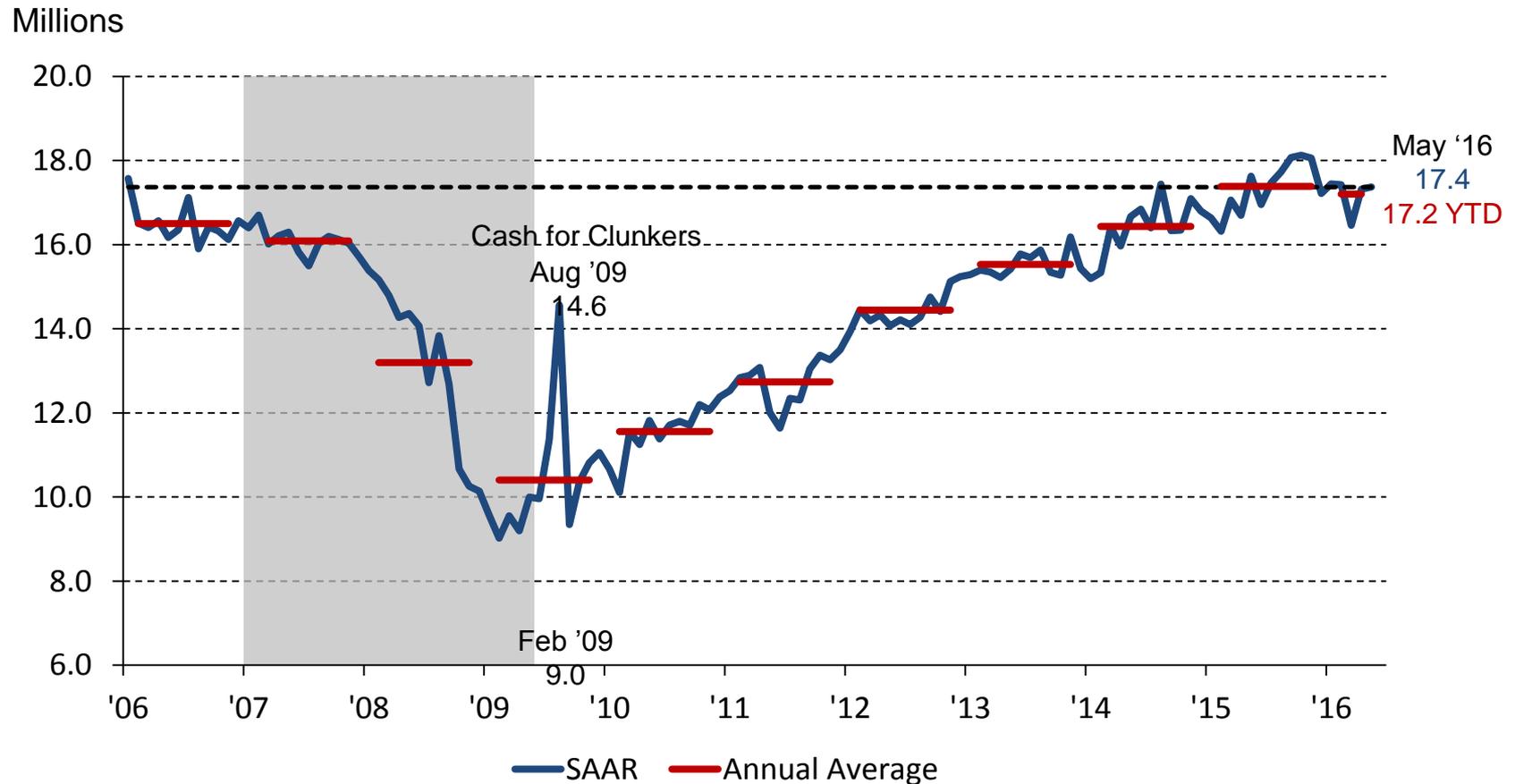
Billions of Chained \$2009, Percent Change - Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

U.S. Light Vehicle Sales

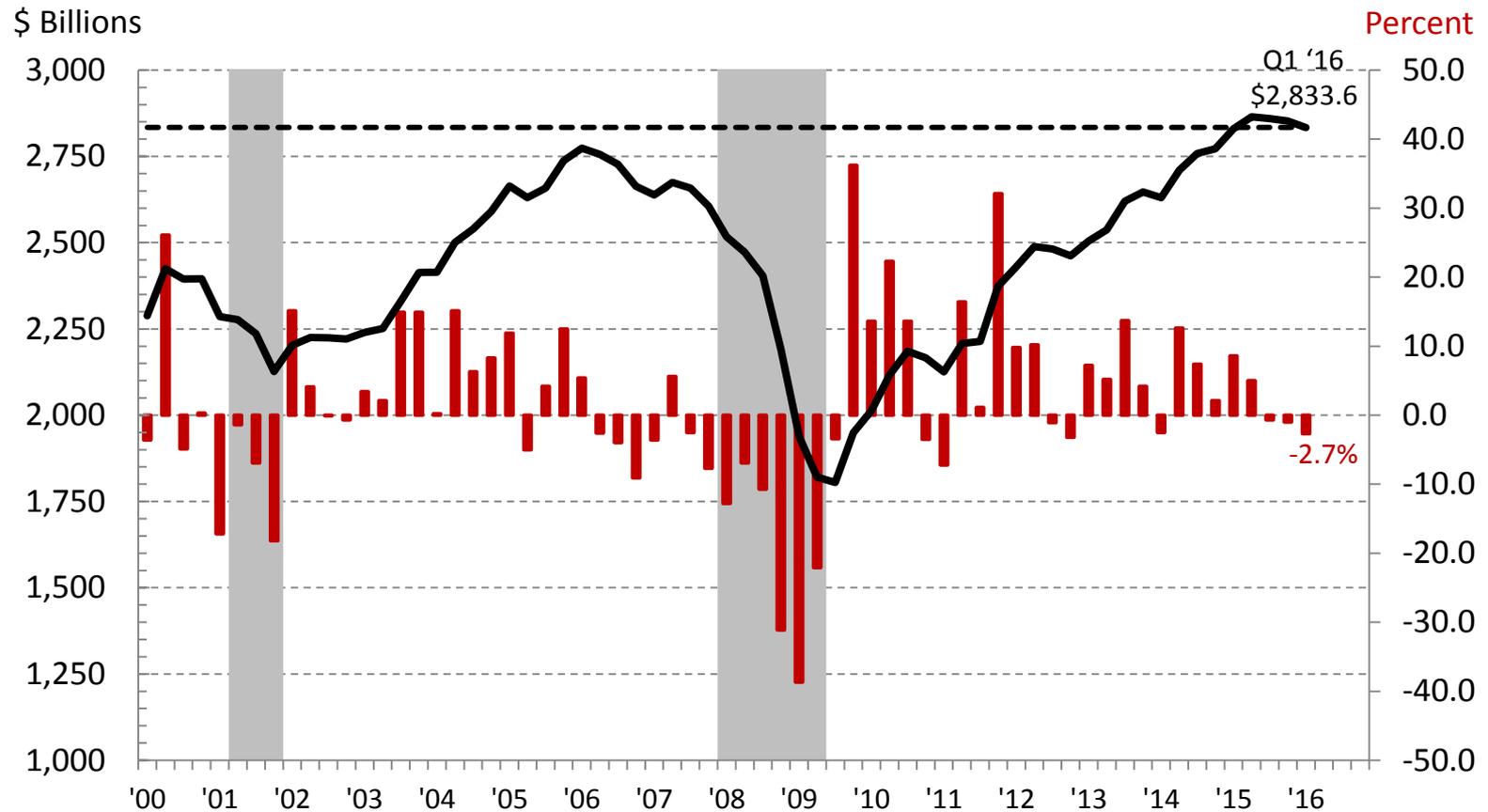
S.A.A.R – Millions of Units



Source: Ward's Automotive and BEA

Real Gross Domestic Investment

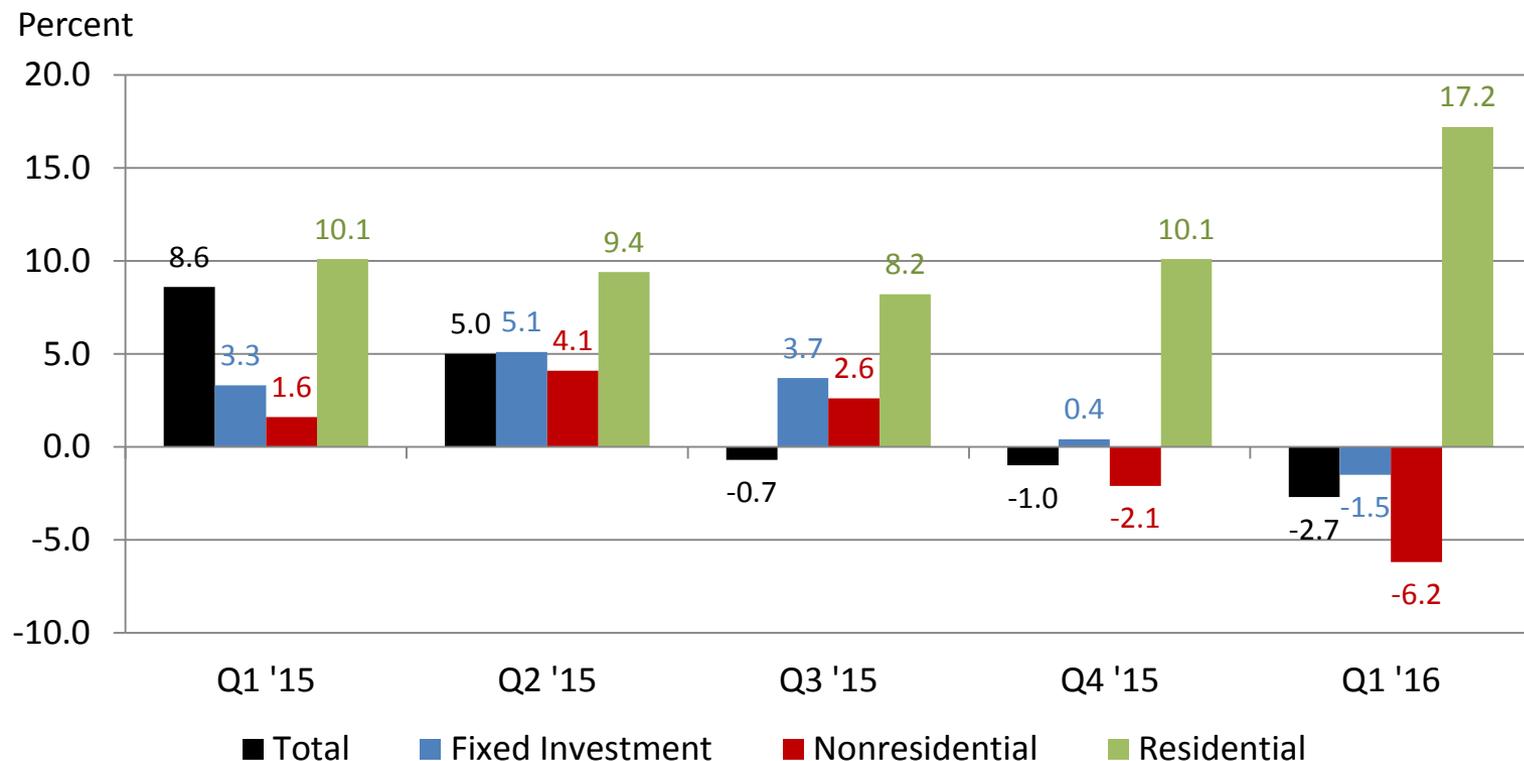
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Private Fixed Investment

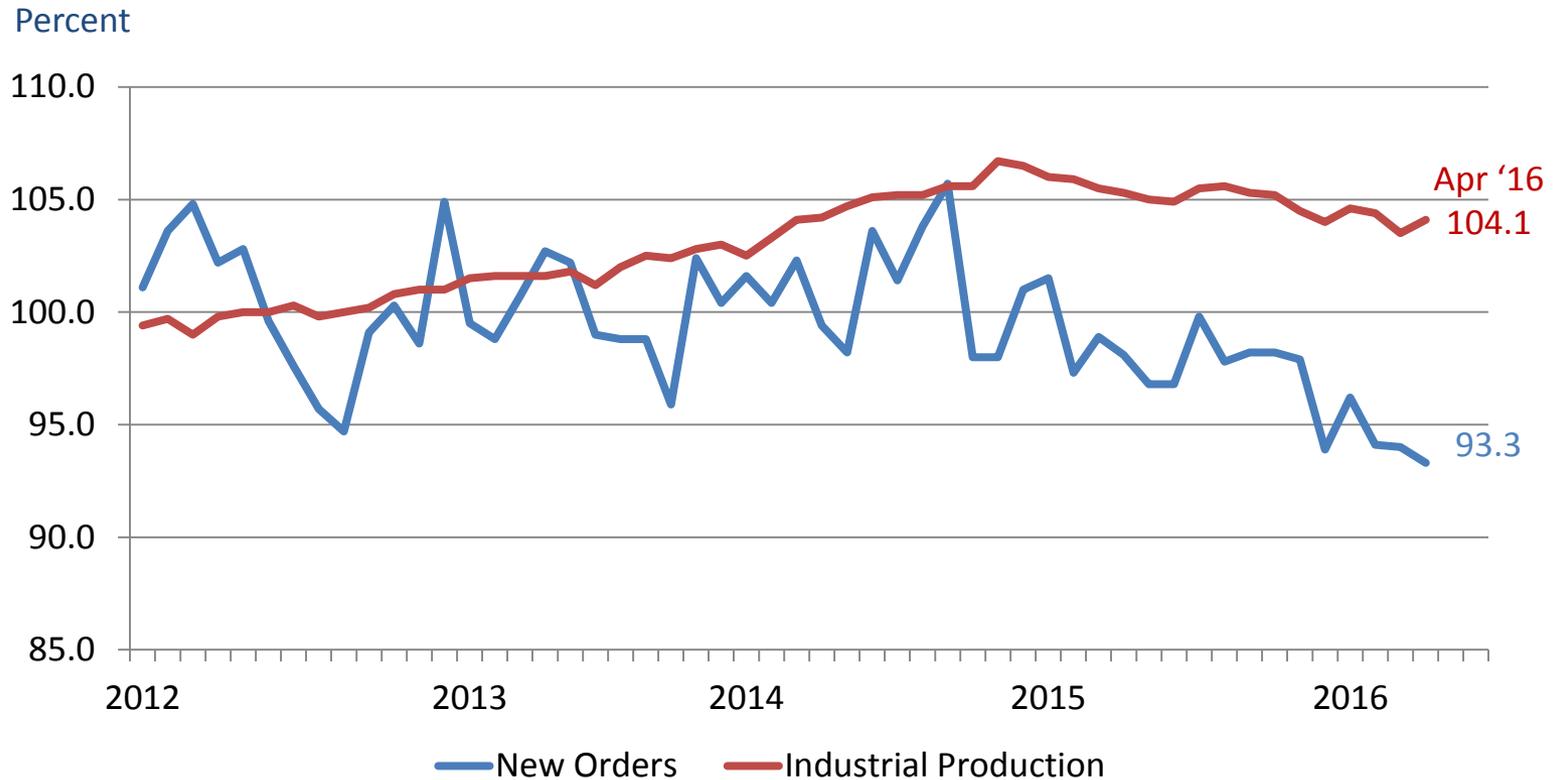
Billions of Chained \$2009, Percent Change - Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

New Orders and Industrial Production

Index – 2012 = 100

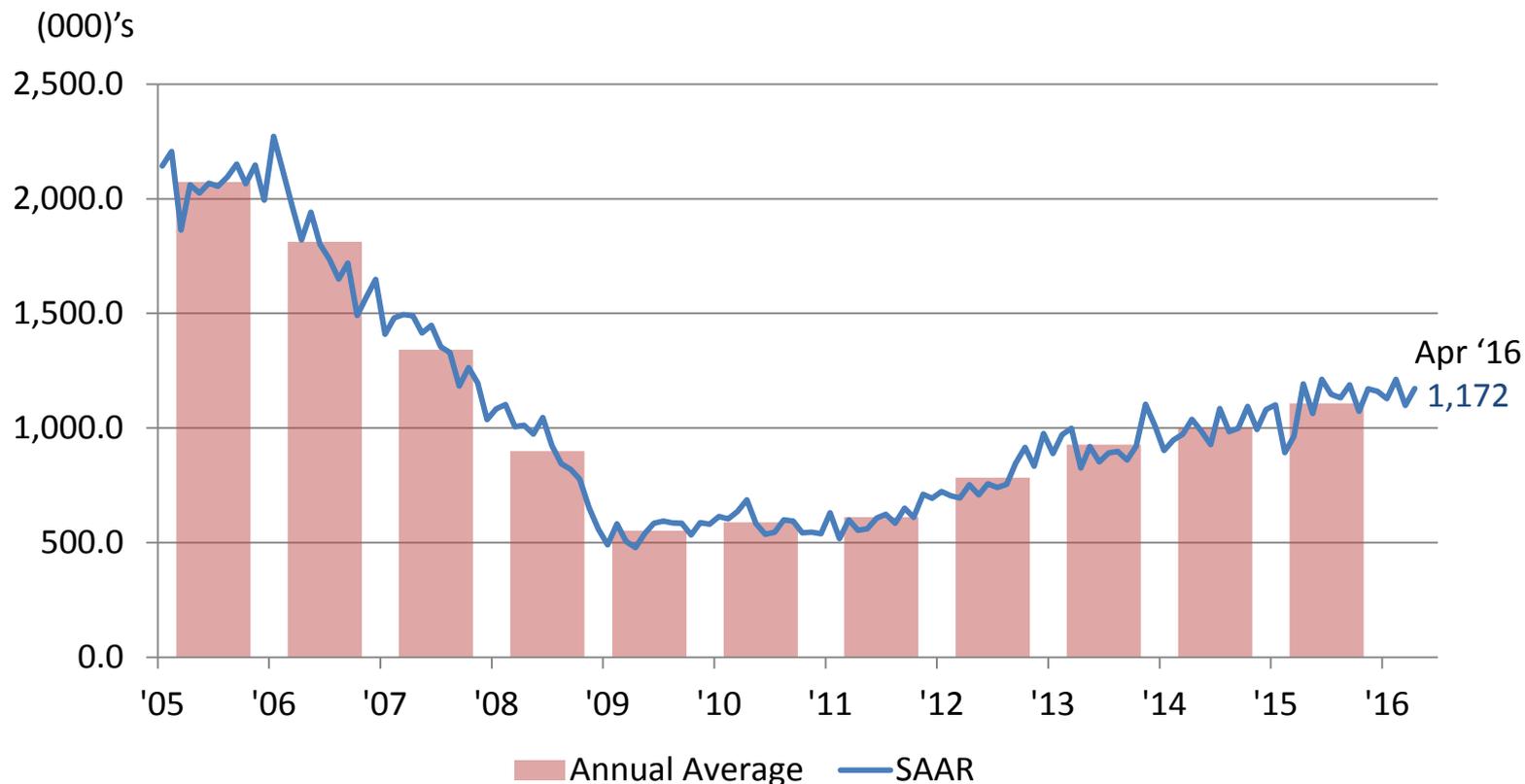


Note: New Orders Nondefense Capital Goods Excluding Aircraft.

Source: U.S. Bureau of Economic Analysis & U.S. Bureau of Census

U.S. Housing Starts

In Thousands of Units (SAAR) and Annual Average

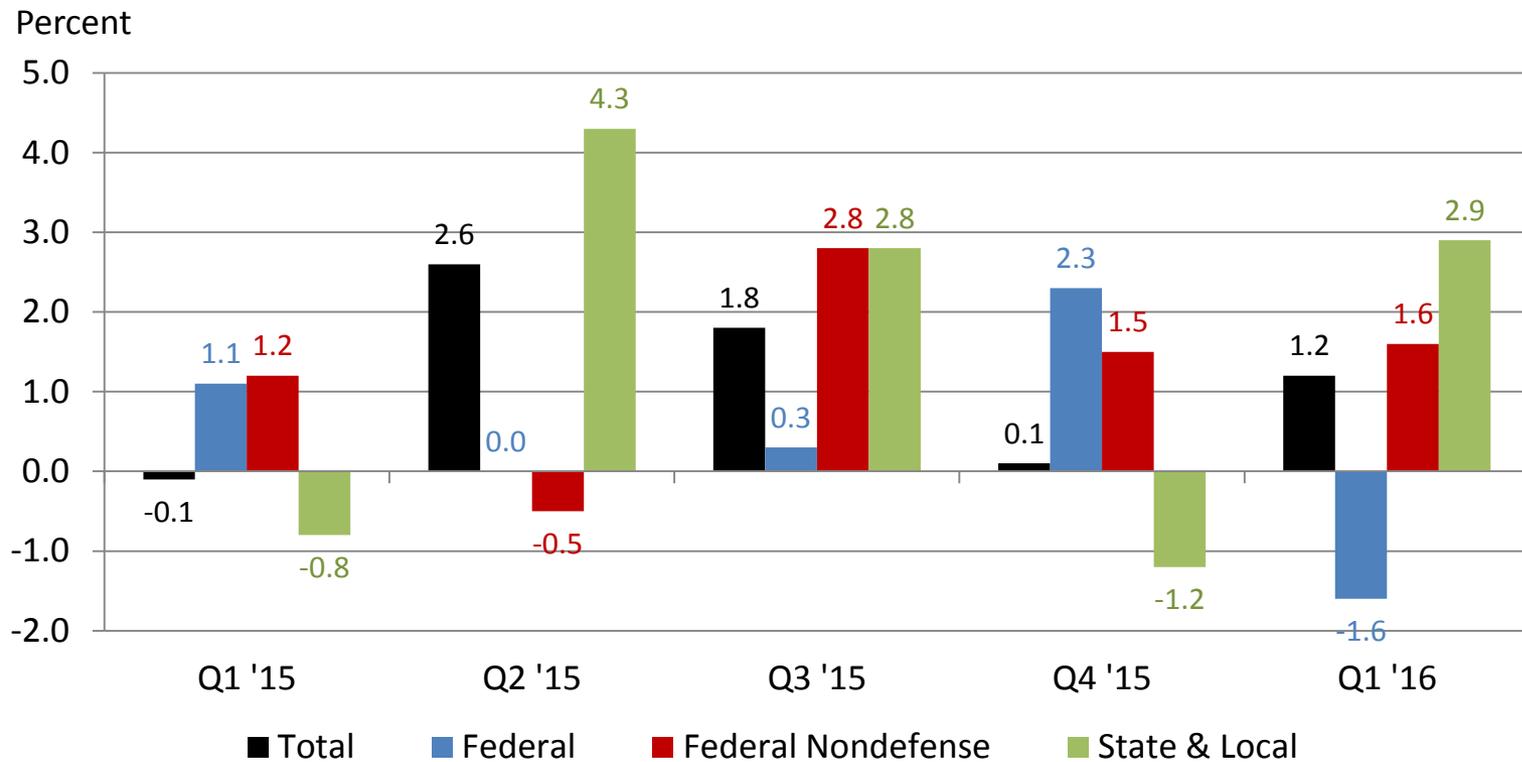


Note: The United States averaged 1.5 million housing starts per year 1990 to 2004.

Source: U.S. Census Bureau

Government Consumption & Investment

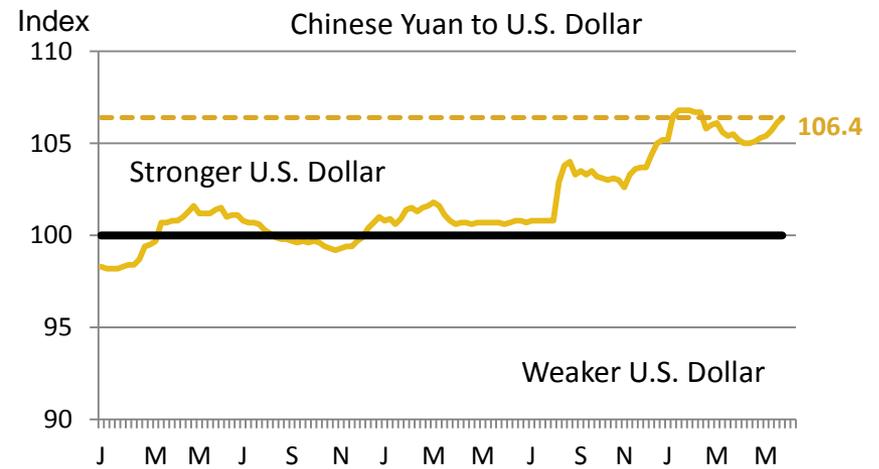
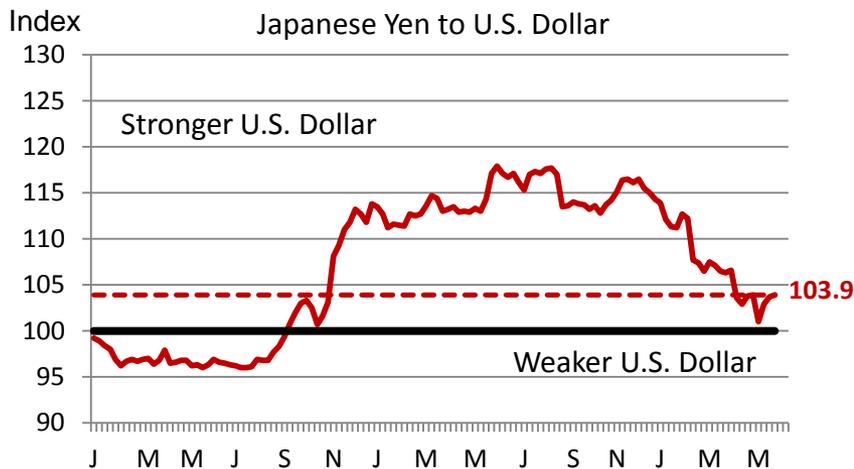
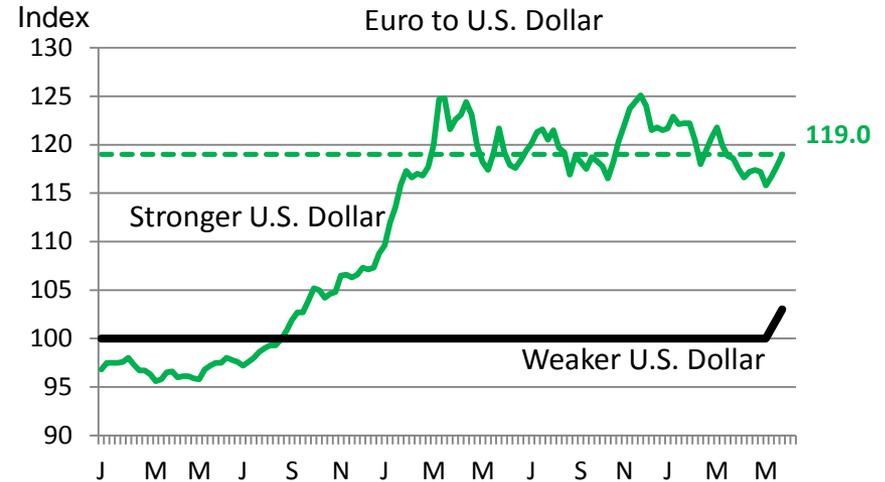
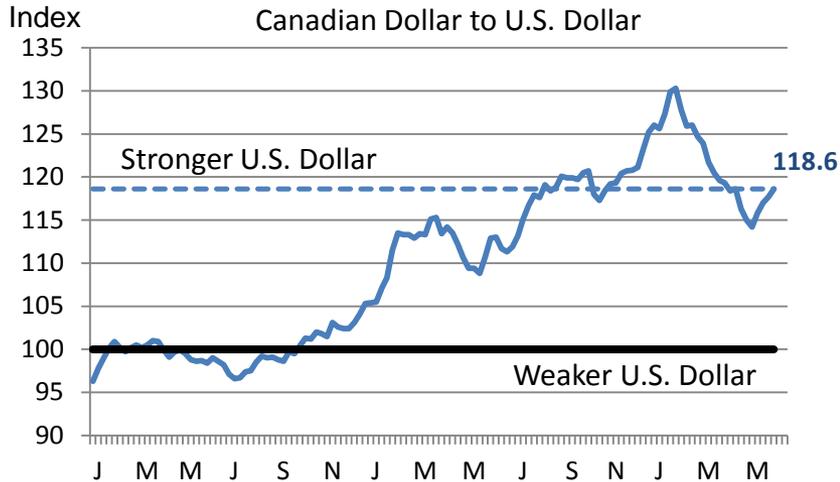
Billions of Chained \$2009, Percent Change - Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Stronger U.S. Dollar

Select Currencies Jan 3, 2014 to May 27, 2016, Index – 2014 = 100



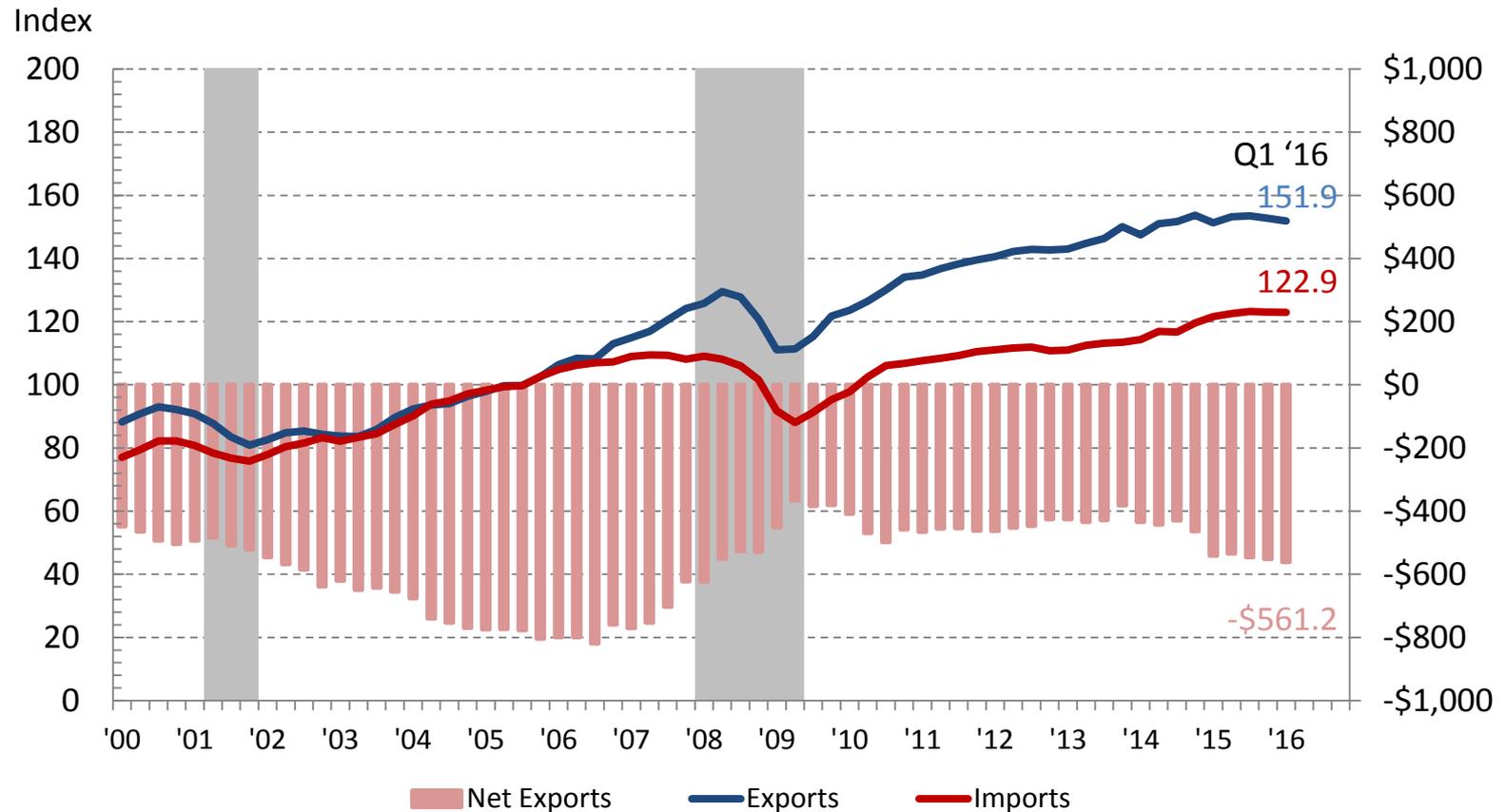
Source: Board of Governors – Federal Reserve System

June 3, 2016

Federal Reserve Bank of Chicago

Real Imports and Exports

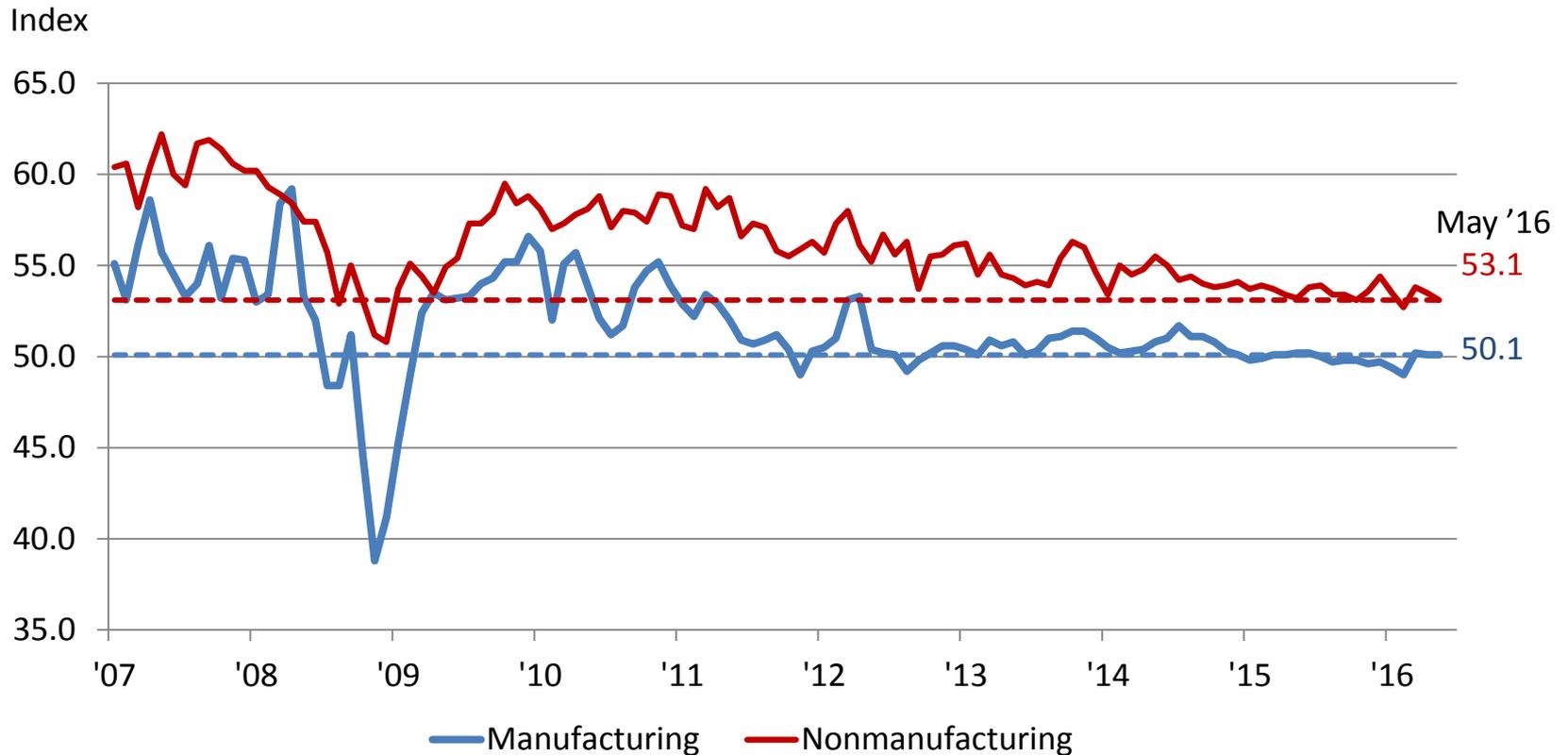
Billions Chained \$2009, Index – 2005 = 100



Source: U.S. Bureau of Economic Analysis

China PMI

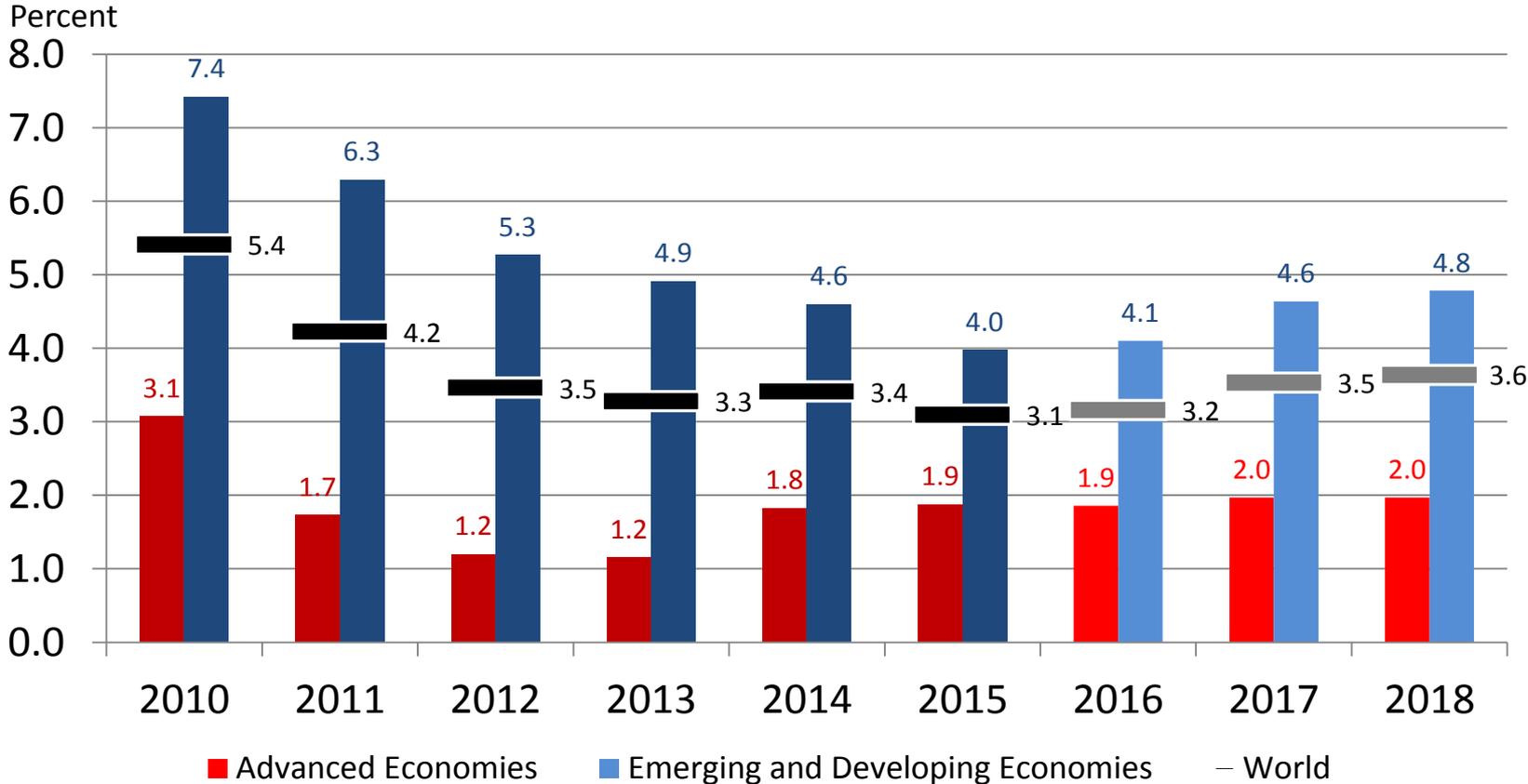
Manufacturing & Nonmanufacturing - SA, +50 Signifies Expansion



Source: China Federation of Logistics & Purchasing and Haver Analytics

Global Outlook

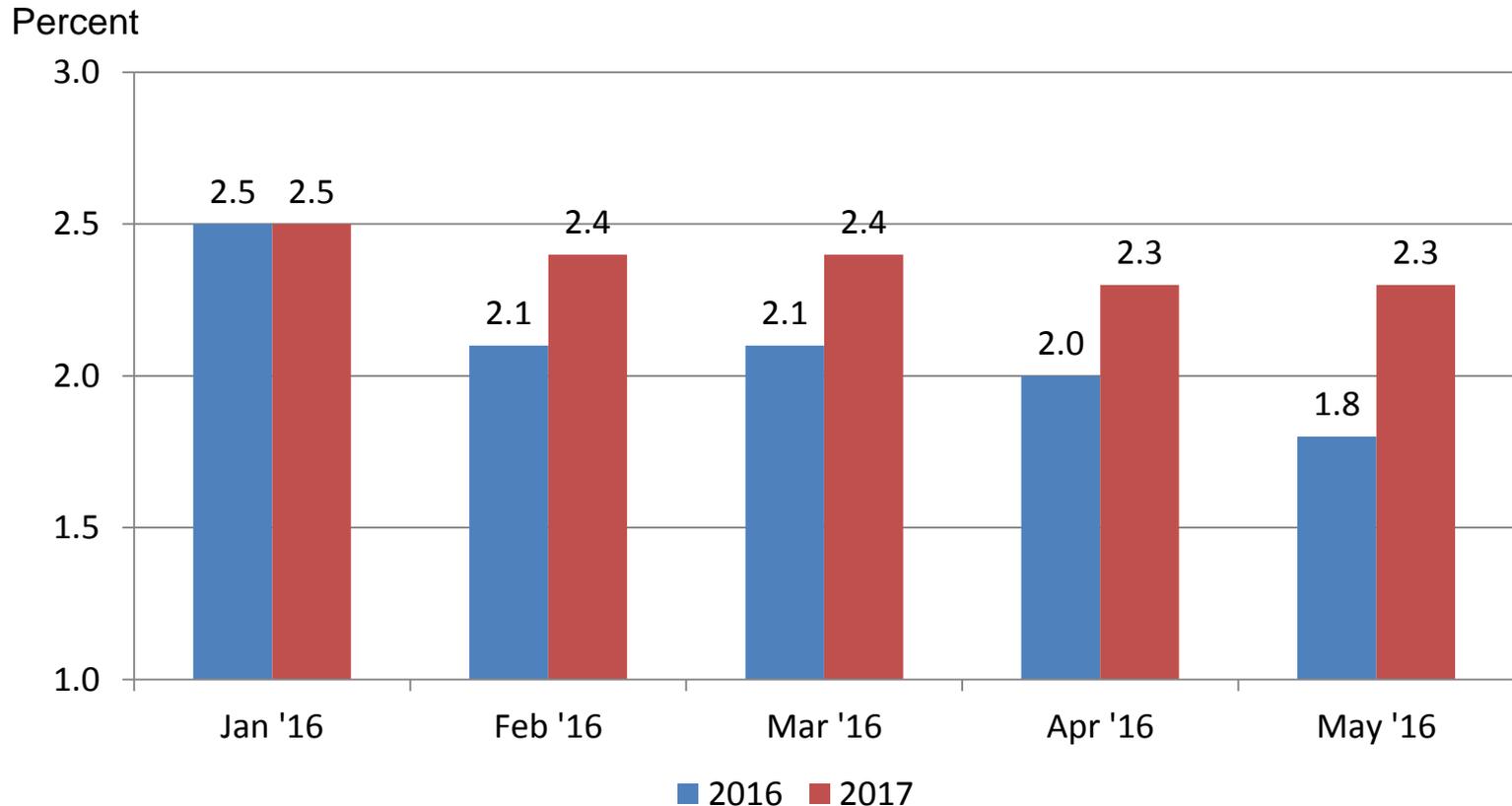
IMF Forecast for Growth (April '16 Database), % Chg. Yr./Yr.



Source: IMF - World Economic Outlook

U.S. Real GDP Blue Chip Forecast

Annual Percent Change – Chained \$2009

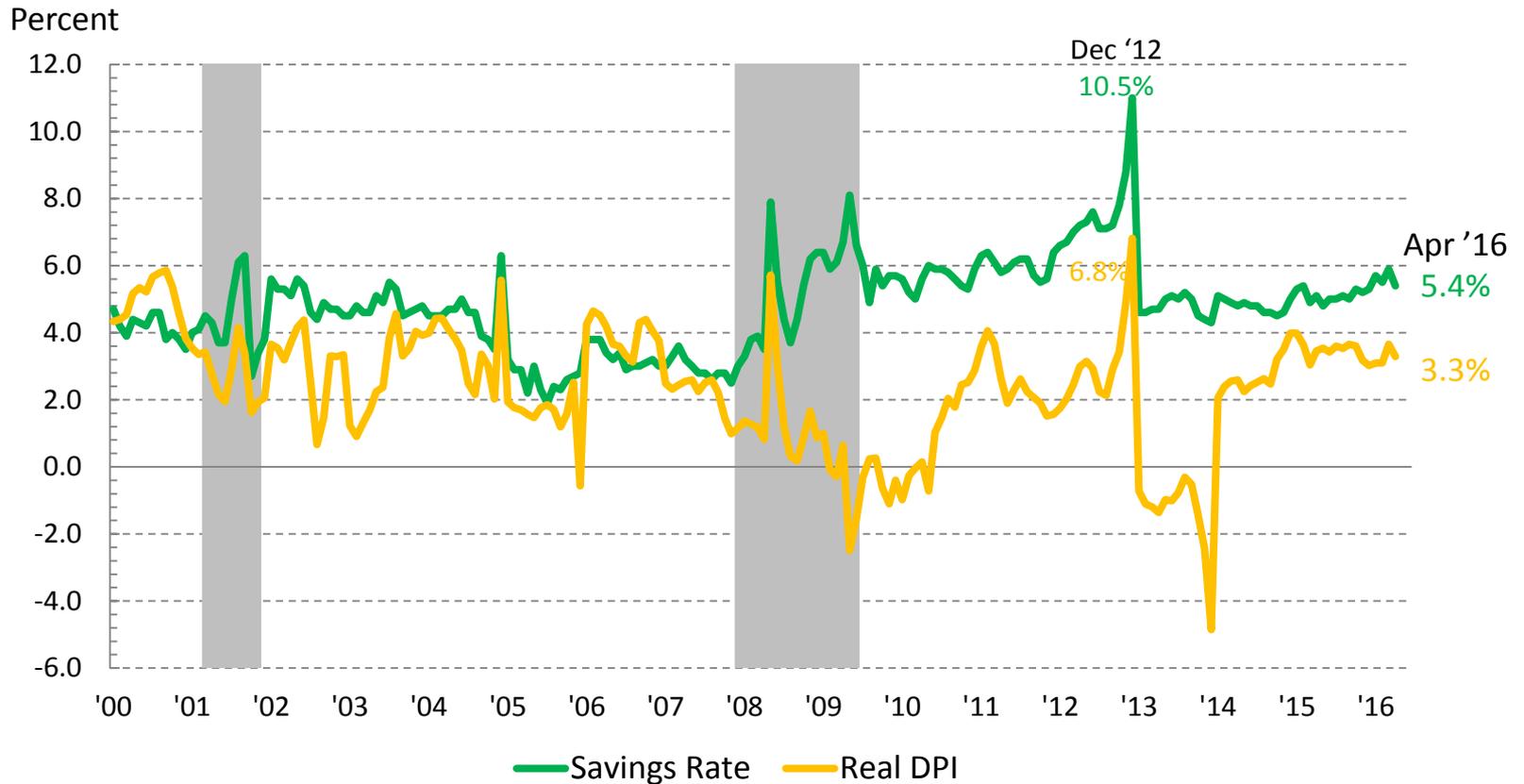


Source: April 2015 Blue Chip Economic Indicators

U.S. Consumer Ability and Willingness to Buy

Real Disposable Personal Income & Savings Rate

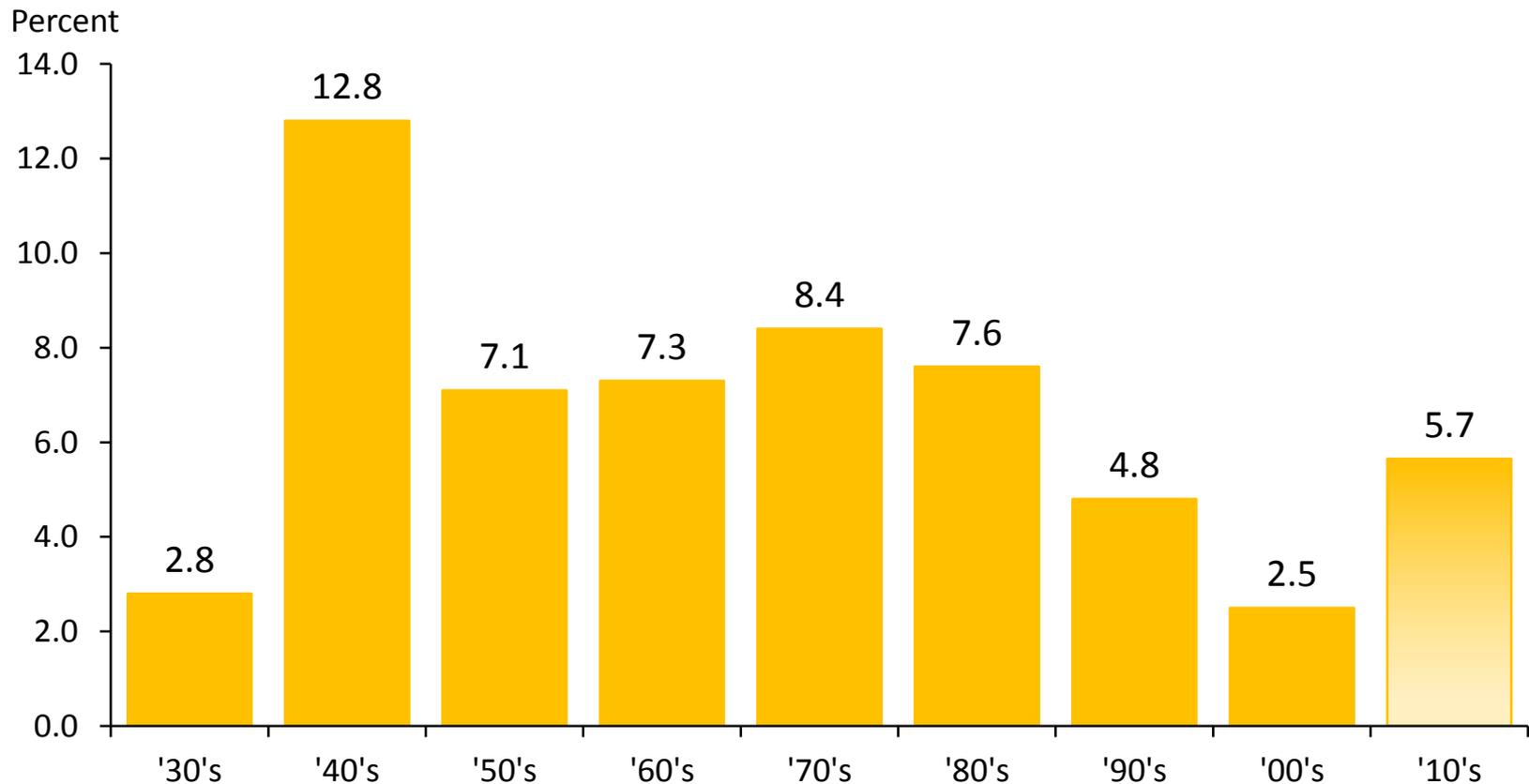
Percent Change Year/Year and Percent of Personal Income



Source: U.S. Bureau of Economic Analysis

Personal Savings Rate

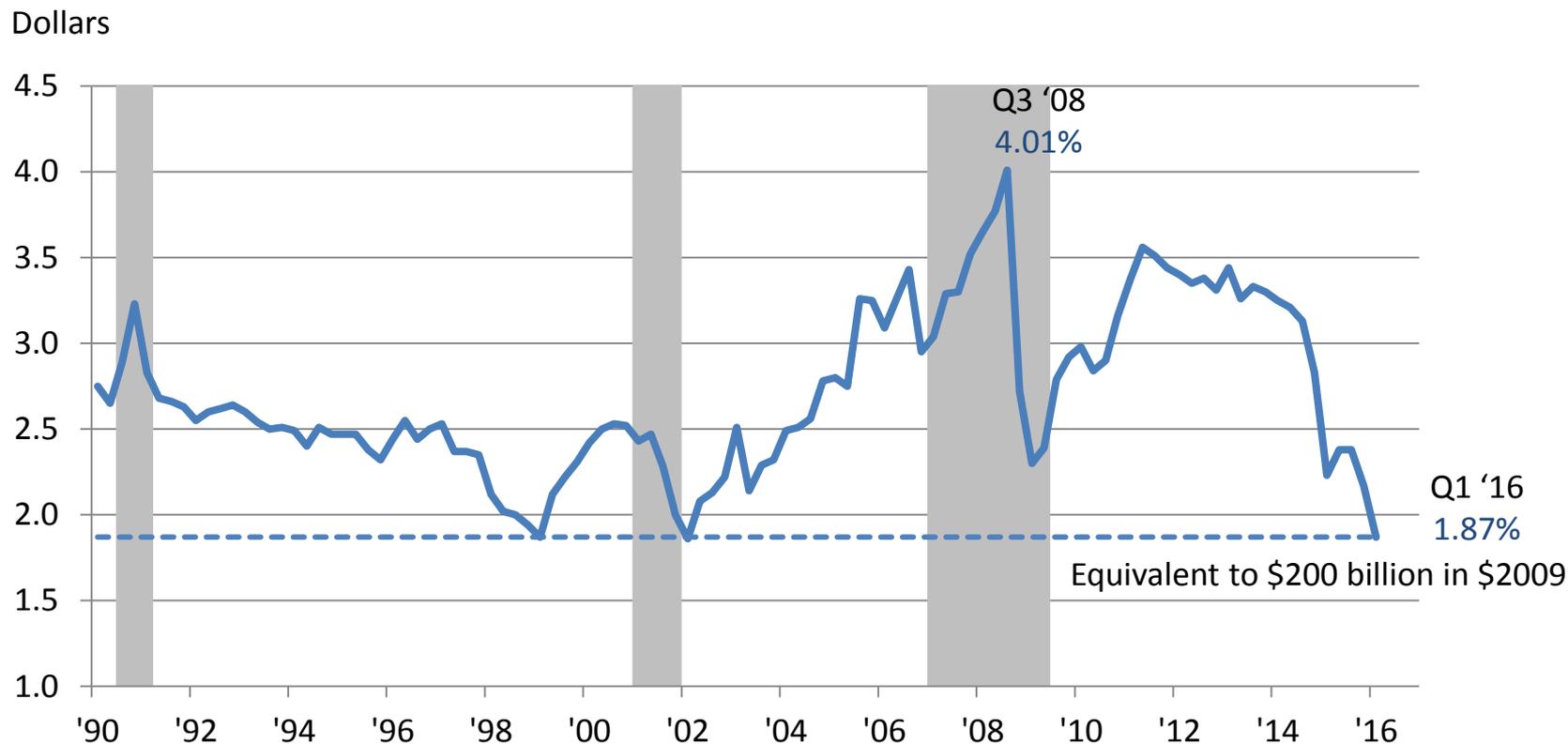
As Percent of Personal Income



Source: U.S. Bureau of Economic Analysis

Personal Consumption Expenditures

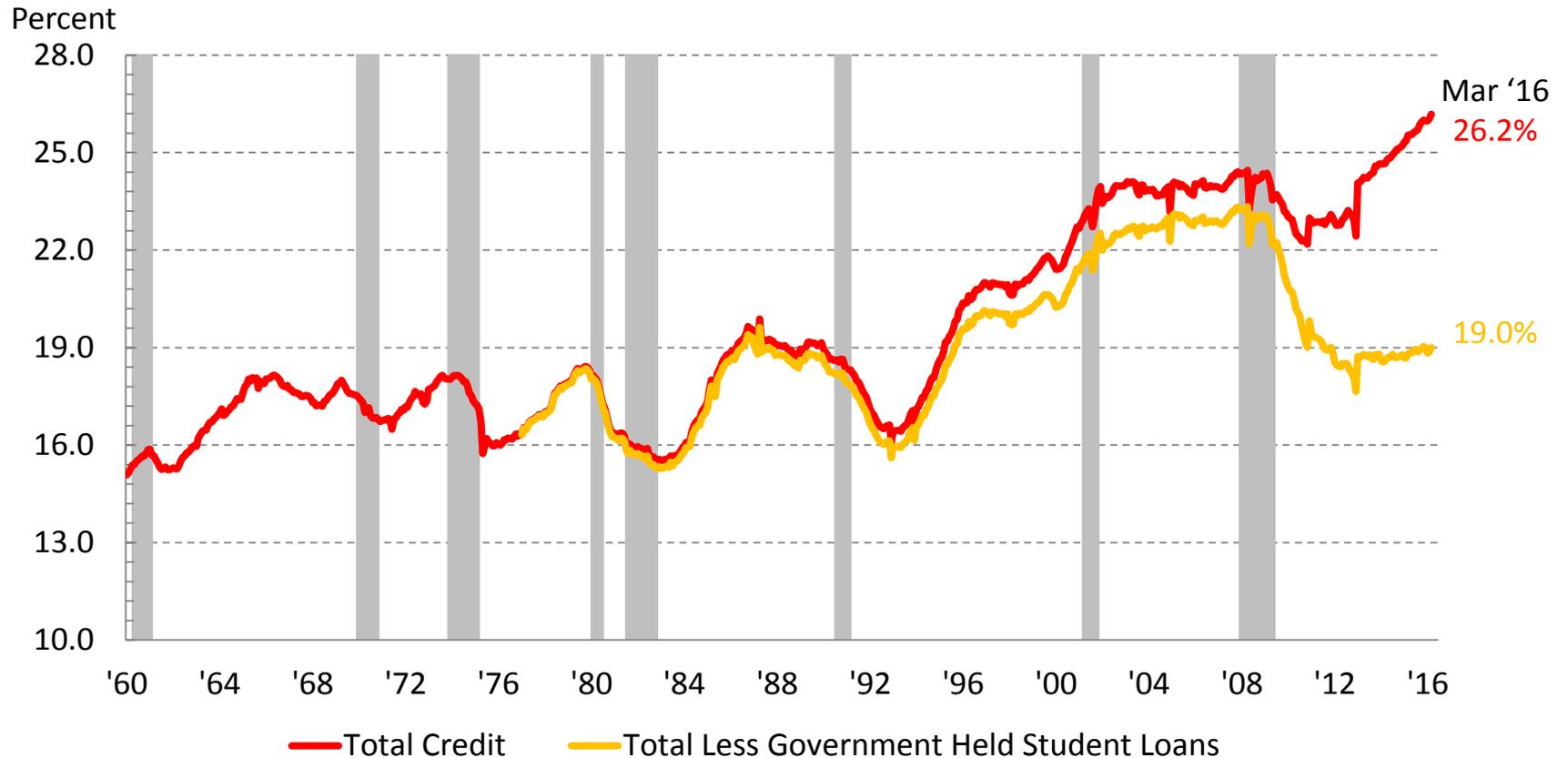
Gasoline and Other Energy Related Products - % of DPI



Source: Author's calculations using U.S. Bureau of Economic Analysis data.

Total Consumer Credit

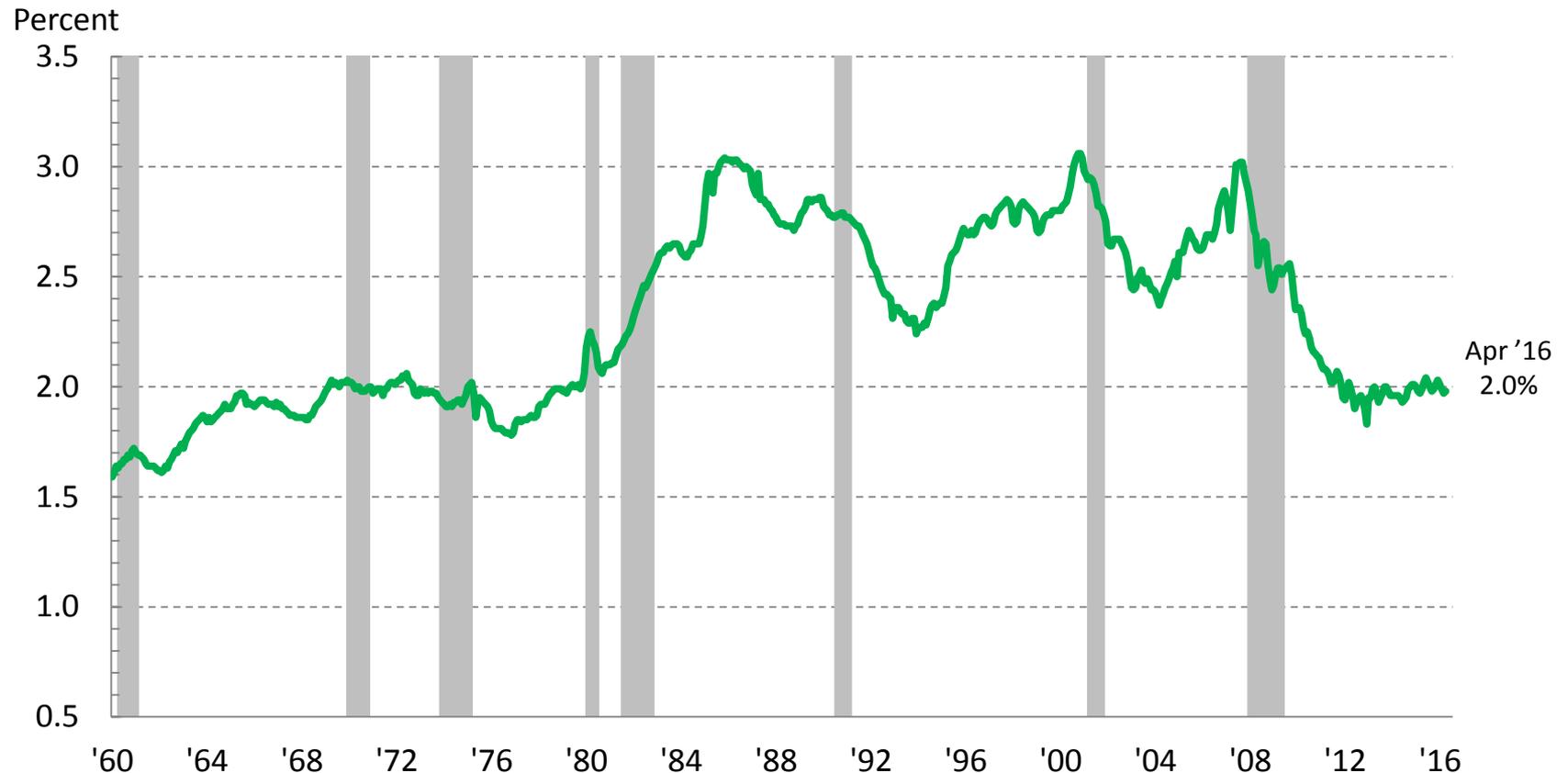
Revolving and Non-revolving Credit as % of DPI



Source: Federal Reserve Bank - Board of Governors

Personal Interest Payments

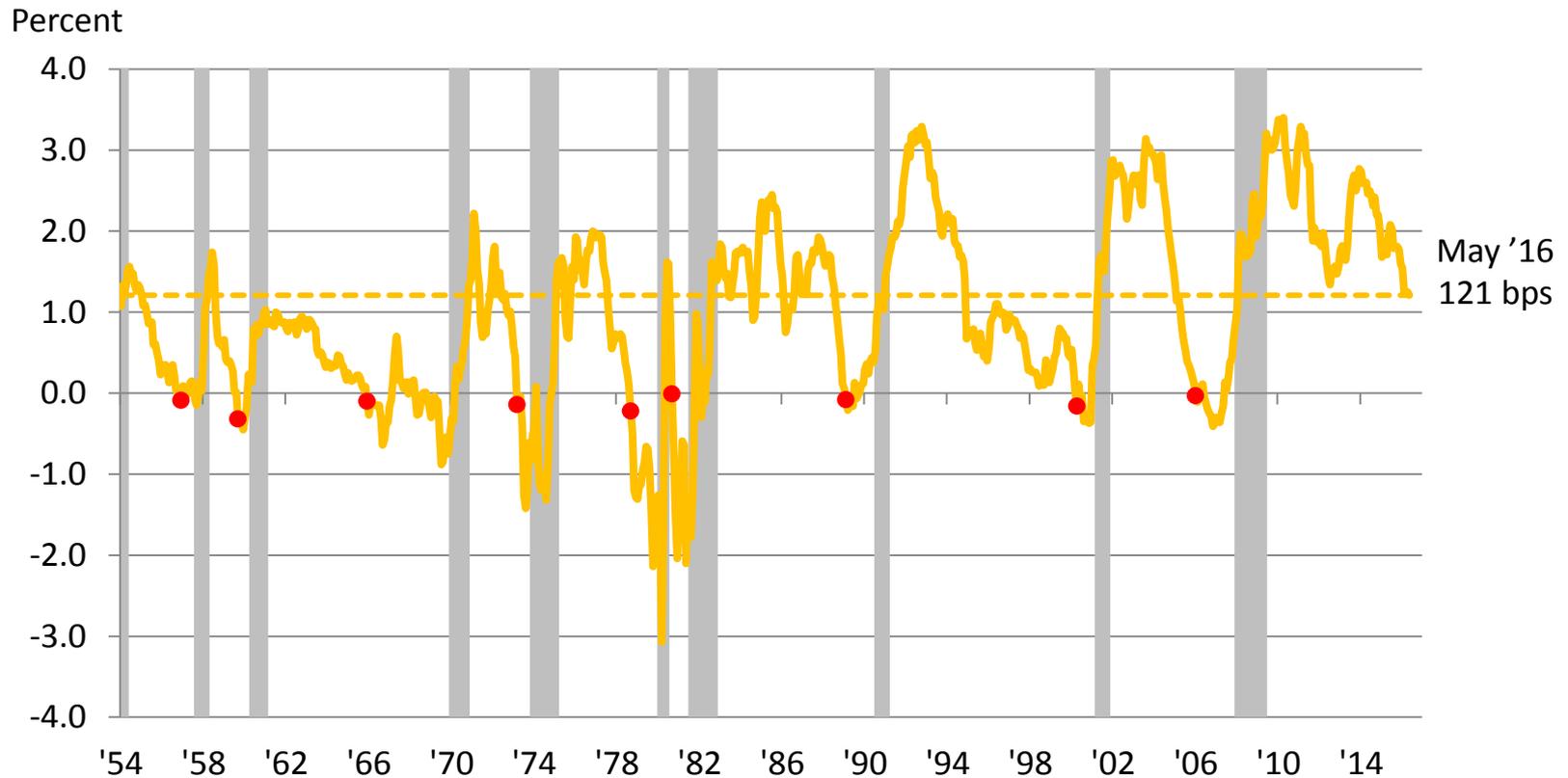
As a Percent of Disposable Personal Income



Source: U.S. Bureau of Economic Analysis

Yield Curve

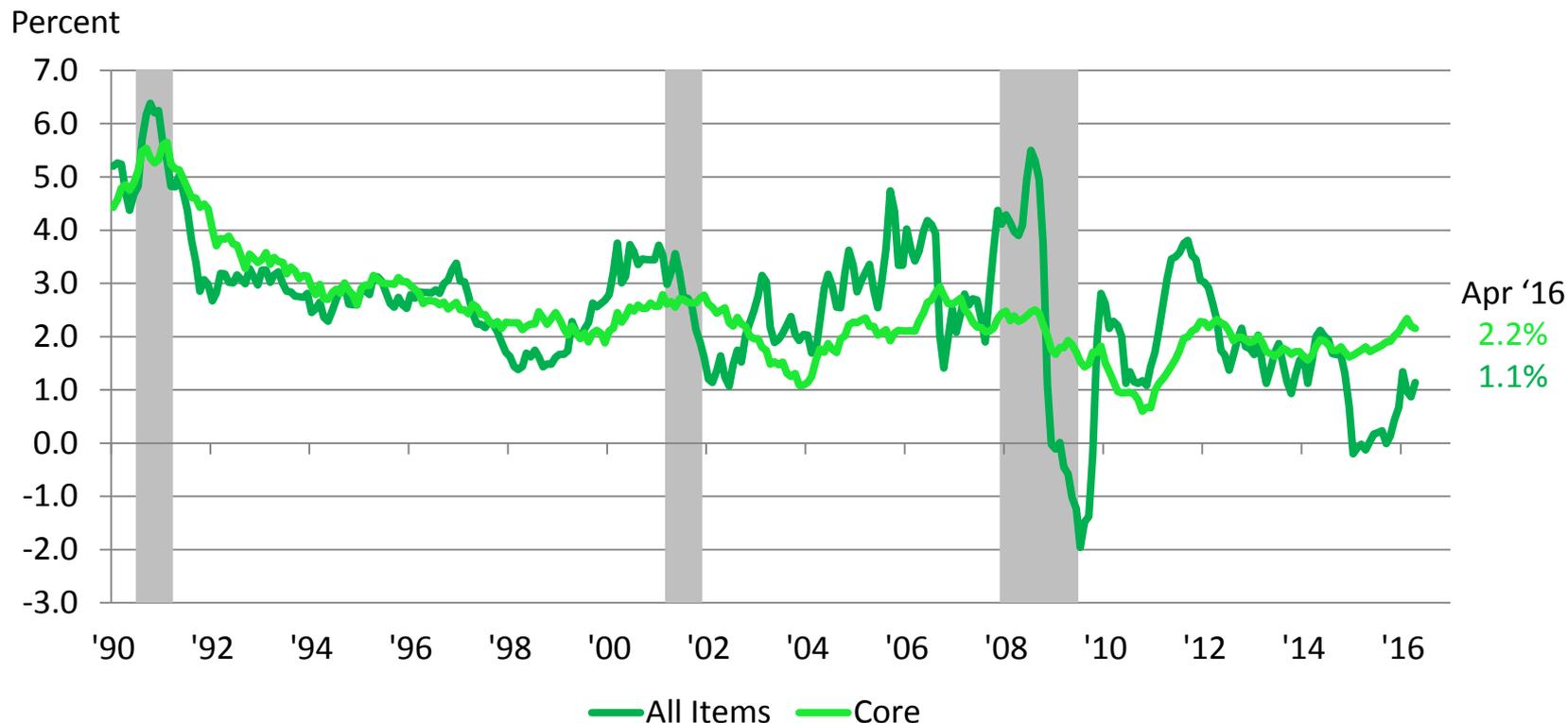
10 Year – 1 Year Treasuries



Source: Board of Governors – Federal Reserve System

Inflation

CPI All Items and Core, Percent Change Yr./Yr. - SA

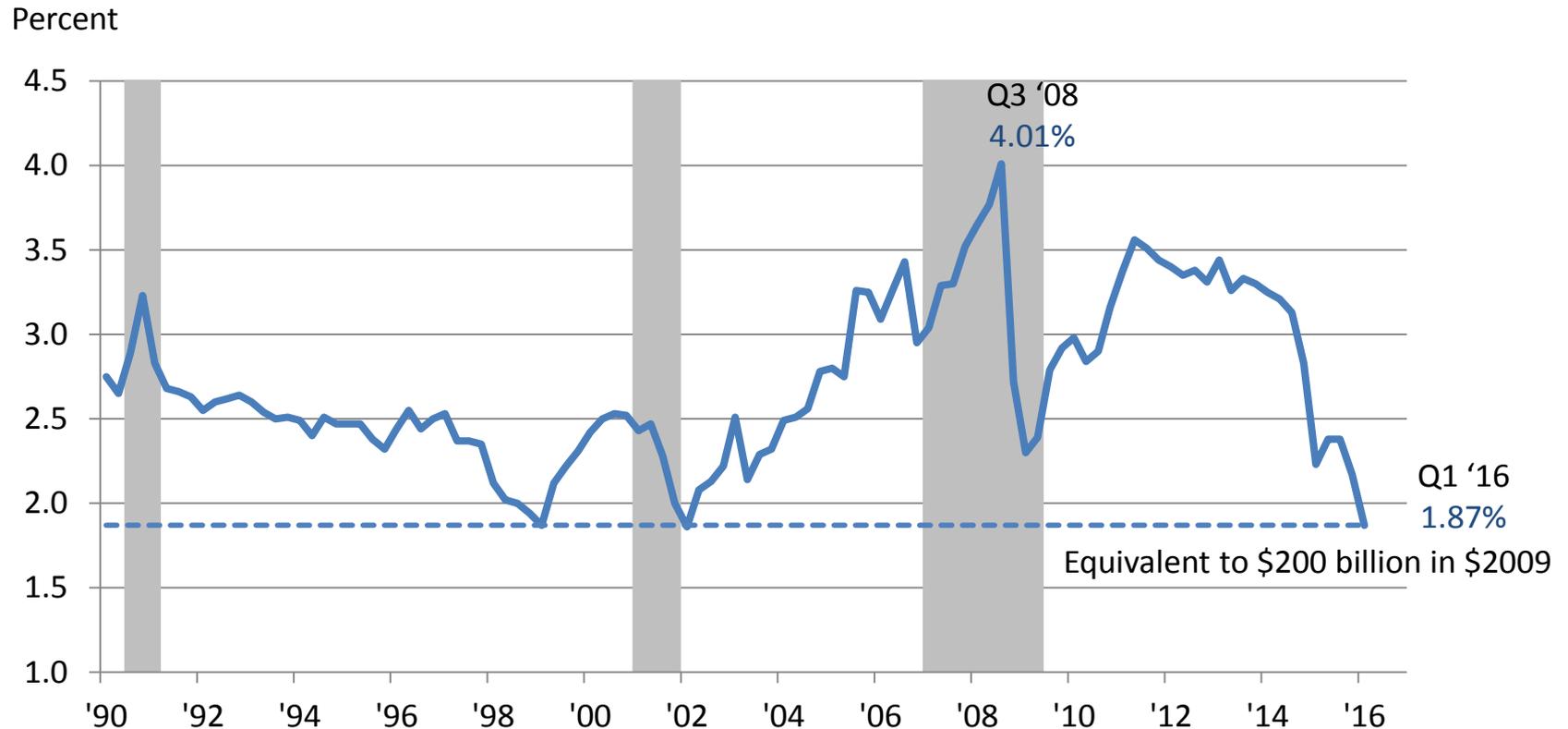


Data: Consumer Price Index for All Urban Consumers, All Items and All Items Less Food and Energy

Source: U.S. Bureau of Labor Statistics

Personal Consumption Expenditures

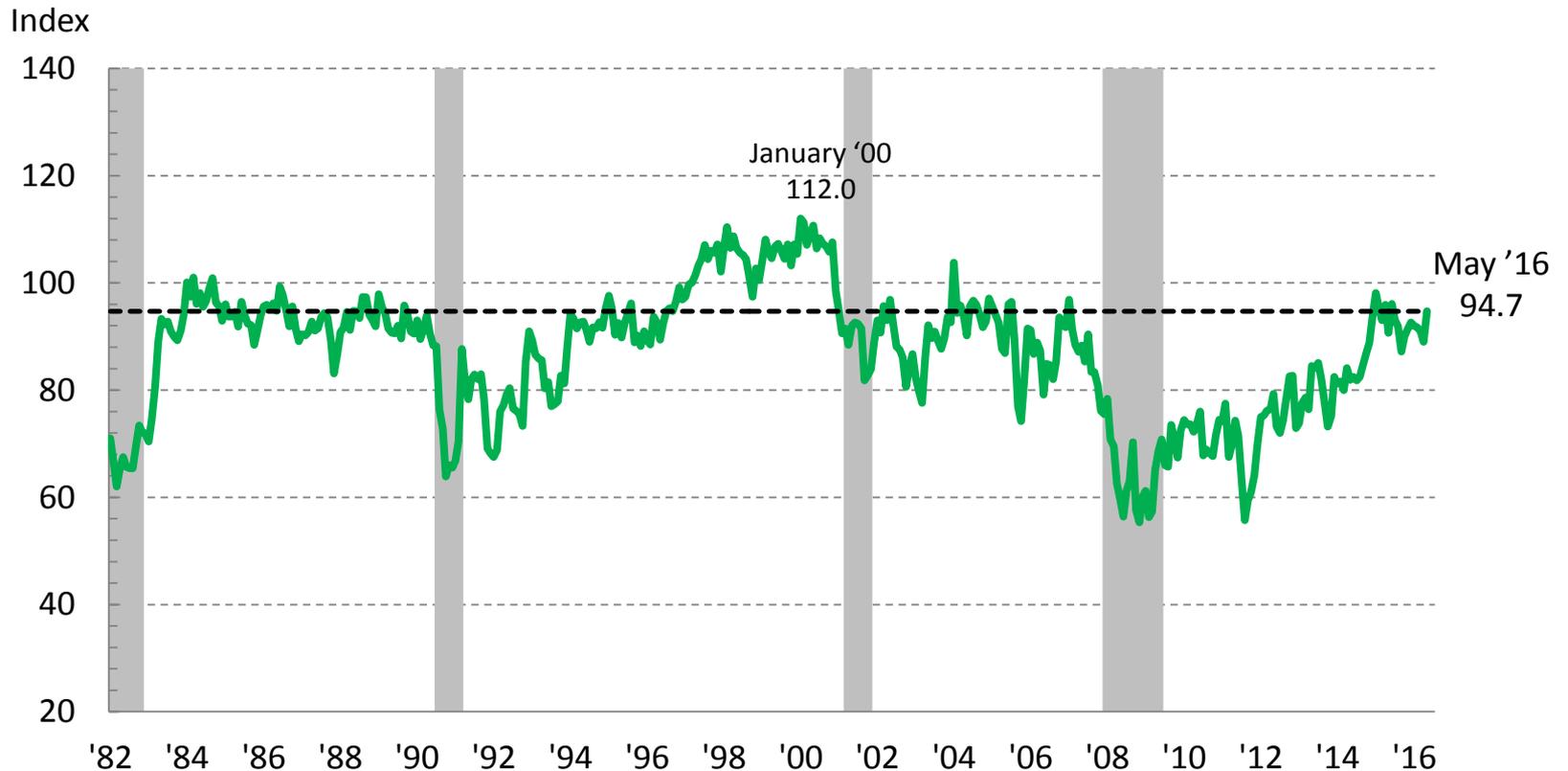
Gasoline and Other Energy Related Products - % of DPI



Source: Author's calculations using U.S. Bureau of Economic Analysis data.

Consumer Sentiment

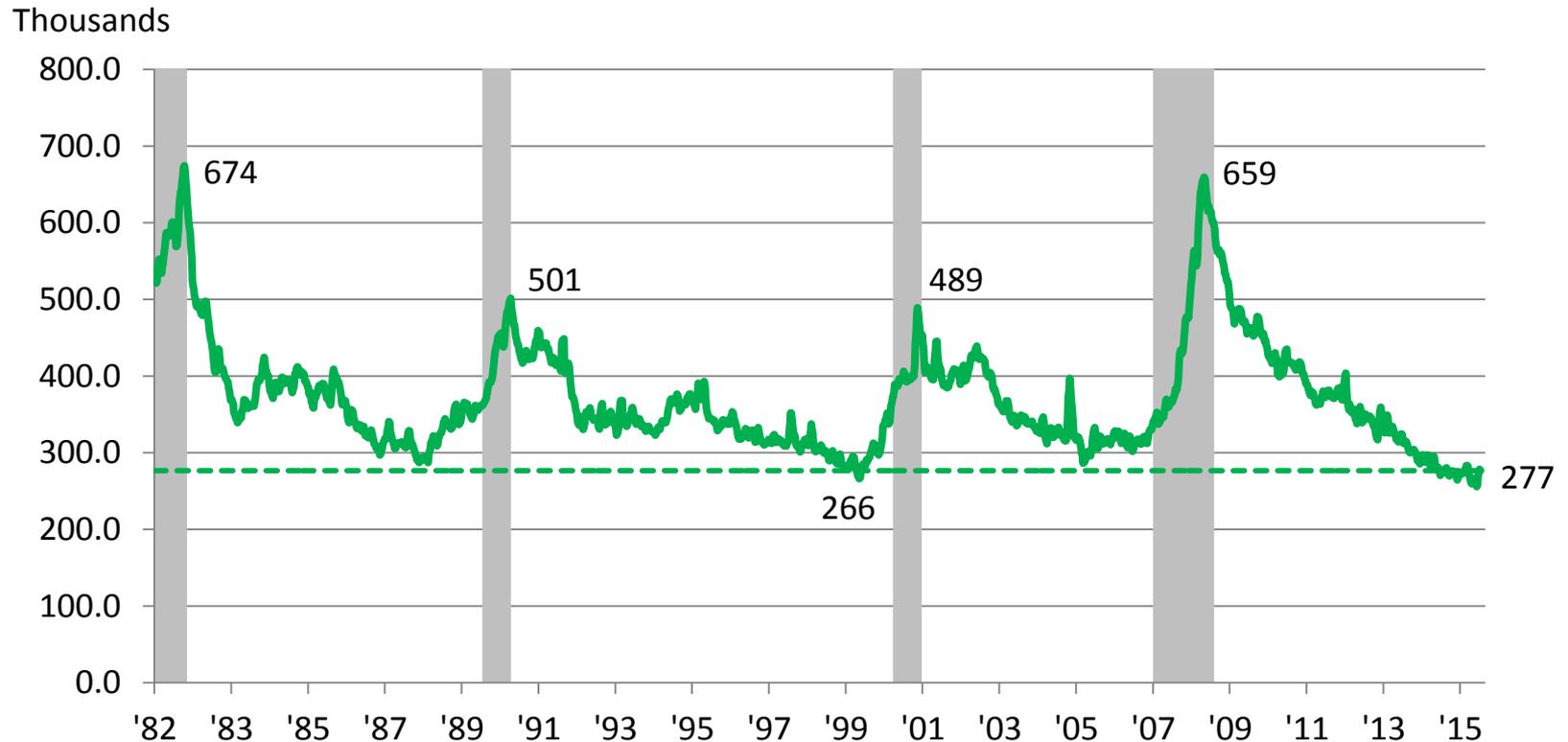
University of Michigan



Source: Thomson Reuters / University of Michigan

Initial Unemployment Claims

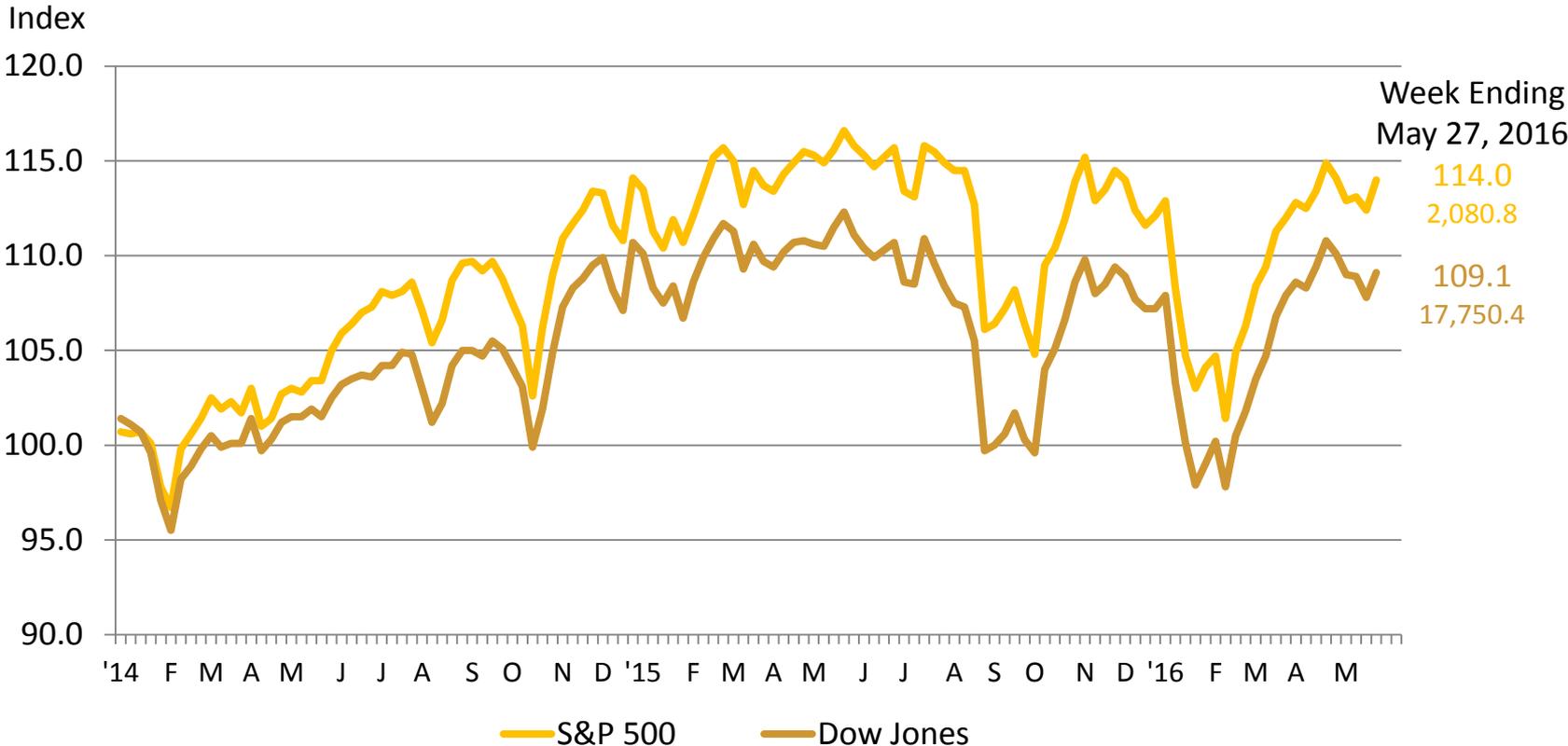
4 Week Moving Average



Source: Author's calculations using U.S. Bureau of Economic Analysis data.

Stock Market

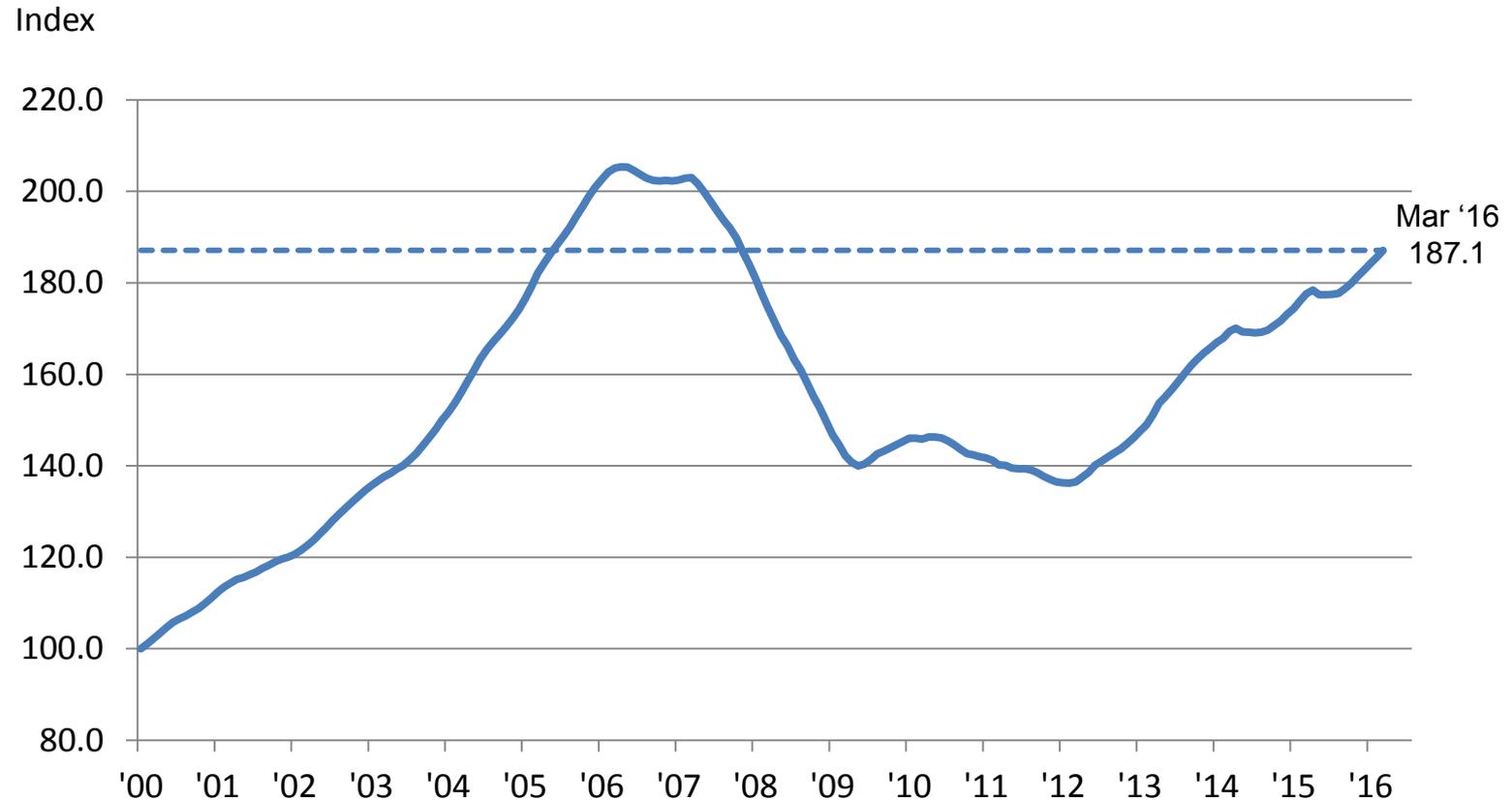
S&P 500 and Dow Jones Indices, Index Jan, 2014 = 100



Source: St Louis Fed and S&P Dow Jones

Home Prices

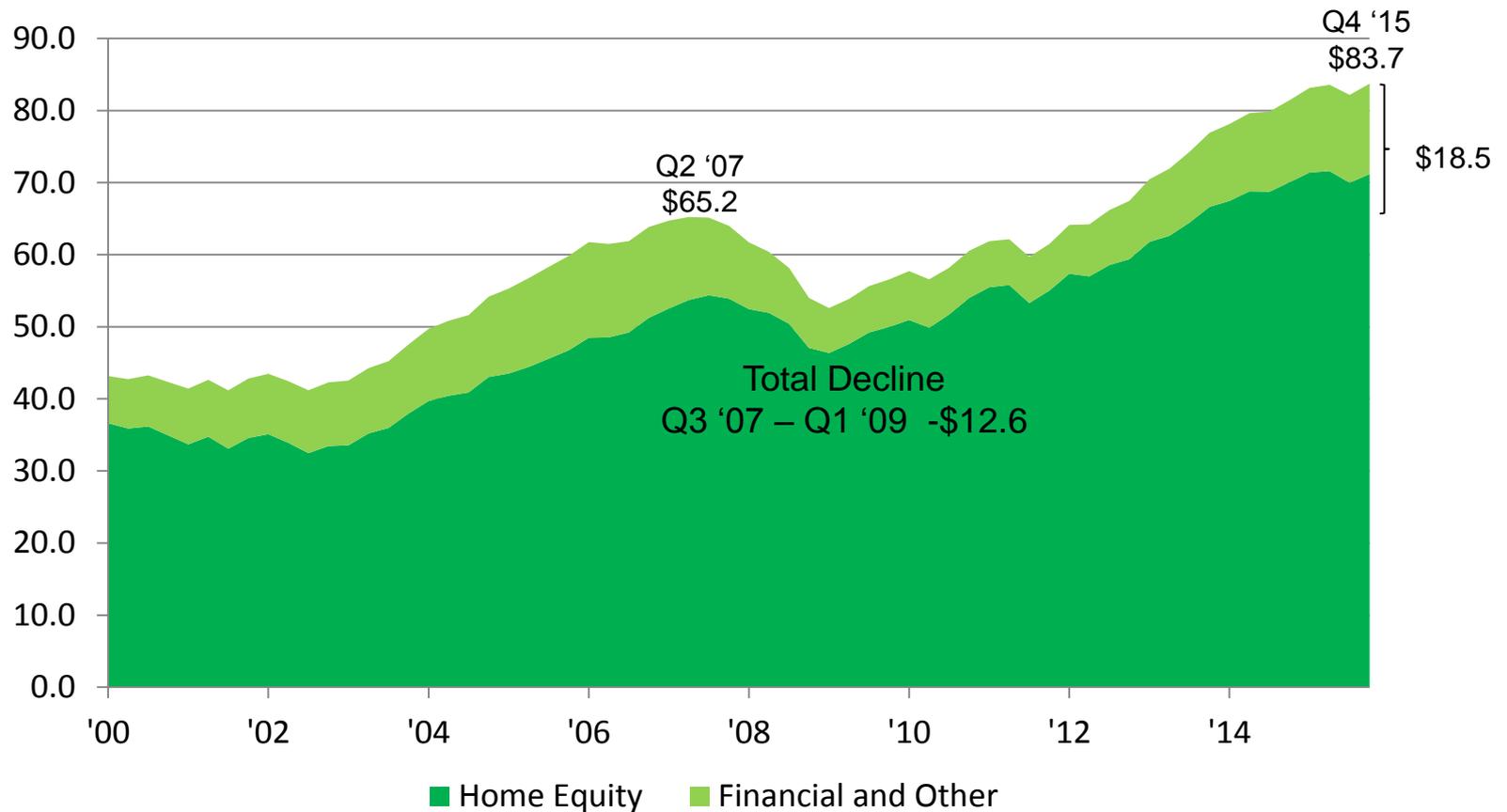
S&P Case-Shiller 20 City Composite – Jan, 2010 = 100



Source: St Louis Fed and S&P Case-Shiller

Household Net Worth

Trillions of Dollars, Q1 '00 to Q4 '15

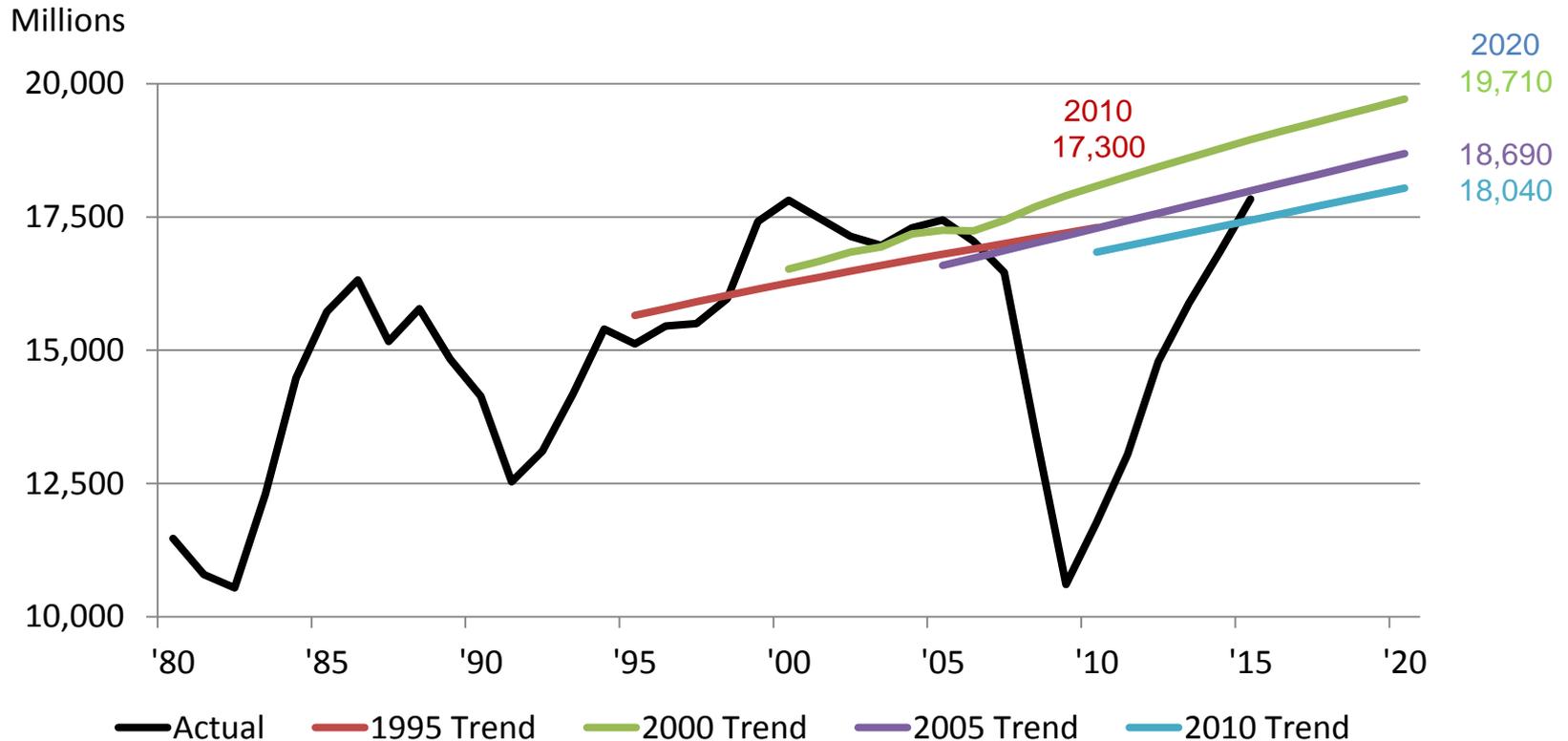


Source: Federal Reserve Z.1 Statistical Release ,Table B100, Households and Nonprofit Organizations

Auto Industry

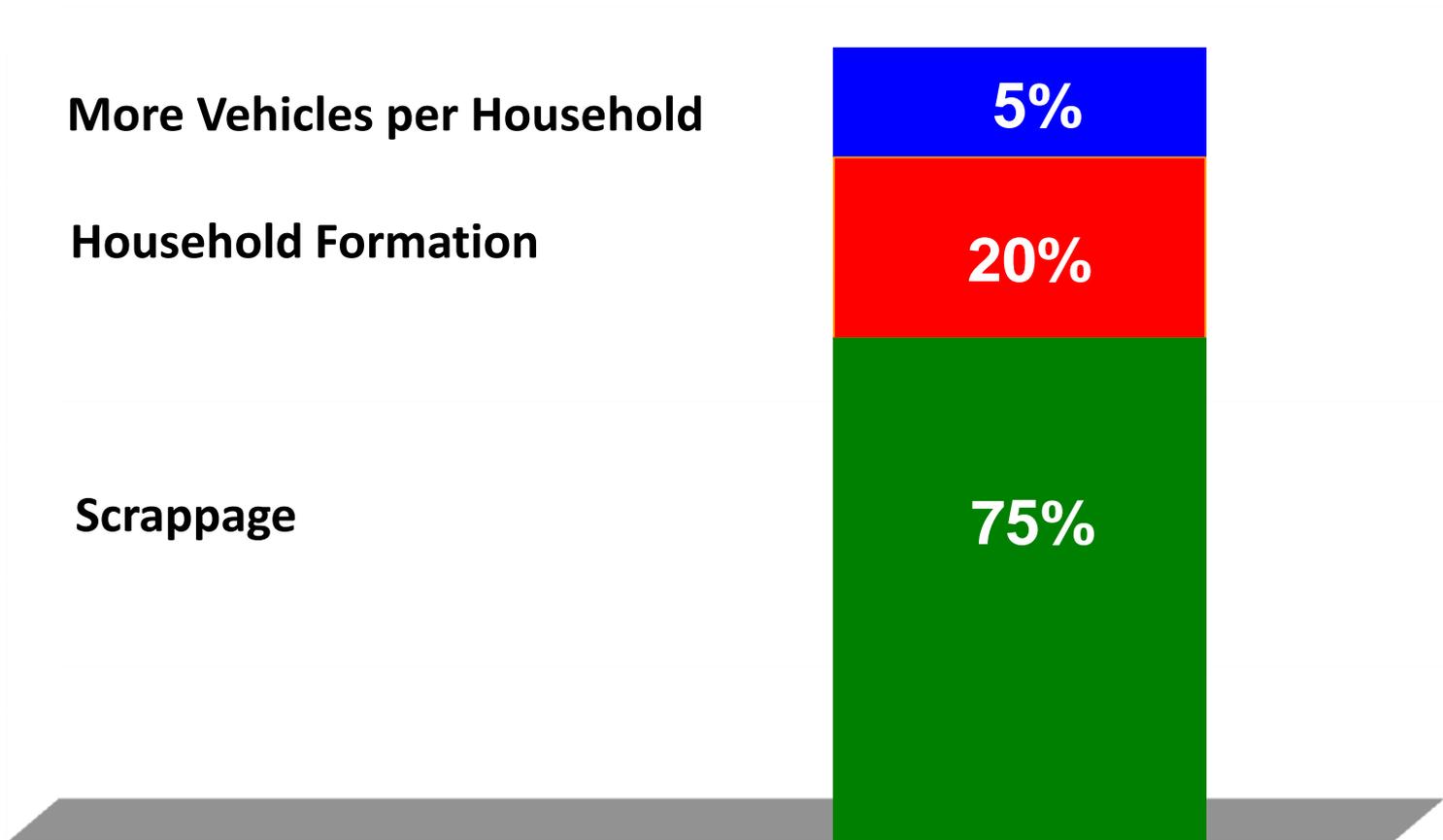
U.S. Total Vehicles – Actual and Trend

Trend over Time - In Millions of Units



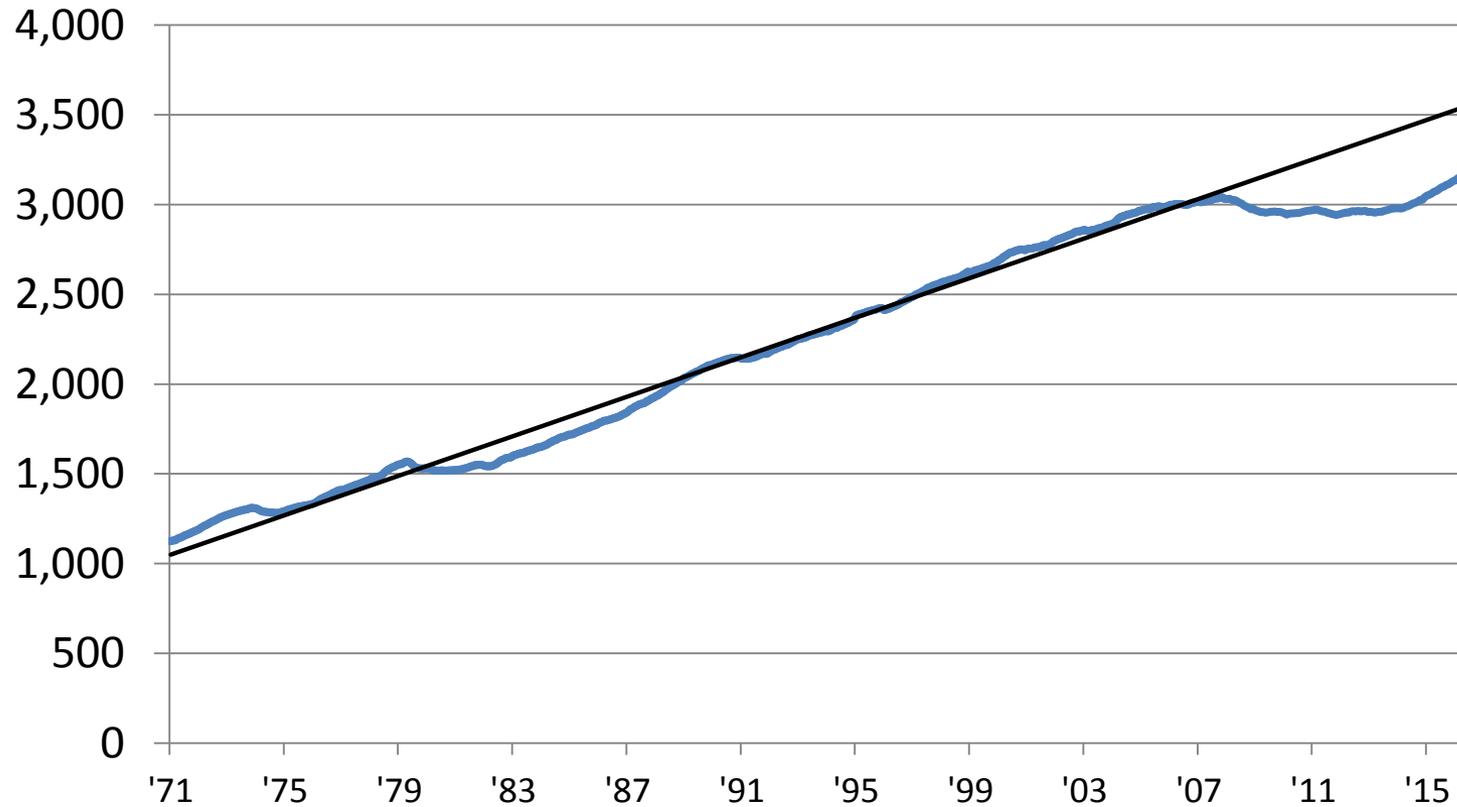
Origin of New Vehicle Sales

Determinates of Long-Run Vehicle Sales Trend



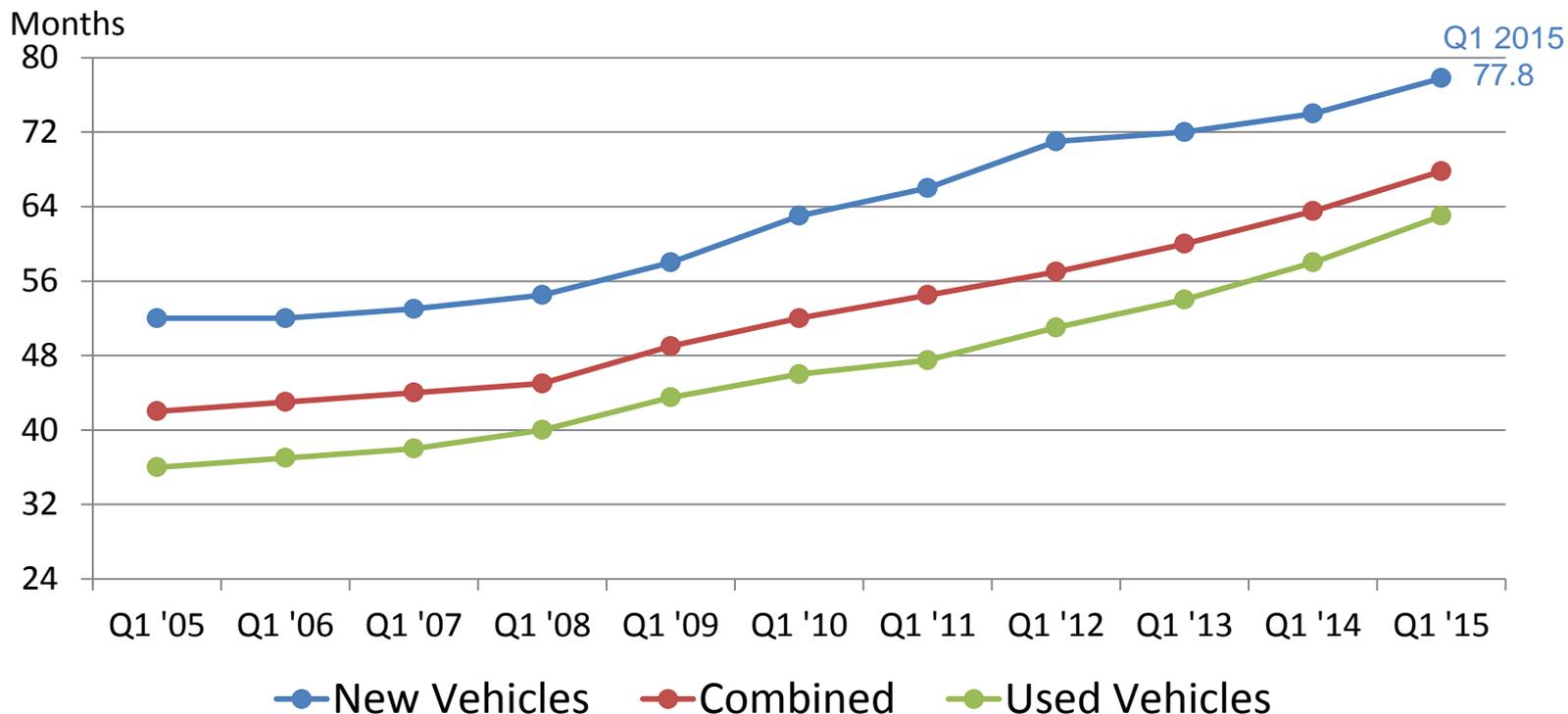
Vehicle Miles Traveled

12 Month Total Miles Traveled in Billions



Length of Vehicle Ownership

Average Months Owned

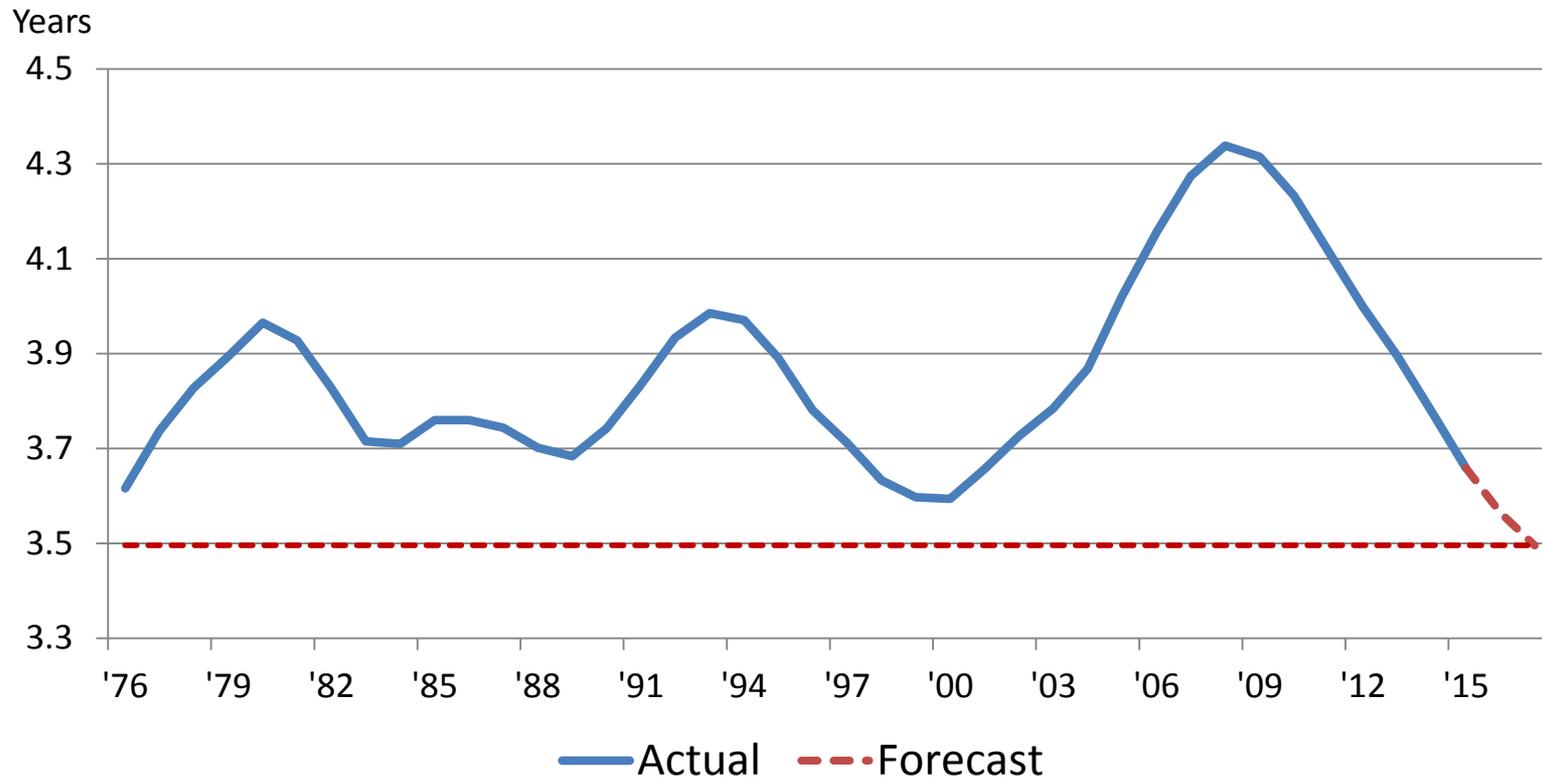


Note: Average age for passenger cars and light trucks increased to 11.5 years in 2015.
Vehicles in operation (VIO) increased to 258 million up 2.1% between 2014 and 2015.

Source: HIS Automotive : <http://press.ihs.com/press-release/automotive/average-age-light-vehicles-us-rises-slightly-2015-115-years-ihs-reports>

Sales Weighted Vehicle Age

10 Year Sales Weighting

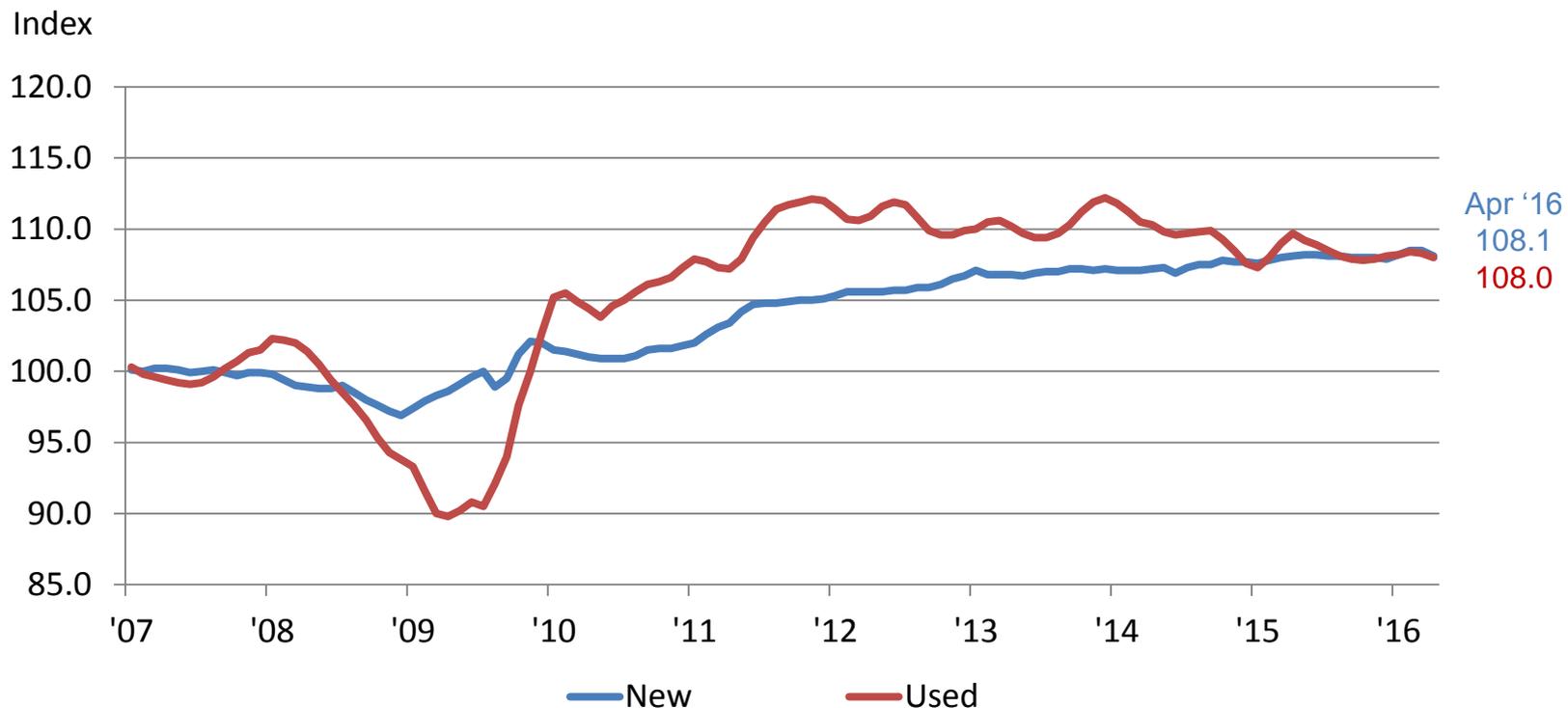


Note: Since 1960 the average cycle has been 8 years with an average expansion of 5 years.

Source: Author's calculations using Ward's Automotive and Blue Chip Forecast data.

New & Used Vehicle Prices

Index 2007 = 100

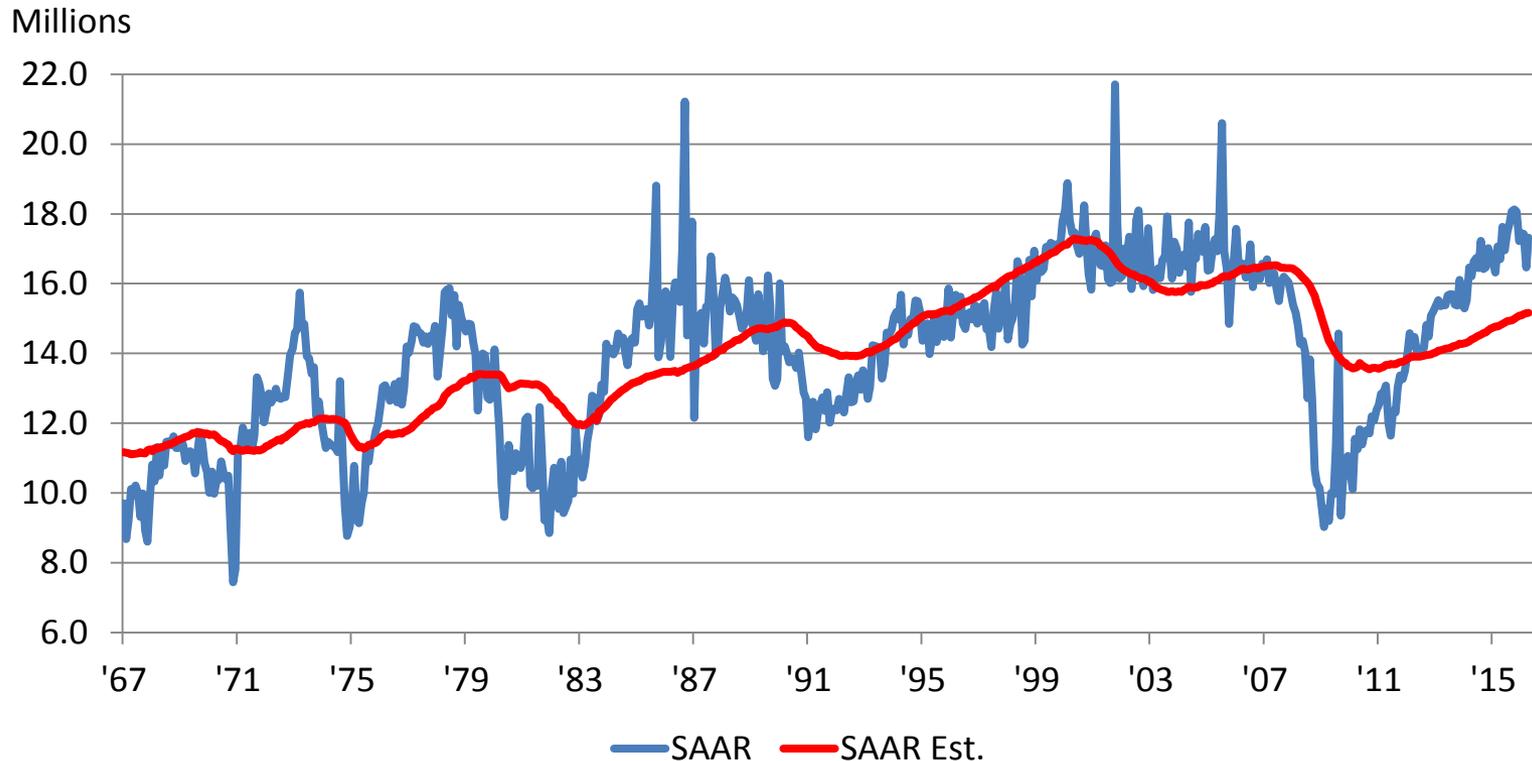


Data: New Vehicles and Used Cars and Trucks CPI.

Source: Author's calculations using Bureau of Labor Statistics data..

Light Vehicles Sales & Nonfarm Employee

In Millions of Units – S.A.A.R.

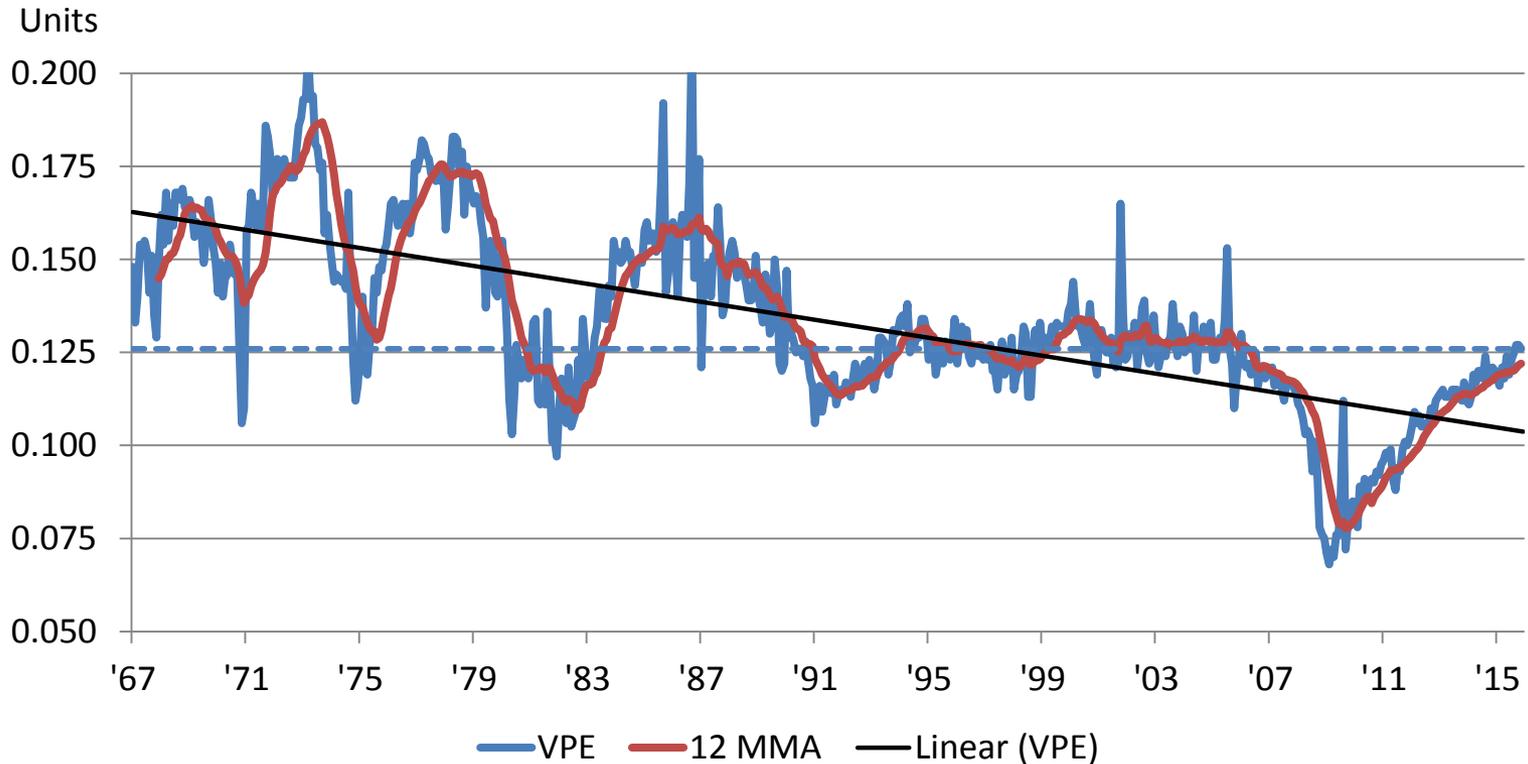


Note: Linear regression L.V. Sales to Nonfarm Employment and Trend Variable with R^2 of 52.3.

Source: Author's calculations using data from Ward's Automotive and BLS

Light Vehicles Sales per Nonfarm Employee

L.V. SAAR / Nonfarm Employment



Source: Author's calculations using data from Ward's Automotive and BLS

Labor Participation Rate

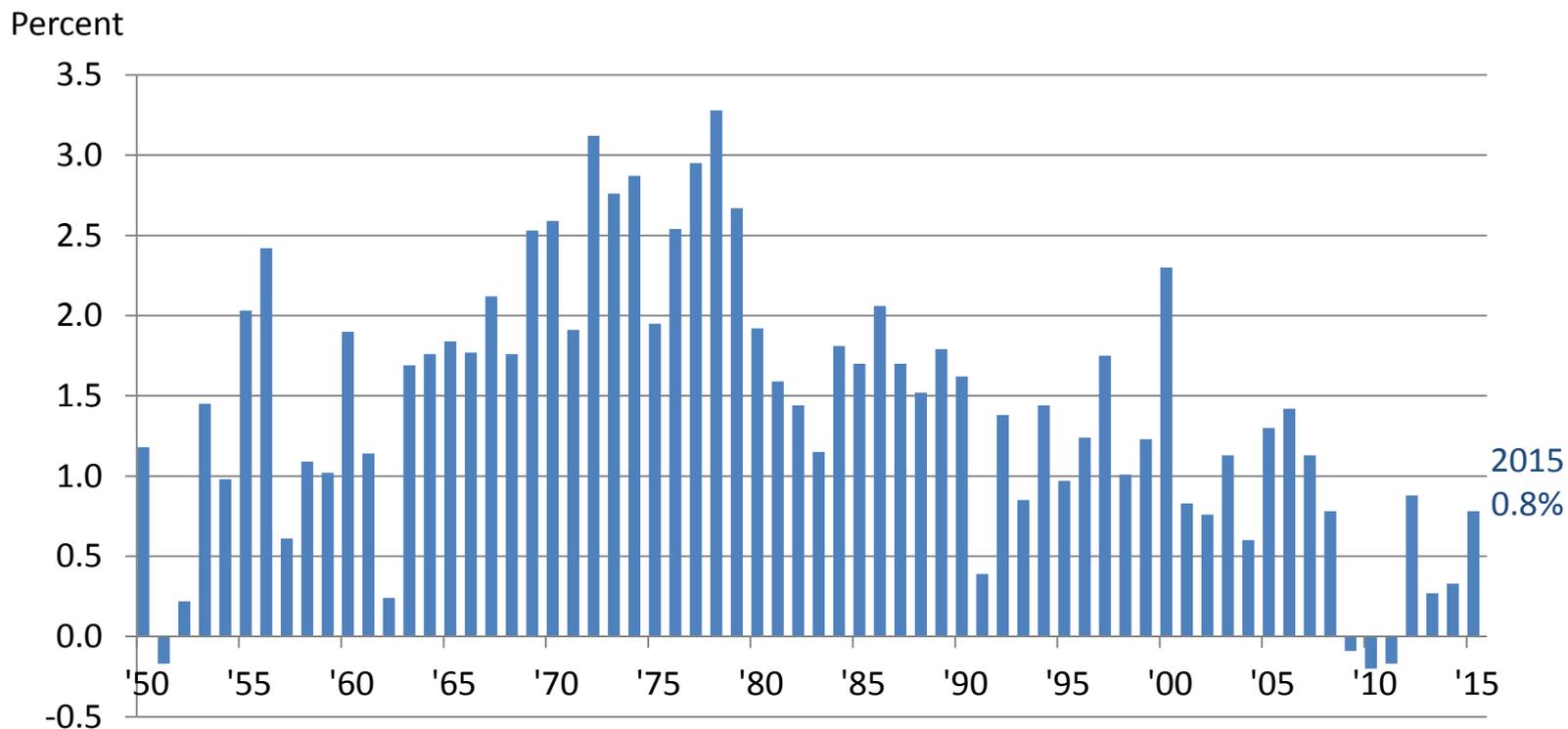
Percent of Noninstitutionalized Civilian Population



Source: U.S. Department of Labor: Bureau of Labor Statistics, Bureau of Economic Analysis and the Federal Reserve

Civilian Labor Force

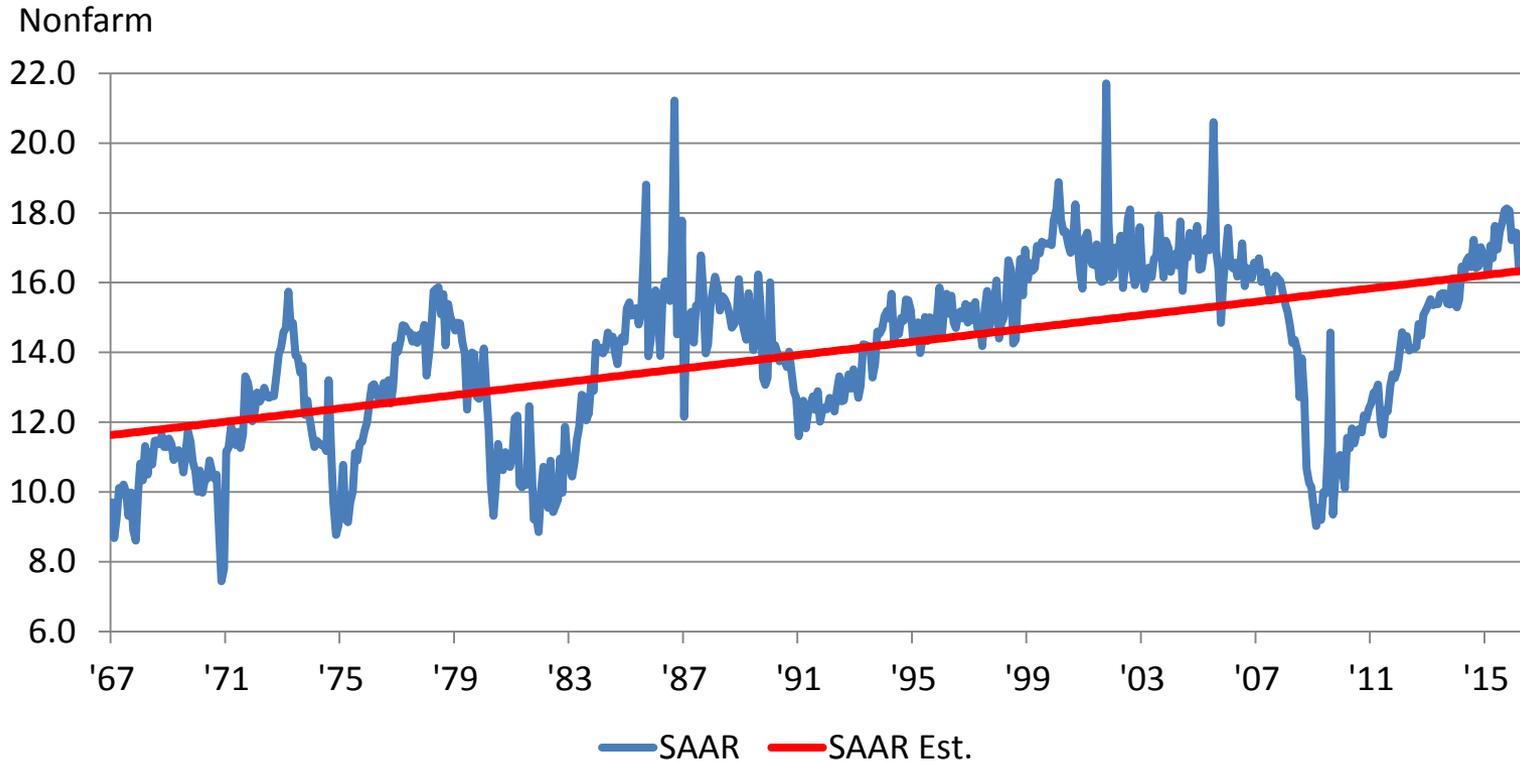
Percent Change Yr./Yr.



Source: U.S. Department of Labor: Bureau of Labor Statistics , Bureau of Economic Analysis and the Federal Reserve

Light Vehicles Trend Using Nonfarm Employee

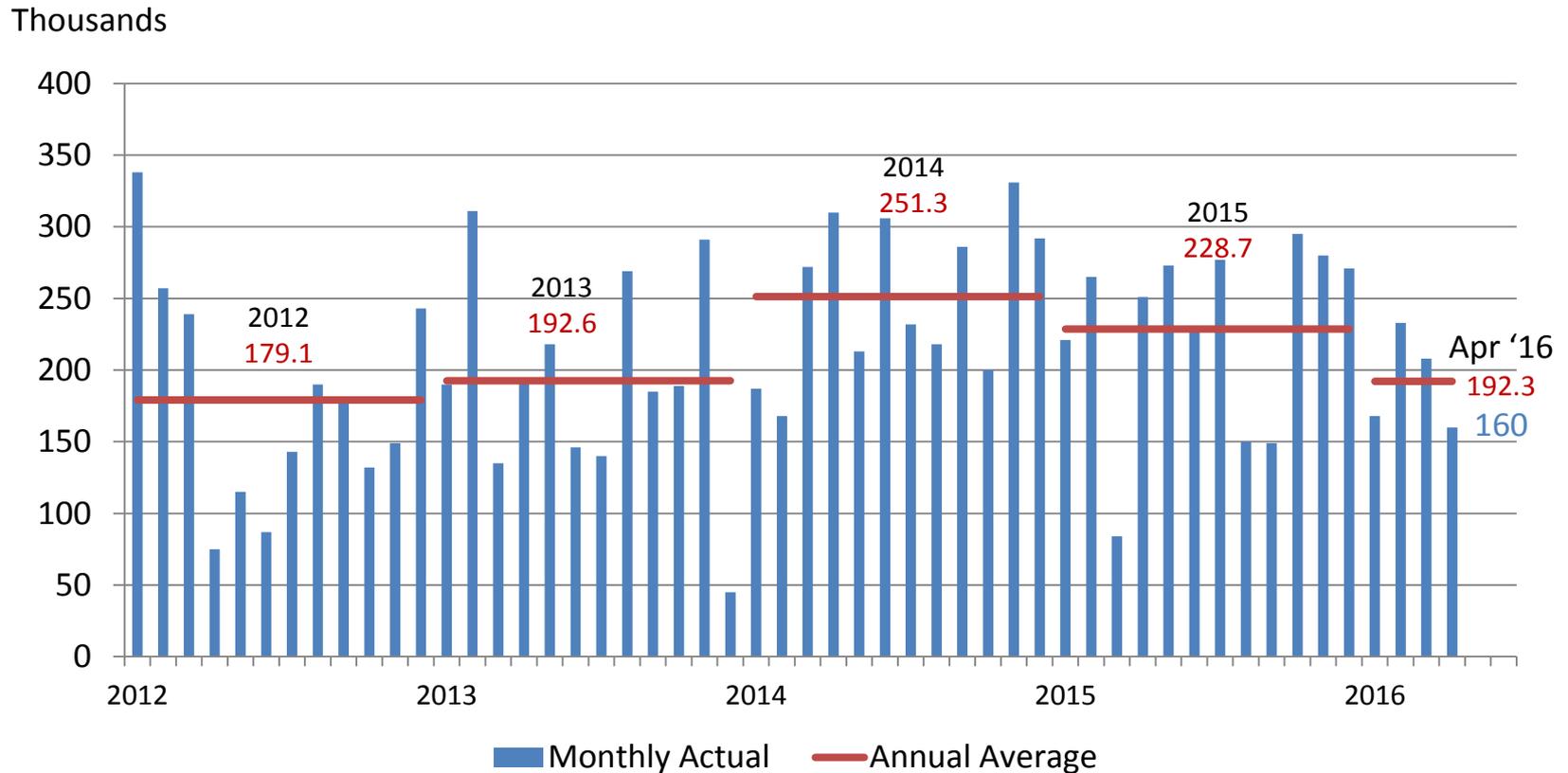
In Millions of Units – S.A.A.R.



Source: Author's calculations using data from Ward's Automotive and BLS

U.S. Nonfarm Payrolls

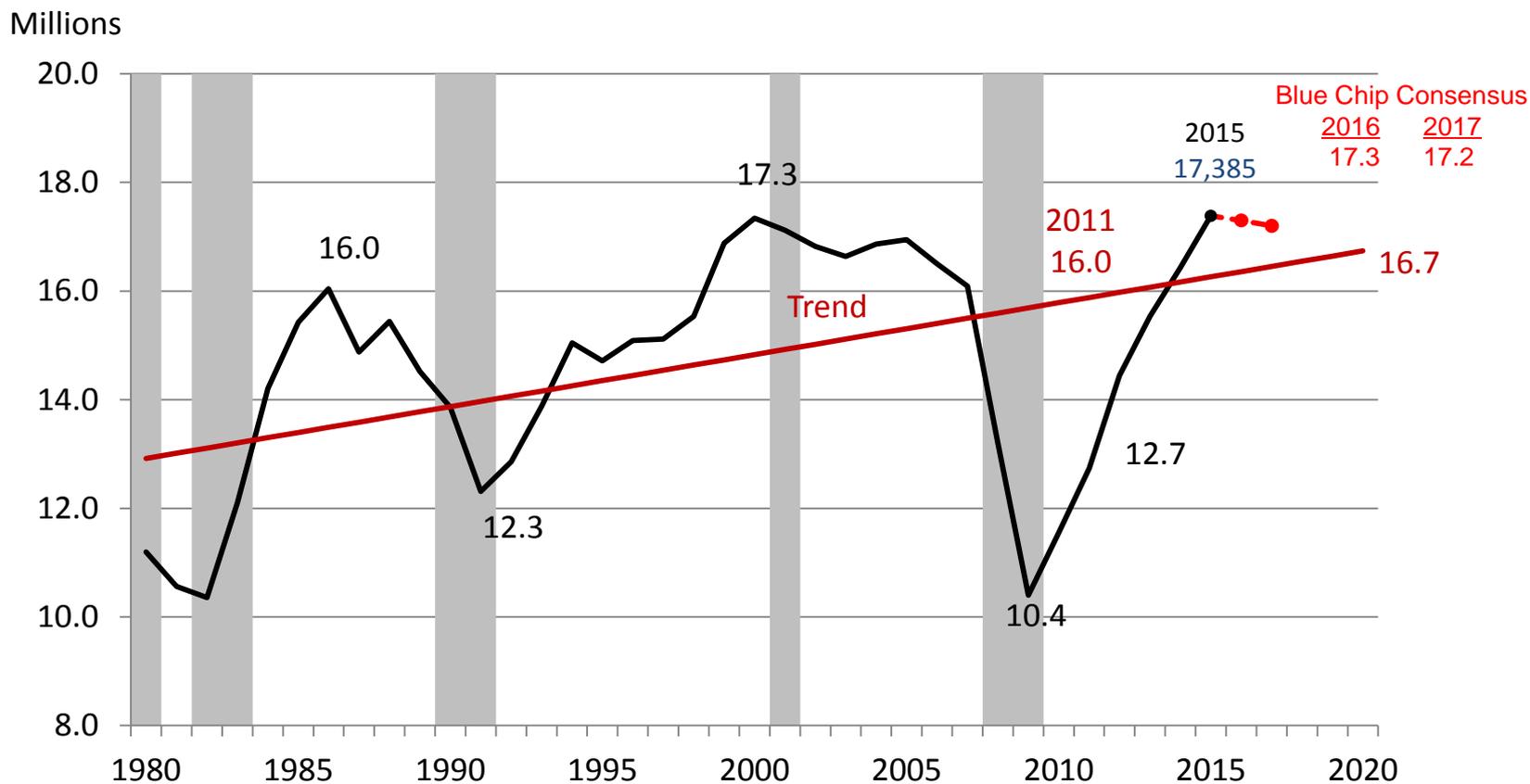
Monthly and Annual Average Job Change – In Thousands



Source: U.S. Department of Labor: Bureau of Labor Statistics

U.S. Light Vehicle Industry

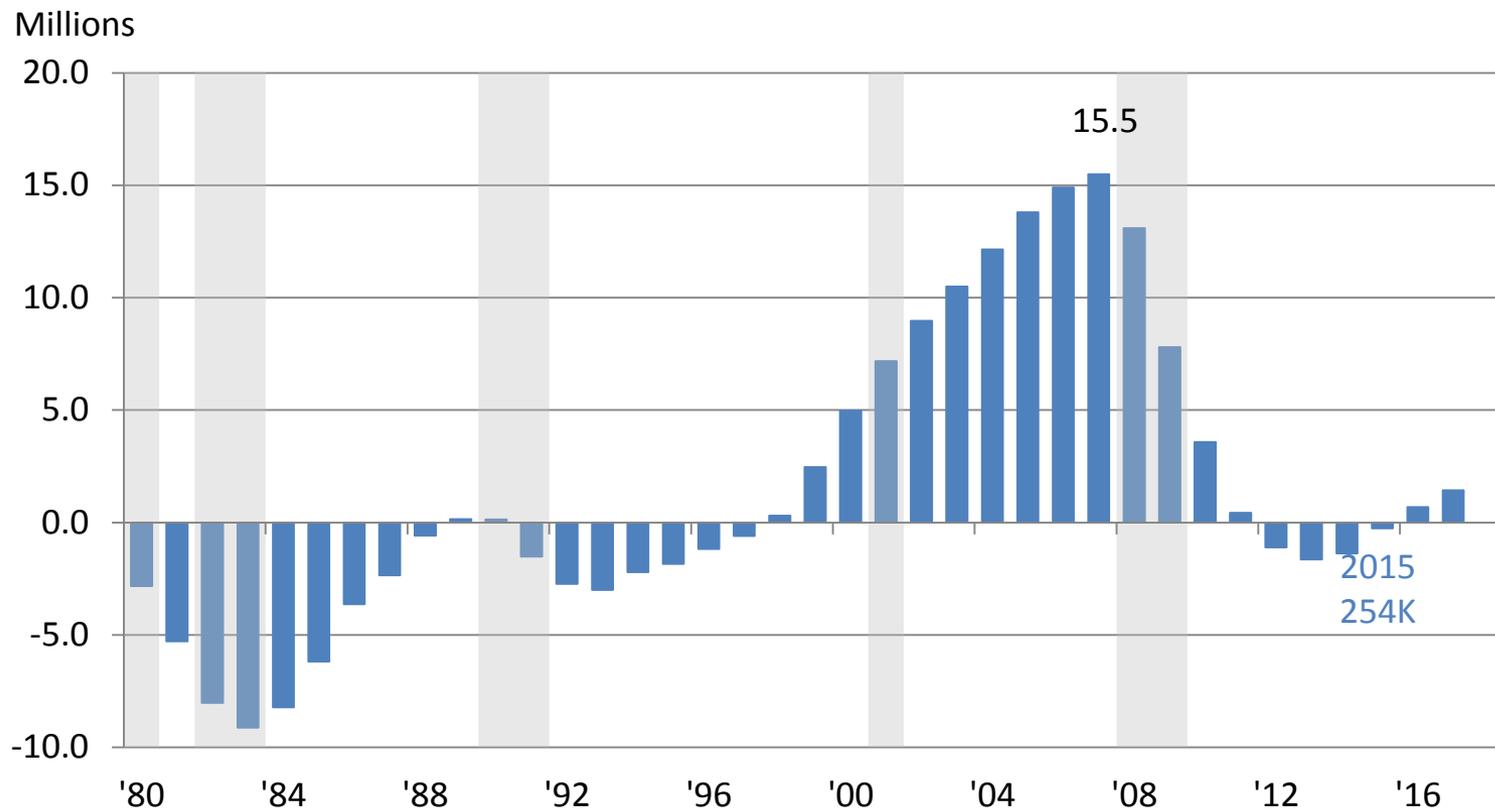
Millions of Units



Source: Ward's Automotive

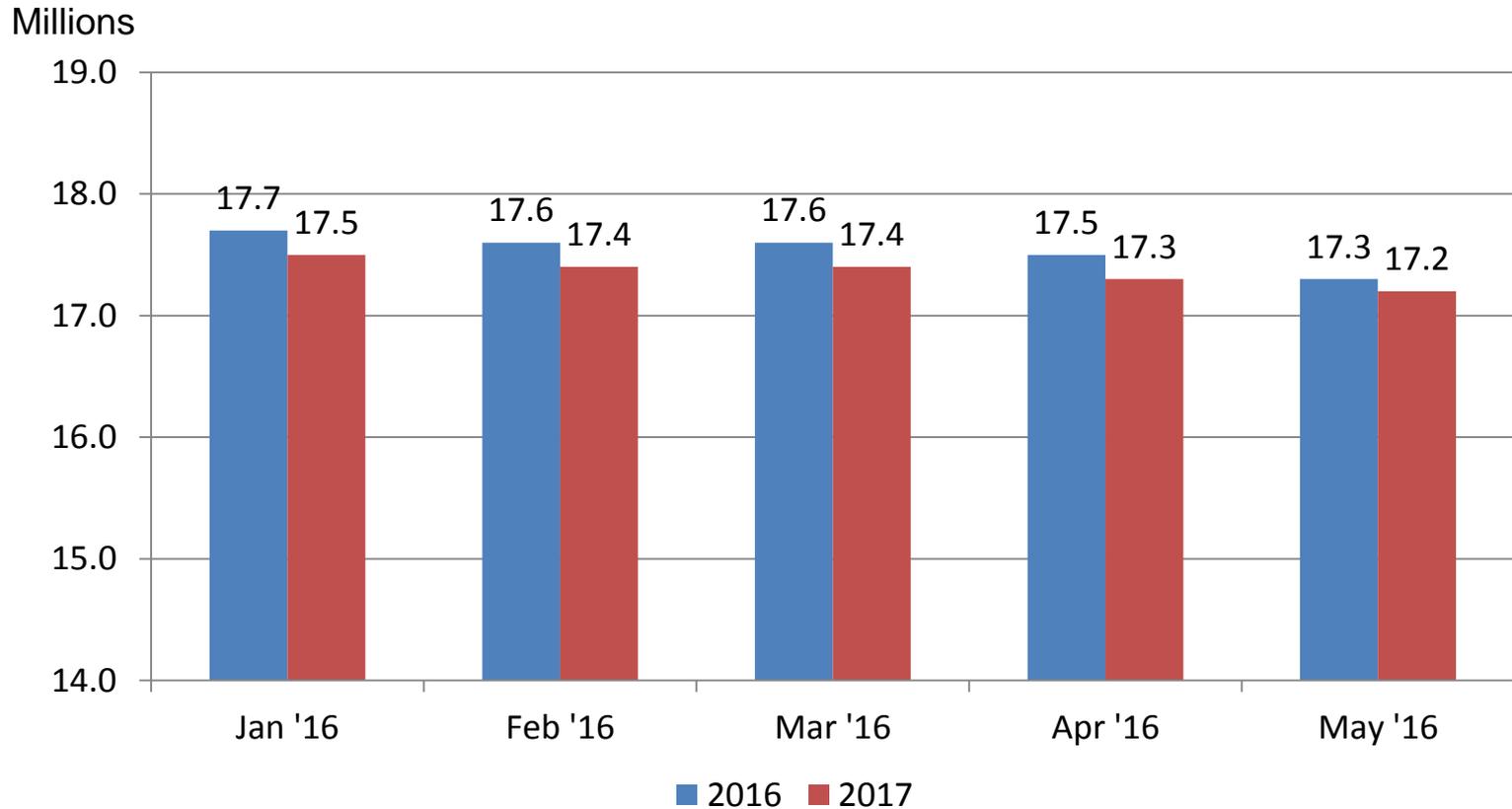
U.S. Light Vehicle Pent-Up Demand

Millions of Units



U.S. Light Vehicle Blue Chip Forecast

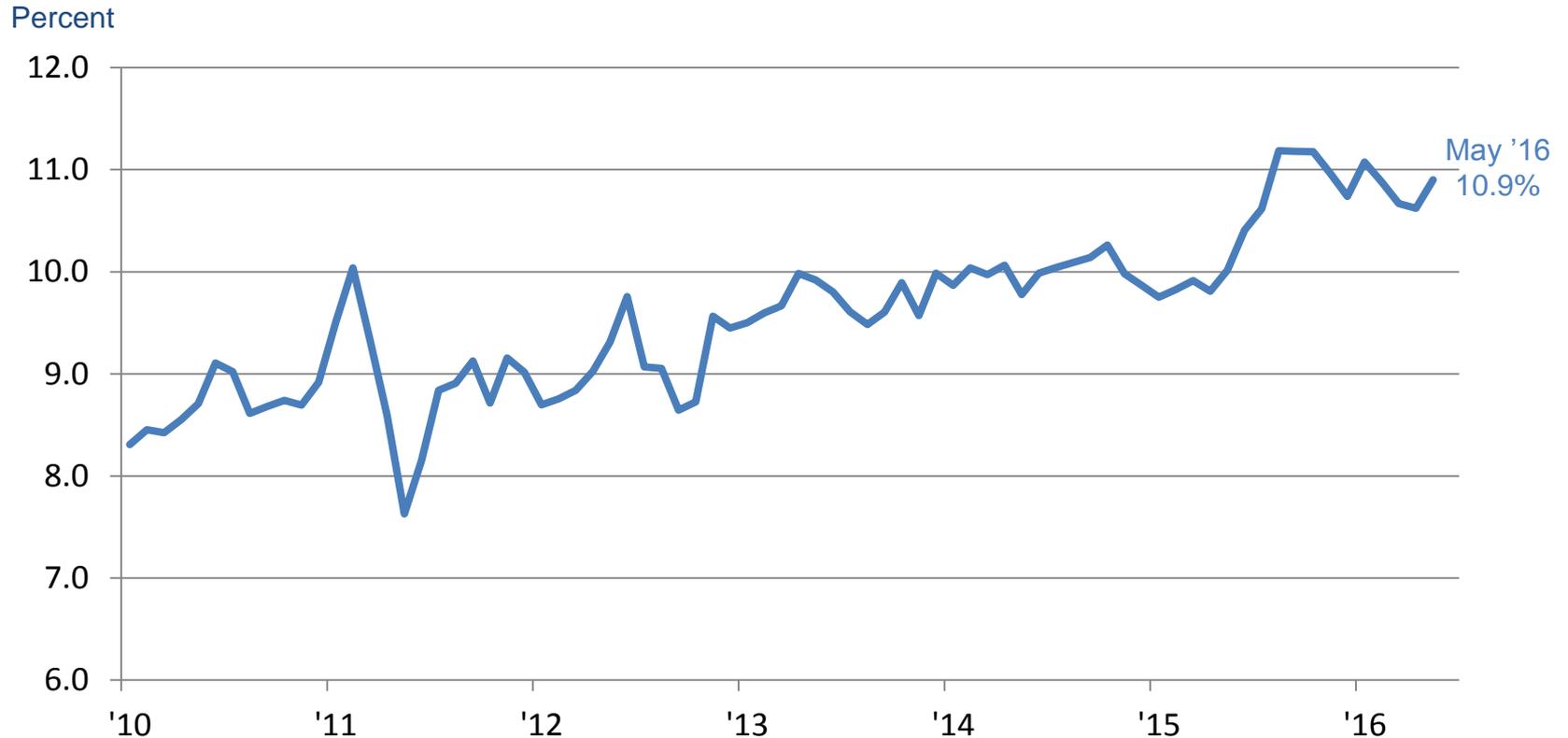
Millions of Units – Calendar Year



Source: April 2015 Blue Chip Economic Indicators

U.S. Light Vehicle Incentives

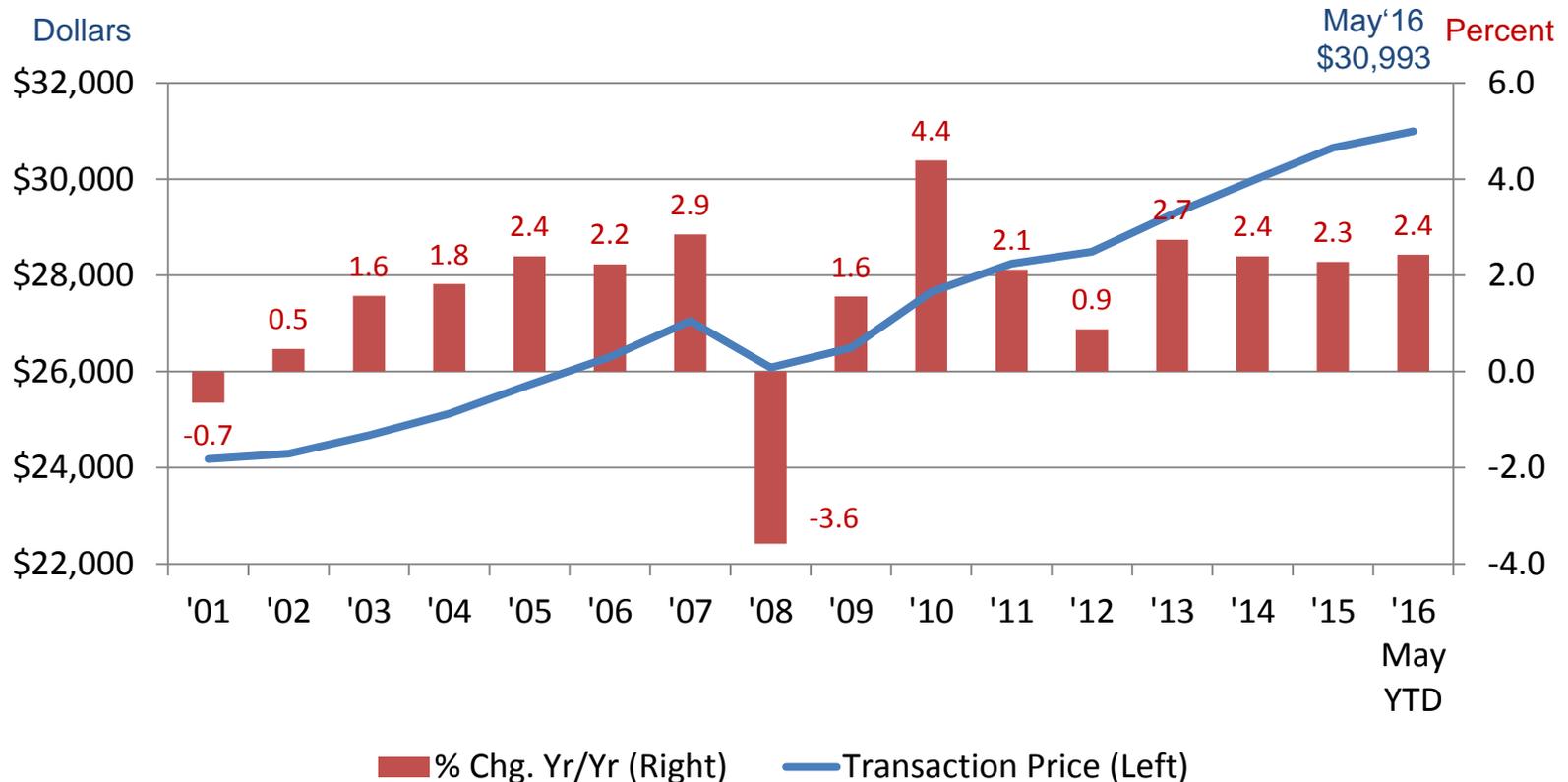
As Percent of Transaction Price - SA



Source: Author's calculation using Ward's Automotive and J.D Power data.

Light Vehicle Transaction Price

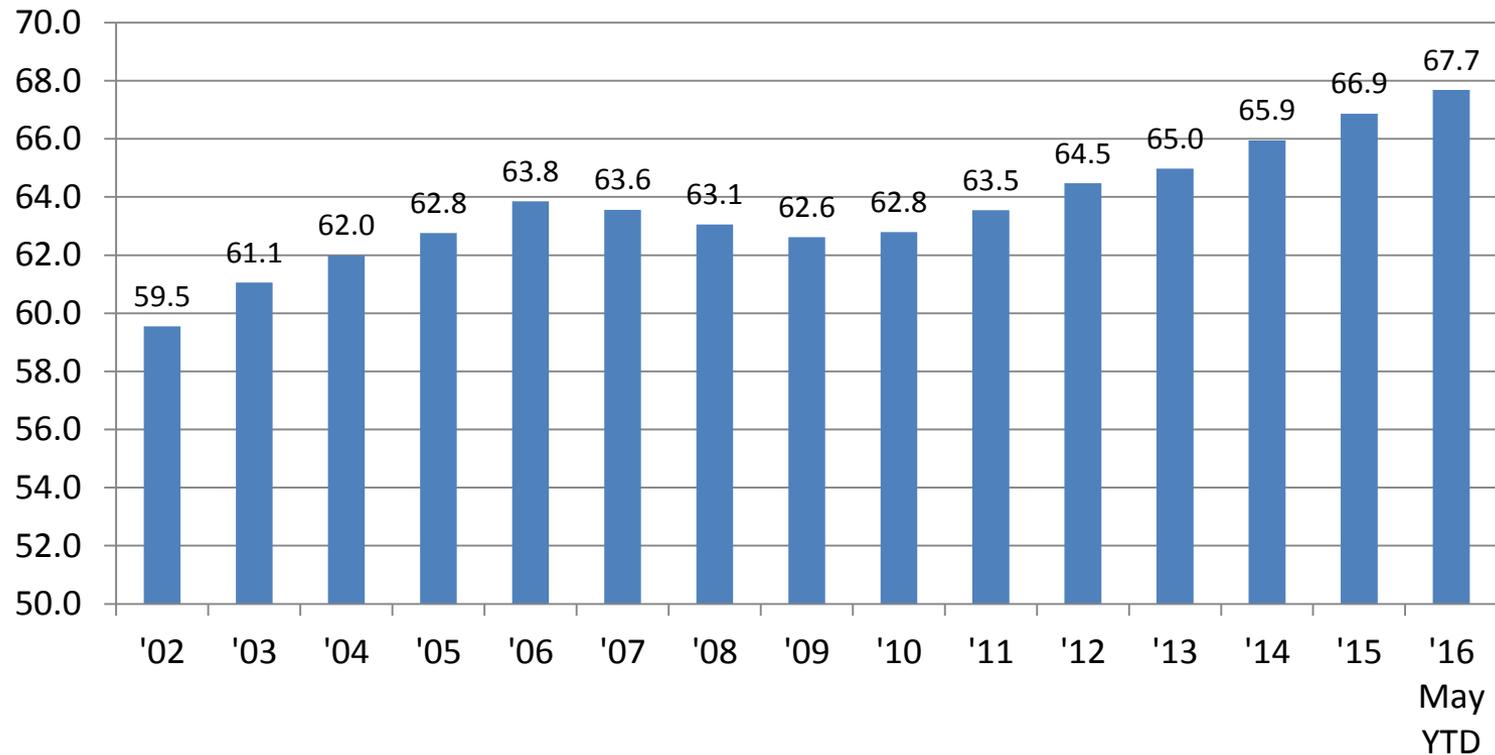
Annual Average & Percent Change Yr./Yr.



Source: Author's calculation using J.D Power data.

Finance Term

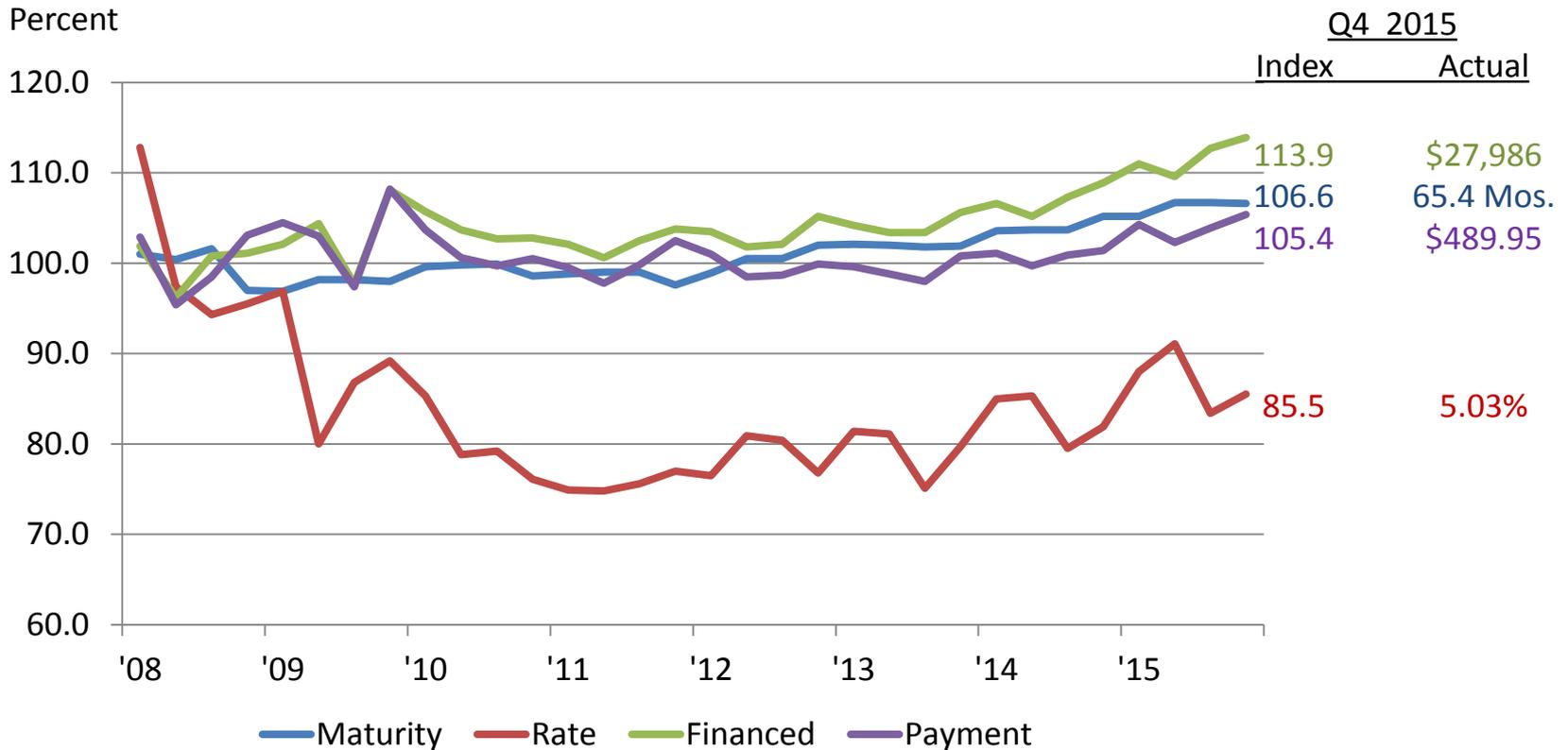
Length of Loan in Months



Source: J.D Power data.

Average Financing at Finance Companies

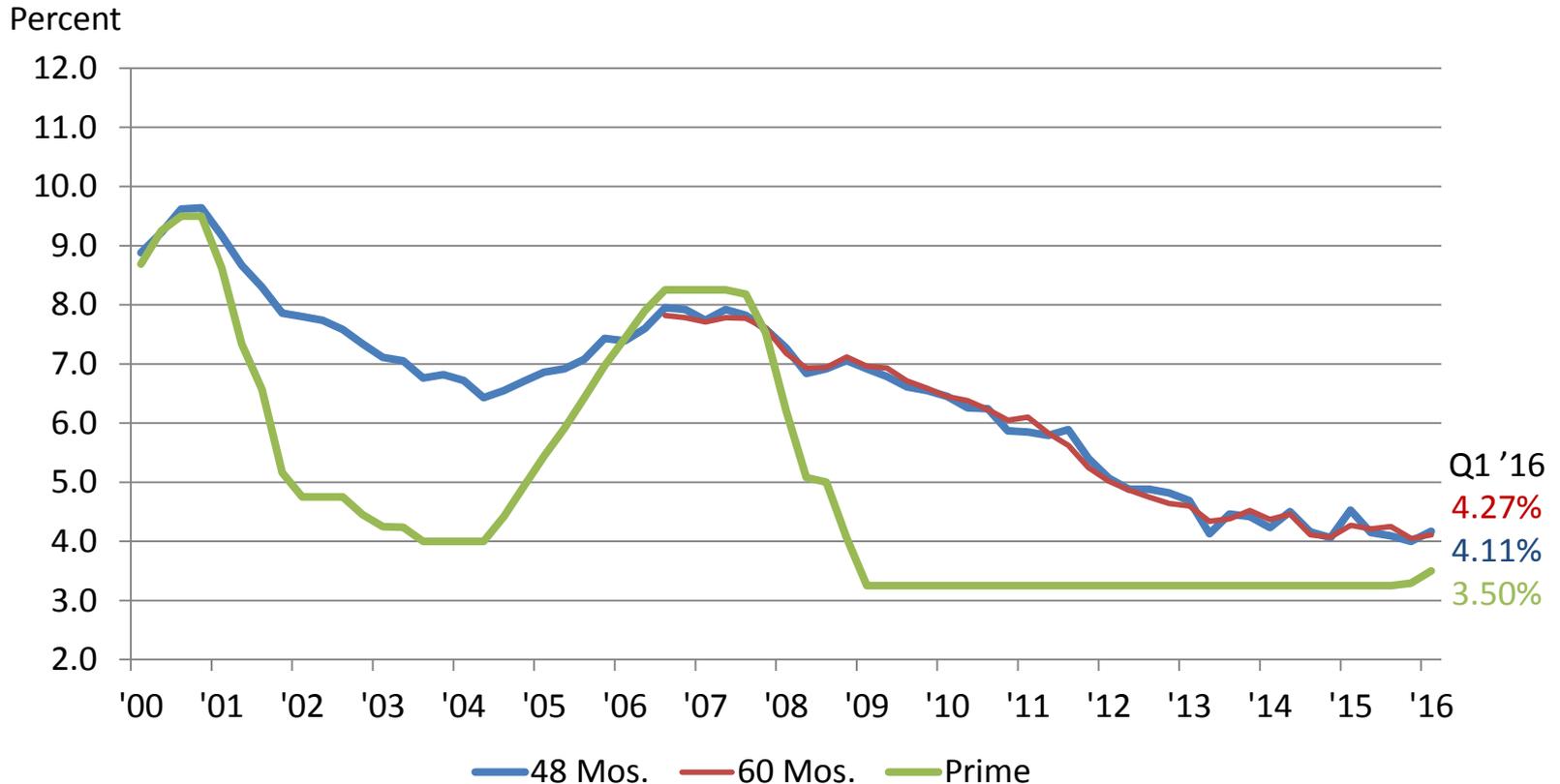
New Car Loan Parameters – Index 2008 = 100, NSA



Source: Author's calculations using Federal Reserve Board of Governors data

Auto Loan Rates – Commercial Banks

New Autos 48 and 60 Month Loans – Quarterly, NSA



Source: Federal Reserve Board of Governors

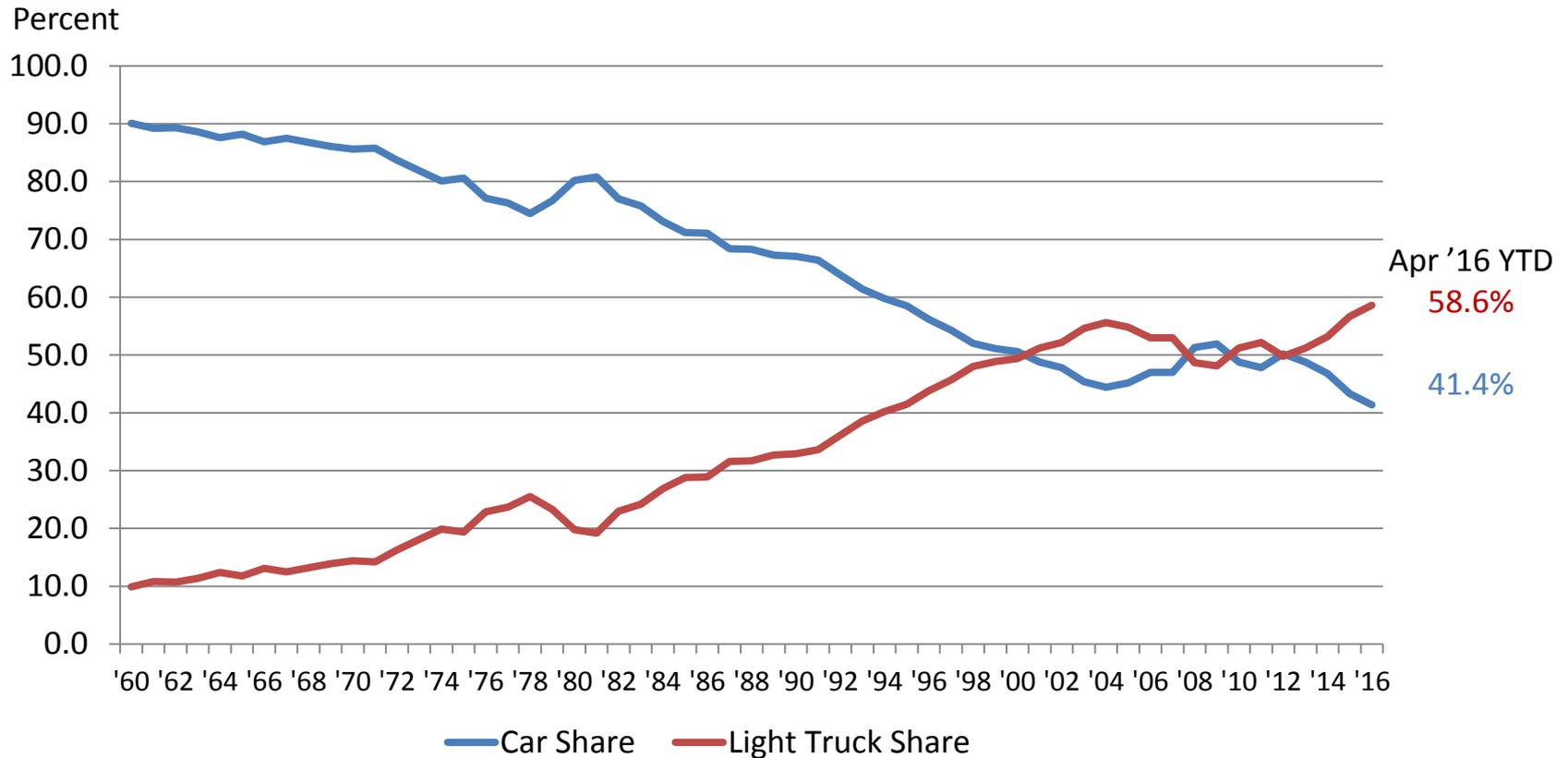
Payment Risk

Percent Change in Payment to Percent Change in Loan Rate by Duration

Percent Change in Loan Rate	Percent Change in Payment by Duration			
	36 Months	48 Months	60 Months	72 Months
1%	1.5%	2.0%	2.4%	2.9%
2%	3.1%	4.0%	4.9%	5.8%
3%	4.6%	6.0%	7.4%	8.7%
4%	6.2%	8.1%	10.0%	11.7%
5%	7.8%	10.2%	12.5%	14.7%

Car & Light Truck Mix

Percent of Light Vehicles



Source: Author's calculations using Ward's Automotive data.

New Home Construction and Pickup Trucks

Index 2005 = 100

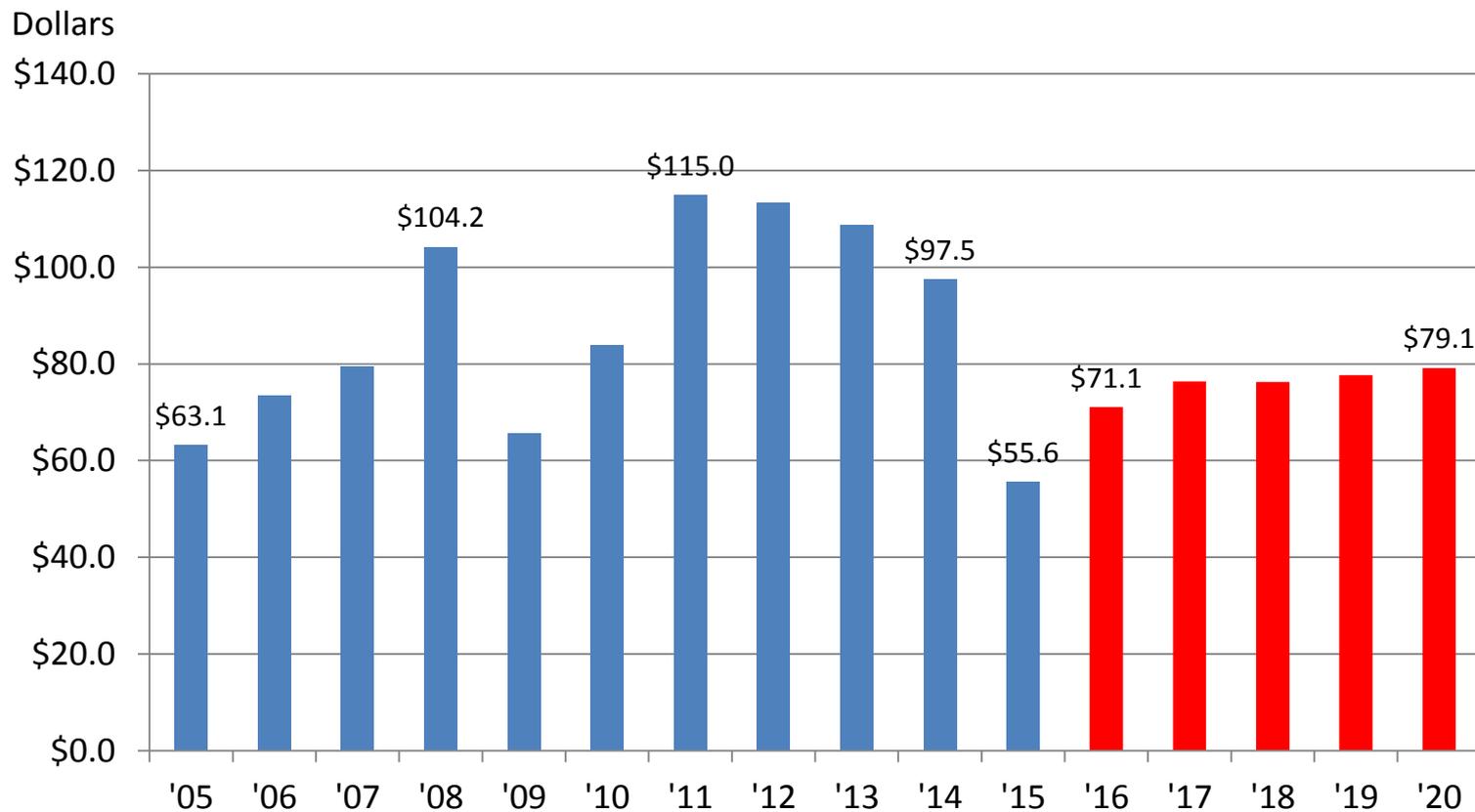


Data: New Privately-Owned Housing Units Under Construction and Ward's Large Pickup truck sales.

Source: Author's calculations using U.S. Bureau of the Census data.

Oil Price – North Sea Brent

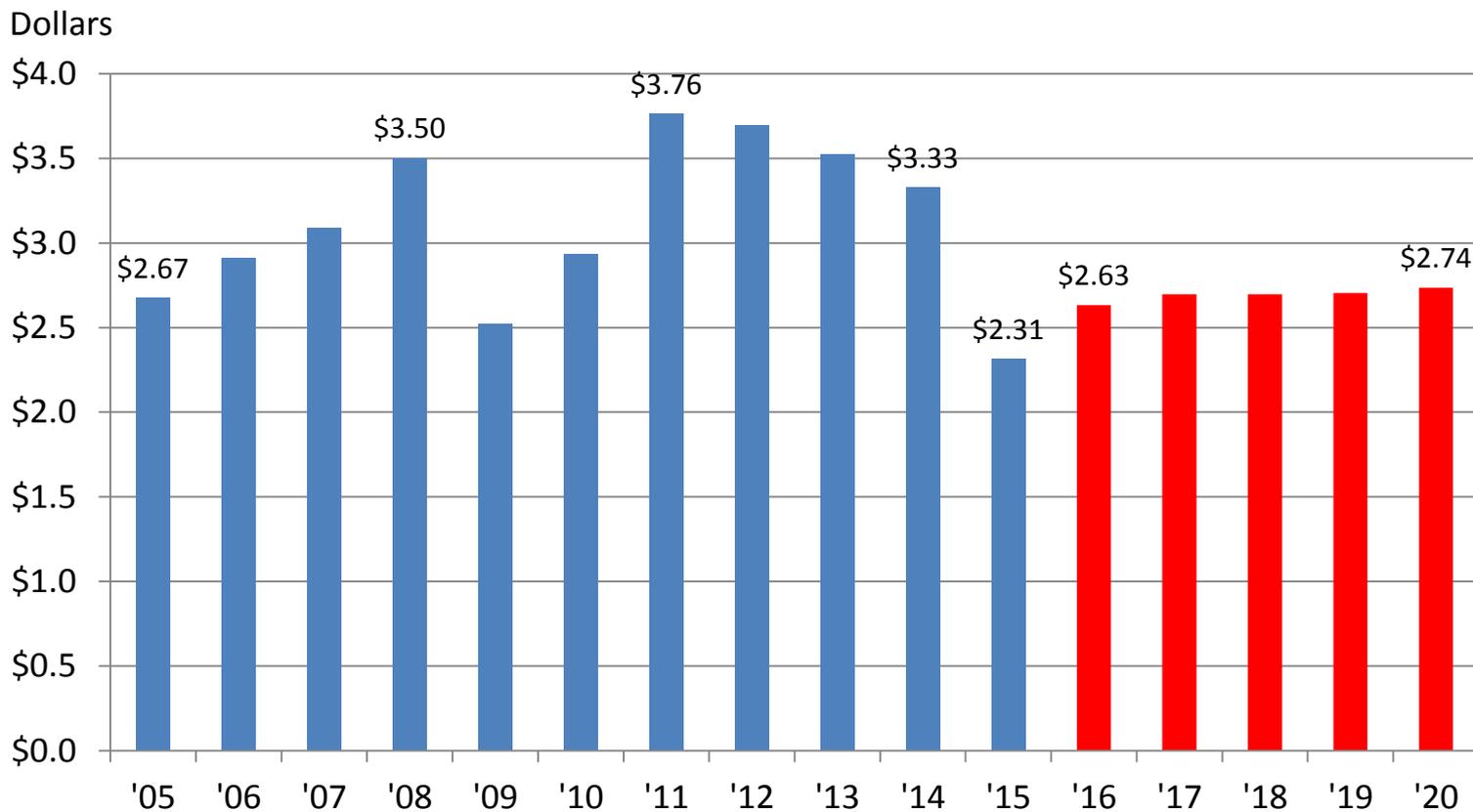
Average Annual Price In Current Dollars



Source: International Energy Agency – Reference Case Forecast

Gasoline – All Grades

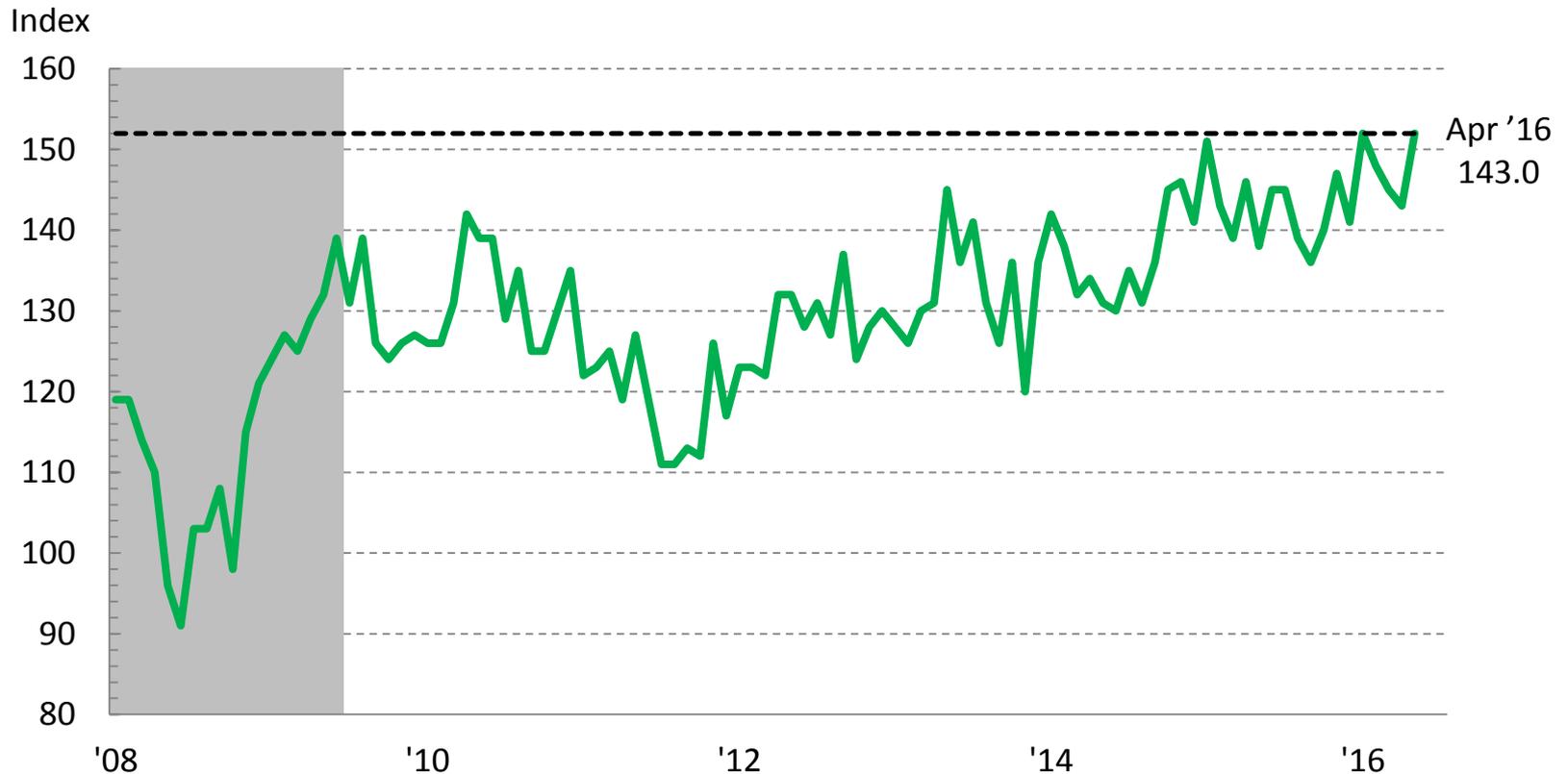
Average Annual Price In Current Dollars



Source: International Energy Agency – Reference Case Forecast

Buying Conditions for Vehicles

University of Michigan

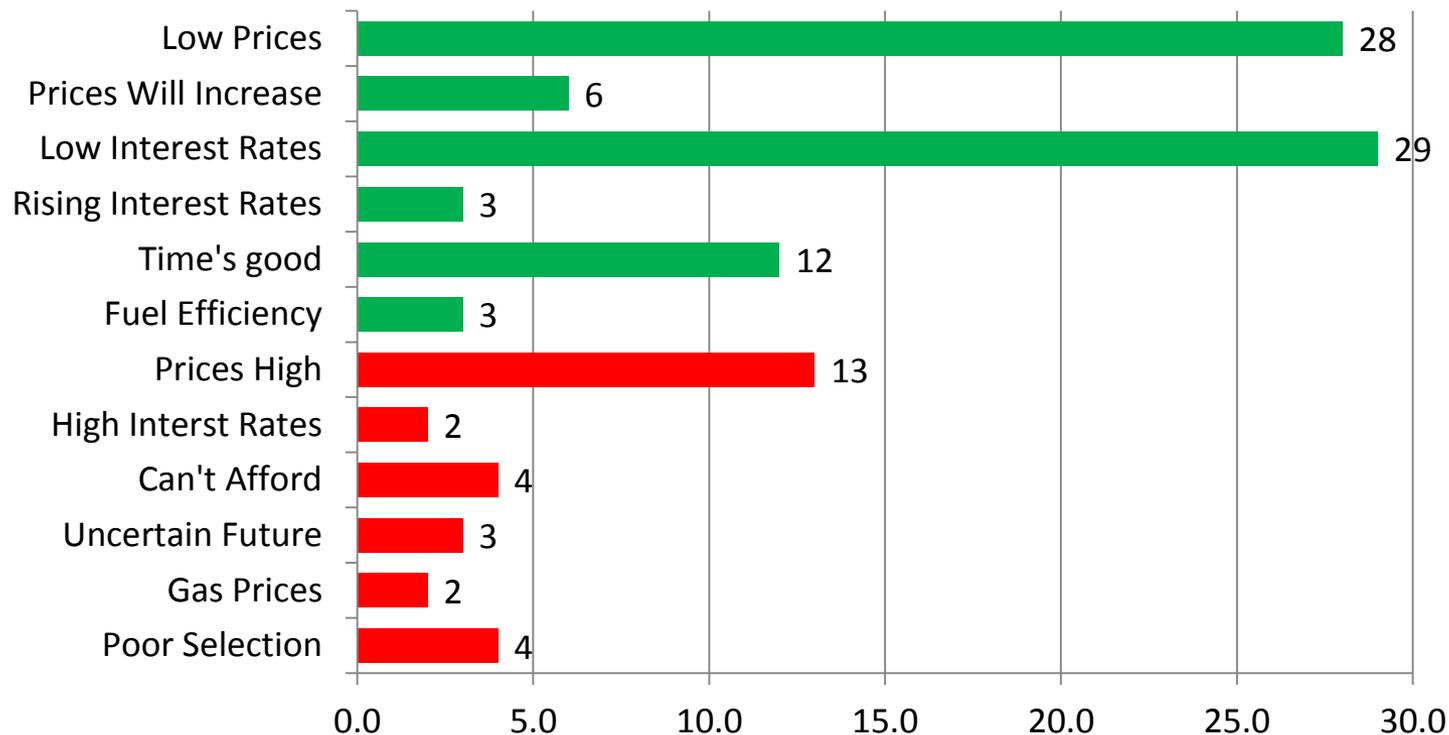


Source: Thomson Reuters / University of Michigan

Reasons for Buying Conditions for Vehicles

University of Michigan

Good / Bad Reason: *Why do you say so?*



Note: May add to more than a 100 due to multiple mentions.

Source: University of Michigan Survey of Consumers

Summary

- Despite the slow start in 2016, the U.S. Economic growth is to continue to expand at a moderate pace in 2016 and 2017.
- The U.S. consumer continues to experience improved financial conditions supported by low energy prices, improving real personal income and rebounding household net worth.
- Low interest rates and low prices are two of the factors making it a good time to buy a new vehicle.
- Demographic changes, increasing length of ownership, and slowing labor force growth are changing the determinates of long-run vehicle sales trend.

Summary

- Low interest rates and longer financing terms are helping to keep new vehicle payment affordable while offsetting rising vehicle prices.
- Low energy prices are helping SUV and Pickup truck sales pushing light truck share to new record highs.
- Light vehicle sales may have peaked in 2015 but are expected to stay in the 17.0 million range through 2017.
- Rising interest rate could be a risk to vehicle sales going forward by causing monthly payments to increase at a faster pace than overall inflation.
- But consumers continue to feel it is a good time to buy a vehicle.

Thank You!

