

Economic Update

Global Economic and Business Outlook

Federal Reserve Bank of Chicago
January 11, 2018

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Main Economic Indicators

Year-over-year Comparison

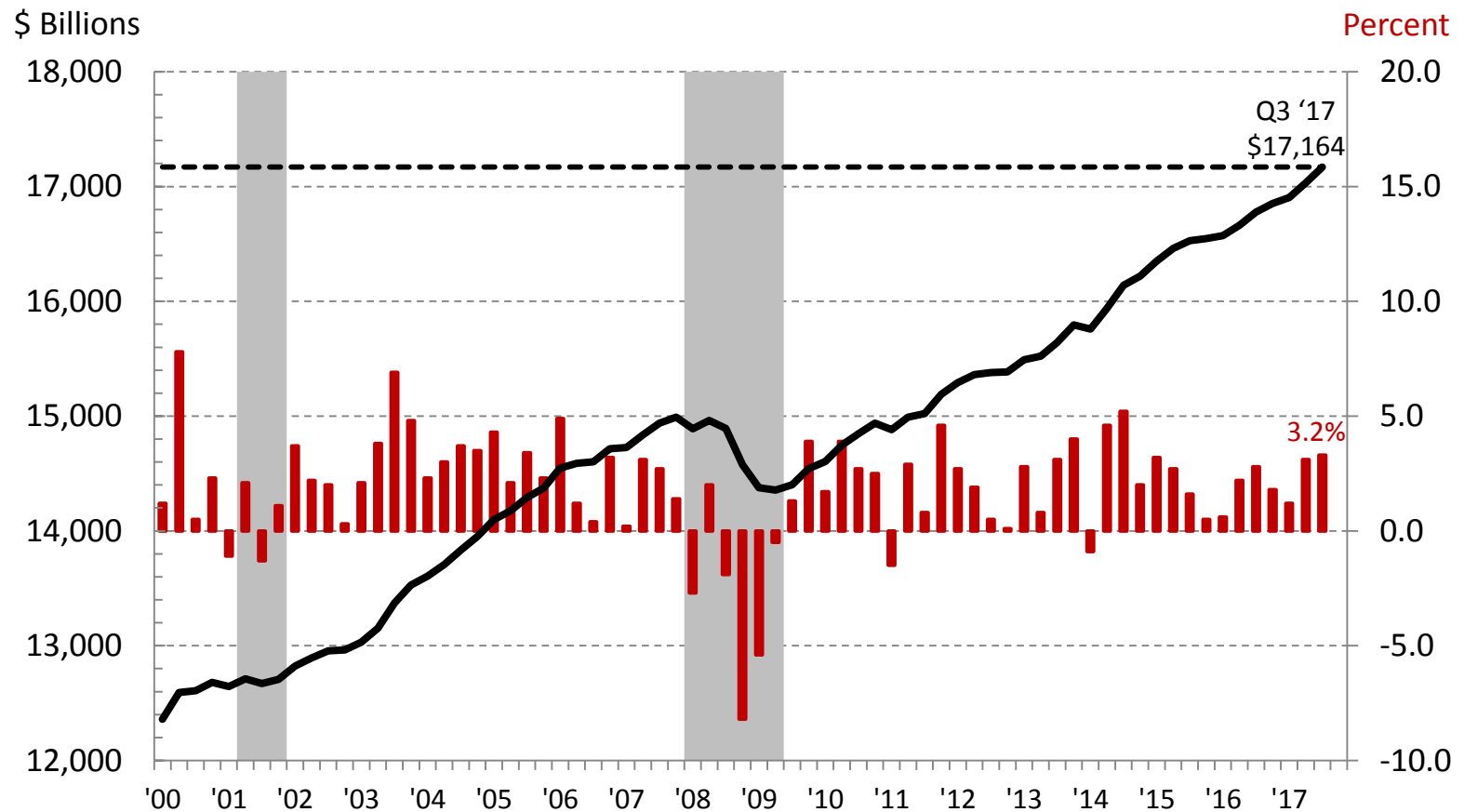
	<u>2015</u>	<u>2016</u>	<u>2017</u>
GDP – Annual Growth Rate ¹	2.0%	1.8%	2.3%
Unemployment Rate ²	5.3%	4.9%	4.4%
Participation Rate ²	62.7%	62.8%	62.8%
Nonfarm Job Growth ³	226.1	186.7	171.3
PCE Core Inflation Yr. / Yr. ⁴	1.3%	1.8%	1.5%

1. Year-over-year - 2015 & 2016 Q4/Q4, 2017 Q3/Q3
2. Annual Average
3. Average Monthly Job Growth in Thousands- SA
4. Percent Change Year-over-year PCE Core – Annual Average & November 2017 YTD

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

U.S. Real GDP

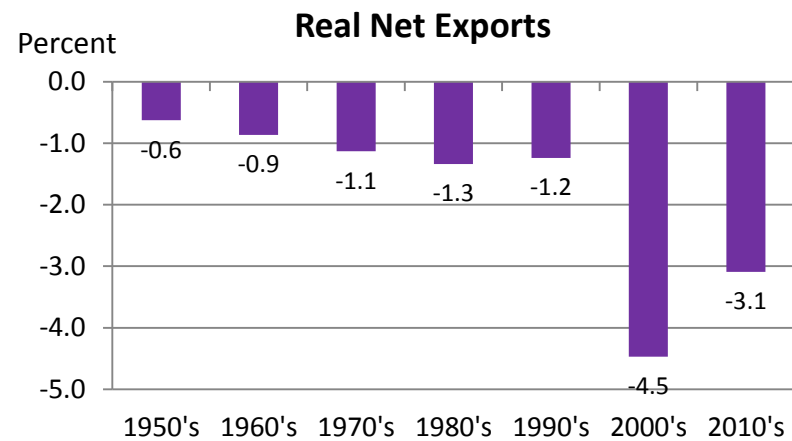
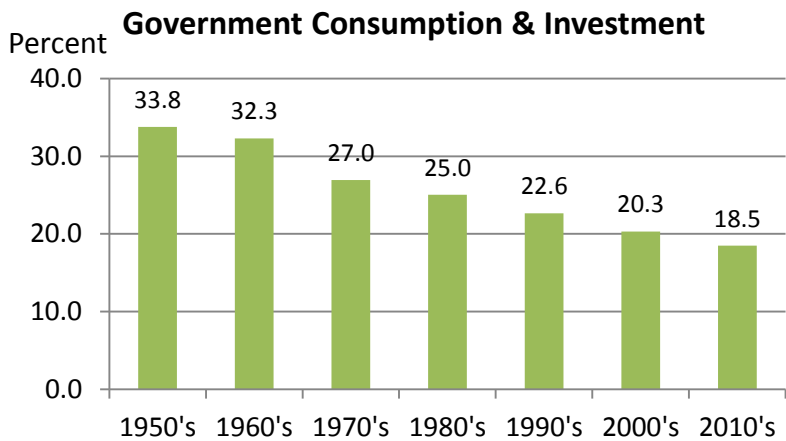
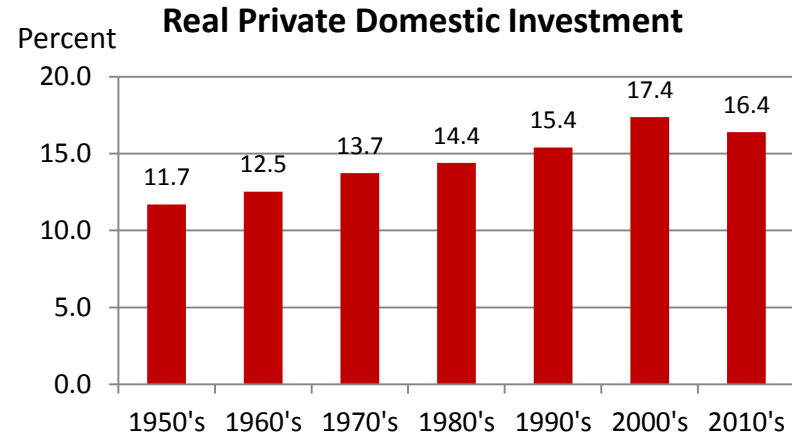
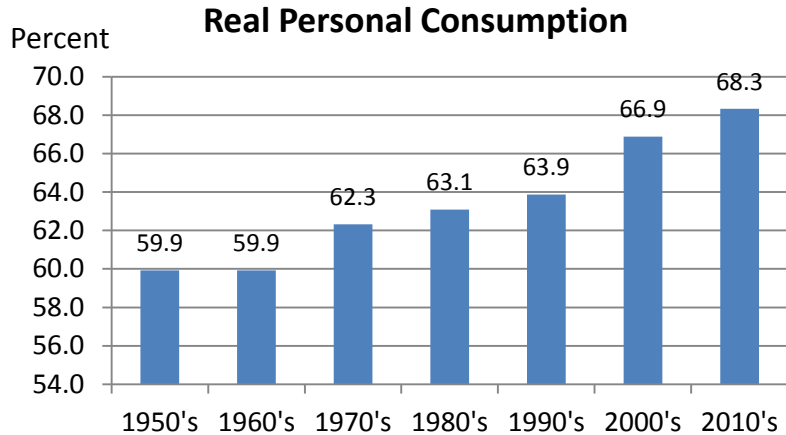
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Share of U.S. Real GDP

C + I + G + Nx as Percent of GDP by Decade and 2010's YTD



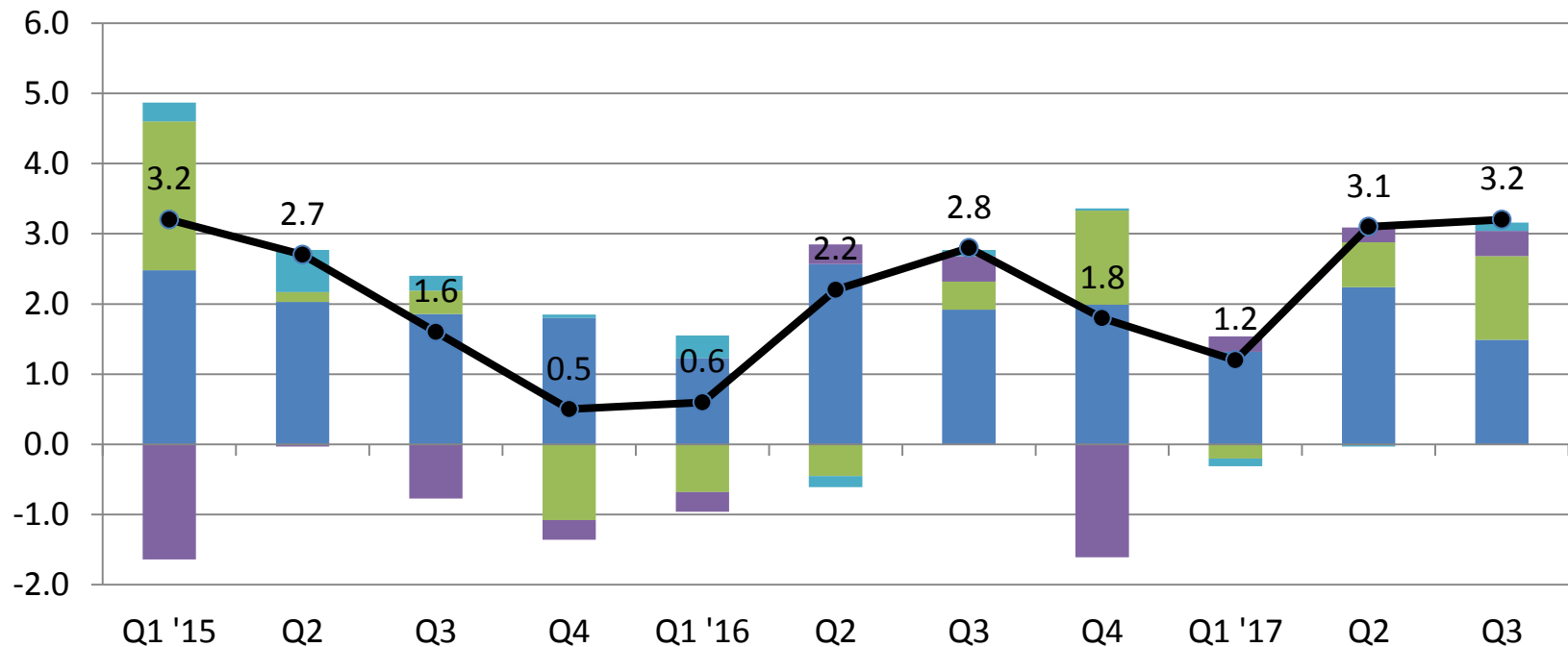
Totals may not add to 100.0 due to rounding and summing of averages.

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

U.S. Real GDP

GDP and Contribution to Percent Change, Q/Q at SAAR

Percent

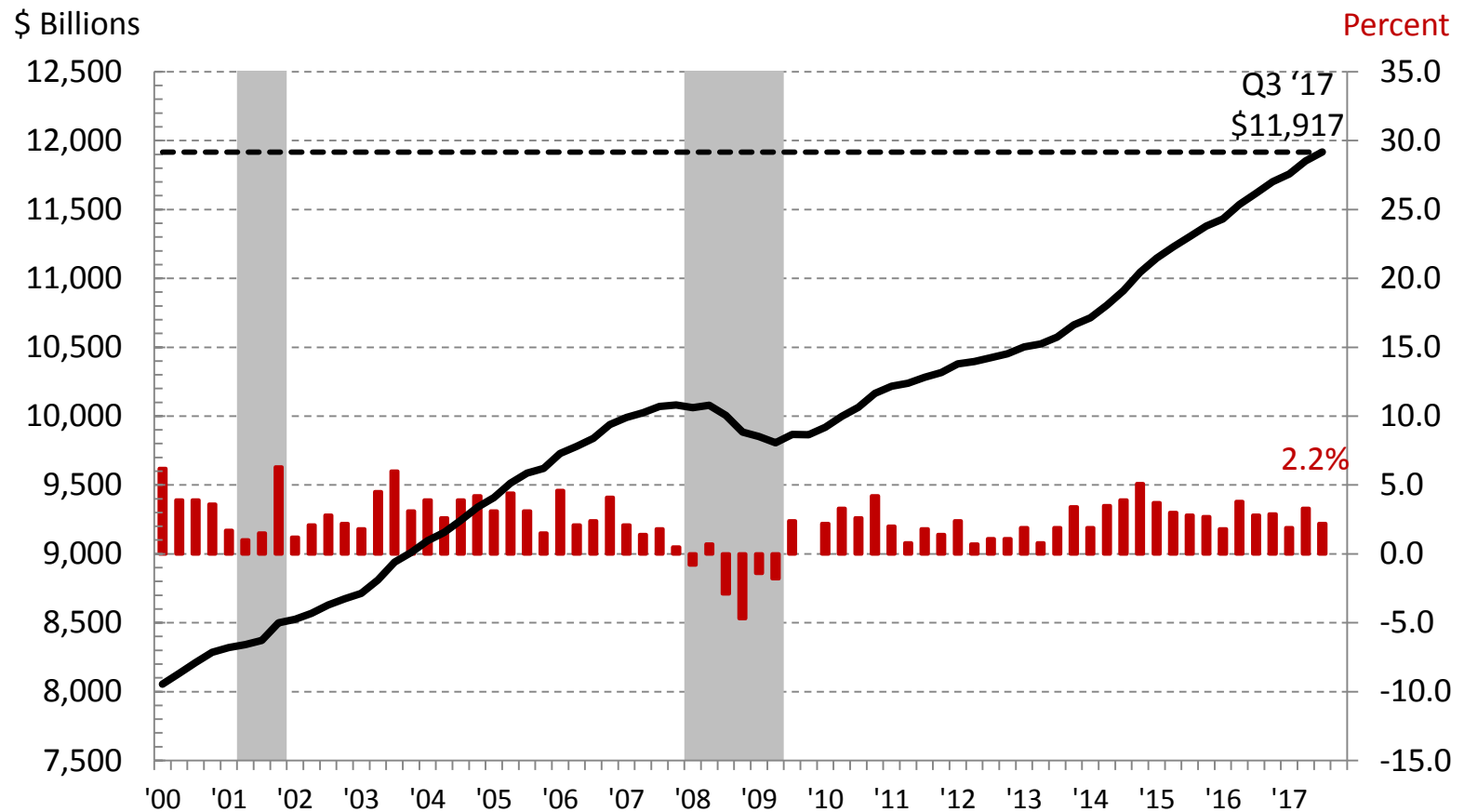


	PCE	Private Investment	Net Exports	Government	GDP
Q3 2017 Contribution	1.5%	1.2%	0.4%	0.1%	3.2%

Source: U.S. Bureau of Economic Analysis, and FRB of St Louis FRED database.

Real Personal Consumption Expenditures

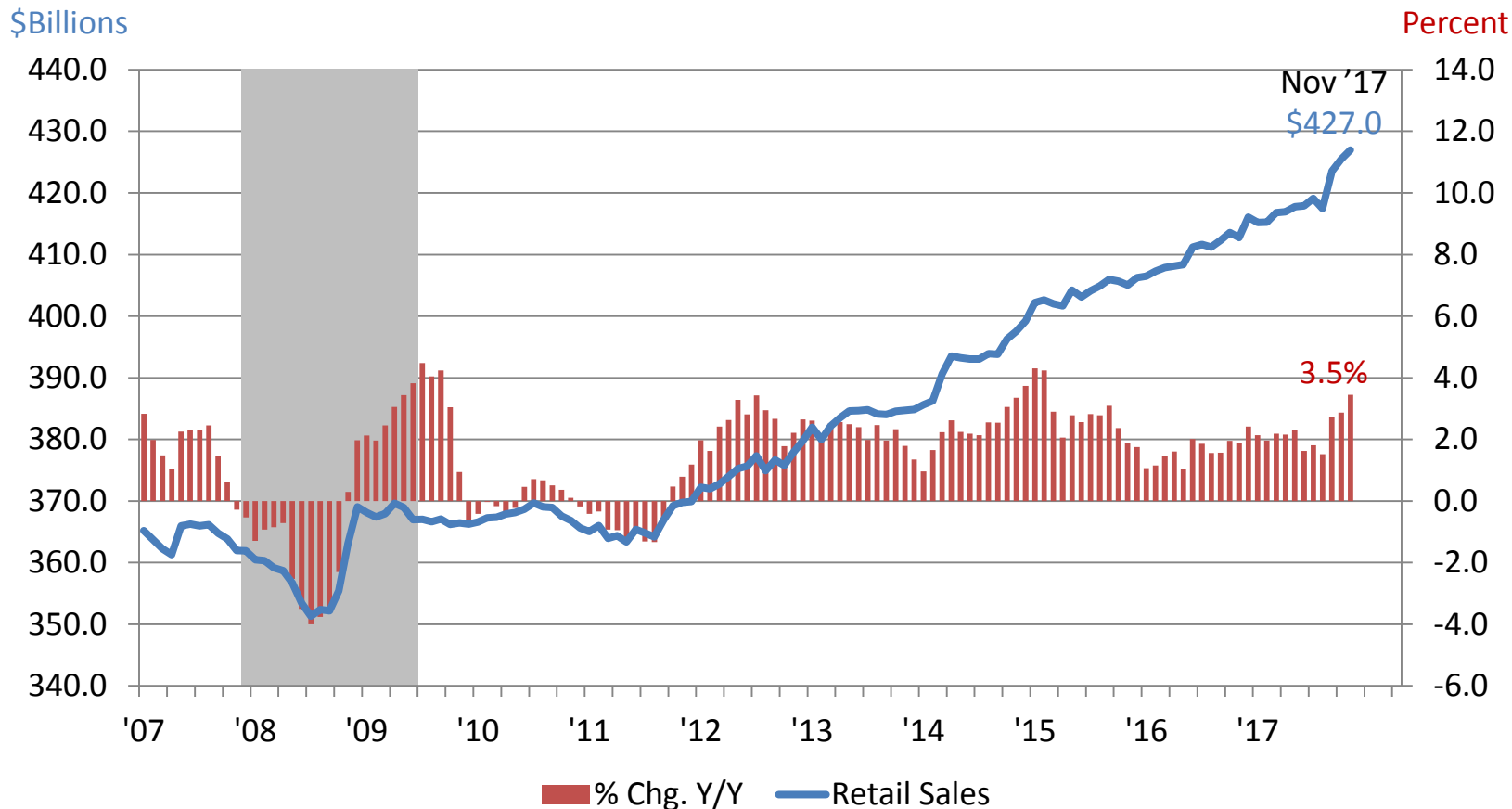
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Real Retail Sales

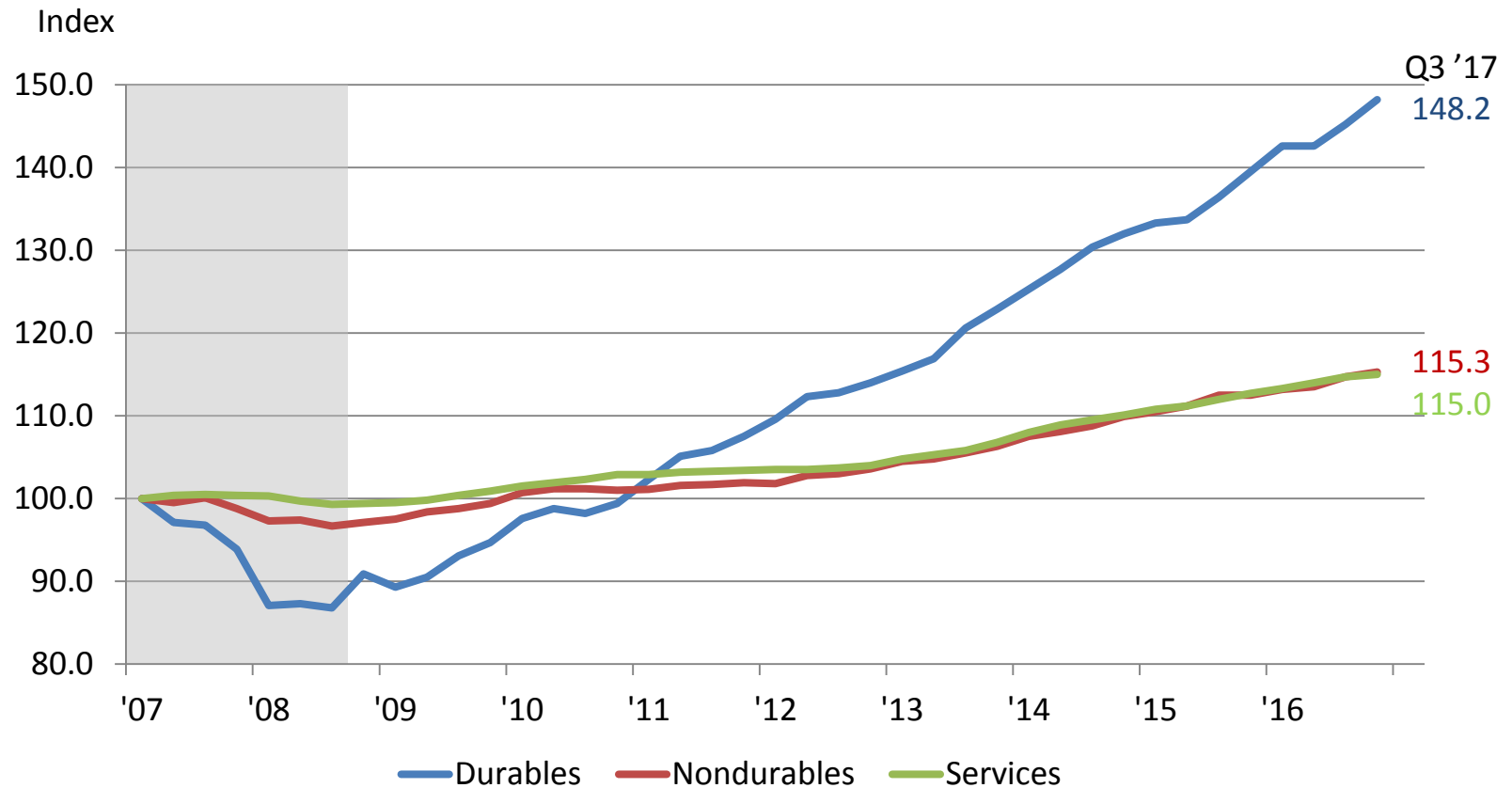
Real Retail & Food Services Sales, SA – Billions of \$2009 and % Chg. Yr./Yr.



Source: Author's calculation using U.S. Census Bureau and Bureau of Labor Statistics data.

Real Personal Consumption Expenditures

Index, Q4 2007 = 100



Source: Author's calculations using data from the BEA

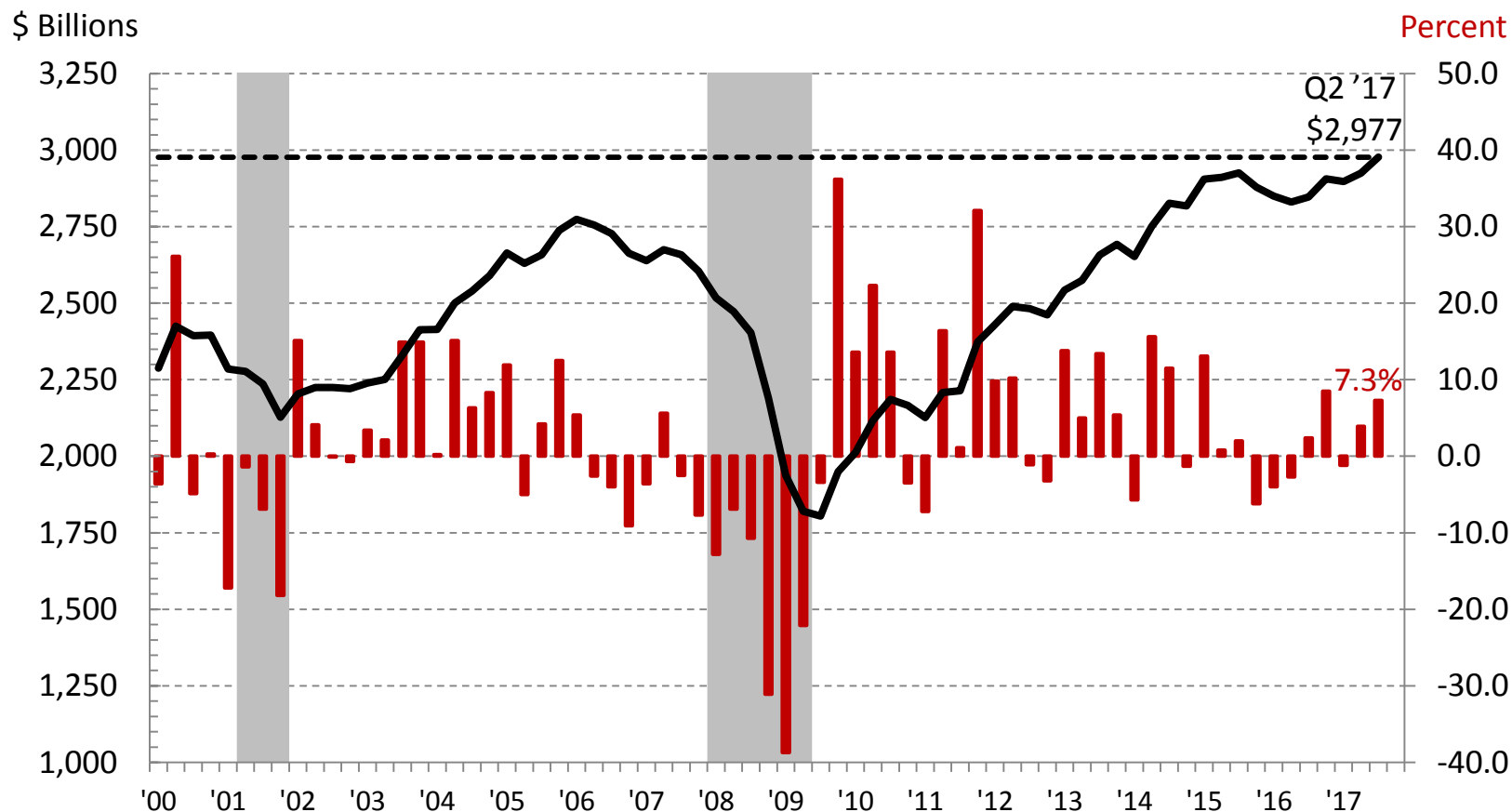
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Real Gross Private Domestic Investment

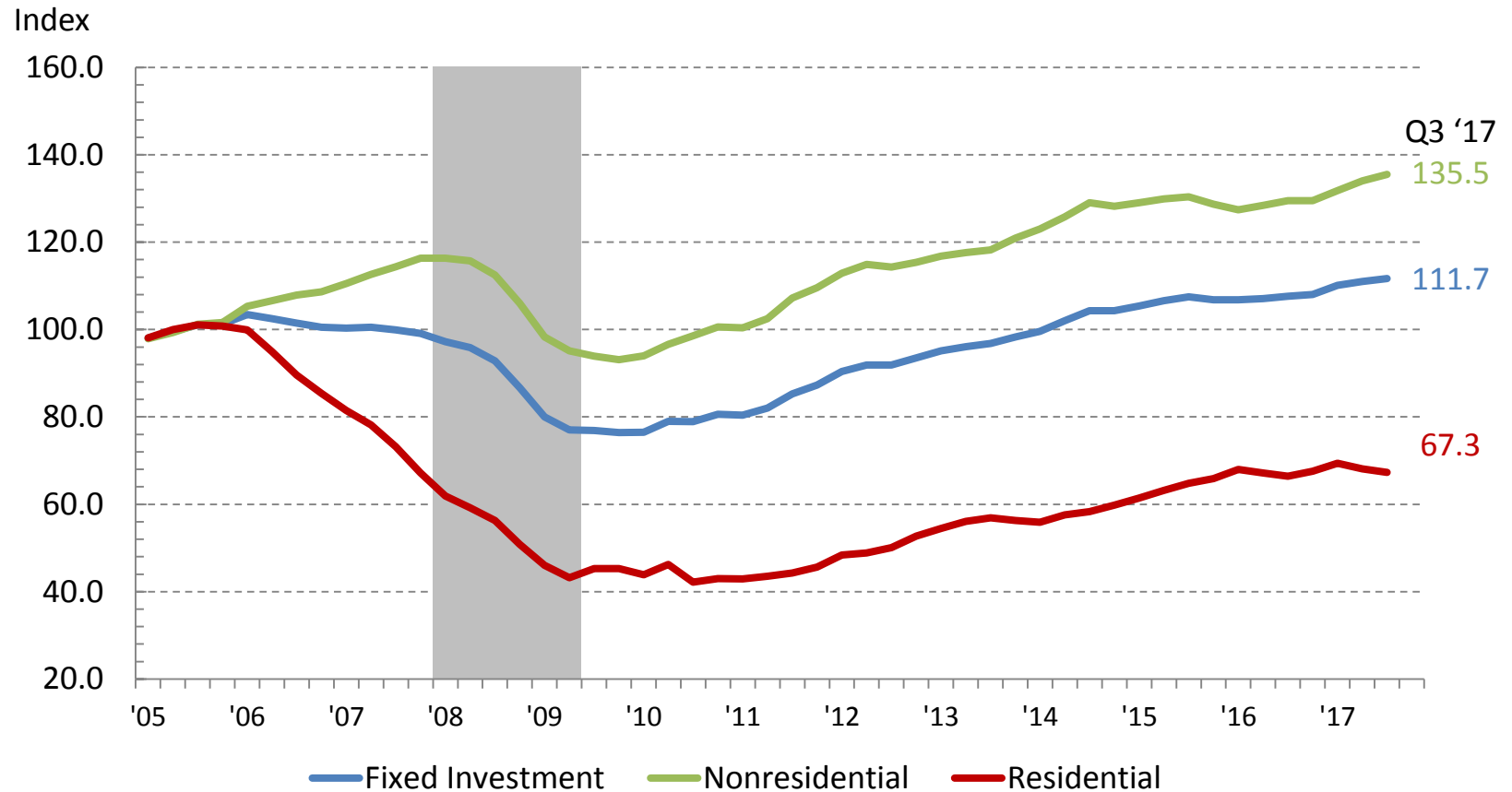
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Real Private Fixed Investment

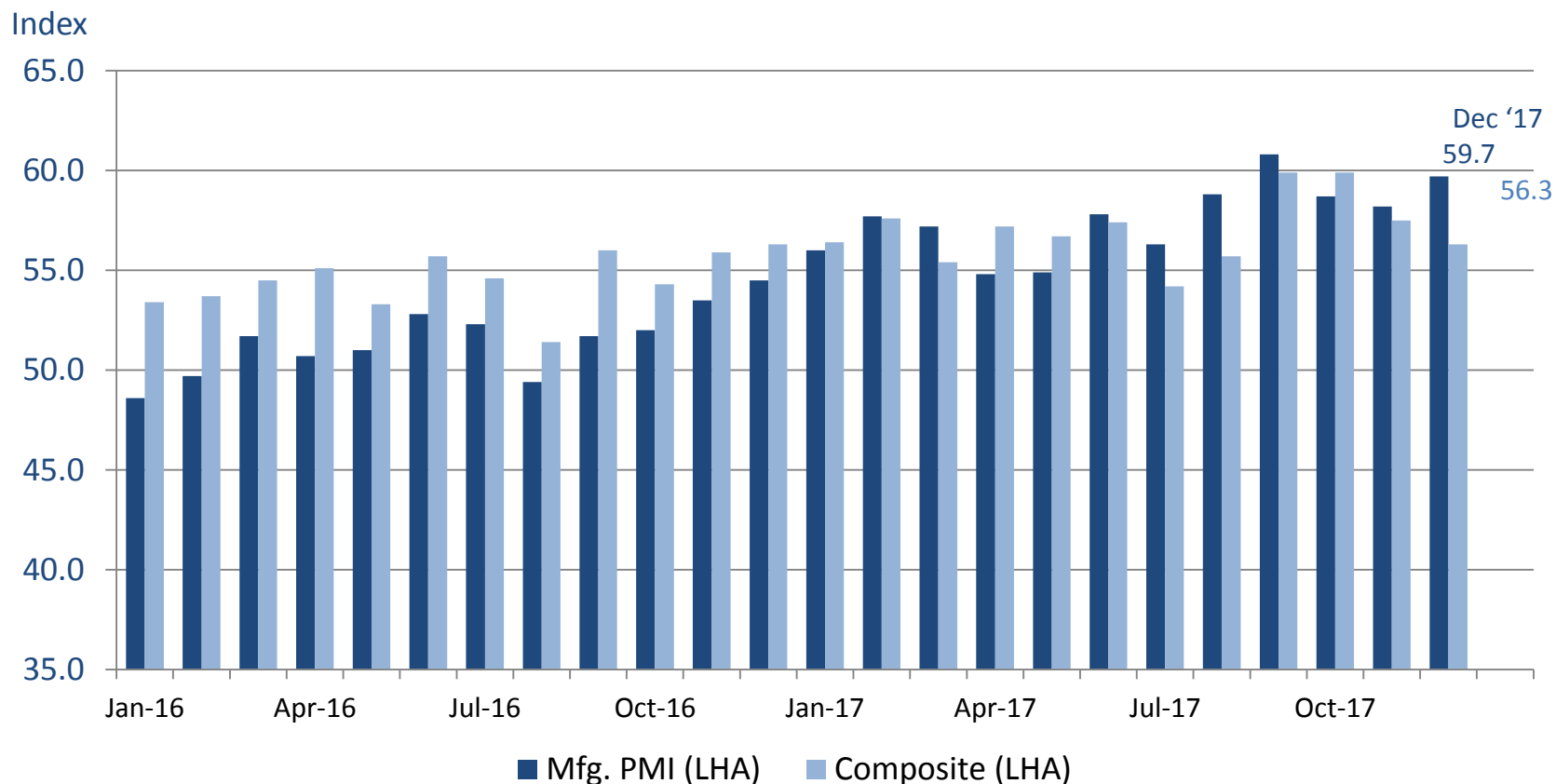
Billions Chained \$2009, Index – 2005 = 100



Source: U.S. Bureau of Economic Analysis

ISM Purchasing Managers Index

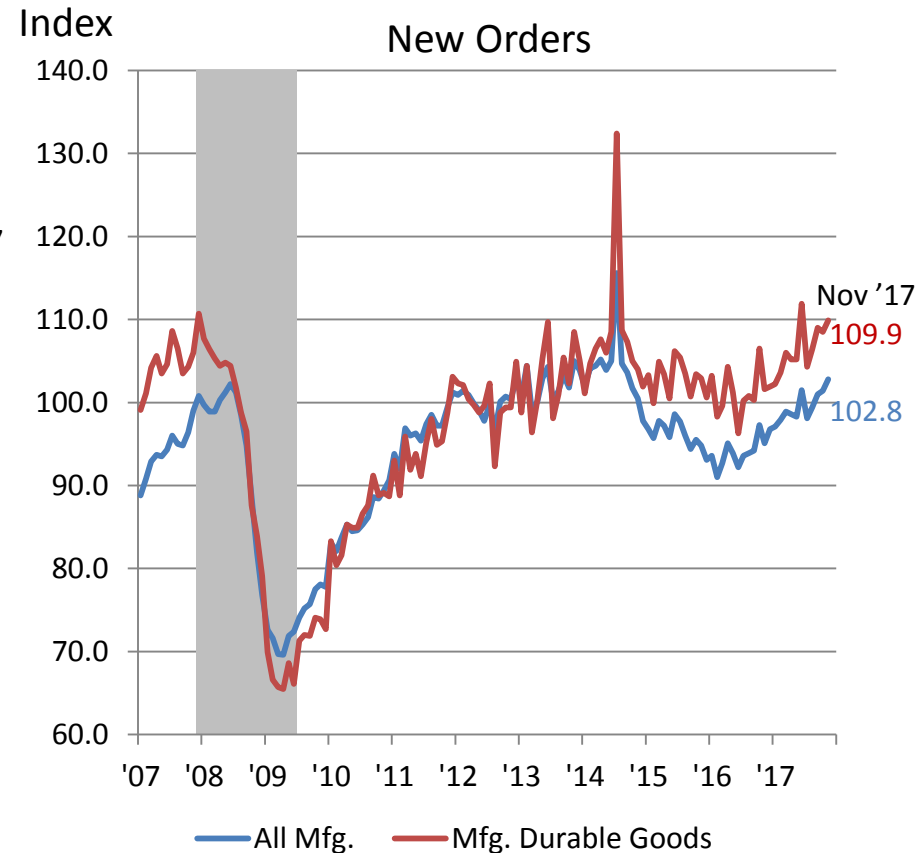
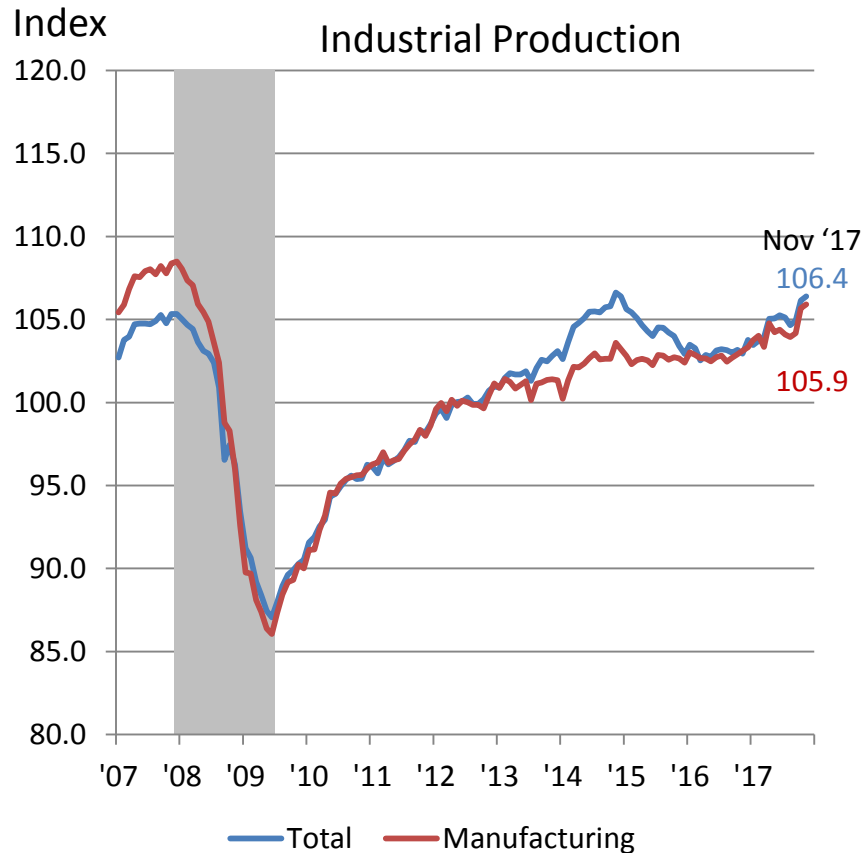
Manufacturing & Composite, SA - Greater than 50 = Expansion



Source: Institute for Supply Management , Haver Analytics and FRED

Industrial Production & New Orders

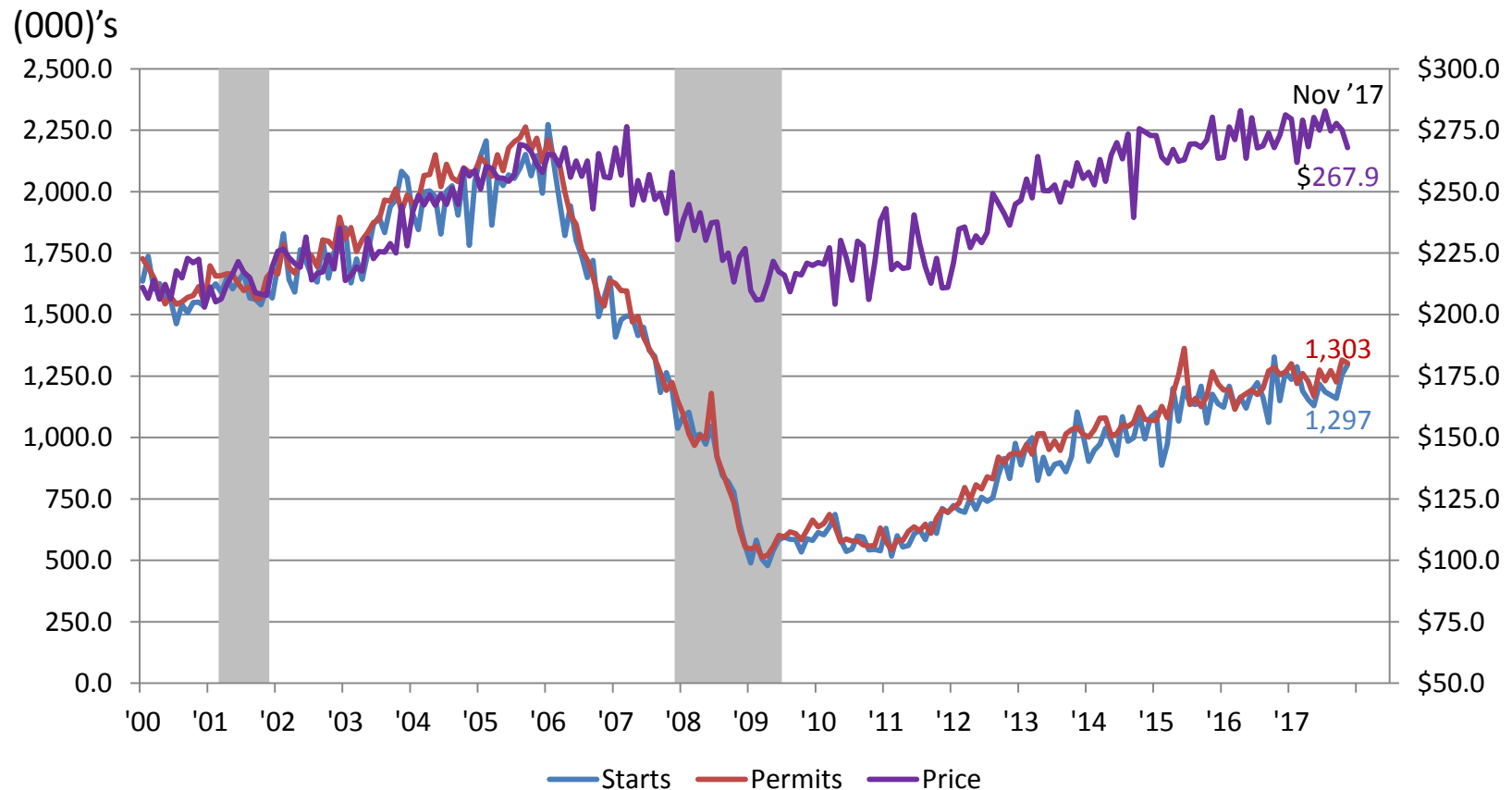
Index, 2012 = 100



Source: Board of Governors, Federal Reserve and U.S. Census Bureau

New Private Housing

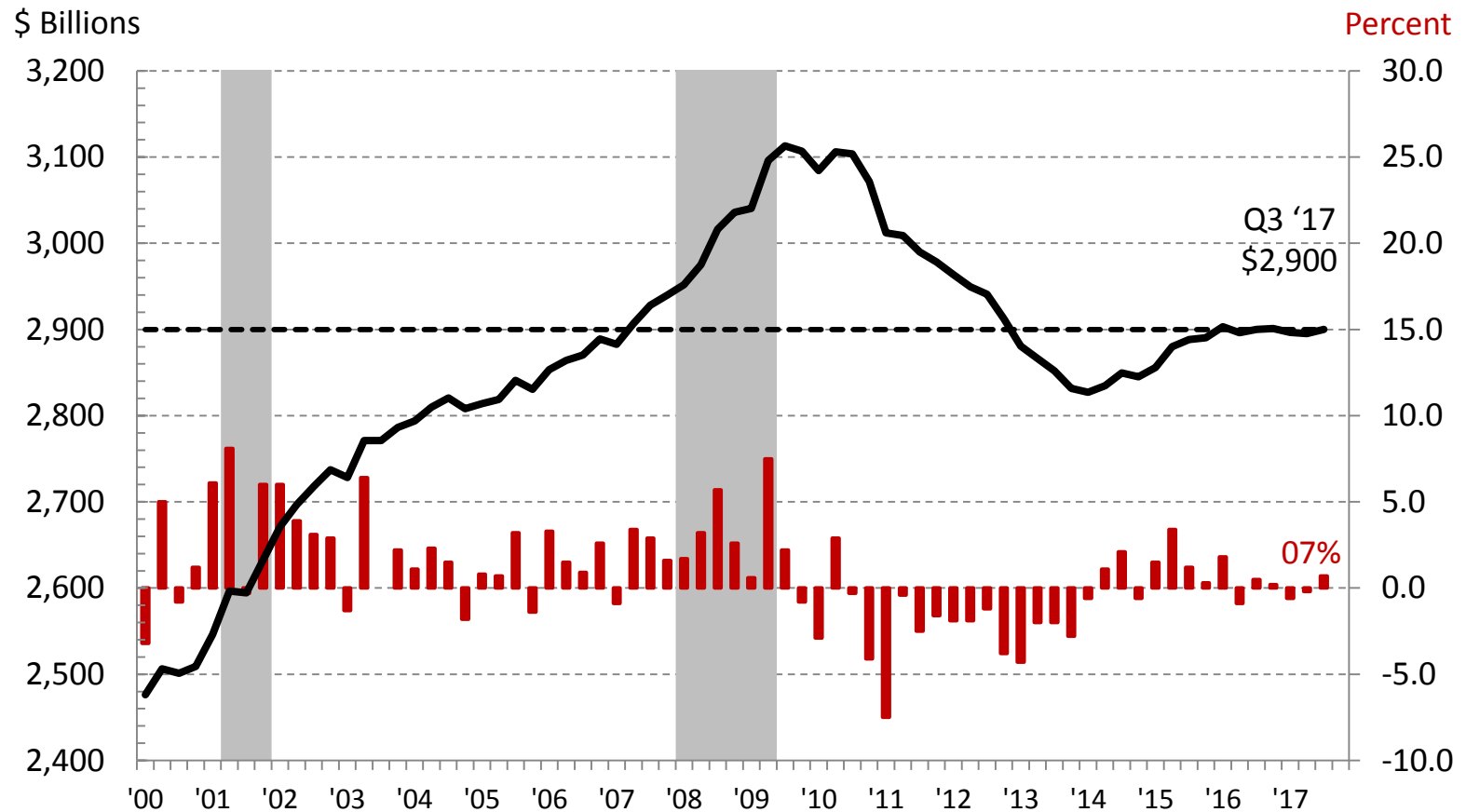
Starts, Permits & Real Median Sales Price – Units (SAAR) / \$2009



Source: Board of Governors, Federal Reserve and U.S. Census Bureau

Real Government Consumption & Investment

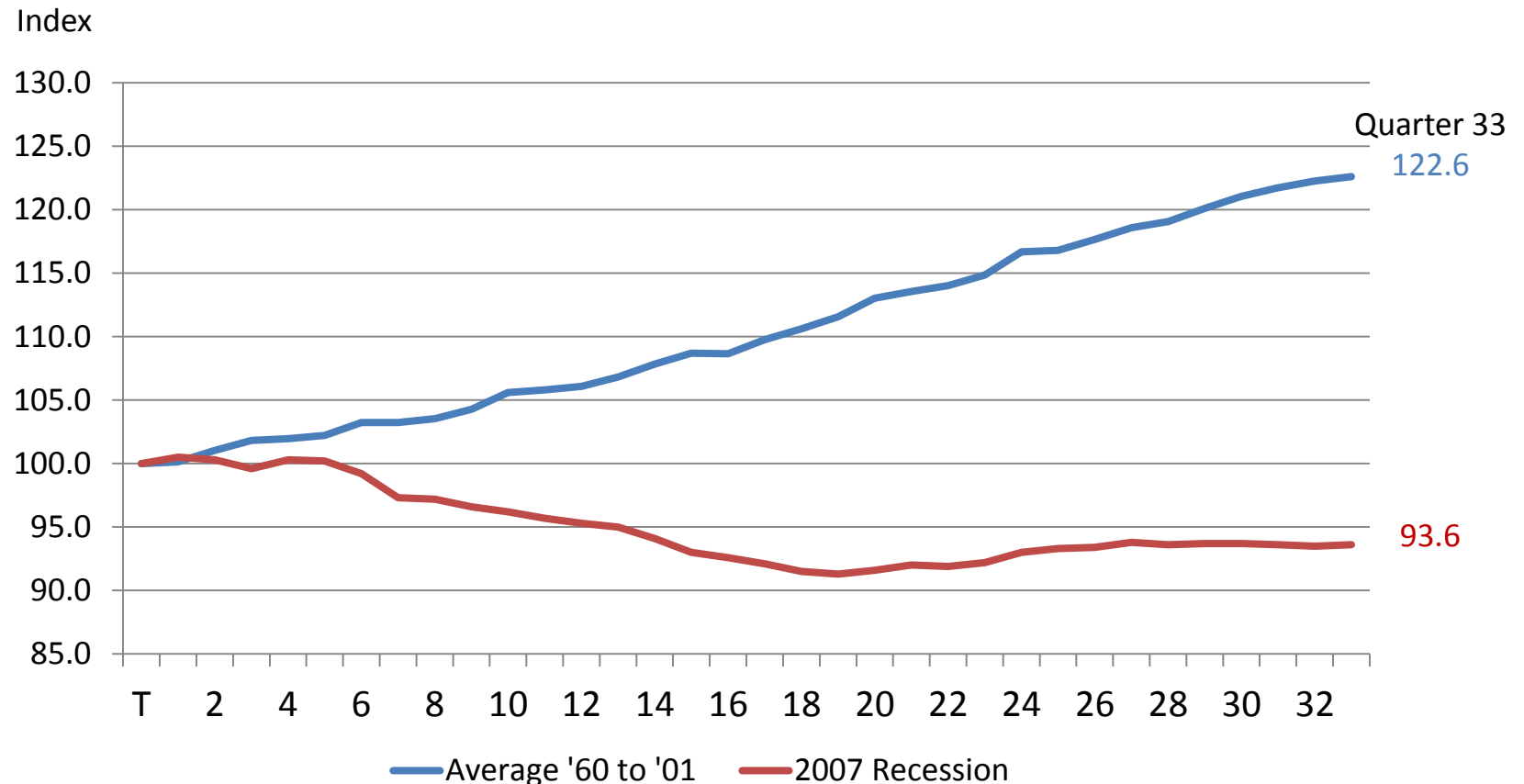
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Real Total Government Consumption & Investment

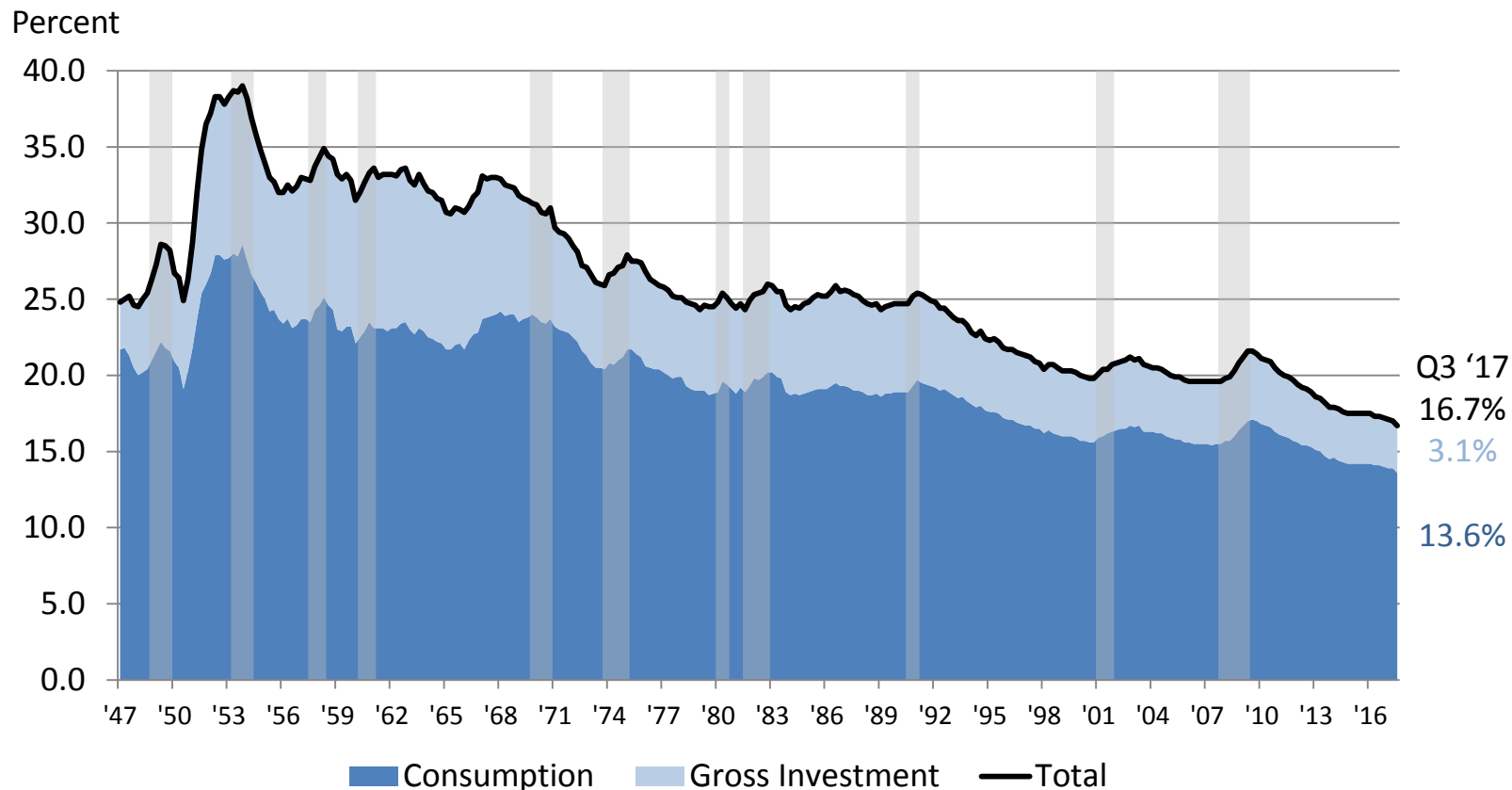
Average Post-Recession Recovery, Index – Recession Trough = 100



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

Real Government Consumption & Gross Investment

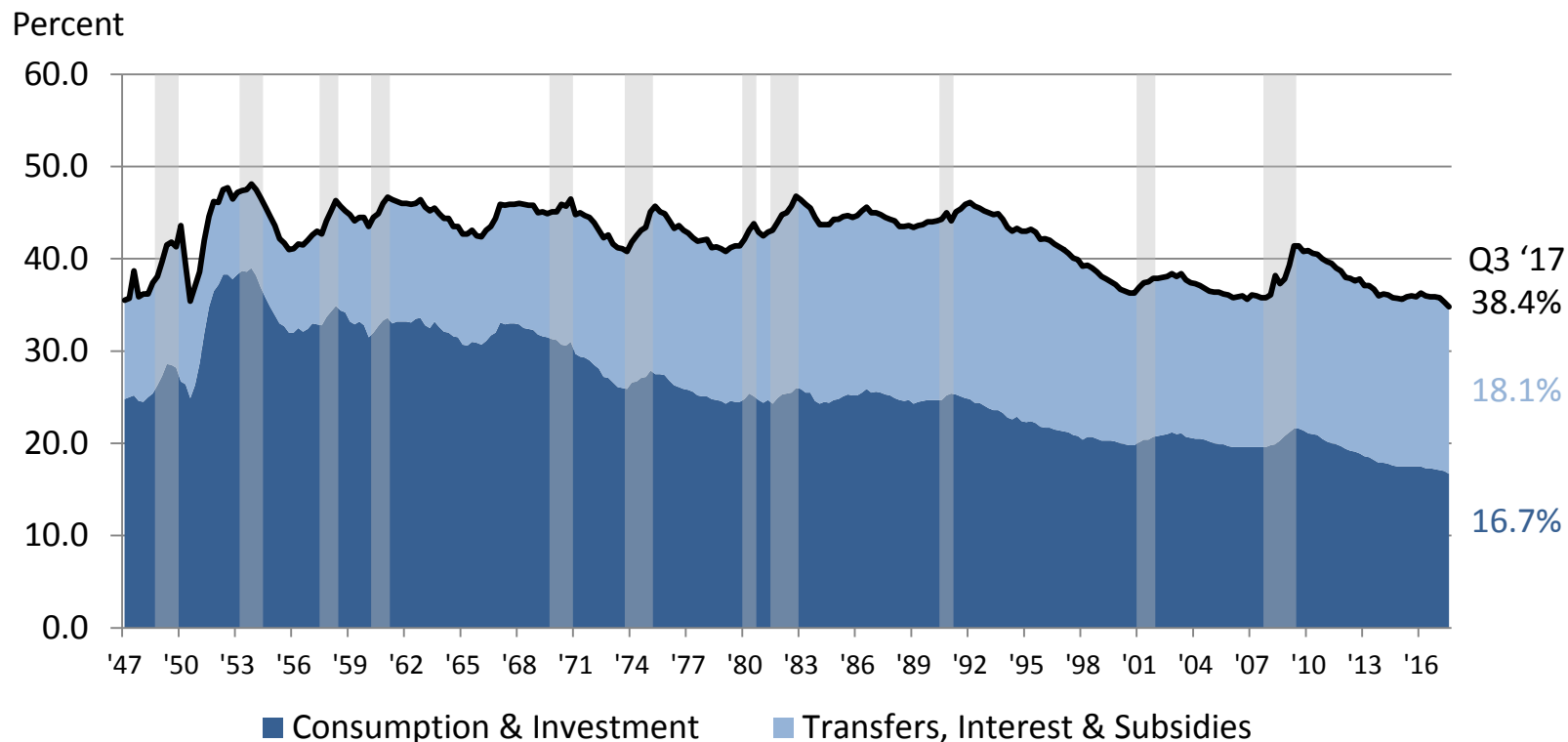
Percent of Total Real GDP - \$2009



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

Real Total Government Expenditures¹

Percent of Total Real GDP - \$2009

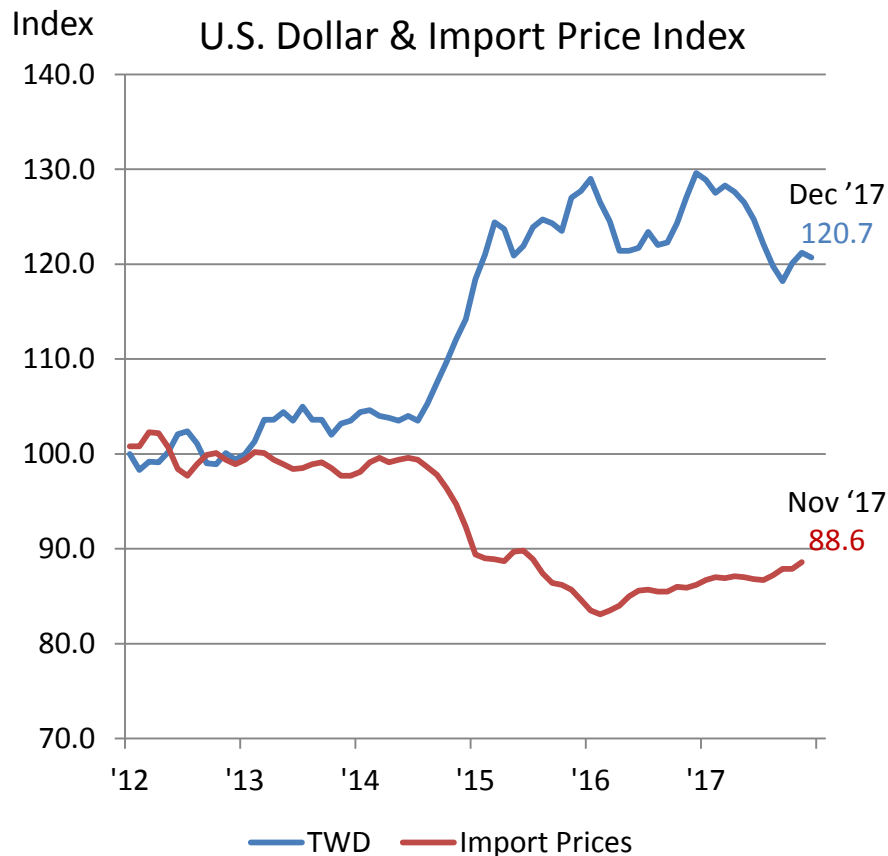


1. Includes Government Consumption, Investment, Transfer Payments, Interest Payments, and Subsidies.

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

The U.S. Dollar and Trade Deficit

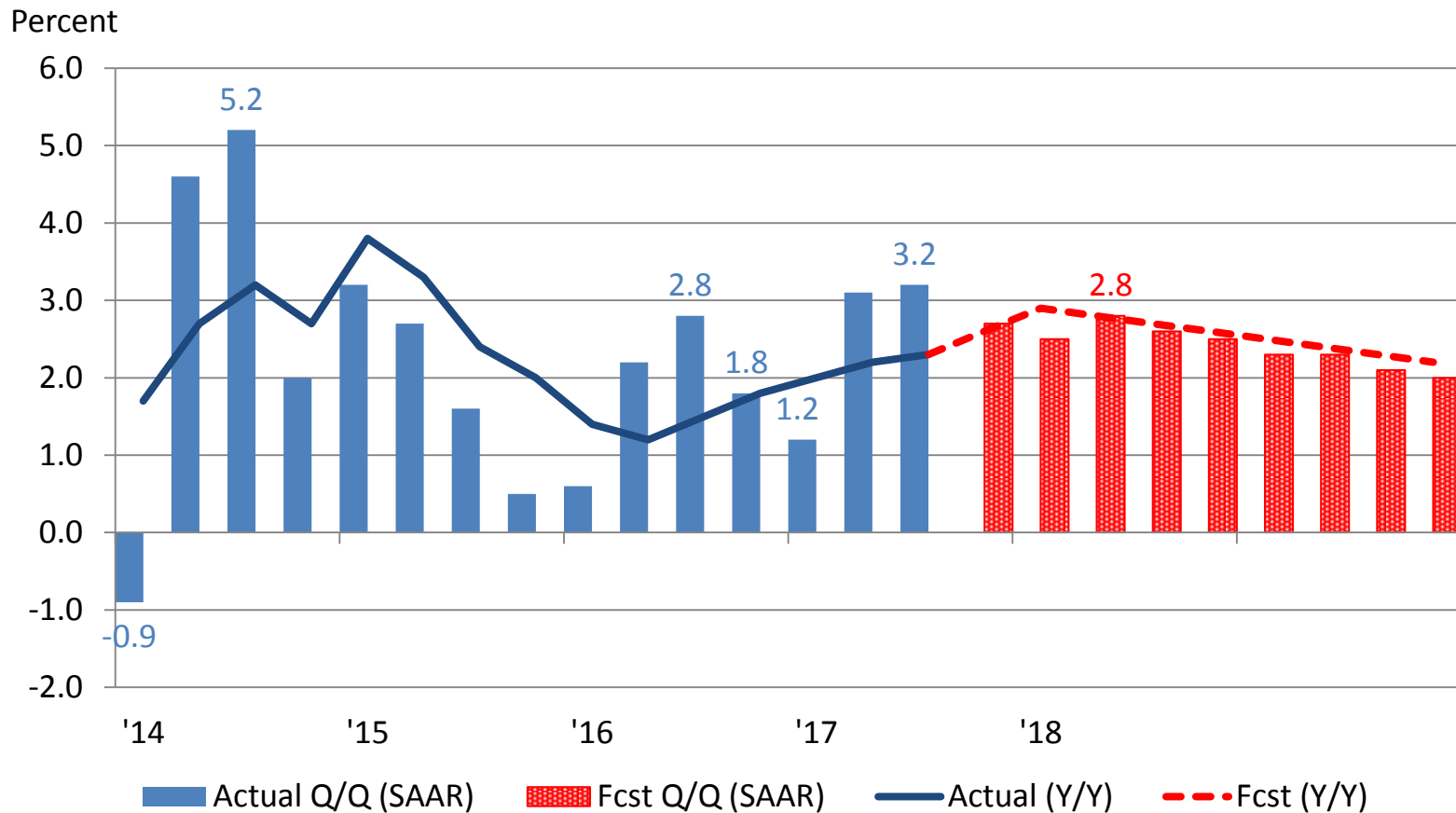
Index 2012 = 100



Source: Board of Governors, Federal Reserve and Bureau of Labor Statistics.

U.S. Real GDP Blue Chip Forecast

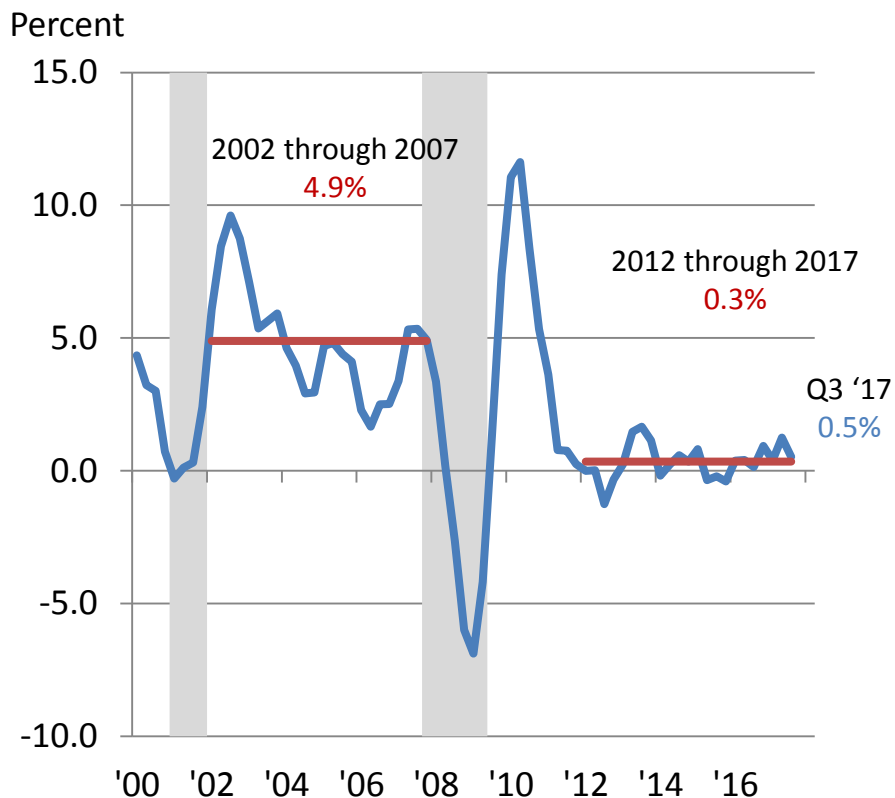
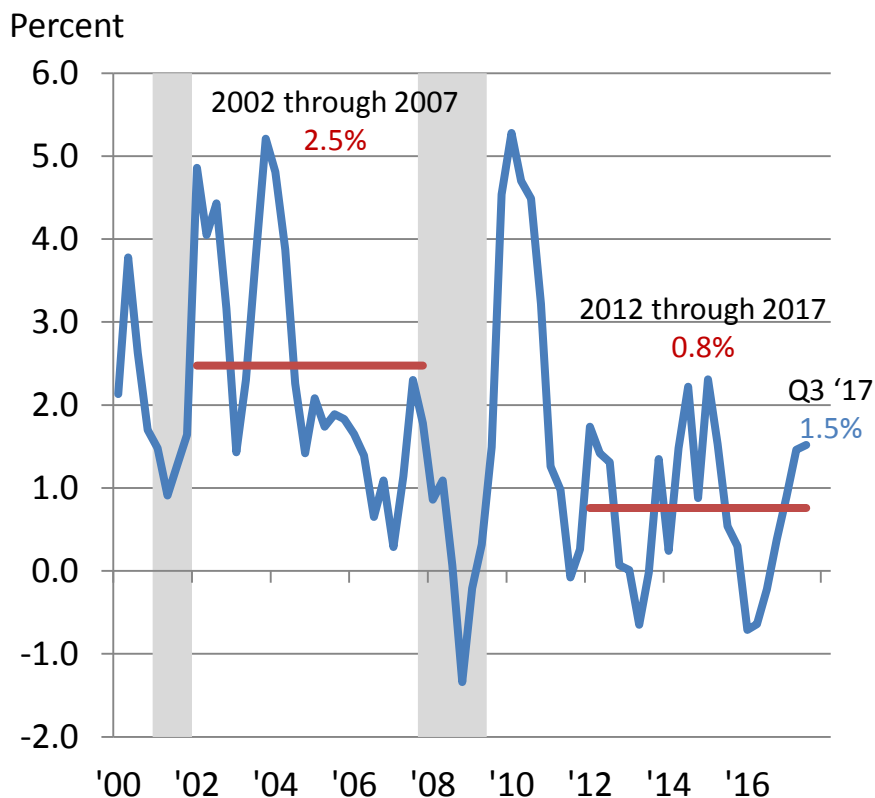
Percent Change – Billions of Chained \$2009



Source: BEA and December 2017 Blue Chip Economic Indicators

Productivity – Nonfarm and Manufacturing

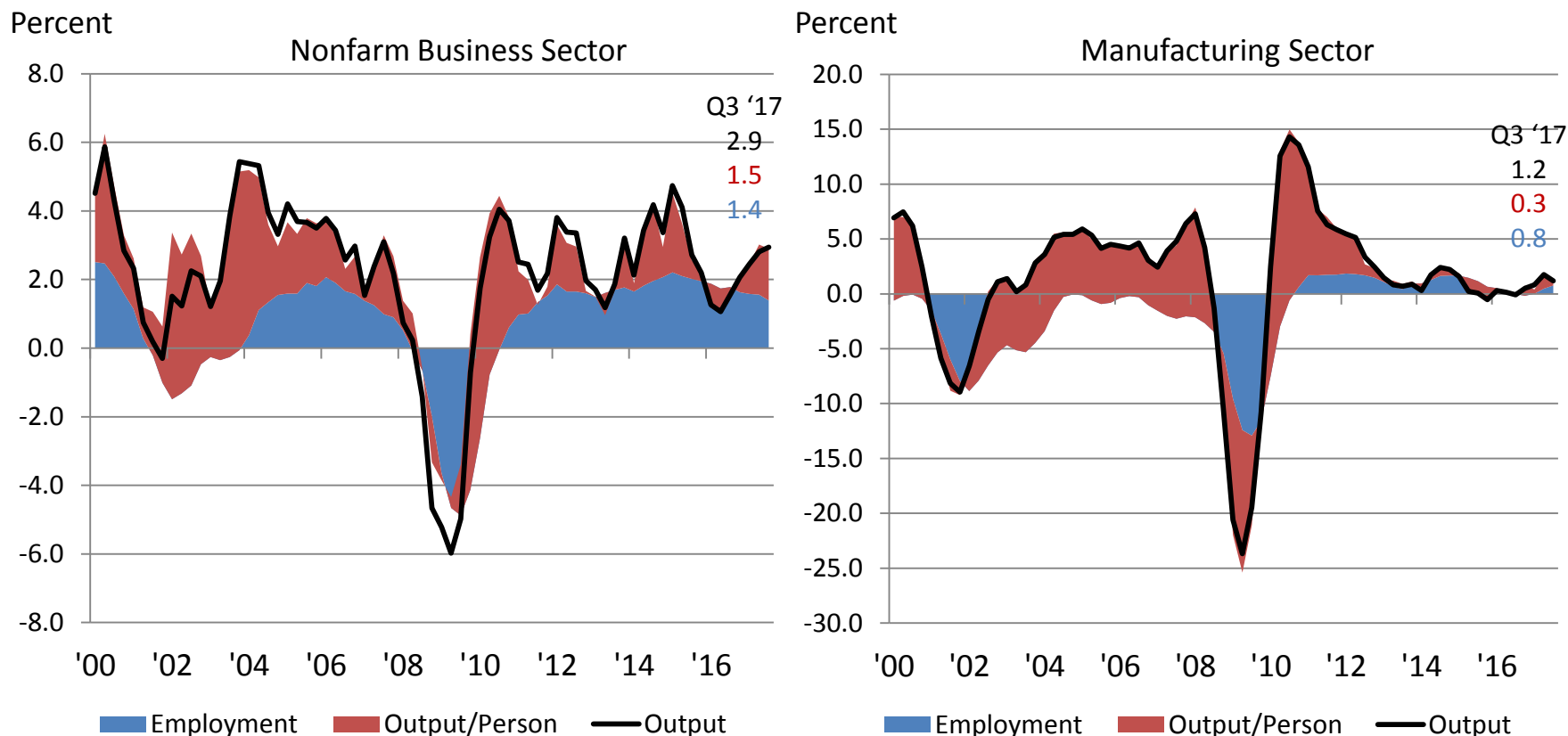
Real Output Per Person - Index 2009 = 100, % Chg. Yr./Yr.



Source: U.S. Bureau of Labor Statistics

Employment, Productivity, and Output

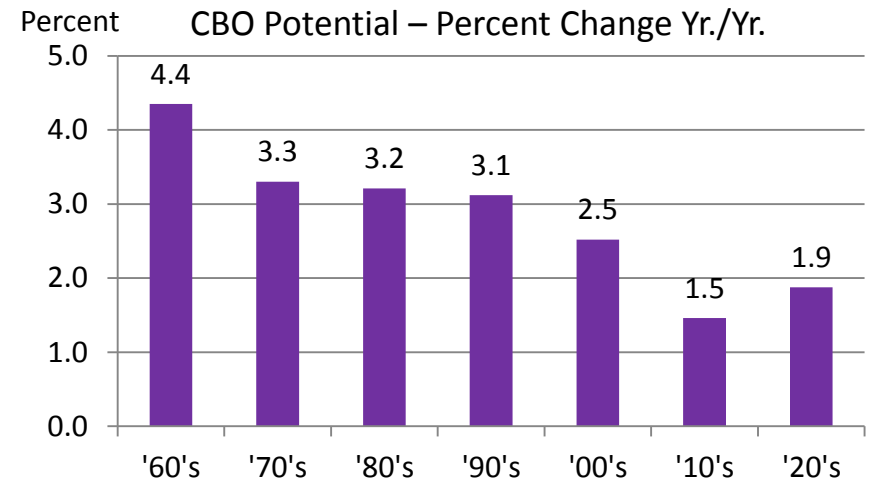
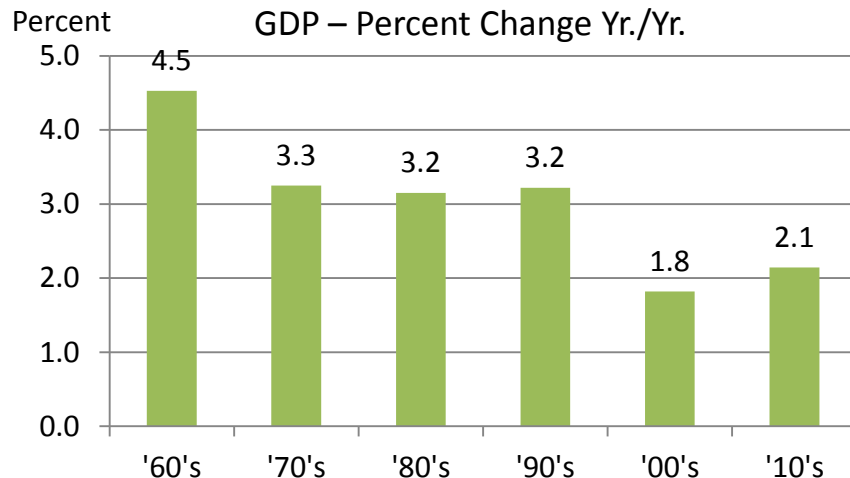
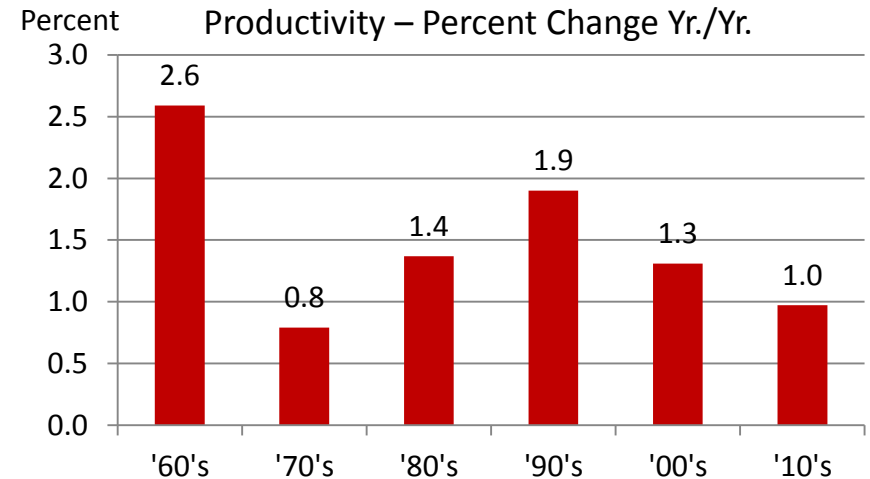
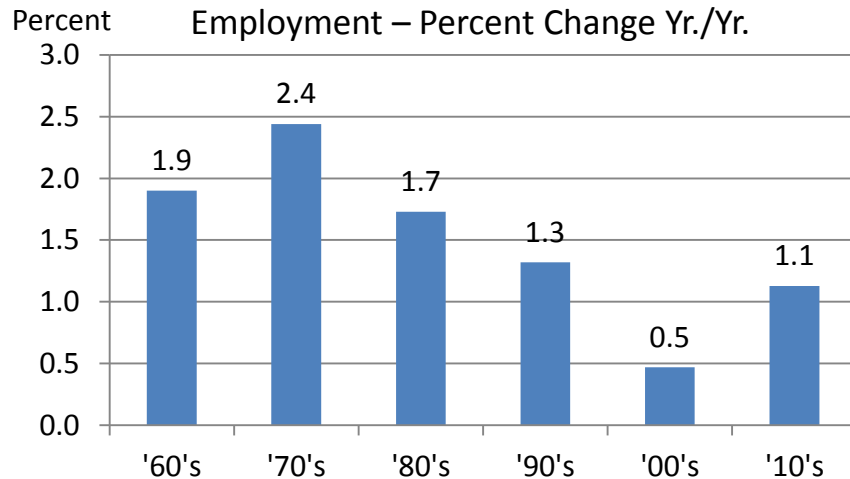
Nonfarm and Manufacturing – Percent Change Yr./Yr.



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

Employment, Productivity, and GDP Growth

Percent Change Yr./Yr.



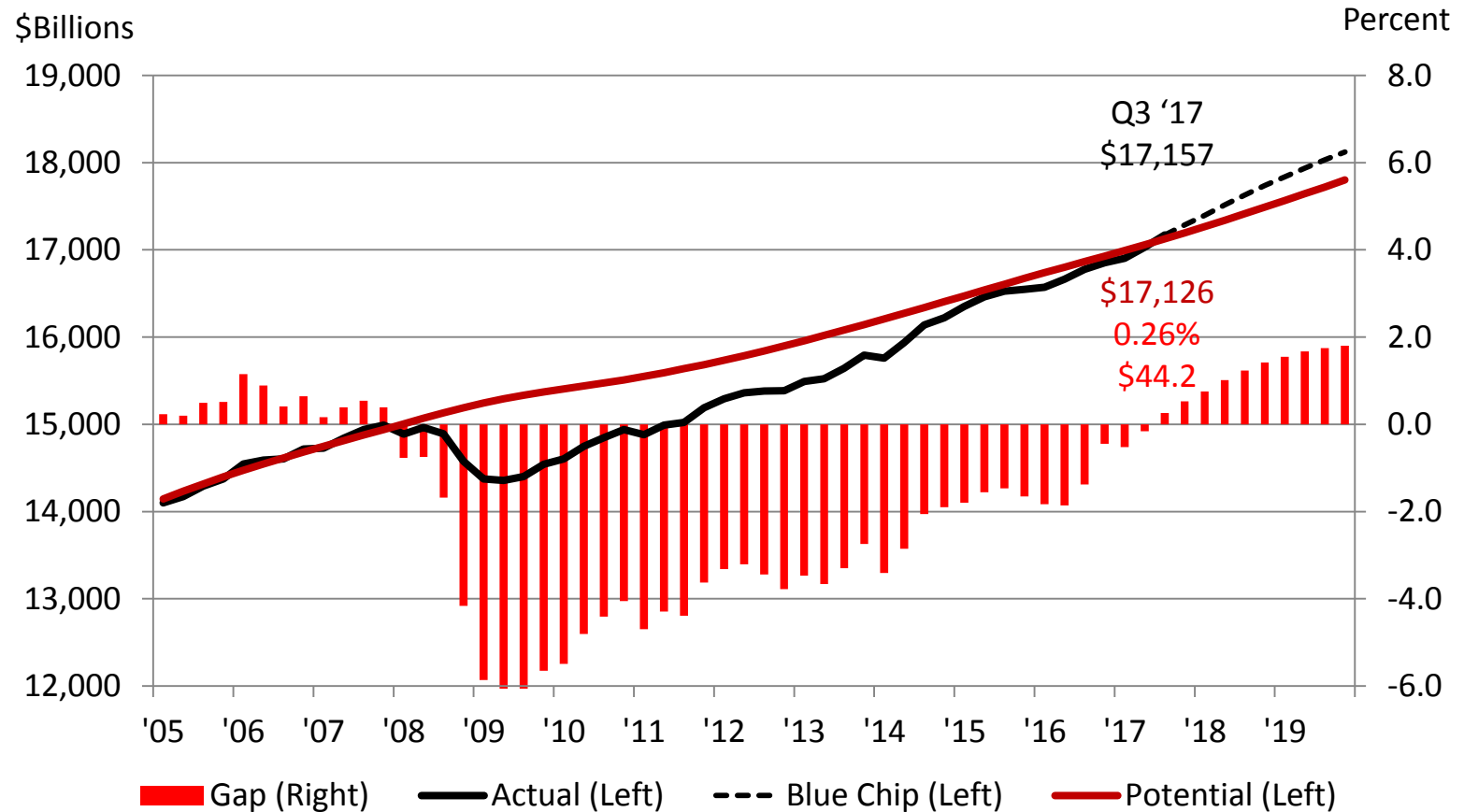
Source: Author's Calculations using BEA, BLS, and Fed data.

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U.S. Real GDP – Actual and Potential

Billions Chained \$2009 and Percent H/L than Potential



Source: Bureau of Economic Analysis and the U.S. Congressional Budget Office

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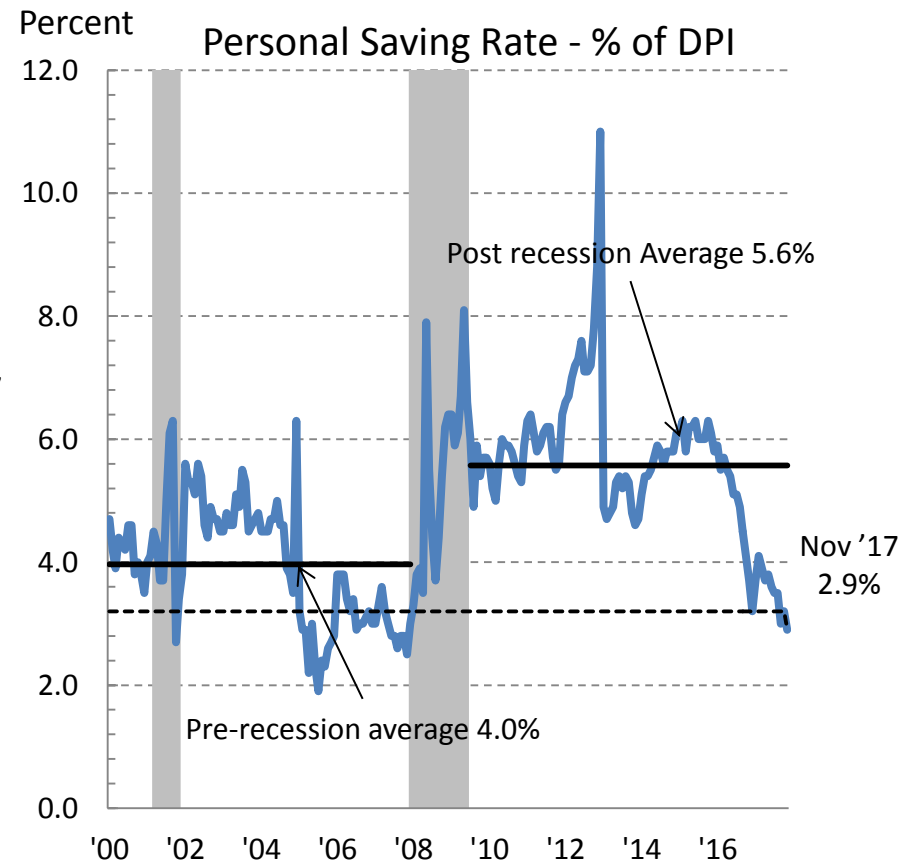
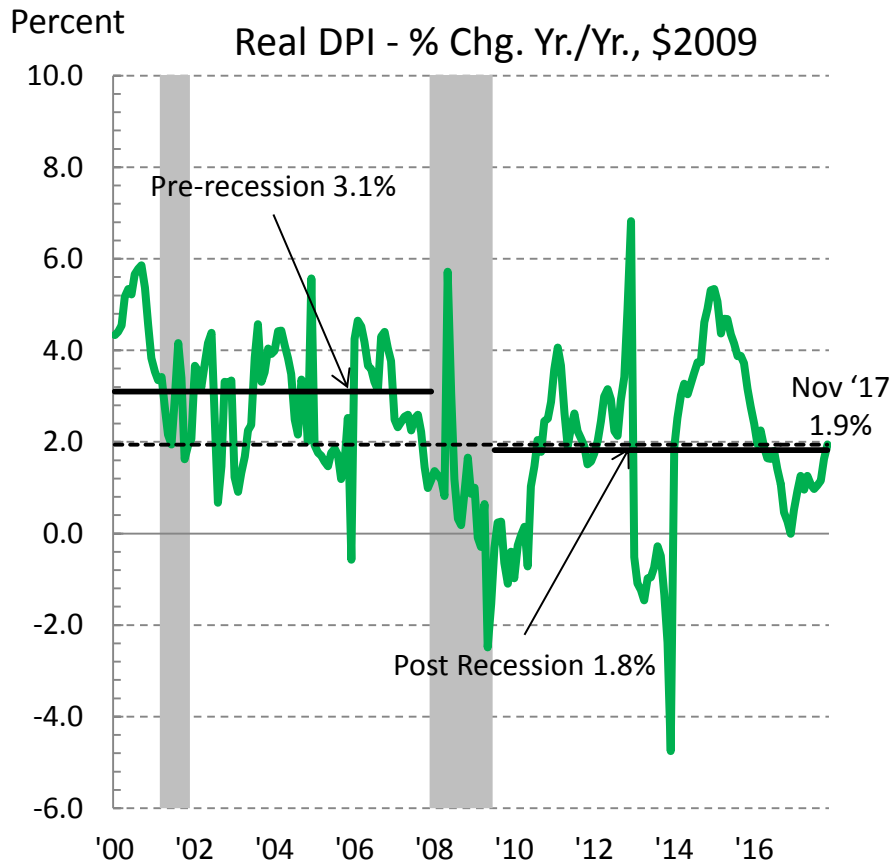
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U.S. Consumer

Income and Savings Rate

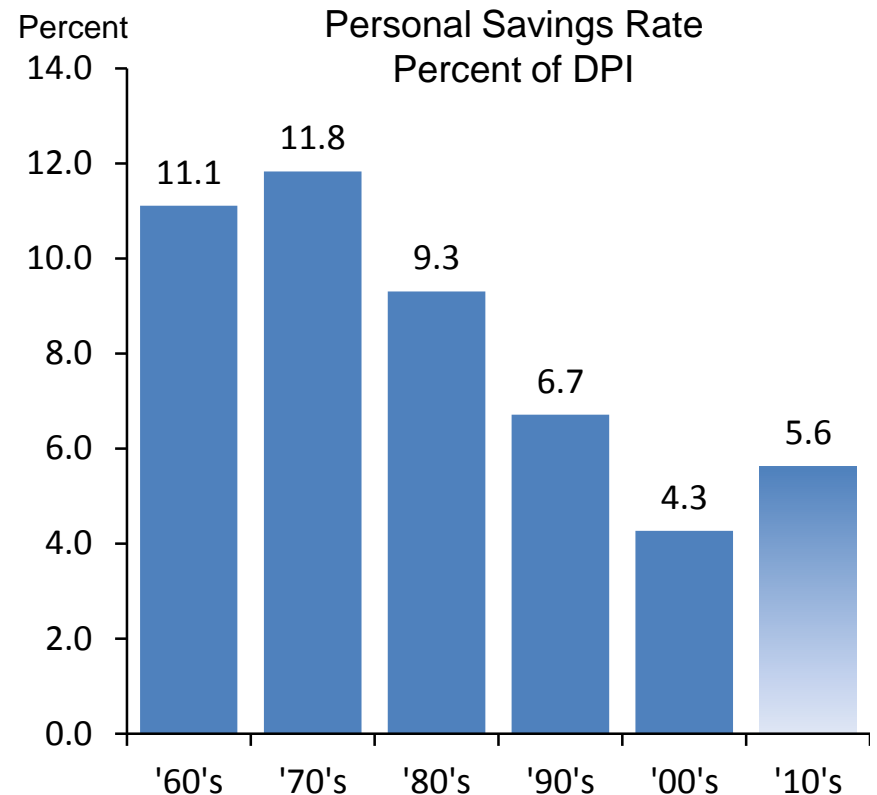
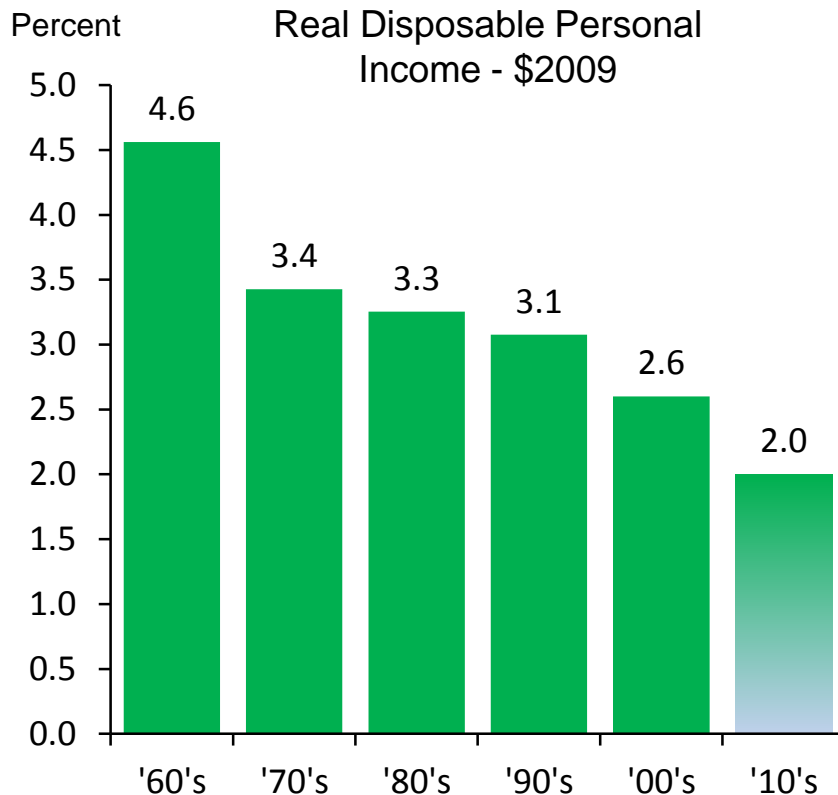
Percent Change and Percent of DPI



Source: U.S. Bureau of Economic Analysis

Real DPI & Personal Savings Rate

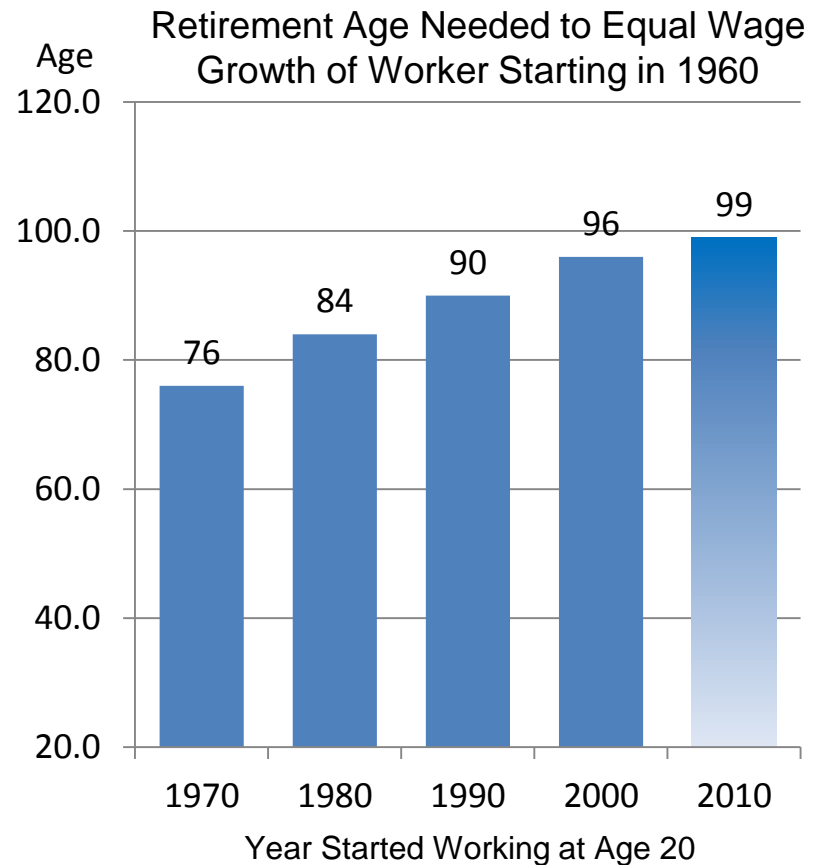
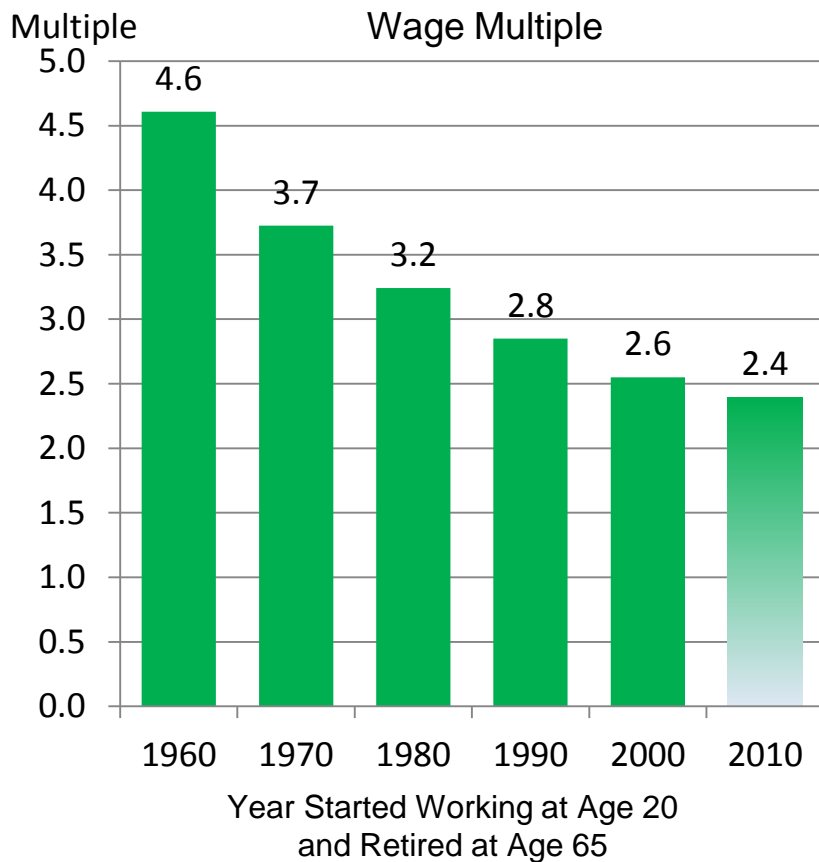
As Percent of Personal Income



Source: U.S. Bureau of Economic Analysis

Real Disposable Income Growth

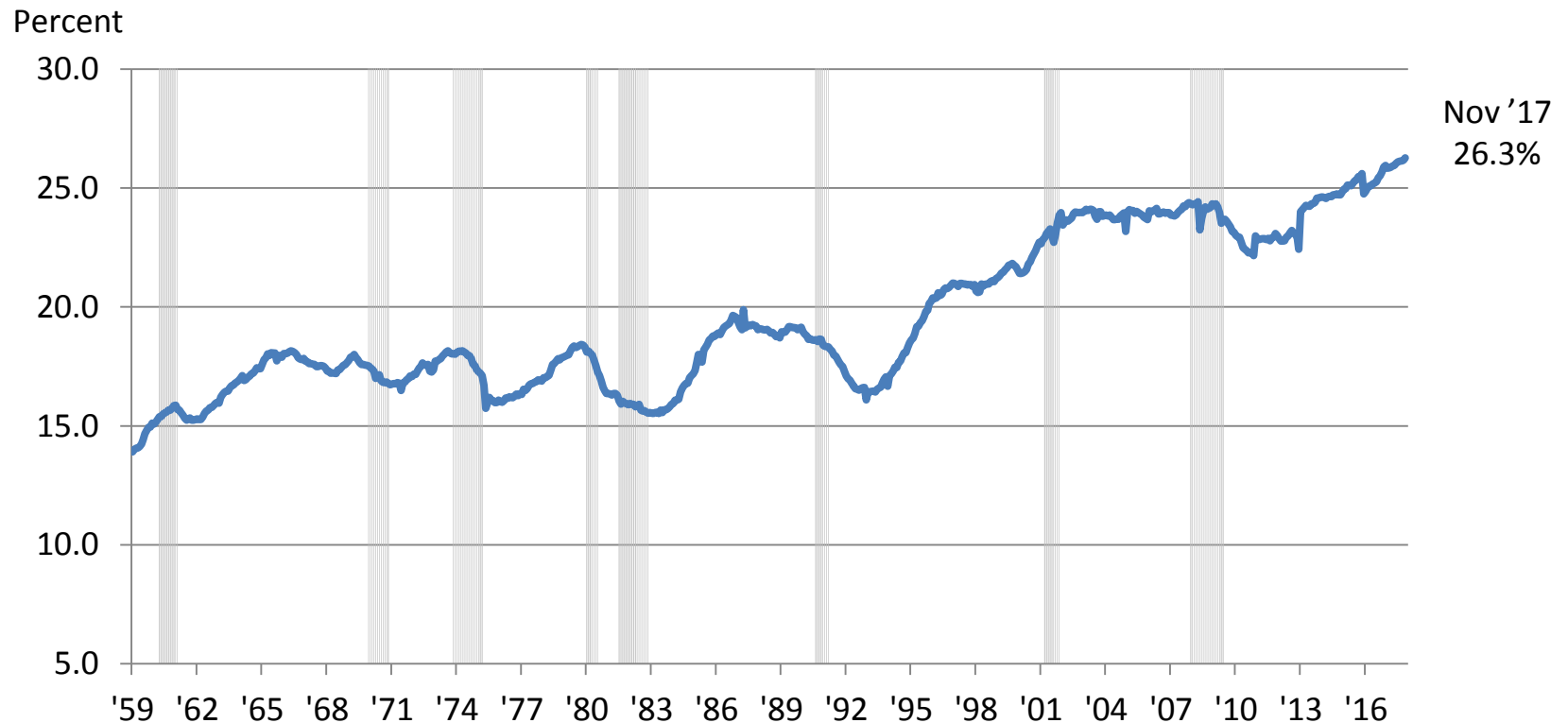
Real DPI Multiple and Retirement Age



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

Total Consumer Credit

As a Percent of Disposable Personal Income

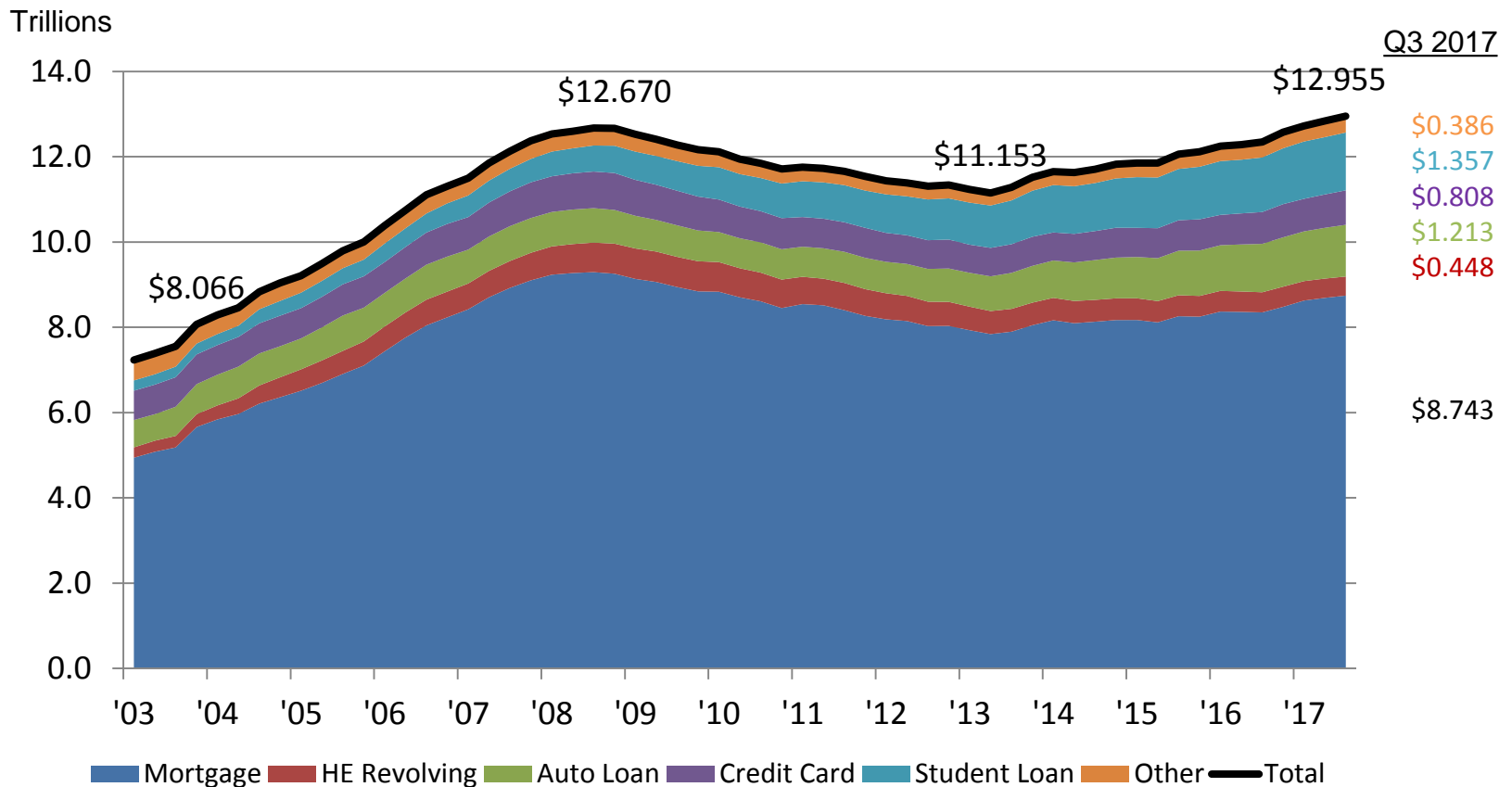


Includes: HE Revolving, Auto Loans, Credit Cards, and Student Loans.

Source: Federal Reserve Bank Board of Governors.

Total Consumer Debt by Composition

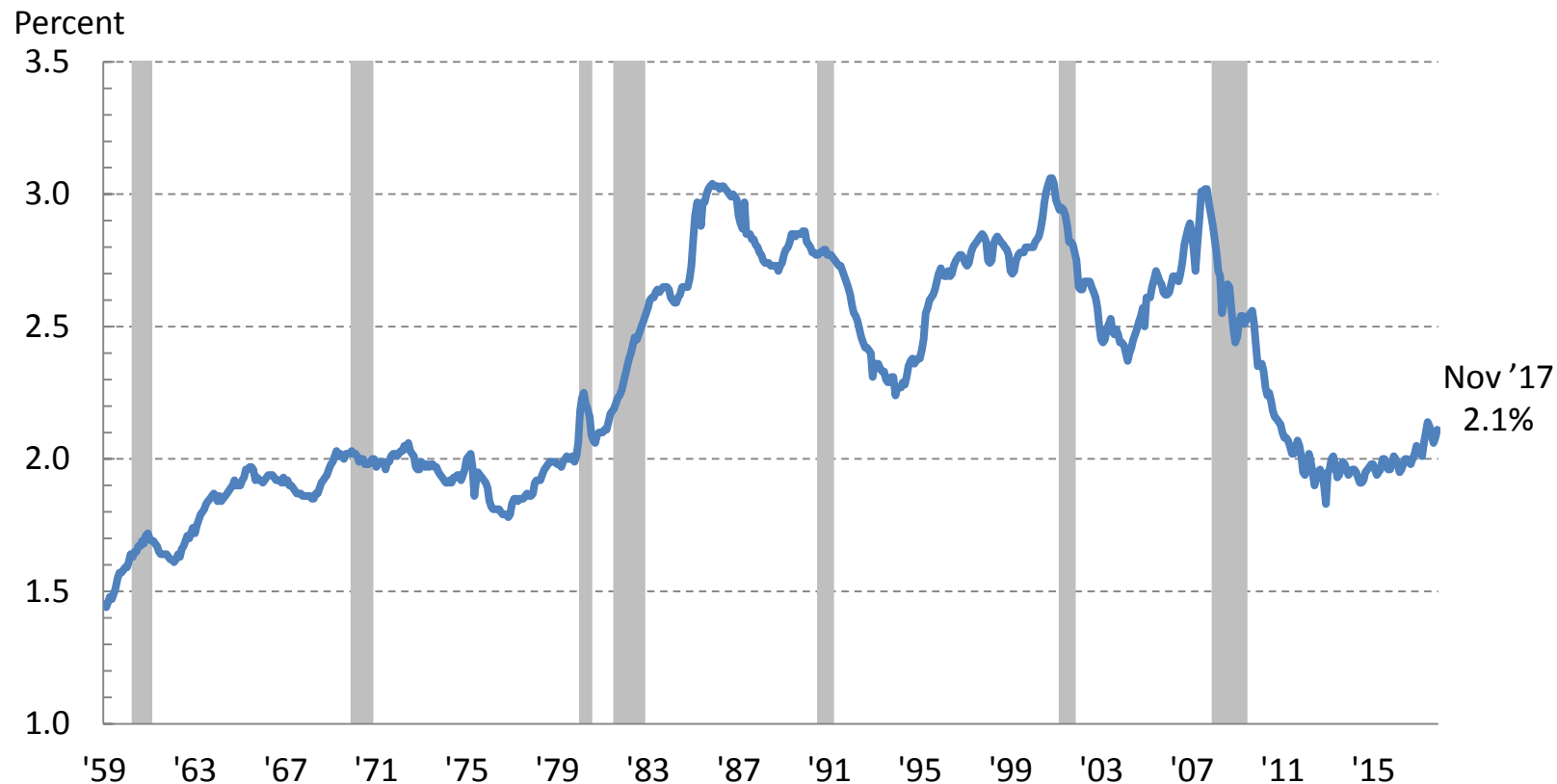
Trillions of Dollars



Source: Federal Reserve Bank of New York and Equifax

Interest Payments

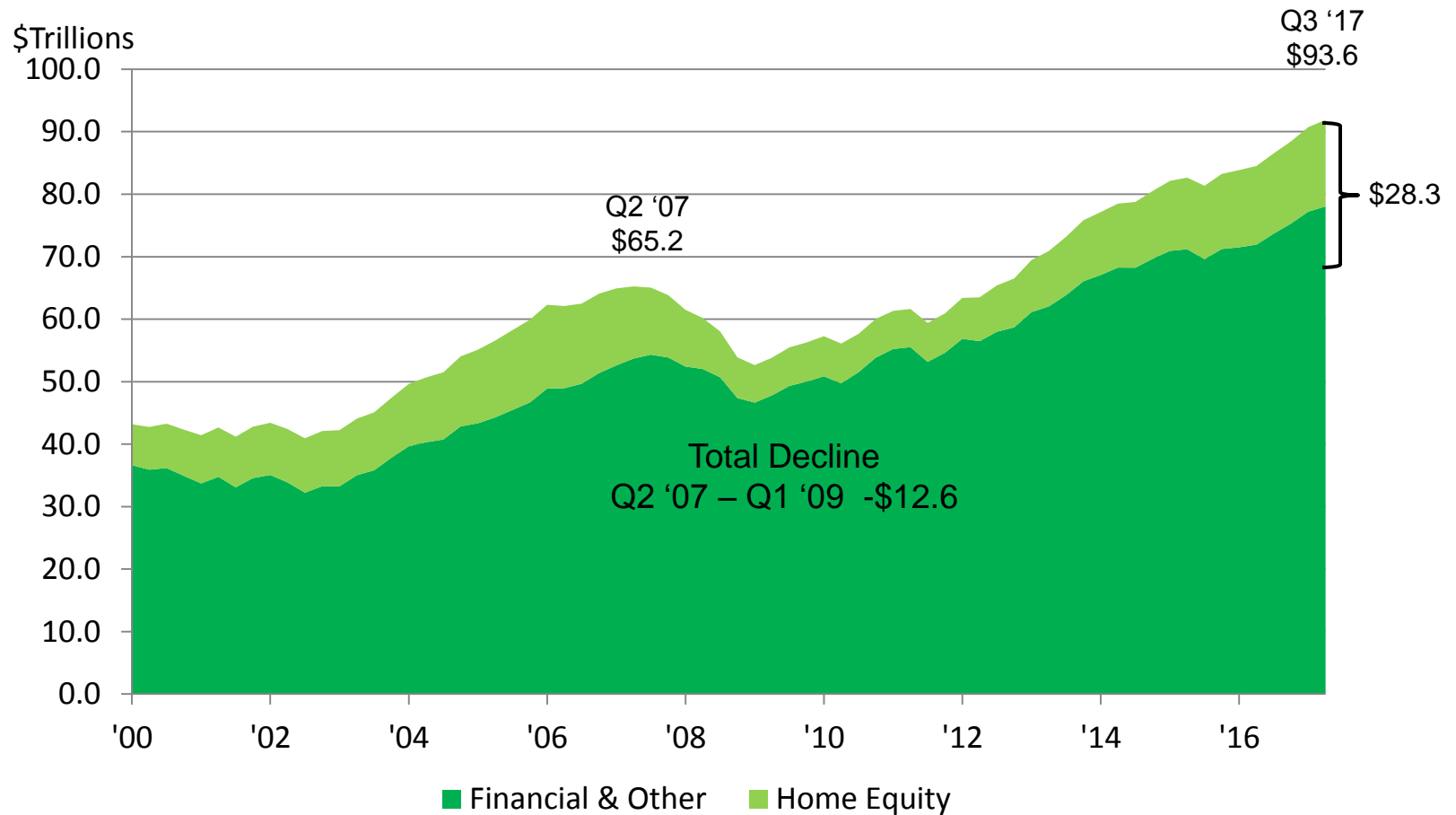
As a Percent of Disposable Personal Income



Source: Federal Reserve Bank - Board of Governors

Household Net Worth

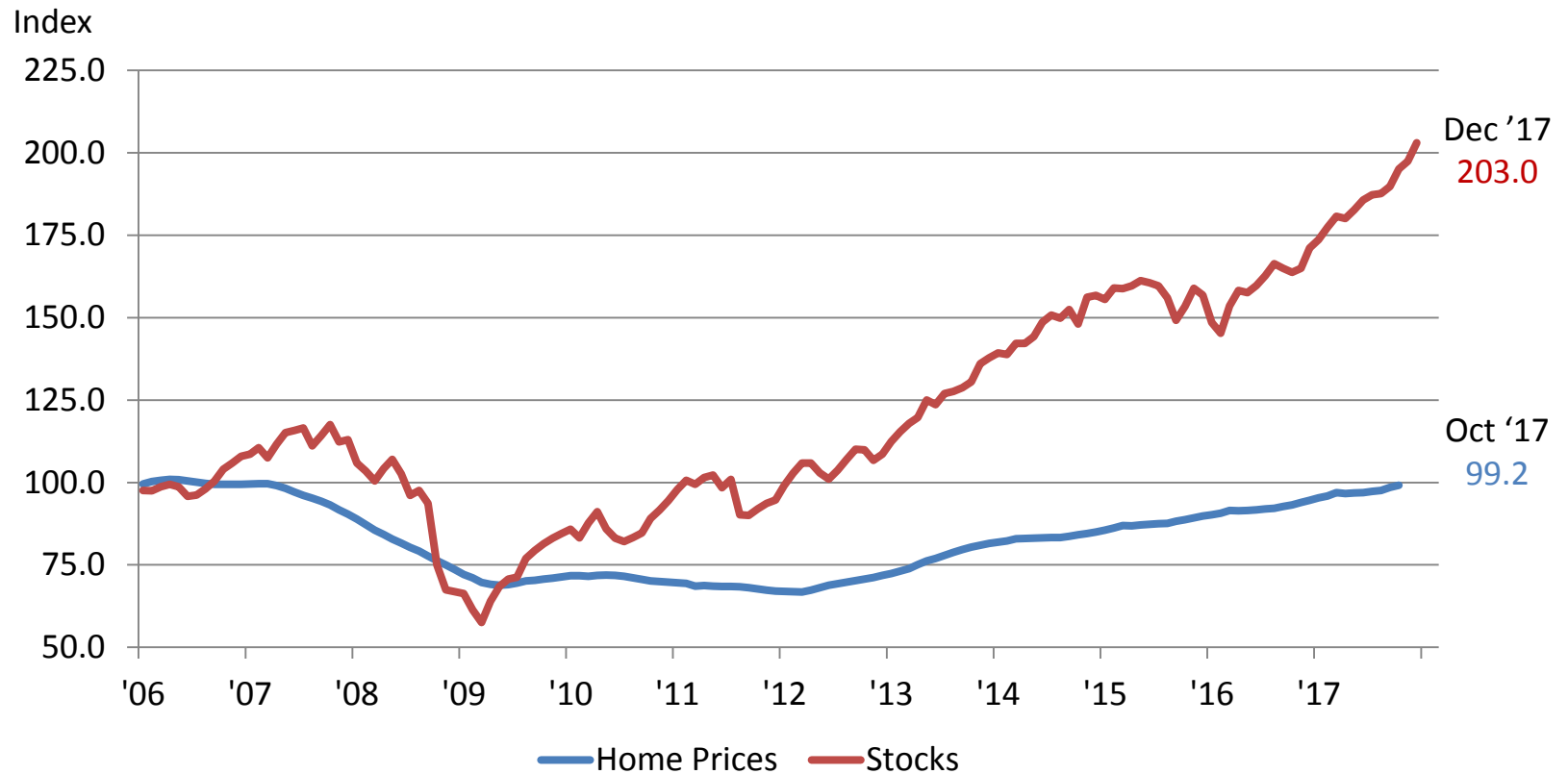
Trillions of Current Dollars, Q1 '00 to Q1 '17



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

Stock Market and Home Prices

S&P 500 and S&P Case Shiller Composite, Index 2006 = 100



Source: Author's calculations using Financial Times and S&P Case Shiller data.

Household Net Worth

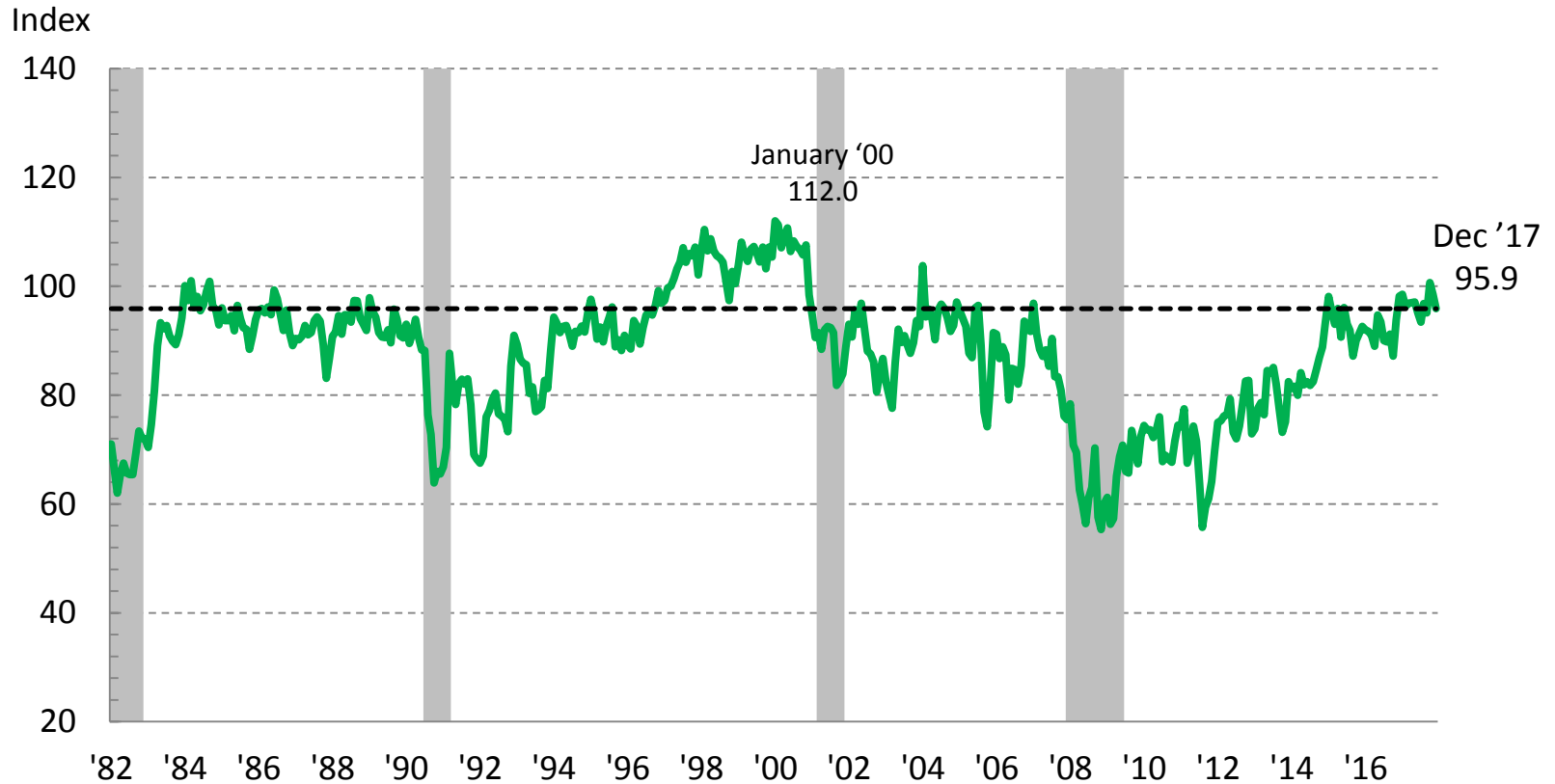
Business Cycle Expansion and Contraction, Q1 '01 to Q3 '17

	<u>Peak to Trough¹</u>	<u>Trough to Q3 '17</u>	<u>From Previous Peak to Q2 '17</u>
<u>Real Estate</u>			
Change in Value	-\$7.4 Trillion	\$8.1 Trillion	\$0.7 Trillion
Percent Change	-55.2%	125.58%	5.1%
<u>Financial & Other</u>			
Change in Value	-\$7.7 Trillion	\$32.8 Trillion	\$25.1 Trillion
Percent Change	-14.1%	70.3%	46.3%
<u>Total Net Worth</u>			
Change in Value	-\$12.6 Trillion	40.9 Trillion	\$28.3 Trillion
Percent Change	-19.3%	77.8%	43.5%

1. Net worth in real estate peaked in Q1 '06, financial and other peaked in Q3 '07, and total net worth peaked in Q2 '07.

Consumer Sentiment

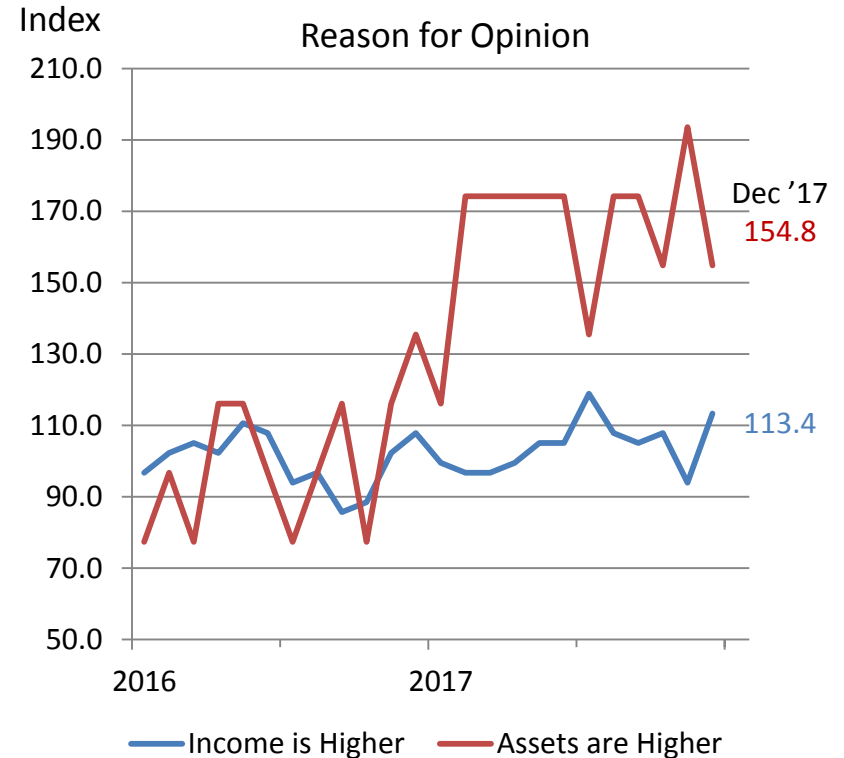
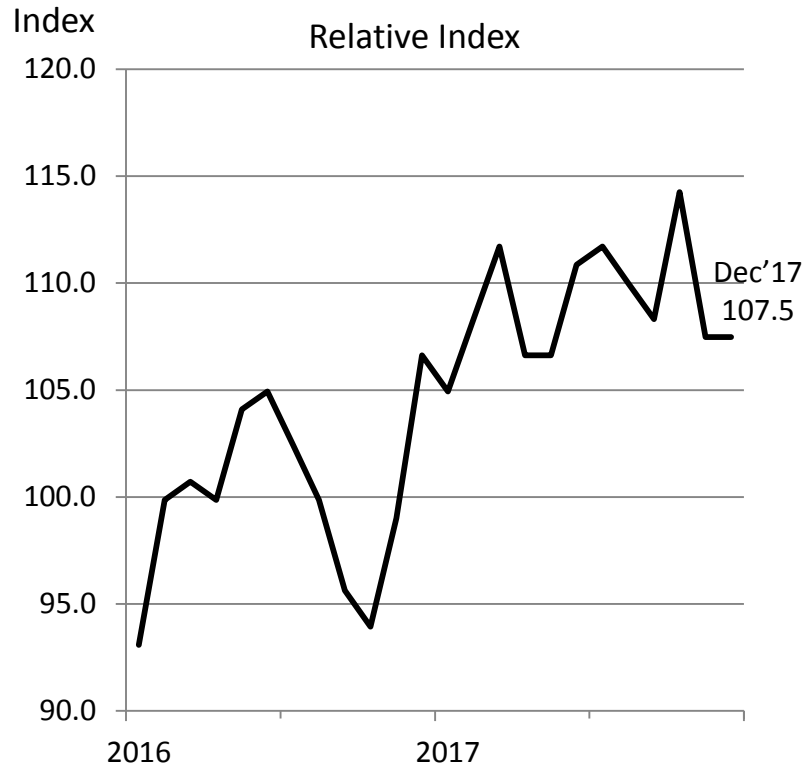
University of Michigan



Source: Thomson Reuters / University of Michigan

Current Household Financial Situation

Compared to a Year Ago – Index 2016 = 100

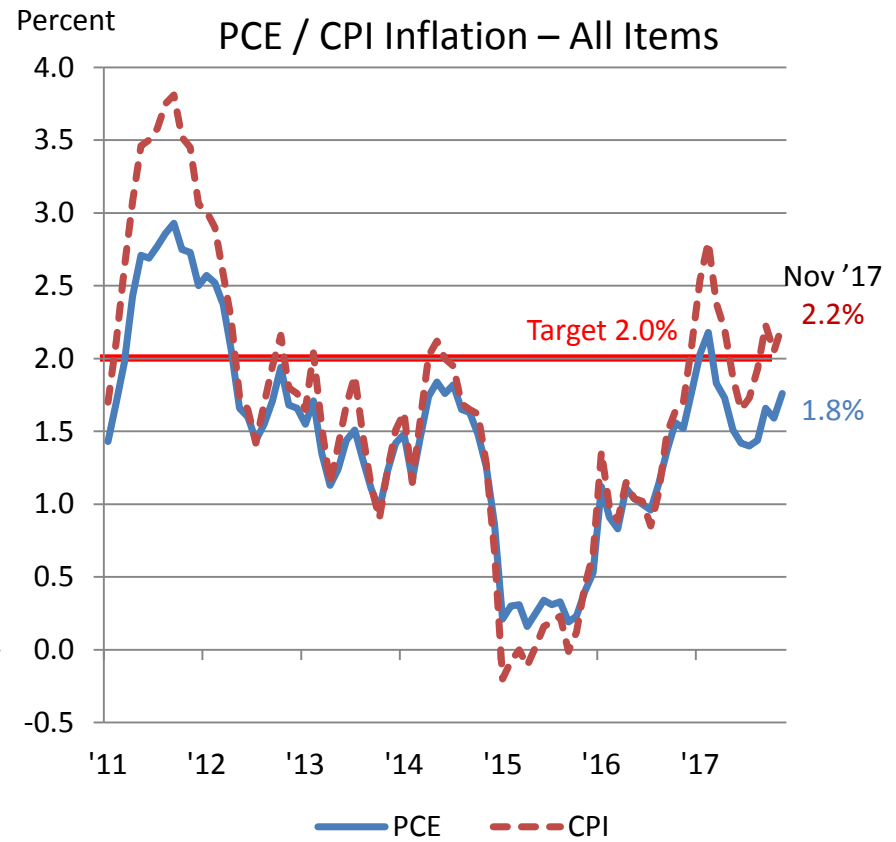
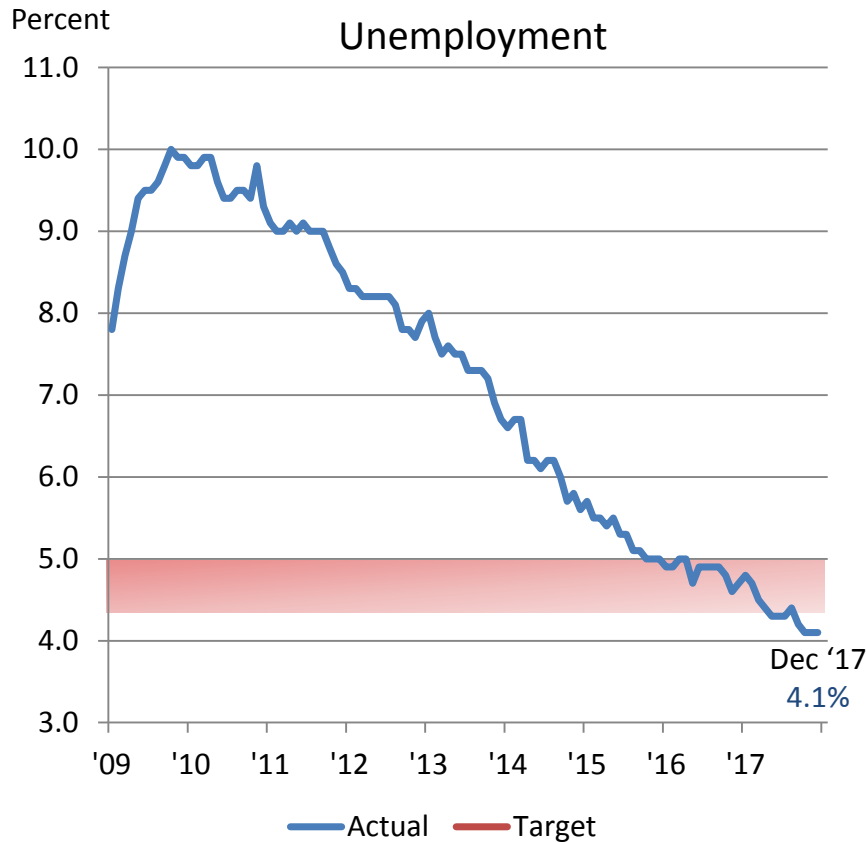


Source: University of Michigan Consumer Sentiment

Monetary Policy

Unemployment Rate & Prices

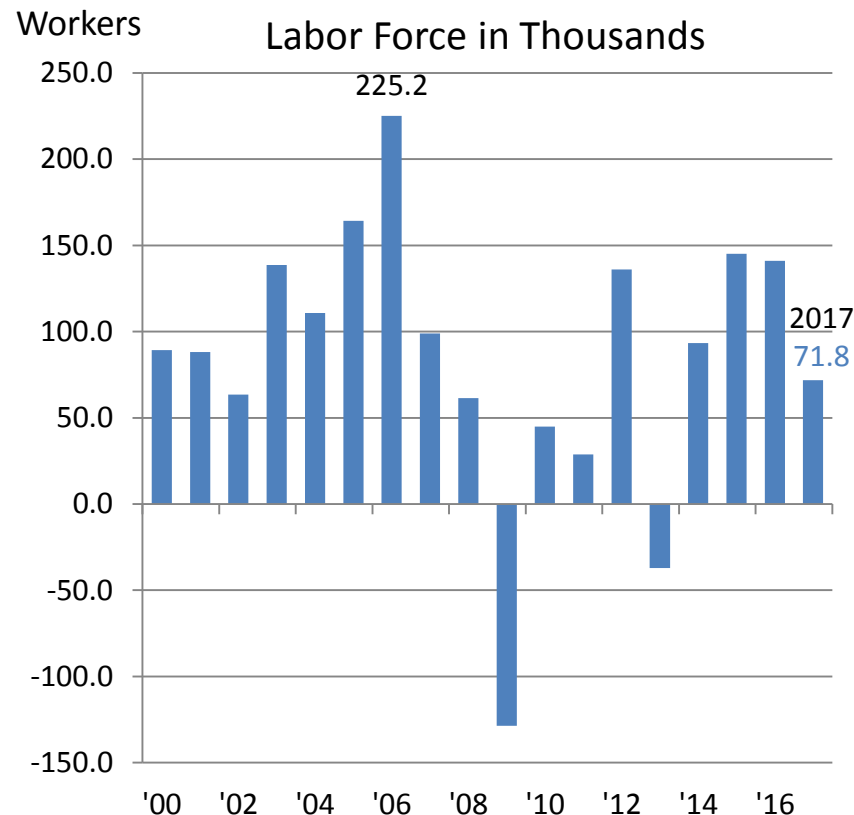
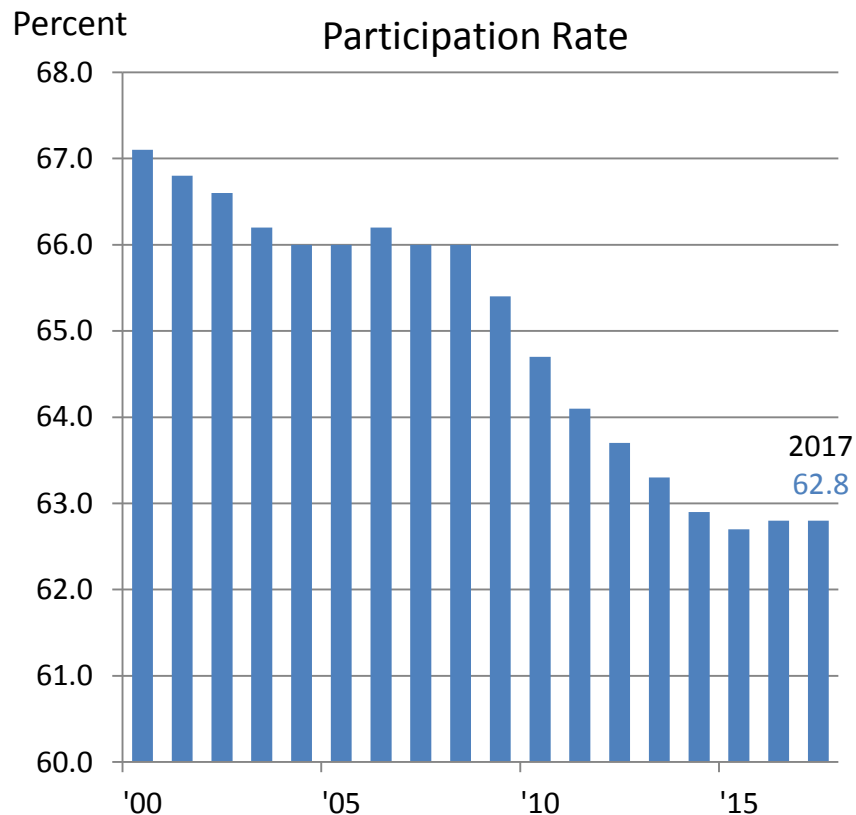
Percent Unemployed, PCE / CPI % Change Yr./Yr.



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

Civilian Labor Force Growth

Annual Average Percent and Average Monthly Change by Year

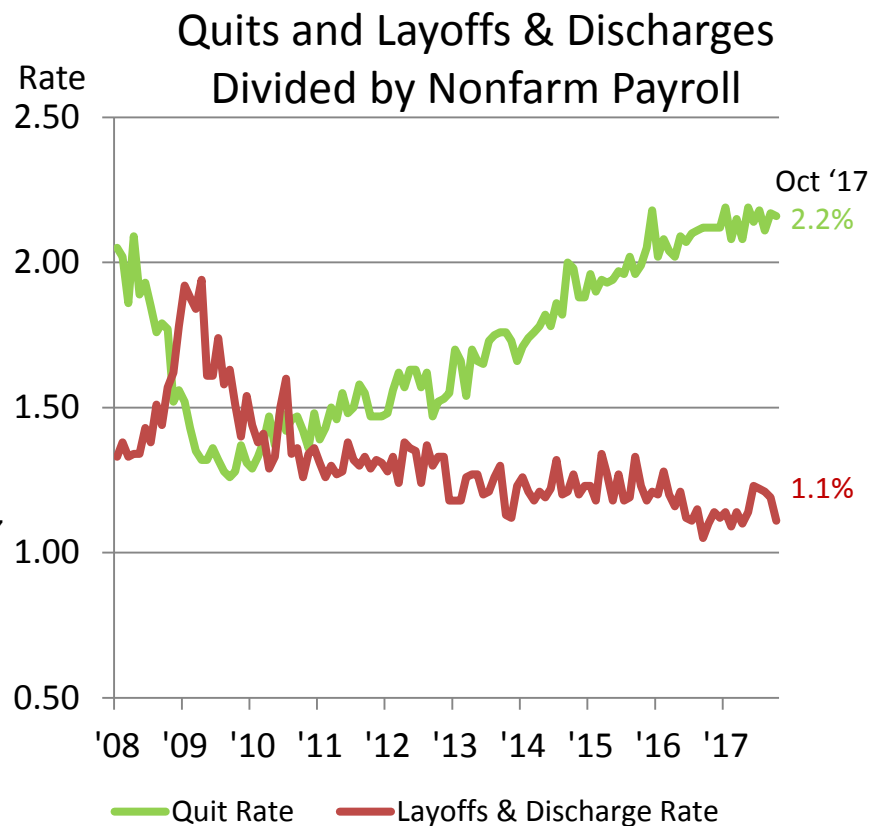
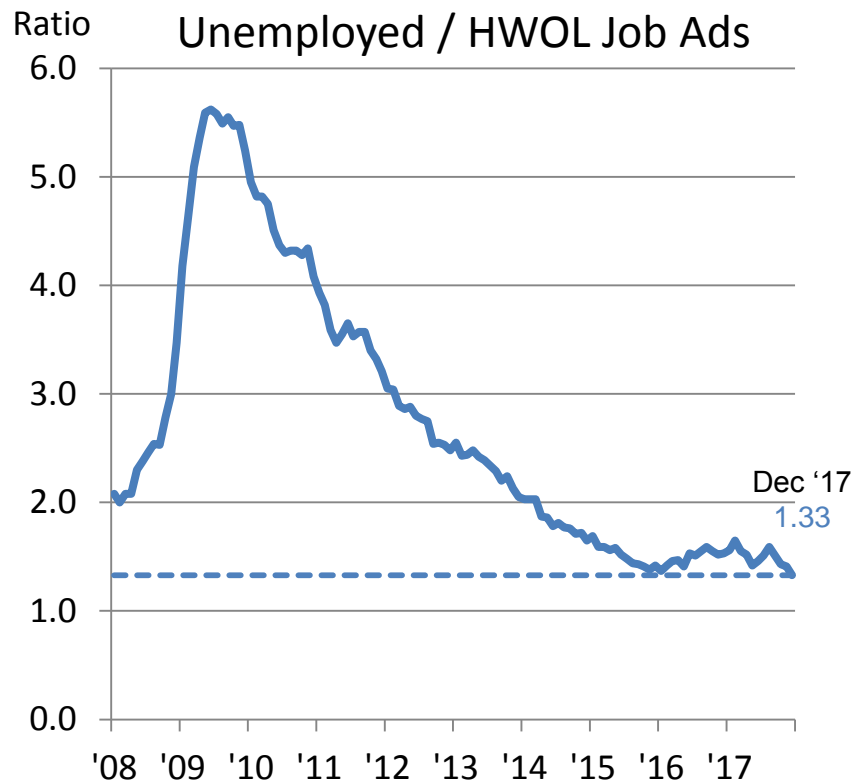


Note: Current noninstitutionalized civilian population is 255.4 million people.

Source: U.S. Bureau of Labor Statistics & U.S. Census Bureau

Labor Conditions

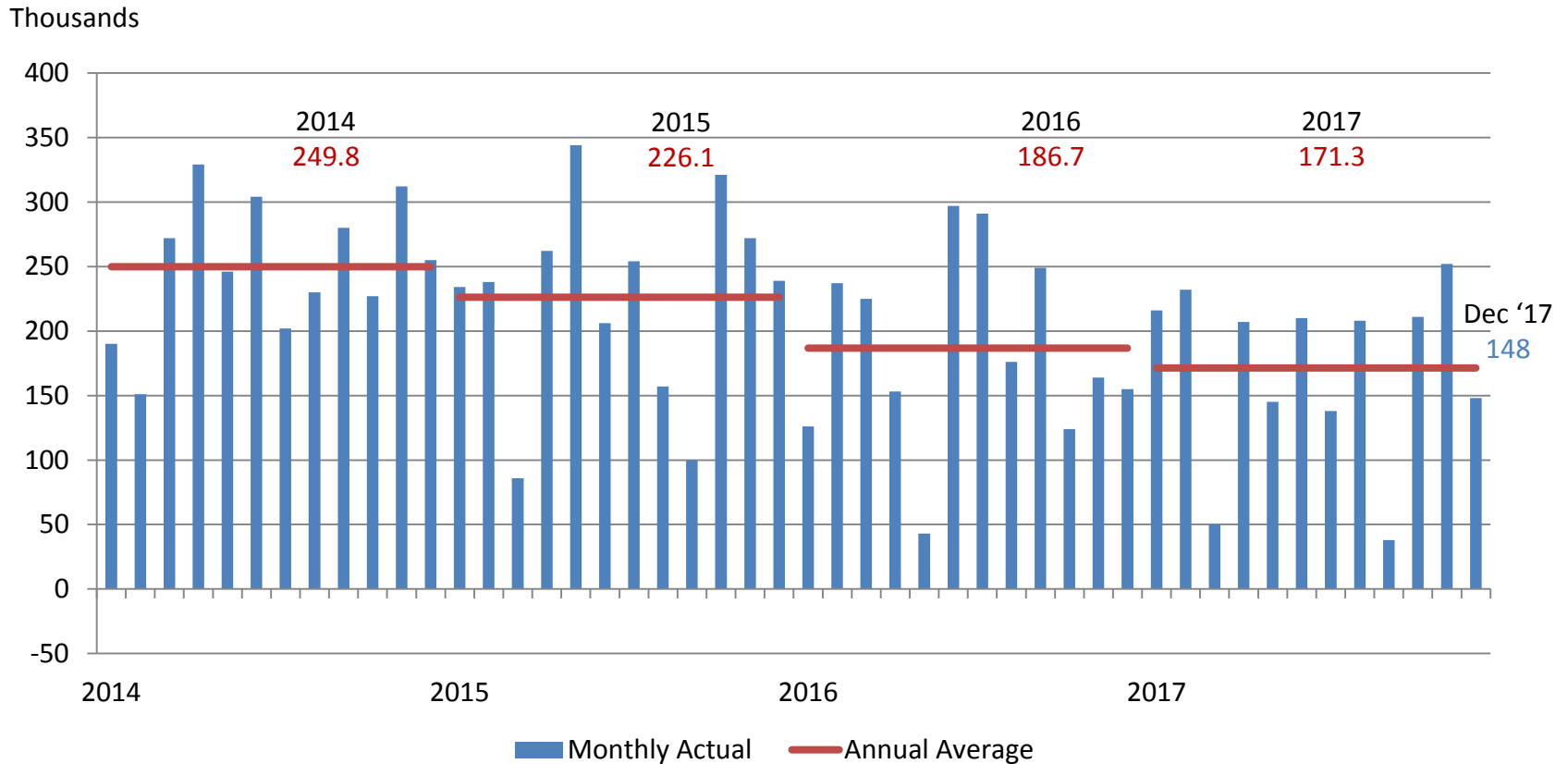
Job Openings and Quit & Layoff Rates



Sources: U.S. Department of Labor – Job Openings and Labor Turnover Survey (JOLTS & Conference Board – Help Wanted Online Data (HWOL)

U.S. Nonfarm Payrolls

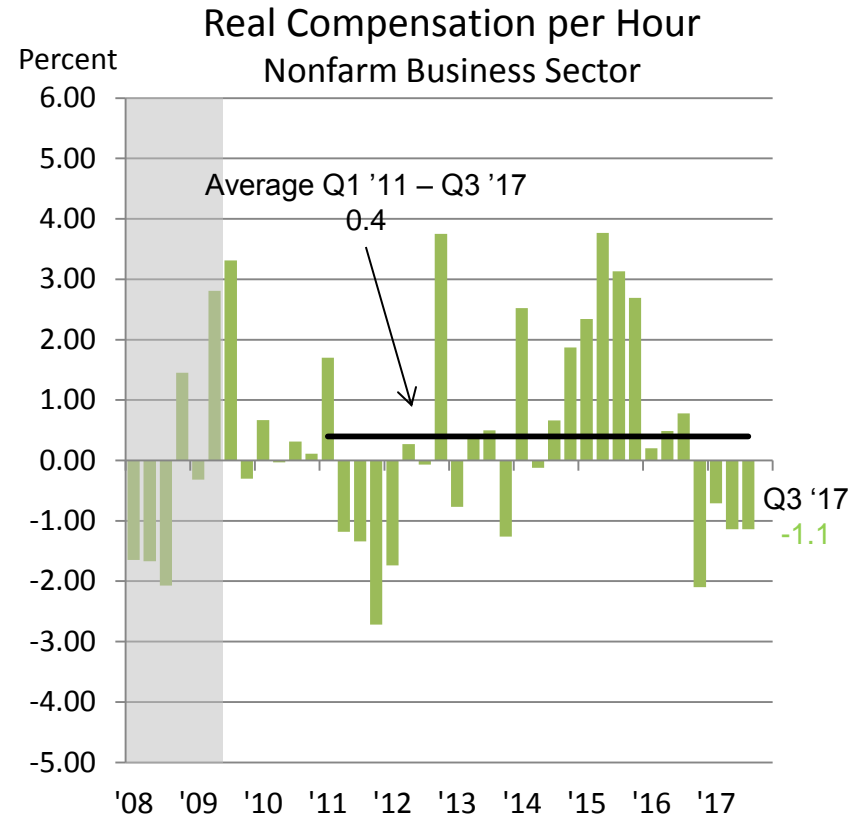
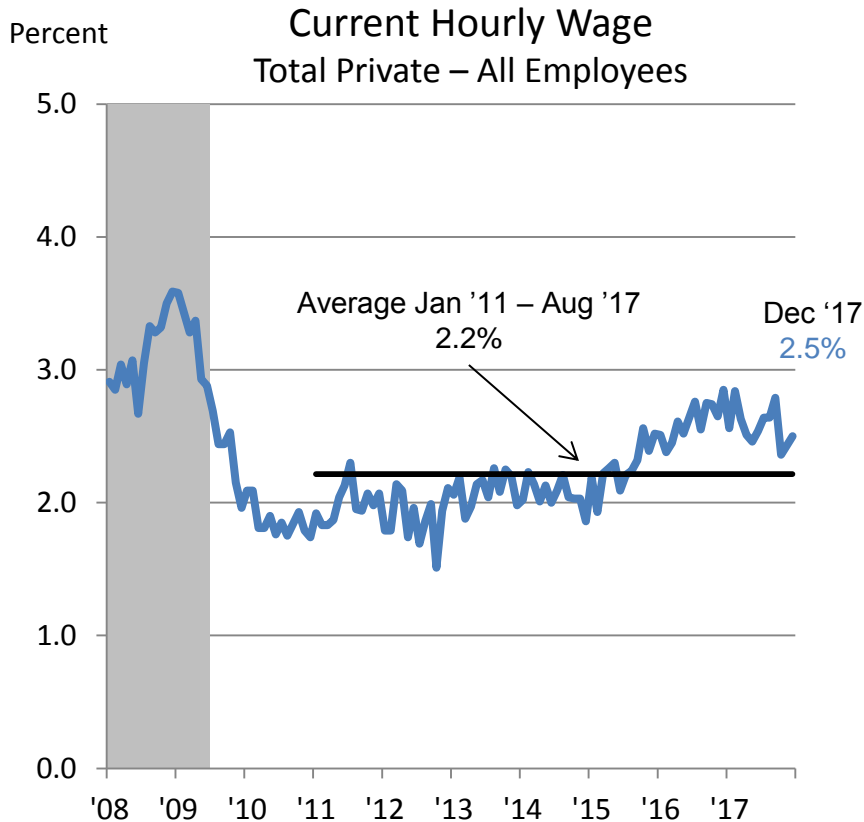
Monthly and Annual Average Job Change – In Thousands



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

Wages and Compensation

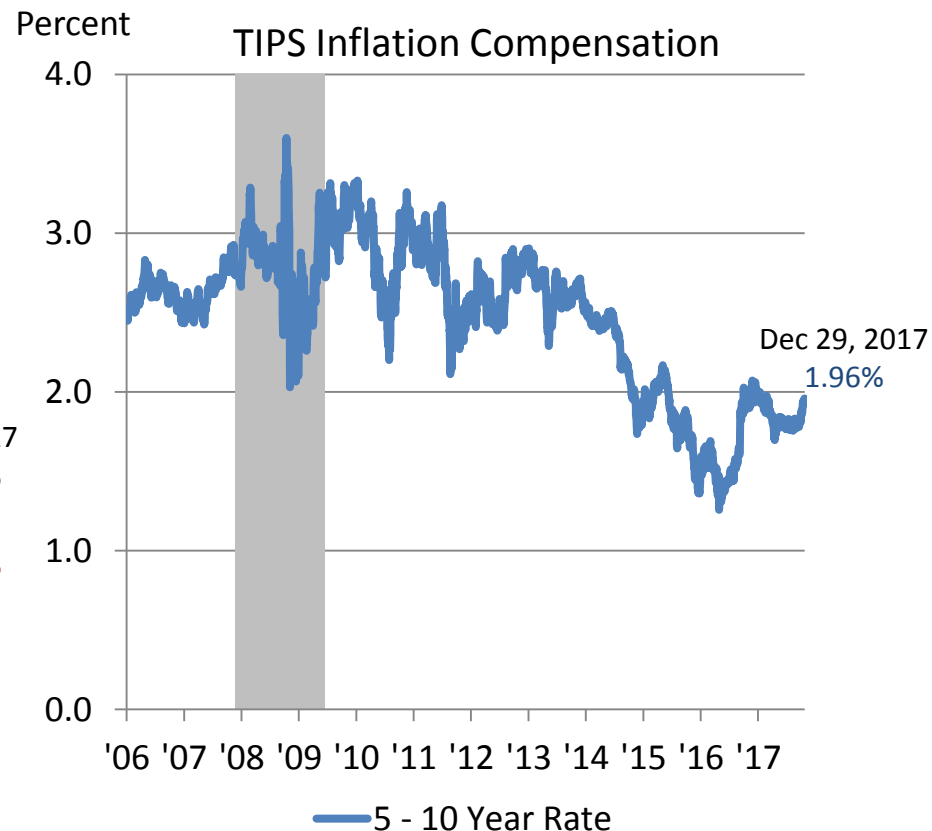
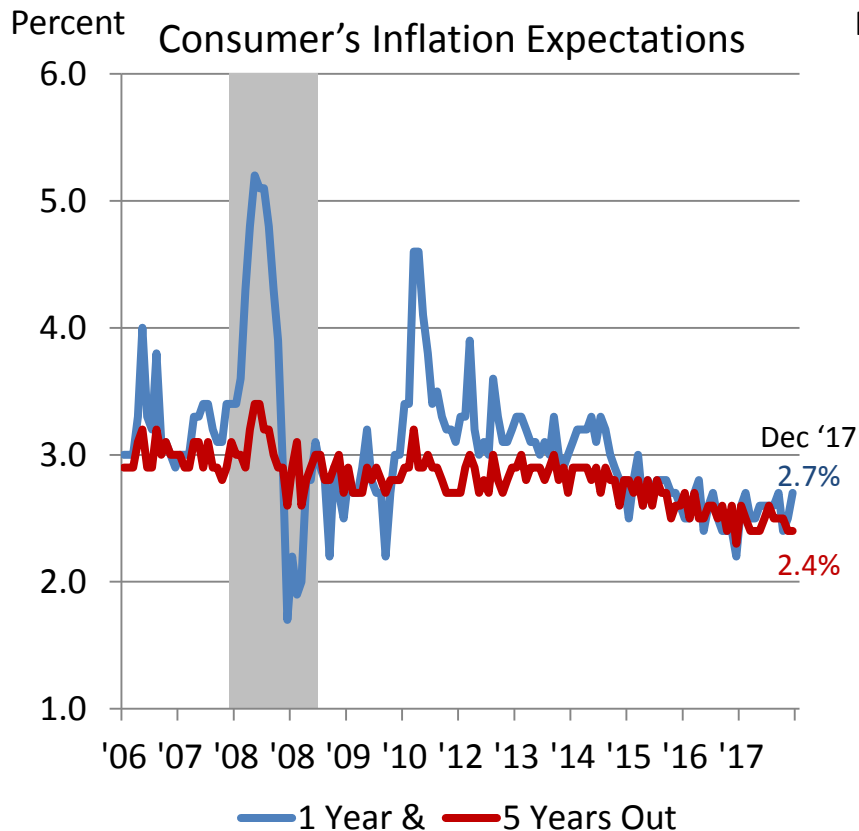
Percent Change Year / Year



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

Inflation Expectations

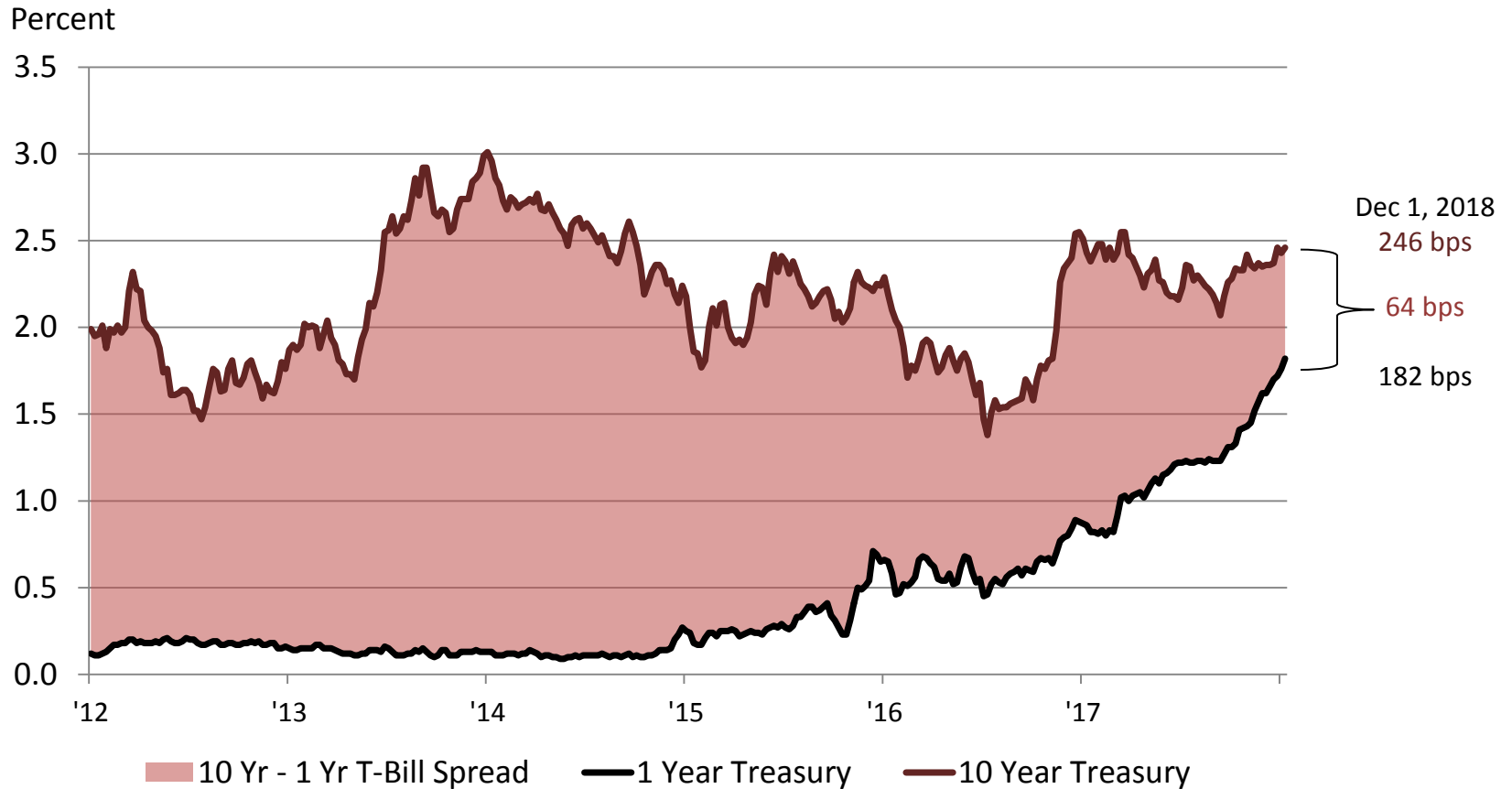
1-5 Year and 5-10 Year Inflation Expectations



Source: Survey of Consumers – University of Michigan and Federal Reserve Board

Yield Curve

10 Year – 1 Year Treasuries in Basis Points



Source: Board of Governors – Federal Reserve System

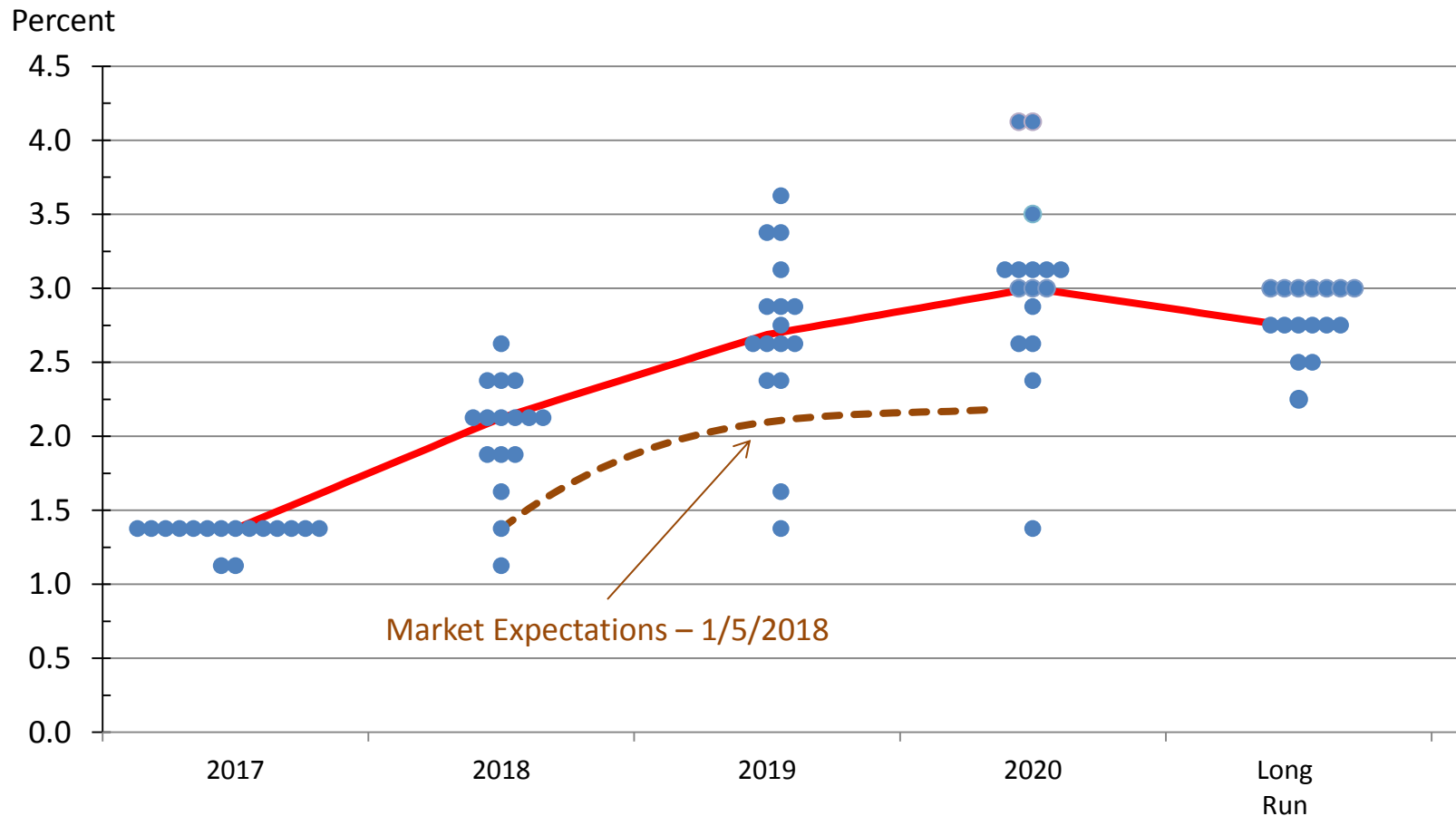
F.O.M.C Statement

December 13, 2017

1. Information received since the F.O.M.C. met in November indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate.
2. Averaging through hurricane-related fluctuations, job gains have been solid, and the unemployment rate declined further.
3. Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters.
4. On a 12-month basis, both overall inflation and inflation for items other than food and energy have declined this year and are running below 2 percent.
5. Market based measures of inflation compensation remain low; survey based measures of longer-term inflation expectations are little changed, on balance.

Appropriate pace of policy firming

Fed Funds Rate – Year End Projections

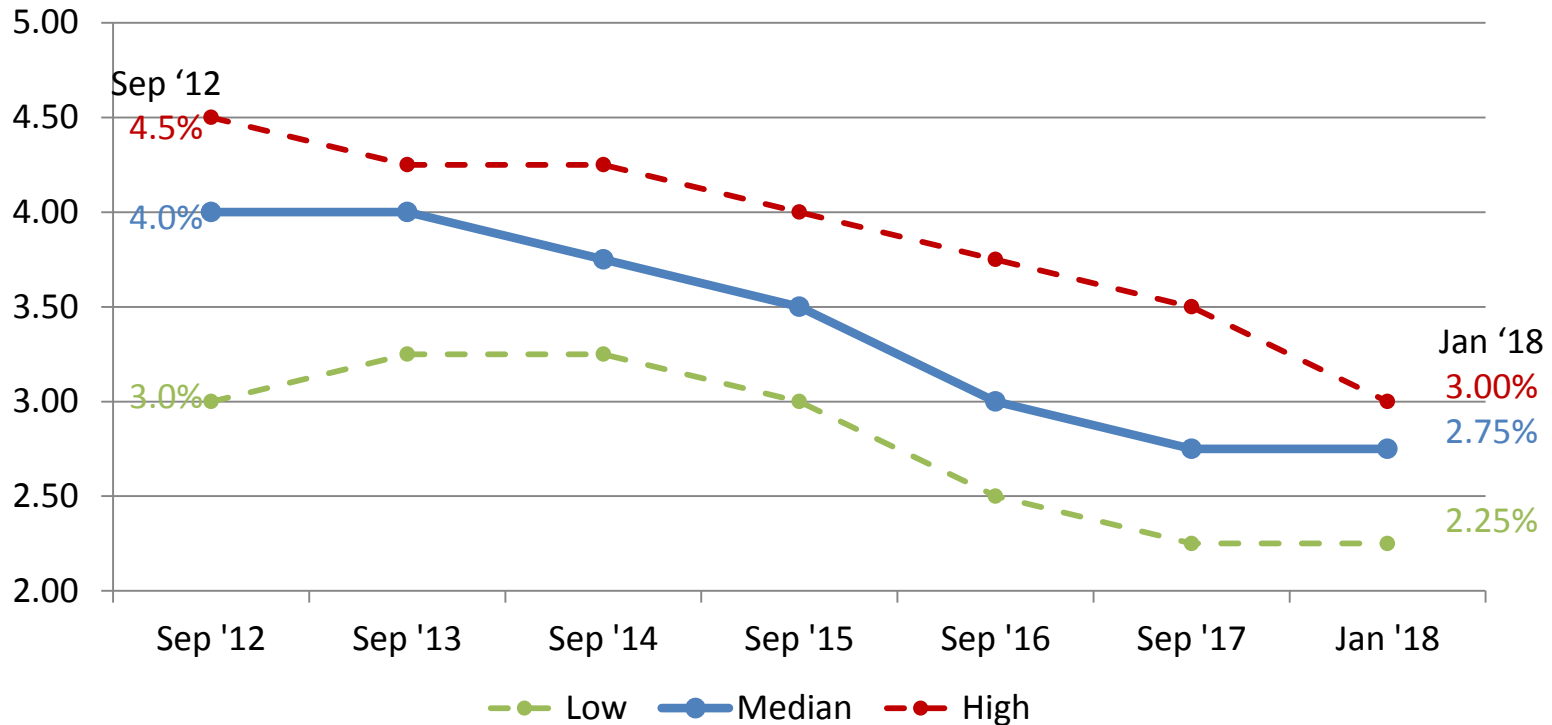


Source: Federal Reserve - F.O.M.C. participants, September 20, 2017

Target Federal Funds Rate

Long Run Projections

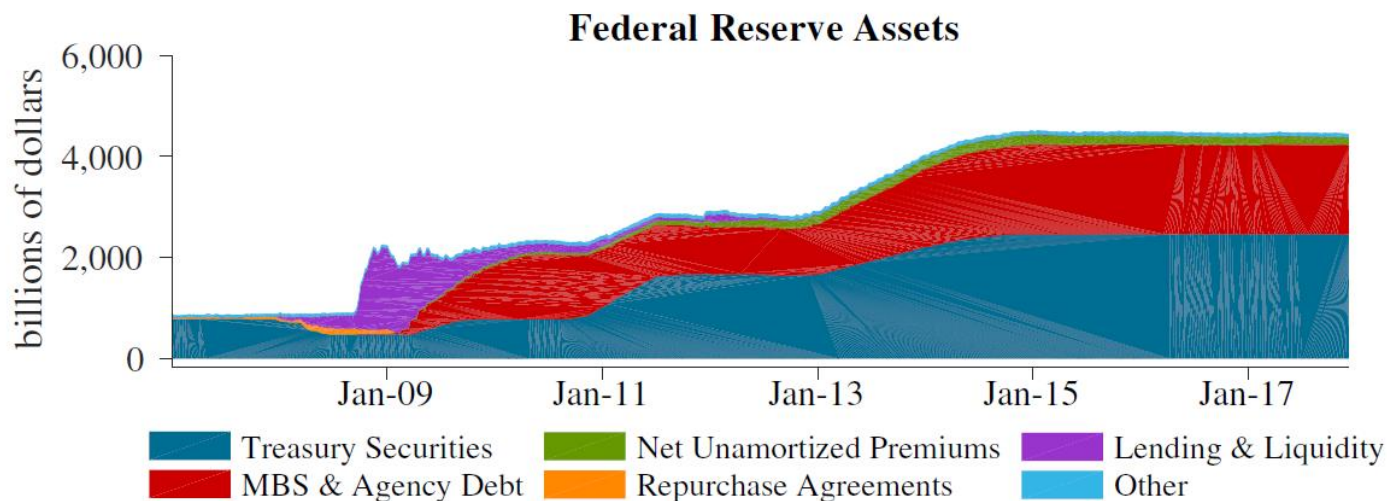
Percent



Source: Federal Reserve - F.O.M.C. participants projections.

Federal Reserve Balance Sheet

Billions of Dollars



Billions of dollars

	2015	2016	11/1/2017*	12/6/2017
Total Assets	4,486.6	4,451.5	4,455.9	4,437.1
Treasury Securities	2,461.6	2,463.6	2,459.8	2,454.5
MBS & Agency Debt	1,780.4	1,757.6	1,777.4	1,771.5
Net Unamortized Premiums	173.0	158.0	147.0	145.7
Lending & Liquidity	3.3	6.6	1.8	1.8
Other	68.3	65.7	69.9	63.7

Source: Federal Reserve – Board of Governors

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Balance Sheet Normalization

U.S. Treasuries

- The cap will initially be \$6 billion per month.
- The cap will be increased in increments of \$6 billion at three-month intervals over 12 months until it reaches \$30 billion.

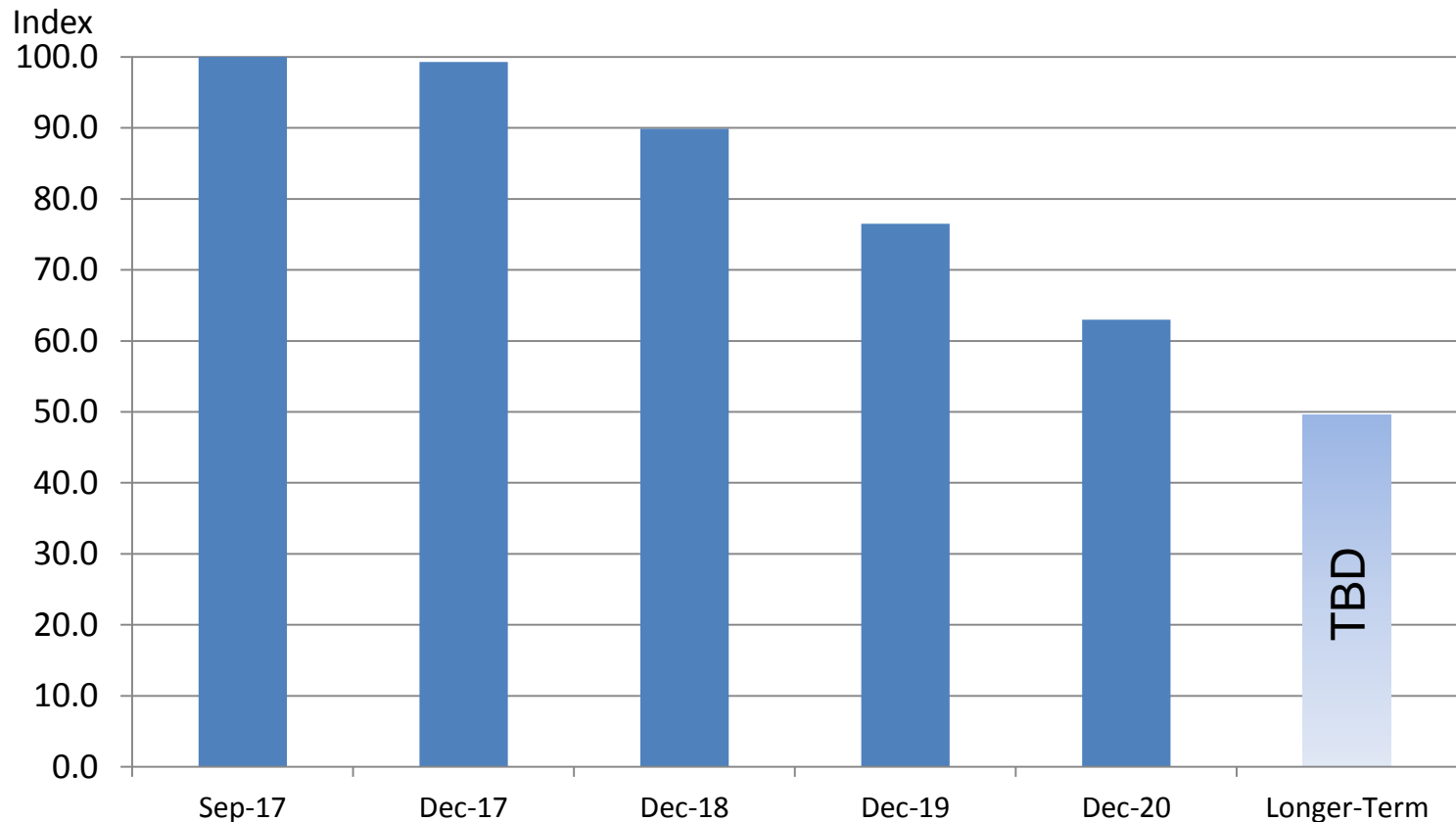
Agency debt and mortgage backed securities

- The cap will initially be \$4 billion per month.
- The cap will be increased in increments of \$4 billion at three-month intervals over 12 months until it reaches \$20 billion.

Once the reduction cap maximums are realized, they will remain in place until the Committee feels the Federal Reserve is holding no more securities than necessary to conduct efficient and effective monetary policy.

Balance Sheet Normalization Path

Index – September 2017 = 100



Source: Author's calculations using F.O.M.C. September 20, 2017 Statement

Next Fed Chair?

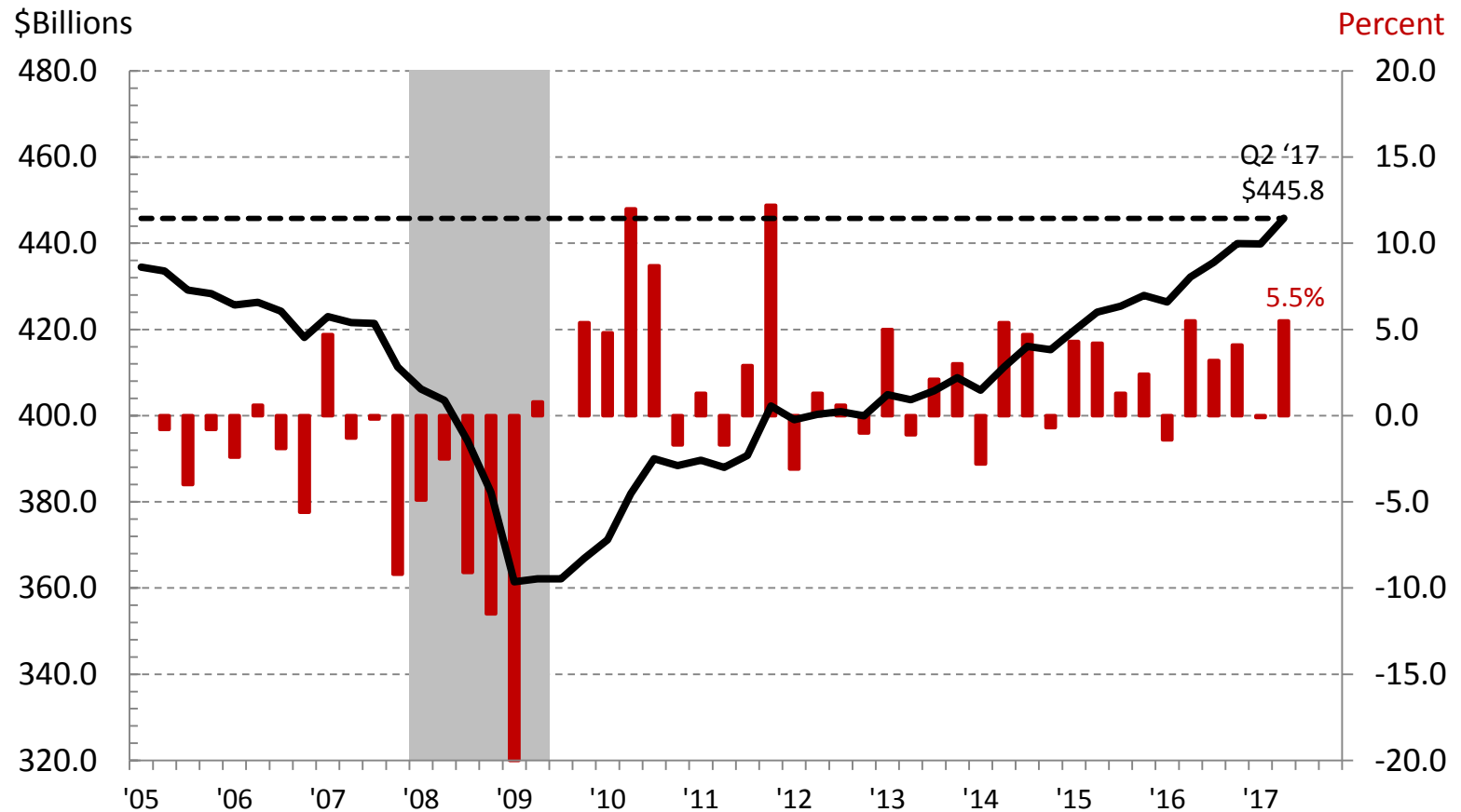
Nominee Jerome Powell

- The Washington Post called him a wealthy Republican businessman.
- Powell served as undersecretary of the treasury for finance under President George W. Bush from 1992 to 1993.
- Powell worked the Carlyle Group from 1997 through 2005, a private equity firm with a reported \$178 billion of assets.
- He left Carlyle Group to work to serve as a visiting scholar at the Bipartisan Policy Center, a Washington think tank.
- In 2012 he was confirmed as a member of the Federal Reserve's Board of Governors and is known to have never given a dissenting vote during a FOMC policy meeting.
- If confirmed by the Senate, Powell would replace Janet Yellen as chair of the Board of Governors of the Federal Reserve System in February, 2018.

Michigan Economy

Michigan Real GSP

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

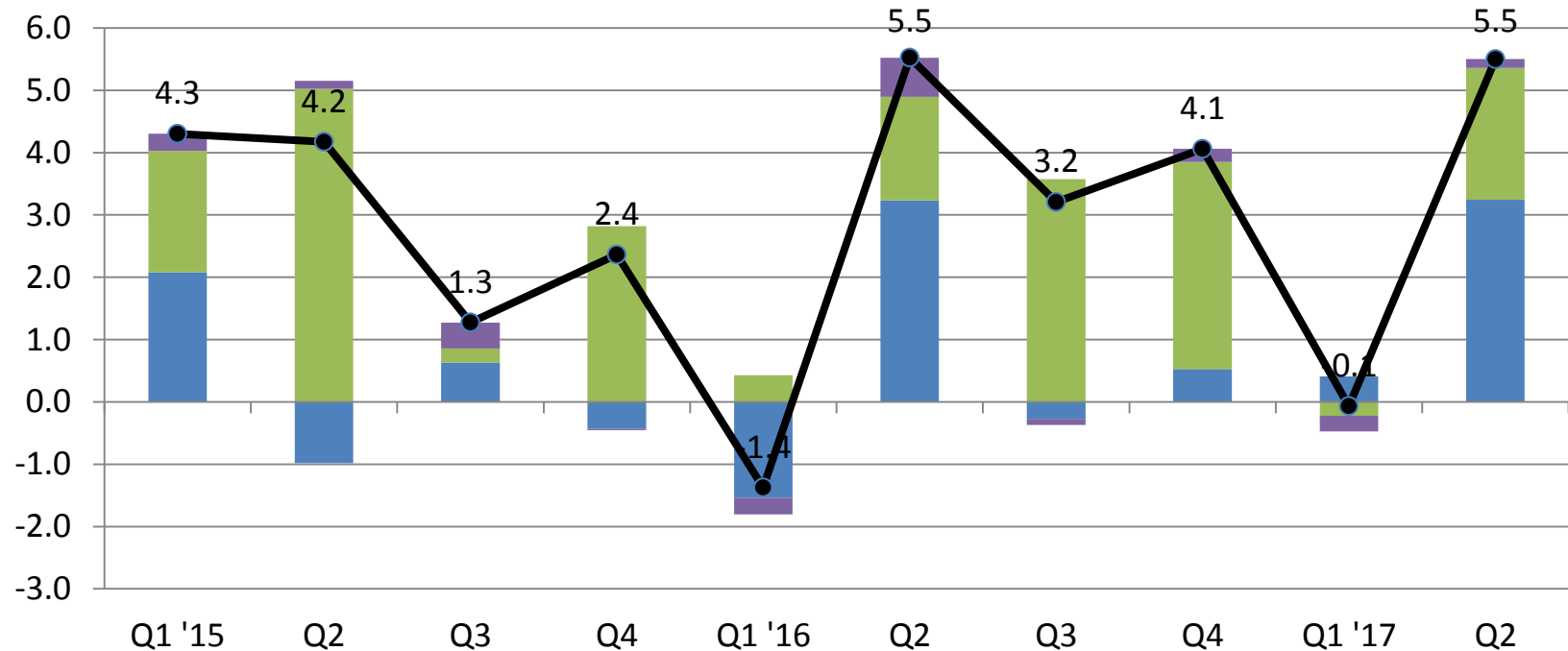


Source: U.S. Bureau of Economic Analysis

Michigan Real GSP

GSP and Contribution to Percent Change, Q/Q at SAAR

Percent



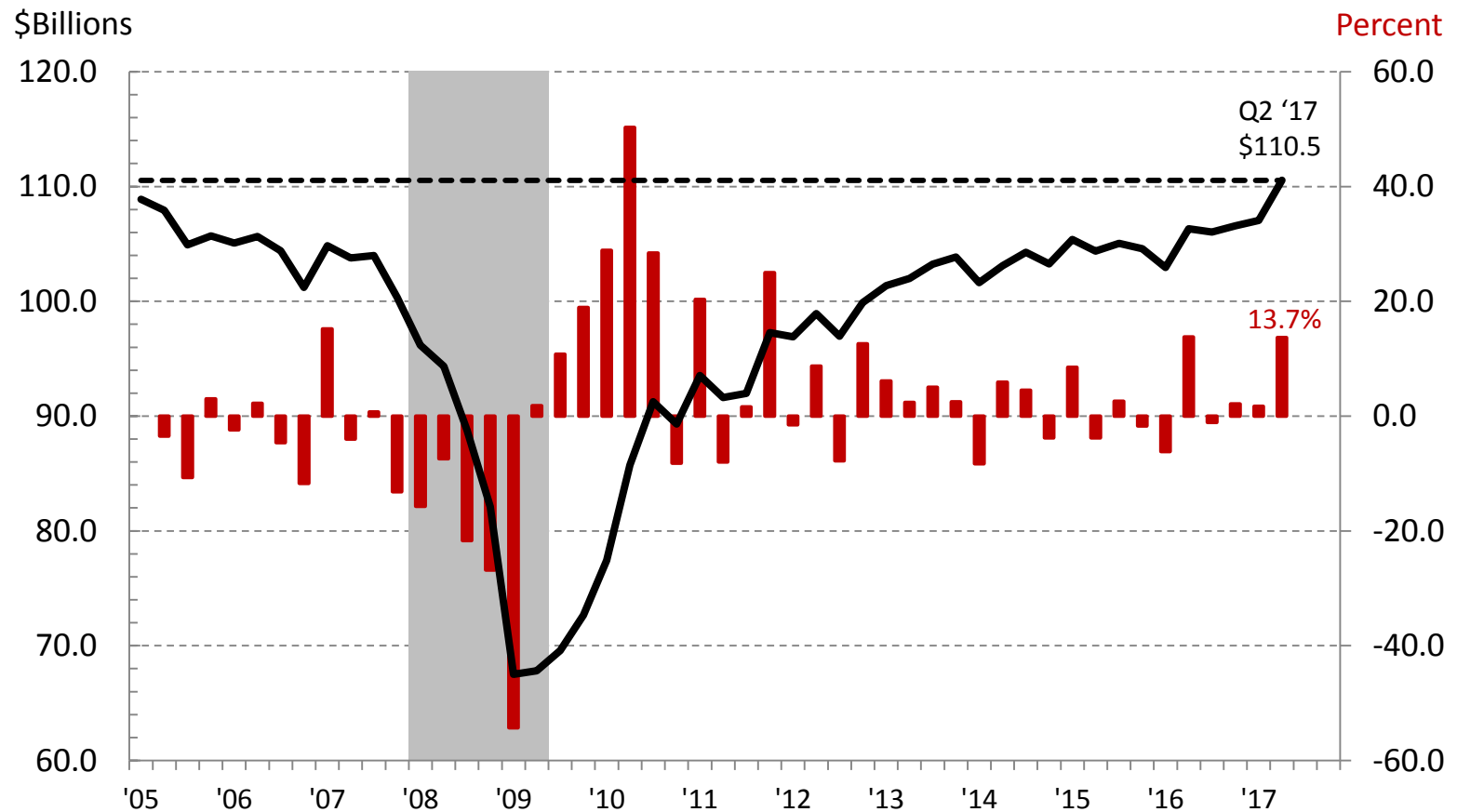
■ Private Goods Producing
 ■ Private Service Providing
 ■ Government
 ● GSP

Q2 2017 Contribution
3.24%
2.12%
0.14%
5.50%

Source: U.S. Bureau of Economic Analysis, and FRB of St Louis FRED database.

Michigan Private Goods Producing

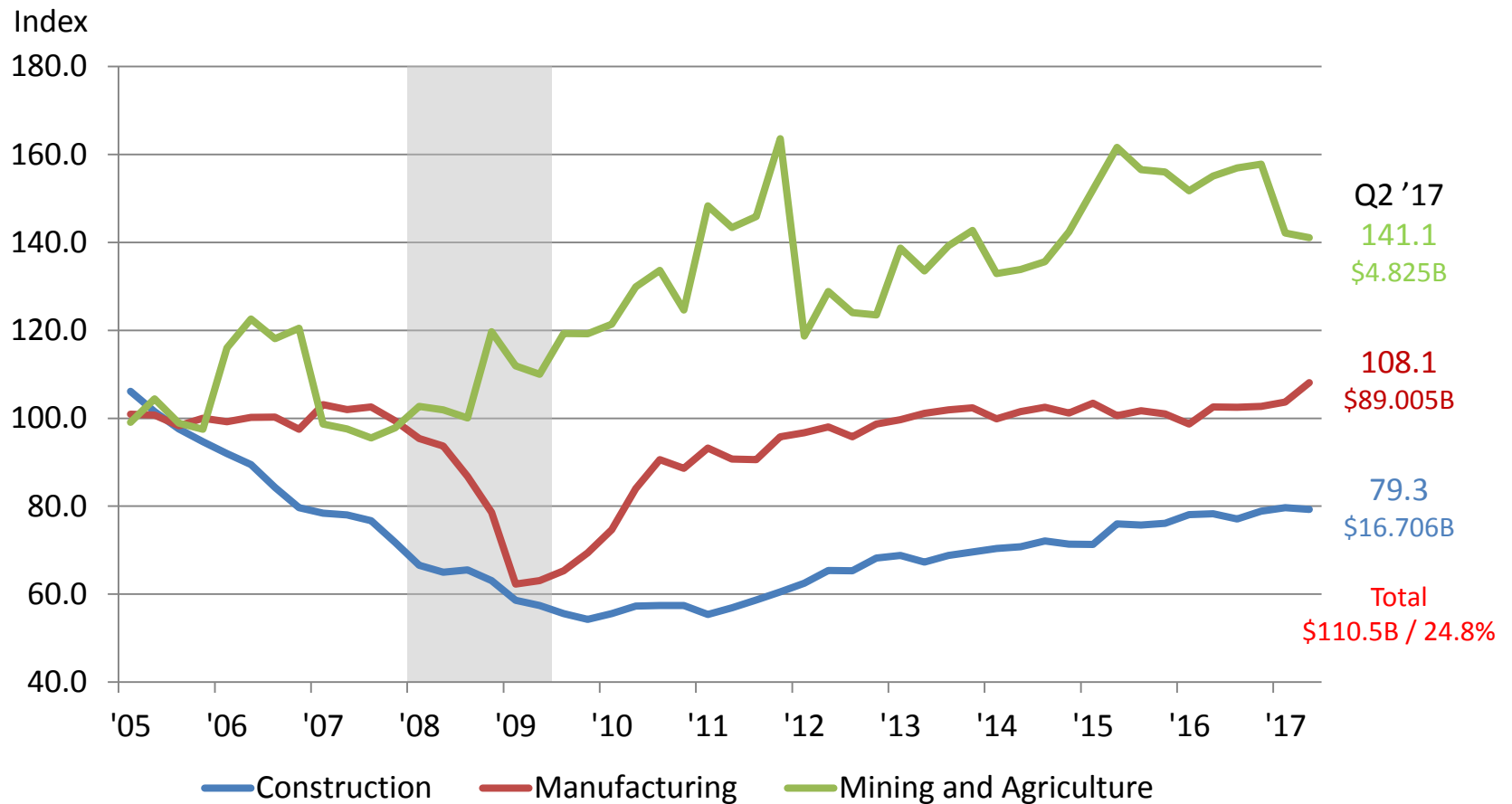
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Michigan Private Goods Producing

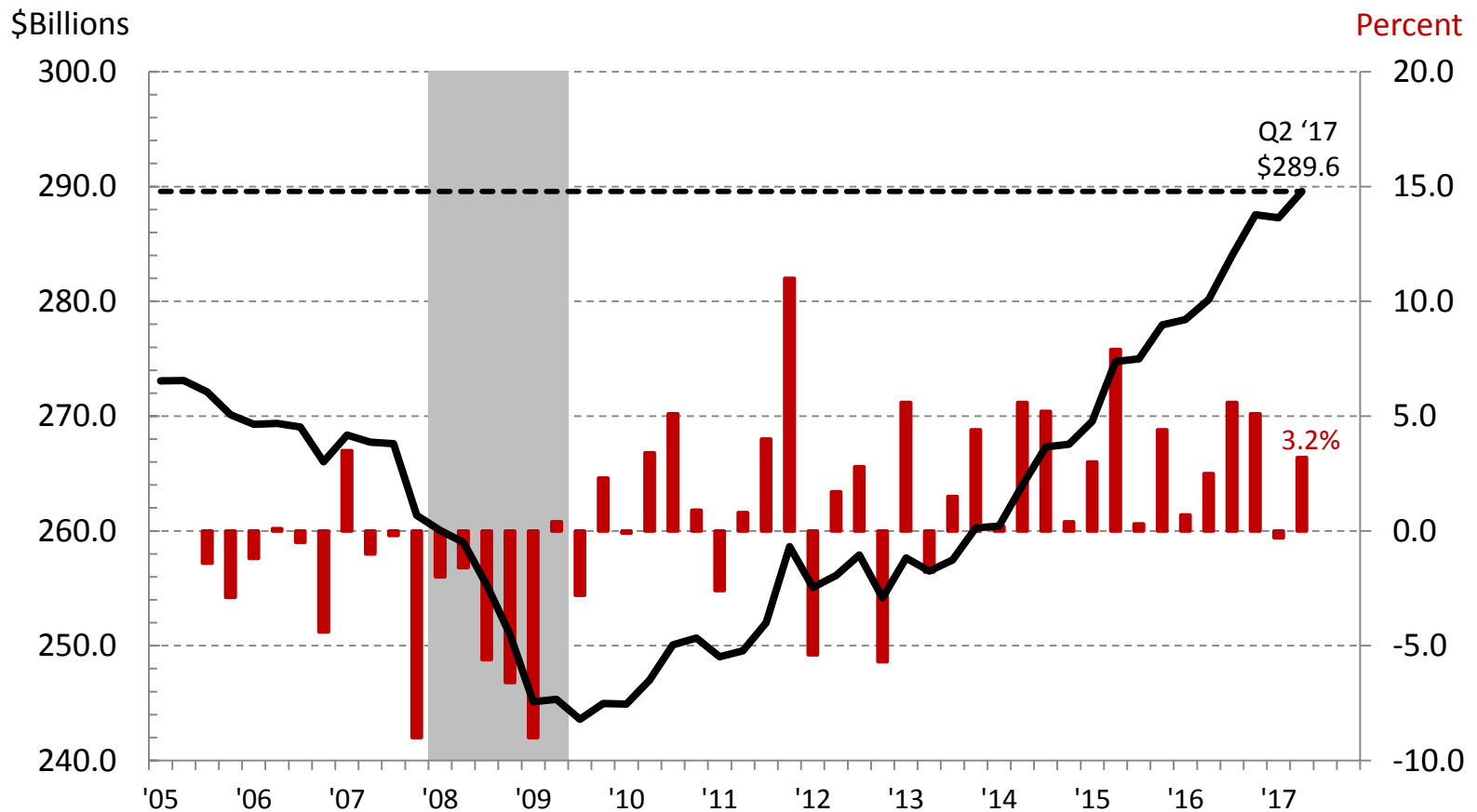
Index, 2005 = 100



Source: Author's calculations using data from the BEA

Michigan Private Service Providing

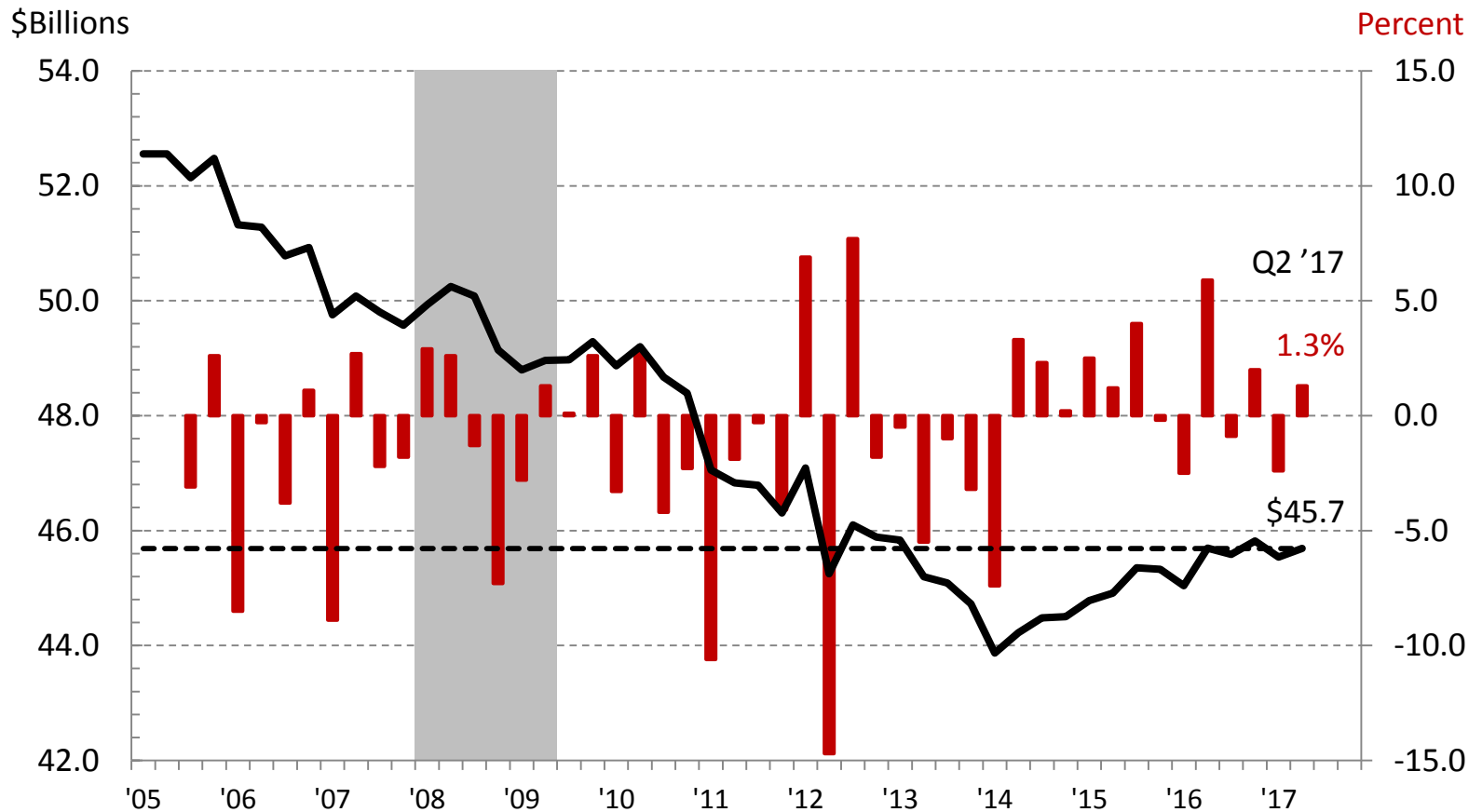
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Michigan Government Consumption & Investment

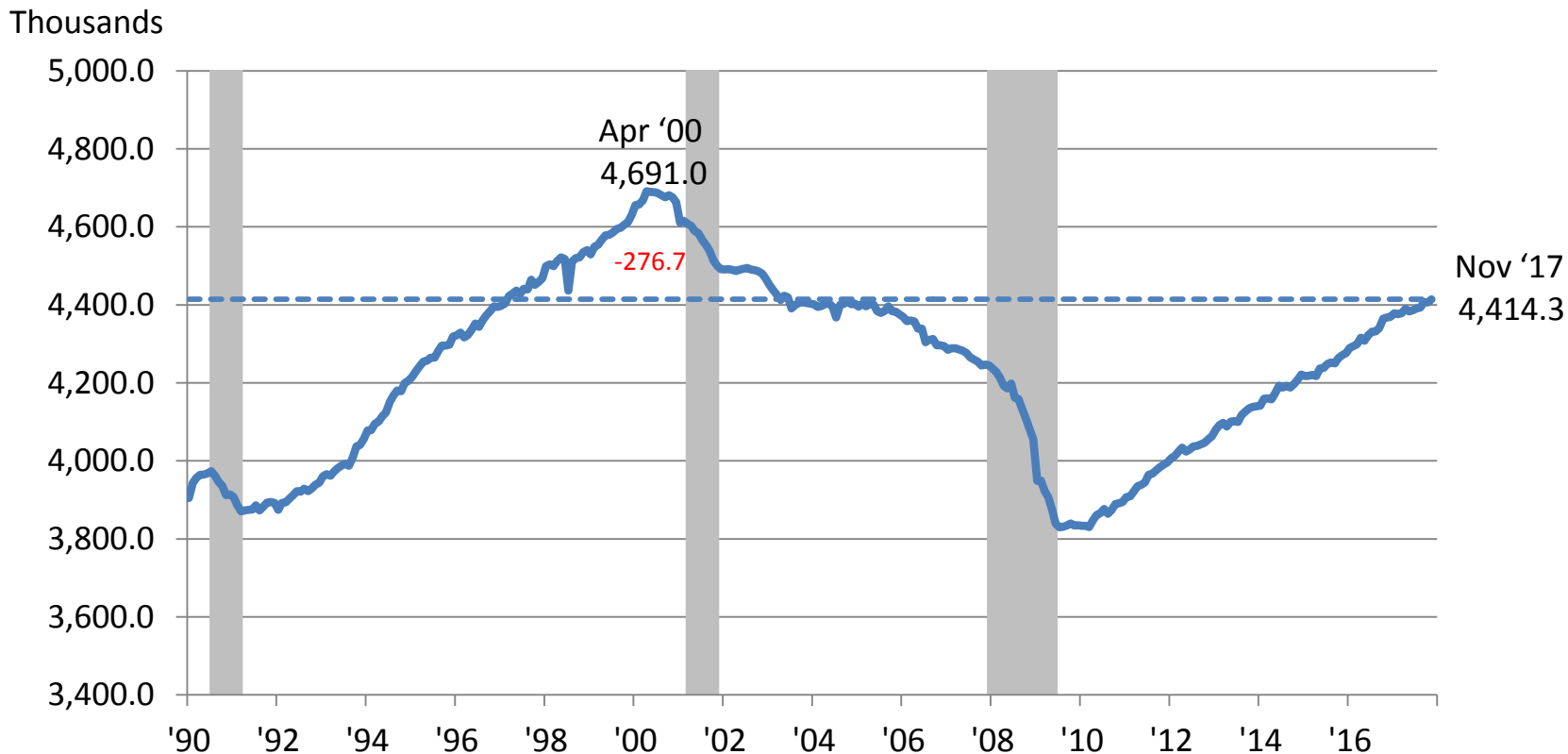
Billions Chained \$2009, % Change Q/Q at SAAR



Source: U.S. Bureau of Economic Analysis

Michigan Nonfarm Payroll Employment

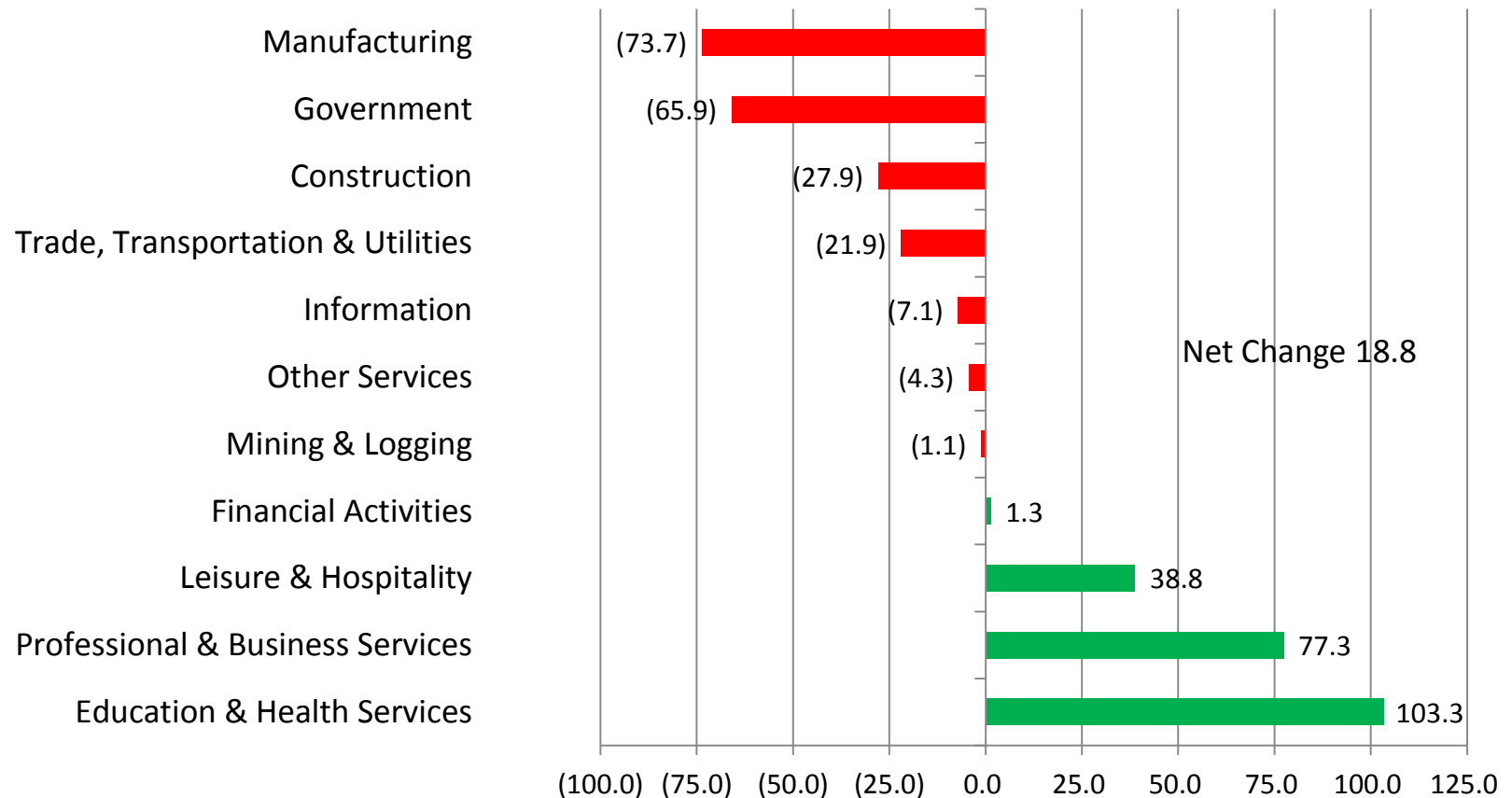
Thousands of Employees - SA



Source: U.S. Bureau of Labor Statistics

Michigan Nonfarm Payroll Employment by Sector

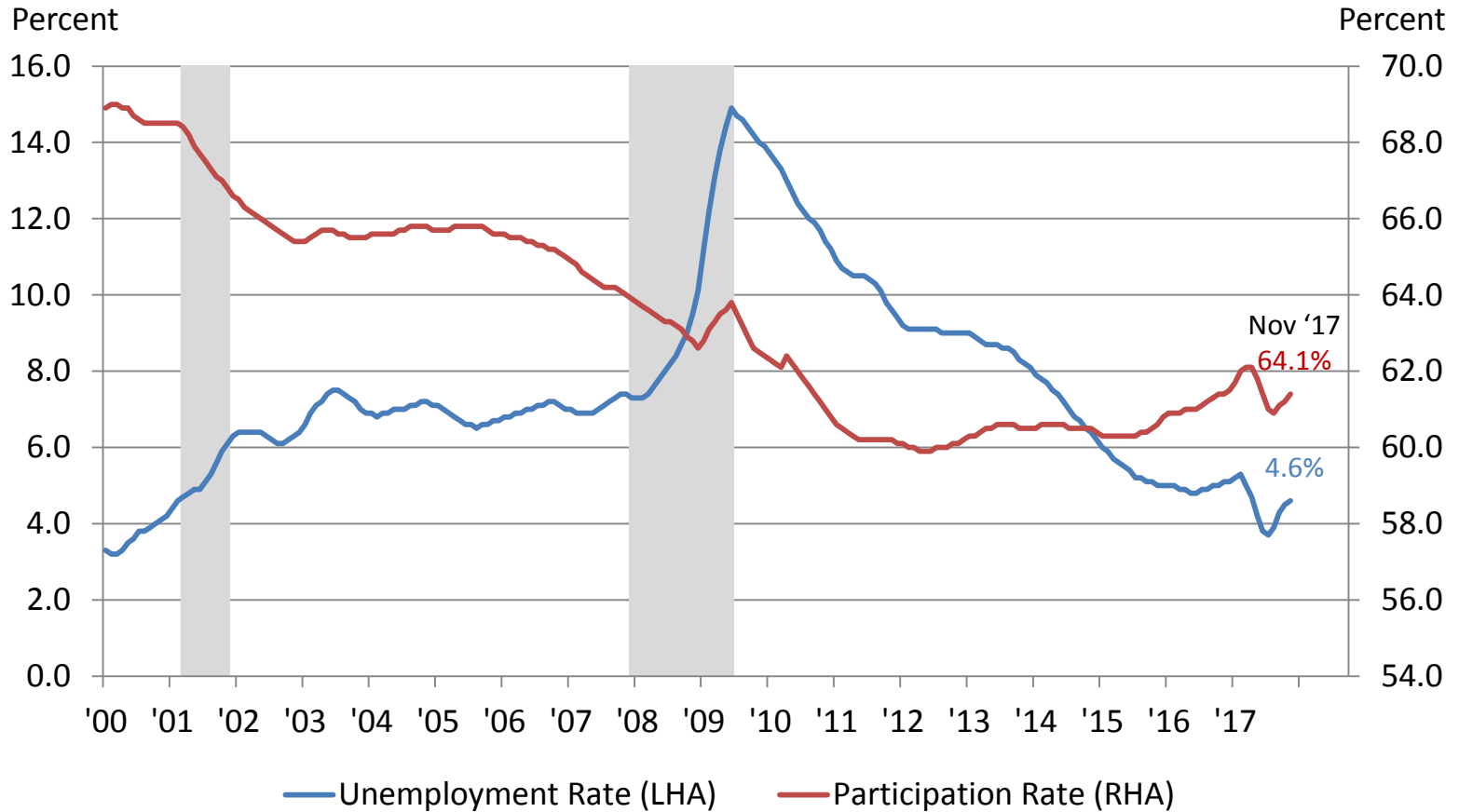
Employment Change Jan '05 – November '17, In Thousands



Source: U.S. Department of Labor

Michigan Unemployment & Participation

Percent of Labor Force and Civilian Population- SA

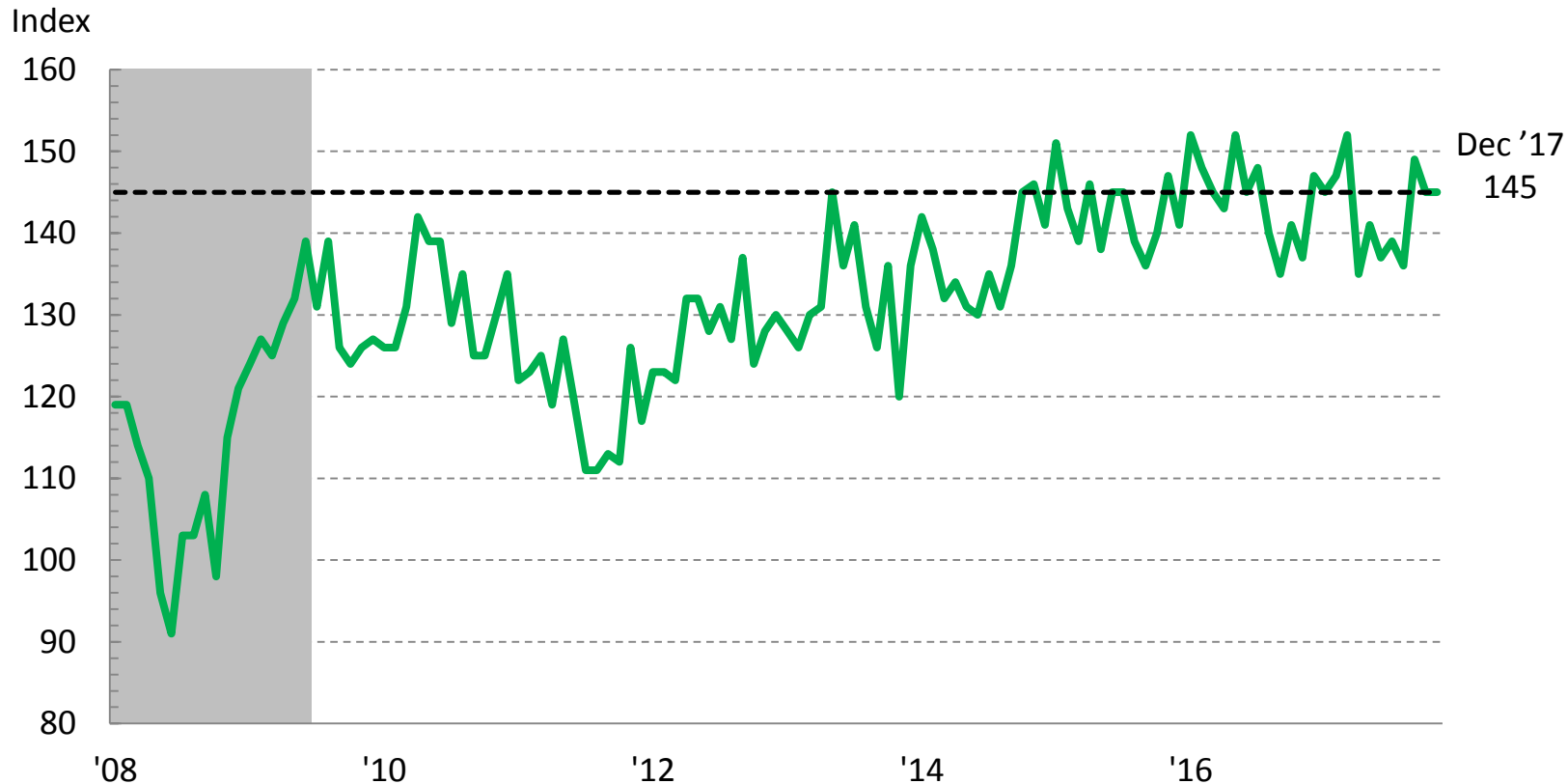


Source: U.S. Bureau of Labor Statistics

U.S. Auto Industry

Buying Conditions for Vehicles

University of Michigan

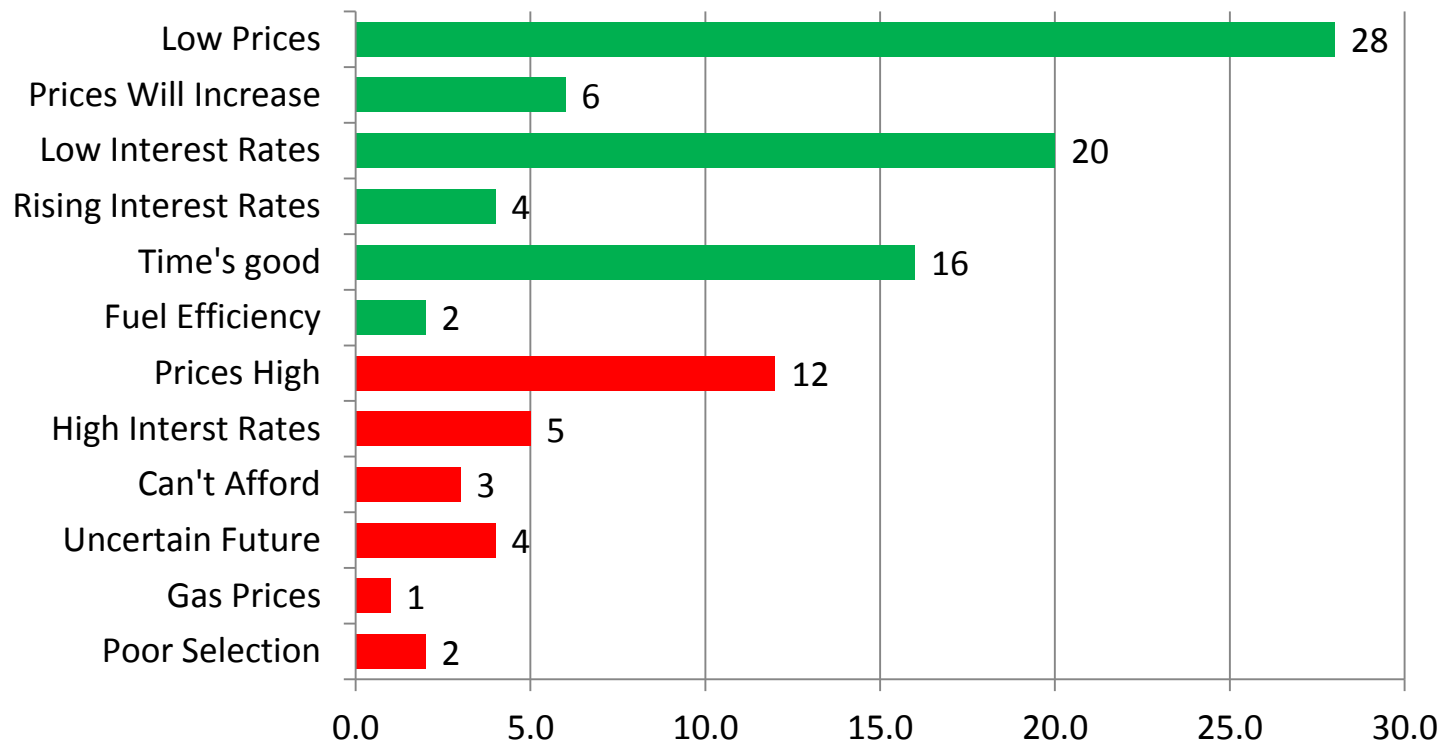


Source: Thomson Reuters / University of Michigan

Reasons for Buying Conditions for Vehicles

University of Michigan

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

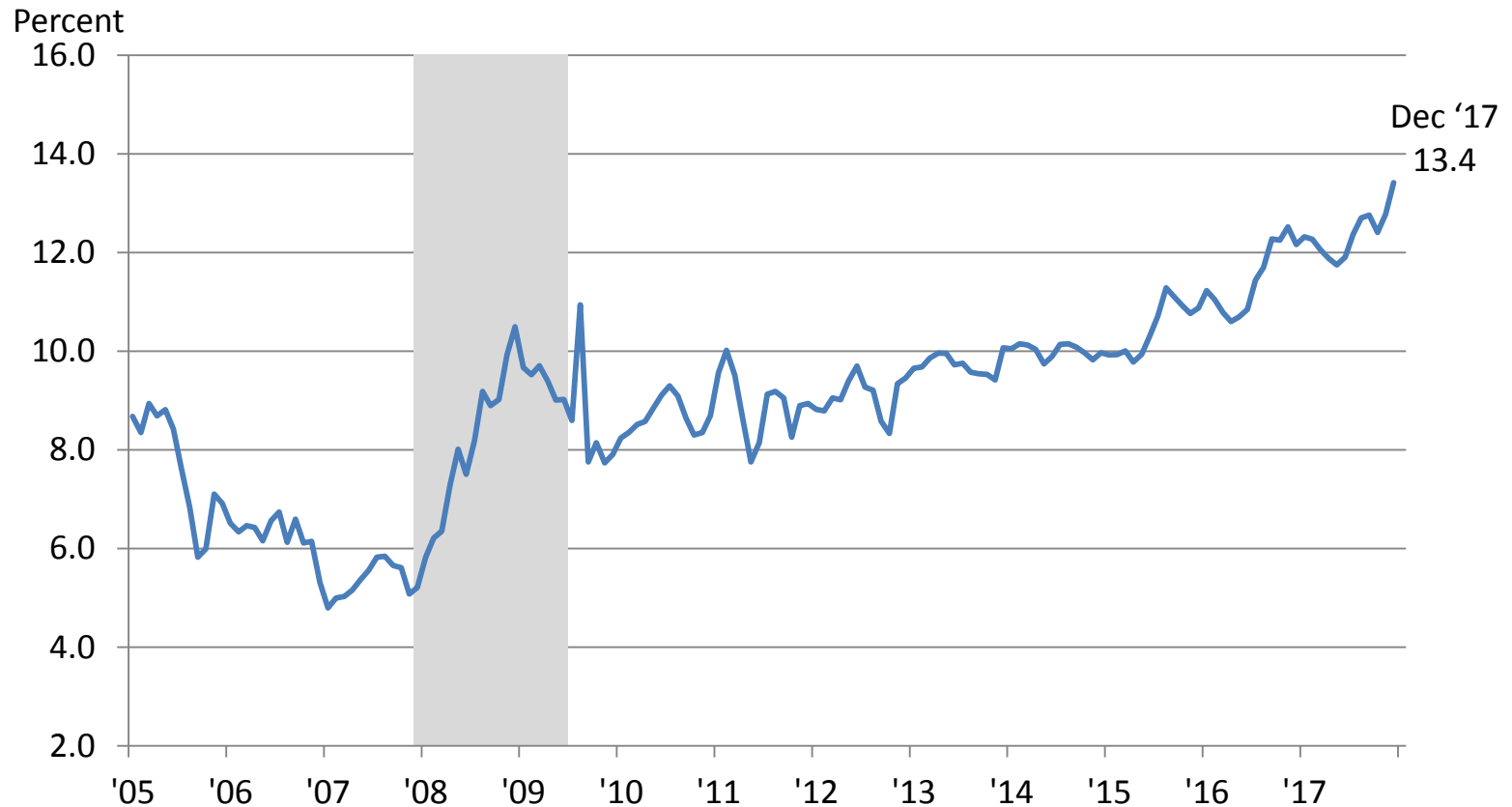


Note: May add to more than a 100 due to multiple mentions.

Source: University of Michigan Survey of Consumers – December 2017 survey

Vehicle Incentives

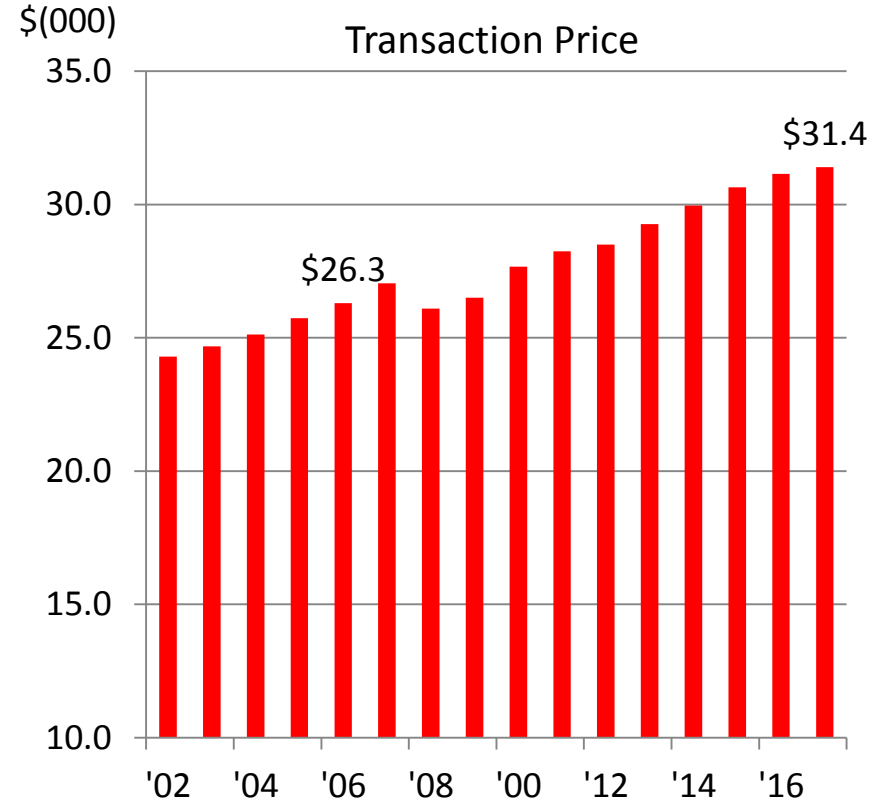
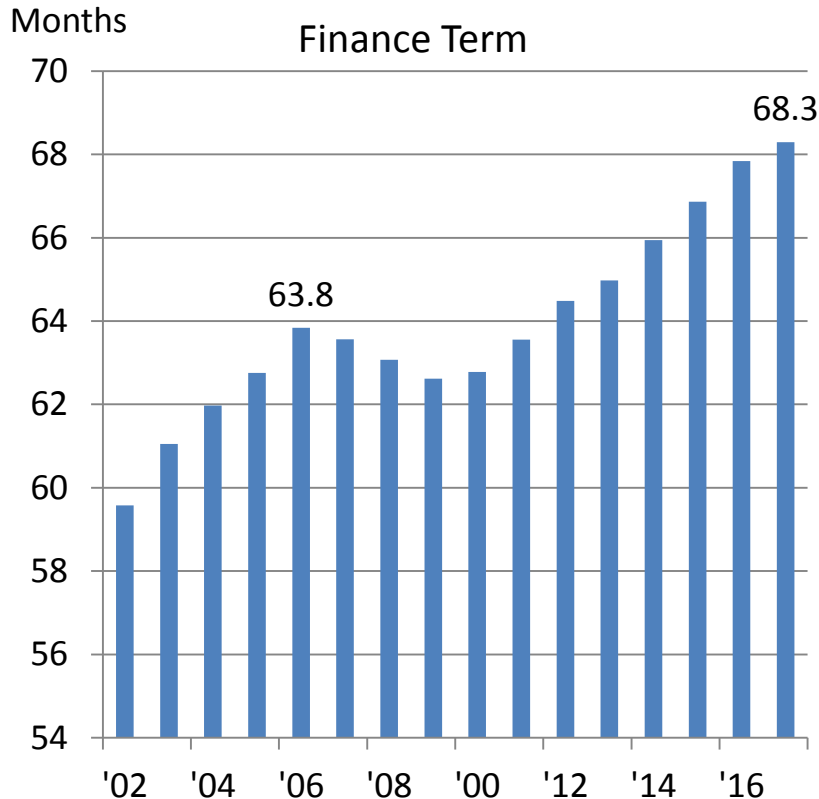
As Percent of Transaction Price - SA



Source: Author's calculations using FOMC Board of Governors and J.D. Power data.

Average Finance Term & Transaction Price

Months to Term and Annual Average Transaction Price

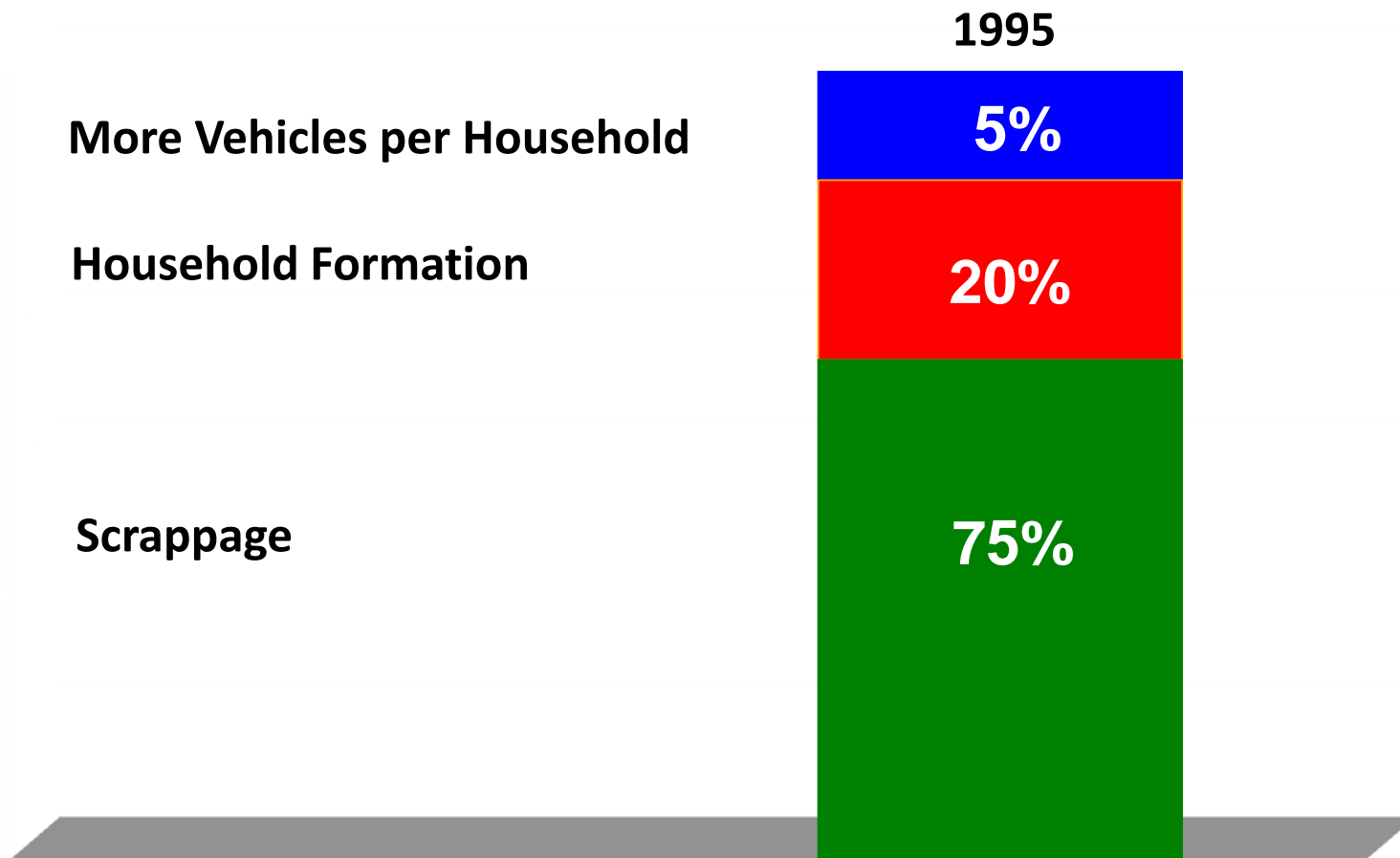


Note: 2017 data is September year-to-date.

Source: J.D. Power data.

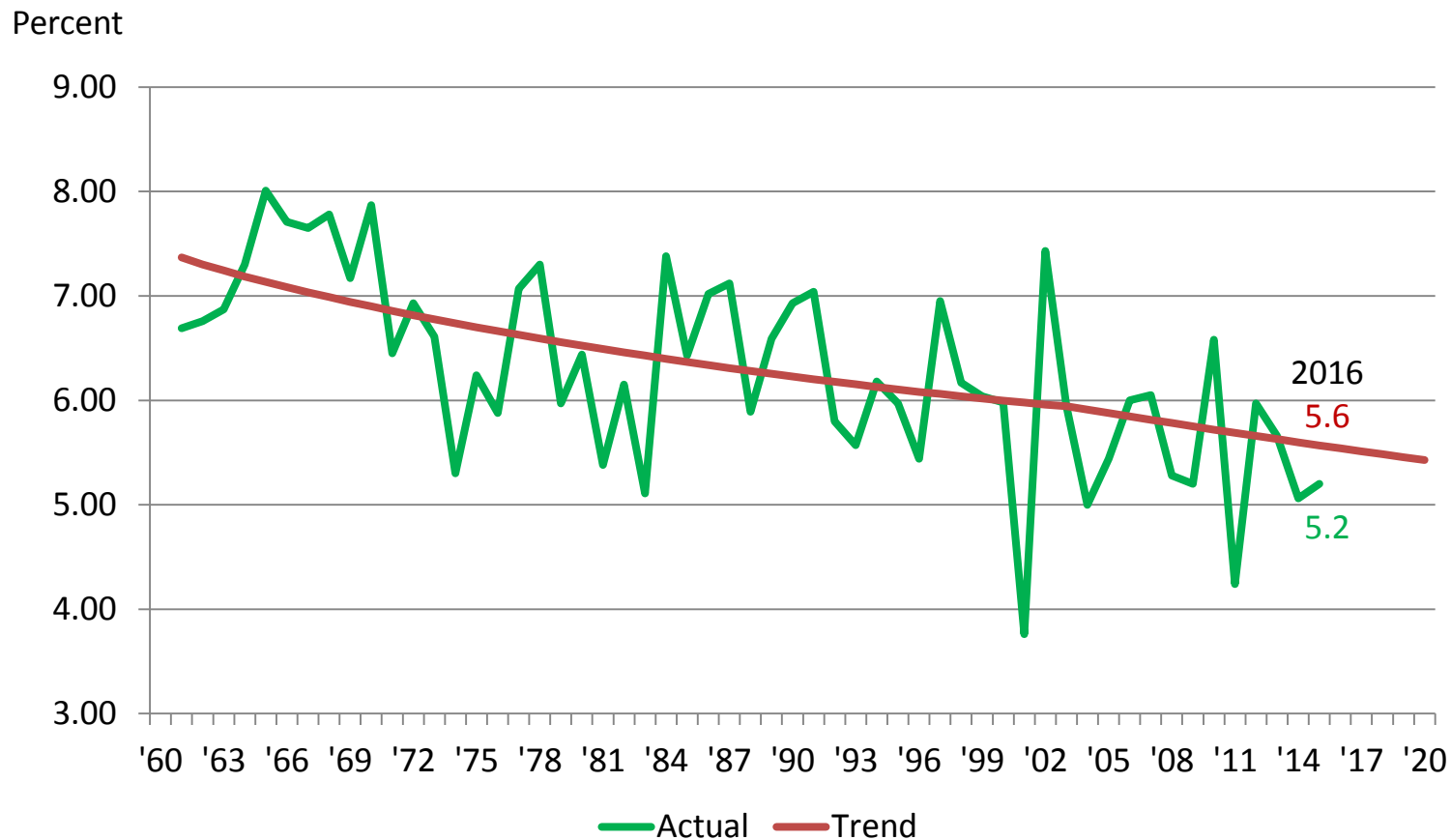
Determinates of Long-Run Vehicle Sales Trend

Origin of New Vehicle Sales



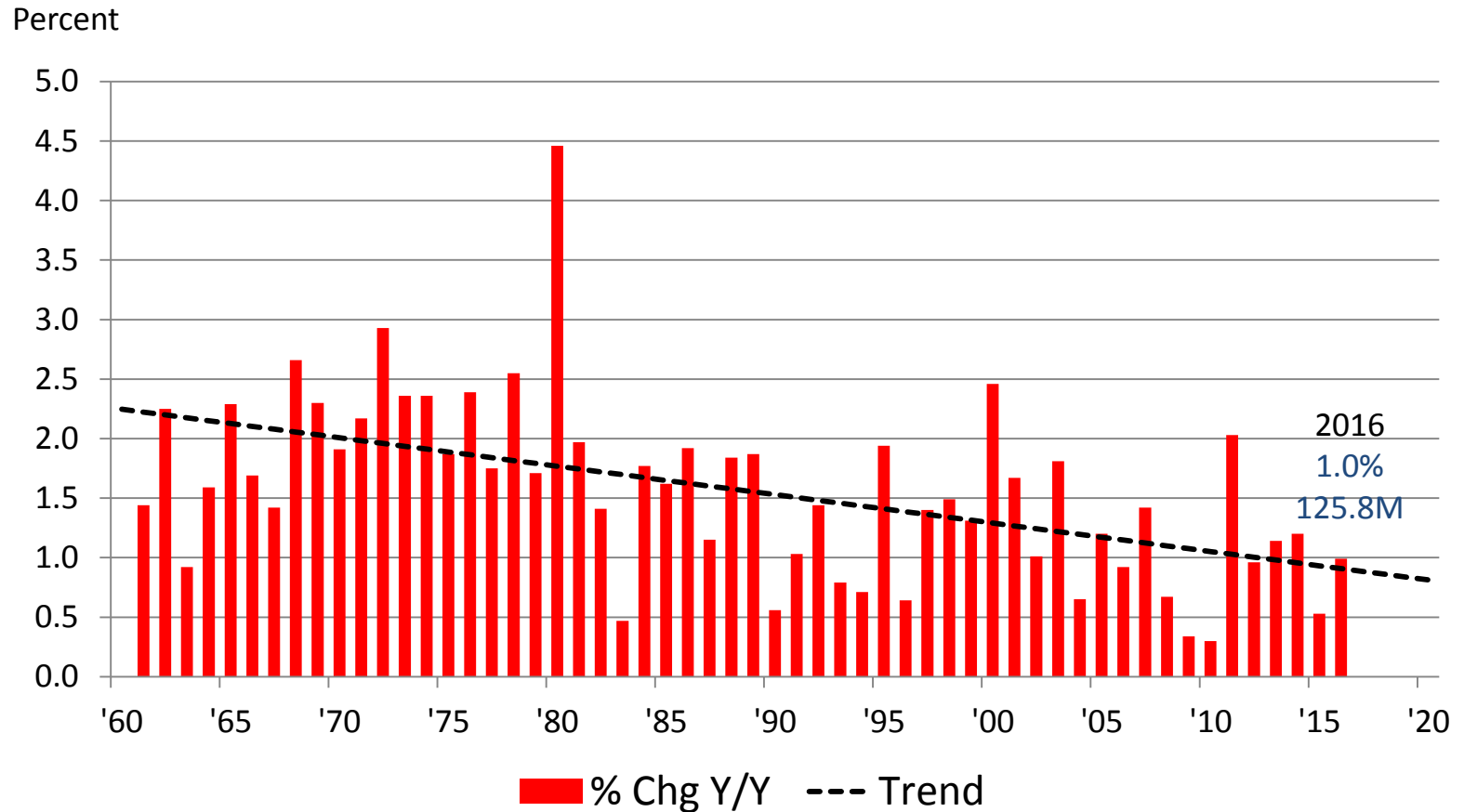
Scrappage Rate

In Percent



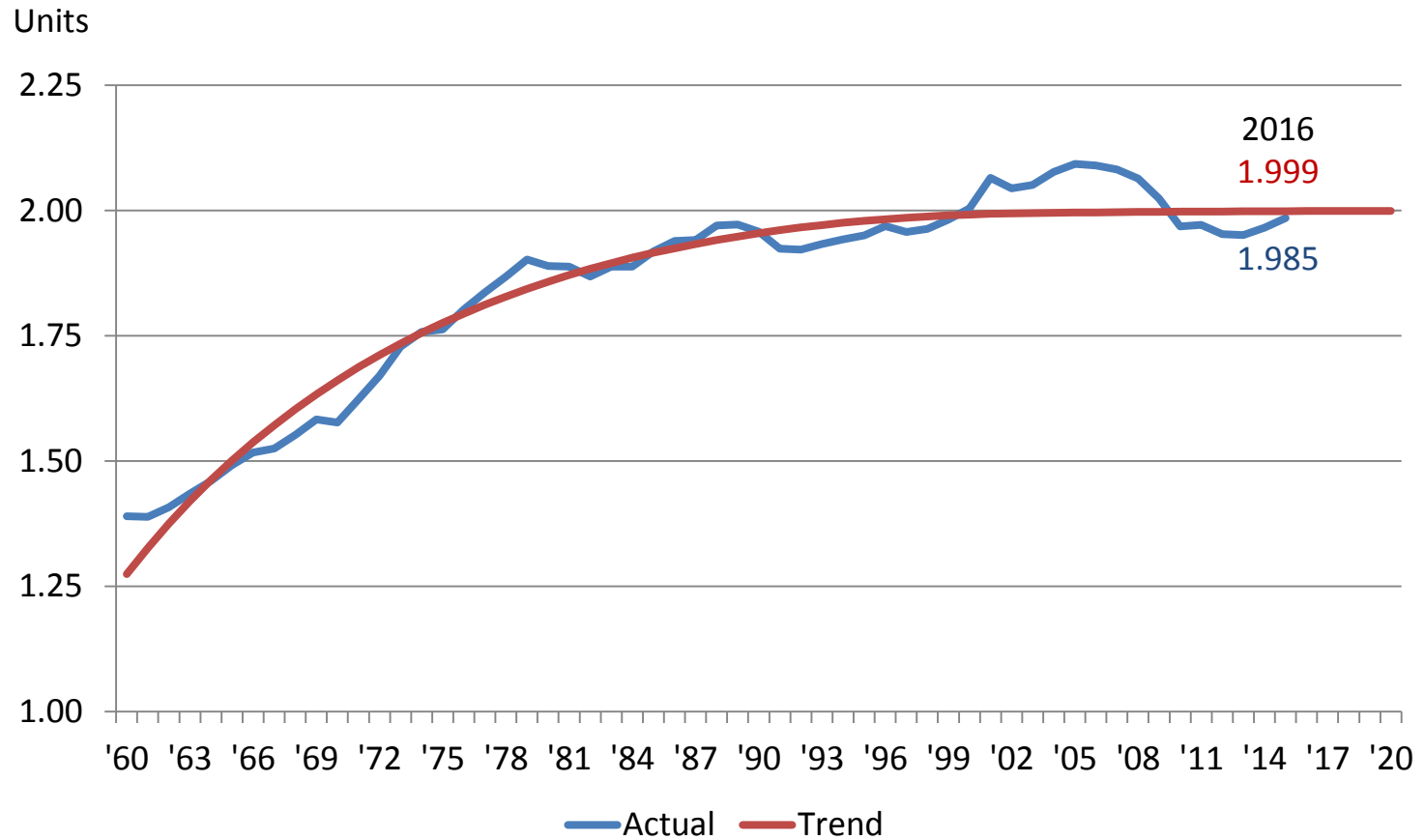
Household Formation

Percent Change Year-over-year



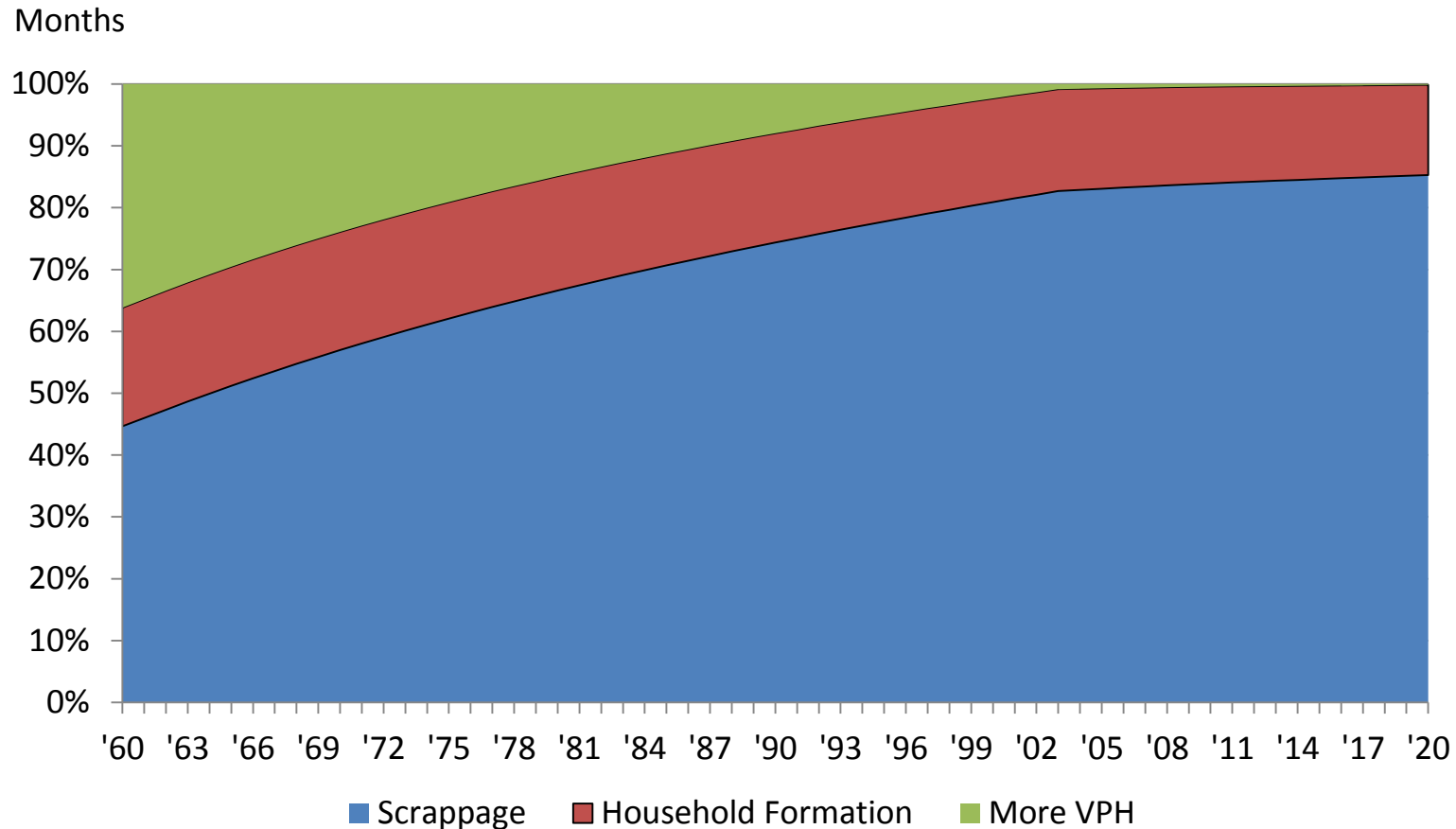
Vehicles Per Household

In Units



Origin of New Vehicle Sales

Determinates of Long-Run Vehicle Sales Trend



Source: Author's calculations

Other Changing Determinates of Vehicle Demand

1. Vehicles are lasting longer and consumers are keeping vehicles longer than ever before. A 2015 report by IHS Automotive stated that length of ownership of new vehicles increased by 50% in the ten years between 2005 and 2015.
2. People are driving less. Vehicle miles traveled are currently running about 14% below a 35 year long-run trend from 1970 to 2007.
3. Millennials are waiting longer to get a driver's license. A study by the University of Michigan Transportation Research Institute stated that in 2014, just 24.5% of 16-year-olds had a license compared to 46.2% in 1983.

Sales Weighted Vehicle Age

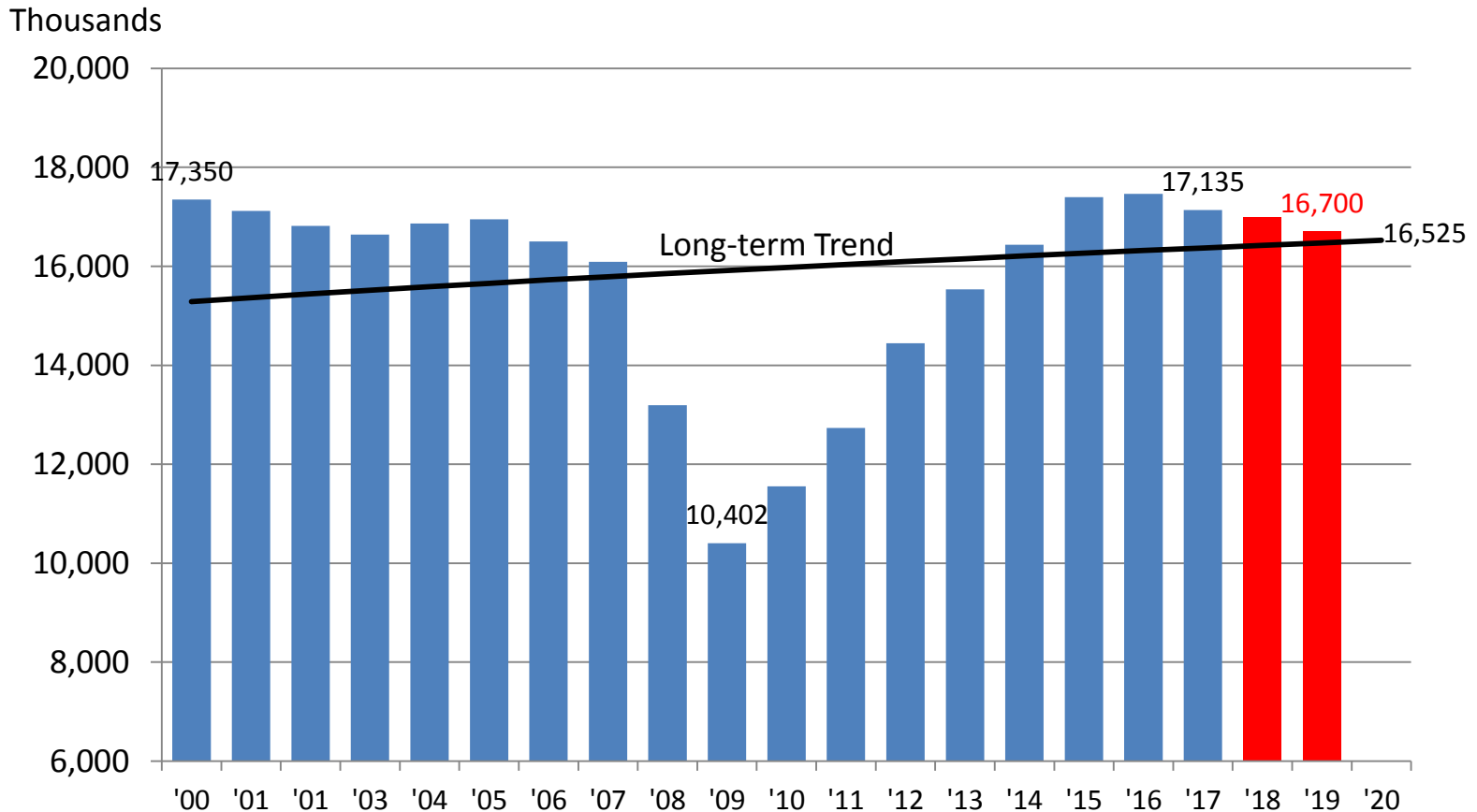
10 Year Moving Average



Source: Author's calculations using WardsAuto data.

U.S. Light Vehicle Sales

Calendar Year Sales – Millions of Units



Source: WardsAuto

Thank You!



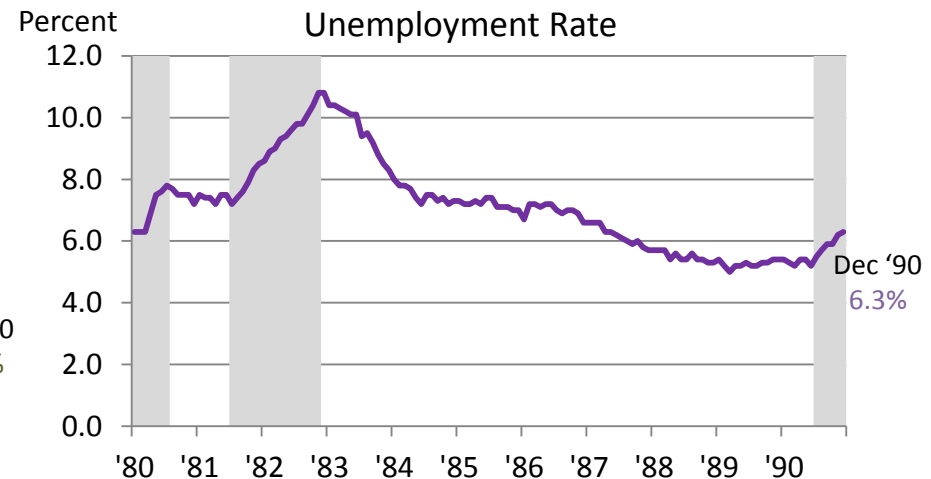
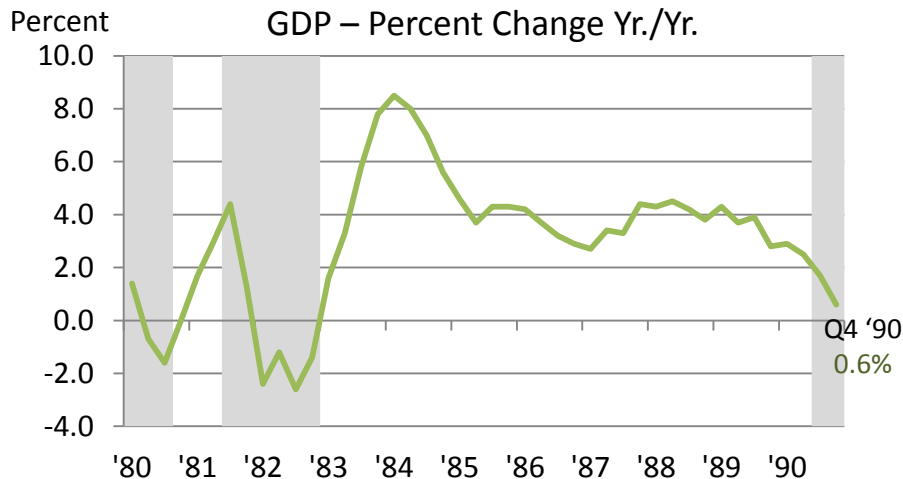
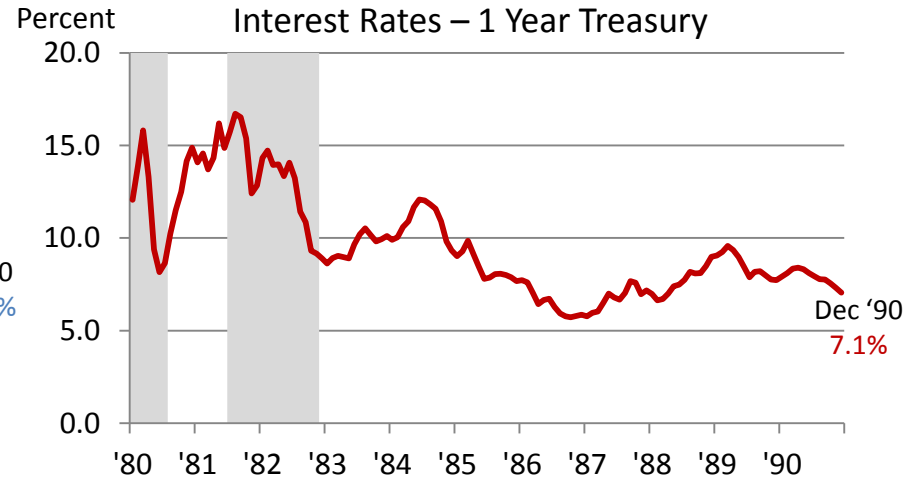
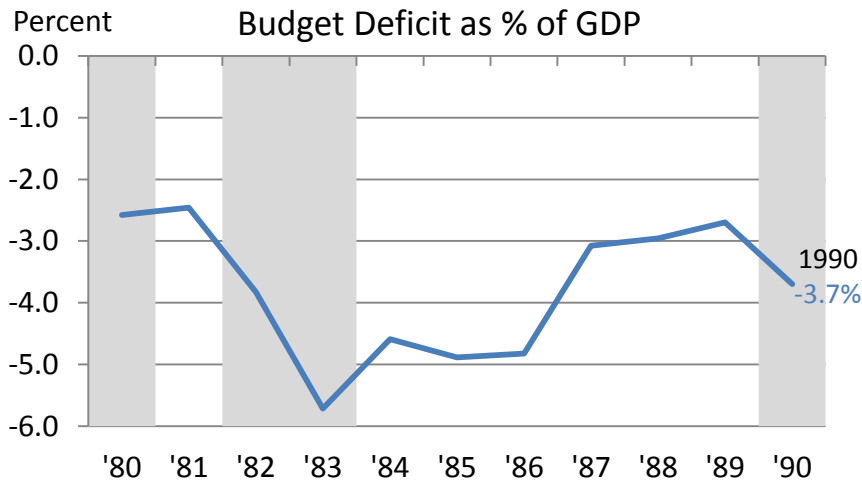
Tax Reform

Major Tax Reforms 1960 to Present

- Lowered top marginal tax rate to 77% from 92% in 1964 and to 70% in 1965.
- Reagan tax cuts were signed on August 31, 1981 and implemented in 1982.
 - Top tax brackets were lowered to 50% for 1982 through 1986.
 - In 1982 Reagan undid 44% of the original tax cut by increasing payroll and gas taxes.
 - In 1984 he raised tax revenue by closing loopholes for businesses.
 - It is estimated that Reagan reversed roughly 50% of his original 1981 tax cuts with 12 tax increases over the course of his presidency.
- In 1987 the top tax bracket was lowered from 38.5% to 28% in a revenue neutral tax cut..
- During the 1991 and 1992 tax years the top marginal tax bracket was increased 31% by President George H. W. Bush in a budget deal with congress. (Read my lips - NO NEW TAXES).
- In 1993 the Clinton administration proposed and the Congress approval (with no Republican support) an increase of the top bracket to 39.6% where it remained until 2000.
- Between 2001 and 2010 President George W. Bush was able to lowered the top bracket to 35% in stages. This legislation had a sunset clause that was to expire in 2011
- In 2010 President Obama signed the legislation that kept the lower bracket in effect.

Deficit, Interest Rates GDP & Unemployment

Reagan Tax Cut – August 31, 1981



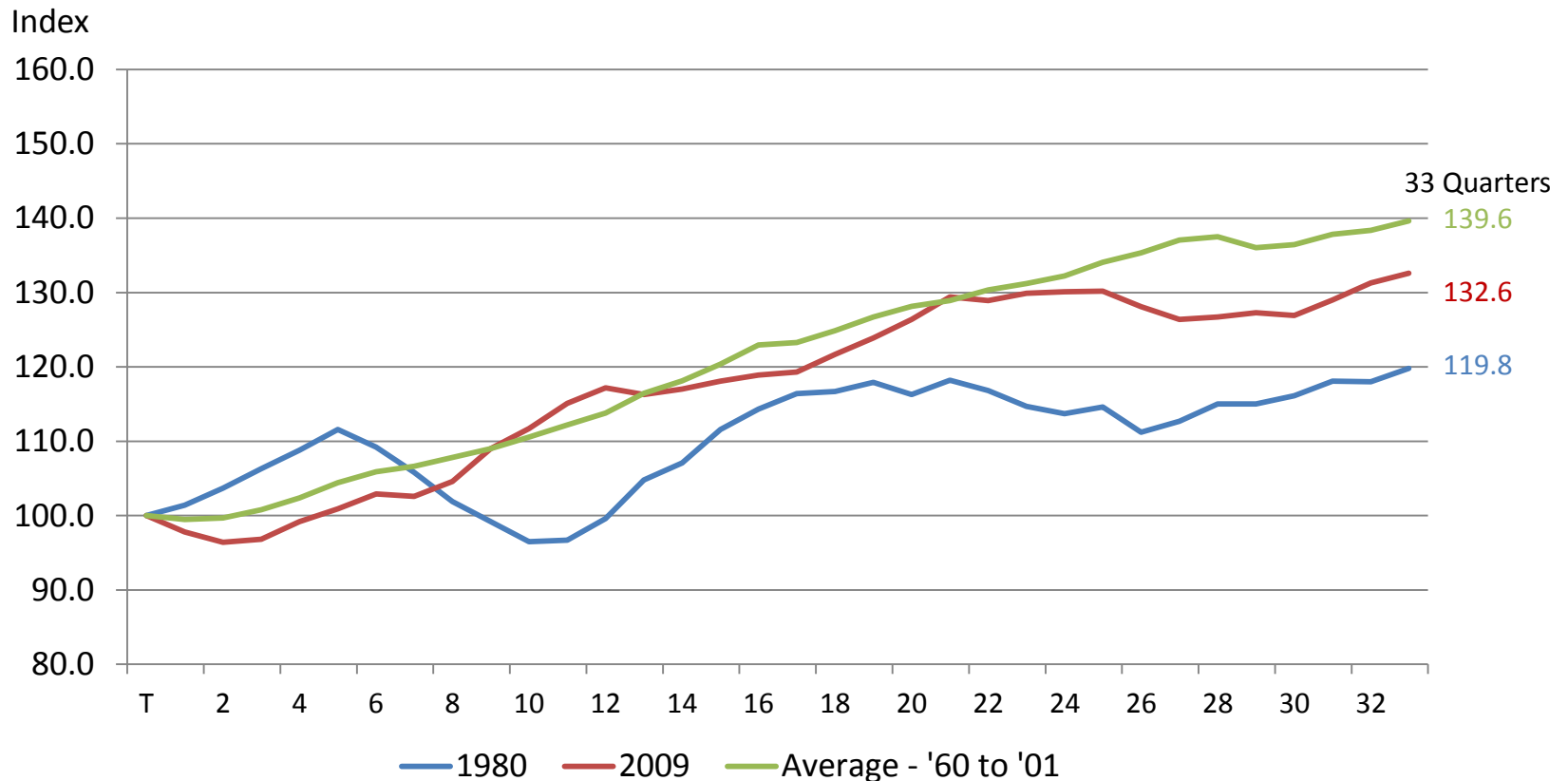
Source: Author's Calculations using BEA, BLS, and Fed data.

January 11, 2018

Federal Reserve Bank of Chicago

Private Domestic Investment - Nonresidential

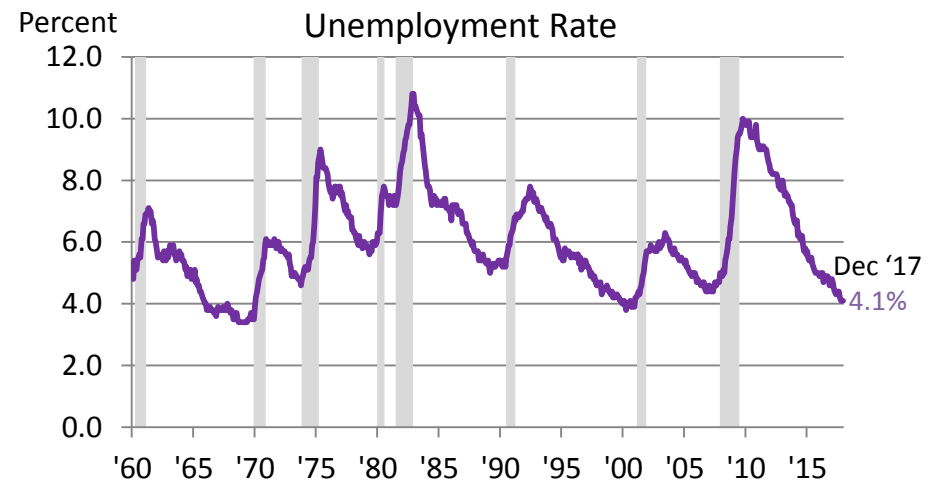
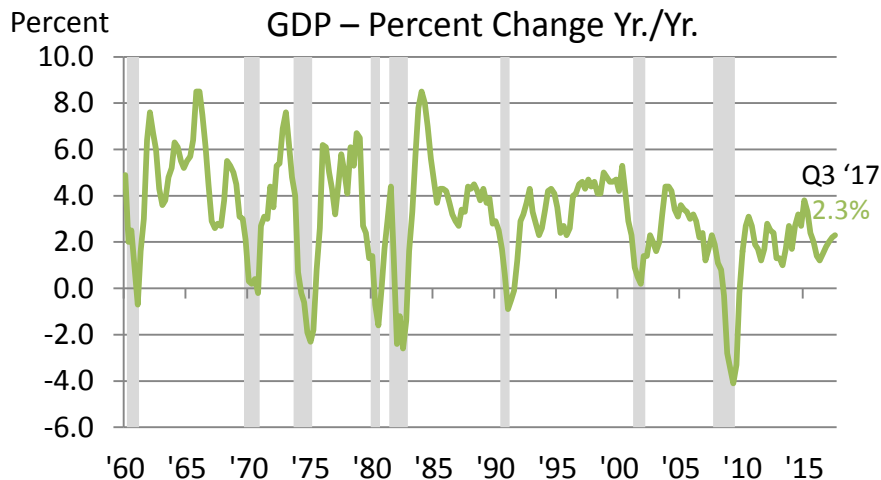
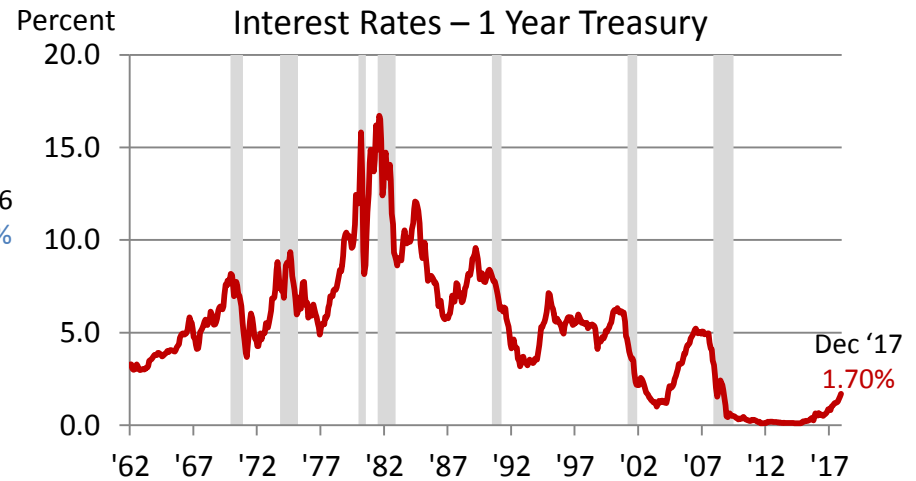
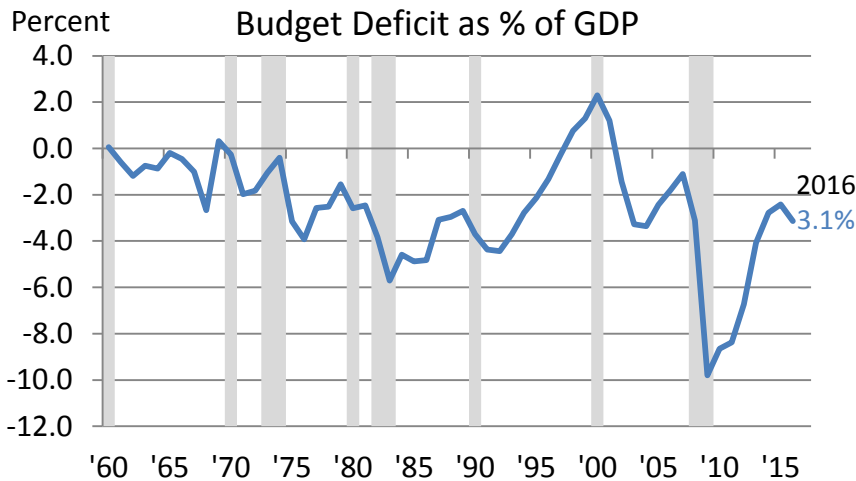
Recession Recoveries, Index - Trough = 100



Source: Author's Calculations using BEA data.

Deficit, Interest Rates GDP & Unemployment

1960 to 2016



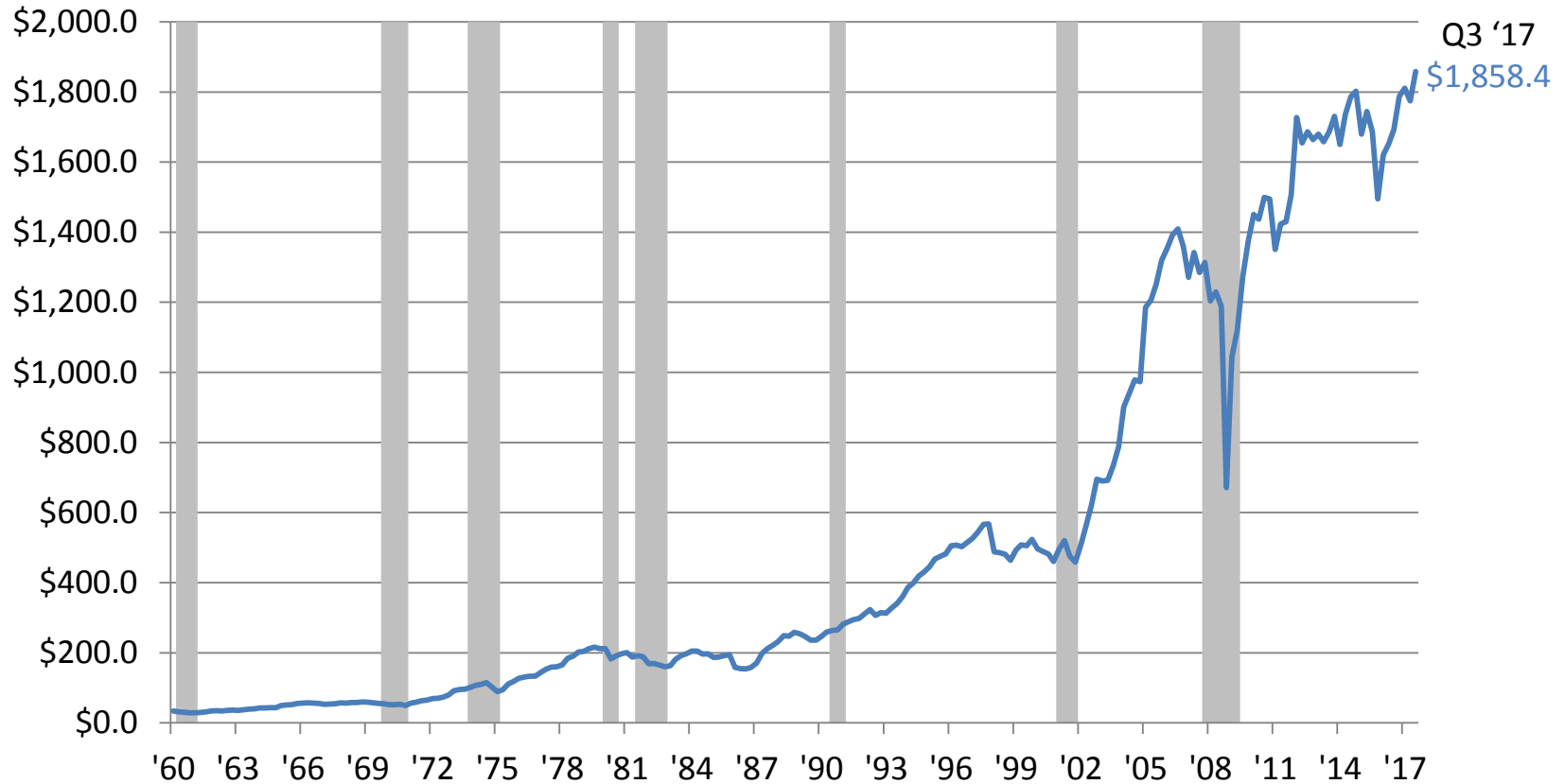
Source: Author's Calculations using BEA , BLS, and Fed data.

January 11, 2018

Federal Reserve Bank of Chicago

Real Corporate Profits

After Tax without IVA & CCAdj –Billions of \$2009



Source: Author's Calculations using BEA data and adjusted for inflation using PCE price index.