Markets, He Wrote

On Behalf of

The PA Asphalt Pavement Association's 57th Annual Conference

By: Anirban Basu
Sage Policy Group, Inc.

January 17th, 2017
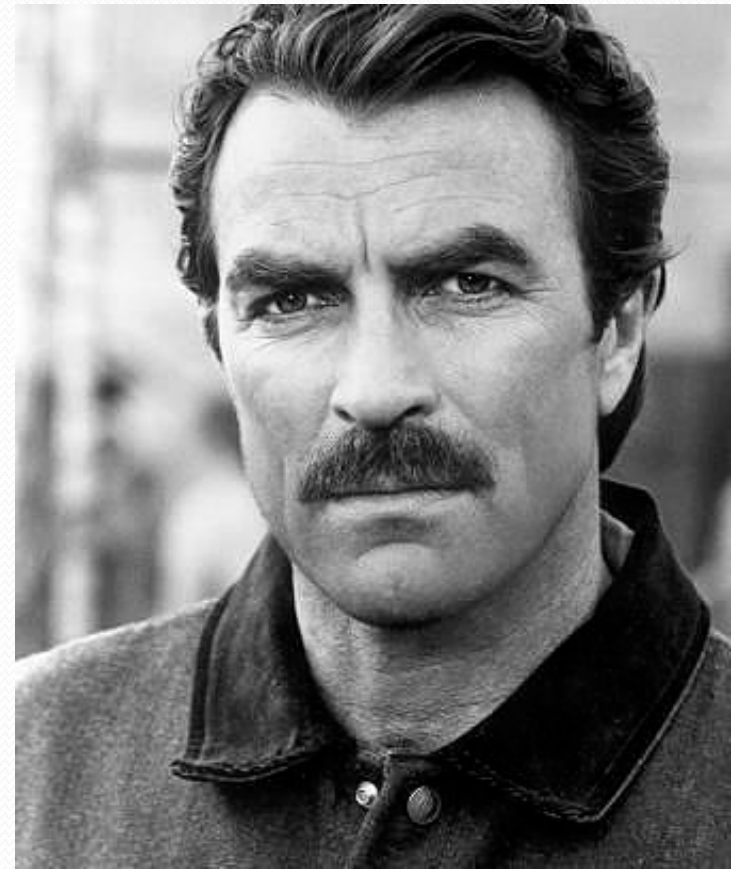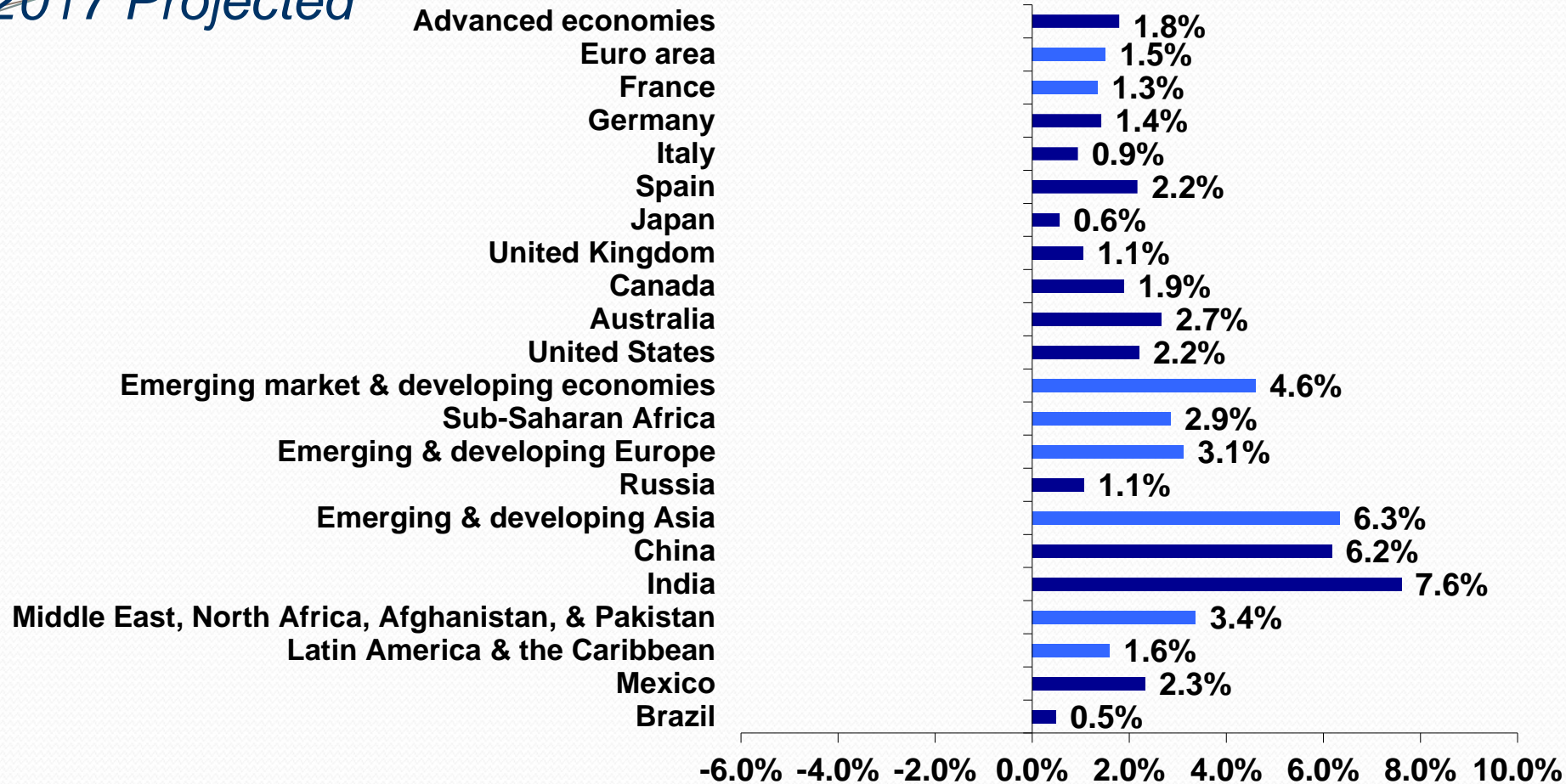
Macro P.I.

(Just How Hairy is the Global Situation?)

Estimated Growth in Output by Select Global Areas
2017 Projected

Region	Annual % Change
Advanced economies	1.8%
Euro area	1.5%
France	1.3%
Germany	1.4%
Italy	0.9%
Spain	2.2%
Japan	0.6%
United Kingdom	1.1%
Canada	1.9%
Australia	2.7%
United States	2.2%
Emerging market & developing economies	4.6%
Sub-Saharan Africa	2.9%
Emerging & developing Europe	3.1%
Russia	1.1%
Emerging & developing Asia	6.3%
China	6.2%
India	7.6%
Middle East, North Africa, Afghanistan, & Pakistan	3.4%
Latin America & the Caribbean	1.6%
Mexico	2.3%
Brazil	0.5%

Annual % Change

(Horizontal axis: -6.0% -4.0% -2.0% 0.0% 2.0% 4.0% 6.0% 8.0% 10.0%)

2016 Proj. Global Output Growth: 3.4%

Notes: 1. For World Output, the quarterly estimates and projections account for approximately 90 percent of annual world output at purchasing-power-parity weights. For Emerging Market and Developing Economies, the quarterly estimates and projections account for approximately 80 percent of annual emerging market and developing economies' output at purchasing-power-parity weights. 2. For India, data and forecasts are presented on a fiscal year basis and GDP from 2011 onward is based on GDP at market prices with FY2011/12 as a base year.

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International Population Dynamics, 16 Largest

Nation	Population (Millions)			% Change
	2015	2050	Net Change	
Nigeria	182.2	398.5	216.3	118.7%
Ethiopia	99.4	188.5	89.1	89.6%
Egypt	91.5	151.1	59.6	65.1%
Pakistan	188.9	309.6	120.7	63.9%
Philippines	100.7	148.3	47.6	47.2%
India	1,311.1	1,705.3	394.3	30.1%
Mexico	127.0	163.8	36.7	28.9%
Bangladesh	161.0	202.2	41.2	25.6%
Indonesia	257.6	322.2	64.7	25.1%
United States	321.8	388.9	67.1	20.9%
Vietnam	93.4	112.8	19.3	20.7%
Brazil	207.8	238.3	30.4	14.6%
China	1,376.0	1,348.1	-28.0	-2.0%
Germany	80.7	74.5	-6.2	-7.7%
Russian Federation	143.5	128.6	-14.9	-10.4%
Japan	126.6	107.4	-19.2	-15.1%
World	**7.3 billion**	**9.7 billion**	**2.4 billion**	**32.3%**

*For statistical purposes, the data for China do not include Hong Kong and Macao, Special Administrative Regions (SAR) of China, and Taiwan Province of China.

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Niamey Vice
(Fertility Rates by Country, 2014)

Top 15		
Rank*	Country	Fertility Rate
1	Niger	7.60
2	Somalia	6.46
3	Mali	6.23
4	Chad	6.16
5	Angola	6.08
6	Congo, Dem. Rep.	6.01
7	Burundi	5.95
8	Uganda	5.78
9	Gambia, The	5.72
10	Nigeria	5.65
11	Burkina Faso	5.52
12	Mozambique	5.36
13	Zambia	5.35
14	Tanzania	5.15
15	Malawi	5.13

Bottom 15		
Rank*	Country	Fertility Rate
186	Germany	1.39
186	Italy	1.39
188	Malta	1.38
189	Hungary	1.35
190	Slovak Republic	1.34
191	Greece	1.30
192	Poland	1.29
193	Spain	1.27
194	Bosnia and Herzegovina	1.26
194	Moldova	1.26
196	Singapore	1.25
197	Macao SAR, China	1.24
198	Hong Kong SAR, China	1.23
200	Portugal	1.21
200	Korea, Rep.	1.21

*Rank among 200 countries for which data are available for the most recent year (2014)
**Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.

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Niamey, Niger

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Global Debt to Exacerbate Slow Growth?

- According to the IMF, global debt reached an **all-time high** in 2015;

- At **$152 trillion**, global gross debt of the nonfinancial sector now represents **225% of global GDP**;

- About **2/3** of this debt is in the **private sector**;

- Current low nominal-growth environment is making adjustment difficult, setting the stage for a "**vicious feedback loop**" in which lower growth hampers deleveraging and the debt overhang exacerbates the slowdown.[2]

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Global Economy at Risk?

- According to a November 14-21 survey conducted by Oxford Economics:
  - **27%** of respondents said that a potential **Trump-triggered trade war** was the top risk to the global economy over the next 2 years;
  - **23%** of respondents said a more severe **downturn in the Chinese economy** was the top risk[1];
- In China, economic growth is already slowing as Beijing implements reforms intended to boost consumer spending and overhaul the country's financial system[2];

Sources:
1. Bloomberg News, "Trump Seen as Biggest Global Economy Risk, Oxford Economics Says", December 5, 2016.
2. CNN Money, "Why Trump poses 'single biggest risk' to the global economy" by Ivana Kottasova, December 12, 2016.
3. IMF, "IMF Sees Subdued Global Growth, Warns Economic Stagnation Could Fuel Protectionist Calls", October 4, 2016.
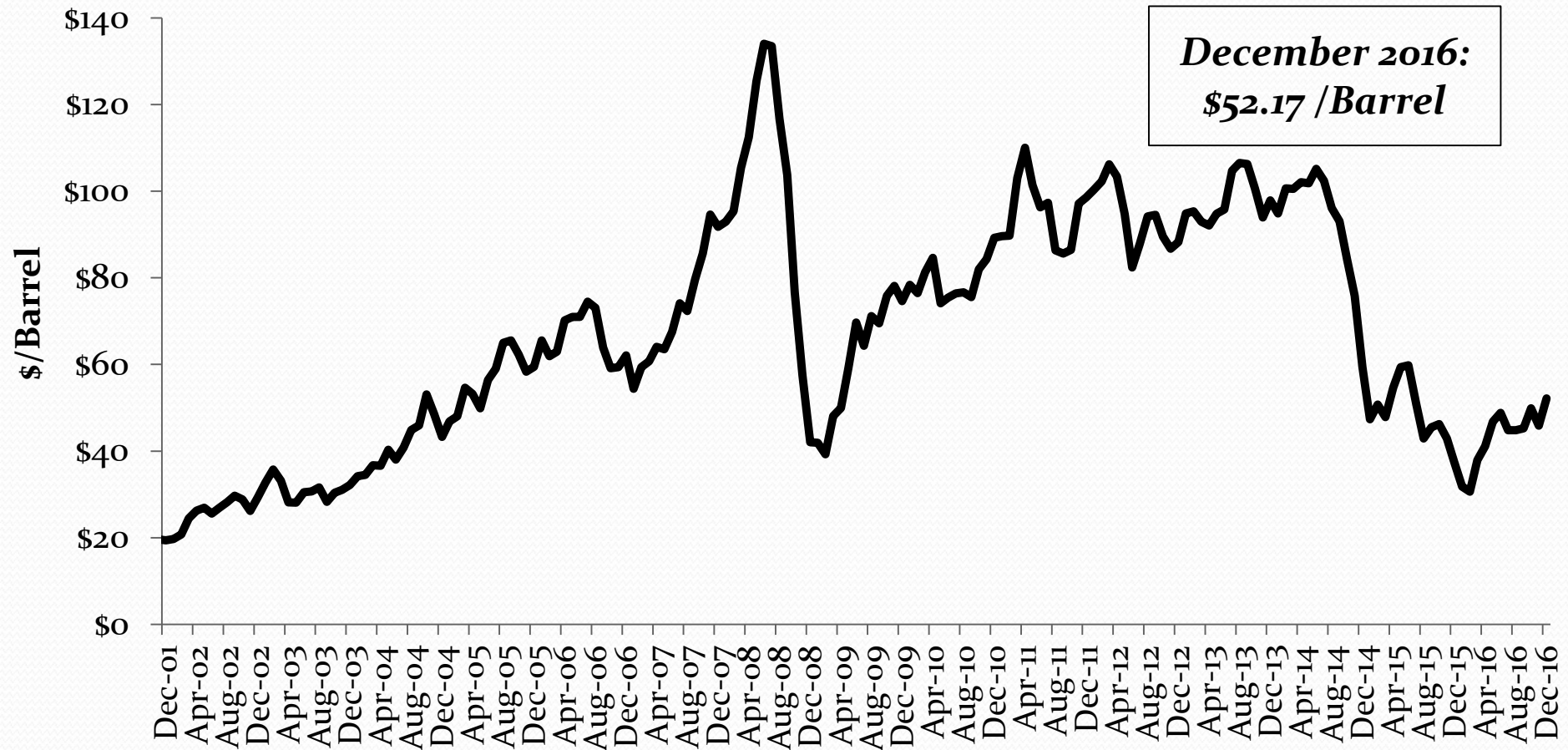
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NYMEX Crude Oil Future Prices in U.S. Dollars
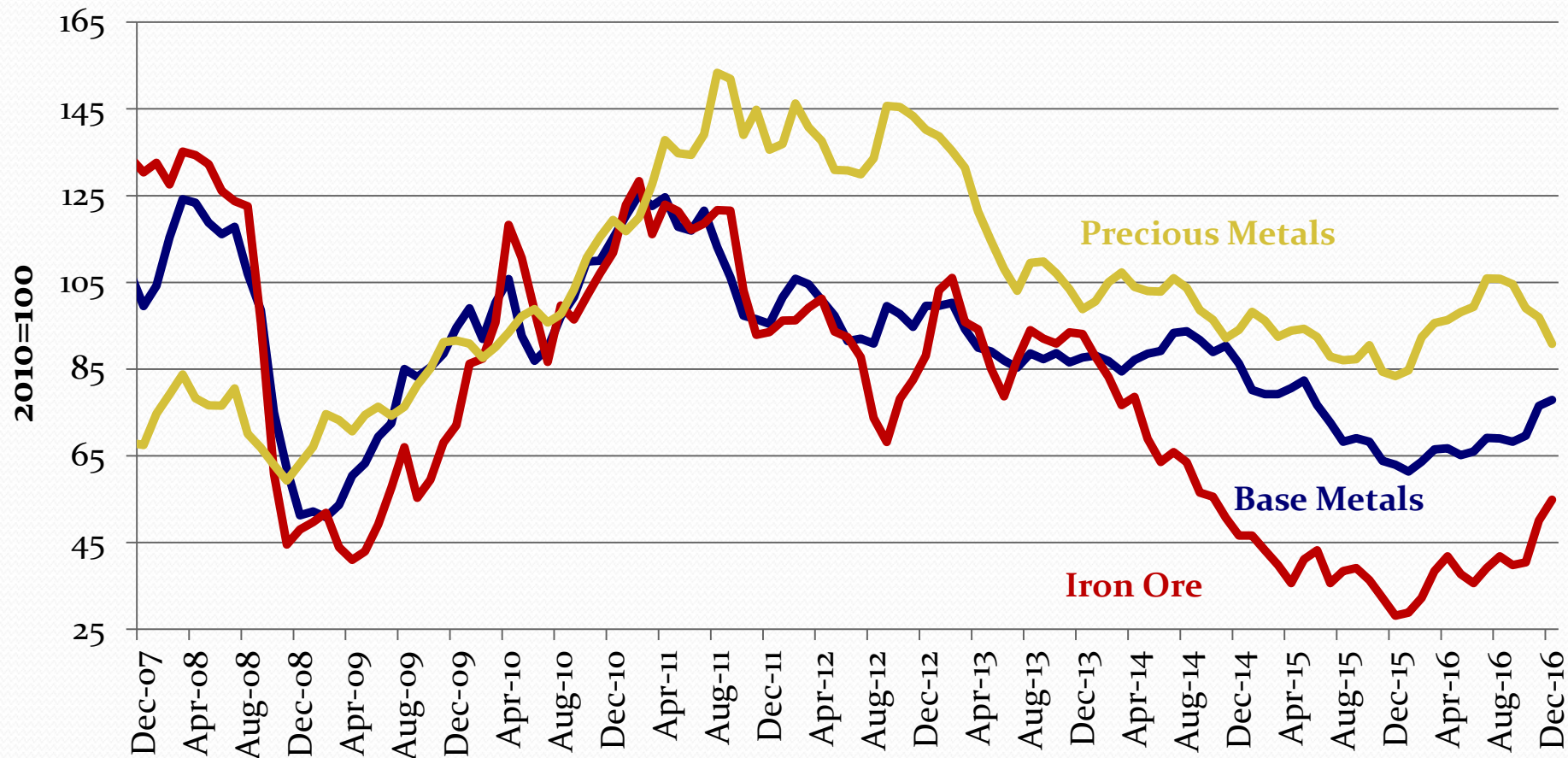## December 2001 through December 2016

December 2016: $52.17 /Barrel

*Month of December = average of daily prices from 12/1-12/30

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Metal Price Indices
December 2007 through December 2016

Precious Metals

Base Metals

Iron Ore

US$ Nominal
Base metals include aluminum, copper, lead, nickel, tin and zinc.
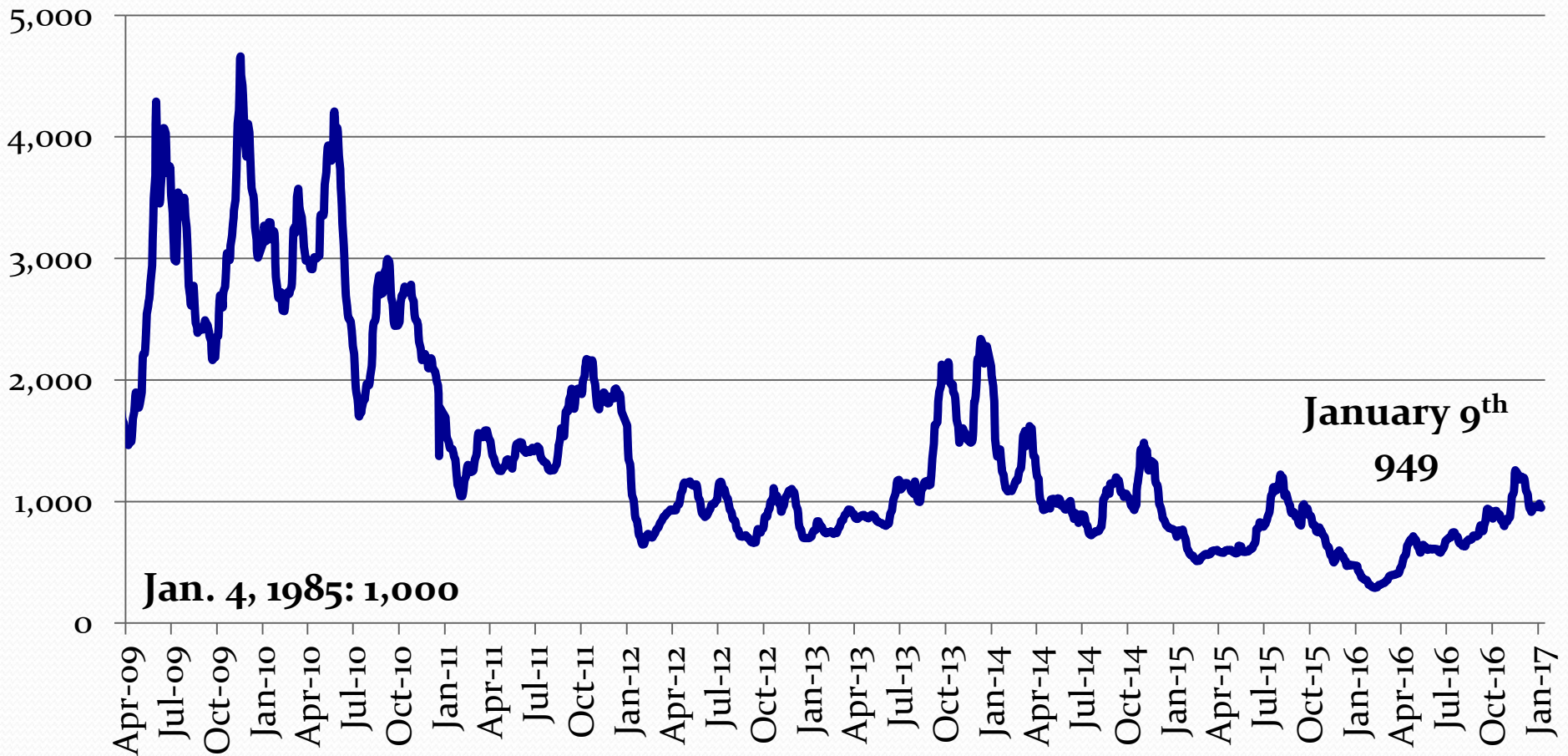Precious metals include gold, platinum, and silver.

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Baltic Dry Index
April 2009 through January 2017

January 9th
949

Jan. 4, 1985: 1,000

The Baltic Dry Index (BDI) is a measure of the price of shipping major raw materials such as metals, grains, and fossil fuels by sea.
The BDI is a composite of 3 sub-indices, each covering a different carrier size: Capesize, Panamax, and Supramax.

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USA CSI

(Commercial Situation Investigation)

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Gross Domestic Product
*1990Q1 through 2016Q3**
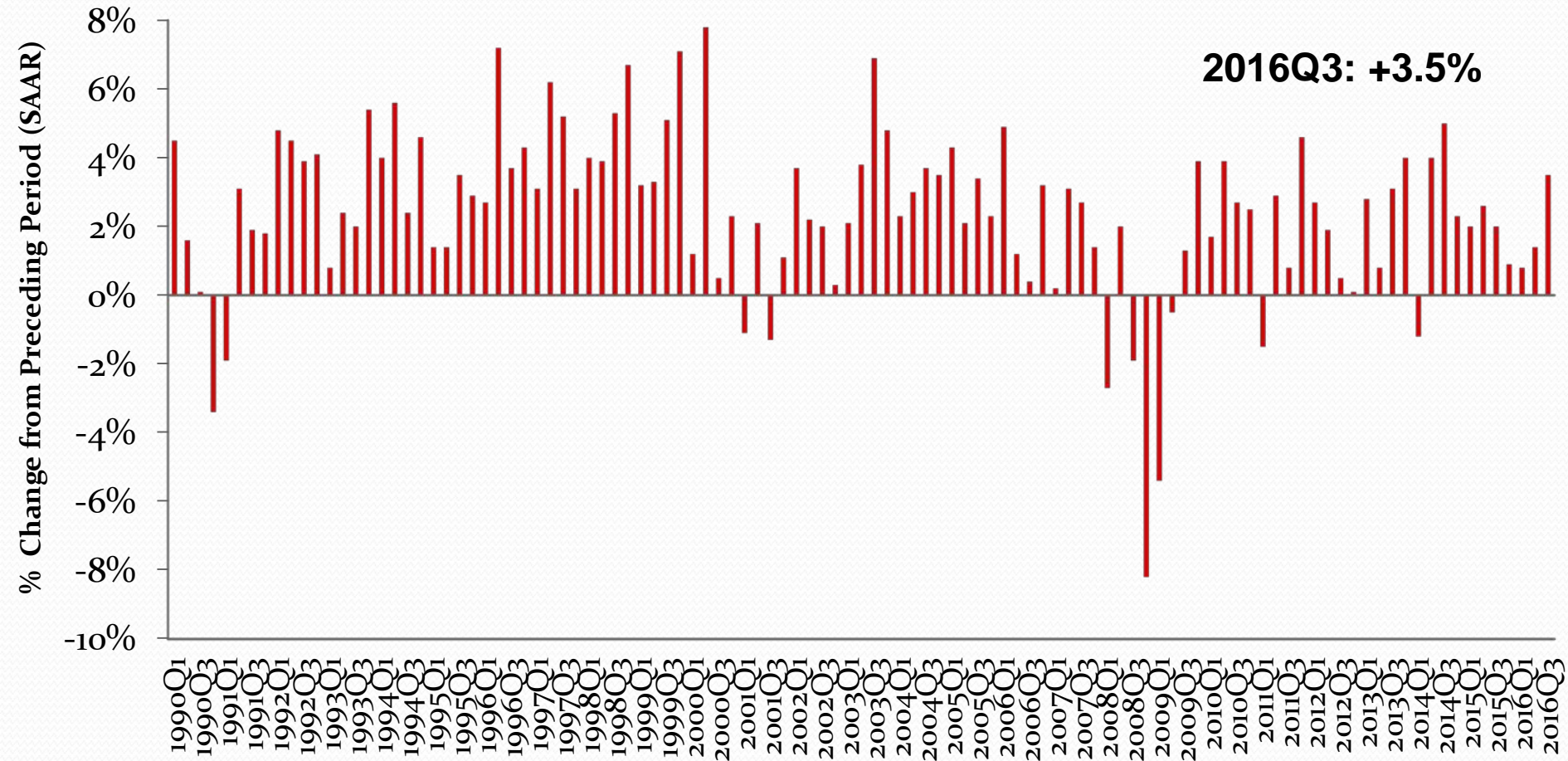
2016Q3: +3.5%
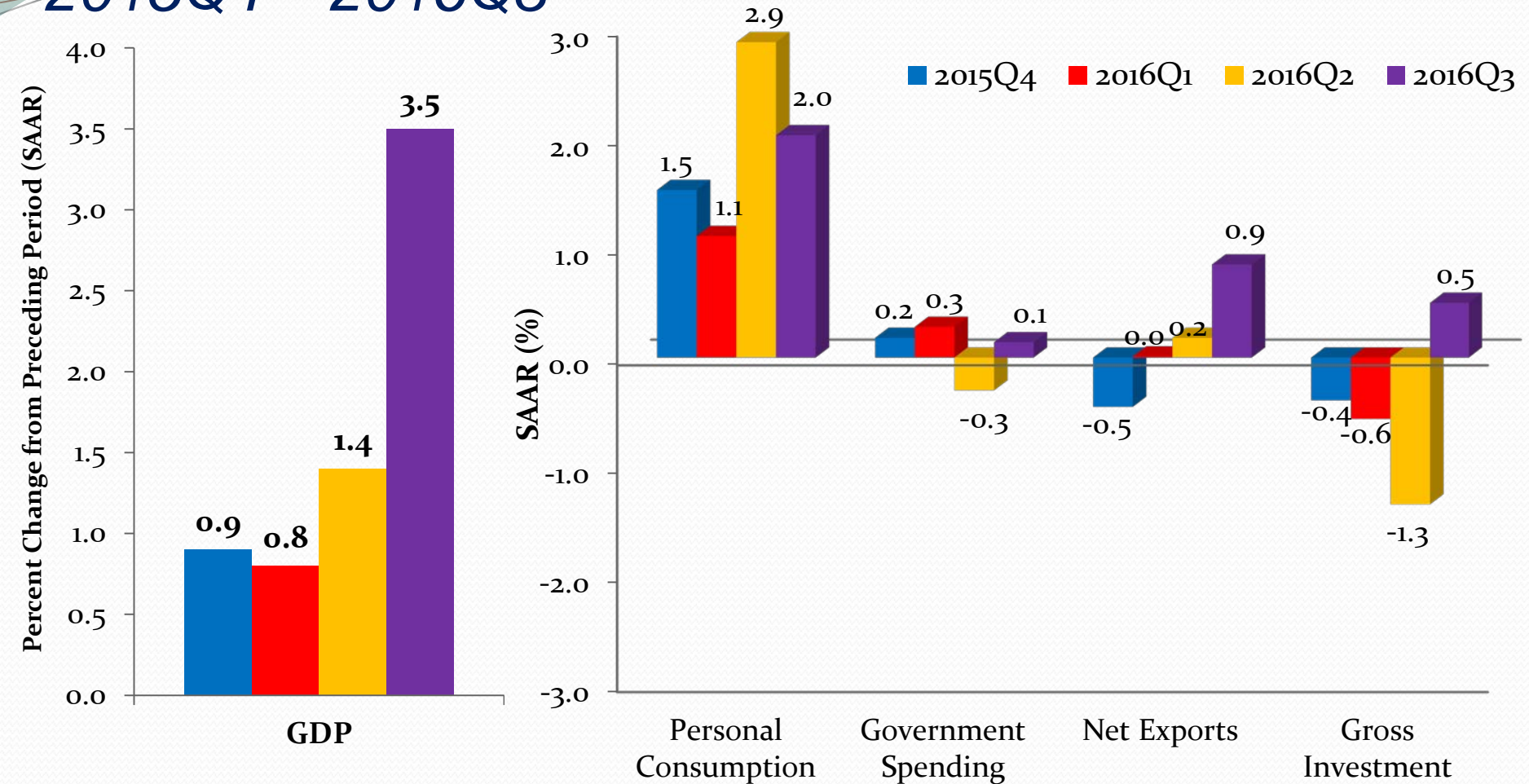
* 3rd (Final) Estimate

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Contributions to GDP Growth by Component
*2015Q4 – 2016Q3**

* 3rd (Final) Estimate

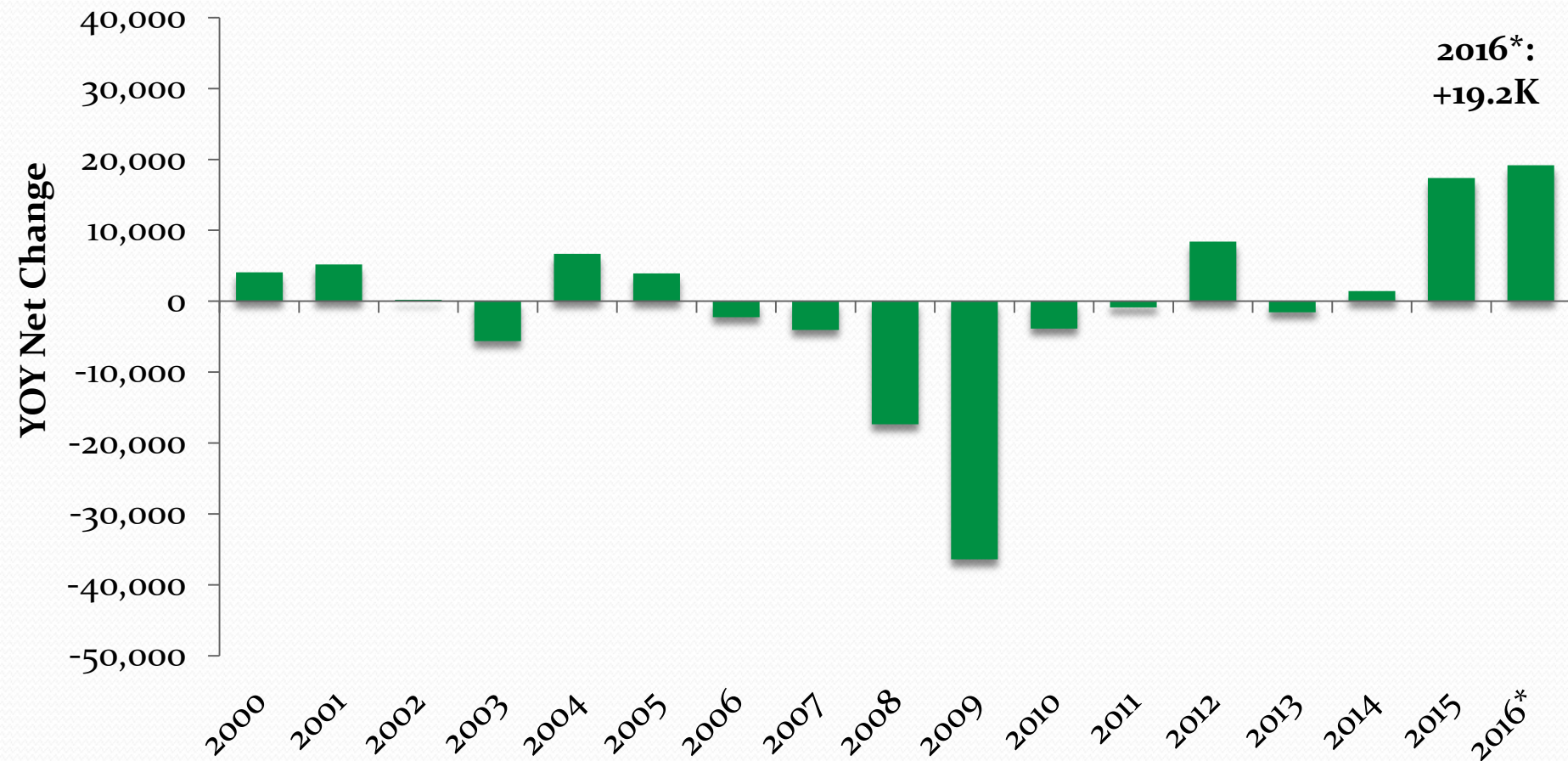**2016Q3: +3.5%**

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Highway, Street and Bridge Construction Employment *Annual Growth 2000 through 2016*
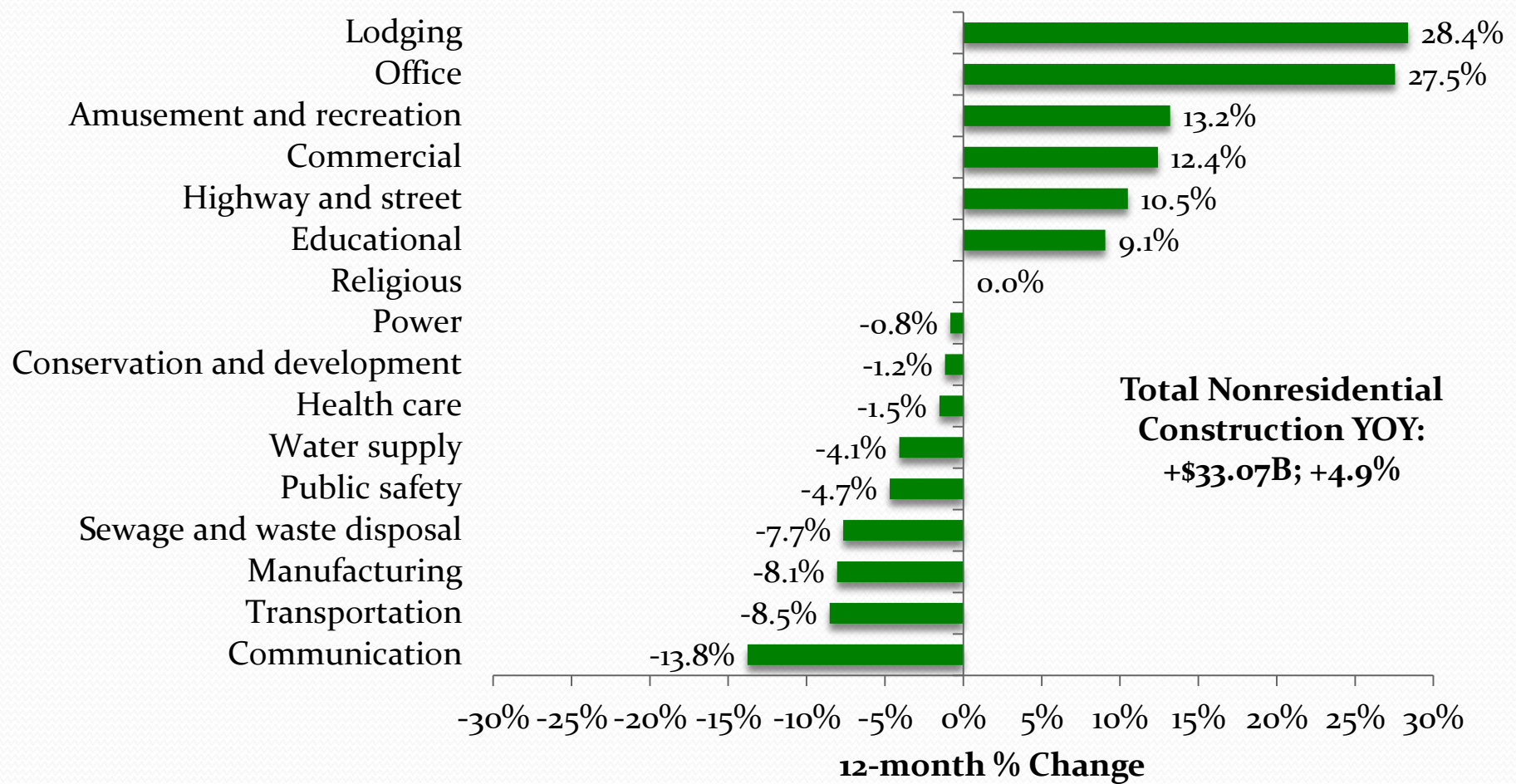

2016*:
+19.2K

*2016: January 2016-November 2016 Average

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National Nonresidential Construction Spending by Subsector
November 2015 v. November 2016

Subsector	12-month % Change
Lodging	28.4%
Office	27.5%
Amusement and recreation	13.2%
Commercial	12.4%
Highway and street	10.5%
Educational	9.1%
Religious	0.0%
Power	-0.8%
Conservation and development	-1.2%
Health care	-1.5%
Water supply	-4.1%
Public safety	-4.7%
Sewage and waste disposal	-7.7%
Manufacturing	-8.1%
Transportation	-8.5%
Communication	-13.8%

Total Nonresidential Construction YOY: +$33.07B; +4.9%

Source: U.S. Census Bureau

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Highway and Street Construction Spending
2005 through 2020

Forecast 2016-2020:
+$8.1B; +8.9%

SAAR ($ Billions)
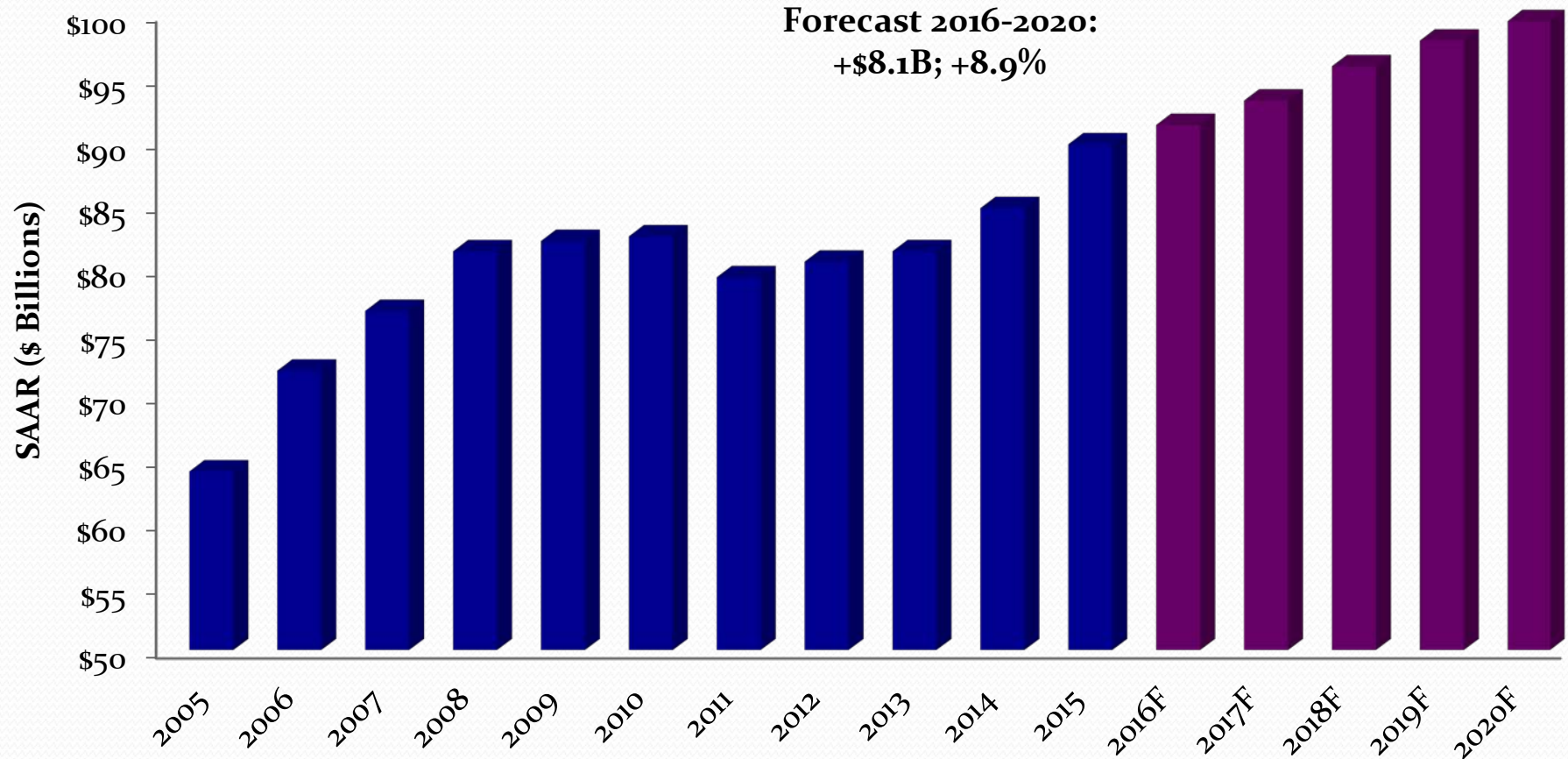
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Net Change in U.S. Jobs, BLS
December 2002 through December 2016
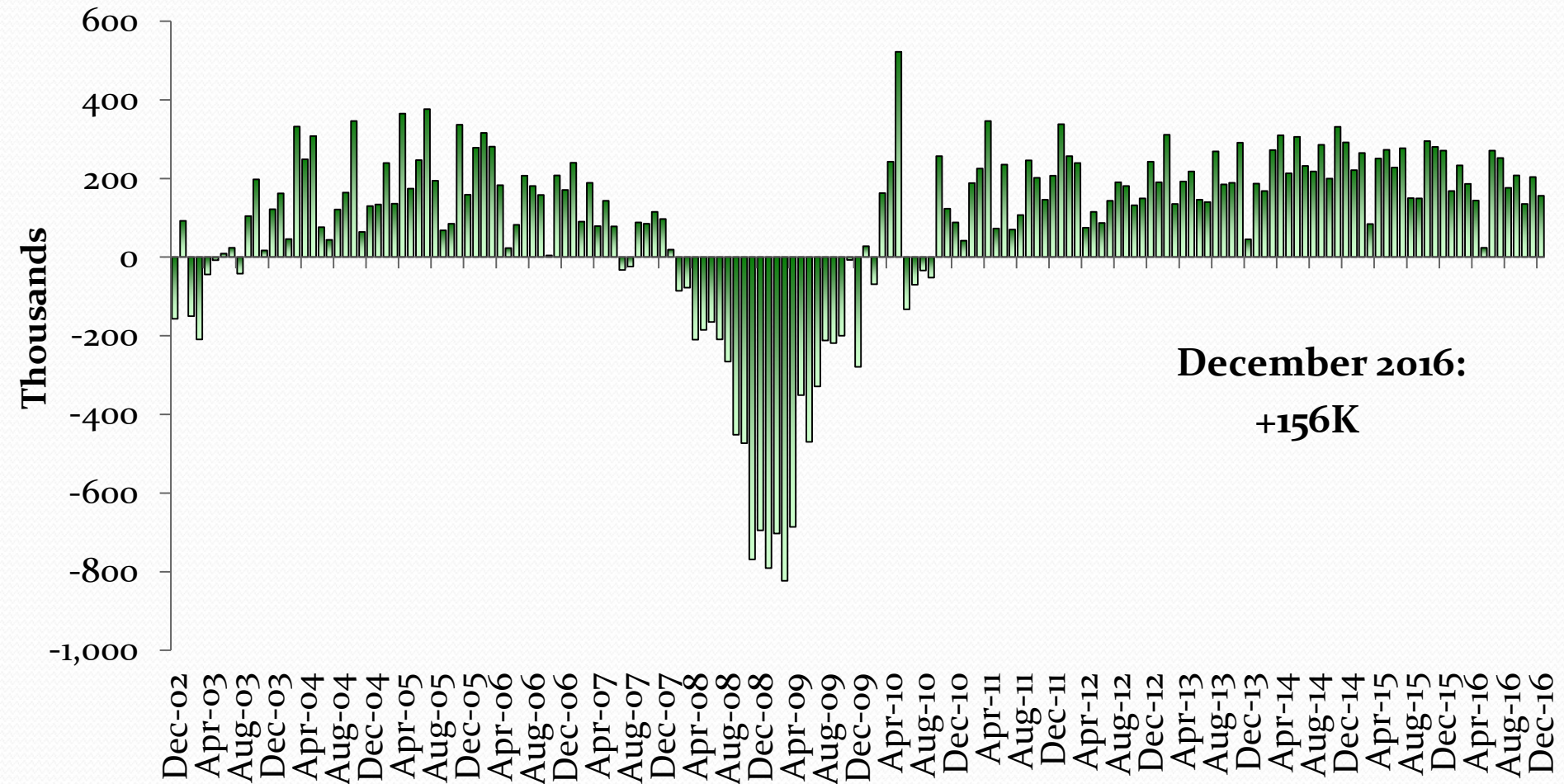
December 2016:

+156K

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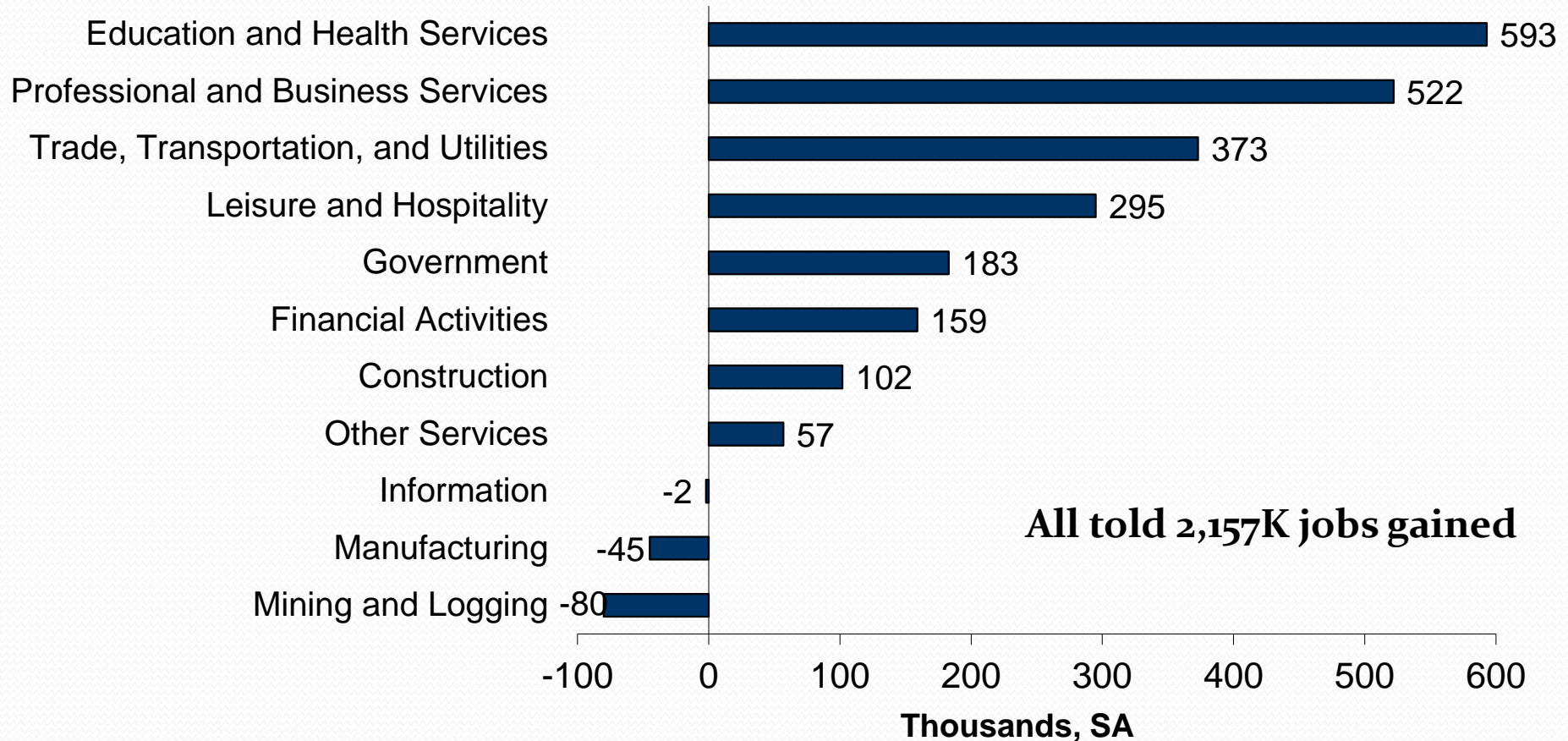
U.S. Employment to Population Ratio
December 2000 – December 2016

December 2016:
59.7%
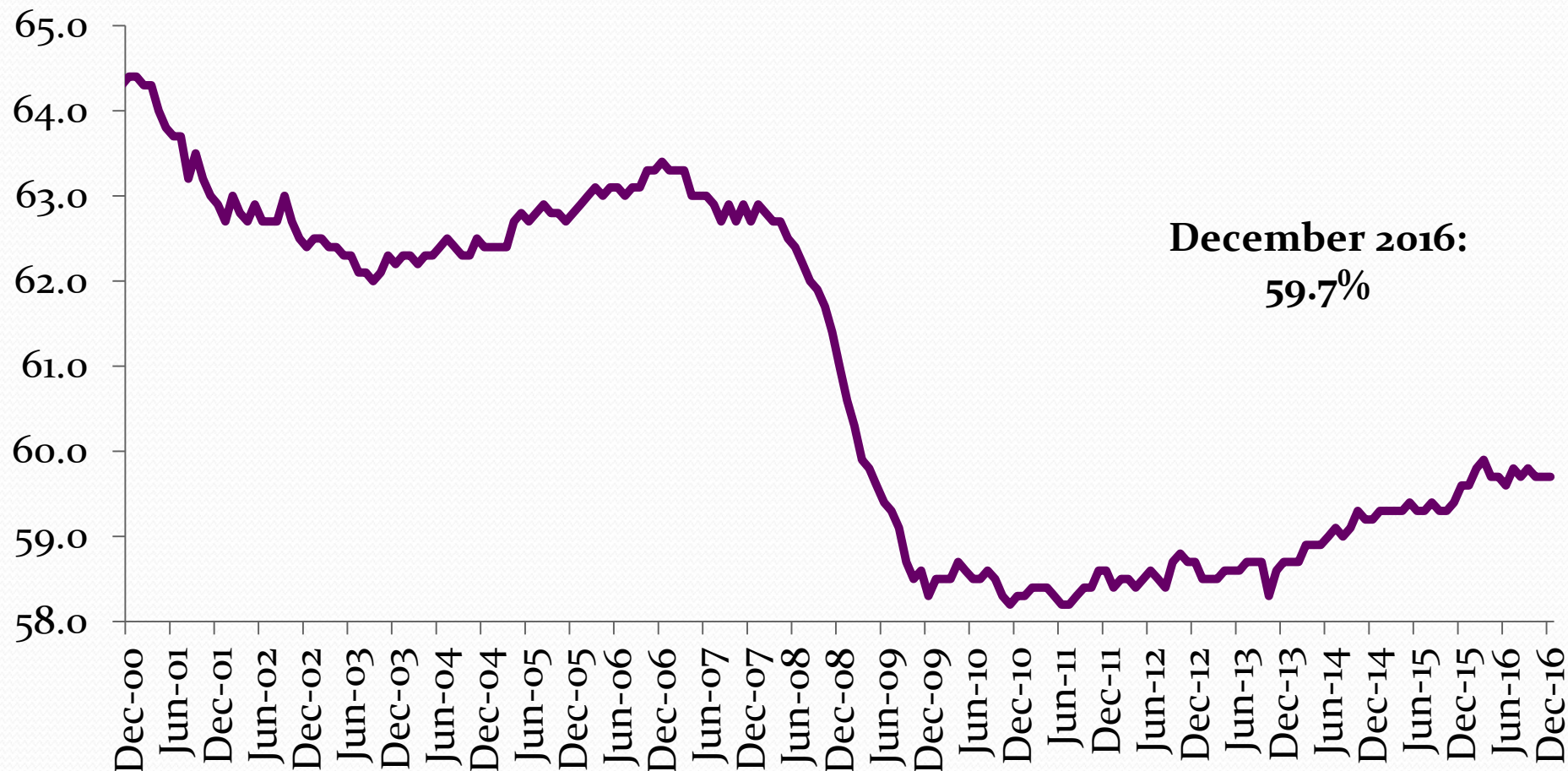
Note: Civilian employment-population ratio, population 16 years and over, seasonally adjusted (SA).

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Pennsylvania Nonfarm Employment
by Industry Sector Groups (SA)
November 2015 v. November 2016
Absolute Change

Industry Sector	Absolute Change
Education & Health Services	20,900
Professional & Business Services	17,800
Leisure & Hospitality	9,500
Trade, Transportation & Utilities	6,400
Financial Activities	2,000
Construction	800
Information	-900
Other Services	-3,000
Manufacturing	-3,300
Government	-3,700
Mining and Logging	-7,600

PA Total:
+38.9K; +0.7%

US Total (SA):
+2,272K; +1.6%
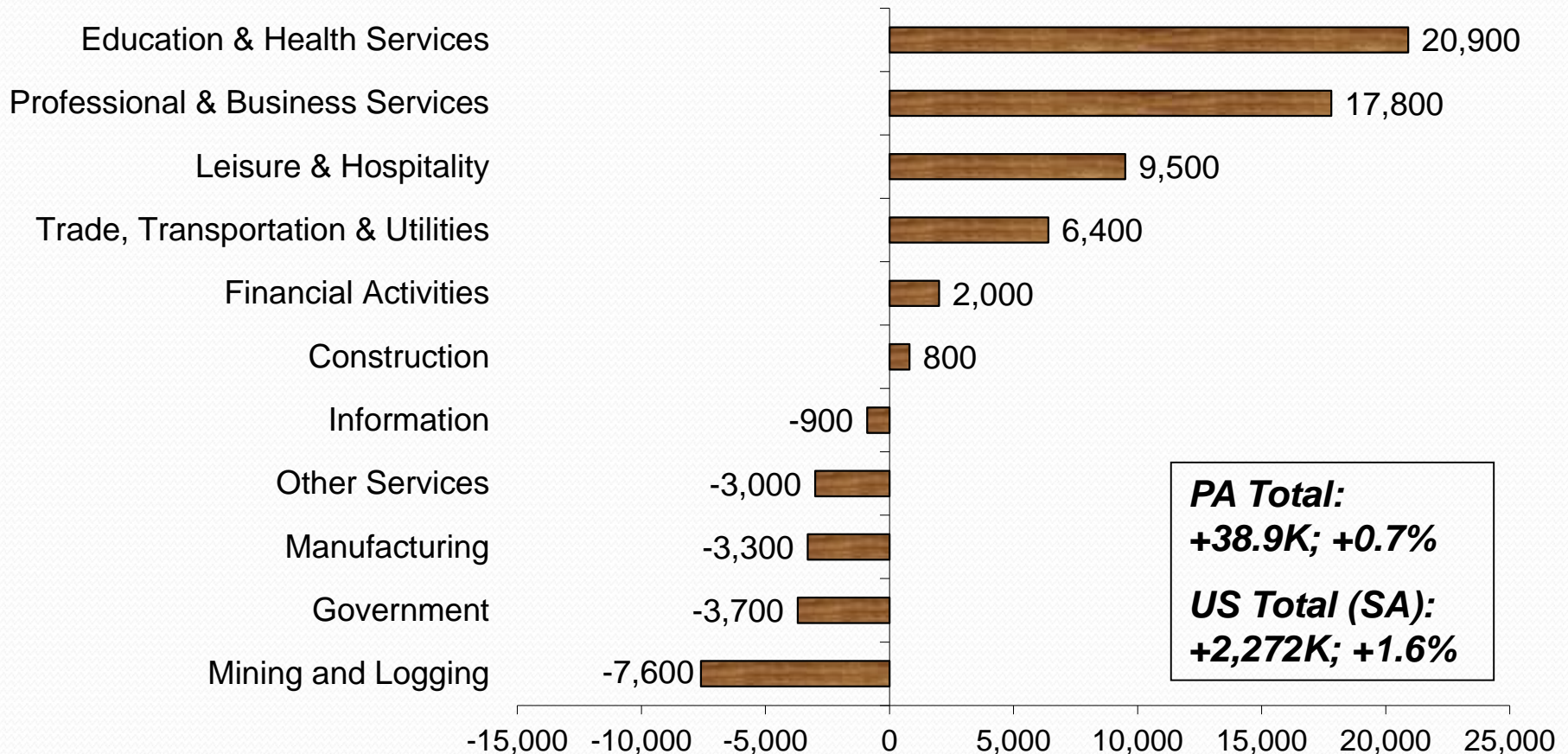
Source: U.S. Bureau of Labor Statistics

*According to the Local Area Unemployment Statistics (LAUS) series PA added 23,142 jobs between November 2015 and November 2016.
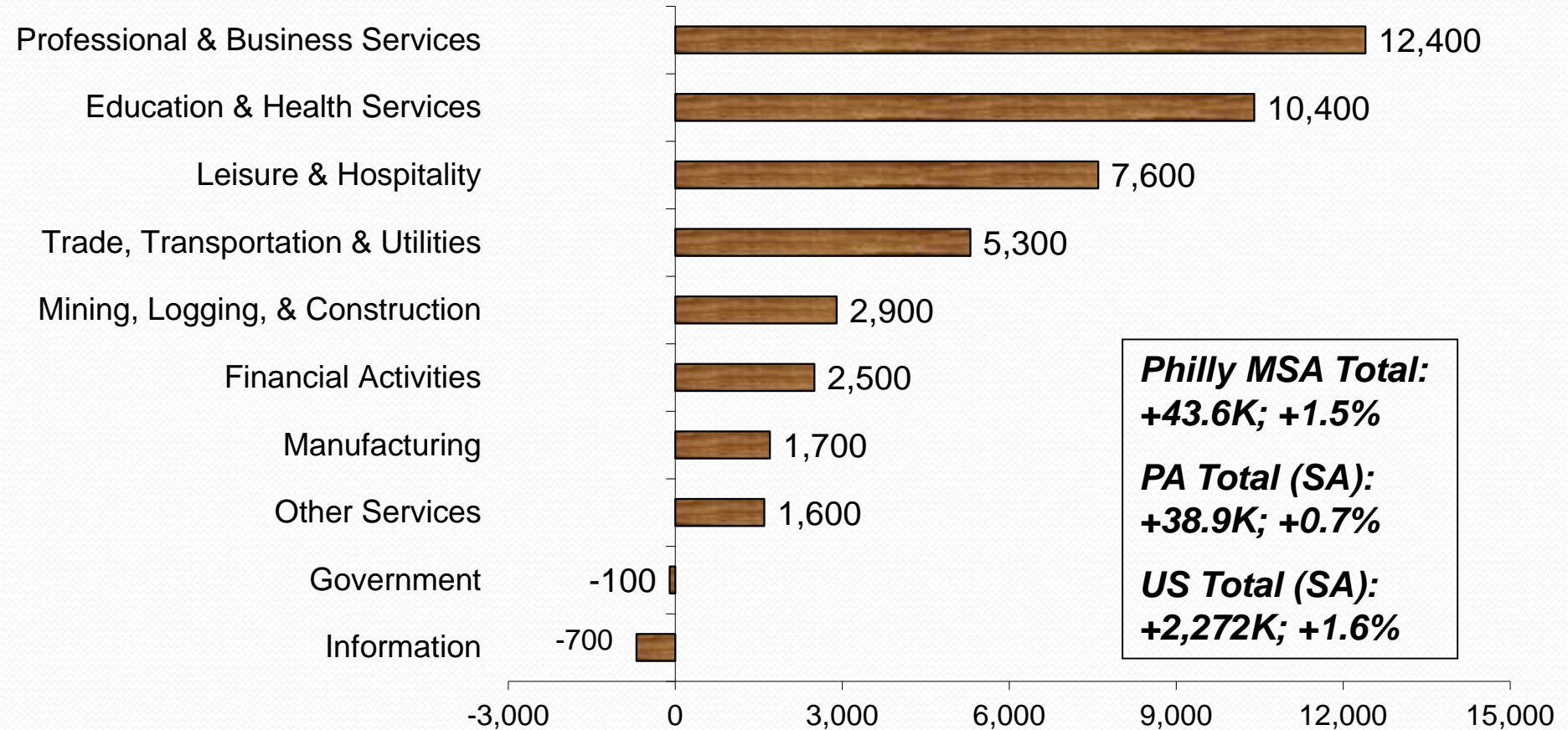
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Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA Nonfarm Employment
by Industry Sector Groups (NSA)
November 2015 v. November 2016
Absolute Change

Industry Sector	Change
Professional & Business Services	12,400
Education & Health Services	10,400
Leisure & Hospitality	7,600
Trade, Transportation & Utilities	5,300
Mining, Logging, & Construction	2,900
Financial Activities	2,500
Manufacturing	1,700
Other Services	1,600
Government	-100
Information	-700

Philly MSA Total:
+43.6K; +1.5%

PA Total (SA):
+38.9K; +0.7%

US Total (SA):
+2,272K; +1.6%
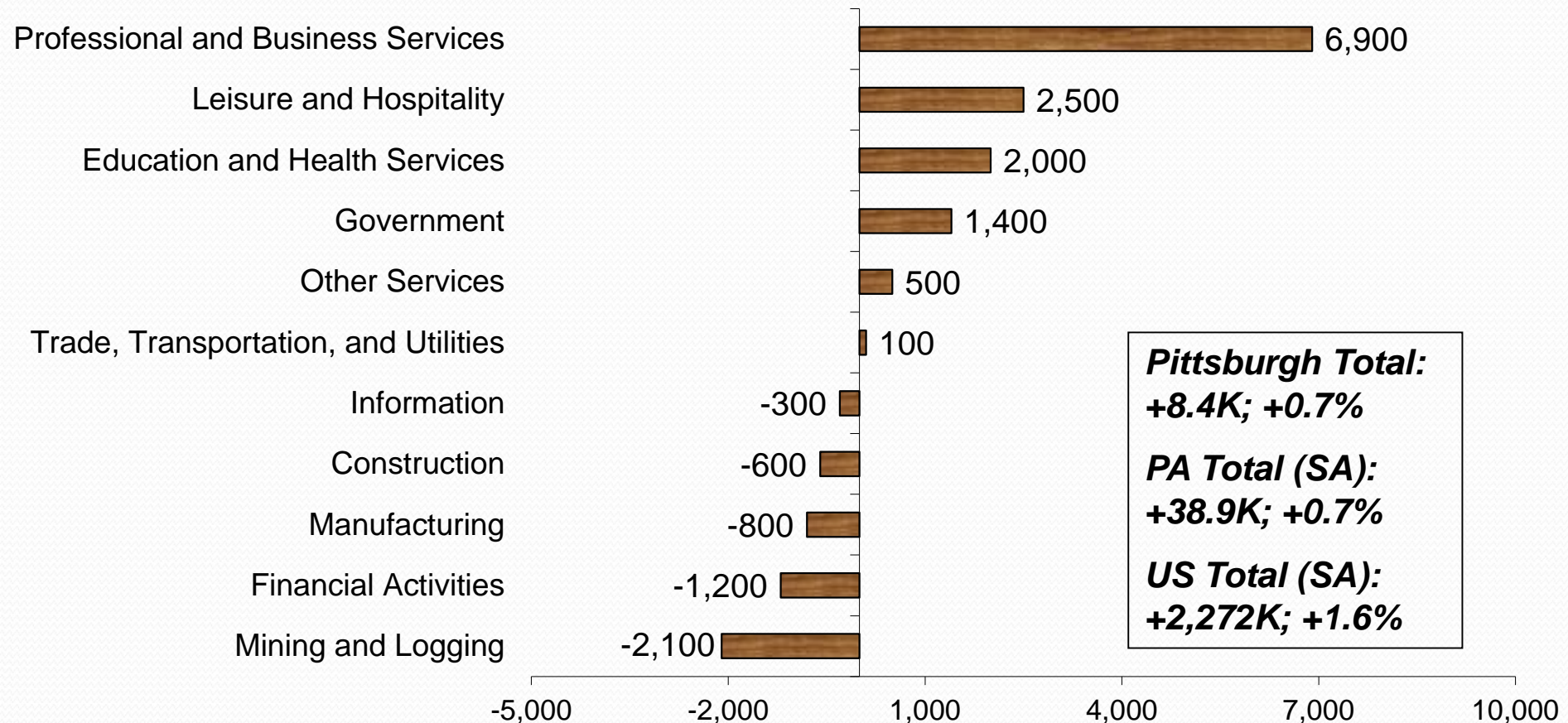
Source: U.S. Bureau of Labor Statistics

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Pittsburgh, PA Nonfarm Employment
by Industry Sector Groups (NSA)
November 2015 v. November 2016
Absolute Change

Industry Sector	Absolute Change
Professional and Business Services	6,900
Leisure and Hospitality	2,500
Education and Health Services	2,000
Government	1,400
Other Services	500
Trade, Transportation, and Utilities	100
Information	-300
Construction	-600
Manufacturing	-800
Financial Activities	-1,200
Mining and Logging	-2,100

x-axis: -5,000   -2,000   1,000   4,000   7,000   10,000

**Pittsburgh Total:
+8.4K; +0.7%**

**PA Total (SA):
+38.9K; +0.7%**

**US Total (SA):
+2,272K; +1.6%**

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Employment Growth, U.S. States (SA)
November 2015 v. November 2016 Percent Change

RANK	STATE	%	RANK	STATE	%	RANK	STATE	%
1	FLORIDA	3.2	17	TENNESSEE	1.9	35	KENTUCKY	0.8
2	WASHINGTON	3.1	19	DISTRICT OF COLUMBIA	1.8	36	ARKANSAS	0.7
3	UTAH	3.0	19	TEXAS	1.8	36	ILLINOIS	0.7
4	OREGON	2.9	21	WEST VIRGINIA	1.4	**36**	**PENNSYLVANIA**	**0.7**
5	NEVADA	2.7	22	INDIANA	1.3	39	IOWA	0.6
6	HAWAII	2.5	23	DELAWARE	1.2	40	NEW JERSEY	0.5
7	IDAHO	2.4	23	MONTANA	1.2	41	MAINE	0.4
7	SOUTH DAKOTA	2.4	25	MARYLAND	1.1	42	CONNECTICUT	0.1
9	CALIFORNIA	2.3	25	ARIZONA	1.1	42	VERMONT	0.1
9	GEORGIA	2.3	25	MINNESOTA	1.1	44	MISSISSIPPI	-0.2
11	COLORADO	2.2	25	NEW YORK	1.1	45	KANSAS	-0.3
11	NEW HAMPSHIRE	2.2	25	RHODE ISLAND	1.1	45	LOUISIANA	-0.3
11	SOUTH CAROLINA	2.2	30	ALABAMA	1.0	45	NEW MEXICO	-0.3
14	MISSOURI	2.1	30	NEBRASKA	1.0	48	ALASKA	-0.9
15	MASSACHUSETTS	2.0	30	VIRGINIA	1.0	48	OKLAHOMA	-0.9
15	MICHIGAN	2.0	30	WISCONSIN	1.0	50	NORTH DAKOTA	-1.5
17	NORTH CAROLINA	1.9	34	OHIO	0.9	51	WYOMING	-3.1

U.S. Year-over-year Percent Change
November: +1.6%
December: +1.5%

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Employment Growth, 24 Largest Metros (NSA)
November 2015 v. November 2016 Percent Change

Rank	MSA	%	Rank	MSA	%
1	Orlando-Kissimmee-Sanford, FL MSA	4.5	13	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	2.0
2	Seattle-Tacoma-Bellevue, WA MSA	3.5	14	Charlotte-Concord-Gastonia, NC-SC MSA	1.9
3	Dallas-Fort Worth-Arlington, TX MSA	3.3	15	Boston-Cambridge-Nashua, MA-NH Metro NECTA	1.8
4	Denver-Aurora-Lakewood, CO MSA	3.1	15	Detroit-Warren-Dearborn, MI MSA	1.8
4	St. Louis, MO-IL MSA (1)	3.1	17	Baltimore-Columbia-Towson, MD MSA	1.7
6	Atlanta-Sandy Springs-Roswell, GA MSA	2.6	17	Los Angeles-Long Beach-Anaheim, CA MSA	1.7
6	Portland-Vancouver-Hillsboro, OR-WA MSA	2.6	**19**	**Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA**	**1.5**
6	Tampa-St. Petersburg-Clearwater, FL MSA	2.6	20	Minneapolis-St. Paul-Bloomington, MN-WI MSA	1.4
9	Riverside-San Bernardino-Ontario, CA MSA	2.5	21	New York-Newark-Jersey City, NY-NJ-PA MSA	1.2
9	San Francisco-Oakland-Hayward, CA MSA	2.5	22	Phoenix-Mesa-Scottsdale, AZ MSA	1.1
11	Miami-Fort Lauderdale-West Palm Beach, FL MSA	2.4	23	Chicago-Naperville-Elgin, IL-IN-WI MSA	0.8
12	San Diego-Carlsbad, CA MSA	2.2	24	Houston-The Woodlands-Sugar Land, TX MSA	0.5

*CES Survey

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Unemployment Rates, 24 Largest Metros (NSA)
November 2016

Rank	MSA	UR	Rank	MSA	UR
1	Boston-Cambridge-Nashua, MA-NH Metro NECTA	2.4	13	Orlando-Kissimmee-Sanford, FL MSA	4.4
2	Denver-Aurora-Lakewood, CO MSA	2.6	14	Charlotte-Concord-Gastonia, NC-SC MSA	4.5
3	Minneapolis-St. Paul-Bloomington, MN-WI MSA	3.0	14	Los Angeles-Long Beach-Anaheim, CA MSA	4.5
4	Dallas-Fort Worth-Arlington, TX MSA	3.5	14	New York-Newark-Jersey City, NY-NJ-PA MSA	4.5
5	San Francisco-Oakland-Hayward, CA MSA	3.6	**17**	**Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA**	**4.6**
6	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	3.7	18	Tampa-St. Petersburg-Clearwater, FL MSA	4.7
7	St. Louis, MO-IL MSA (1)	3.8	19	Atlanta-Sandy Springs-Roswell, GA MSA	4.8
8	Phoenix-Mesa-Scottsdale, AZ MSA	4.1	19	Miami-Fort Lauderdale-West Palm Beach, FL MSA	4.8
9	Baltimore-Columbia-Towson, MD MSA	4.2	21	Houston-The Woodlands-Sugar Land, TX MSA	4.9
10	Portland-Vancouver-Hillsboro, OR-WA MSA	4.3	22	Detroit-Warren-Dearborn, MI MSA	5.1
10	San Diego-Carlsbad, CA MSA	4.3	23	Chicago-Naperville-Elgin, IL-IN-WI MSA	5.3
10	Seattle-Tacoma-Bellevue, WA MSA	4.3	24	Riverside-San Bernardino-Ontario, CA MSA	5.5

1. Area boundaries do not reflect official OMB definitions.

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21 Jump Street

(And Other Addresses of Interest)
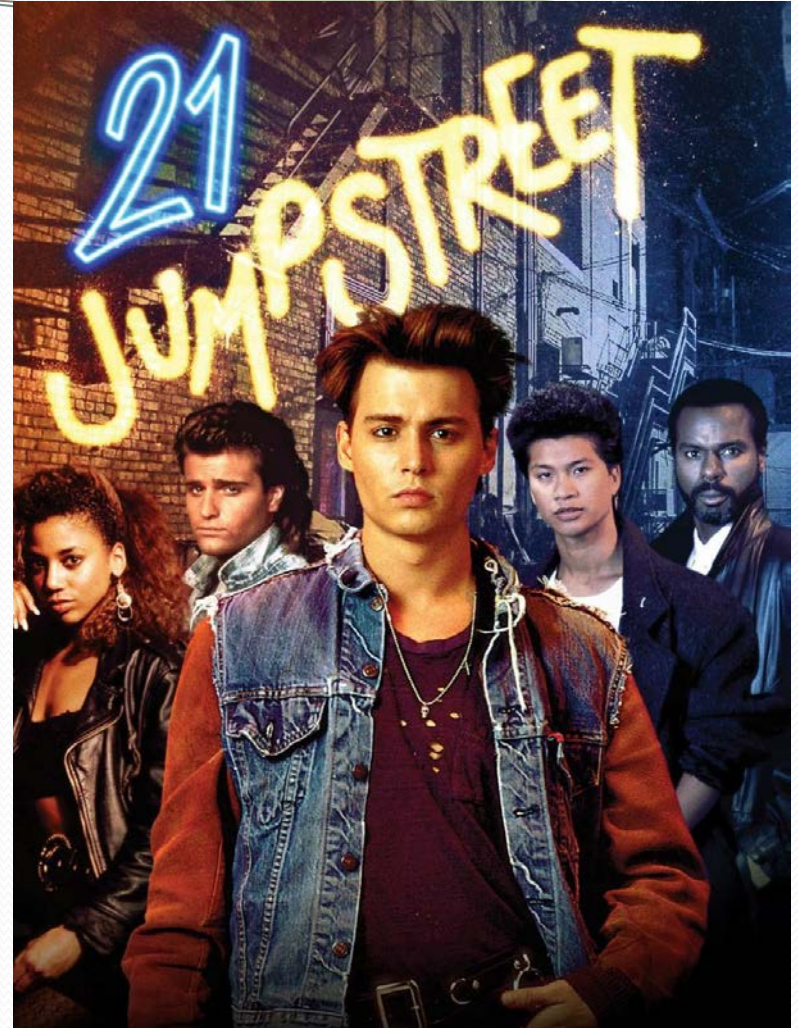
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15-Year & 30-Year Fixed Mortgage Rates
*January 1995 through January 2017**

Rate

15-yr   30-yr

4.12%

3.37%
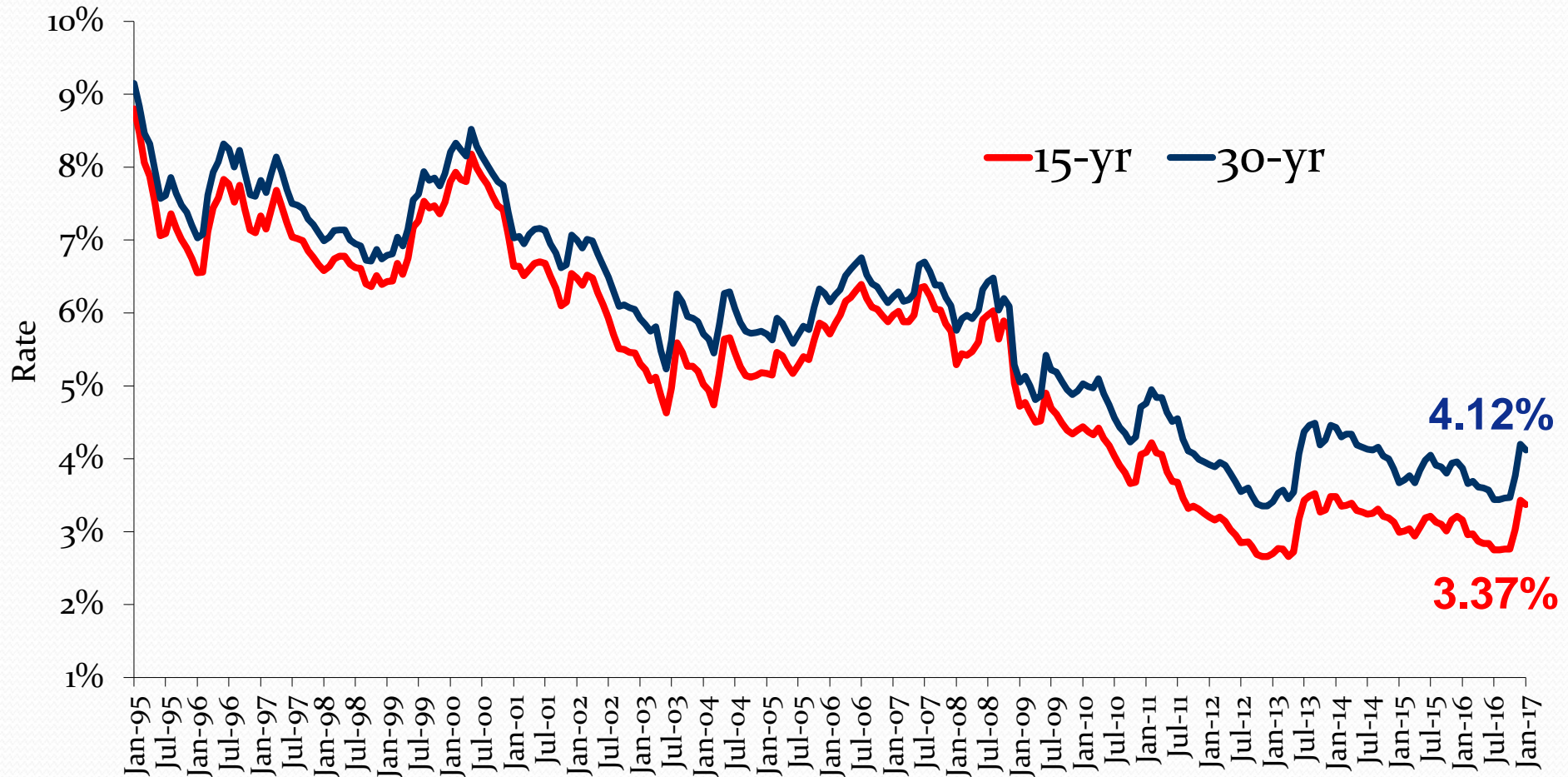
*Week ending 1/12/2017

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U.S. Homeownership (NSA)

1980Q3-2016Q3
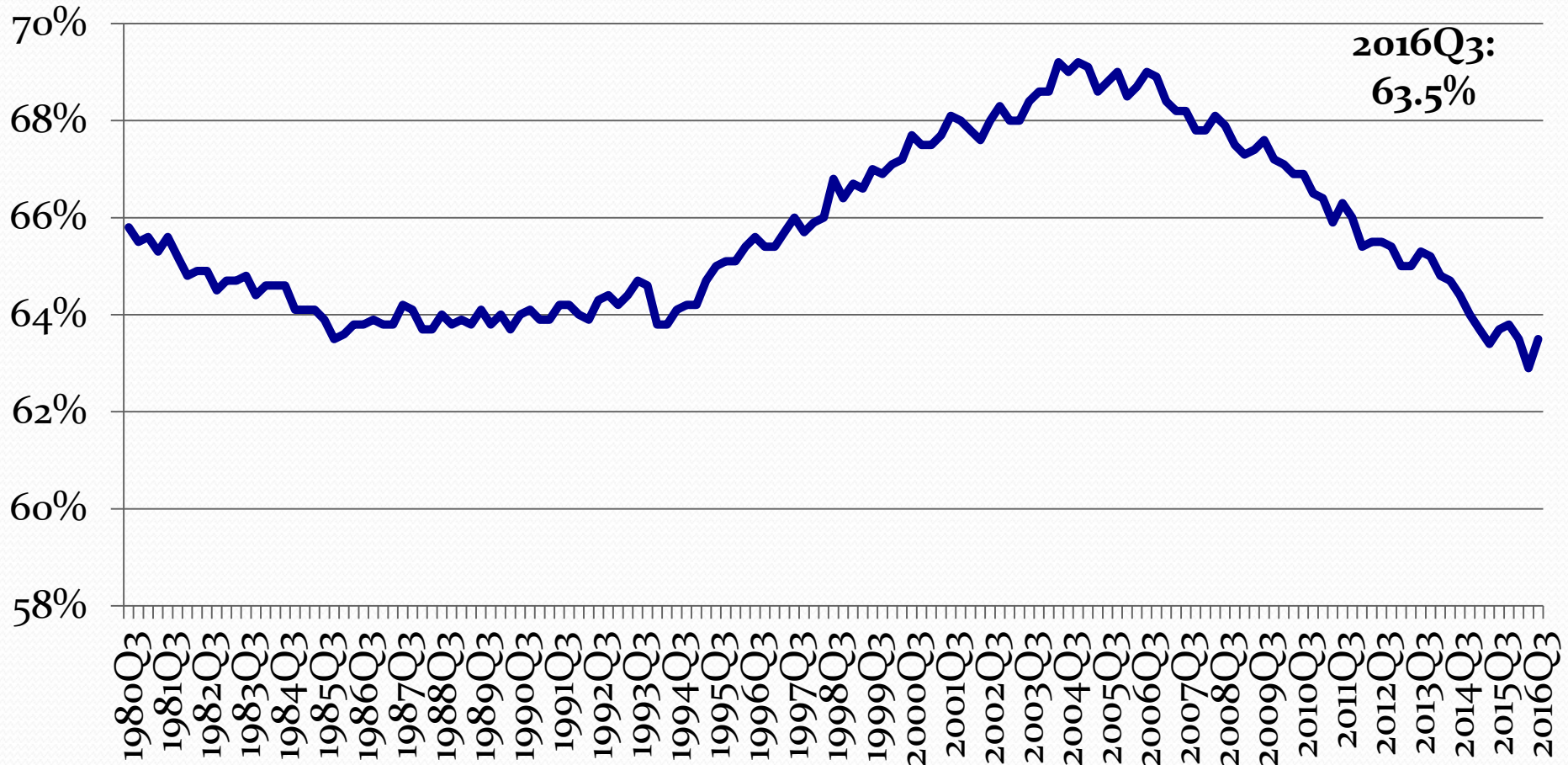
2016Q3: 63.5%

*NSA: not seasonally adjusted

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U.S. Private New Multifamily Construction
November 1993 through November 2016
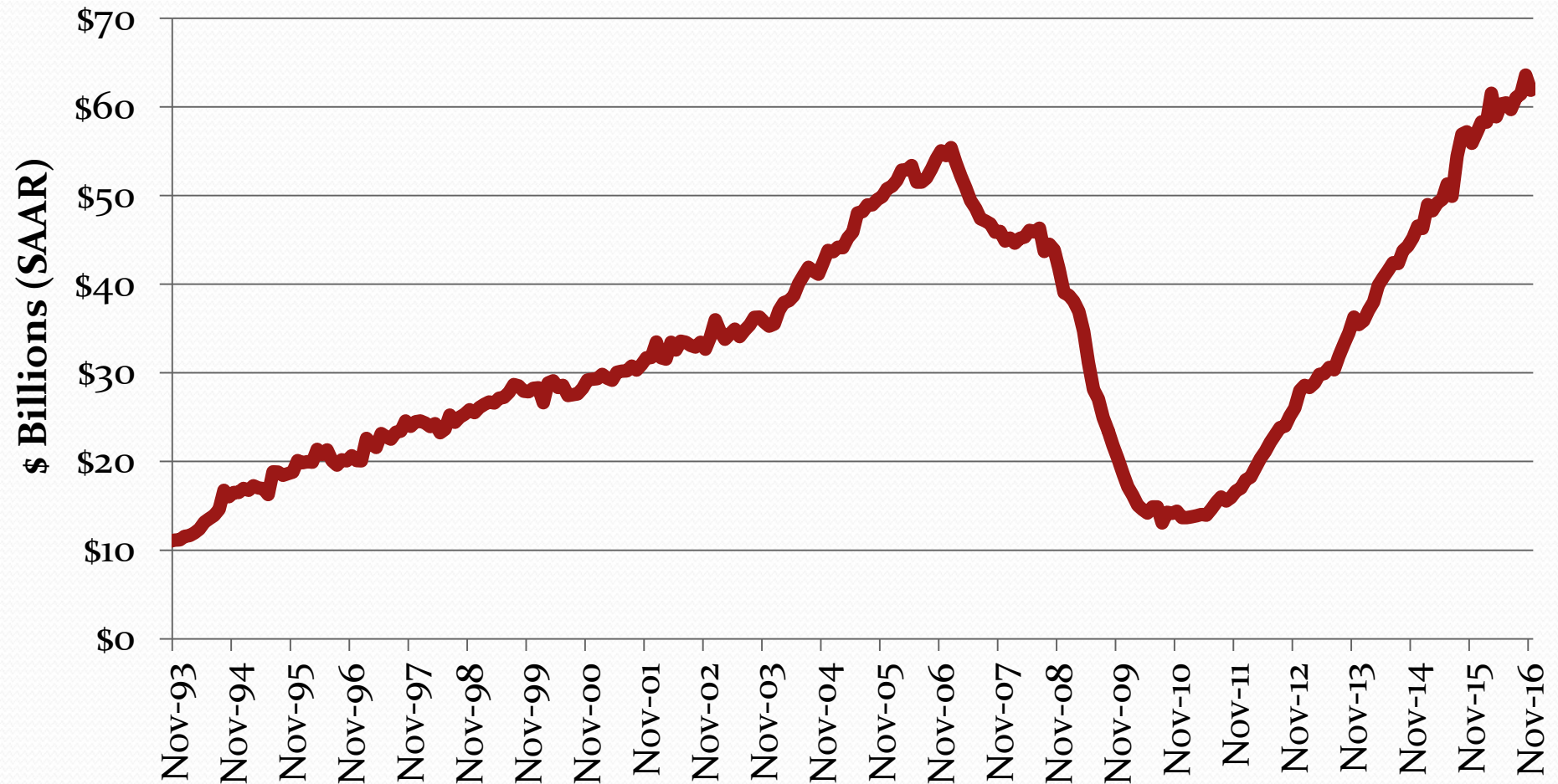
Source: U.S. Census Bureau

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S&P/Case-Shiller Home Price Indices for Select Metros
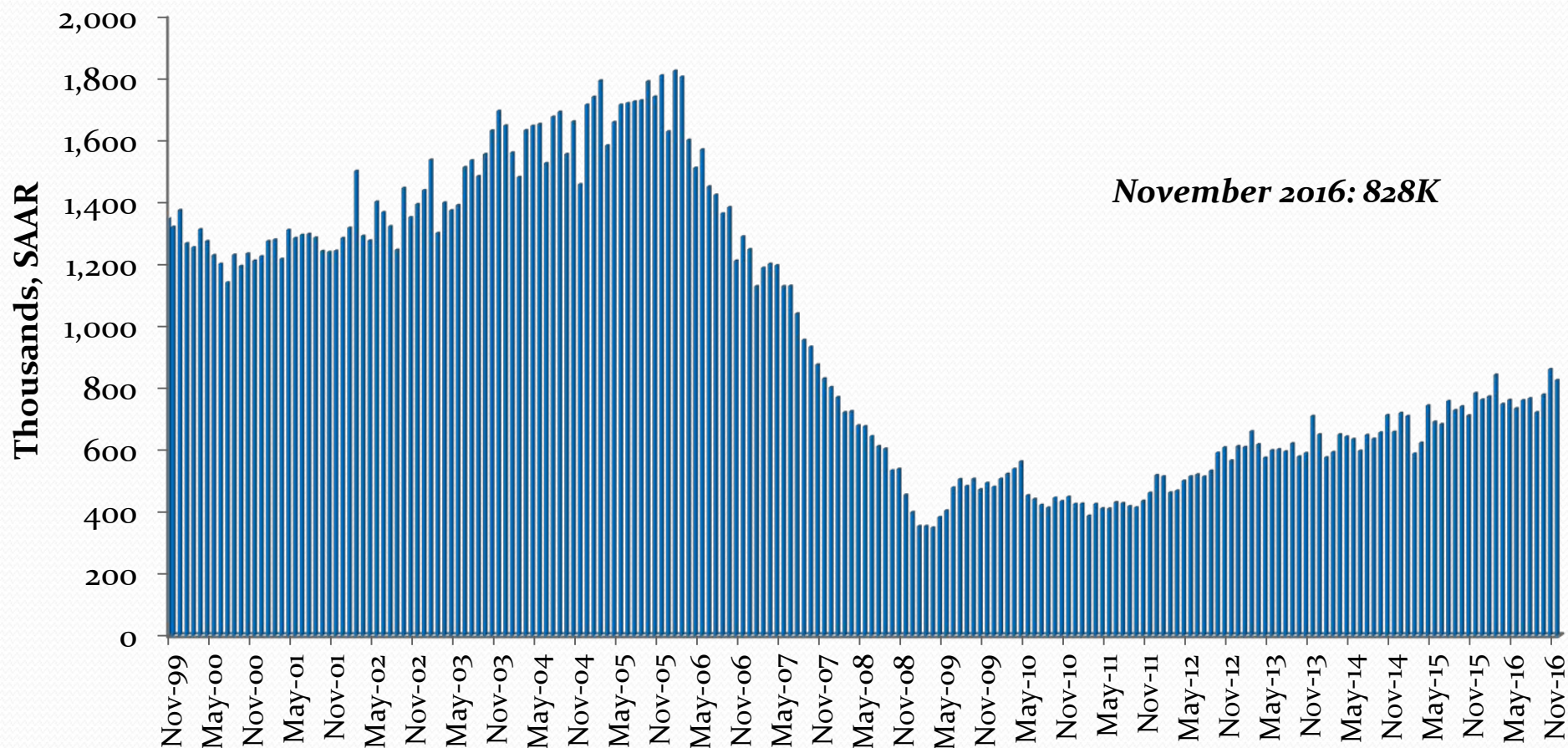## *October 2016, 12-Month Percentage Change*
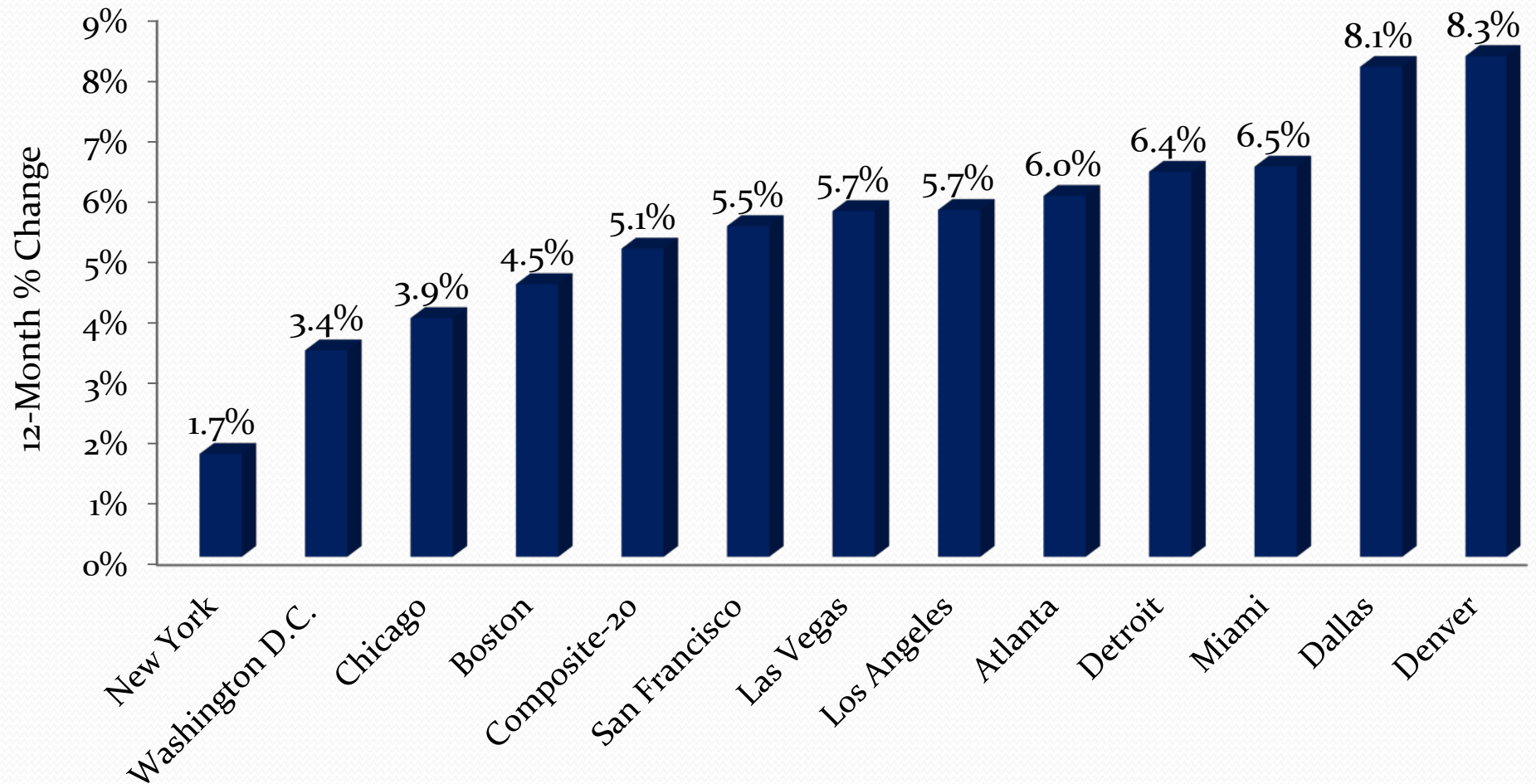
U.S. Single-Family Housing Starts
November 1999 through November 2016

November 2016: 828K

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Asphalt Paving Mixtures & Blocks Products* PPI
December 2000 – December 2016

Dec. 2015 v. Dec. 2016: -5.8%
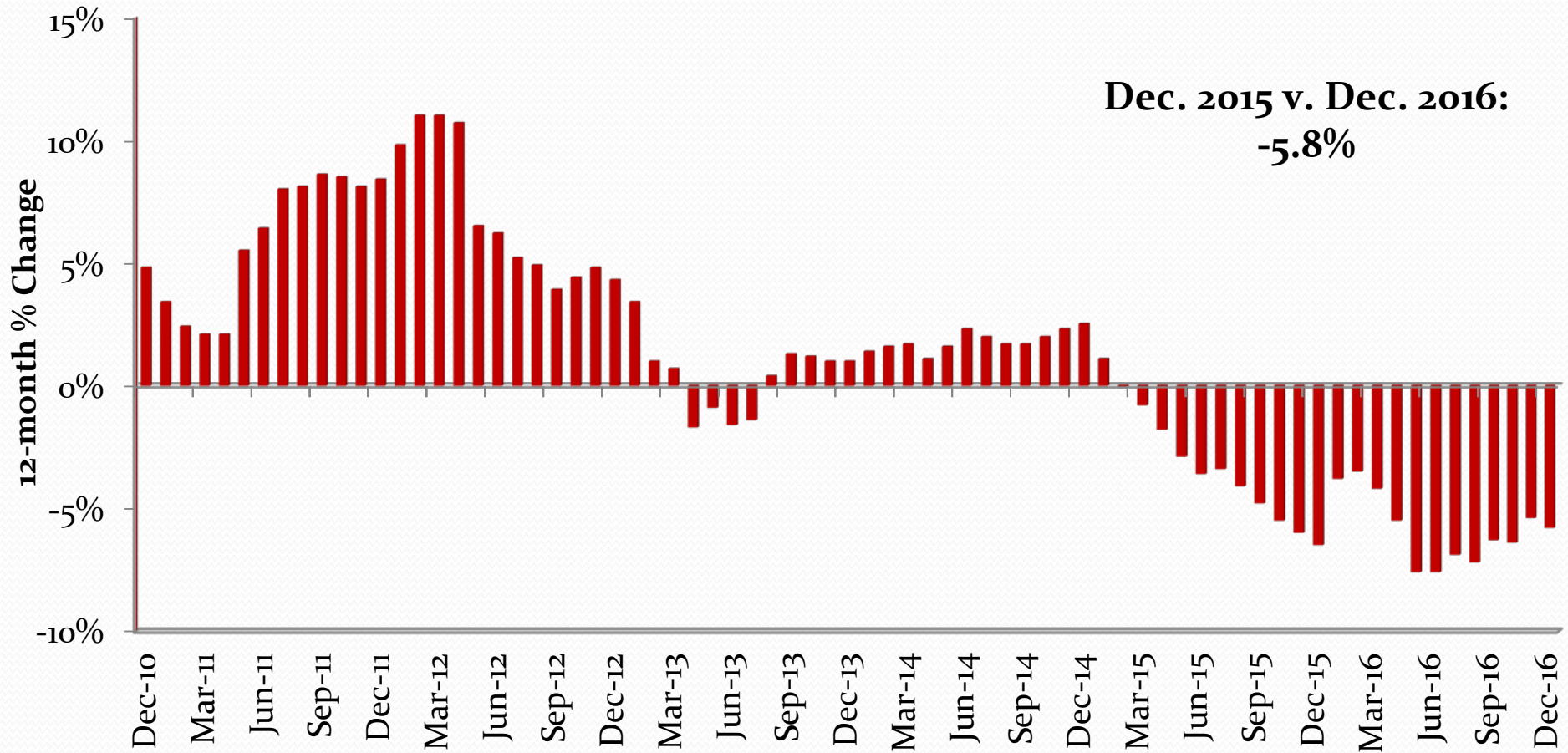
Source: U.S. Bureau of Labor Statistics

*Industry: Asphalt paving mixture & block manufacturing
Product: Asphalt paving mixtures & blocks
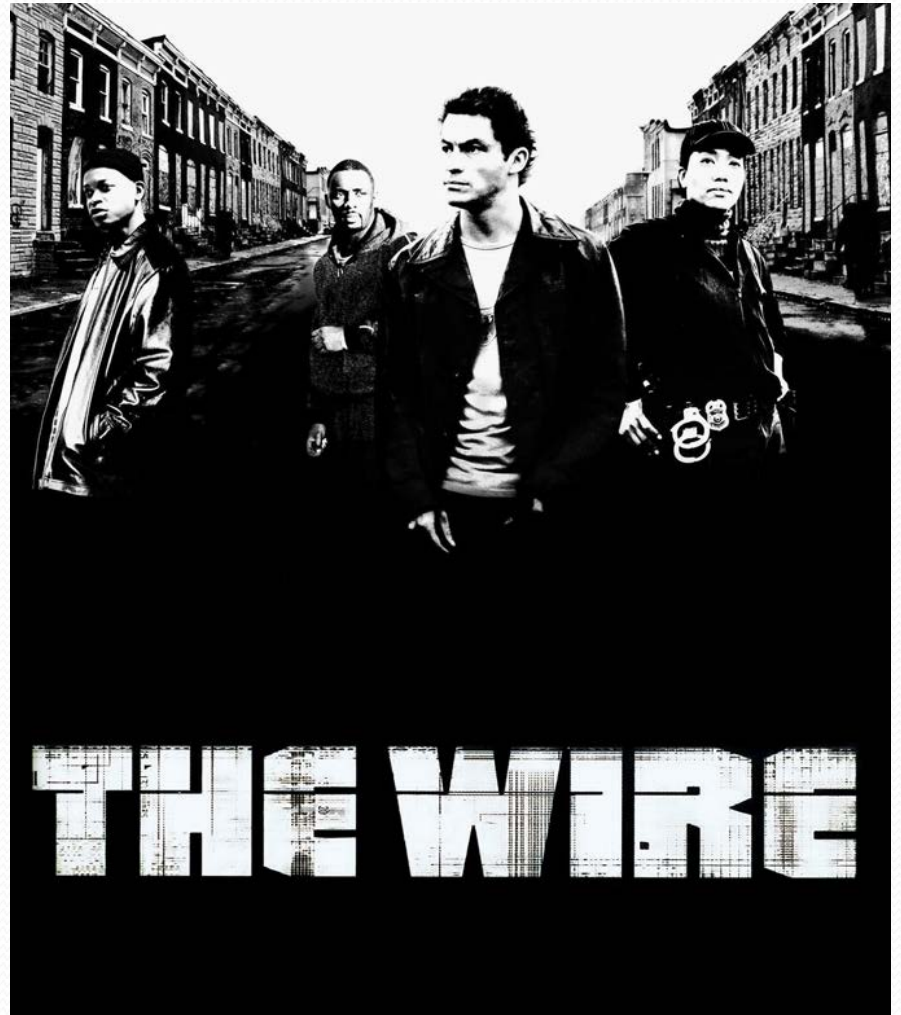
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Down to "The Wire"

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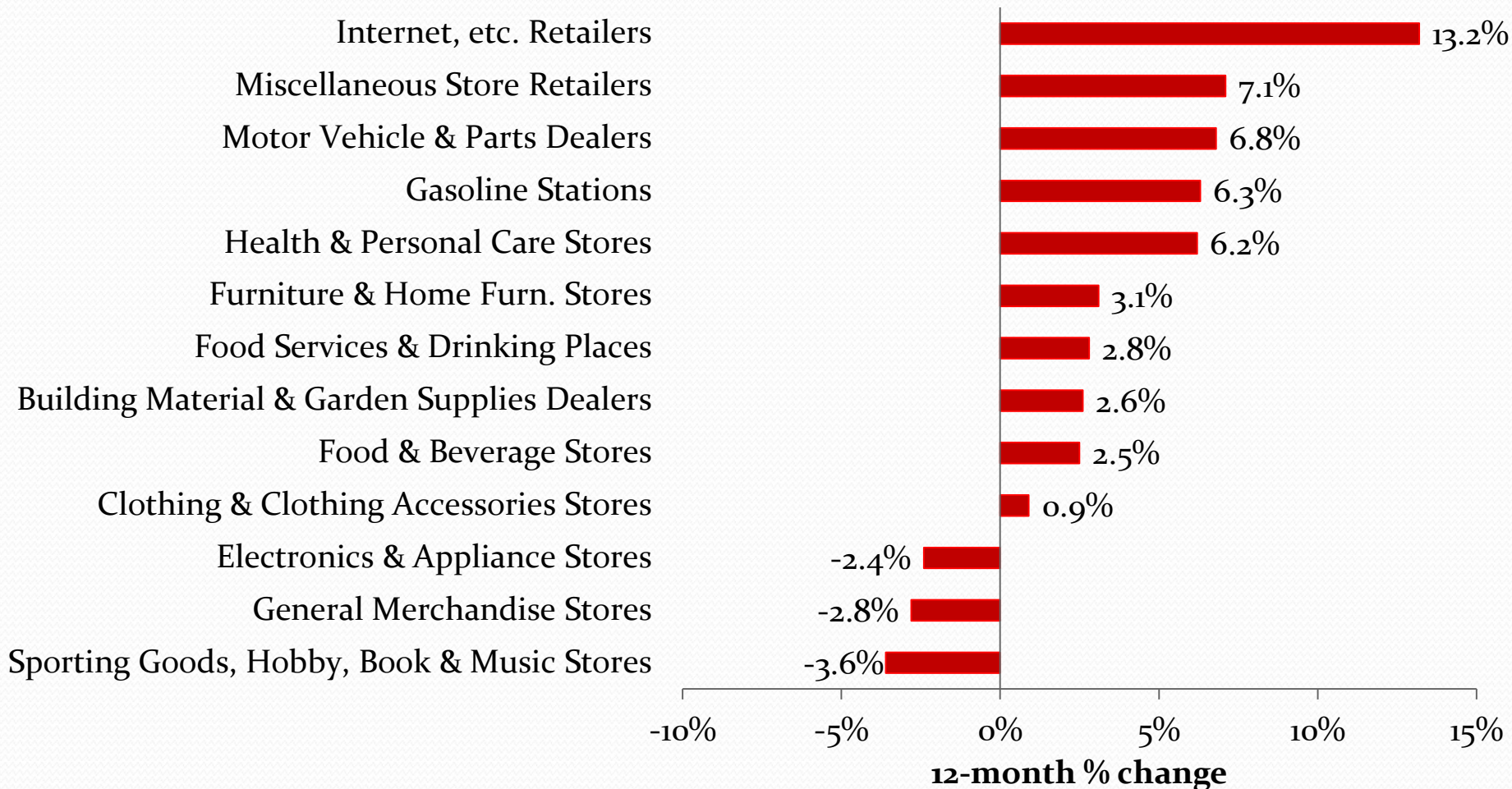
Sales Growth by Type of Business
December 2015 v. December 2016*

| Type of Business	12-month % change
Internet, etc. Retailers	13.2%
Miscellaneous Store Retailers	7.1%
Motor Vehicle & Parts Dealers	6.8%
Gasoline Stations	6.3%
Health & Personal Care Stores	6.2%
Furniture & Home Furn. Stores	3.1%
Food Services & Drinking Places	2.8%
Building Material & Garden Supplies Dealers	2.6%
Food & Beverage Stores	2.5%
Clothing & Clothing Accessories Stores	0.9%
Electronics & Appliance Stores	-2.4%
General Merchandise Stores	-2.8%
Sporting Goods, Hobby, Book & Music Stores	-3.6%

12-month % change

Total Retail Sales: +4.1% YOY

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U.S. Saving Rate, January 2005 – November 2016
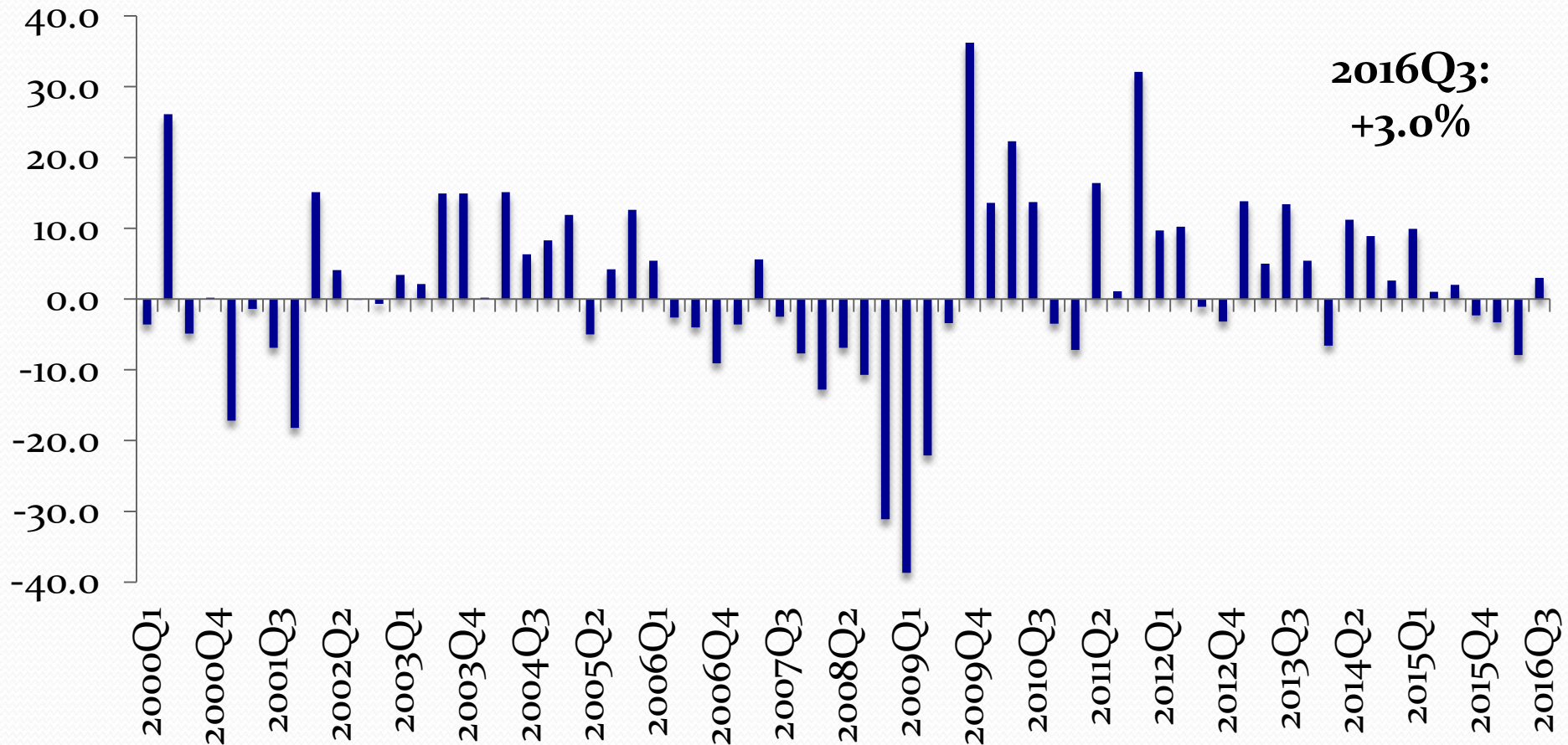*(Savings as Percentage of Personal Disposable Income)*

November 2016: 5.5%
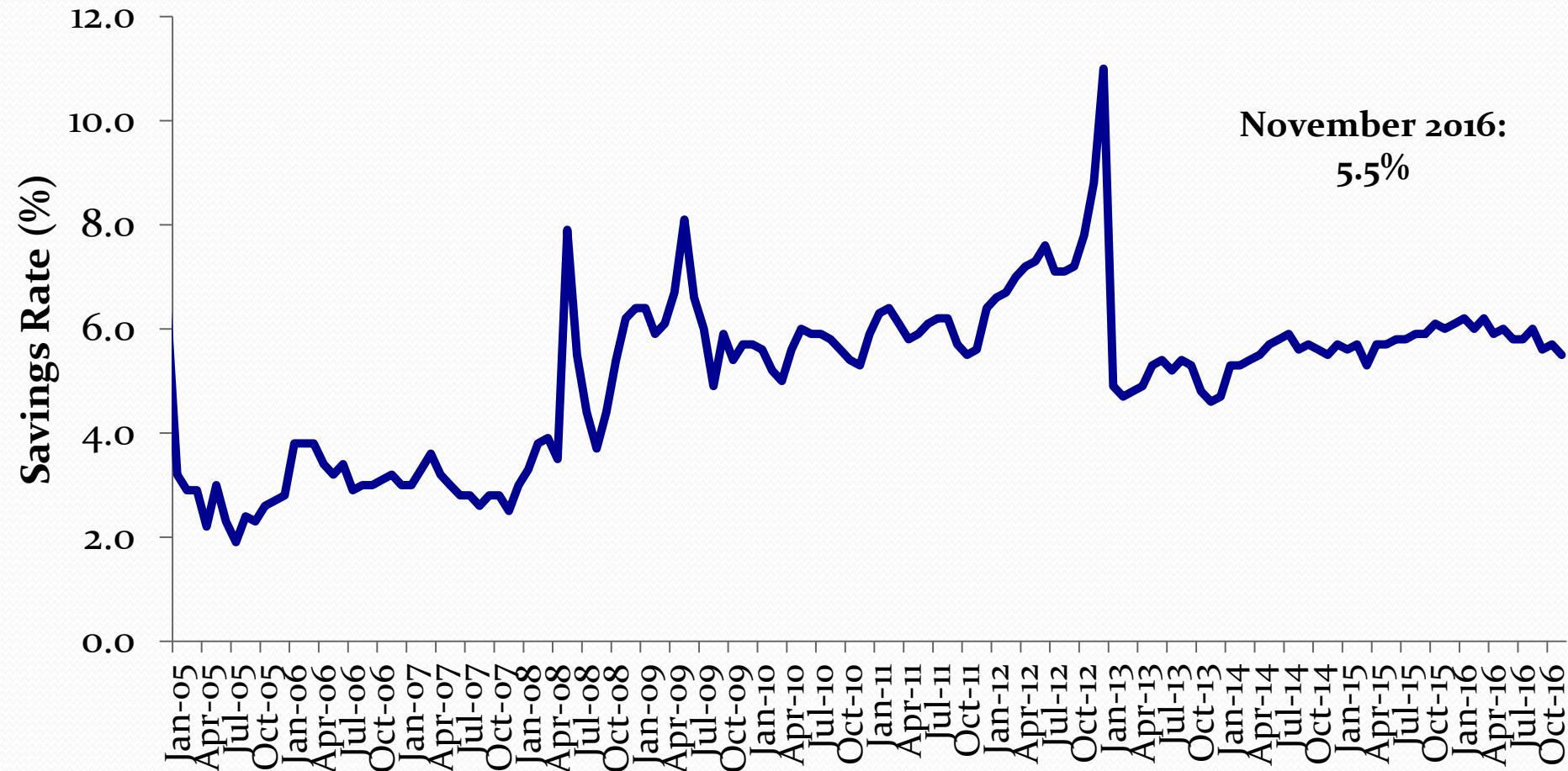
Source: Bureau of Economic Analysis

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U.S. Gross Private Domestic Investment (SAAR)*
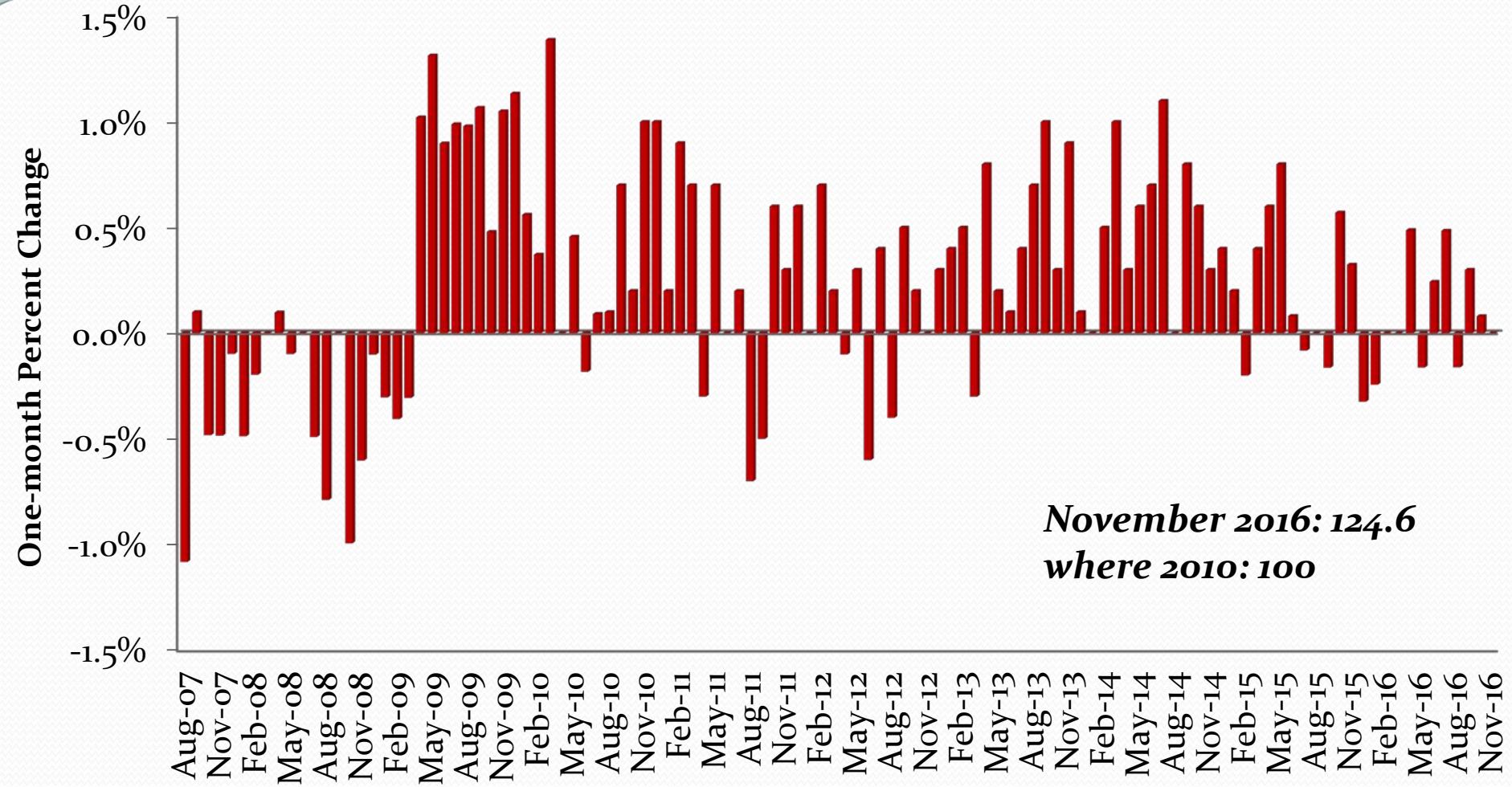## % Change from Previous Quarter, 2000Q1 – 2016Q3

2016Q3: +3.0%

* 3rd (Final) Estimate

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Conference Board Leading Economic Indicators Index
August 2007 through November 2016

November 2016: 124.6
where 2010: 100

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The Closer

- Global economy remains weak, and correspondingly . . . ;

- Global money has continued to pour into America in search of yield and safety, including into commercial real estate – that was particularly true in 2015, a bit less true in 2016;

- Inflationary pressures are on the rise – so, too, are interest rates – that could begin to squeeze asset prices in 2017, particularly if expected tax cuts are not passed into law;

- There are indications of mini-bubbles forming in commercial real estate, particularly in office, lodging and multifamily segments;

- But tax cuts, stimulus, and more defense spending should see us through 2017-18;

- One would think that given Pennsylvania's size and political importance, a significant amount of infrastructure-led stimulus is headed this way . . .

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Thank You

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