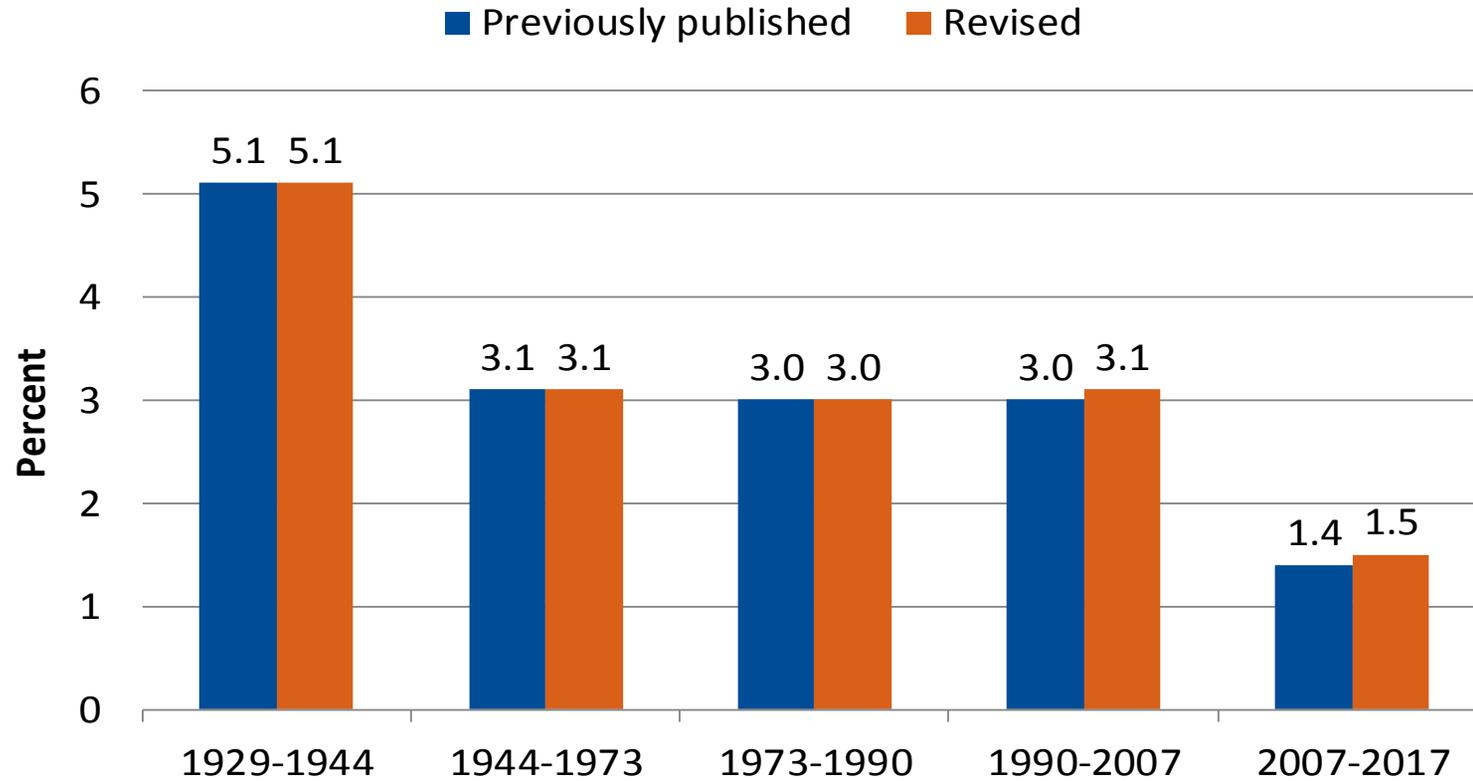


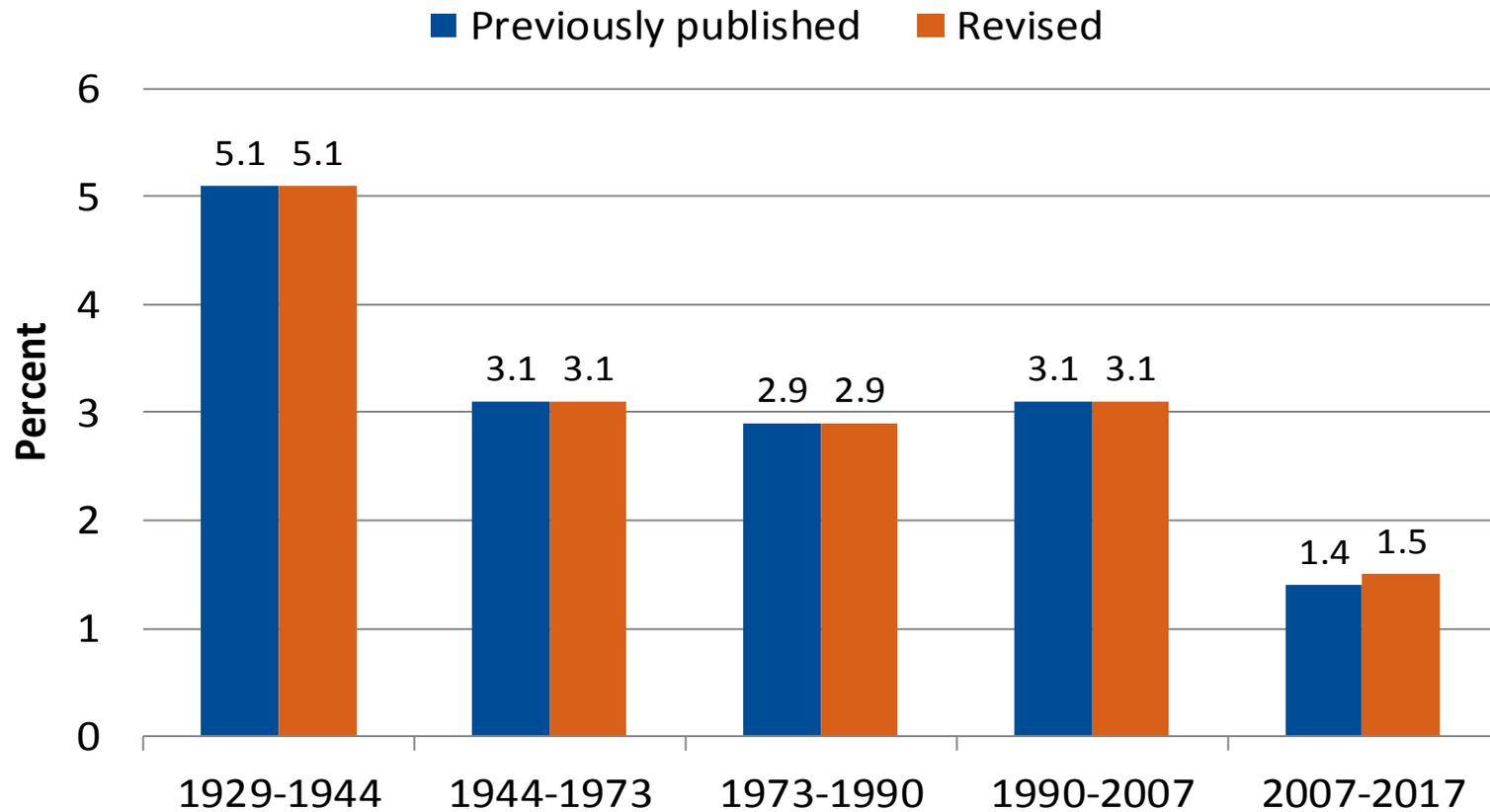
Results of the 2018 Comprehensive Update of the National Income and Product Accounts



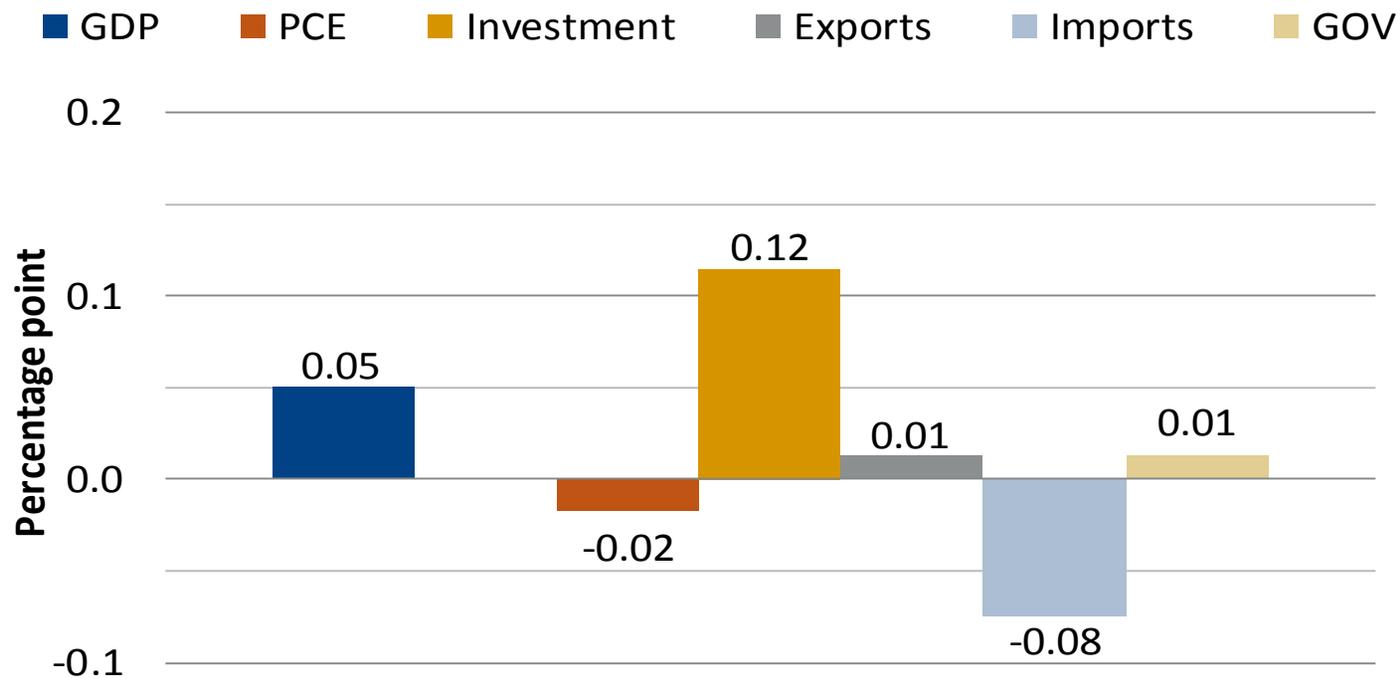
Real GDP average annual growth rates



Real GDI average annual growth rates

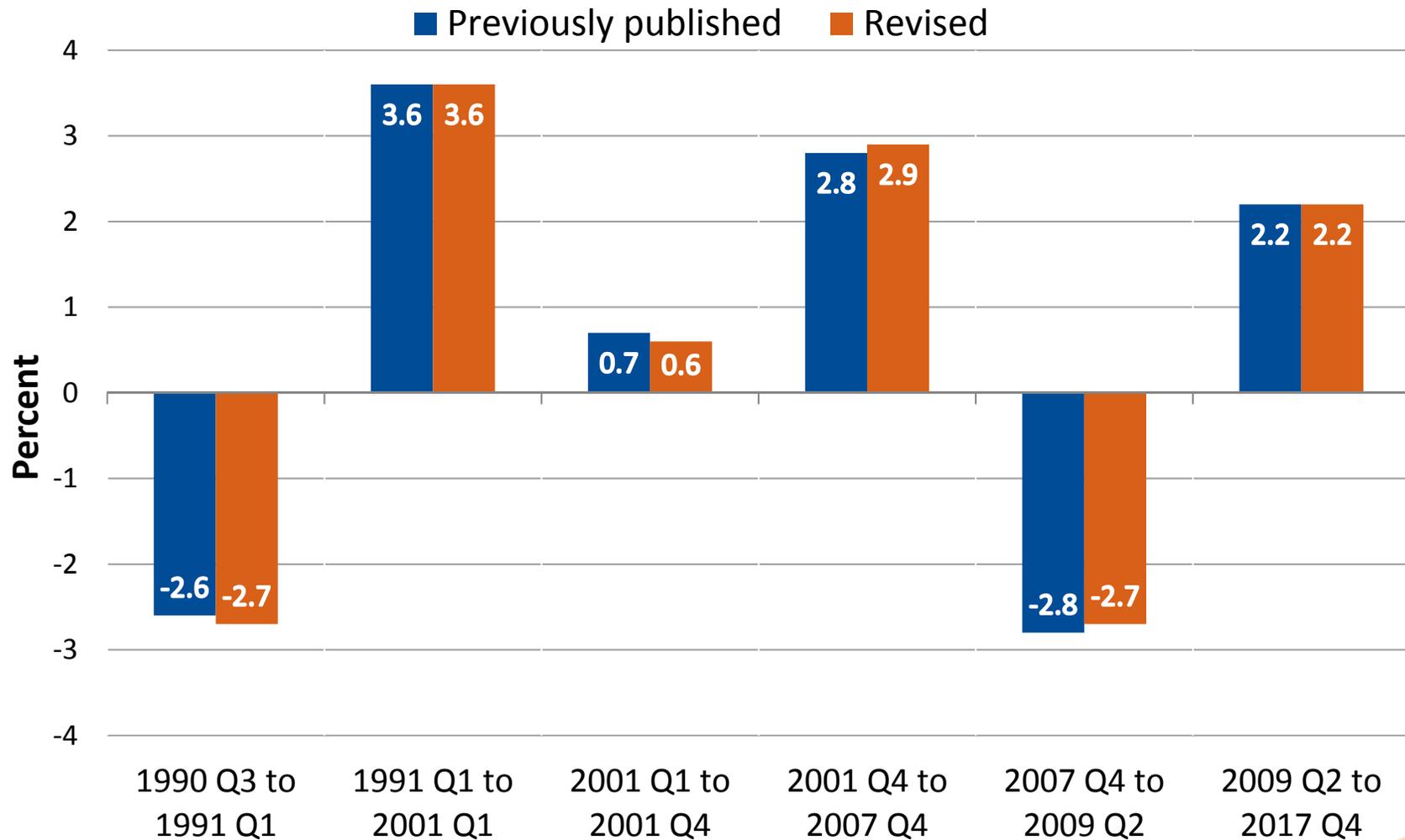


Contributions to the revision to real GDP 2007 to 2017



Revisions to recent contractions and expansions

[Average annual rates of change]



New and revised source data



Census Bureau

Capital Expenditures Survey *annual*

Retail Trade Survey *annual*

Survey of Manufacturers *annual*

Surveys of State and Local Government Finances
annual

Wholesale Trade Survey *annual*

Construction Spending (Value Put in Place)

Services Survey *annual, quarterly*

BLS

Quarterly Census of Employment and Wages

Survey of Occupational Employment

BEA

Benchmark Input-Output Accounts

International Transactions Accounts

Additional Agencies	Data
Office of Management and Budget	Federal budget
IRS	Tax returns for corporations, sole proprietorships, and partnerships
Department of Agriculture	Farm statistics

Major statistical changes



- Incorporated benchmark input-output accounts for 2012
- Improved seasonal adjustment
- Improved measures of private fixed investment
 - New price indexes for tech (ICT) investment
 - Improved current dollar measurement of cloud computing
- Harmonized the treatment of government pension plans
- Improved measures of implicit output of savings institutions and credit unions
 - Consistent methodology used for commercial bank implicit output

Major definitional changes



- Reclassified R&D for software originals from own-account software to R&D
- Recognize capital services in own-account investment in software and R&D
- Reclassified payments made by the Federal Reserve Banks to the U.S. Government as dividend payments

Improved seasonal adjustment



- **Phase One: July 2015**

- BEA began seasonally adjusting several series of data that previously hadn't been seasonally adjusted

- **Phase Two: July 2016**

- Completed review of component estimates that feed into quarterly estimates of GDP and GDI to see if there was residual seasonality and to identify causes

- **Phase Three: July 2018**

- Apply seasonal adjustment improvements to the historical time series
- Publish not seasonally adjusted estimates for quarterly GDP, GDI, and their major components

Improved seasonal adjustment



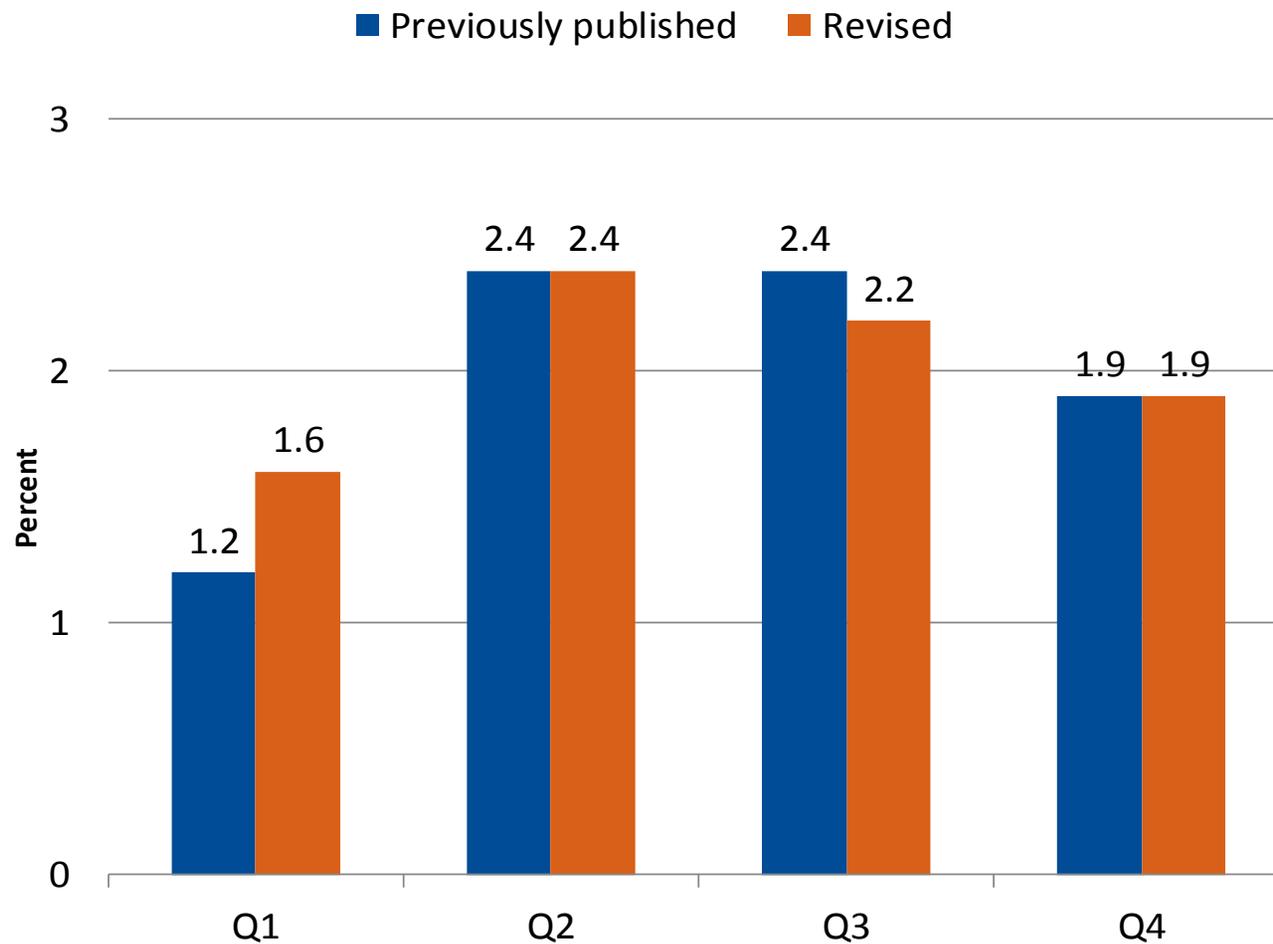
- Updated quarterly estimates reflect:
 - Improvements to PCE services, inventory investment, and government spending originally introduced in 2015; See Table 1, *Survey of Current Business* (April)
 - Seasonal adjustment of PCE services components derived from Quarterly Services Report data, mostly replacing moving averages
 - Updated BEA-derived seasonal factors as well as new and revised seasonally-adjusted source data

Improved seasonal adjustment

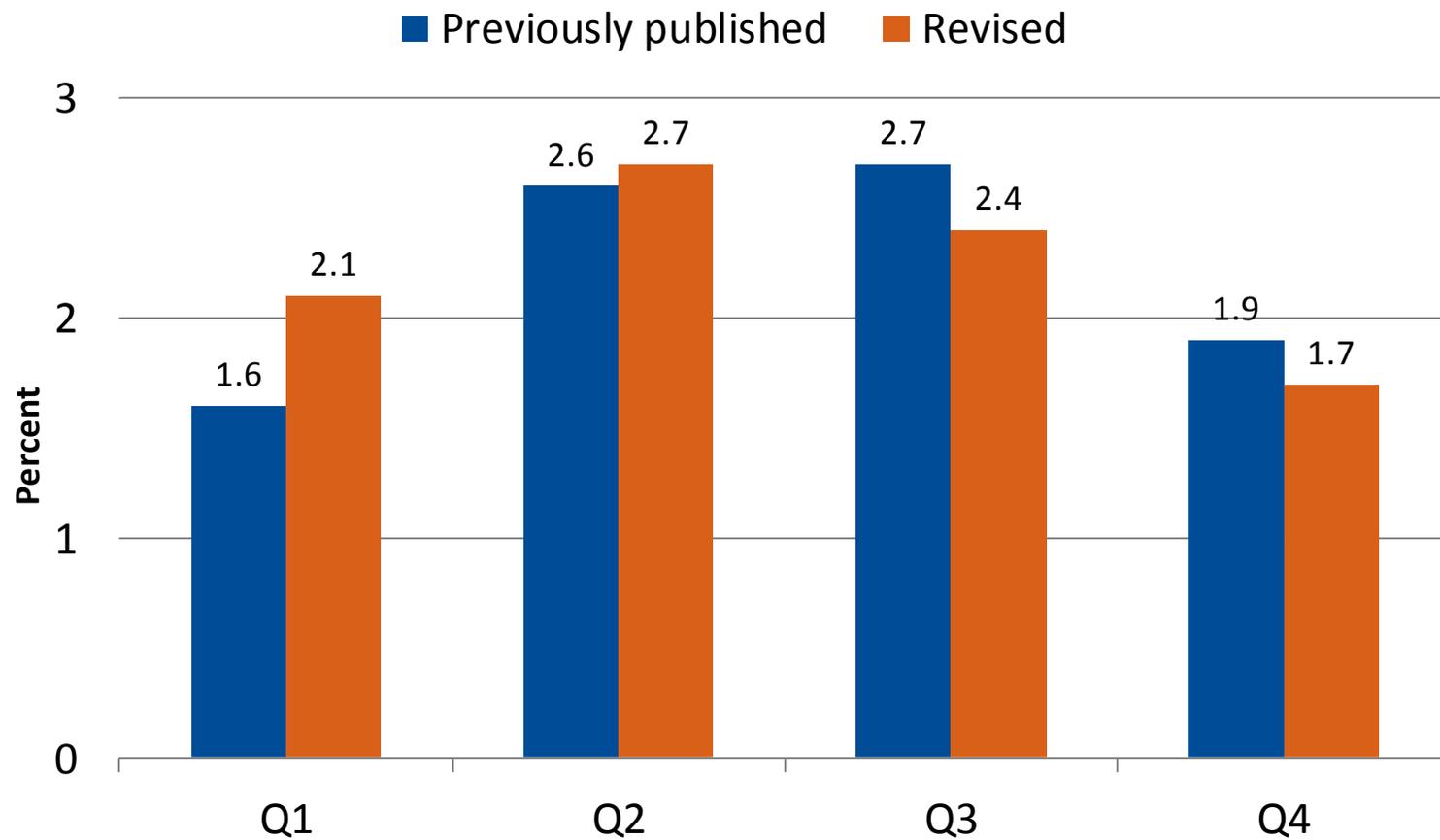


- Converted to Census Bureau's X13 ARIMA-SEATS program
- Benefited from closer collaboration with partners, especially the Census Bureau
- Future annual GDP updates will cover at least five years
- An article in the planned August *Survey of Current Business* will describe BEA's latest research on residual seasonality in GDP and GDI. It will update the July 2016 article by Brent Moulton and Benjamin Cowan

Average of real growth rates of GDP by quarter, 2002 to 2017



Average quarterly growth in real GDP, 2012 to 2017



Not seasonally adjusted estimates



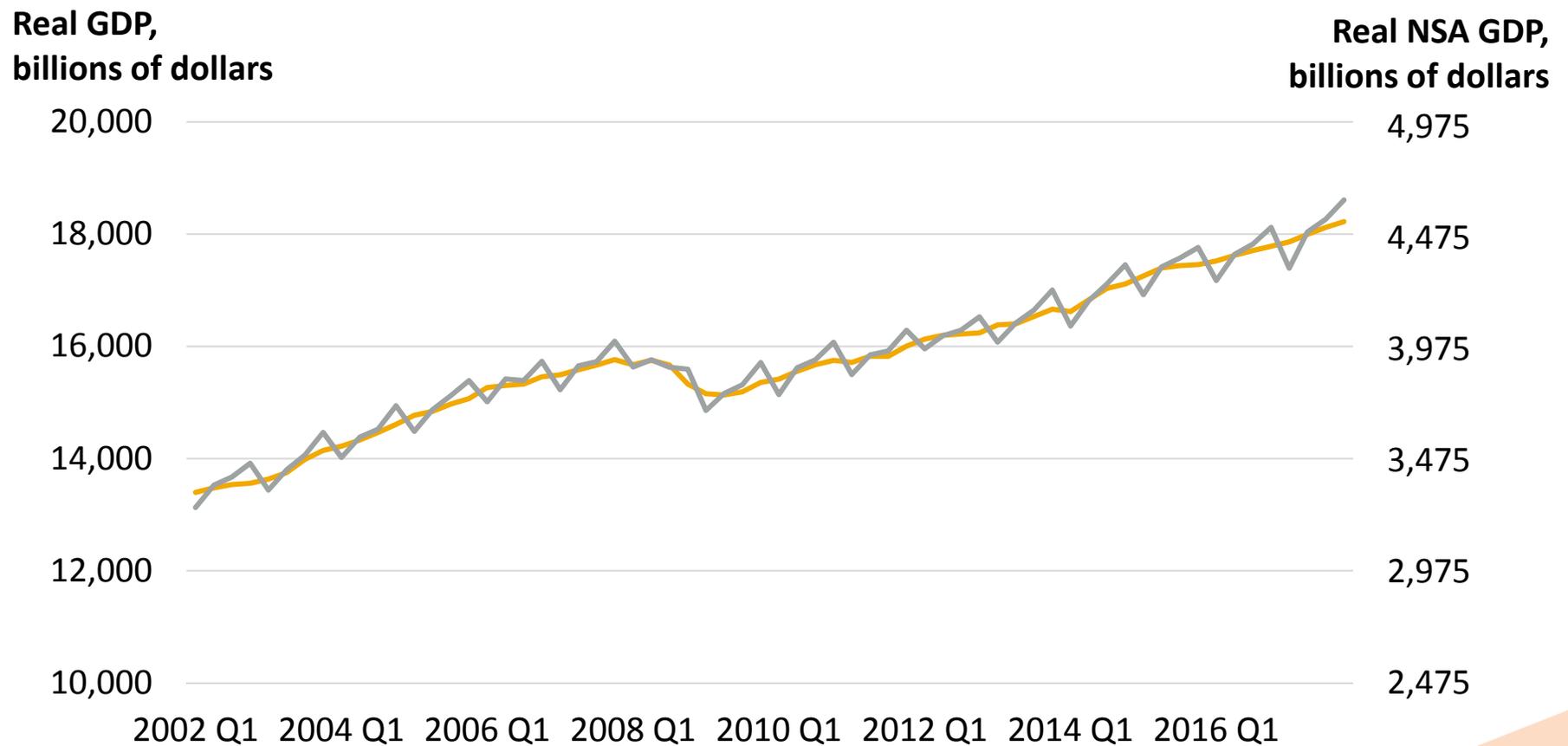
- New tool for evaluating the U.S. economy's performance
- Helps to identify and analyze changes in seasonal trends
- Prepared in concert with the seasonally-adjusted estimates
 - In most cases, source data are available without seasonal adjustment
 - Released with each monthly report of quarterly GDP estimates
 - Found in new “Section 8” NIPA tables in interactive database
- Seasonally-adjusted estimates continue to reflect an indirect (bottom up) approach to seasonal adjustment
 - The not seasonally adjusted estimates allow for comparison of the two adjustment approaches (direct and indirect)

Real GDP, SA, and NSA

2002 Q1 to 2017 Q4



— Real GDP (annual rates) — Real GDP, NSA (quarterly rates)



Improved measures of IT investment



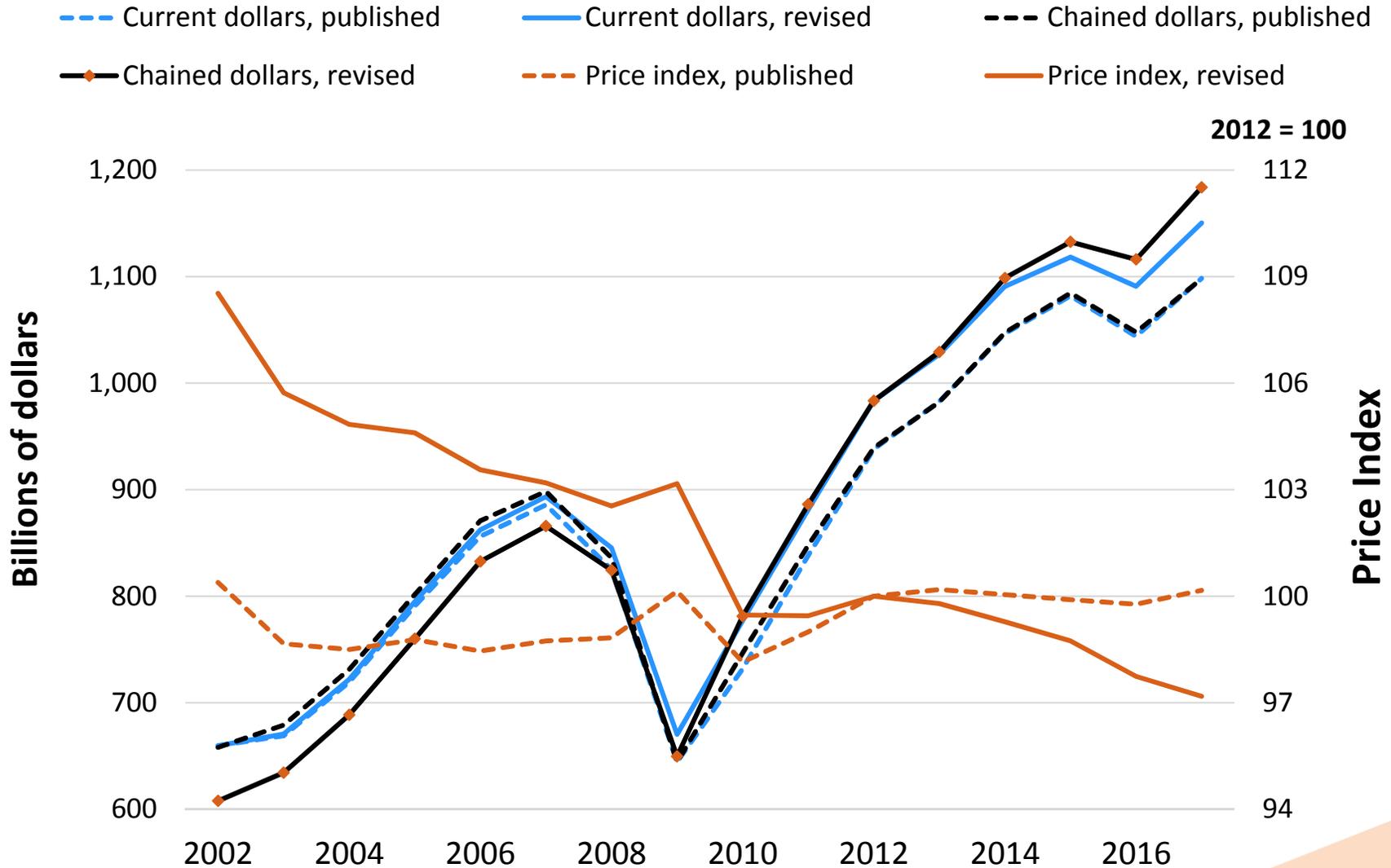
- Identified additional computer hardware and packaged software investment, as part of the 2012 benchmarking process
 - Software investment recorded as receipts for “application services provisioning”
- Reallocated selected imports to final demand
 - Impacted servers and storage devices
- Modified allocations of domestic supply
 - From intermediate to fixed investment

Improved prices for tech products



- Software: prepackaged, custom, and own-account
 - More appropriate PPI
 - Productivity adjustment to input-cost based indexes
- Medical equipment
 - New quality adjusted price index for electromedical equipment
- Communications equipment
 - New and revised quality adjusted prices (including cell phones) from the Federal Reserve Board

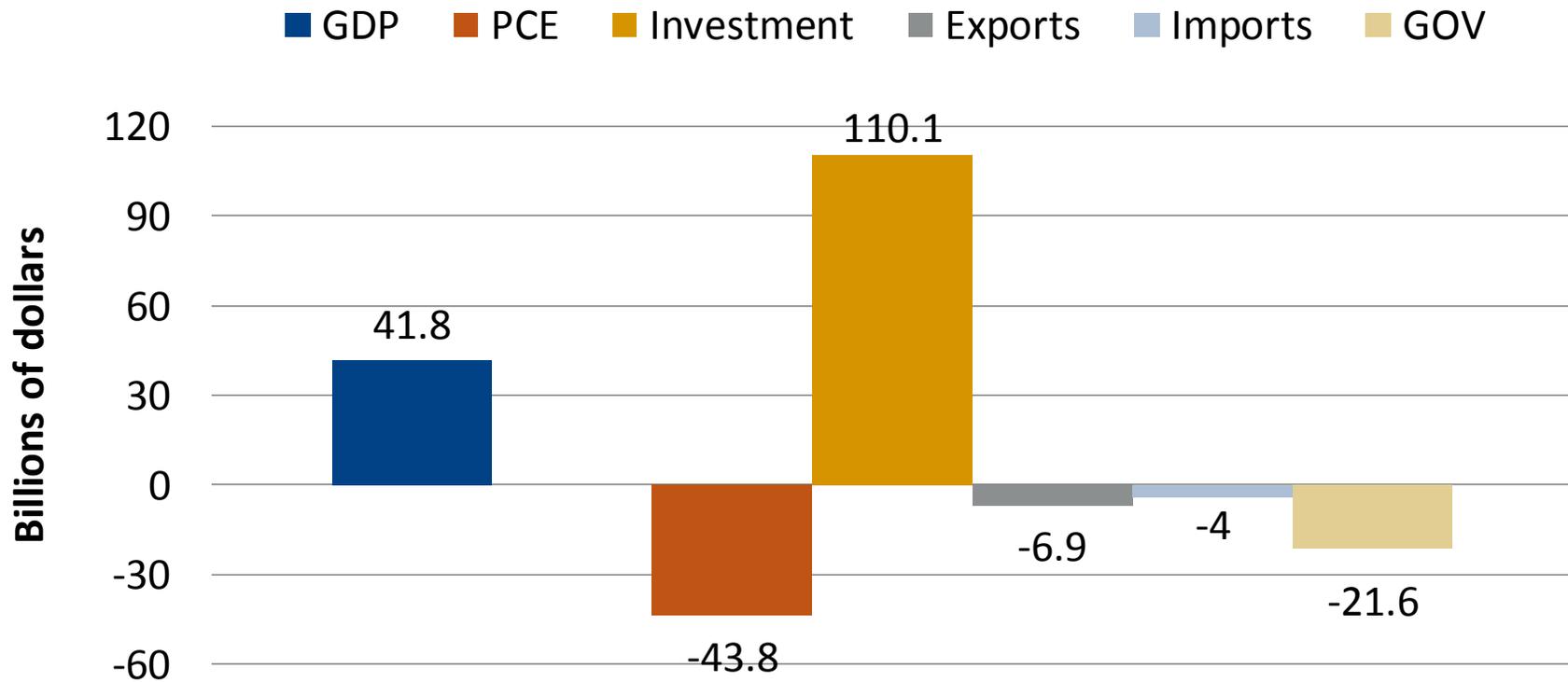
Private fixed investment in equipment



Gross Domestic Product

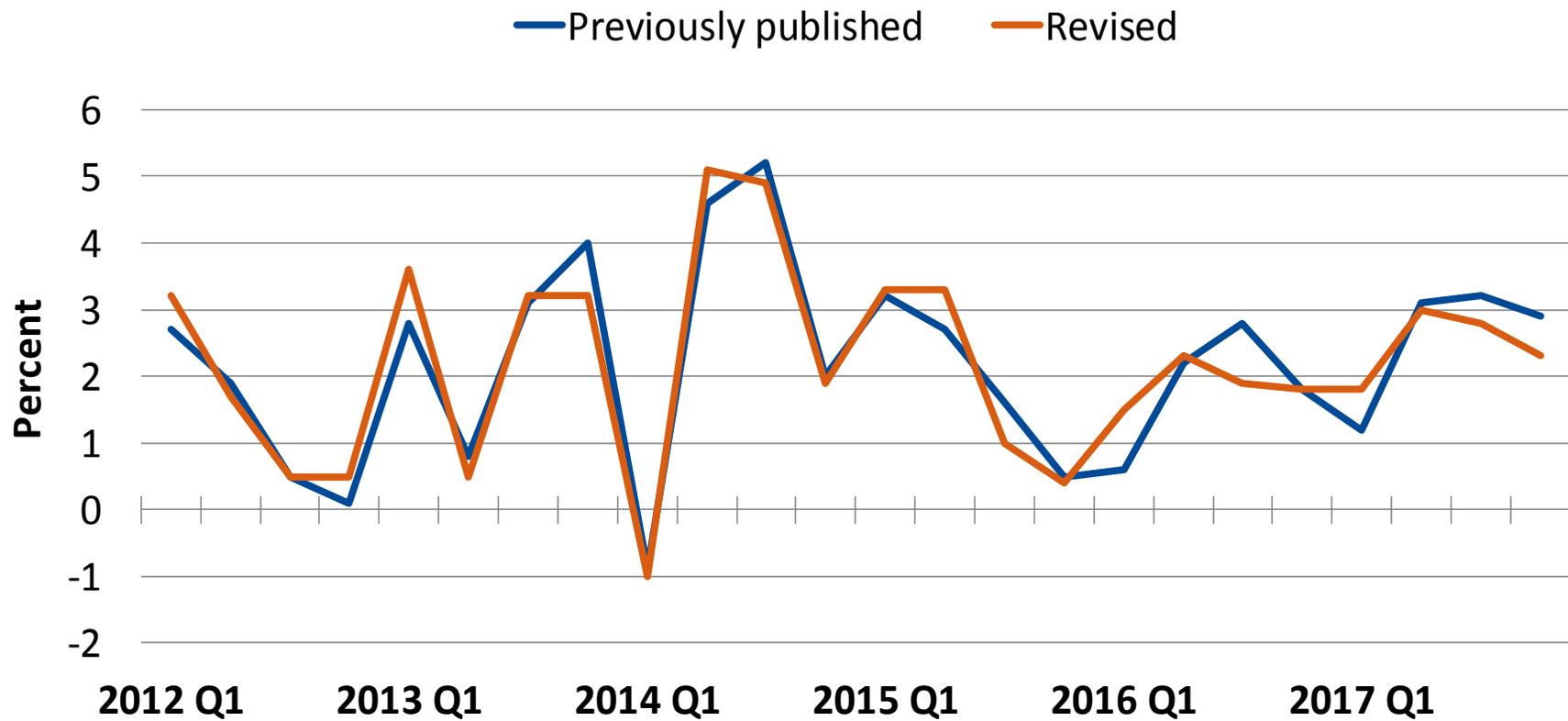


Revisions to GDP, 2012



Real gross domestic product

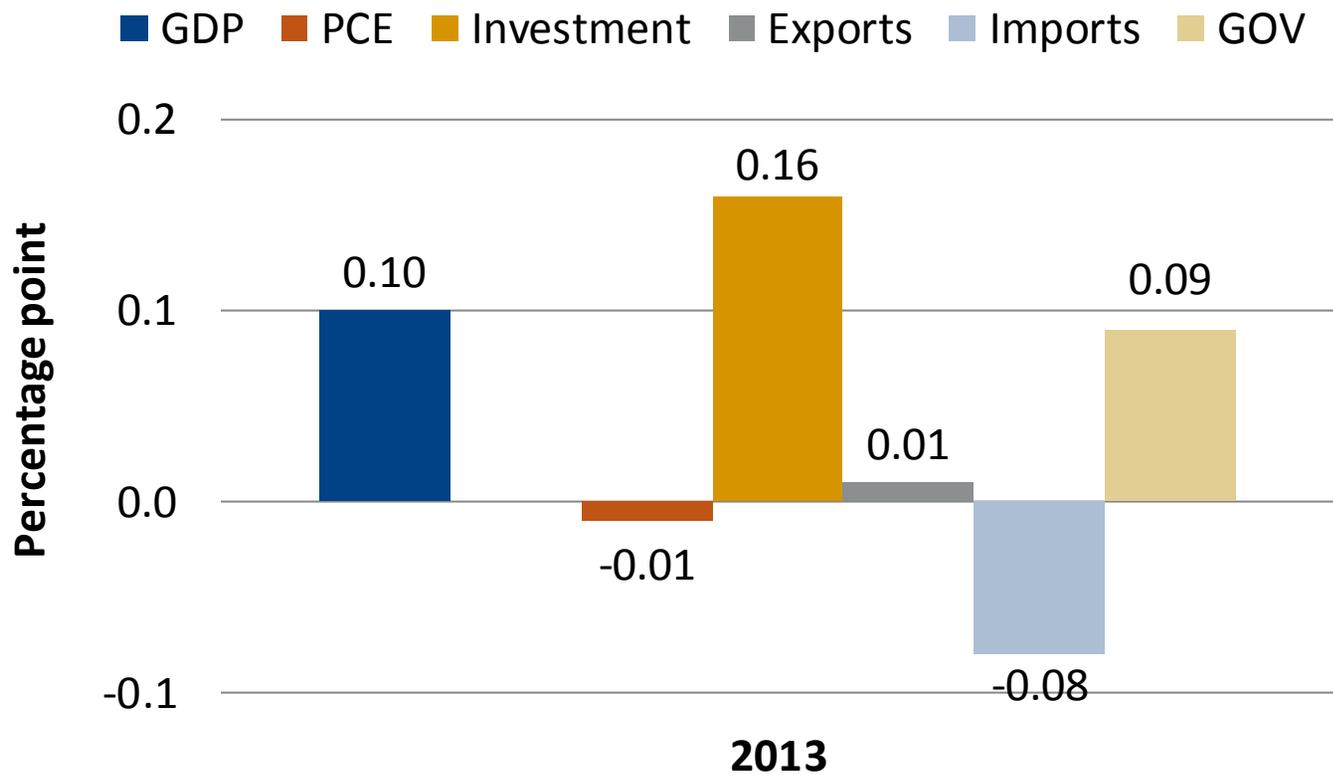
[Percent change from preceding period, SAAR]



2013: Contributions to revision to GDP growth



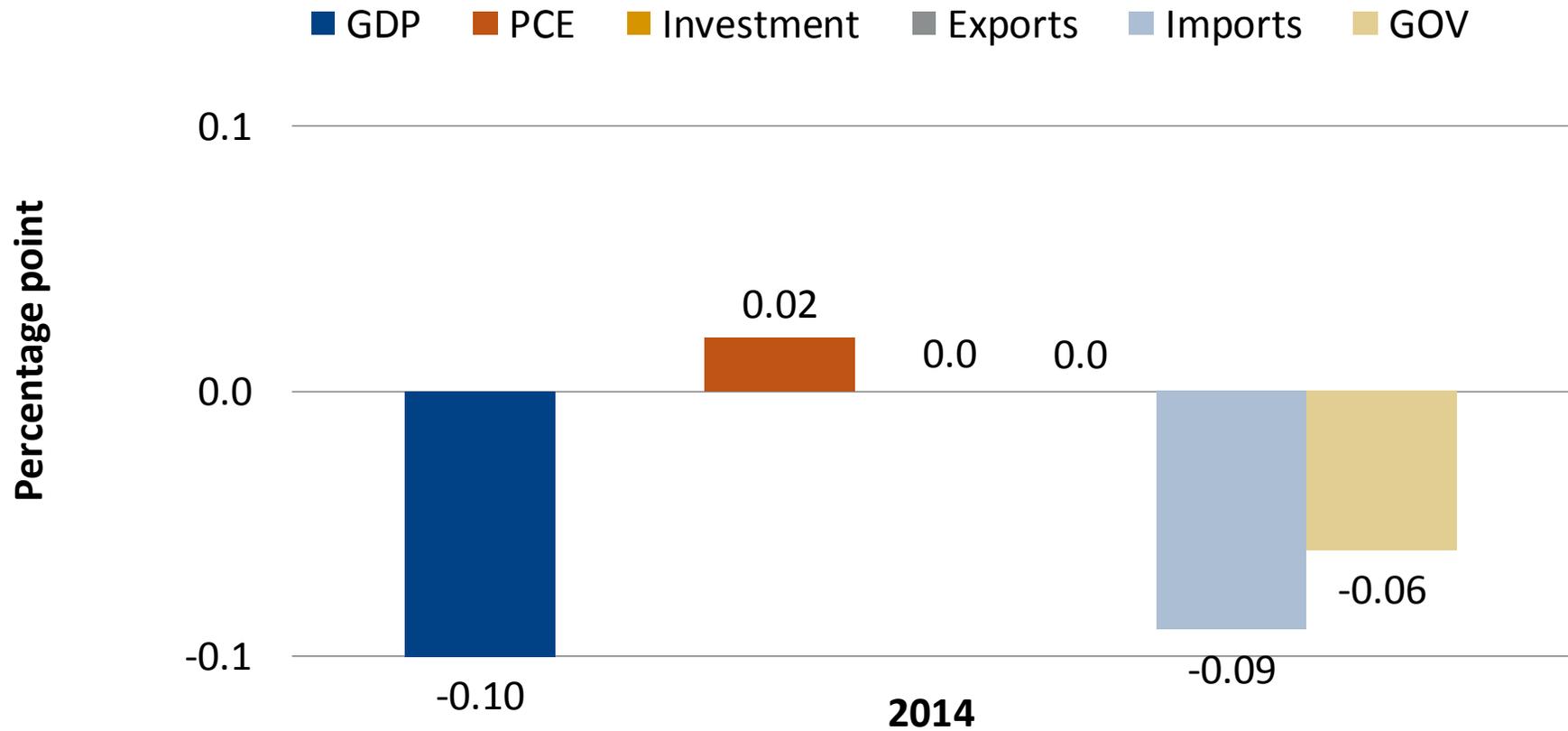
Real GDP growth was revised from 1.7 to 1.8 percent



2014: Contributions to revision to GDP growth



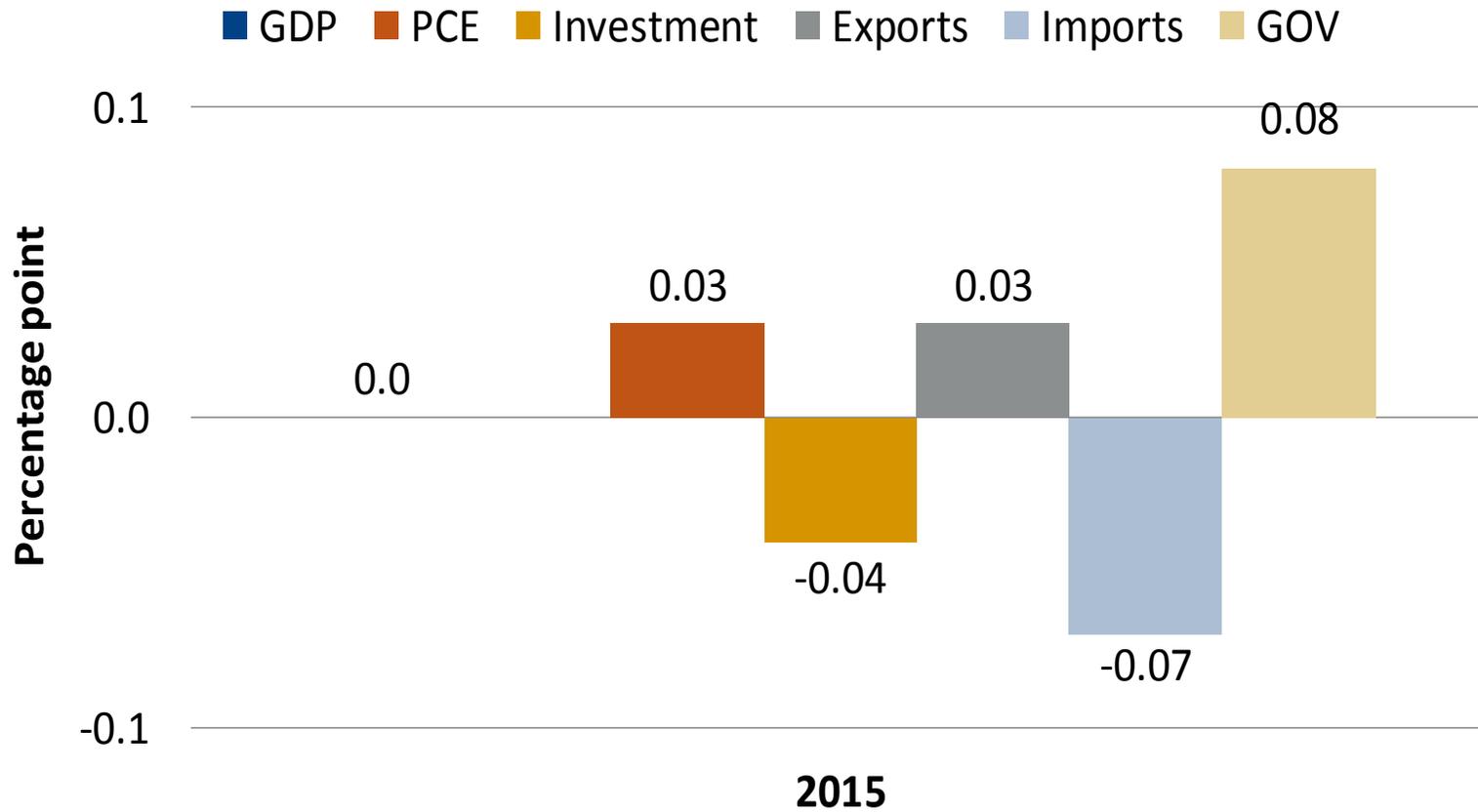
Real GDP growth was revised from 2.6 to 2.5 percent



2015: Contributions to revision to GDP growth



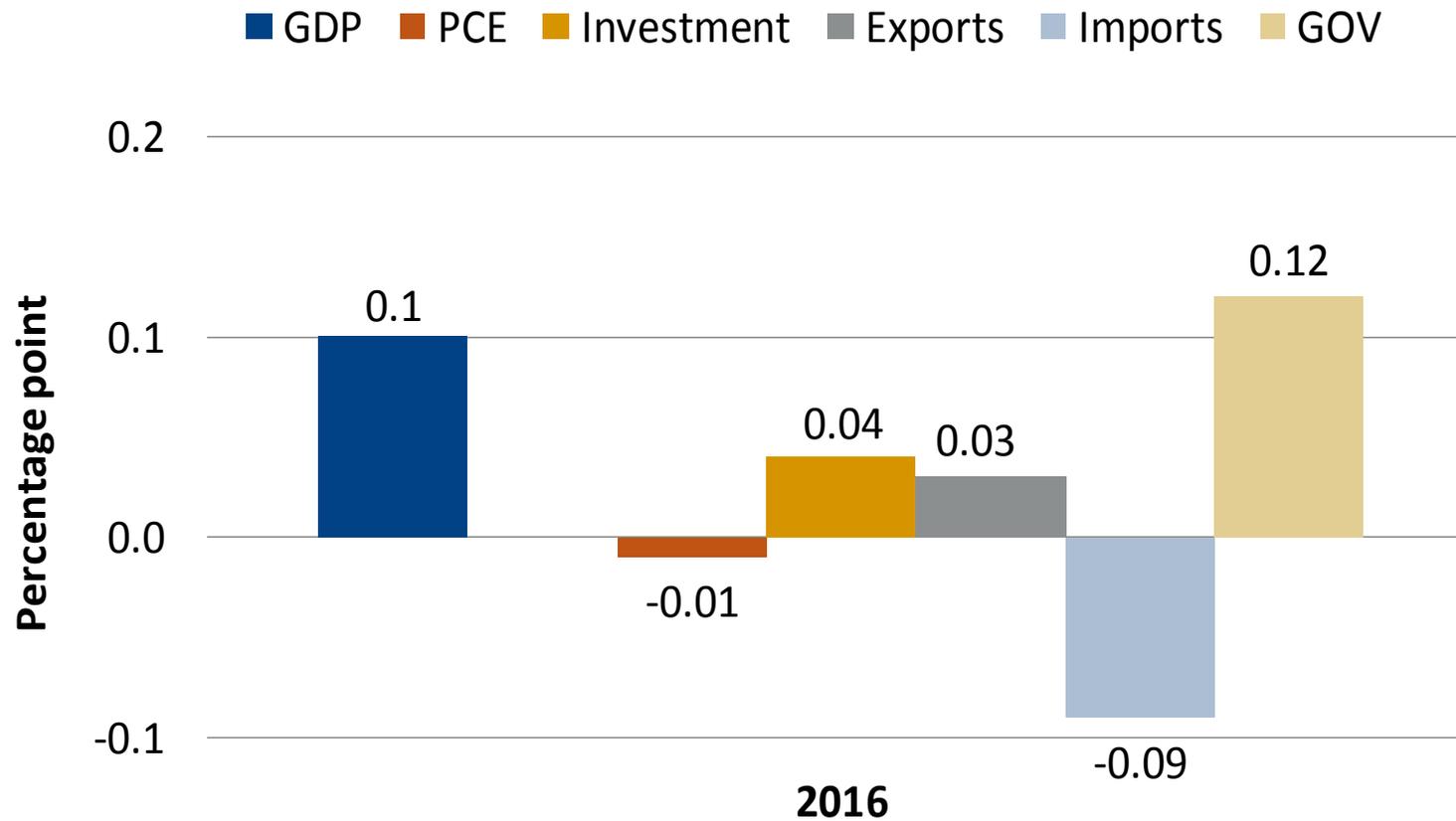
Real GDP growth was unrevised at 2.9 percent



2016: Contributions to revision to GDP growth



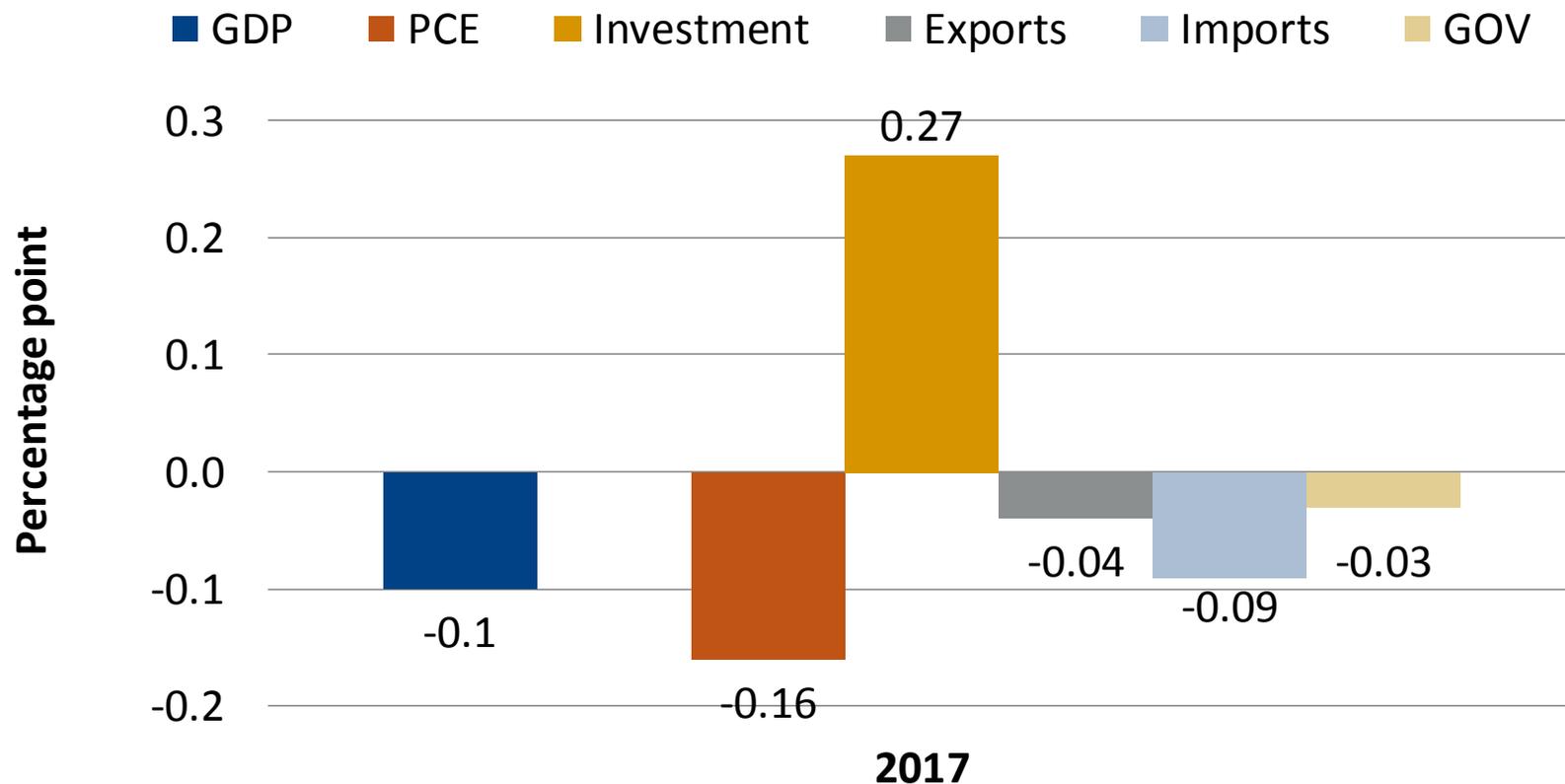
Real GDP growth was revised from 1.5 to 1.6 percent



2017: Contributions to revision to GDP growth



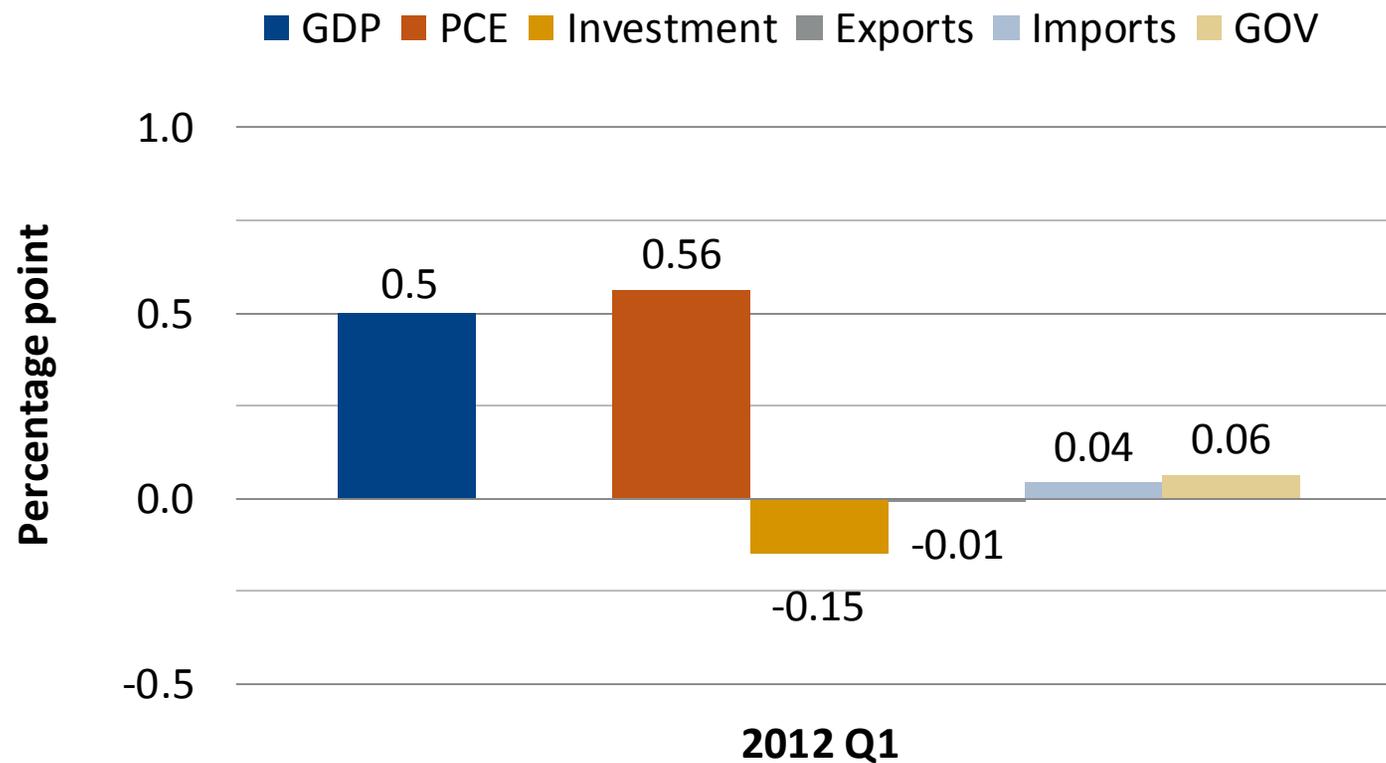
Real GDP growth was revised from 2.3 to 2.2 percent



2012 Q1: Contributions to revision to GDP growth



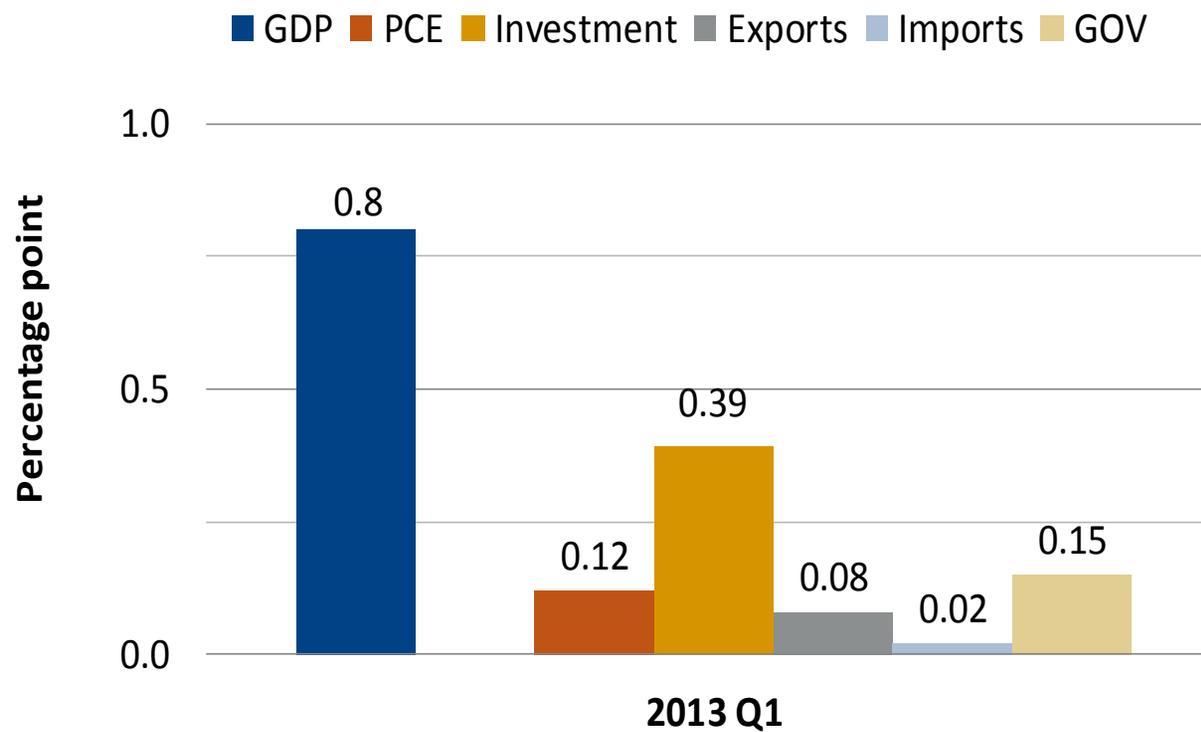
Real GDP growth was revised from 2.7 to 3.2 percent [SAAR]



2013 Q1: Contributions to revision to GDP growth



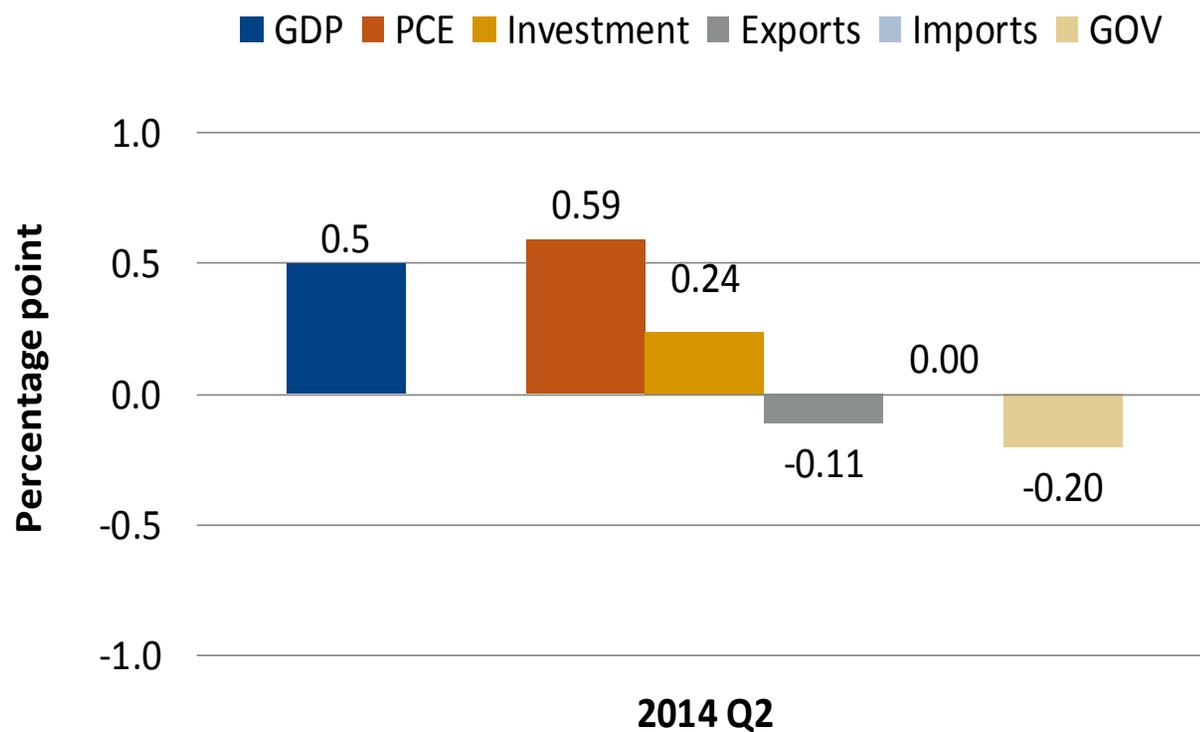
Real GDP growth was revised from 2.8 to 3.6 percent [SAAR]



2014 Q2: Contributions to revision to GDP growth



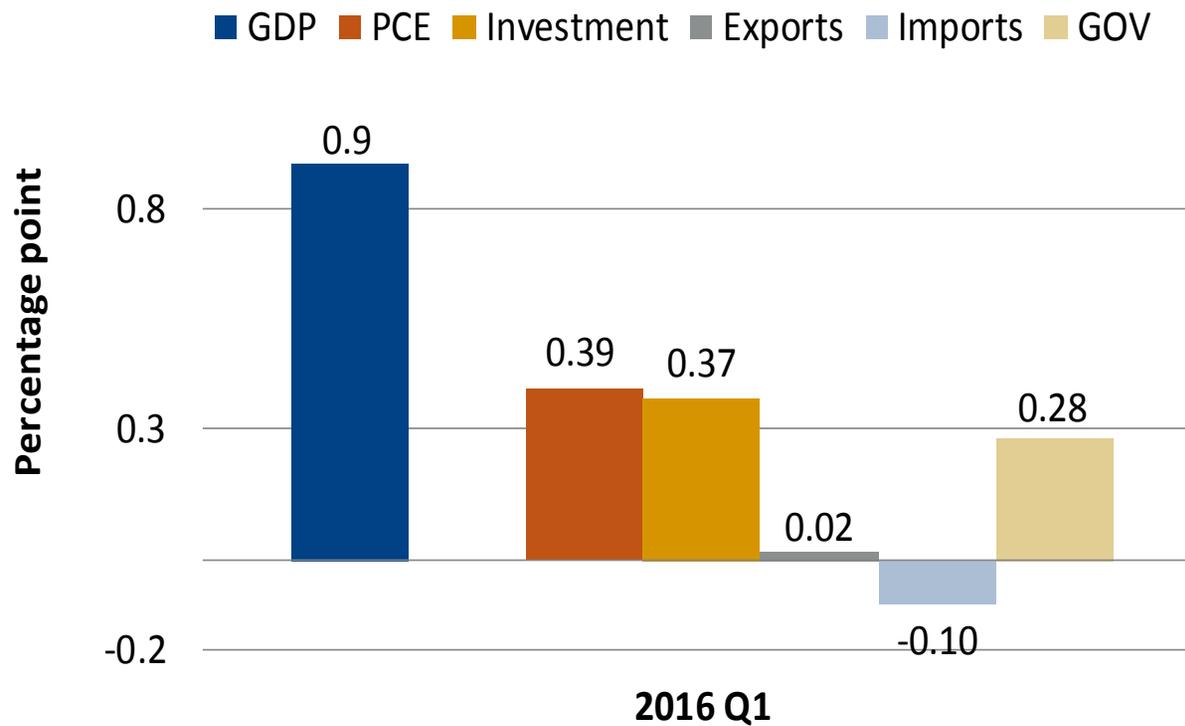
Real GDP growth was revised from 4.6 to 5.1 percent [SAAR]



2016 Q1: Contributions to revision to GDP growth



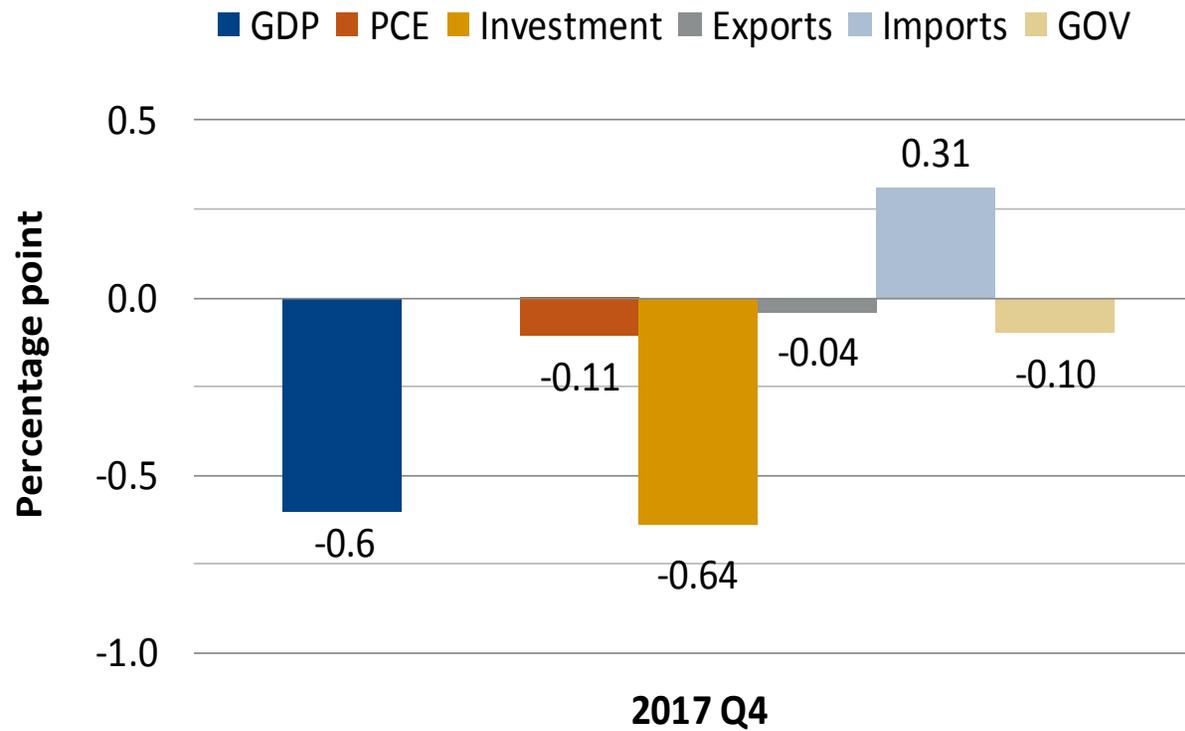
Real GDP growth was revised from 0.6 to 1.5 percent [SAAR]



2017 Q4: Contributions to revision to GDP growth



Real GDP growth was revised from 2.9 to 2.3 percent [SAAR]

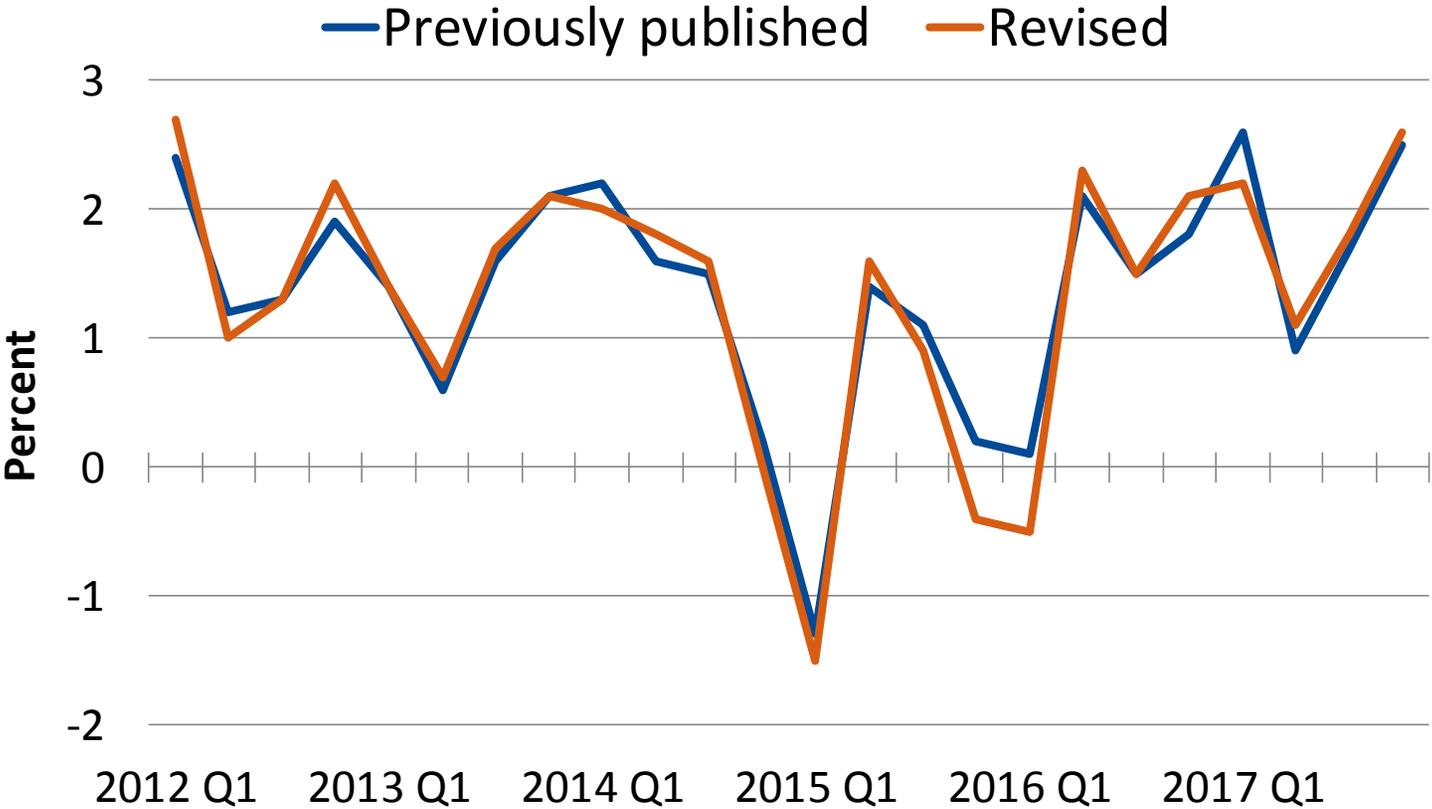


Price Indexes



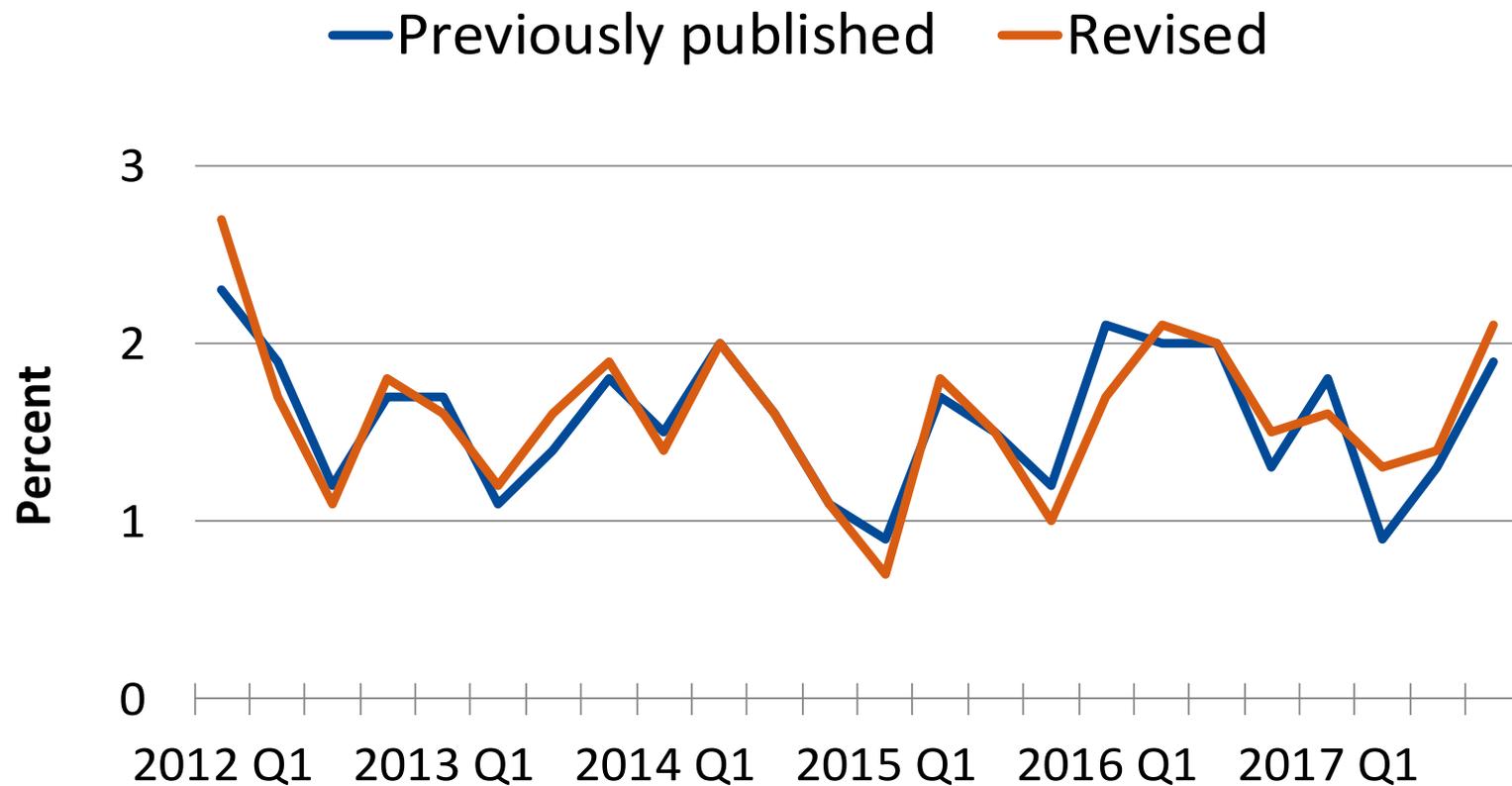
Gross domestic purchases price index

[Percent change from preceding period, SAAR]



Personal consumption expenditures price index, excluding food and energy

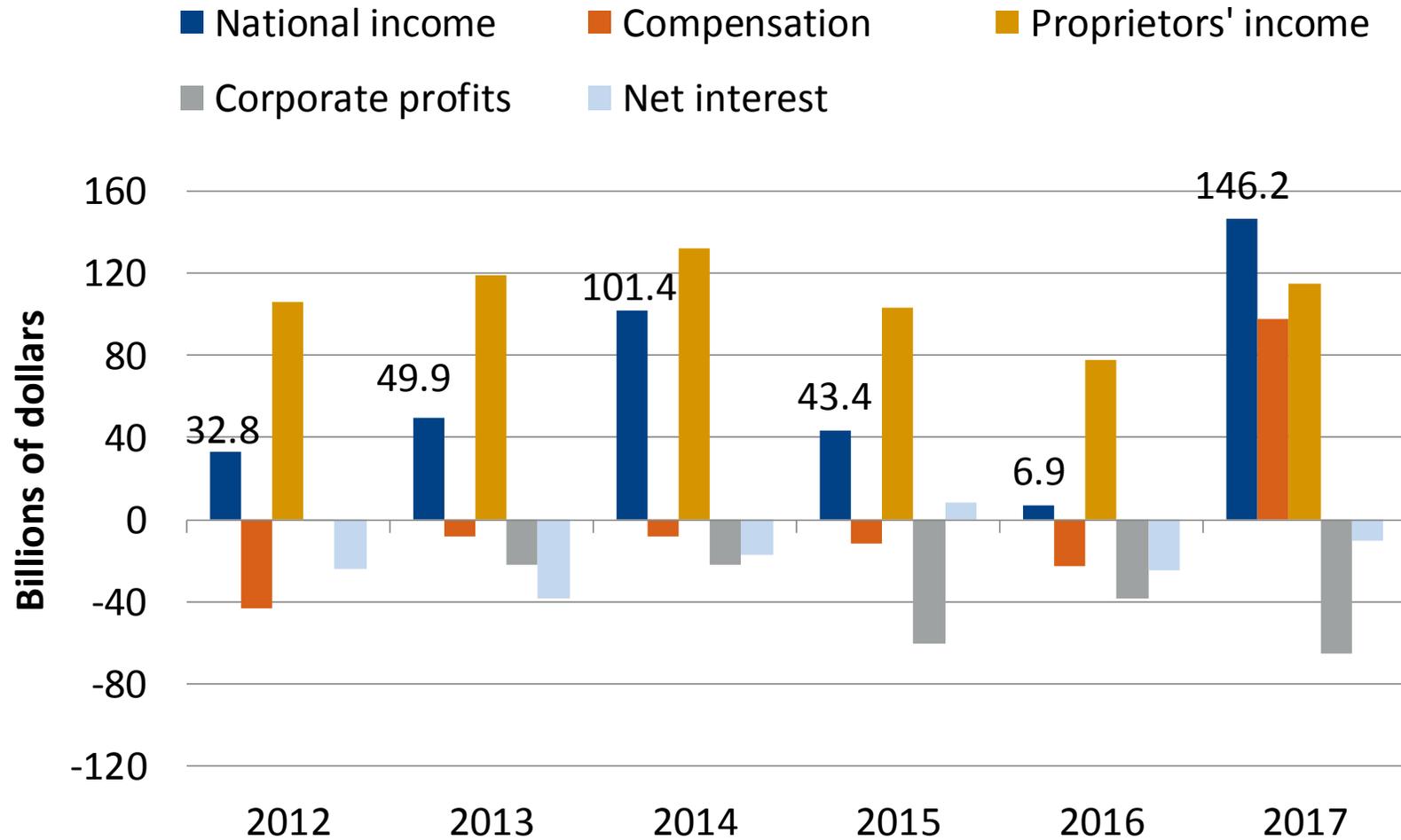
[Percent change from preceding period, SAAR]



Gross Domestic Income

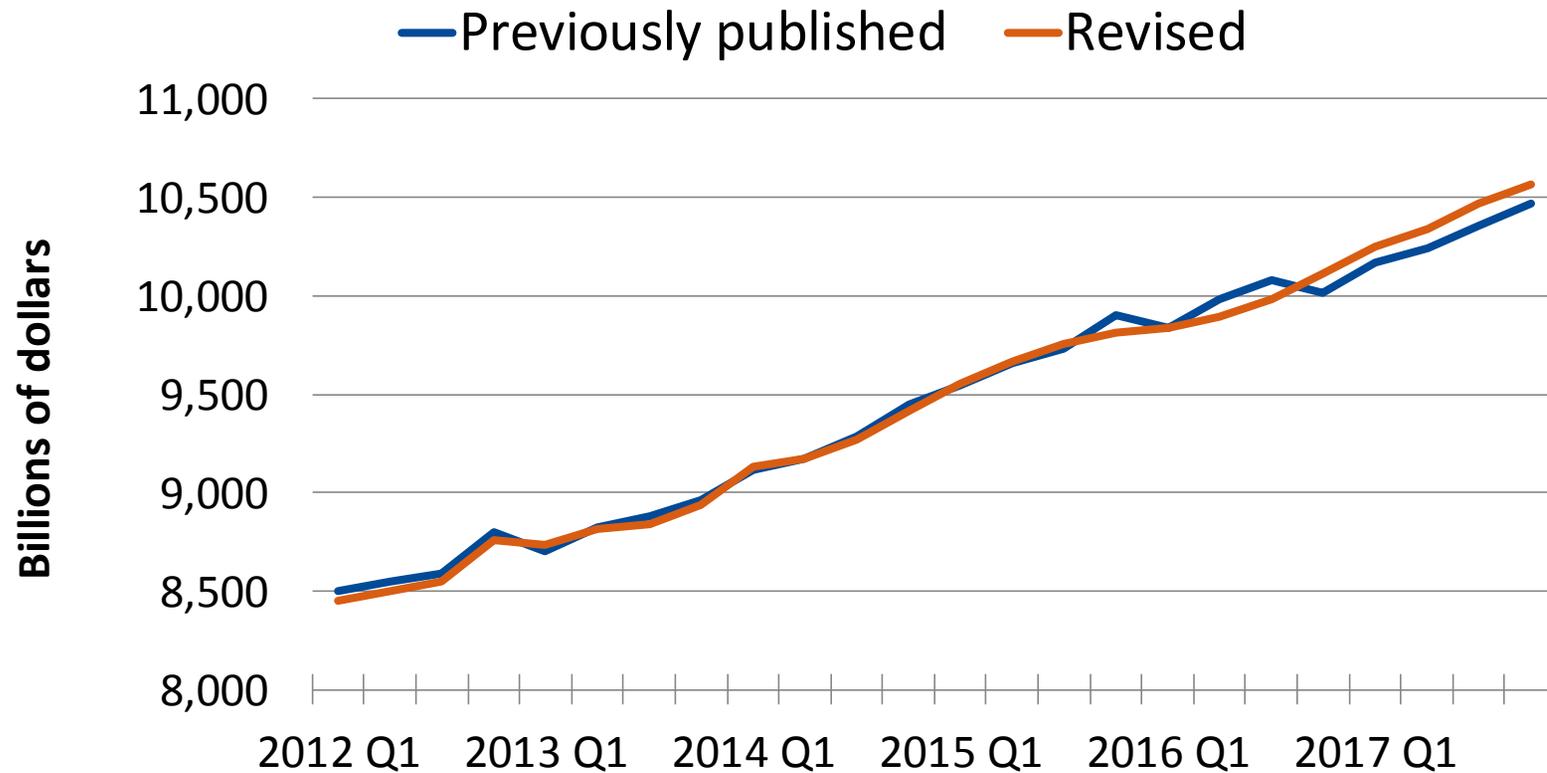


National income revision in level



Compensation of employees

[Billions of dollars, SAAR]



Personal income and outlays, 2012 Q4 to 2017 Q4 [Average annual growth]



Component	Previously published	Revised
Personal income	3.1	3.5
Disposable personal income	2.7	3.2
Personal outlays	4.1	4.1
Real DPI	1.5	2.0
Personal saving rate* Average over 2013 Q1 to 2017 Q4	5.0	7.0

Personal saving rate

[Personal saving as a percentage of disposable personal income]

