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Review of Colorado Employment Data Through October 2018

Colorado-based Business and Economic Research
Prepared
November 20, 2018

Overview of Analysis

This chartbook provides a series of graphs, charts, discussions, and data that describe the changes in the U.S. and Colorado economies for the first ten months of 2018. It is divided into the two sections listed below. Because 2017 was comparatively weak, Colorado economists had low expectations for job growth in 2018. Fortunately, their forecasts were wrong and the current level of strong job growth has been a pleasant surprise! The release of the Colorado employment data for October shows that YTD average employment is 72,600 jobs greater than the same period last year.

U.S. Economy

- ✓ Real Gross Domestic Product and Trade Balance
- ✓ Employment, Unemployment Rate, Job Openings vs. Number of Unemployed
- ✓ Leading and Coincident Index – U.S. vs. Colorado
- ✓ S&P 500 Performance and Volatility
- ✓ Mortgage Rates, U.S. Single Family Permits, Single Family Homes Sold, Construction Spending, Housing Prices
- ✓ Inflation, Index for Services and Manufacturing, Retail Sales, and Light Truck and Auto Sales
- ✓ Summary

The Colorado Economy

- ✓ Real GDP – Q2
- ✓ Colorado Population and Change in Employment
- ✓ Unemployment Rate, Unemployment Gap, and Change in the Size of Labor Force
- ✓ Change in Employment by Sector and Change in Employment for Key Sectors
- ✓ Advanced Technology Employment
- ✓ Housing Prices and Building Permits
- ✓ Oil Production and Prices, New and Used Auto Registrations, and DIA Passengers
- ✓ Summary

The complete 2018 cber.co forecast can be found at <https://cber.co/economic-forecasts/cber-co-economic-forecast/>



The U.S. Economy

Real Gross Domestic Product and Trade Balance

Quarterly Real GDP Growth

Historical United States

Historical annualized real GDP growth by decade was:

- 1990s 3.2% (green line)
- 2000s 1.8% (red line)
- 2010s 2.1% (purple line).

Between 2010 and 2017, the annual real GDP growth ranged from 1.6% to 2.9%.

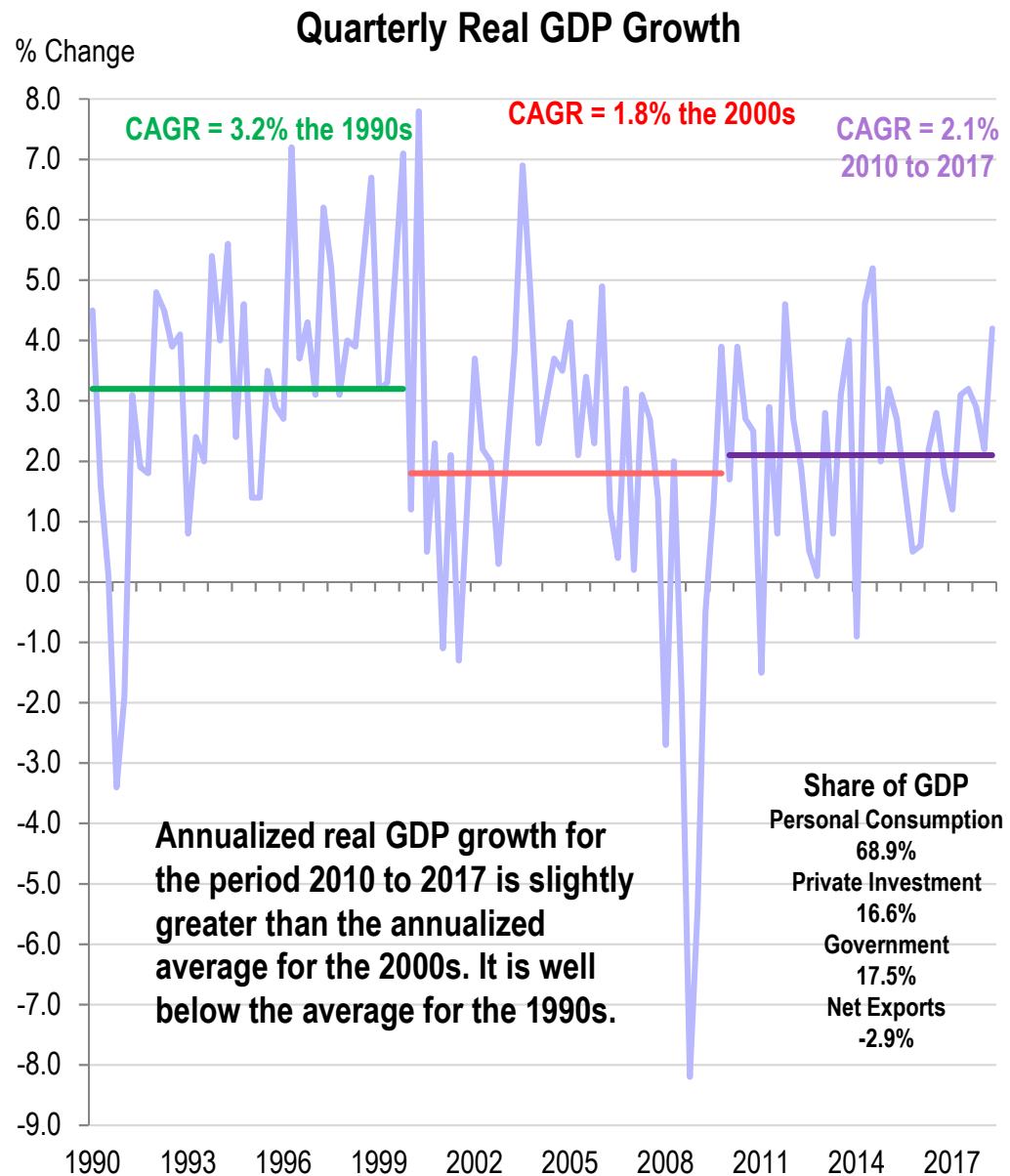
The 2017 rate of growth by quarter was:

- Q1 1.2%
- Q2 3.1%
- Q3 3.2%
- Q4 2.9%.

Annual real GDP growth for 2017 was 2.3%.

cber.co originally projected the rate of real GDP growth in 2018 would be in the range of 2.3% to 2.7%, with greater upside potential than downside risk.

Q1 2018 real GDP growth was 2.2%, followed by 4.2% in Q2, and 3.5% in Q3. The Conference Board projects there will be 2.8% real GDP growth in Q4. Real GDP growth will be 2.9% in 2018 and 3.0% in 2019.



Source: Bureau of Economic Analysis, The Conference Board, cber.co, Note GDP chained on 2009.

Trade Balance: Goods and Services



Source: FRED, U.S. Census Bureau, SA, cber.co.

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The U.S. Economy

Employment, Unemployment Rate, Job Openings vs. Number of Unemployed

Change in United States Employment

Year-Over-Year

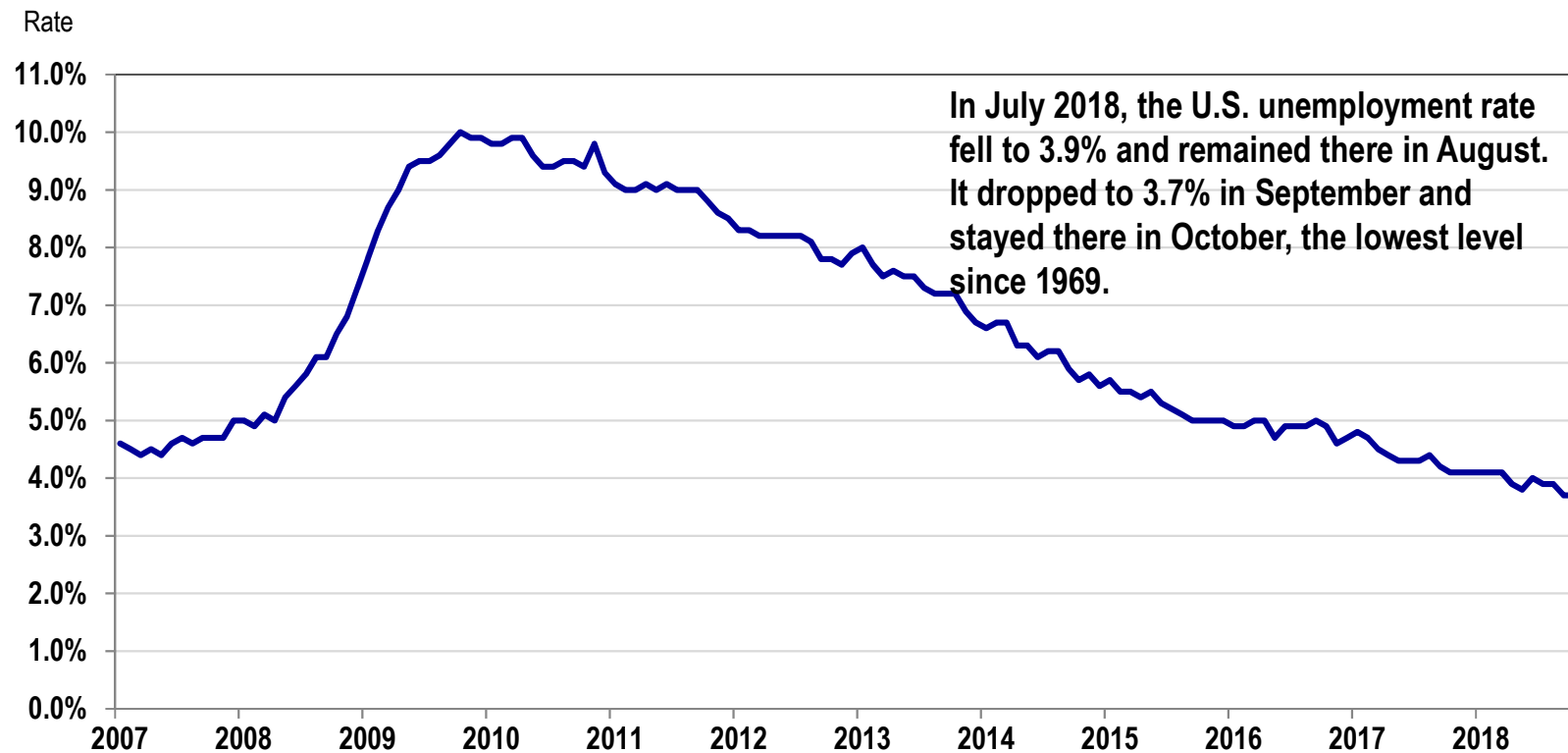


Source: Bureau of Labor Statistics, NSA; cber.co.

Unemployment Rate

United States

Unemployment Rate – U.S.



Source: Bureau of Labor Statistics, cber.co.

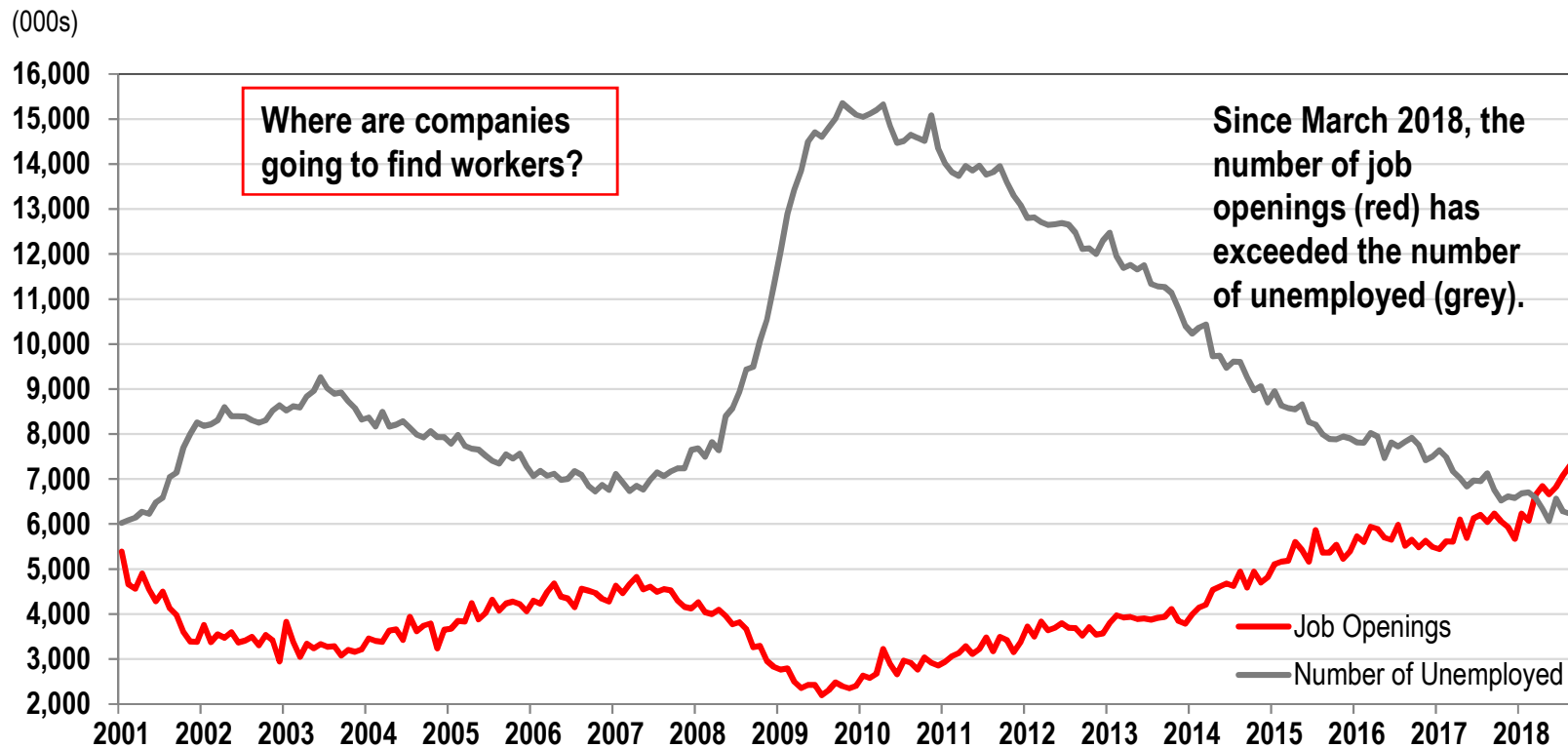
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● Job Openings vs. Number of Unemployed

● United States



Job Openings vs. Number of Unemployed



Source: Bureau of Labor Statistics, SA, cber.co.

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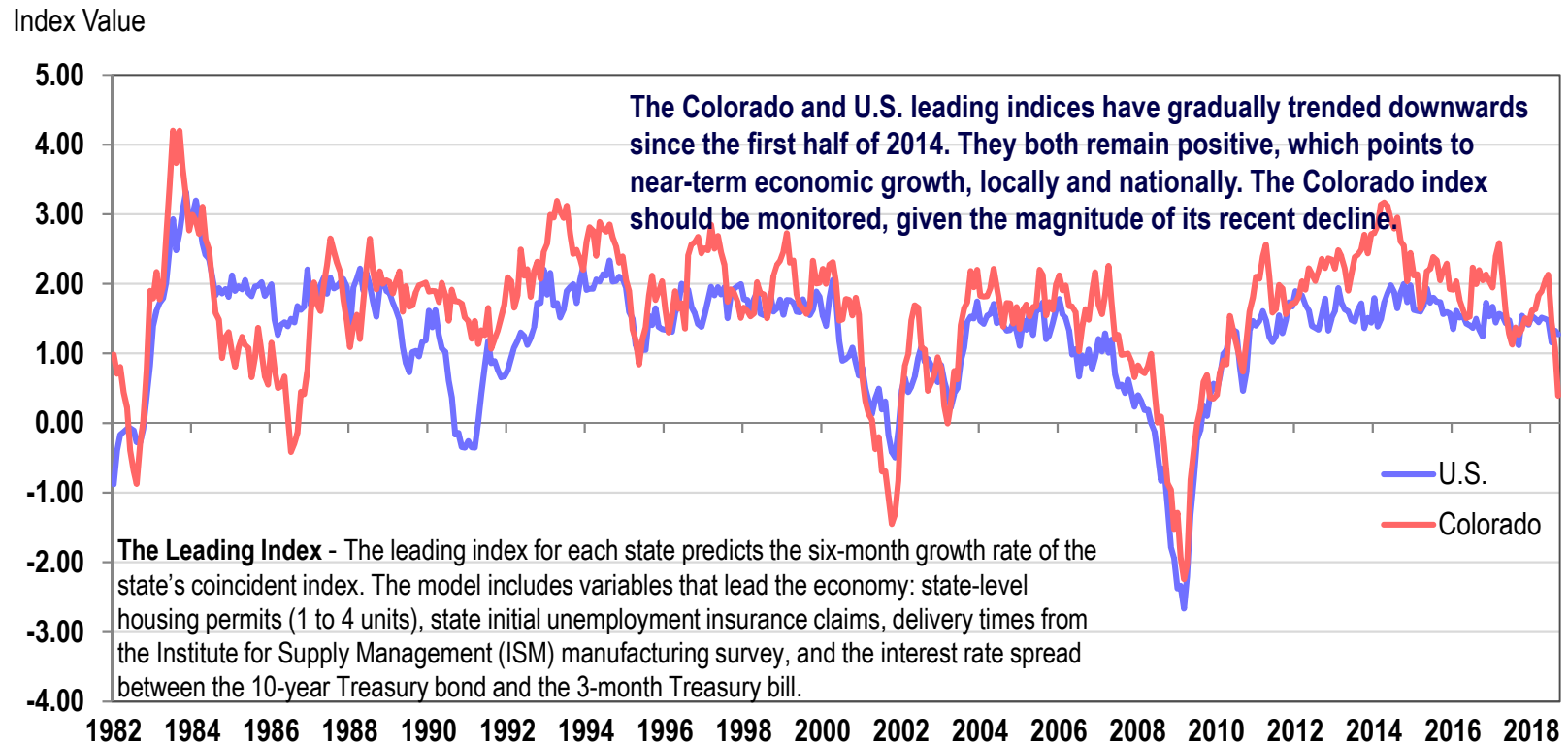
The U.S. Economy

Leading and Coincident Indices (U.S. and Colorado)

Philadelphia Fed Leading Index

Colorado vs. U.S.

Philadelphia Federal Reserve Leading Index – Colorado and U.S.



Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.

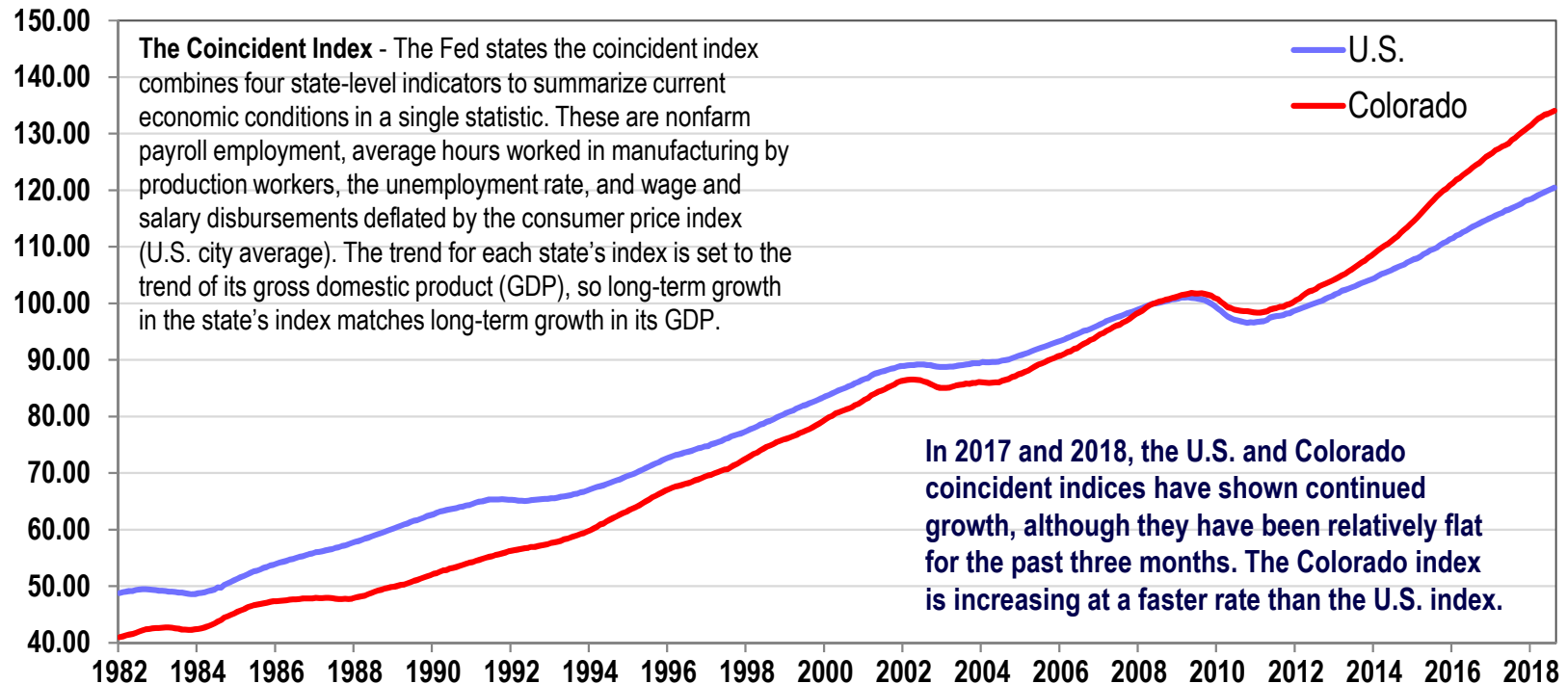
Philadelphia Fed Coincident Index

Colorado vs. U.S.



Philadelphia Federal Reserve Coincident Index – Colorado and U.S.

Index Value



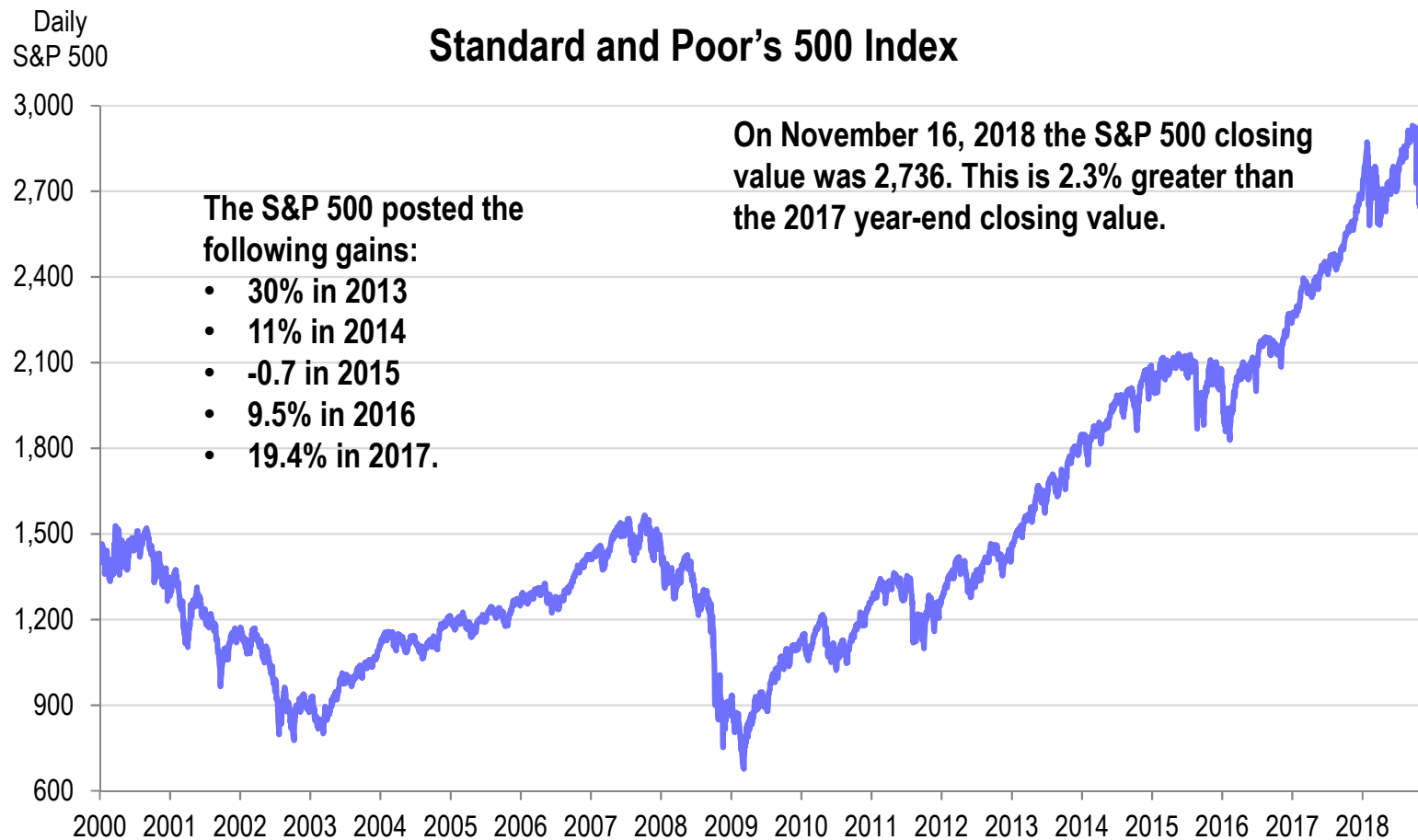
Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.



United States Economy

S&P Performance and Volatility

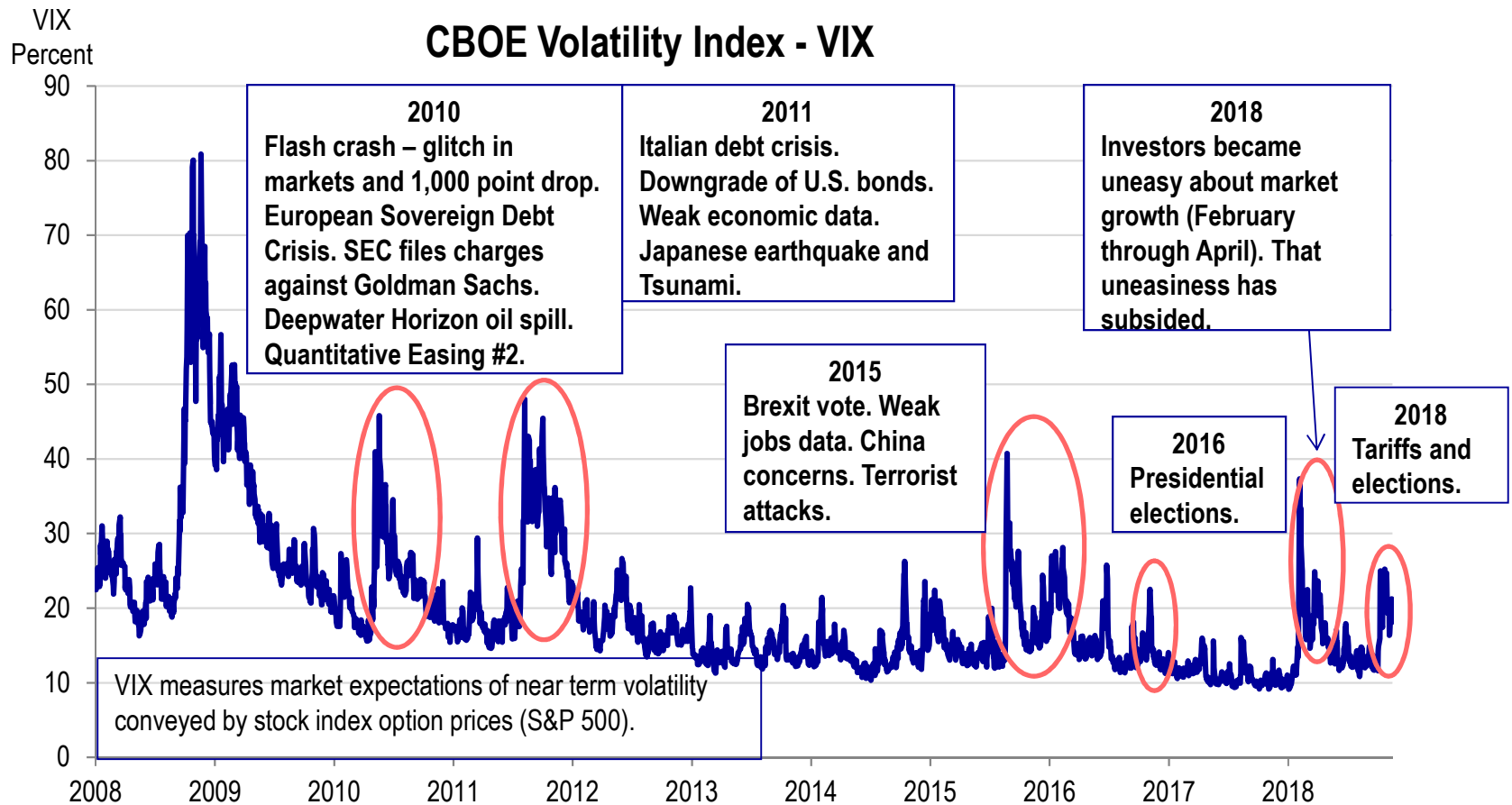
● Standard and Poor's 500 Index



Source: FRED, S&P 500, cber.co.

CBOE Volatility Index

VIX (VIXCLS)



Source: FRED, Chicago Board Options Exchange, cber.co.

● The Sell-Off

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The recent sell-off has been attributed to rising interest rates, the trade war with China and other trading partners, uncertainty caused by the mid-term elections, and a slowdown in the global economy.

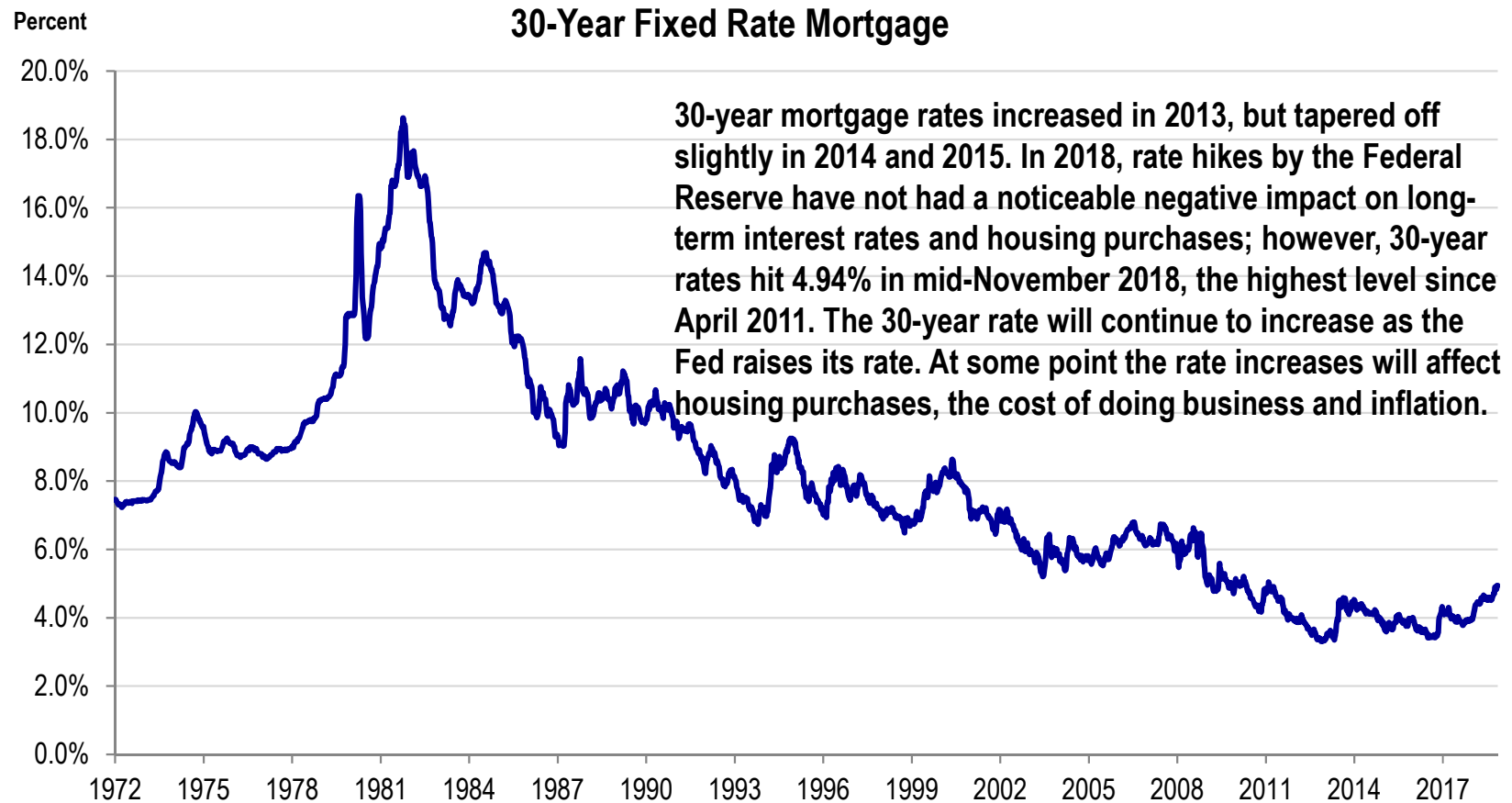
At the moment, the volatility is nerve wracking. Bear or bull? A case can be made that there will be continued volatility and sluggish growth in the near-term.



The U.S. Economy

Mortgage Rates, U.S. Single Family Permits, Single Family Homes Sold, Construction Spending, Housing Prices

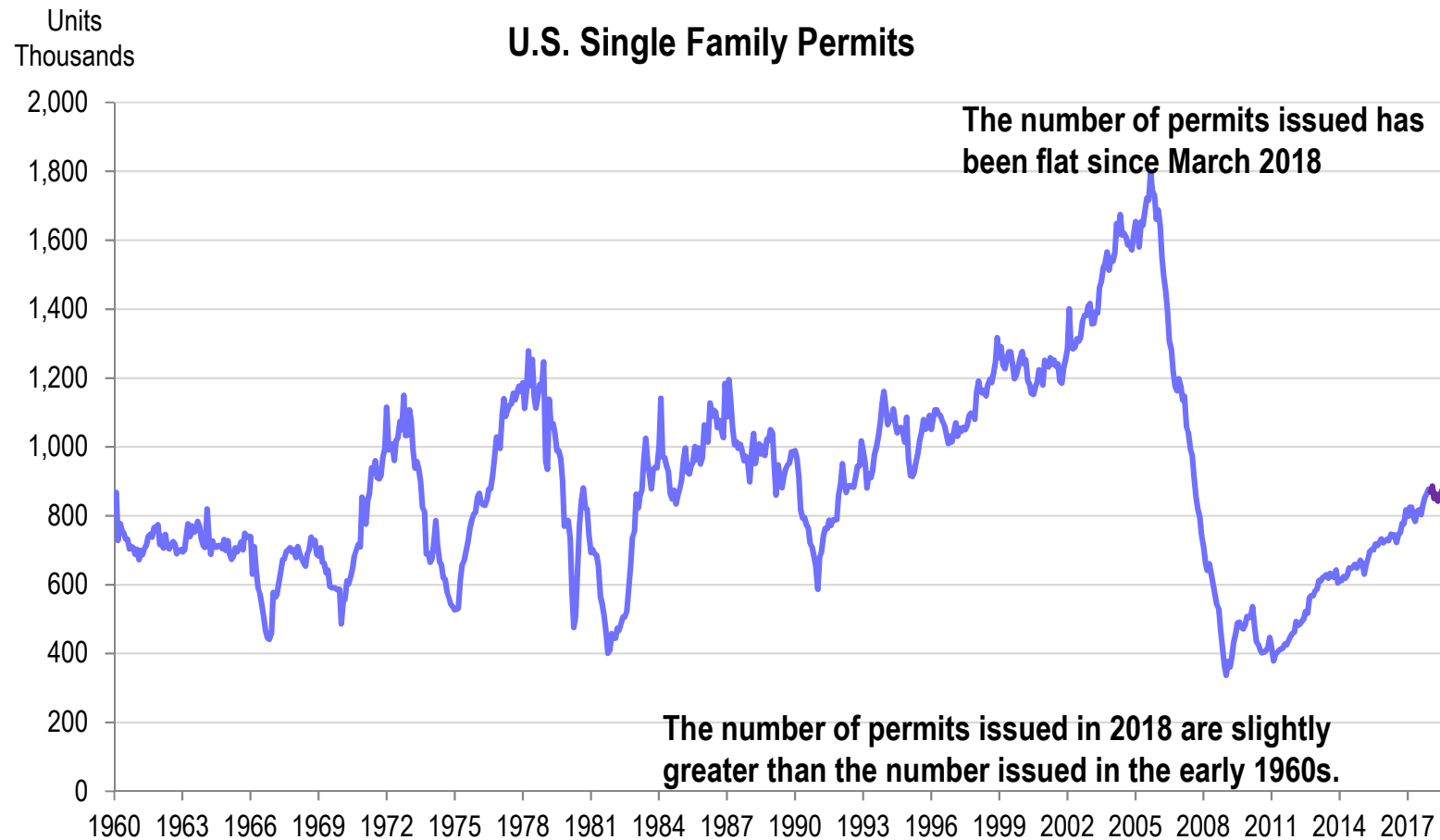
30-Year Fixed Rate Mortgage



Source: FRED, Freddie MAC, cber.co.

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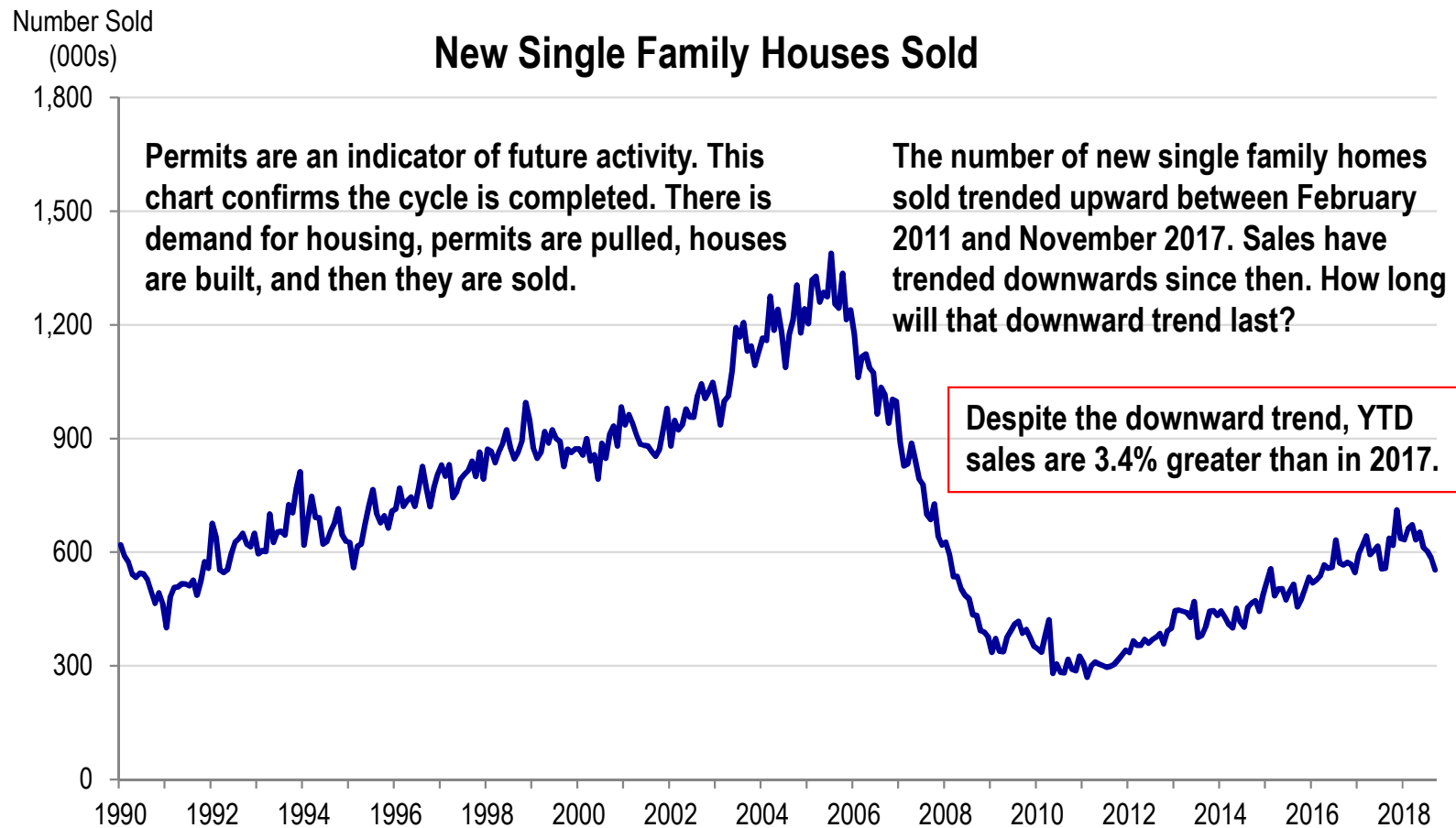
● U.S. Single Family Permits



Source: FRED, U.S. Bureau of Census, cber.co.

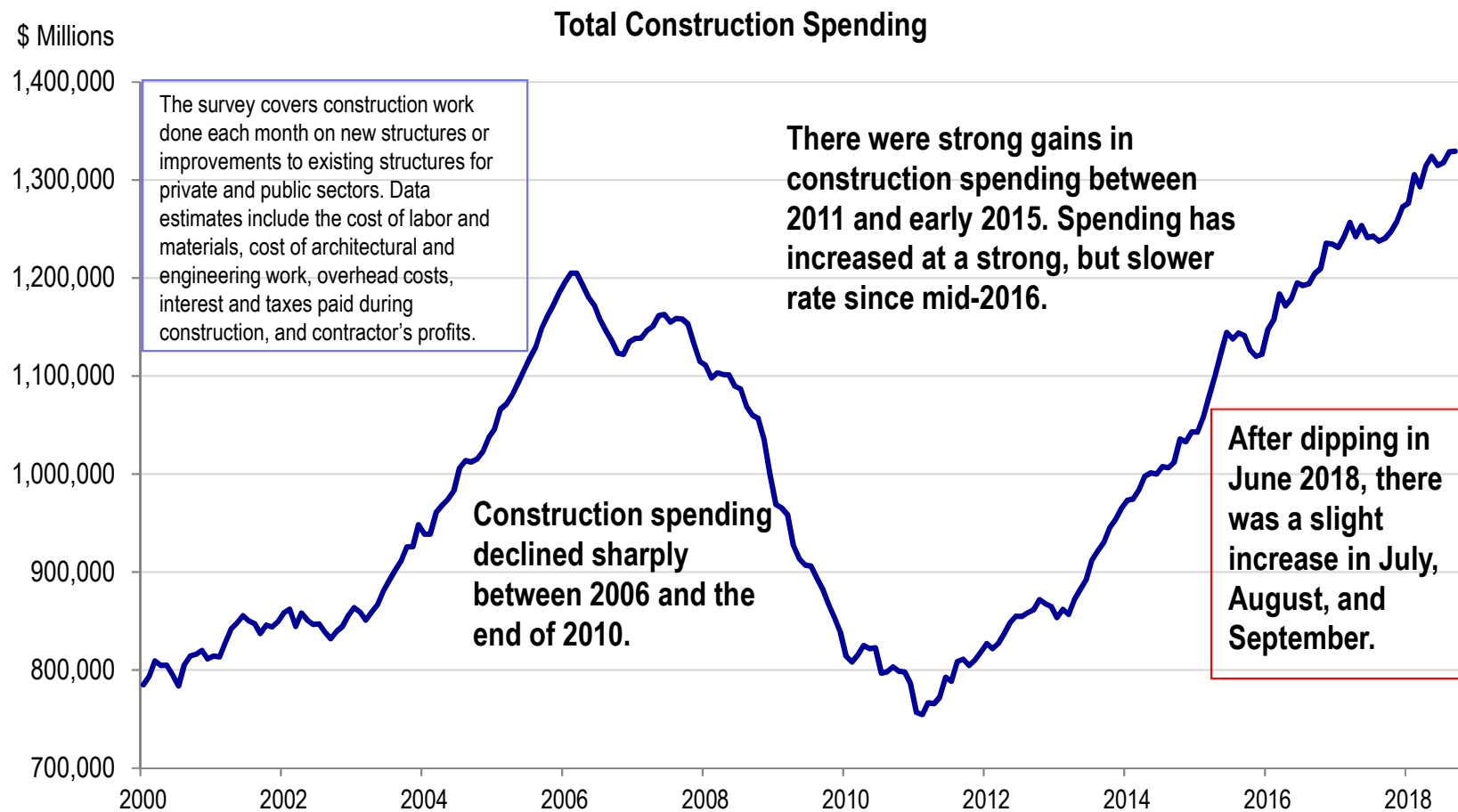
New Single Family Homes Sold

United States



Source: FRED, U.S. Census Bureau, cber.co.

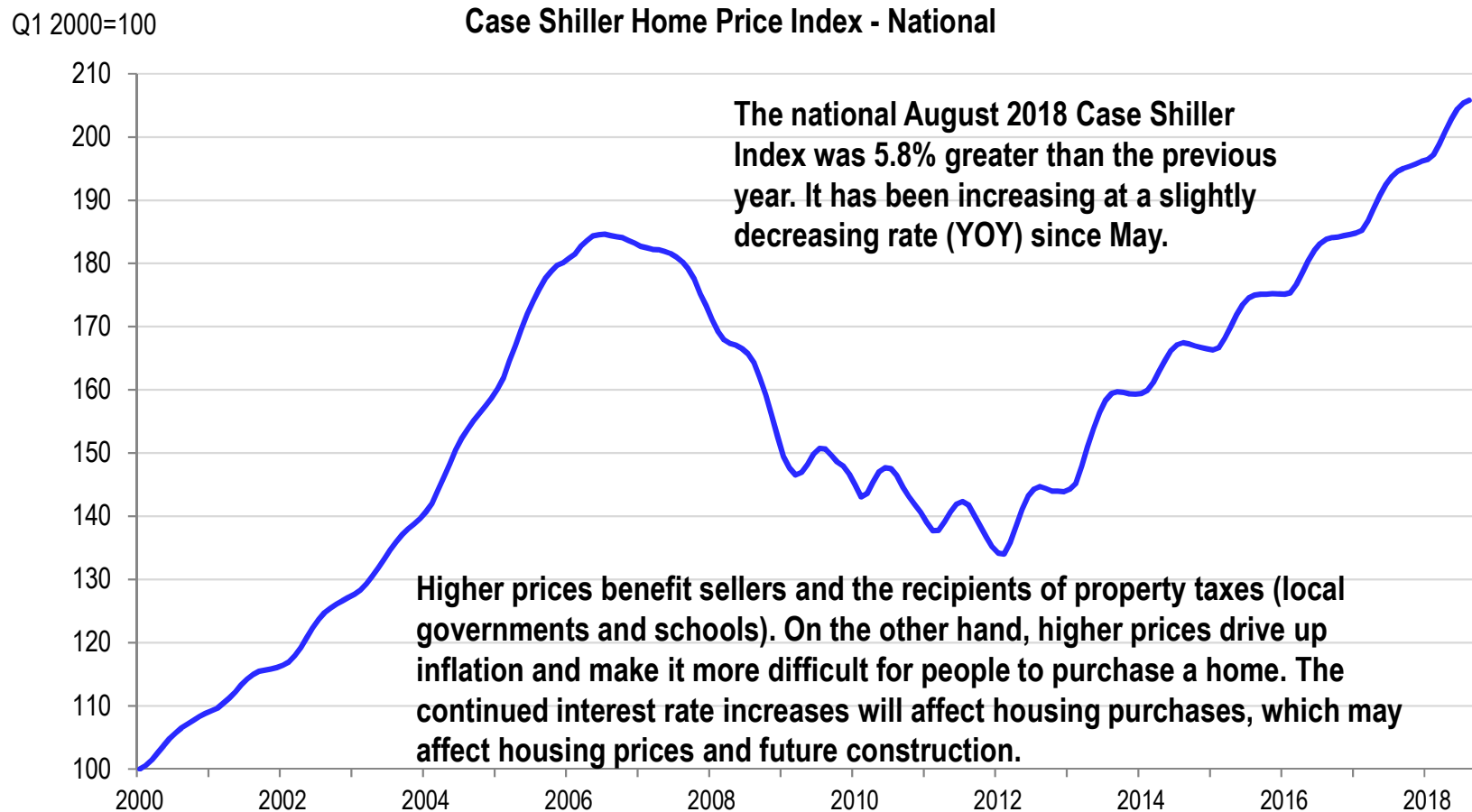
Total U.S. Construction Spending



Source: FRED, Census Bureau, not adjusted for inflation, SAAR, cber.co.

Case Shiller Home Price Index

National Index



Source: S&P Case-Shiller, cber.co.



The U.S. Economy

Inflation, Index for Services and Manufacturing, Retail Sales, Holiday Sales, and Light Truck and Auto Sales

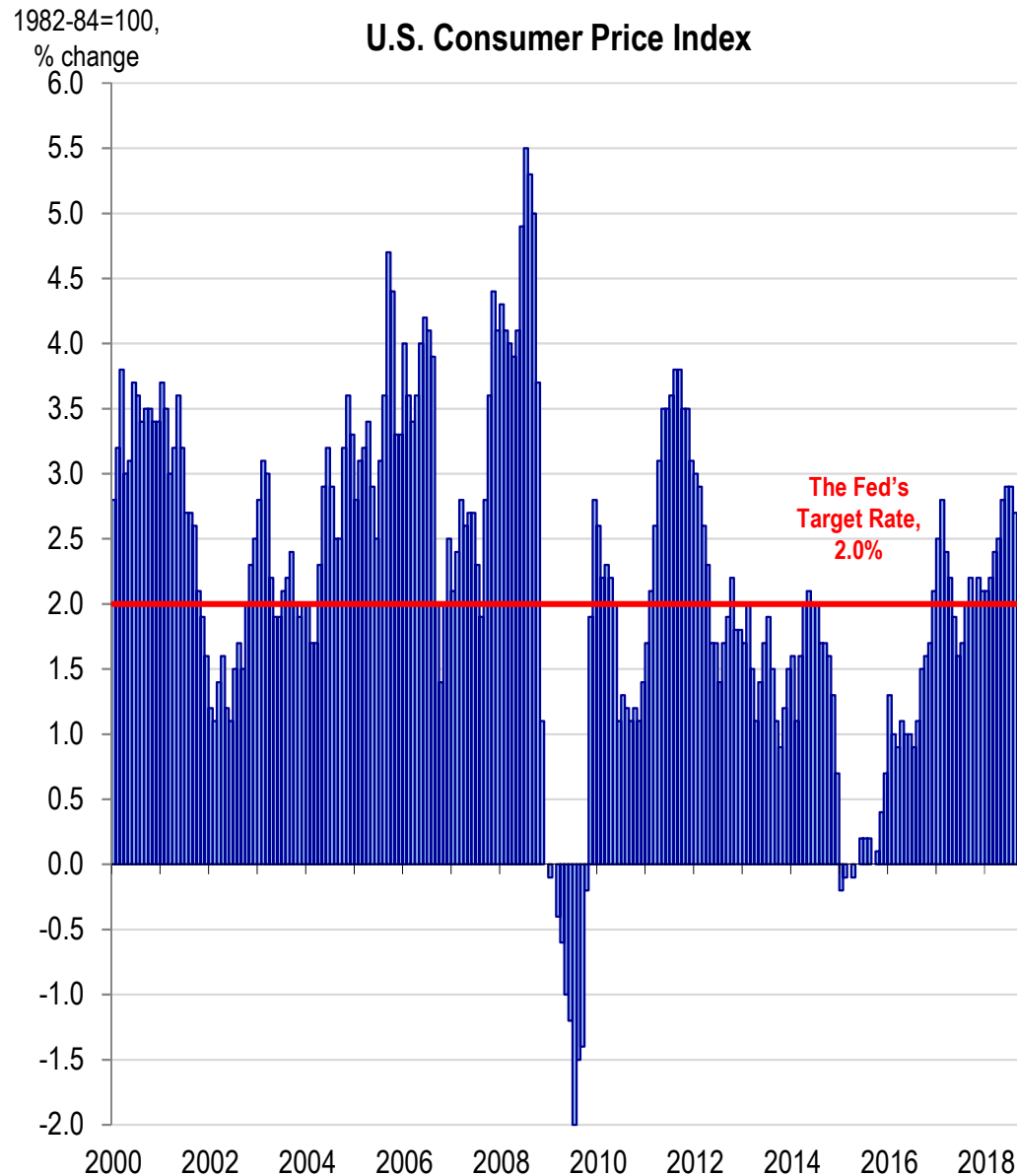
Consumer Price Index (CPI)

U.S. inflation, as measured by the seasonally adjusted CPI, will increase by 2.3% in 2018 (forecast). Increases in 2018 were projected to be a result of higher interest rates, housing costs, health care costs, and gasoline prices.

The increase in the YOY October 2018 CPI rate was 2.5%, up from 2.3% in September. The rate of increase for the first half of the year was 2.5%. Inflation has been slightly greater than expected.

Recent annual rates are:

- 2012 2.1%
- 2013 1.5%
- 2014 1.6%
- 2015 0.1%
- 2016 1.3%
- 2017 2.1%
- 2018 2.3 % (forecast).



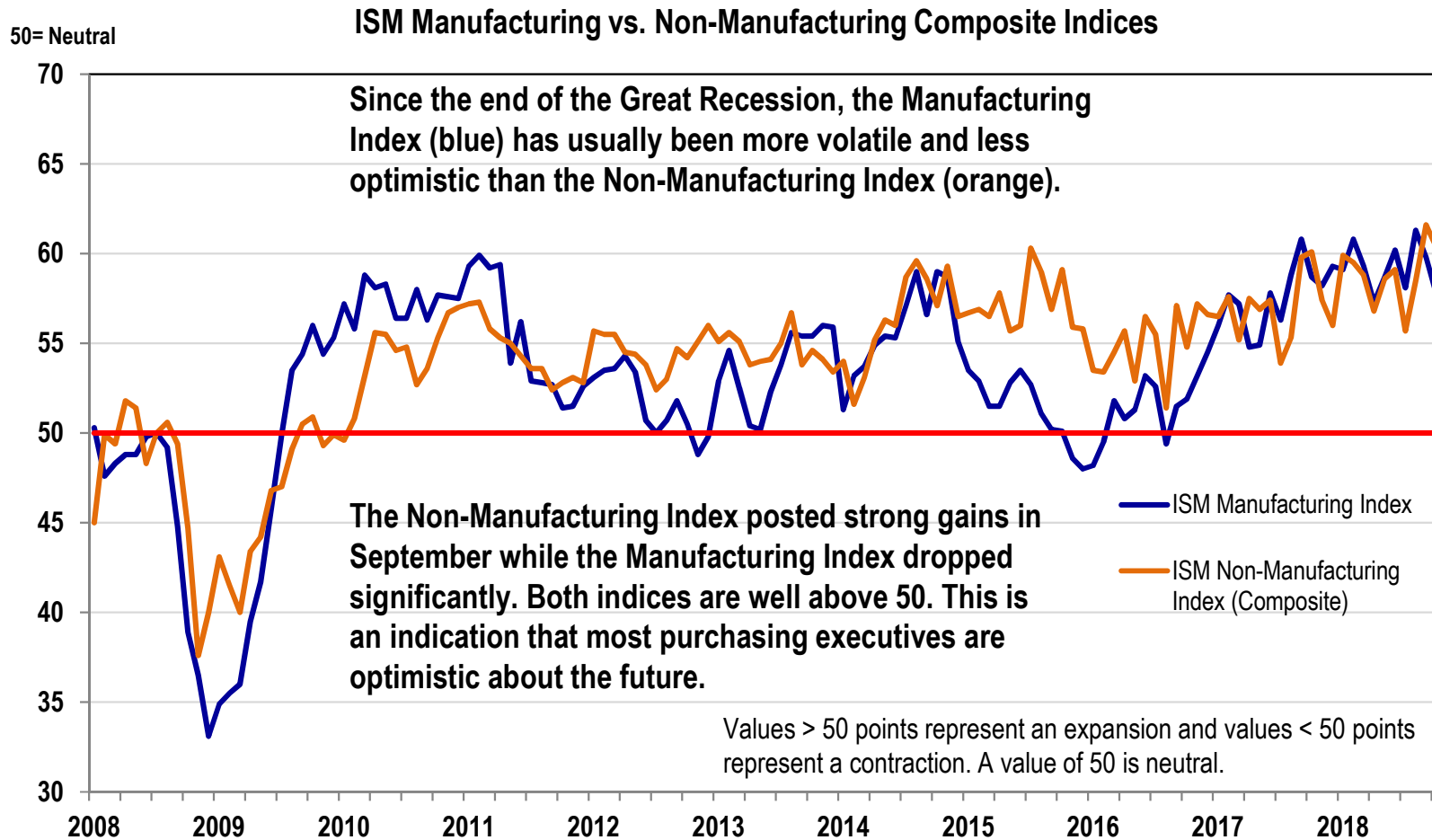
Source: Bureau of Labor Statistics, SA, cber.co.

Note: the Federal Reserve uses the PCE for establishing inflation target rates; the CPI tends to be slightly higher than the CPE.

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ISM PMI Composite Indices

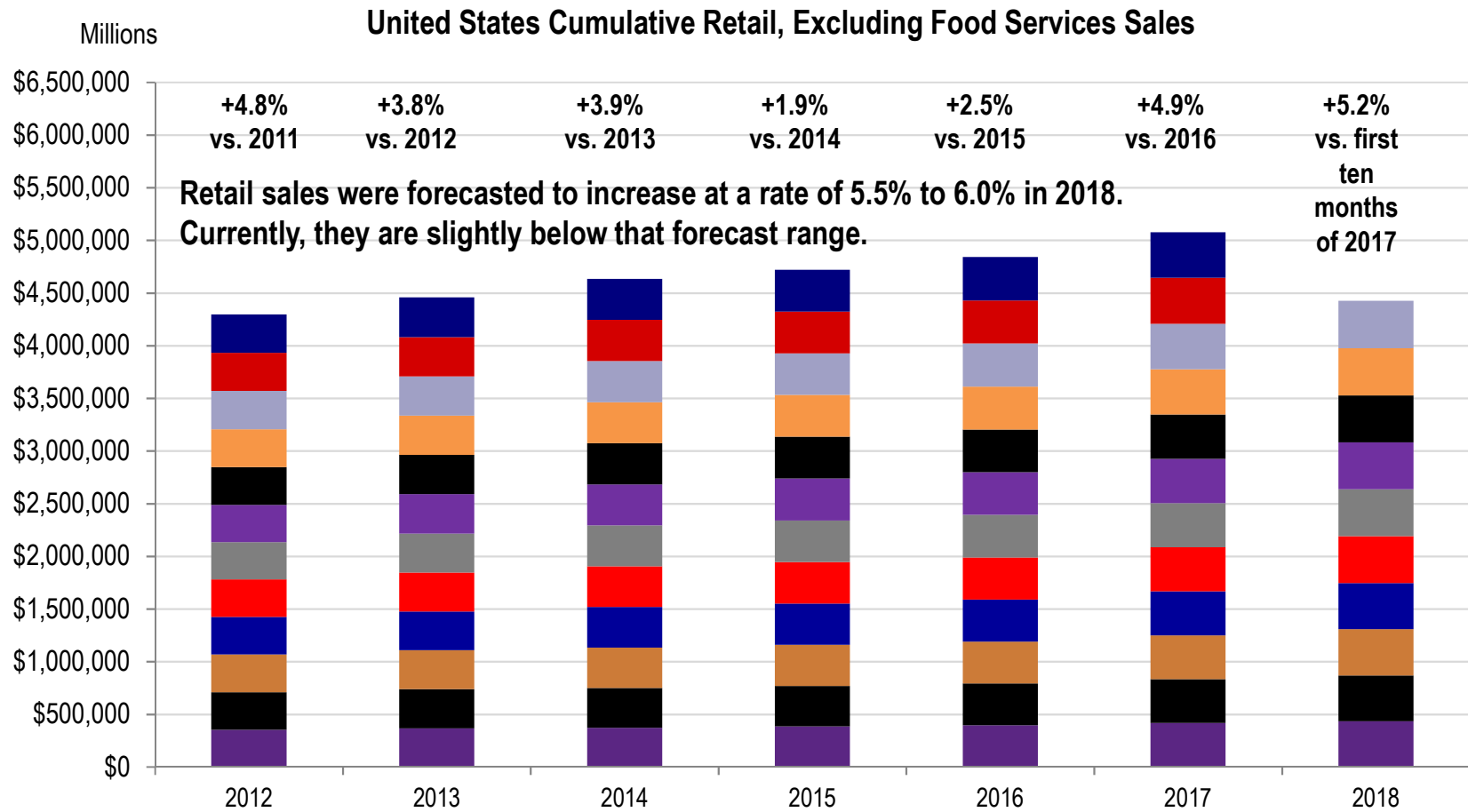
Manufacturing vs. Non-manufacturing



Sources: Institute for Supply Management (ISM), FRED, cber.co.

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- Cumulative Retail, Excluding Food Services Sales
- Monthly
-

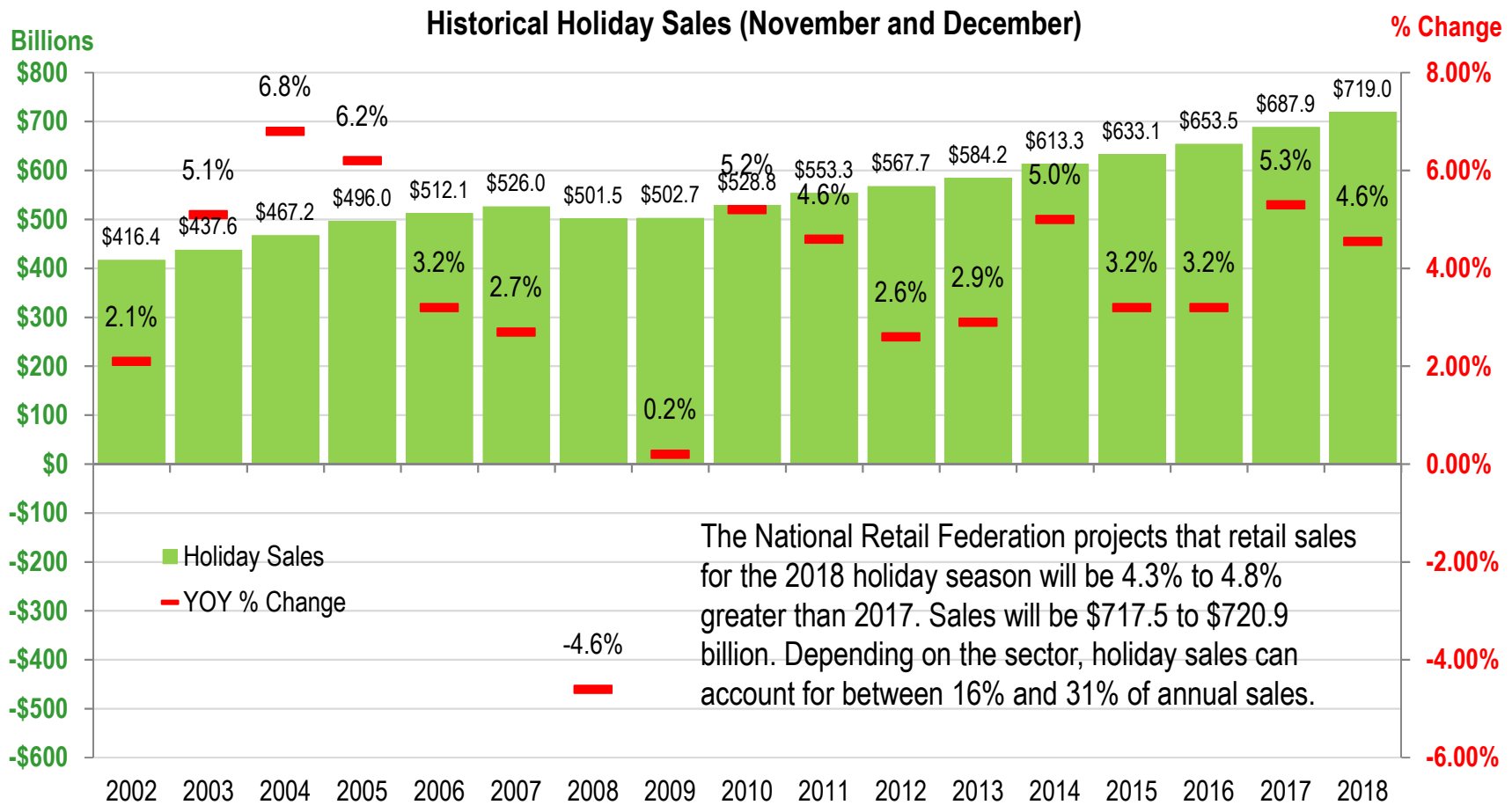


Source: U.S. Census Bureau, FRED, cber.co.

Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

Deck the Hall – Hit the Malls

Historical Holiday Sales and Forecast

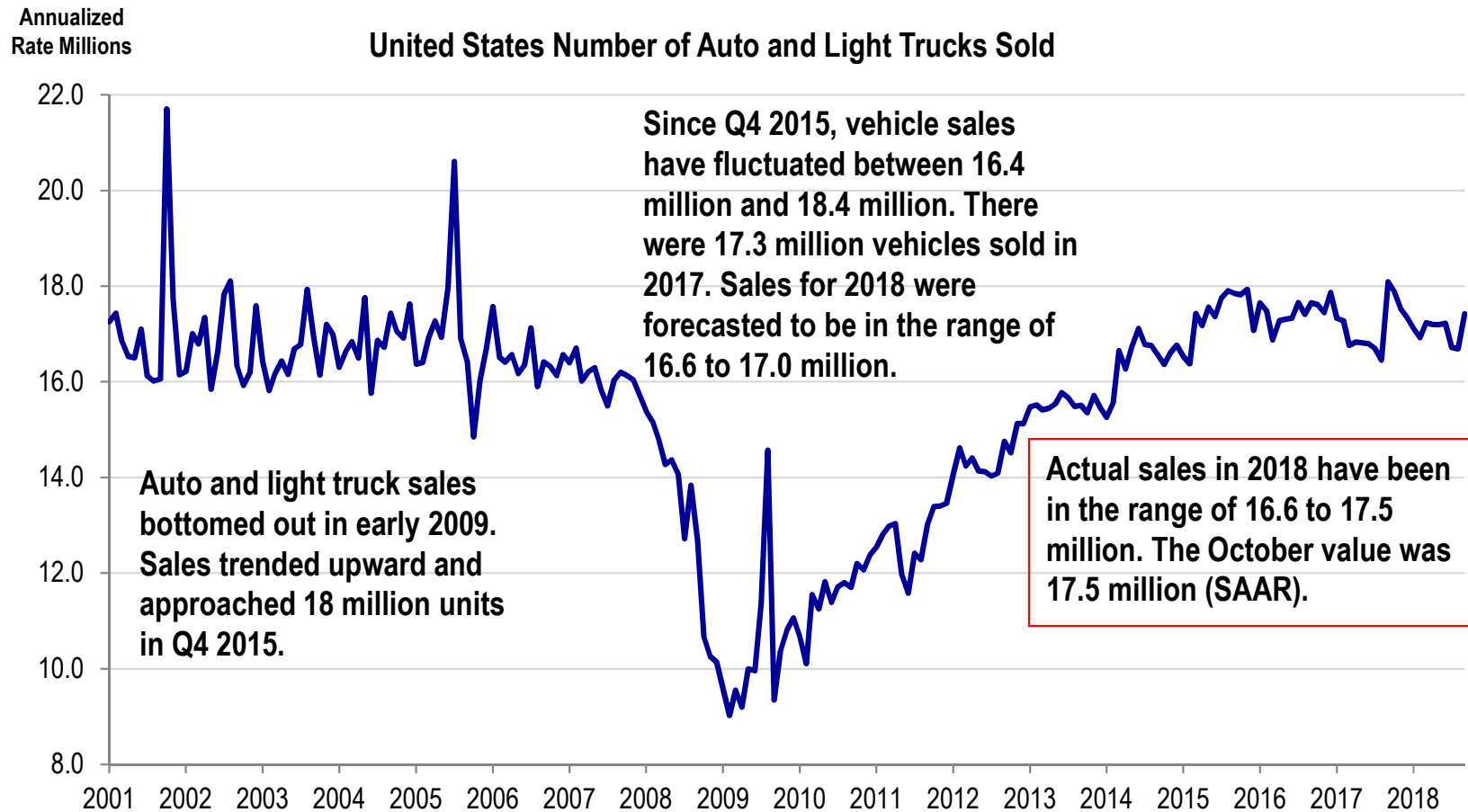


Source: National Retail Federation, U.S. Census Bureau, cber.co.

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U.S. Weekly Auto and Light Truck Sales

Monthly (Annualized Rate Millions)



Source: FRED, BEA, cber.co.

Note: Seasonally Adjusted Annualized Rate.

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The U.S. Economy

Summary

● The United States Economy

● Summary

●

Despite the political turbulence, the U.S. economy is currently on solid footing!

Even strong economies face economic headwinds.

The following challenges are unlikely to derail the economy during the next year:

- Worker shortages in many parts of the country.
- Rate hikes by the Federal Reserve will slow the rate of growth.
- Public and private debt.
- Retiring boomers without savings.
- Trade conflicts – The impact of tariffs has been limited. In time they will go away.
- Moderation in the growth of the European economy and slower growth in emerging countries.
- Political turbulence.



The Colorado Economy

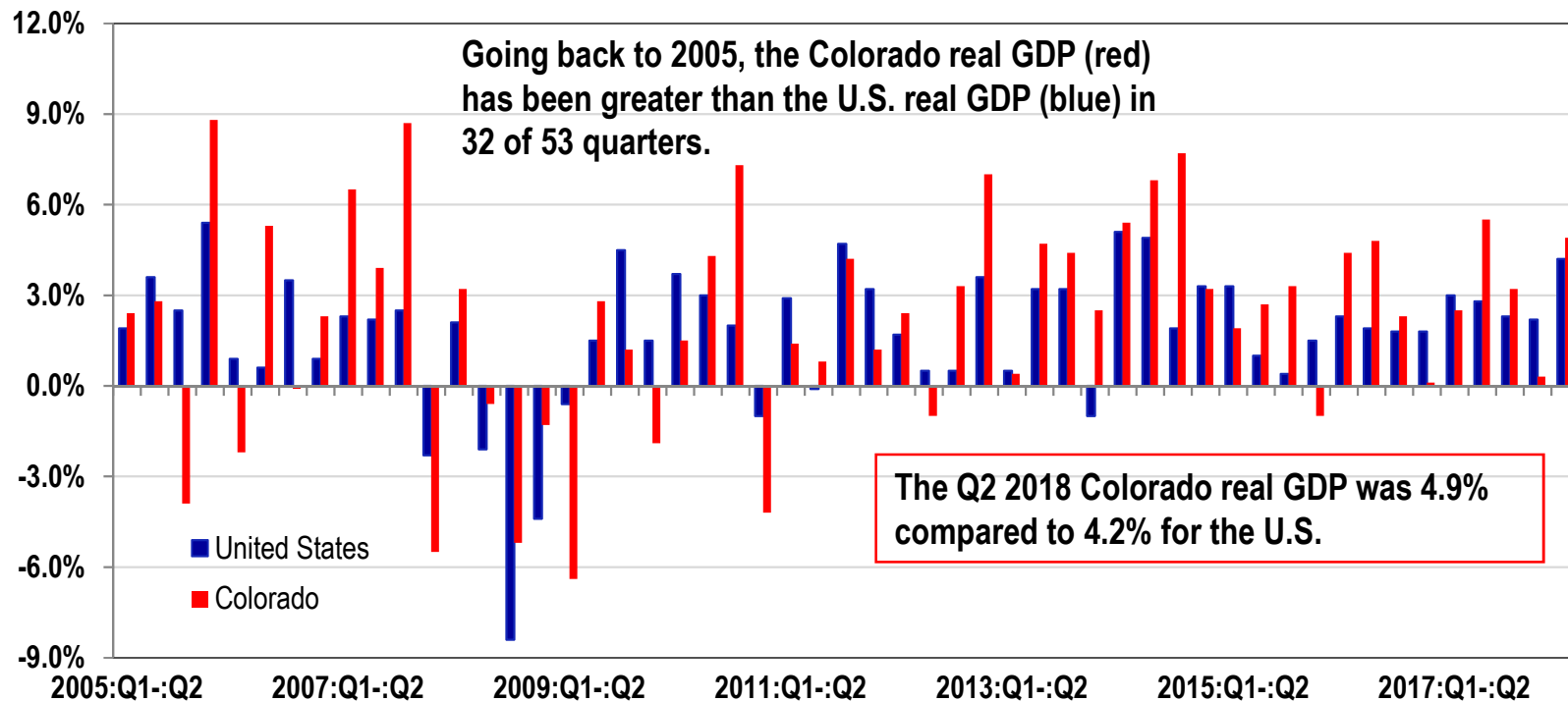
Colorado Real GDP – Q2

● Real Gross Domestic Product

● Colorado vs. U.S.



Real Gross Domestic Product



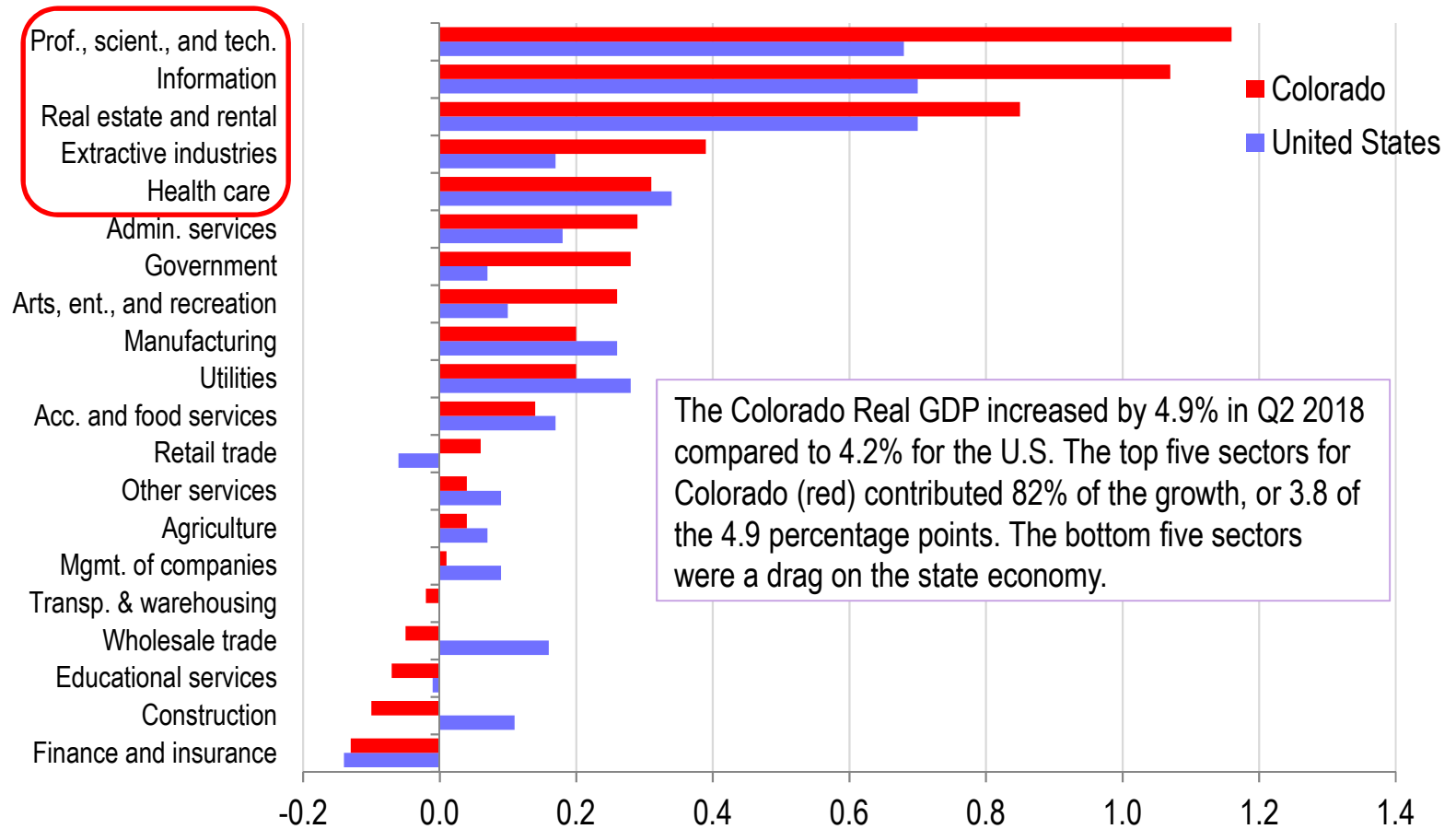
Source: Bureau of Economic Analysis. Note: U.S. real GDP is summary of states GDP.

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Q2 2018 Contribution to Real GDP by Sector

Colorado vs. U.S.

Percentage Point Contribution to Real GDP



Source: Bureau of Economic Analysis. Note: This reflects change from the prior period.

GH1



The Colorado Economy

Colorado Population, Change in Employment, and Summer Change in Employment

Colorado Population

Components of Change

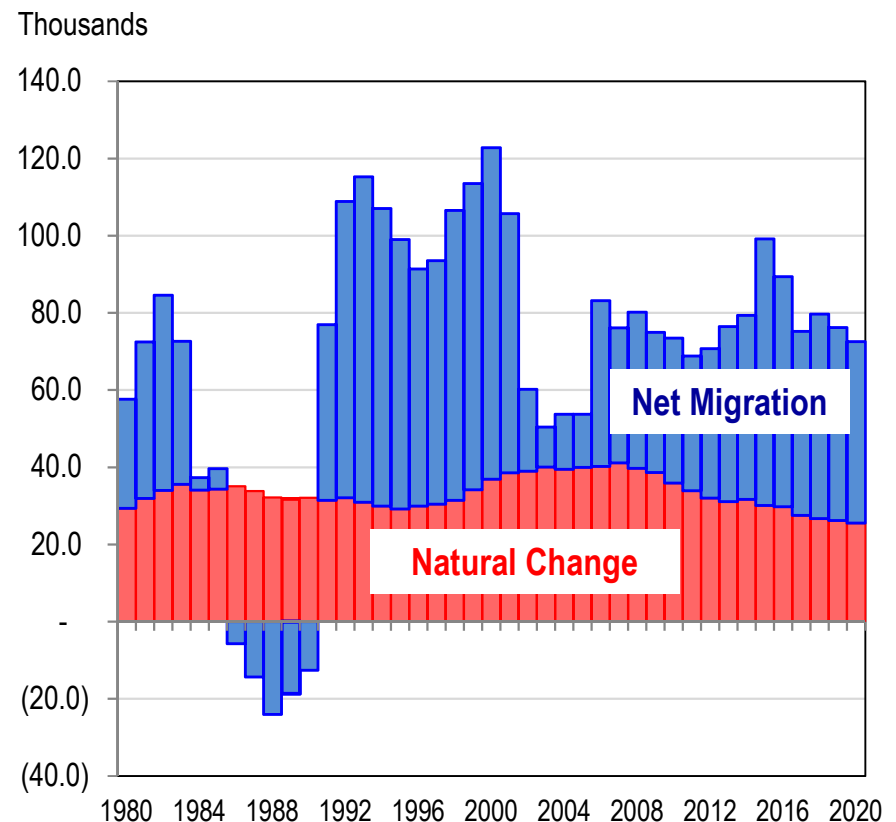
Population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

Over the past 3½ decades the natural rate of change (red bars) varied from a low of 29,145 in 1995 to a peak of 41,124 in 2007. Fertility rates have declined. As a result, the natural rate for 2018 will be 29,400.

Changes resulting from net migration (blue bars) are closely tied to the strength of the economy and the change in state employment. For example, there were five years, from 1986 to 1990, when net migration was negative. More people moved out of state than moved into the state to escape the regional recession. During the past two recessions (2001 and 2007), net migration declined, but did not turn negative. It was difficult for people to move anywhere to escape the bad economy.

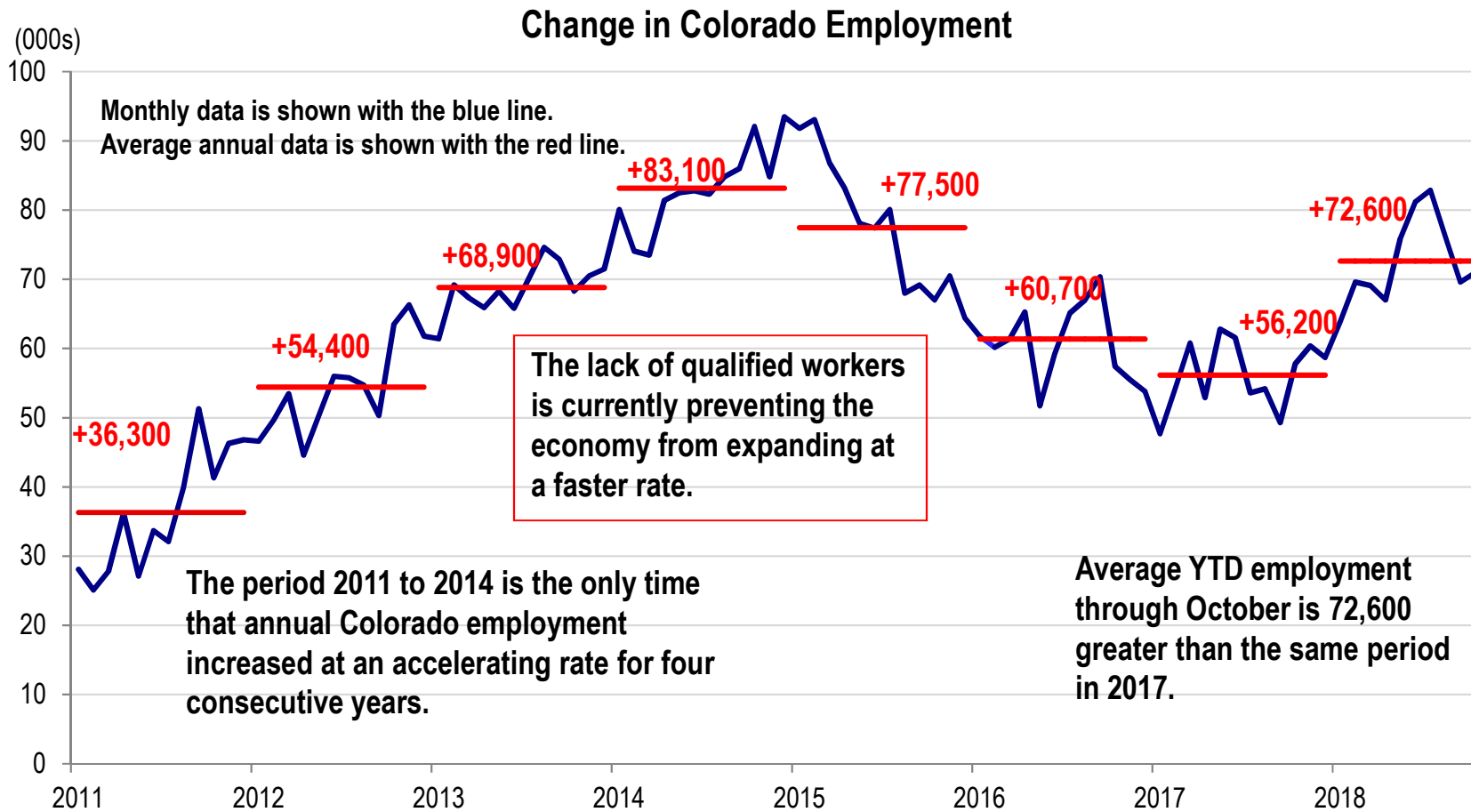
The Colorado population will increase by about 75,000 for the years 2016 to 2020. In 2018 the state's population will increase by 1.4% to 5,689,145.

Change in Colorado Population 1980 - 2019



Change in Colorado Employment

Year Over Year



Source: Bureau of Labor Statistics, NSA, cber.co. Note: Monthly and annual data is YOY.

GH1



The Colorado Economy

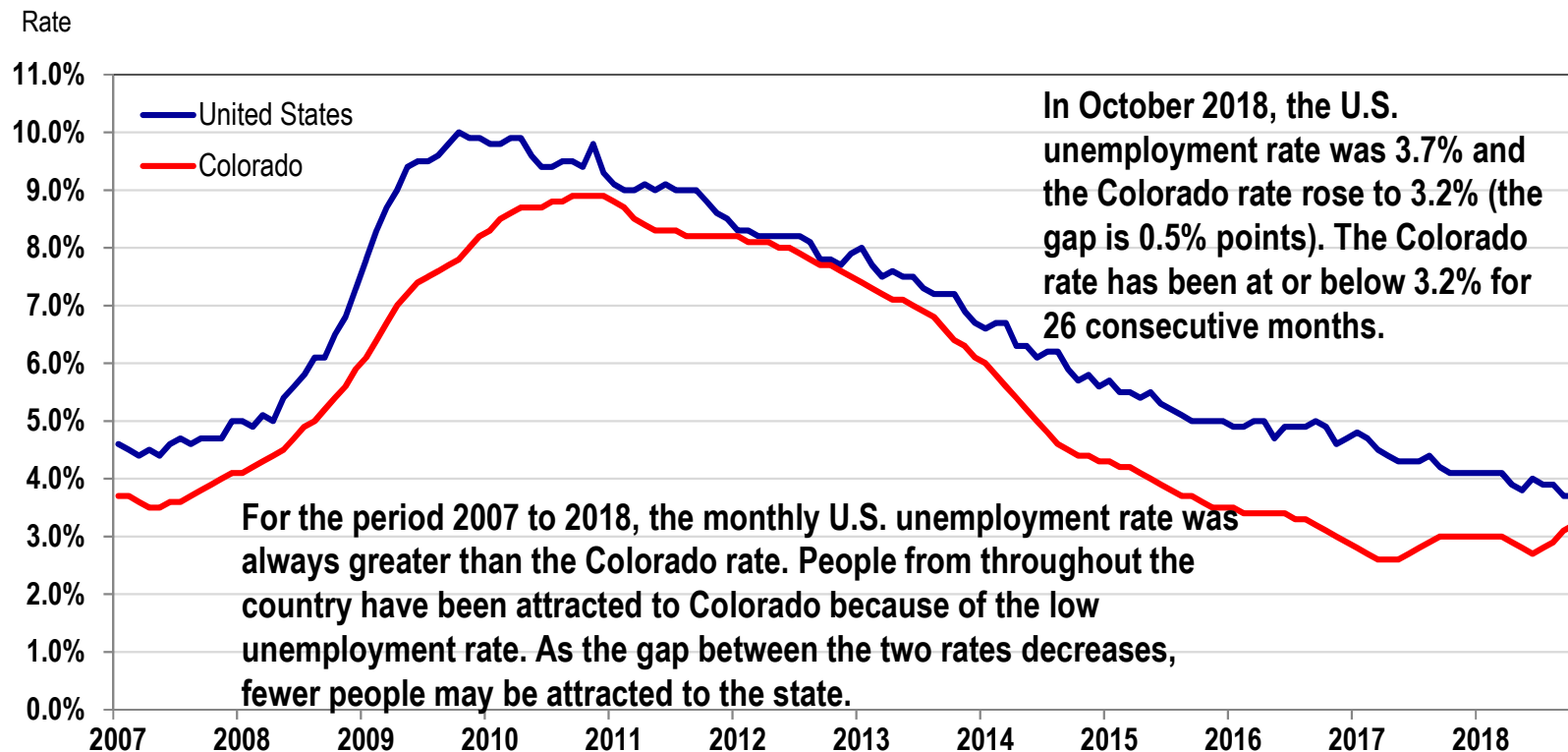
Unemployment Rate, the Unemployment Gap, and the Change in the Size of Labor Force

Unemployment Rate

Colorado vs. U.S.



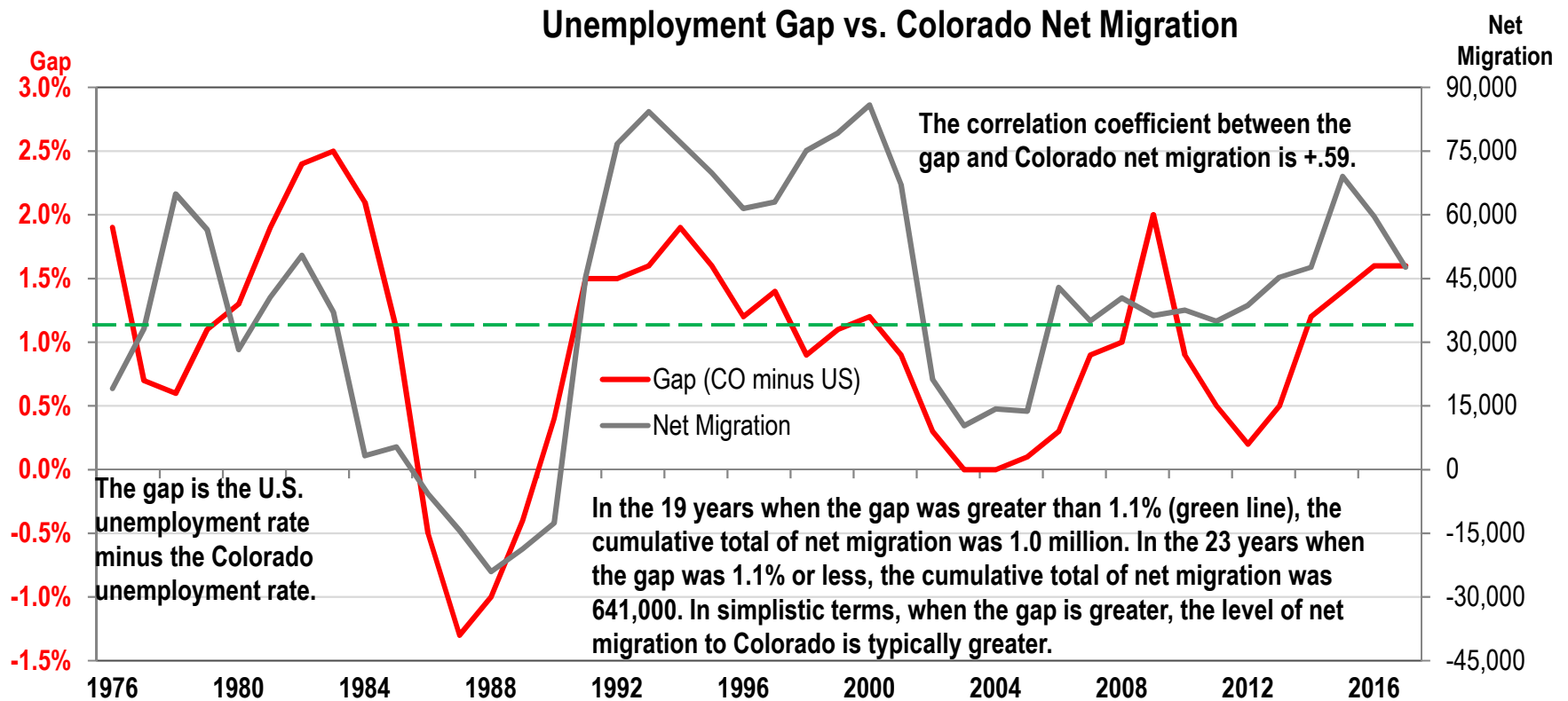
Unemployment Rate – Colorado vs. U.S.



Source: Bureau of Labor Statistics, cber.co.

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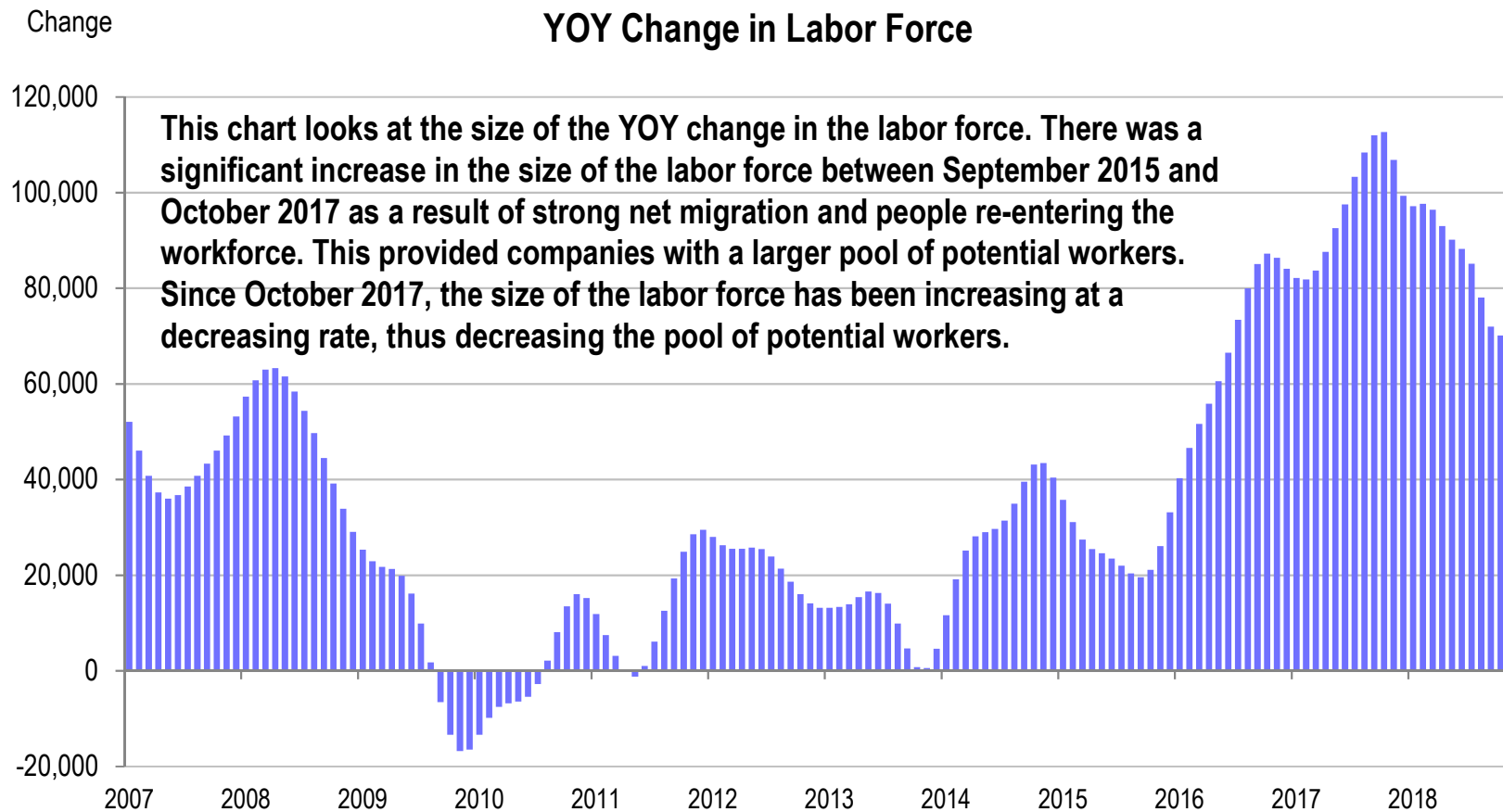
- The Unemployment Gap (U.S. Minus CO Rate)
- The Gap vs. Net Migration
-



Source: Bureau of Labor Statistics, State Demographers Office, cber.co.

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YOY Change in Colorado Labor Force



Source: Bureau of Labor Statistics, LAUS, SA, cber.co.

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Colorado Unemployment Rate

Unemployment will continue to remain low for an extended period. As a result, the state economy will continue to perform in an inefficient manner.

There are companies in all sectors that are not adequately staffed. Unfortunately, their customers often have to deal with poor service and long wait times – in some cases there is even no service.

Given the U.S. unemployment rate of 3.7%, most states are facing similar challenges as Colorado. There are low unemployment rates in key occupations, key industries, and in most geographic areas of the state and U.S.

Just as there was no place to hide from the high unemployment rates of the Great Recession, there is no place to hide from the ill effects of an unemployment rate that is too low. Having said that, it is much better to deal with an unemployment rate that is too low than to deal with one that is too high.



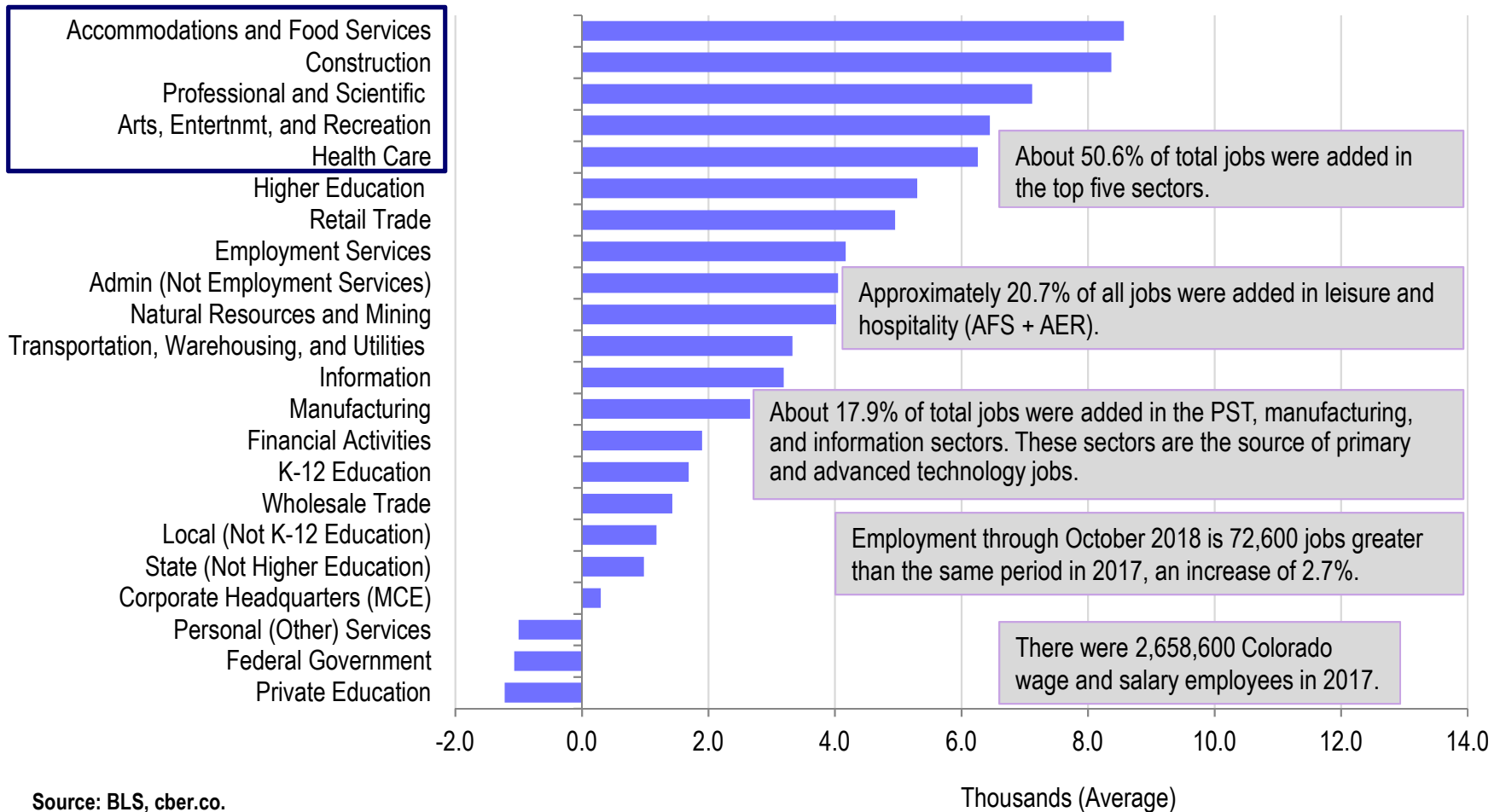
The Colorado Economy

Change in Employment by Sector and Change in Employment for Key Sectors

Change in Employment by Sector

First 10 Months of 2018 vs. Same Period of 2017

Job Change All Sectors



About 50.6% of total jobs were added in the top five sectors.

Approximately 20.7% of all jobs were added in leisure and hospitality (AFS + AER).

About 17.9% of total jobs were added in the PST, manufacturing, and information sectors. These sectors are the source of primary and advanced technology jobs.

Employment through October 2018 is 72,600 jobs greater than the same period in 2017, an increase of 2.7%.

There were 2,658,600 Colorado wage and salary employees in 2017.

Source: BLS, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

Key Sectors

Strong Growth, Solid Growth, and Volatile Categories

The following slides show the change in employment for key sectors in the strong growth, solid growth, and volatile categories.

- The green bars represent sectors from the strong growth category.
- The yellow bars represent sectors from the solid growth category.
- The red bars represent the volatile category.

The state is on track to add 72,600 jobs in 2018.

The total jobs added by category follows:

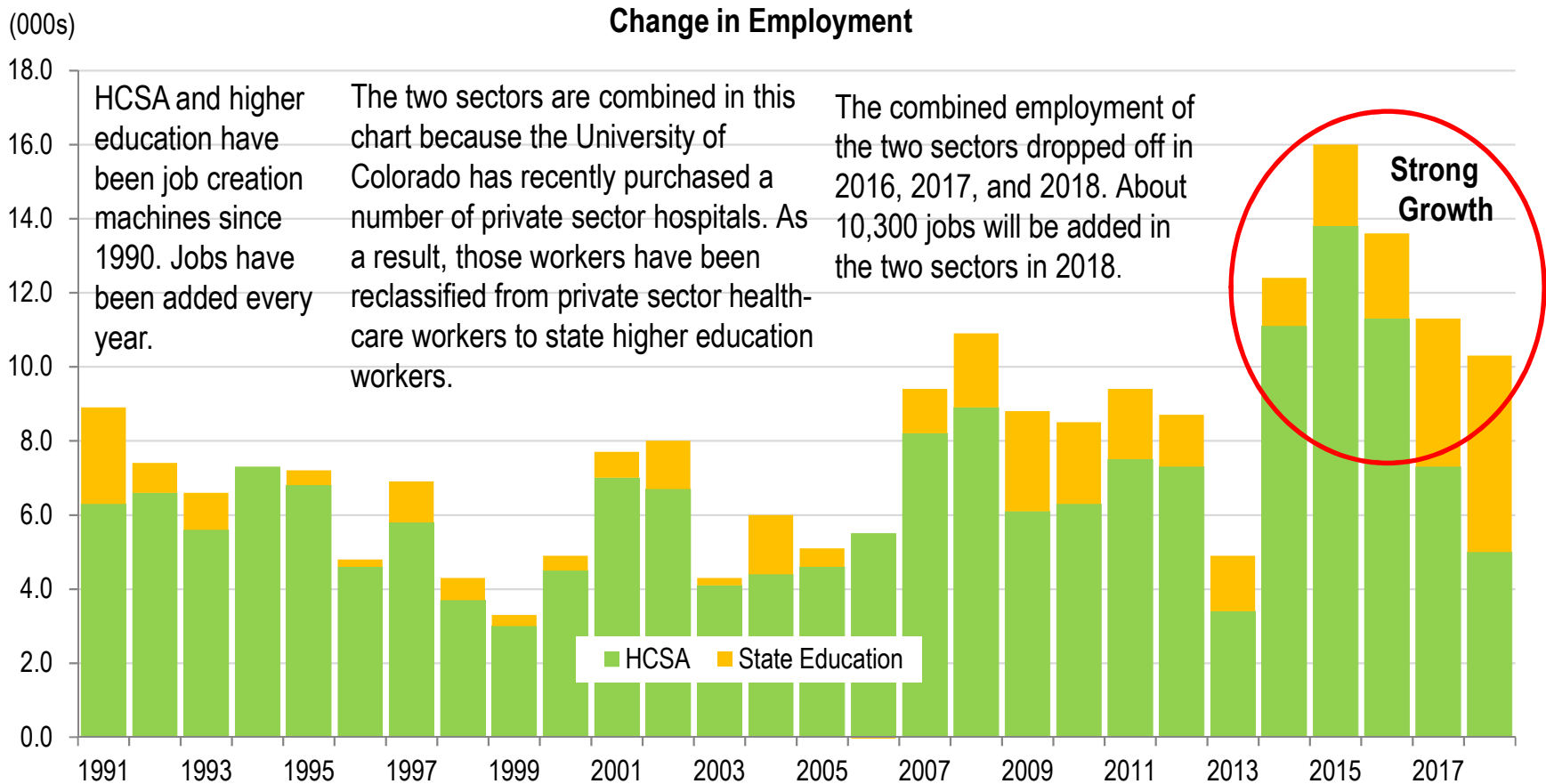
- Strong Growth 22,000 jobs
- Solid Growth 24,100 jobs
- Volatile 26,500 jobs.

Job growth has been much stronger than expected in all three categories. Job growth for 2018 was expected to be in the range of 51,400 to 57,400. The slowdown that was projected for 2018 has yet to happen.

Change in Employment

Health Care and Social Assistance and Higher Education

Strong and Solid Growth Categories

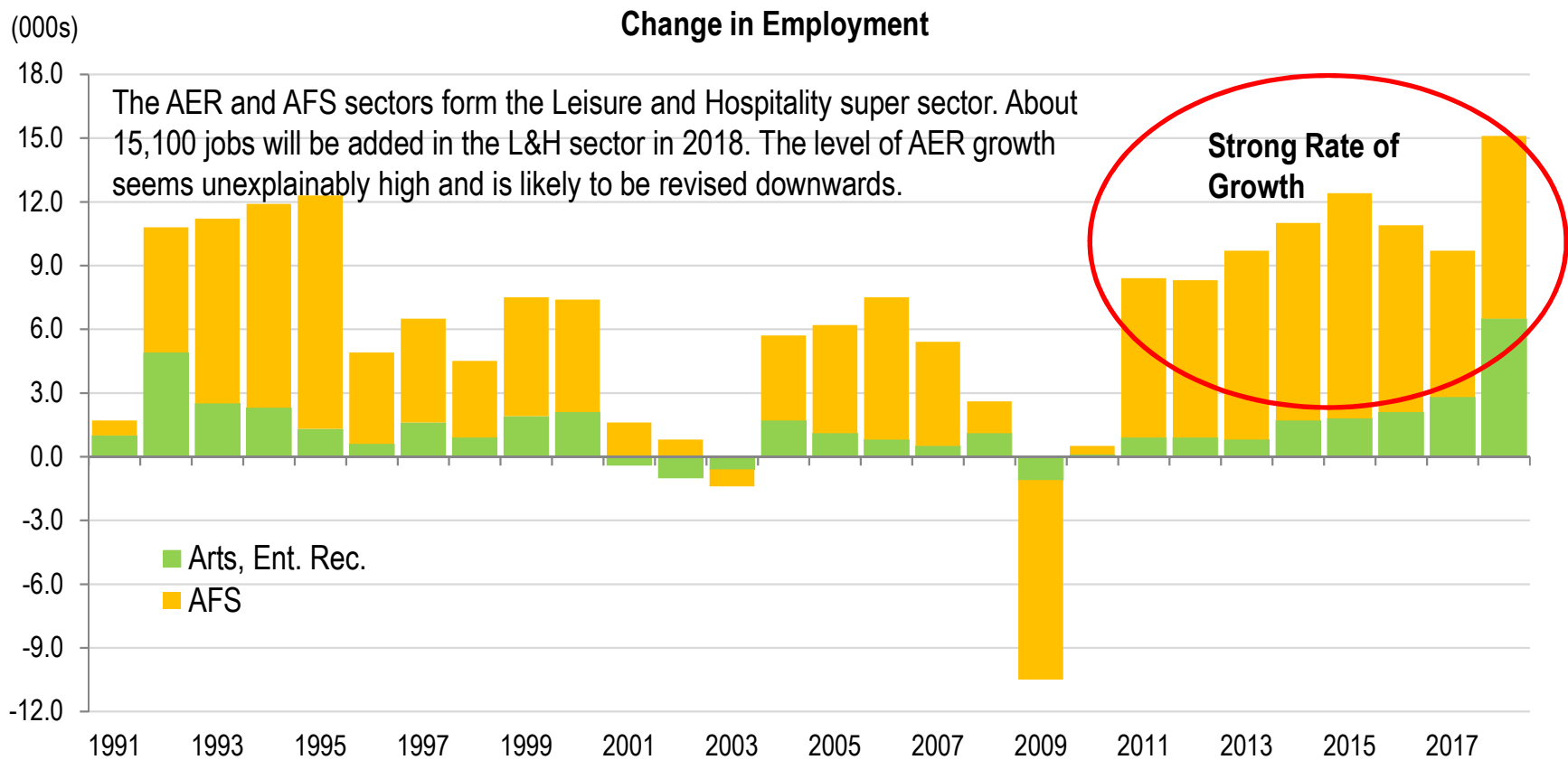


Source: Bureau of Labor Statistics, cber.co.

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Change in Employment

- Arts, Entertainment, and Recreation and Accommodations and Food Services
- Strong Growth Category



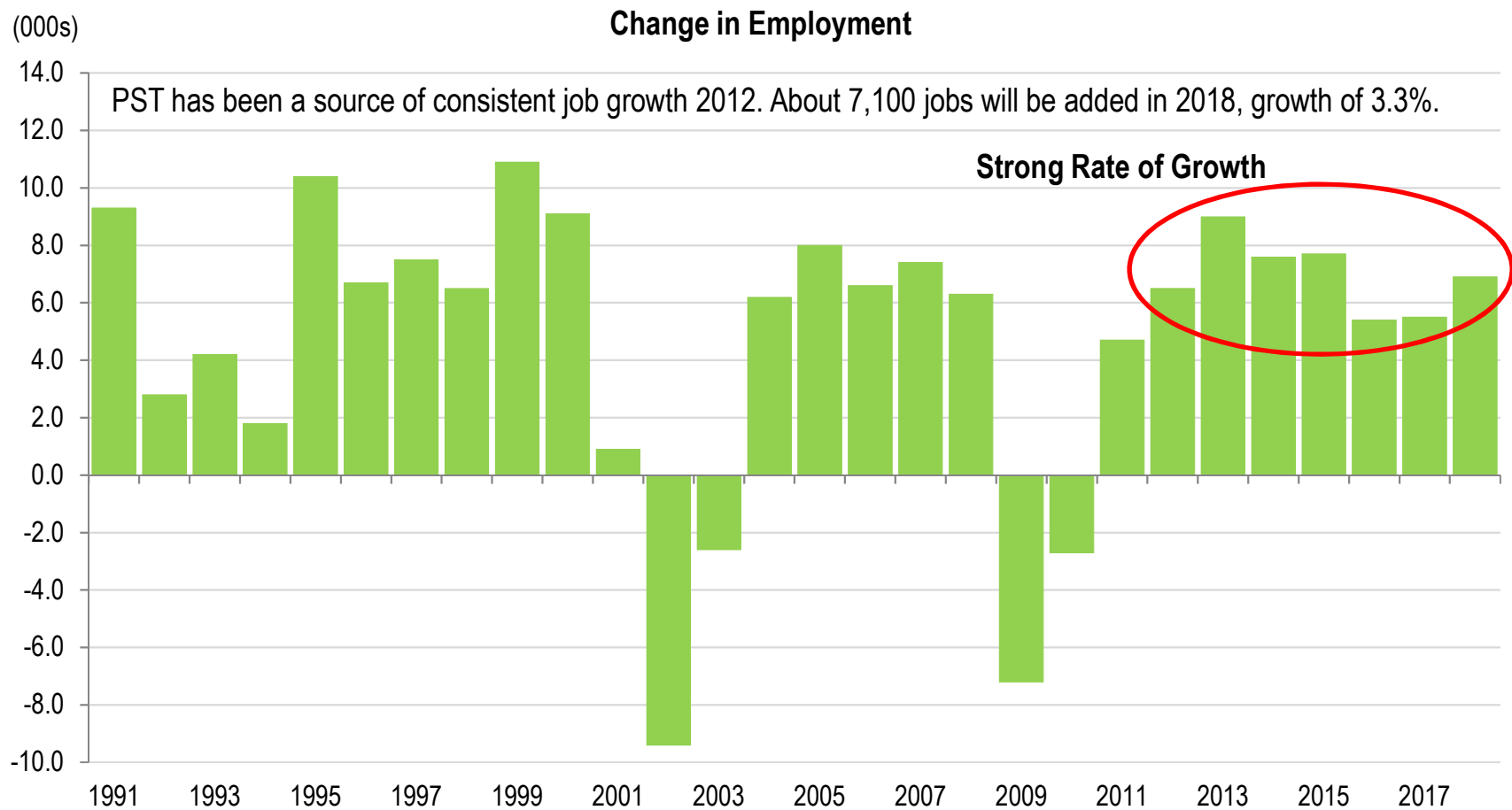
Source: Bureau of Labor Statistics, cber.co.

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Change in Employment

Professional, Scientific, and Technical Services

Strong Growth Category

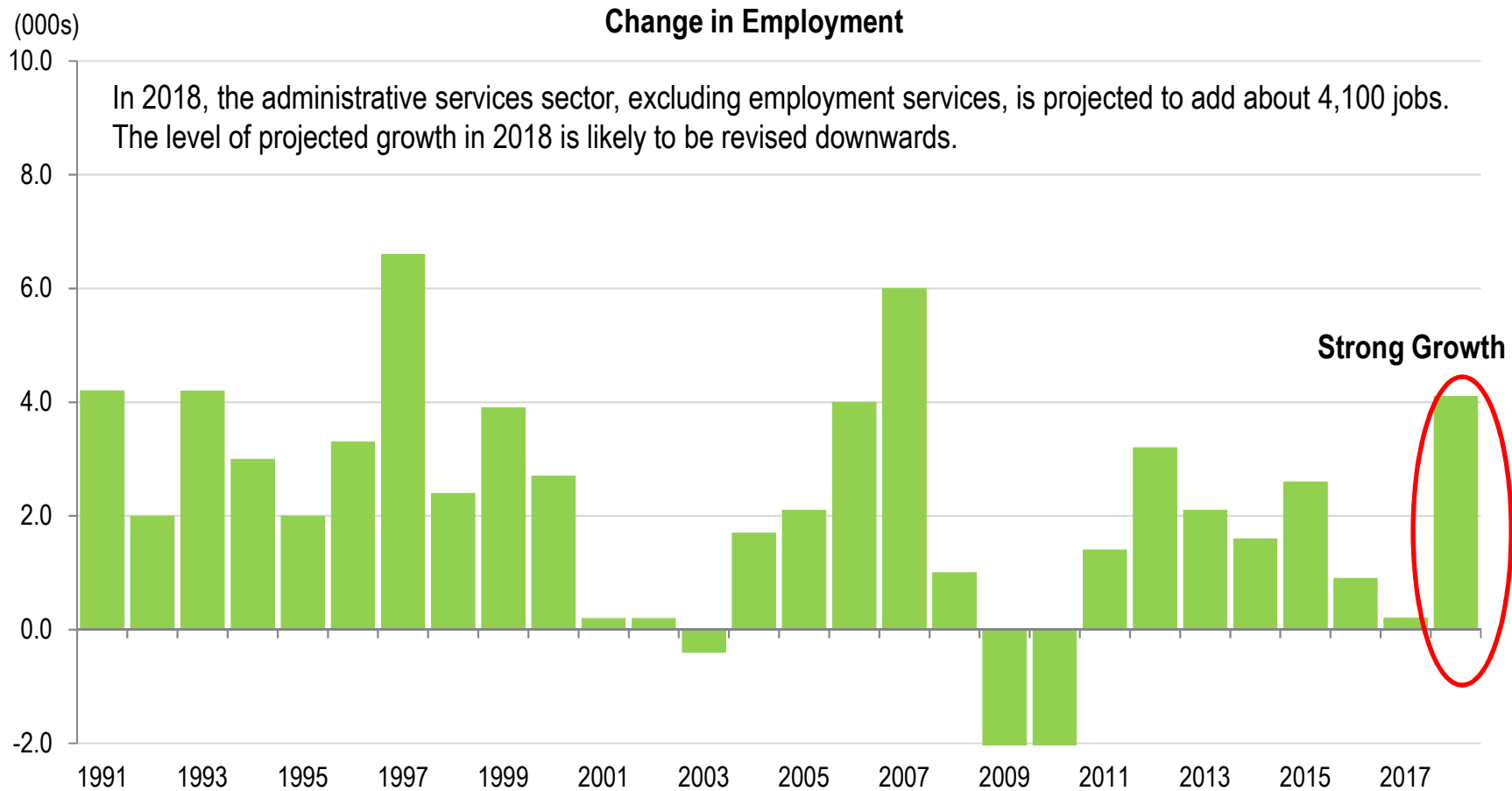


Source: Bureau of Labor Statistics, cber.co.

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Change in Employment

- Administrative Services, Excluding Employment Services
- Strong Growth Category

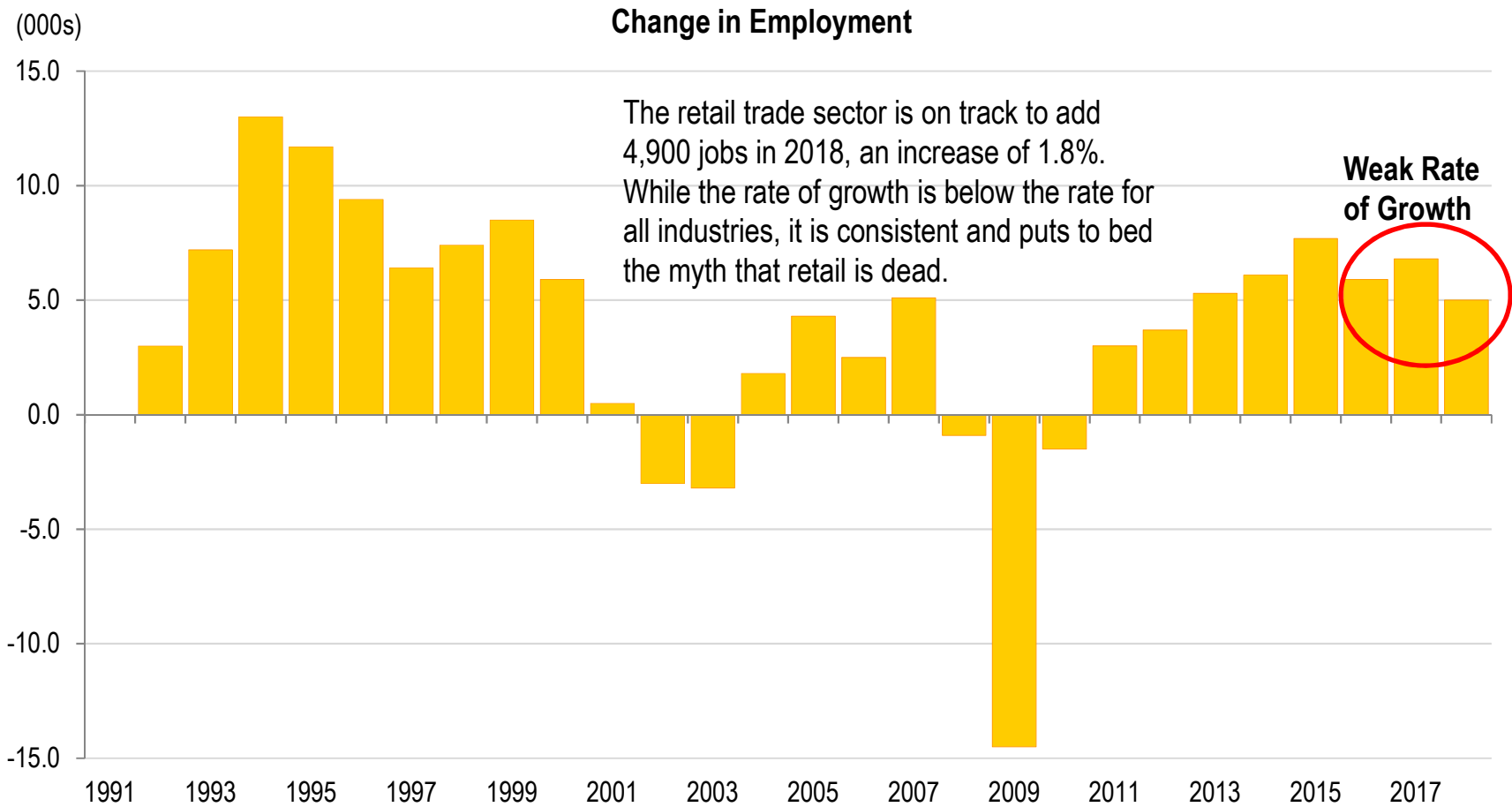


Source: Bureau of Labor Statistics, cber.co.

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Change in Employment

- Retail Trade
- Solid Growth Category

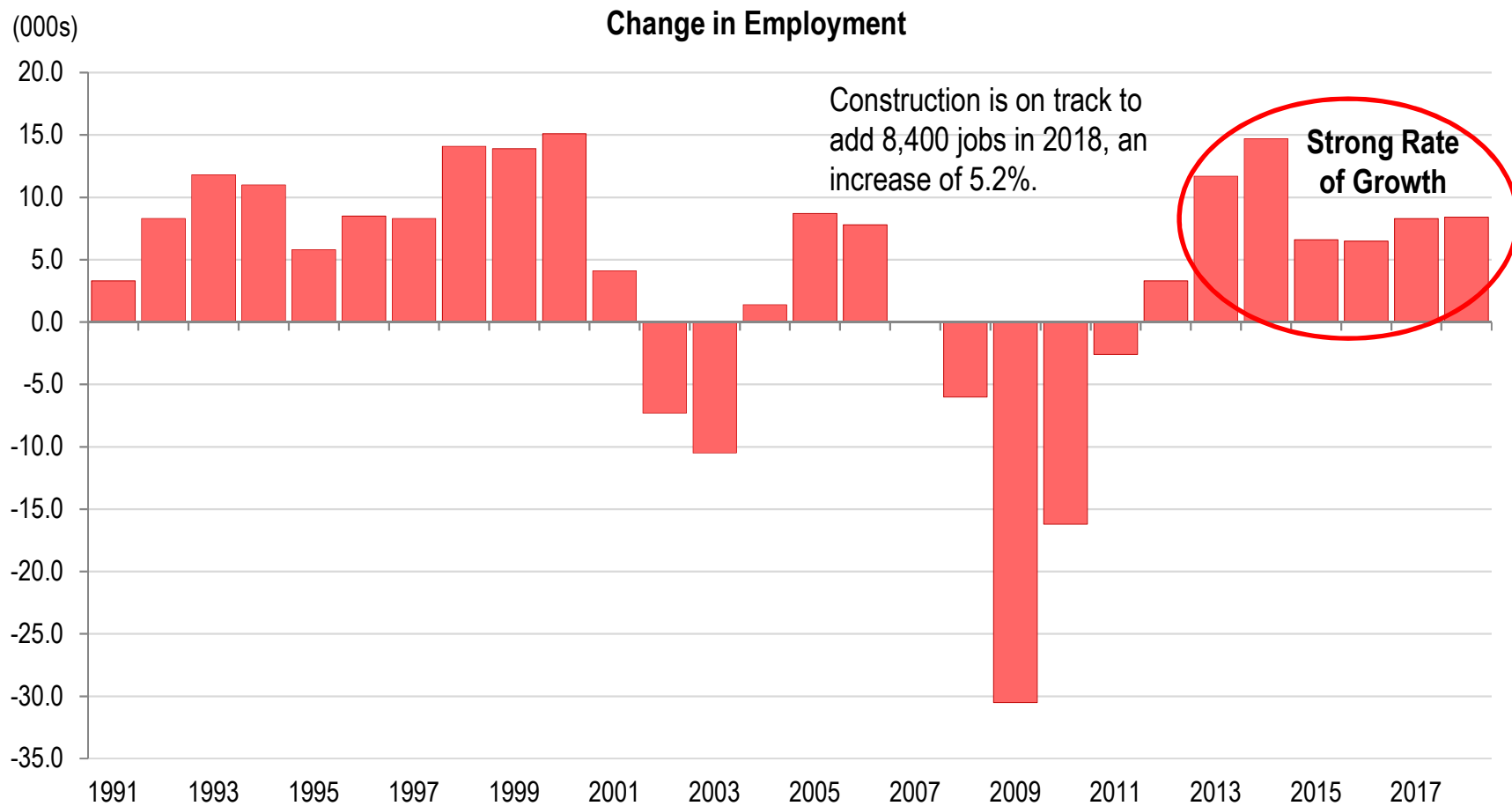


Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

Change in Employment

- Construction
- Volatile Growth Category

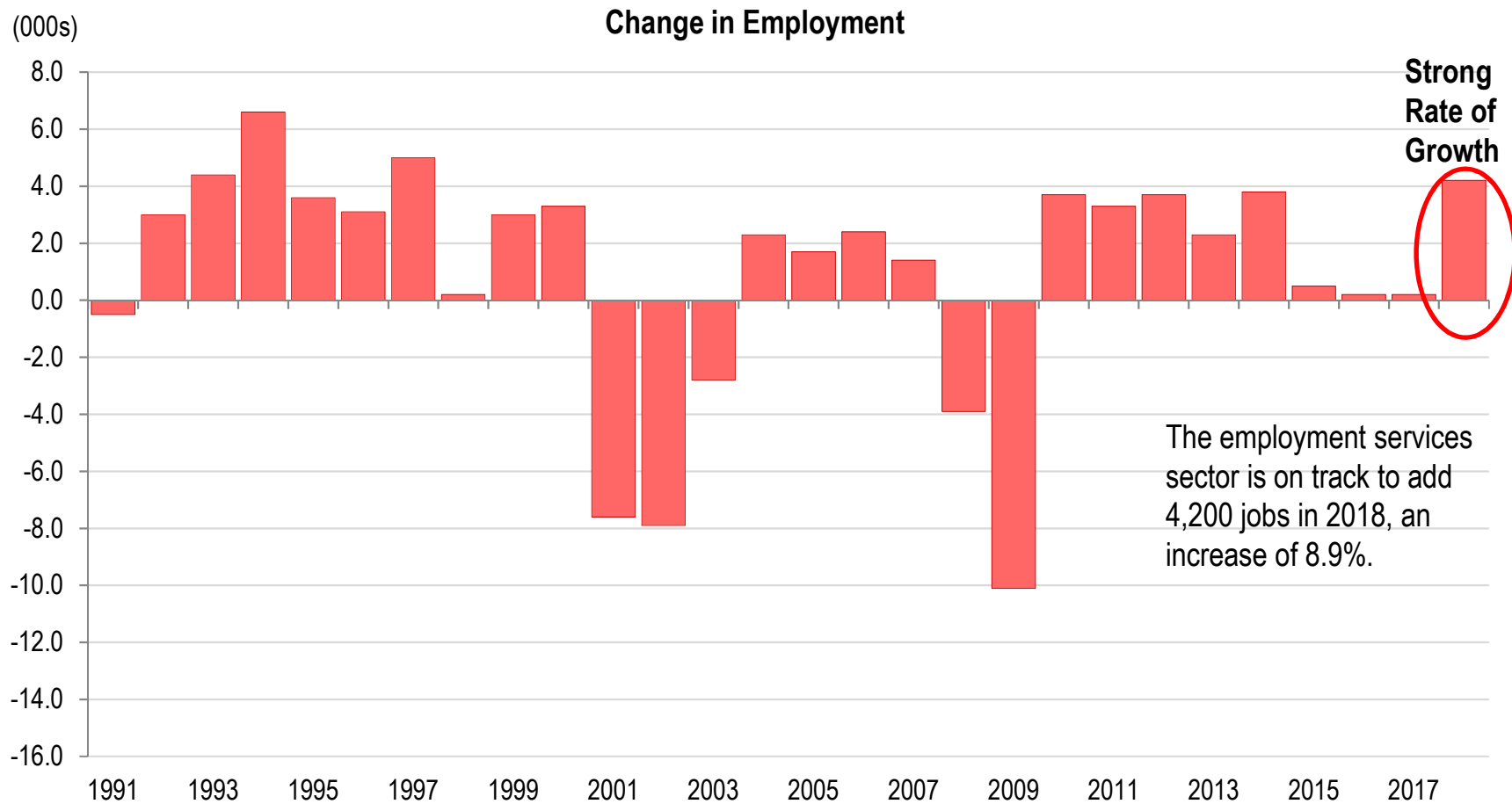


Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

Change in Employment

- Employment Services
- Volatile Growth Category

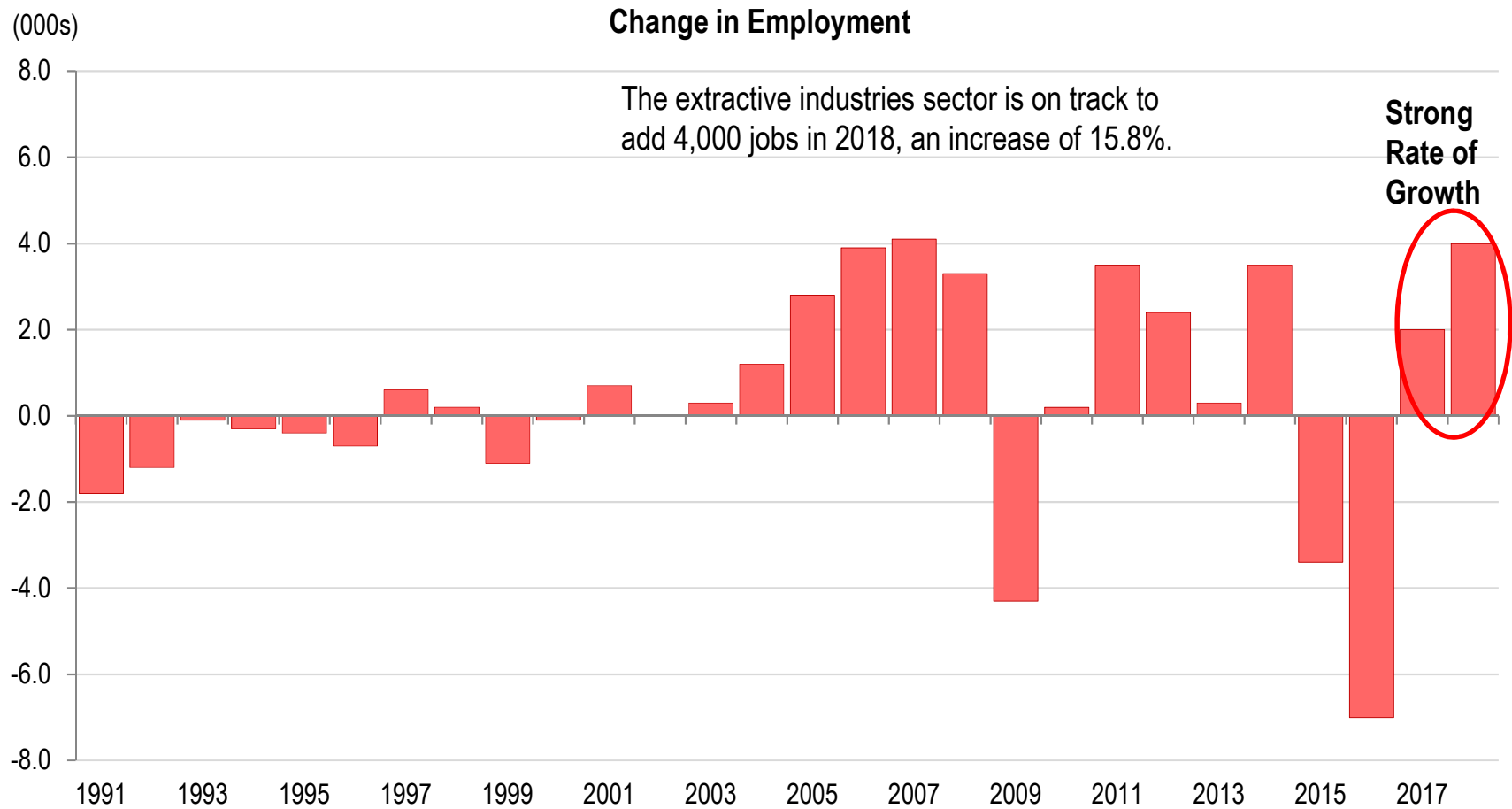


Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

Change in Employment

- Extractive Industries
- Volatile Growth Category



Source: Bureau of Labor Statistics, cber.co.

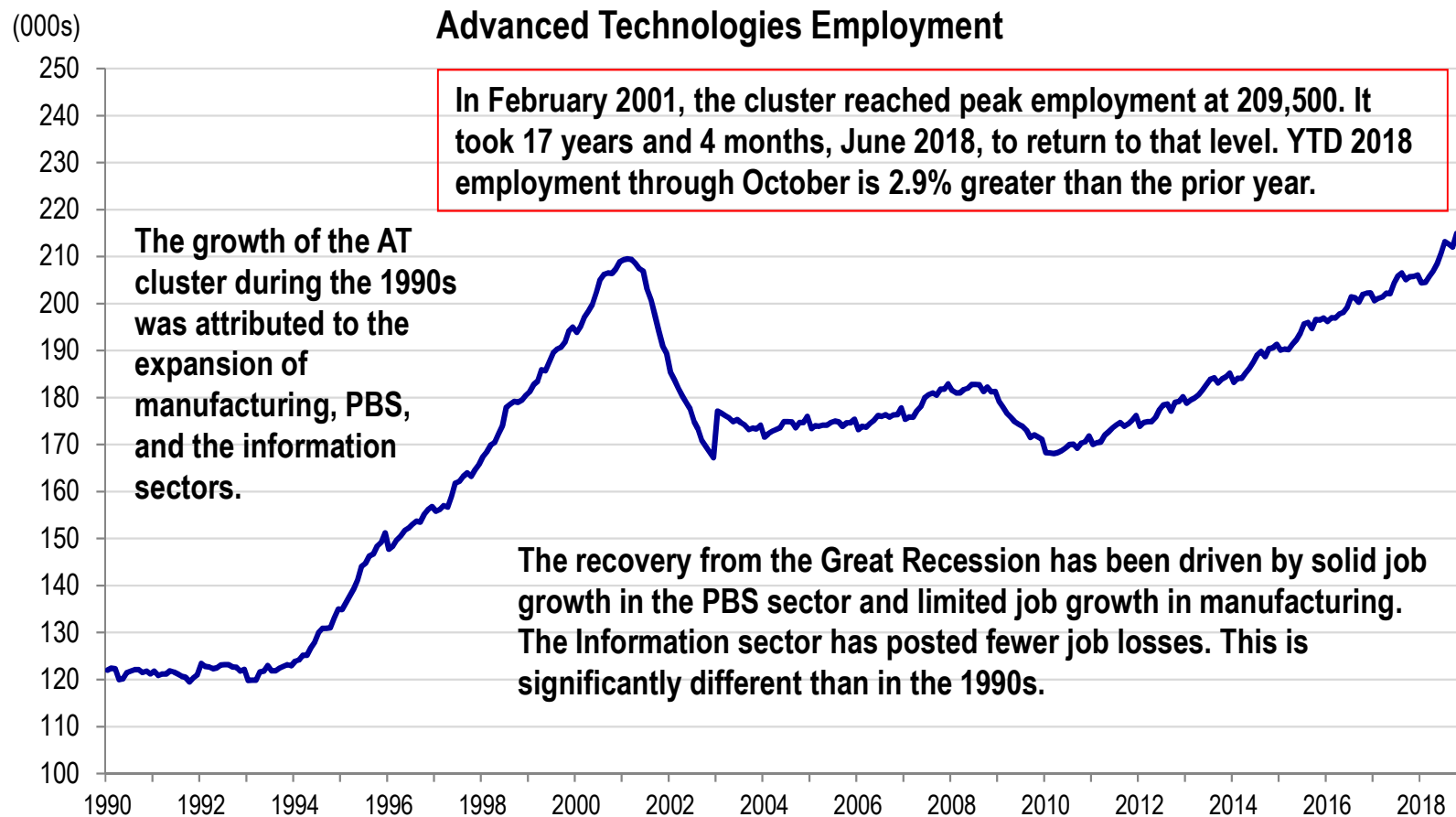
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The Colorado Economy

The Advanced Technology Cluster

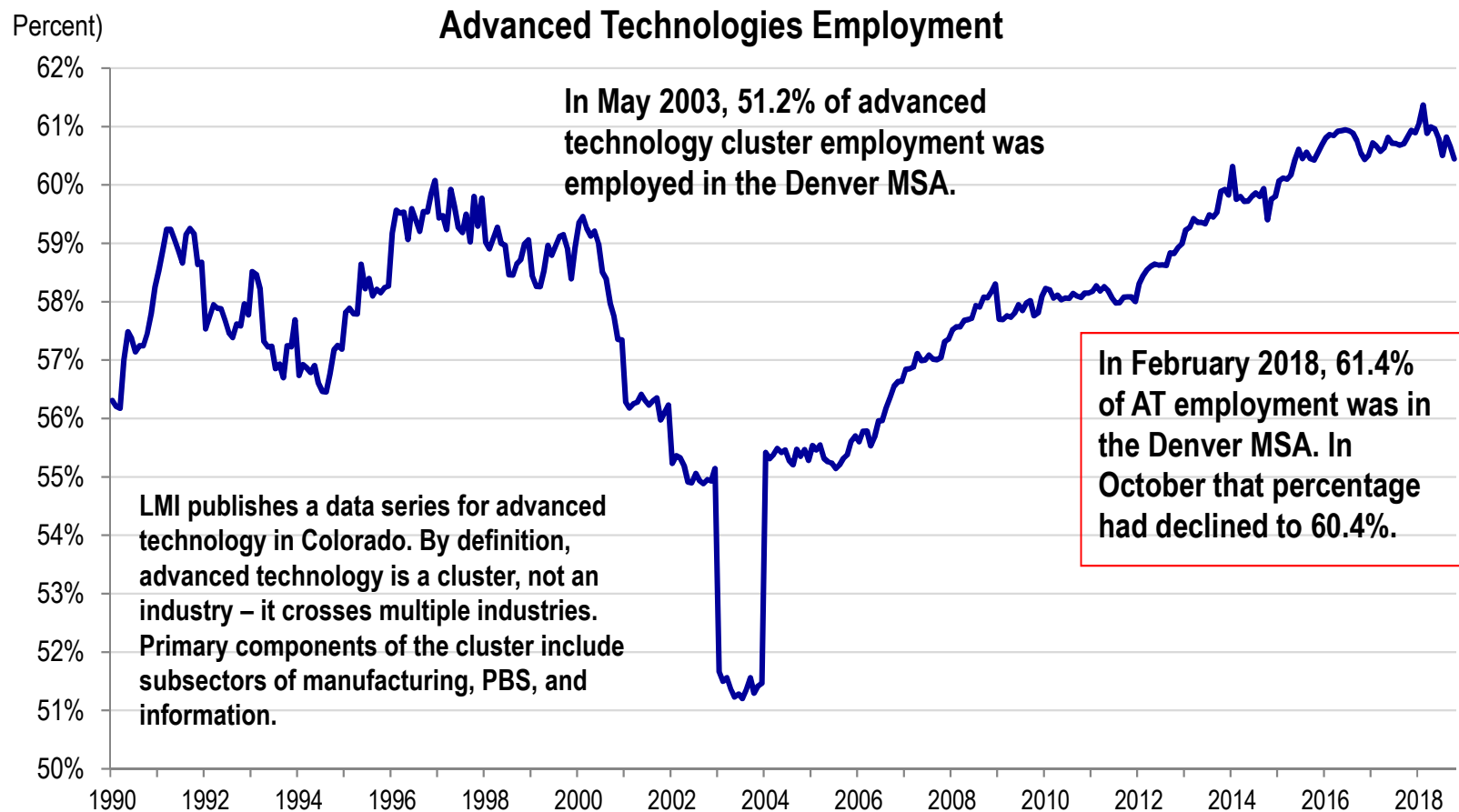
Advanced Technologies Employment



Source: Labor Market Information, <https://www.colmigateway.com/gsipub/index.asp?docid=368>, cber.co.

Advanced Technologies Employment

Percent Located in Denver MSA



Source: Labor Market Information, <https://www.colmigateway.com/gsipub/index.asp?docid=368>, cber.co.

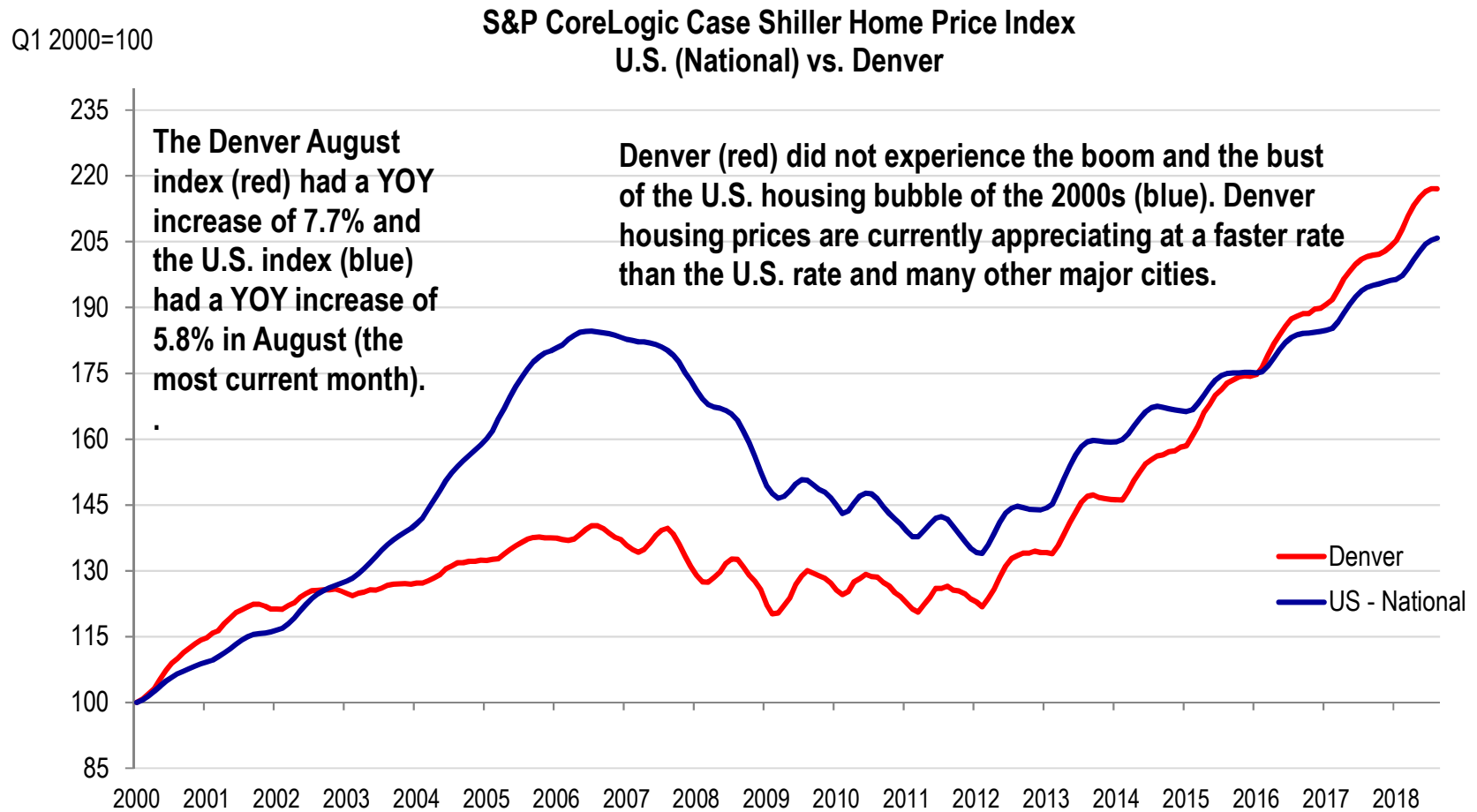


The Colorado Economy

Housing Prices and Building Permits

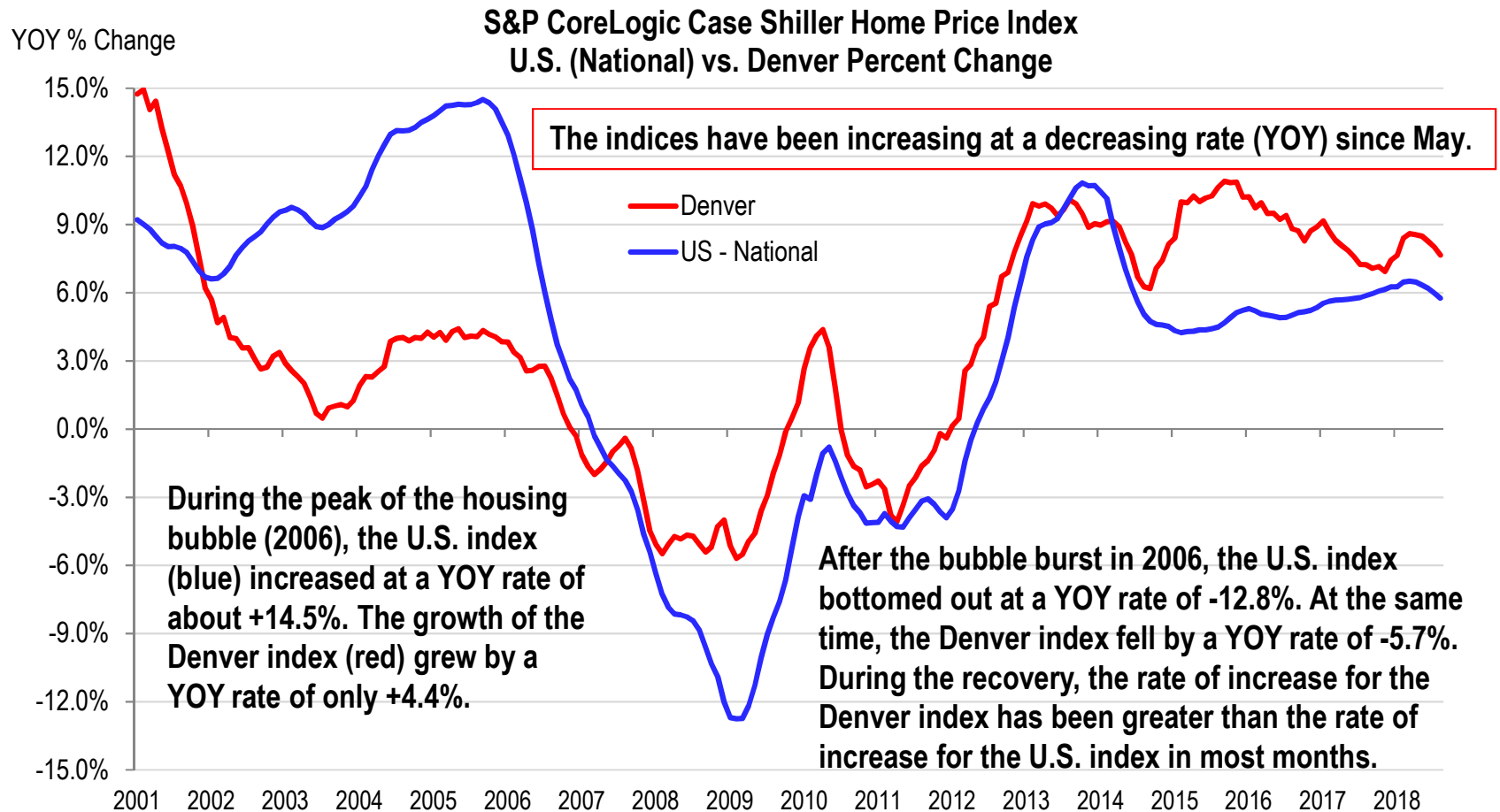
Case Shiller Home Price Index

National vs. Denver Index Value



Source: S&P Core-Logic Case-Shiller, cber.co.

Case Shiller Home Price Index National vs. Denver Rate of Change



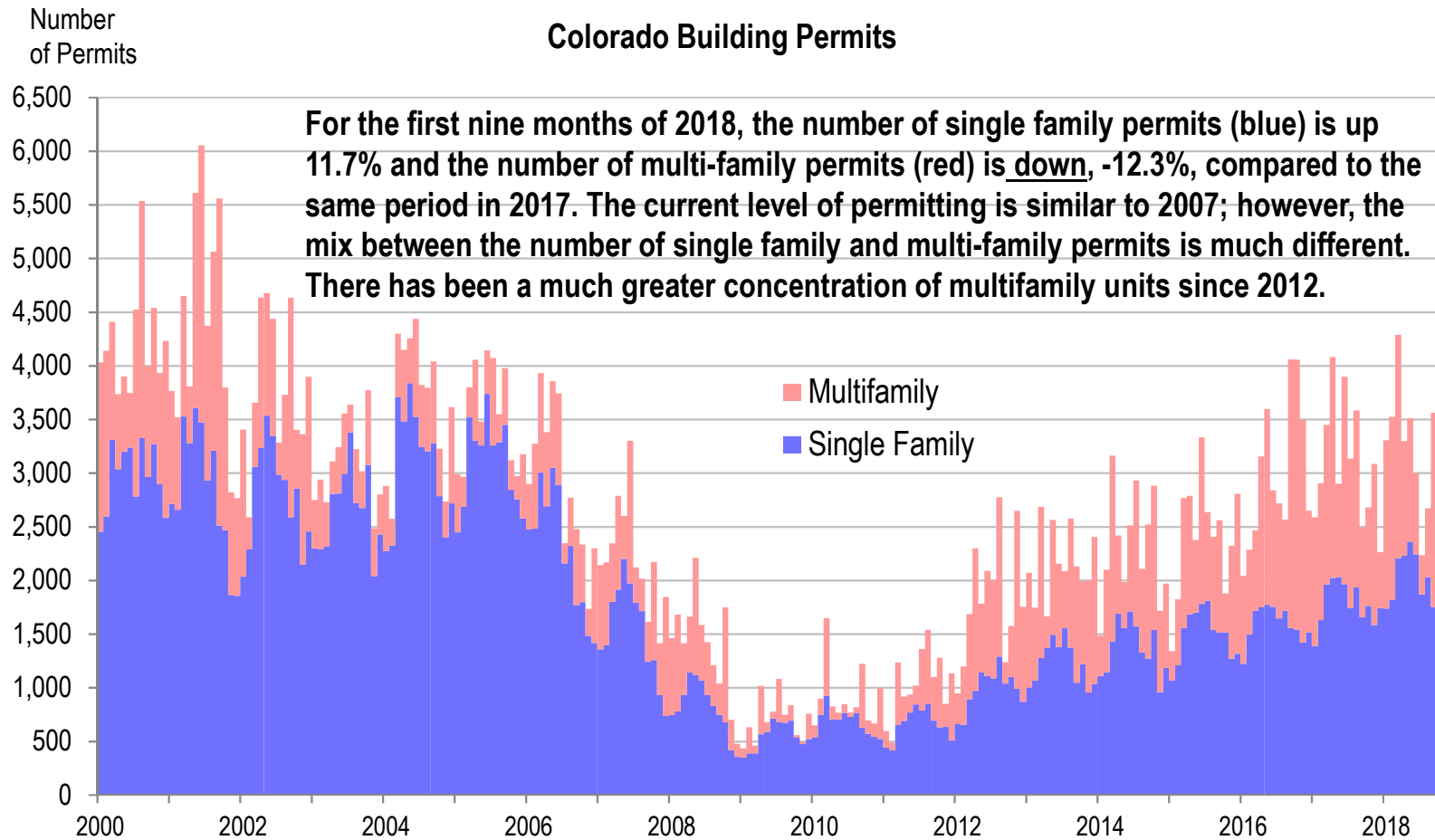
Source: S&P Core-Logic Case-Shiller, cber.co.

Housing Prices

Overall housing market prices are increasing at a slower rate, in part because of increased interest rates. Given the strength of net migration in Colorado, it is unlikely there will be a strong downturn in housing prices.

Colorado Residential Building Permits

Units



Source: TAMU Real Estate Center, U.S. Census Bureau, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

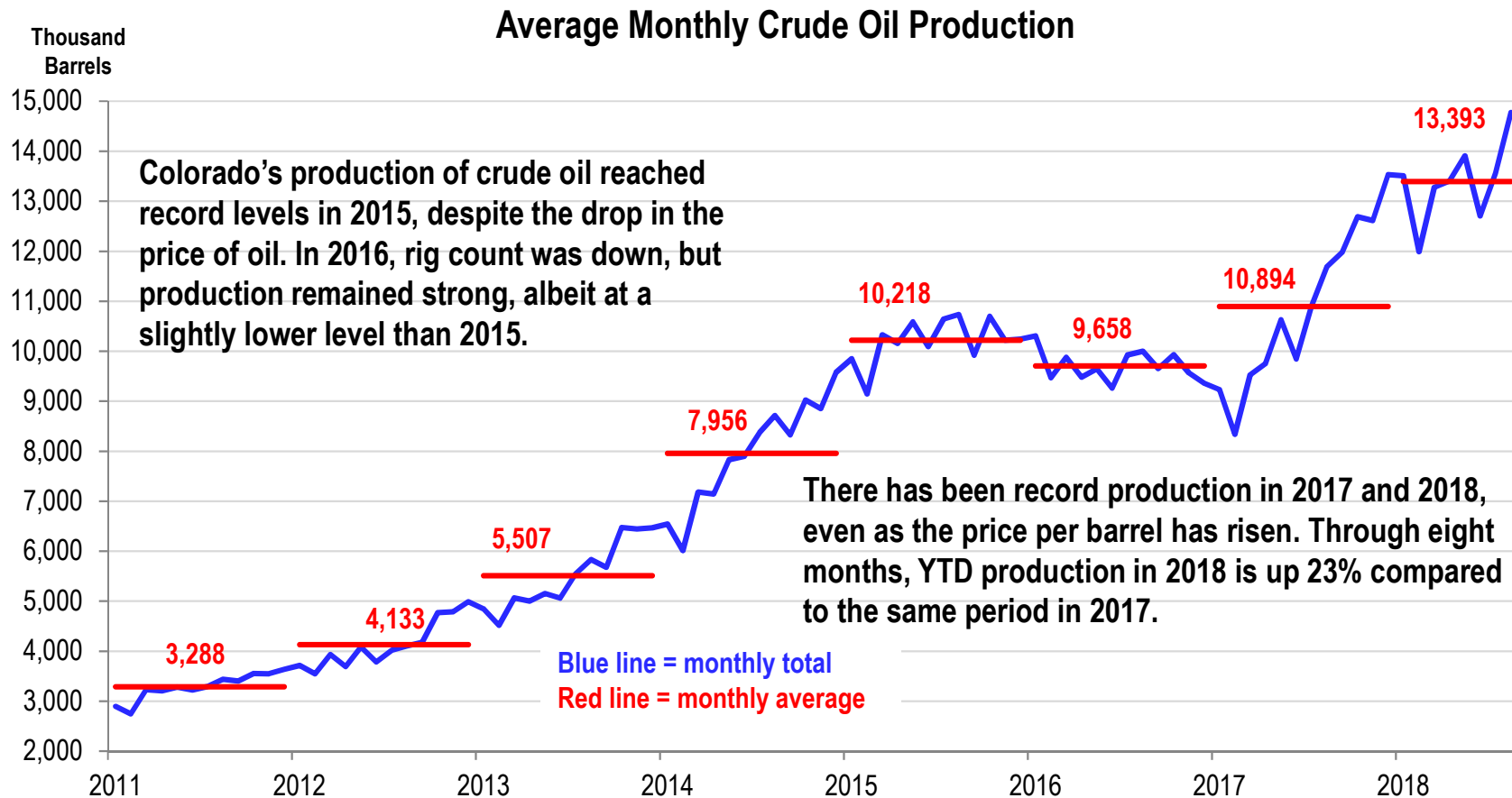


The Colorado Economy – Current Situation

Oil Production and Prices and DIA Passengers

Average Monthly Field Production of Crude Oil

2011 to 2018 (Thousand Barrels)



Source: EIA, cber.co.

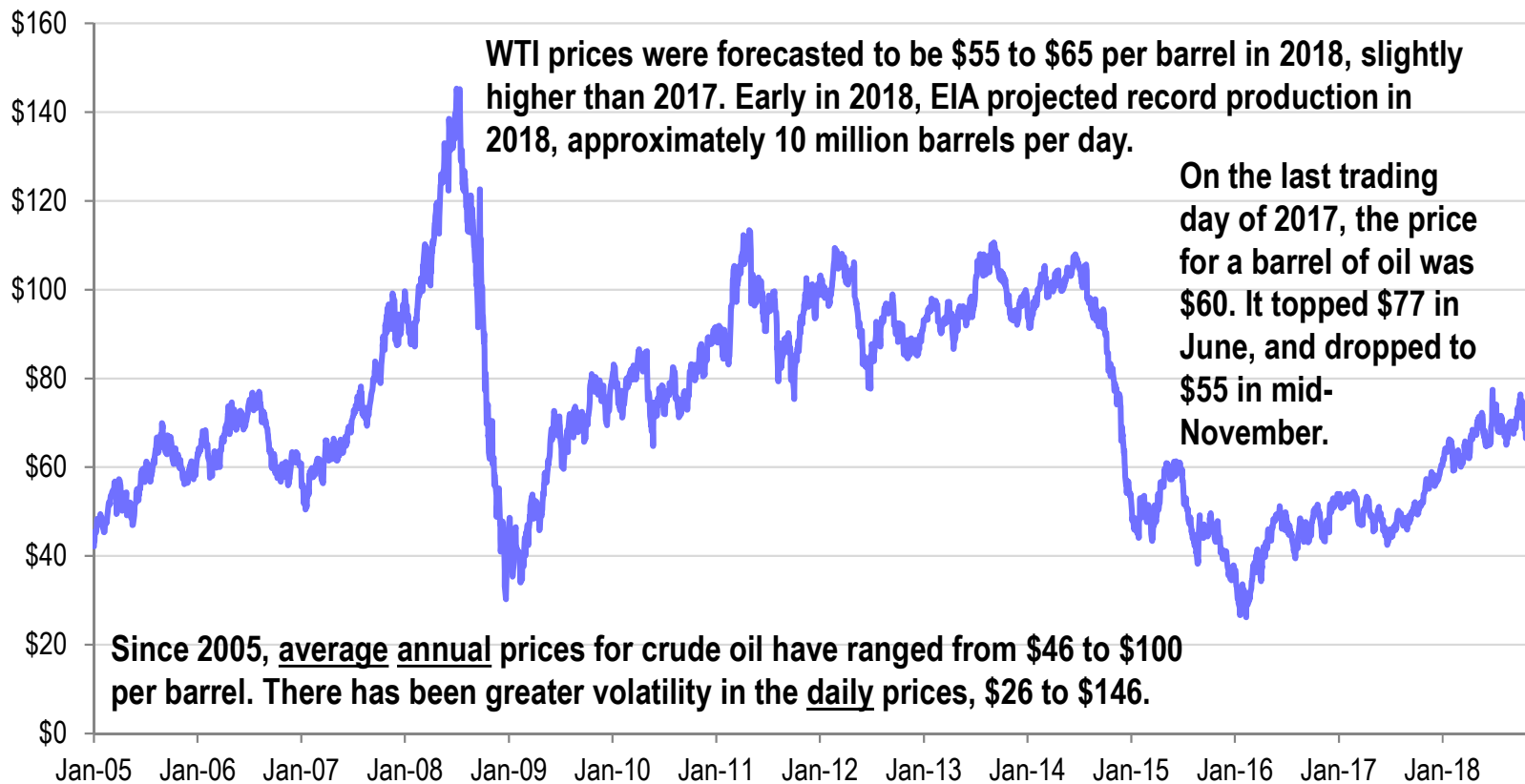
Colorado-based Business and Economic Research <http://cber.co>

Crude Oil Prices

West Texas Intermediate

Dollars
per Barrel

Crude Oil Prices: West Texas Intermediate, Cushing, Oklahoma

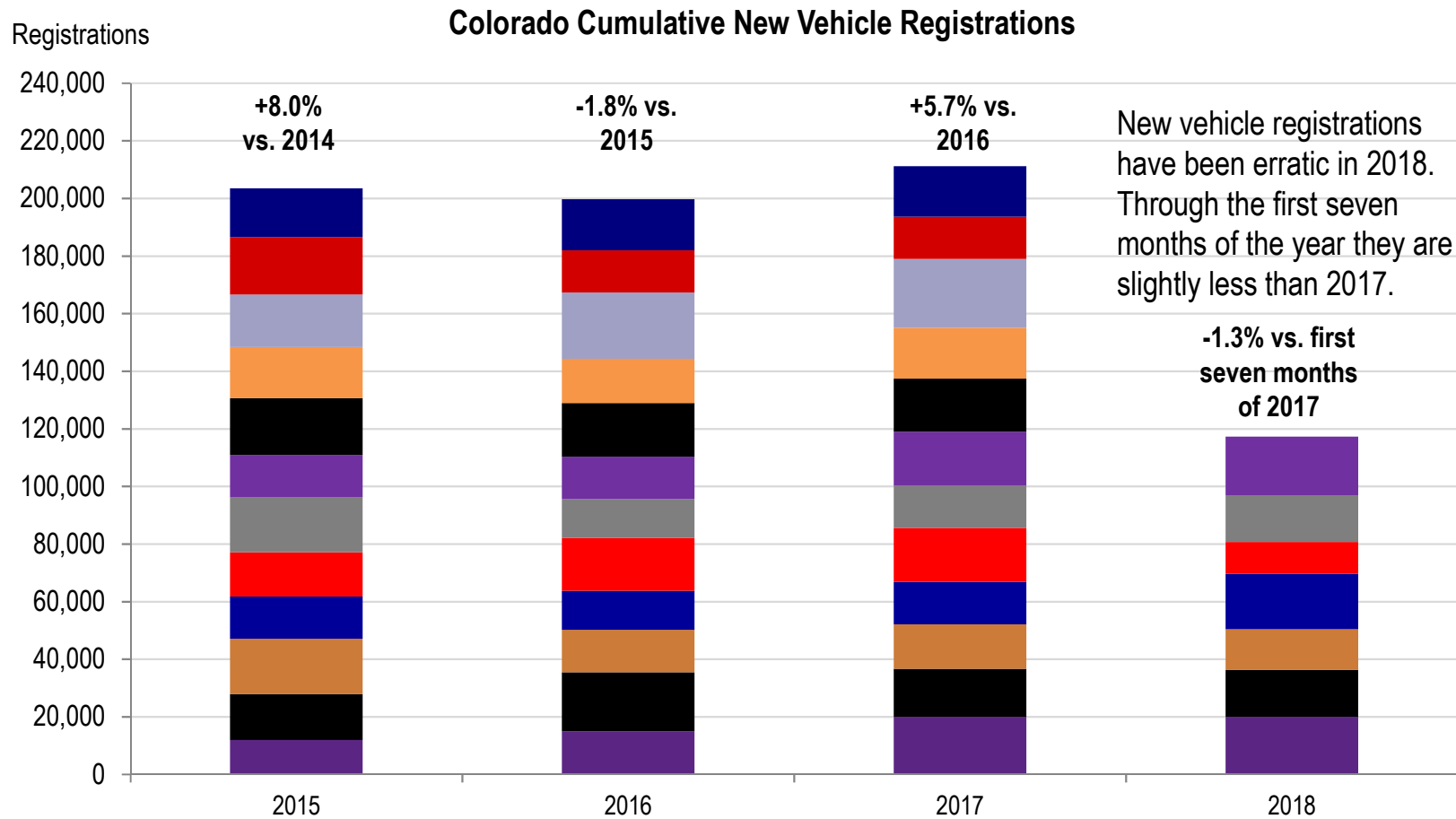


Source: FRED, EIA, cber.co.

Colorado-based Business and Economic Research <http://cber.co>

Cumulative Colorado New Vehicle Registrations

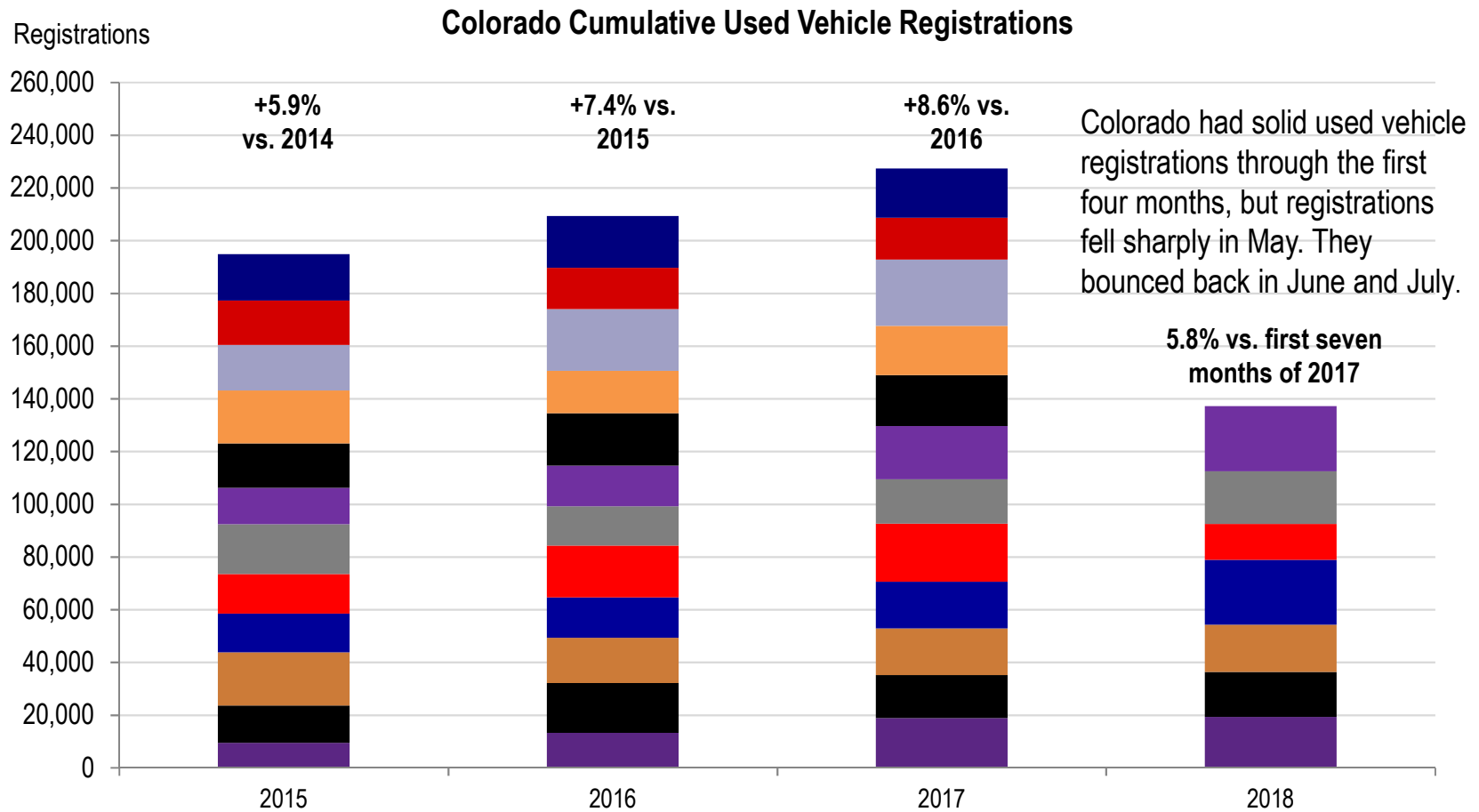
Monthly Registrations



Source: Colorado Auto Dealers Association, cber.co. Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

Cumulative Colorado Used Vehicle Registrations

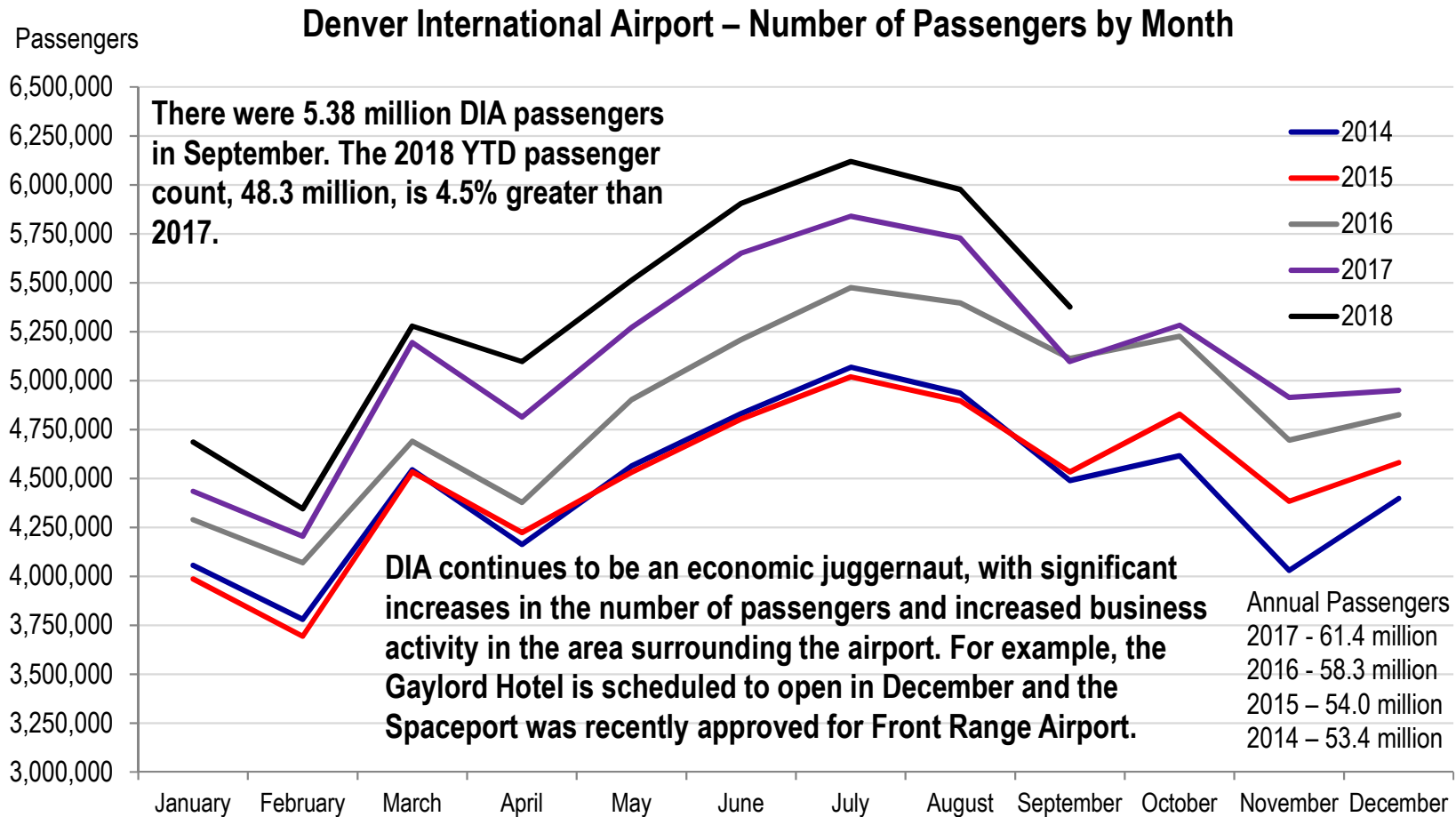
Monthly Registrations



Source: Colorado Auto Dealers Association, cber.co. Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

Denver International Airport

Passengers



Source: FlyDenver.com, cber.co.



The Colorado Economy

Summary

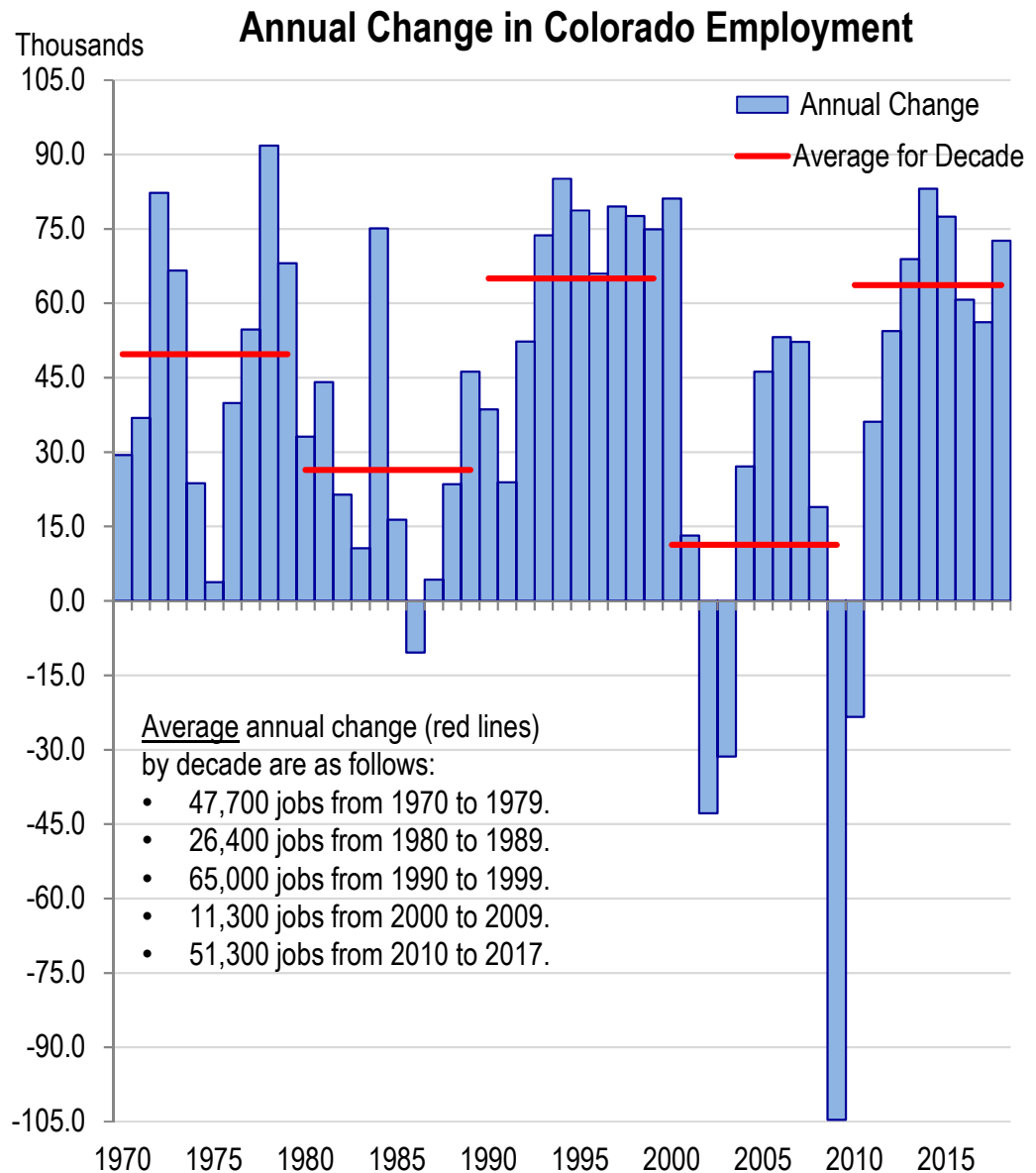
Annual Employment Change in Colorado Employment

Average employment for the first ten months of 2018 is 72,600 jobs greater than the same period in 2017. The number of jobs increased at a rate of 2.7%.

The state added 56,200 jobs in 2017 and employment increased by 2.2%.

The cber.co forecast for 2018 called for slightly slower job growth than 2017, in the range of 1.9% to 2.1%. cber.co and all other state economists underestimated the strength of the economy when preparing their 2018 forecasts.

On average, employment for the first 9 years of this decade has increased at an average rate of 63,700 jobs per year.



Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research <http://cber.co>



Summary

Colorado

The U.S. economy is on solid footing. This provides the foundation for continued robust growth in the Colorado economy.

Headwinds

There are headwinds and challenges no matter how strong the economy is.

- Companies have struggled to find qualified and clean workers because of the low unemployment rate.
- Colorado's rate of inflation is greater than the U.S.
- Housing has become more unaffordable and unattainable for newcomers and first time buyers.
- The state has allocated insufficient funds to support maintenance for its transportation infrastructure.
- The structure of the economy is evolving. This should be analyzed regularly to understand the changes.
- The construction market may have reached a plateau.
- There is uncertainty caused by the change in the leadership of the executive and legislative branches of state government.



cber.co Review of Colorado Employment Data through October 2018

This analysis is for informational purposes only. Any opinions or interpretations of data are those of the presenter. As such, they do not represent the viewpoints of any group or particular organization.

For further information contact Colorado-based Business and Economic Research (cber.co).
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ABOUT THE AUTHOR

Gary Horvath has produced annual employment forecasts of the state economy for over 25 years. They have been supplemented by monthly economic updates and indices that track economic performance over the short term. In addition, he has directed three statewide analyses that included reviews of all 64 county economies.

Horvath was the principal investigator for a state and federally funded project to prepare a nanotechnology roadmap for Colorado. As well, he was a co-founder of the Colorado Photonics Industry Association, a trade group for Colorado's Photonics cluster. Horvath has been an active board member of the group since its inception.

Horvath has also served on the Board of Directors for the Economic Development Council of Colorado, Northwest Denver Business Partnership, Adams County Economic Development, and Broomfield Economic Development Corporation. Horvath has also been the lead for the photonics/electronics cluster in OEDIT's early stage and proof of concept grant program.