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Review of Colorado Employment Data Through April 2018

Colorado-based Business and Economic Research
Prepared
May 22, 2018

Overview of Analysis

This chartbook provides a series of graphs, charts, discussions, and data that tell the story about the changes in the 2018 Colorado employment situation for the first four months of 2018. The release of the April data shows that average employment is 67,900 jobs greater than the same period in 2018. That level of job growth is greater than expected by most Colorado economists. BLS is likely to lower this total in the March 2019 benchmark revisions. This analysis looks at economic activity and trends at the national and state levels. It is divided into the two sections listed below.

U.S. Economy

- ✓ Real Gross Domestic Product and Employment.
- ✓ Leading and Coincident Index – US vs. Colorado
- ✓ S&P 500 Performance and Volatility, and Crude Oil Prices
- ✓ Mortgage Rates, Housing Prices, and Construction Spending
- ✓ Consumer Debt Outstanding, Student Loans and Motor Vehicle Loans, Federal Government Debt, Personal Savings Rate
- ✓ Inflation, Index for Services and Manufacturing, Retail Sales, and Light Truck and Auto Sales
- ✓ Summary

The Colorado Economy

- ✓ Population, Employment, Change in Employment, Advanced Technology, Unemployment, Labor Force, Wages (Overall and Education)
- ✓ Trends - Inflation, Housing Prices, Building Permits
- ✓ Trends - Oil Production, DIA Passengers, Vehicle Sales, and Technology Employment
- ✓ Summary



The U.S. Economy

Real Gross Domestic Product and Employment

Quarterly Real GDP Growth Historical United States

Between 2010 and 2017, the annual real GDP growth ranged from 1.6% to 2.6%. Historical annualized real GDP growth by decade was:

- 1990s 3.2% (green line).
- 2000s 1.8% (red line).
- 2010 to 2017 2.1% (purple line).

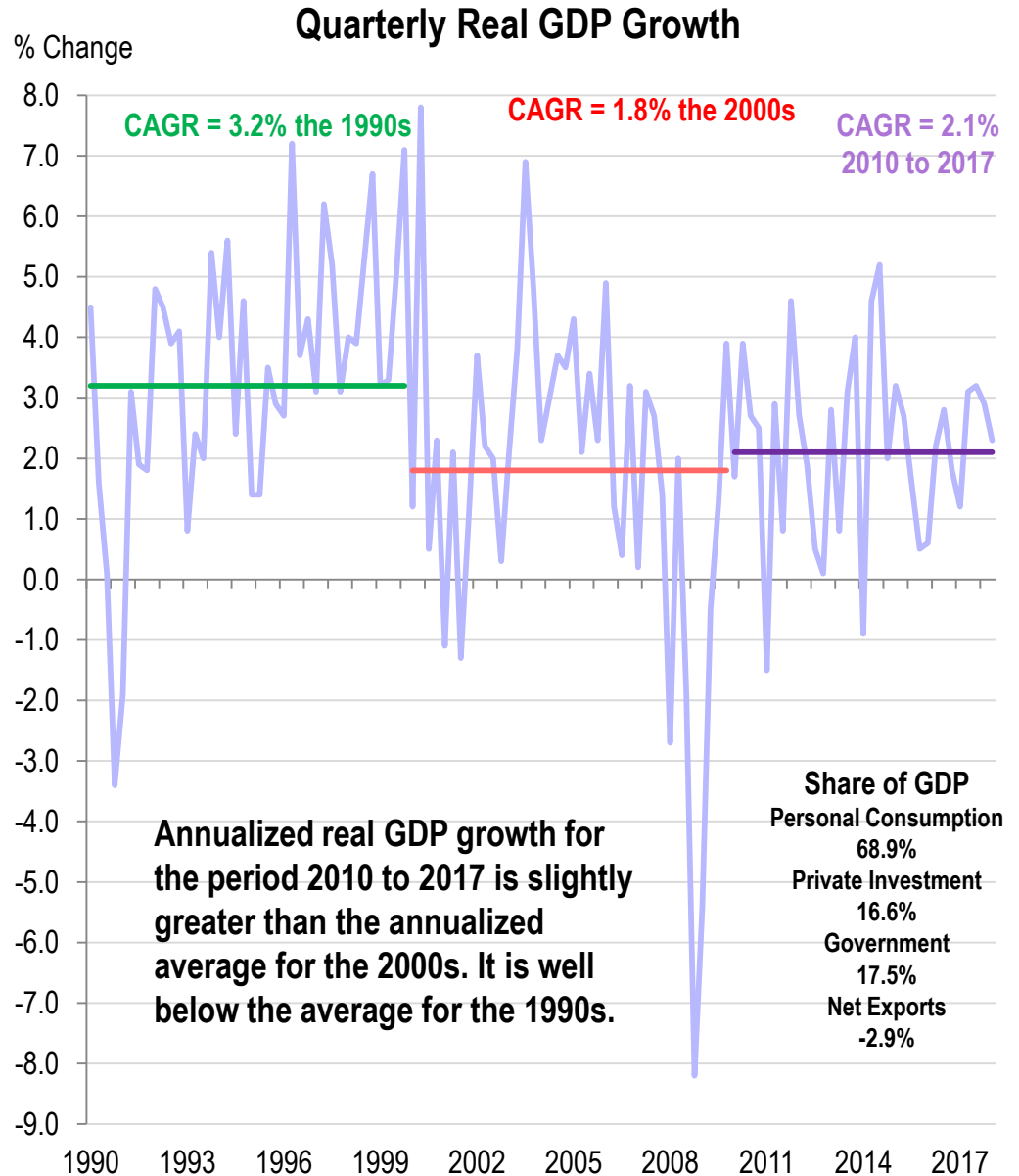
Real GDP growth in 2017 was 2.3%. The rate of growth in 2018 is projected to be in the range of 2.3% to 2.7%, with greater upside potential than downside risk.

The 2017 rate of growth by quarter was:

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

Q1 2018 real GDP growth is 2.3%.

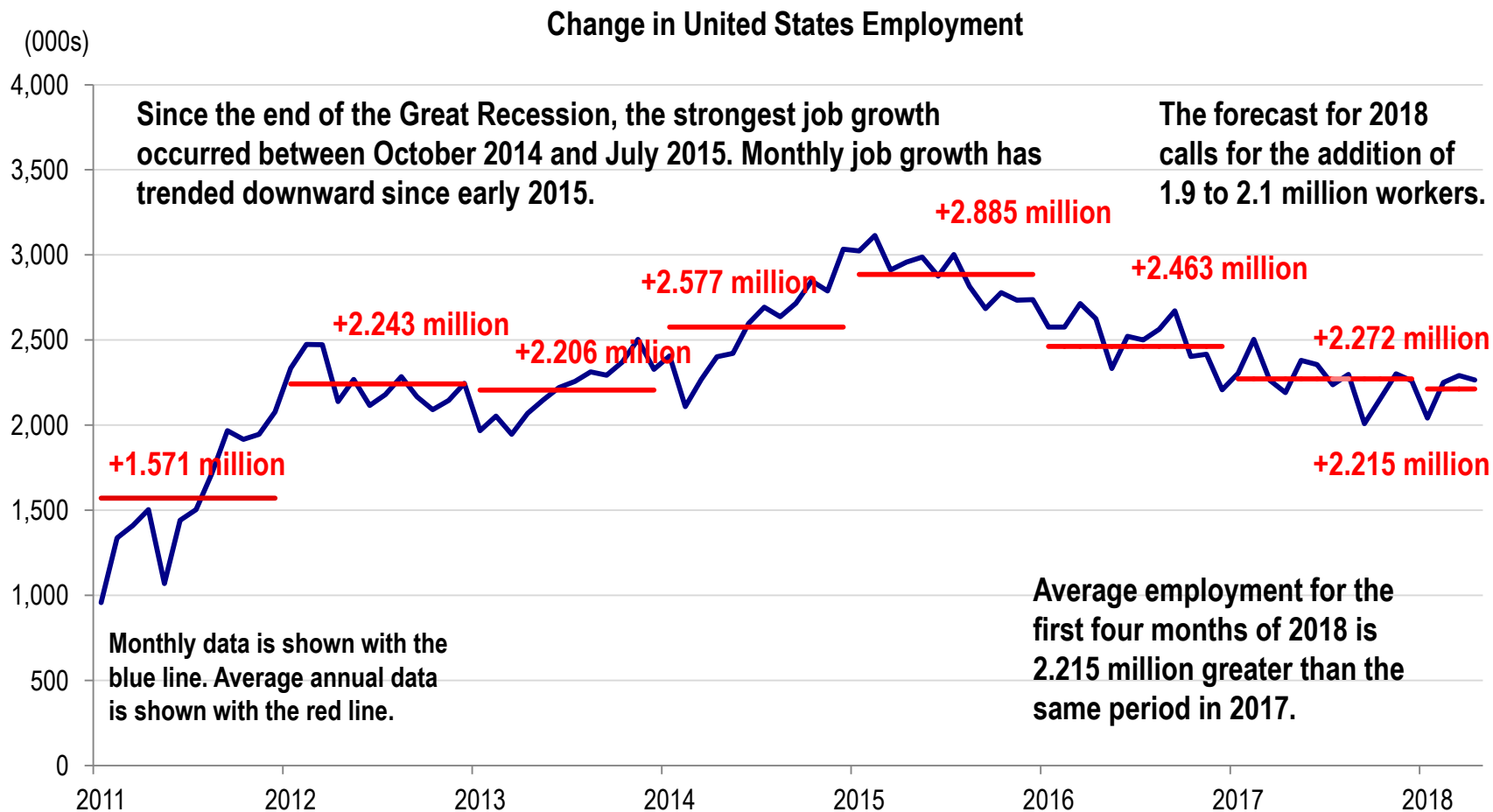
As usual, growth in 2018 will be driven by consumer spending. In addition, there will be stronger business investment and government spending.



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

Change in United States Employment

Year-Over-Year



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



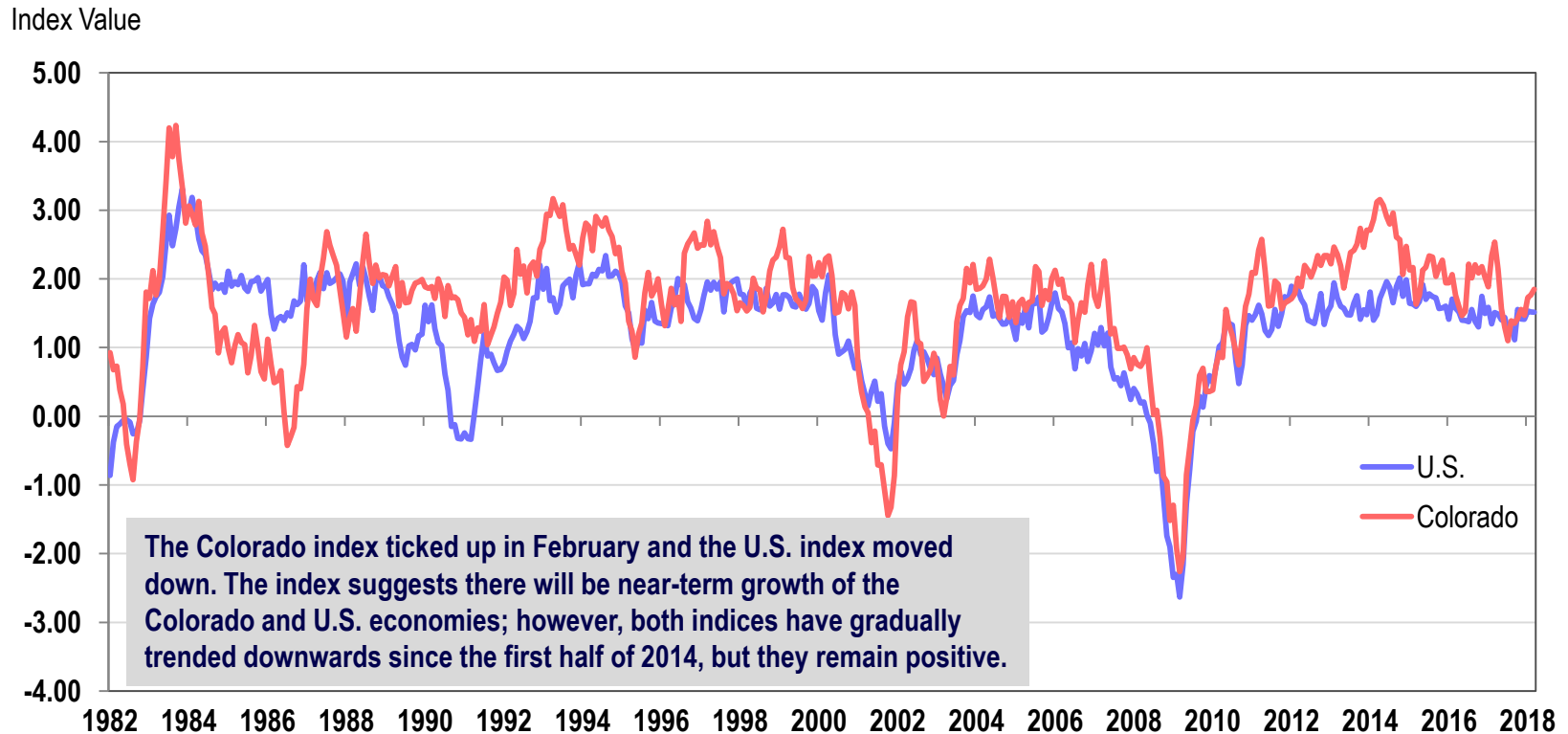
The U.S. Economy

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

Philadelphia Fed Leading Index

Colorado vs. U.S.

Philadelphia Federal Reserve Leading Index – Colorado



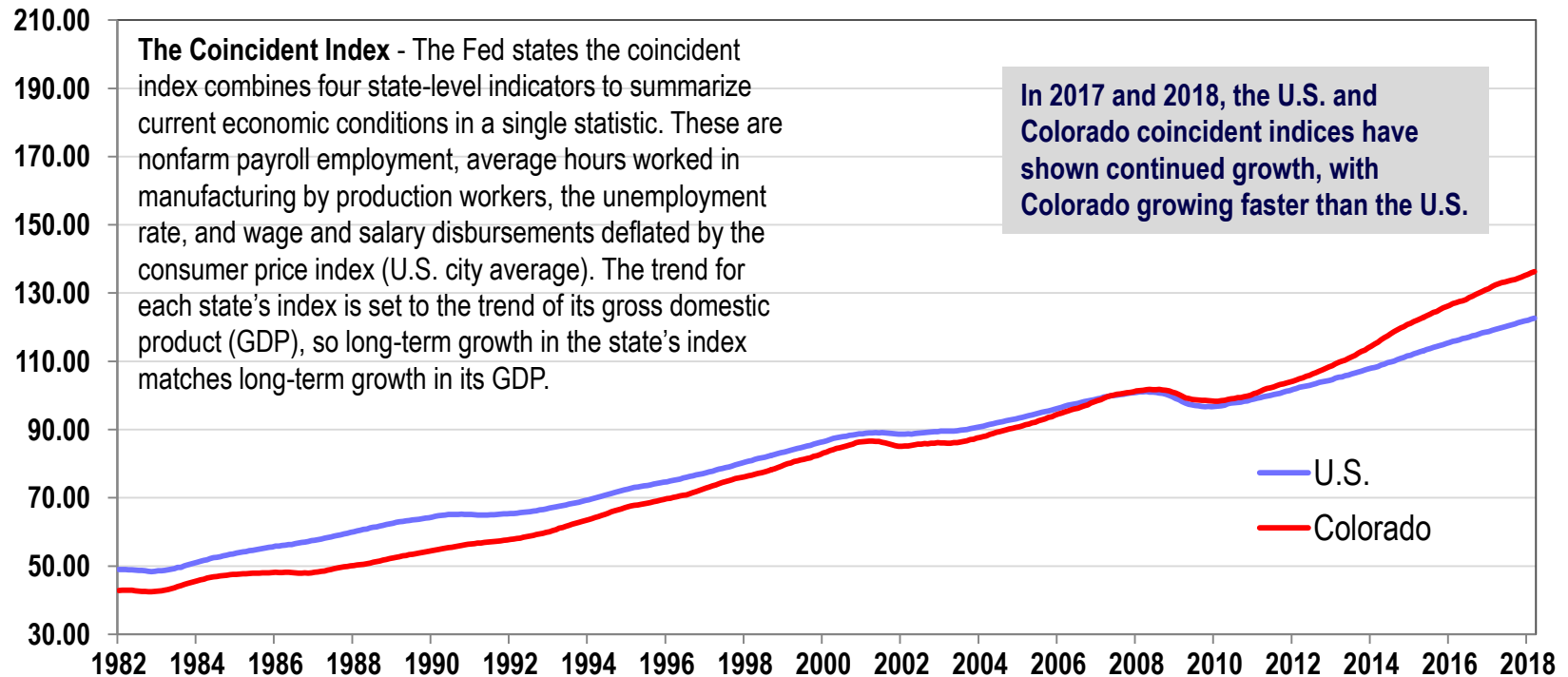
Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.

Philadelphia Fed Coincident Index

Colorado vs. U.S.

Philadelphia Federal Reserve Leading Index – Colorado

Index Value



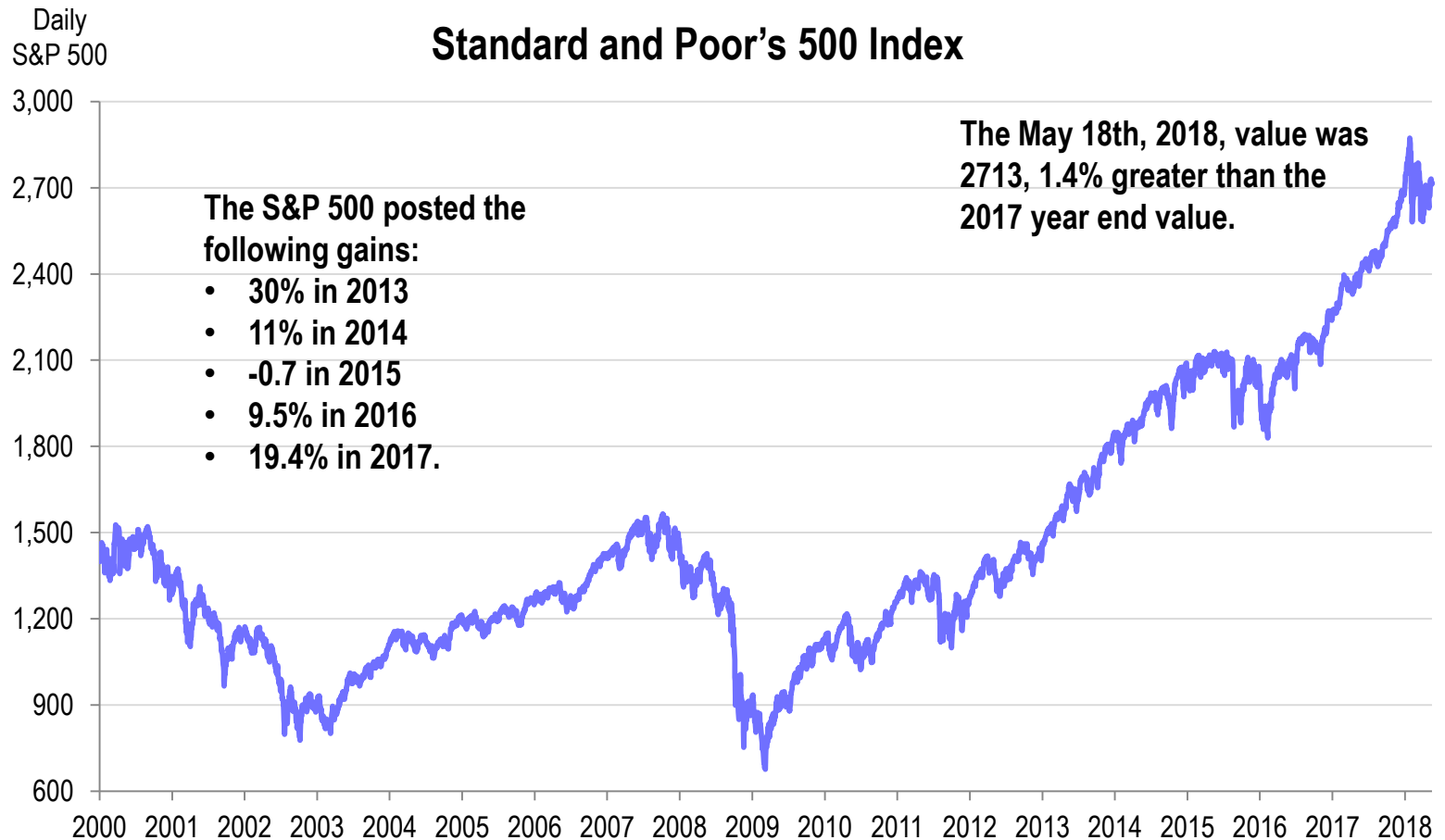
Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.



United States Economy

S&P Performance and Volatility, and Crude Oil Prices

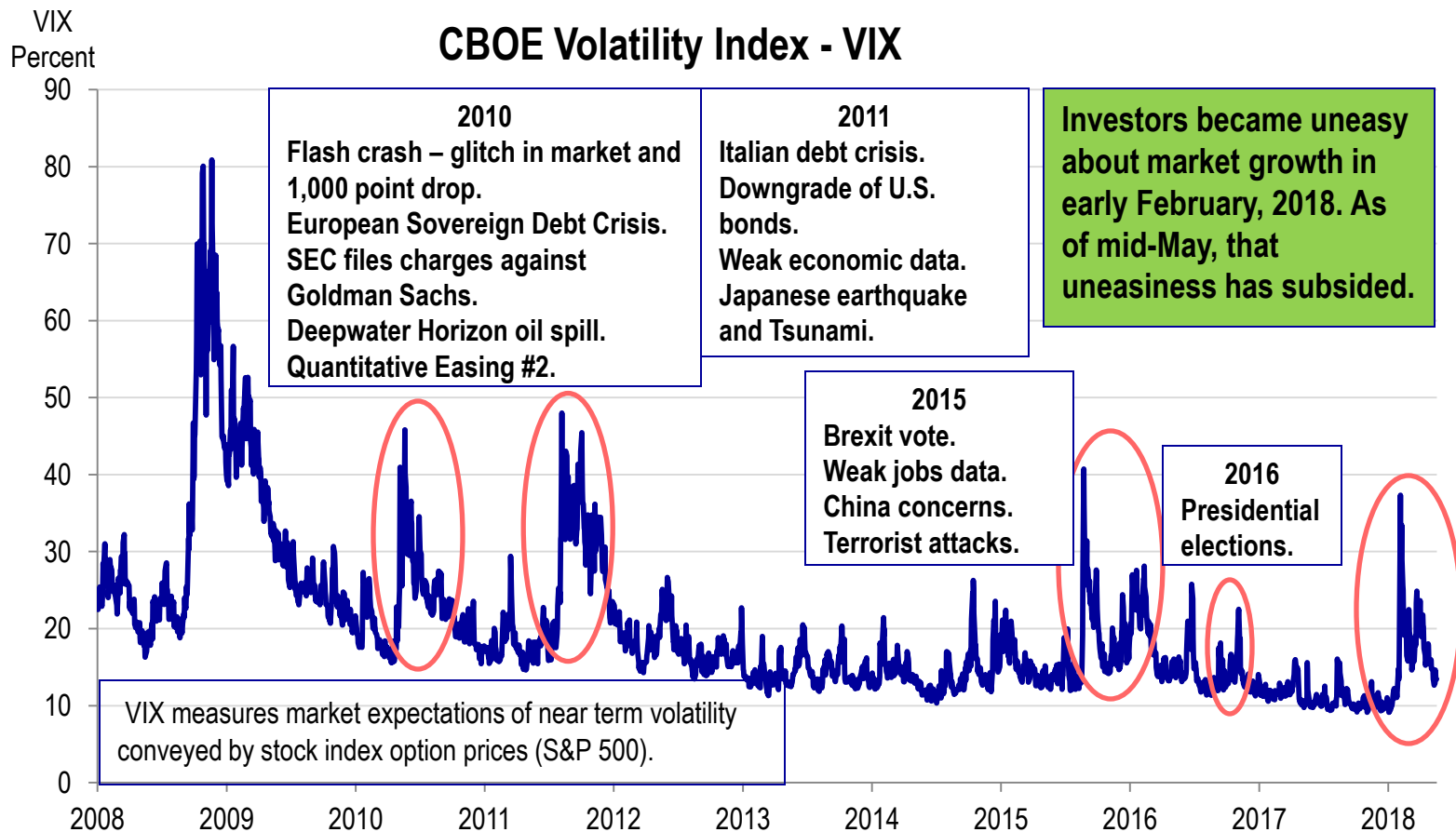
● Standard and Poor's 500 Index



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

CBOE Volatility Index

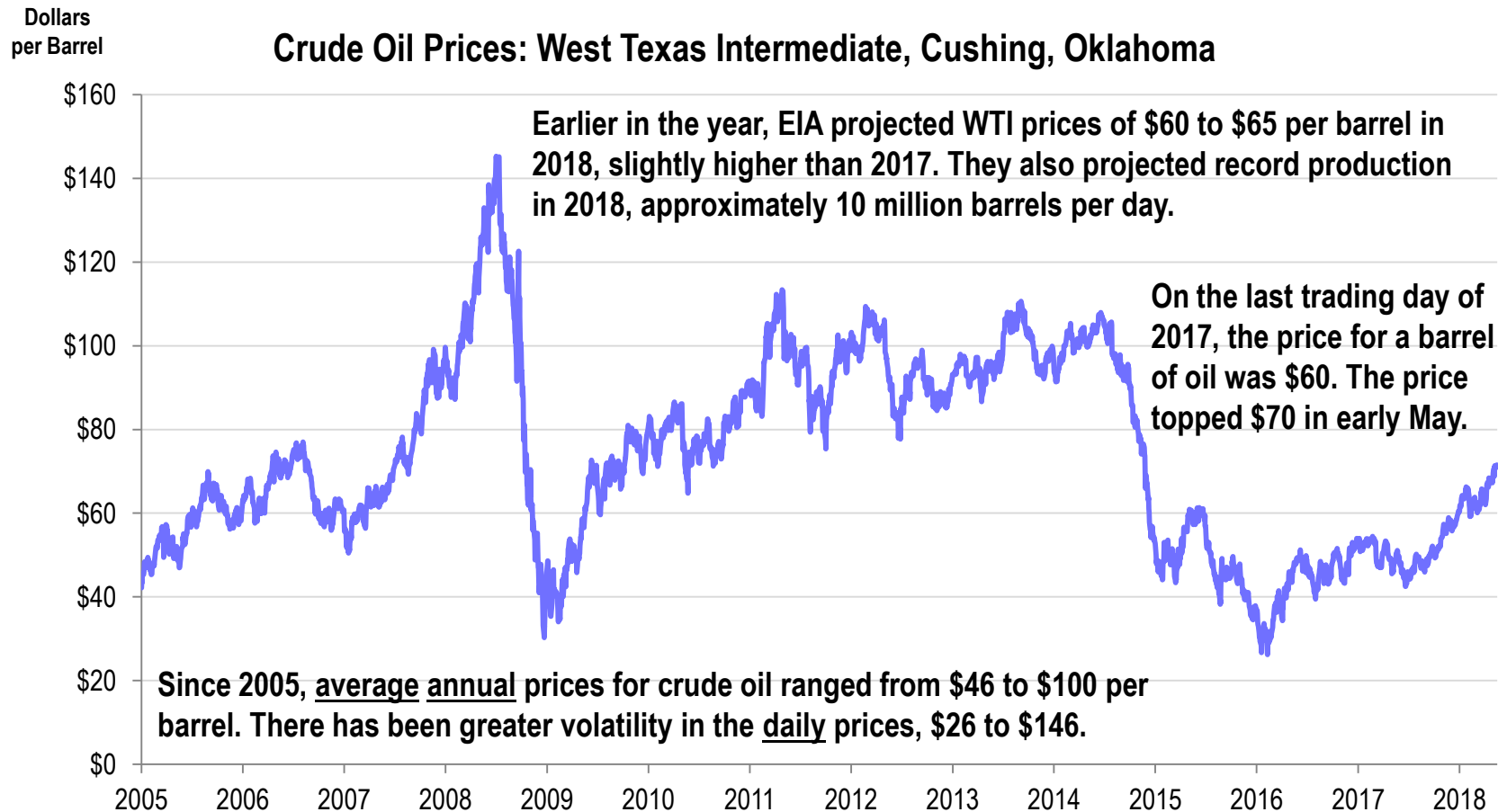
VIX (VIXCLS)



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

Crude Oil Prices

West Texas Intermediate



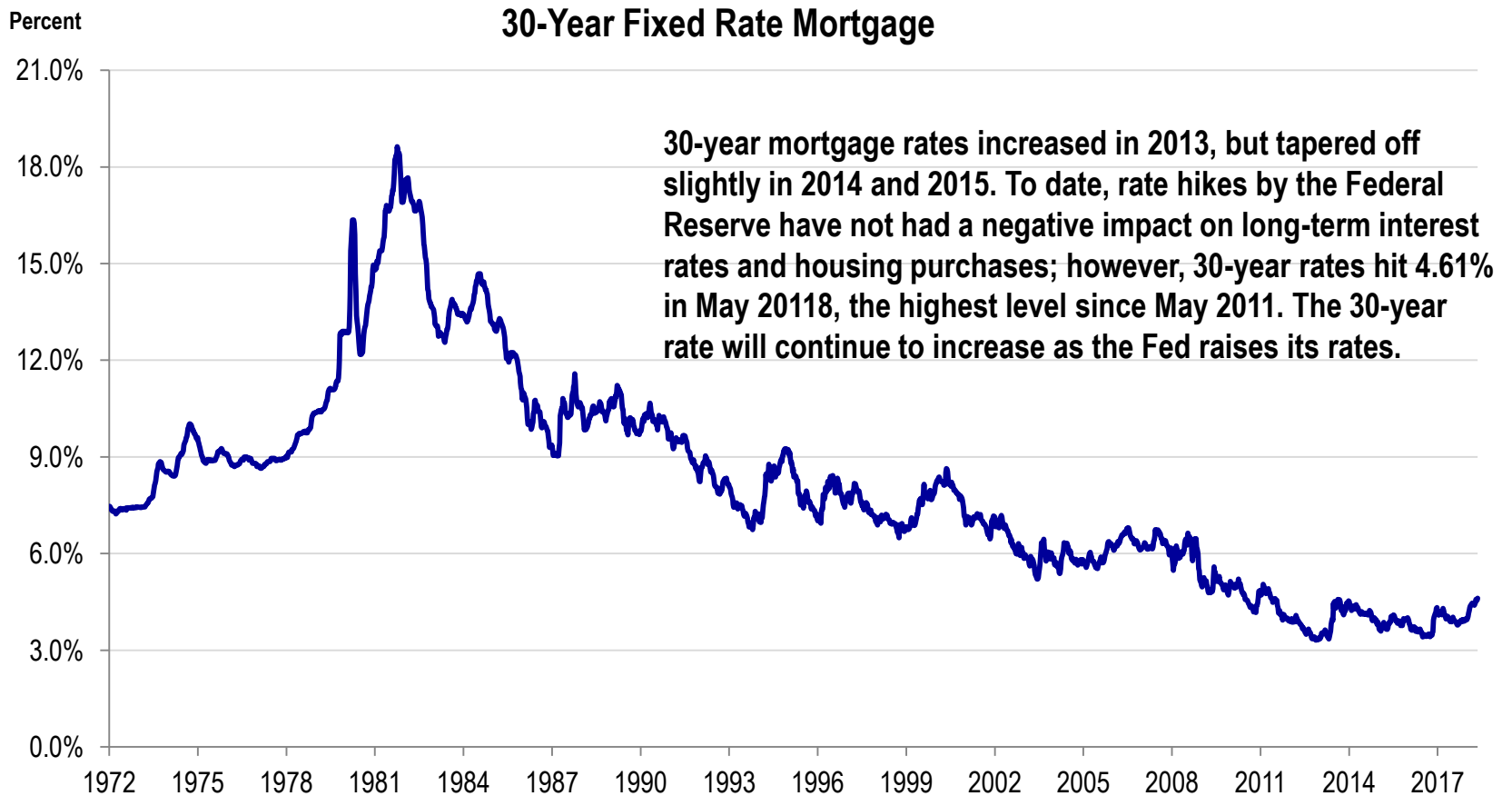
Source: FRED, EIA, cber.co.



The U.S. Economy

Mortgage Rates, Housing Prices, Construction Spending

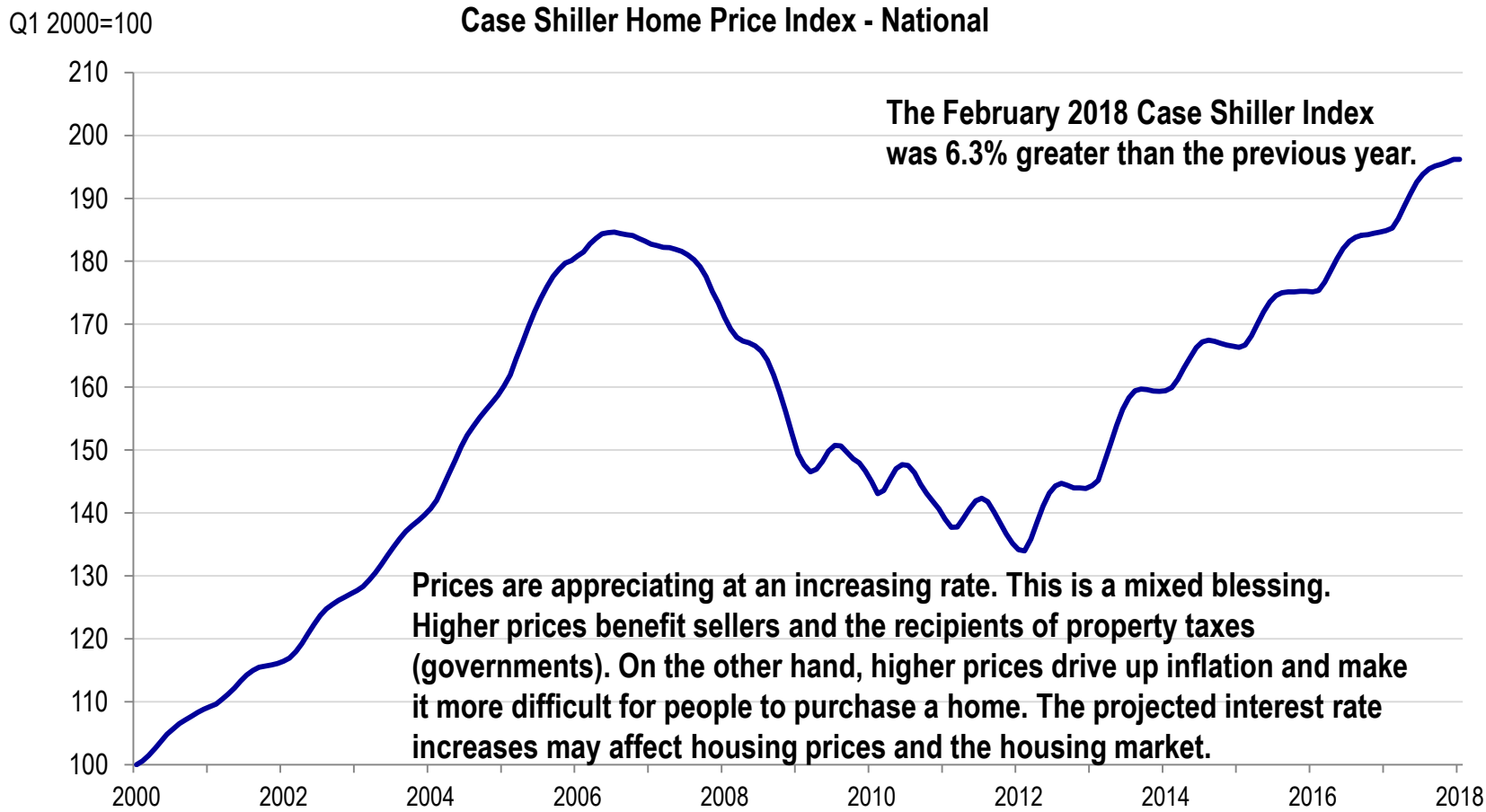
30-Year Fixed Rate Mortgage



Source: FRED, Freddie MAC, cber.co.

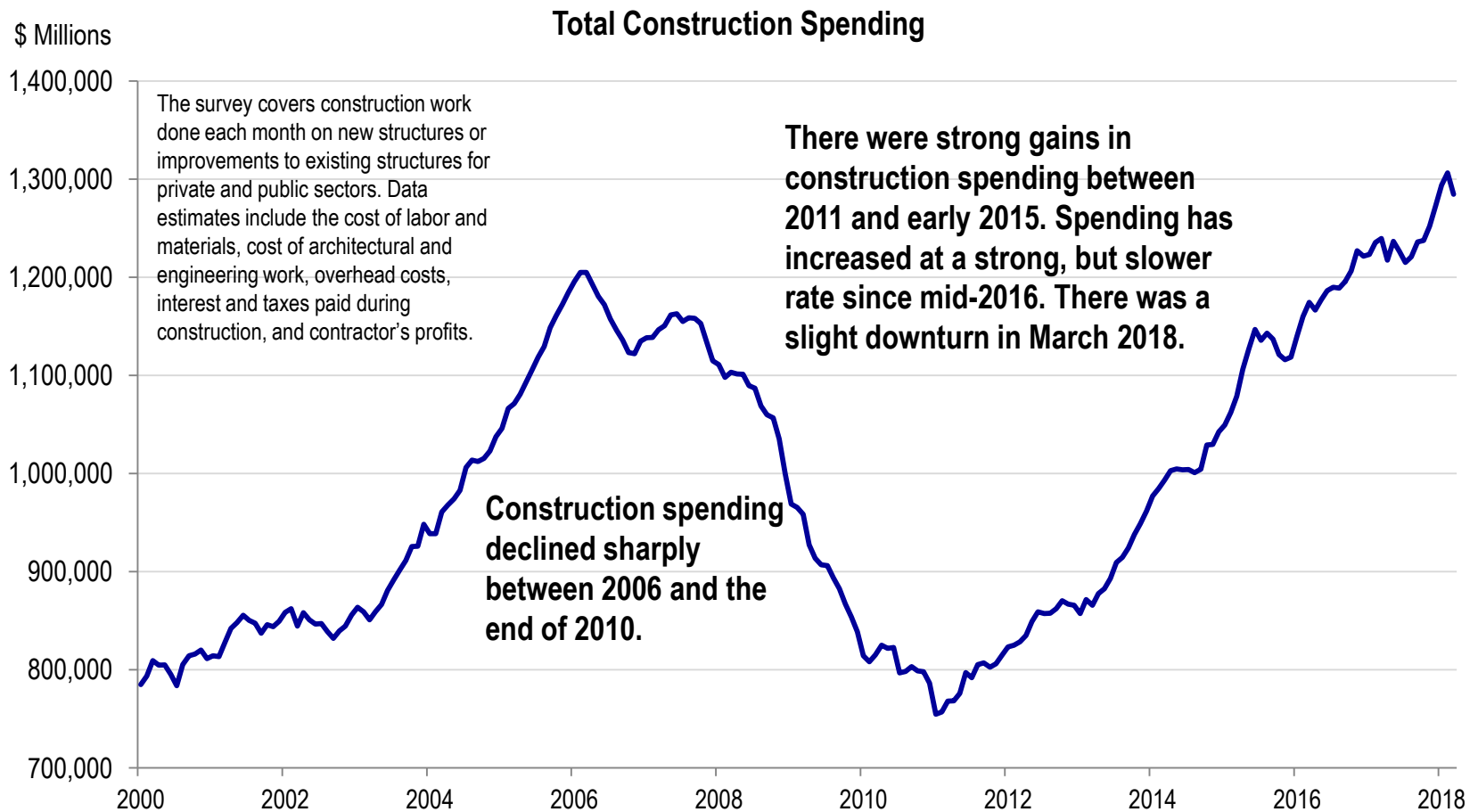
Case Shiller Home Price Index

National Index



Source: S&P Case-Shiller.

Total U.S. Construction Spending



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



The U.S. Economy

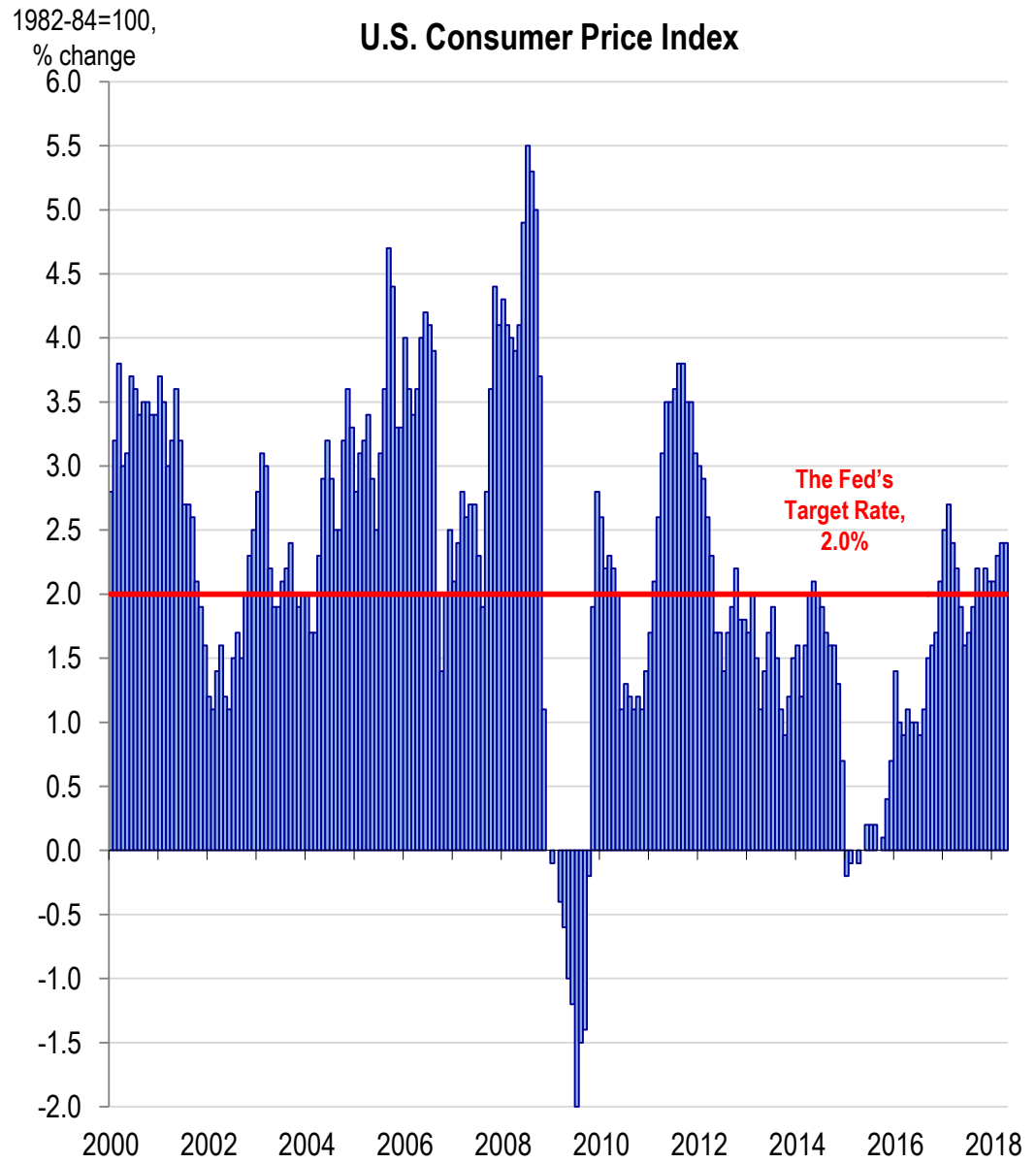
Inflation, Index for Services and Manufacturing, Retail Sales, and Light Truck and Auto Sales

Consumer Price Index (CPI)

U.S. inflation, as measured by the seasonally adjusted CPI, will increase by 2.3% in 2018. This is slightly above the Fed's target rate of 2.0%. Increases in 2018 will be a result of higher interest rates, housing costs, health care costs, and gasoline prices. The increase in the April CPI rate was 2.4%.

Recent annual rates are:

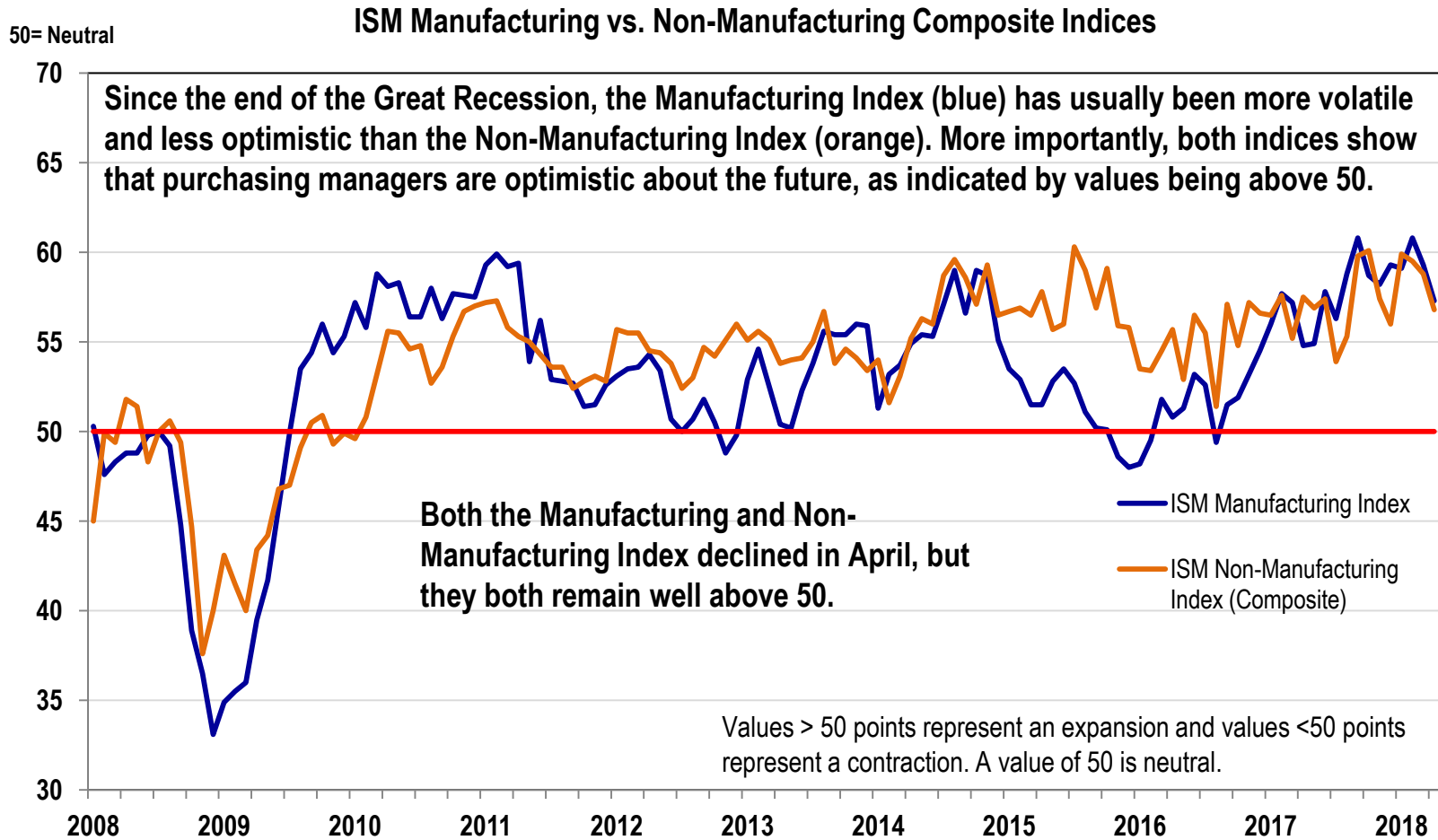
- 2012 2.1%
- 2013 1.5%
- 2014 1.6%
- 2015 0.1%
- 2016 1.3%
- 2017 2.1%
- 2018 2.3 %



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

ISM PMI Composite Indices

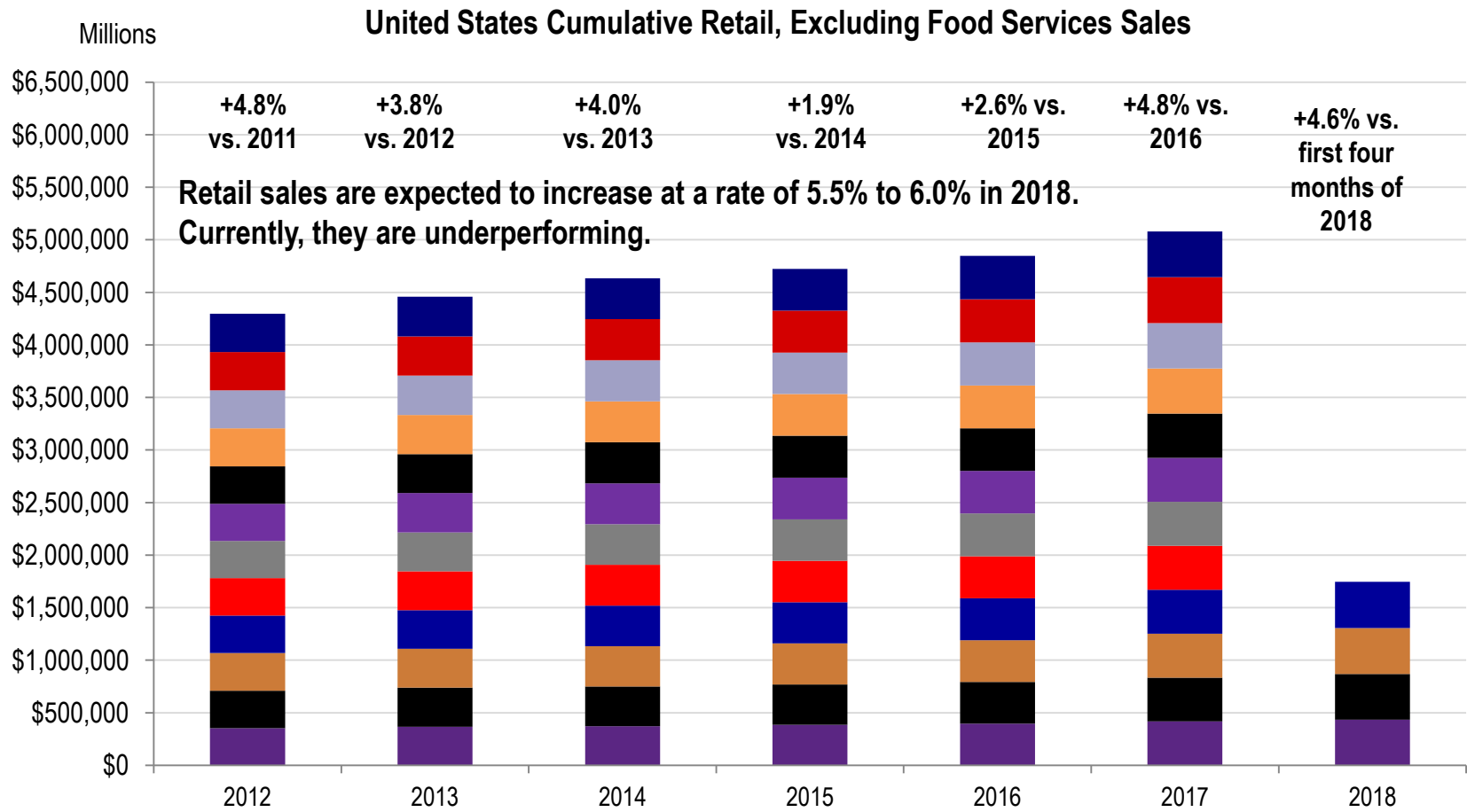
Manufacturing vs. Non-manufacturing



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

Cumulative Retail, Excluding Food Services Sales

Monthly

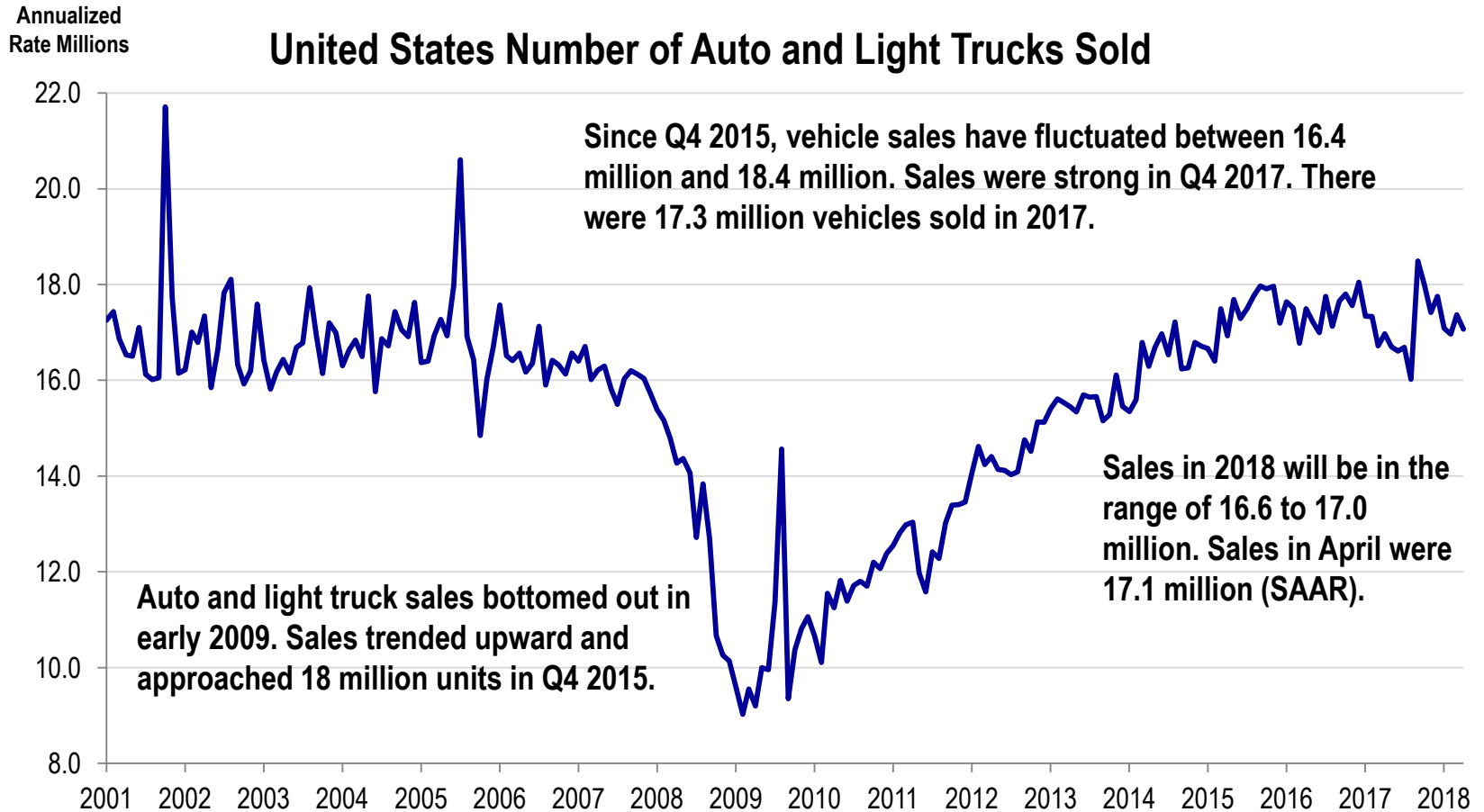


Source: U.S. Census Bureau, FRED, cber.co.

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

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 United States Economy

Summary

Despite the Political Unrest, The Economy is Currently on Solid Footing

Positives

The current strengths of the economy are:

- Job growth is solid.
- Job growth is diversified across industries and geographic regions.
- Real GDP growth is solid.
- Retail sales (consumption) is solid.

In addition, the Philadelphia Federal Reserve leading and coincident indicators point to continued growth and the Conference Board is bullish on the U.S. economy. TCB projects 2.8% real GDP growth in 2018 and higher in 2019. This is significant because their forecasts have been historically conservative for the past decade.

Headwinds

There are economic headwinds even during the best of times. The following headwinds are unlikely to derail the economy during the next 18 months:

- Public and private debt.
- Boomers moving into retirement years without savings.
- Worker shortages in parts of the country, including Colorado.
- Rapid appreciation in housing prices.
- Inflation above the target rate.
- Level of productivity.
- Moderation in the growth of the European economy and slower growth in emerging countries.
- Trade conflicts (tariffs).
- Political unrest .
- Lack of trust in public sector technology companies such as Facebook and Google.



The Colorado Economy

Population, Employment, Change in Employment, Advanced Technology, Unemployment, Labor Force, and Wages (Overall and Education)

Q1 2018 Trends

Population, Employment, Change in Employment, Advanced Technology, Unemployment, Labor Force, and Wages (Overall and Education)

Charts for the following trends are provided on the following pages.

- People will continue to move to Colorado because they see opportunity here. Some will have jobs and others will be looking for jobs. Either way, Colorado companies will continue to struggle to find qualified workers. Should state economic developers engage in talent attraction programs? Can the state's infrastructure support this added growth? How much will the recent state funding for broadband and transportation improve the infrastructure?
- Currently, job growth is broad-based. All three goods producing sectors are adding jobs. In addition, there has been strong growth in leisure and hospitality; health care; and professional, scientific and technical services. Job gains in advanced technology has leveled out. What can Colorado do to attract or create more primary jobs?
- Typically, when unemployment is low, the scarcity of workers causes wages to increase. Colorado wage growth has been weak for the past ten years. Are companies giving their employees increased benefits rather than wage increases? Will wages increase at a higher rate in the future? Were the teachers justified for their walkout/protest regarding wages and funding?
- In 2016 and 2017 the state's labor force (household survey) increased significantly. This increased the pool of potential workers. The rate of growth in that pool is tapering off. Will the gains in the rate of growth in the labor force continue to decline in 2018? If so, will the employment rate drop further?

Colorado Population

Components of Change

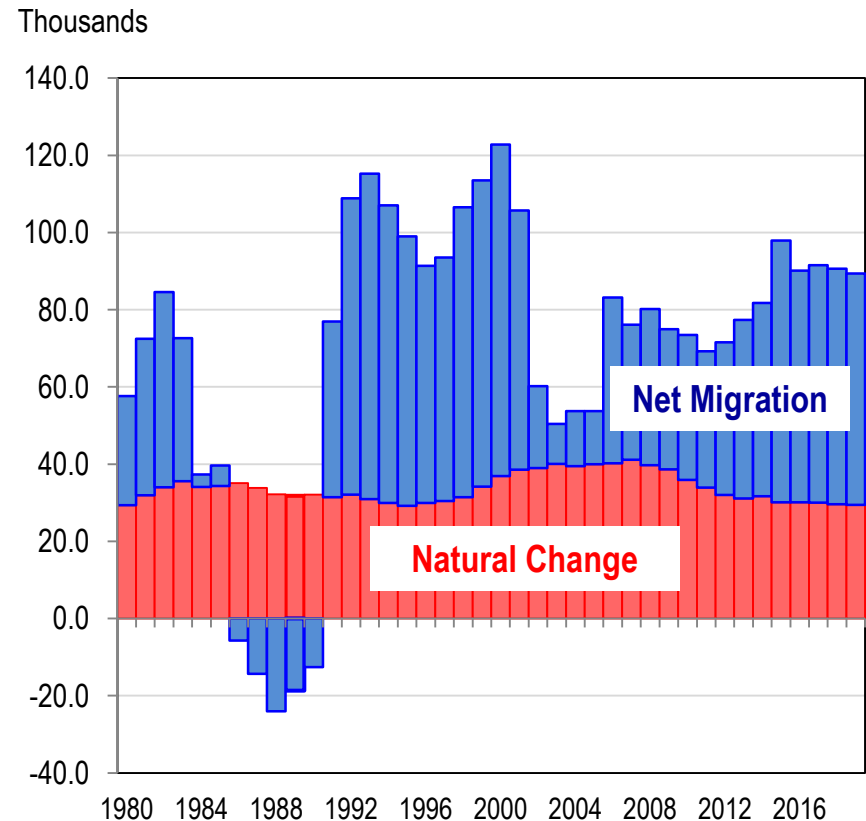
Population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

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. In 2018 it is projected to drop to 29,400. Fertility rates in Colorado have declined.

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 and the change in population were negative. More people moved out of state than moved into the state to escape a 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 downturn.

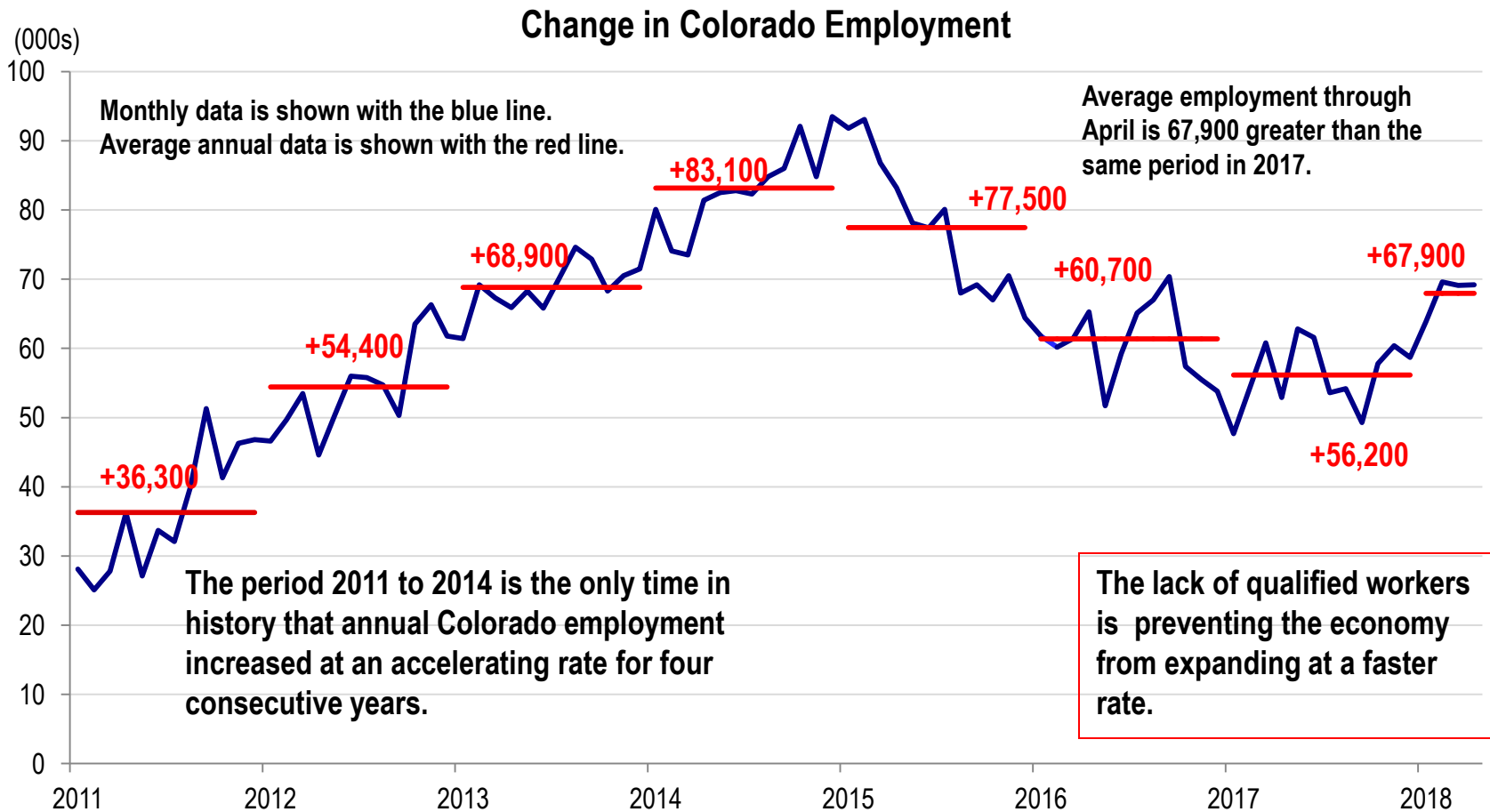
The Colorado population will increase by about 90,000 for the years 2015 to 2018. In 2018 the state's population will increase by 1.6% to 5,720,280.

Change in Colorado Population 1980 - 2019



Change in Colorado Employment

Year-Over-Year (YTD)

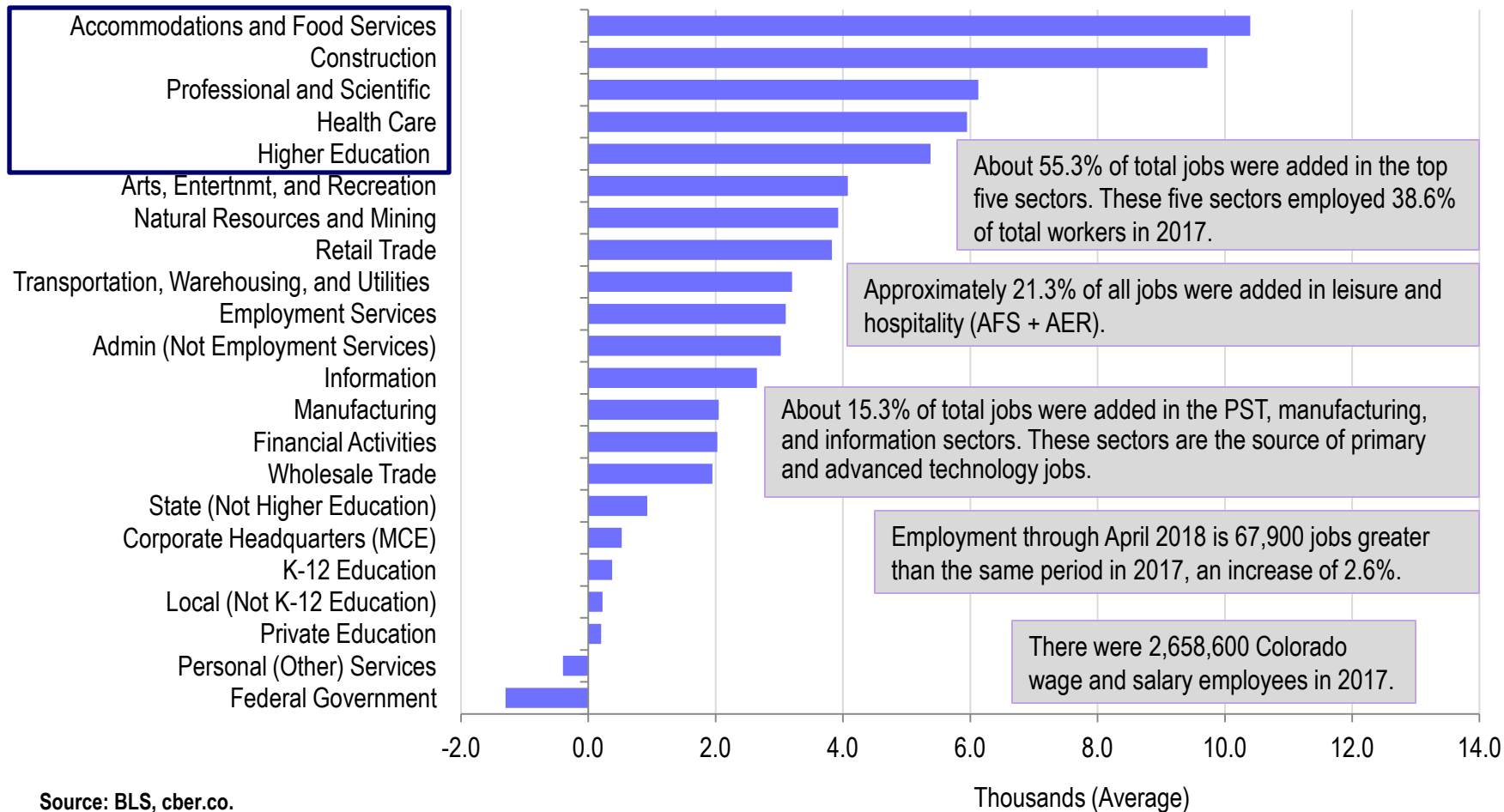


Source: Bureau of Labor Statistics, NSA, cber.co.

Change in Employment

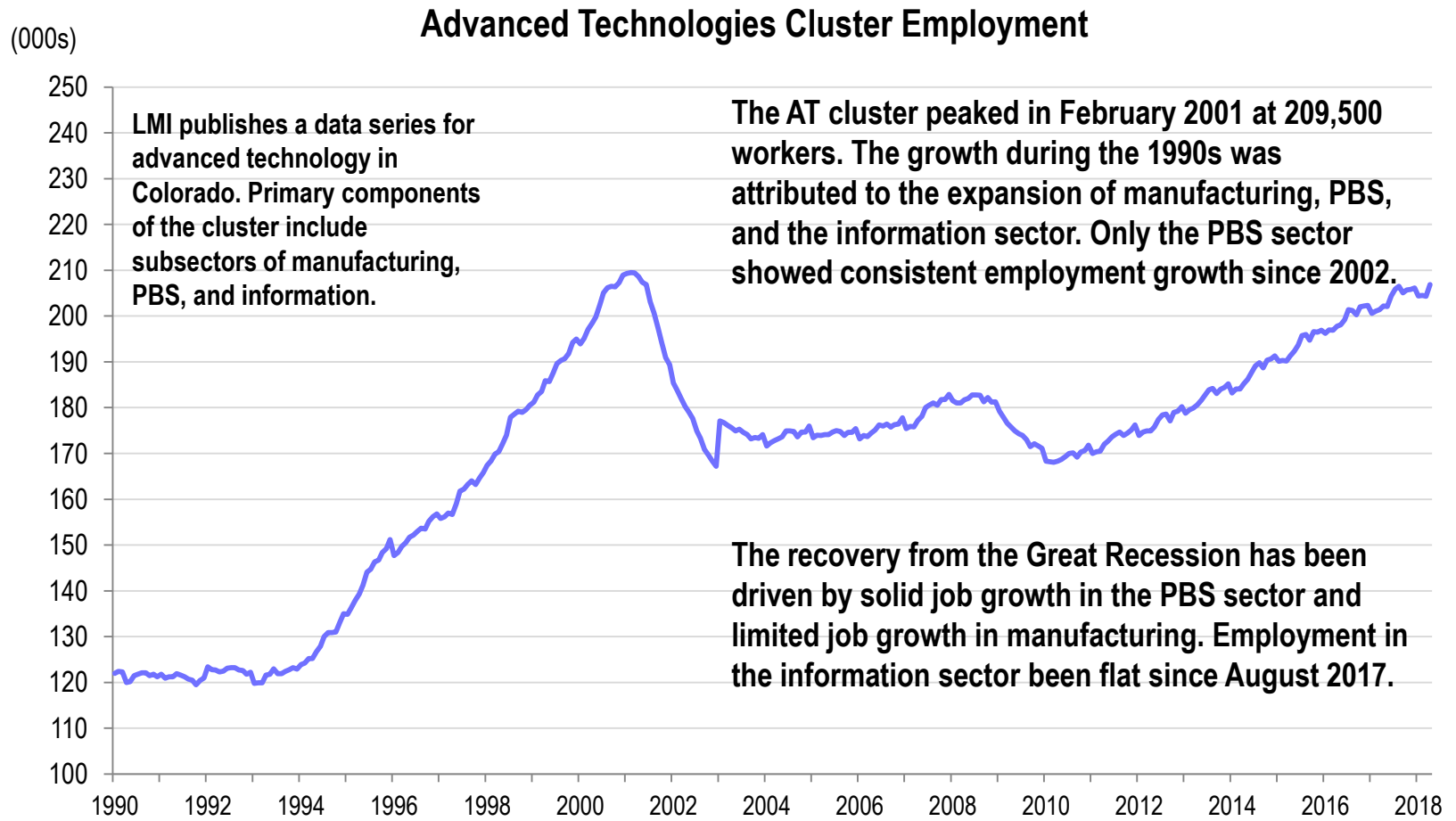
First 4 Months of 2018 vs. First 4 Months of 2017

Job Change All Sectors



Source: BLS, cber.co.

Employment - Advanced Technologies

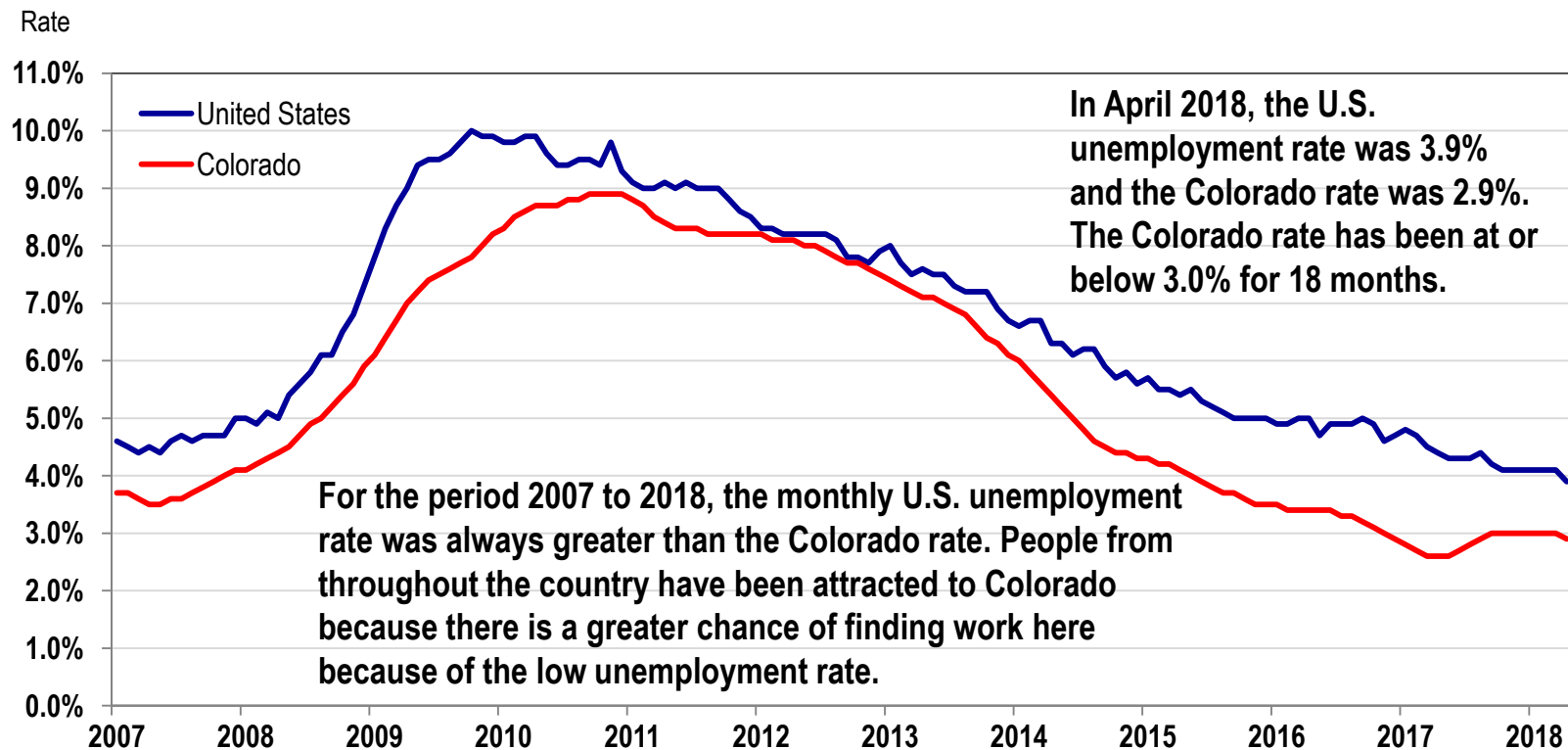


Source: Labor Market Information, Bureau of Labor Statistics, cber.co.

Annual Unemployment Rate

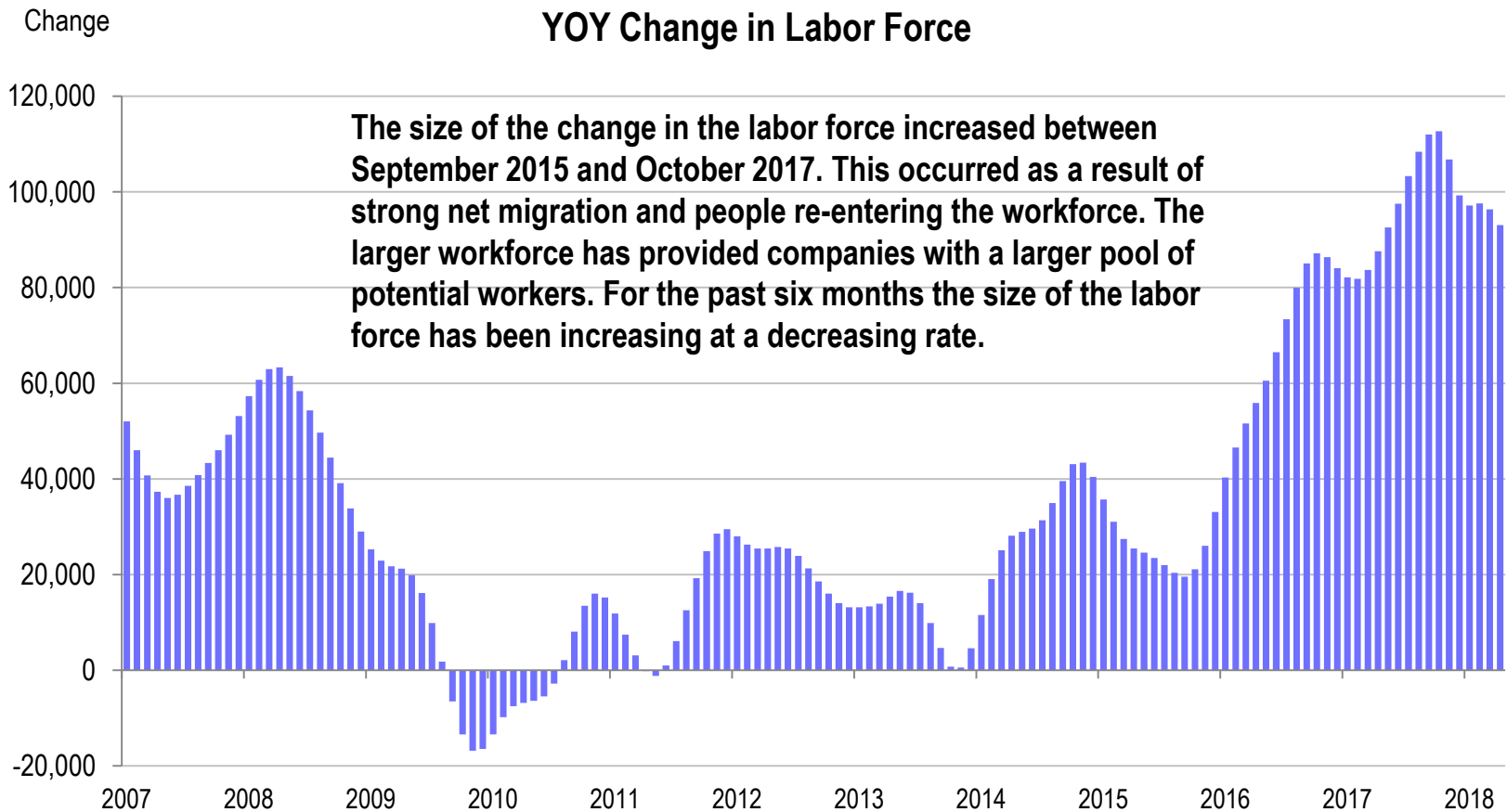
Colorado vs. U.S.

Unemployment Rate – Colorado vs. U.S.



Source: Bureau of Labor Statistics, cber.co.

YOY Change in Colorado Labor Force

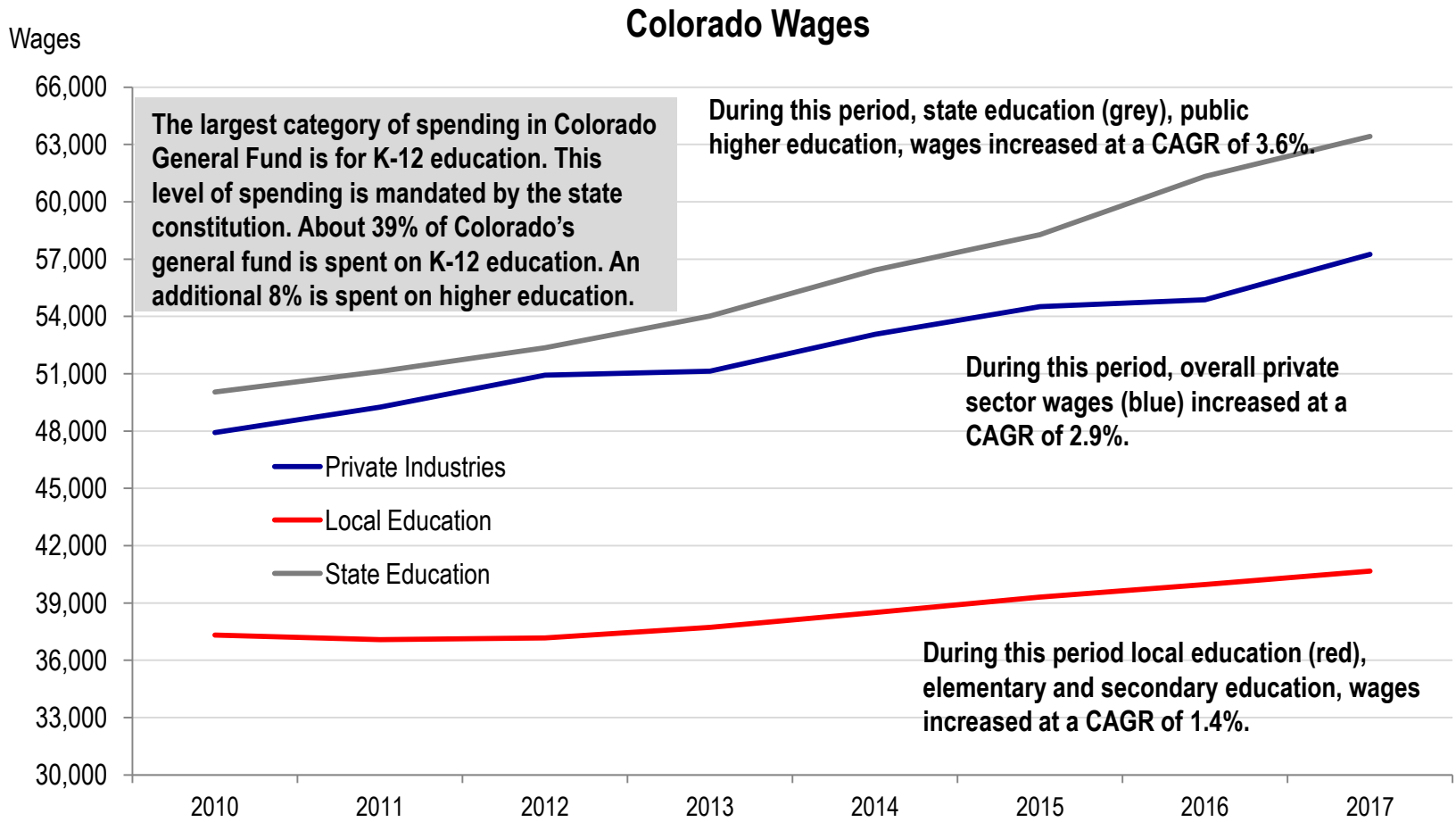


Source: Bureau of Labor Statistics, LAUS, SA, cber.co.

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Wages – 2010 to 2017

Local Education, State Education, Overall



Source: BLS, QCEW, cber.co.



The Colorado Economy

Trends – Inflation, Housing Prices, Construction

Q1 2018 Trends

Inflation, Housing Prices, and Construction

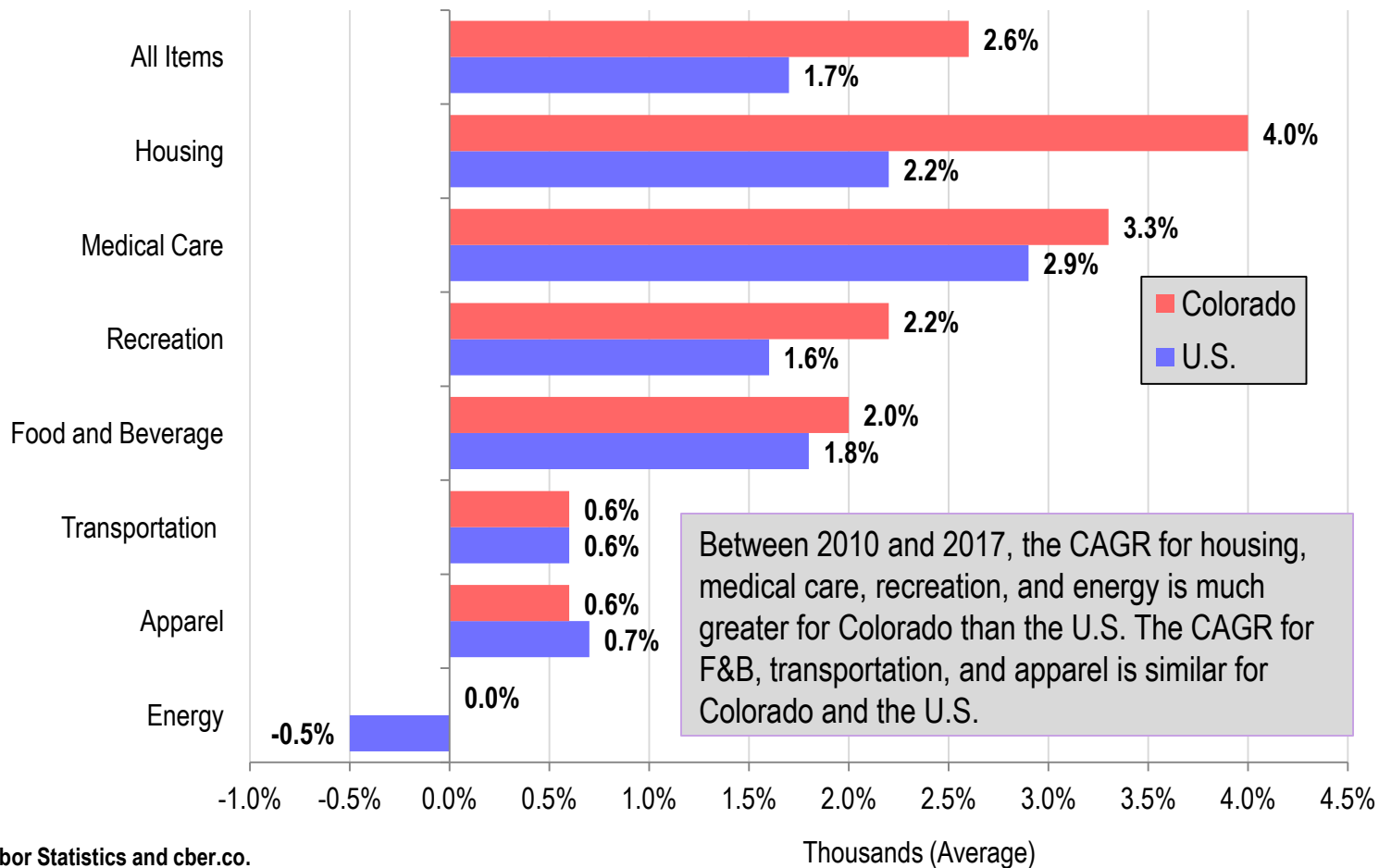
Charts for the following trends are provided on the subsequent pages.

- Colorado's rate of inflation is increasing faster than the U.S. rate, primarily because of the increase in housing prices, medical care, and recreation. All are critical to Coloradans. At what point will inflation be a deterrent to consumer spending and future growth in the state?
- Home prices in Denver are rising at a faster rate than the U.S. rate. It will become even more difficult for newcomers and residents to find attainable and affordable housing, especially with anticipated rate increases by the Fed. At what point will the lack of affordable housing cause the economy to slow? Will workers leave the state or not move to Colorado because they cannot find affordable housing?
- Colorado construction continues to be strong, although some would argue that it is not strong enough to meet housing needs. The recent permits data shows an increase in the number of single family permits and a decrease in the number of multi-family permits. A number of metro communities have plans for significant increases in housing on the drawing board. These plans are sufficient to fuel growth in the metro area for another decade. Will these housing developments actually be built? Will the supply of affordable housing ever catch up with the demand?

CPI by Major Component

U.S. vs. Colorado – Compound Annualized Rate of Growth 2010 to 2017

CPI – U by Major Component Colorado vs. U.S.



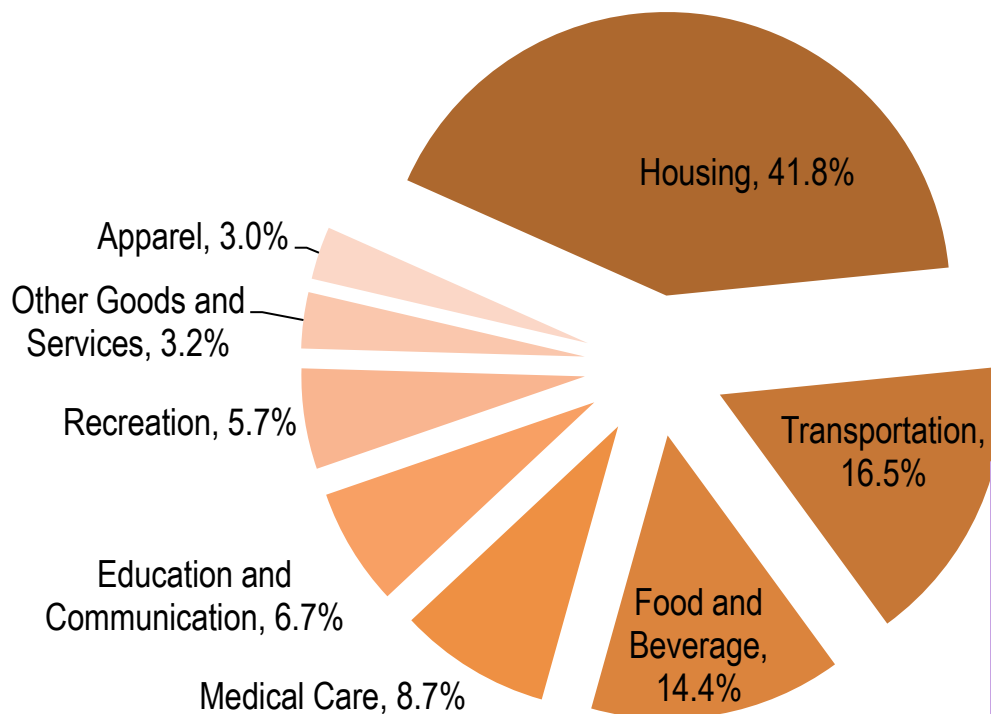
Source: Bureau of Labor Statistics and cber.co.

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Consumer Price Index

Importance of Major Components (U.S.)

Importance of Major CPI Components, Percent of CPI-U



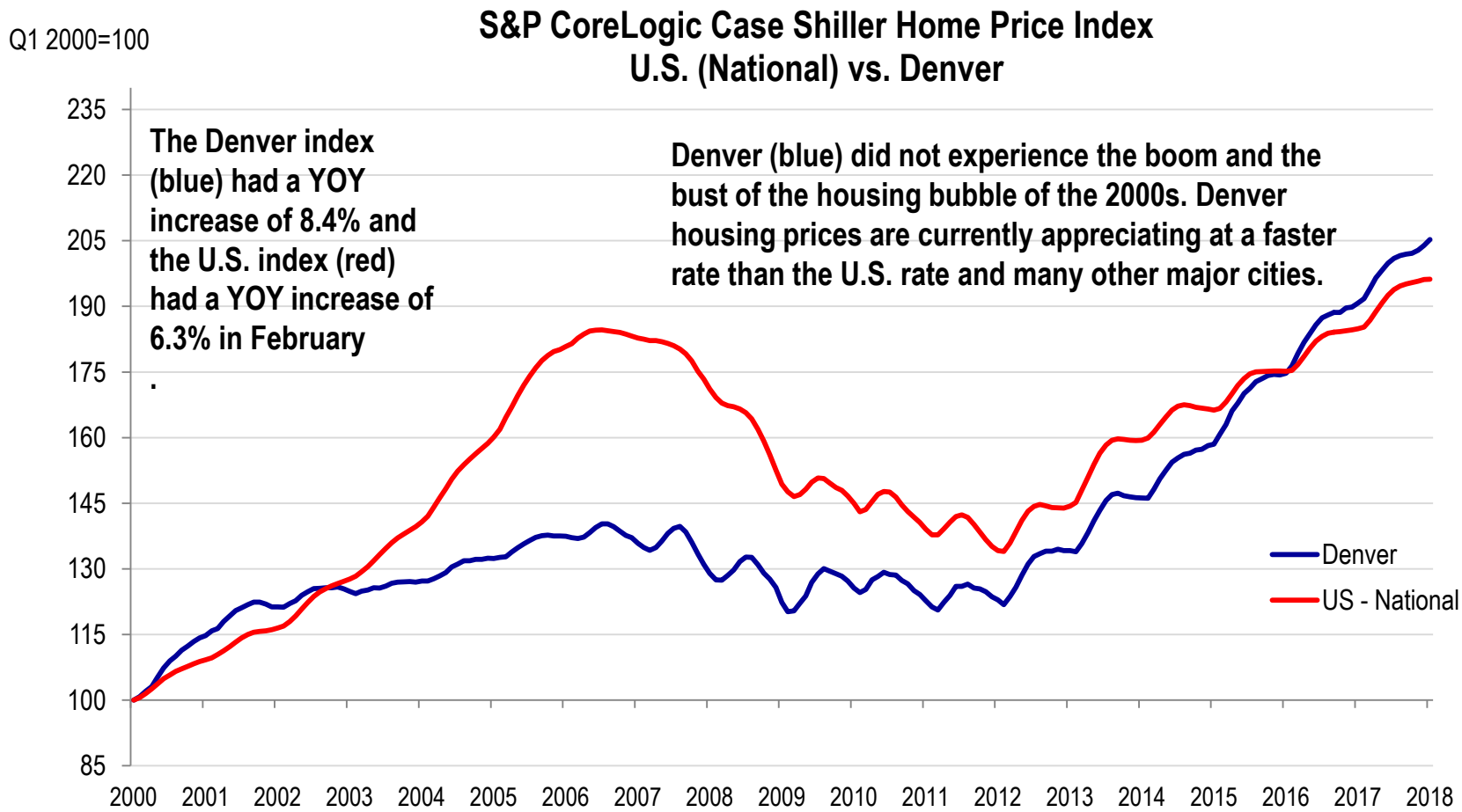
Between 2010 and 2017, the CAGR for housing, medical care, recreation, and energy is much greater for Colorado than the U.S. These are important to Coloradans and account for about 56% of the CPI.

Source: Bureau of Labor Statistics and cber.co.

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Case Shiller Home Price Index

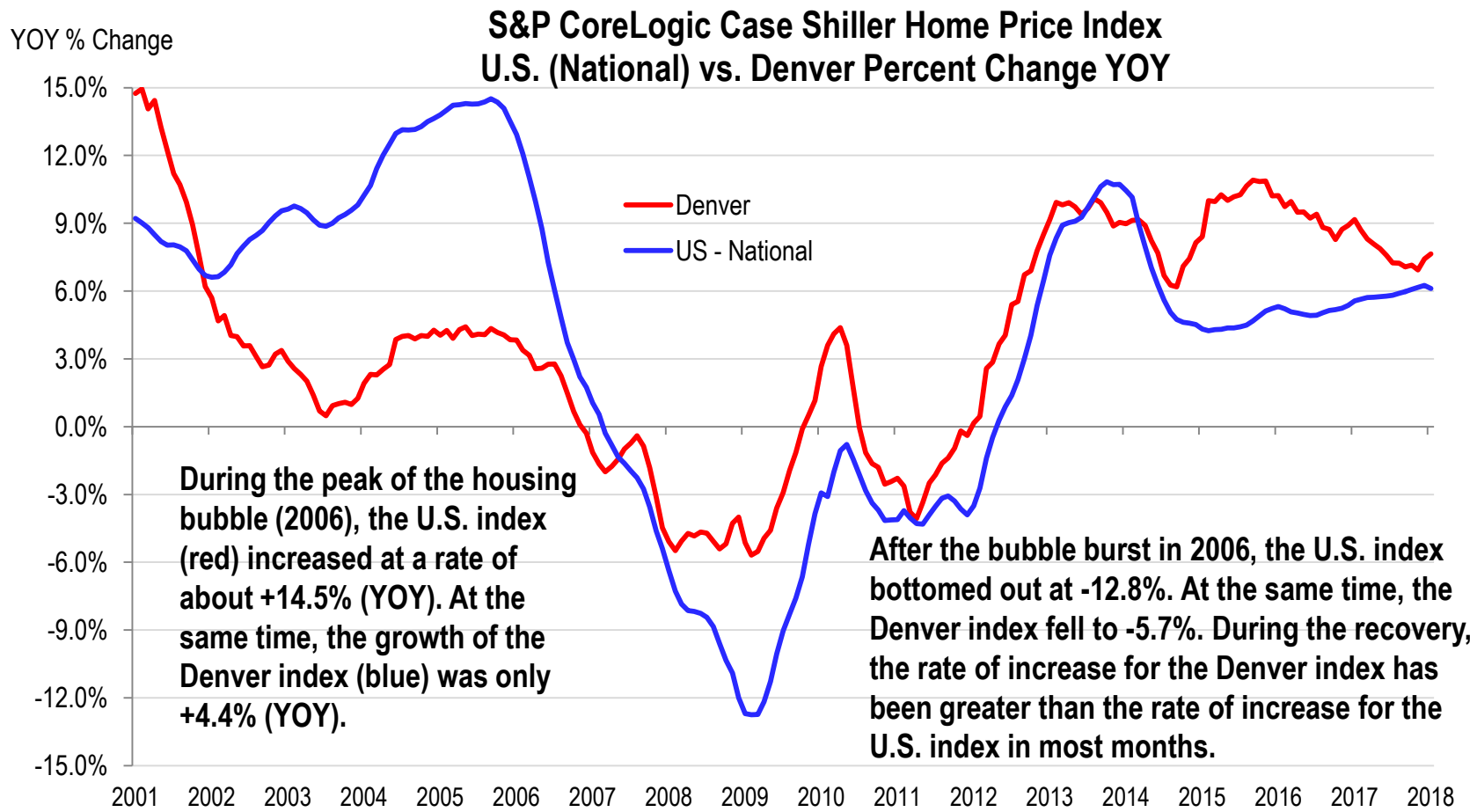
National vs. Denver Index Value



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

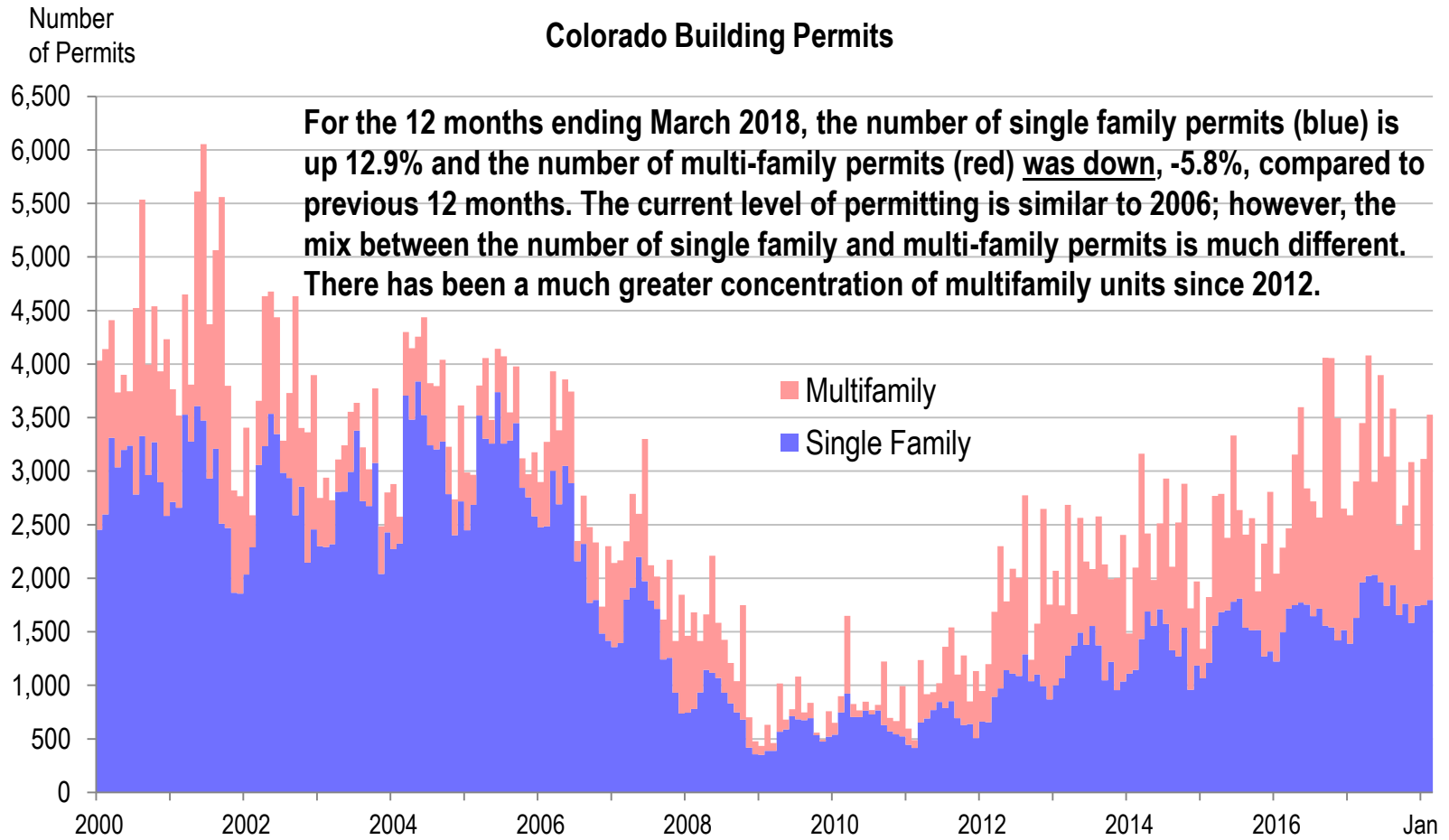
Case Shiller Home Price Index

National vs. Denver YOY Rate of Change



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

Colorado Residential Building Permits - Units



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



The Colorado Economy

Trends – Oil Production, DIA Passengers, and Vehicle Sales

Q1 2018 Trends

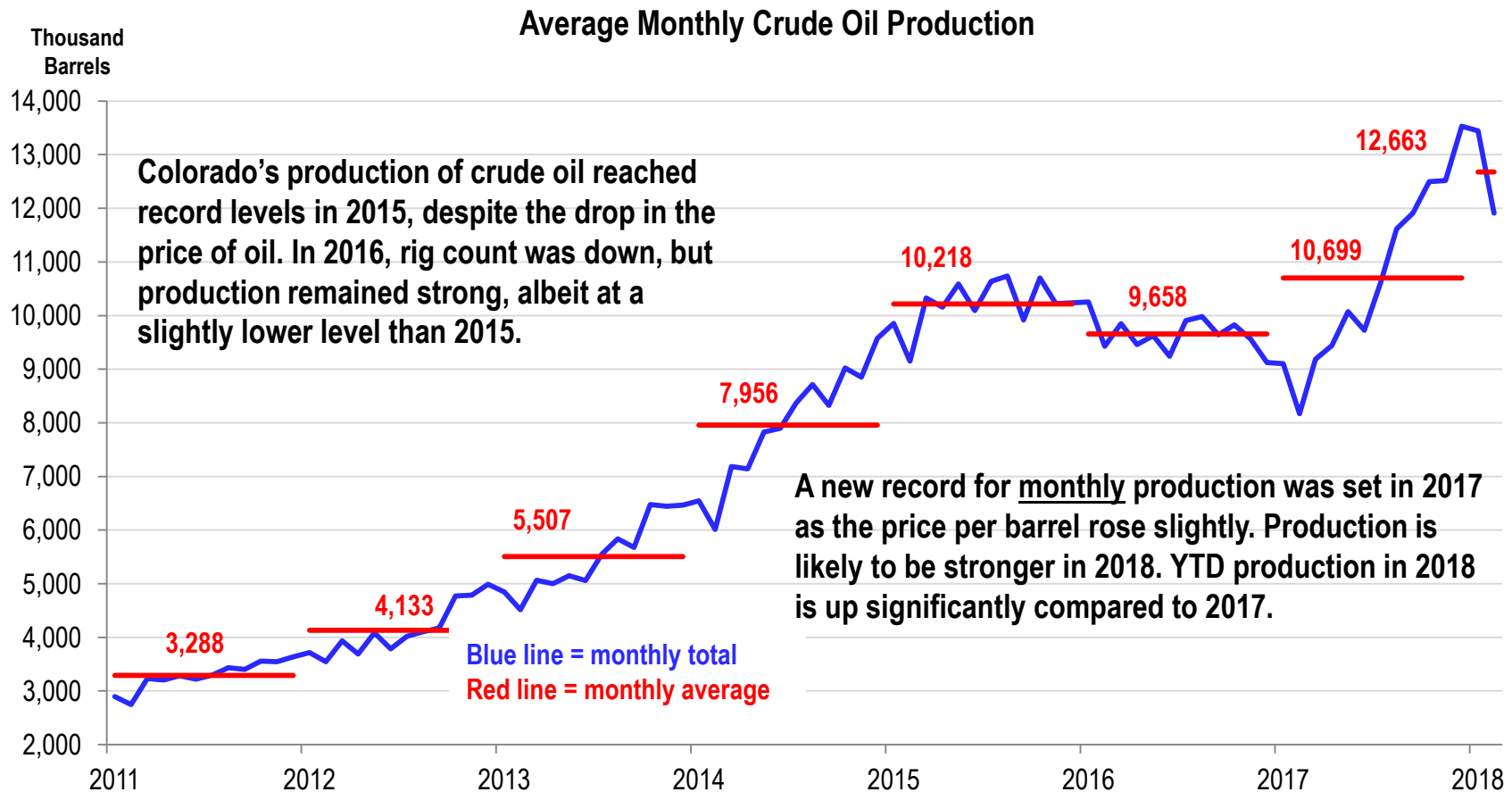
Oil Production, DIA Passengers, and Vehicle Sales

Charts for the following trends are provided on the subsequent pages.

- Record-setting oil production in the Niobrara oil patch has kept the Northern Colorado economy strong. Will future production be altered by changes in legislation or policies that affect demand or the price for a barrel of oil?
- More than 61 million passengers passed through DIA in 2017. The new year got off to a strong start, +3.4% greater than 2017 after three months. In addition, the area surrounding DIA is growing rapidly and Gaylord is scheduled to open later this year. Will the metro area's infrastructure be able to support the growth surrounding the airport?
- New and used vehicle registrations were at record levels in 2017. This was counter to the national trend. The strong rate of growth for new vehicles has slowed and it appears used vehicle registrations will be stronger than new vehicle registrations in 2018. Total YTD new and used vehicle registrations for 2018 are slightly greater than the same period in 2017. Will Coloradans continue to have a love affair with light trucks and autos in 2018?

Average Monthly Field Production of Crude Oil

2011 to 2018 (Thousand Barrels)

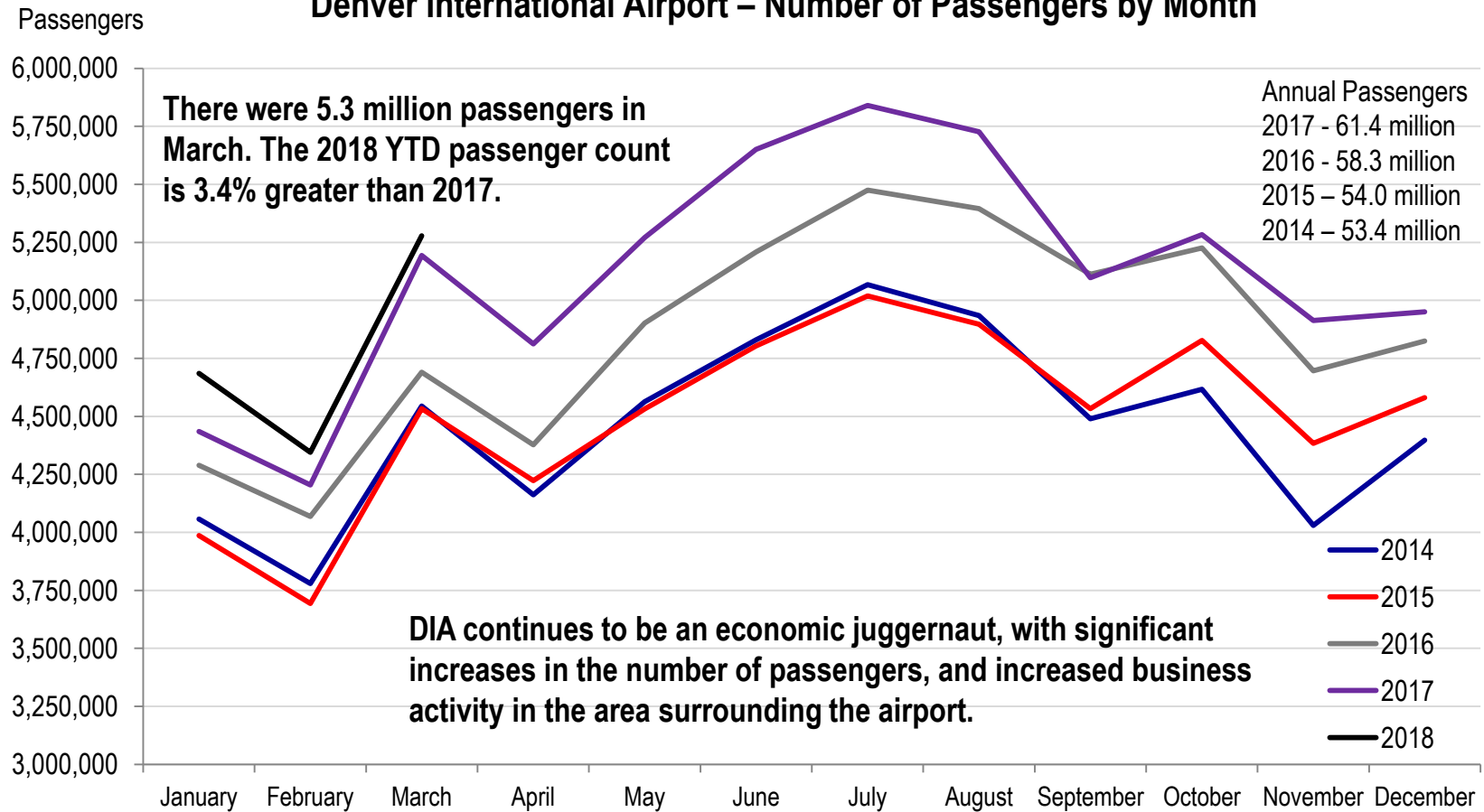


Source: EIA, cber.co.

Denver International Airport

Passengers

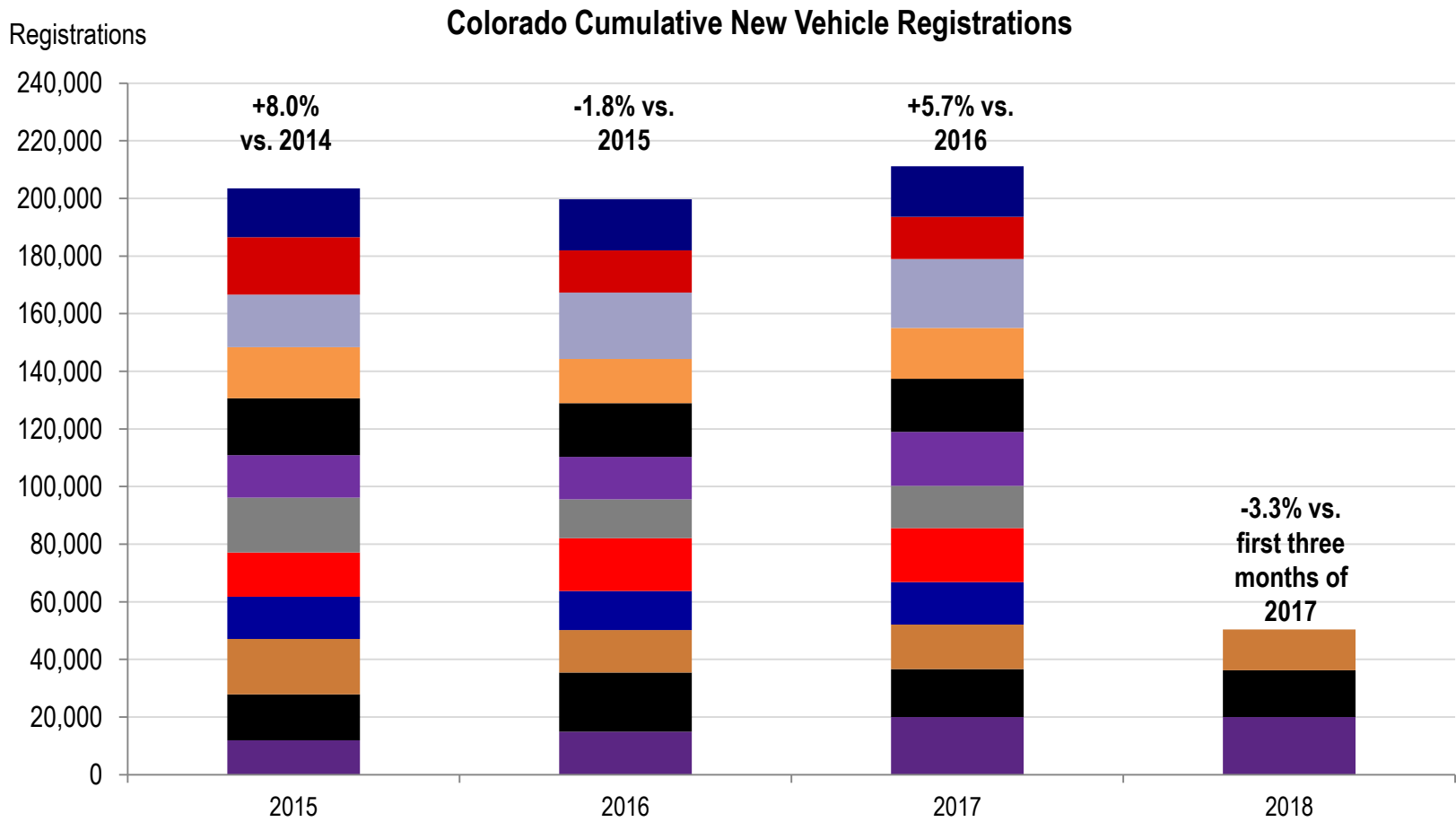
Denver International Airport – Number of Passengers by Month



Source: FlyDenver.com, cber.co.

Cumulative Colorado New Vehicle Registrations

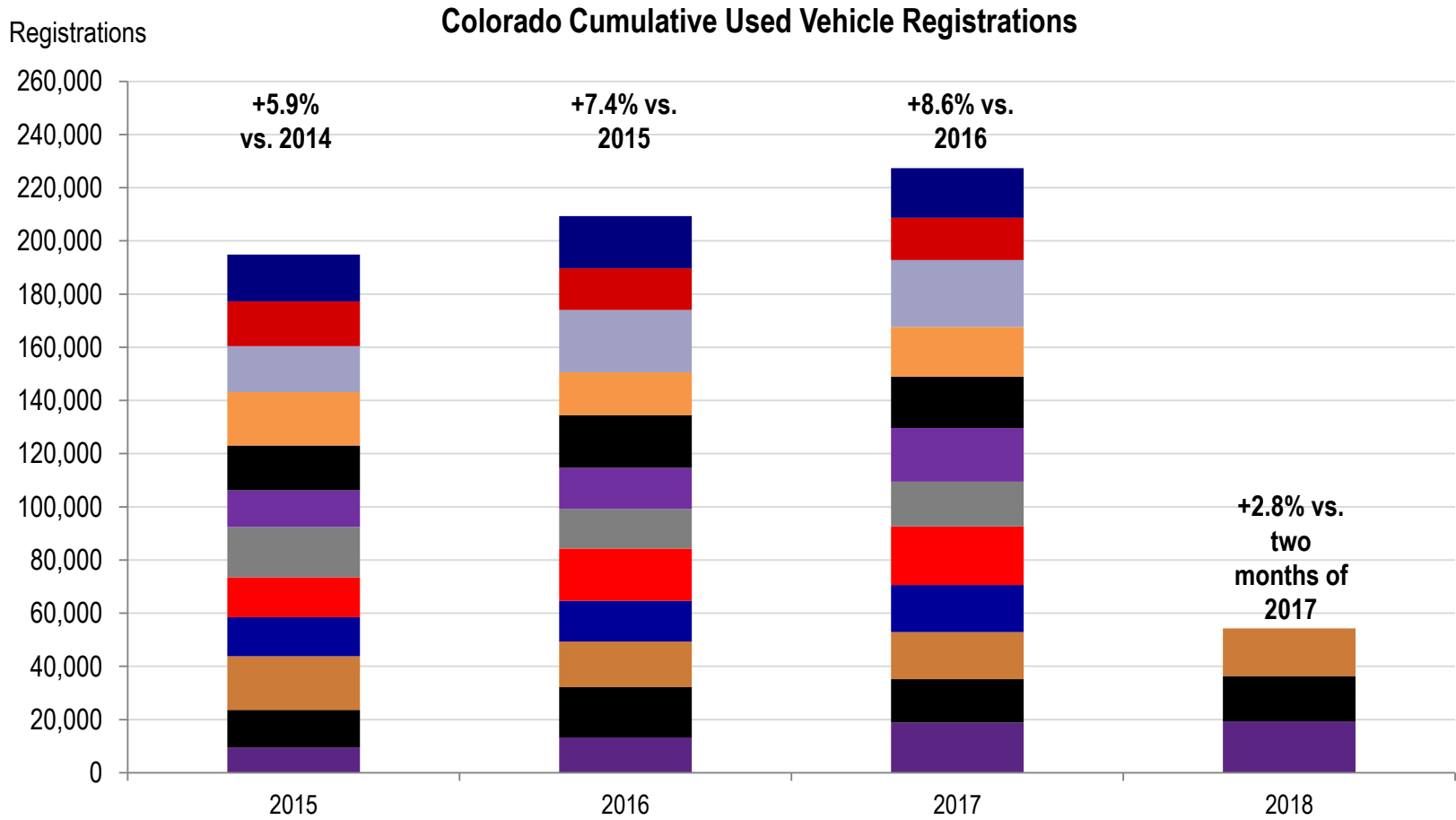
Monthly Registrations



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.



The Colorado and U.S. Economy

Summary



Summary

Colorado

The U.S. Economy is on solid footing. This provides a foundation for a solid Colorado economy. As is always the case, there are headwinds.

Positives

- Solid and broad-based job growth.
- Solid GDP growth.
- Wage growth appears to be improving.
- Strong reputation as a place to live and do business.

Concerns

- The low unemployment rate has caused companies to struggle to find qualified and clean workers.
- Colorado's rate of inflation is greater than the U.S.
- The rate of wage growth has been less than the rate of inflation.
- The rate of appreciation in housing is important to homeowners, but it is making housing unaffordable and unattainable for some newcomers and first time buyers.
- Continued net migration is necessary to fill new jobs, but it puts a strain on the infrastructure and state budget.
- There is insufficient funding to improve the state's infrastructure, even with the transportation and broadband legislation that was passed this last session.

There will be new leadership in the executive and legislative branches of the state government in January 2019 because of term limits. The last two sessions of the state legislature have been productive because critical fiscal issues were addressed with some success.

Annual Employment Change in Colorado

Employment for the first four months of 2018 is 67,900 jobs greater than the same period in 2017. The number of jobs increased at a rate of 2.6%.

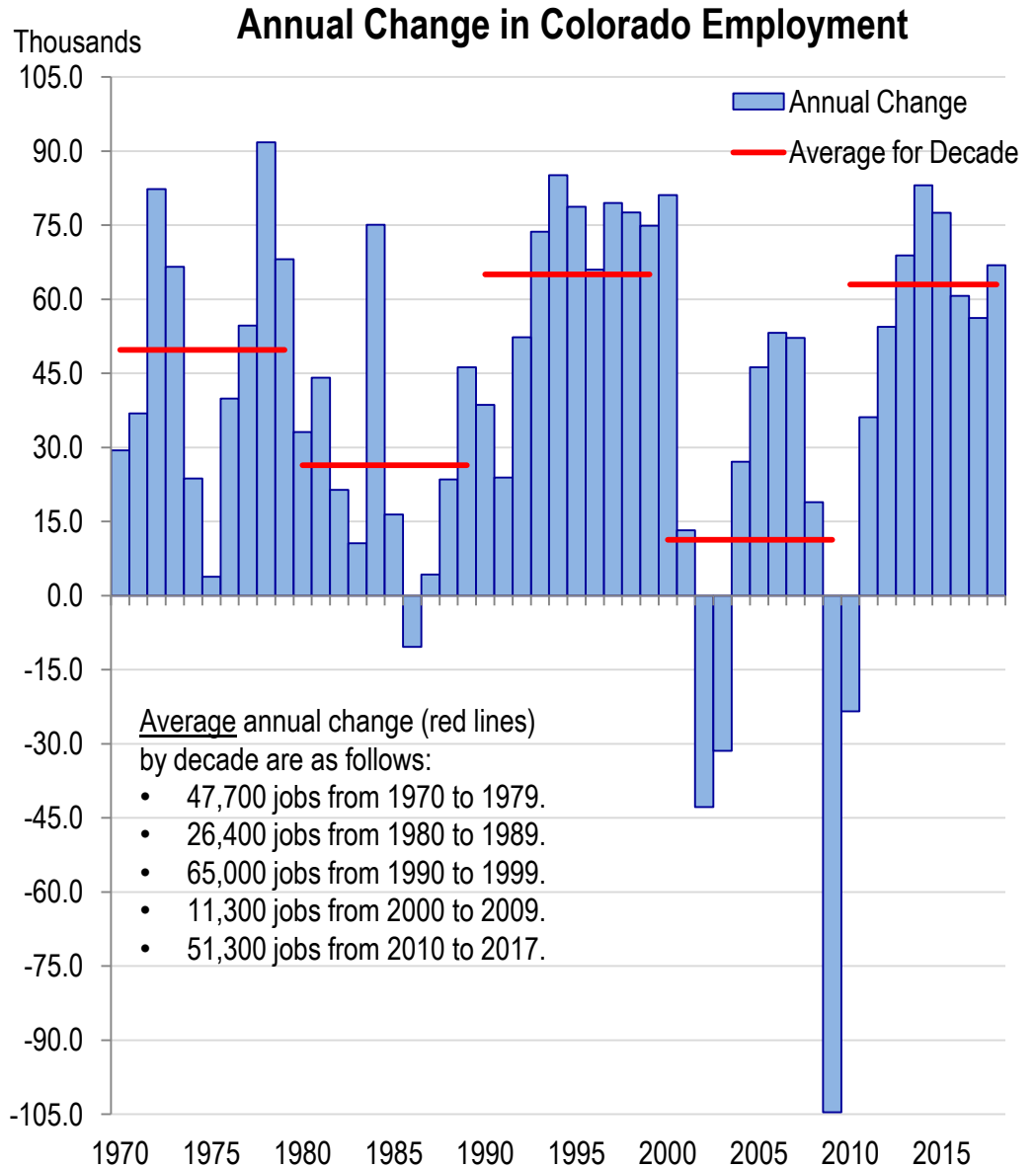
The state added 56,200 jobs in 2017 and employment increased by 2.2%. The cber.co forecast for 2018 calls for slightly slower job growth than 2017, in the range of 1.9% to 2.1%.

Through the first four months of 2018, job growth is stronger than anticipated. While this is good news, it is likely this level of employment is overstated. When revisions are made, actual job growth will be closer to 2.1%.

On average, employment for the first 9 years of this decade has increased at an average of 63,000 jobs.

Source: Bureau of Labor Statistics, cber.co.

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cber.co Review of Colorado Employment Data through April 2018

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For additional information contact cber.co at cber@cber.co.

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, Broomfield Economic Development Corporation, and Colorado Photonics Industry Association. Horvath has also been the lead for the photonics/electronics cluster in OEDIT’s early stage and proof of concept grant programs.