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# Colorado Economy and Employment Data Through July 2017

Colorado-based Business and Economic Research  
Prepared  
August 22, 2017

# Overview of Economic Review

This chartbook provides a series of charts, graphs, and discussions that review the Colorado wage and salary employment data published by the Bureau of Labor Statistics. Based on data through July, Colorado employment is on track to add 50,700 jobs this year. The unemployment rate of 2.4% indicates there is a lack of qualified workers. It is a deterrent to stronger job and real GDP growth.

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## U.S. Economy

- The Economy Through 2017.
- The United States Economy.
  - Leading Index and Real GDP.
  - Employment and Unemployment Rate.
  - S&P 500 and Equity Volatility.
  - Manufacturing, Non-manufacturing, Retail Trade, and Auto Sales.
  - Summary.

## The Colorado Economy

- Population; Employment; Unemployment Rate; Annual Employment, Net Migration, Unemployment Rate; Unemployment by MSA and Select Counties
- Employment in Strong Growth, Solid Growth, Volatile Categories.
- Key Sectors and Trends to Watch.
  - Extractive industries, Construction, Housing Prices, Manufacturing/durable goods, Retail Trade, DIA Passengers, New and Used Car Registrations, Information, PST, and Healthcare .
- Summary.

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The complete 2017 cber.co forecast can be found at <http://cber.co/economic-forecasts/>

# The Economy Through July 2017

## United States

From an economic perspective, not much has changed during the past month.

- The Fed is optimistic about the U.S economy.
- Q2 real GDP rate (2.6%) was stronger than Q1.
- YTD retail sales are up 4.6%.
- Y-O-Y U.S. housing prices continue to appreciate (5+%),
- The S&P 500 is up 8%; the VIX shows little volatility.
- The unemployment rate is 4.3%.
- Purchasing managers are optimistic about the future (manufacturing and non-manufacturing).
- The U.S. is on track to add 2.2 million jobs in 2017.

Despite the political unrest, U.S. economic growth remains solid.

## Colorado

If only there were enough qualified workers to fill the vacant jobs, the state would be experiencing much stronger job growth.

### Upward Trends

- Construction permits.
- Housing prices.
- DIA passengers.
- New and used car registrations.
- PST – employment and real GDP.
- Healthcare – employment and real GDP.
- Information - employment and real GDP.

### Mixed Signals

- Prices for a barrel of oil continue to be flat.
- Manufacturing employment is down. Durable goods real GDP is solid.



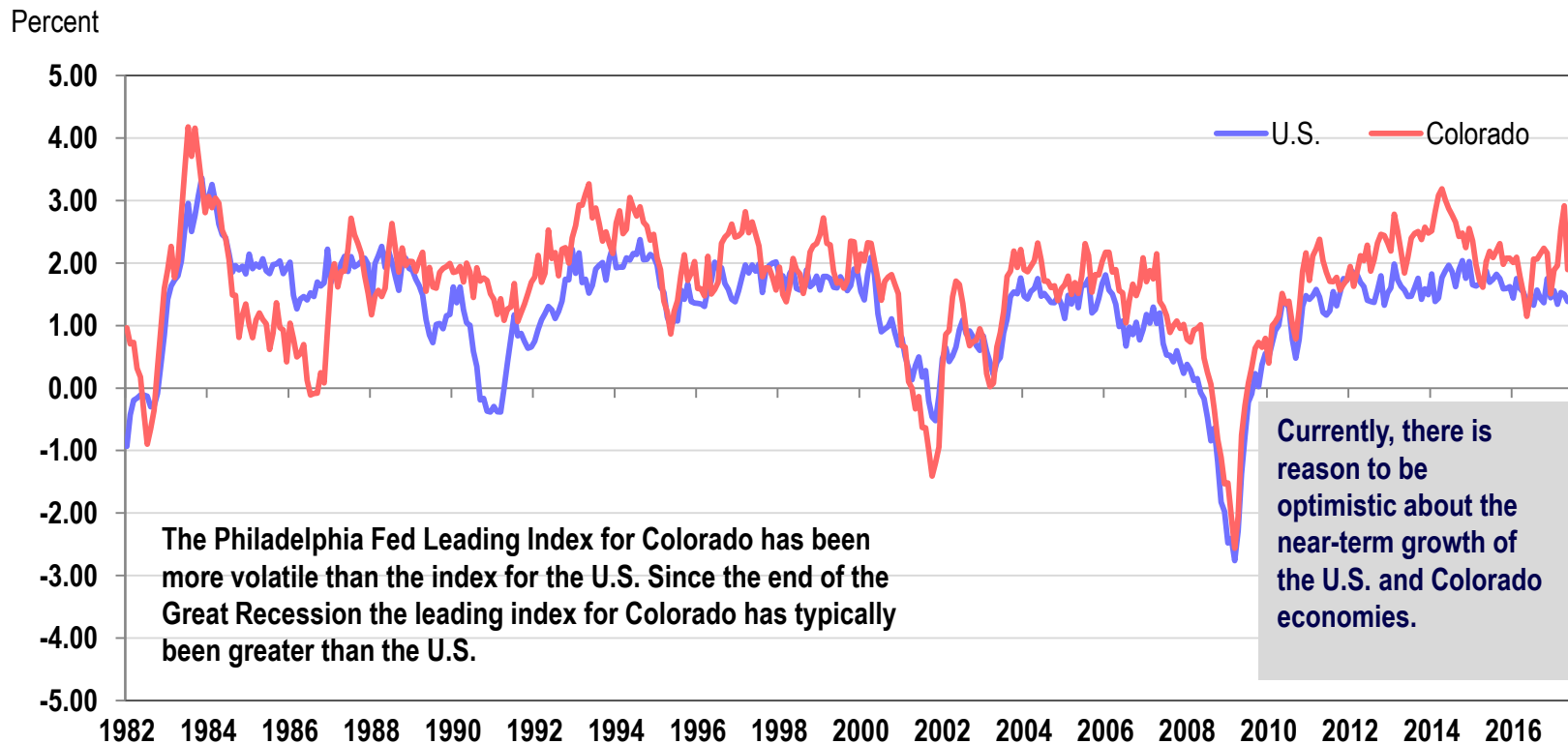
# The U.S. Economy

## Leading Index and Real GDP

# Leading Index

## Colorado vs. United States

Philadelphia Federal Reserve Leading Index - Colorado vs. U.S.



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

# Quarterly Real GDP Growth United States

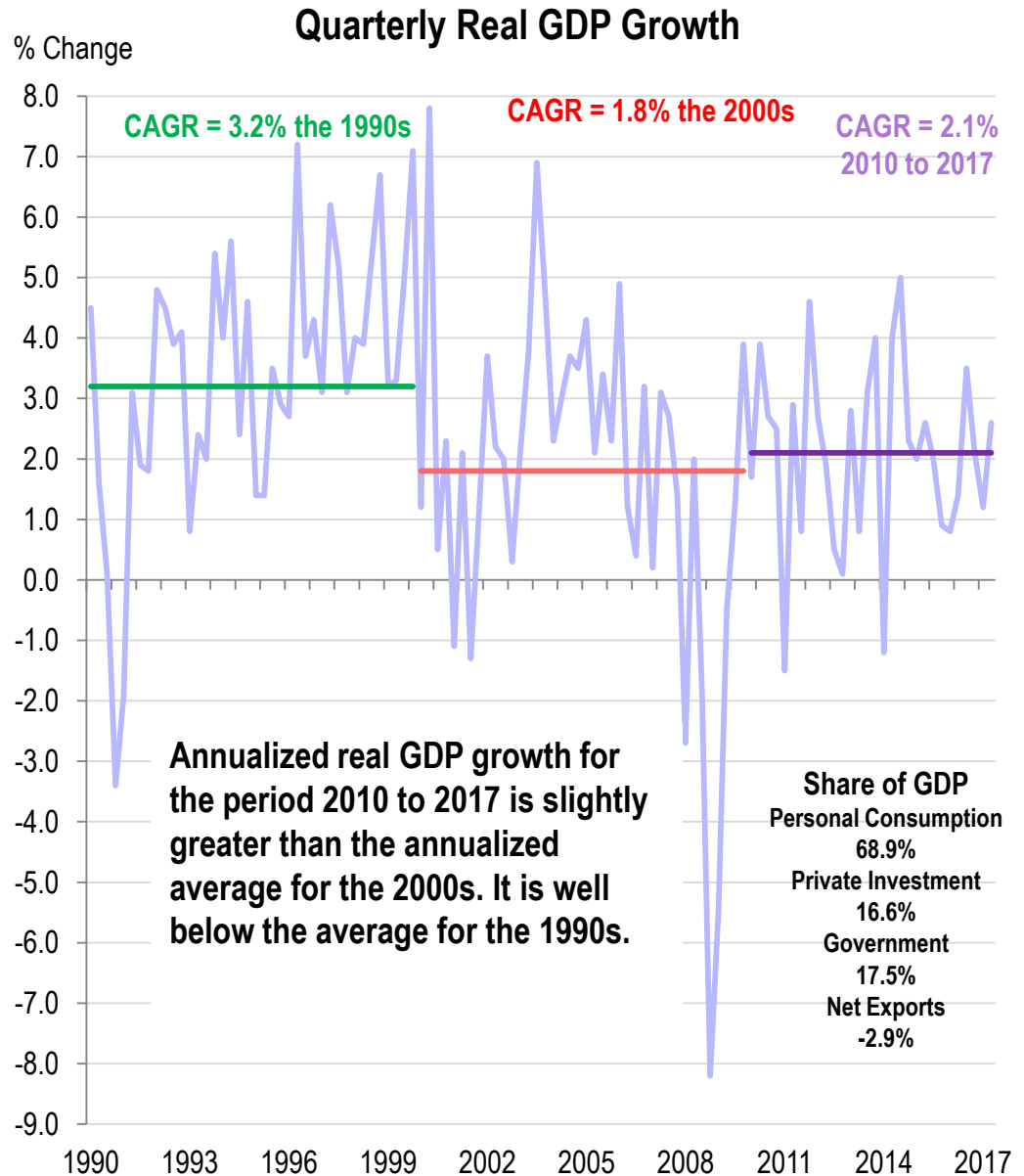
Historical annualized real GDP growth is:

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

The final estimate of real GDP growth for Q1 2017 is 1.2%. The advance estimate for Q2 is 2.6%.

Real GDP growth for recent years was:

- 2010 2.5%
- 2011 1.6%
- 2012 2.2%
- 2013 1.7%
- 2014 2.4%
- 2015 2.6%
- 2016 1.6%
- 2017 2.1% to 2.5% projected



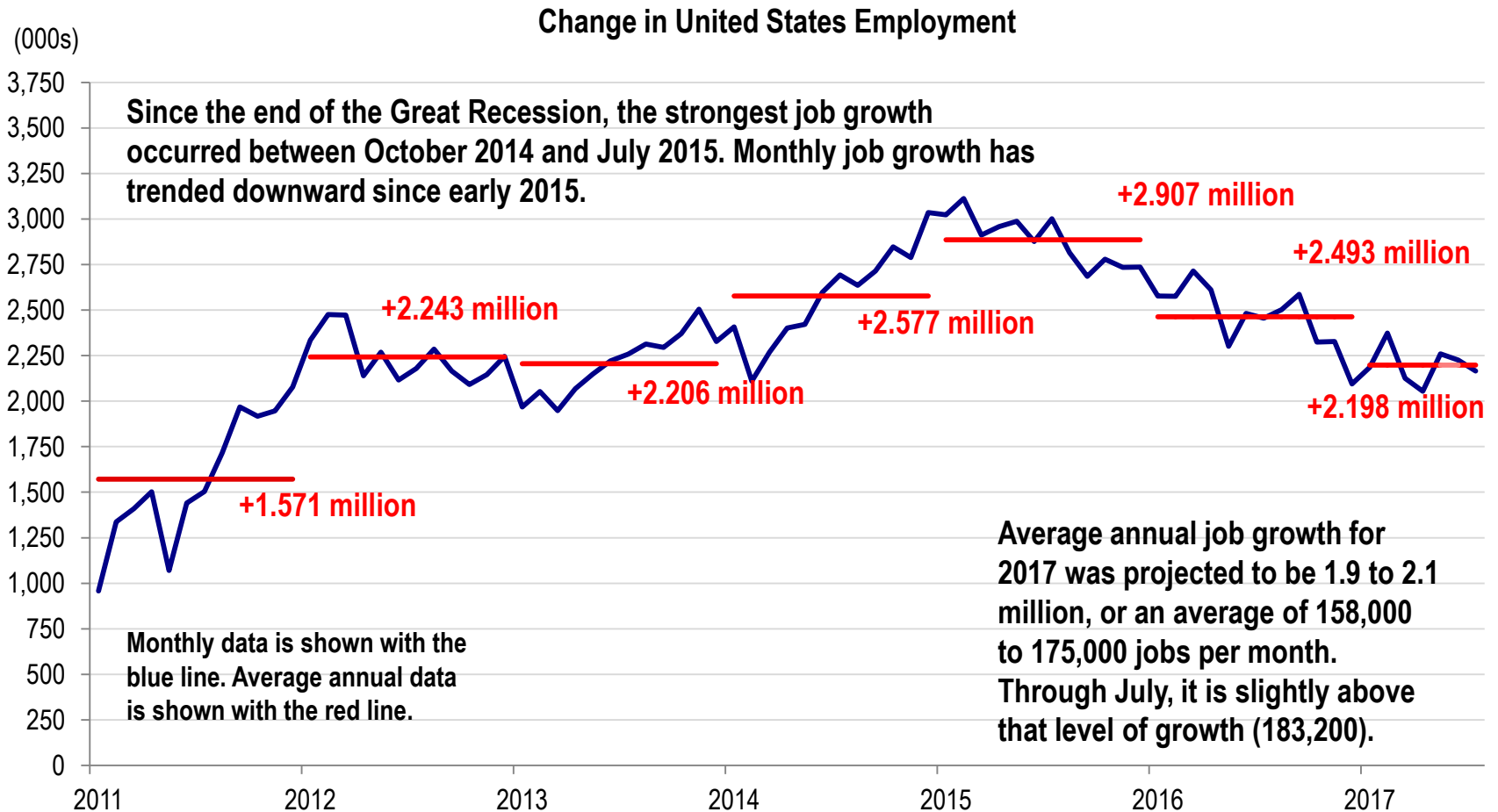
Source: Bureau of Economic Analysis, cber.co, Note GDP chained on 2009.



# The U.S. Economy

## Employment and Unemployment Rate

# Change in United States Employment Year-Over-Year

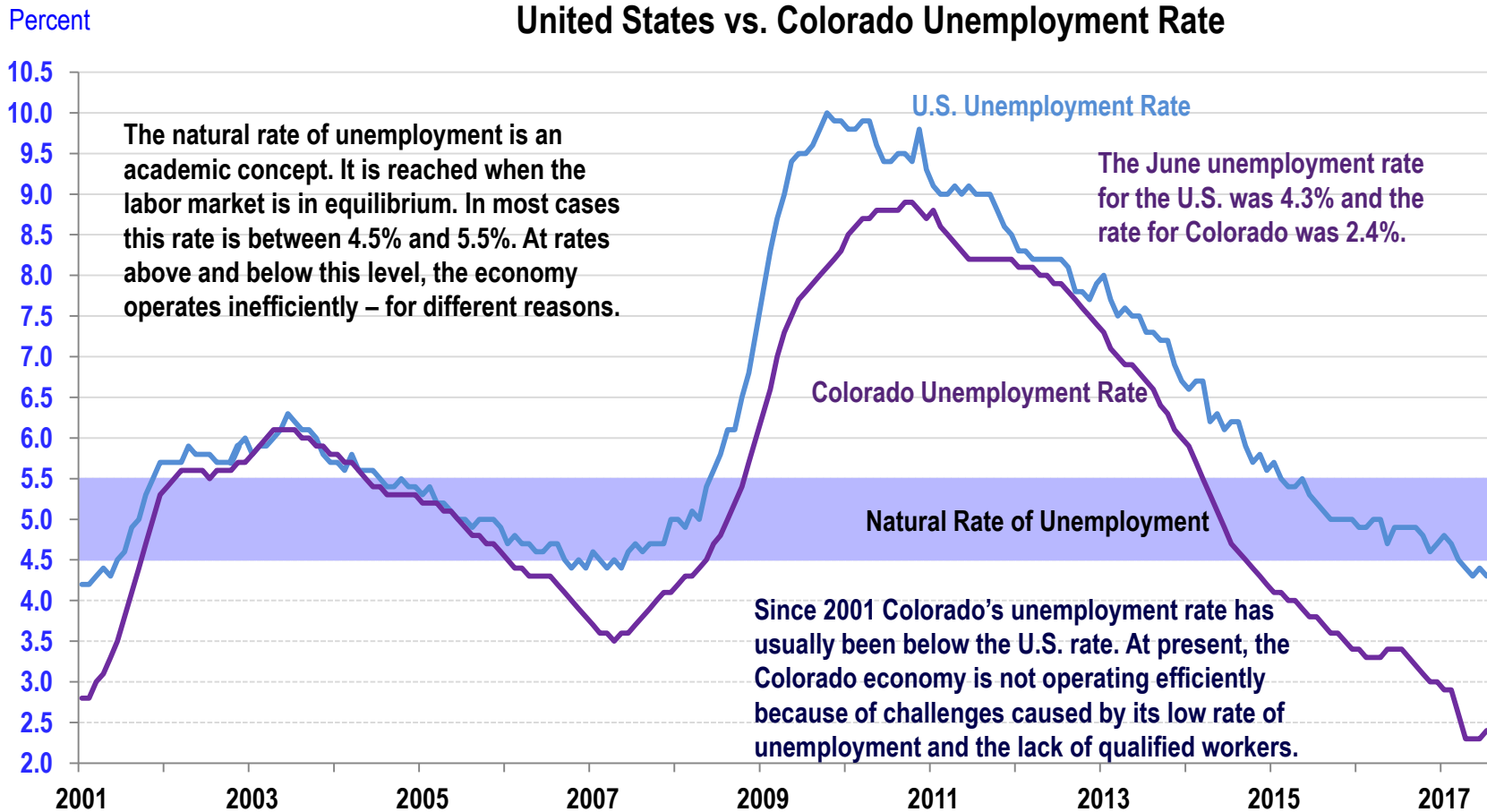


Source: Bureau of Labor Statistics, NSA; cber.co.



# Unemployment Rate

## United States vs. Colorado



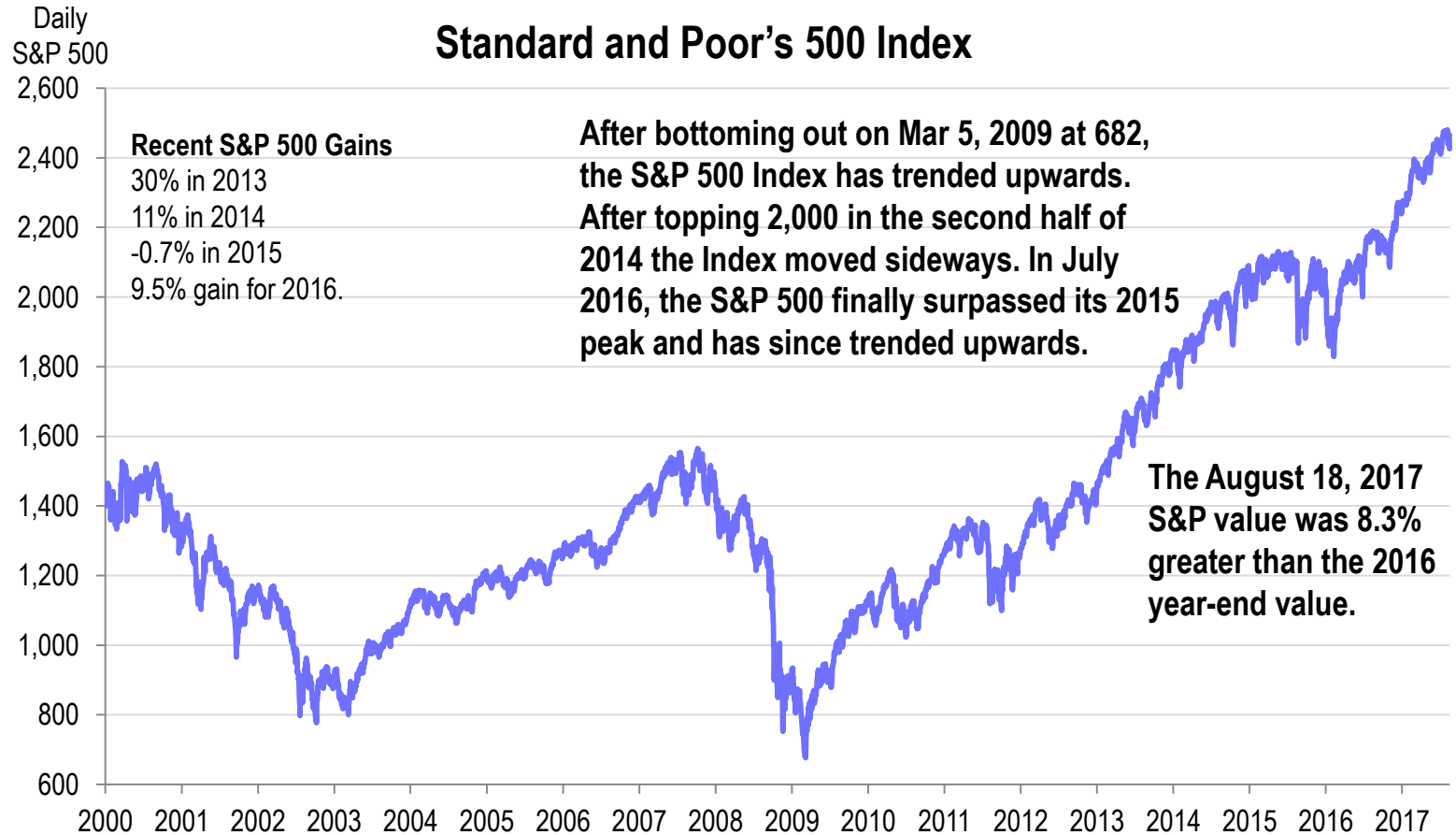
Source: Bureau of Labor Statistics, SA, cber.co.



# The U.S. Economy

## S&P 500 and Equity Volatility

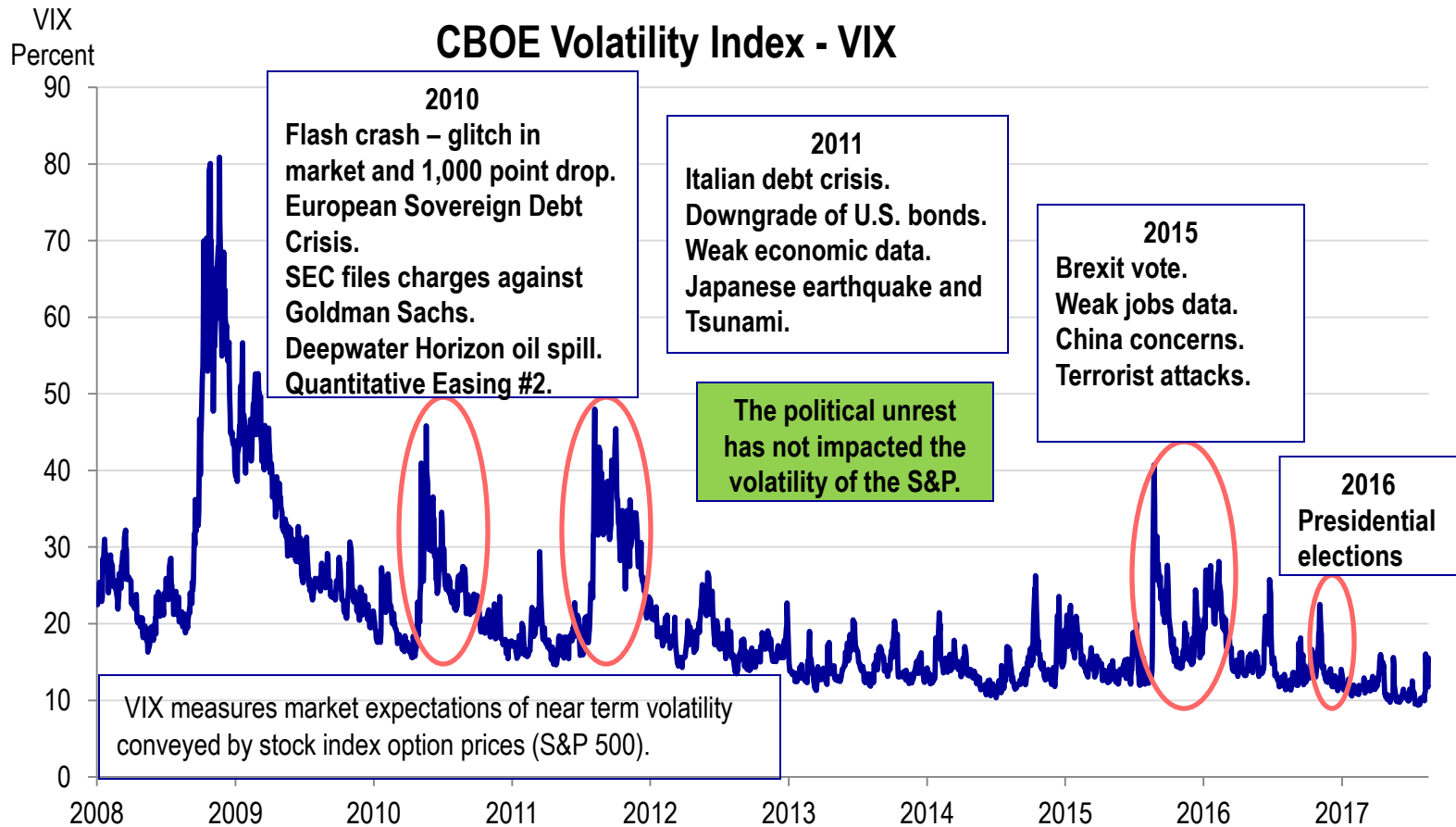
# Standard and Poor's 500 Index



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

# CBOE Volatility Index

VIX (VIXCLS)



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

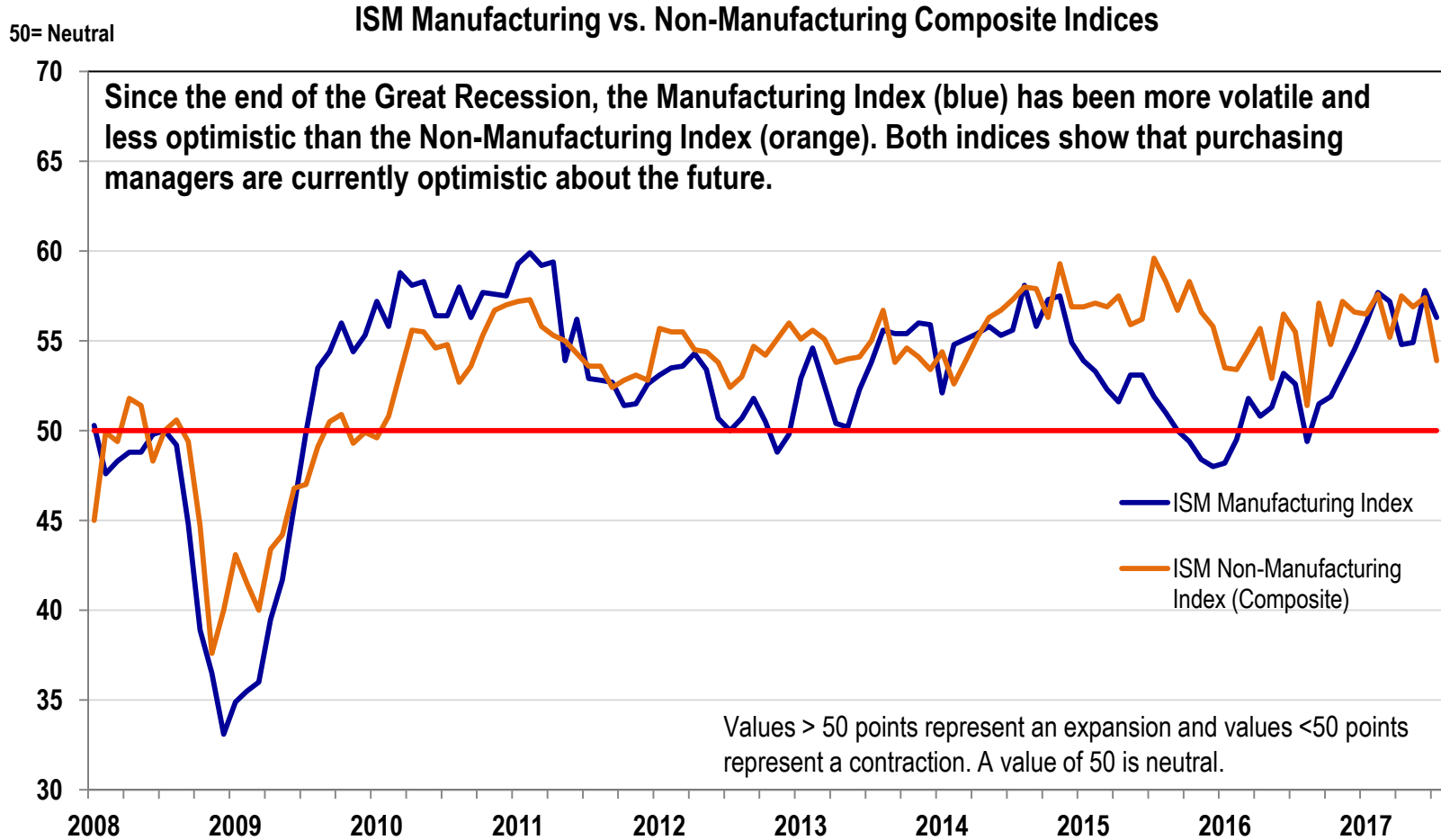


# The U.S. Economy

Manufacturing, Non-Manufacturing, Retail Trade Sales, and Auto Sales

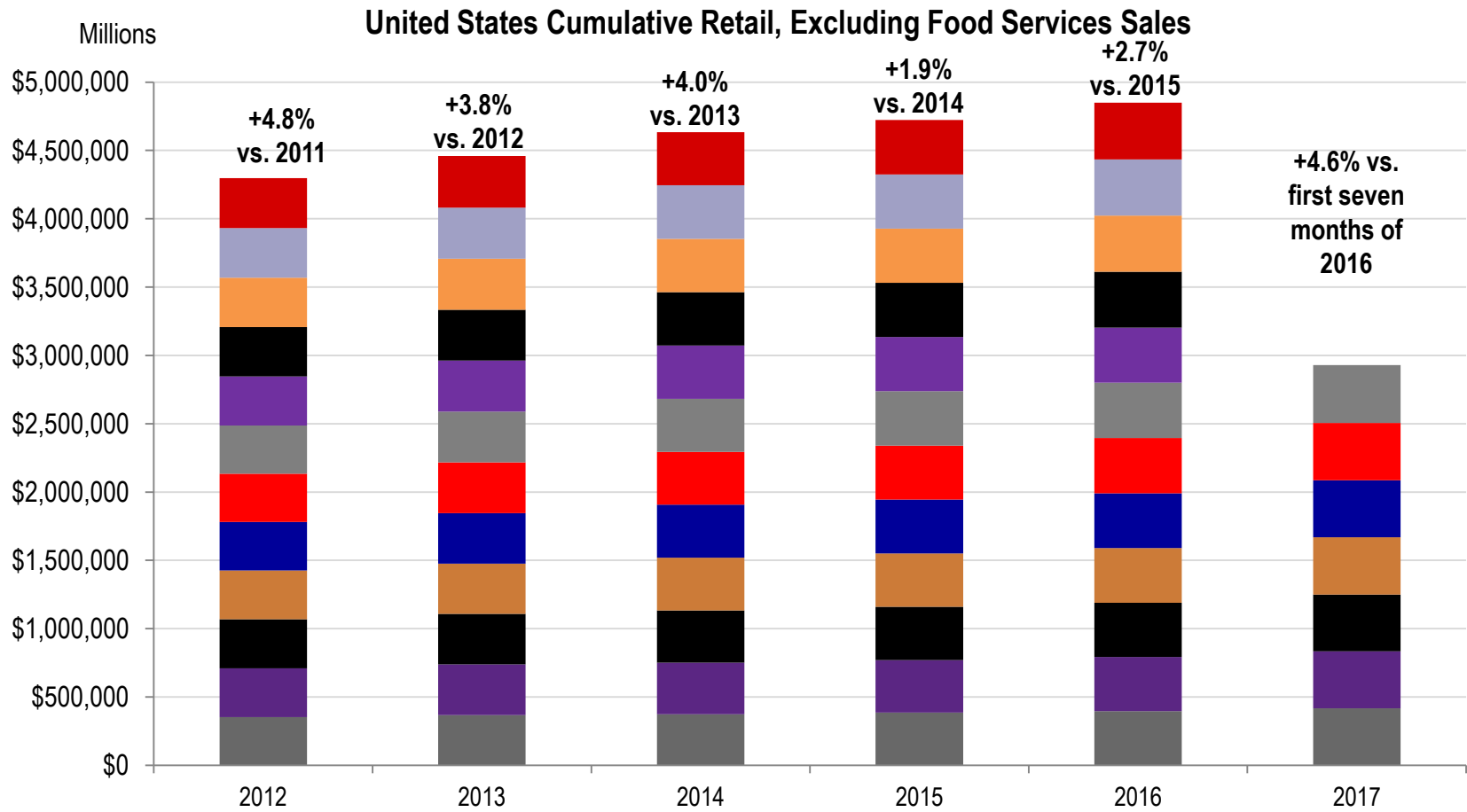
# ISM PMI Composite Indices

## Manufacturing vs. Non-manufacturing



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

# Cumulative Retail, Excluding Food Services Sales



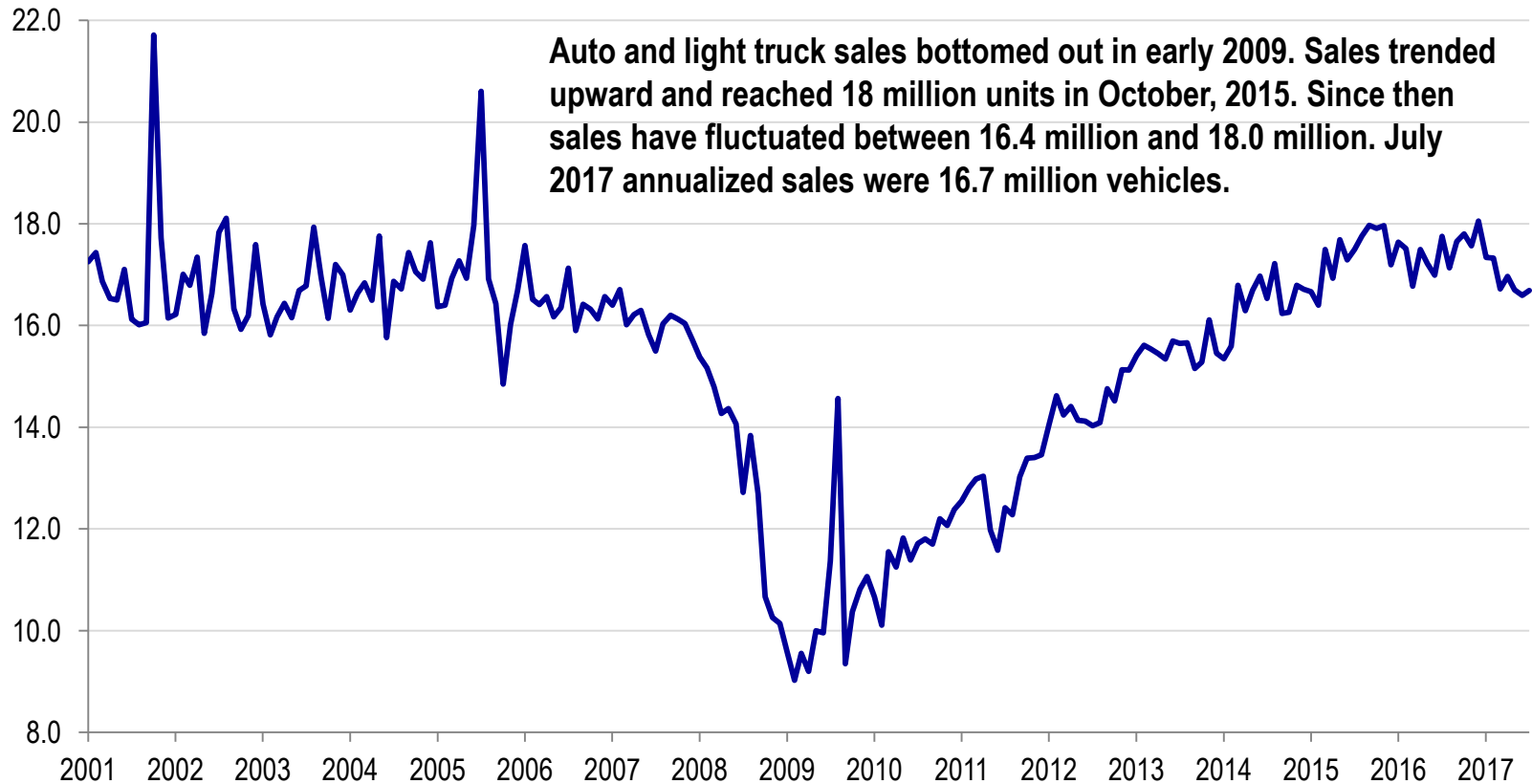
Source: U.S. Census Bureau, FRED, cber.co.

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

Annualized  
Rate Millions

## United States Number of Auto and Light Trucks Sold



Source: FRED, BEA, cber.co.

Note: Seasonally Adjusted Annualized Rate.

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





# The U.S. Economy

## Summary

# Summary of the Global and U.S. Economy

Not much has changed over the past month. The U.S. economy is on solid footing, despite the increased level of political discord.

Summary of the Global and U.S. Economy	
<b>Global Economy</b> – The IMF is more optimistic about the global economy than a year ago. It has lowered its expectations for real GDP growth in the U.S. to 2.1% in 2017 and 2018.	<b>Purchasing Manager Outlook</b> – Manufacturing and nonmanufacturing businesses are optimistic about the future.
<b>Brexit</b> – Great Britain and the EU are trying to understand how to implement Brexit .	<b>Productivity</b> – Will business investment improve and the downward trend in labor productivity be reversed?
<b>Global Geopolitical Tensions</b> – Is North Korea a threat? When will the war in Syria end? Do we need more soldiers in Afghanistan? Which country is next?	<b>Housing Prices</b> - U.S. housing prices continue to rise, which keeps consumer confidence in positive territory. Despite high prices, home sales continue to be solid.
<b>U.S. Real GDP</b> – Consumers are continuing to spend and business investment should become stronger.	<b>Debt</b> – Will the level of personal and government debt become an issue in 2017?
<b>The Fed</b> – The Fed is optimistic about the economy and plans to continue rate increases.	<b>U.S. Auto Sales</b> – Light automobiles and trucks are being sold at a slower rate in 2017.
<b>Jobs</b> - The U.S. is on track to at 2.2 million jobs in 2017.	<b>Equity Markets</b> – We are in a bull market. Long may it run!
<b>Labor Shortages</b> – There are critical labor shortages in key occupations and industries in many states.	



# The Colorado Economy

Population, Employment, Unemployment by MSA, Unemployment by Select Counties

# Colorado Population

## Components of Change

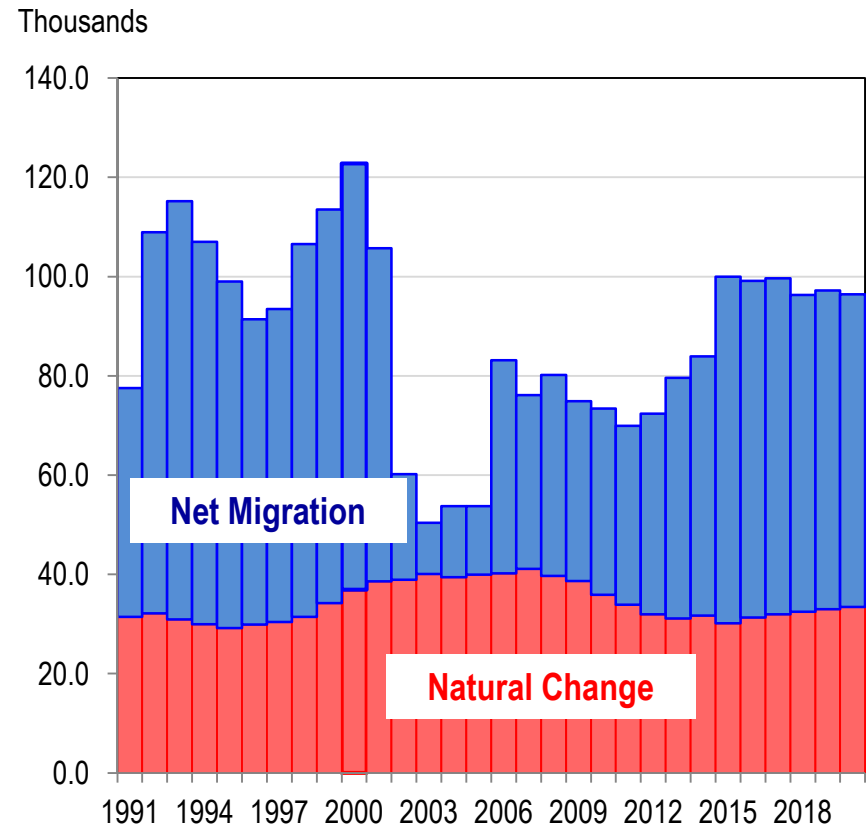
The population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

Over the past 2½ 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. For the past 10 years it has been slightly above 30,000.

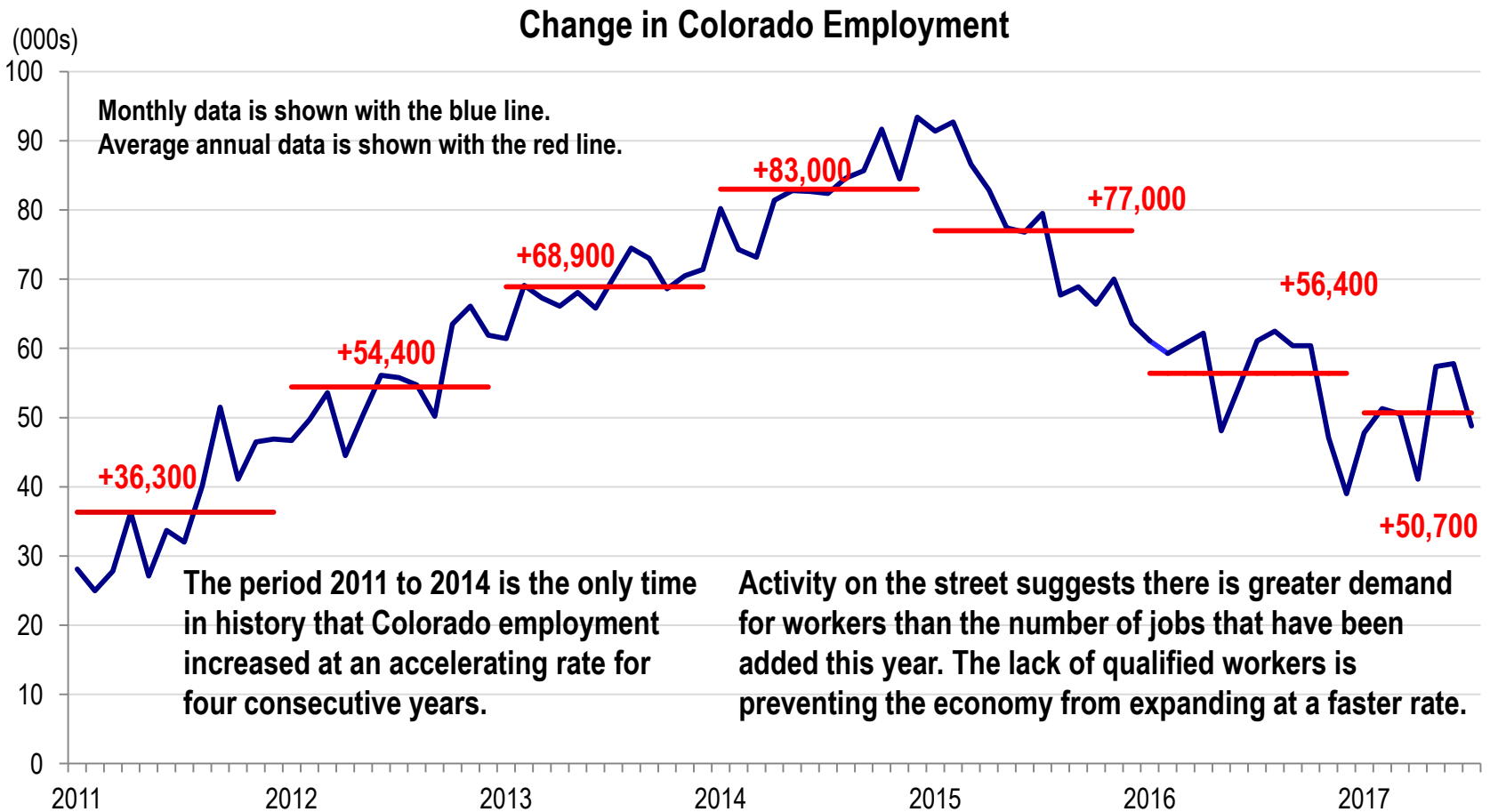
Changes resulting from net migration (blue bars) are closely tied to the strength of the economy and the change in state employment. For example, there were five years, from 1986 to 1990, when net migration was negative (not shown on this chart). More people moved out of state than moved into the state to escape a regional recession. During the past two recessions, 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 100,000 in 2015, 2016, and 2017. In 2017 the state's population will increase by 1.8% to 5.655,405.

Change in Colorado Population 1991 - 2016



# Change in Colorado Employment Year-Over-Year



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



# Unemployment Rate

## Colorado

Colorado's unemployment rate has dropped to record lows. The rate has been below 2.5% for four consecutive months. From 2015 to the present, there have been 20 consecutive months when the unemployment rate was below 3.5%.

Prior to 2017, there were 31 consecutive months during 1998 to 2001 when the unemployment rate was below 3.5%. Unlike the current situation, the unemployment rate did not drop below 2.5% during that period.

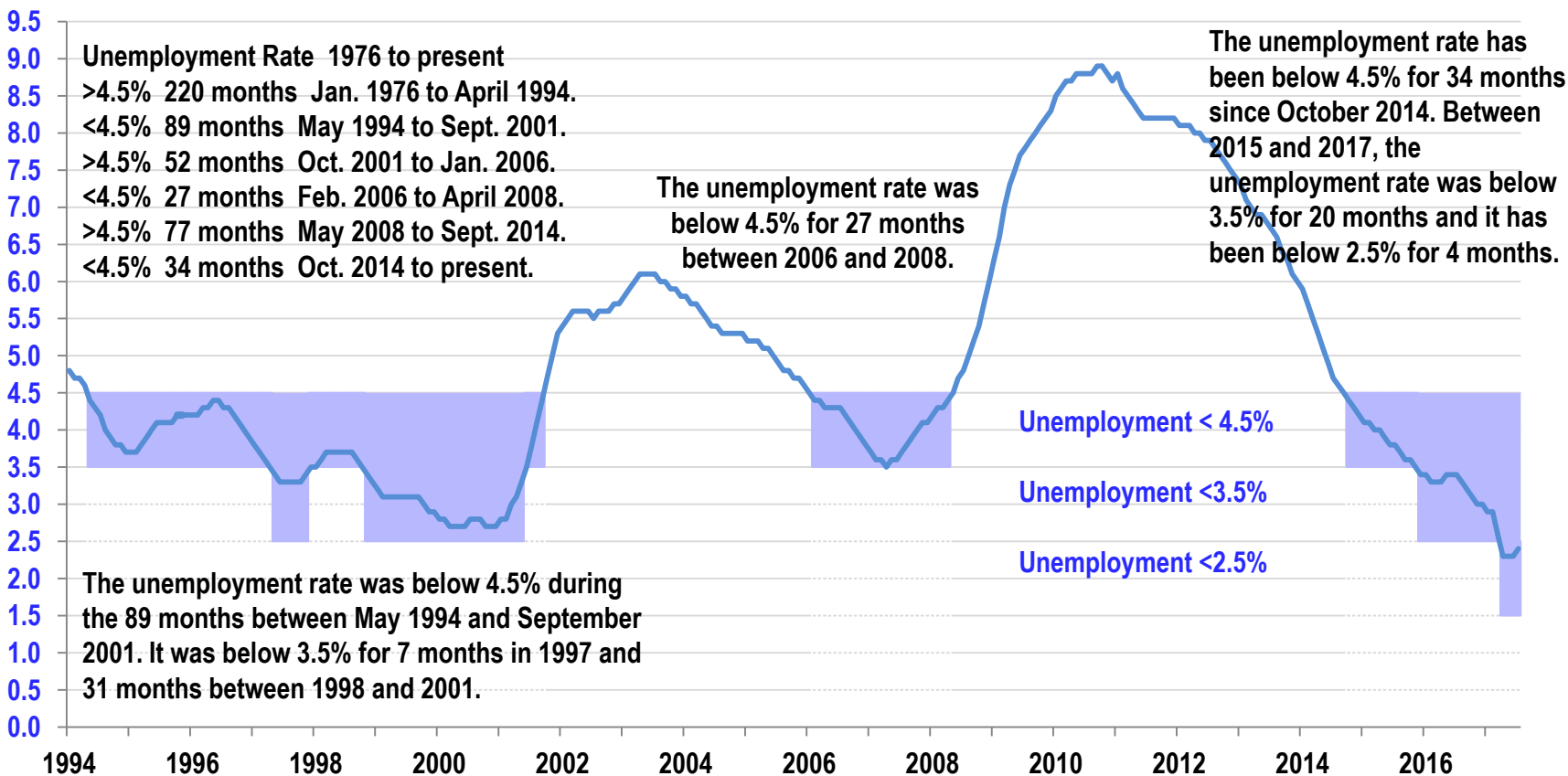
Over the past year, Colorado developers and businesses have announced aggressive development plans. Currently, the supply of qualified workers does not meet the labor needs of employers. This mismatch is likely to get worse in the months ahead.

# Unemployment Rate

## Colorado

Percent

### Colorado Unemployment Rate

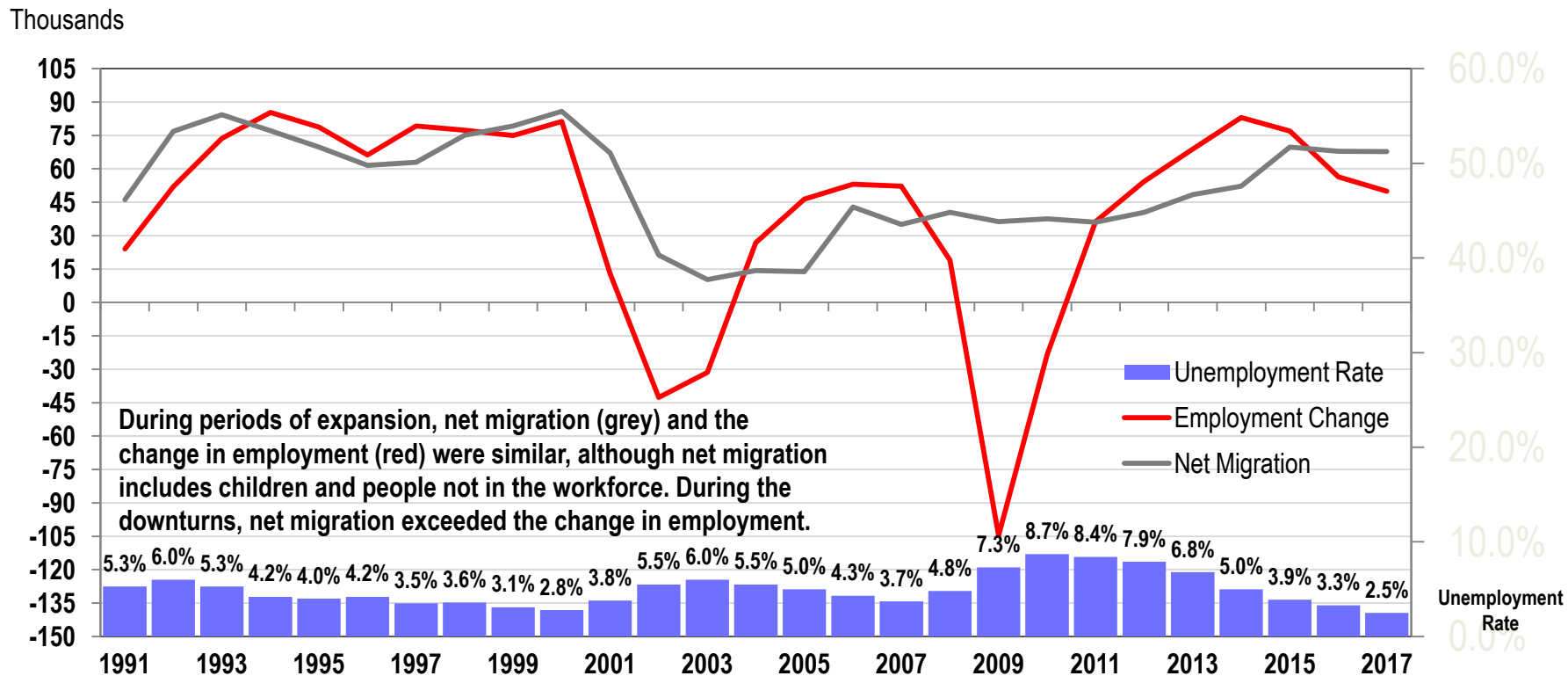


Source: Bureau of Labor Statistics, SA, cber.co.

# ● Annual Employment, Net Migration, Unemployment Rate

## ● Colorado

### Change in Employment vs. Net Migration

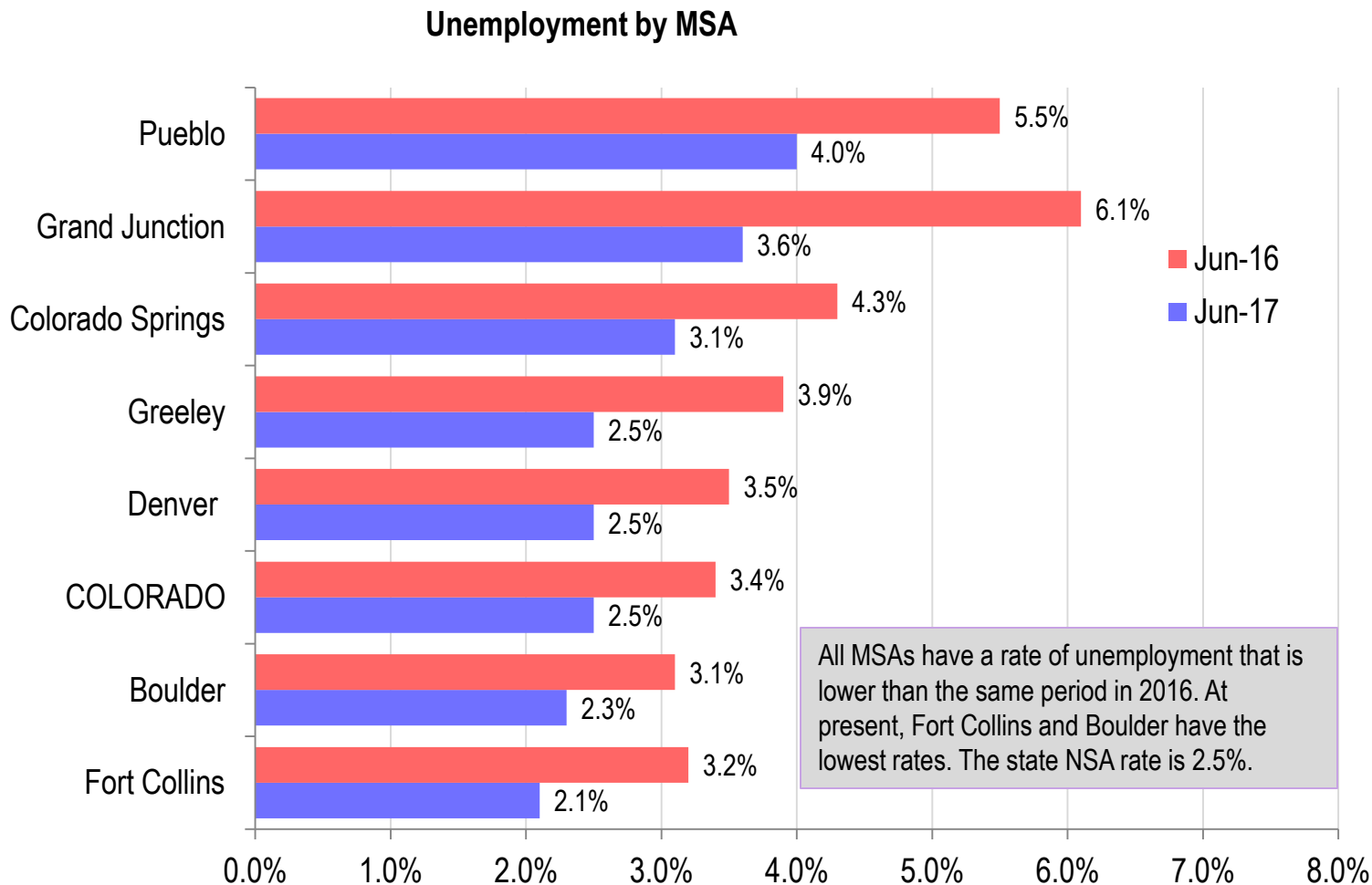


Source: Bureau of Labor Statistics, Colorado Demography Office, cber.co.



# Unemployment by MSA

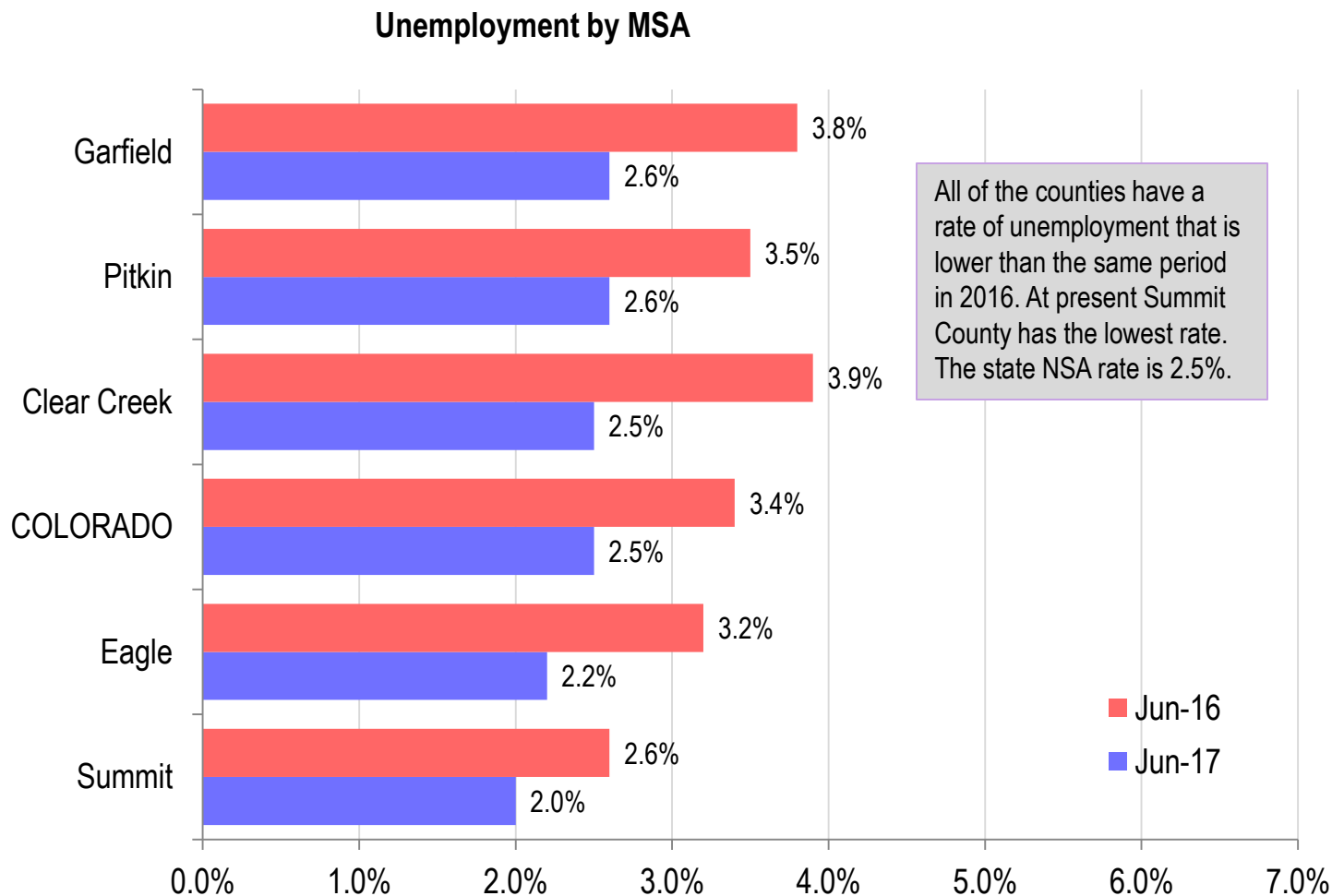
## 2016 vs. 2017



Source: Bureau of Labor Statistics, NSA, cber.co. Note: MSA unemployment lags by two months and is reported only on a non-seasonally adjusted basis.

# Unemployment by County (I-70)

2016 vs. 2017



Source: Bureau of Labor Statistics, NSA, cber.co. Note: MSA unemployment lags by two months and is reported only on a non-seasonally adjusted basis.



# Colorado Economy

Employment in Strong Growth, Solid Growth, Volatile Categories

# Change in Employment Summary of Strong, Solid, and Volatile Growth Categories

**Strong Growth Category – 22,200 jobs added, 2.6% growth rate.**

Health care and professional, business, and personal (other) services are the major sectors.

**Solid Growth Category – 20,600 jobs added, 2.0% growth rate.**

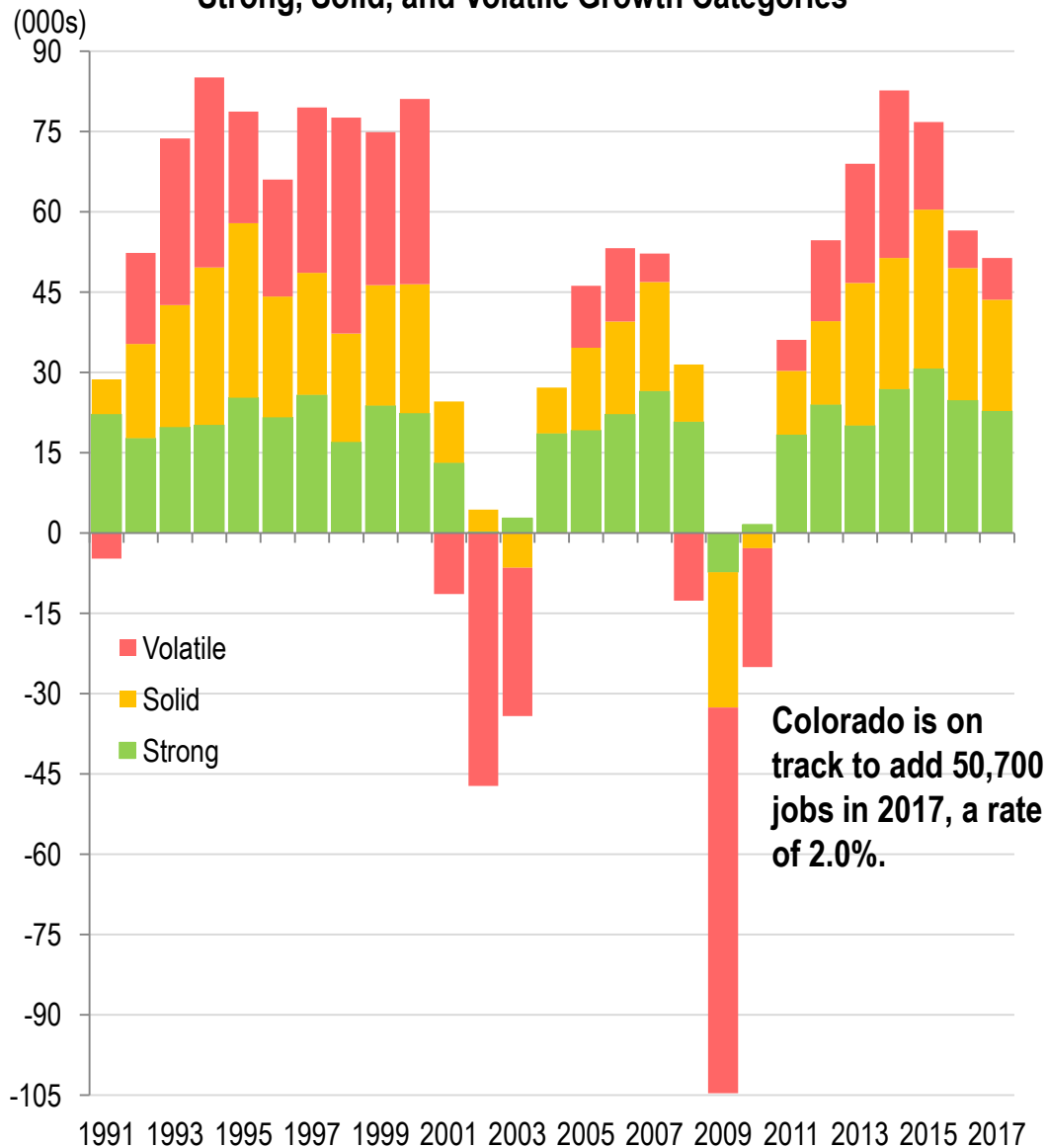
Accommodations and food services, trade, and state and local government are the major sectors.

**Volatile Category – 7,800 jobs added 1.1% growth rate.**

Boom or bust industries – such as the extractive industries, manufacturing, information.

Colorado is on track to add **50,700 jobs** in 2017, a rate of **2.0%**, based on employment data through July.

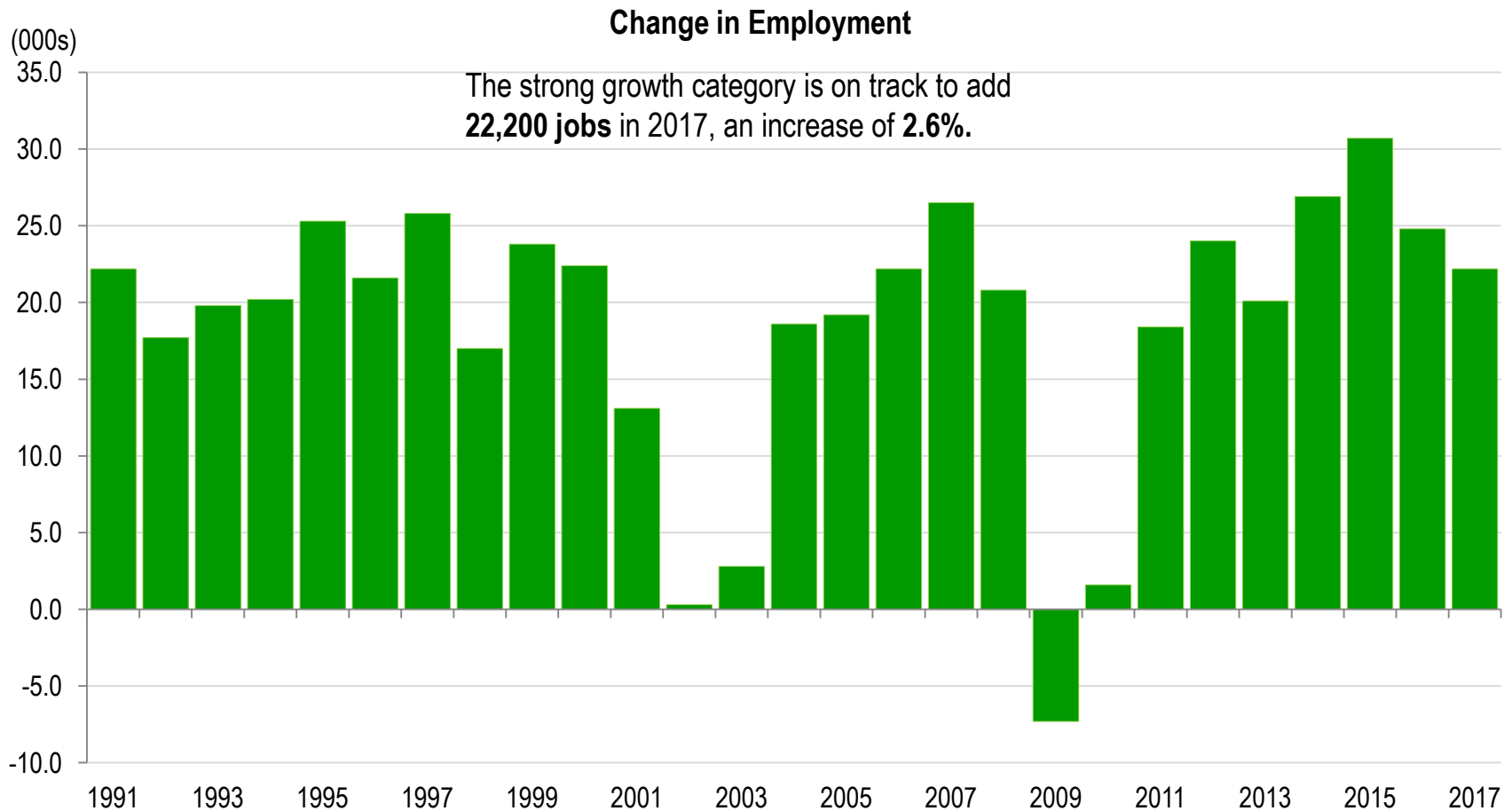
**Strong, Solid, and Volatile Growth Categories**



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

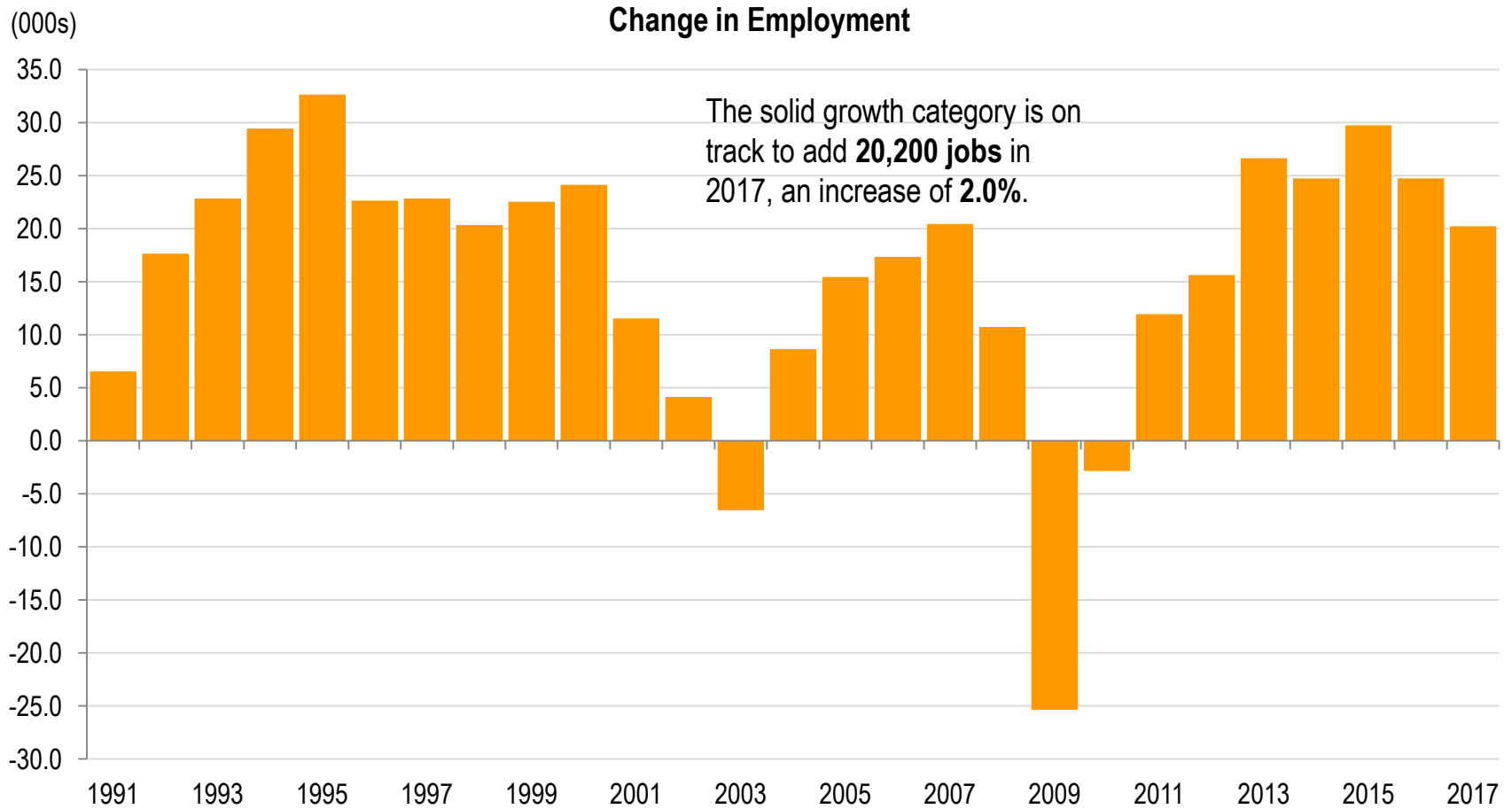
## Strong Growth Category



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

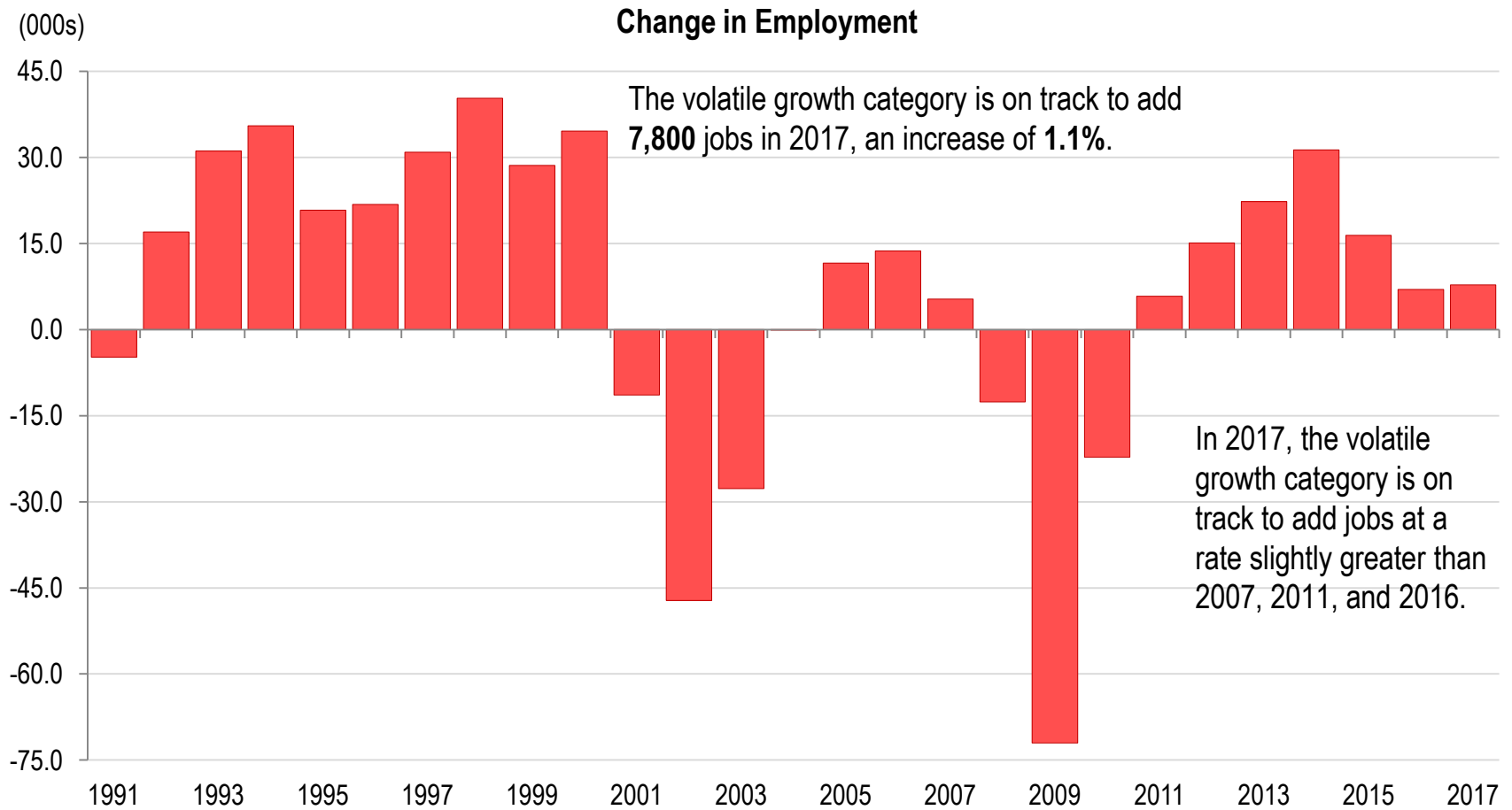
## Solid Growth Category



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

## Volatile Growth Category



Source: Bureau of Labor Statistics, cber.co.

# Six Industries That Are Important to Employment Growth for Different Reasons

The following six charts look at two sectors that are contributing significant job growth to the strong growth, solid growth, and volatile job categories. Combined, these sectors are responsible for 70.3% of the jobs added in 2017.

## Strong Growth Category

- Healthcare
- Professional, Scientific, and Technical Services

Total 28.9% of jobs added, or 14,700 jobs.

## Solid Growth Category

- Accommodations and Food Services
- Retail

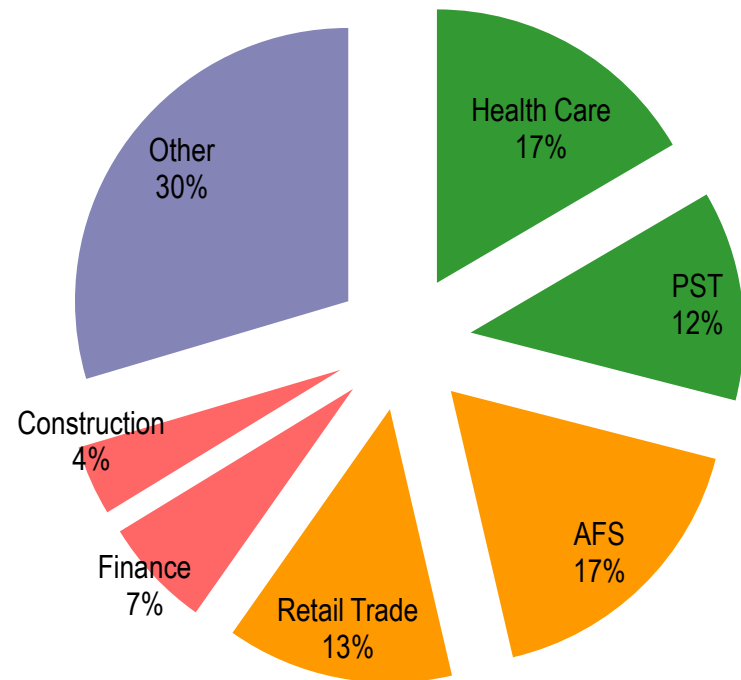
Total 30.7% of jobs added, or 15,600 jobs.

## Volatile Category

- Financial Activities 6.5% of jobs added
- Construction 4.2% of jobs added

Total 10.7% of jobs added, or 5,400 jobs added.

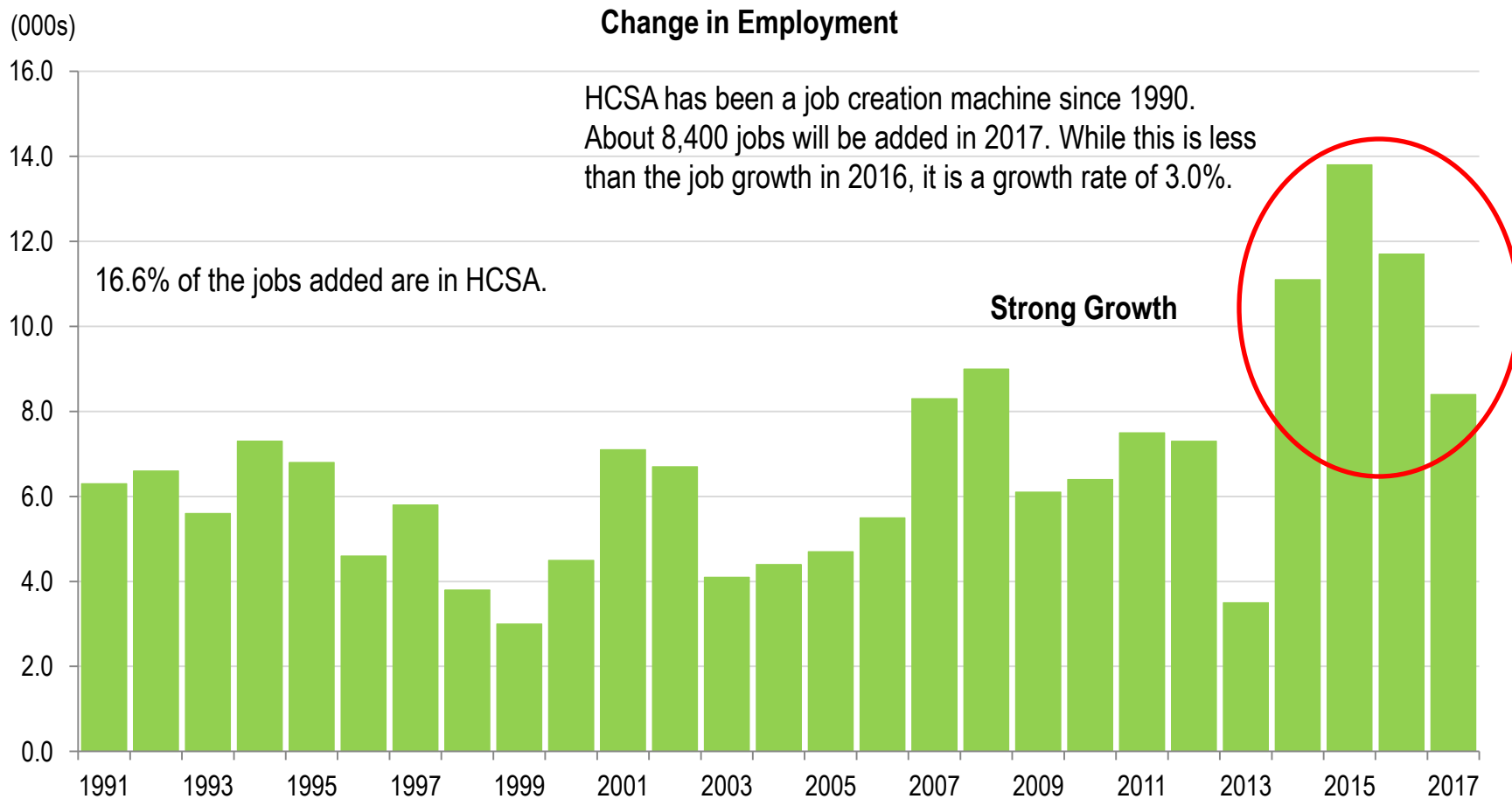
Top Sectors by Category





# Change in Employment

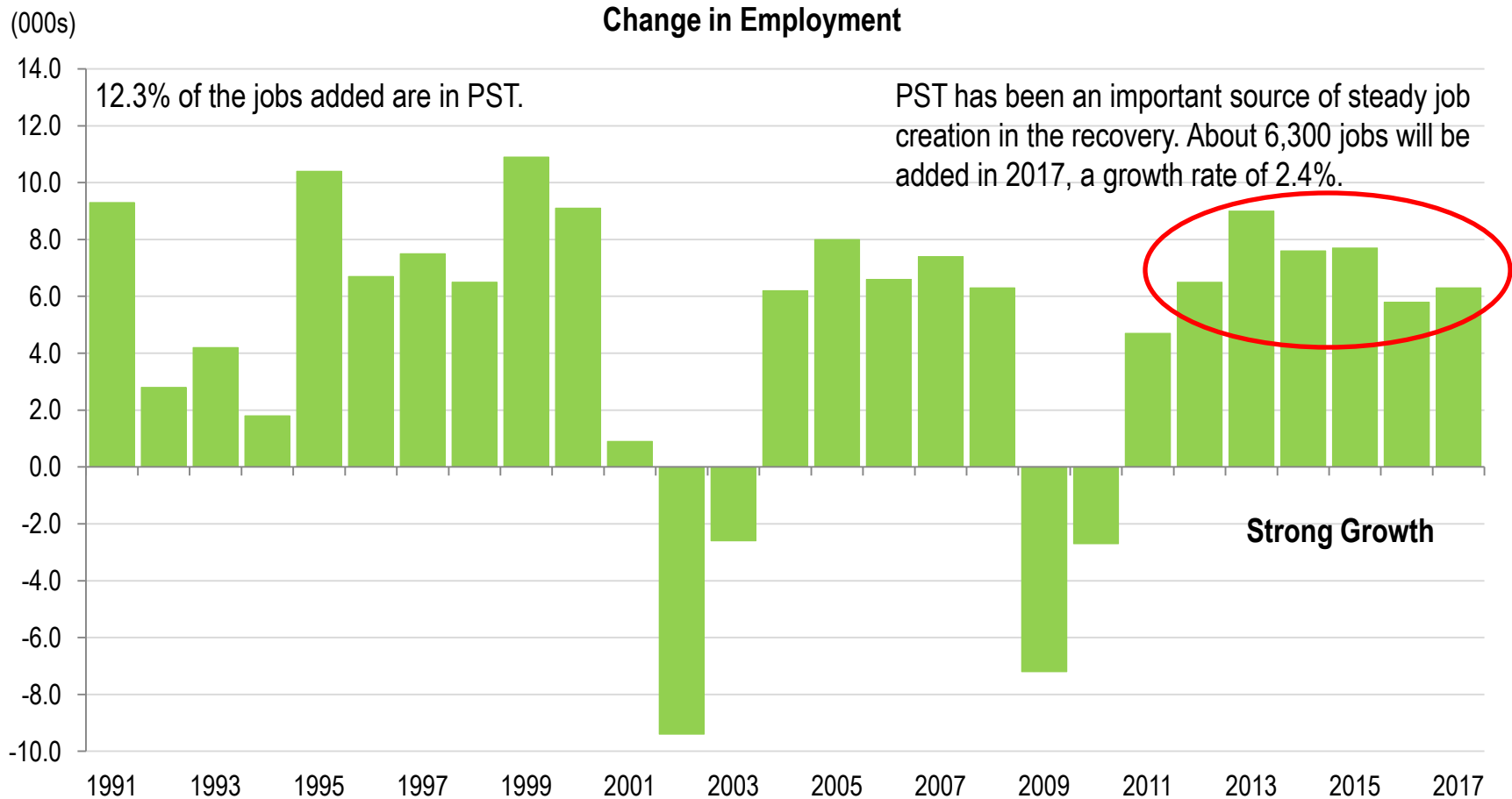
## Health Care and Social Assistance



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

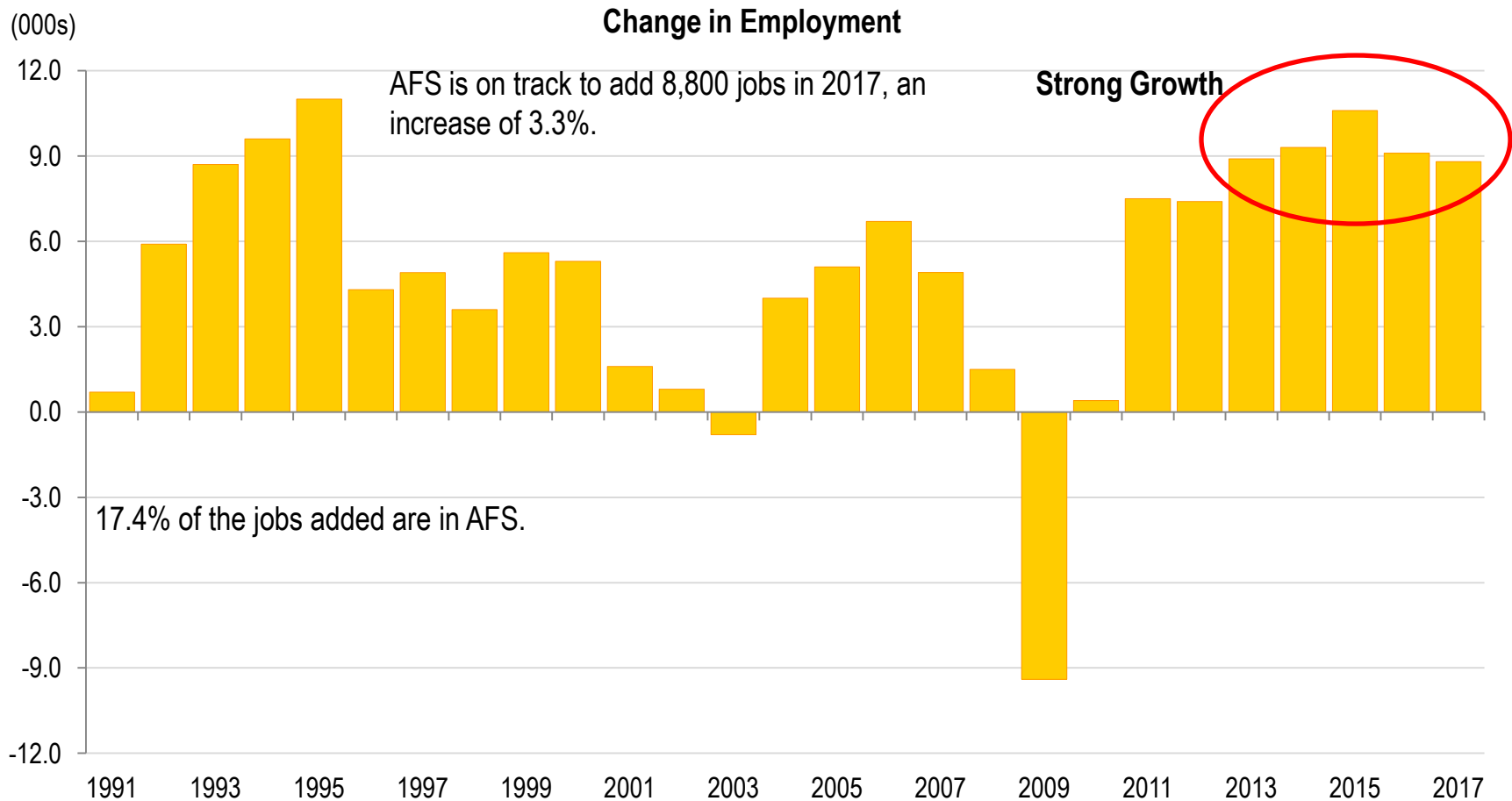
## Professional, Scientific, and Technical Services



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

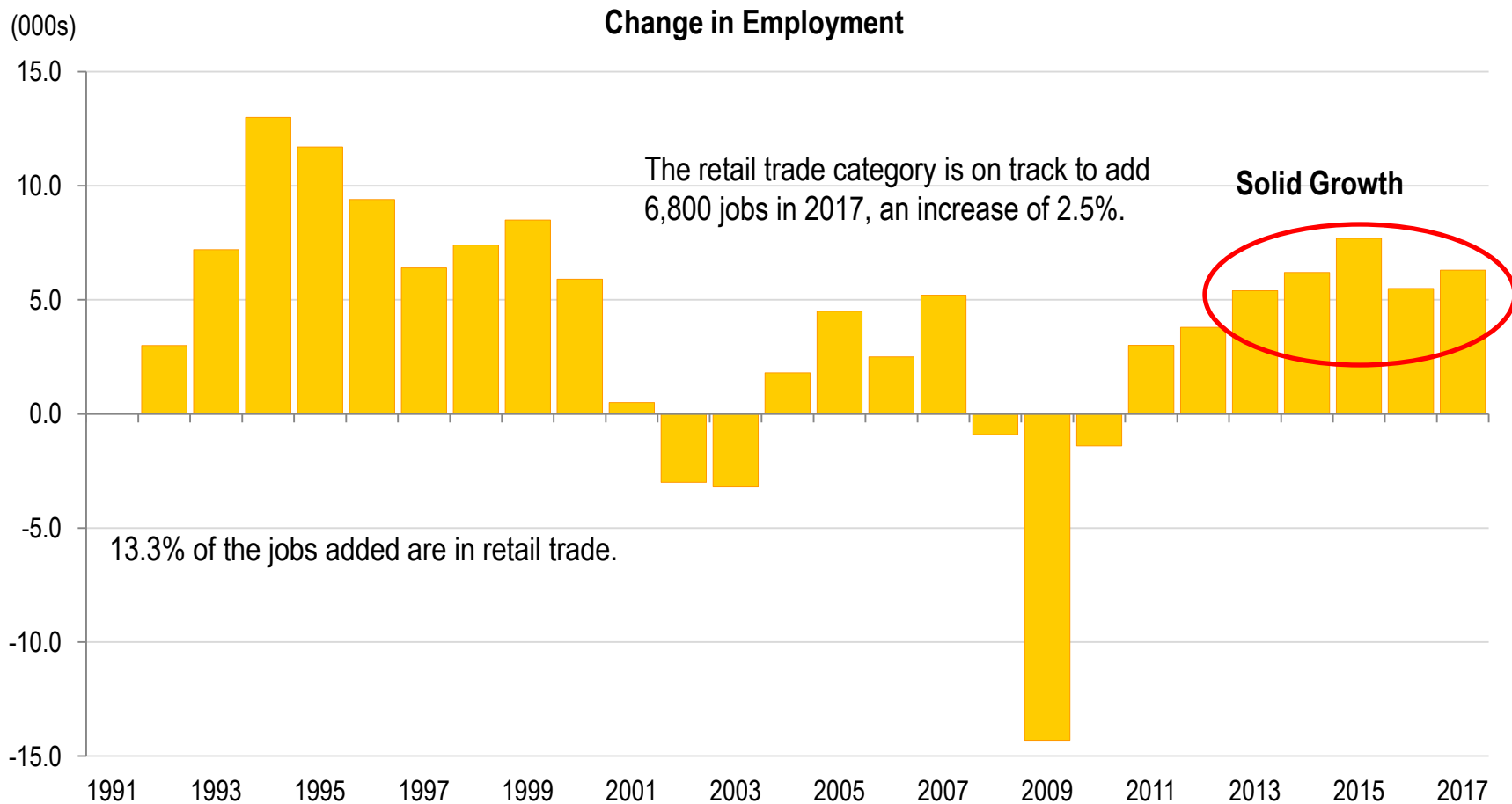
## Accommodations and Food Services



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

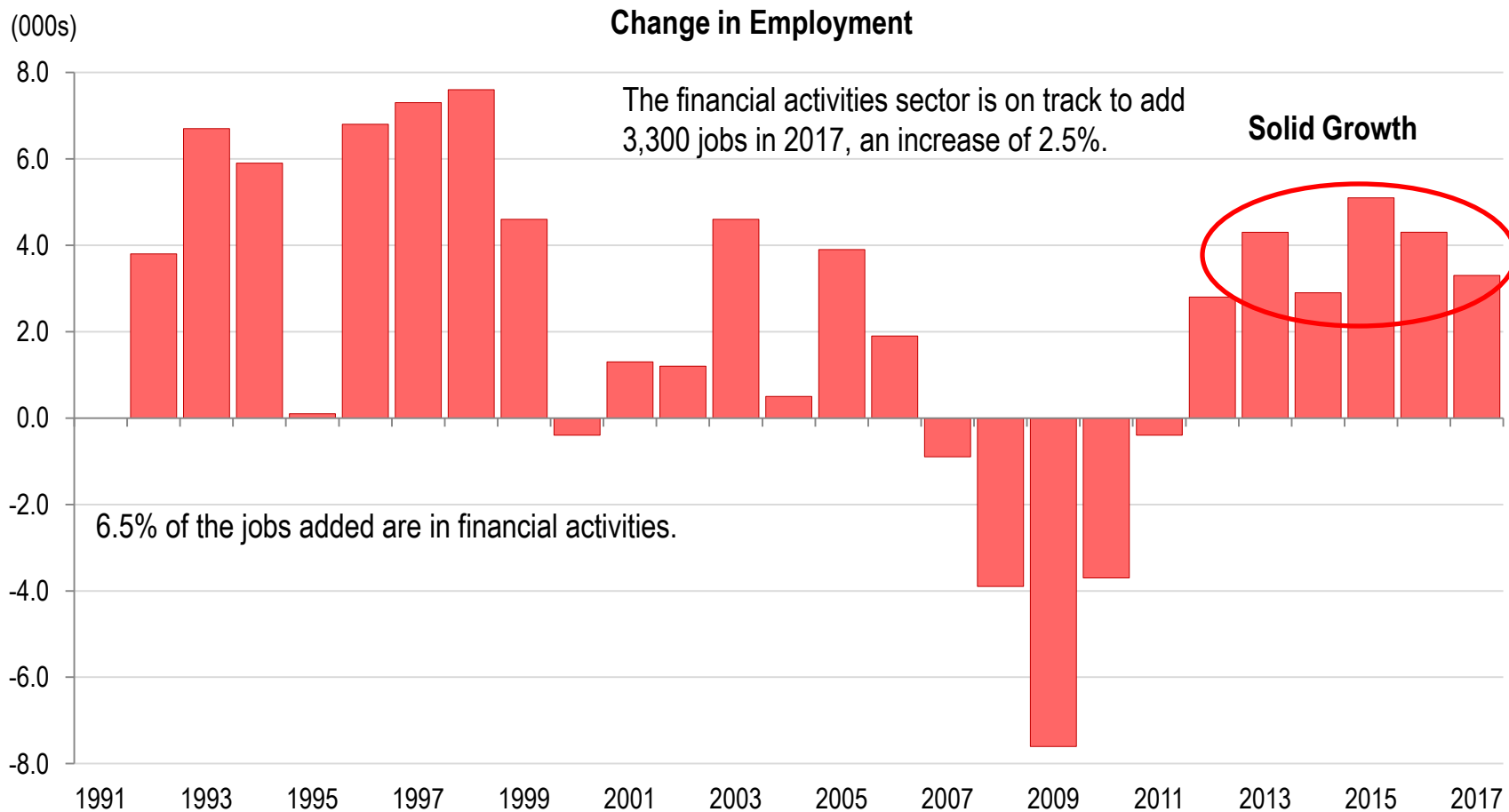
## Retail Trade



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

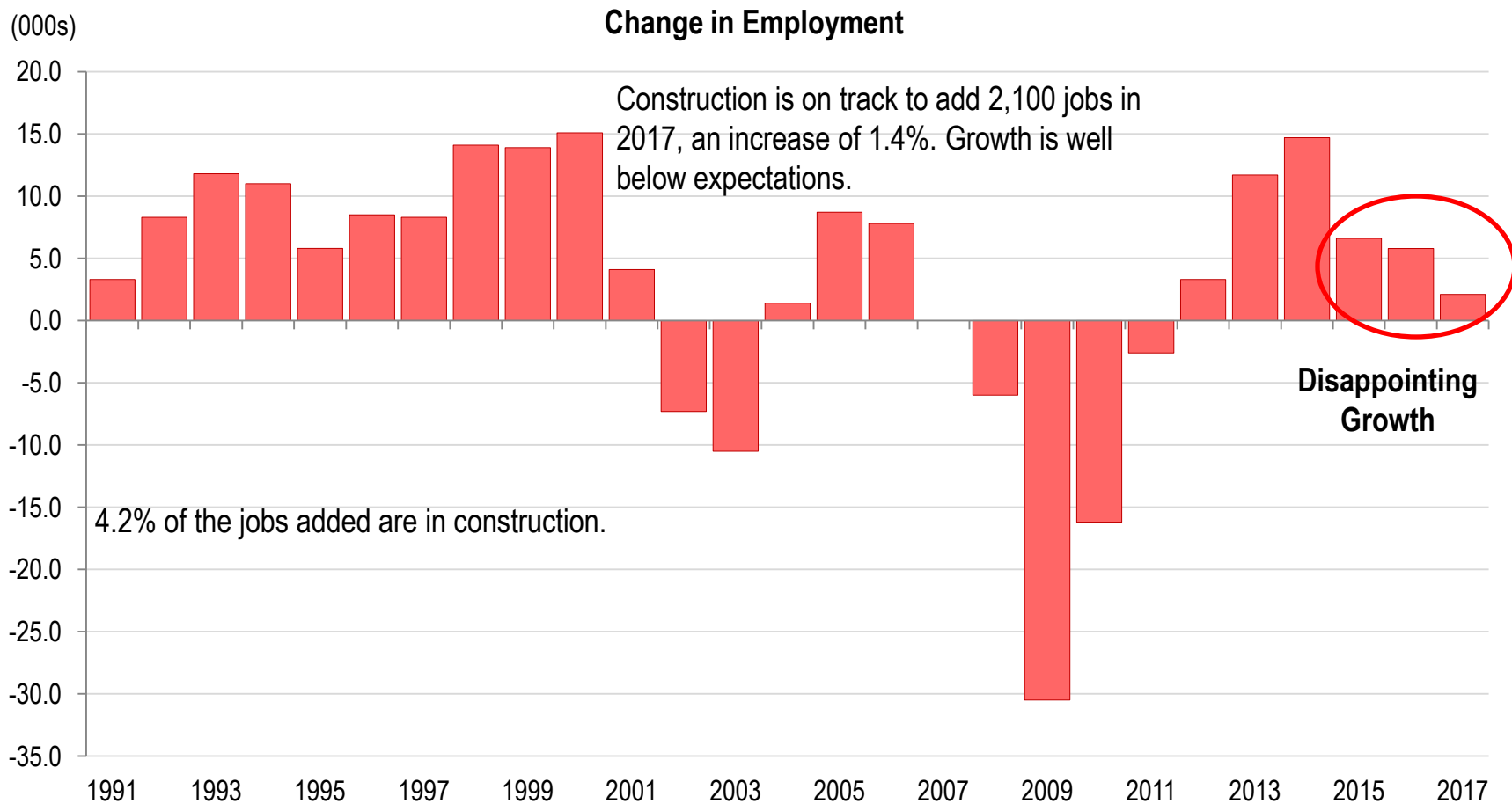
## Financial Activities



Source: Bureau of Labor Statistics, cber.co.

# Change in Employment

## Construction



Source: Bureau of Labor Statistics, cber.co.



# Colorado Economy

## Key Sectors and Trends to Watch

# Key Sectors and Trends to Watch

The employment changes in the three categories of employment (strong growth, solid growth, and volatile) are good indicators of the health of the Colorado economy. Within these categories there are key sectors and sources of economic activity that drive changes in the state economy.

- Extractive industries – employment, production, and real GDP.
- Construction – permits and valuation.
- Housing prices – appreciation rates.
- Manufacturing/durable goods – employment and real GDP.
- Retail trade – evolution of the industry.
- DIA – passenger traffic.
- Auto sales - New and used car registrations.
- Information - employment and real GDP.
- PST – employment and real GDP.
- Healthcare – employment and real GDP.



# Key Sectors and Trends to Watch

## Extractive Industries

- EIA recently released a forecast stating the price for a barrel of oil will stay around \$50 through 2018. In addition, production will decline.

## The Construction Industry

- The number of single family and multi-family permits are up significantly compared to a year ago. Aggressive plans have been announced for the residential and commercial development of the Front Range.

## Housing Prices

- The Case Shiller Index shows that Denver housing prices are appreciating at a faster rate than most of the nation. This is a mixed blessing – it benefits homeowners and government entities that rely on property taxes for revenue. Rising prices also reduce the inventory of affordable housing units.

## Manufacturing

- After six years of job gains, Colorado manufacturing employment is on track to shed jobs in 2017. On a brighter note, real GDP manufacturing growth has posted gains. Colorado has a competitive advantage in real GDP growth for durable goods.

## Retail Trade

- Retail trade employment continues to grow, but at a rate slower than other sectors.

## DIA Passengers

- About 58.3 million passengers traveled through DIA in 2016. Through the first 6 months of 2017, 29.5 million passengers have passed through DIA. This is 7.4% greater than the same period last year.

## New and Used Car Registrations

- Colorado new auto registrations for the first 6 months of the year are up 4.9%, while used auto registrations are up 10.4%.

## The Information Sector

- Consolidations, mergers, and the use of technology have disrupted the information sector in Colorado. Since 2000, employment has trended downwards and real GDP has grown at a slower rate than the national real GDP for the sector.

## Professional, Scientific, and Technical Services

- The professional, scientific, and technical sector is important to the state because average annual wages are greater than the state average. More importantly, several of the subsectors support innovation and business activity in many sectors.

## Healthcare Employment and GDP

- Colorado's healthcare industries has been a job creation machine since 1990. Jobs have been added every year. Many of these jobs pay wages that are below the state average for all industries.

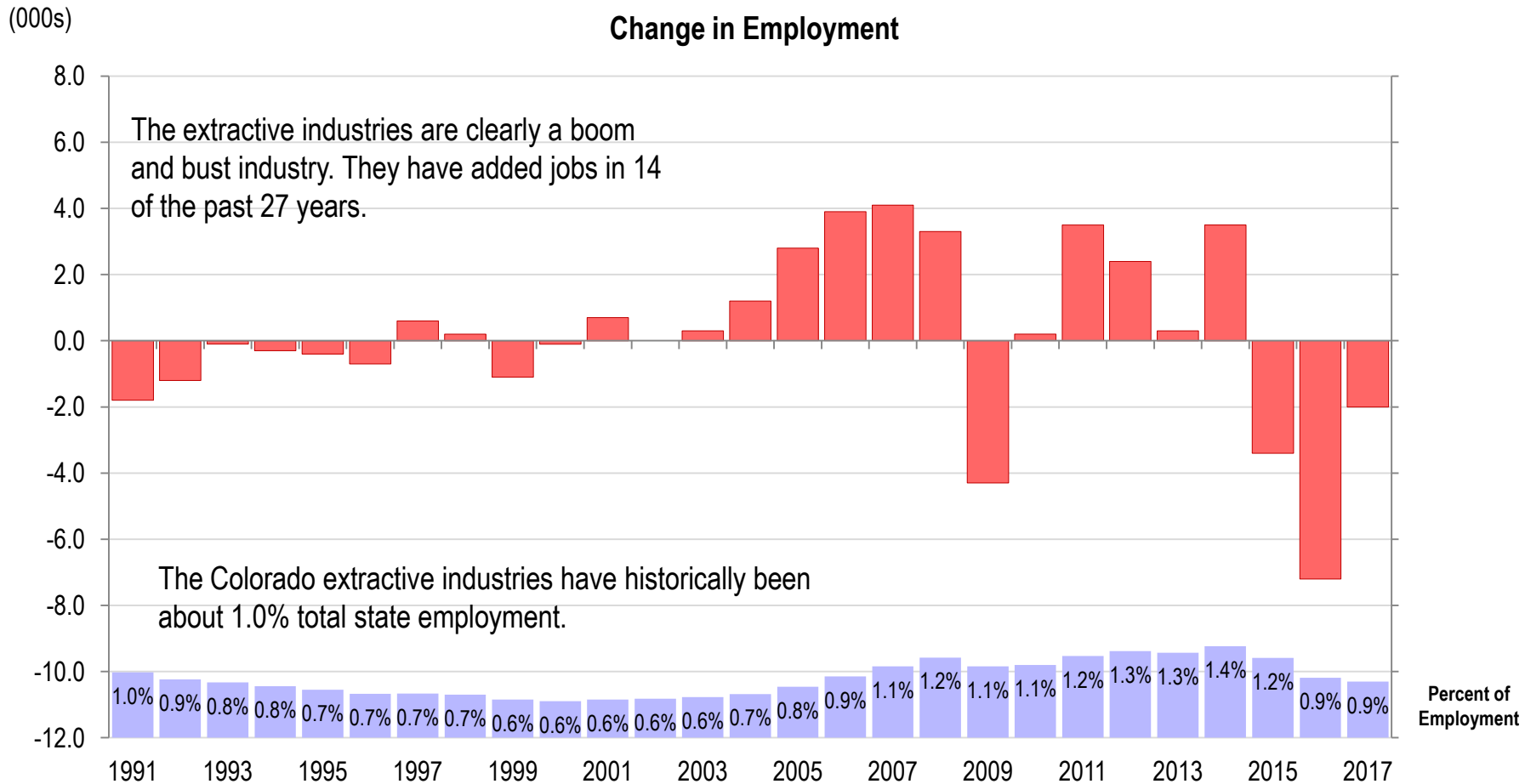


# Key Sectors and Trends to Watch

Extractive Industries

# Change in Employment/Percent of Total Employment

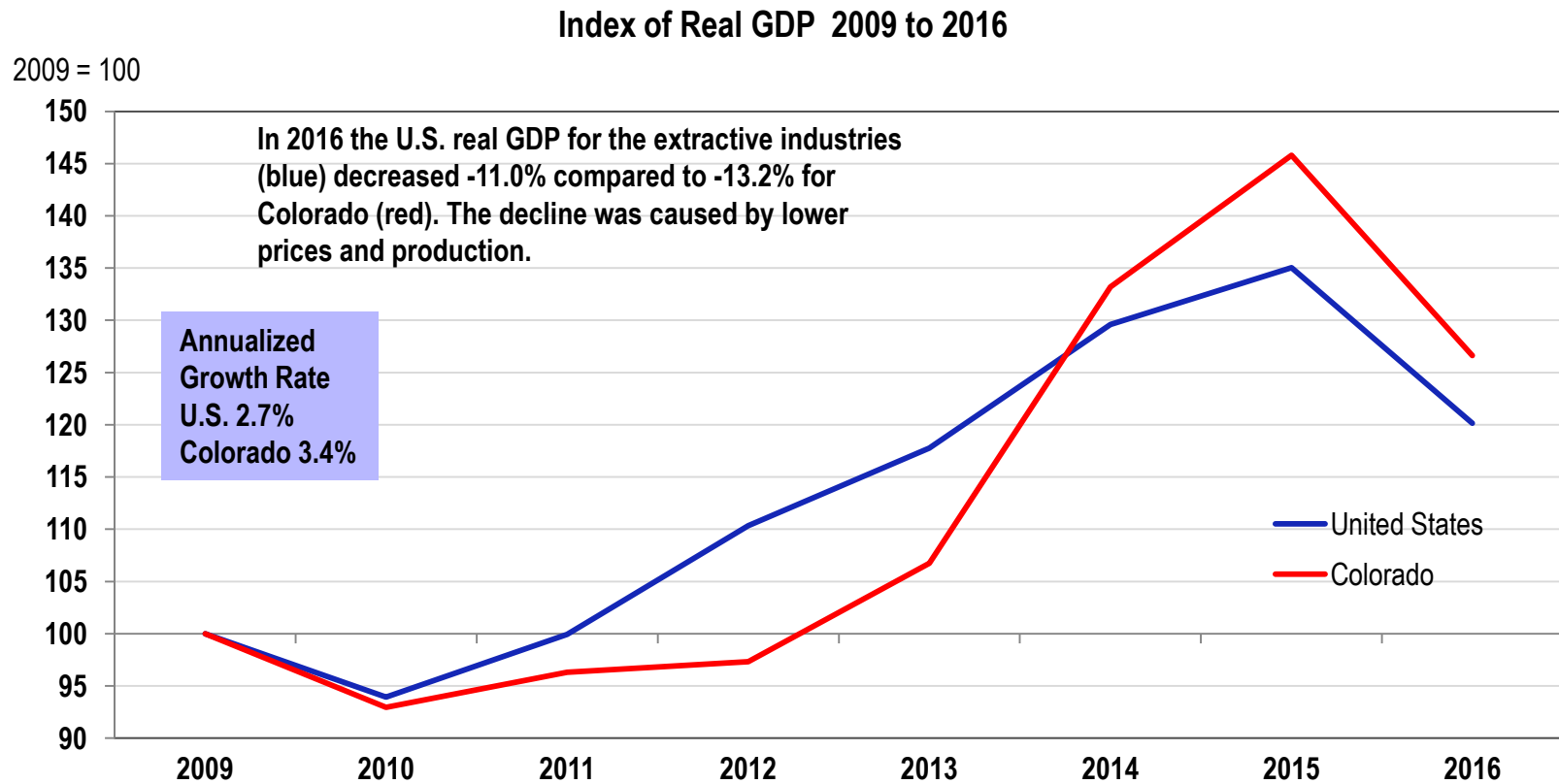
## Extractive Industries



Source: Bureau of Labor Statistics, cber.co.

# Index of Real GDP

## Colorado vs. U.S. Extractive Industries



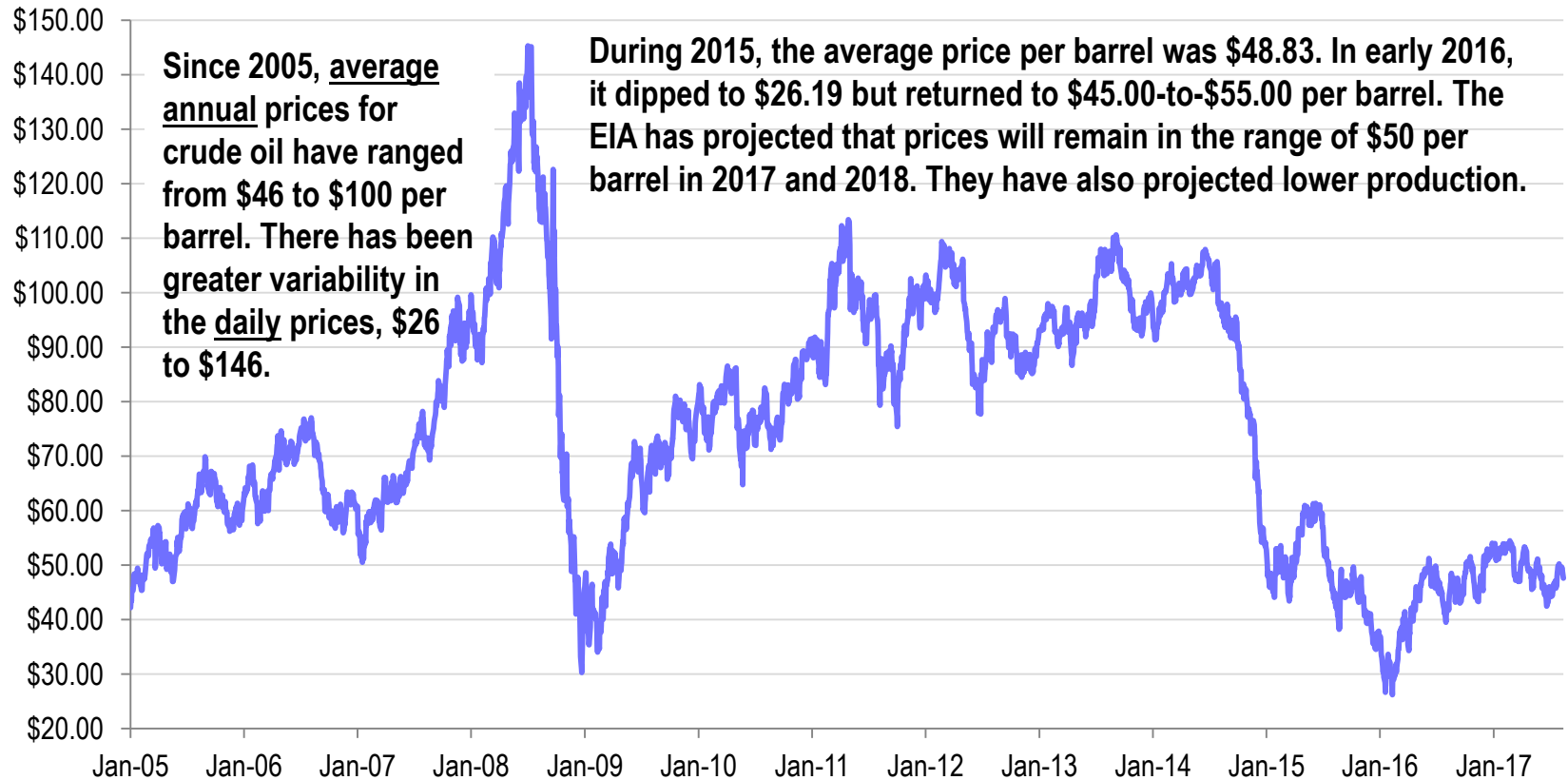
Source: Bureau of Economic Analysis. Note: U.S. real GDP is summary of states GDP.

# Crude Oil Prices

## West Texas Intermediate

Dollars  
per Barrel

### Crude Oil Prices: West Texas Intermediate, Cushing, Oklahoma



Source: FRED, EIA, cber.co.

# Extractive Industry Questions

The growth of Colorado's extractive industries is determined by the price of oil, gas, minerals, and metals. Employment has bottomed out after the sharp decline in the price for a barrel of oil. Over the past year, average employment for the extractive industries has been 22,300 jobs. EIA has projected lower production and steady prices in 2018.

- Will Colorado producers continue to add more rigs in 2017? What will be the maximum number of rigs?
- Will employment increase to more than 22,300 jobs at the current price?
- In line with the EIA's projections, will Colorado experience lower production in 2018?

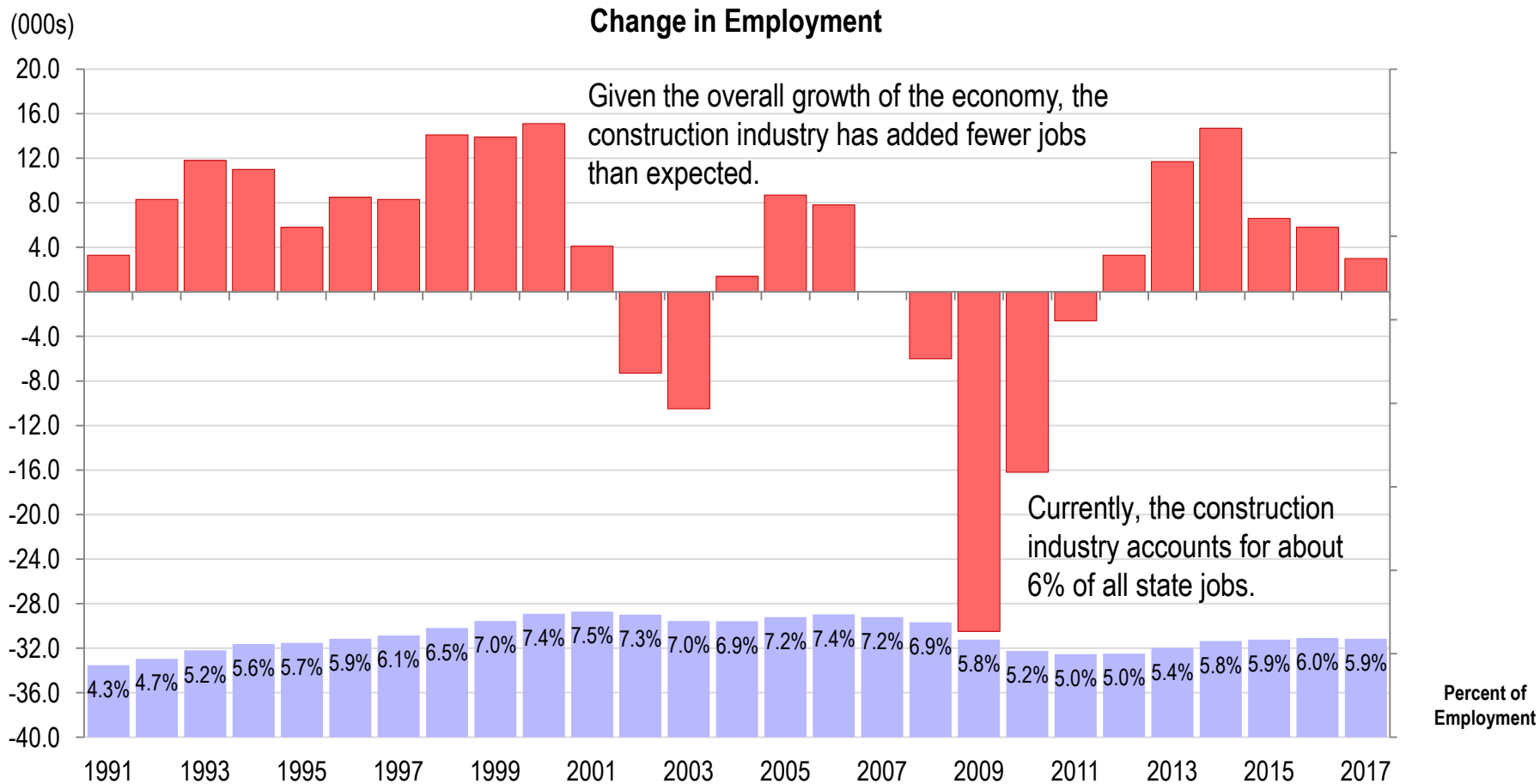


# Key Sectors and Trends to Watch

Construction and Housing

# Change in Employment/Percent of Total Employment

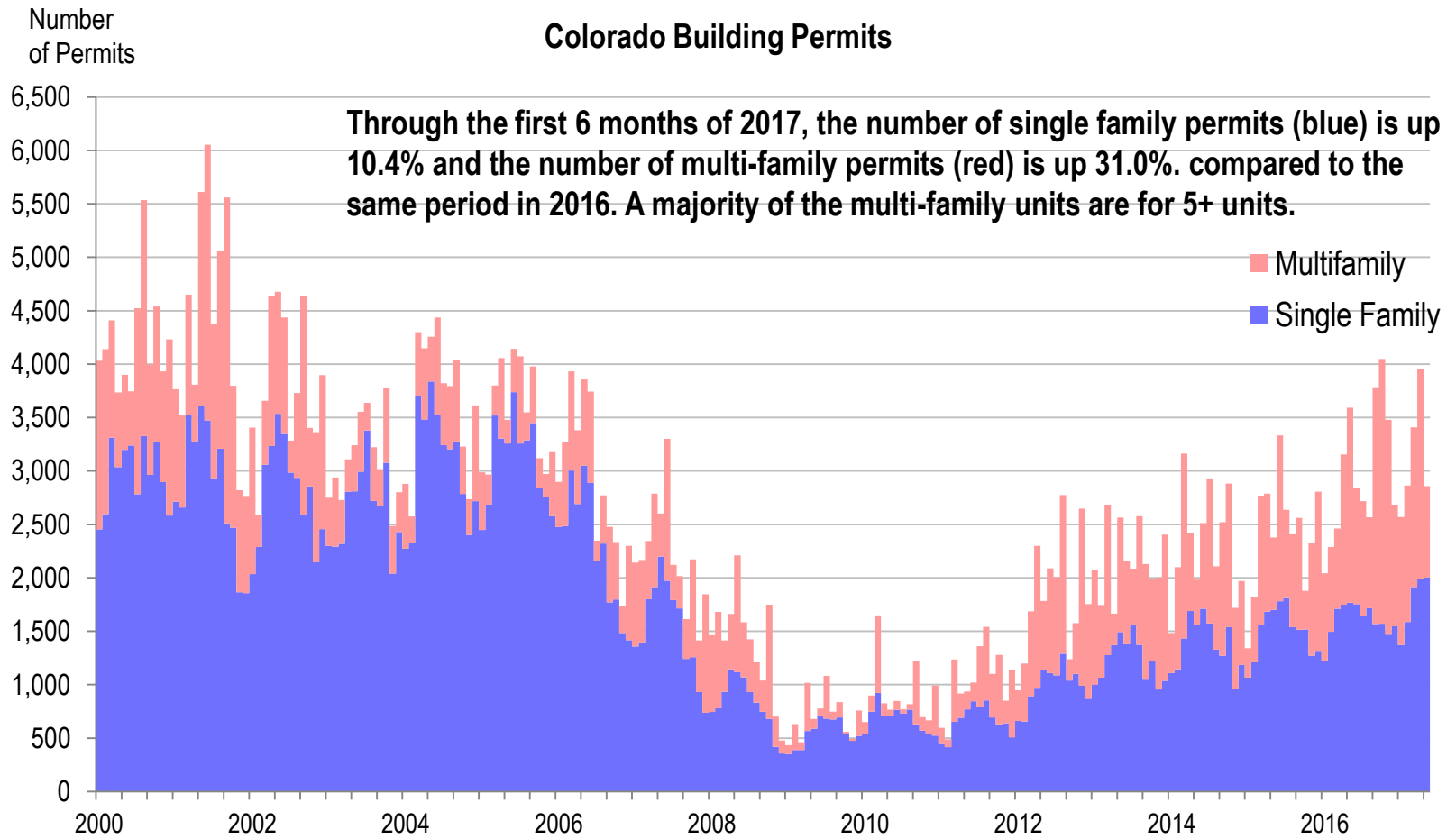
## Construction



Source: Bureau of Labor Statistics, cber.co.



# Colorado Residential Building Permits - Units



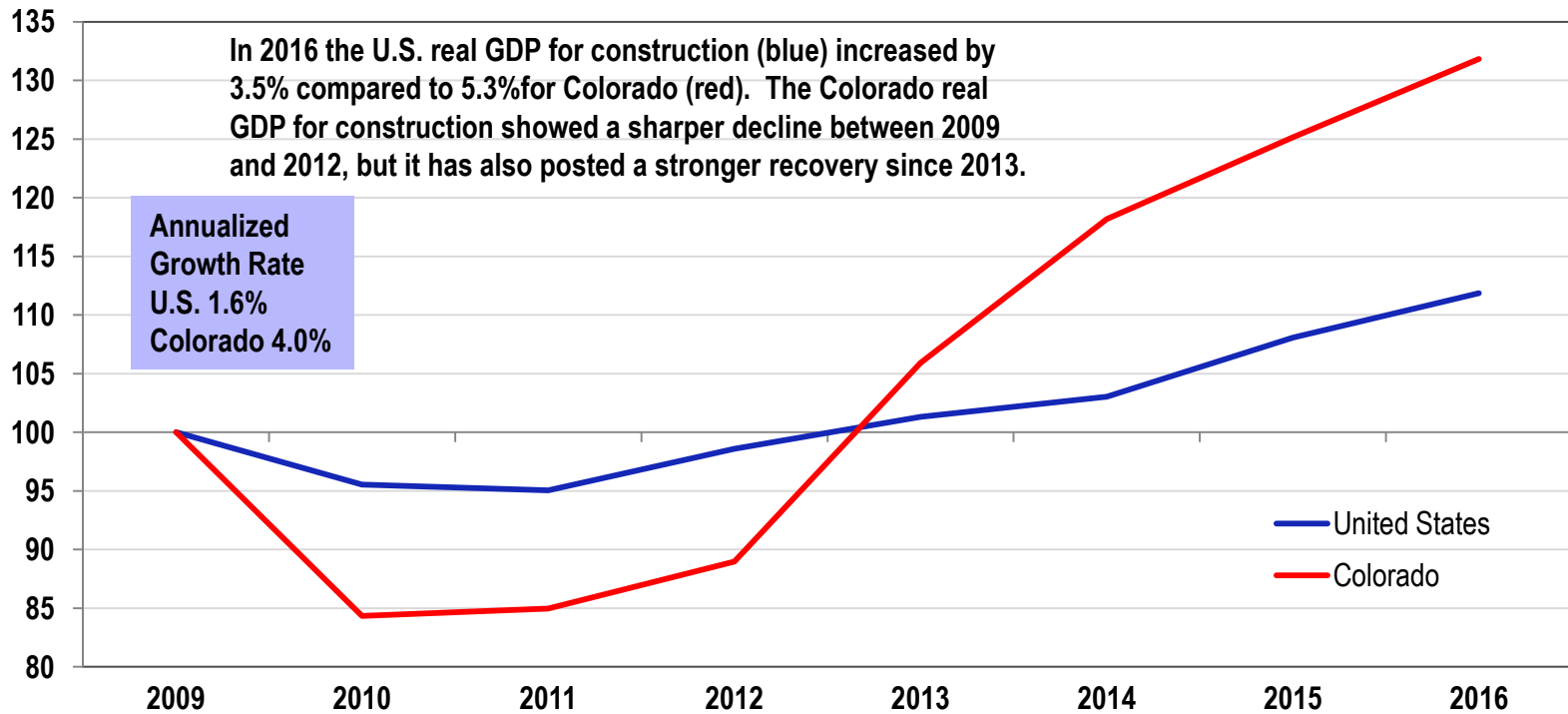
Source: TAMU Real Estate Center, U.S. Census Bureau, cber.co.

# Index of Real GDP

## Colorado vs. U.S. Construction

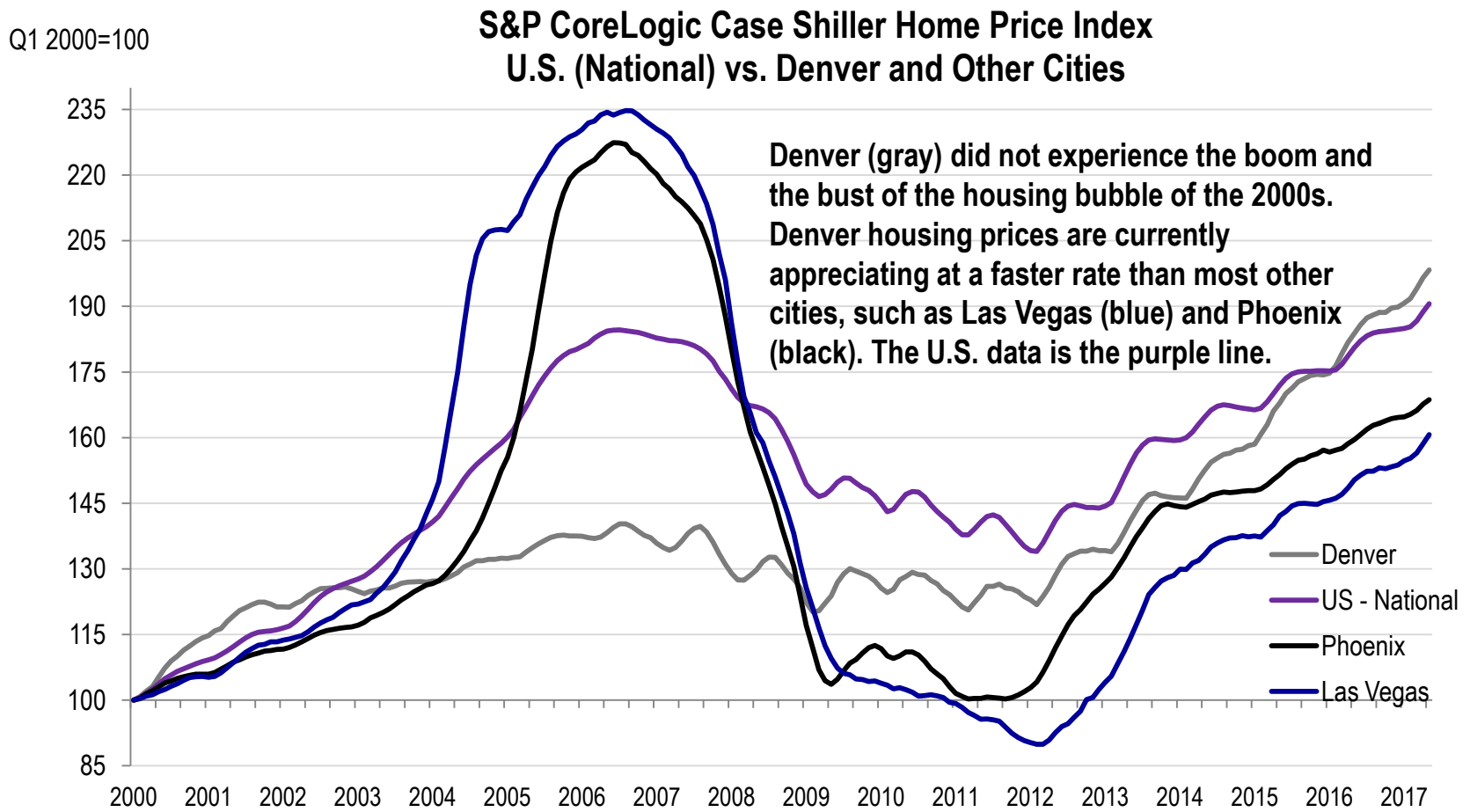
Index of Real GDP 2009 to 2016

2009 = 100



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

# Case Shiller Home Price Index National vs. Denver (Colorado)



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

# Construction and Housing Questions

Aggressive plans have been announced for the residential and commercial development of the Front Range in an environment where there are not enough qualified workers to meet demand for workers.

- Where is the construction industry going to find qualified workers to meet the demand for the projects that have been announced by developers and business leaders?
- If there are not workers available to fill these positions, will these projects be delayed or will they disappear?
- Will businesses move to other states because they cannot build or expand their operations in Colorado?

Denver and Colorado have experienced rapid appreciation in housing prices for an extended period.

- At what point will the rapid rate of appreciation stymie in-migration and job growth?
- Is there a bubble in Colorado housing prices?

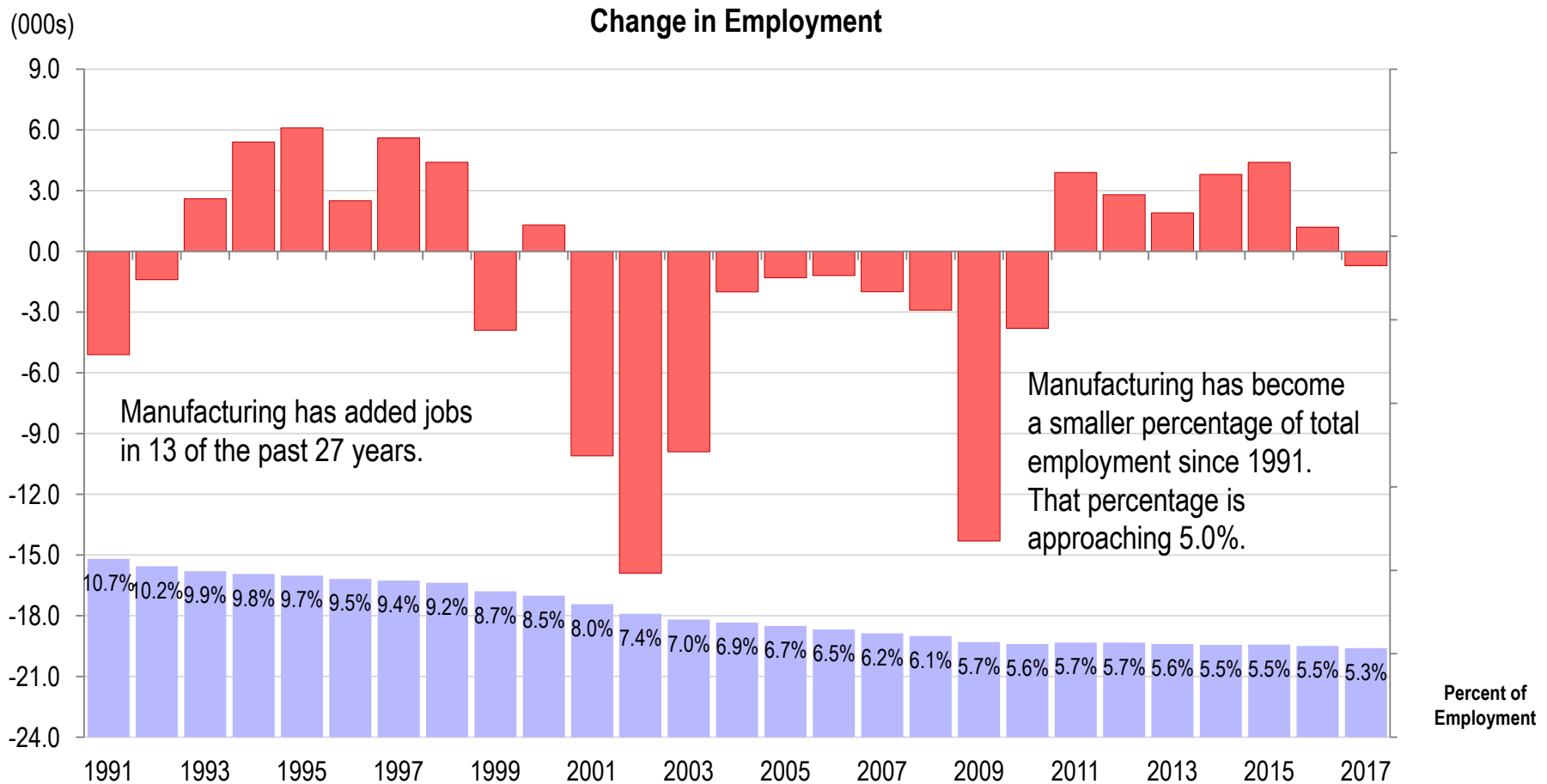


# Key Sectors and Trends to Watch

Manufacturing

# Change in Employment/Percent of Total Employment

## Manufacturing

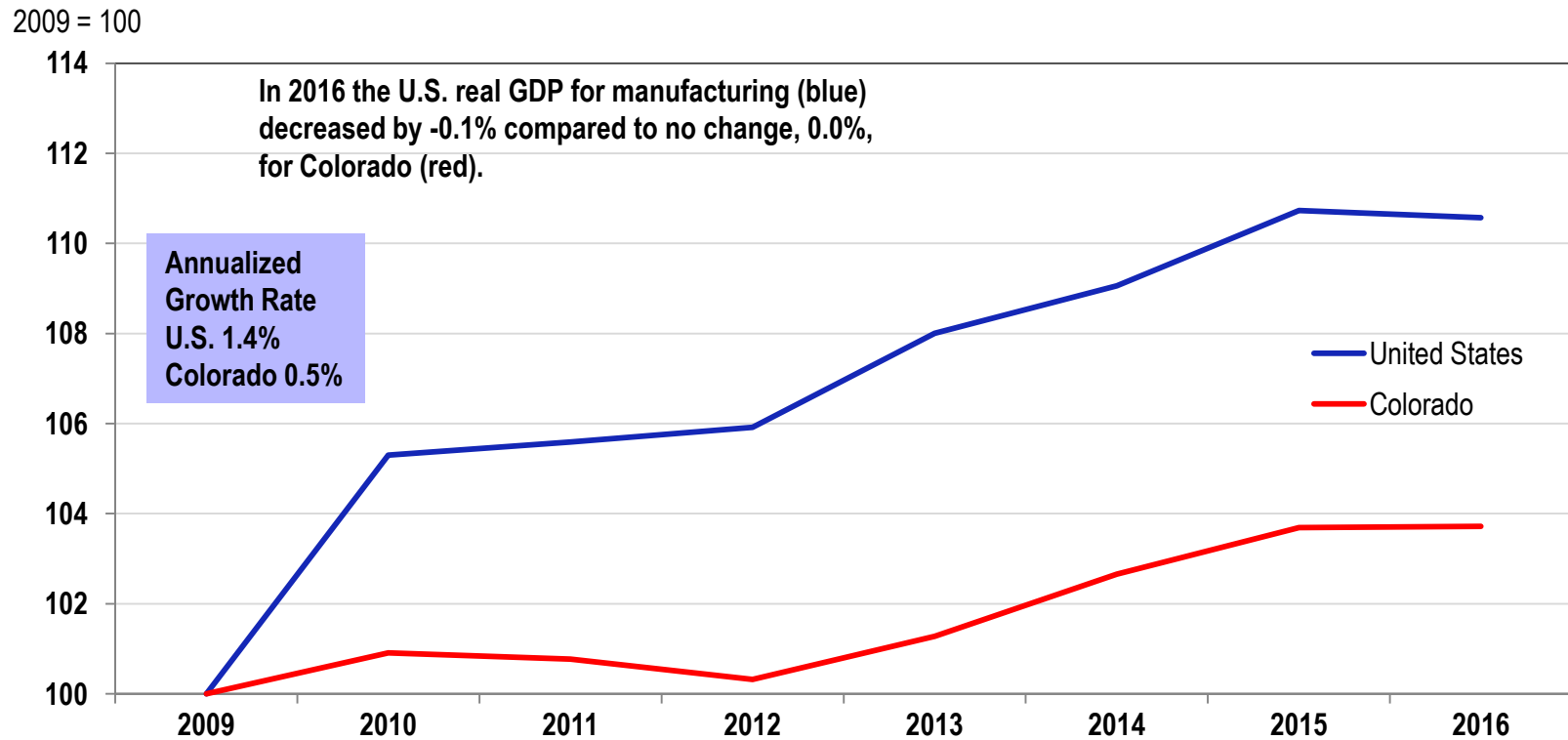


Source: Bureau of Labor Statistics, cber.co.

# Index of Real GDP

## Colorado vs. U.S. Manufacturing

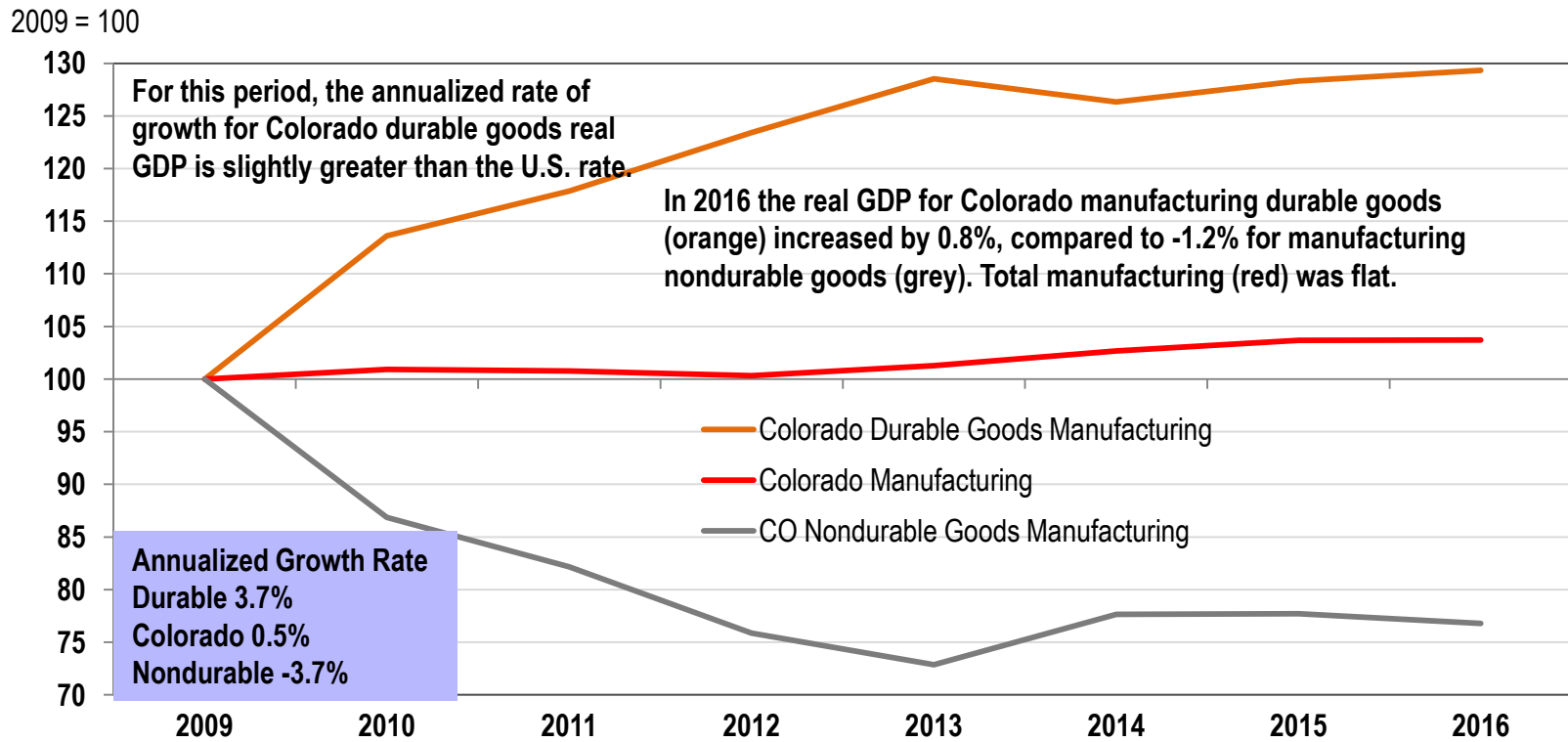
Index of Real GDP 2009 to 2016



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

- Index of Real GDP
- Colorado Durable vs. Non Durable Manufacturing
- 

Index of Real GDP 2009 to 2016



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



# Manufacturing Questions

Colorado manufacturing, as a percentage of total employment, has steadily declined since 1991. At the same time, manufacturing real GDP has continued to increase on a regular basis. Since the end of the Great Recession, durable goods manufacturing real GDP for Colorado has grown at a much faster rate than the non-durable goods real GDP.

- How can Colorado continue to maintain a local supply chain and trained workforce for the durable goods manufacturers such as Lockheed, Ball Aerospace, and Vestas?
- How can state and local business leaders incent these manufacturers to continue to do business in Colorado?
- What can Colorado do to expand its non-durable goods manufacturing?

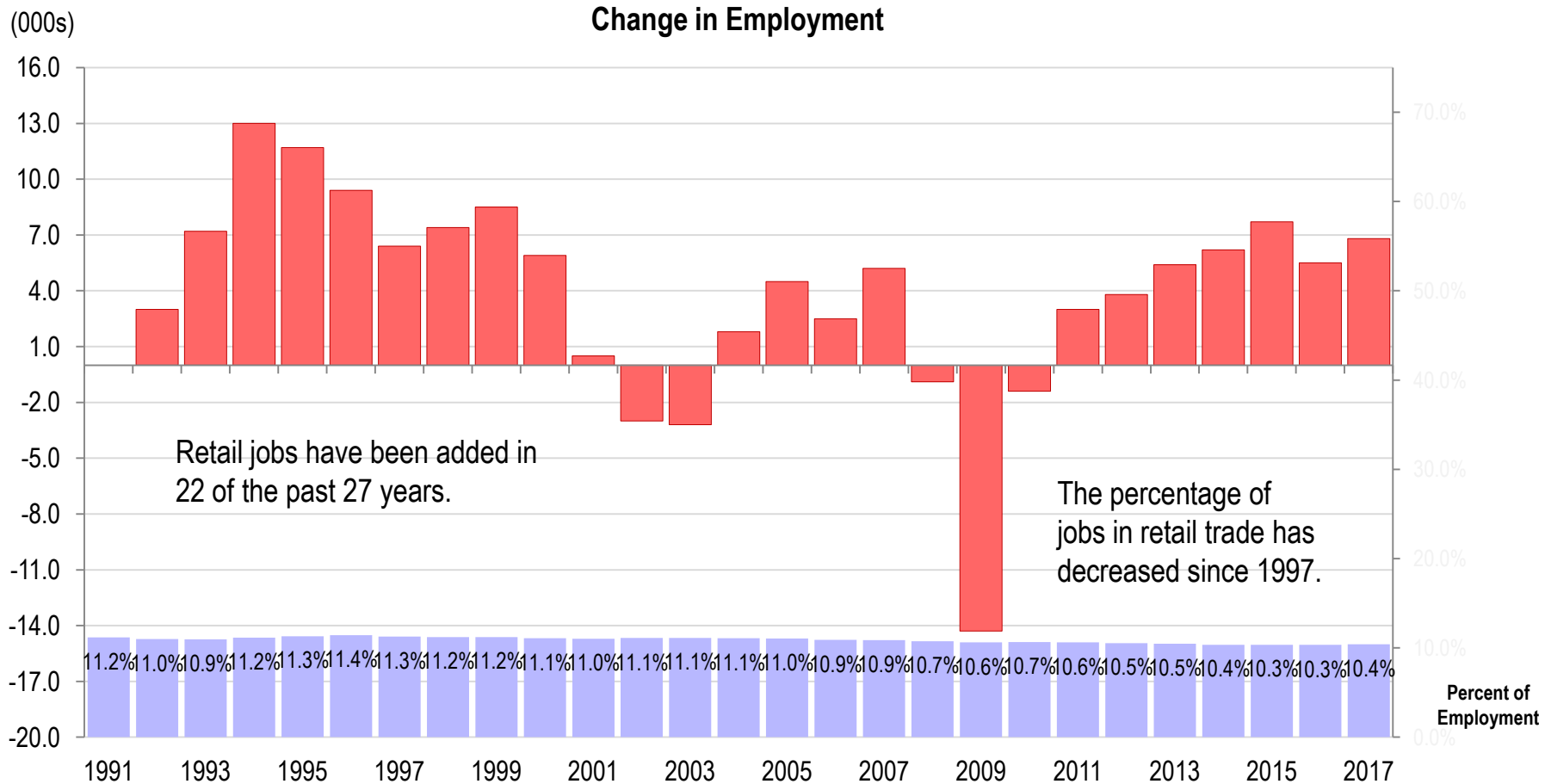


# Key Sectors and Trends to Watch

Retail, New and Used Car Registrations, and DIA

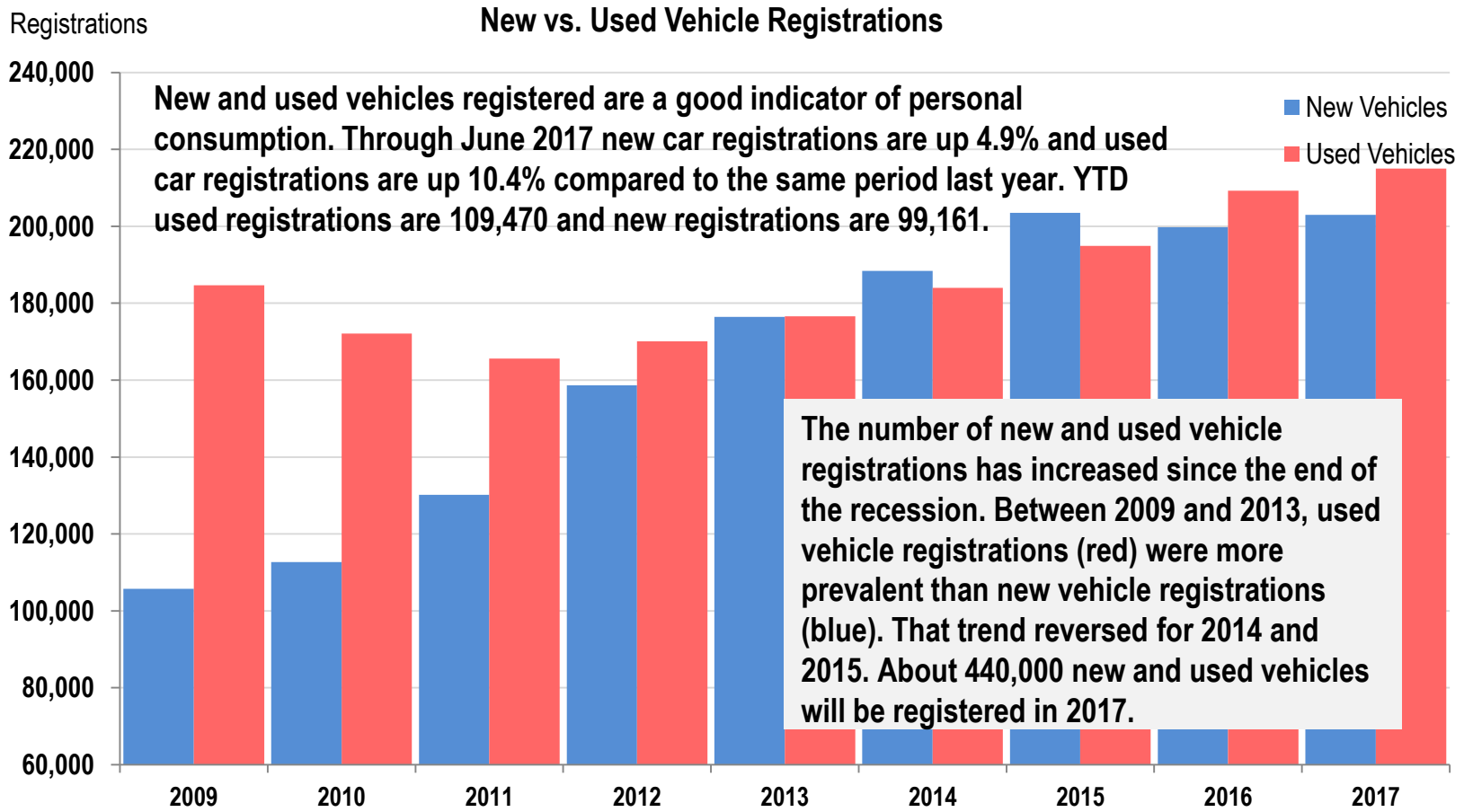
# Change in Employment/Percent of Total Employment

## Retail



Source: Bureau of Labor Statistics, cber.co.

# Colorado New and Used Vehicle Registrations



Source: Colorado Auto Dealers Association, cber.co.

# DIA Passengers



Source: flydenver.com, cber.co.

# ● Retail, New and Used Auto Registrations, and DIA

## ● Questions

### ●

Since 2000, retail trade has become a smaller percentage of Colorado's total employment.

- How will Colorado retail trade evolve over the next 10 years?
- Will the evolution of retail have a negative impact on state and local government retail taxes collected? If so, what will these governments do to make up for "lost" revenue?

Nationally, light truck and automobile sales have softened in 2017. In Colorado there has been a strong increase in new and used registrations for light trucks and automobiles.

- Why is Colorado bucking the national trend?
- How long will Colorado outperform U.S. sales?
- Will purchases for automobile sales and retail goods be negatively impacted by rising healthcare and housing costs?

The number of passengers continues to increase at DIA. In addition, business activity surrounding the airport continues to increase.

- How much will DIA expand in the next 10 years? How many passengers will pass through DIA annually in 2027?
- How much commercial growth can the area around DIA support?
- How much residential growth "around" DIA will be needed to house workers in the area?
- How will the mix of new businesses in the vicinity of DIA change the composition of the Colorado economy?
- Will the Denver Aerotropolis ever materialize? If so, when will that happen and what will it look like?
- Will the Front Range Airport finally become designated as a spaceport?

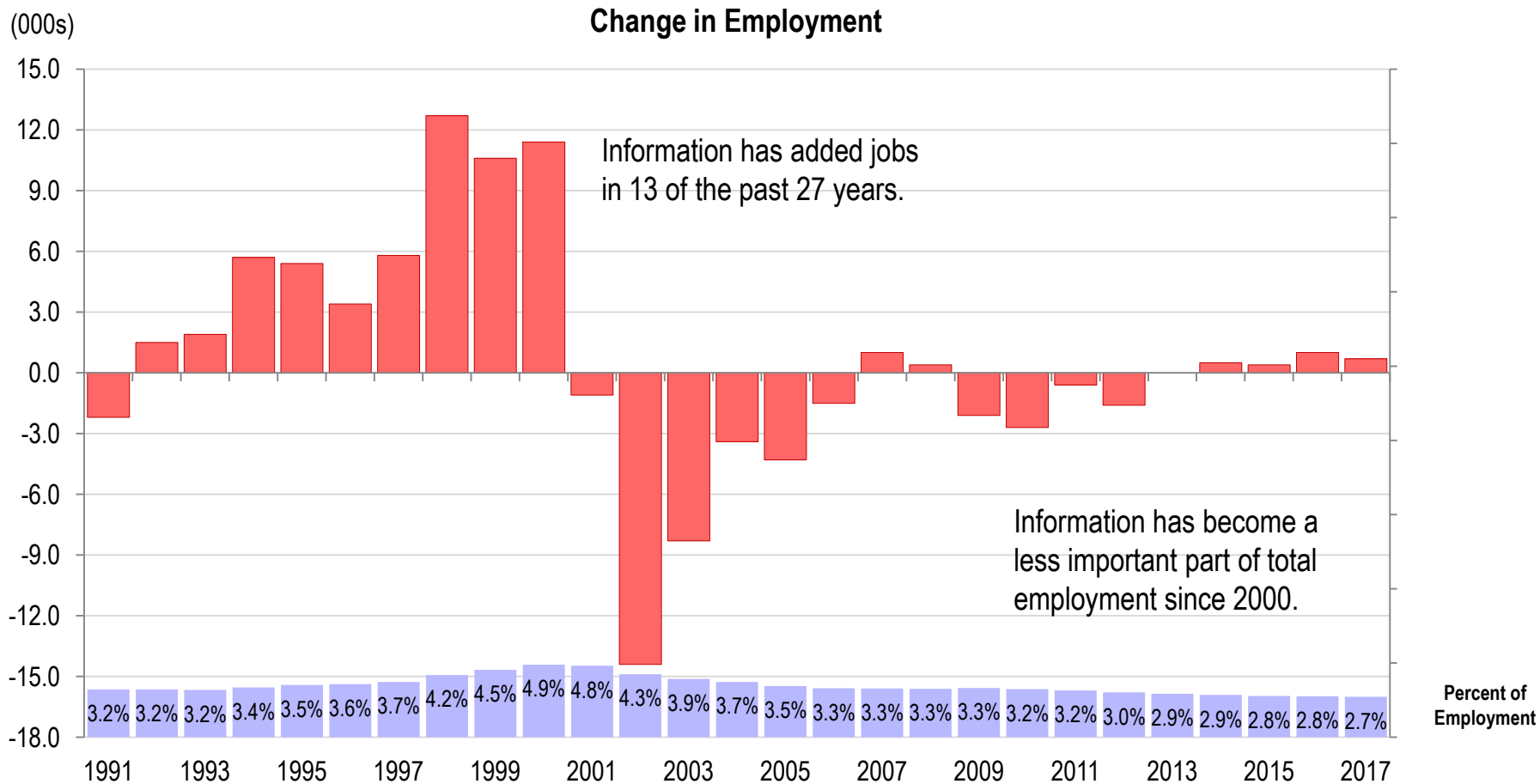


# Key Sectors and Trends to Watch

## Information

# Change in Employment/Percent of Total Employment

## Information



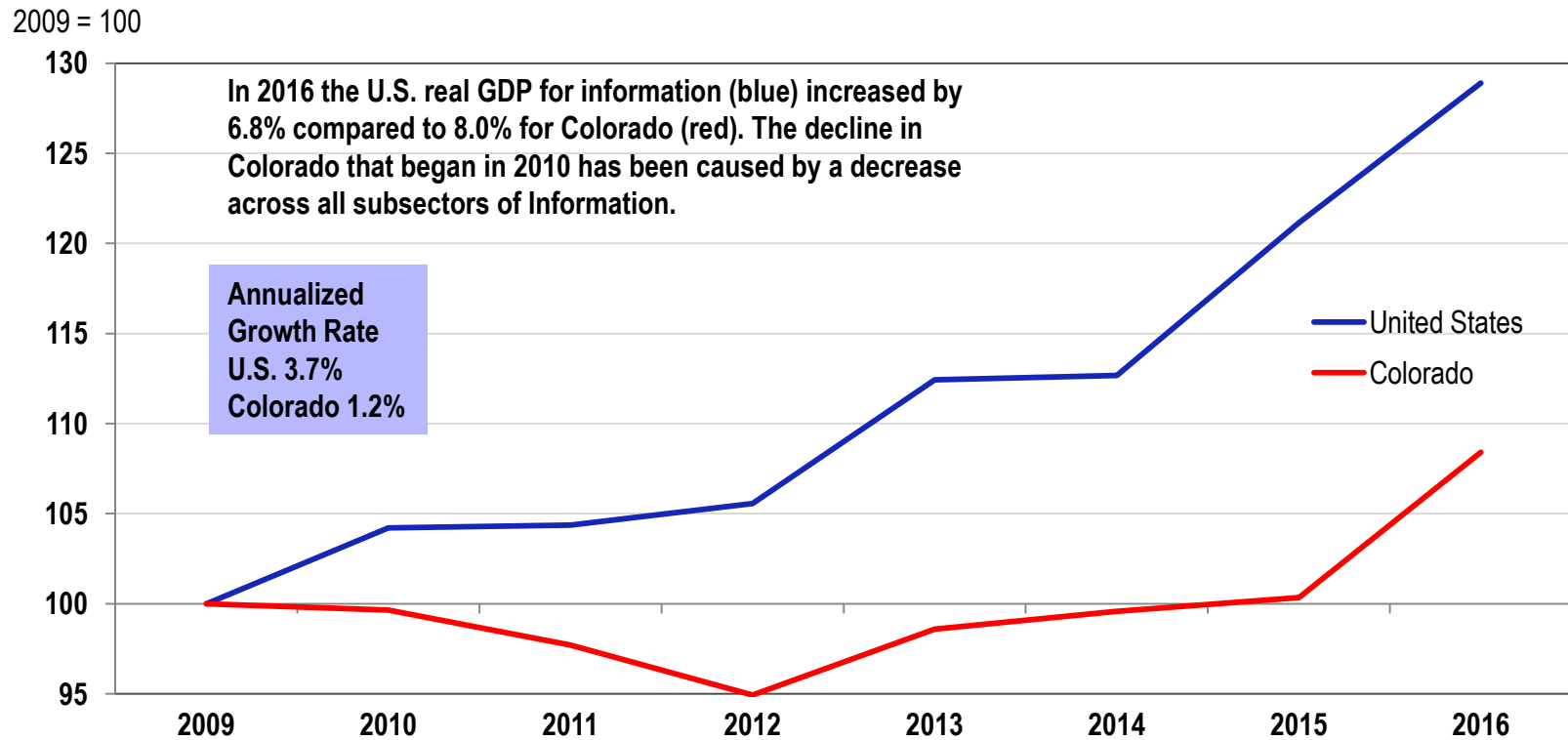
Source: Bureau of Labor Statistics, cber.co.



# Index of Real GDP

## Colorado vs. U.S. Information

Index of Real GDP 2009 to 2016



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

# Questions about the Information Sector

Consolidations, mergers, and the use of technology have disrupted the information sector in Colorado. Employment has declined in most years since 2000. Real GDP for Colorado's information sector has grown at a slower rate than the national real GDP rate for the sector.

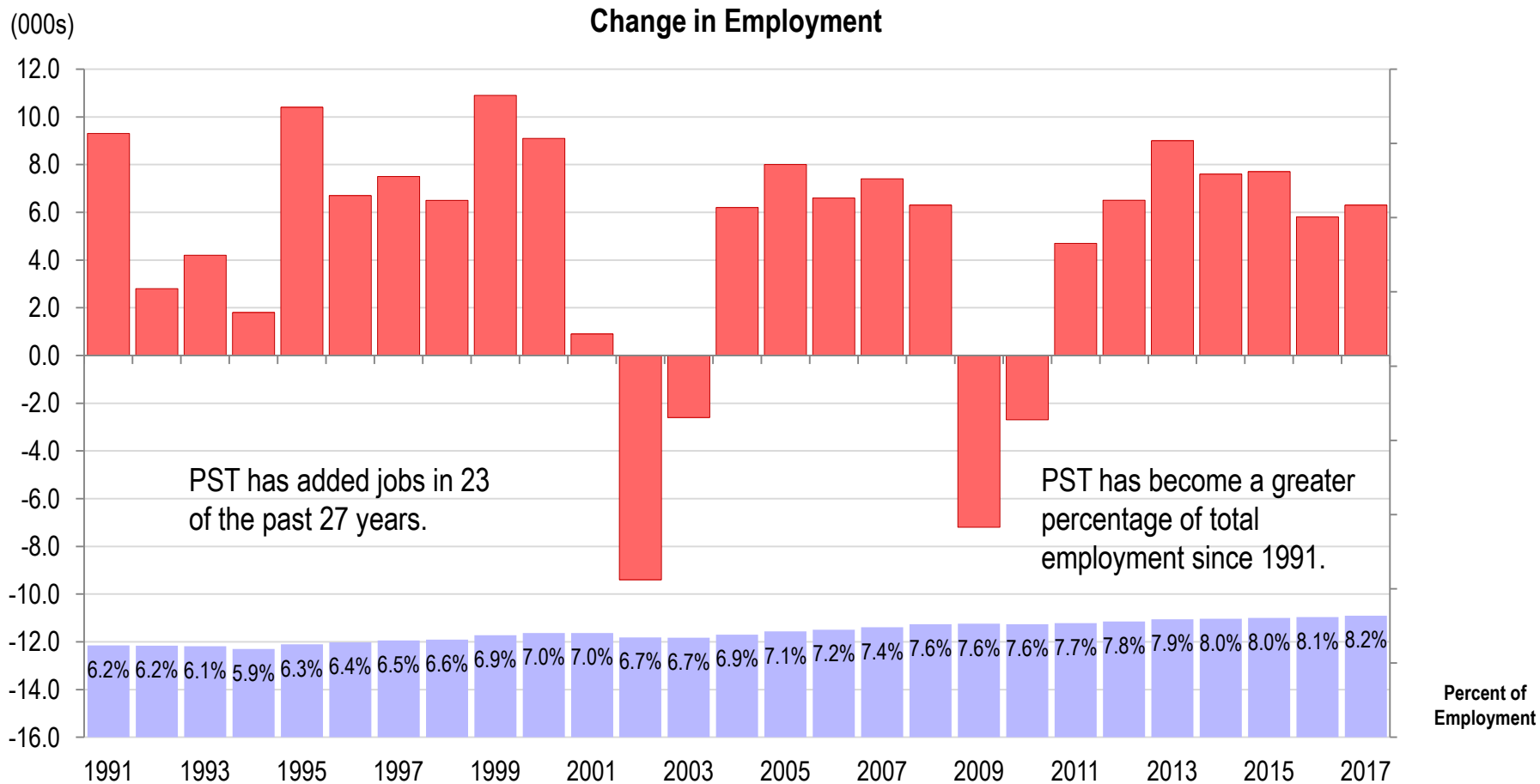
- Will the sector experience significant job increases at some point in the future? If so, what will drive that growth?
- Colorado's position as a leader in this sector has been diminished. Will the state's information sector ever recapture the position of leadership that it once held?



# Key Sectors and Trends to Watch

Professional, Scientific, and Technical Services

- Change in Employment/Percent of Total Employment
- Professional, Scientific, and Technical

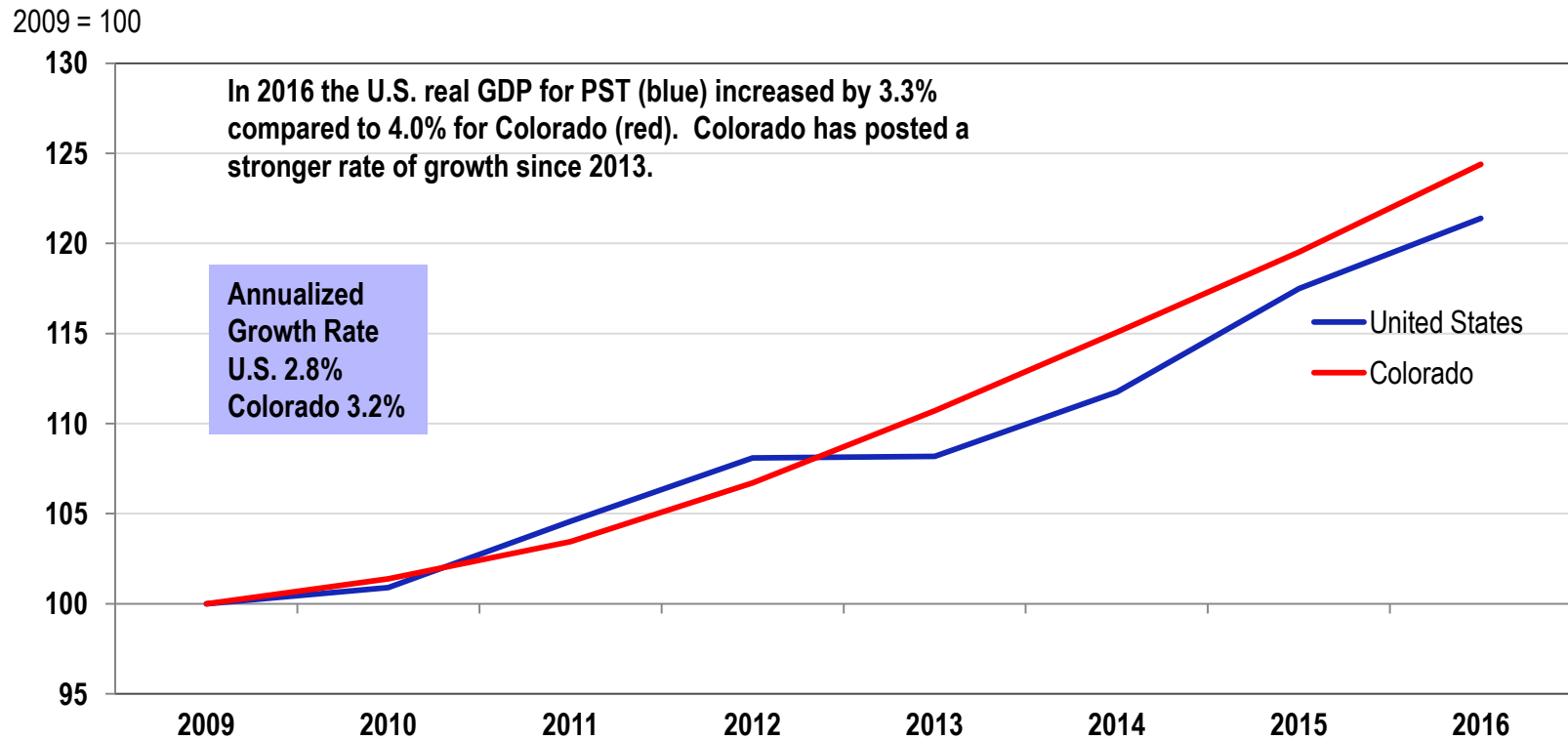


Source: Bureau of Labor Statistics, cber.co.

# Index of Real GDP

## Colorado vs. U.S. PST

Index of Real GDP 2009 to 2016



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

# Questions about the PST Sector

The professional, scientific, and technical sector is important to the state because average annual wages are greater than the state average. More importantly, several of the subsectors support innovation and the generation and commercialization of ideas that will be used to form businesses in the future.

- What can Colorado business and economic development leaders do to continue to attract and retain companies in the PST sector?
- What can be done to ensure that companies in the PST sector has access to a qualified workforce?

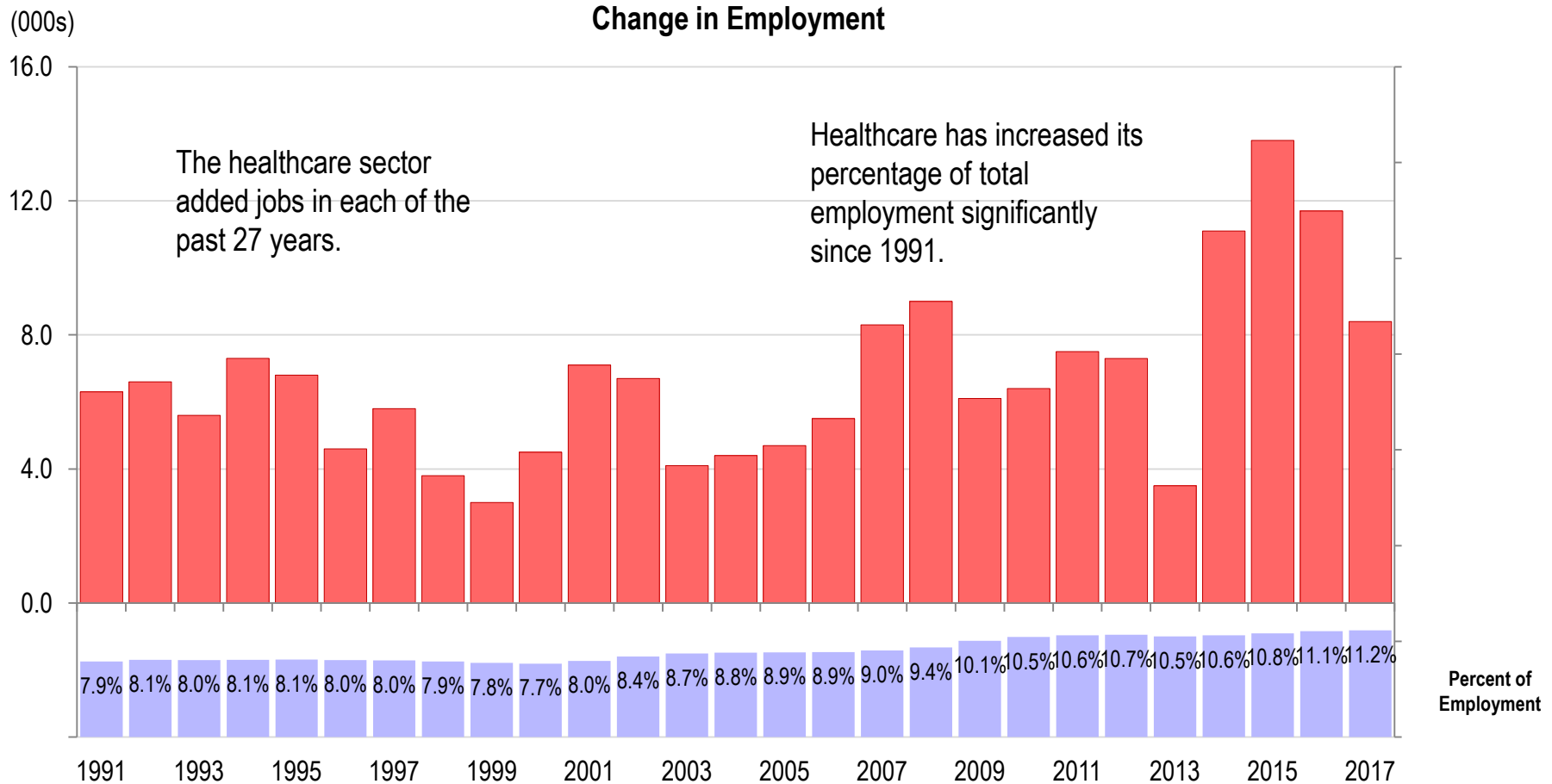


# Key Sectors and Trends to Watch

Healthcare

# Change in Employment/Percent of Total Employment

## Health Care



Source: Bureau of Labor Statistics, cber.co.



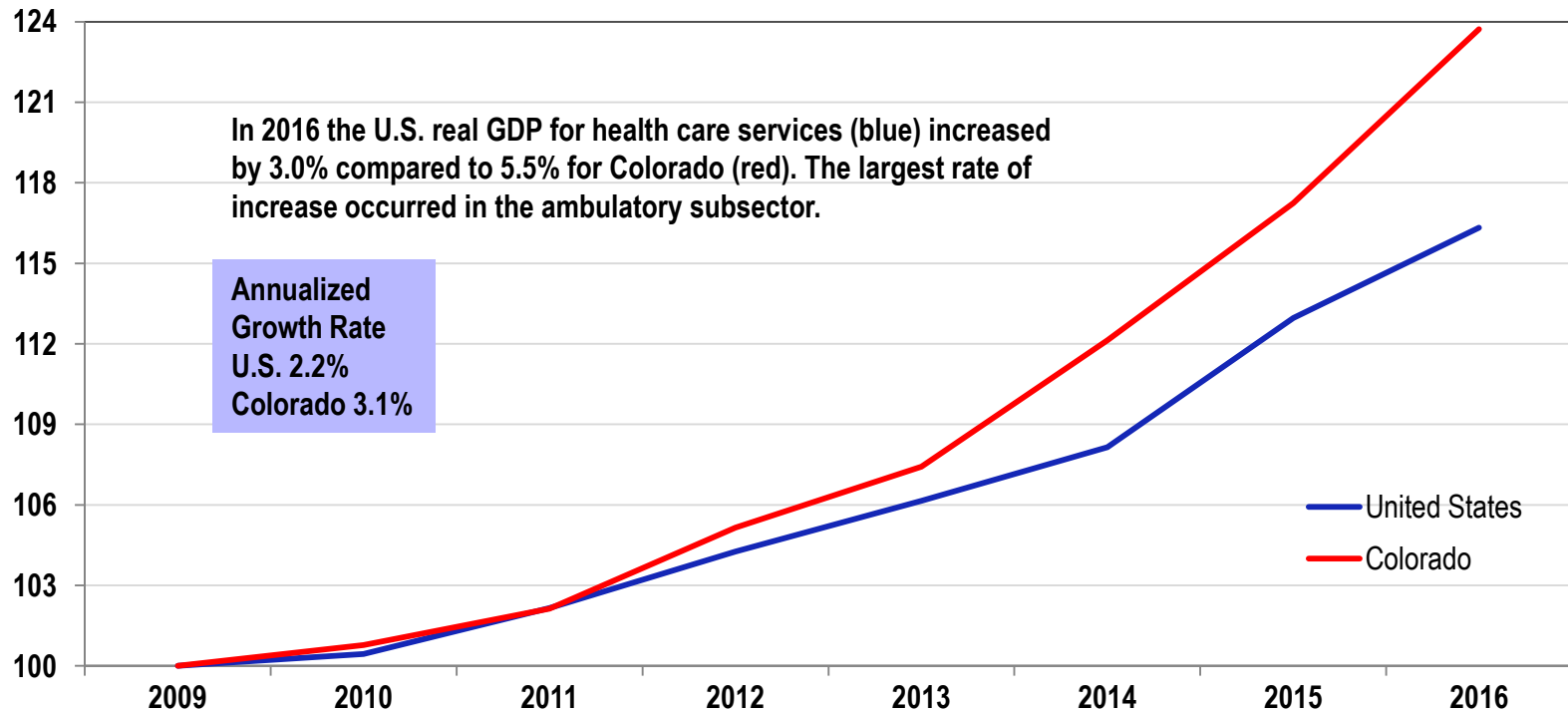
# Index of Real GDP

## Colorado vs. U.S. Health Care



Index of Real GDP 2009 to 2016

2009 = 100



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



# Questions about the Healthcare Sector

Colorado's healthcare has been a job creation machine since 1990. Jobs have been added every year. Many of these jobs pay wages that are below the state average for all industries.

- Has the increase in healthcare employment been an artificially created “jobs” program intended to support the economy?
- For the past 5-7 years, skeptics and some economists have suggested the boom in healthcare employment is a bubble that will inevitably burst. If so, when will that happen?
- There continue to be shortages of critical occupations such as nursing. What kinds of occupations are being added? Will the industry ever be able to address training for occupations where shortages exist?
- How has this increase in employment translated into better and less expensive health care for the public?
- Many of the healthcare jobs that are being added take advantage of new and innovative processes and equipment, but they are not jobs that will generate new ideas nor will they foster growth in other sectors. The sector obviously advances the well being of our society. Is it possible for the sector to foster innovation in other sectors?



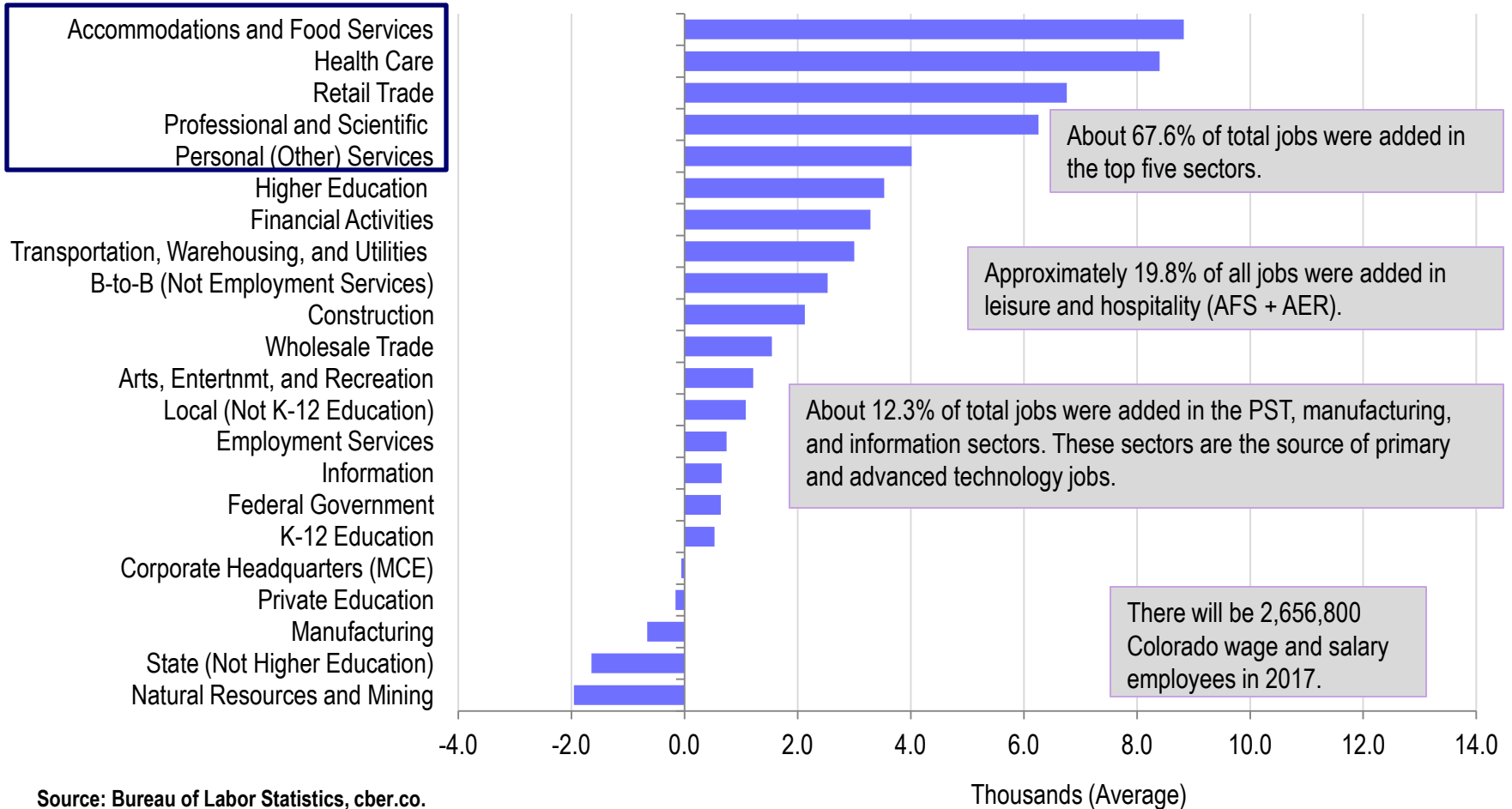
# The Colorado Economy

## Summary

# Job Changes

## 2017 YTD Through July

Job Change All Sectors



Source: Bureau of Labor Statistics, cber.co.

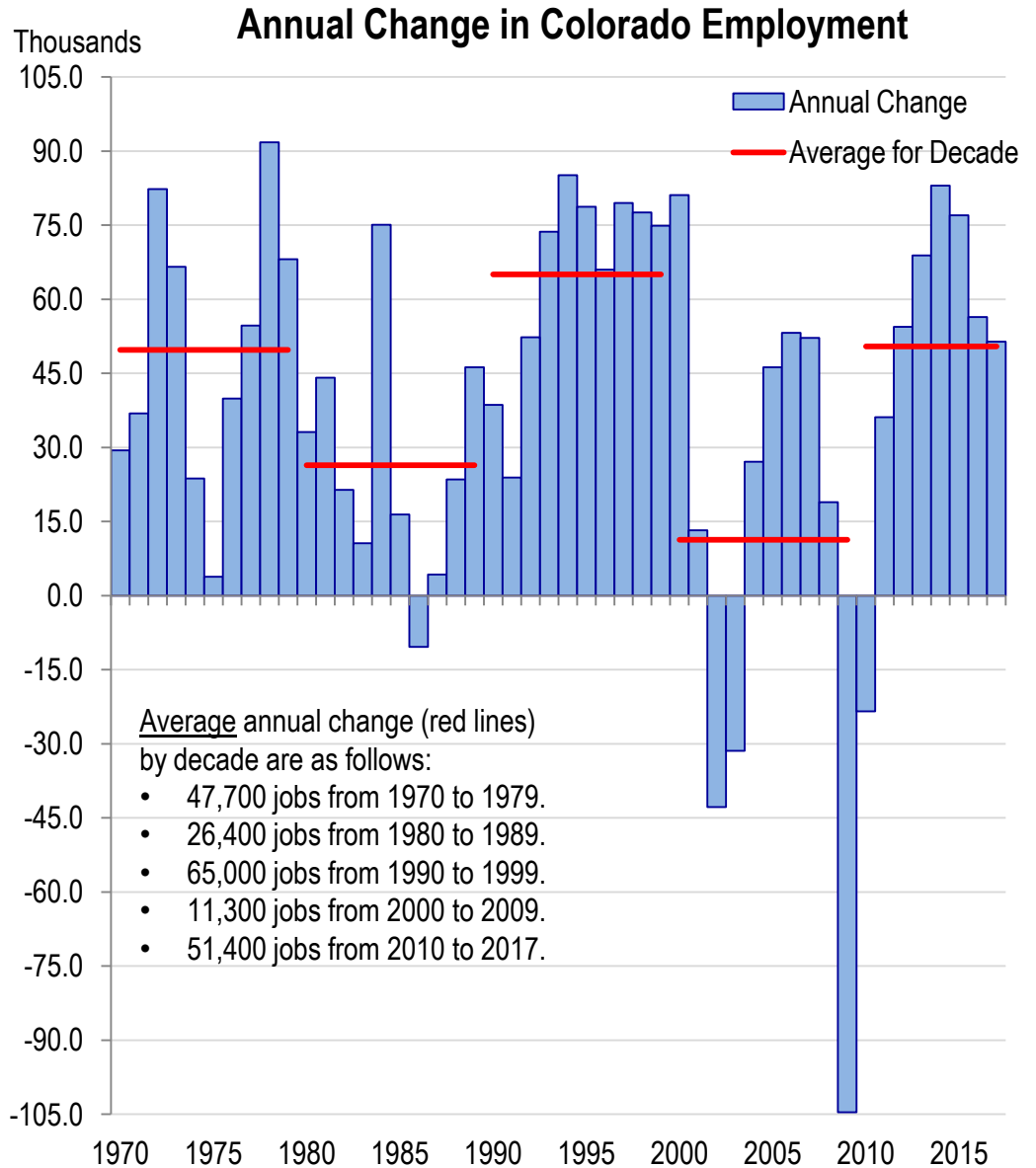
# Annual Employment Change in Colorado

For the first 7 years of this decade, Colorado has added an average of 50,500 jobs.


Colorado added 77,000 jobs in 2015 and 56,400 jobs in 2016.

Through July 2017, the state is on track to add 50,700 jobs, an increase of 2.0%.

The lack of qualified workers is preventing the economy from expanding at a faster rate.



Source: Bureau of Labor Statistics, cber.co.



## Review of Colorado Economy and Employment Data Through July 2017

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.

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### ABOUT THE AUTHOR

Gary Horvath has produce 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.

In addition, 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, which is part of OEDIT’s early stage and proof of concept programs.