



cber.co  
Review of Revised 2015  
Colorado Employment Data

Colorado-based Business and Economic Research  
Prepared  
March 15, 2016

# Overview of Economic Review

This chartbook provides a series of charts, graphs, discussions that review the recently benchmarked Colorado Wage and Salary employment data published by the Bureau of Labor Statistics. The revisions show that Colorado added 83,000 jobs in 2014 and 76,300 jobs in 2015. The revisions were much stronger than anticipated.

This information is divided into the sections listed below.

## Global and U.S. Economy

- The United States Economy
  - Real GDP
  - Employment

## The Colorado Economy

- GDP and Inflation
- Population and Unemployment
- Overview of Benchmarked Revisions
- Revised Employment for Key Industries
- Extractive Industries
- Industry Category Employment Through 2015/2016 [cber.co](http://cber.co) Colorado Employment Forecast
- Summary

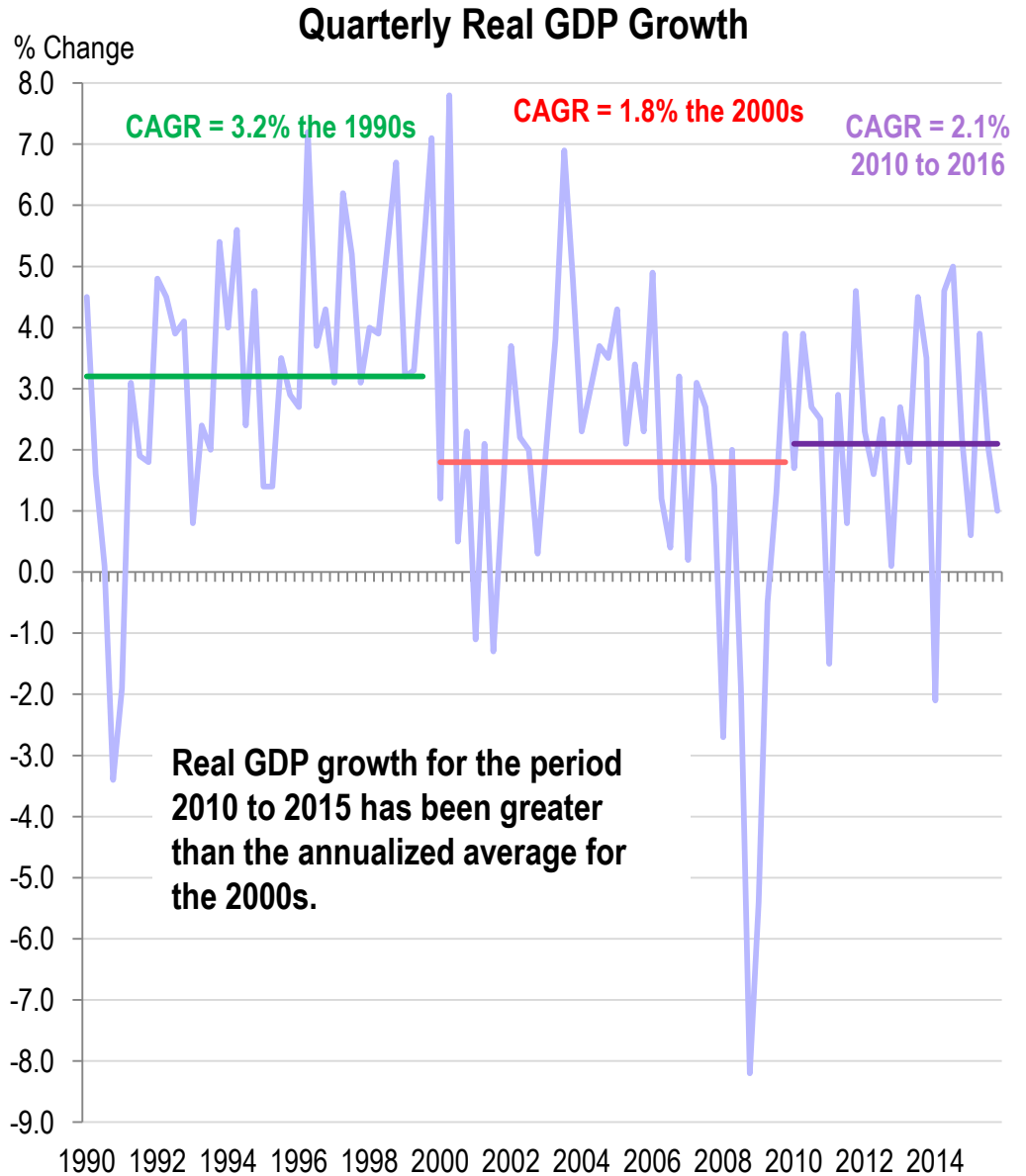


# The United States Economy GDP and Employment

# Real US GDP Growth Quarterly

Annualized real GDP growth for the 1990s was 3.2% (green line). It was 1.8% for the 2000s (red line) and 2.1% from 2010 to 2015 (purple line).

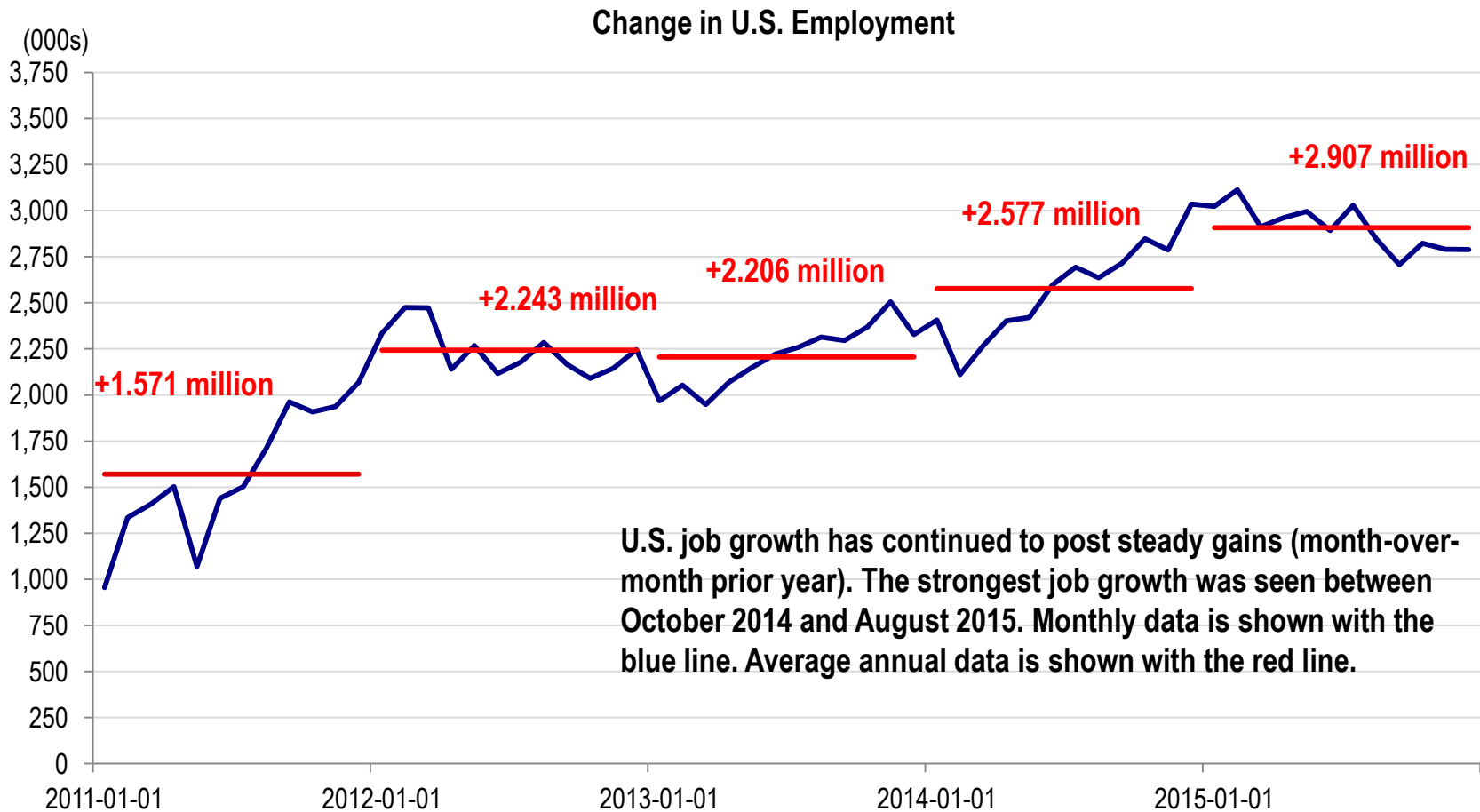
Real GDP growth for 2015 was 2.4%.



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

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# Change in U.S. Employment Year-Over-Year Job Growth



Source: Bureau of Labor Statistics, NSA.

# Reasons to Feel Good about the U.S. Economy

The U.S. economy is on solid footing. Fortunately, the reasons to be optimistic, listed below, outweigh the risks.

<b>Global GDP</b> –Global GDP growth will be slightly stronger in 2016.	<b>U.S. GDP Growth</b> –U.S. GDP growth was 2.4% in 2015. It will be stronger in 2016, fueled by solid personal consumption.
<b>Jobs</b> - The U.S. added 2.9 million jobs in 2015. Jobs will be added at a slightly lower rate in 2016.	<b>PCPI</b> – Per Capita Personal Income increased by 2.9% in 2015 and will increase by a similar rate in 2016.
<b>Inflation</b> - Inflation was low in 2015. It will increase, but will continue to be below the Fed’s target rate of 2.0%.	<b>Service Industries</b> – The service sectors have been strong since 2010. Continued growth is on tap in 2016.
<b>Construction</b> - There is solid activity in both the residential and non-residential markets. Construction job growth will be constrained by the lack of trained workers.	<b>Housing Prices</b> - U.S. housing prices showed solid growth in 2015. Growth will continue but at a slightly lower rate in 2016.
<b>Weekly Earnings</b> – Weekly earnings may increase at a higher rate than in the past as the pool of drug-free, qualified workers gets smaller.	<b>Auto Sales</b> – Low interest rates, easy access to capital, and low gas prices will continue to drive solid auto and light truck sales in 2016.
<b>Debt</b> – An argument can be made there is too much debt, however, consumers seem to be managing their debt levels – at the moment.	

# Economic Risks and Concerns

Even during the best of times there are headwinds. The following are some of the risks and concerns that currently challenge the economy.

<b>Global GDP</b> – Despite geopolitical tensions and problems in China, global GDP growth will be stronger in 2016.	<b>U.S. Real GDP Growth</b> - Currently, there is only modest demand for business investments (new equipment, and software).
<b>Manufacturing</b> – Improvement in manufacturing will occur when business investment and the Chinese economy get stronger. The strong dollar abroad will create a challenge for manufacturers.	<b>Price of Oil</b> - Low prices for a barrel of oil have benefitted consumers and some industries, but they have hurt the extractive industries and their supply chain.
<b>Labor Shortages</b> – There will be shortages for qualified workers in key industries and occupations	<b>U.S. Housing</b> - In some parts of the country the rate of housing price appreciation is becoming problematic.
<b>Productivity</b> – The downward trend in labor productivity has been caused by weak business investment, catering to special interest groups, and the impact of technology.	<b>Interest Rates</b> – Interest rates will remain low; however, there will be some businesses and consumers who may feel pinched by slightly higher rates.
<b>Equity Markets</b> – The equity markets will remain volatile.	<b>The R-Word</b> – A recession is not likely in 2016, but is more likely in 2017 or 2018.
<b>Election 2016</b> –At some point businesses may take a “wait and see” attitude before making business decisions, which could put the economy on hold.	



# The Colorado Economy





# The Colorado Economy

## GDP and Inflation

# Colorado GDP

## A Measure of Economic Performance that Tells a Different Story

**It is important to consider Gross Domestic Product as part of any economic forecast or analysis because industries contribute to the economy in different ways. As can be seen by the data below, some industries contribute more to GDP growth than job growth. Likewise, some industries contribute more to job growth than GDP growth.**

The 2014 real GDP data (the most current annual data) shows:

- Colorado's nominal GDP was \$305.9 billion.
- Private sector GDP vs. public sector GDP.
  - The private sector accounted for 87.9% of the total GDP (\$212.0 billion).
  - The private sector accounted for 83.4% of wage and salary employment.
- Goods producing sectors vs. service producing sectors.
  - The goods producing sectors accounted for 18.6% of total GDP (\$56.9 billion)
  - The goods producing sectors accounted for 12.7% of wage and salary employment.

In 2014, the five largest sectors were:

- Financial activities 19.1%
- Professional business services 13.9%
- Government 12.1%
- Information 7.6%
- Manufacturing 7.1%

These sectors are 59.8% of total GDP.

In 2014, the five sectors that contributed the most to the change in the GDP were:

- Financial activities 18.0%
- Mining 15.5%
- Professional business services 13.4%
- Construction 8.2%
- Manufacturing 6.6%

These sectors account for 61.7% of the contribution to the change in the 2014 GDP.

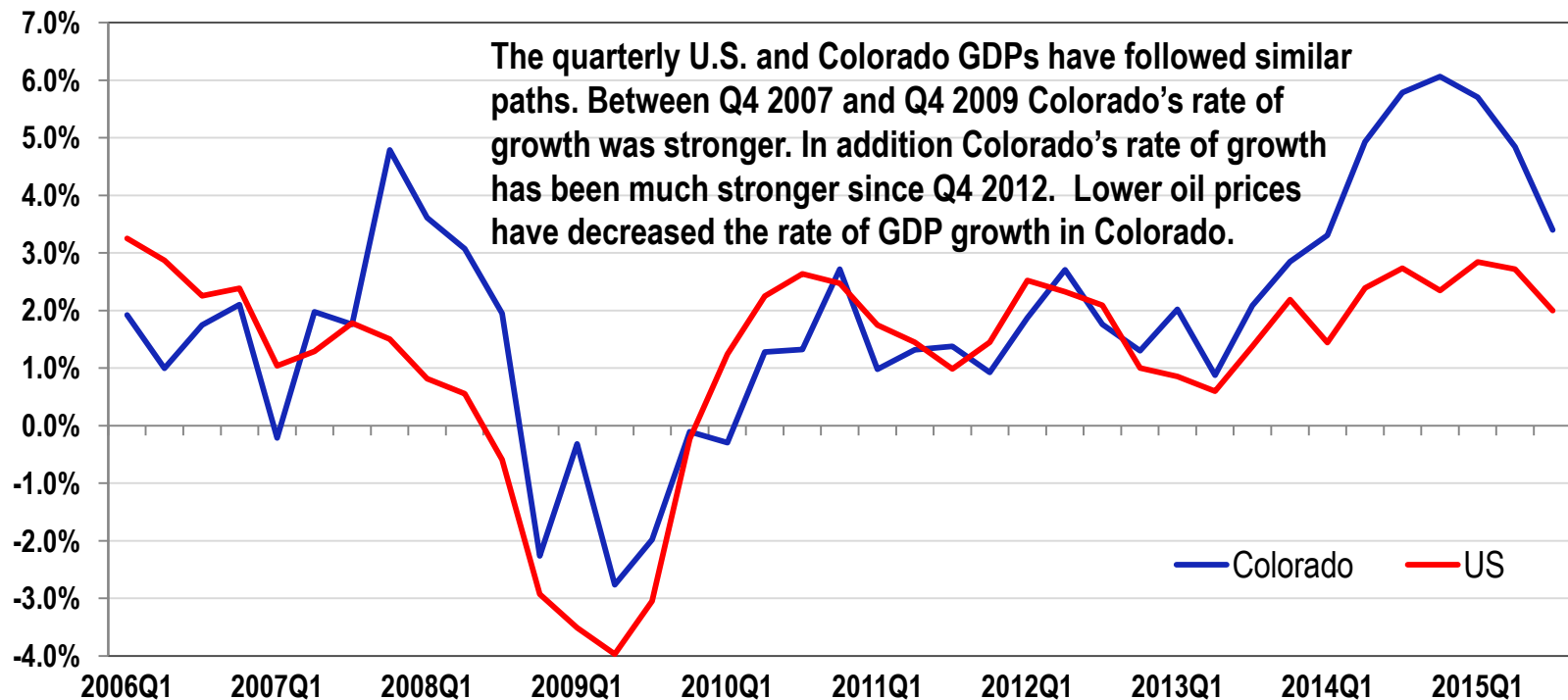
# ● Change in Quarterly Real GDP (Year-Over-Year)

## ● Colorado vs. U.S.



Percentage Change in Real GDP Colorado vs. U.S.

YOY Change



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



# Inflation

The Federal Reserve is trying to manage the economy so inflation will approach their target rate of 2.0%. This is important to Colorado because for 7 of the past 11 years Colorado's rate of inflation has been greater than the U.S. In 2016 it is likely Coloradans will experience a higher cost of living than the U.S.

This section compares the cost of living for Colorado and the U.S. in key areas.

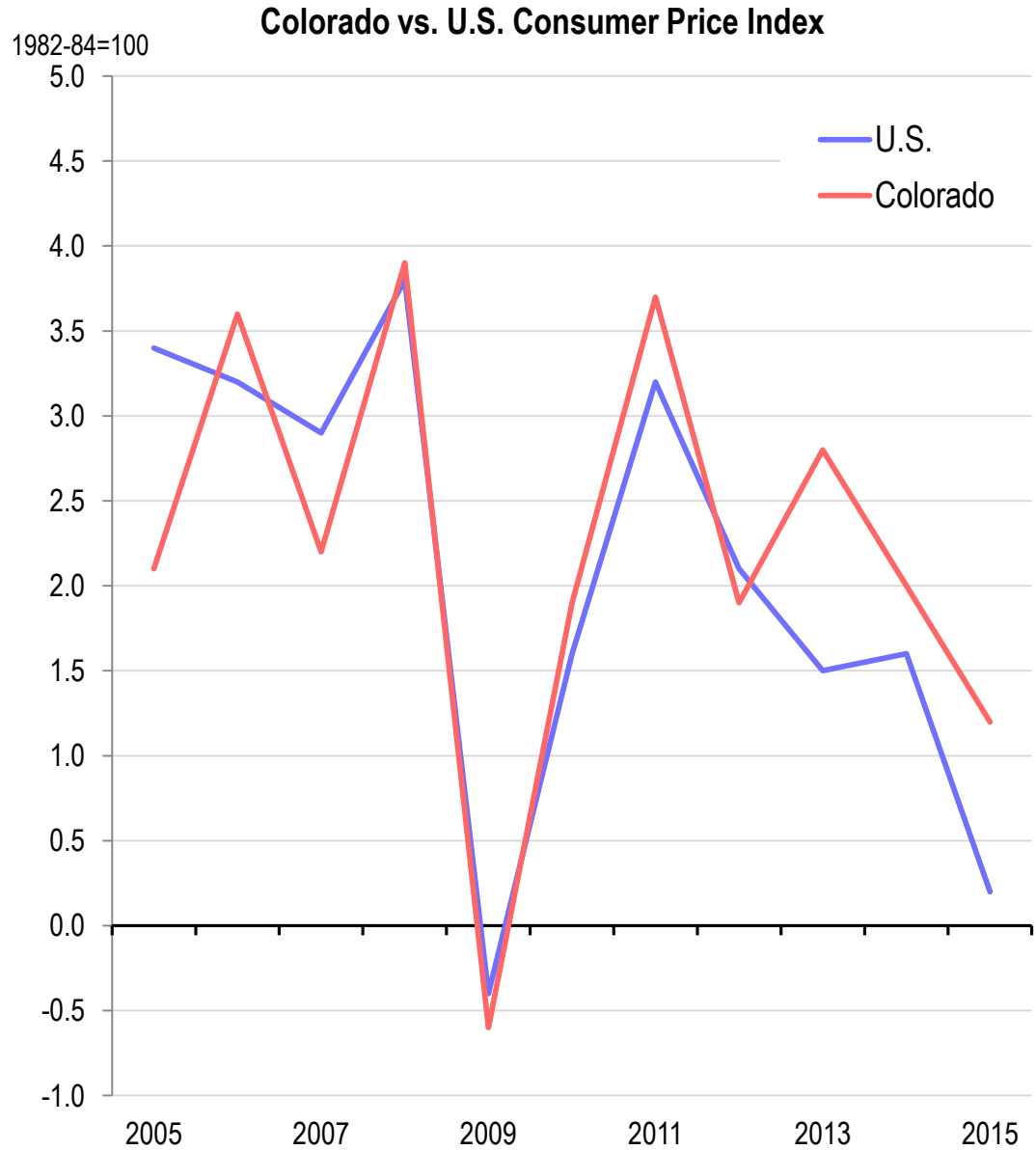
For 5 of the past 6 years housing costs have been greater for Coloradans. Energy costs have risen at similar rates and food and beverage costs have been lower for Coloradans. The Colorado rate of inflation for medical care and recreation have typically been higher than the U.S. rate.

# Consumer Price Index (CPI)

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The annual Colorado CPI has been greater than the change in the U.S. CPI 7 of the past 11 years.

The correlation coefficient between the two variables is .85



Source: Bureau of Labor Statistics, cber.co.

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

# Consumer Price Index (CPI) Housing

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The annual Colorado Housing CPI has been greater than the U.S. Housing CPI 5 of the past 6 years.

The correlation coefficient between the two variables is .24.



Source: Bureau of Labor Statistics, cber.co.

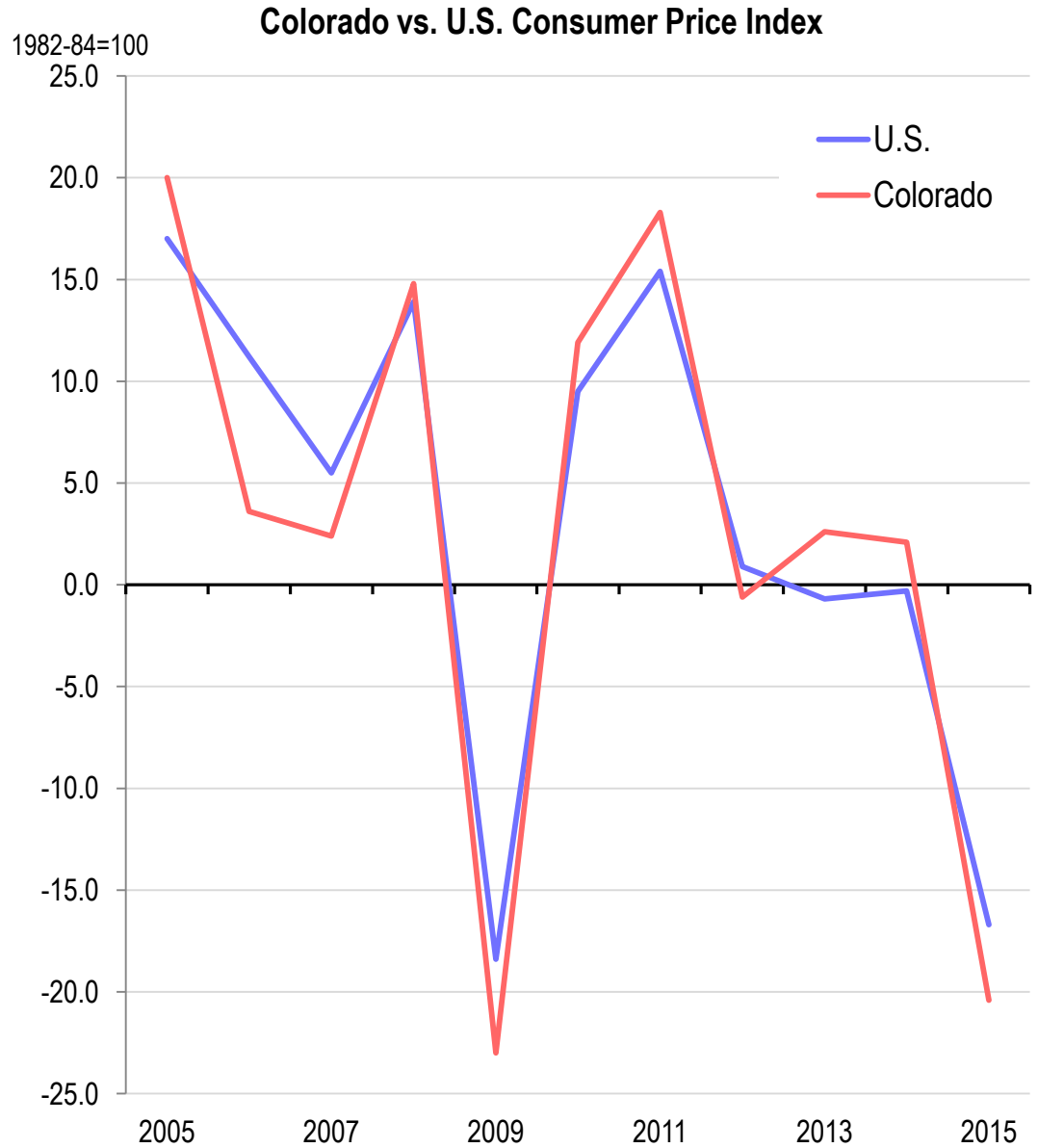
Colorado-based Business and Economic Research <http://cber.co>

# Consumer Price Index (CPI) Energy

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The Colorado and U.S. Energy CPIs have been extremely volatile and they have moved in tandem since 2005. The correlation coefficient between the two variables is .97.

The annual Colorado Energy CPI has been greater than the U.S. Energy CPI 6 of the past 11 years.



Source: Bureau of Labor Statistics, cber.co.

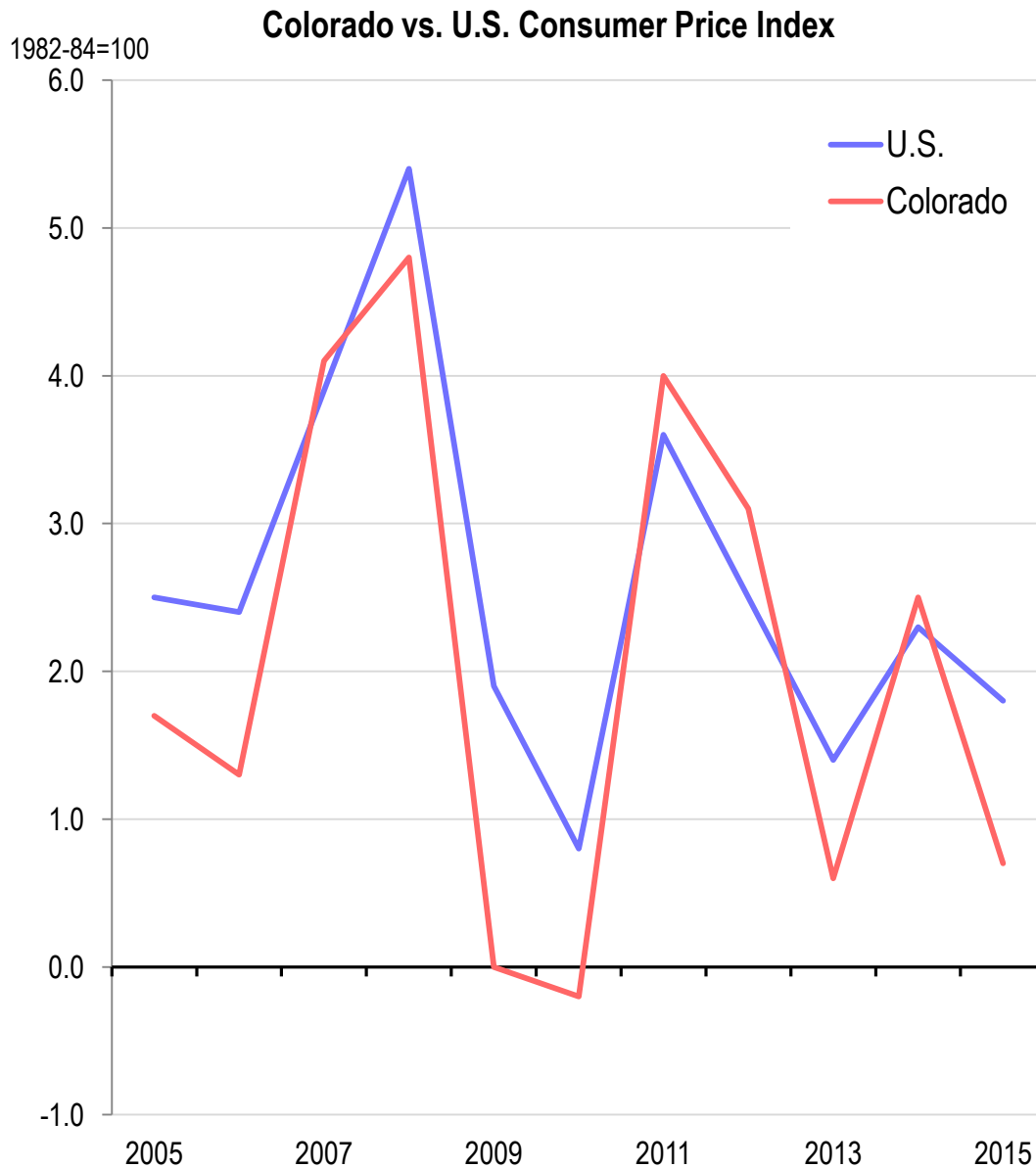
Colorado-based Business and Economic Research <http://cber.co>

# Consumer Price Index (CPI) Food and Beverage

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The annual Colorado F&B CPI has been greater than the U.S. F&B CPI 4 of the past 11 years.

The correlation coefficient between the two variables is .91.



Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

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

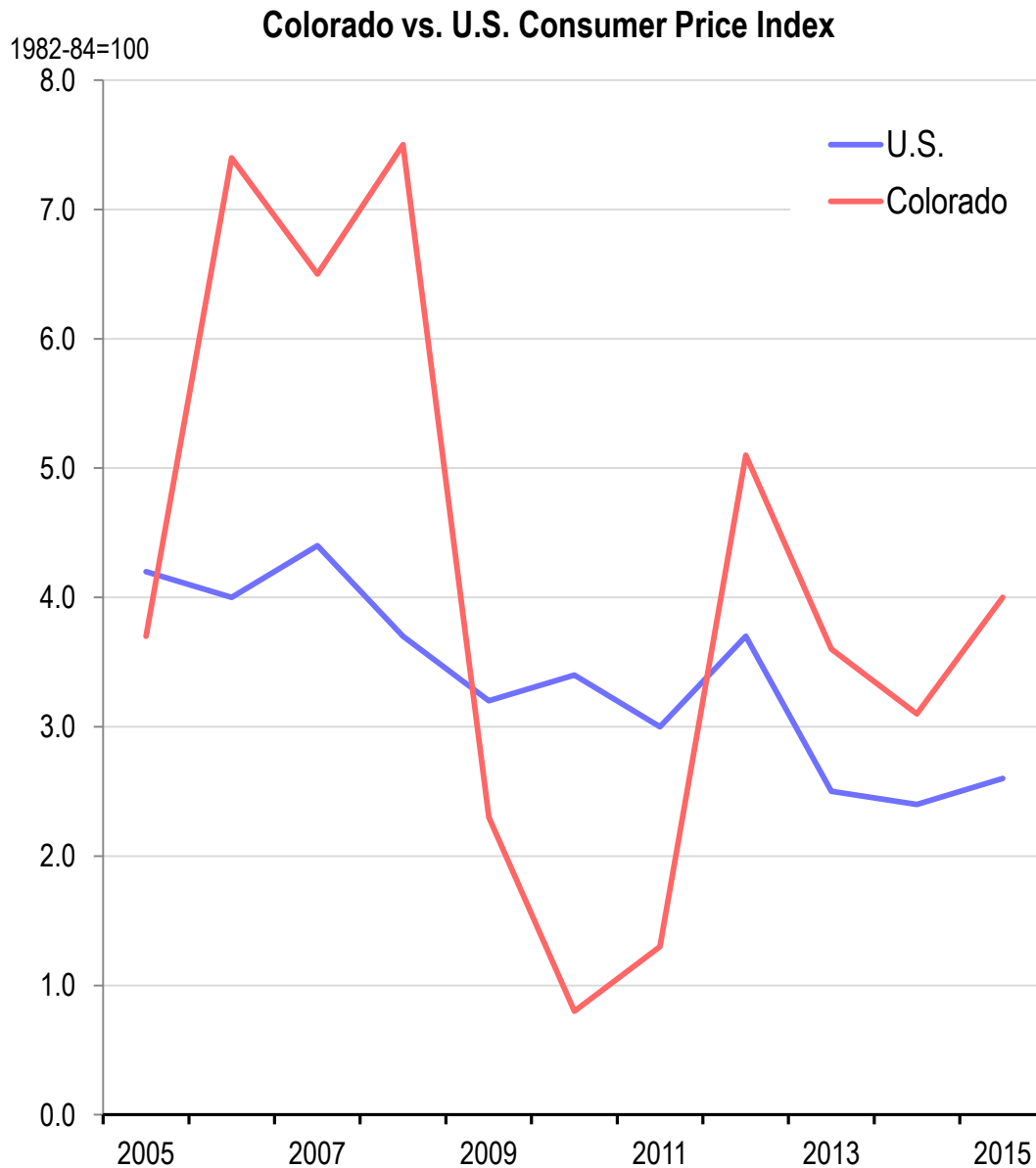


# Consumer Price Index (CPI) Medical Care

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The annual Colorado Medical Care CPI has been greater than the U.S. Medical Care CPI 7 of the past 11 years.

The correlation coefficient between the two variables is .53.



Source: Bureau of Labor Statistics, cber.co.

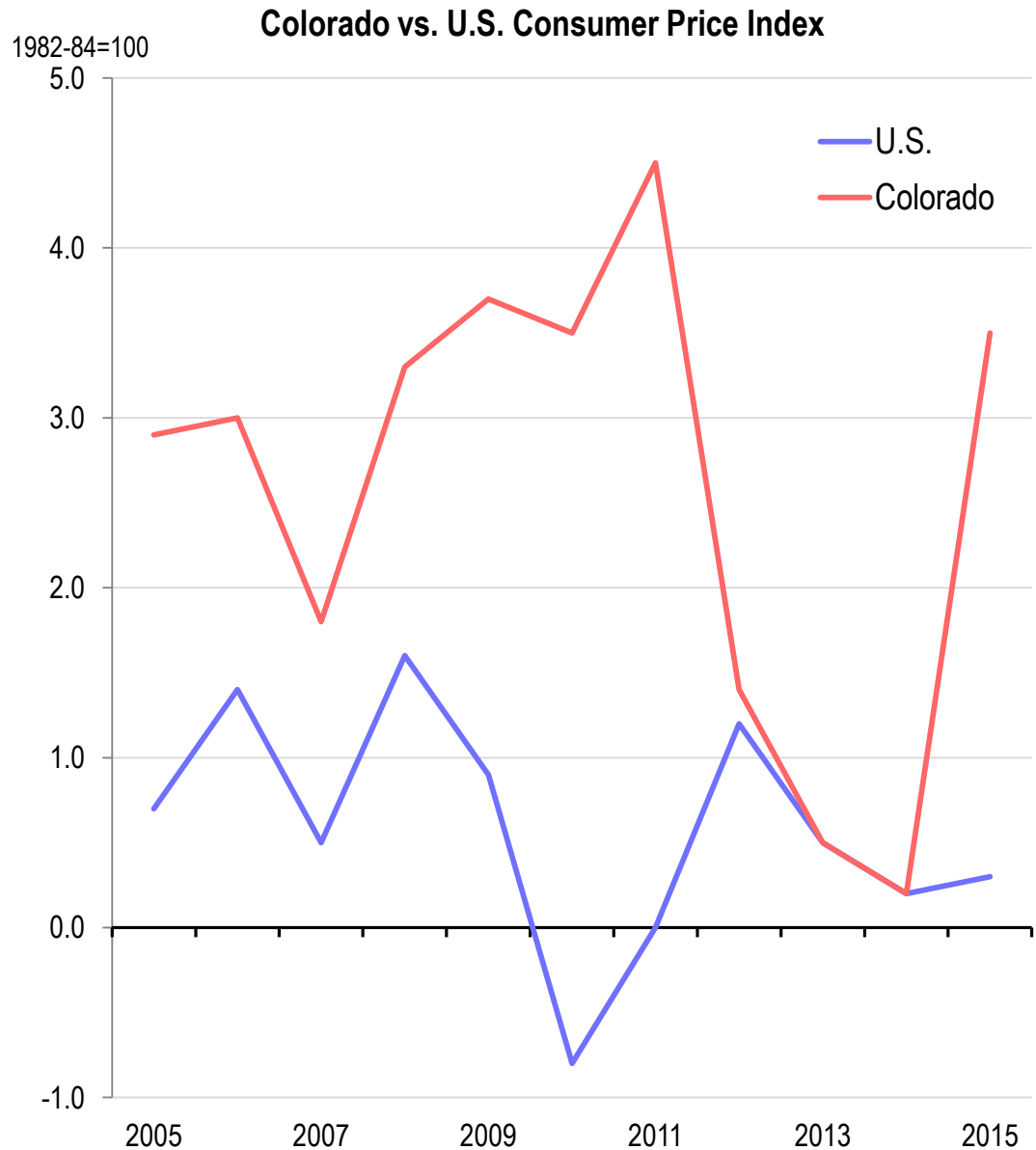
Colorado-based Business and Economic Research <http://cber.co>

# Consumer Price Index (CPI) Recreation

The Denver-Boulder-Greeley CPI (red line) is used as a proxy for Colorado inflation.

The annual Colorado Recreation CPI has been greater than the U.S. Recreation CPI 9 of the past 11 years.

The correlation coefficient between the two variables is  $-0.1$ .



Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

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



# The Colorado Economy Population and Unemployment

# Change in Colorado Population

## Colorado is an Attractive Place to Live, Work, and Play

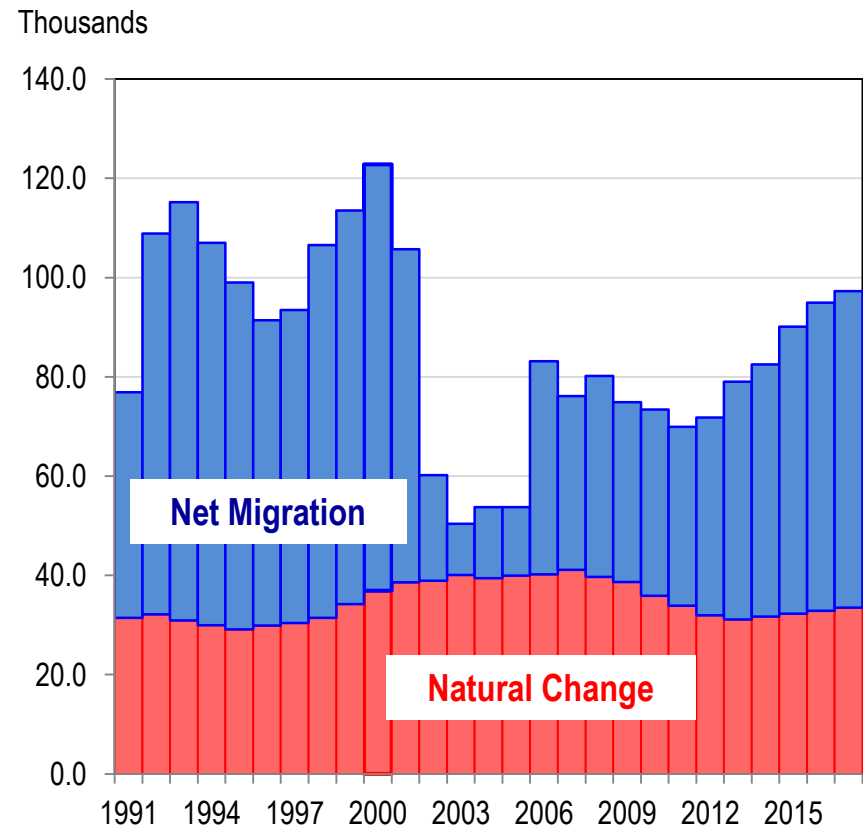
The population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

Over the past 2½ decades the natural change (red bars) varied from a low of 29,145 in 1995 to a peak of 41,124 in 2007.

Changes resulting from net migration (blue bars) are closely tied to the strength of the economy. 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 a regional recession. During the past two recessions, net migration declined, but did not turn negative because it was difficult for people to move - anywhere.

The Colorado population increased by about 90,141 in 2015 and will increase by at least 95,000 in 2016. Net migration will increase by 63,800 in 2016. In 2016 the state's population will increase by 1.7% to 5,538,480. This data/chart does include projected upward revisions.

Change in Colorado Population 1991 - 2016



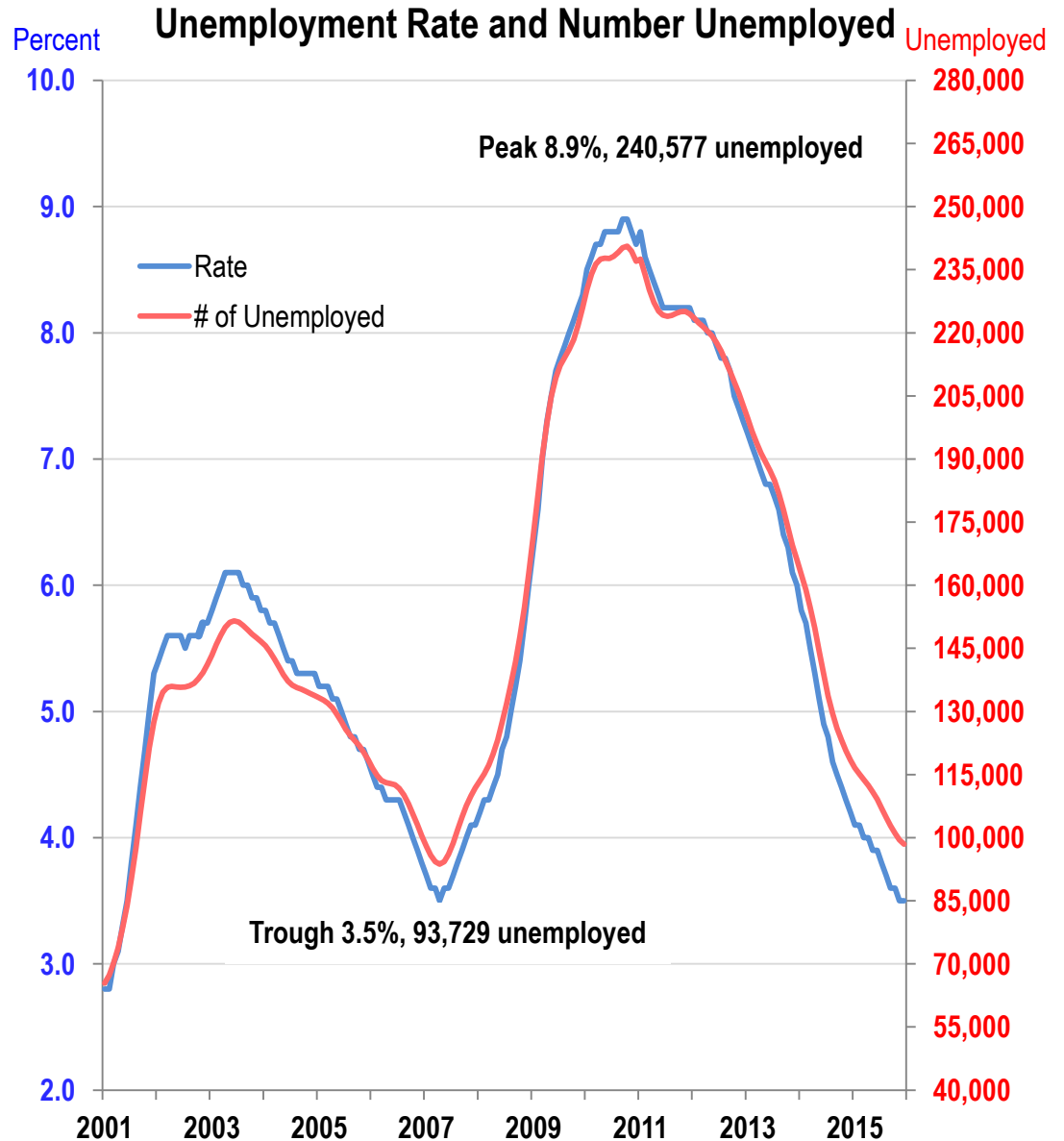
## Colorado Unemployment Rate and Number of Unemployed

The number of unemployed has slowly trended downward since peaking in late 2010.

The total number of unemployed workers (red) at the end of 2015 was 98,458. The total number of unemployed is 4,729 greater than the trough in May 2007 and 142,119 less than the peak in October 2010.

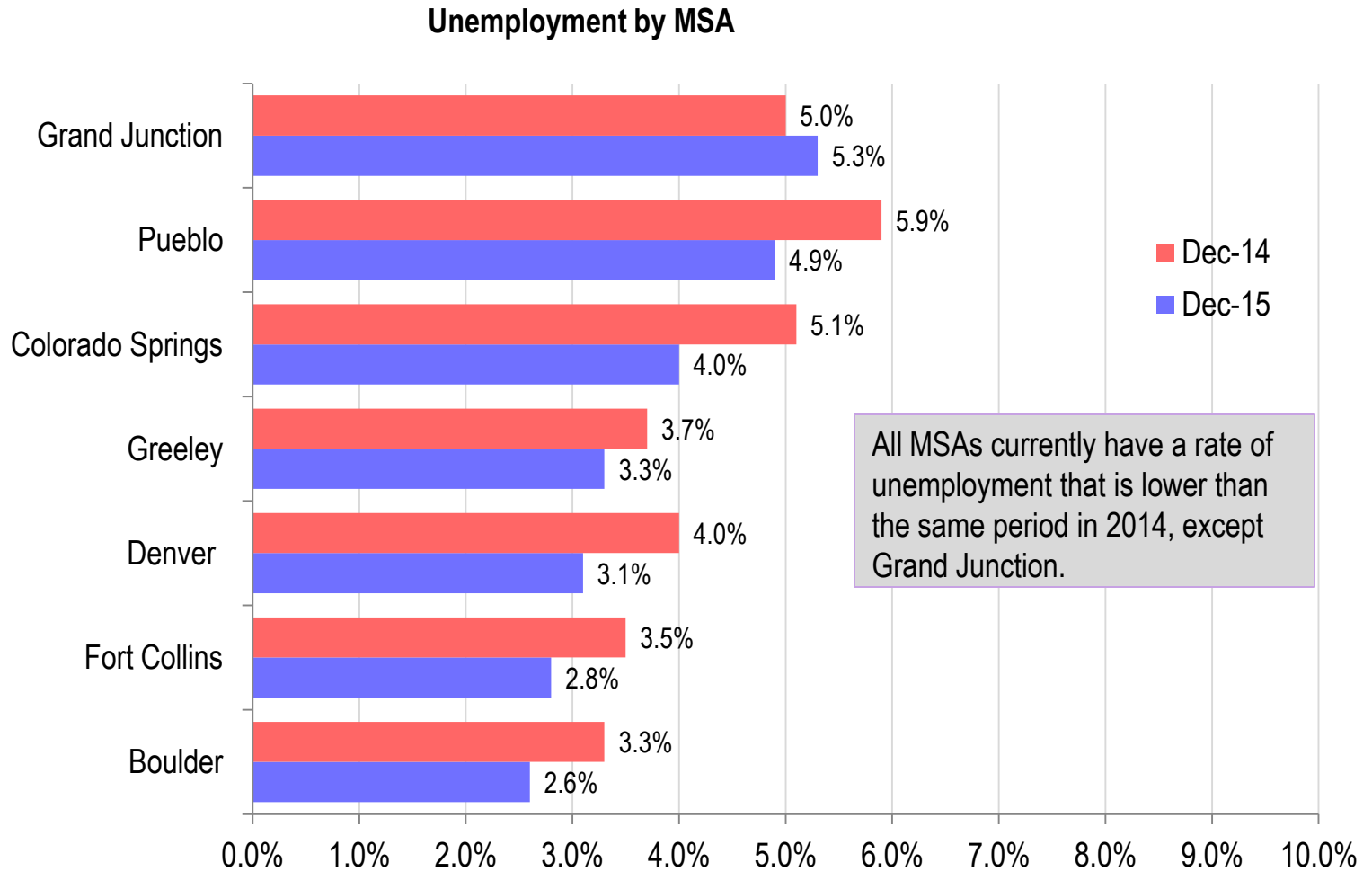
Lower unemployment rates have brought about shortages of trained workers in key sectors and occupations. The average 2015 unemployment rate (blue) was 3.9%

The unemployment rate will be between 3.7% and 4.1% for 2016.



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

# Unemployment by MSA 2014 vs. 2015



Source: Bureau of Labor Statistics, NSA. Note: MSA unemployment lags by one month and is reported on a non-seasonally adjusted basis.



# The Colorado Economy

## Overview of Benchmark Revisions

# ● The Benchmark Revisions



The Bureau of Labor Statistics has a process for revising their employment data each March that is often referred to as the benchmark revisions. This section briefly describes that process and what recent updates mean to Colorado.



# ● Bureau of Labor Statistics (US Agency) and Labor Market ● Information (Colorado Agency) Data Revision Process

## ● BLS and LMI Data Projections

In recent years, data-producing federal agencies have been asked to deliver more accurate data, in a shorter time frame, using fewer staff, with lower research budgets. The data used for most short-term forecasts is the Current Employment Survey, also called Nonfarm or Wage and Salary data. It is possible for the CES data to be revised up to four times.

## BLS and LMI Data Revision Process

The CES projection process is outlined below:

1. Around the 20<sup>th</sup> of a month, preliminary data for the prior month will be published and the month prior to that will be updated (For example, around June 20<sup>th</sup> preliminary data for May will be produced and April will be updated.) These revisions are usually minor. Most short-term forecasts use this data.
2. In March of the following year, the previous two years will be revised. (For example, the 2014 employment data will be revised in March 2015 and finalized in March 2016).
3. The initial March update is usually the most significant revision, and the two-year update is often minor (In the case of 2014, some of the monthly totals will see significant upward revisions when revised in March 2015.)
4. Periodically, BLS updates the entire data series back to 1990. This usually occurs when they recalibrate their projection models or redefine NAICS codes.

# ● The Sky Did Not Fall in 2014 and 2015!

● Throughout 2014 the monthly BLS/Colorado LMI estimates/press releases reported the Colorado economy was adding jobs at a declining rate. As a result, many of many of Colorado's economists ignored the activity on the streets and talked as though the sky was falling.

During 2015 the pattern was repeated. BLS/Colorado LMI monthly estimates/press released reported the Colorado economy was adding jobs at a rapidly declining rate. Again, many of Colorado's economists ignored the activity on the streets and talked gloom and doom.

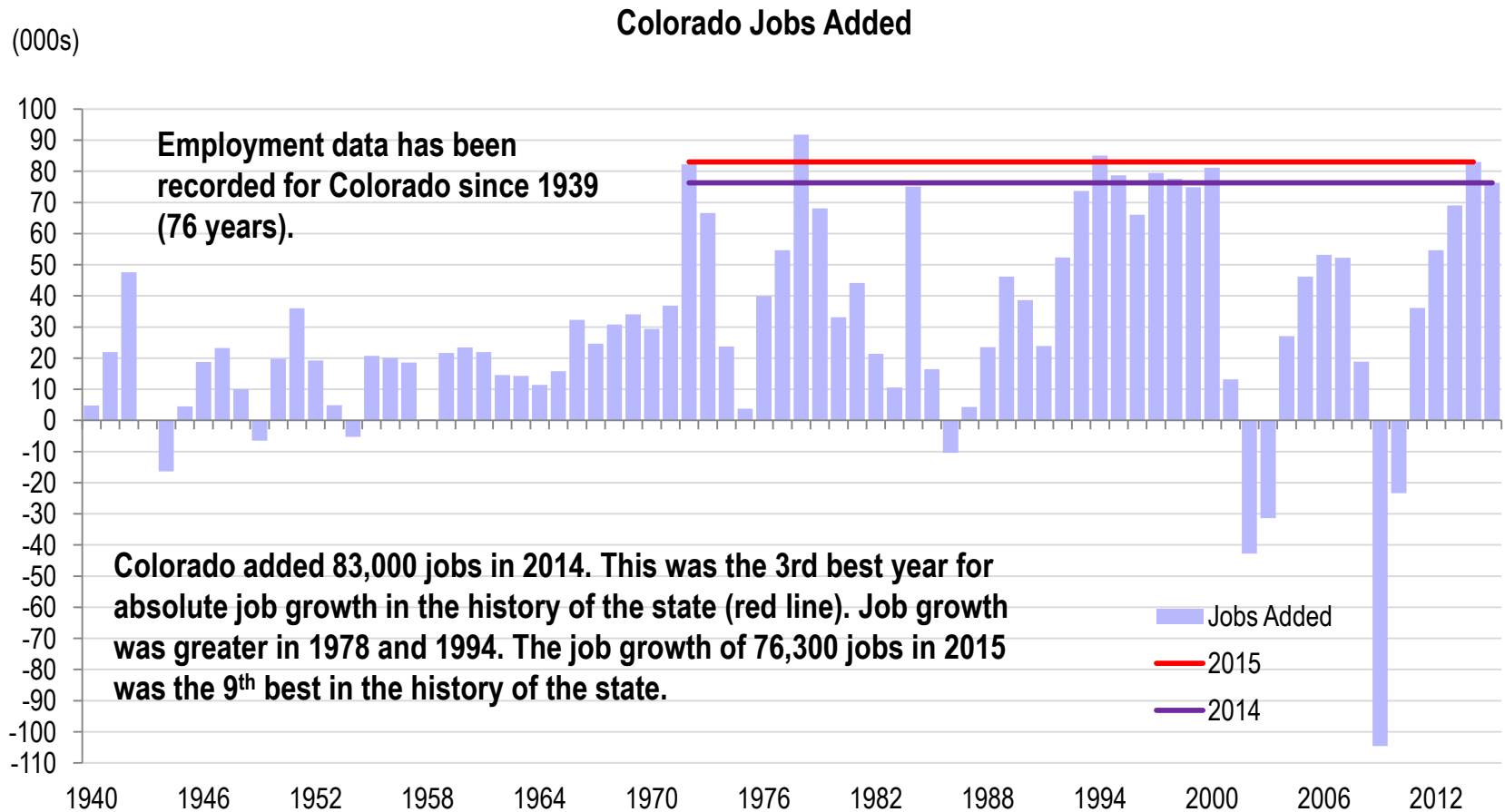
# The Good News!

The first benchmark revision for the 2014 Wage and Salary data series (revised in March 2015) showed the Colorado economy actually added jobs at a much faster rate than expected. The final revision to the 2014 CES (revised in March 2016), reported an additional increase in employment. The final job revisions show that Colorado added 83,000 jobs in 2014. Colorado employment increased at a rate of 3.5%. WOW!

The first benchmark revision for the 2015 data (revised in March 2016) showed that Colorado Wage and Salary employment had not gone to hell in a hand basket. Job growth was slightly slower than 2014. Even though there was a slowdown in the global economy and a contraction in the state's extractive industries, Colorado added 76,300 jobs in 2015. Colorado employment increased at a rate of 3.1%. WOW again!

The next two charts provide a historical perspective for the 2014 and 2015 wage and salary job growth.

# Absolute Colorado Job Growth for 2015 and 2016



Source: Bureau of Labor Statistics, cber.co.

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

# Top Ten Years for Job Growth in Colorado

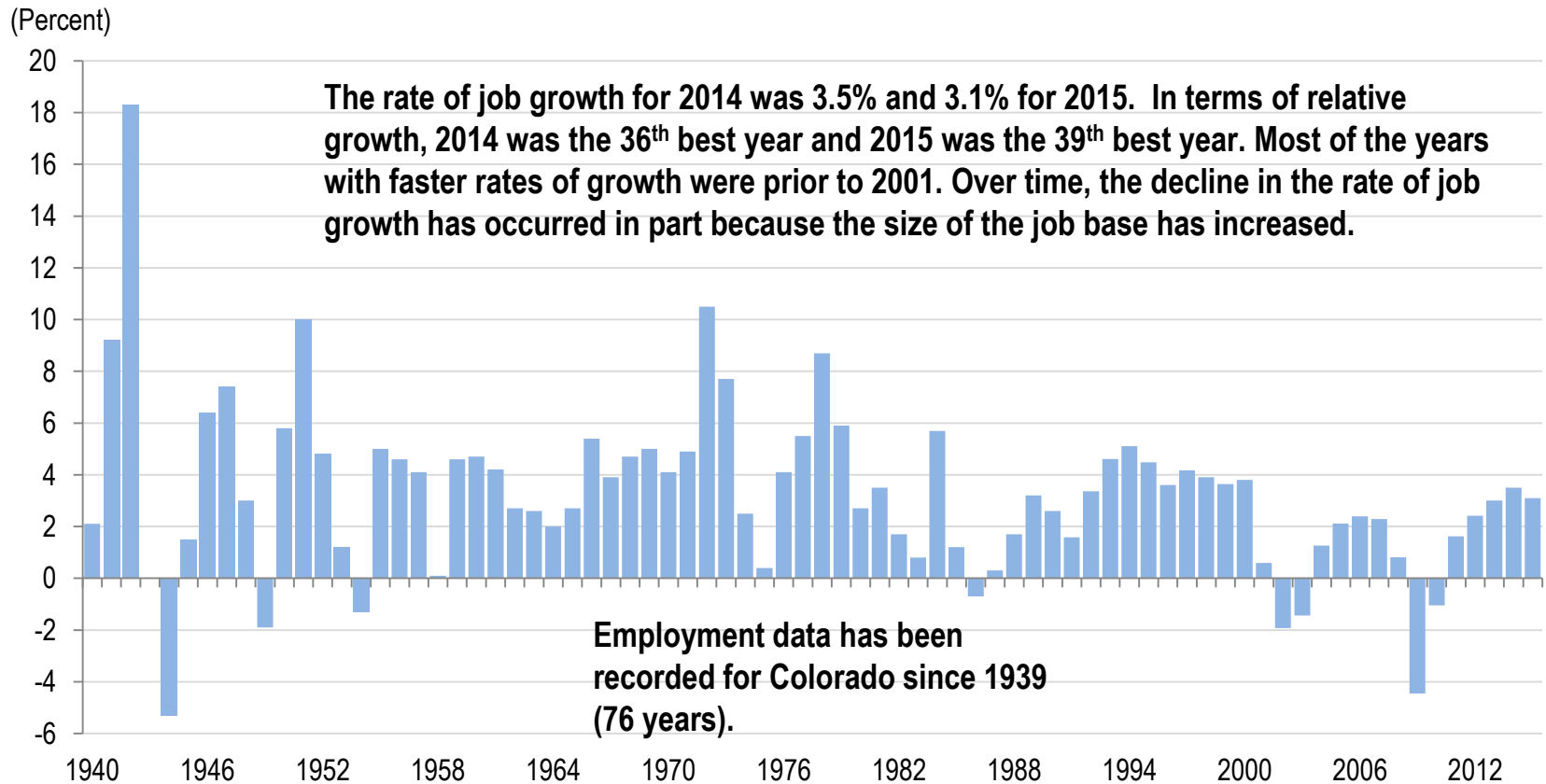
Employment data has been recorded for Colorado since 1939 (77 years). The top ten years for job growth are listed below.

1. 1978 91.8 jobs
2. 1994 85.1 jobs
- 3. 2014 83.0 jobs**
4. 1972 82.3 jobs
5. 2000 81.1 jobs
6. 1997 79.5 jobs
7. 1995 78.7 jobs
8. 1998 77.6 jobs
- 9. 2015 76.3 jobs**
10. 1984 75.1 jobs

Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

# Relative Colorado Job Growth for 2015 and 2016

Percentage of Jobs Added



Source: Bureau of Labor Statistics, cber.co.

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



# The Colorado Economy

## Revised Employment for Key Industries

# Contribution of Key Industries to Job Growth

All industries/sectors are important to the economy for different reasons. This section provides the final 2015 employment data, growth patterns, and location quotient for the Colorado's key sectors/industries.

## **Sectors that have Primary Jobs**

- Manufacturing
- Professional, scientific, and technical services
- Information
- Extractive industries

## **Sectors that Promote Quality of Life**

- Tourism
- Health Care

## **Sectors Important to our Infrastructure**

- Construction
- Government

## **Sectors that Generate Revenue for Local Government**

- Retail



# ● Job Growth and Location Quotients in Industry

## ● that Provide a Competitive Advantage

● All industries make important and often different contributions to the economy. Some generate sales tax revenue, contribute to the quality of life, or they are a source of goods and services that attract outside wealth to the state. The following charts show the change in location quotient (LQ) for a select group of industries. The LQ is defined below.

### **LQ greater than 1.25**

Sectors with LQs greater than 1.25 are considered “export industries” – a significant portion of their goods and services are exported out of state.

- Information, LQ = 1.46
- Professional, scientific, and technical, LQ = 1.34
- Extractive industries, LQ=1.34
- Construction, LQ=1.33

### **LQ greater than 1.0**

The concentration of these industries in Colorado is greater than the concentration of these industries for the United States.

- Leisure and hospitality, LQ = 1.17.

The LQ = the percentage of Colorado workers in the sector divided by the percentage of U.S. workers in the sector.

### **LQ near 1.0**

Charts are not shown for industries such as health care, trade, utilities, government, other services, and finance. The location quotient of these sectors should be near 1.0. In other words, the concentration of these industries in Colorado is similar to the concentration of these industries for the U.S. In other words, these are usually not sectors where states develop competencies.

### **LQ less than 1.0**

- Manufacturing, LQ = .64

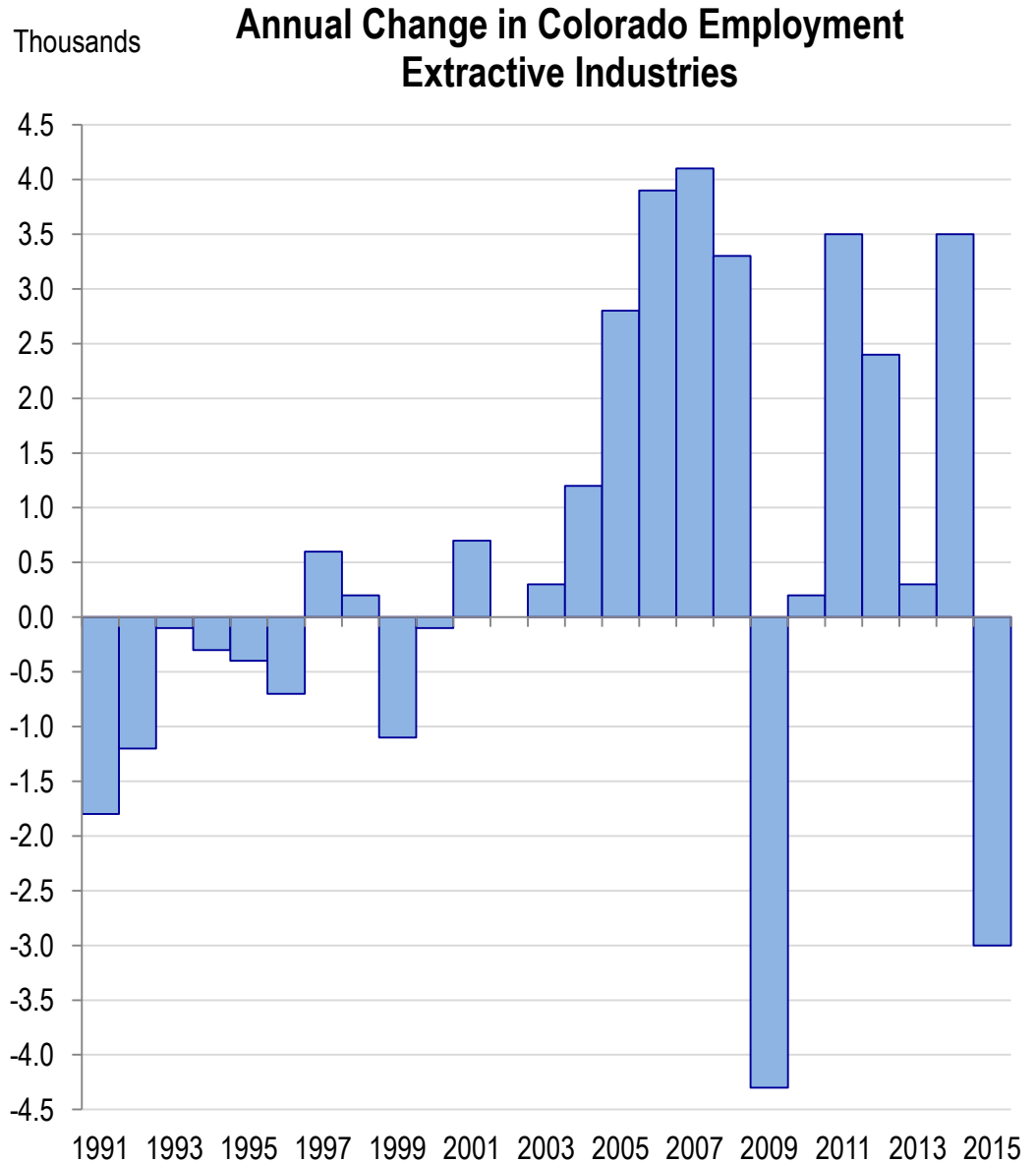
The concentration of workers in Colorado is less than the U.S. concentration.

● Annual Employment  
● Change in Colorado  
● Employment – Extractive  
● Industries

Colorado’s extractive industries, which include mining and the oil and gas industries, have been extremely volatile. During the 1990s they typically lost jobs, Since 2001 they have typically added workers.

The declines in 2015 are a function of the fall in the price of oil. In addition, the coal industry has come under fire. Other mining industries have been impacted by low commodity prices and regulatory challenges.

The most current location quotient based on QCEW data is 2.99.



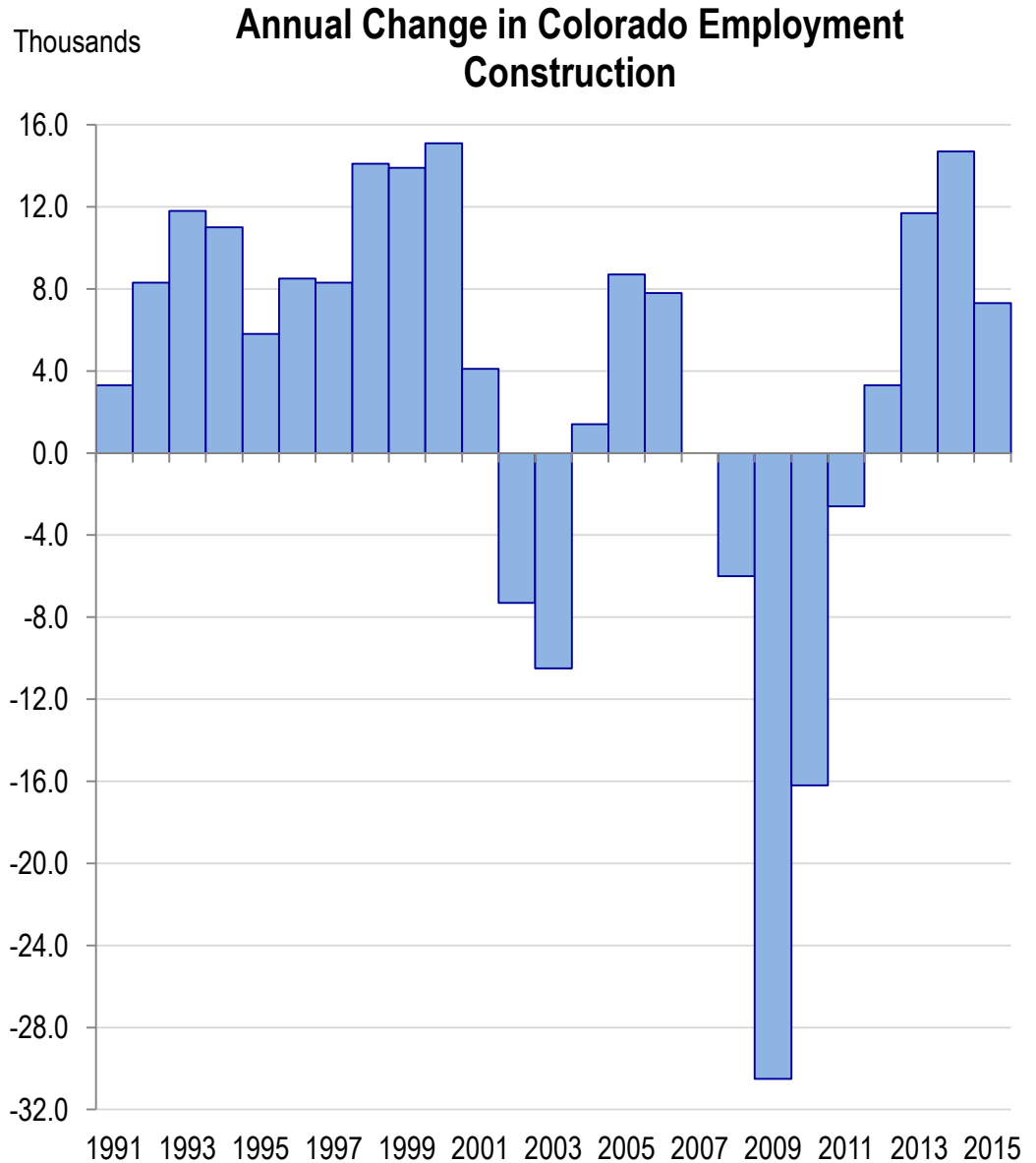
Source: Bureau of Labor Statistics, cber.co.



## Annual Employment Change in Colorado Employment – Construction

Historically Colorado employment has grown at a faster rate than the U.S. As a result the construction industry has had a stronger than “normal” presence in the state.

The most current location quotient based on QCEW data is 1.33.



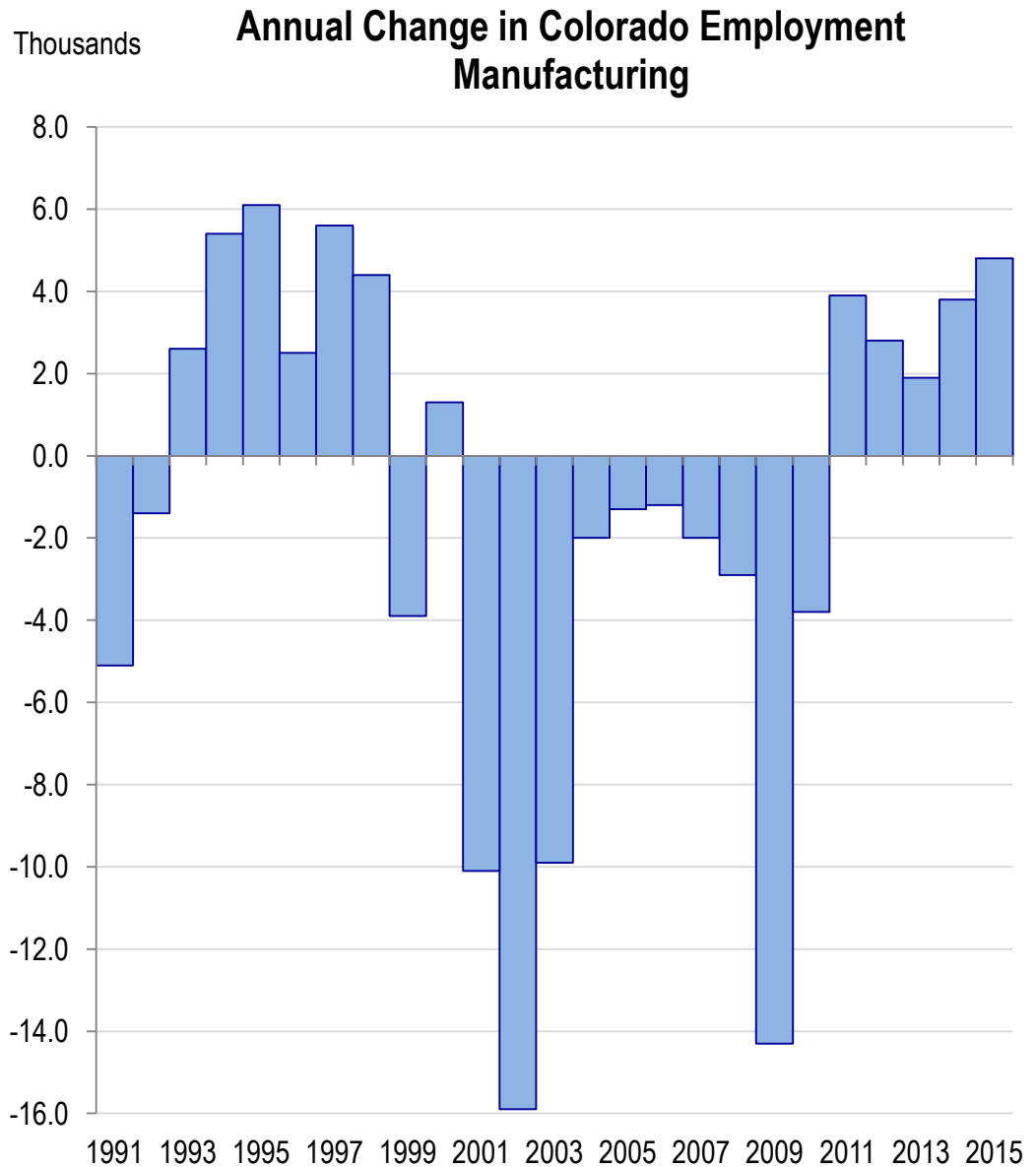
Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

● Annual Employment  
● Change in Colorado  
● Employment –  
● Manufacturing

After posting declines for 11 of 12 years, manufacturing jobs have been added since 2011. More recently Colorado's competencies in manufacturing have included aerospace, beverages, and high tech devices based on enabling technologies.

The gain in Colorado employment, 4,800 jobs, was the highest since 1997.

The most current location quotient based on QCEW data is .64.



Source: Bureau of Labor Statistics, cber.co.

## Annual Employment Change in Colorado Employment – Information

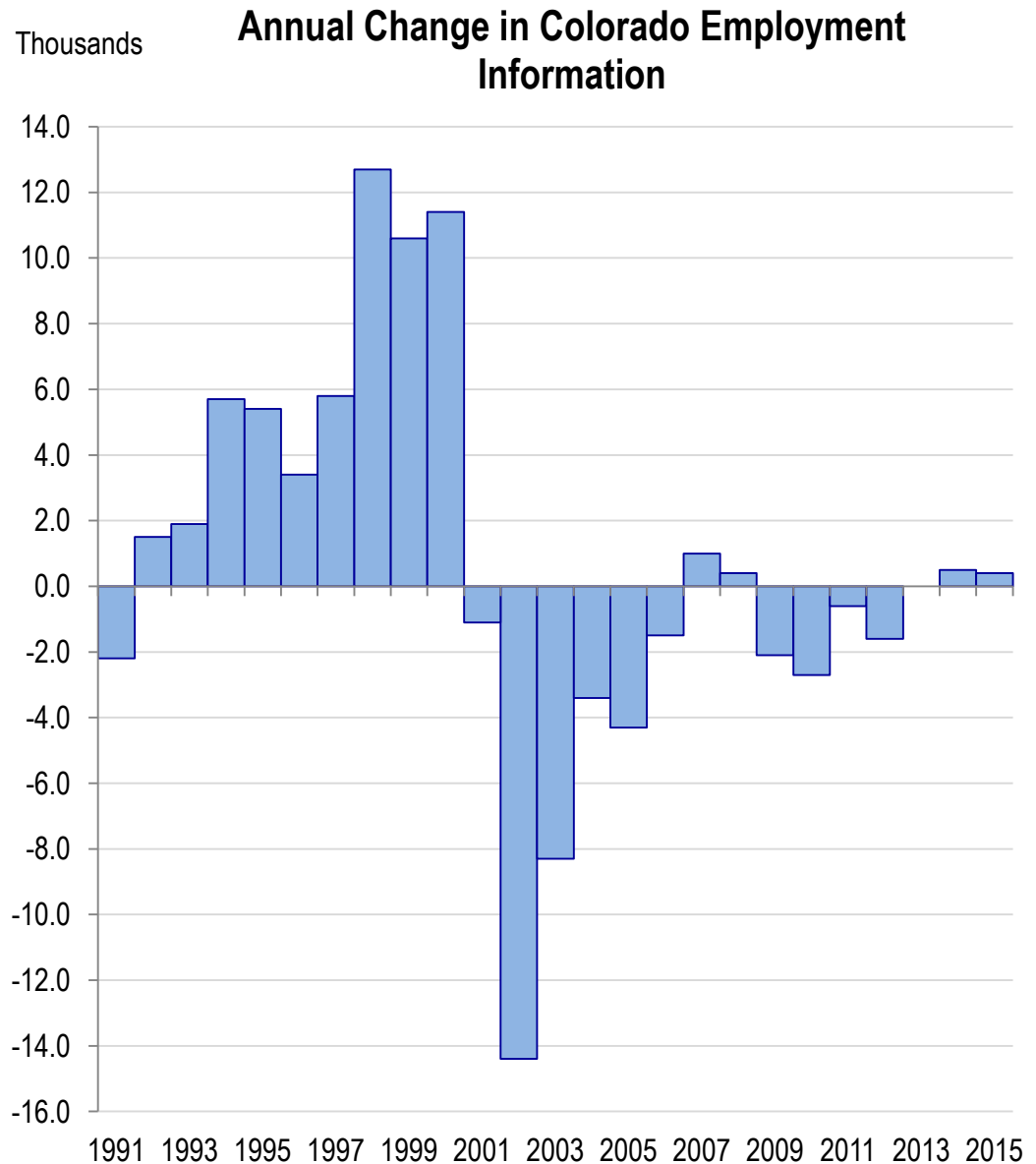
Between 2001 and 2013, information jobs were added in only two years.

Employment in the sector has remained flat since 2013.

The sector has been positively and negatively impacted by technology and mergers.

The most current location quotient based on QCEW data is 1.46.

Telecommunications, an information subsector has a location quotient of 1.83.



Source: Bureau of Labor Statistics, cber.co.

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

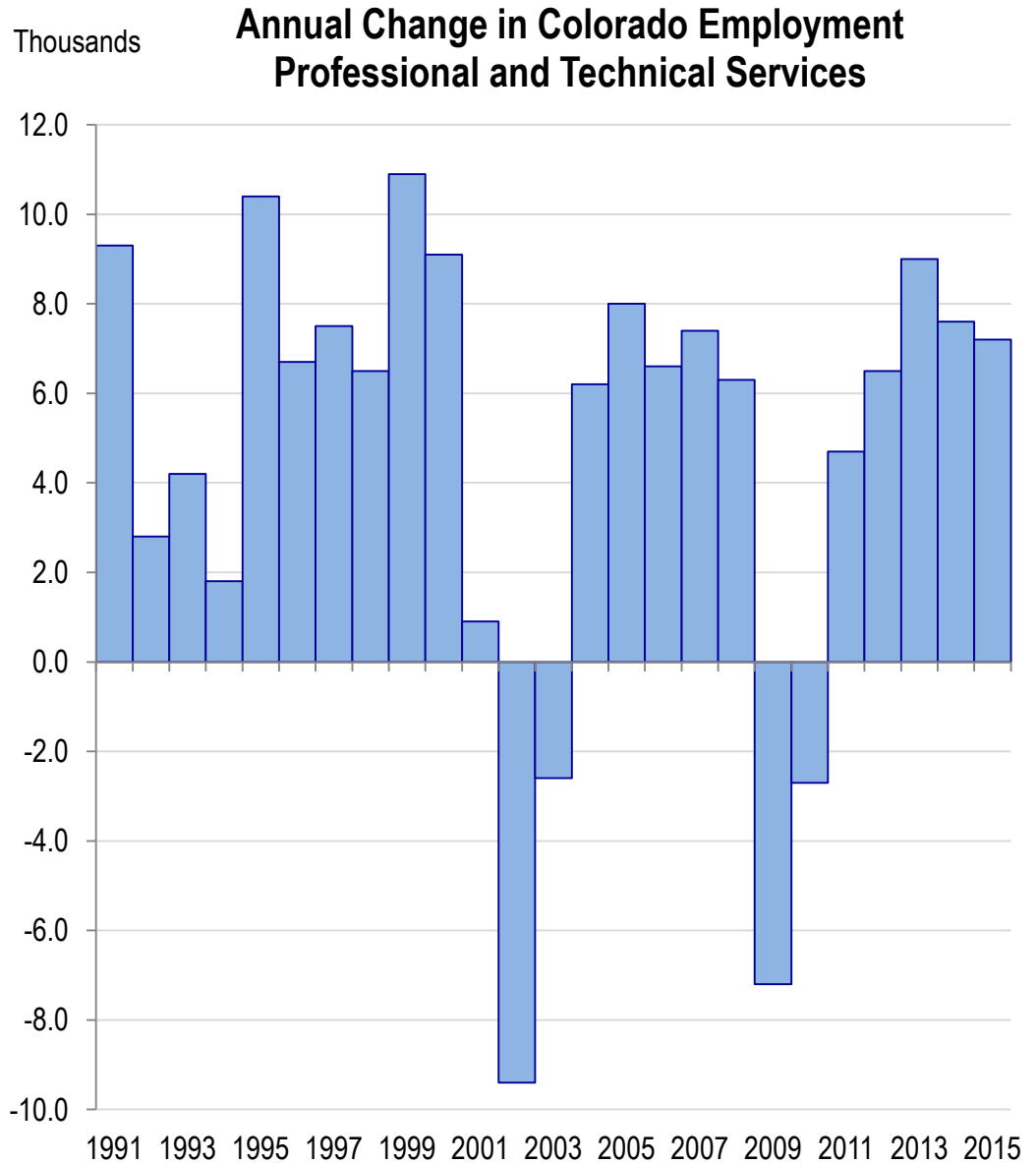


## Annual Employment Change in Colorado Employment – PTS

The PTS sector has been a steady source of high paying jobs for Colorado.

The decline in the level of job growth may be partially tied to declines in the oil and gas industry.

The most current location quotient based on QCEW data is 1.34.



Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

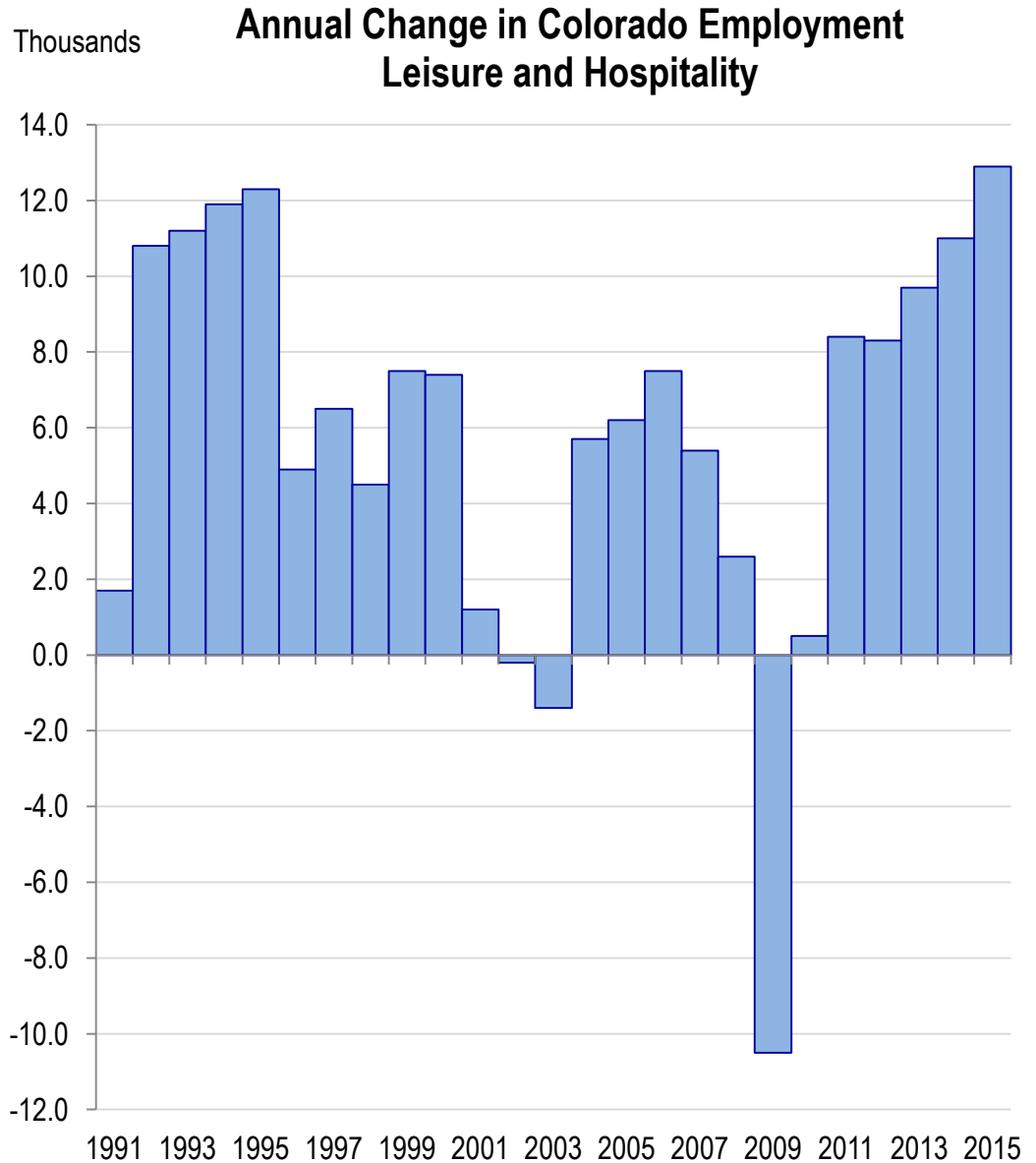
Colorado-based Business and Economic Research <http://cber.co>



## Annual Employment Change in Colorado Employment – Tourism

Tourism jobs have been a steady source of growth for Colorado that touches all counties. The Leisure and Hospitality sector includes Accommodations and Food Services and Arts, Entertainment, and Recreation Services.

The most current location quotient based on QCEW data is 1.17.



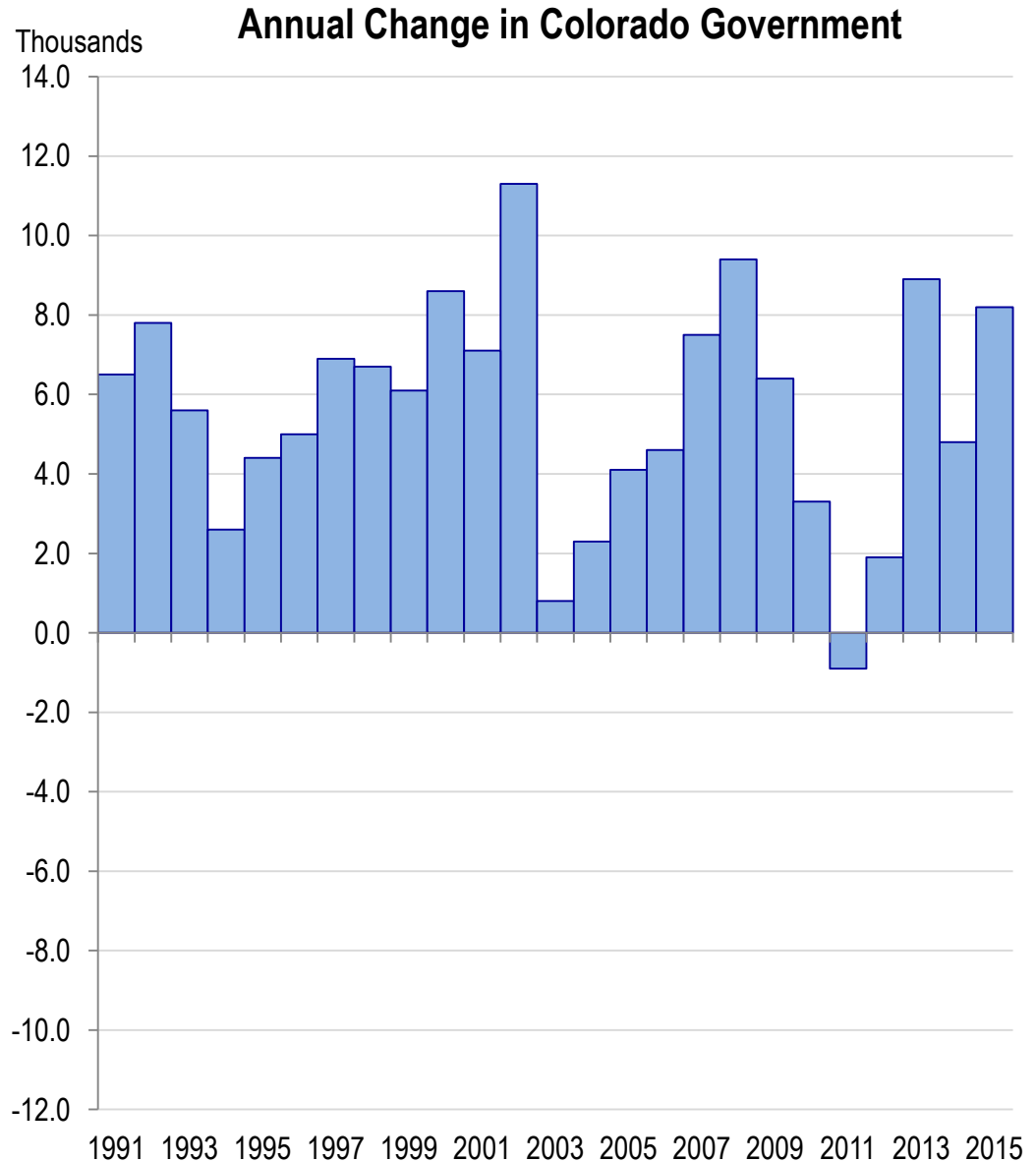
Source: Bureau of Labor Statistics, [cber.co](http://cber.co).

## Annual Employment Change in Colorado Government

Over the past two decades Colorado Government has been a steady source of job growth. This includes federal, state, and local government, and K-12 and higher education.

As the population has grown there is has been increased demand for schools and government services which in turn drives increased employment.

The location quotient for the government sector is not provided. Obviously states do not create competitive advantages based on the level of employment for their Government Sector. Theoretically, the LQ should be near 1.0.



Source: Bureau of Labor Statistics, [cber.co](http://cber.co).





## Annual Employment



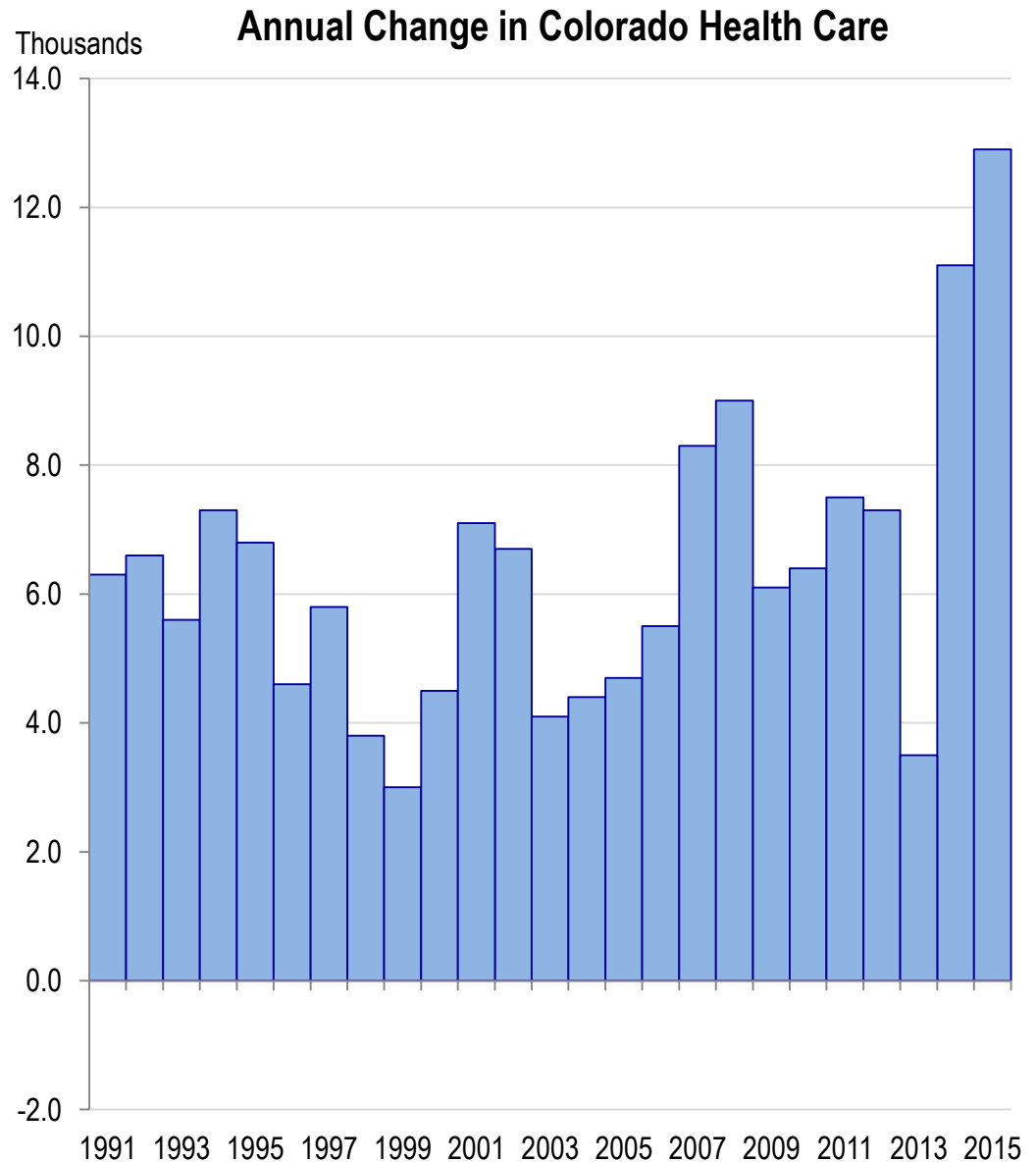
## Change in Colorado Health



## Care and Social Assistance

Health Care jobs have been a steady source of growth for Colorado that touches all counties adding jobs every year between 1991 and 2015.

The most current location quotient based on QCEW data is .83. Most states have a health care location quotient that is around 1.0.



Source: Bureau of Labor Statistics, cber.co.



## Annual Employment



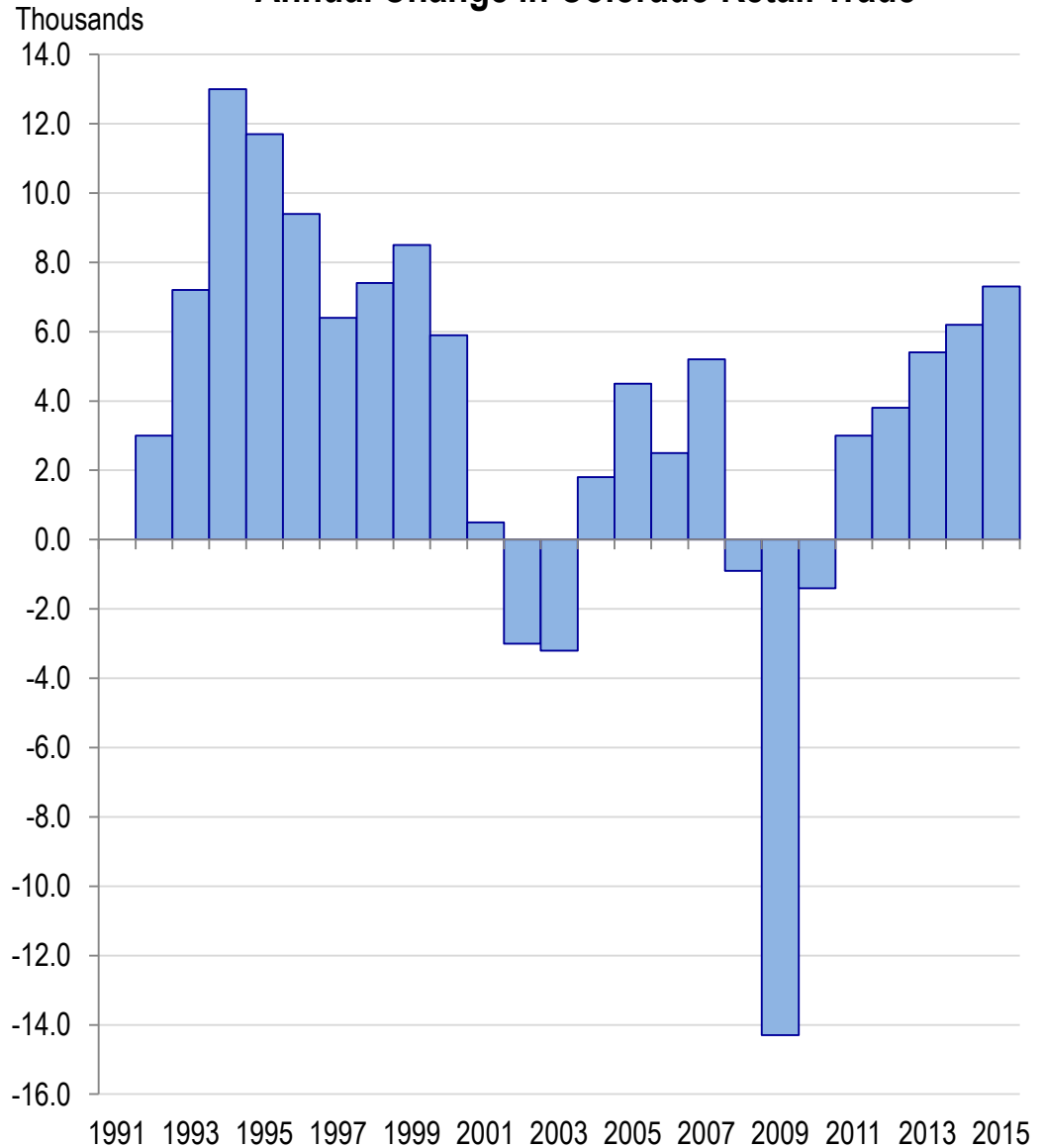
## Change in Colorado Retail Trade



Colorado retail trade employment was hit hard by both recessions. It has shown steady growth since 2011.

The most current location quotient based on QCEW data is .95. Most states have retail location quotients near 1.0.

## Annual Change in Colorado Retail Trade



Source: Bureau of Labor Statistics, cber.co.

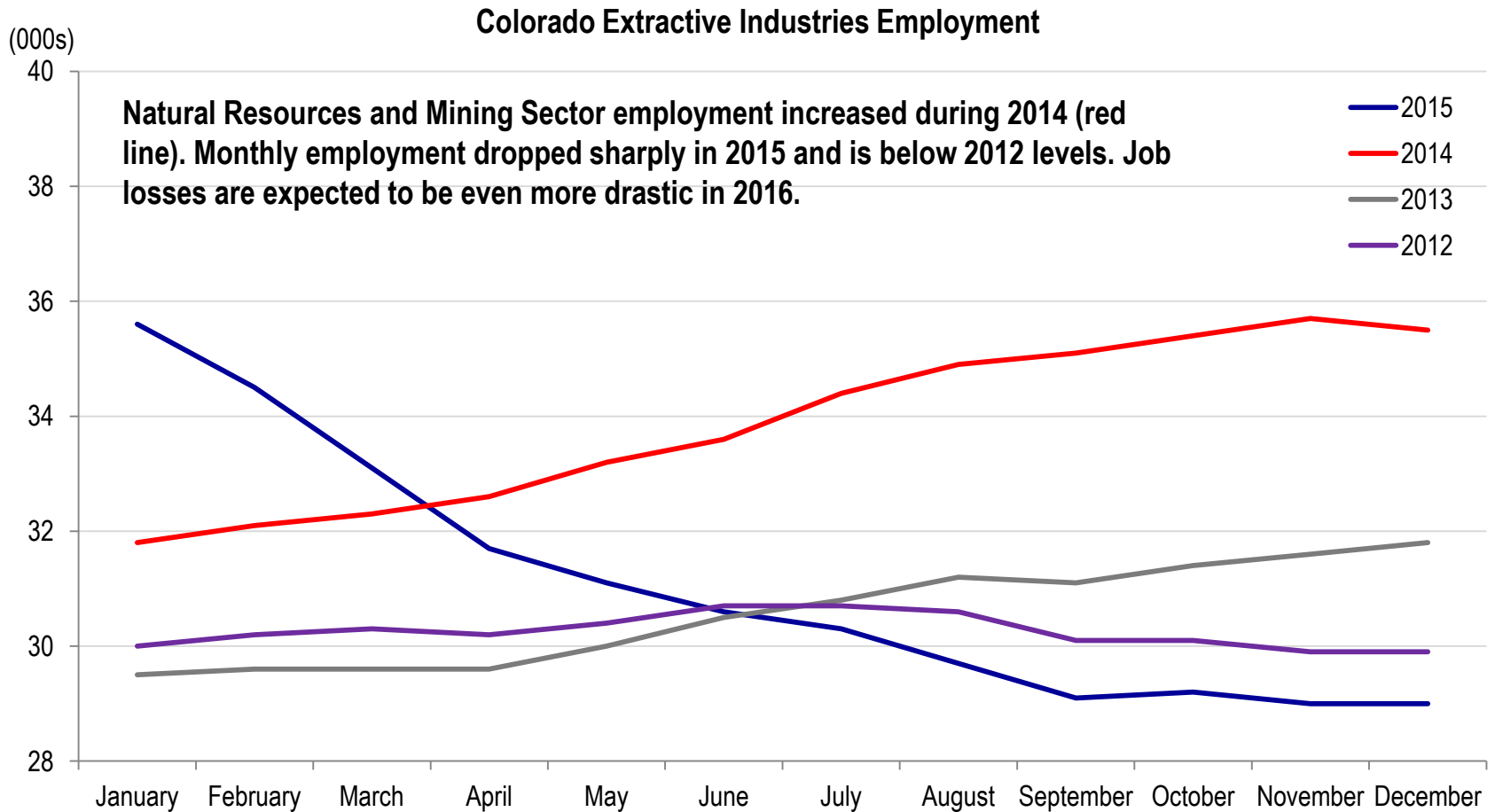


# The Colorado Economy

## Extractive Industries

# Colorado Extractive Industries Employment

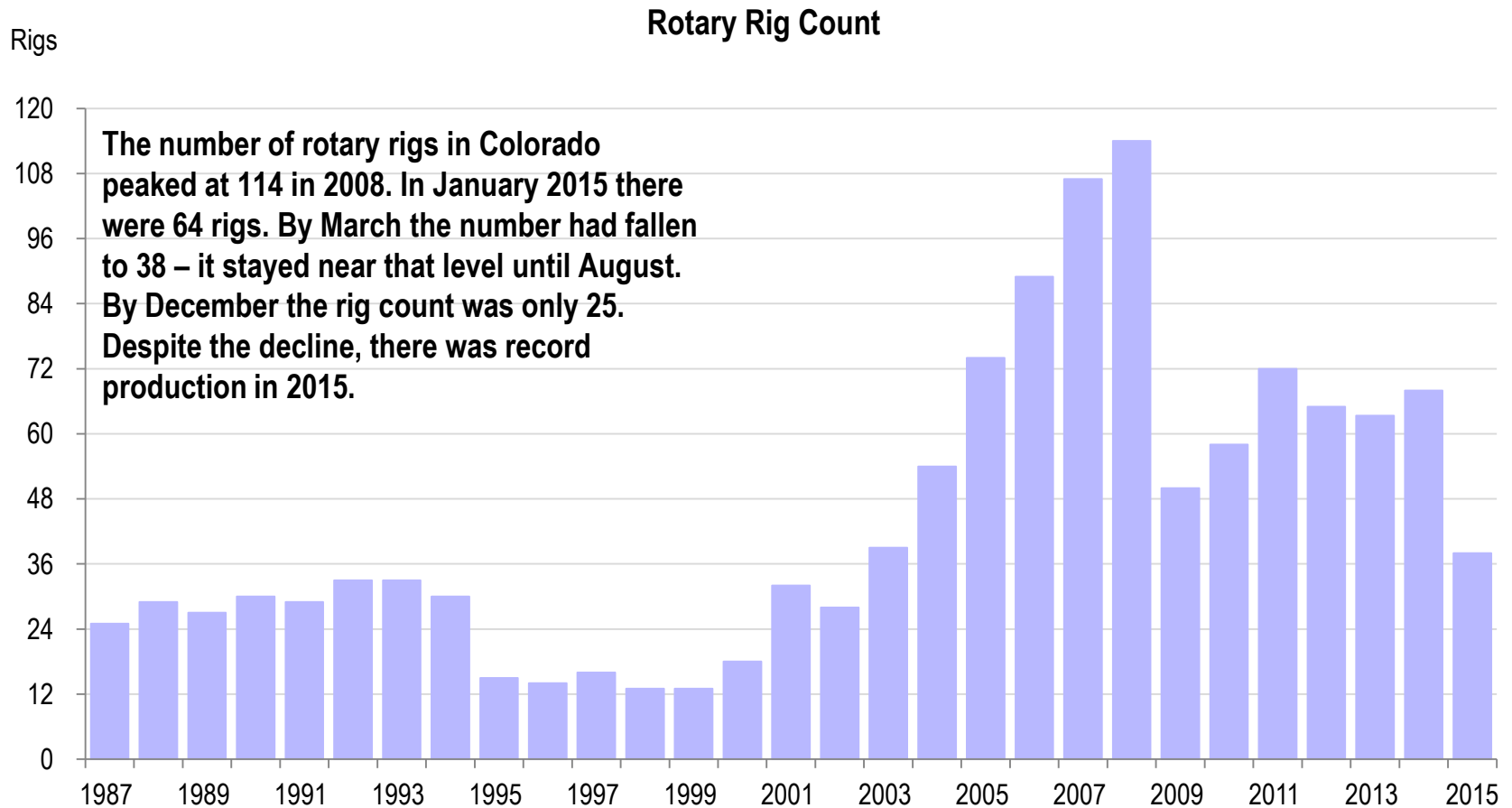
2012 to 2015



Source: Bureau of Labor Statistics, NSA.

# Colorado Annual Rotary Rig Count

## 1987 to 2015

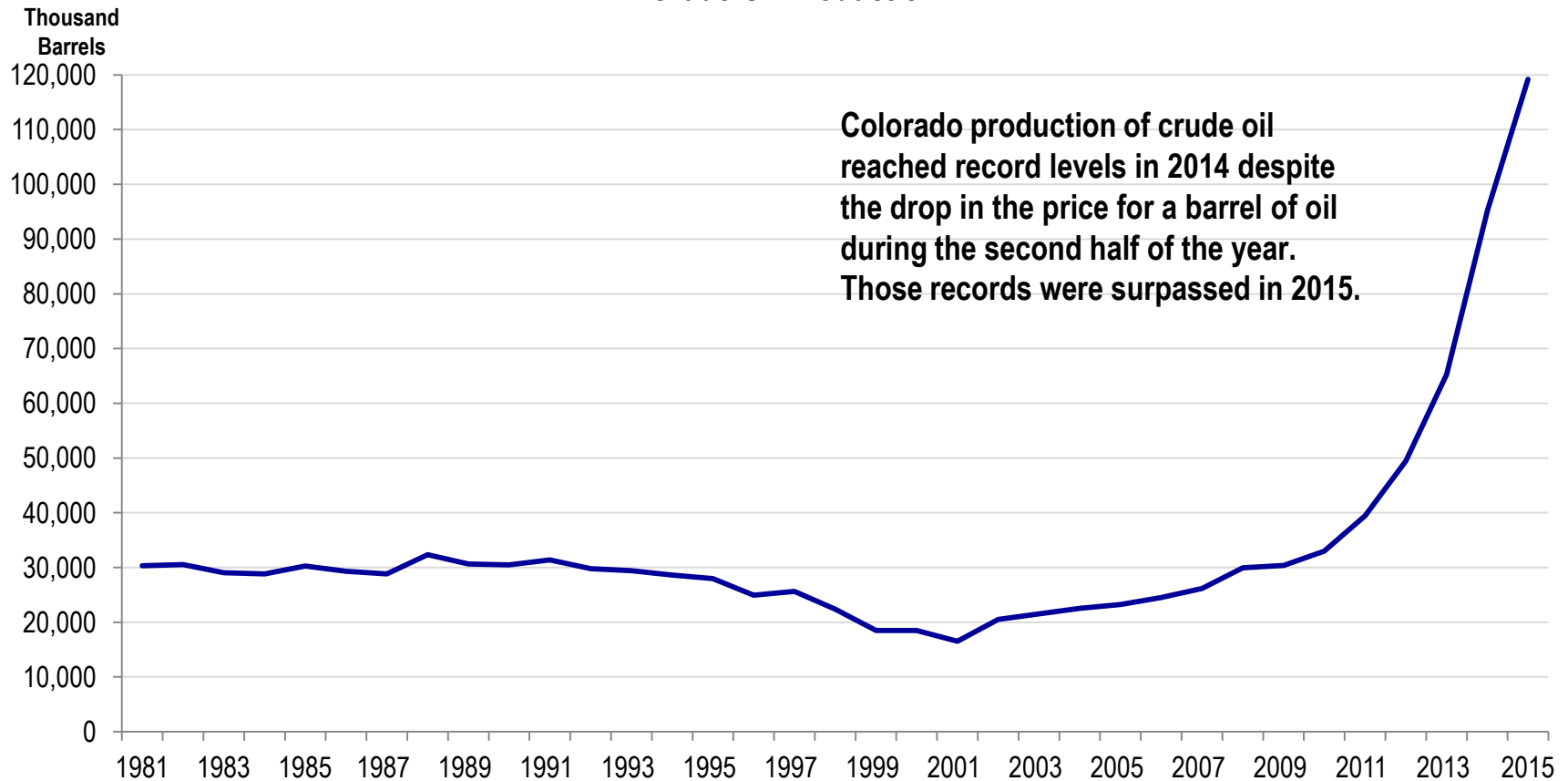


Source: Baker-Hughes.

# Colorado Crude Oil Production

## 1981 to 2014 (Thousand Barrels)

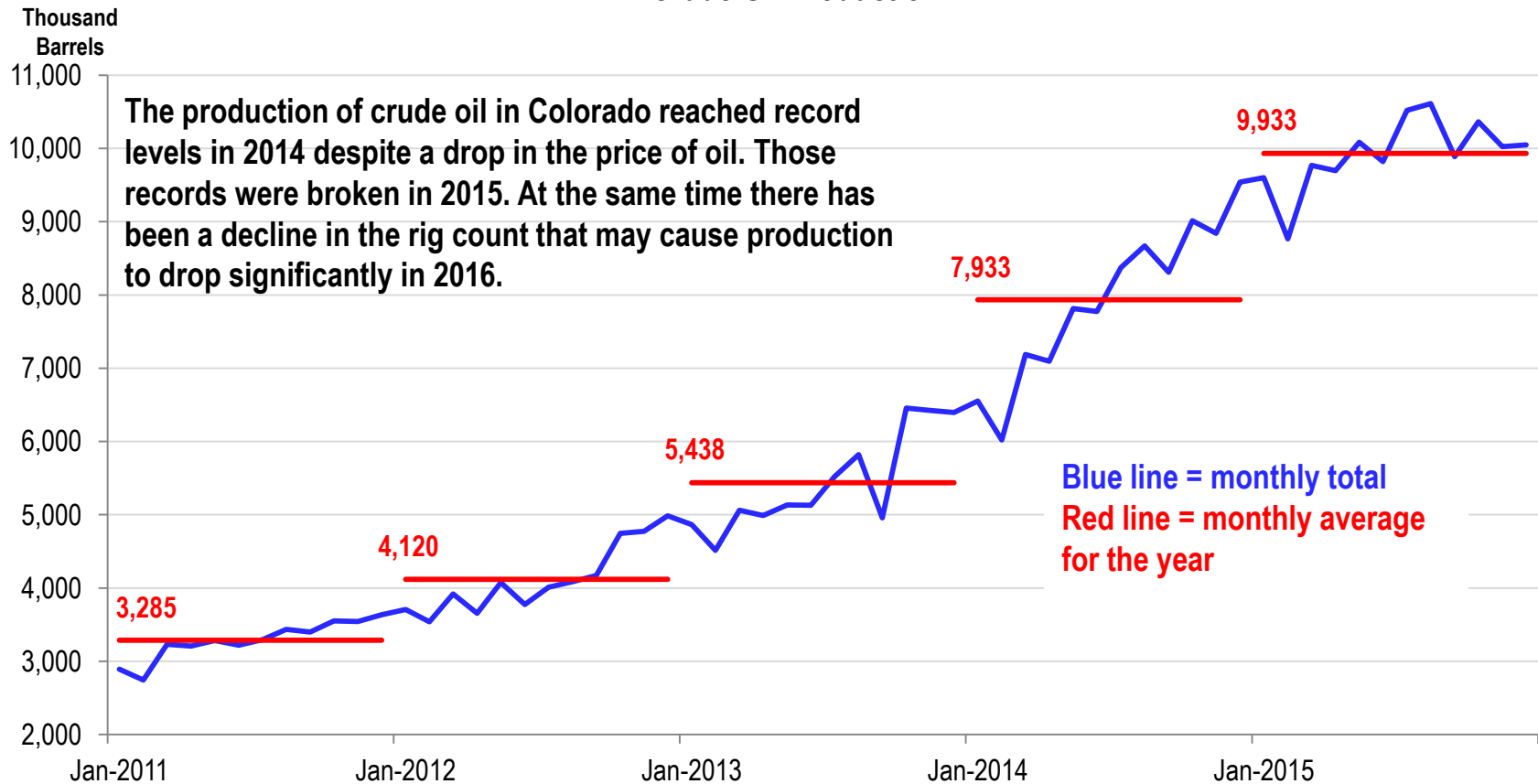
Crude Oil Production



Source: EIA.

# Monthly Colorado Crude Oil Production 2011 to 2015 (Thousand Barrels)

Crude Oil Production



Source: EIA.



# The Colorado Economy

Industry Category Employment Through 2015/2016  
cber.co Economic Forecast





# Colorado Economic Forecast Sector Portfolio Analysis

## Attempt to Improve Forecast Accuracy

The primary focus of most state economic forecasts is to project total employment.

Some economists also produce sector forecasts. They usually add projections for the sectors to derive the state total, an approach that introduces more variables for error.

cber.co feels the most accurate forecast is achieved by projecting total employment based on projections for categories of sectors. Sectors are grouped into three categories based on their past performance.

Projections for the categories and overall employment are based on trends, feedback from business leaders, economic developers, and other economists. The sum of these categories are then compared to the projections for overall total employment. Minor adjustments are made and the final forecast is produced for three scenarios. The most likely scenario is used as the final cber.co forecast. This final step helps create a better understanding of upside and downside risk.

## Strong Growth, Solid Growth, and Volatile Categories

This portfolio approach has made it easy to see that some sectors consistently create jobs at a higher rate of growth, some show solid growth, and others are more volatile. Ultimately, the volatile category tends to have a greater influence on the amount of change in total job growth than the sectors with steady growth.

From 2012 through 2015 cber.co evaluated the performance of 23 sectors over the past two decades and refined the manner in which the sectors are grouped. The evaluation factors for grouping include the rate of growth, number of years with positive job growth, size of the sector, and volatility in job growth. The data used for classifying the sectors is available in the appendix. In this short period that this process has been used, it has produced a high level of accuracy in the final forecast. More importantly, it has produced a better understanding of what is driving the economy.

## Annual Employment Situation for the Strong Growth Category

Over the past two decades the following sectors have been the foundation for consistent growth in Colorado employment.

- Professional, Scientific, and Technical Services
- Management of Companies and Enterprises
- Administrative - Business to Business (Not Employment Services)
- Private Education
- Health Care
- Arts, Entertainment, and Recreation
- Other Services.

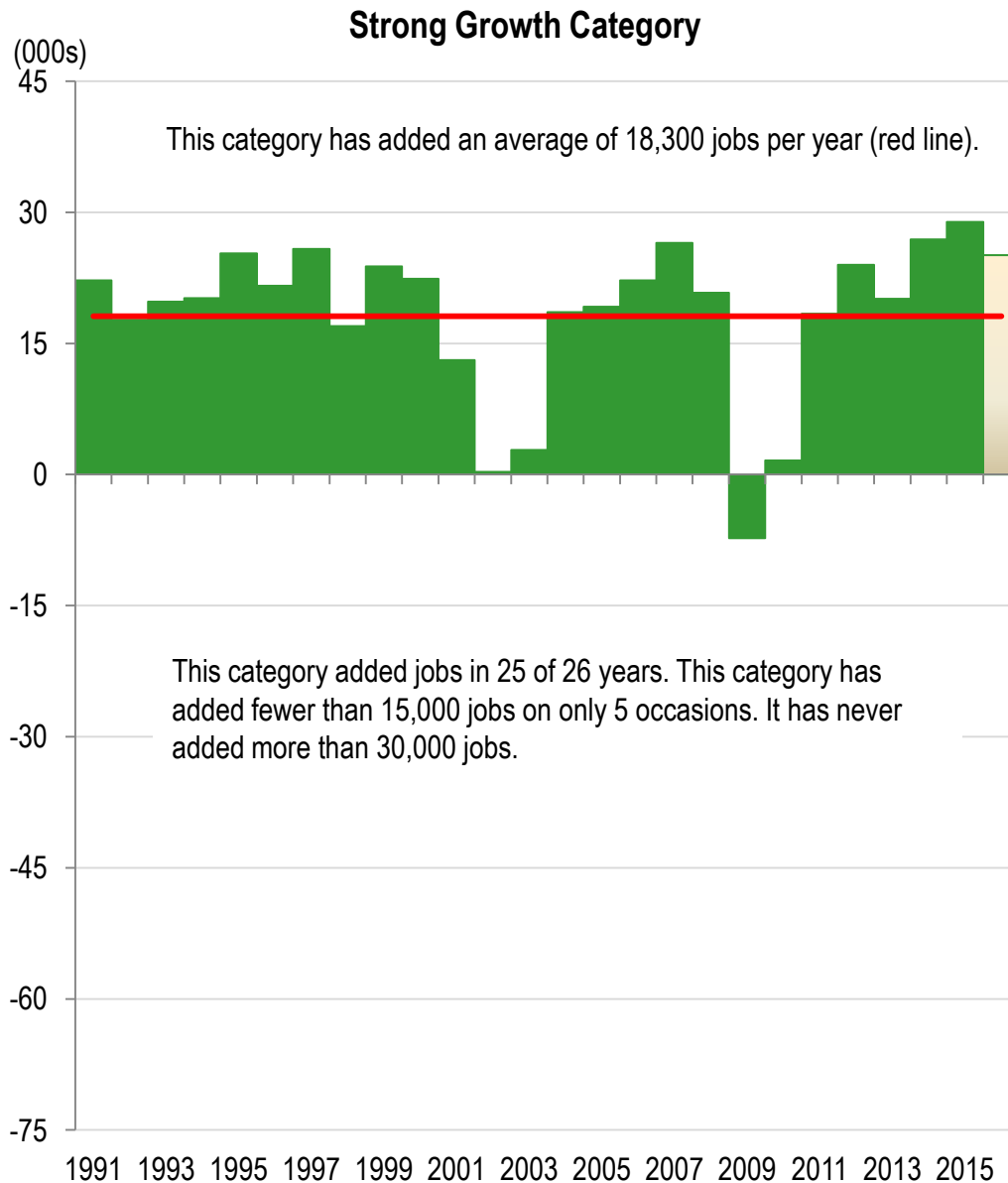
Total employment for this category was:

1996 492,100 workers, 25.9% of total employment

2006 657,300 workers, 28.8% of total employment

2016 840,100 workers, 32.3% of total employment

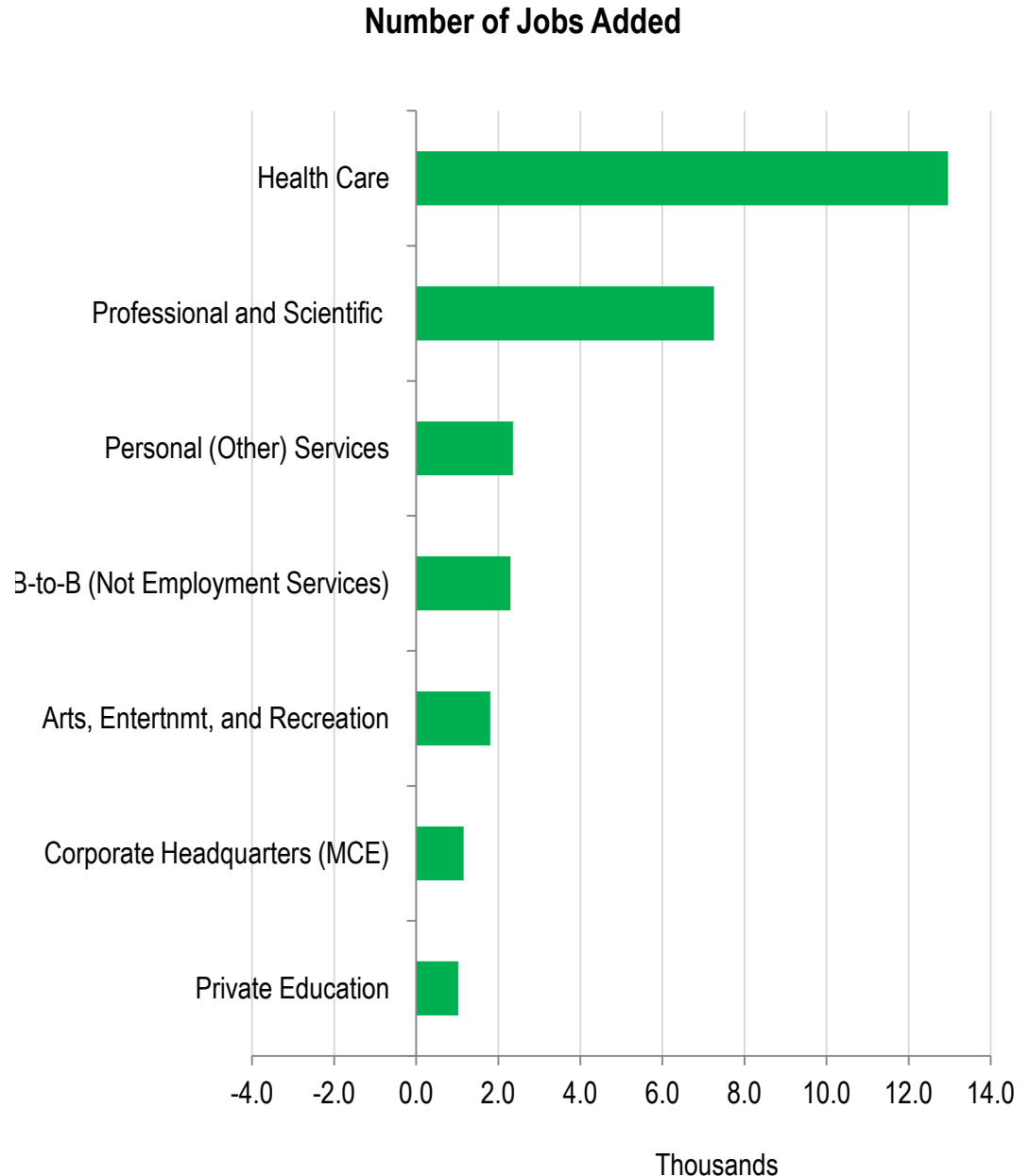
In 2016, between 24,000 and 26,000 workers will be added at a rate of 2.9% to 3.2%. This rate of growth is similar to the last two years.



Source: Bureau of Labor Statistics, cber.co.

## ● Strong Growth Sectors

- During 2015 this group of industries added 28,900 jobs compared to 2014.
- This category was forecasted to add 24,500 to 28,500 jobs for the year. The actual number of jobs added was slightly above that range. Overall, the sector added jobs at a rate of 3.7%.
- In 2015, these sectors accounted for 32.7% of the growth and 32.2% of total employees.
- Health Care and Professional, Scientific, and Technical Services were the sectors with the strongest growth.



Source: Bureau of Labor Statistics.

# Annual Employment Situation for the Solid Growth Category

Over the past two decades the following sectors generally posted gains. The category posted stronger jobs gains during the 1990s than the 2000s and 2010s.

- Wholesale Trade
- Retail Trade
- State (Not Higher Education)
- Higher Education
- Local (Not K-12 Education)
- K-12 Education
- Accommodations and Food Services

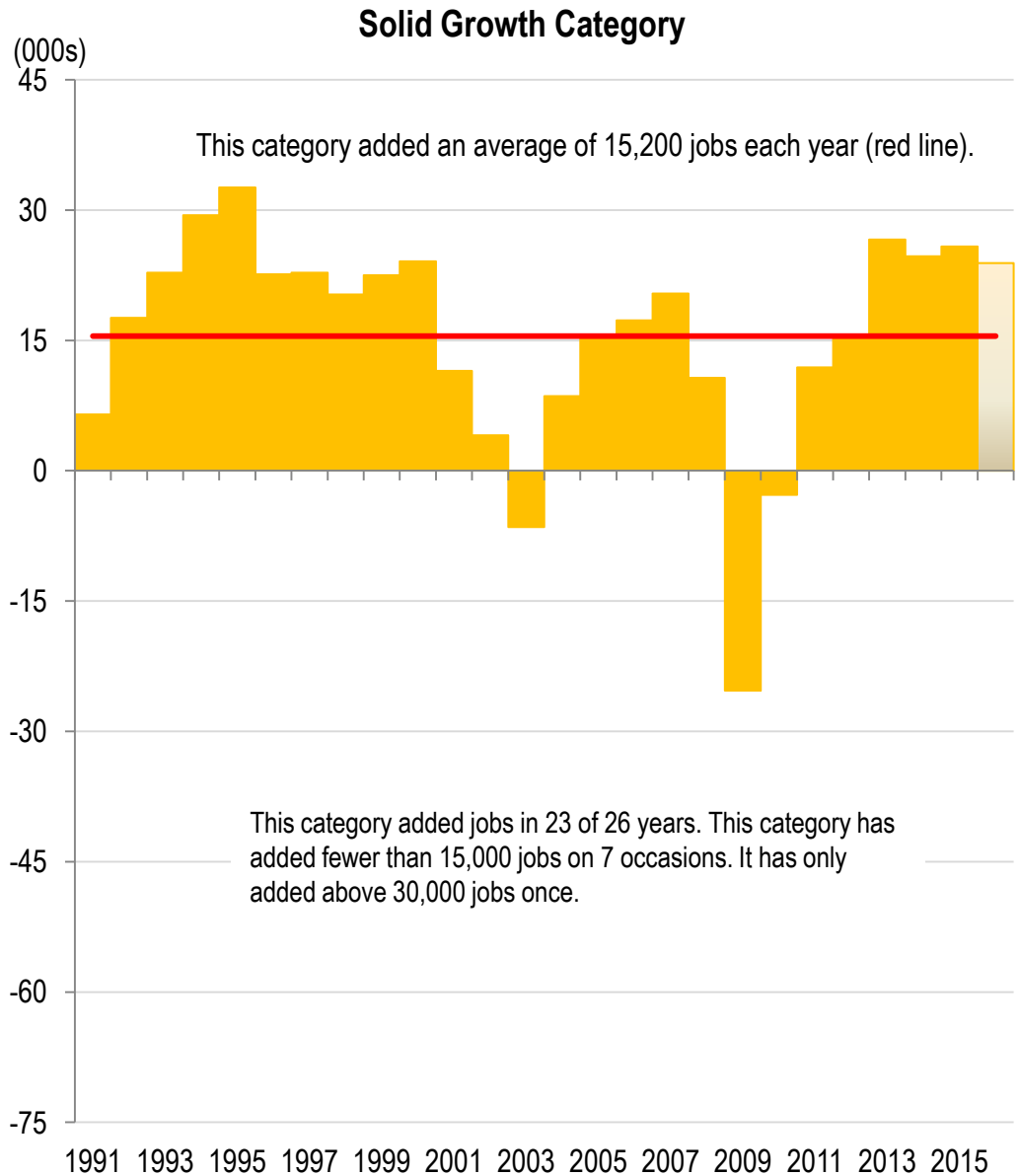
Total employment for this category was:

1996 740,600 workers, 39.0% of total employment

2006 880,700 workers, 38.6% of total employment

2016 1,010,900 workers, 38.8% of total employment

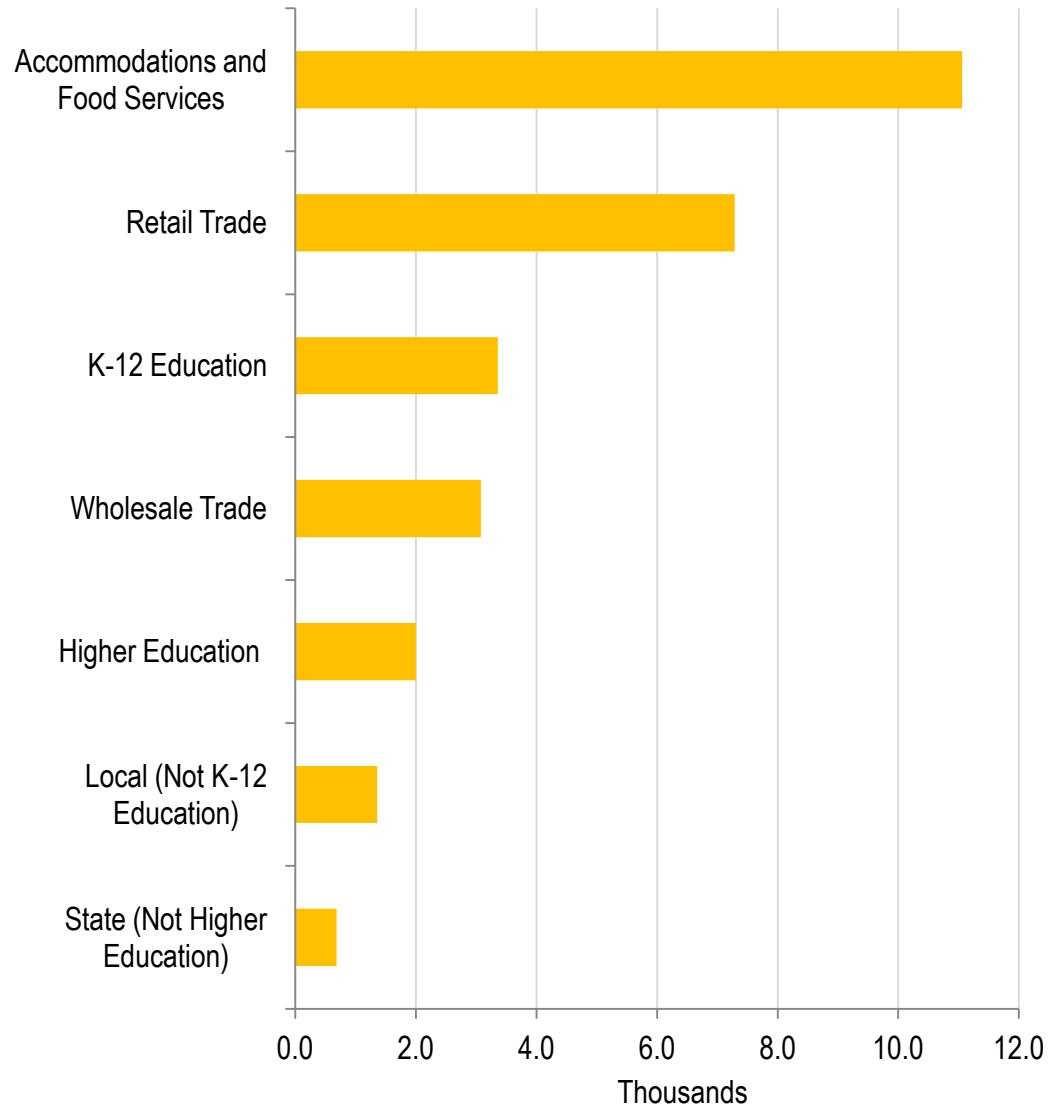
In 2016, between 23,000 and 25,000 jobs will be added, at a rate of 2.3% to 2.5%. This rate of growth is similar to the last two years.



## Solid Growth Sectors

- During 2015 this group of industries added 28,800 jobs compared to the 2014.
- This category was projected to add 22,500 to 26,500 jobs for the year. The actual number of jobs added was slightly above that range. Overall, the sector added jobs at a rate of 3.0%.
- These sectors accounted for 27.8% of total job gains and 39.0% of total employees in 2015.
- Almost 40% of the growth for this sector in 2015 occurred in the Accommodations and Food Services and Retail Trade Sectors.

Number of Jobs Added



Source: Bureau of Labor Statistics.

# Annual Employment Situation for the Volatile Category

Over the past two decades the sectors listed below were the primary source of volatility in total employment.

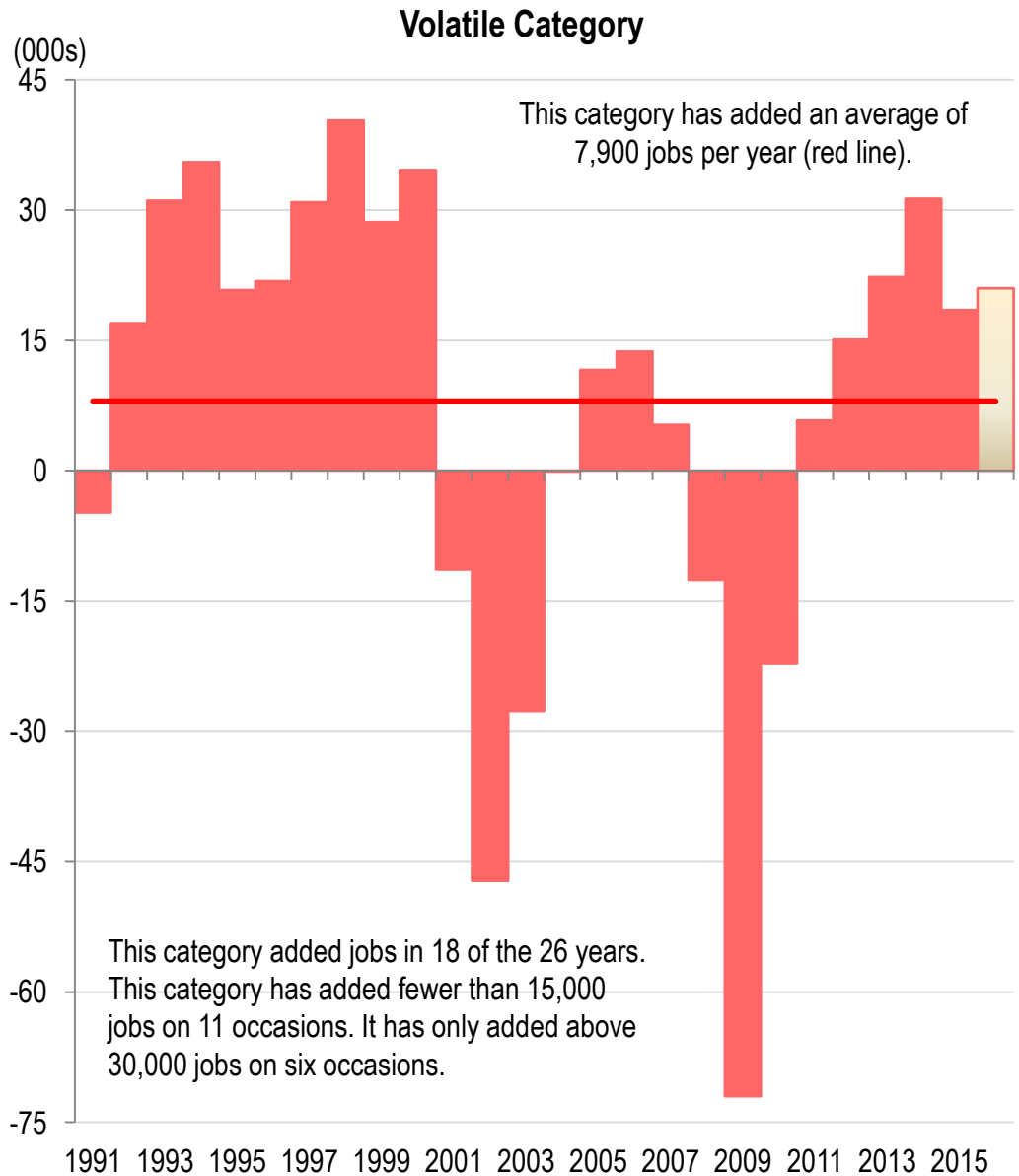
The sectors are:

- Natural Resources and Mining
- Construction
- Manufacturing
- Transportation, Warehousing, and Utilities
- Employment Services
- Financial Activities
- Information
- Federal Government

Total employment for this category was:

1996 668,000 workers, 35.1% of total employment  
 2006 741,300 workers, 32.5% of total employment  
 2016 753,000 workers, 28.9% of total employment

In 2016 between 20,000 and 22,000 jobs will be added, at a rate of 2.7% to 3.0%. This rate of growth is slightly greater than 2015.

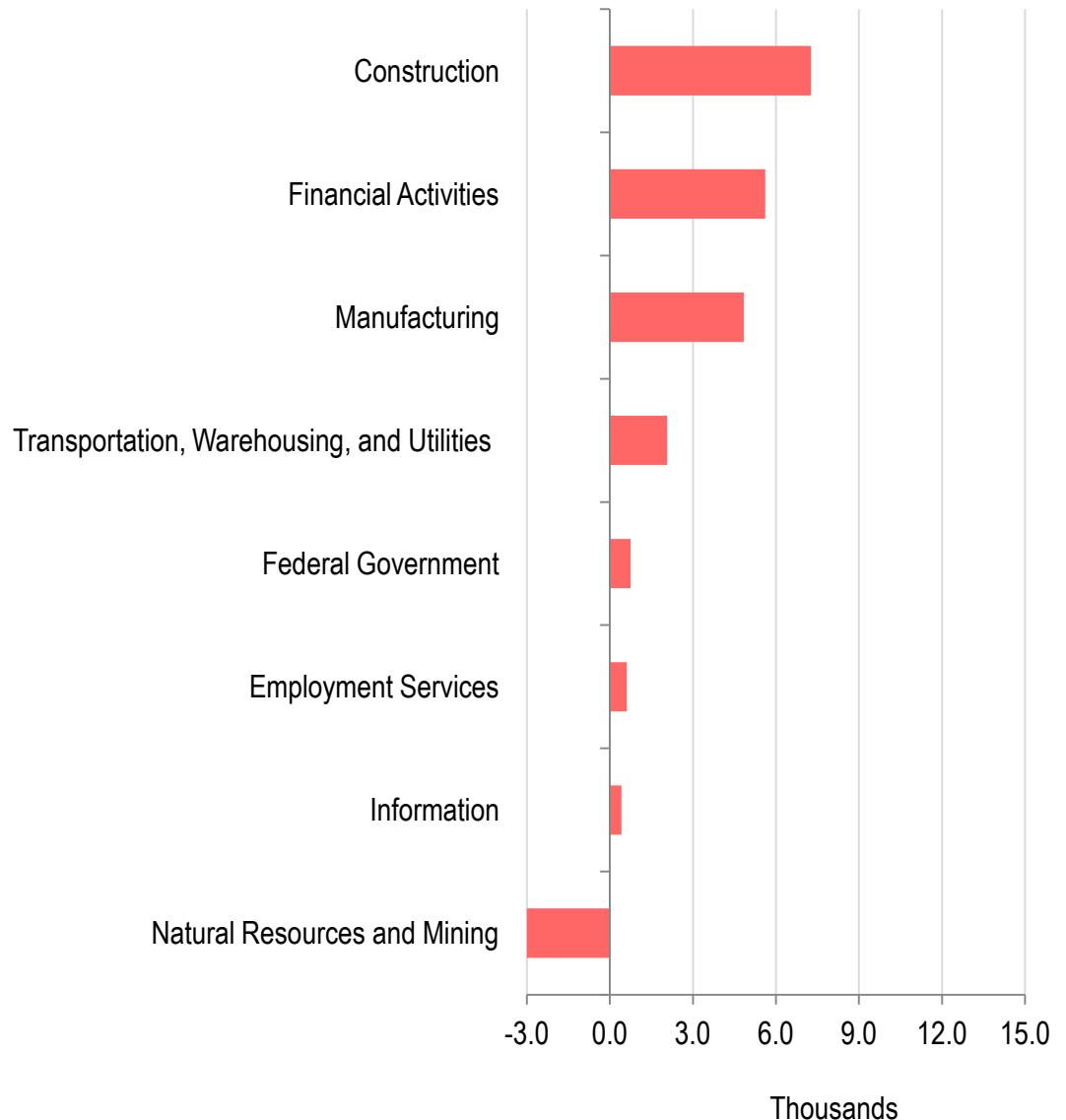


Source: Bureau of Labor Statistics, cber.co.

## ● Volatile Sectors

- During 2015 this group of industries added 18,600 jobs compared to 2014.
- This category was projected to add 23,000 to 27,000 for the year. The number of jobs added was below the projected forecast range.
- In 2015 these sectors accounted for 24.4% of total job gains and 28.8% of total employees.
- The Construction, Financial Activities, and Manufacturing Sectors added the greatest number of jobs. Only the extractive industries shed jobs in 2015.

### Number of Jobs Added



Source: Bureau of Labor Statistics.

# Summary of Performance to cber.co 2015

## Employment Forecast

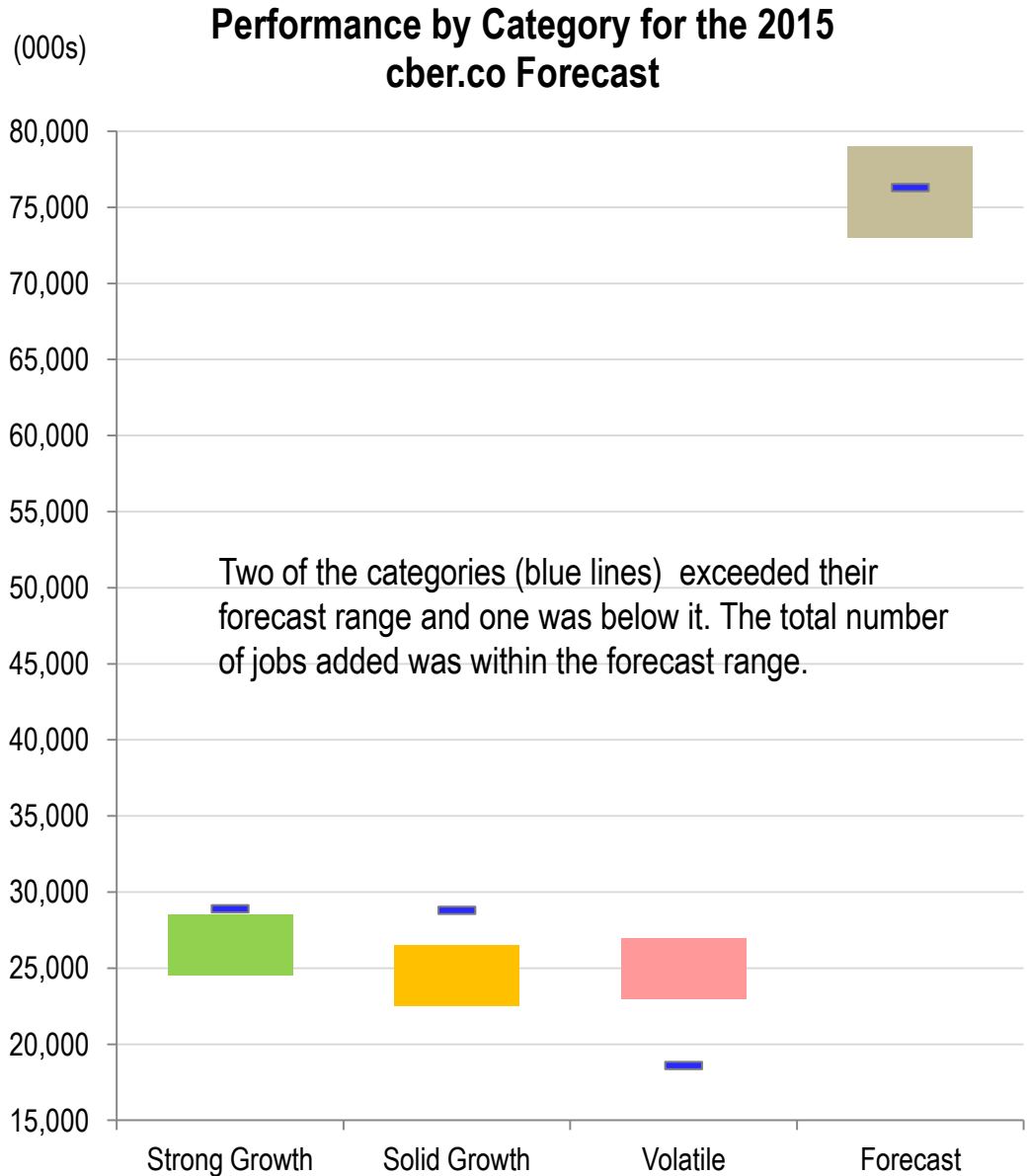


On this chart, the forecast ranges for the categories are:

- Strong Growth – green box.
- Solid Growth – yellow box.
- Volatile – pink box.
- Total Employment – grey box.

The blue lines indicate the level of employment from the revised 2015 BLS data.

The overall forecast was within the projected forecast range (grey box).



Two of the categories (blue lines) exceeded their forecast range and one was below it. The total number of jobs added was within the forecast range.



# 2016 Employment Forecast Most Likely Scenario

The recent upward revisions to the 2015 Colorado Wage and Salary Employment data are in line with the projections used when cber.co prepared its 2016 forecast. A brief summary of the forecast follows on the next two slides. Greater detail can be found at <http://cber.co/economic-forecasts/cber-co-economic-forecast/>.

In 2016 Colorado will add 67,000 to 73,000 jobs (2.7% to 2.9%).

# Scenarios for the 2016 Colorado Economic Outlook

The recovery from the Great Recession has been less than robust, but it has been **steady**. While there are many potential risks to future growth, the U.S. and state have shown there is enough momentum to show solid, sustained job growth in 2016.

## Overall Job Growth

In 2016 Colorado employment will increase by 2.7% to 2.9%. Average employment for 2016 will be 2,604,000 workers .

## Strong Growth Category (About 32% of total employment)

The rate of job growth for this category will be **2.9% to 3.2%**.

## Solid Growth Category (about 39% of total employment)

In 2016, the rate of job growth will be **2.3% to 2.5%**.

## Volatile Growth Category (29% of total employment)

In 2016, the rate of job growth will be **2.7% to 3.0%**.

The performance of the Volatile Growth Category will most likely determine the accuracy of the cber.co 2015 forecast. There is more downward risk than upside risk to the forecast.

Source: cber.co.

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

## 2016 Economic Outlook

### Optimistic Scenario

- U.S. Real GDP greater than 2.7%.
- Colorado will add more than 73,000 workers, growth greater than 2.9%.

### Most Likely Scenario

- U.S. Real GDP 2.3% to 2.7%.
- The U.S. will add at least 2.7 million workers.
- Colorado employment will be 1.8% of U.S employment.
- Colorado will add 67,000 to 73,000 workers, job growth will be 2.7% to 2.9%.

### Pessimistic Scenario

- U.S. Real GDP less than 2.3%.
- Less than 67,000 Colorado workers, growth less than 2.7%.

The probability of these scenarios follows:

- Most Likely 60%
- Optimistic 18%
- Pessimistic 22%.

There is slightly more downside risk than upside potential.

# 2016 cber.co Colorado Employment Forecast

## Strong Growth Category + 24,000 to 26,000 Employees

- Professional and Scientific
- Management of Companies and Enterprises
- Business to Business (Not Employment Services)
- Private Education
- Health Care
- Arts, Entertainment, and Recreation
- Other Services.

## Solid Growth Category +23,000 to 25,000 Employees

- Wholesale Trade
- Retail Trade
- State (Not Higher Education)
- Higher Education
- Local (Not K-12 Education)
- K-12 Education
- Accommodations and Food Services

*In 2016 Colorado will add 67,000 to 73,000 jobs (2.7% to 2.9%).*

*Twenty-two sectors and subsectors have been placed into three categories based on their growth patterns over the past two decades. Projections for these categories are used in the development of the 2016 employment forecast.*

## Volatile Growth Category +20,000 to +22,000 Employees

- Natural Resources and Mining
- Construction
- Manufacturing
- Transportation, Warehousing, and Utilities
- Employment Services
- Financial Activities
- Information
- Federal Government

Source: cber.co.

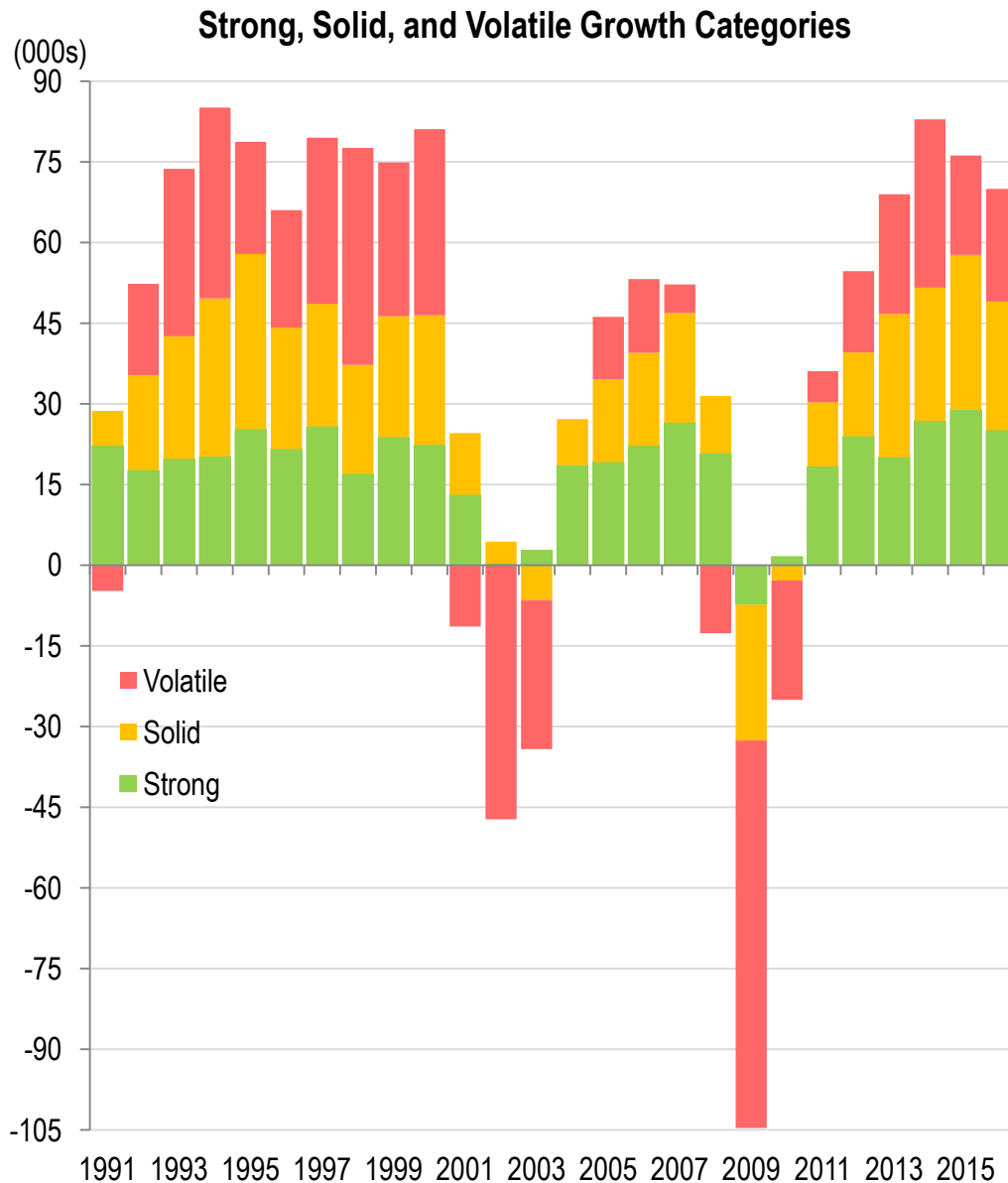
## Summary of Strong, Solid, and Volatile Growth Categories

In 2016, the growth of the Strong and Solid Growth Categories will be solid, but slightly less than in 2015 and the Volatile Category will be more aggressive.

The Strong Growth Category of sectors (green) has performed consistently over time. The category expanded at a rate of 3.7% in 2015 and will grow at a slightly slower rate in 2016.

Over time, the Solid Growth Category of sectors (yellow) has shown growth rates similar to the overall growth rate for the state. In 2015, this category grew at a rate of 3.0% and will add jobs at a slightly slower rate in 2016.

Finally, the Volatile Category of sectors (red) was a disappointing source of growth in 2015. In 2015 the category added jobs at a rate of 2.6%. Jobs will be added at a slightly faster rate in 2016.

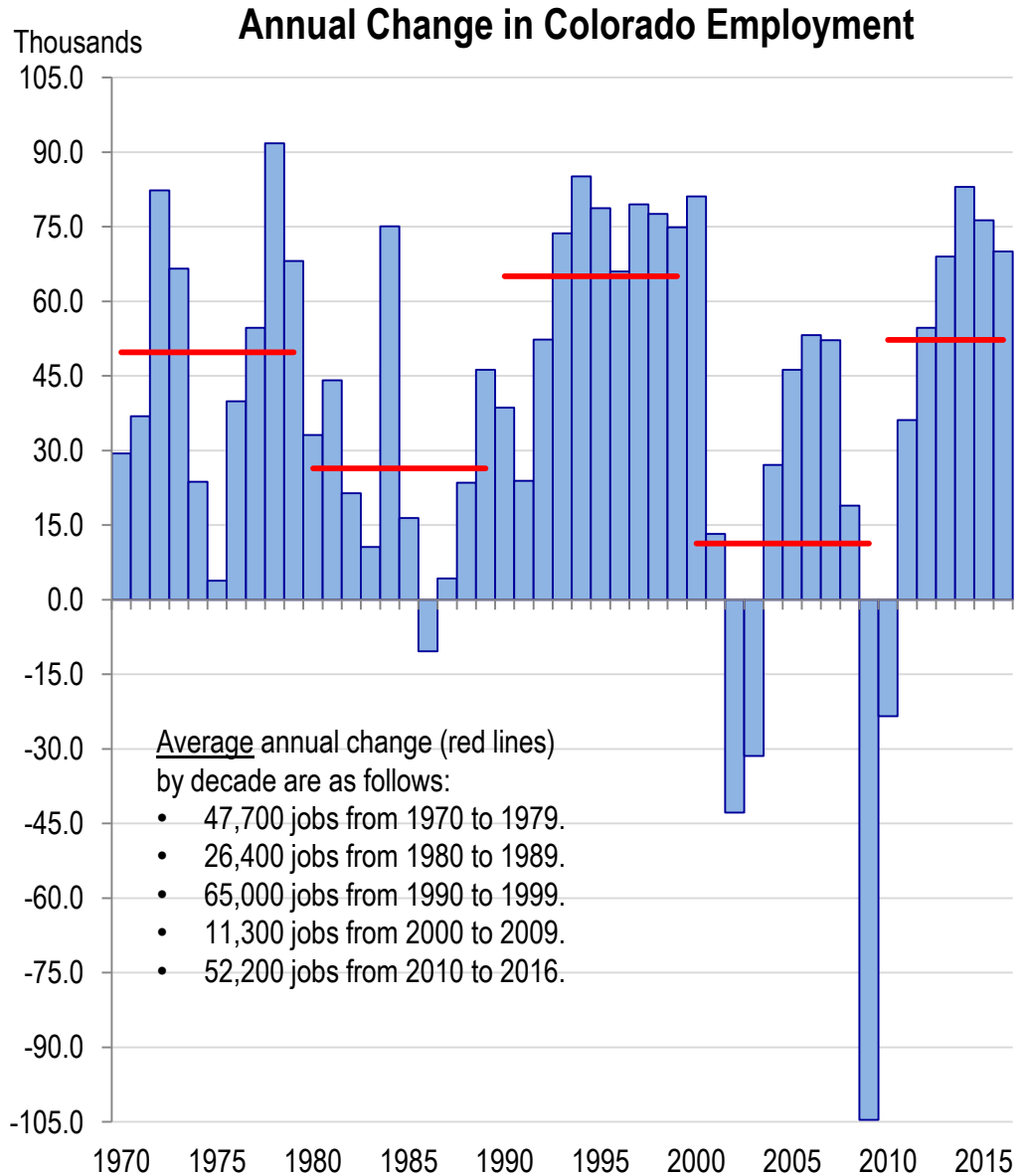


Source: Bureau of Labor Statistics, cber.co.

● Annual Employment  
 ● Change in Colorado  
 ● Employment

This chart shows how the job growth in 2014 and 2015 and the forecast for 2016 compare to previous years.

The state will add 67,000 to 73,000 jobs in 2016. Colorado employment will increase by 2.7% to 2.9%.



Source: Bureau of Labor Statistics, cber.co.



# The Colorado Economy

## Summary, Opportunities, and Challenges



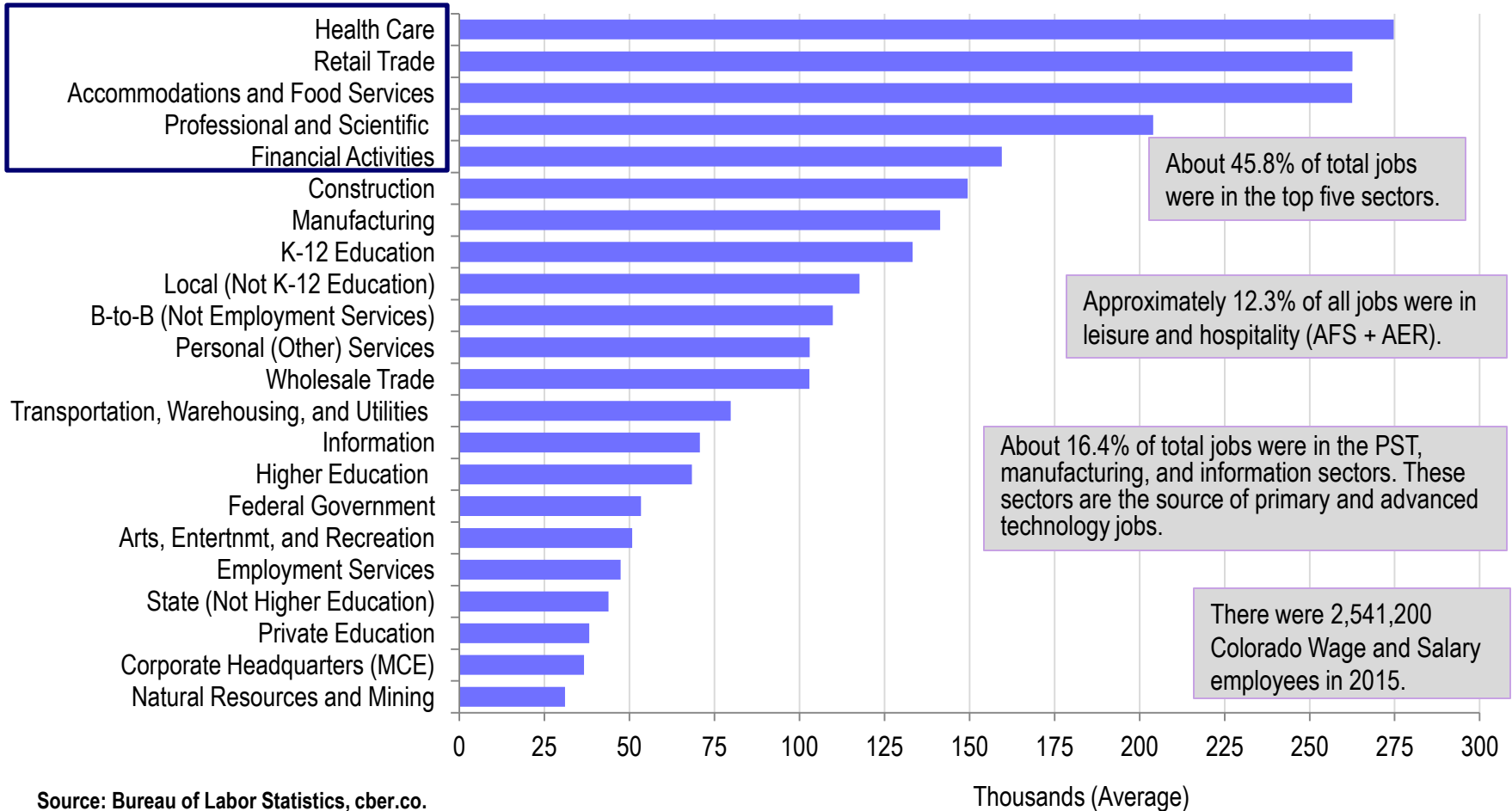
# The Benchmark Revisions

## 2015 Total Employment and Changes by Sector

The following two charts show total employment by sector/subsector as well as the change in employment by sector/subsector.

# Total 2015 Colorado Wage and Salary Employment

## Employment

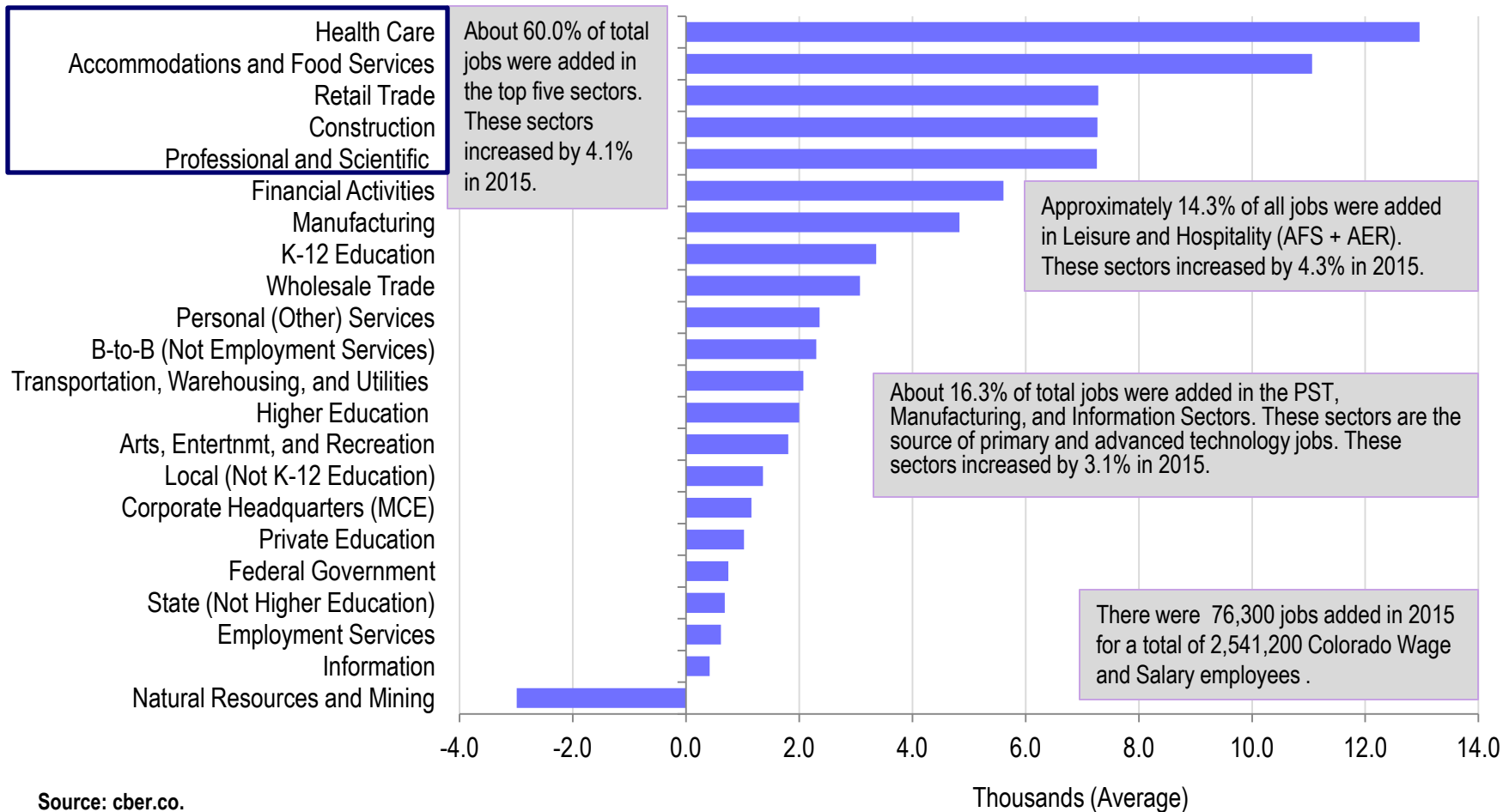


Source: Bureau of Labor Statistics, cber.co.



# 2015 Colorado Employment Changes by Sector

Job Change All Sectors



Source: cber.co.

# Reasons to Feel Good about the Colorado Economy

There are a number of reasons to feel good about the Colorado economy. Fortunately, the reasons to be optimistic, listed below, outweigh the risks.


<b>Main Street Activity</b> – Unofficial measures of the economy (rising prices, lines in restaurants, shoppers carrying bags out of retail stores, cone zones, low gas prices) indicate the Colorado economy is healthy.	<b>Job Growth</b> – Colorado job growth for 2014 and 2015 was revised upward – significantly. Solid growth is expected in 2016.
<b>Population Growth</b> - The 2015 Colorado population will be revised upward.	<b>Establishment Growth</b> – The increase in the number of establishments provides more people with places to work.
<b>GDP Growth</b> – Colorado’s GDP growth will continue to exceed the growth rate of the United States	<b>Manufacturing</b> – The sector will add jobs from 2011 to 2016 at an annualized rate of 2.4%.
<b>New Car Registrations</b> – Colorado new car registrations remain strong.	<b>Construction</b> – Cranes and cone zones are abundant. The industry is poised to have a strong year in 2016.
<b>Property Taxes</b> – Increased home prices will benefit the coffers of local governments and school districts.	<b>Information</b> – After declining for more than a decade, employment in this important sector has leveled out.
<b>DIA</b> – Growth at and around DIA will strengthen the Denver and Colorado economies in years ahead.	



# Economic Risks and Concerns

As always there are risks and headwinds in the Colorado economy.

<p><b>State Government</b> - The state government will collect record revenues this fiscal year, but experience shortfalls caused by Amendment 23, the Gallagher Amendment, TABOR, and the initiative process. This is a mess that will negatively impacts roads, education, and other services.</p>	<p><b>Low Unemployment Rate</b> – Industries such as construction, software, and advanced manufacturing have had difficulty finding trained workers because of low unemployment rates in key occupations. The problem will increase as the unemployment rate drops further.</p>
<p><b>Affordable Housing</b> – It will be more difficult to find attainable and affordable housing in all parts of the state as a result of the continued increases in housing prices.</p>	<p><b>Extractive Industries</b> – The state’s extractive industries are in a world of hurt brought on by regulation and low prices.</p>
<p><b>Population</b> – Twenty-seven of the state’s 64 counties experienced declines in population between 2010 and 2014. Many are small rural counties.</p>	<p><b>CPI</b> – Colorado will continue to experience growth in inflation that is greater than the state.</p>
<p><b>Oil and Gas Industry</b> – The oil and gas industry will shed jobs in 2016 and production will decline from record levels.</p>	<p><b>Transportation</b> – The state’s transportation infrastructure (roads and bridges) needs a sugar daddy!</p>



## cber.co Review of Revised 2015 Colorado Employment Data

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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For additional information contact cber.co at [cber@cber.co](mailto:cber@cber.co).

### 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 road map 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.



# Top Ten Years for Job Growth in Colorado

## Top Ten Years for Job Growth in Colorado

1. 1978 91.8 jobs
2. 1994 85.1 jobs
- 3. 2014 83.0 jobs**
4. 1972 82.3 jobs
5. 2000 81.1 jobs
6. 1997 79.5 jobs
7. 1995 78.7 jobs
8. 1998 77.6 jobs
- 9. 2015 76.3 jobs**
10. 1984 75.1 jobs

Source: Bureau of Labor Statistics, [cber.co](http://cber.co).