

Review of Colorado Economy Analysis of 2015 Employment Data Through April

Colorado-based Business and Economic Research

May 29, 2015



Overview

The 2015 cber.co Colorado Employment Forecast - The state will add 73,000 to 79,000 jobs in 2015. During the first four months the state added has added 71,400 jobs compared to the same time last year.

The following sectors were the top contributors to job growth:

- Health Care.
- Accommodations and Food Services.
- Construction.
- Professional, Scientific, and Technical Services.
- Manufacturing.

These 5 sectors accounted for 69.0% of job growth.

This brief analysis is divided into the following sections.

- U.S. and Economy.
- Colorado Employment and Unemployment.
- Change in Colorado Employment by Performance Category.
- Special Focus
Colorado Housing/Construction
Oil and Gas Industry.
- Summary and Total Jobs Added.
- Appendix

The 2015 cber.co forecast can be found at <http://cber.co/economic-forecasts/cber-co-economic-forecast/>



U.S. Economy

Real US GDP Growth

Quarterly

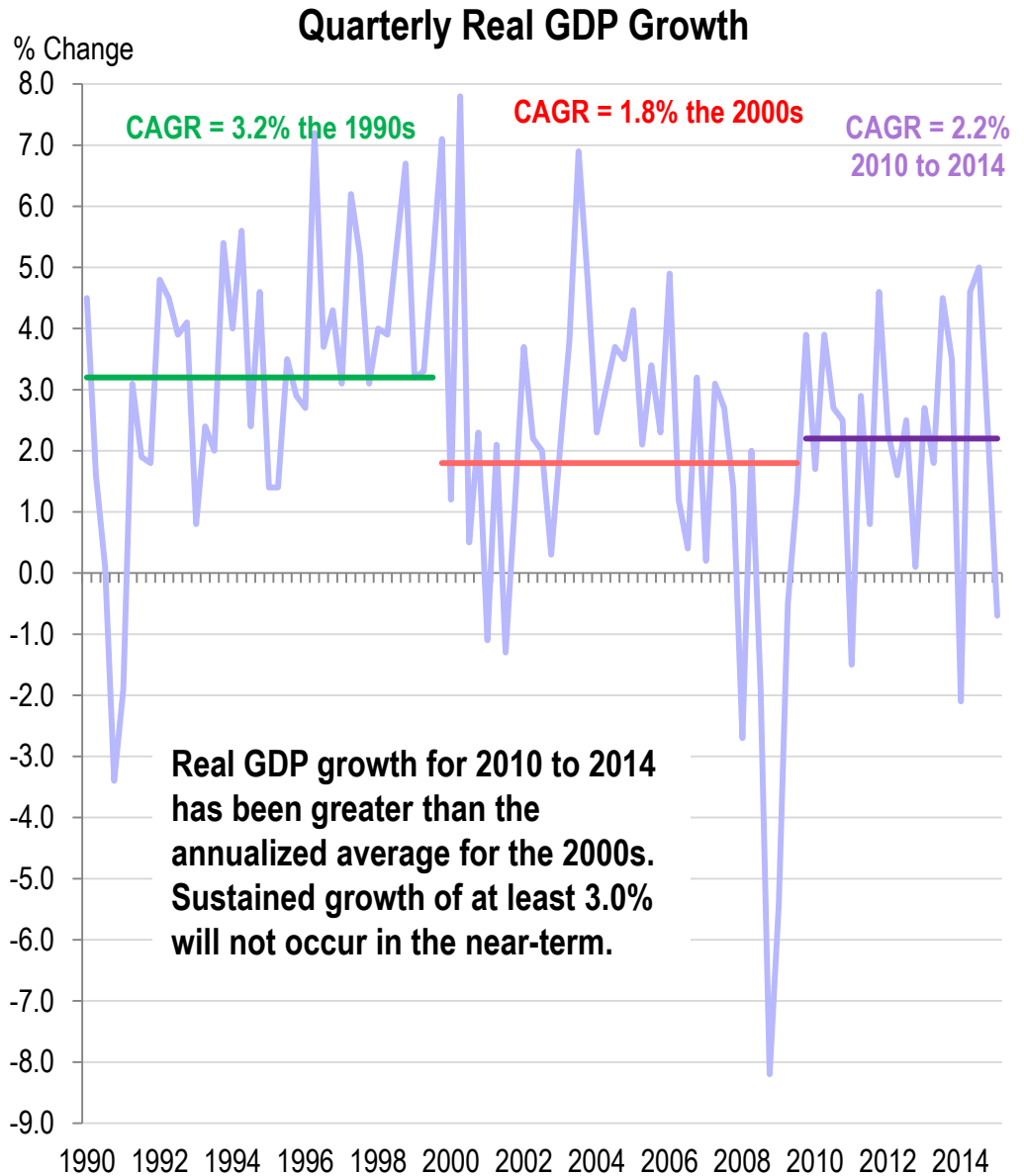
The cber.co 2015 forecast calls for real GDP growth of 2.5% to 2.9%, a slight increase over 2014. The Conference Board recently upgraded its 2015 forecast to 2.9%, an increase from 2.5%, while other economic groups with higher forecasts have lowered their estimates. TCB has been conservative, but accurate in its projections for the past five years.

The advanced release for Q1 2015 Real GDP growth was 0.2%. The second estimate was revised downward to -0.7%.

Annualized real GDP growth for the 1990s was 3.2% (green line). It was 1.8% for the 2000s (red line) and 2.2% from 2010 to 2014 (purple line).

Real GDP growth for the past five years is:

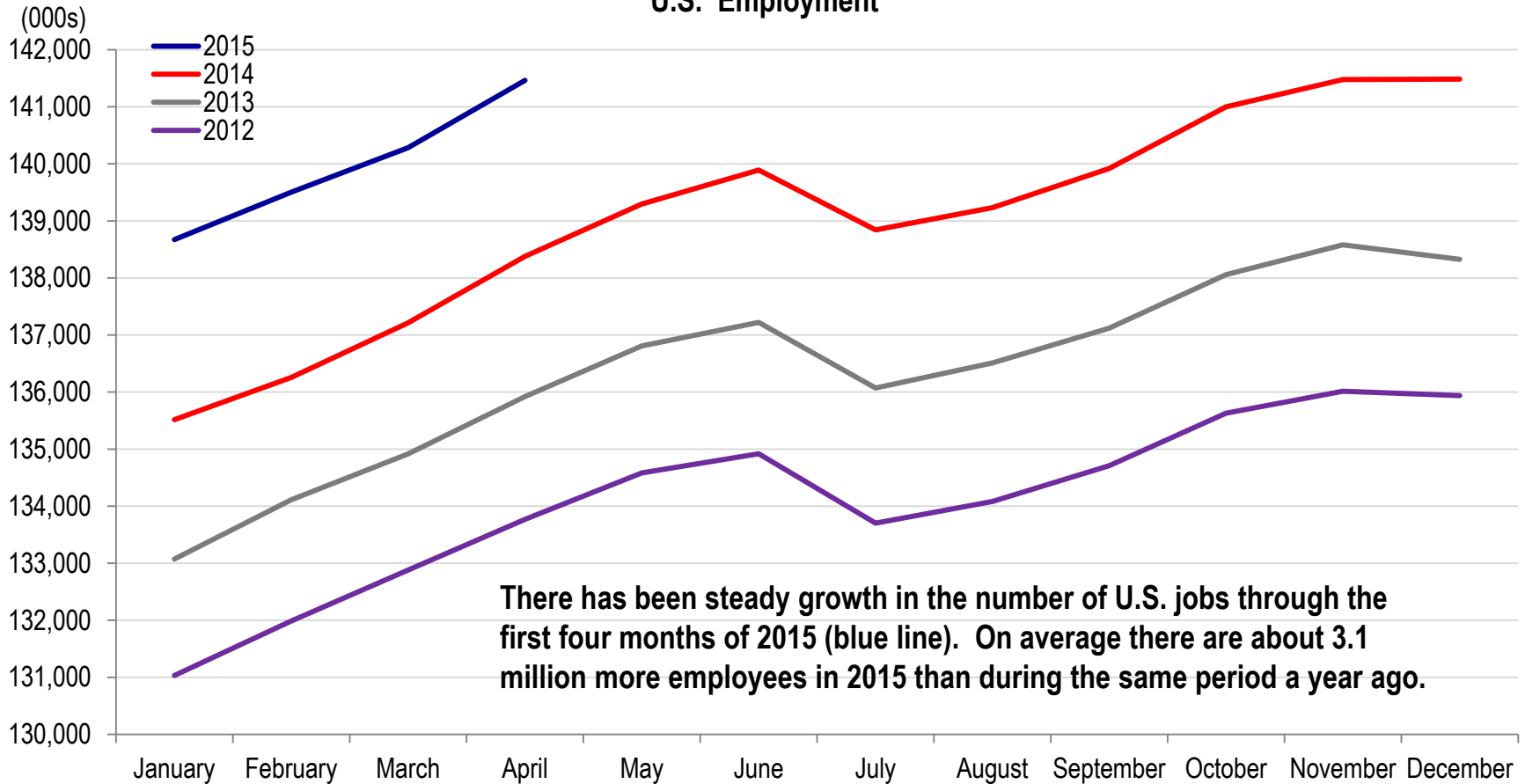
- 2010 2.5%
- 2011 1.6%
- 2012 2.3%
- 2013 2.2%
- 2014 2.4% (preliminary)



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

U.S. Employment 2012 through March 2015

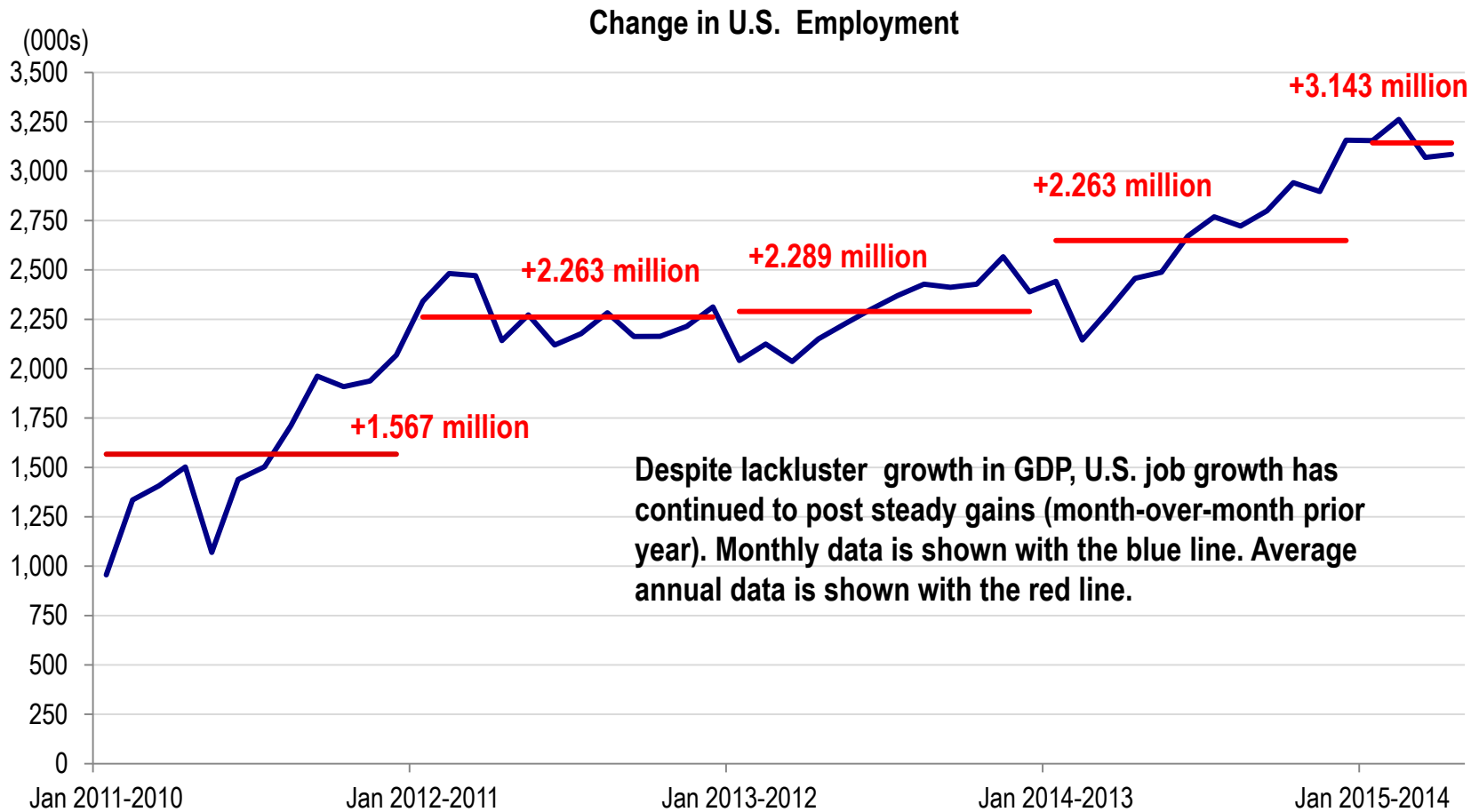
U.S. Employment



There has been steady growth in the number of U.S. jobs through the first four months of 2015 (blue line). On average there are about 3.1 million more employees in 2015 than during the same period a year ago.

Source: Bureau of Labor Statistics, NSA.

Change in U.S. Employment Month-Over-Month Prior Year



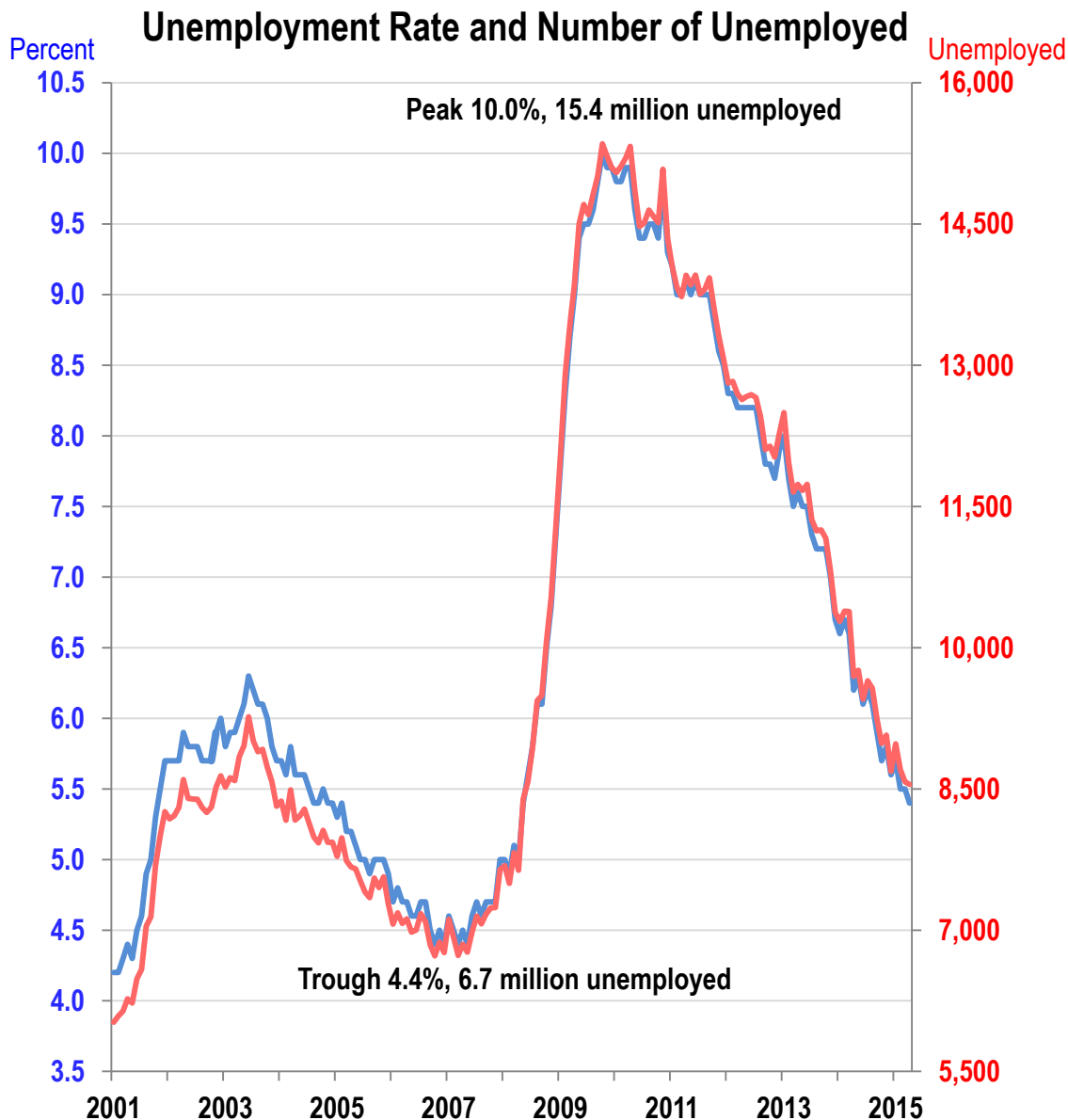
Source: Bureau of Labor Statistics, NSA.

U.S. Unemployment Rate and Number of Unemployed

Both the unemployment rate and number of unemployed have slowly trended downward since peaking in late 2010.

The total number of unemployed (red) was 8.575 million at the end of April 2015. This is 1.9 million above the low point in 2007 and 6.9 million below the high point in 2009.

The unemployment rate for April 2015 was 5.4%, down from 6.2% at the same time last year. The unemployment rate at the end of 2014 was 5.6%.

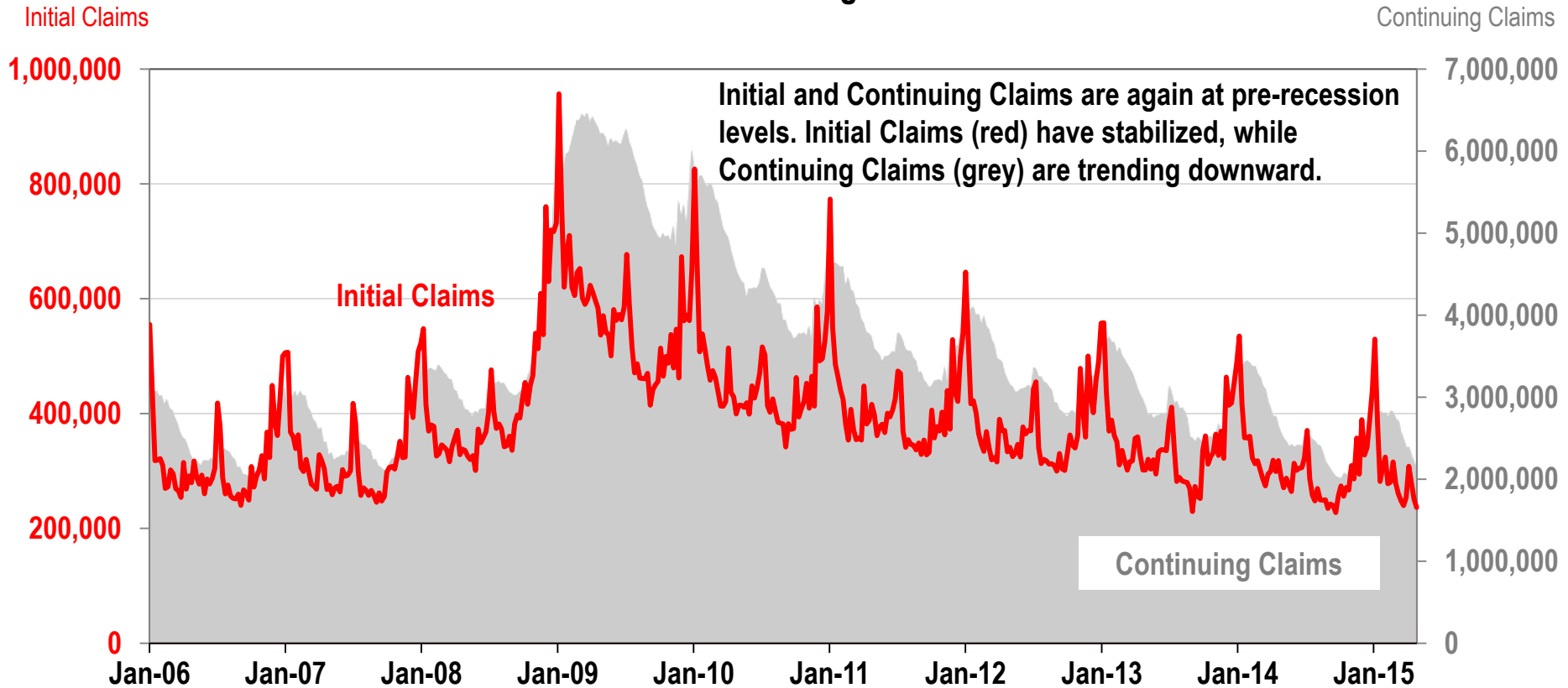


Source: Bureau of Labor Statistics, SA, cber.co.

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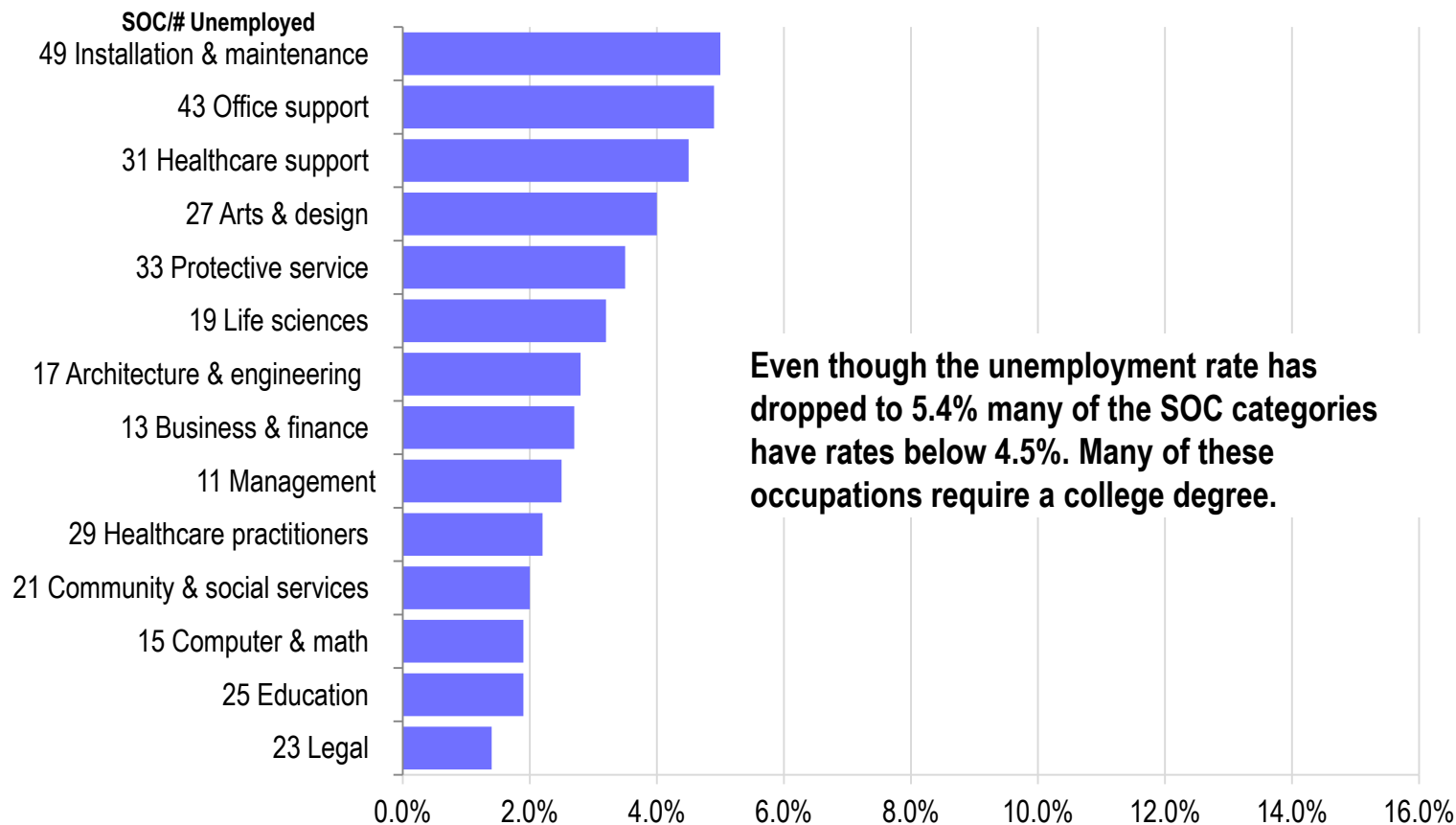
U.S. Jobless Claims

US Initial and Continuing Jobless Claims



U.S. Occupations with Unemployment Rates Below the Current Rate (5.4%)

U.S. Unemployment Rate by Occupation (April 2015)

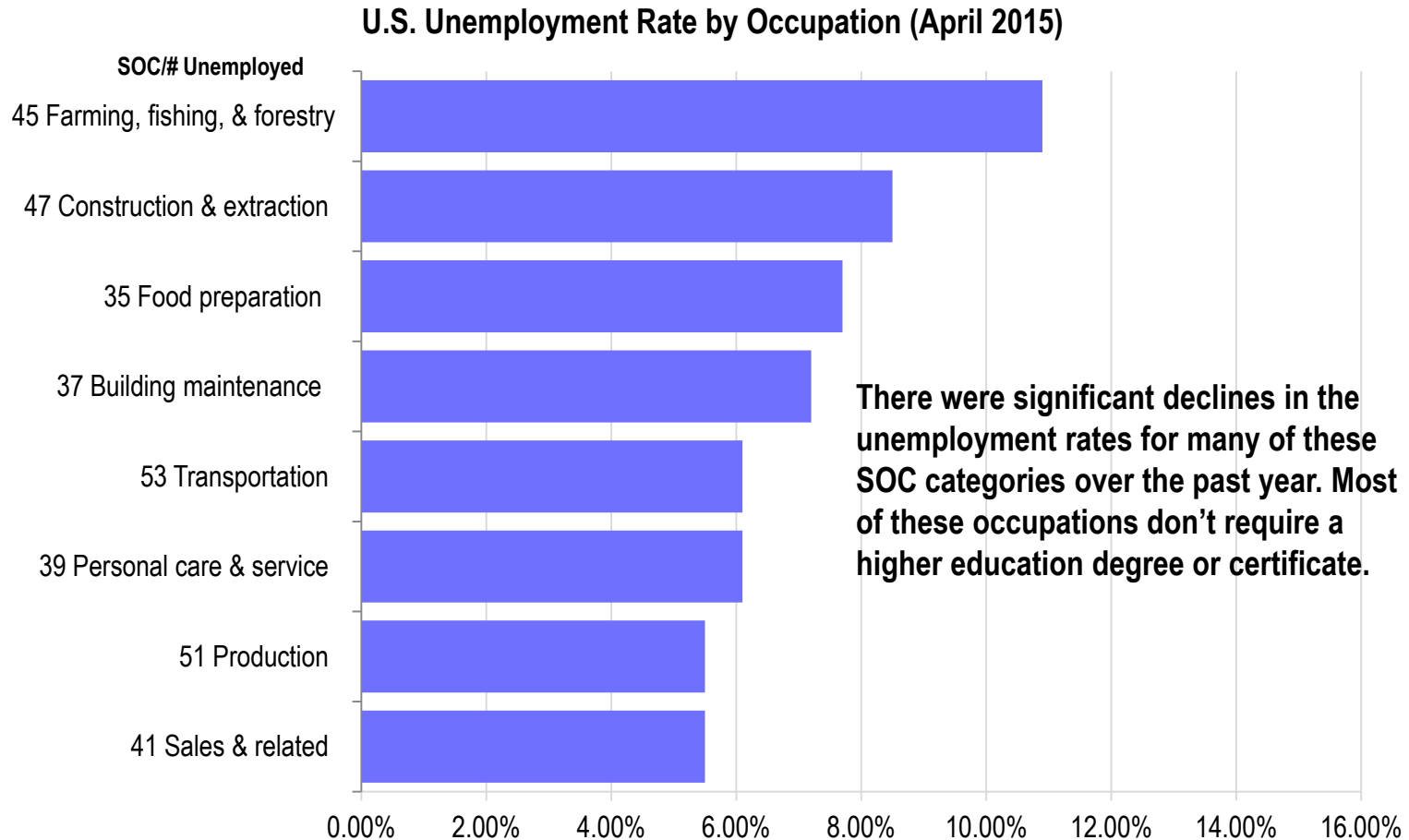


Source: Bureau of Labor Statistics, NSA, A-30.

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U.S. Occupations with Unemployment Rates At or Above the Current Rate (5.4%)



Source: Bureau of Labor Statistics, NSA, A-30.

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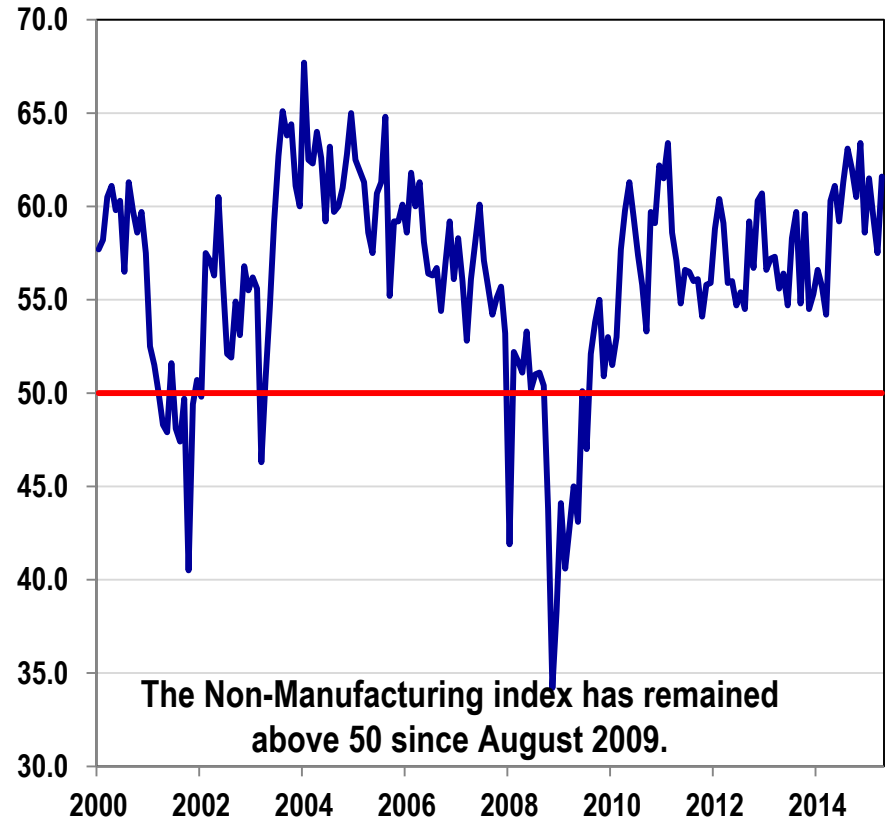
<http://cber.co>

ISM Indices

ISM Manufacturing Index



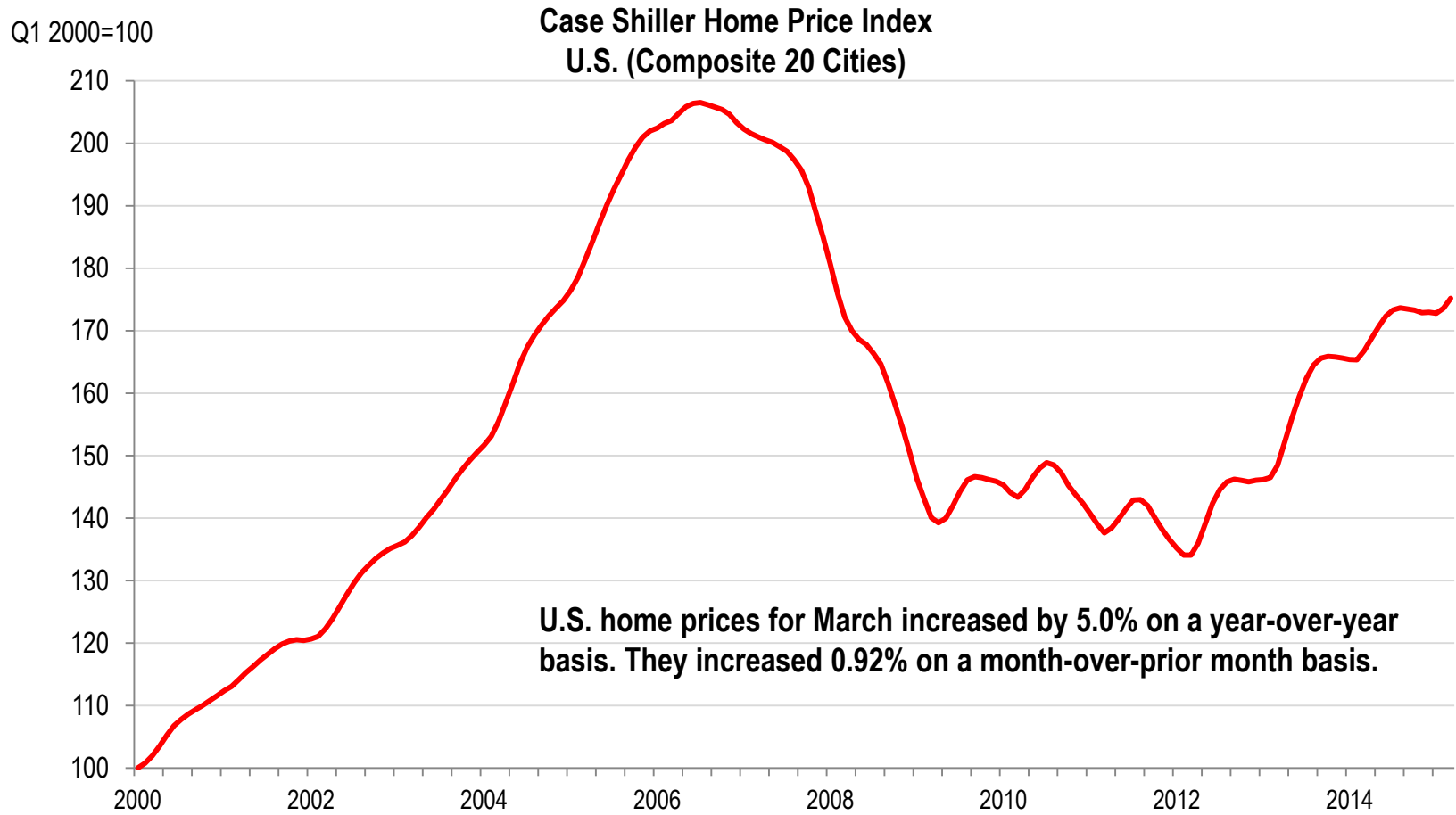
ISM Non-Manufacturing Business Activity Index



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

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U.S. Housing Prices – Case Shiller Composite 20 Cities



Source: S&P Case-Shiller, FRED.

Summary of U.S. Economy in 2015

The U.S. economy is currently stronger than it was in 2014. There continues to be improvement in the number of jobs added despite minimal growth in Real Gross Domestic Product.

- The change in Real GDP growth -0.7% for Q1 2015. The year started slow, but is expected to end on a stronger note. Real GDP growth for the year is projected to be in the 2.5% to 2.9% range.
- The overall rate of consumer spending for 2015 will continue to be lackluster; it will increase by 2.4% to 2.8%.
- Business spending will increase by 3.7% to 4.2%.
- The rate of U.S. job growth for the first four months of the year was 2.3%, compared to 1.9% for 2014.
- The unemployment rate has continued to decline and was 5.4% in April. This is down from 5.6% at the end of the year and down from 6.2% at the same time last year. Initial jobless claims have flattened out and continuing claims are trending downward. Most occupations that require some higher education have unemployment rates below the national rate.
- The ISM Manufacturing Index is trending downward, but it remains above 50. The Non-Manufacturing Index is above 60. Purchasing managers from both groups remain optimistic.
- Case-Shiller reported that their 20-city index for March showed a 5.0% gain compared to a year ago.



Colorado Employment and Unemployment

Preface to Employment Analysis

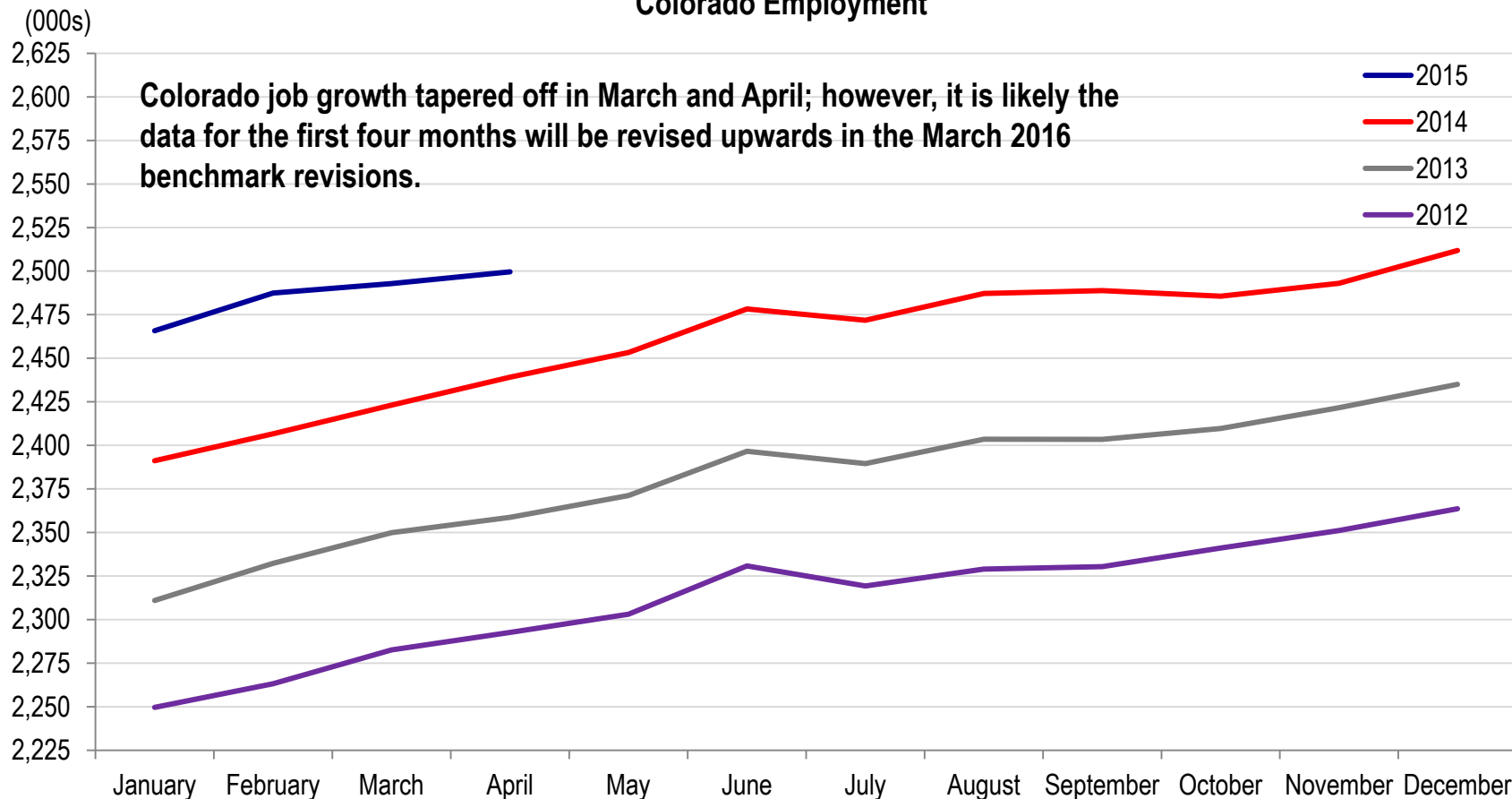
During the first four months of 2015 the state added 71,400 jobs compared to the same time last year. On May 27th the Denver Post reported, “Separately, the labor department revised the state's fourth-quarter employment data upward by 16,300 jobs.”



Implications: This upward revision will be reflected in the March 2016 benchmark revisions for 2014. The revision means the state had much greater momentum coming into the year than originally anticipated. As a result, it is likely the first four months of 2015 will also be revised upwards. For more information about the benchmarking process, see the Appendix.

Colorado Employment 2012 to 2015

Colorado Employment



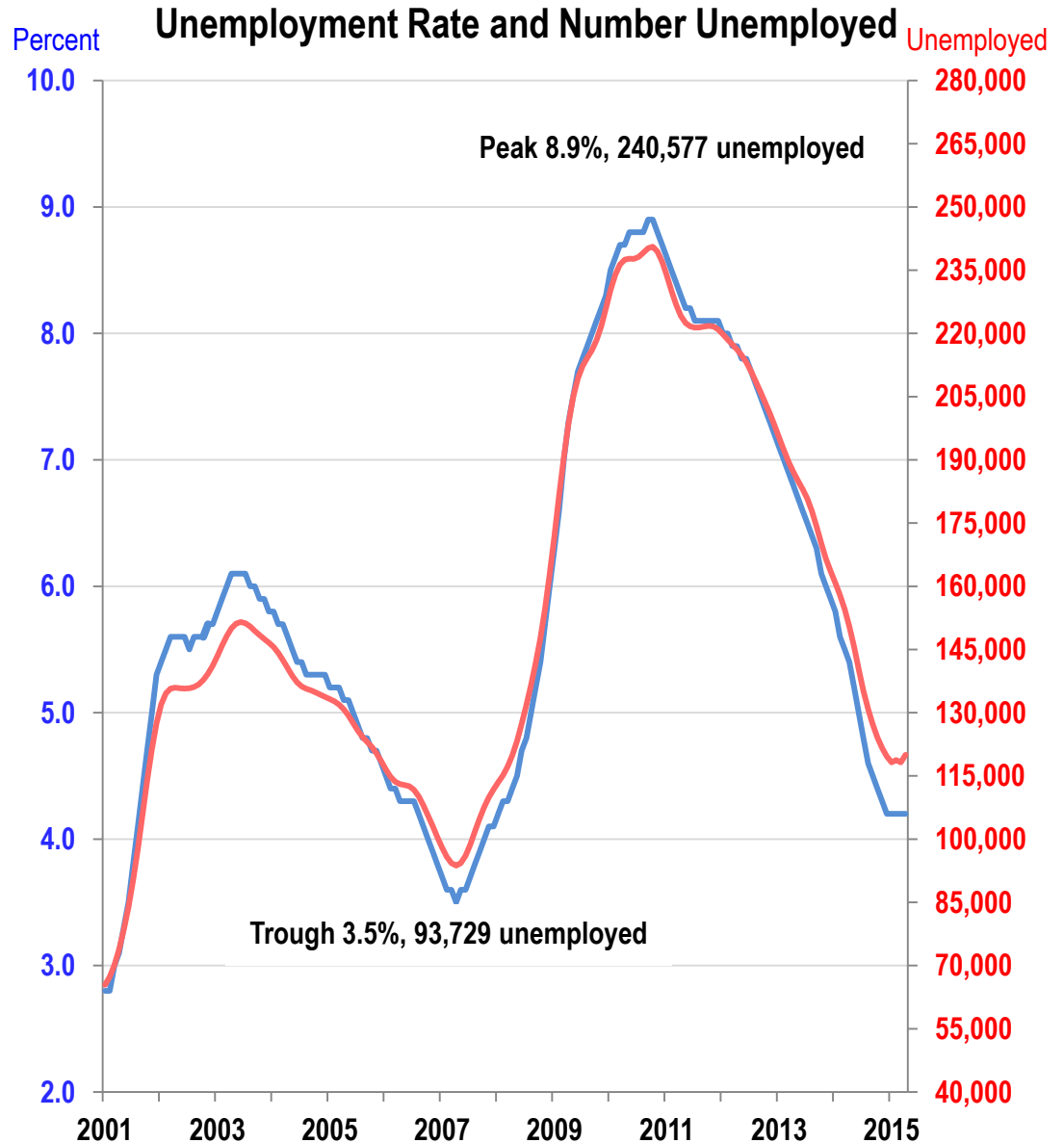
Source: Bureau of Labor Statistics, NSA.

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 April 2015 was 120,017. This number increased over the prior month.

The total number of unemployed is 26,288 greater than the trough in April 2007 and 120,560 less than the peak in October 2010.

There is a shortage of trained workers in key sectors and occupations. The 2015 unemployment rate (blue) has been 4.2% for the past five months, down from 5.4% in April 2014.



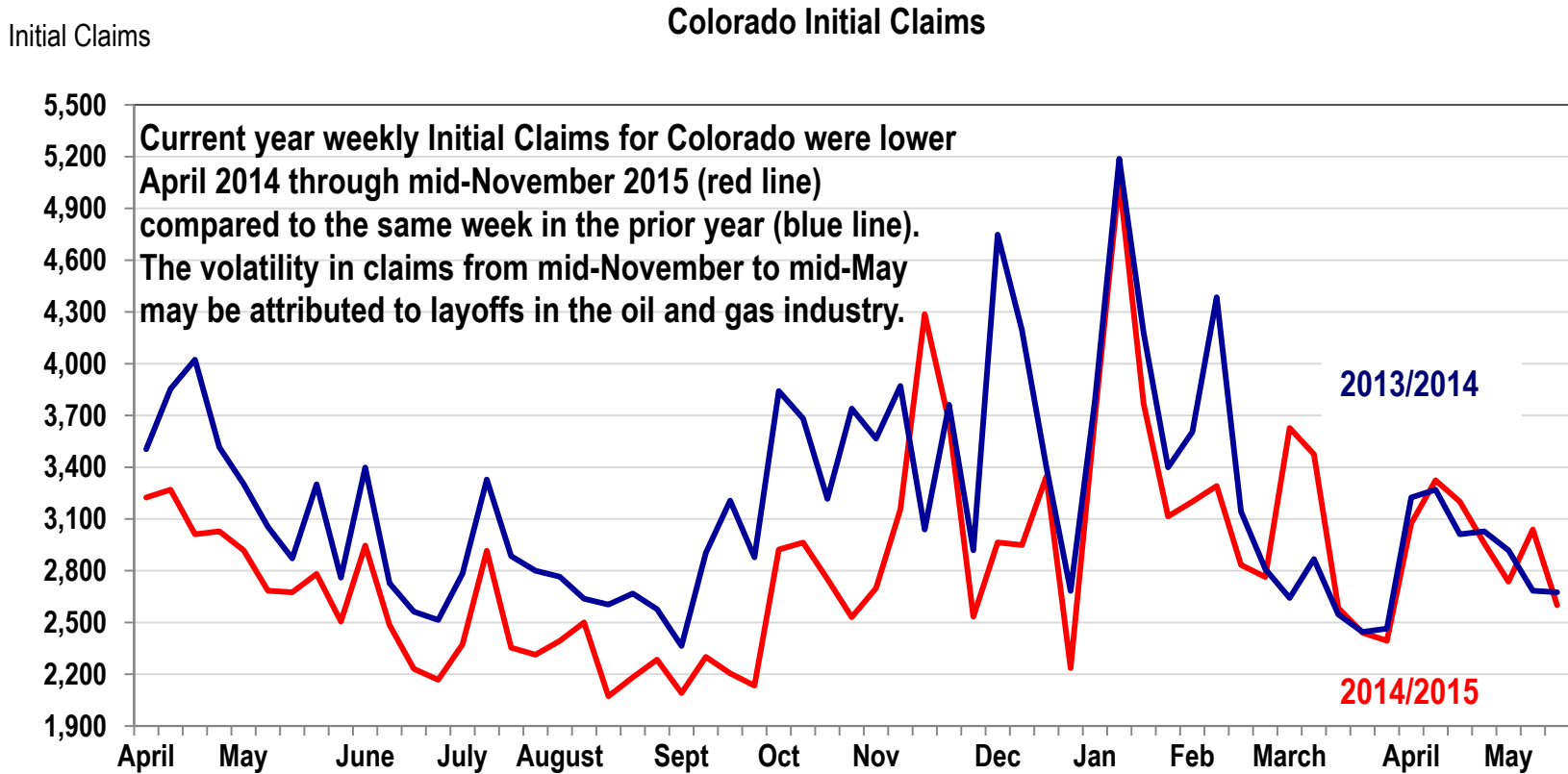
Source: Bureau of Labor Statistics, SA, cber.co.

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Colorado Jobless Claims (Weekly)

April to March – 2014/15 vs. 2013/14



Source: US Department of Labor, ETA, NSA.

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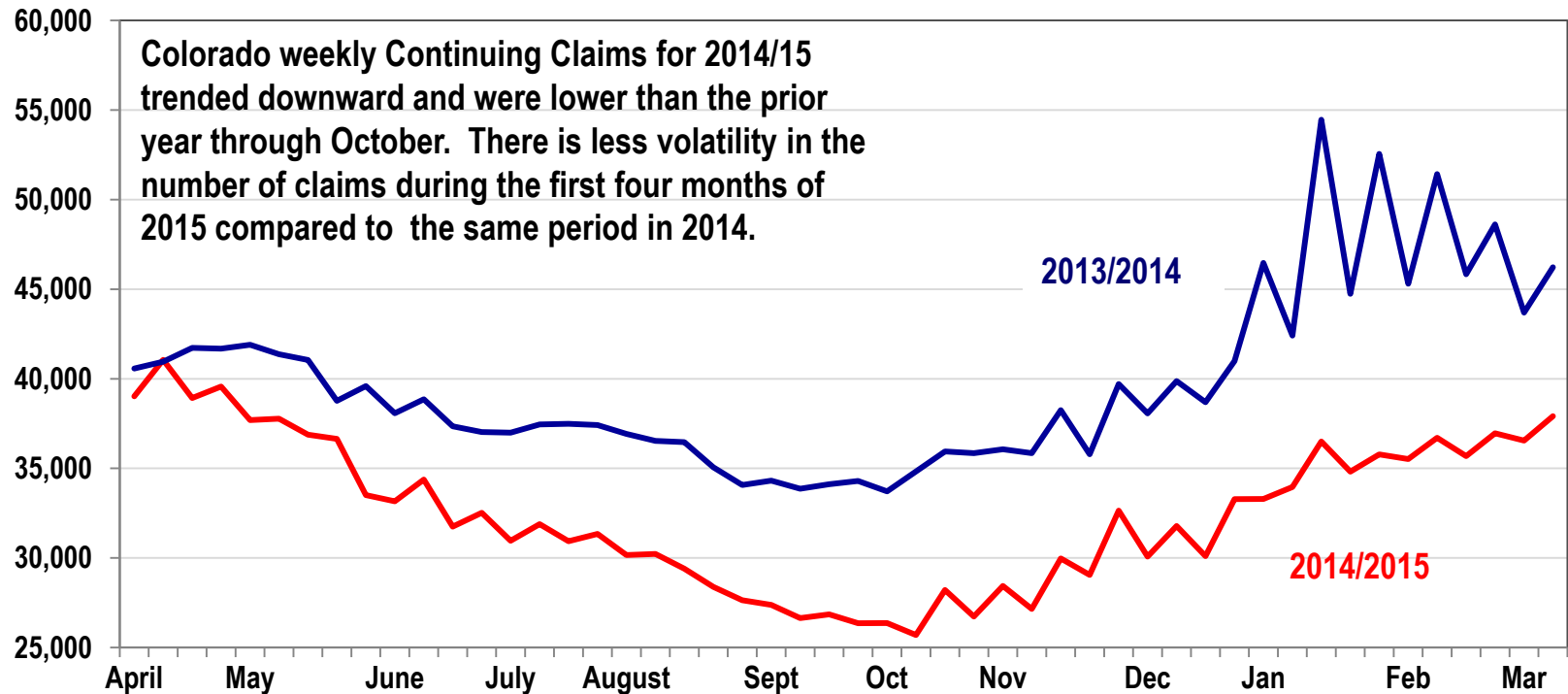
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Colorado Jobless Claims (Weekly)

April to May – 2014/15 vs. 2013/14

Colorado Continuing Claims

Claims



Source: US Department of Labor, ETA, NSA.

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Change in Colorado Employment by Performance Category



cber.co Forecast and Analysis

An efficient way to forecast and analyze job employment for Colorado is to split up 22 NAICS industries into three categories based on the consistency of their job growth and the magnitude of their growth rates. The categories are:

- Strong Growth – As a group these industries consistently show stronger than average job growth. The focus of these industries is business and personal services.
- Solid Growth – As a group these industries consistently show solid job growth, at levels below the Strong Growth category. Their focus is trade and government.
- Volatile – These industries have consistently been volatile. In many cases that volatility occurs for a variety of reasons such as changes in technology or industry structure.

The process for creating these categories is discussed in greater depth in the Appendix.

Summary of Strong, Solid, and Volatile Growth Categories

In 2015, the growth of the Strong, Solid, and Volatile Growth Categories will be similar to 2014.

The Strong Growth Category of sectors (green) has consistently shown strong job growth over time. The category added jobs as expected in 2014. The larger sectors (Health Care and PST,) grew at a rate faster than the state. Arts, Entertainment, and Recreation, a smaller sector, also expanded at a rate greater than the state.

Over time, the Solid Growth Category of sectors (yellow) has been more volatile than the Strong Growth Category. In 2014, this category performed stronger than anticipated. AFS and Wholesale Trade expanded at faster rates than the state.

Finally, the Volatile Category of sectors (red) was a significant source of growth in 2013 and 2014. In 2014 the Construction, Employment Services, Transportation and Warehousing, and the Extractive Industry sectors expanded at faster rates than the overall state average.



Source: Bureau of Labor Statistics, cber.co.

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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:

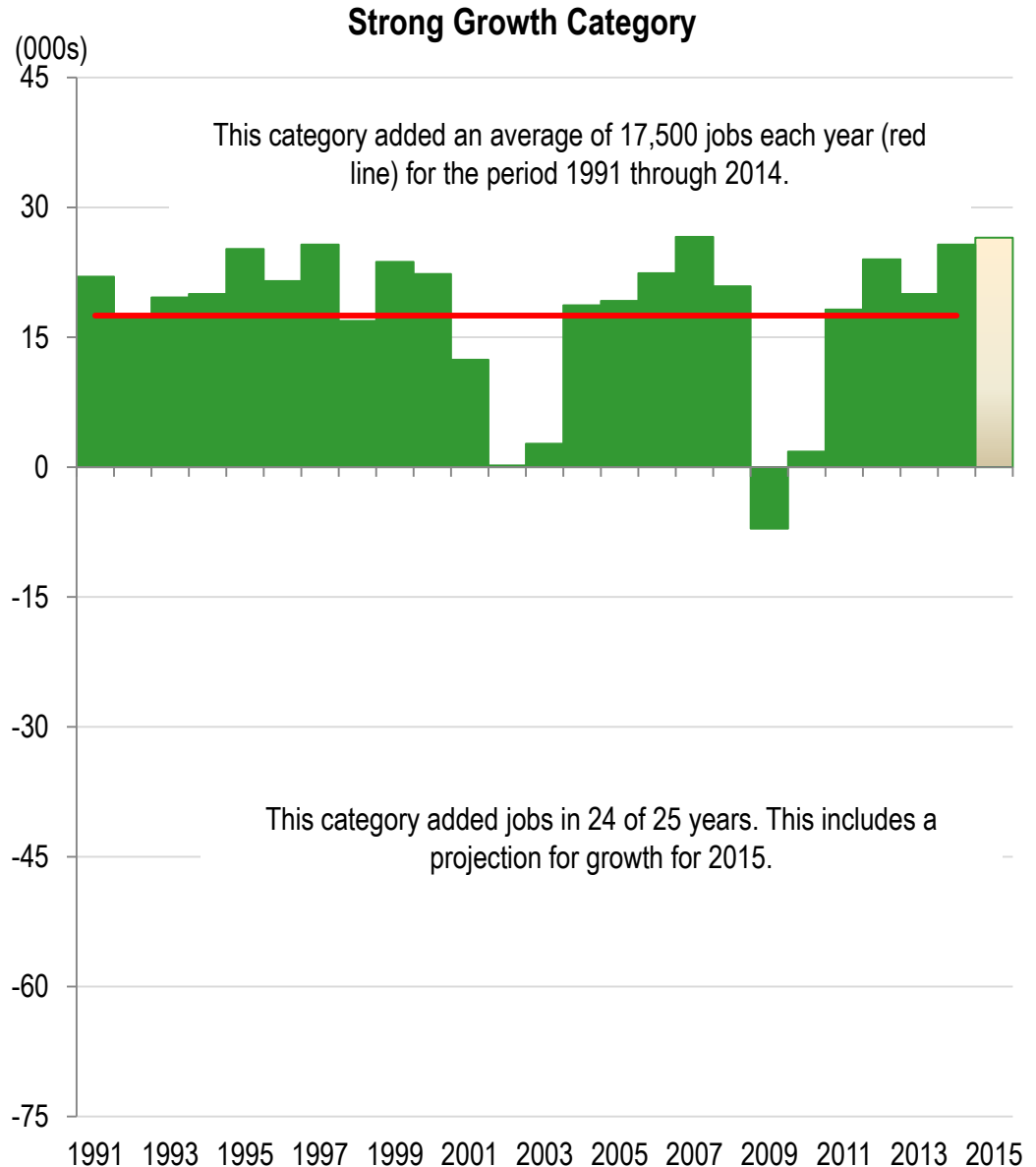
1994 445,200 workers, 25.4% of total employment
 2004 615,900 workers, 28.3% of total employment
 2014 786,700 workers, 32.0% of total employment

In 2015, absolute job growth of this category will be similar to job growth in 2007 and 2014.

In 2015, between 24,500 and 28,500 workers will be added at a rate of 3.1% to 3.6%. This rate of growth is slightly greater than 2014

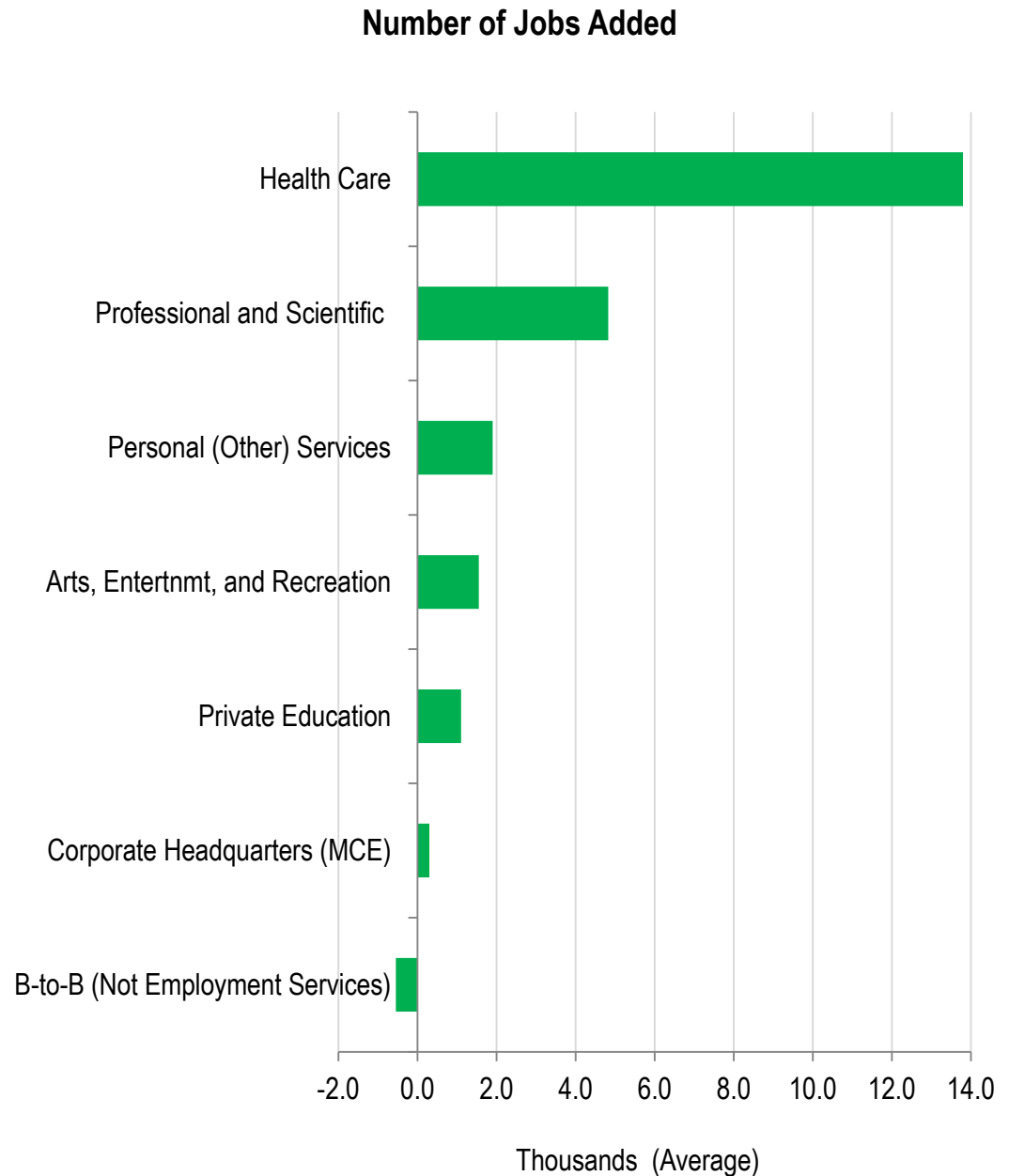
Source: Bureau of Labor Statistics, cber.co.

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● Strong Growth Sectors

- Through the first four months of 2015 this group of industries added 22,900 jobs compared to the same period in 2014.
- This category is projected to add 24,500 to 28,500 for the year. To date, its performance is slightly below the projected range.
- In 2014, these sectors accounted for 32.6% of the growth and 32.0% of total employees in 2014.
- Health Care and Professional and Scientific and Technical Services were the sectors with the strongest growth for the first four months of 2015.



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.

- 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:

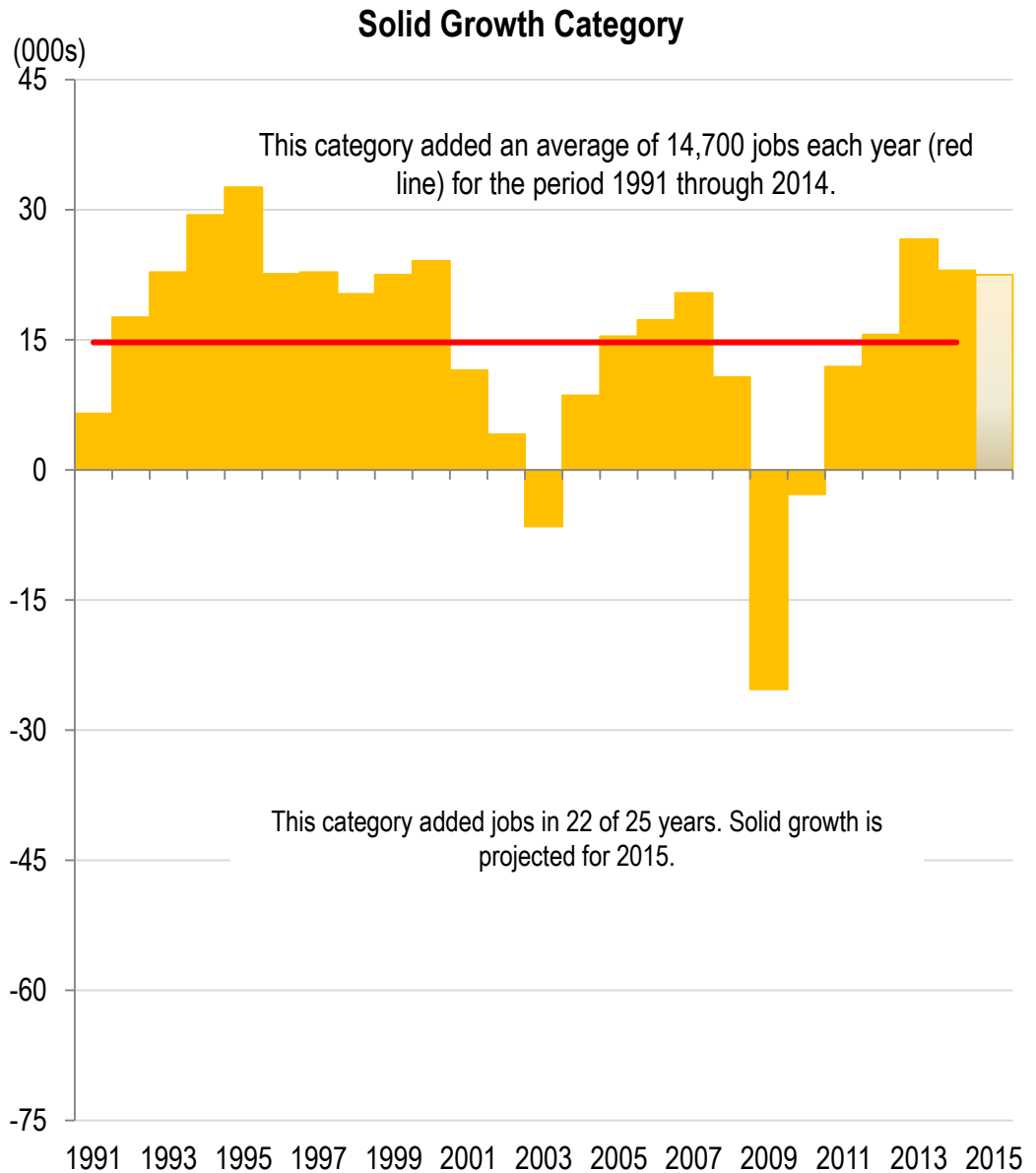
1994 685,400 workers, 39.0% of total employment

2004 848,000 workers, 38.9% of total employment

2014 961,100 workers, 39.0% of total employment

In 2015 absolute job growth in this category will be comparable to most years during the 1990s.

In 2015, between 22,500 and 26,500 workers will be added at a rate of 2.3% to 2.8%. This rate of growth is slightly less than 2014.



Source: Bureau of Labor Statistics, cber.co.

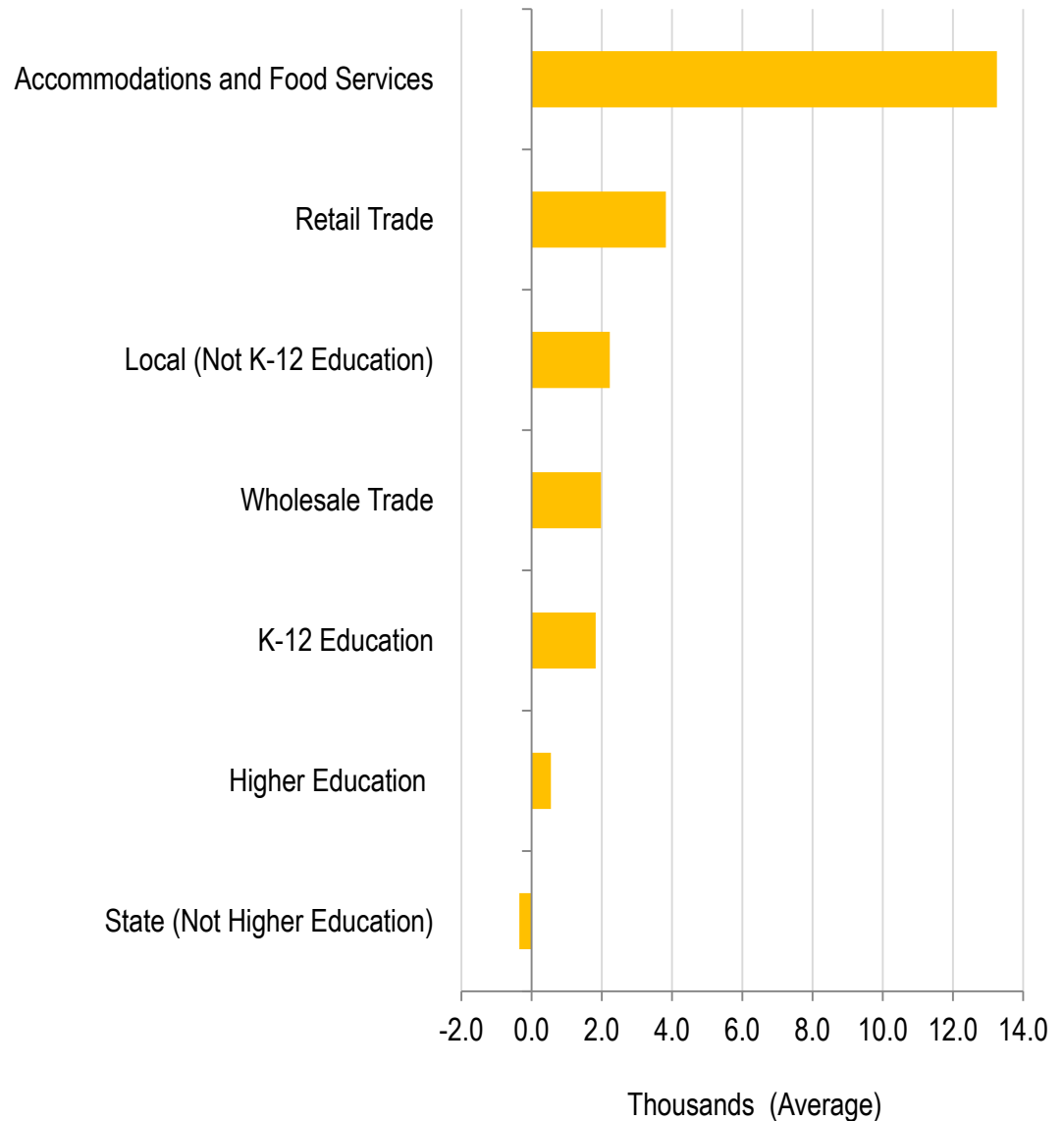
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Solid Growth Sectors

- Through the first four months of 2015 this group of industries added 23,300 jobs compared to the same period in 2014.
- This category is projected to add 22,500 to 26,500 for the year. To date, its performance is near the bottom of the forecast range.
- These sectors accounted for 29.1% of total job gains and 39.0% of total employees in 2014.
- A majority of the growth for the first four months of 2015 has occurred in the Accommodations and Food Services and Retail Trade sectors. Most likely the job growth for AFS is overstated.

Number of Jobs Added



Source: Bureau of Labor Statistics.

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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.

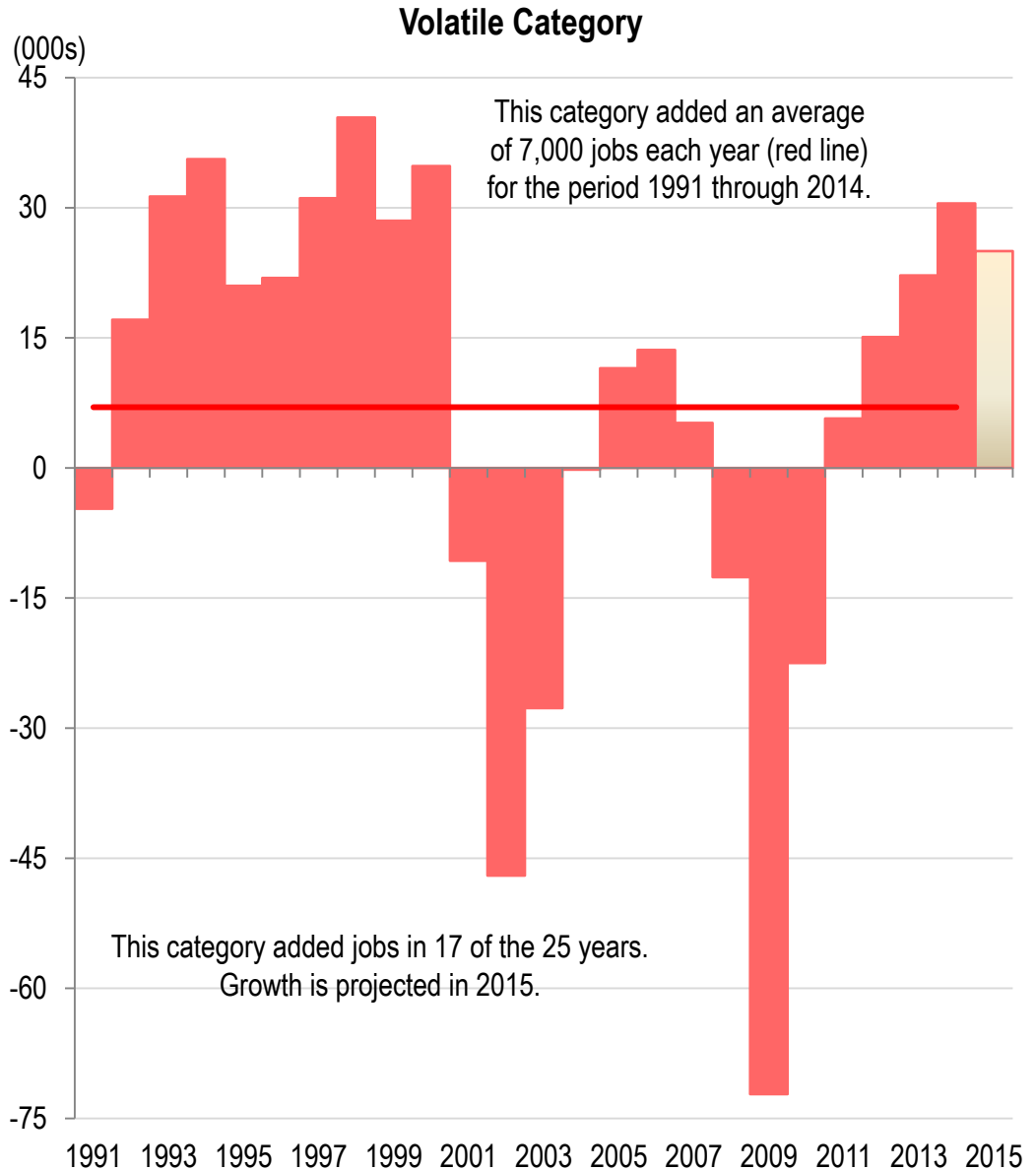
The sectors are:

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

Total employment for this category was:

1994 625,400 workers, 35.6% of total employment
 2004 716,000 workers, 32.8% of total employment
 2014 713,000 workers, 29.0% of total employment

In 2015 between 23,000 and 27,000 jobs will be added, at a rate of 3.2% to 3.8%. This rate of growth is slower than 2014.



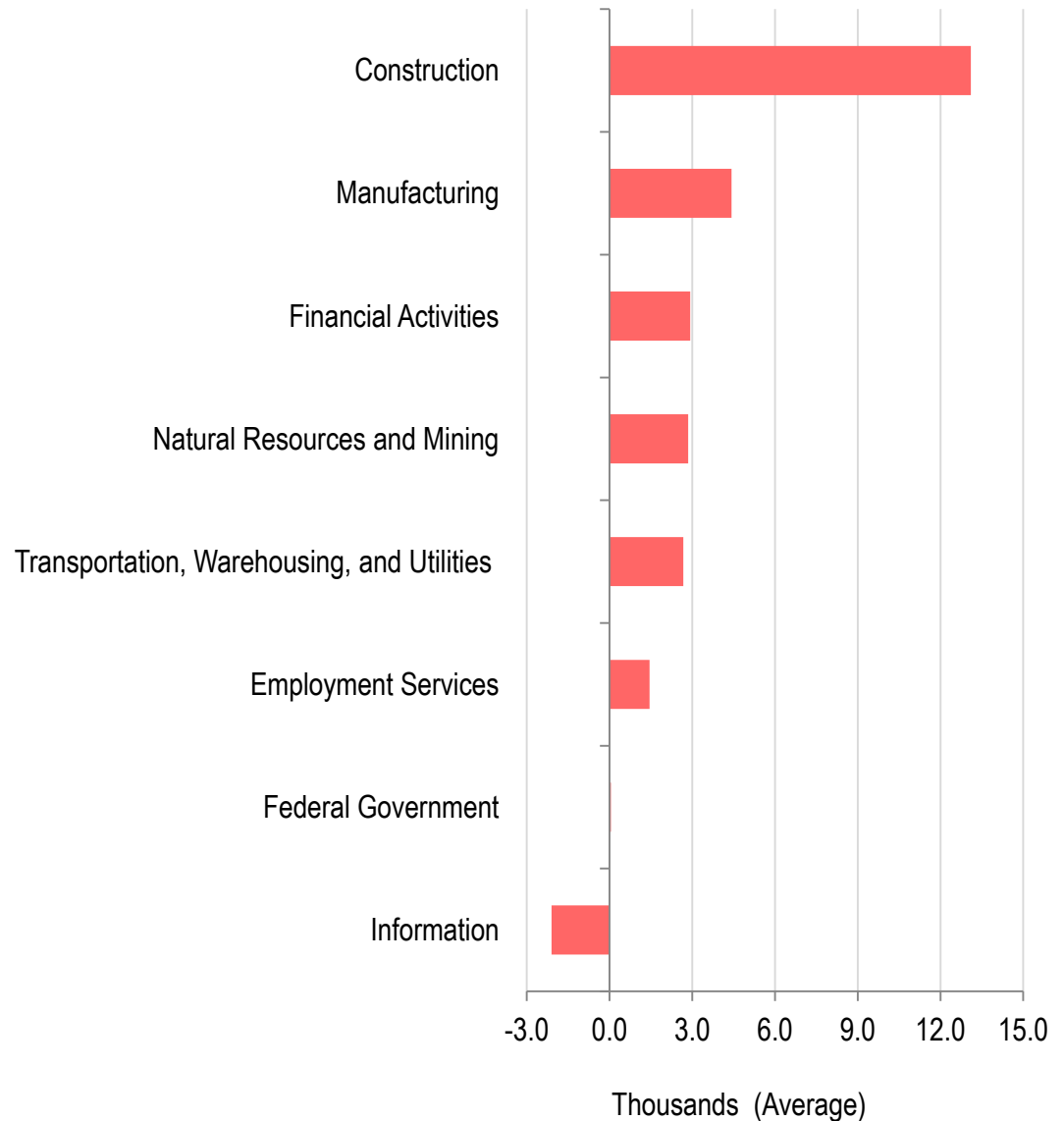
Source: Bureau of Labor Statistics, cber.co.

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● Volatile Sectors

- Through the first four months of 2015 this group of industries added 25,400 jobs compared to the same period in 2014.
- This category is projected to add 23,000 to 27,000 for the year. Its performance is at the upper end of the forecast range.
- In 2014 these sectors accounted for 32.3% of total job gains and 29.0% of total employees.
- The Construction and Manufacturing Sectors added the greatest number of jobs and the Information Sector lost jobs during the first four months.

Number of Jobs Added



Source: Bureau of Labor Statistics.

Summary of Performance to cber.co 2015

Employment Forecast



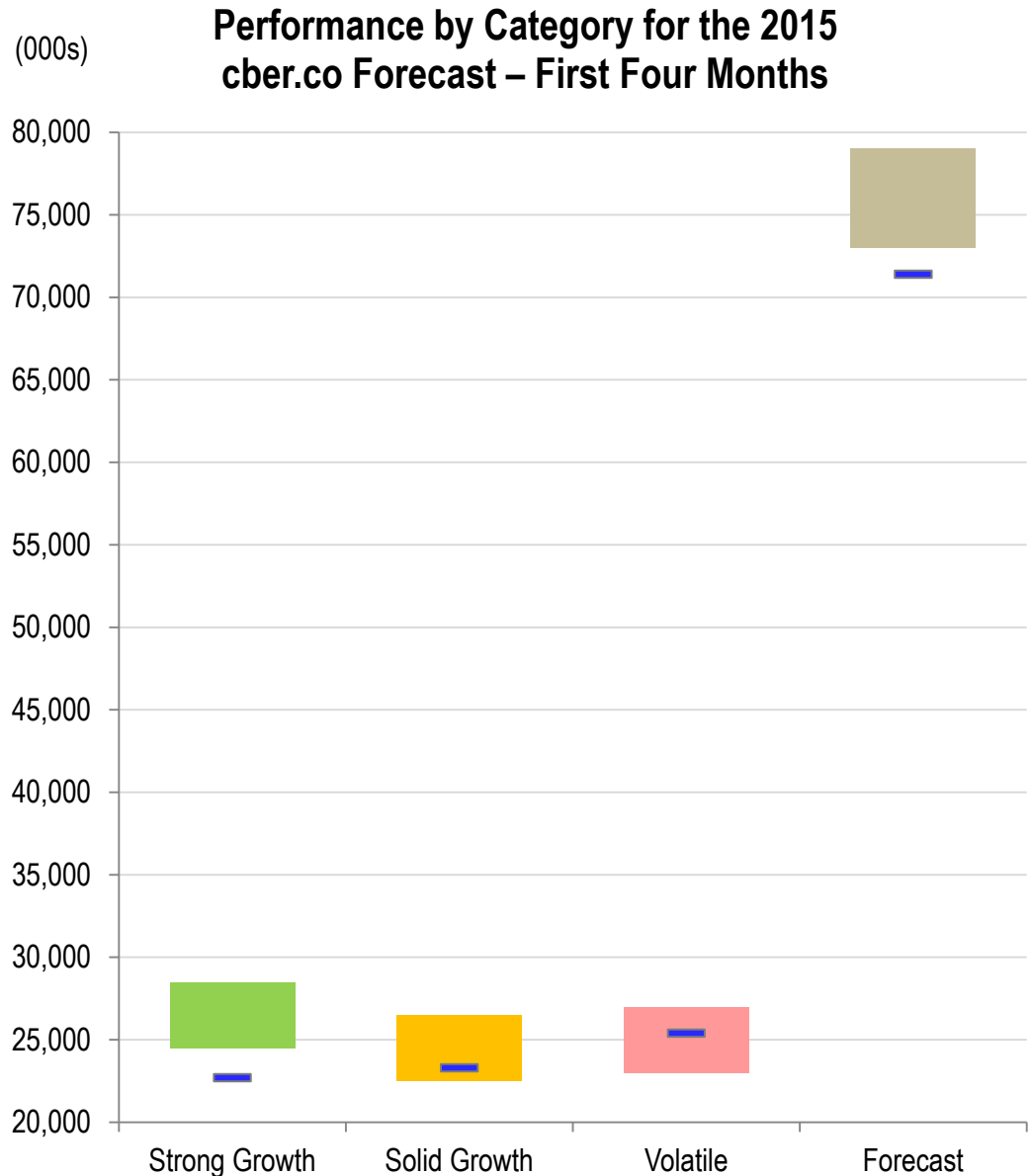
On the chart, the forecast ranges for the categories are:

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

The blue lines indicate the level of employment for BLS data.

Through the first four months the solid and volatile categories were within their respective forecast ranges.

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



Source: Bureau of Labor Statistics, cber.co.

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Special Focus

Colorado Housing/Construction

Oil and Gas Industry



Colorado Housing Prices/Construction

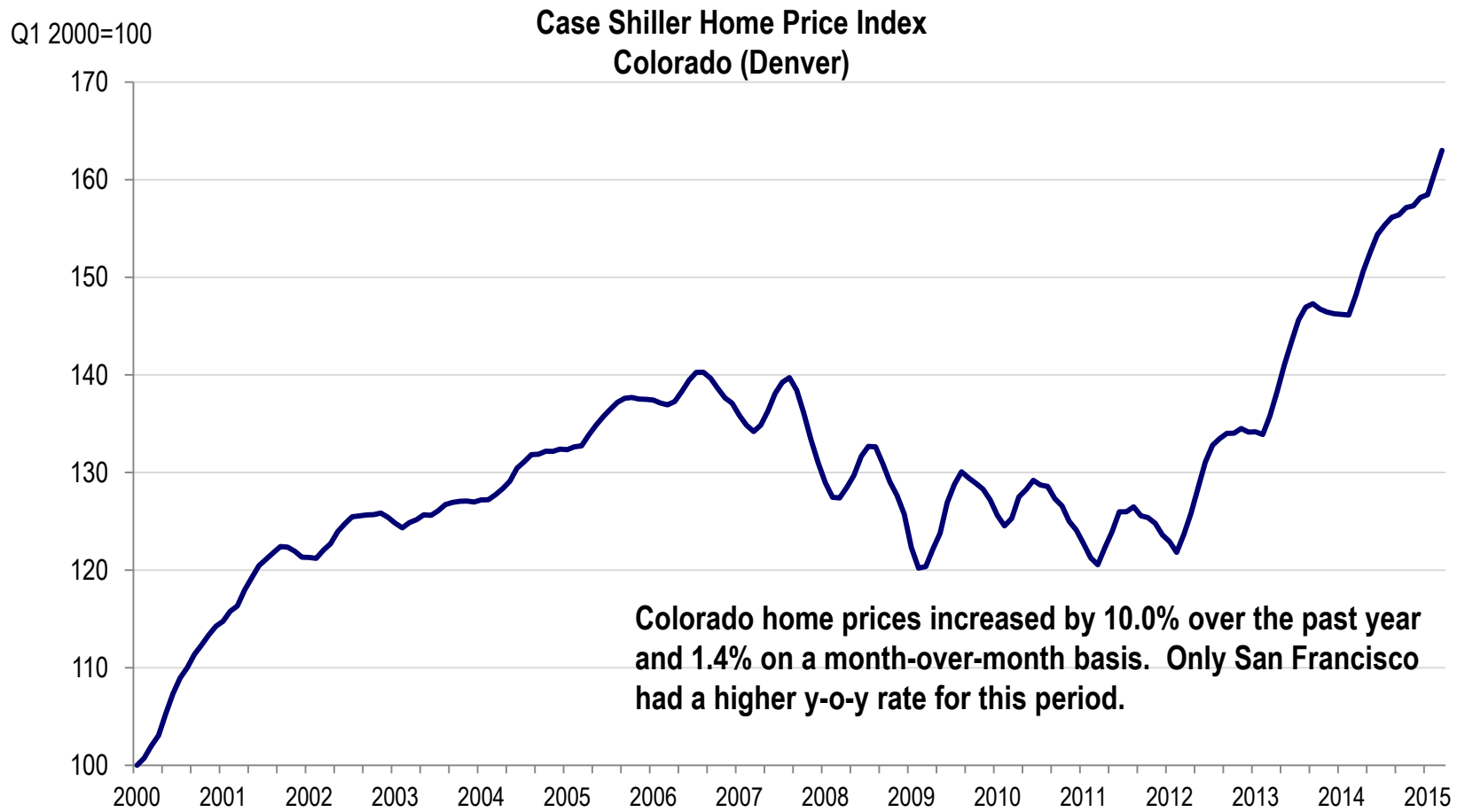
● The Housing/Construction Trifecta



Highlights for the Construction/Housing markets are:

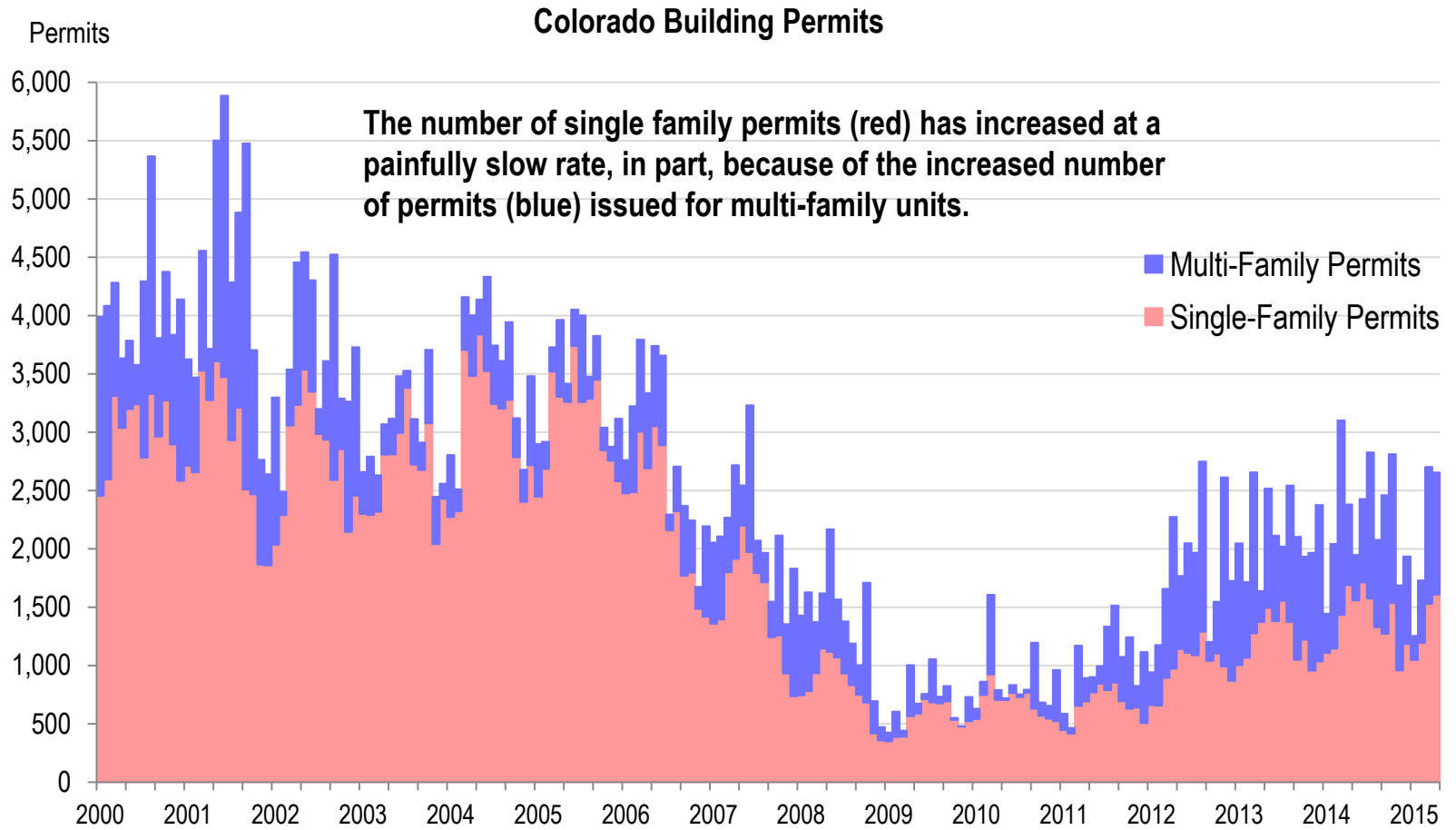
- Denver MSA housing prices have increased at a rate of 10% over the past year.
- Since the end of the recession, a higher percentage of multi-family homes have been built.
- Construction jobs currently account for about 18% of total new jobs added.

Case Shiller Housing Prices Denver (Colorado)



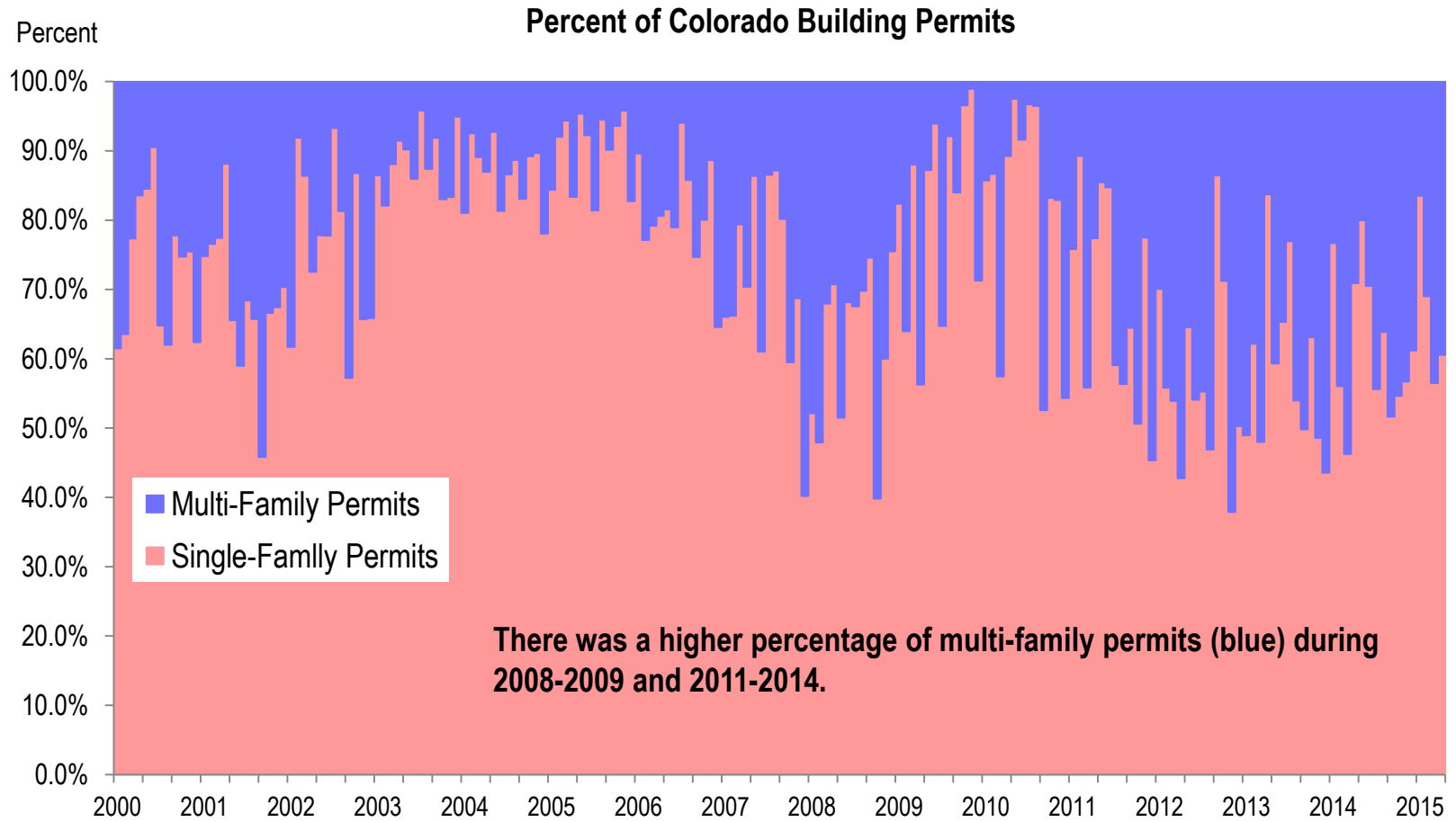
Source: S&P Case-Shiller, FRED.

Colorado Building Permits



Source: TAMU Real Estate Center.

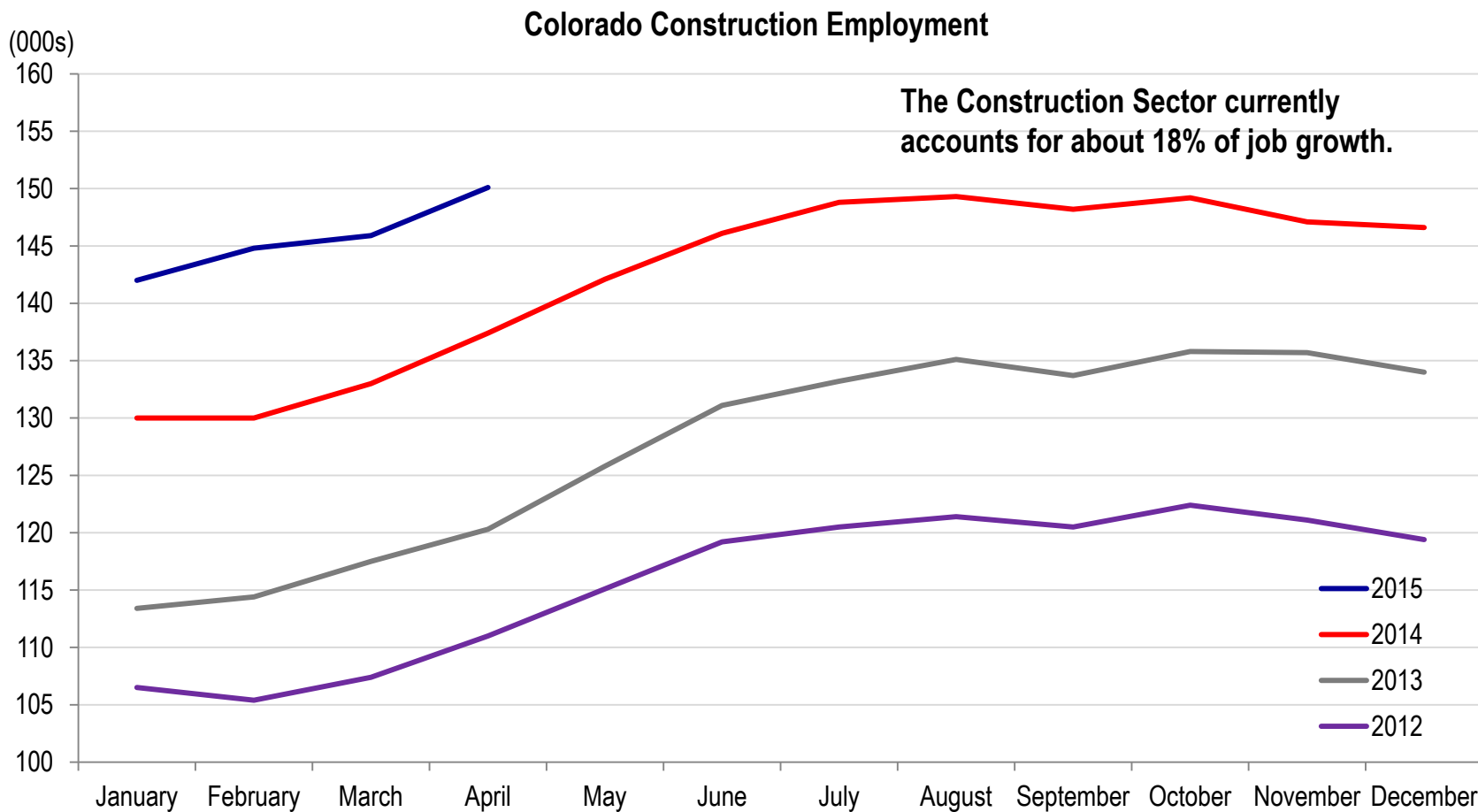
Percentage of Colorado Building Permits Single-Family vs. Multi-Family



Source: TAMU Real Estate Center.

Colorado Construction Employment

2012 to 2015



Source: Bureau of Labor Statistics, NSA.



The Impact of the Decrease in the Price of Oil on the Colorado Employment

● The Oil and Gas Industry

● The Story

Demand and Production

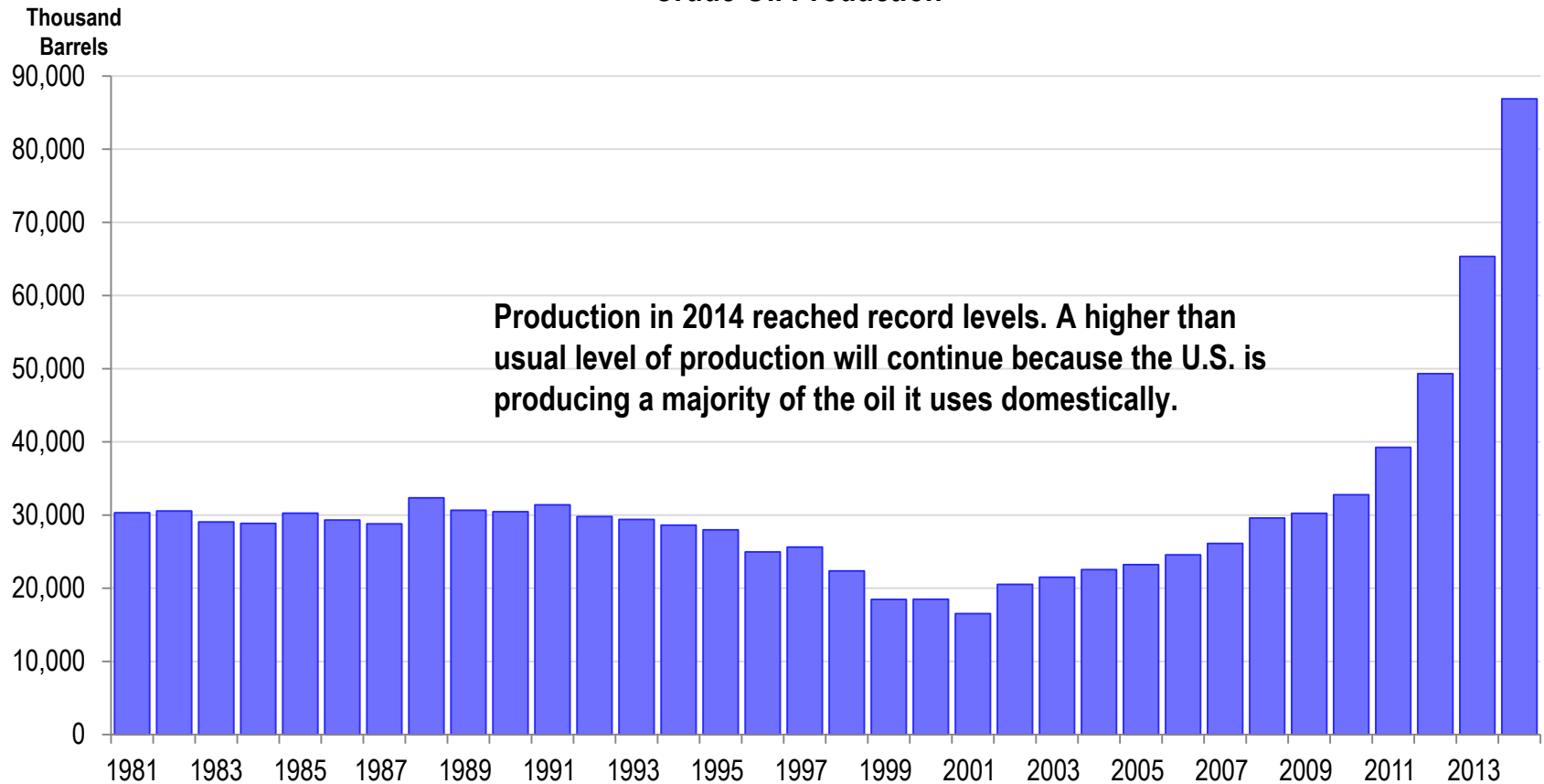
- Global demand for oil is slowly declining, in part because of increased energy efficiency and an increase in alternate sources.
- 2014 was a record year for oil production in Colorado. In 2015, monthly production has remained near record levels, despite the decline in prices.
- Today, the U.S. is producing about 80% of the oil used domestically. This means that Colorado producers will continue to drill, although production may eventually be at lower levels if prices remain low.
- The Oil and Gas industry is a significant contributor to the state's Gross Domestic Product; however, Colorado and the Niobrara play are second-tier producers.

Rigs, Jobs, and Operations

- The number of Colorado rigs in operation has dropped sharply in the past six months. This will result in the loss of jobs. This may be problematic for the workers who are laid off, but the companies will use it as an opportunity to become more efficient.
- The price per barrel and the breakeven point are less critical than they were five years ago. Producers have become more efficient by reducing overhead and adopting improved technology such as super-fracking. In addition they have capped wells that are older or less efficient. Through increased efficiencies, companies have been able to lower the break-even point for many of their plays.
- To this point, lower prices for oil have not hurt the state as bad as some economists had originally thought.

Annual Colorado Crude Oil Production 1981 to 2014 (Thousand Barrels)

Crude Oil Production



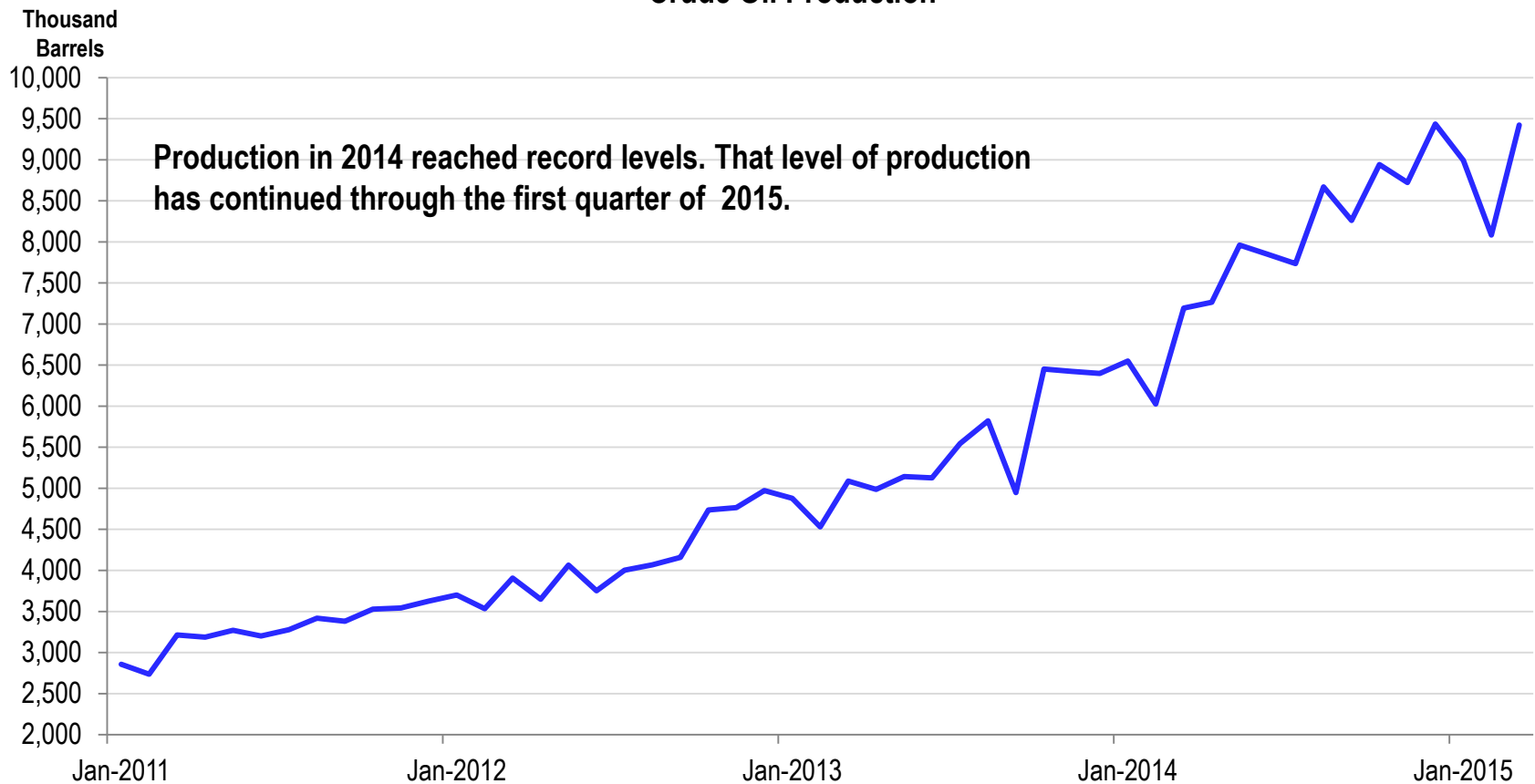
Source: EIA.

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

Crude Oil Production



Source: EIA.

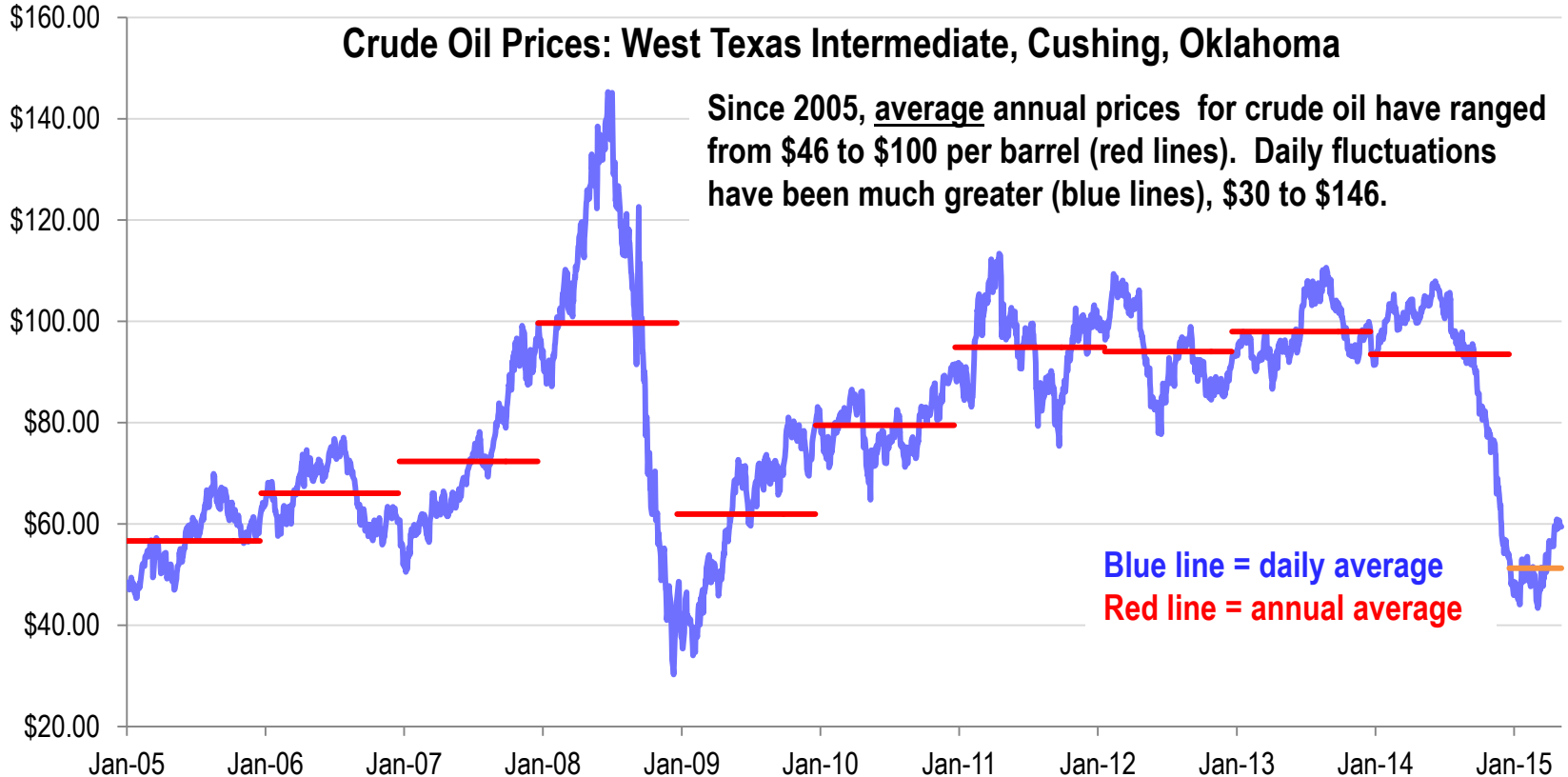
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Crude Oil Prices

West Texas Intermediate

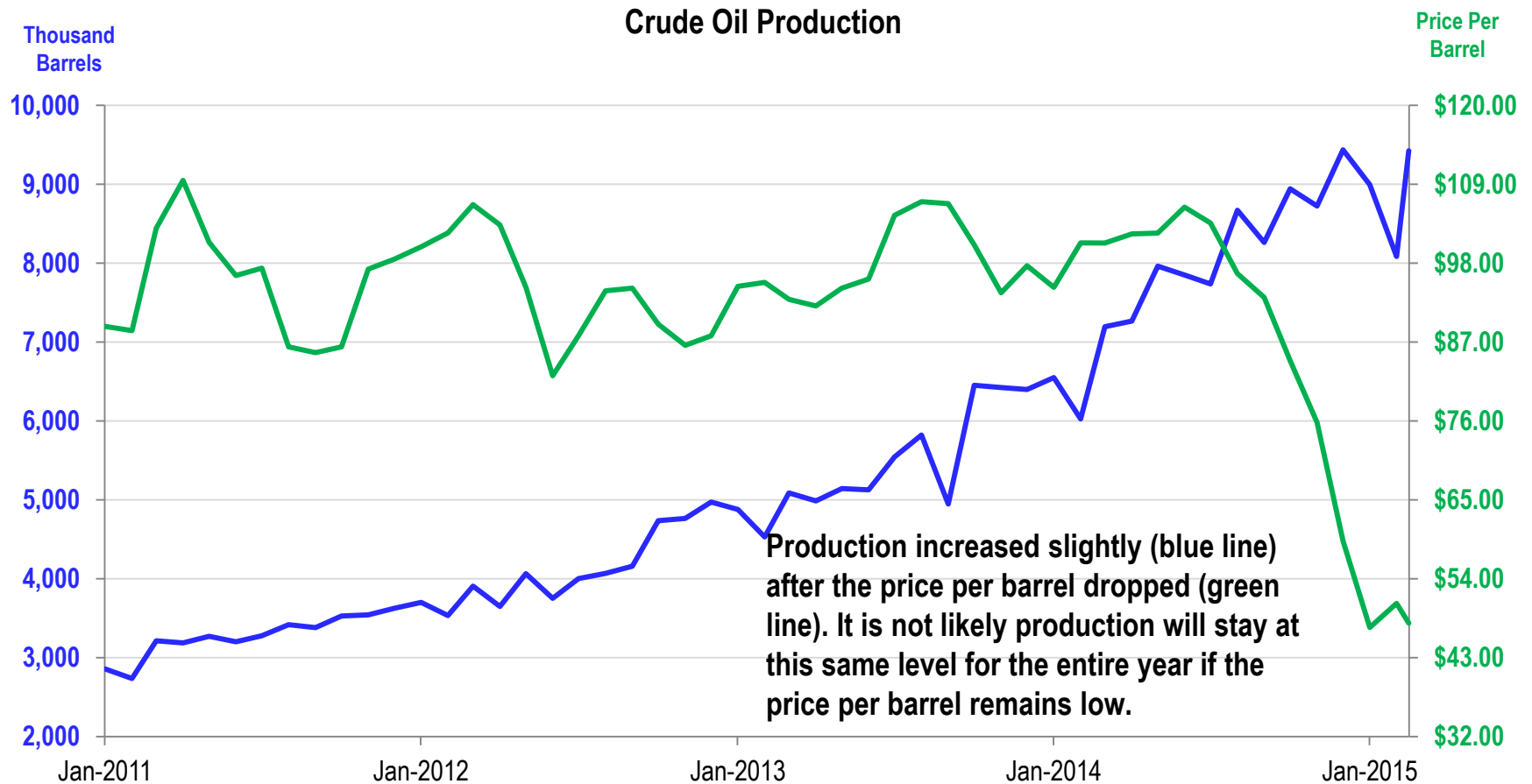
Dollars
per Barrel



Source: FRED, EIA.

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Monthly Colorado Crude Oil Production (Thousand Barrels) vs. Price of Oil per Barrel



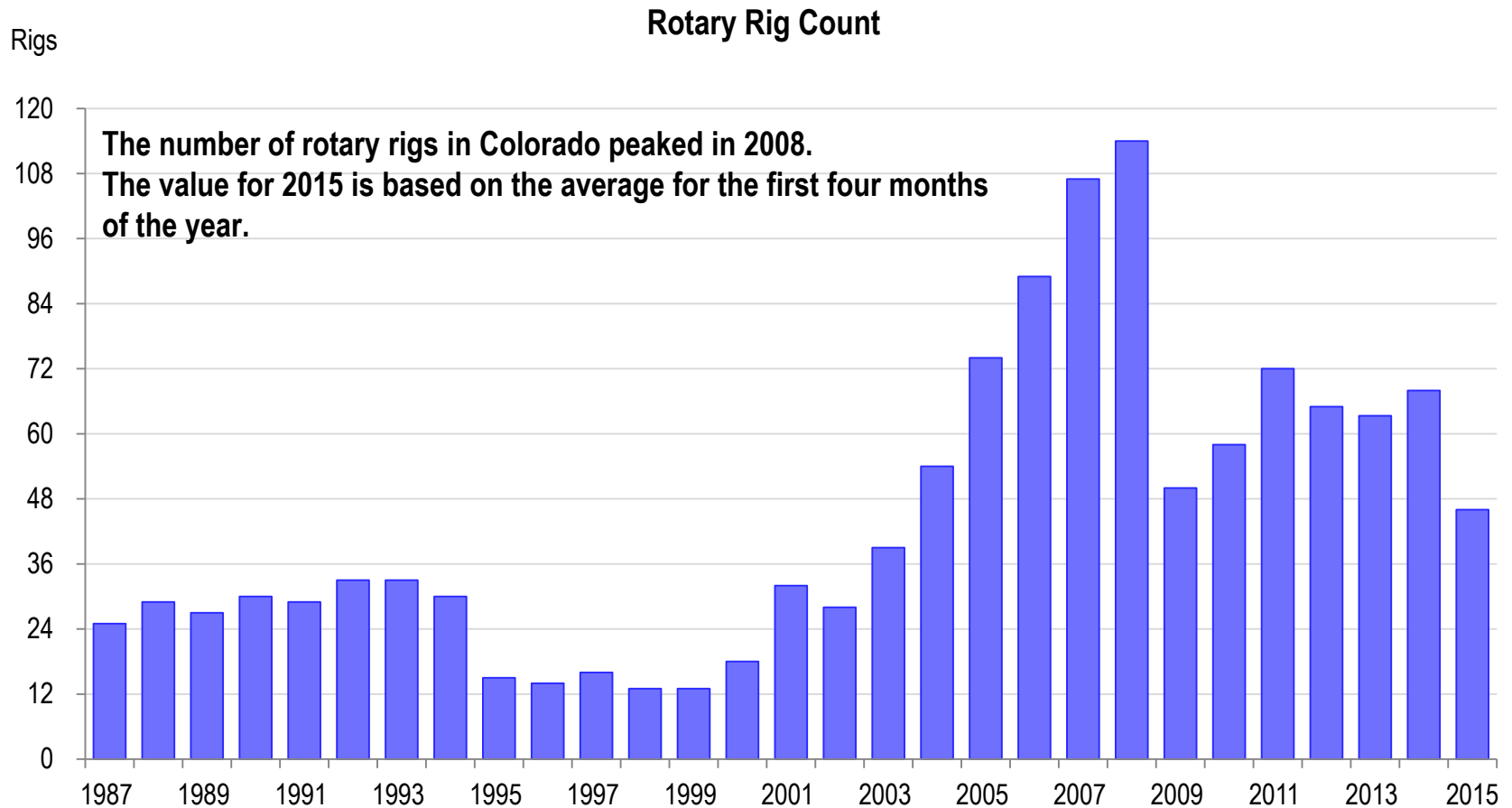
Source: EIA.

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Colorado Annual Rotary Rig Count

1987 to 2015



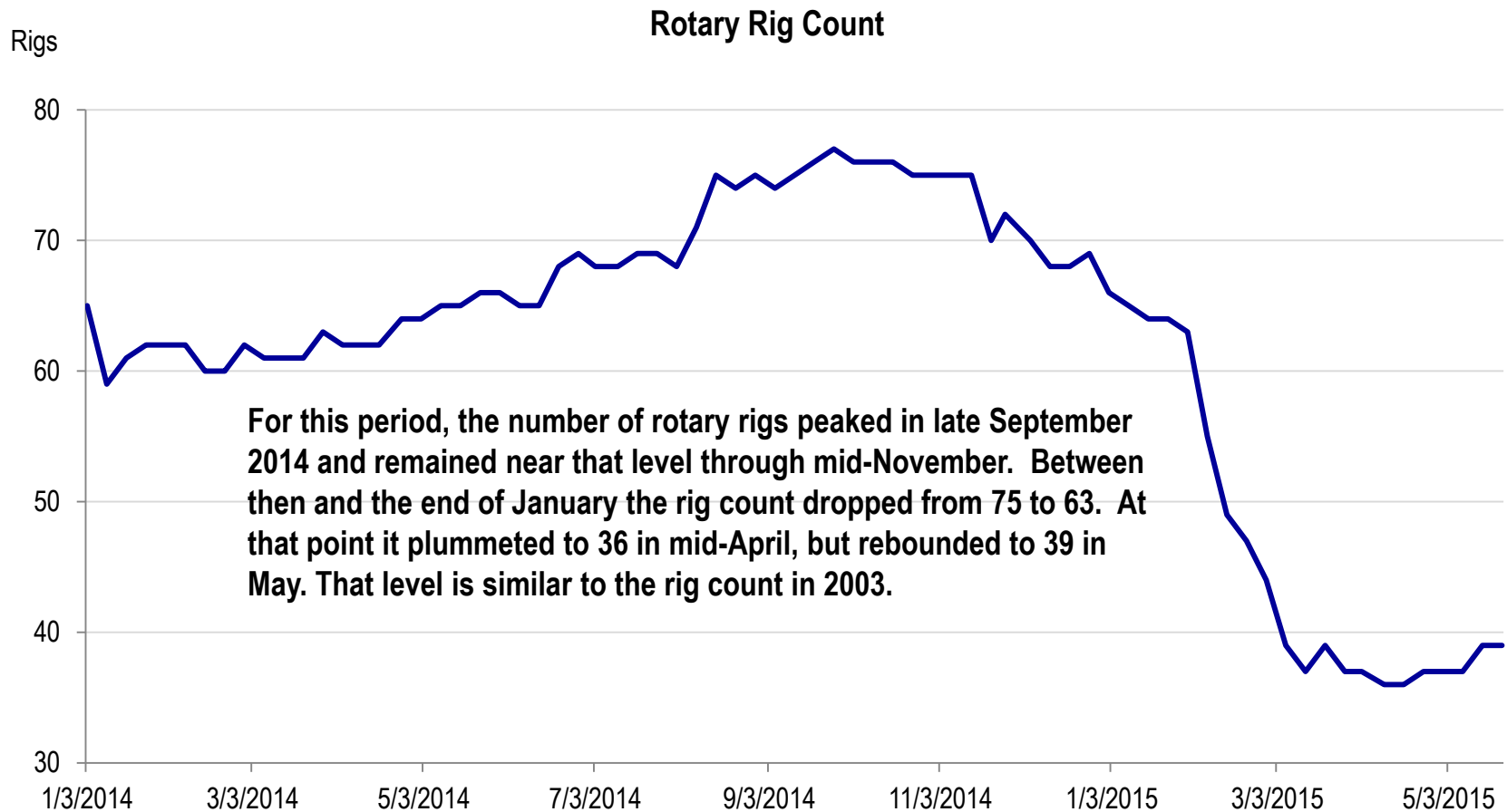
Source: Baker-Hughes.

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Number of Rotary Rigs in Colorado

2014 to 2015



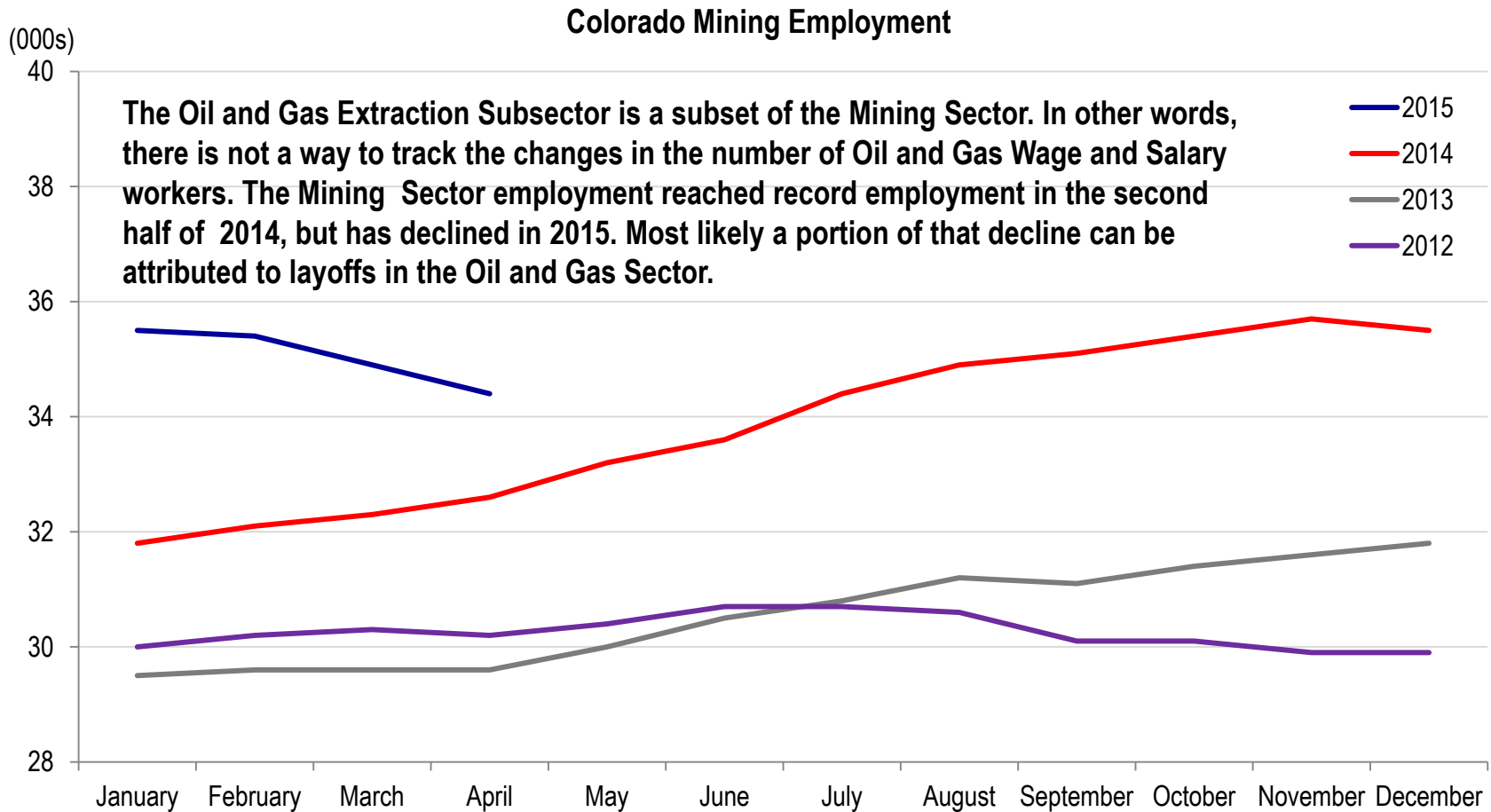
Source: Baker-Hughes.

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Colorado Mining Employment

2012 to 2015

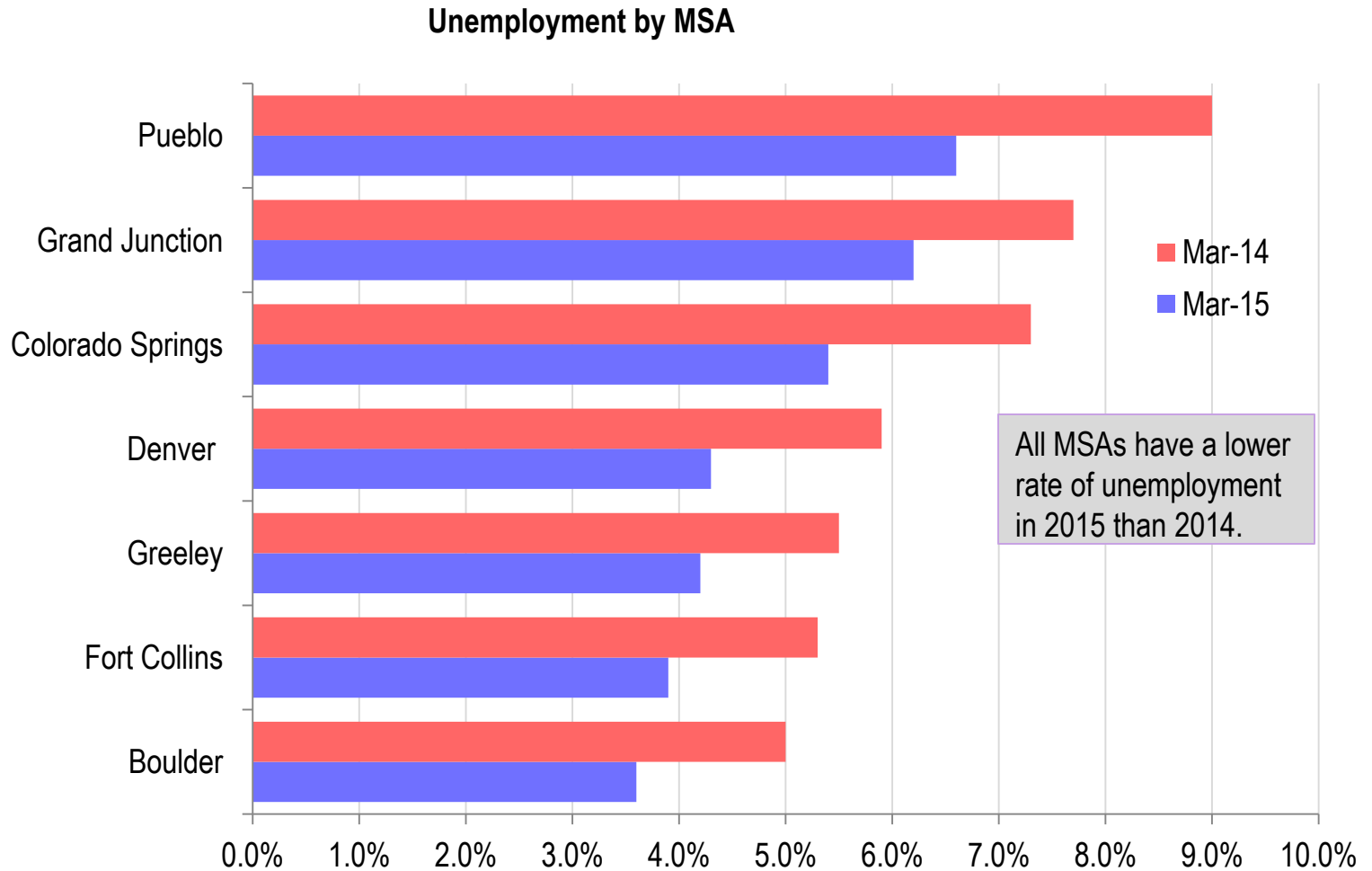


Source: Bureau of Labor Statistics, NSA.



Summary and Total Jobs Added

Unemployment by MSA 2014 vs. 2015



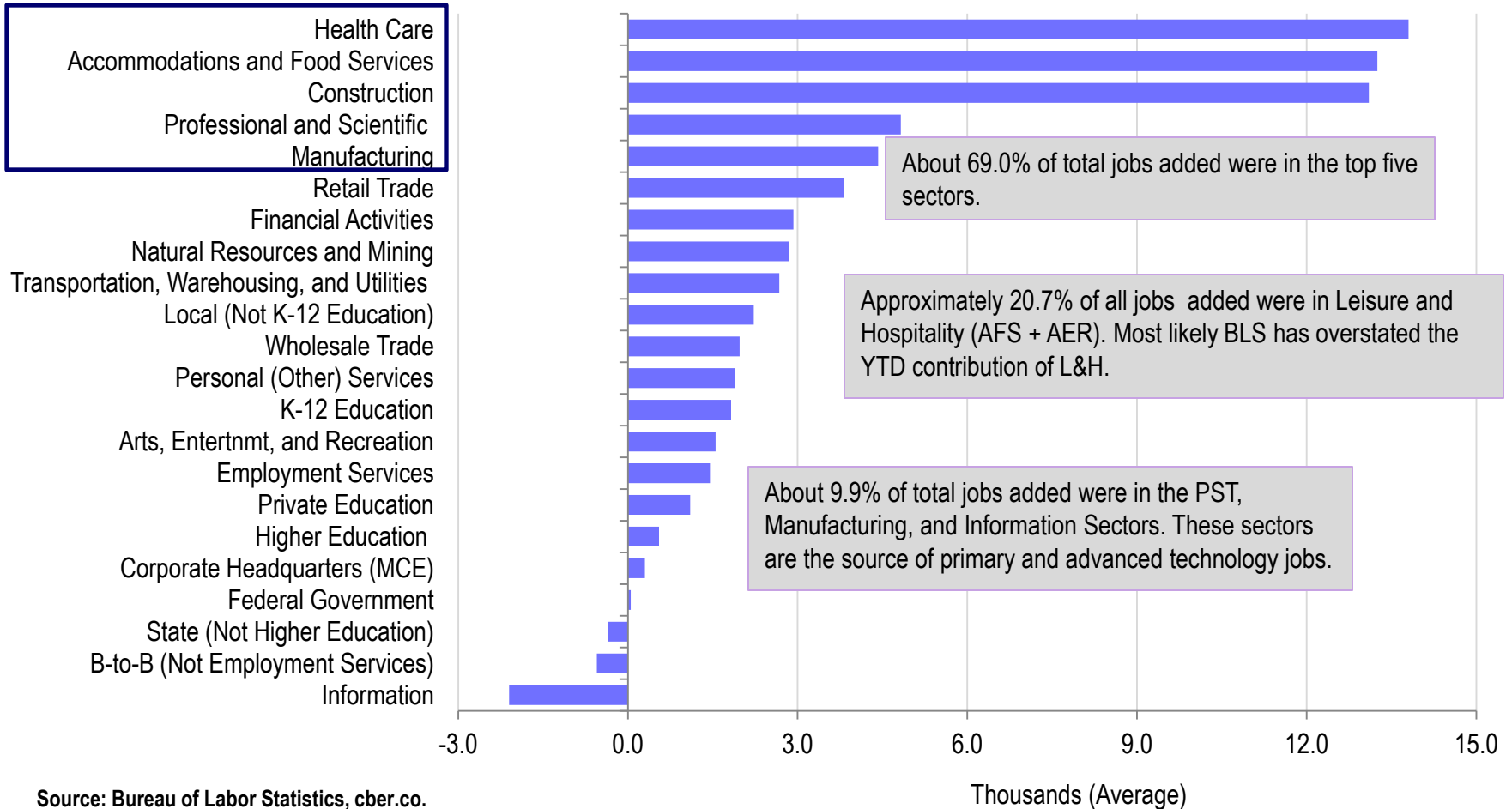
Source: Bureau of Labor Statistics.

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Change in Employment First Four Months 2015

Number of Jobs Added



Source: Bureau of Labor Statistics, cber.co.

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<http://cber.co>

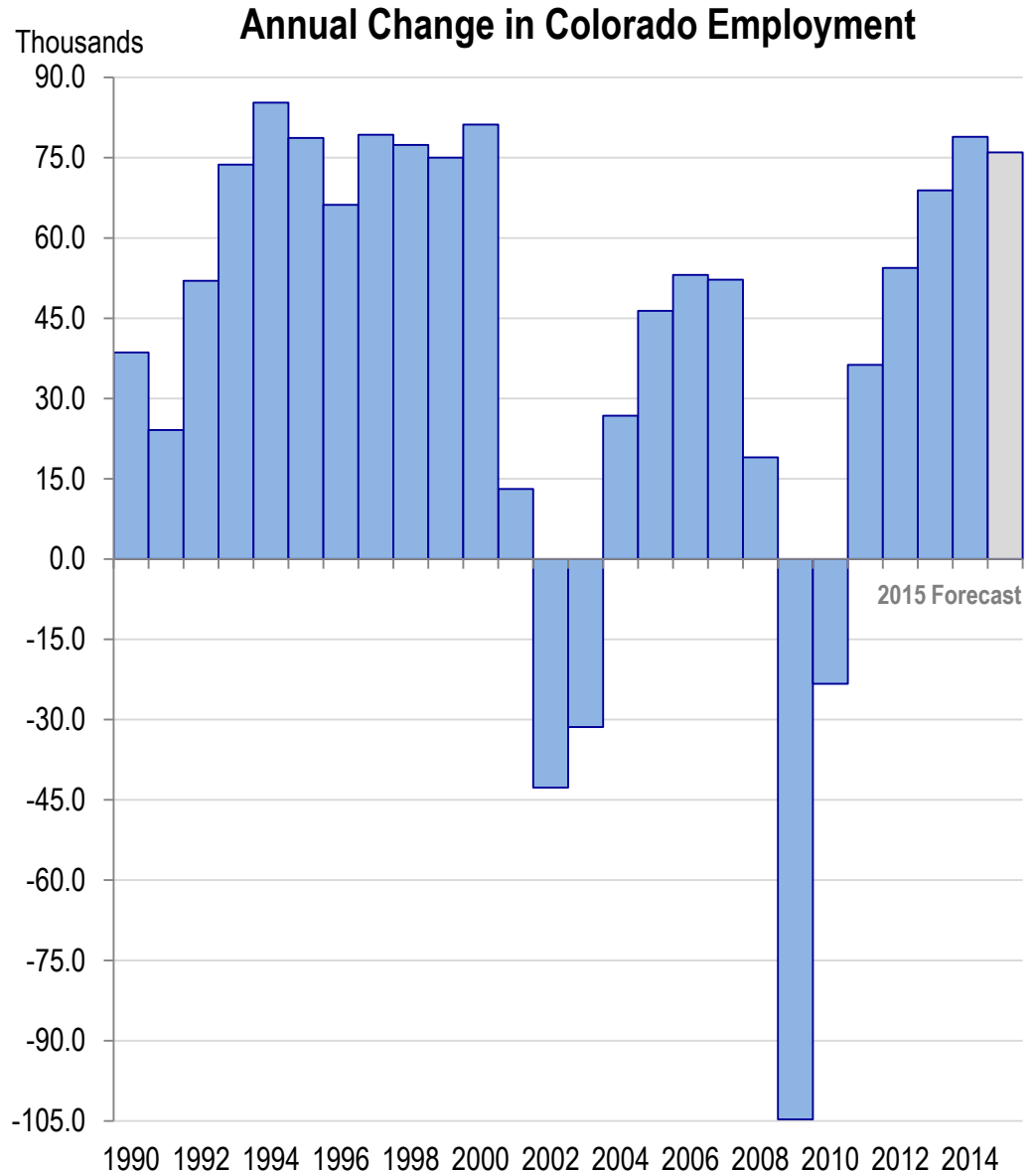
Annual Employment Change in Colorado

In 2014, Colorado experienced accelerating job growth for the fourth consecutive year. The state added 78,900 workers, an increase of 3.3% on a base of 2,381,900 (2013).

The state will add 73,000 to 79,000 jobs in 2015. Colorado employment will increase by 3.0% to 3.2%.

For the first four months of 2015 Colorado employment is 71,400 jobs greater than the same period last year.

The Colorado Department of Labor has indicated they will make a significant upward adjustment to Q4 2014 data. Most likely that adjustment will lead to an upward adjustment of the data for the first four months of 2015.



Source: Bureau of Labor Statistics, cber.co.

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



Summary

Colorado employment is on track to meet the cber.co forecast to add 73,000 to 79,000 jobs in 2015. The number of workers will increase by 3.0% to 3.2%.

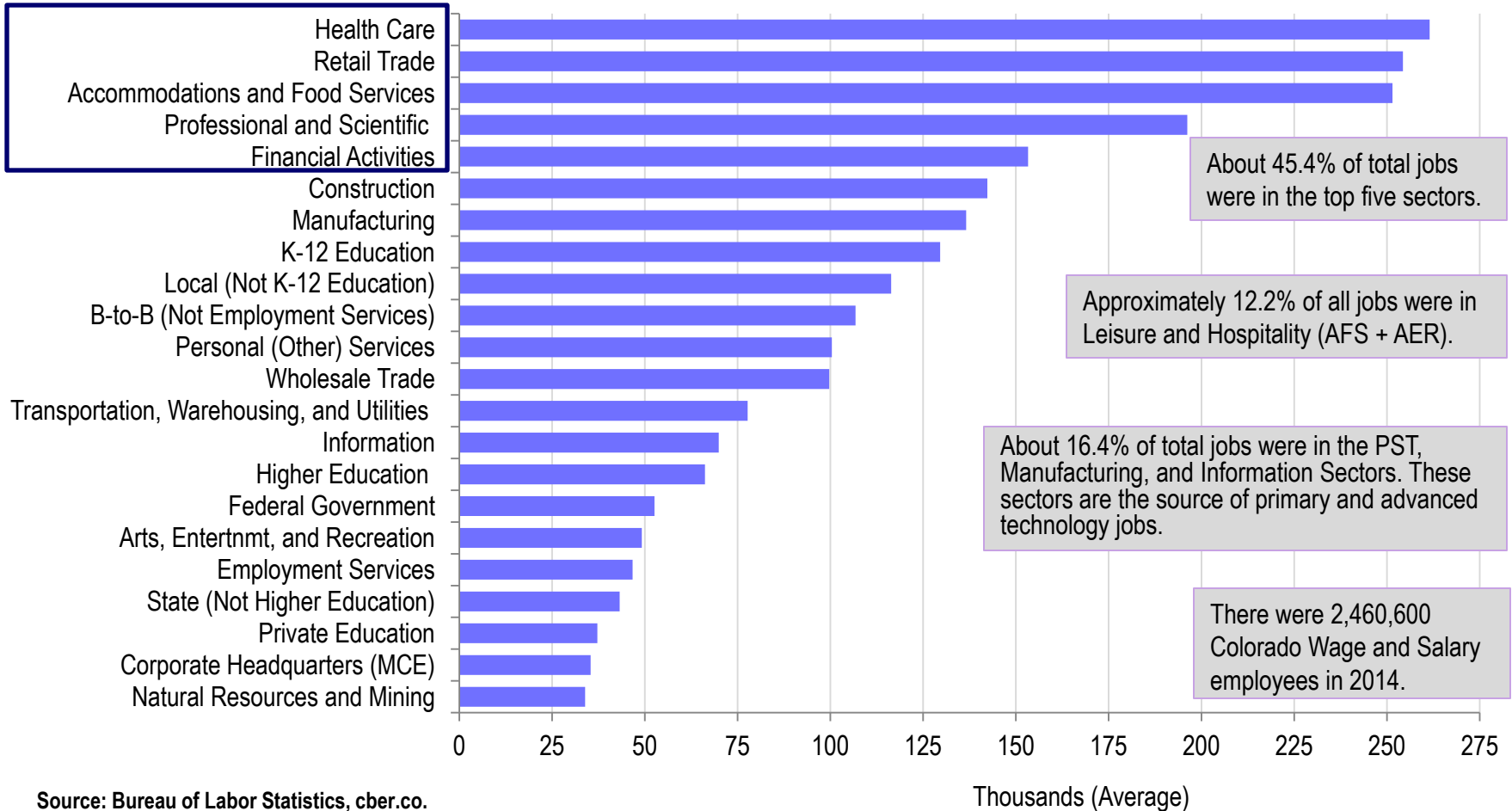
- Job growth for the first four months of 2015 was 3.0%, or 71,400 jobs greater than the same period in 2014.
- The Colorado Department of Labor has indicated that employment for Q4 2014 will be increased by 16,000 jobs. This upward revision will be reflected in the March 2016 benchmark revisions for 2014. The revision means the state had much greater momentum coming into the year than originally anticipated. It also suggests the first four months of 2015 will also be revised upwards.
- The sectors with the top job growth were: Health Care; Accommodations and Food Services; Construction; Professional, Scientific, and Technical Services; and Manufacturing. These sectors accounted for 69% of total job growth.
- Almost 10.0% of total jobs were added in the PST, Manufacturing, and Information Sectors. These sectors are the source of primary and advanced technology jobs.
- Each of the seven metro areas have lower unemployment rates than a year ago. The rates for Denver, Boulder, Fort Collins, and Greeley are below 4.5%, whereas the rates for Colorado Springs, Pueblo, and Grand Junction are 5.4% or greater.
- The March Case-Shiller data shows that Denver housing prices rose by 10.0% over the past year. Only San Francisco was higher at 10.3%. Nationally, appreciation was 5.0%.
- To date there have been minimal layoffs in the Oil and Gas Industry as a result of lower oil prices. Production has remained near record levels.



Appendix

2014 Colorado Wage and Salary Employment

Employment



Source: Bureau of Labor Statistics, cber.co.

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<http://cber.co>



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.

In 2012, 2013, and 2014 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 of the original forecast. In the short period 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.

Measuring Change in Employment

Methods of Measuring Change in Employment

- Month-over-prior-month – This method can be used only with seasonally adjusted data.
- Year-over-prior-year – This method can be used with seasonally adjusted or non-seasonally adjusted data. The results are usually similar.
- Rolling average – Average employment for a period, such as 12-months, compared to average employment to the average for the prior period of “rolled” data.

Measurement Used by cber.co

- cber.co typically uses a derivative of a rolling average. For example, the average of the first quarter of 2015 will be compared to the average for the first quarter of 2014. It is also important to look for trends.
- This methodology is preferred to seasonally adjusted month-over-prior month data, particularly with employment data. Advances in technology and the past two recessions have made it difficult to accurately adjust for seasonality.



BLS/LMI 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 20th 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 20th 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.



Review of Colorado Economy Analysis of First Four Months of 2015

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.