



Review of Colorado Economy Analysis of Q1 2015 Employment Data

Colorado-based Business and Economic Research

April 24, 2015



Overview

The 2015 cber.co Colorado Employment Forecast - The state will add 73,000 to 79,000 jobs in 2015. During the first quarter the state added has added 74,800 jobs.

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 67.0% 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.
- The Impact of the Decrease in the Price of Oil on Colorado Employment.
- 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

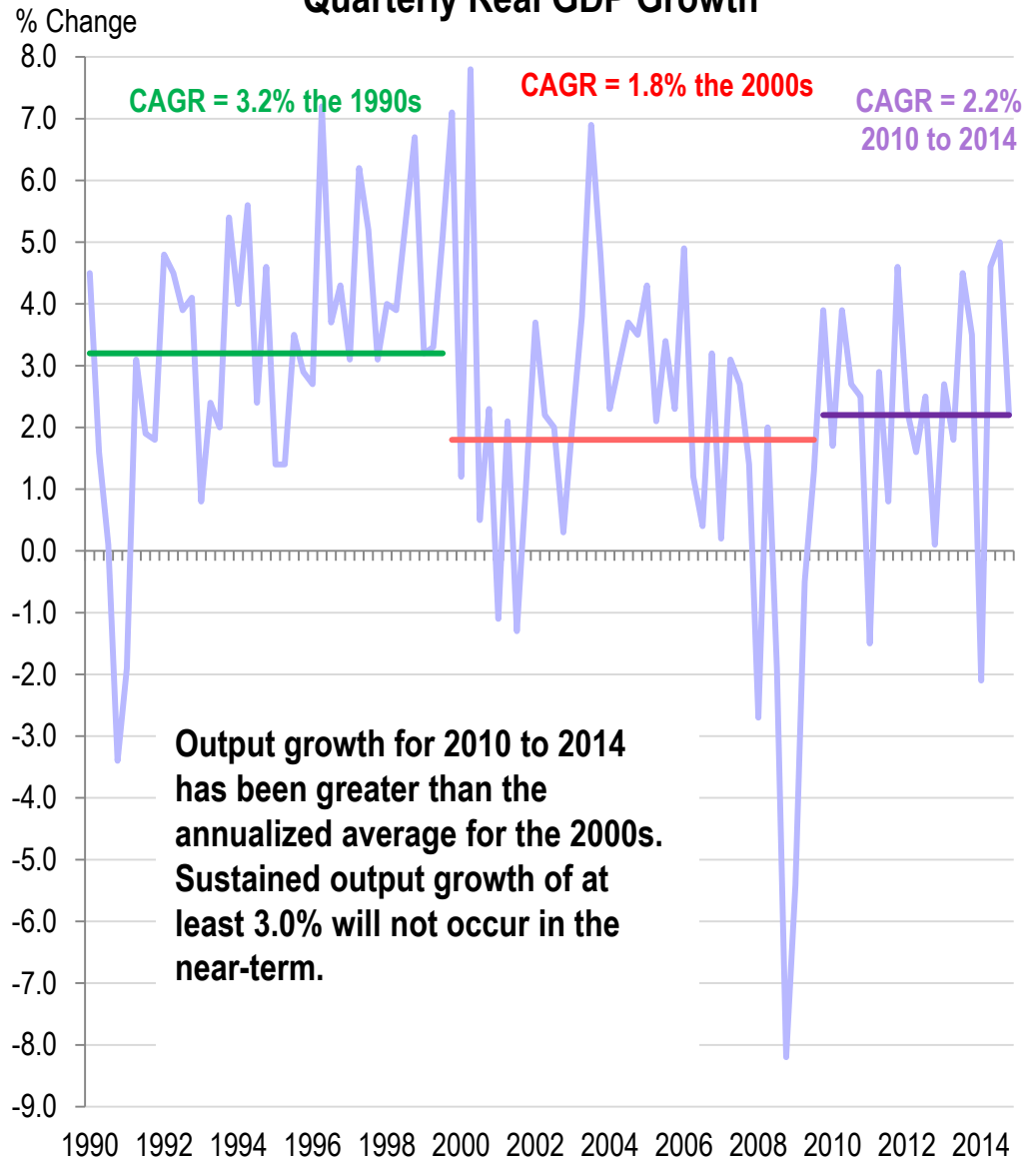
The cber.co 2015 forecast calls for real output expansion of 2.5% to 2.9%, a slight increase over 2014. It is noteworthy that The Conference Board recently upgraded their 2015 forecast to 2.9%, an increase from 2.5%. TCB has been conservative, but accurate in its projections for the past five years.

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 annual output growth for the past five years is:

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

Quarterly Real GDP Growth

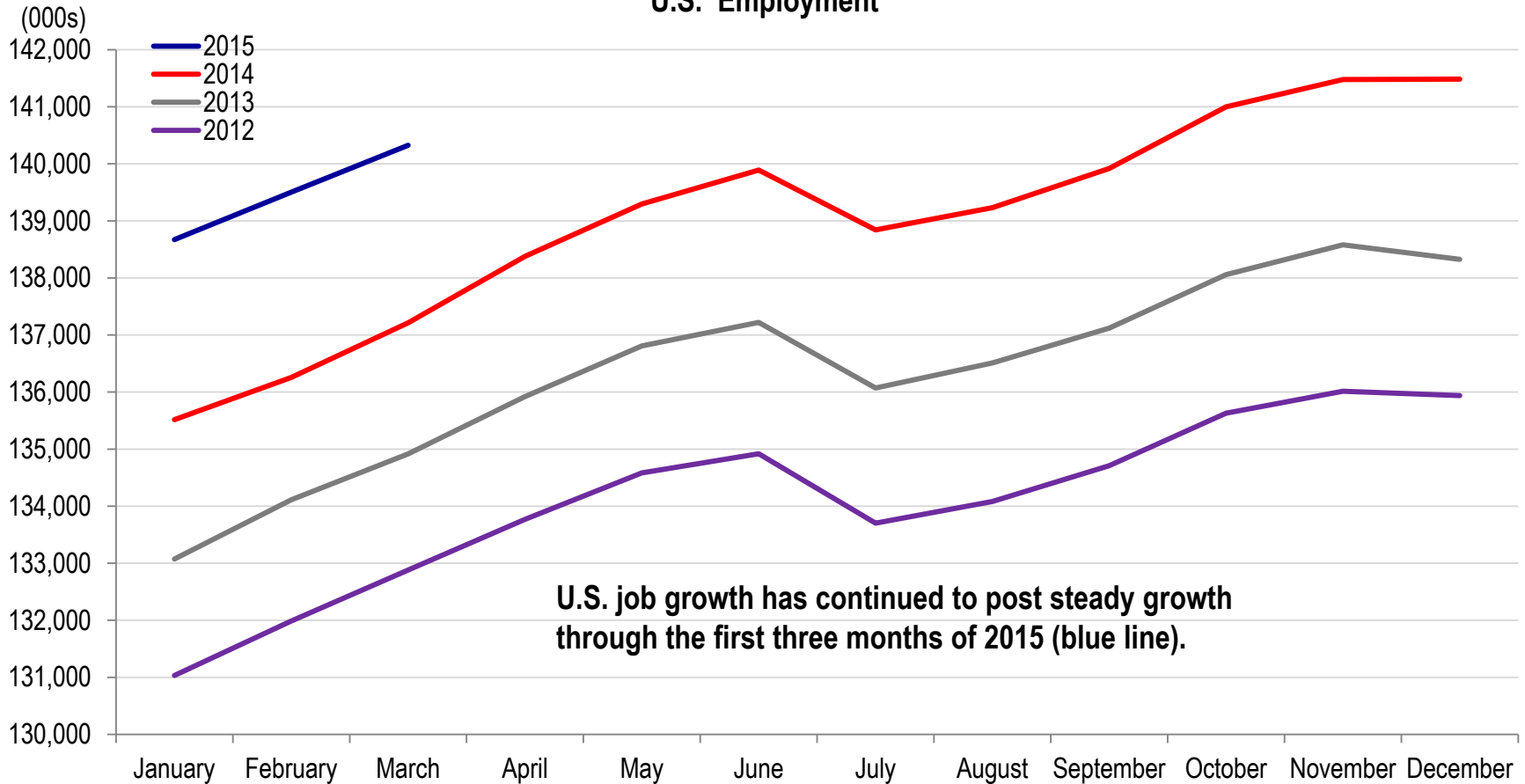


Source: Bureau of Economic Analysis, cber.co, Note GDP chained on 2009.

U.S. Employment

2012 through March 2015

U.S. Employment



U.S. job growth has continued to post steady growth through the first three months of 2015 (blue line).

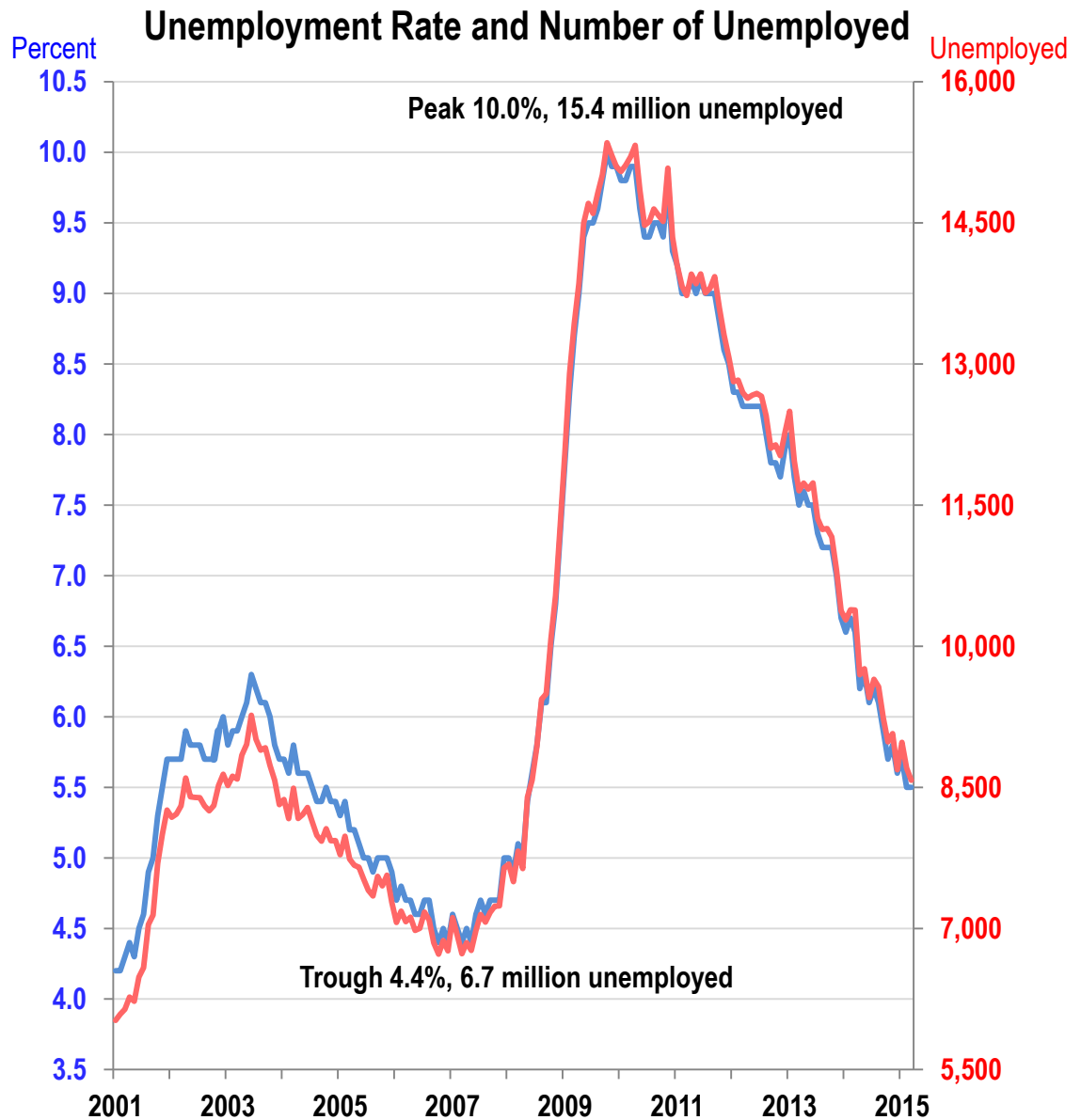
Source: Bureau of Labor Statistics, NSA.

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 March 2015. This is 1.9 million above the low point in 2007 and 6.8 million below the high point in 2009.

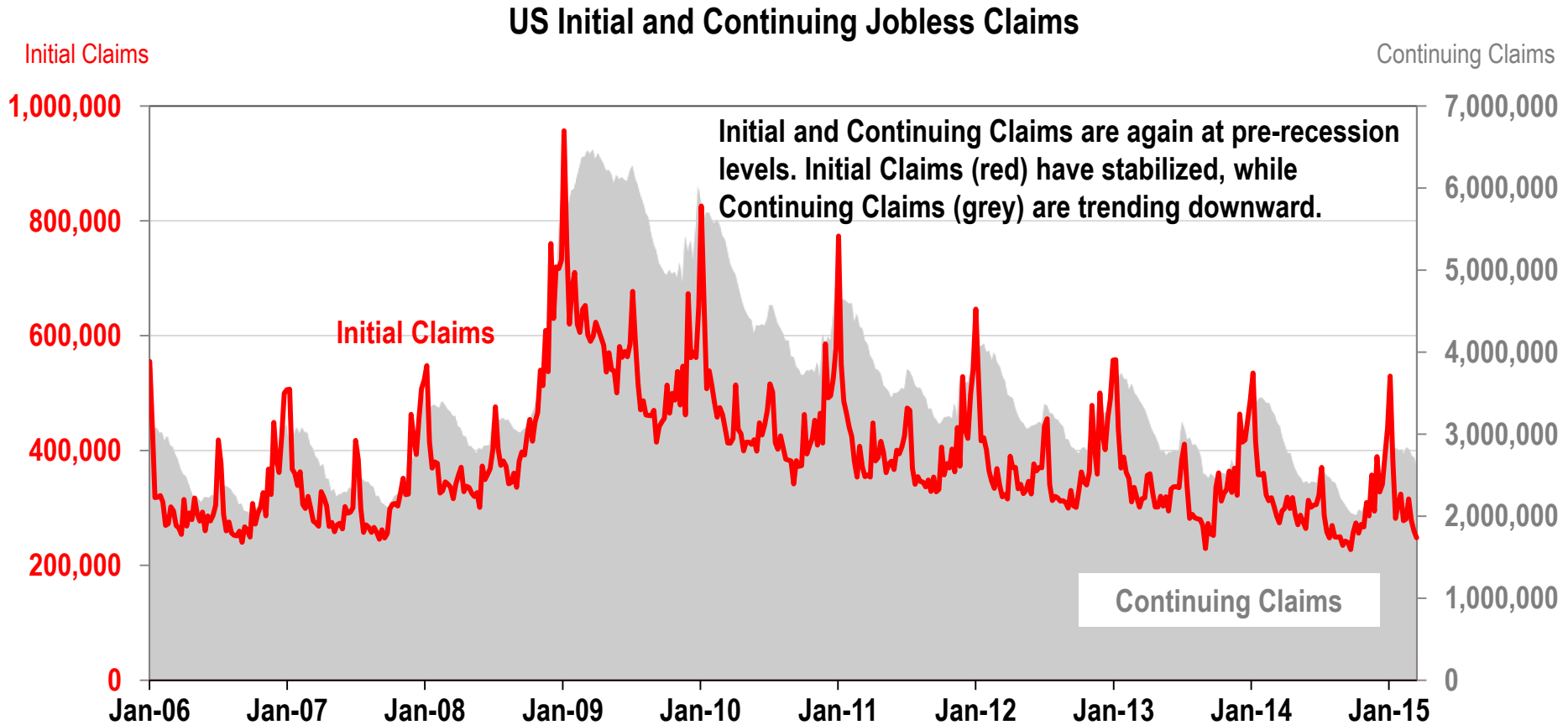
The unemployment rate was 5.5% for March 2015, down from 6.6% at the same time last year, but only down from 5.6% at the end of 2014.



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

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U.S. Jobless Claims



Summary of U.S. Economy in 2015

The U.S. economy is stronger in 2015 than it was in 2014. There continues to be improvement in the number of jobs added despite minimal growth in output.

- U.S. Real GDP growth in 2014 remained below potential; yet it was slightly greater than 2013, 2.4% vs. 2.2%. Output is projected to be in the 2.5% to 2.9% range for 2015.

- Consumer spending remained weak, 2.5% in 2014 vs. 2.4% in 2013. It will be in the 2.4% to 2.8% range in 2015.

- Since the last report*, the Conference Board recently raised its forecast for Real GDP to 2.9% for 2015 based on increased personal consumption (3.0%).

- The rate of U.S. job growth for Q1 2015 was 2.3%, compared to 1.9% for 2014.

- The unemployment rate continued to decline and was 5.5% in March. This is down from 5.6% at the end of the year and down from 6.6% at the same time last year.

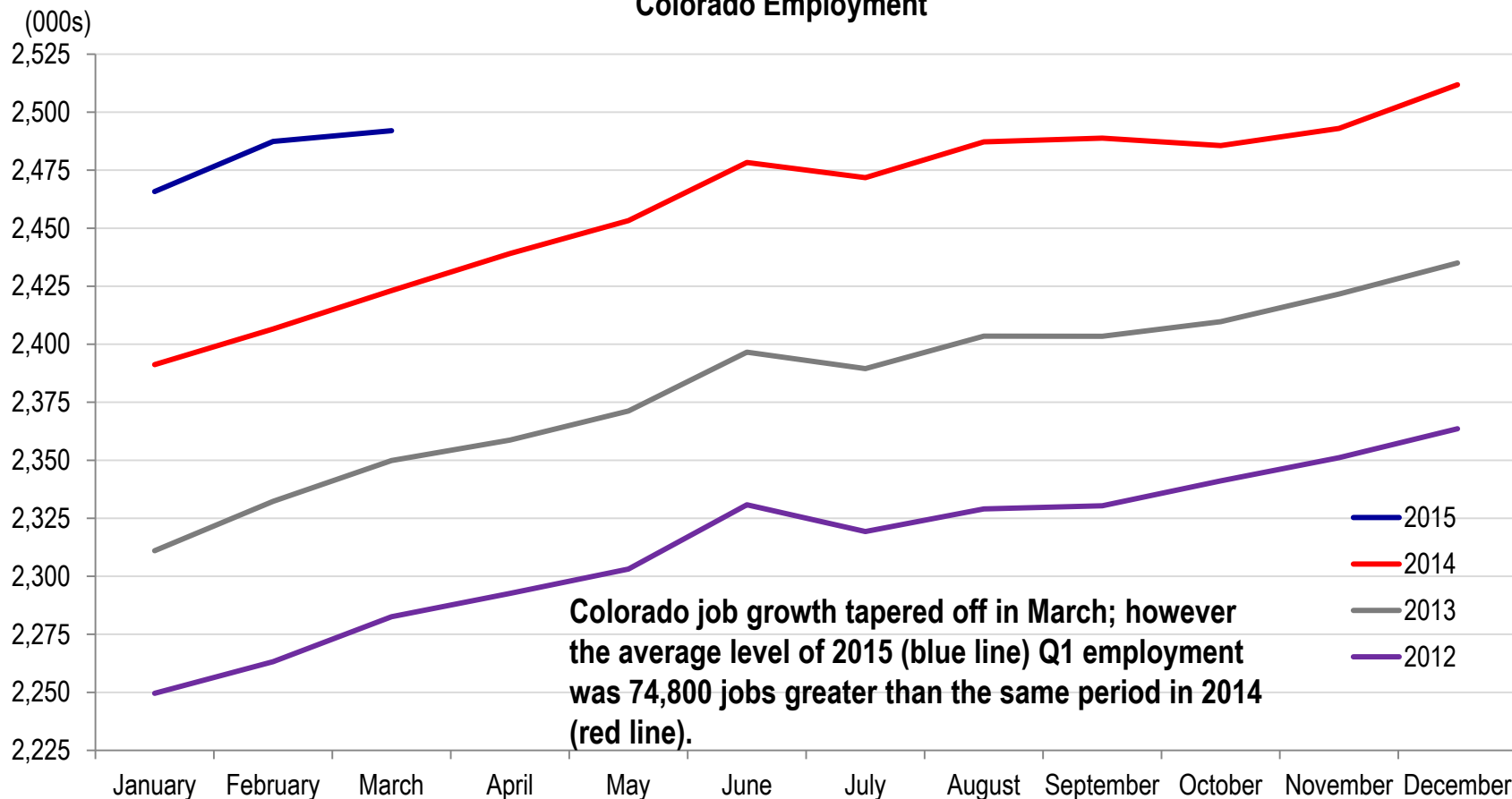
- The drop in the price of oil will cause a decline in the number of oil and gas workers.



Colorado Employment and Unemployment

Colorado Employment 2012 to 2015

Colorado Employment



Colorado job growth tapered off in March; however the average level of 2015 (blue line) Q1 employment was 74,800 jobs greater than the same period in 2014 (red line).

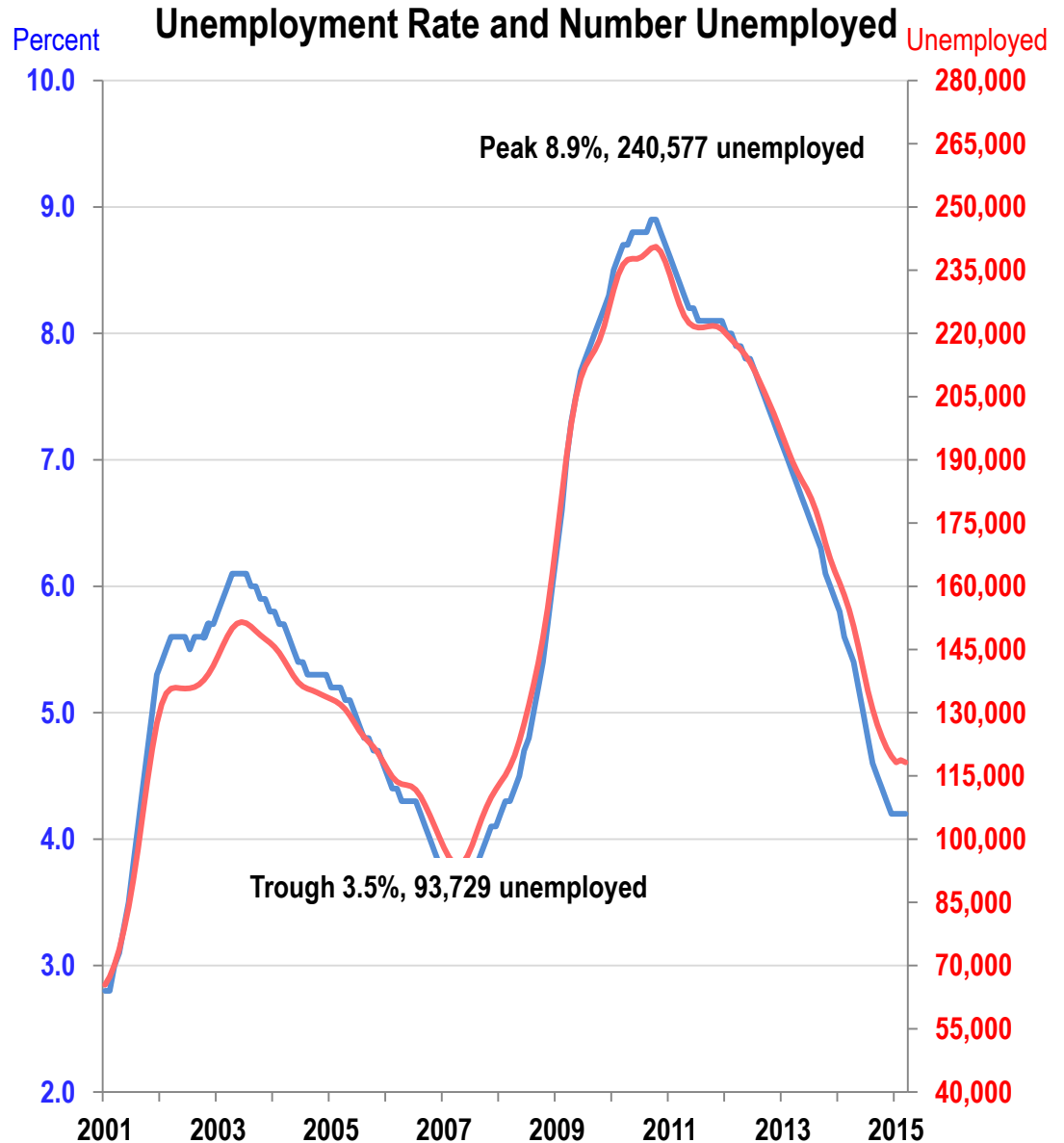
Source: Bureau of Labor Statistics, NSA.

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 March 2015 was 118,227. This number changed very little over the prior month.

The total number of unemployed is 24,498 greater than the trough in April 2007 and 122,350 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 four months, down from 5.5% at the end of March 2014.



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

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Change in Q1 Colorado Employment by Performance Category

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.
- This methodology is preferred to seasonally adjusted month-over-prior month data.



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.

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:

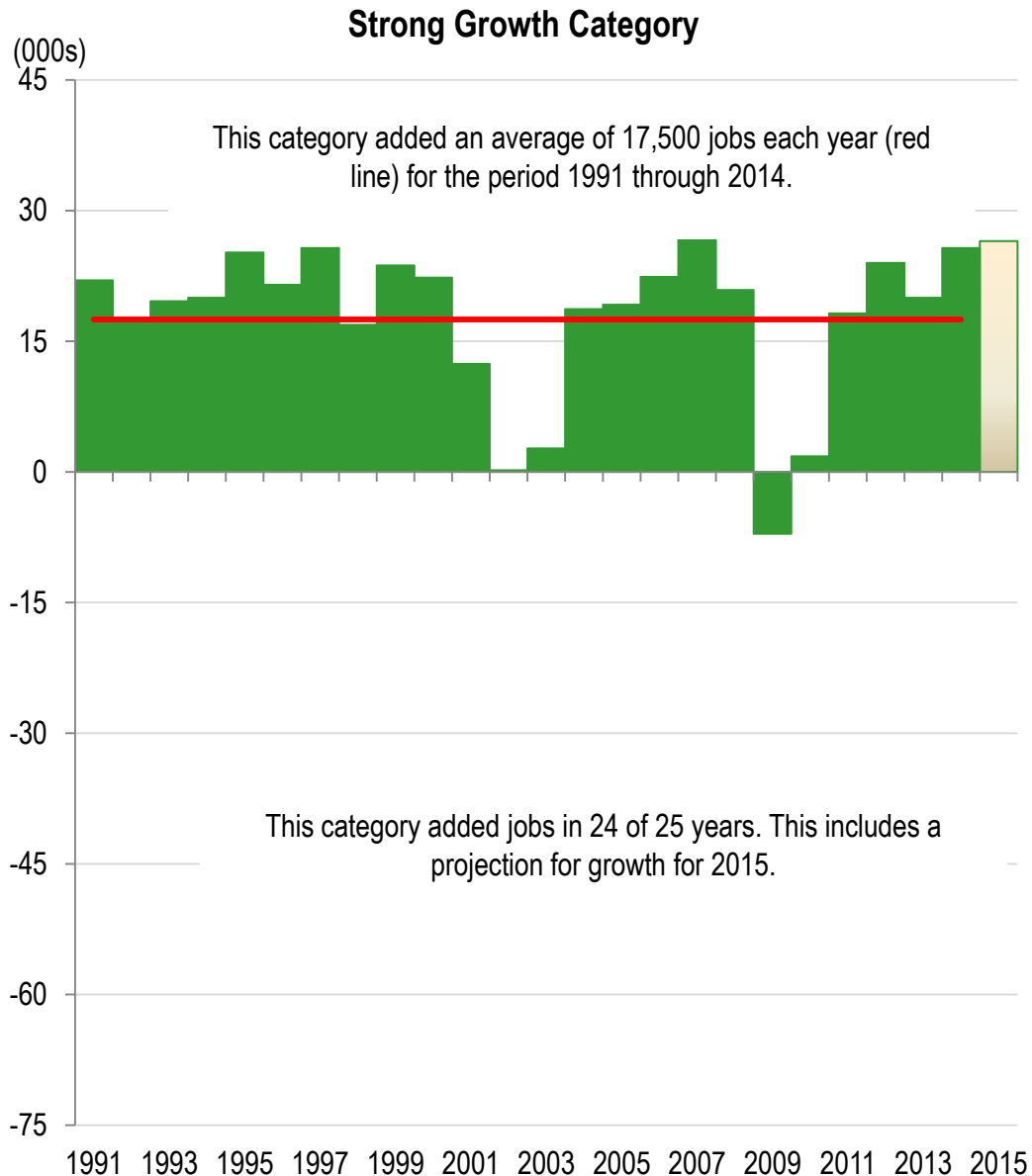
1994 445,200 workers, 25.4% of total employment
 2004 615,900 workers, 28.3% of total employment
 2014 786,700 workers, 32.0% of total employment

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.

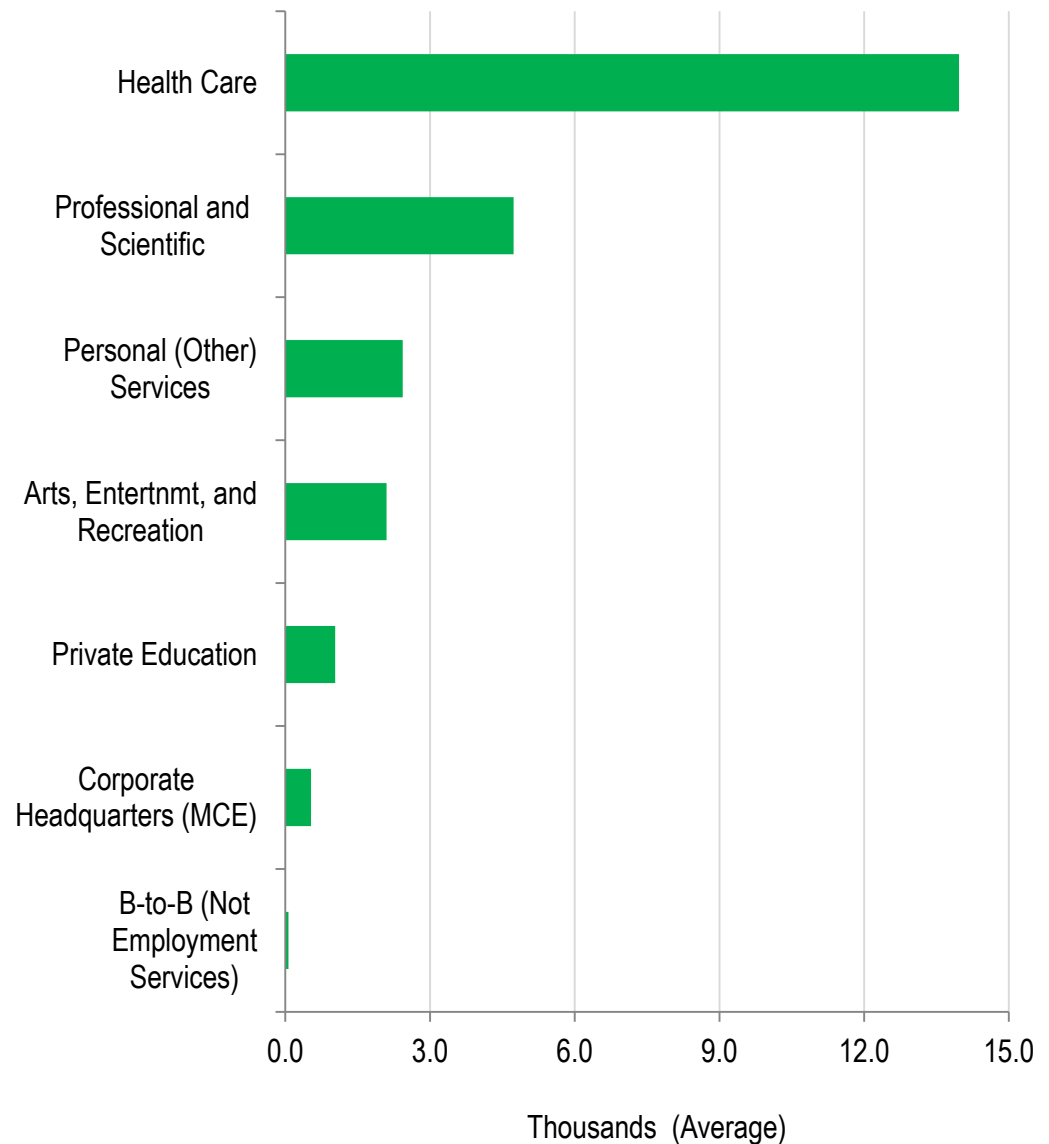
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● Strong Growth Sectors

- Through Q1 2015 this group of industries added 24,700 jobs compared to Q1 2014.
- This category was projected to add 24,500 to 28,500 for the year. To date, its performance is at the bottom of 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.

Job Change in Q1



Source: Bureau of Labor Statistics.

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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:

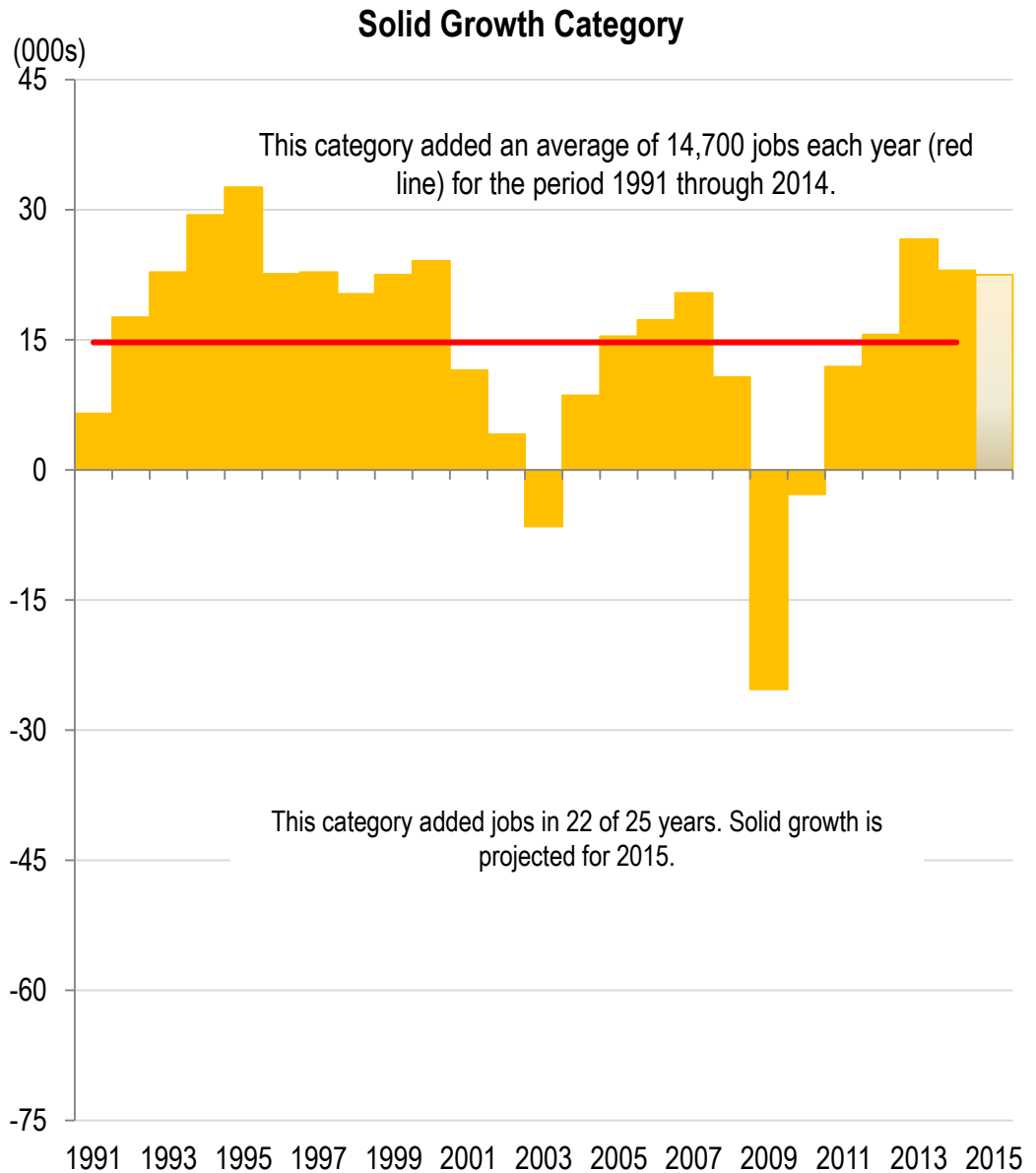
1994 685,400 workers, 39.0% of total employment

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.

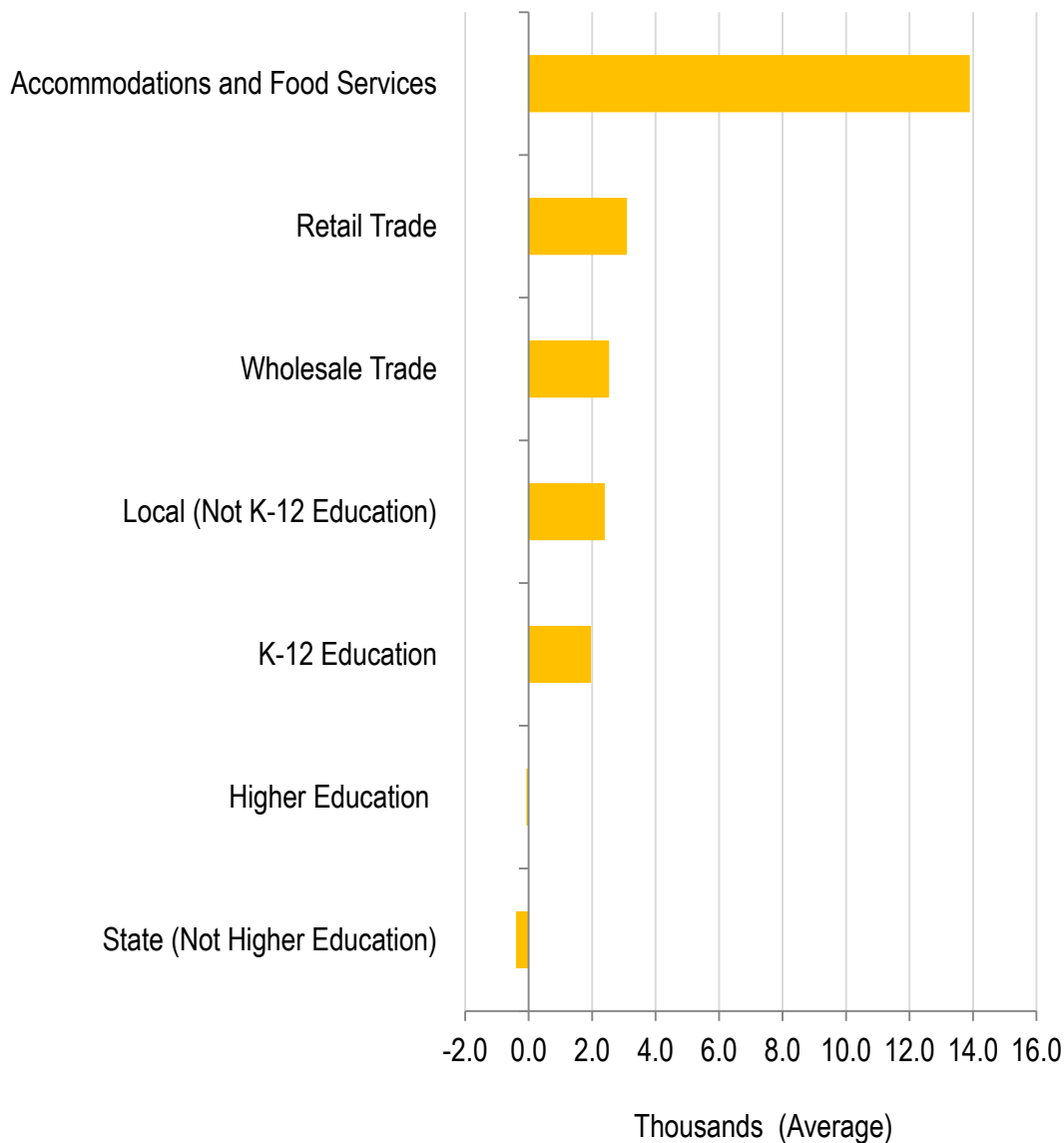
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Solid Growth Sectors

- Through Q1 2015 this group of industries added 23,300 jobs compared to Q1 2014.
- This category was 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 has occurred in the Accommodations and Food Services and Retail Trade sectors. Most likely the job growth in AFS is overstated.

Job Change in Q1



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.

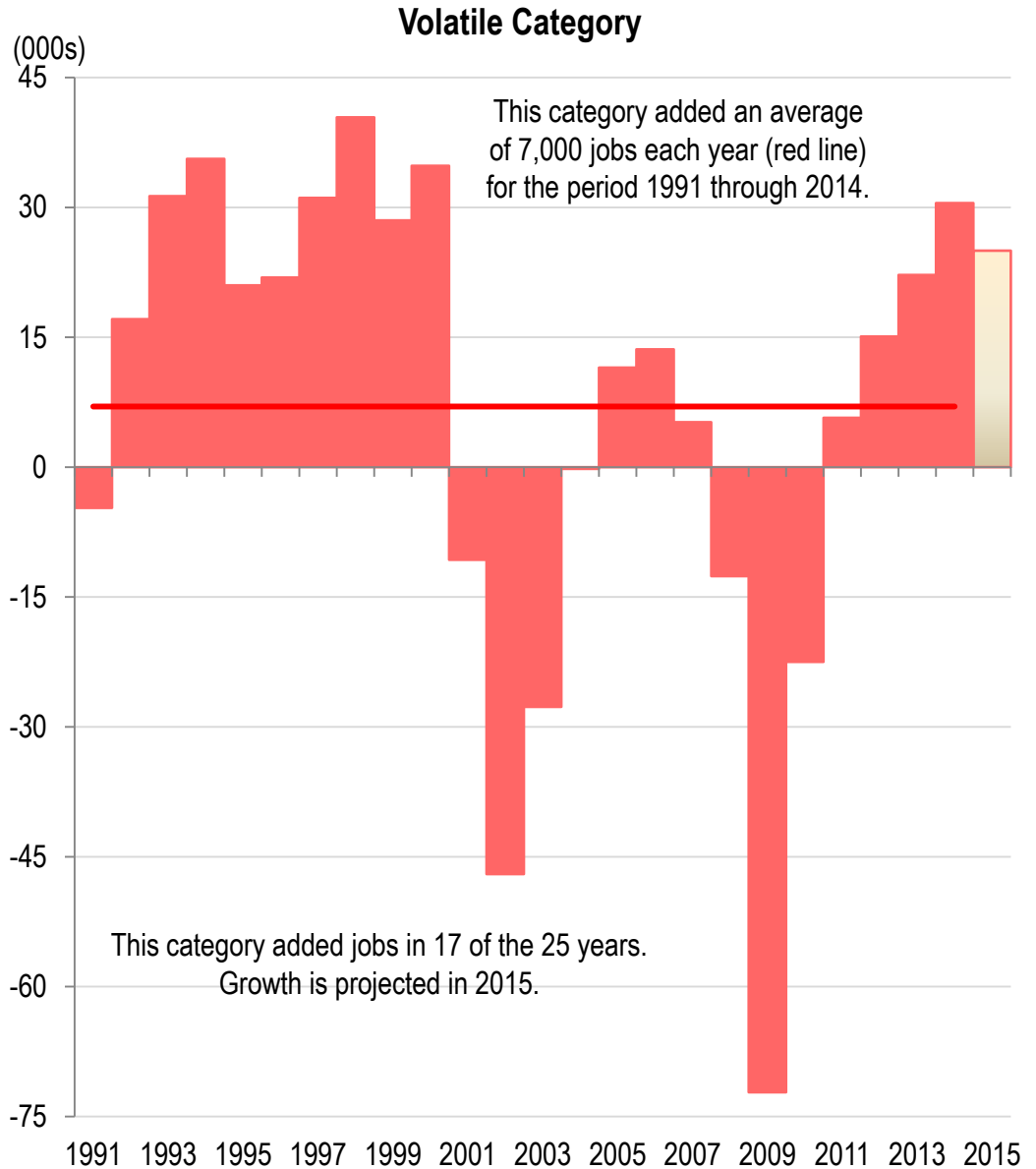
The sectors are:

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

Total employment for this category was:

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.



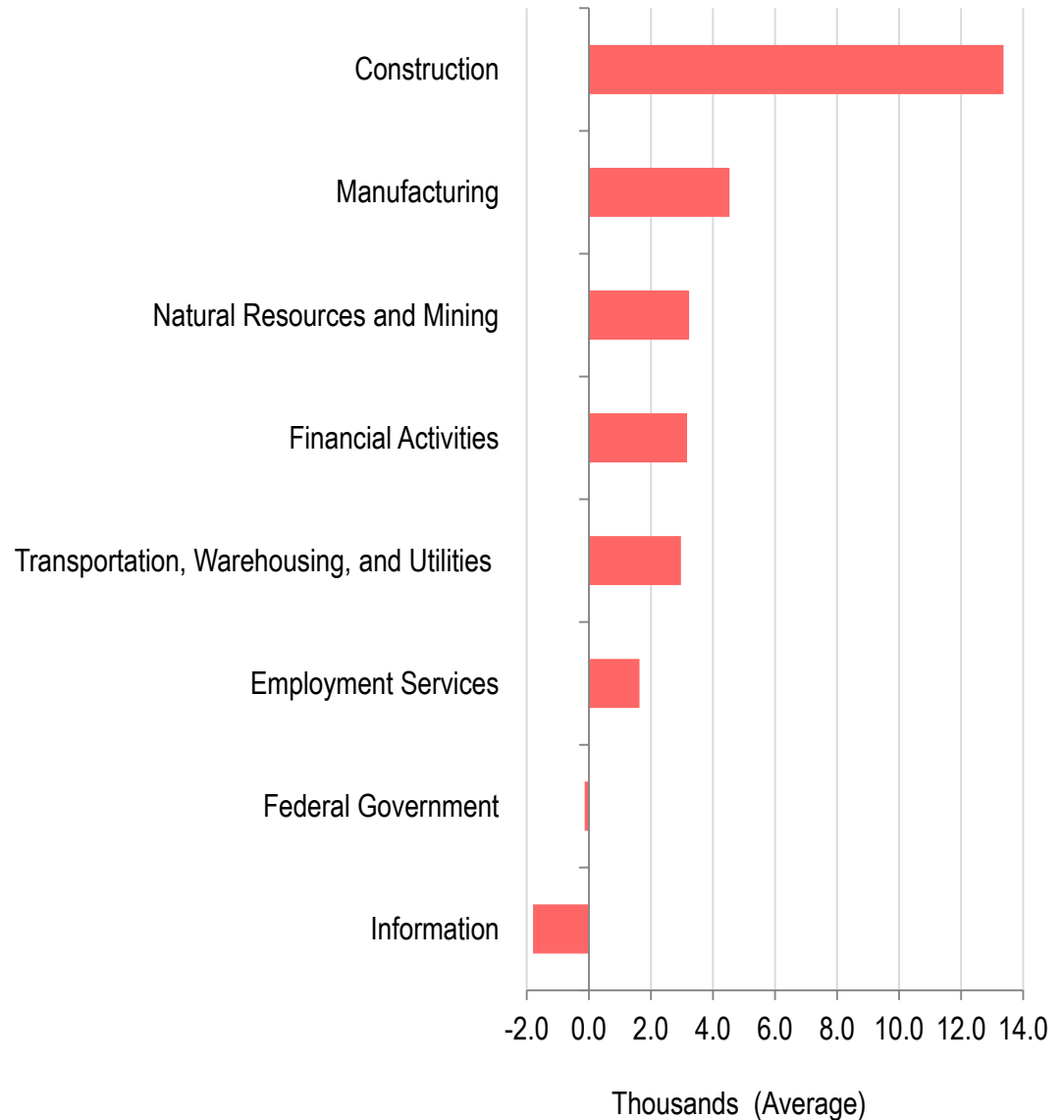
Source: Bureau of Labor Statistics, cber.co.

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● Volatile Sectors

- Through Q1 2015 this group of industries added 26,800 jobs compared to Q1 2014.
- This category was 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. The Federal Government and Information Sectors lost jobs in Q1.

Job Change in Q1



Source: Bureau of Labor Statistics.

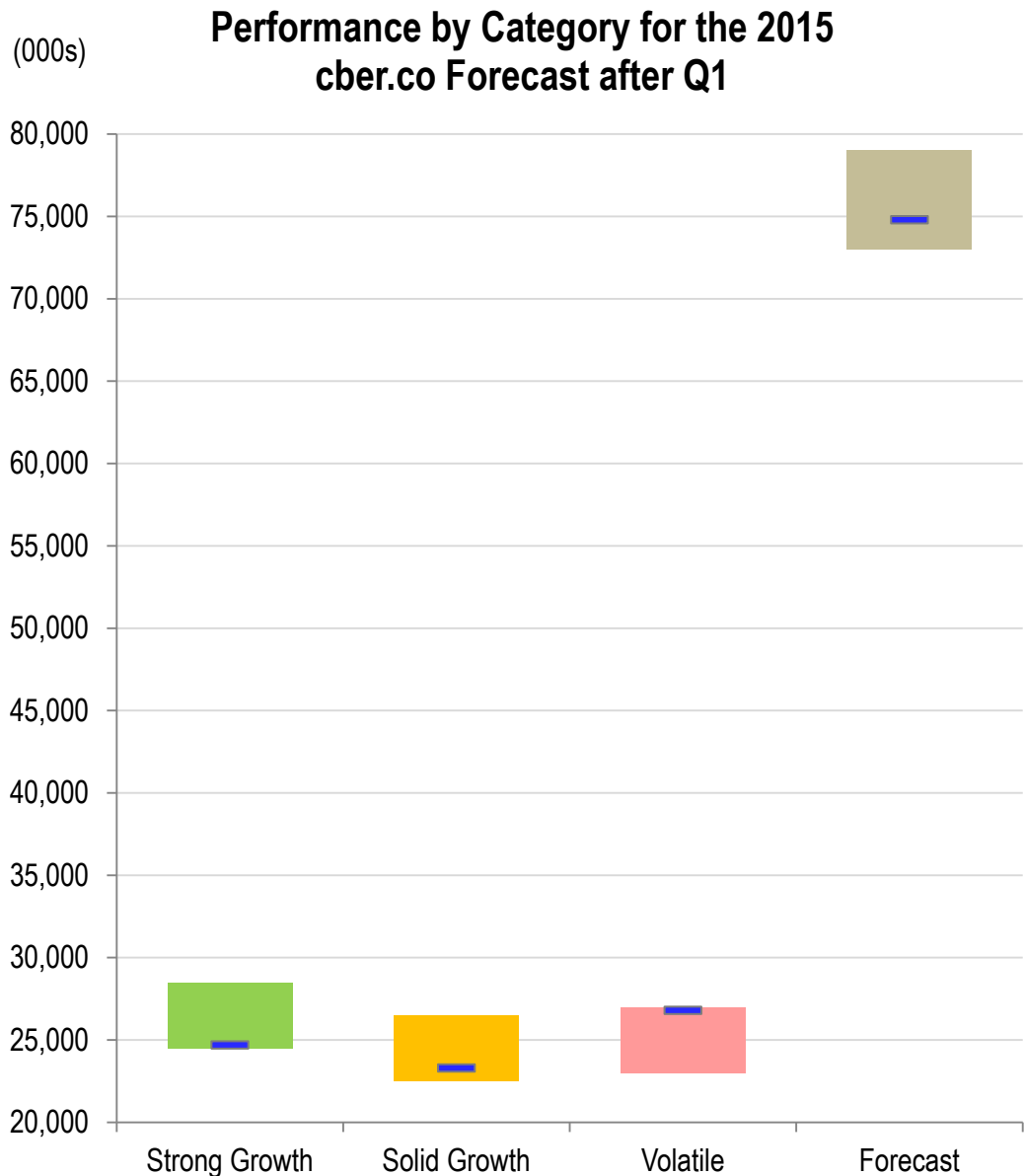
Summary of Performance to cber.co 2015

Employment Forecast

Through Q1 2015 each of the three categories (blue line) was within its respective forecast ranges:

- Strong Growth – green box.
- Solid Growth – yellow box.
- Volatile – pink box.

As a result the overall number of jobs added, 74,800, was within the forecast range (grey box).



Source: Bureau of Labor Statistics, cber.co.

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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.

Strong, Solid, and Volatile Growth Categories



Source: Bureau of Labor Statistics, cber.co.

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

Oil and Gas Employment

This section will shed light about how the decline in the price of oil is affecting employment in the Oil and Gas Industry and how it might impact other industries.

In mid-2014 the price of oil began declining, then it went into a freefall. By the end of the year the price of a barrel had dropped below \$50 and was expected to remain at that level for “awhile”. Currently, the price of a barrel of oil is below \$50.

There have been reports indicating that industry layoffs have occurred or they will occur in the future; however, it is difficult to determine the magnitude of those layoffs in the local BLS data.

The Mining Sector includes three subsectors:

- Oil and Gas Extraction
- Mining, not Oil and Gas Extraction
- Oil and Gas and Mining Support.

The Quarterly Census of Employment and Wages provides employment data for the three subsectors, but there is a lag of seven months for the QCEW data.

The Wage and Salary Employment data, which is the official data set, only includes a total for the Mining Category.

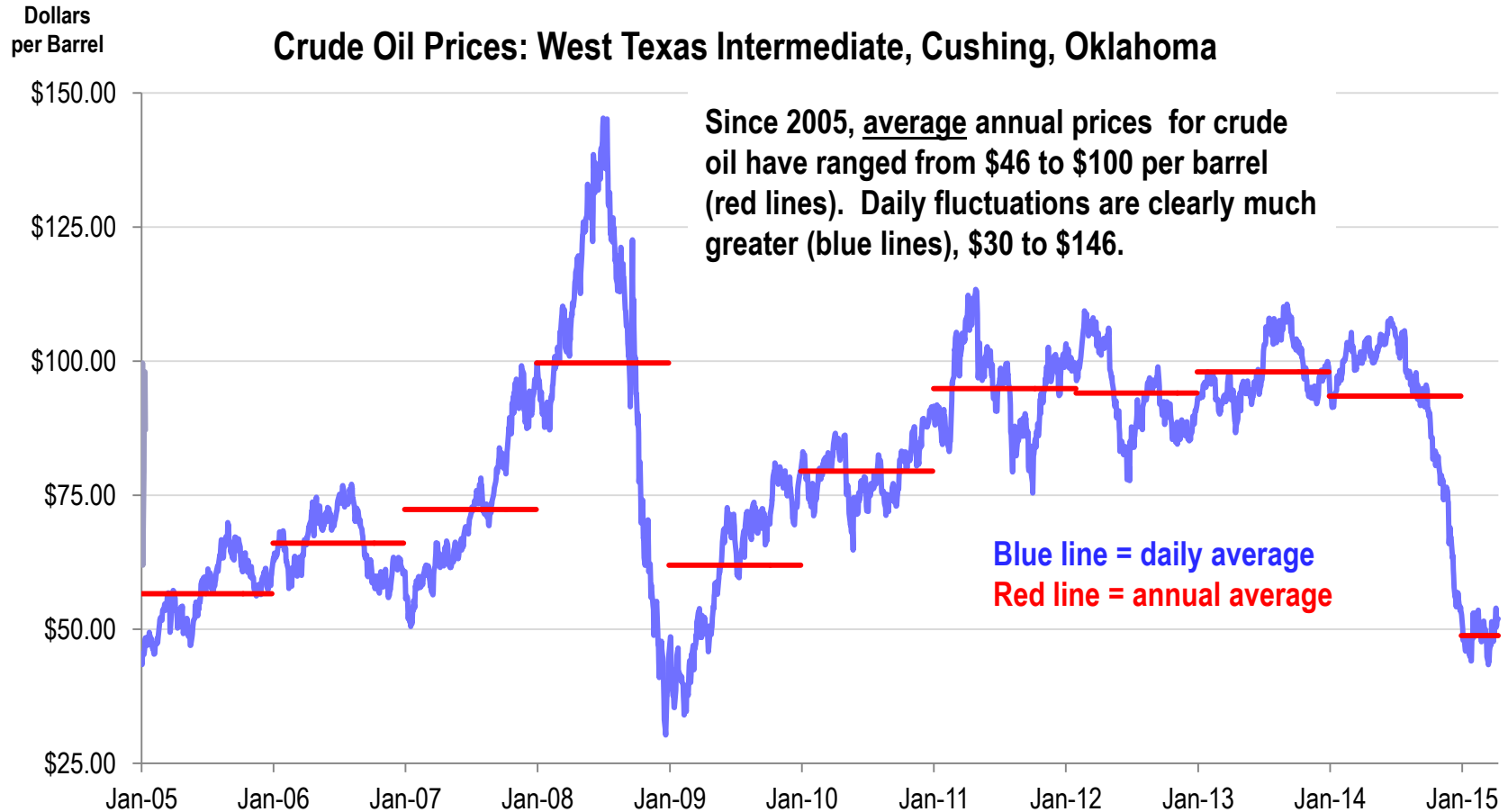
Because the Wage and Salary data does not contain a breakdown for the Oil and Gas Subsector, the following slides take a look at other data to better understand the impact of the decrease in oil prices on the Oil and Gas Industry in Colorado.

The following charts look at:

- The price of a barrel of oil (WTI)
- Colorado Annual Rotary Rig Count, 1978 to 2015
- Colorado Annual Rotary Rig Count, 2014 to 2015.
- Colorado Oil Production, 1981 to 2014.
- U.S. Oil and Gas Employment
- U.S. Initial Claims
- U.S. Continuing Claims
- Colorado Oil and Gas Employment
- Colorado Initial Claims
- Colorado Continuing Claims
- Colorado Jobs Added – Colorado vs. Mining
- Summary

Crude Oil Prices

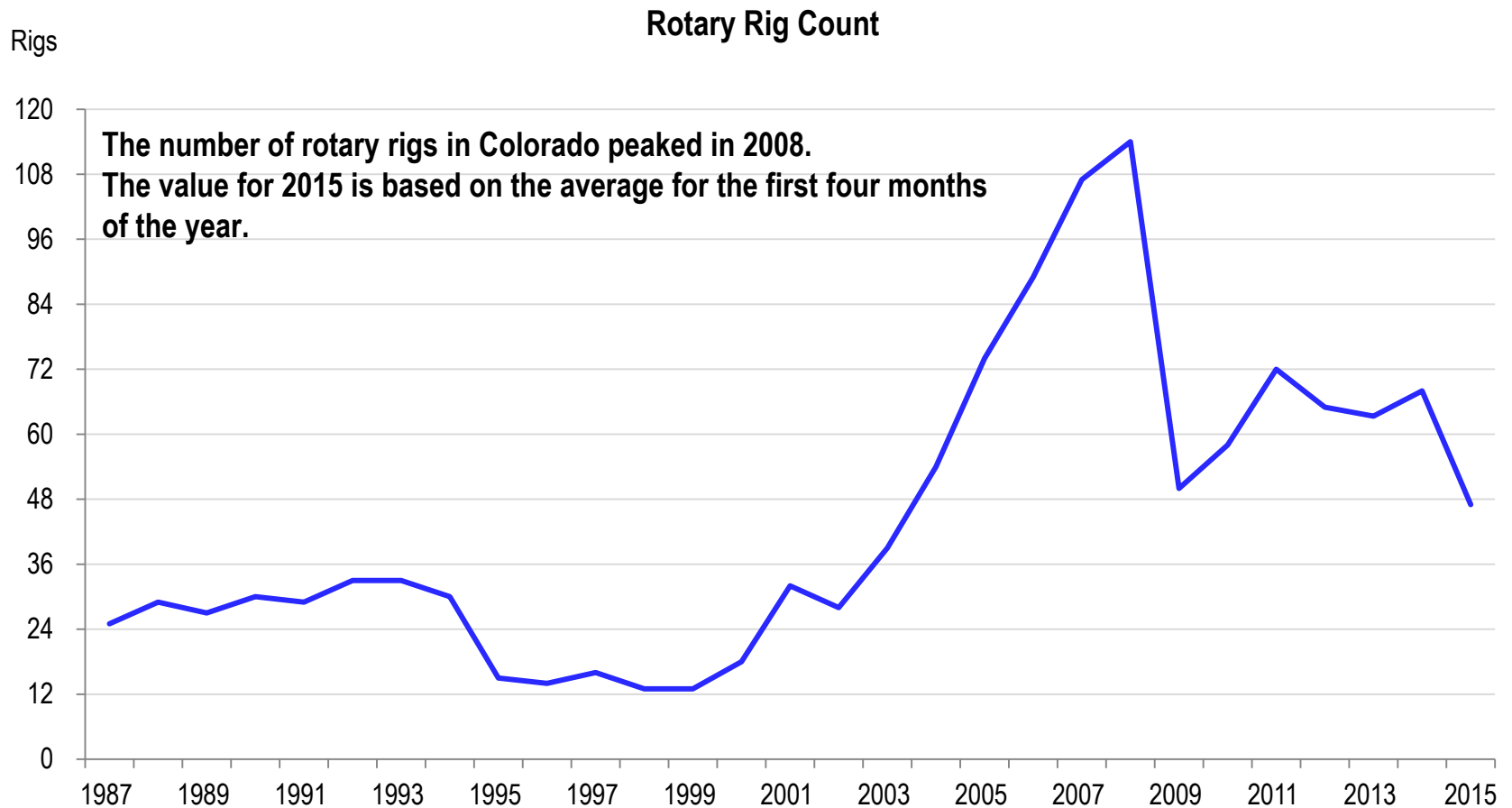
West Texas Intermediate



Source: FRED, EIA.

Colorado Annual Rotary Rig Count

1987 to 2015

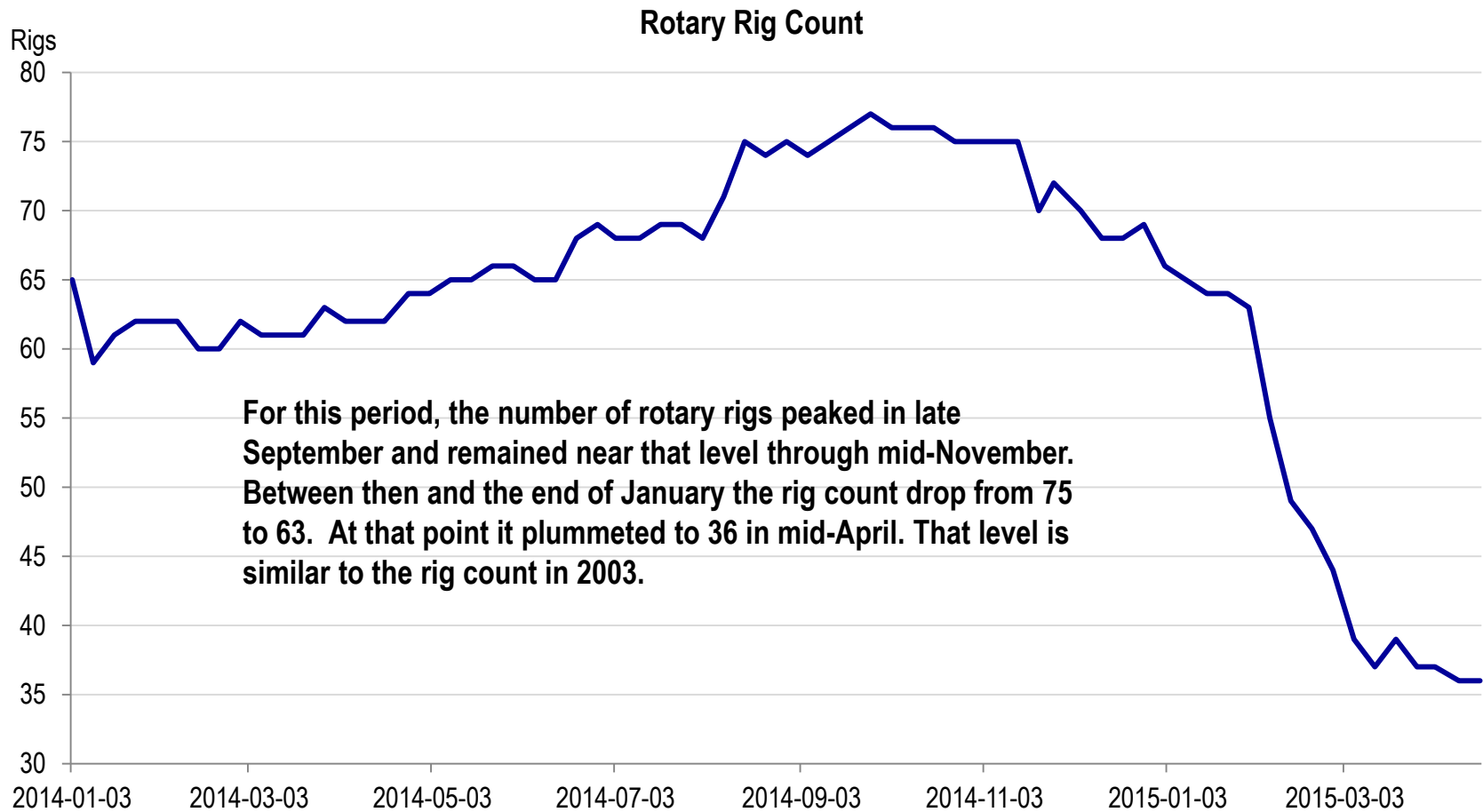


Source: Baker-Hughes.

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Number of Rotary Rigs in Colorado 2014 to 2015

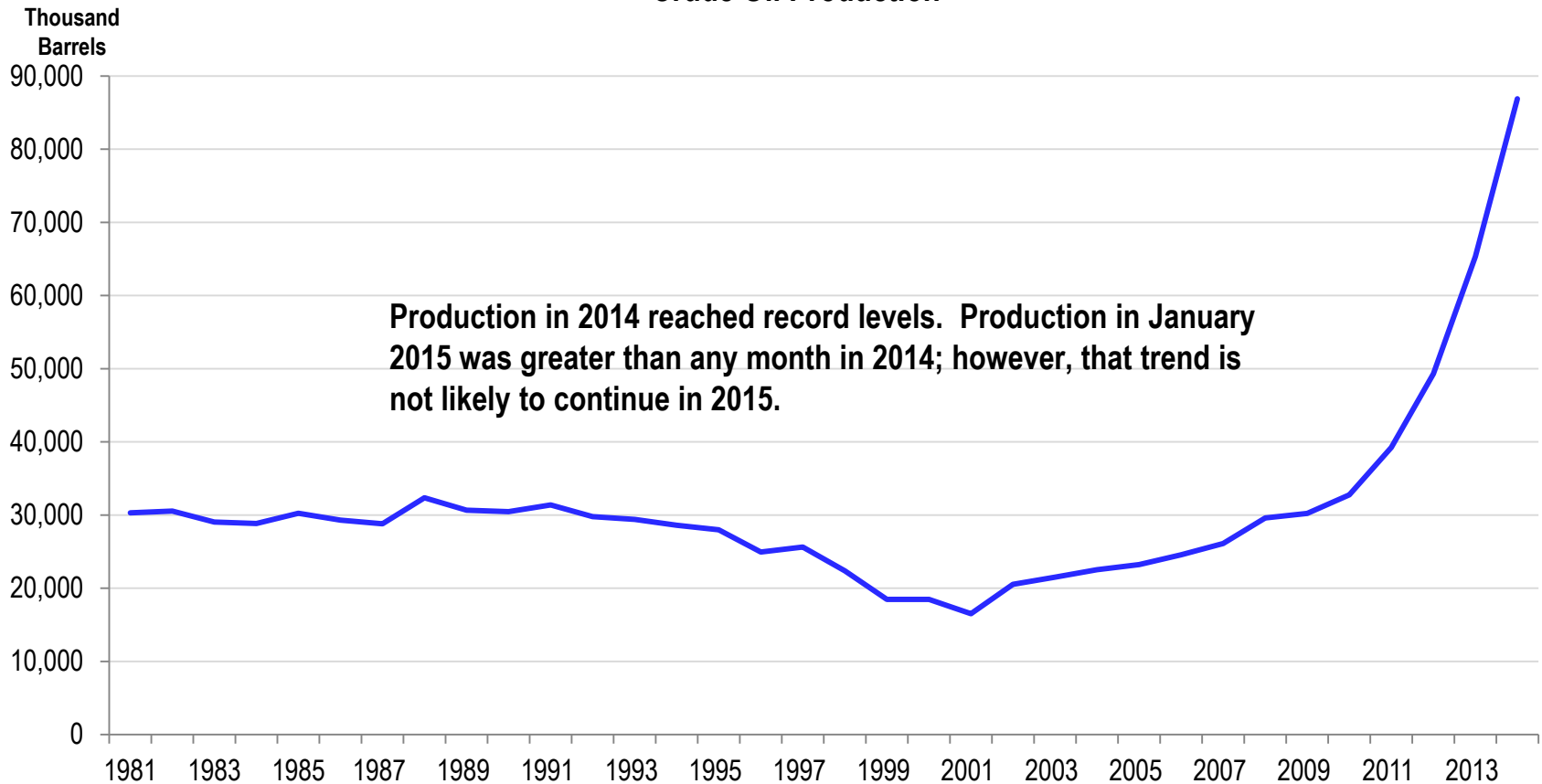


Source: Baker Hughes Rig Count.

Colorado Crude Oil Production

1981 to 2014 (Thousand Barrels)

Crude Oil Production



Source: EIA.

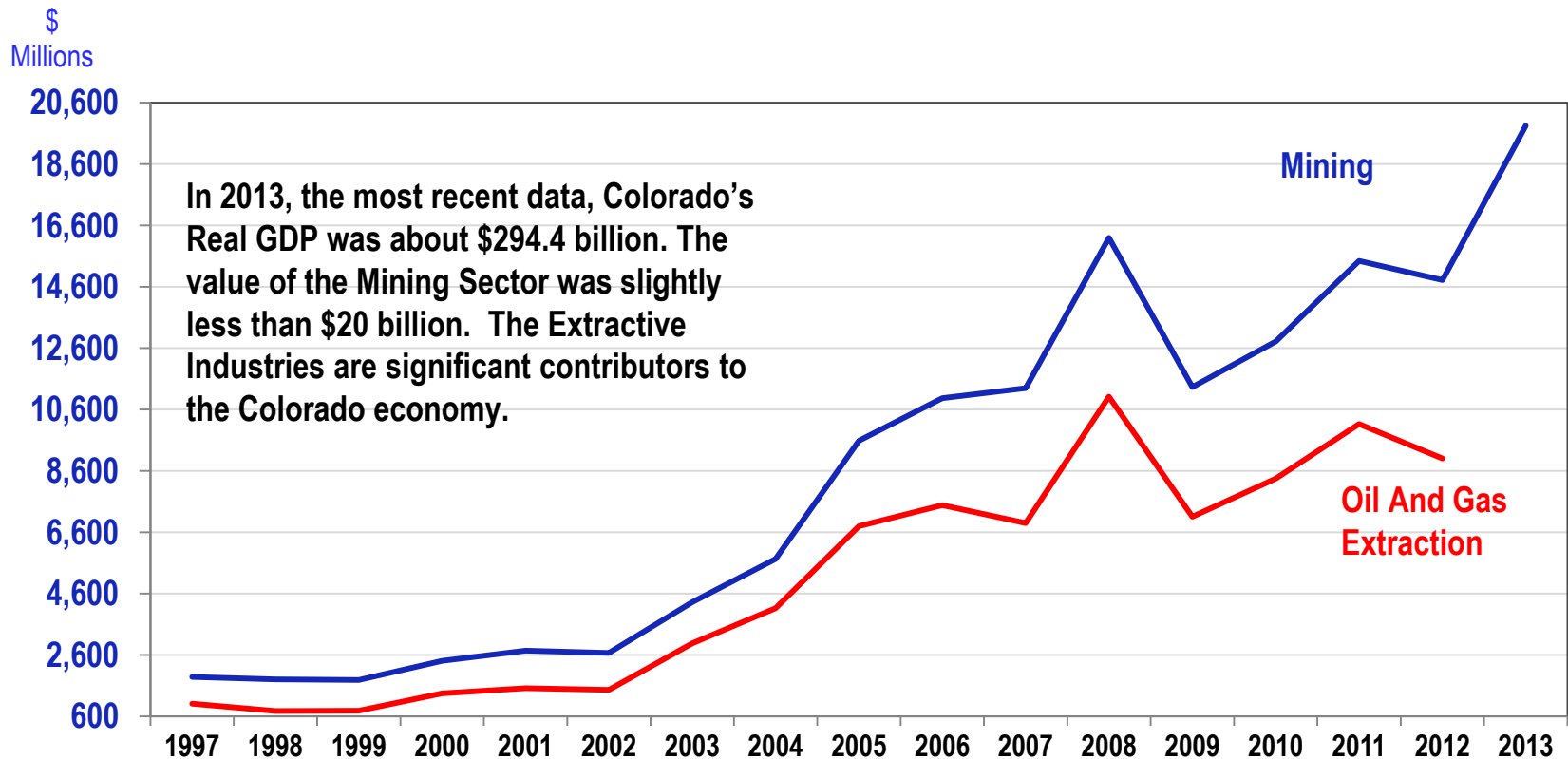
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Colorado Real Gross Domestic Product

Mining vs. Oil and Gas Extraction

Colorado Mining and Oil and Gas Extraction



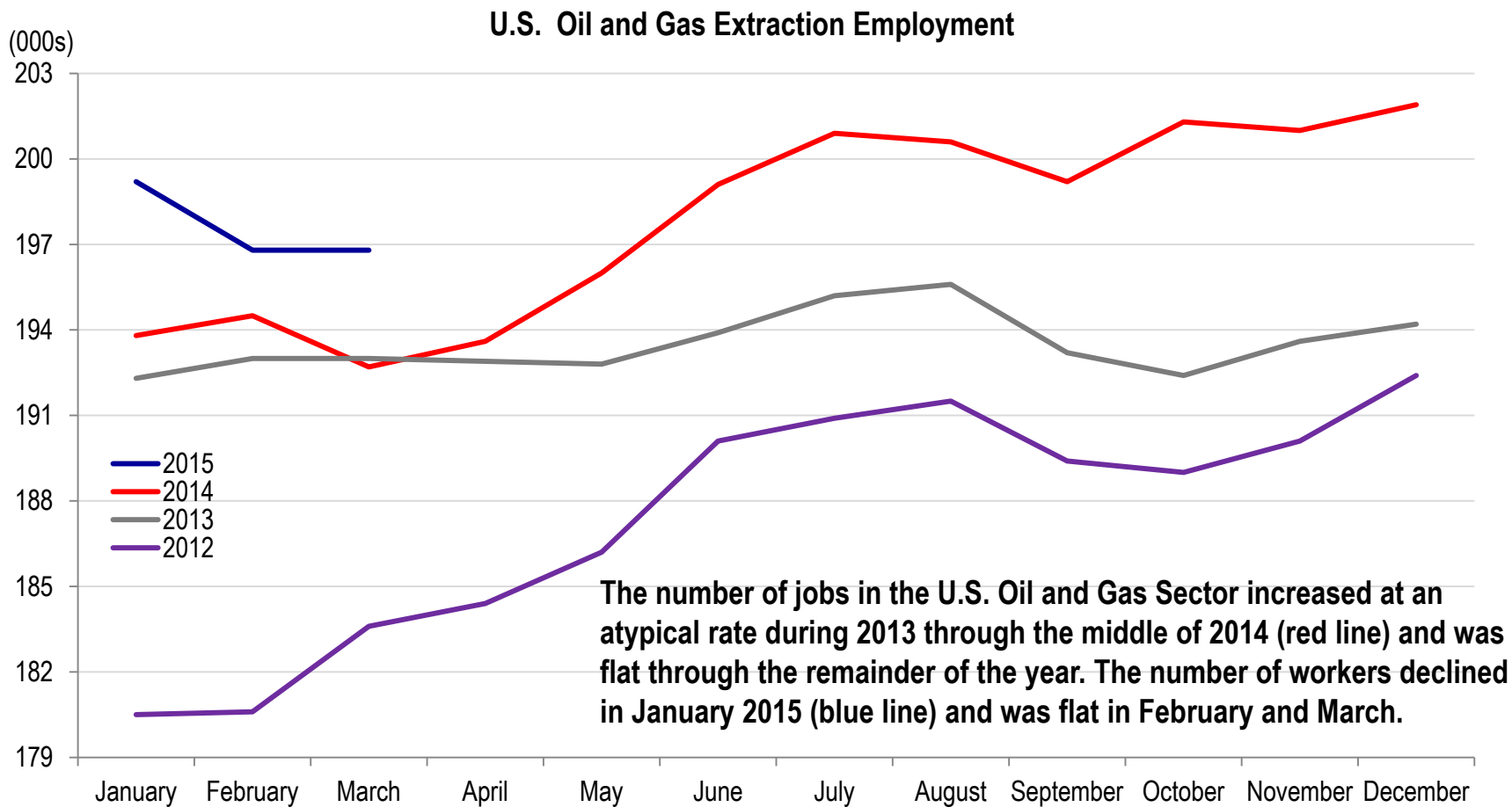
Source: Bureau of Economic Analysis.

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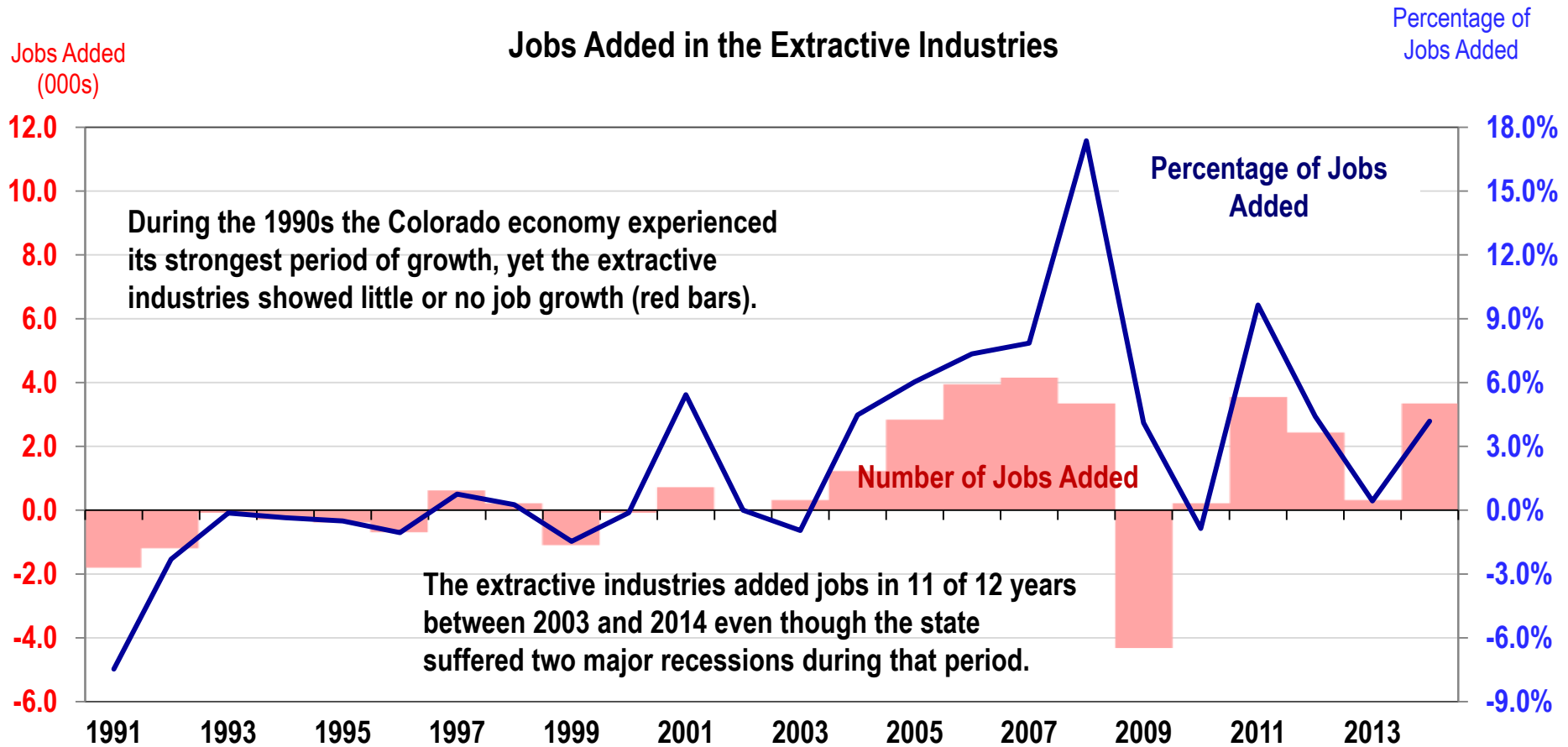
U.S. Oil and Gas Extraction Employment

2012 through March 2015



Source: Bureau of Labor Statistics, NSA.

Natural Resources and Mining Sector Jobs Added in Colorado

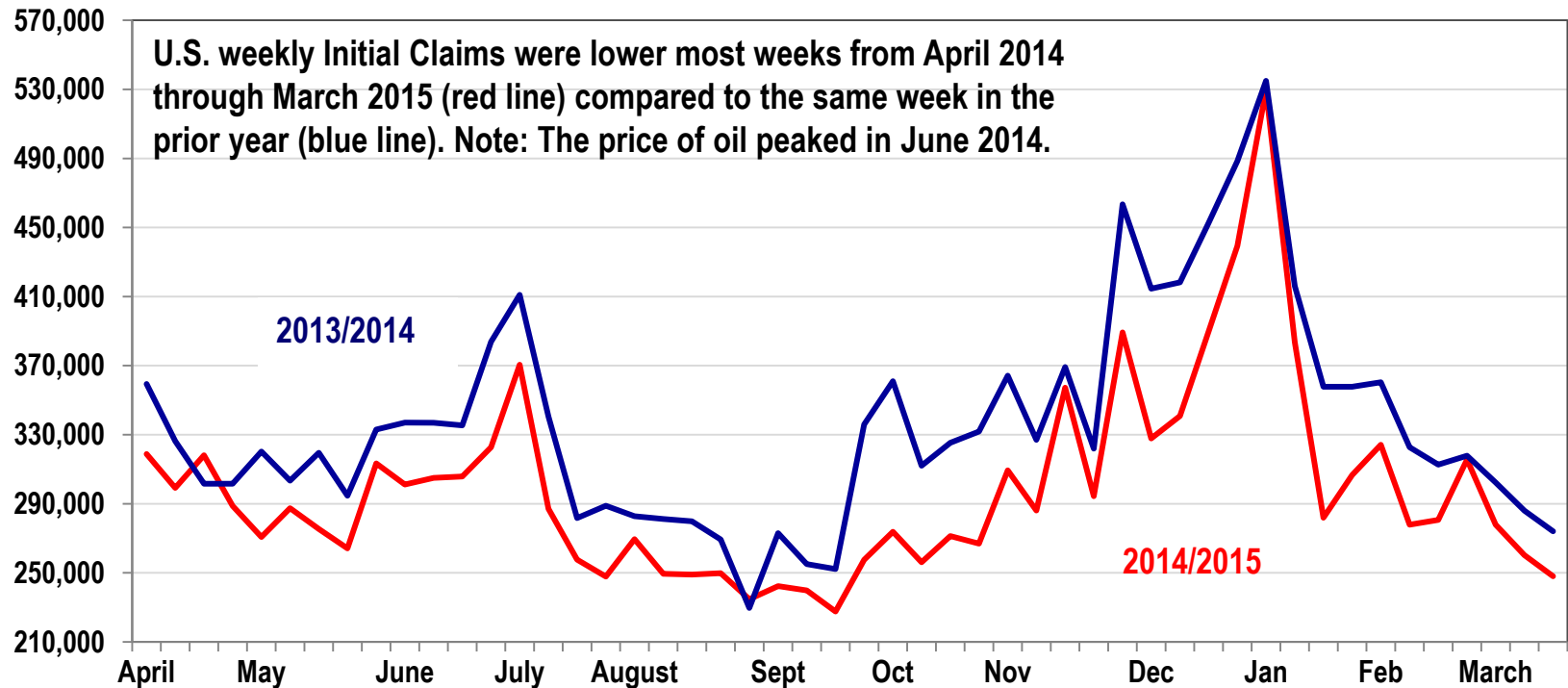


U.S. Jobless Claims (Weekly)

April to March – 2014/15 vs. 2013/14

U.S. Initial Claims

Initial Claims



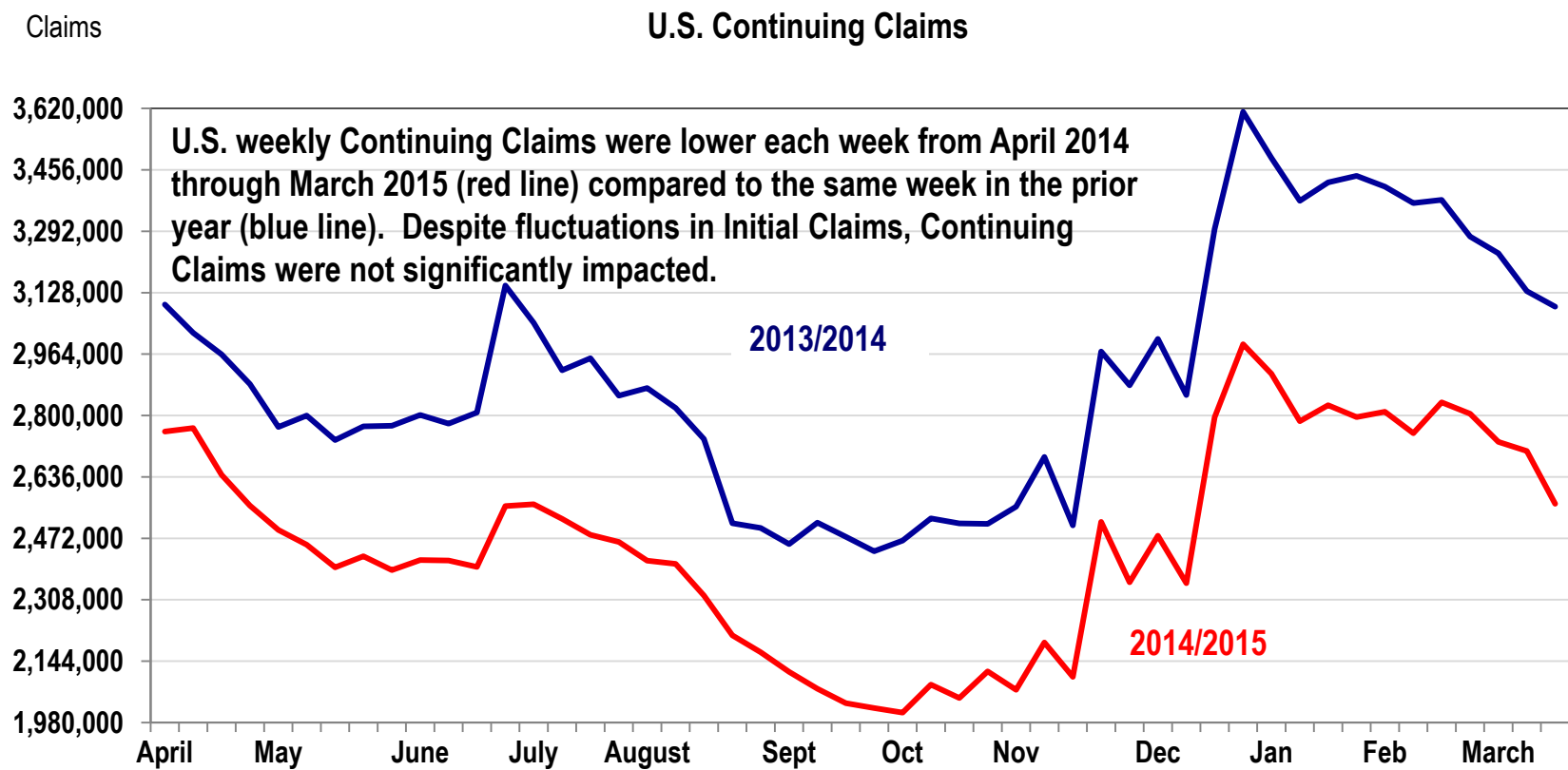
Source: US Department of Labor, ETA, NSA.

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<http://cber.co>

U.S. Jobless Claims (Weekly)

April to March – 2014/15 vs. 2013/14



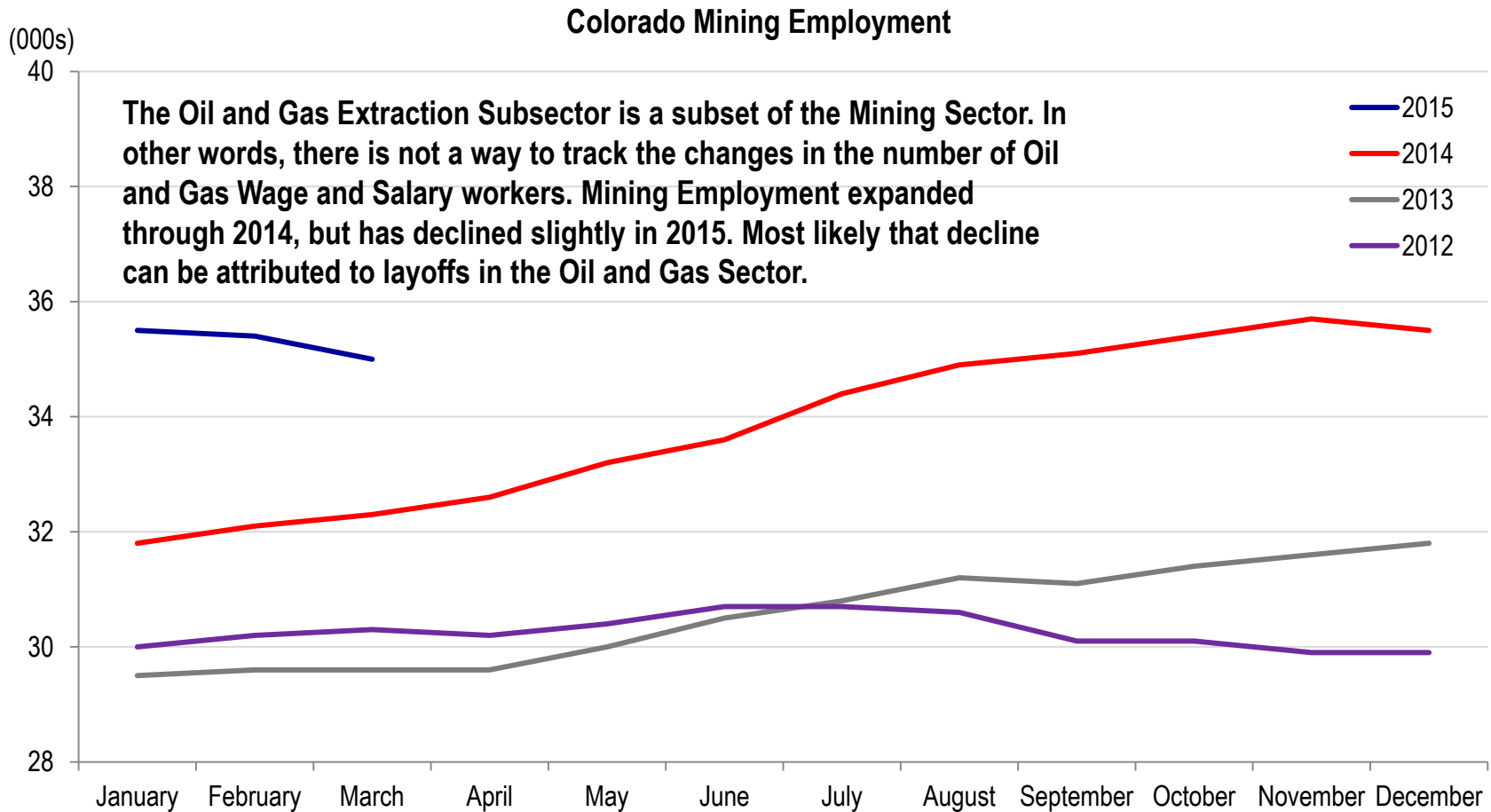
Source: US Department of Labor, ETA, NSA.

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Colorado Mining Employment

2012 to 2015



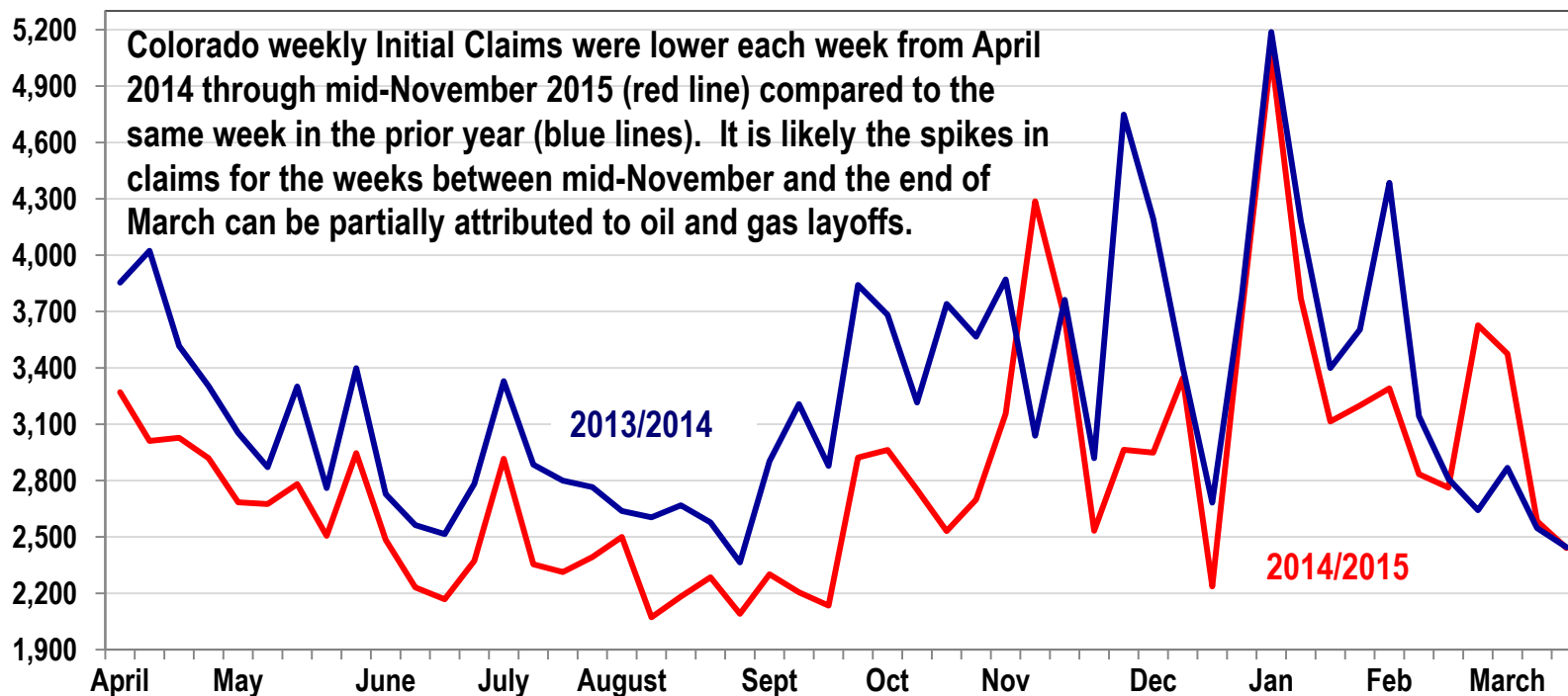
Source: Bureau of Labor Statistics, NSA.

Colorado Jobless Claims (Weekly)

April to March – 2014/15 vs. 2013/14

Initial Claims

Colorado Initial Claims



Source: US Department of Labor, ETA, NSA.

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Summary of Comments about Colorado's Oil and Gas Industry

The state's Oil and Gas Sector has a comparatively small number of workers, but the industry makes a significant contribution to the state's economy.

- Oil prices peaked in mid-2014, yet Colorado had record production. Although production started out strong in January (most current data), it is unlikely to remain at that level for the year unless the producers are larger companies with storage capabilities.

- The Oil and Gas industry is a significant contributor to the state's GDP. Reduced production will adversely impact the state's GDP.

- Colorado Mining employment was 33,900 in 2014 compared to 30,600 in 2013. Oil and Gas employment is a subsector of Mining, i.e. actual employment data is not available in the state's Wage and Salary data.

- A review of the data supports the reports that there were industry layoffs. Most likely many of them were in November and March.

- Some industry leaders feel layoffs may benefit the companies in the long-term. They will reduce the "dead wood" or workers who have not been effective. In addition, this may incent companies to implement new technologies that will increase their efficiencies.

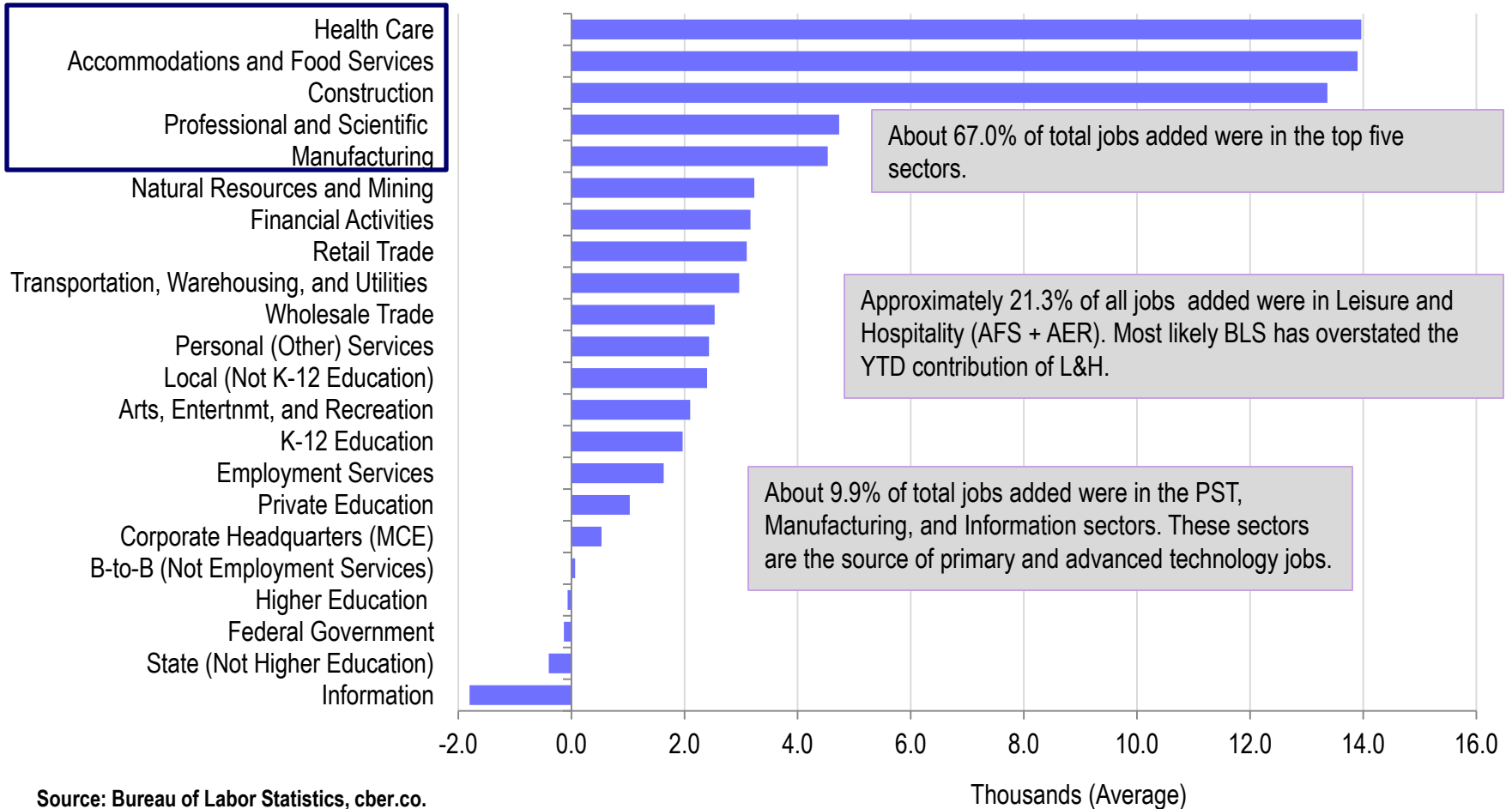
- Layoffs in the Oil and Gas Industry resulting from lower prices of oil will be offset by the strength of other industries at the state level. Unfortunately layoffs will have a greater impact on smaller geographical areas such as Weld and Garfield Counties.



Total Jobs Added

Change in Employment 2015 Q1

Job Change All Sectors



Source: Bureau of Labor Statistics, cber.co.

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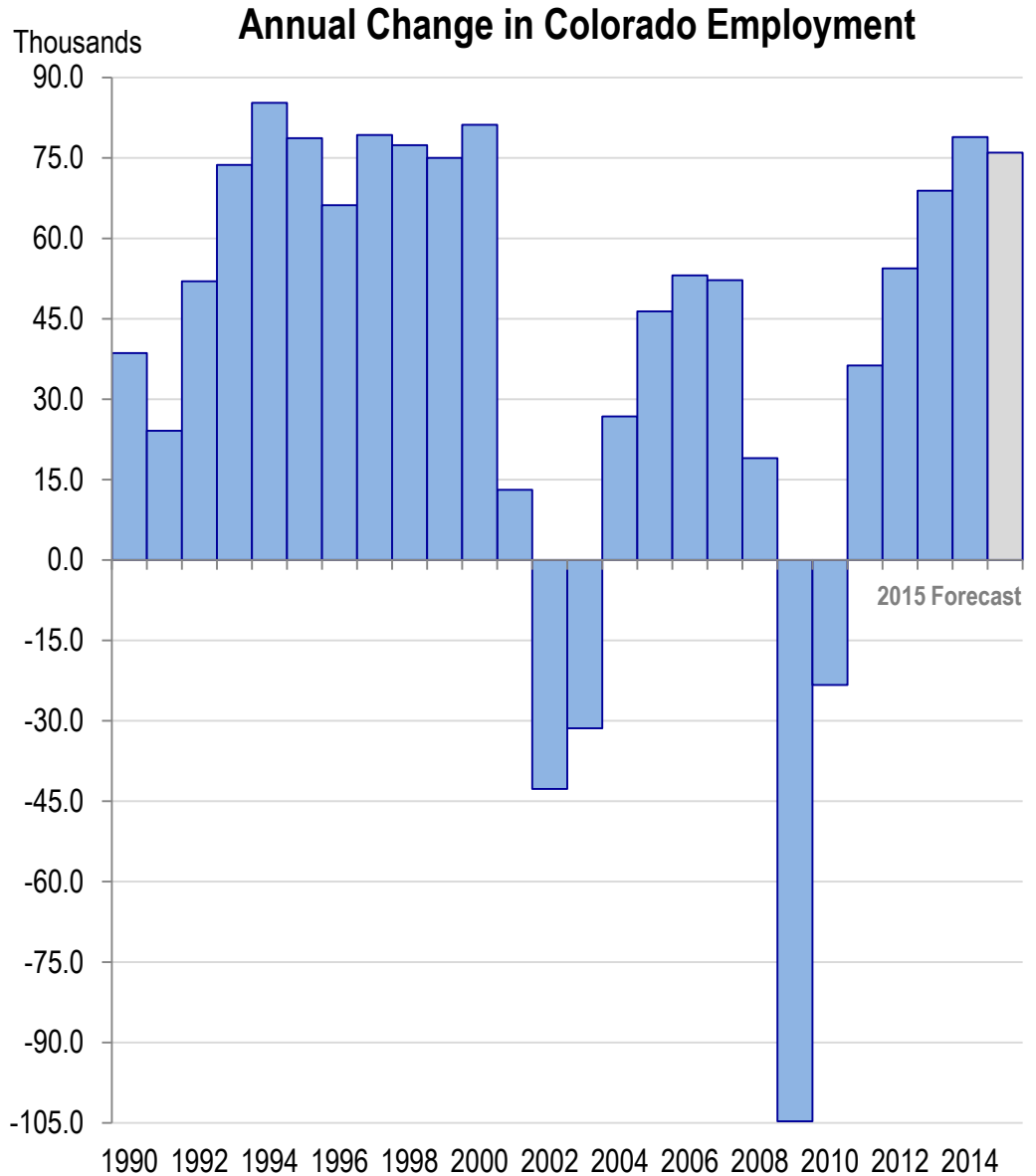
<http://cber.co>

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%.

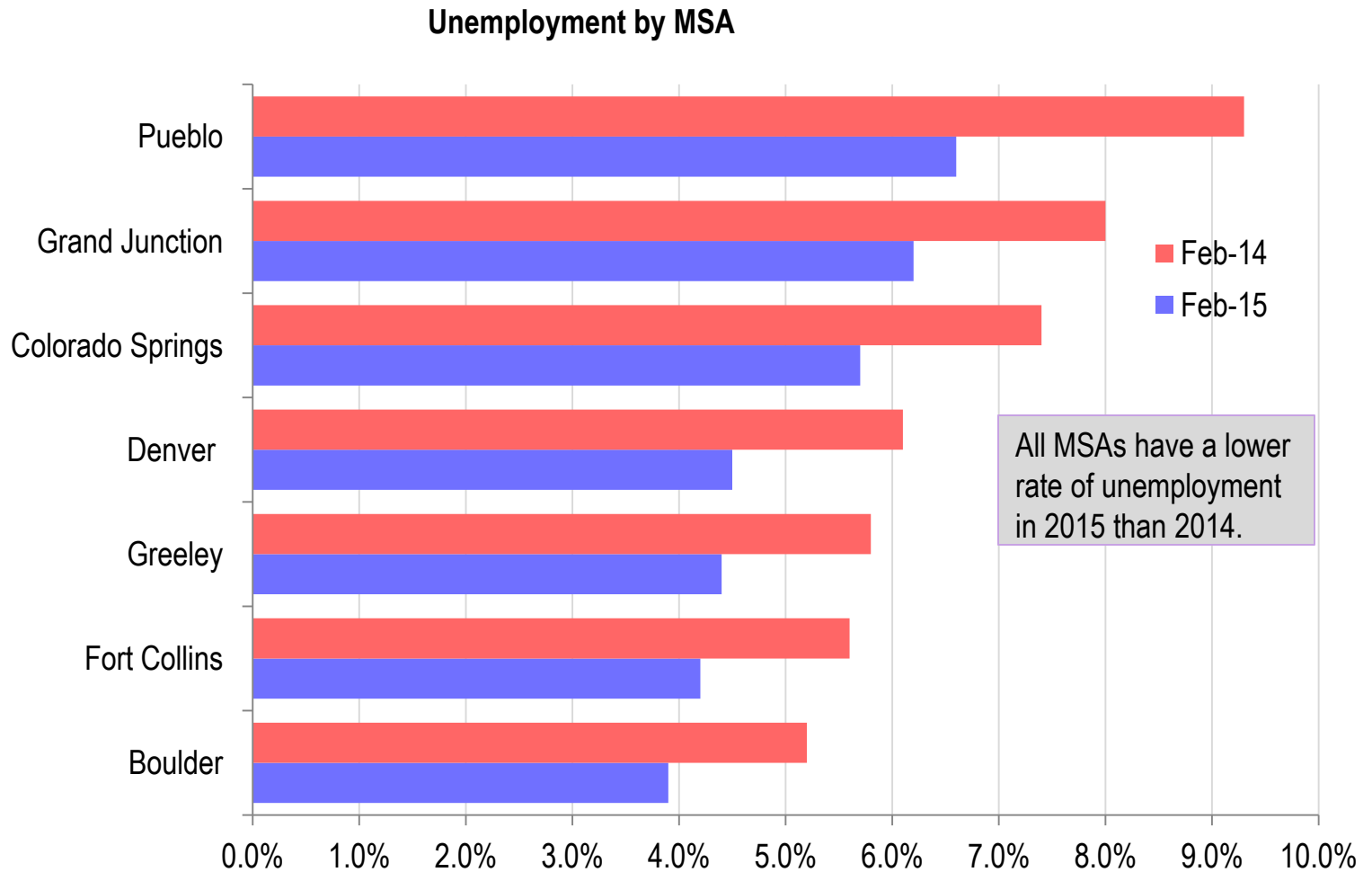
After Q1, Colorado employment is on track to meet that forecast.



Source: Bureau of Labor Statistics, cber.co.

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Unemployment by MSA 2014 vs. 2015



Source: Bureau of Labor Statistics.

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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%.

- Colorado added 78,900 jobs in 2014. Jobs increased at a rate of 3.3%. cber.co projected that 2015 job growth would be at slightly lower rate than 2014. Job growth for Q1 2015 was 3.1%, or 74,800 jobs, greater than Q1 2014.
- The sectors with the top job growth are: Health Care; Accommodations and Food Services; Construction; Professional, Scientific, and Technical Services; and Manufacturing. These sectors accounted for about two-thirds 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.
- The economies in each of the seven metro areas are stronger than a year ago, as measured by their unemployment rates. The rates from Denver, Boulder, Fort Collins, and Greeley are below 4.5%, whereas the rates for Colorado Springs, Pueblo, and Grand Junction are greater than 5.6%.
- Layoffs in the Oil and Gas Sector, resulting from lower oil prices, will be offset by the strength of other industries at the state level. Unfortunately, layoffs will have a greater impact on smaller geographical areas such as Weld and Garfield Counties. Reduced production will adversely impact the state's GDP.



Appendix



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.



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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.

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.