



Review of Colorado Economy Analysis of 2015 Employment Data Through May

Colorado-based Business and Economic Research

June 21, 2015



Overview

The 2015 cber.co Colorado Employment Forecast - The state will add 73,000 to 79,000 jobs in 2015. During the first five months the state added has added 68,900 jobs compared to the same time last year.

This brief analysis is divided into the following sections.

- Summary of Key Data.
- U.S. and Economy.
- Colorado Employment and Unemployment.
- Change in Colorado Employment by Performance Category.
- Special Focus – Colorado Legislative Council and Office of State Planning and Budgeting Updates.
- Special Focus – Boulder MSA and Fort Collins MSA.
- Summary and Total Jobs Added.
- Appendix.

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

Summary of Key Data United States and Colorado

United States

Real GDP – Second estimate for Q1 2015=-0.7%. It will be revised to -0.1%. Annual growth for 2015 will be 2.5% to 2.9%

U.S. Employment – The U.S. is on track to add 3.1 million jobs this year.

Unemployment Rate – 5.5%, down from 6.3% a year ago; 8.7 million unemployed.

ISM Indices – With the exception of one month the Manufacturing and Non-Manufacturing indices have been above 50 (expansionary) for almost 6 years.

Price of a Barrel of Oil (WTI) – After bottoming out around \$43 per barrel on March 17th the price topped \$60 on May 5th and has remained around that level..

Case Shiller Housing Prices (March) – Up 5.0% from a year ago.

Dow Jones Industrial Average – On March 23rd the DJIA was 18,144, up 1.8% from 17,823 at the end of the year.

Colorado

QCEW Revisions – Recent revisions to Q4 2014 could cause 2014 employment to be revised upward by 3,600 jobs in the March 2016 benchmark revisions. There was stronger momentum coming into 2015 than originally anticipated.

Population - Colorado's population will increase by 88,800 people this year.

Unemployment Rate – 4.3%, down from 5.2% a year ago.

MSA Unemployment Rate – Boulder and Ft. Collins have the lowest rates at 3.5% and 3.7% respectively.

Wage and Salary Employment – On average Colorado has added 68,900 jobs this year based on current data. This is not adjusted for the projected revisions.

Leading Sectors for Growth – About 70.5% of the jobs have been added in the Health Care; Construction; Accommodations and Food Services; Professional, Scientific, and Technical Services; and Manufacturing.



U.S. Economy

Real US GDP Growth

Quarterly

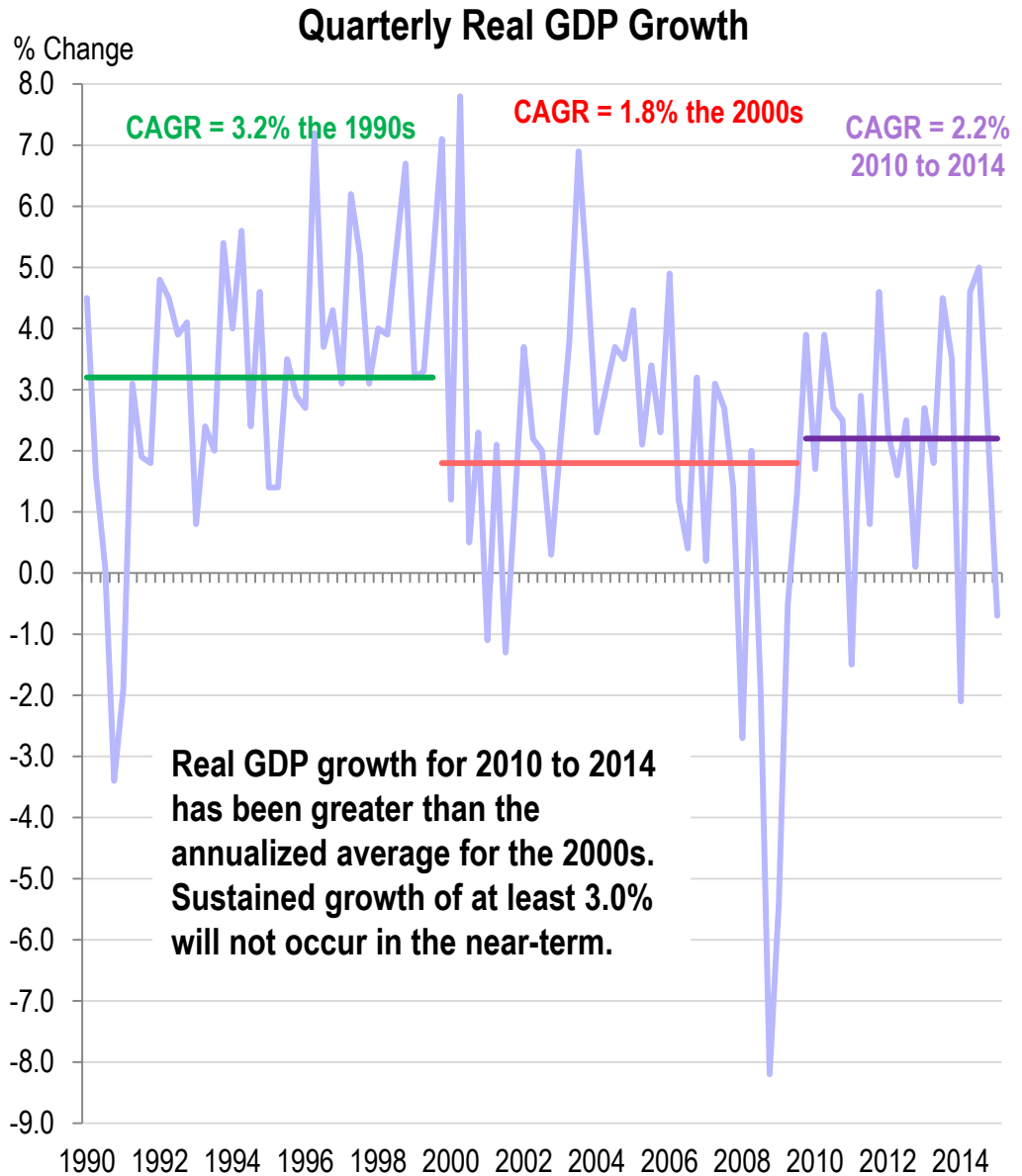
The cber.co 2015 forecast calls for real GDP growth of 2.5% to 2.9%, a slight increase over 2014. The Conference Board recently upgraded its 2015 forecast to 2.9%, an increase from 2.5%. Other groups with higher forecasts have lowered their estimates. They feel the negative impacts of bad weather in Q1 will carry over into Q2.

The advanced release for Q1 2015 Real GDP growth was 0.2%. The second estimate was revised downward to -0.7%, but the third estimate is expected to be revised upwards by about a half point.

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).

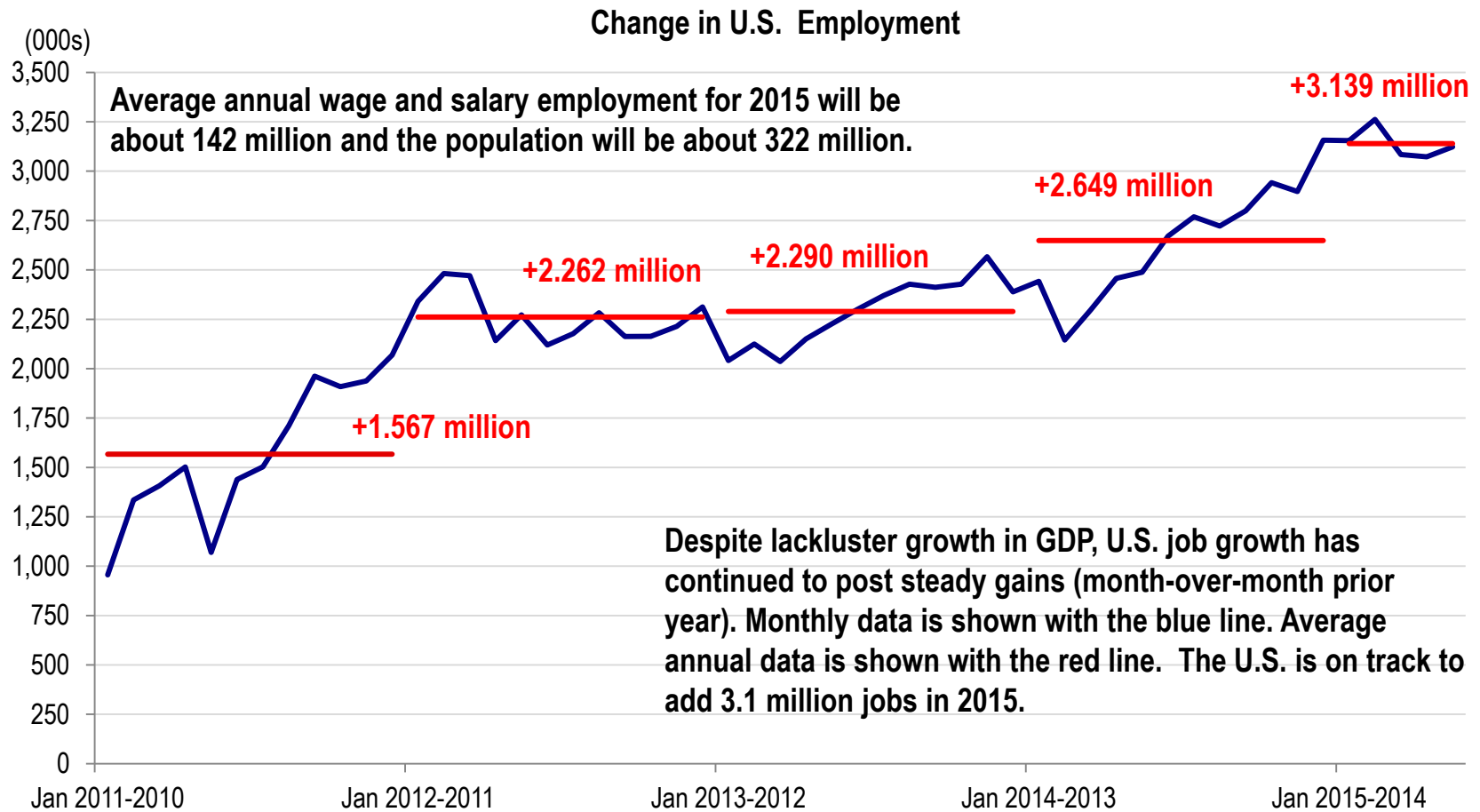
Real GDP growth for the past five years is:

- 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.

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



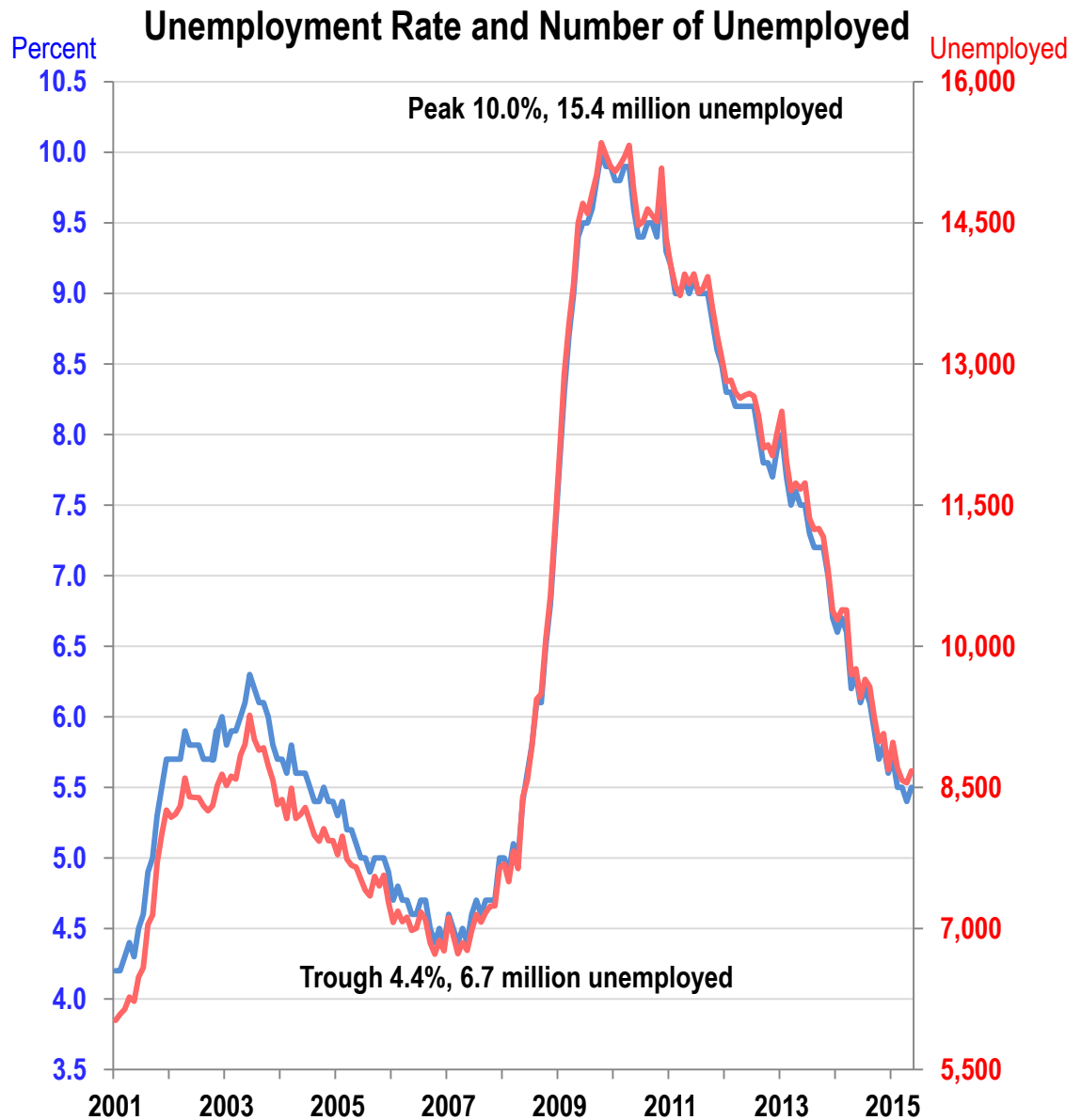
Source: Bureau of Labor Statistics, NSA.

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 8.674 million at the end of May 2015. This is 1.9 million above the low point in 2006 and 6.7 million below the high point in 2009.

The unemployment rate for May 2015 was 5.5%, down from 6.3% 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.

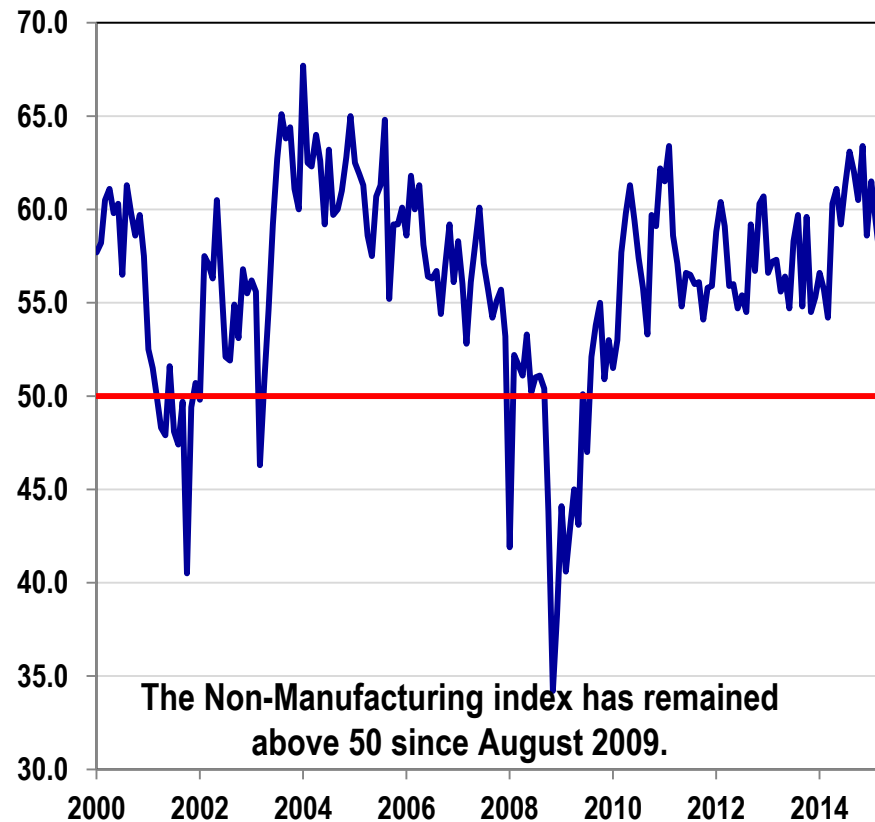
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ISM Indices

ISM Manufacturing Index



ISM Non-Manufacturing Business Activity Index

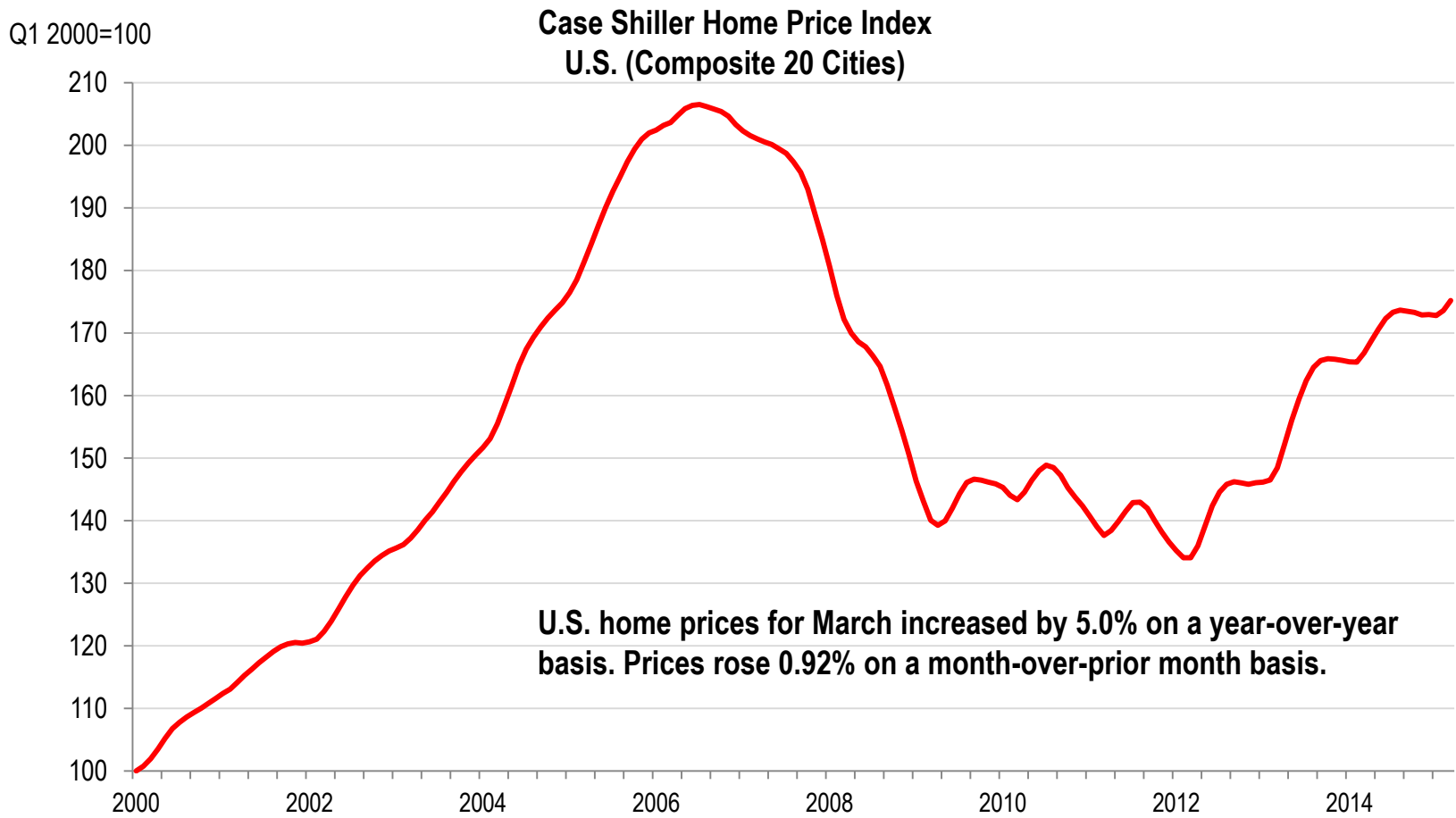


Sources: Institute for Supply Management (ISM), FRED.

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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 (2nd estimate) was -0.7% for Q1 2015. The third estimate will be revised upward by at least half a percentage point. The revision will be based on stronger construction spending, medical care consumption, and net exports.
- The year started slow, but is expected to end on a stronger note, although there is debate about when the rebound will occur. 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 five months of the year was 2.3%, compared to 1.8% for 2014.
- The unemployment rate ticked up to 5.5% in May. This is down from 5.6% at the end of the year and down from 6.3% at the same time last year. Most occupations that require some form of higher education training have unemployment rates well below the national rate.
- The ISM indices have been at or above 50 from almost 6 years. Both manufacturing and non-manufacturing purchasing managers are optimistic about the future.
- 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

Release of Q4 2014 QCEW Data

During the first five months of 2015 the state added 68,900 jobs compared to the same time last year. The current CES data for 2014 shows year-over-year job growth decelerating.

In late-May BLS released the state's Q4 2014 QCEW employment data. It indicates there was much stronger growth during that period than anticipated.

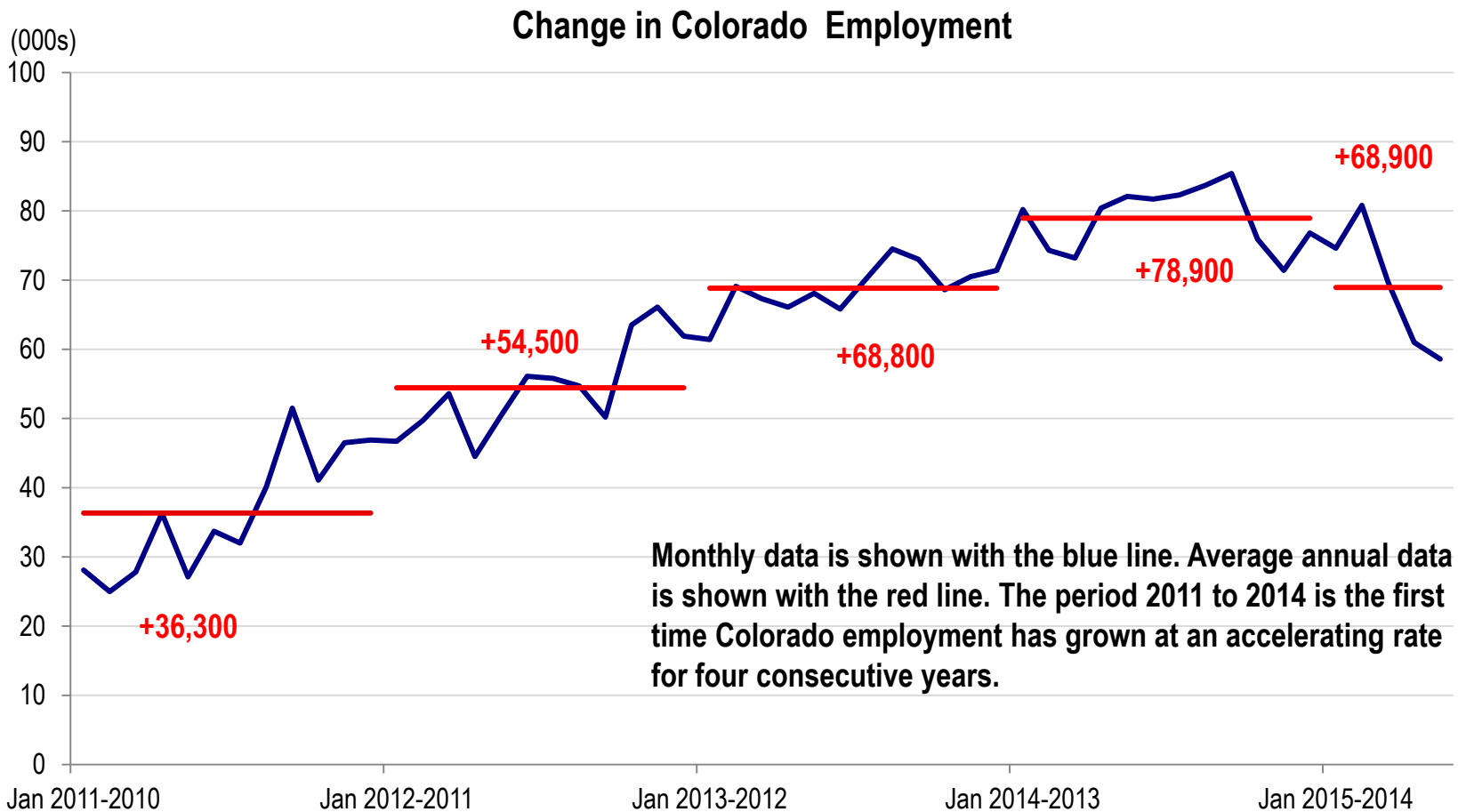
Implications

The QCEW data is used to benchmark the CES data. Assuming the recently released QCEW data is correct there are several implications:

- The March 2016 benchmark revisions for 2014 may show an increase of as much as 3,600 jobs.
- The revision to Q4 2014 suggests the state had much greater momentum coming into the year than originally anticipated.
- As a result, it is likely the first part of 2015 is likely to be revised upwards.

For more information about the benchmarking process, see the Appendix.

Change in Colorado Employment Year-Over-Year



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; however, in May it jumped up by 3,110. This is the highest increase since 2010.

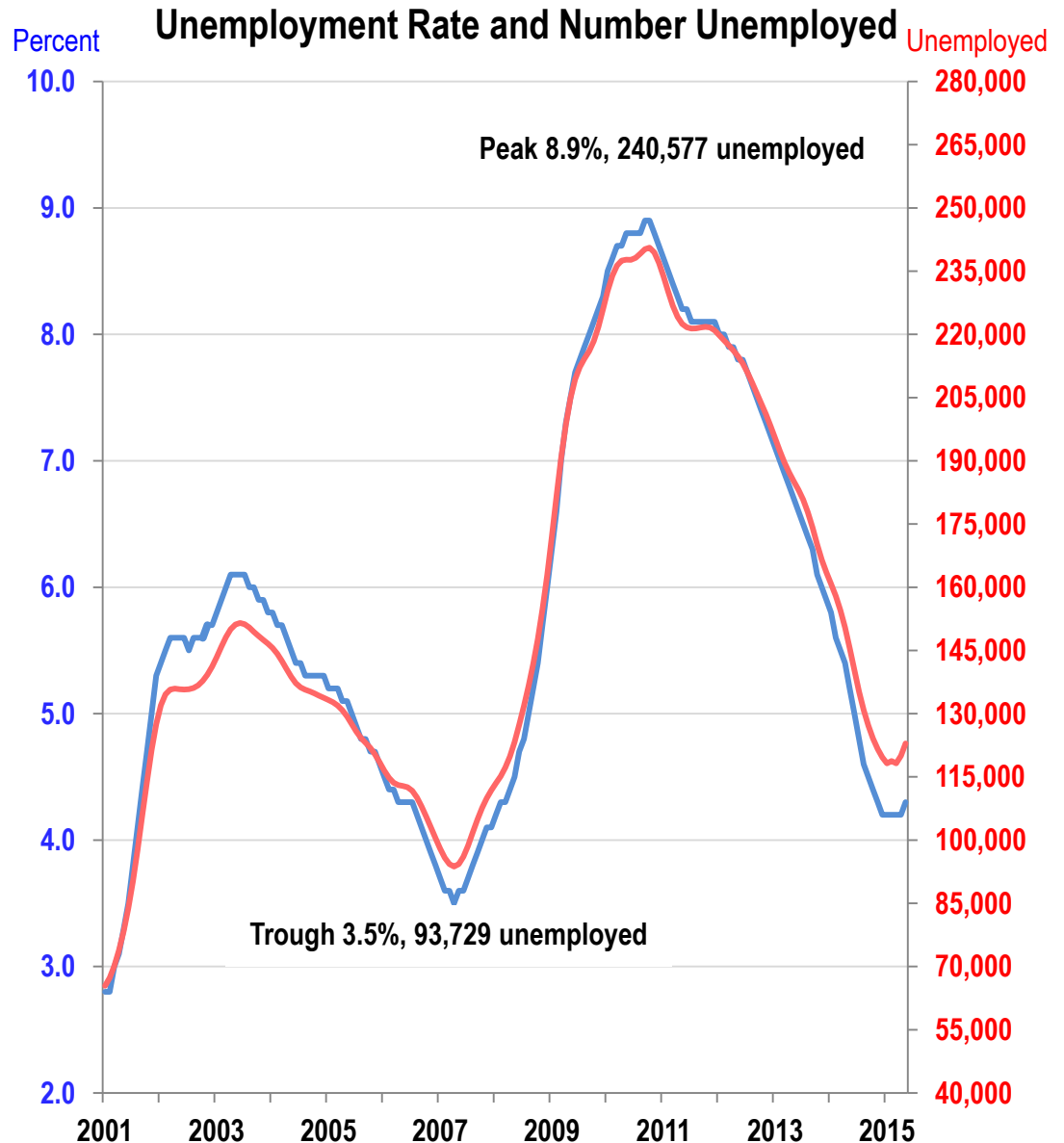
The total number of unemployed workers (red) at the end of May 2015 was 122,929.

The total number of unemployed is 29,200 greater than the trough in May 2007 and 117,648 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 4.3% for the past five months, down from 5.2% in May 2014.

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

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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 categorize 22 NAICS industries into three categories based on the consistency, volatility, and the magnitude of their job growth. The categories are:

- Strong Growth – These industries consistently show stronger than average job growth. The focus of these industries is business and personal services.
- Solid Growth – 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.

Over time, the Solid Growth Category of sectors (yellow) has been more volatile than the Strong Growth Category.

Finally, the Volatile Category of sectors (red) was a significant source of growth in 2013 and 2014 and is projected to do the same in 2015. Prior to that the category was a source of weak job growth or job losses.



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:

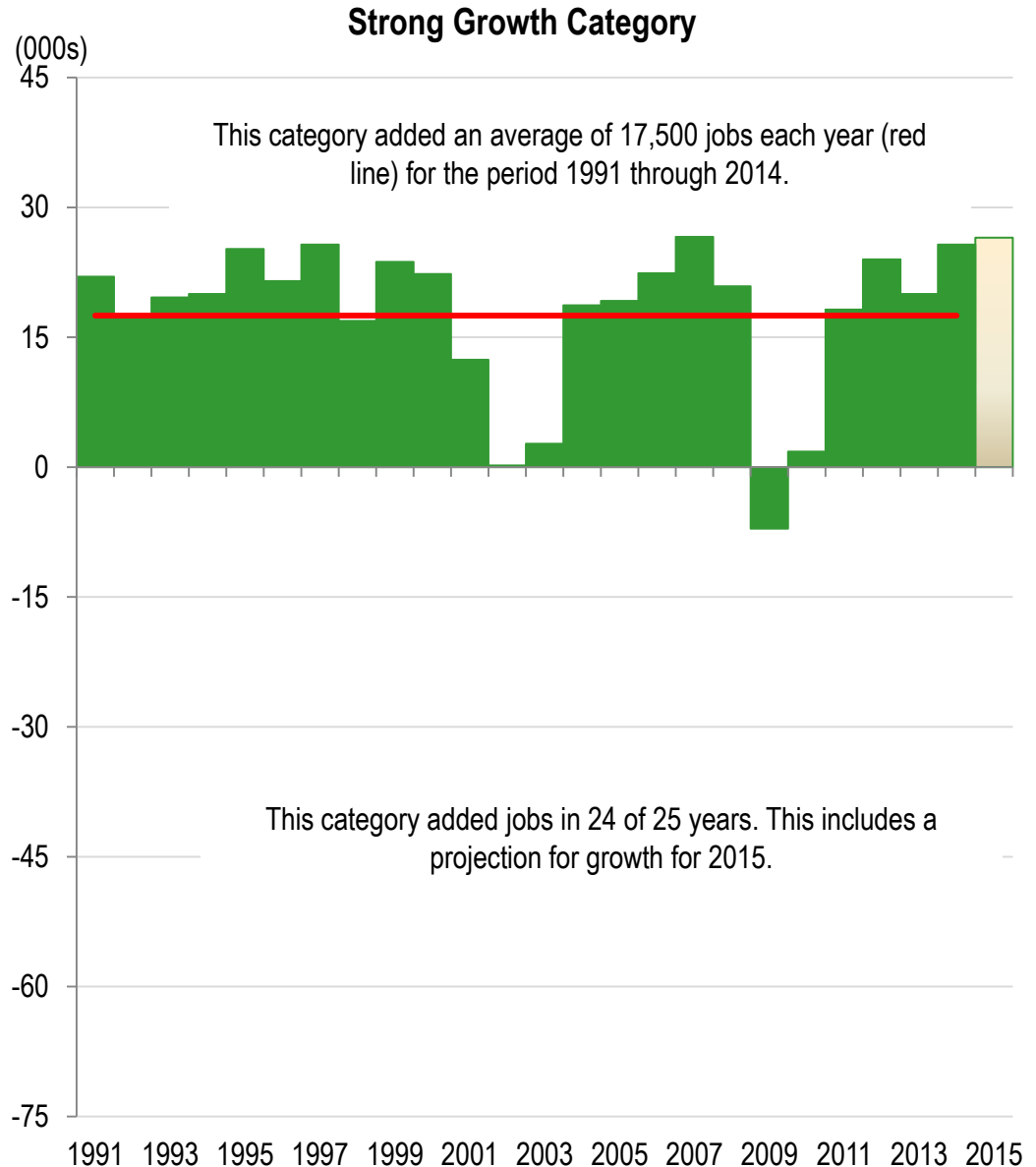
1994 445,200 workers, 25.4% of total employment
 2004 615,900 workers, 28.3% of total employment
 2014 786,700 workers, 32.0% of total employment

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

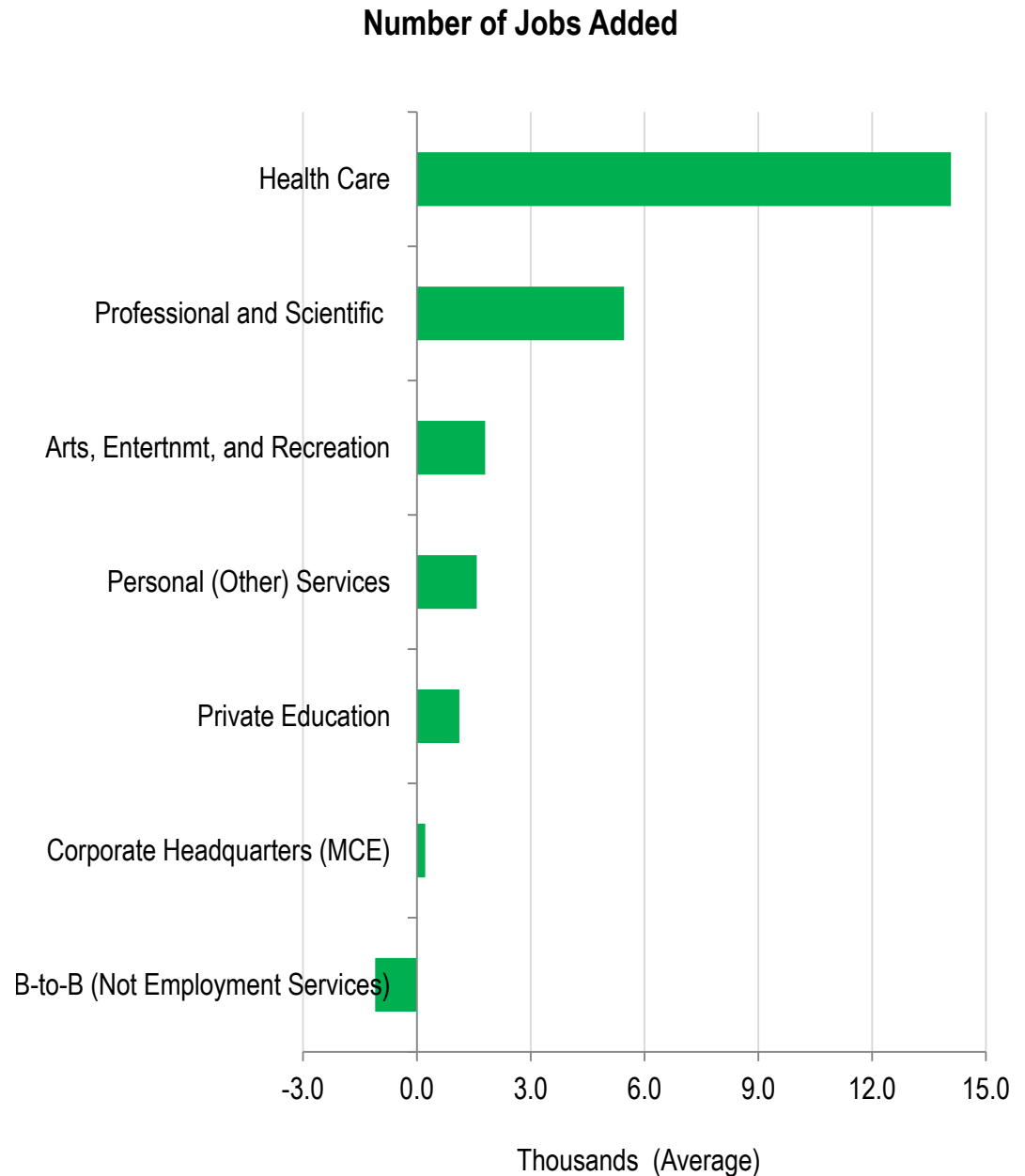
Source: Bureau of Labor Statistics, cber.co.

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● Strong Growth Sectors

- Through the first five months of 2015 this group of industries added 23,200 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 five months of 2015. Most likely the change in B-to-B (Not Employment Services) is understated.



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:

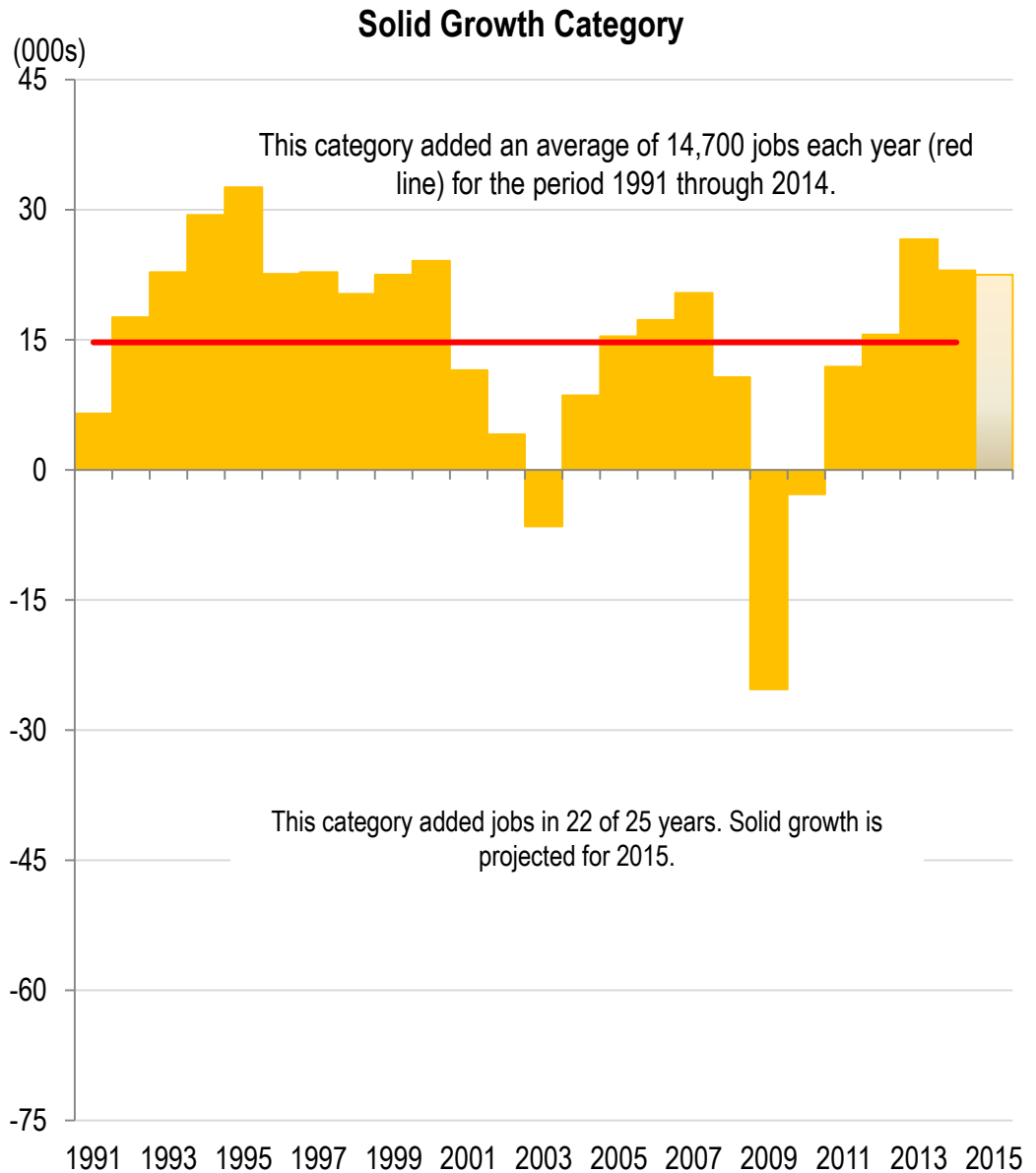
1994 685,400 workers, 39.0% of total employment

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.

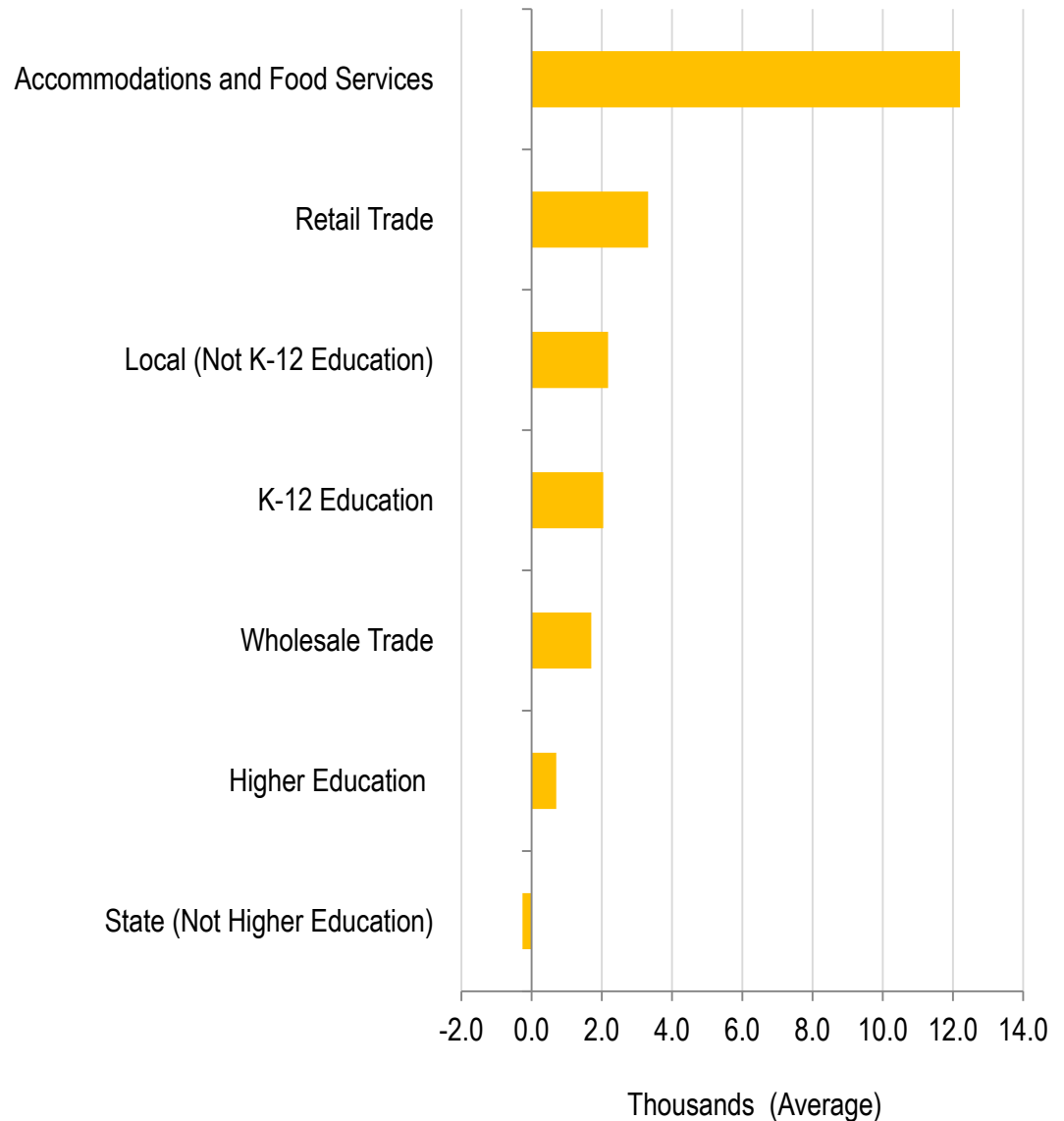
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Solid Growth Sectors

- Through the first five months of 2015 this group of industries added 21,900 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 slightly below the projected 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 five 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.

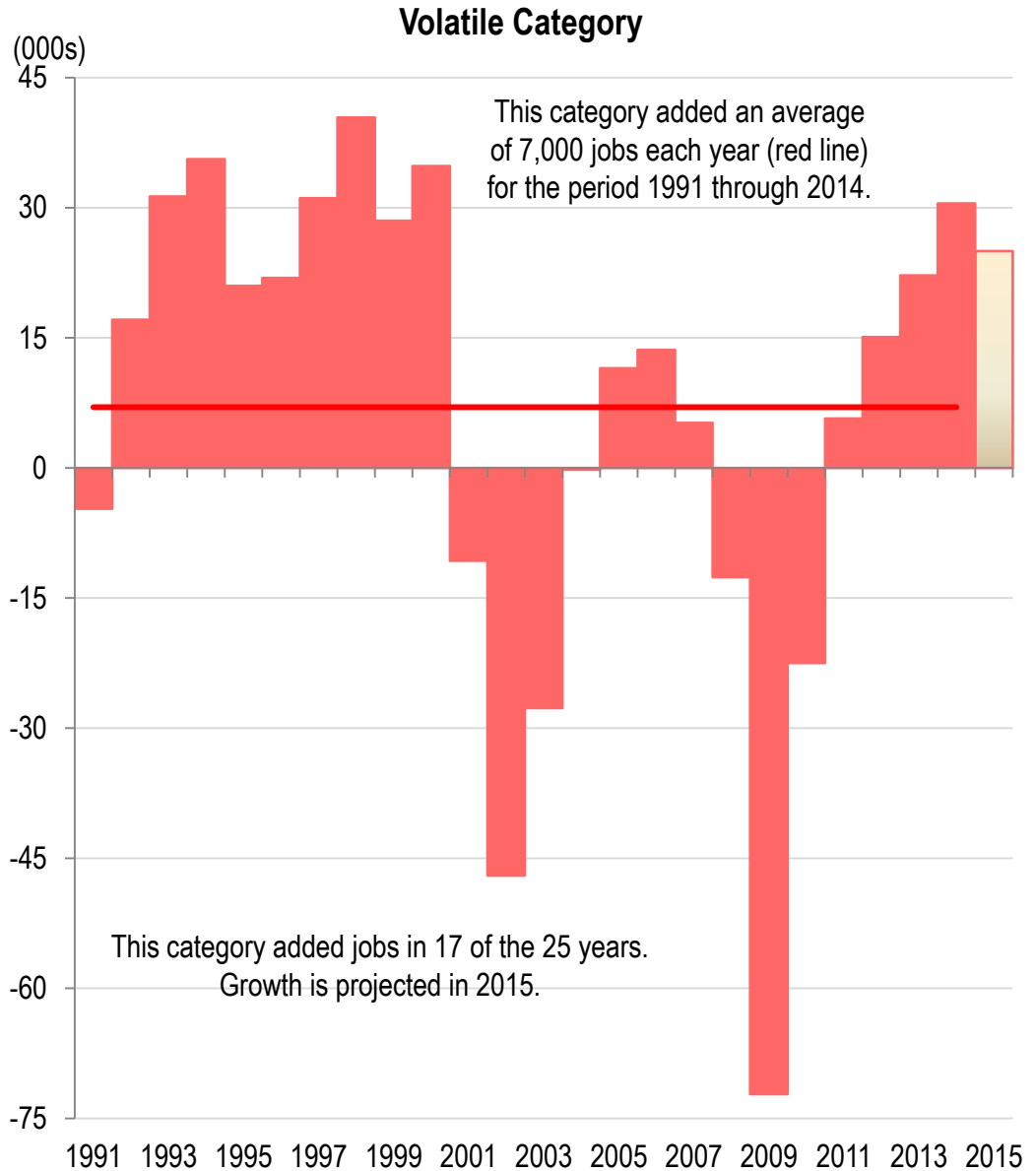
The sectors are:

- 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.



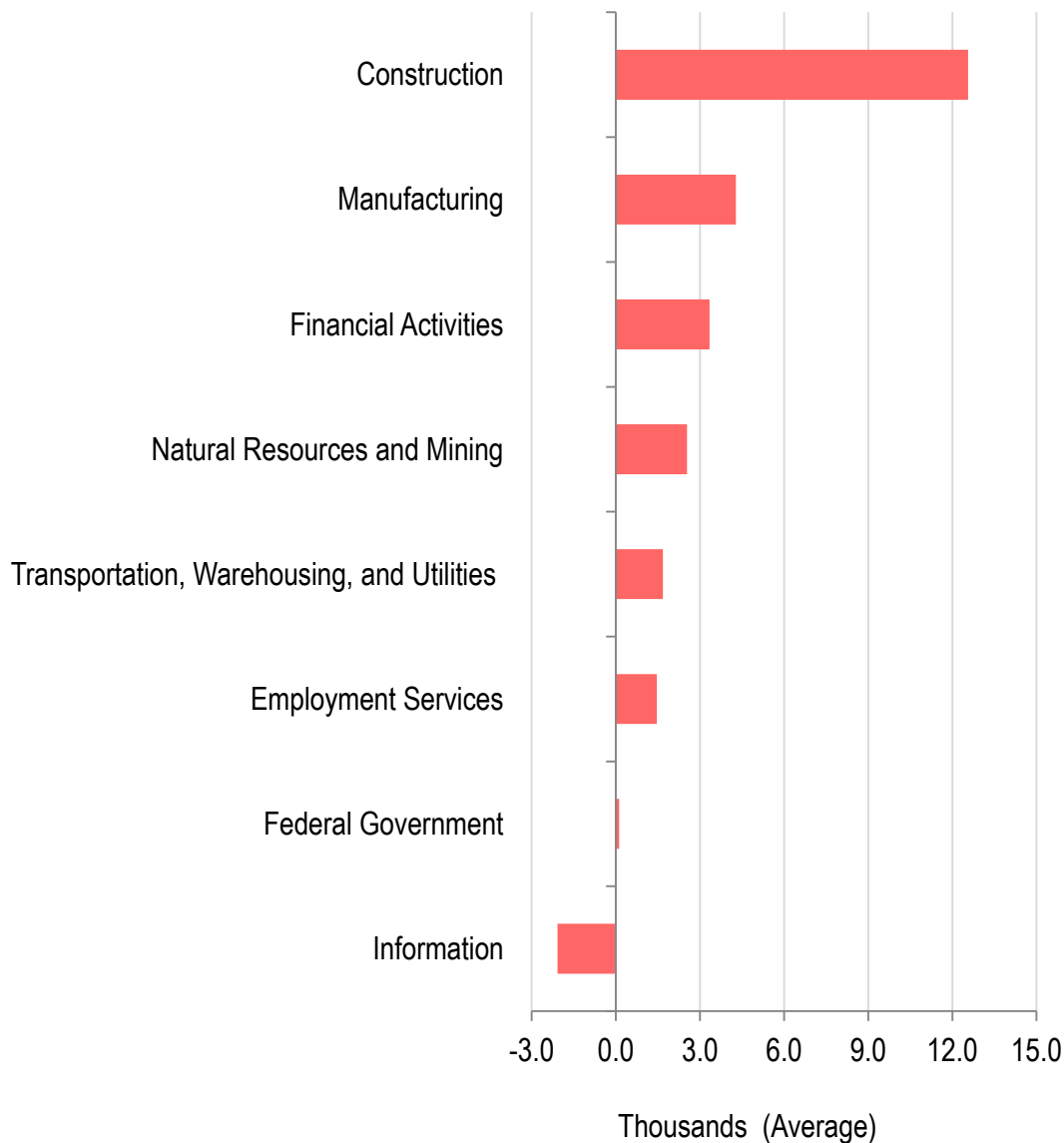
Source: Bureau of Labor Statistics, cber.co.

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● Volatile Sectors

- Through the first five months of 2015 this group of industries added 23,800 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 bottom 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 five 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:

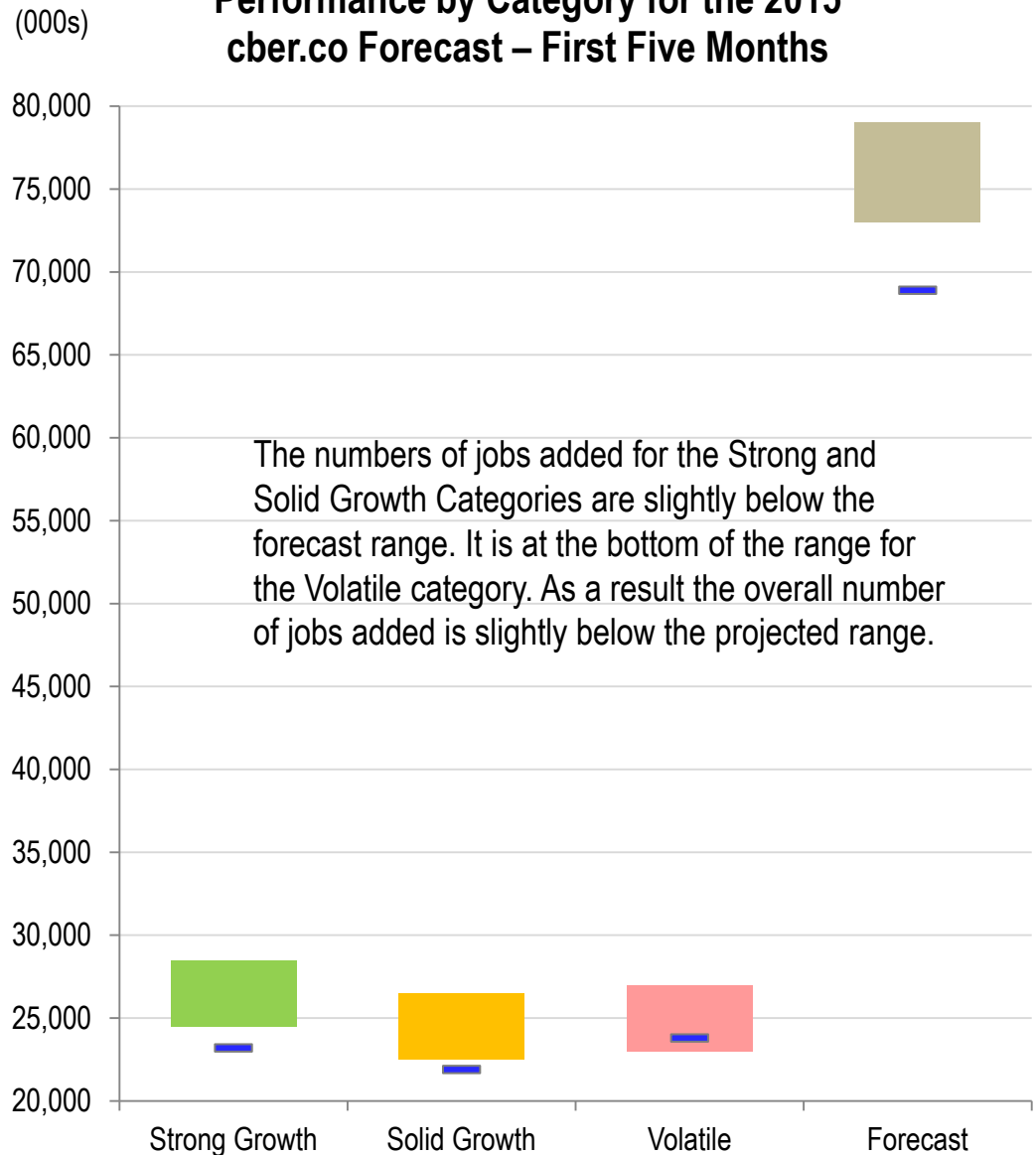
- Strong Growth – green box.
- Solid Growth – yellow box.
- Volatile – pink box.
- Total Employment – grey box.

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

Through the first five months the strong and solid categories were slightly below their respective forecast ranges. The volatile category was within its forecast range.

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

Performance by Category for the 2015 cber.co Forecast – First Five Months



The numbers of jobs added for the Strong and Solid Growth Categories are slightly below the forecast range. It is at the bottom of the range for the Volatile category. As a result the overall number of jobs added is slightly below the projected range.

Source: Bureau of Labor Statistics, cber.co.

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Special Focus CLC and OSPB Quarterly Forecasts



CLC and OSPB Quarterly Forecasts

The Colorado Legislative Council and the Governor's Office of State Planning and Budgeting recently released their quarterly updates. (<https://www.colorado.gov/cga-legislativecouncil> and <https://sites.google.com/a/state.co.us/ospb-live/>). The two reports provide slightly different forecasts, both of which are supported by rational explanations. A comparison of key indicators follows below. Greater detail is provided for the CLC forecast in the subsequent charts. The forecasts for both groups are recommended reading for those who follow the Colorado economy.

U.S. Economy June Forecast for 2015

Category	CLC	OSPB
Real GDP % Change	2.5%	2.2%
Employment Change/%	2.9 million 2.1%	2.8 million 2.0%
Unemployment Rate	5.5%	5.4%
Inflation (CPI)	0.4%	0.3%

Colorado Economy June Forecast for 2015

Category	CLC	OSPB
Population Change /%	+88,800 1.7%	+88,700 1.7%
Employment Change/%	+64,100 2.6%	+71,400 2.9%
Unemployment Rate	4.3%	4.3%
Retail Trade Sales (Millions)/%	\$94,956 5.6%	\$94,100 4.8%
Home Permits (000s)	29.1	31.5
Denver-Boulder Inflation Rate	1.4%	2.2%

The cber.co, CLC, and OSPB forecasts call for 2015 Colorado employment to grow at a solid, but slower rate than in 2014. The economy will face headwinds caused by lower oil prices and "fatigue" in some industries.

Colorado Legislative Council

Colorado General Fund Projections (Dec. 2014/June 2015)

General Fund Revenue Estimates (millions) December 2014

Category	FY 2014-15	FY 2015-16	FY 2016-17
Sales Tax	\$2,637.0	\$2,825.2	\$3,000.9
TOTAL EXCISE TAX	\$3,005.9	\$3,222.1	\$3,423.9
Net Individual Income	\$6,064.7	\$6,459.1	\$7,113.6
Net Corporate Income	\$762.2	\$804.4	\$829.7
INCOME TAXES	\$6,323.5	\$6,728.6	\$7,359.5
GROSS GENERAL FUND	\$9,608.5 7.1% increase	\$10,248.3 6.7% increase	\$11,104.04 \$8.4% increase

General Fund Revenue Estimates (millions) June 2015

Category	FY 2014-15	FY 2015-16	FY 2016-17
Sales Tax	\$2,662.6	\$2,807.8	\$2,977.0
TOTAL EXCISE TAX	\$3,018.8	\$3,190.3	\$3,367.8
Net Individual Income	\$6,342.7	\$6,493.3	\$6,774.6
Net Corporate Income	\$711.2	\$656.8	\$667.7
INCOME TAXES	\$6,534.0	\$6,623.3	\$6,894.6
GROSS GENERAL FUND	\$9,834.3 9.6% increase	\$10,089.6 2.6% increase	\$10,550.4 \$4.6% increase

Colorado Legislative Council projected that the 2014-15 year, which will end June 30, 2015, will be 9.6% greater than the General Fund Revenue for the previous fiscal year. This is up from the increase of 6.5% that was projected a year ago. The Gross General Fund projections for the current fiscal year are greater than those made in December; however, the forecasts for FY 2016 and FY 2017 have been revised downwards. At this point, revenue projections for FY 2015-16, which will begin July 1, 2015, show a modest increase for the year. This is slightly above the projected rate of inflation for the state.

Colorado Legislative Council

U.S. Economic Projections(Dec. 2014/June 2015)

U.S. Economy December 2014

Category	2015	2016	2017
Real GDP % Change	3.1%	3.3%	-
Employment (millions) Change/%	3.1 million 2.2%	3.4 million 2.4%	-
Unemployment Rate	5.5%	5.2%	-
Inflation (CPI)	1.9%	2.2%	

U.S. Economy June 2015

Category	2015	2016	2017
Real GDP % Change	2.5%	2.7%	2.8%
Employment (millions) Change/%	2.9 million 2.1%	3.2 million 2.2%	2.9 million 2.0%
Unemployment Rate	5.5%	5.3%	5.1%
Inflation (CPI)	0.4%	1.9%	2.2%

In June 2015, Colorado Legislative Council projected the U.S. will see Real GDP growth of 2.5% this year. This is in line with the cber.co forecast. They expect Real GDP growth to gradually increase through 2017. They revised their growth rate for U.S. employment down slightly; however, the U.S. will add about three million workers per year through 2017. CLC expects the unemployment rate to decline and inflation to increase.

Colorado Legislative Council

Colorado Economic Projections(Dec. 2014/June 2015)

Colorado Economy December 2014

Category	2015	2016	2017
Population	5,449,600	5,545,100	-
Change /%	+91,800 1.7%	+95,500 1.8%	
Employment	2,526,300	2,607,100	-
Change/%	+73,600 3.0%	+80,800 3.2%	
Unemployment Rate	4.3%	4.1%	-
Retail Trade Sales (M)/%	\$96,353 6.8%	\$102,508 6.4%	-
Home Permits (000s)/%	36.6 14.9%	40.0 9.3%	-
Denver-Boulder Inflation Rate	2.5%	2.3%	-

Colorado Economy June 2015

Category	2015	2016	2017
Population	5,444,700	5,537,500	5,633,700
Change (000)/%	88,800 1.7%	92,800 1.7%	96,200 1.7%
Employment ((000)	2,529,300 64,100	2,595,000 65,700	2,659,900 64,900
Change/%	2.6%	2.6%	2.5%
Unemployment Rate	4.3%	4.1%	4.0%
Retail Trade Sales (M)/%	\$94,956 5.6%	\$101,888 7.3%	\$108,816 6.8%
Home Permits (000s)/%	29.1 1.4%	31.9 9.5%	34.0 6.6%
Denver-Boulder Inflation Rate	1.4%	2.6%	2.4%

In the June 2015 forecast, Colorado Legislative Council lowered their projections for population growth slightly. They made a downward revision in their employment growth projections. As well, their June forecast shows that retail trade sales will grow at a lower rate than projected in December. They also revised their housing permits down significantly.



Special Focus

Boulder MSA and Fort Collins MSA

● Boulder and Larimer County



Both Boulder County and Larimer County are the source of innovation and entrepreneurship that helps drive the Colorado economy.

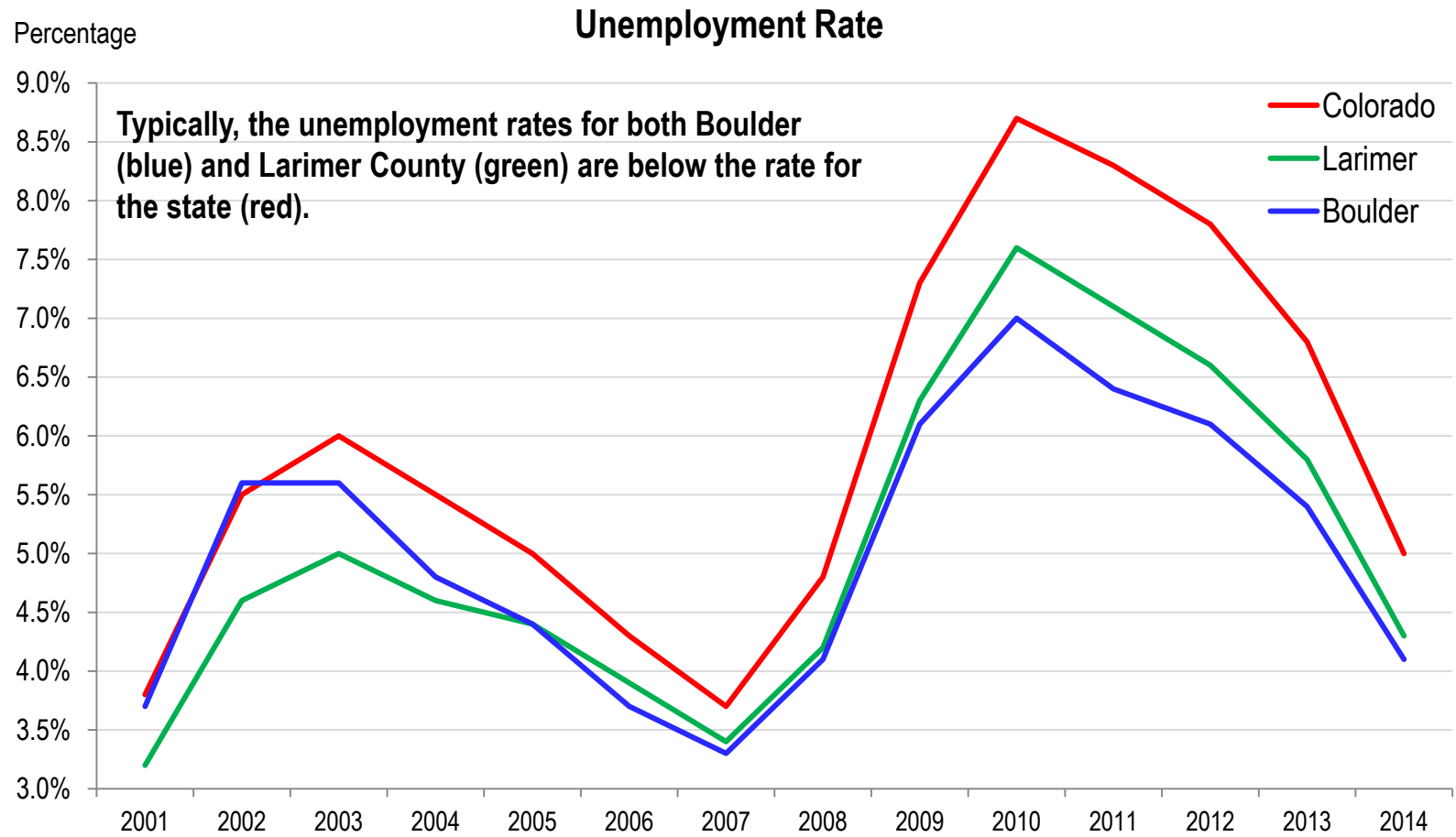
The following charts compare changes in the unemployment rate, population growth, the number of private sector establishments, and employment. The charts illustrate how the growth patterns for the two counties are significantly different for these demographics.

In summary, this comparison shows:

- Since 2001, Boulder County and Larimer County have usually had unemployment rates below the state – which is a mixed blessing.
- Since 2001, the population, employment, and number of private sector establishments for Boulder County have grown below the rates for Colorado and Larimer County.

Unemployment Rate

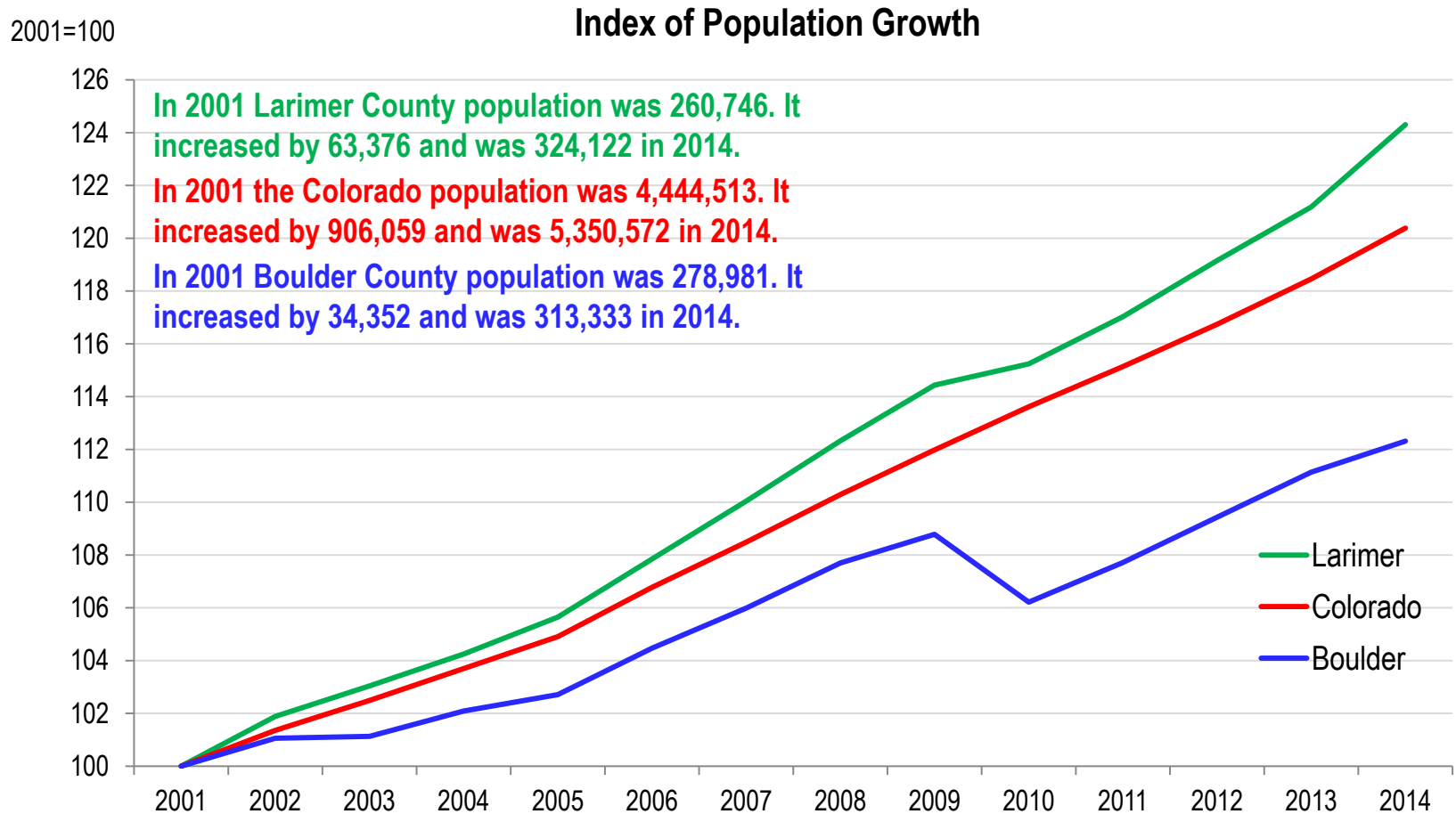
Colorado, Larimer, and Boulder County



Source: Bureau of Labor Statistics

Index of Population Growth

Colorado, Larimer, and Boulder County



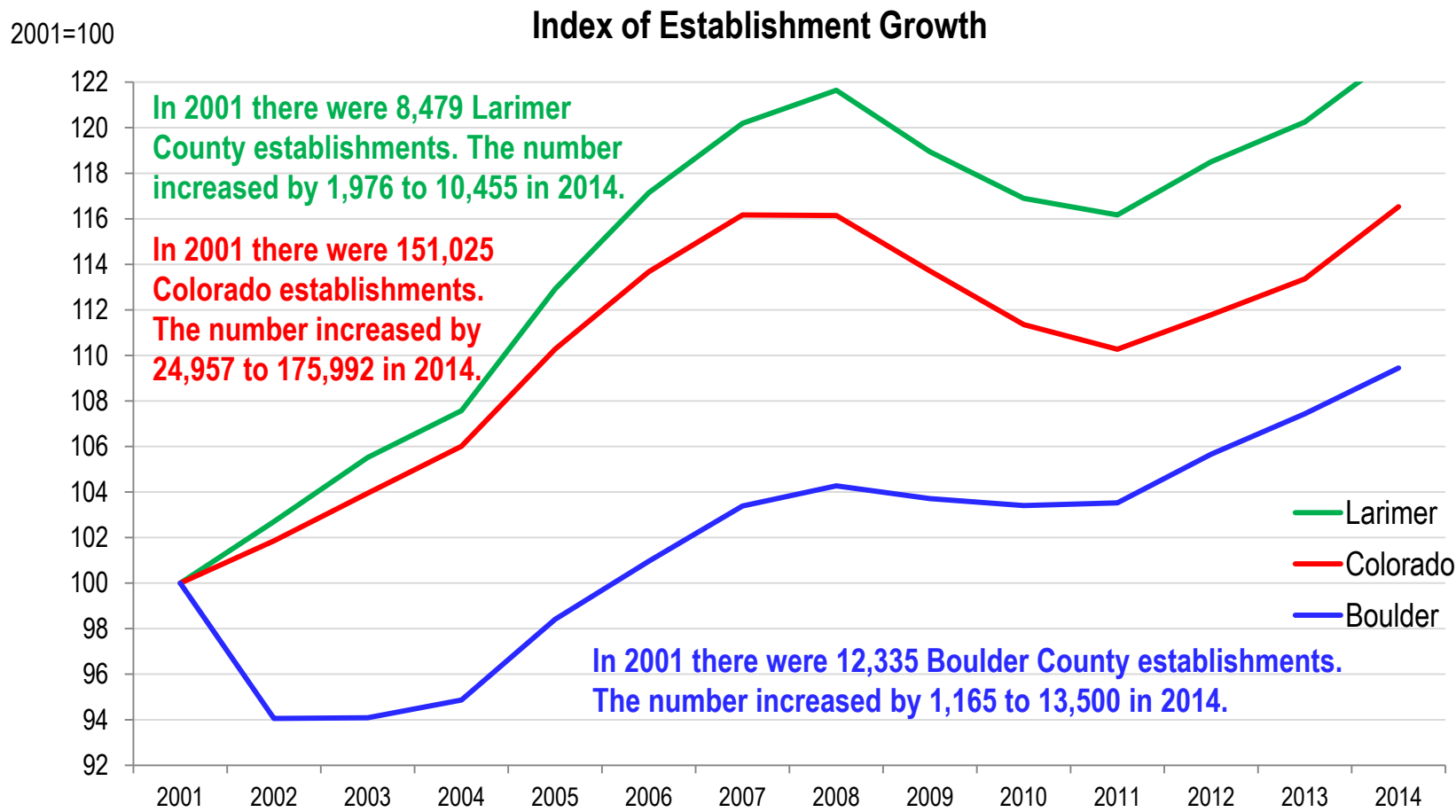
Source: Census Bureau and Colorado State Demographer.

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Index of Number of Private Establishments

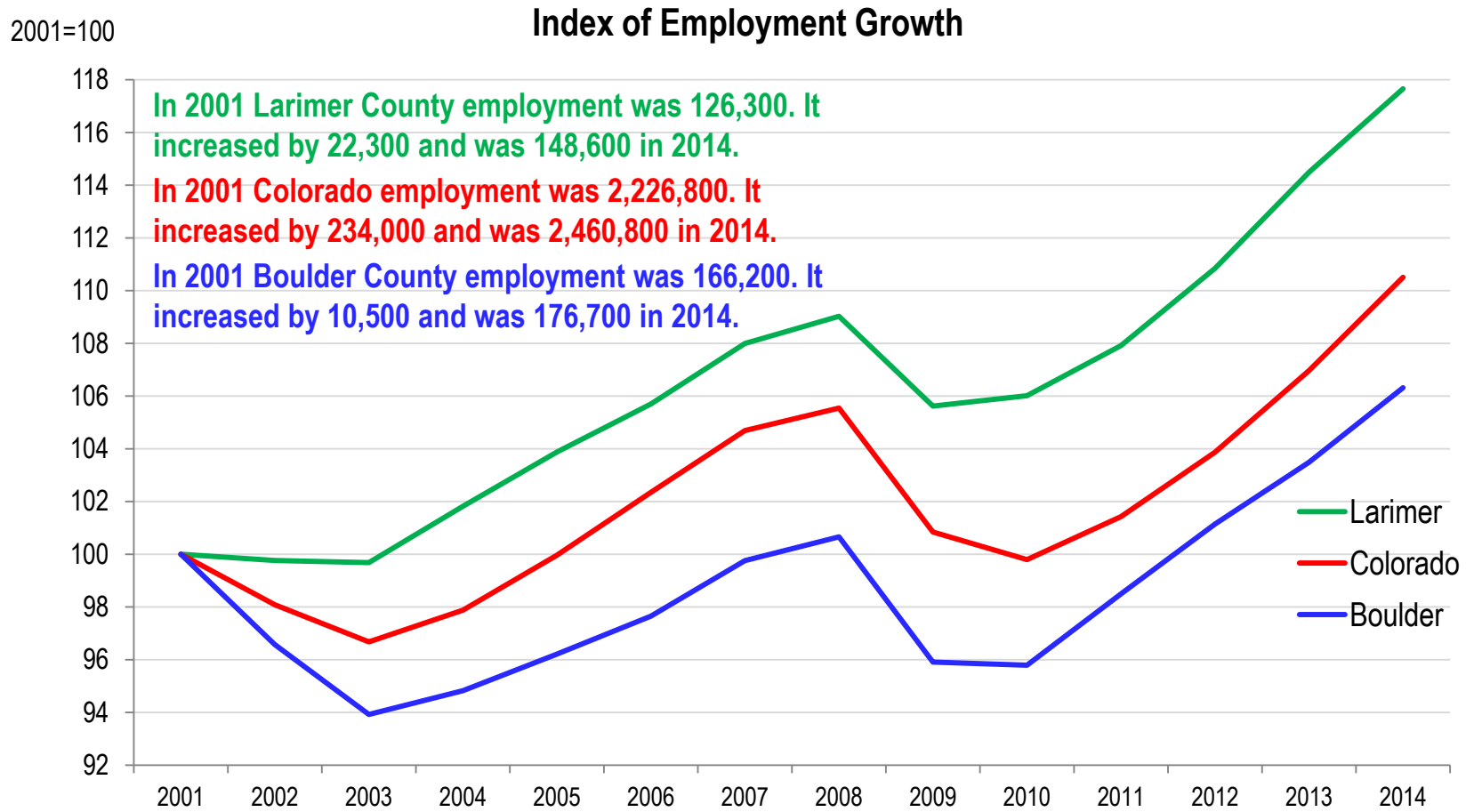
Colorado, Larimer, and Boulder County



Source: Bureau of Labor Statistics.

Index of Wage and Salary Employment Growth

Colorado, Larimer, and Boulder County



Source: Bureau of Labor Statistics.

Implications

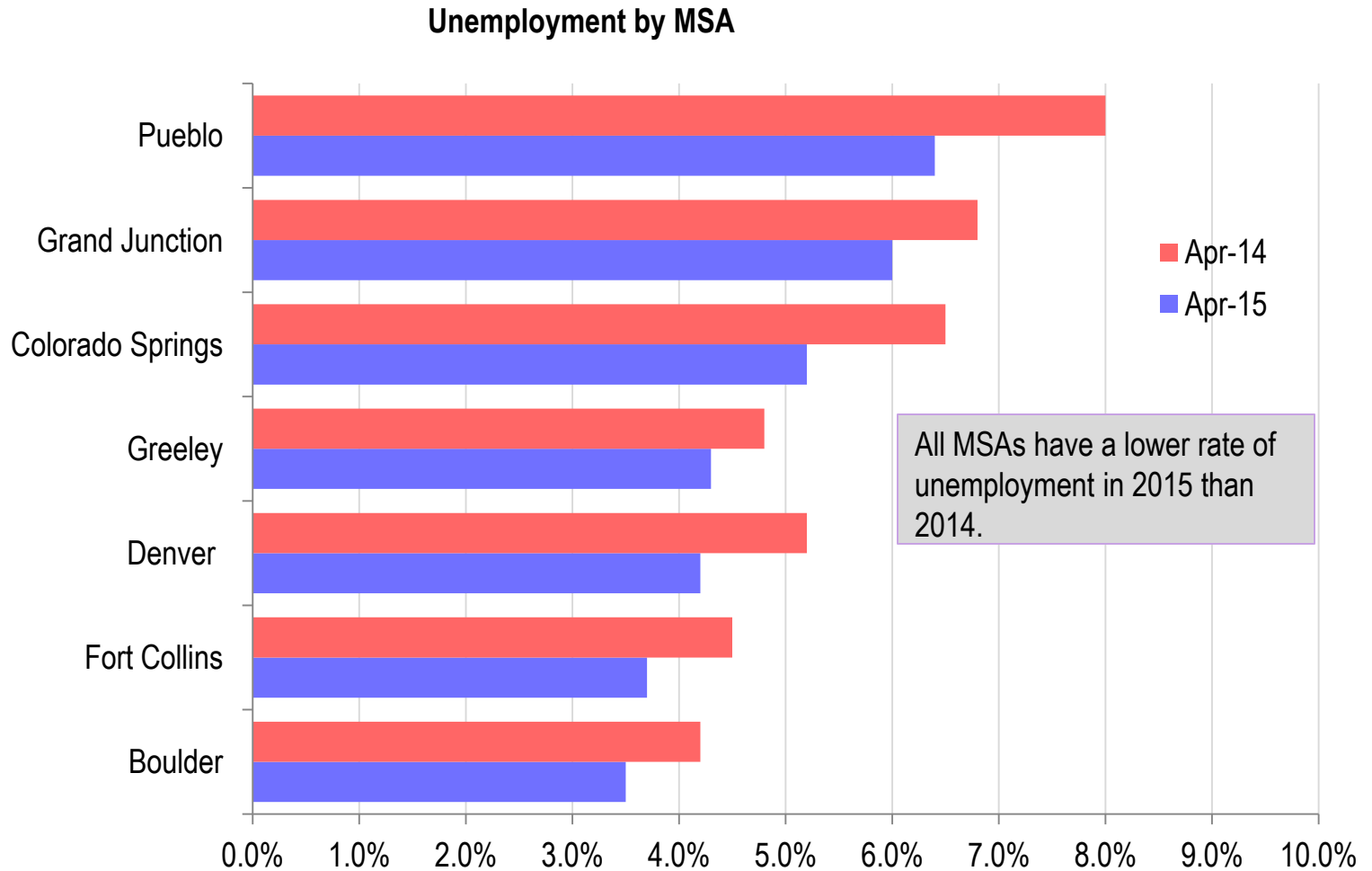
The following questions arise when looking at the changes in the unemployment rate, population, the number of private sector establishments, and employment in Boulder County and Larimer County. (Boulder County is also the Boulder MSA and Larimer County is the Fort Collins MSA).

- How do organizations in Boulder and Fort Collins find qualified workers when the regional unemployment rate is lower than the state and other MSAs? Establish training programs? Attract workers from other companies (in-state or out-of-state)? Provide their workers premium compensation packages to work in Boulder?
- Why is the rate of growth for the Boulder MSA population lower than Fort Collins MSA and the state? Is this a result of a lack of affordable and attainable housing in Boulder? Will the completion of improvements to the 36 corridor make it easier for workers to commute to Boulder ? Can commuters afford to use it?
- Why are the number of new business establishments in Boulder County growing at a slower rate than Colorado and Larimer County? Is there a lack of adequate commercial space? Is commercial real estate too expensive in Boulder County? Is it too expensive to operate a business in Boulder County? Is it necessary to export innovative ideas out of Boulder County so companies can be successful?
- Why is the employment growth rate for the Boulder MSA lower than the state and the Fort Collins MSA?



Summary and Total Jobs Added

Unemployment by MSA 2014 vs. 2015



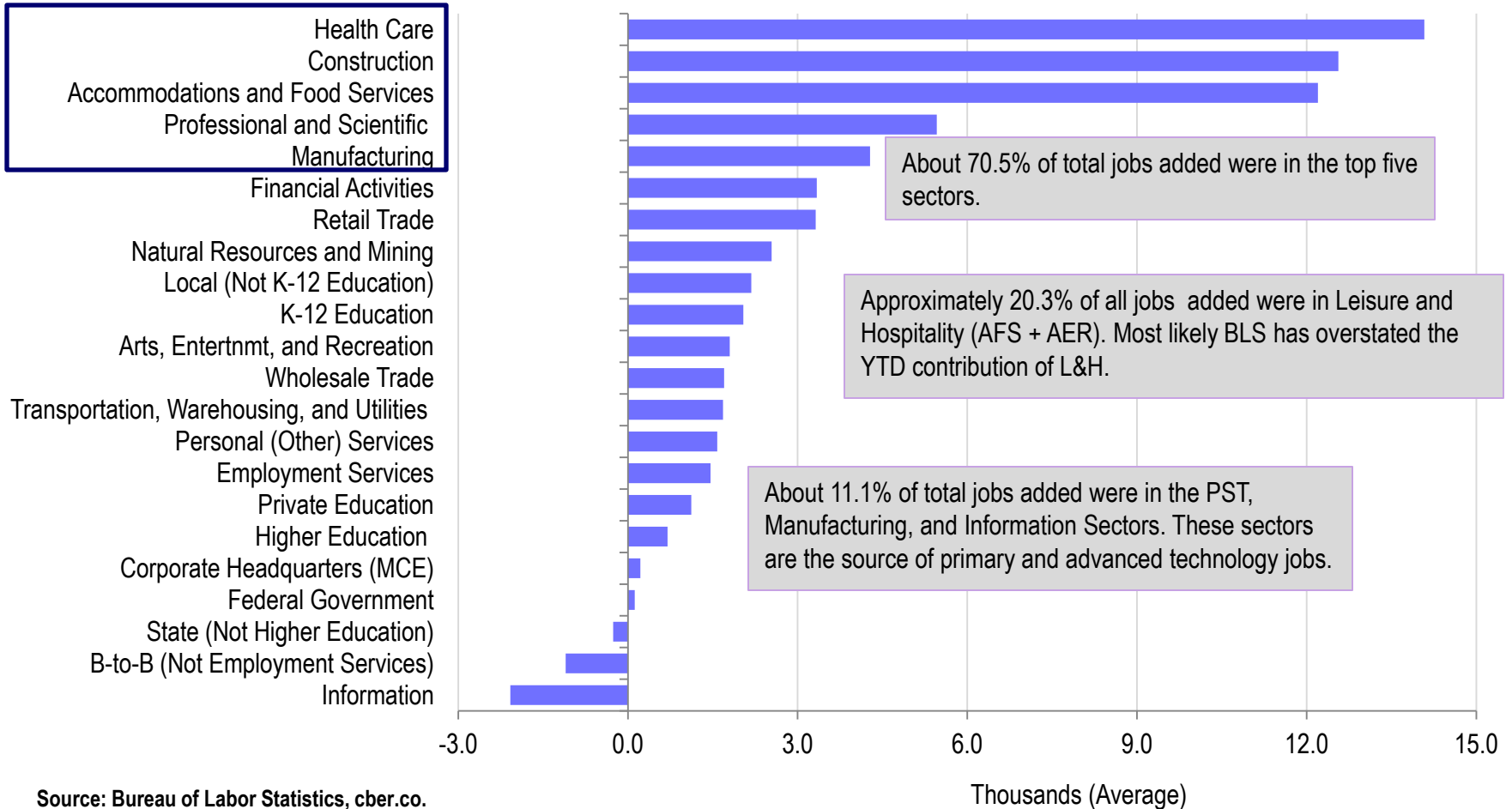
Source: Bureau of Labor Statistics, NSA. Note: MSA unemployment lags by two years and is reported on a non-seasonally adjusted basis.

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<http://cber.co>

Change in Employment First Five Months 2015

Number of Jobs Added



Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research

<http://cber.co>

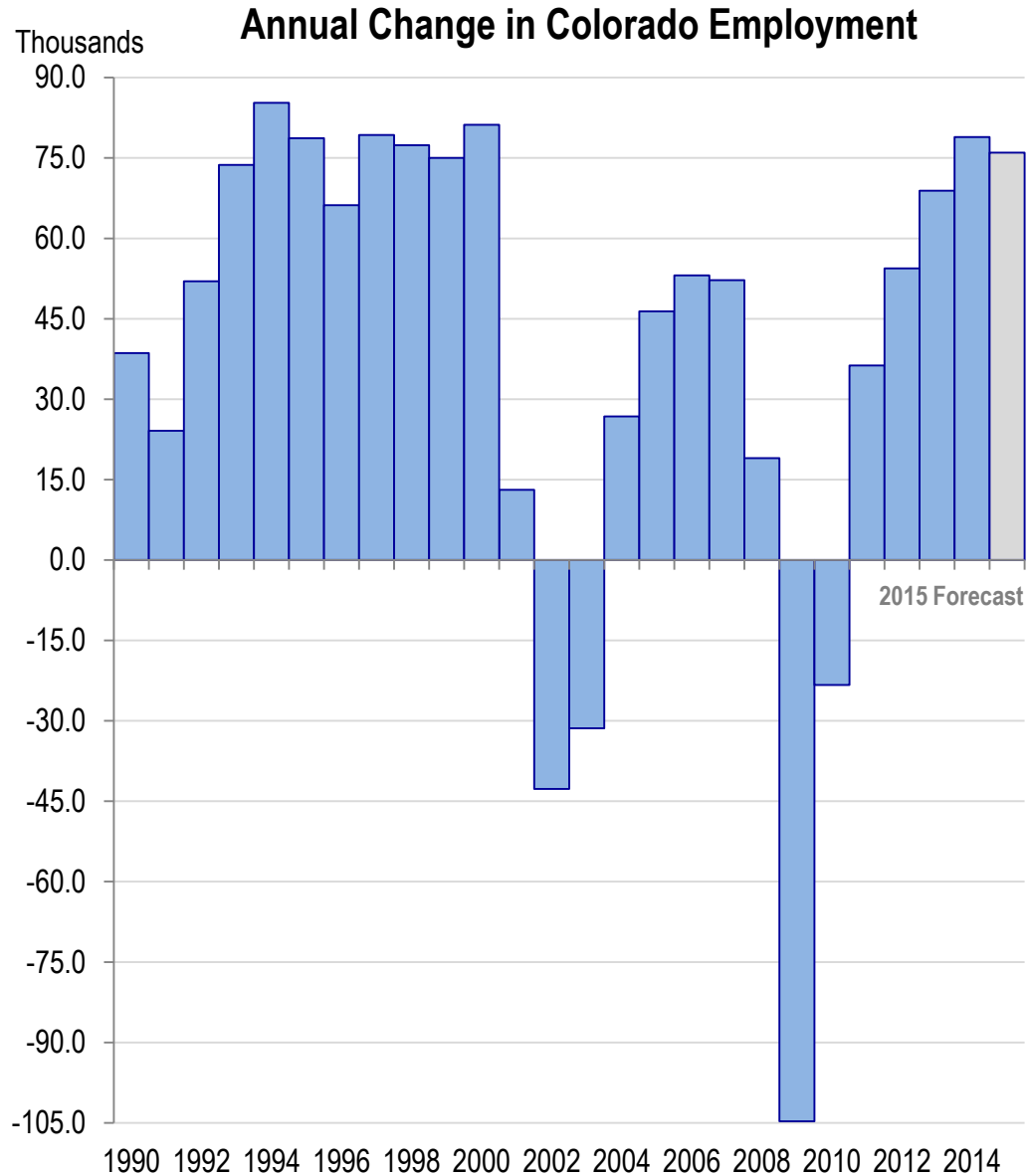
Annual Employment Change in Colorado

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 jobs.

The state is projected to add 73,000 to 79,000 jobs in 2015, an increase of 3.0% to 3.2%.

For the first five months of 2015 Colorado employment is 68,900 jobs greater than the same period last year. The published data shows the state is growing at a solid, but decreasing rate of growth.

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 part of 2015.



Source: Bureau of Labor Statistics, cber.co.

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



Summary

The cber.co forecast is for the state 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 five months of 2015 was 2.8%, or 68,900 jobs greater than the same period in 2014.

- The Colorado Department of Labor released Q4 2014 QCEW data that reflects a significant upward revision for the quarter. This may result in the 2014 employment data to be revised upward in the March 2016 benchmark review for 2014. It is possible that job growth for early 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 have accounted for 70.5% of total job growth this year.

- 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 7 metro areas have lower unemployment rates than a year ago. The rates for Denver, Boulder, Fort Collins, and Greeley are below 4.4%, whereas the rates for Colorado Springs, Pueblo, and Grand Junction are 5.2% 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%.

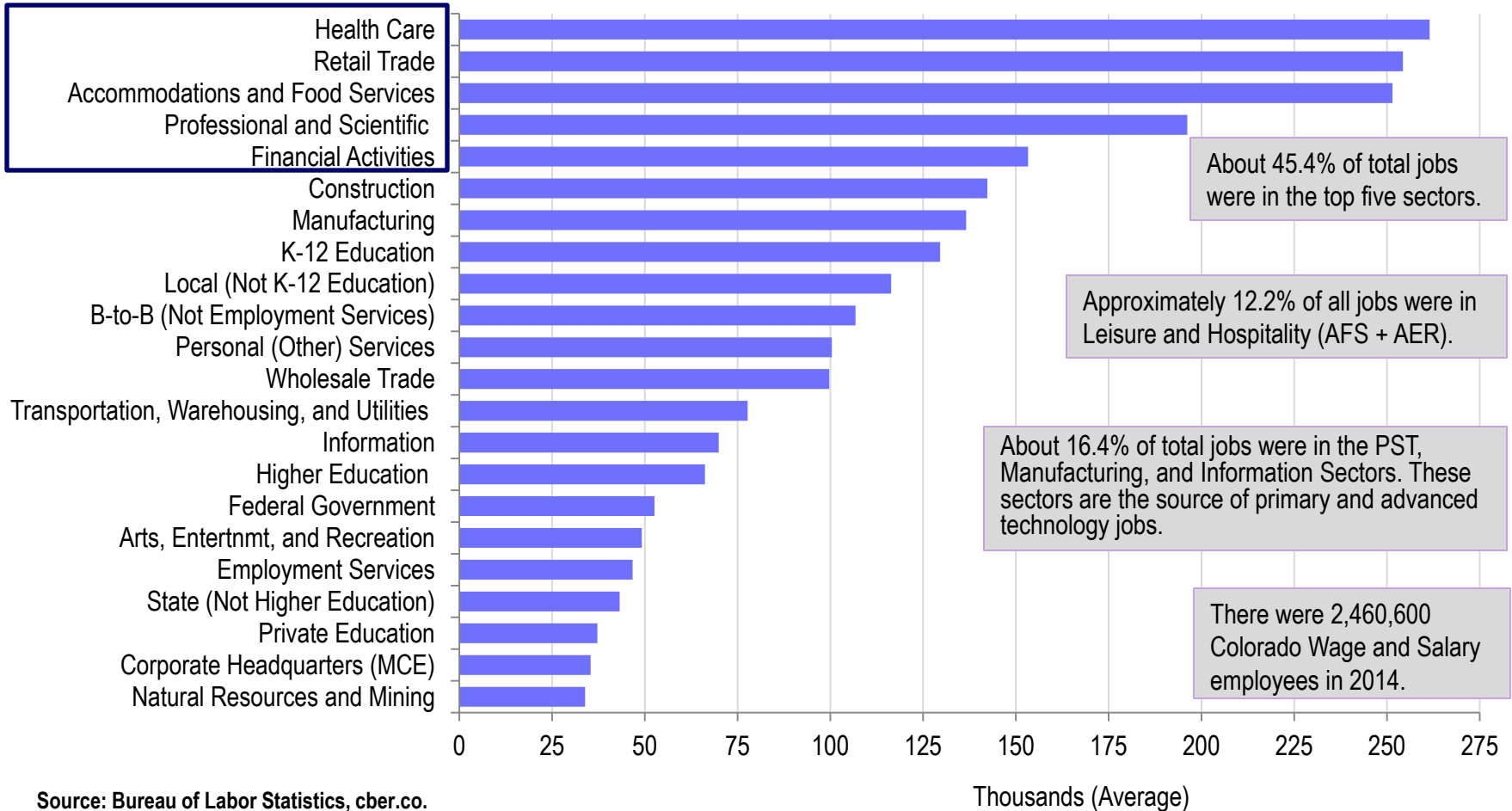
- To date there have been minimal layoffs in the Oil and Gas Industry as a result of lower oil prices. Production has remained near record levels.



Appendix

2014 Colorado Wage and Salary Employment

Employment



Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research

<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 Five 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.