Review of Colorado Economy Analysis of 2014 Employment Data

Colorado-based Business and Economic Research

March 22, 2015



This chartbook focuses on employment in 2014 as a measure of the performance of the state economy.

The original monthly data produced by the Bureau of Labor Statistics showed that Colorado employment was growing at a declining rate throughout 2014. When the 2014 benchmarked data was published in mid-March 2015 the revision showed that Colorado's employment picture was brighter than originally projected. Last year the state added 78,900 jobs. It was the fourth consecutive year of accelerating job growth. The following sectors were the top contributors:

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

This brief analysis is divided into the following sections.

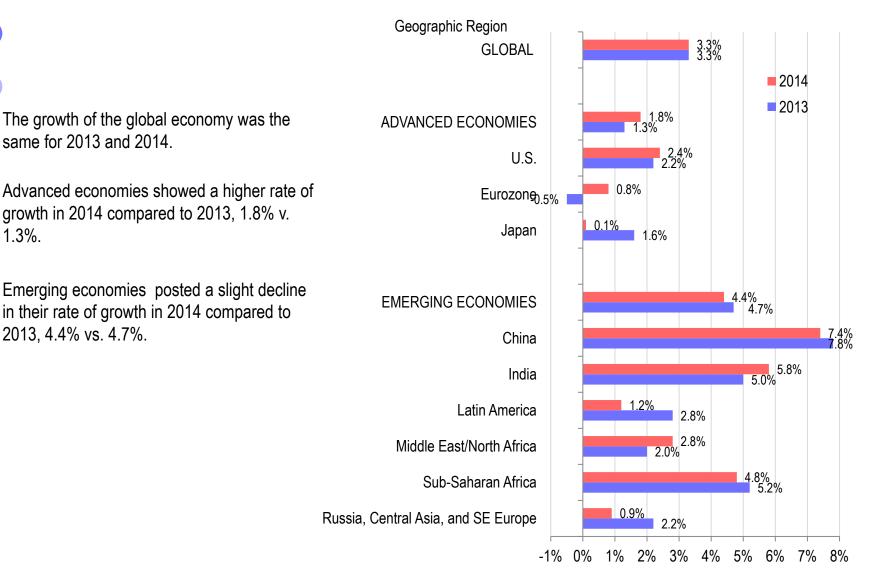
- U.S. and Global Economy.
- Colorado Population, Unemployment, and Employment.
- Colorado 2014 Category and Major Sector Employment.
- Colorado 2014 MSA Employment.
- Total Jobs Added.
- Appendix.

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

U.S. and Global Economy

Global Real GDP

Global Real GDP 2013 vs. 2014

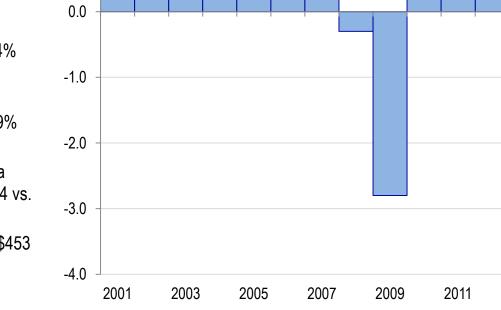


Annual Real GDP Growth

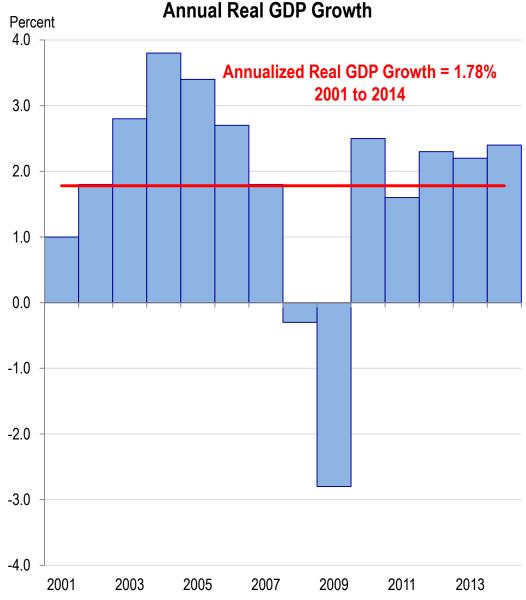
Real GDP grew at an annualized rate of 1.78% for the period 2001 to 2014 (red line). The annual rates of growth for 2010, 2012, 2013, and 2014 are above that level.

Real GDP expanded by 2.4% in 2014. Other components of GDP changed as follows:

- In 2014 real personal consumption ٠ increased by 2.5% compared to 2.4% for 2013
- In 2014 gross business investment ٠ expanded by 5.9% compared to 4.9% for the prior year.
- Government spending was less of a ٠ drag on the economy, -0.2% in 2014 vs. -2.0% in 2013.
- The trade imbalance in 2014 was -\$453 ٠ billion, similar to 2012.



Source: Bureau of Economic Analysis, cber.co, chained in 2009 dollars.

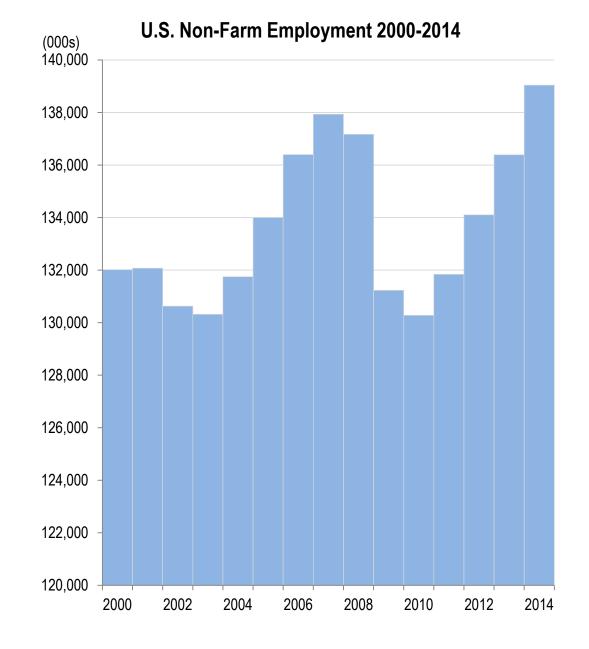


OU.S. Employment The Lost Decade and Beyond

U.S. employment declined in 2008, 2009, and 2010. After that, the nation added:

- 1,567,000 jobs in 2011.
- 2,262,000 jobs in 2012.
- 2,289,000 jobs in 2013.
- 2,649,000 jobs in 2014.

During these four years the nation added 8,767,000 jobs.



Source: Bureau of Labor Statistics, cber.co.

OU.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 unemployment rate was 5.6% at the end of 2014 compared to 6.7% the year before.

The total number of unemployed (red) dropped below 8.7 million at the end of 2014. This is 2.0 million above the low point in 2007 and 6.7 million below the high point in 2009.



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

Number of Total Unemployed Who Have Been Out of Work for 27 Weeks and Over



Source: Bureau of Labor Statistics, SA, FRED. Colorado-based Business and Economic Research

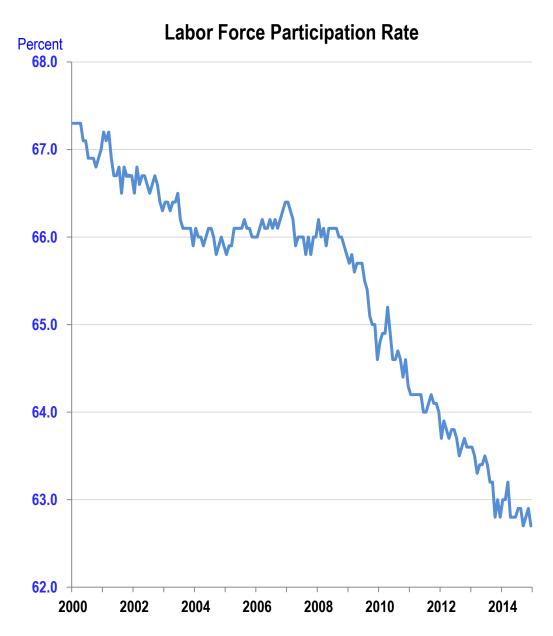
http://cber.co

Labor Force Participation Rate

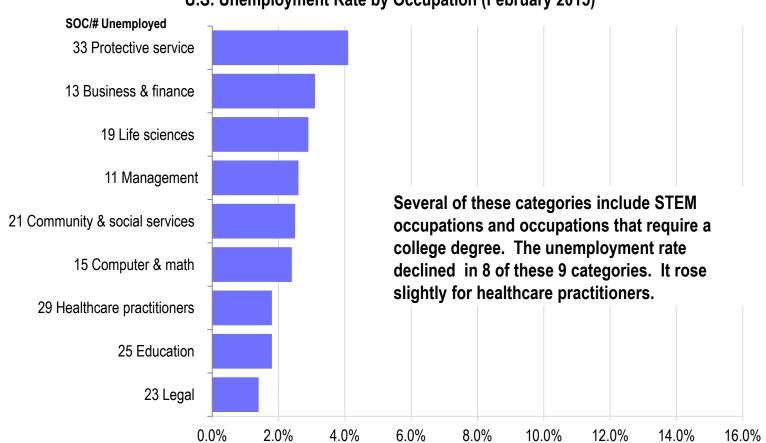
After peaking in 2000, the labor force participation rate declined until mid-2013. During this decline the rate fell from 67.3% to 62.7%. It appears to have stabilized around 62.8%.

While there is debate about the reason for the recent decrease, the primary factors are an increase in discouraged workers (a weak recovery from the Great Recession) and a change in demographics (more baby boomers retiring).

The Labor Force Participation Rate is the percentage of people eligible to participate in the labor force (either employed or actively looking for work) as a percentage of the labor force.



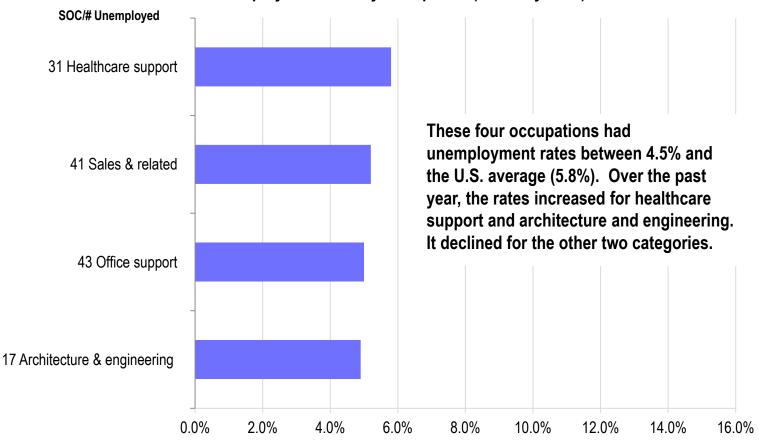
U.S. Occupations with Unemployment Rates Below the Natural Rate (4.5%)



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

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

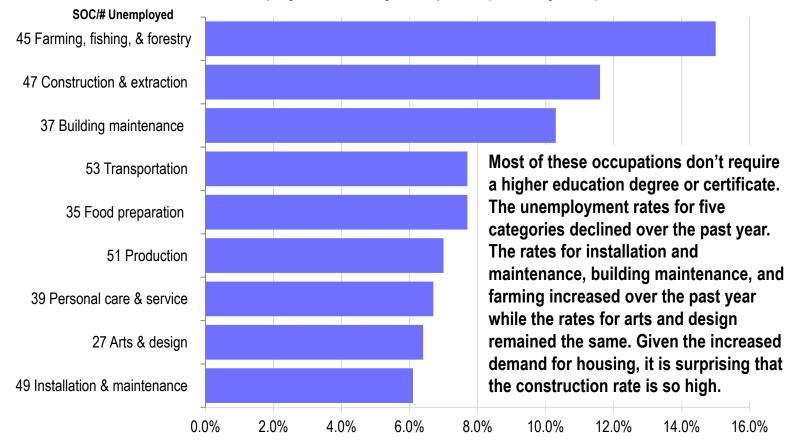
U.S. Occupations with Unemployment Rates Between 4.5% and 5.8%



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

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

U.S. Occupations with Unemployment Rates above 5.8%



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

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

Summary of U.S. Economy in 2014

The U.S. economy was stronger in 2014. There was a significant increase in the number of jobs added despite minimal growth in output.

- The rate of real global output growth in 2014 was slightly stronger than 2013.
- U.S. Real GDP growth in 2014 remained below potential; yet it was slightly greater than 2013, 2.4% vs. 2.2%.
- Consumer spending remained weak, 2.5% in 2014 vs. 2.4% in 2013.
- The rate of job growth in 2014 was 1.9% compared to 1.7% for the two previous years.
- The unemployment rate continued to decline and ended the year at 5.6%, down from 6.7% the year before.
- The number of unemployed workers declined, but remained painfully high (8.7 million).
- At the end of 2014, there were slightly less than 2.8 million people who had been unemployed for 27+ weeks.
- The Labor Force Participation Rate continued to decline in 2014, a sign of an economy that is underperforming.
- The unemployment rate declined in most occupations. Most occupations that required a higher education degree had unemployment rates lower than 5.8%.

Colorado Population, Unemployment, and Employment

Colorado Population Components of Change

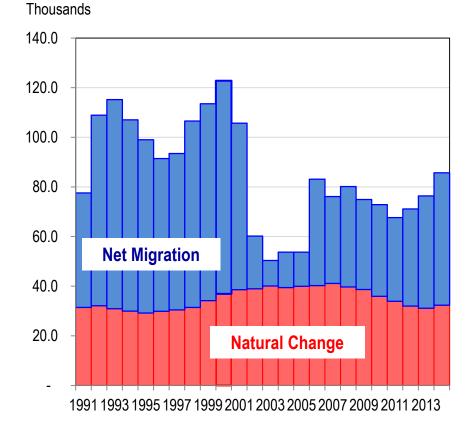
The population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

Over the past two decades the natural change (red bars) varied from a low of 29,168 in 1995 to a peak of 41,124 in 2007.

Changes resulting from net migration (blue bars) are closely tied to the strength of the economy. For example, there were five years, from 1986 to 1990, when net migration was negative. More people moved out of state than moved into the state to escape a regional recession. During the past two recessions, net migration declined, but did not turn negative because it was difficult for people to move. Net migration remained positive.

The Colorado population increased by about 85,700 in 2014. Net migration increased by 53,300 in 2014, the highest level of change since 2001. In 2014 the state's population increased by 1.6% to 5.4 million.

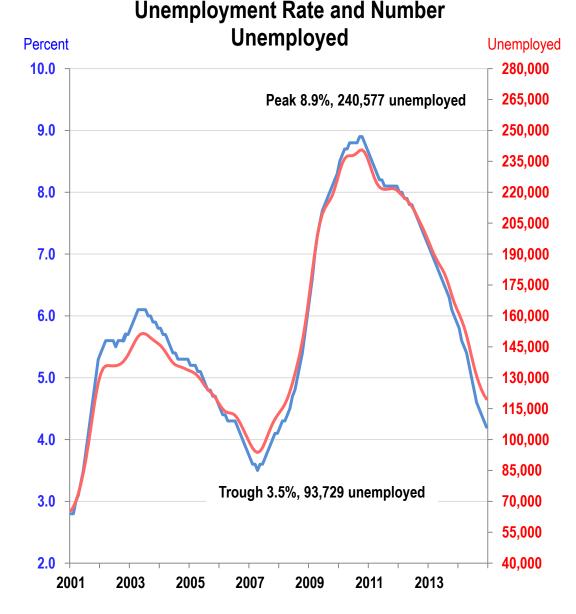
Change in Colorado Population 1991 - 2014



Colorado Unemployment Rate and Number of Unemployed

The number of unemployed has slowly trended downward since peaking in late 2010. After the recent benchmark update, the total number of unemployed workers (red) at the end of 2014 was slightly less than 120,000. The total number of unemployed is 25,915 greater than the trough in April 2007 and 120,933 less than the peak in October 2010.

There is a shortage of trained workers in key sectors and occupations. The year-end 2014 unemployment rate (blue) was 4.2%, down from 5.9% at the end of December 2013.



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

Colorado vs. U.S. Employment

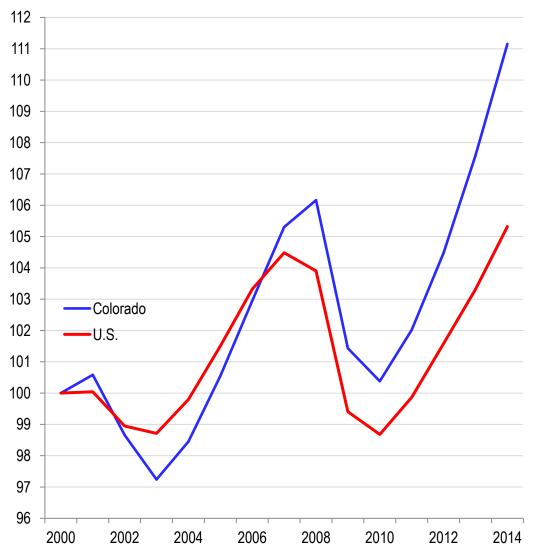
Between 2000 and 2014 U.S. and Colorado employment has tracked on similar paths.

2000=100

Between 2000 and 2006 U.S. employment (red) grew at a faster rate than Colorado (blue).

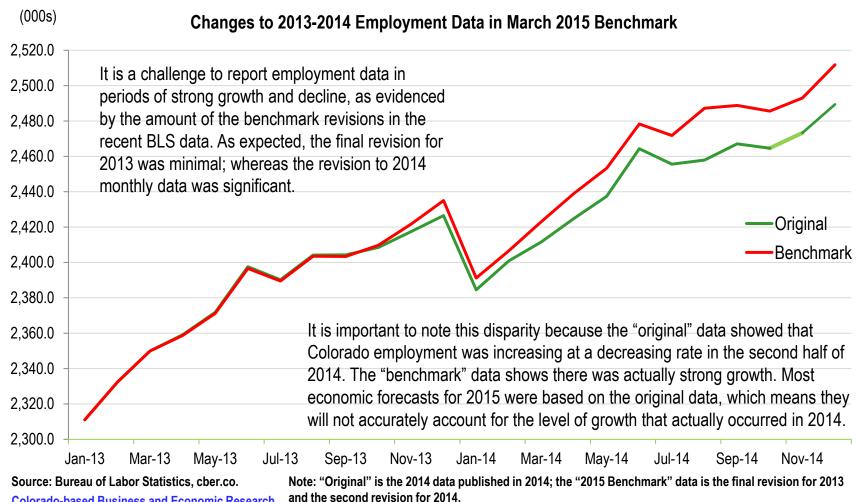
Since 2007, Colorado employment has grown at a faster rate than U.S. employment.

Colorado and U.S. Non-Farm Employment 2000-2014 (Indexed on 2000)



Source: Bureau of Labor Statistics, cber.co.

2013-2014 Employment Presented in 2014 vs. 2013-2014 Employment Benchmarked in March 2015



Colorado 2014 Category and Major Sector Employment

Colorado Employment Sector Portfolio Analysis

Strong Growth, Solid Growth, and Volatile Categories

This portfolio approach has made it easy to see that some categories 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 <u>total</u> job growth than the sectors with steady growth.

The Process of Establishing the Categories

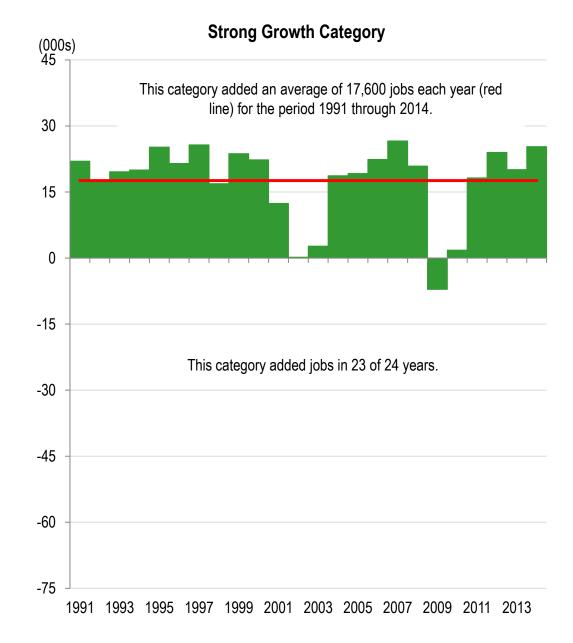
In 2012, 2013, and 2014 cber.co evaluated the performance of 23 sectors over the past two decades and refined the manner in which the sectors are grouped. The evaluation factors for grouping include the rate of growth, number of years with positive job growth, size of the sector, and volatility in job growth. In the short period this process has been used, it has produced a high level of accuracy in the forecast – most error has resulted from revisions to the BLS data. 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



Source: Bureau of Labor Statistics, cber.co.

Solid Growth Sectors

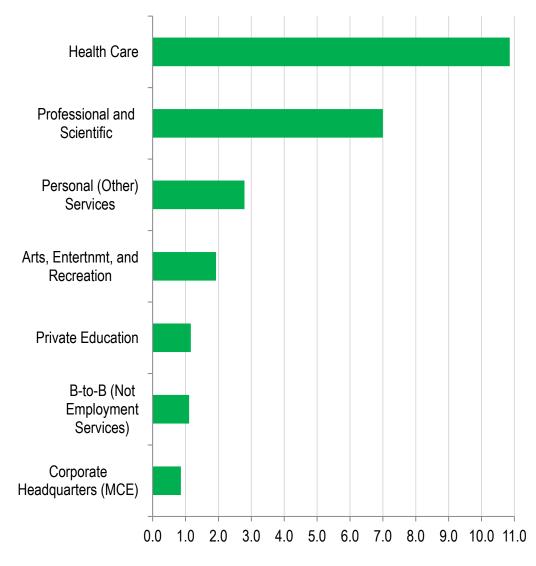
Job Change in 2014

•This group of industries added 25,700 jobs in 2014 compared to the prior year.

•In 2014, these sectors accounted for 32.6% of total job gains and 32.0% of total employees.

•Growth of the Health Care Sector was stronger than anticipated. It accounted for 10.9% of the workforce and 13.7% of the jobs added in 2014.

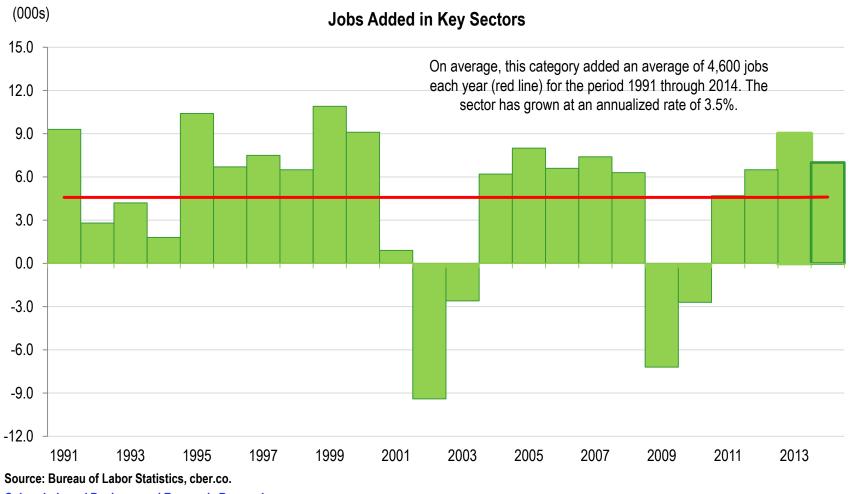
•Given the overall growth of the economy, it is disappointing the growth of the PST sector wasn't stronger. PST accounted for about 8.0% of total state employment and about 8.8% of job growth.



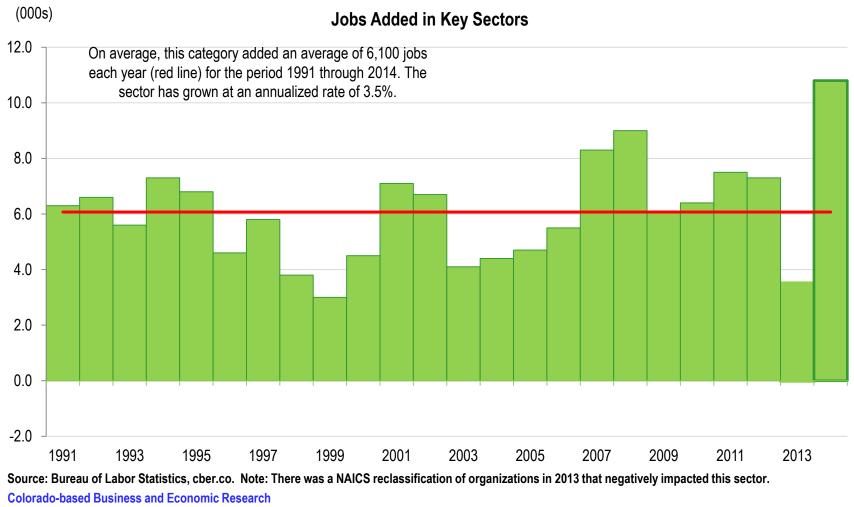
Thousands (Average)

Source: Bureau of Labor Statistics. Colorado-based Business and Economic Research http://cber.co

Annual Employment Situation for Professional, Scientific, and Technical Services

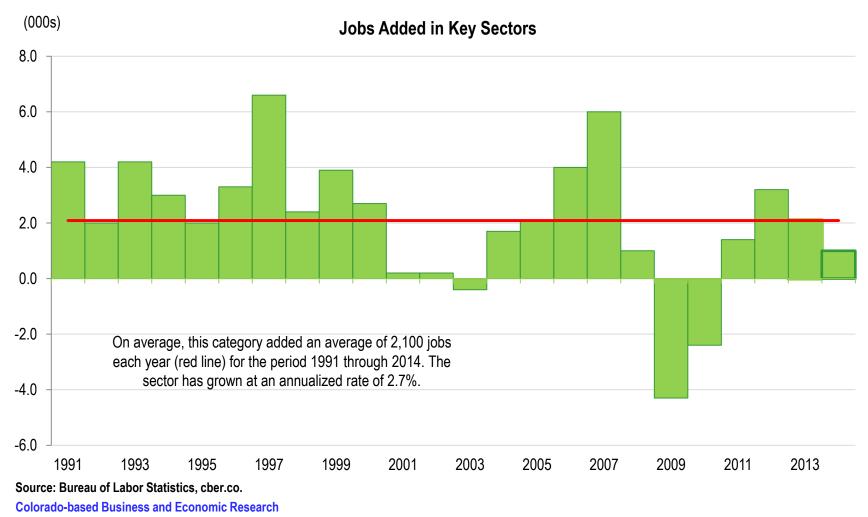


Annual Employment Situation for Health Care Services



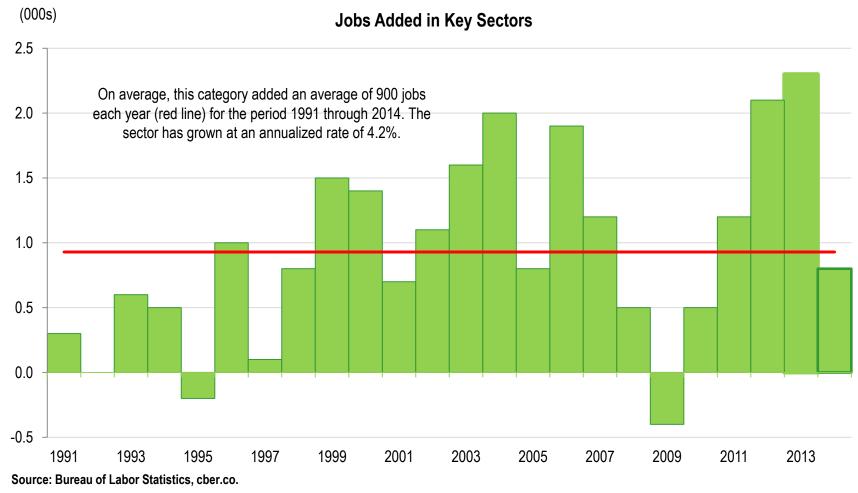
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Annual Employment Situation for Administrative Services, Excluding Employment Services (B-to-B)



http://cber.co

Annual Employment Situation for Management of Corporations and Enterprises



Three Things to Remember about the Strong Growth Category in 2014

Strong Growth Category

- 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

Three Things to Remember

- The Health Care Sector has been a job creation machine since 1990, despite critical shortages in key occupations such as nursing. The continued growth of the Colorado population and the Affordable Care Act drove growth in this sector in 2014. Health care providers are being pressed to provide more and better service at lower prices. At some point that will cause a reduction in the number of workers.
- The PST sector benefitted from the growth of the Extractive Industries in 2014. While the sector experienced solid growth, there are concerns that the sector isn't growing fast enough.
- The strength of growth of the Arts, Entertainment, and Recreation Sector was a bit of a surprise. The combination of AER and Accommodations and Food Services forms the Tourism Sector which grew 3.9% in 2014.

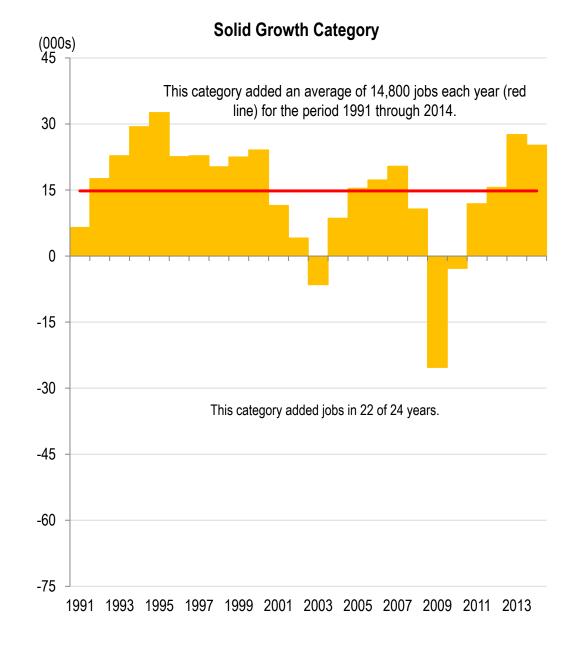
Annual Employment Situation for the Solid Growth Category

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 960,900 workers, 39.0% of total employment.



Source: Bureau of Labor Statistics, cber.co.

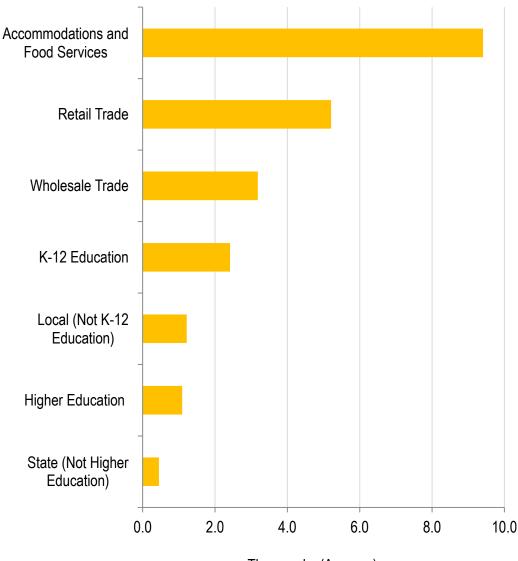
Limited Growth Sectors

Job Change in 2014

•This group of industries added 23,000 jobs for 2014, compared to the prior year.

•These sectors accounted for 29.1% of total job gains and 39.0% of total employees.

•Accommodations and Food Services are important to all counties. The sector grew at a rate of 3.8% in 2014. In 2014, it accounted for 10.2% of total employment and 11.9% of job growth.

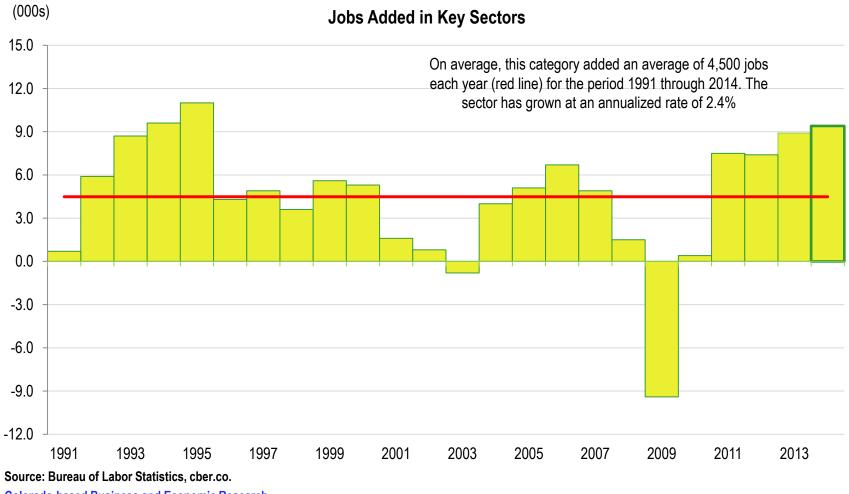


Thousands (Average)

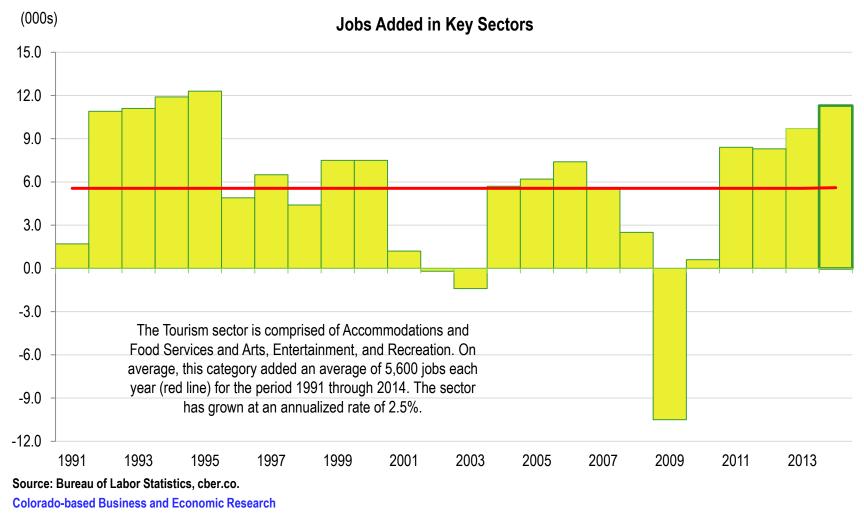
Colorado-based Business and Economic Research http://cber.co

Source: Bureau of Labor Statistics.

Annual Employment Situation for Accommodations and Food Services

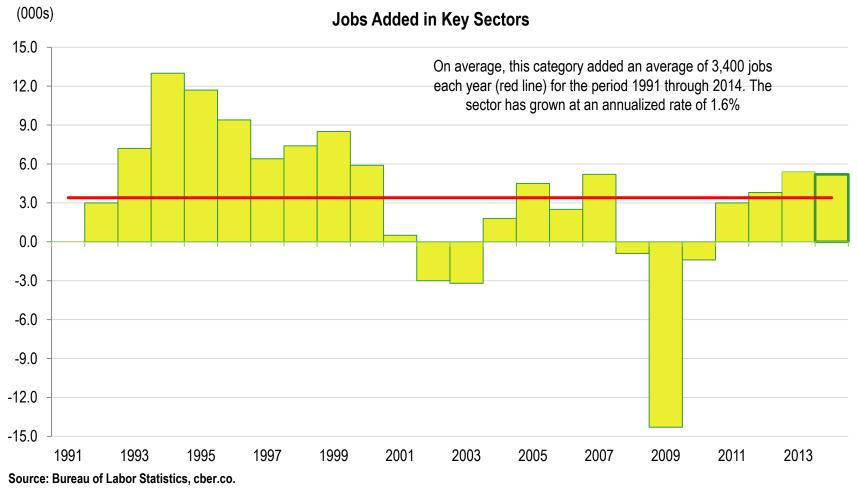


Annual Employment Situation for Tourism (Leisure and Hospitality)

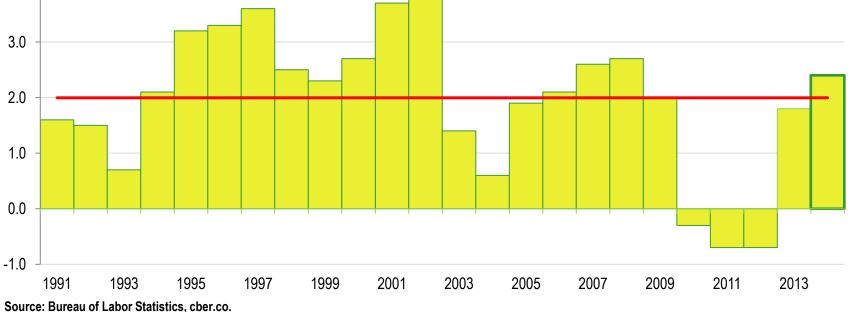


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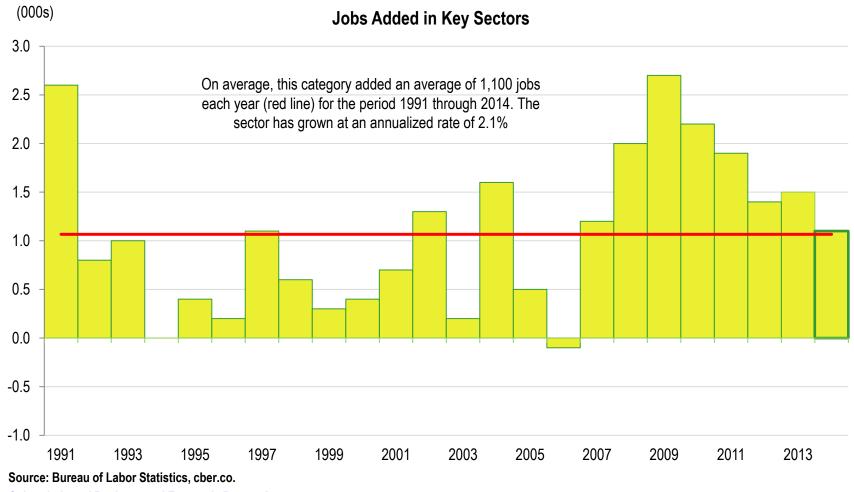
Annual Employment Situation for Retail Trade



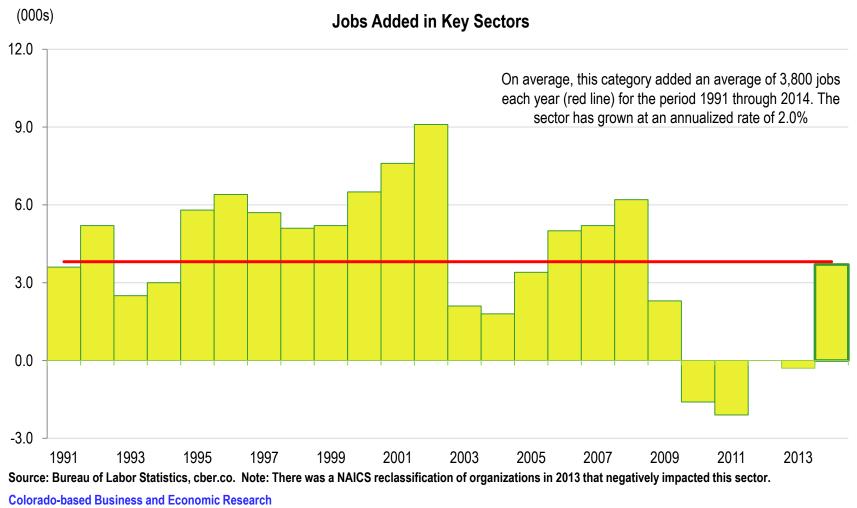
Annual Employment Situation for K-12 Education (000s) Jobs Added in Key Sectors On average, this category added an average of 2,000 jobs each year (red line) for the period 1991 through 2014. The sector has grown at an annualized rate of 1.9%



Annual Employment Situation for Higher Education



Annual Employment Situation for Local Government (Not K-12 Education)



http://cber.co

Three Things to Remember about the Solid Growth Category in 2014

Solid Growth Category

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

Three Things to Remember

- This category was dominated by growth of the Retail Trade and Accommodations and Food Services Sectors. As unemployment decreased and more people were employed, there has been greater demand for retail goods. In addition, gains have been registered in restaurant sales and tourism.
- The result has been stronger tax revenues and larger budgets for state and local governments. Despite increased budgets, there are some areas of government that are not sufficiently funded, such as roads and highways.
- Public education has benefitted from larger budgets. Since 1990 higher education employment has increased almost every year, including recessions. Despite having strong labor unions, K-12 employment has been more volatile than higher education.

Annual Employment Situation for the Volatile Category

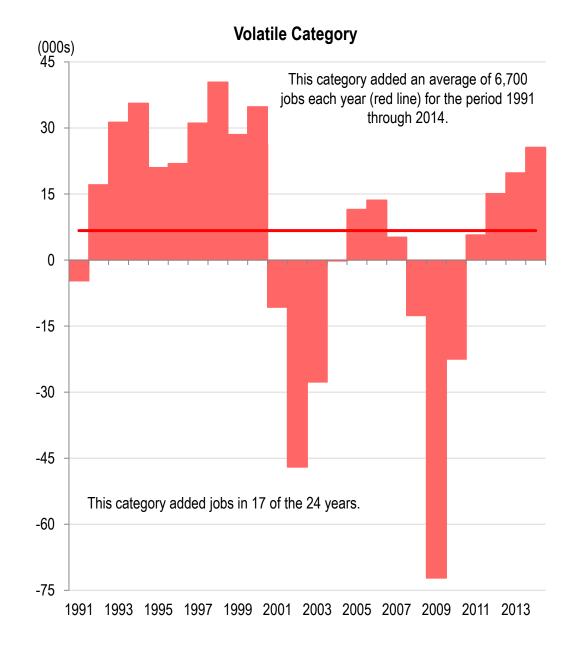
Over the past two decades the sectors listed below were the primary source of volatility in total employment.

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:

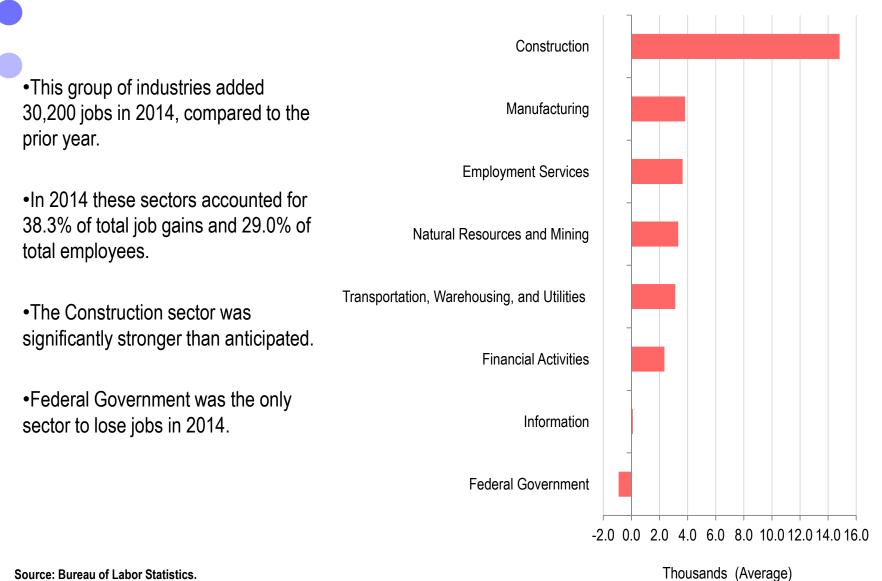
1994 625,400 workers, 35.6% of total employment2004 716,000 workers, 32.8% of total employment2014 713,000 workers, 29.0% of total employment



Source: Bureau of Labor Statistics, cber.co.

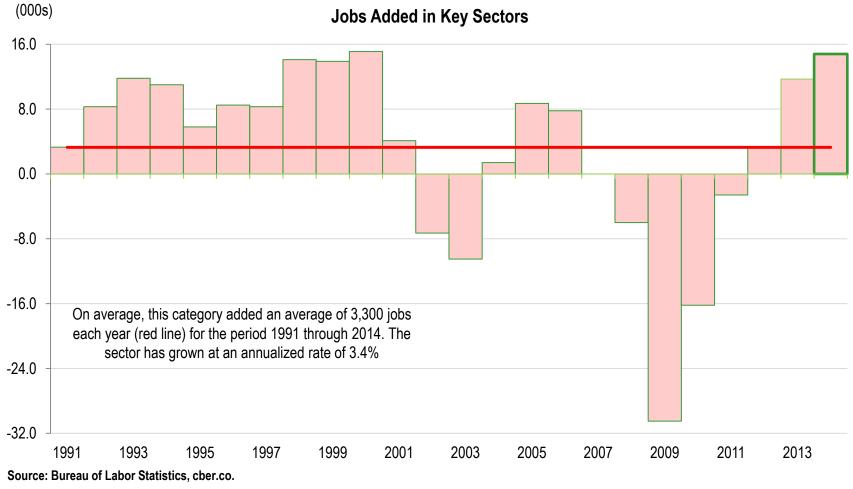
Volatile Sectors

Job Change in 2014

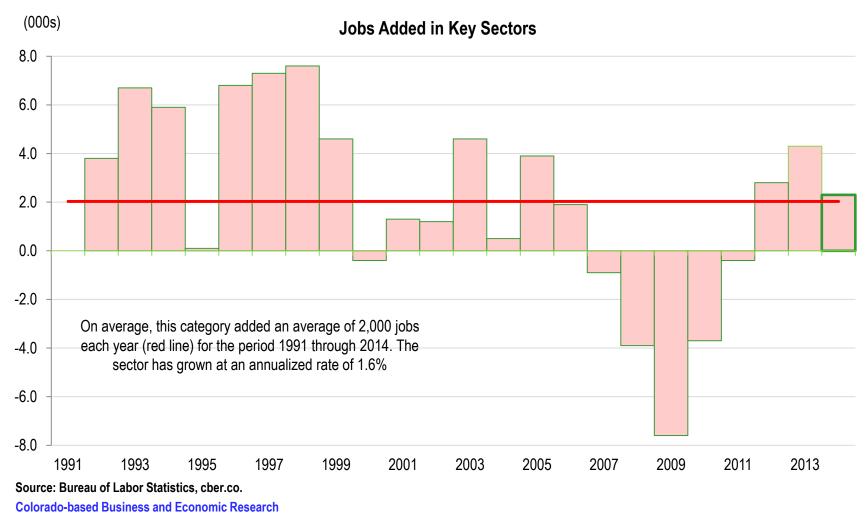


Source: Bureau of Labor Statistics. Colorado-based Business and Economic Research http://cber.co

Annual Employment Situation for Construction

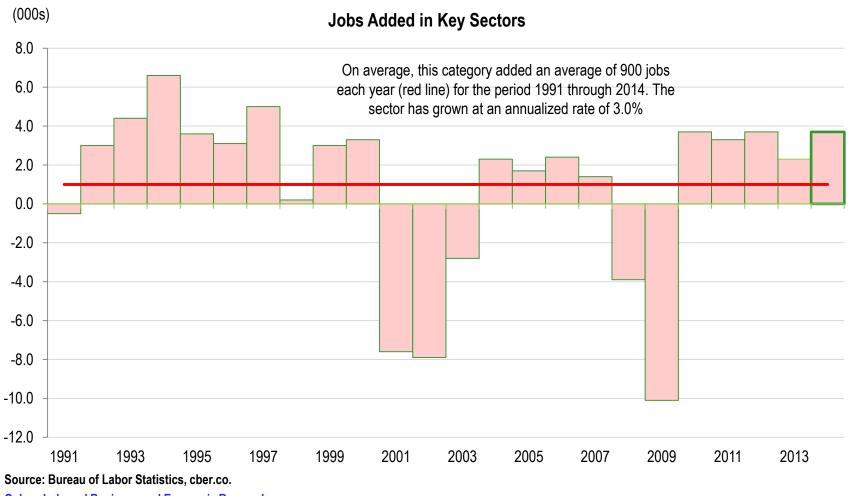


Annual Employment Situation for Financial Activities

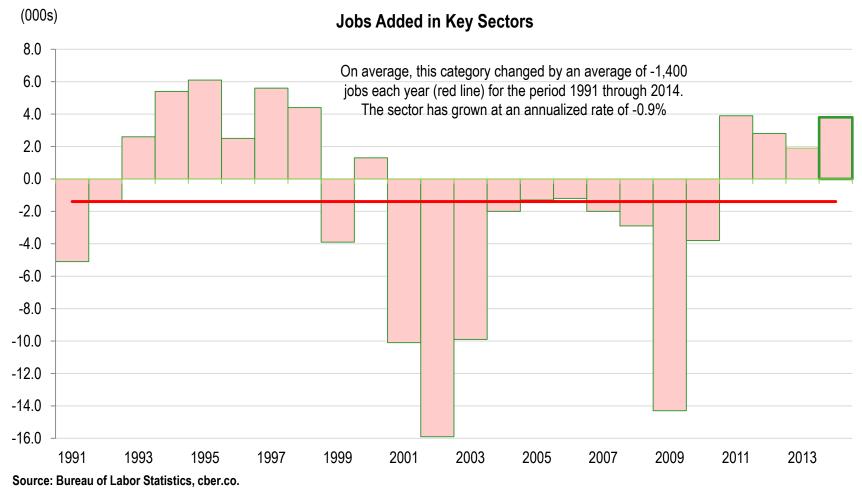


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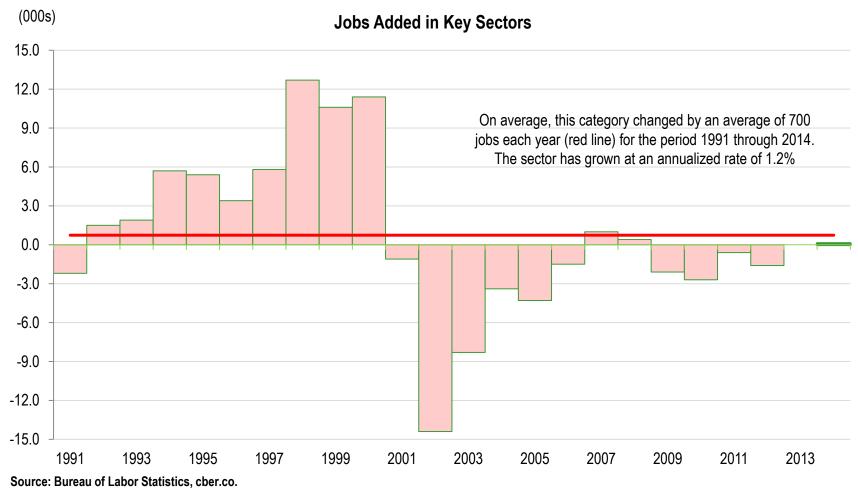
Annual Employment Situation for Employment Services



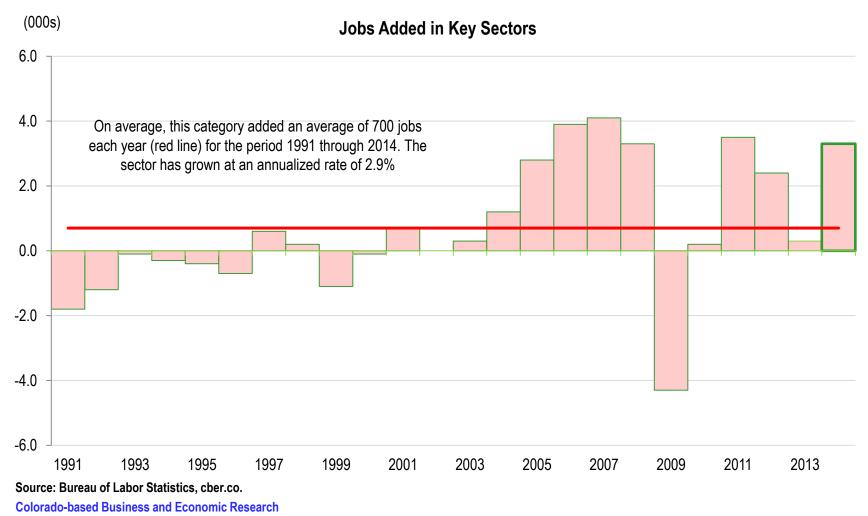
Annual Employment Situation for Manufacturing



Annual Employment Situation for Information



Annual Employment Situation for Natural Resources



http://cber.co

Three Things to Remember about the Volatile Category in 2014

Volatile Category

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

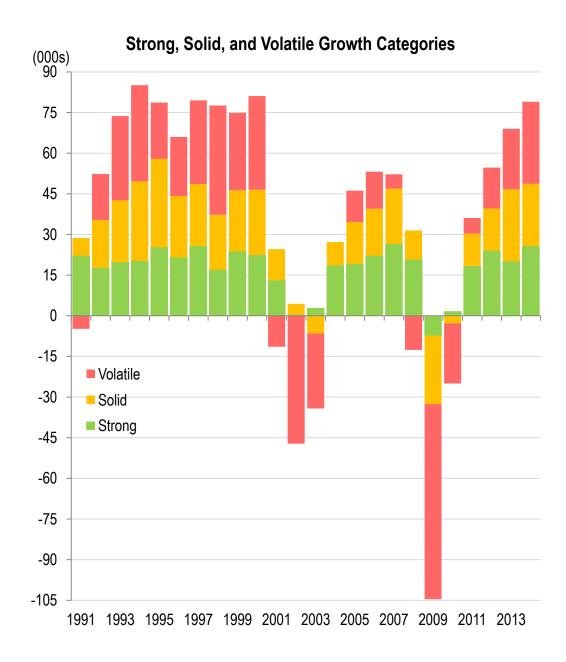
Three Things to Remember

- As 2014 came to a close, the price of oil dropped sharply. Lower prices had minimal impact on the industry during 2014; however, layoffs are expected if prices stay low for an extended period. The industry employed about 1.4% of total state workers; however, it has had a significant impact on total state output.
- Despite low interest rates and demand for single family housing the number of single family permits has increased slowly. Throughout 2014 the sector was challenged to find trained construction workers even though the industry had a high rate of unemployment nationally.
- On a positive note, the Manufacturing Sector added jobs for the 4th consecutive year. In addition the Information Sector added jobs in 2014. It was the 3rd year of job growth in the past 14 years.

Summary of Strong, Solid, and Volatile Growth Categories

In 2014, the growth of the Strong (Green) and Volatile (Red) Growth Categories posted stronger job growth than in 2013.

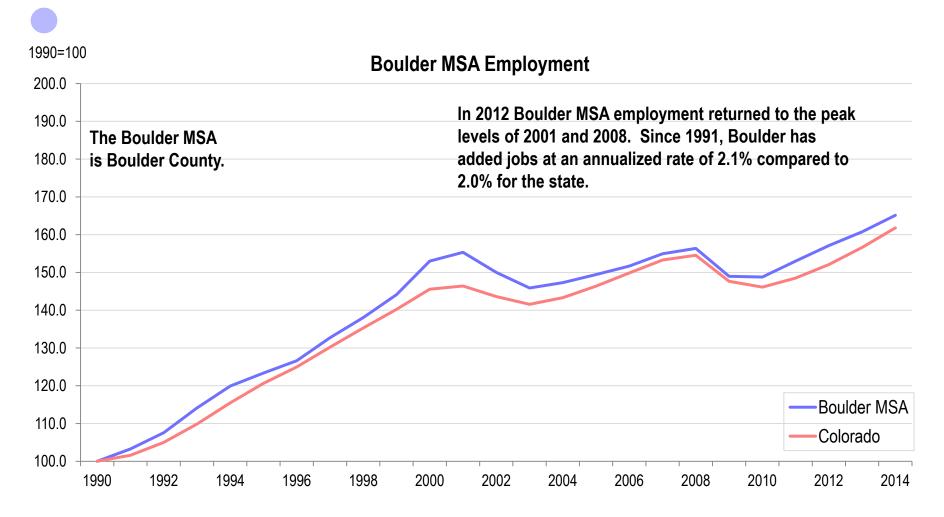
In 2014, the growth of the Solid Category (Yellow) was less than in 2013.



Source: Bureau of Labor Statistics, cber.co.

Colorado Metropolitan Statistical Area (MSA) Employment

Boulder MSA Employment

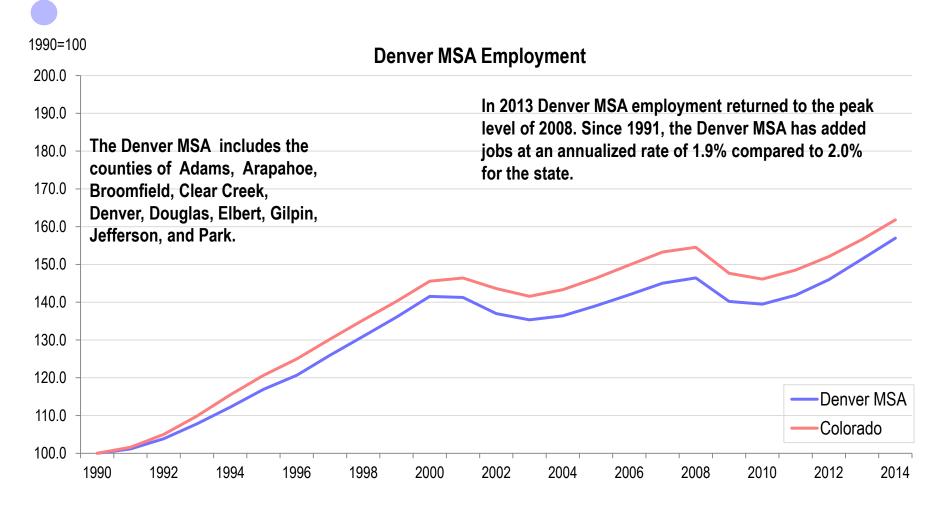


Source: Bureau of Labor Statistics, NSA.

Colorado Springs MSA Employment 1990=100 **Colorado Springs MSA Employment** 200.0 190.0 In 2014 Colorado Springs MSA employment finally returned to the 2008 peak level. Since 1991, the Colorado Springs MSA has added 180.0 jobs at an annualized rate of 2.2% compared to 2.0% for the state. 170.0 160.0 150.0 140.0 130.0 The Colorado Springs MSA 120.0 includes the counties of El Paso Colorado Springs MSA and Teller. 110.0 Colorado 100.0 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014

Source: Bureau of Labor Statistics, NSA.

Denver-Aurora-Broomfield MSA Employment



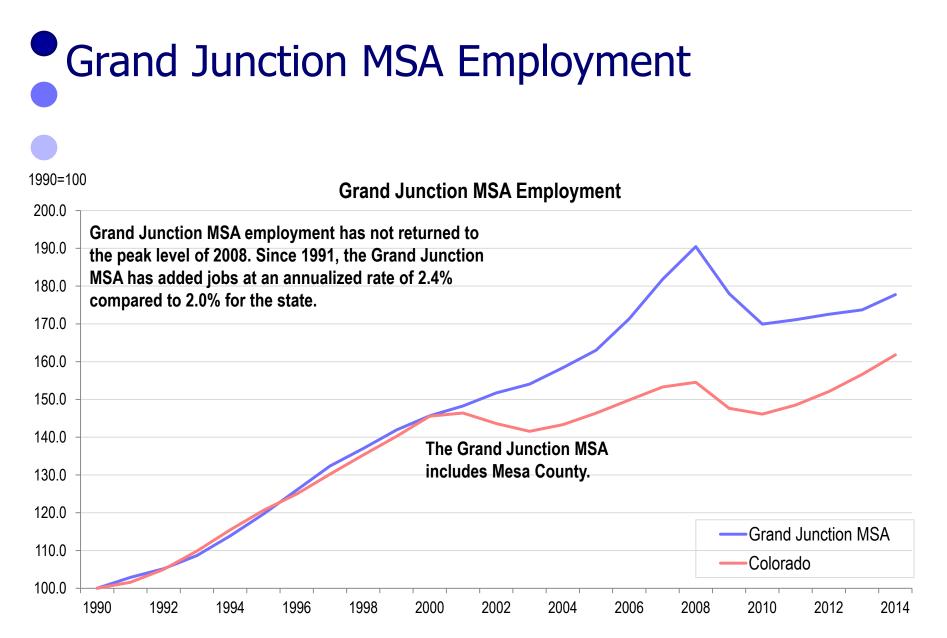
Source: Bureau of Labor Statistics, NSA.

Fort Collins MSA Employment

Fort Collins MSA Employment 200.0 In January 2012 Fort Collins MSA employment returned 190.0 to the peak level of 2008. Since 1991, the Fort Collins MSA has added jobs at an annualized rate of 2.7% 180.0 compared to 2.0% for the state. 170.0 160.0 150.0 140.0 130.0 The Fort Collins MSA includes 120.0 Larimer County. Fort Collins MSA 110.0 Colorado 100.0 1994 2012 1990 1992 1996 1998 2000 2002 2004 2006 2008 2010 2014

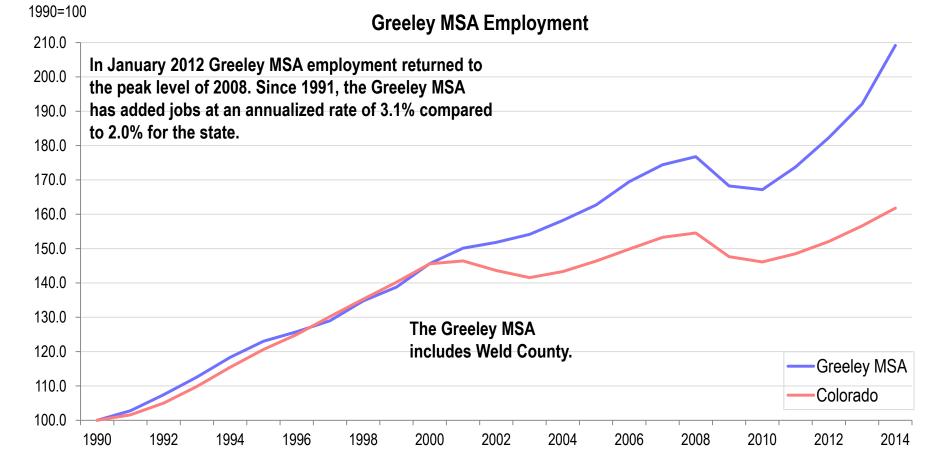
Source: Bureau of Labor Statistics, NSA.

1990=100



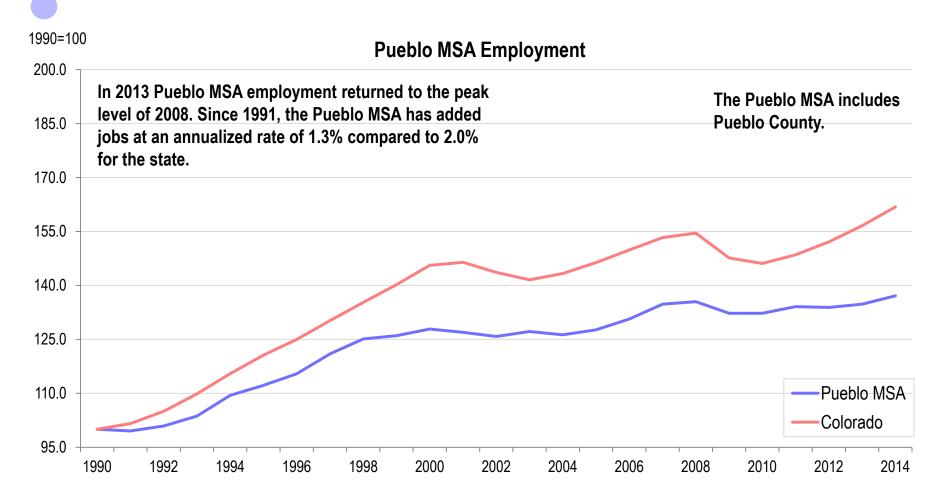
Source: Bureau of Labor Statistics, NSA.

Greeley MSA Employment



Source: Bureau of Labor Statistics, NSA.

Pueblo MSA Employment



Source: Bureau of Labor Statistics, NSA.

Summary of 2014 Job Growth for Colorado MSAs

2014 Job Growth and Percent of MSA Jobs

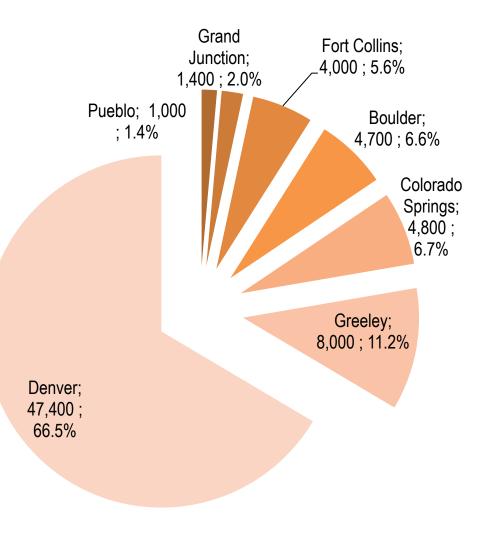
•From 1990 to 2014 the state added jobs at an annualized rate of 2.0%. In 2014 job growth was 3.3%. About 90% of the state's job growth occurred in the seven MSAs.

•As might be expected, the Denver MSA was the largest source of job growth in 2014.

•Only Greeley and Denver added jobs at rates above the average for the state. The rate of job growth for the MSAs during 2014 was:

- •Greeley 8.9%
- •Denver 3.7%
- •Fort Collins 2.8%
- •Boulder 2.7%
- •Grand Junction 2.3%
- •Colorado Springs 1.9%
- •Pueblo 1.7%.

Source: Bureau of Labor Statistics, NSA.

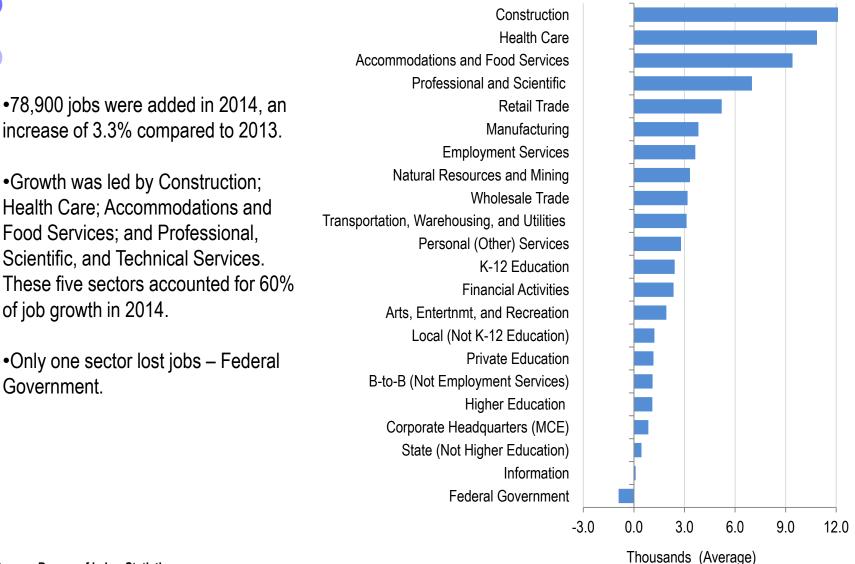




Total Jobs Added

Change in Employment for All Sectors in 2014

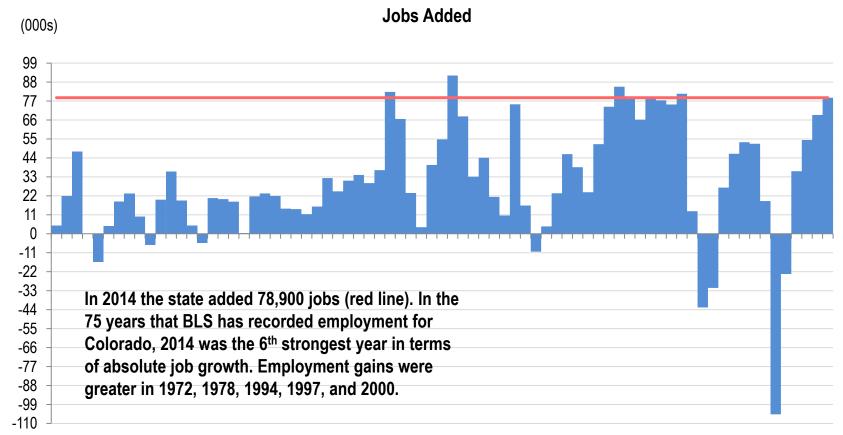
Employment Change in 2014



Source: Bureau of Labor Statistics. Colorado-based Business and Economic Research http://cber.co

Government.

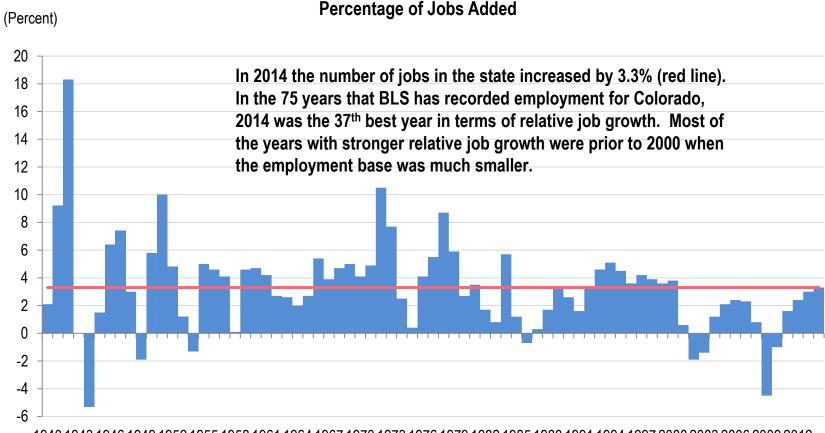
Putting 2014 Absolute Job Growth (78,900 Jobs) in Perspective



1940 1943 1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985 1988 1991 1994 1997 2000 2003 2006 2009 2012

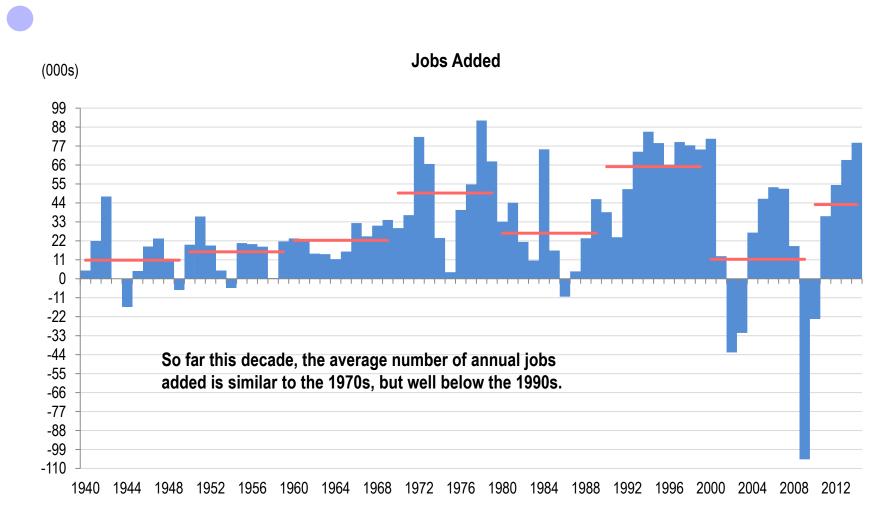
Source: Bureau of Labor Statistics, NSA.

Putting 2014 Relative Job Growth (3.3%) in Perspective



1940 1943 1946 1949 1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985 1988 1991 1994 1997 2000 2003 2006 2009 2012

Source: Bureau of Labor Statistics, NSA.



Colorado Jobs Added by Decade

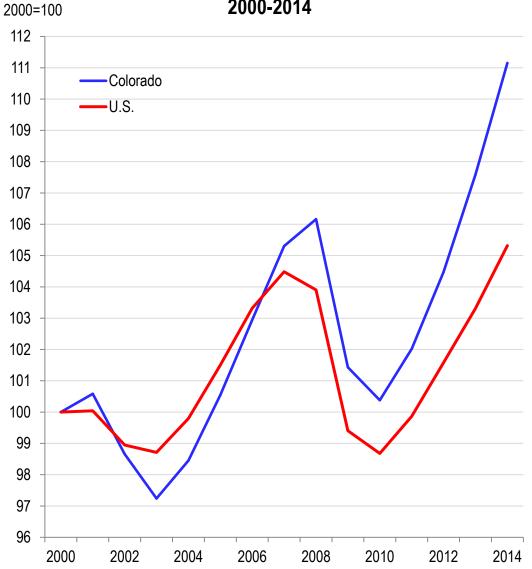
Source: Bureau of Labor Statistics, NSA.

Colorado vs. U.S. Employment

Between 2000 and 2014 U.S. and Colorado employment has tracked on similar paths.

Between 2000 and 2006 U.S. employment (red) grew at a faster rate than Colorado (blue).

Since 2007, Colorado has grown at a faster rate than the U.S.



Colorado and U.S. Non-Farm Employment 2000-2014

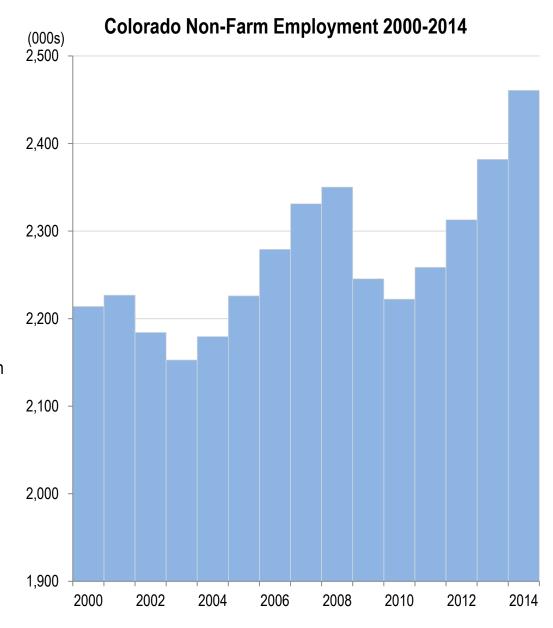
Source: Bureau of Labor Statistics, cber.co.

Colorado Employment The Lost Decade and Beyond

Colorado employment declined in 2009 and 2010. After that, the state added:

- 36,300 jobs in 2011
- 54,400 jobs in 2012
- 68,900 jobs in 2013.
- •78,900 jobs in 2014.

During these four years the state added 238,500 jobs. This is the only time in the state's history that the state added jobs at an accelerating rate for four consecutive years.



Concluding Thoughts

There are two ways to look at the 2014 Colorado job growth. On one hand a case can be made that the addition of 78,000 jobs is strong growth (ranked 6th out of 75 years). In addition, Federal Government was the only sector that lost jobs in 2014.

On the other hand, job growth of 3.3% was average (ranked 37th out of 75 years). Your pick – strong or average – or somewhere in between?

Then there is the issue of BLS understating job growth throughout the year. Like many economic models, the BLS employment estimation models regress to the mean – they understate employment during periods of growth and overstate it during periods of decline. The problem was that the 2014 monthly employment data suggested the economy was growing at a slower rate as the year progressed. The March benchmark revisions showed the opposite. Both the U.S. and Colorado experienced accelerating job growth for the fourth consecutive year. While 2015 is likely to be similar to 2014 in many ways, a fifth year of accelerating job growth is unlikely.

The lesson from this understatement is that the anecdotal data on the streets (cranes, cone zones, longer waiting times at your favorite restaurant, more cars at the mall, more shopping bags being carried to those cars) may be a better indicator of true economic performance than the initial government estimates that are published quickly and revised months later.

The sectors with the top job growth in 2014 were Construction, Health Care, Accommodations and Food Services, Professional and Scientific, and Retail Trade. These sectors accounted for about 60% of job growth for 2014. Most of the occupations in these sectors pay average annual wages at or below the state average.



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:

- 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 2014 Employment Data

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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.