

Review of Colorado Economy Analysis of 2015 Employment Data Through August

Colorado-based Business and Economic Research

September 24, 2015



Overview

Over the past two months there has been enough business, political, and economic angst to last the entire year. When put that aside, the economic news generally positive! The current data shows the state added has added 63,400 jobs during the first eight months of 2015 compared to the same period last year. Projected revisions, which will be made in March 2016, will bring Colorado job growth in line with the 2015 cber.co forecast, an increase of 73,000 to 79,000 jobs.

This brief analysis is divided into the following sections.

- Summary of Key Data.
- Global and U.S. Economy – Gross Domestic Product, Employment and Unemployment, and Wages.
- U.S. Economy – Sentiment, Productivity, Equities, Retail, and Construction.
- U.S. Economy – Reasons to Feel Good and Risks.
- Colorado Employment and Unemployment.
- Change in Colorado Employment by Performance Category.
- Colorado Employment Current and Revised Data.
- What is the Story on the Streets and in the Headlines?
- Other Snapshots.
- 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 – Annual growth will be 2.5% to 2.9% in 2015.

Retail Sales – Up 1.3% for 8 months, projected to be up 3.0% for 2015. We need a strong holiday season to make it happen.

U.S. Employment – The U.S. is on track to add 3.0 million jobs this year, up from 2.6 million last year.

Unemployment Rate – 5.3%, down from 6.2% a year ago; 8.3 million unemployed, trending down.

ISM Indices – Manufacturing is sluggish and expected to remain that way; Non-Manufacturing is steady and well above 50.

Price of a Barrel of Oil (WTI) – Since mid-March it has varied from \$43 to \$61. Currently in the mid-40s.

Construction – Through 8 months, employment is up 4.5%, average weekly earnings up 2.3%.

Case Shiller Housing Prices – U.S. prices up 4.5% from a year ago (August release).

Standard and Poor's 500 – On May 21st the S&P 500 closed at 2,130.82. On August 24th it closed at 1,867.61 and September 23rd it had risen to 1,938.76.

Colorado

Employment Revisions – Projected revisions to Q4 2014 and Q1 2015 employment will show there was stronger momentum coming into 2015 than originally anticipated and that momentum was sustained through Q1.

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

Unemployment Rate – 4.2%, down from 4.6% a year ago.

MSA Unemployment Rate – Boulder and Ft. Collins have the lowest rates at 3.3% and 3.4%, respectively.

2014 Colorado GDP – The state Real GDP grew by 4.7% in 2014 compared to 2.2% for the U.S.

2014 Contribution to GDP Growth – The Mining Sector accounted for 6.2% of GDP and 18.2% of GDP growth in 2014.

Wage and Salary Employment – Through 8 months Colorado has added 63,400 jobs compared to the same time last year.

Leading Sectors for Growth – About 75.3% of the jobs have been added in the Health Care; Construction; Accommodations and Food Services; Professional, Scientific, and Technical Services; and Manufacturing.

● Angst has Created Uncertainty and Concern

The angst in the last six weeks has been caused by the slowdown in China's economy, volatility in oil prices and equity markets, a stronger dollar, the Fed, and the road to the 2016 elections. Despite these concerns, the U.S. continues to enjoy solid economic growth.





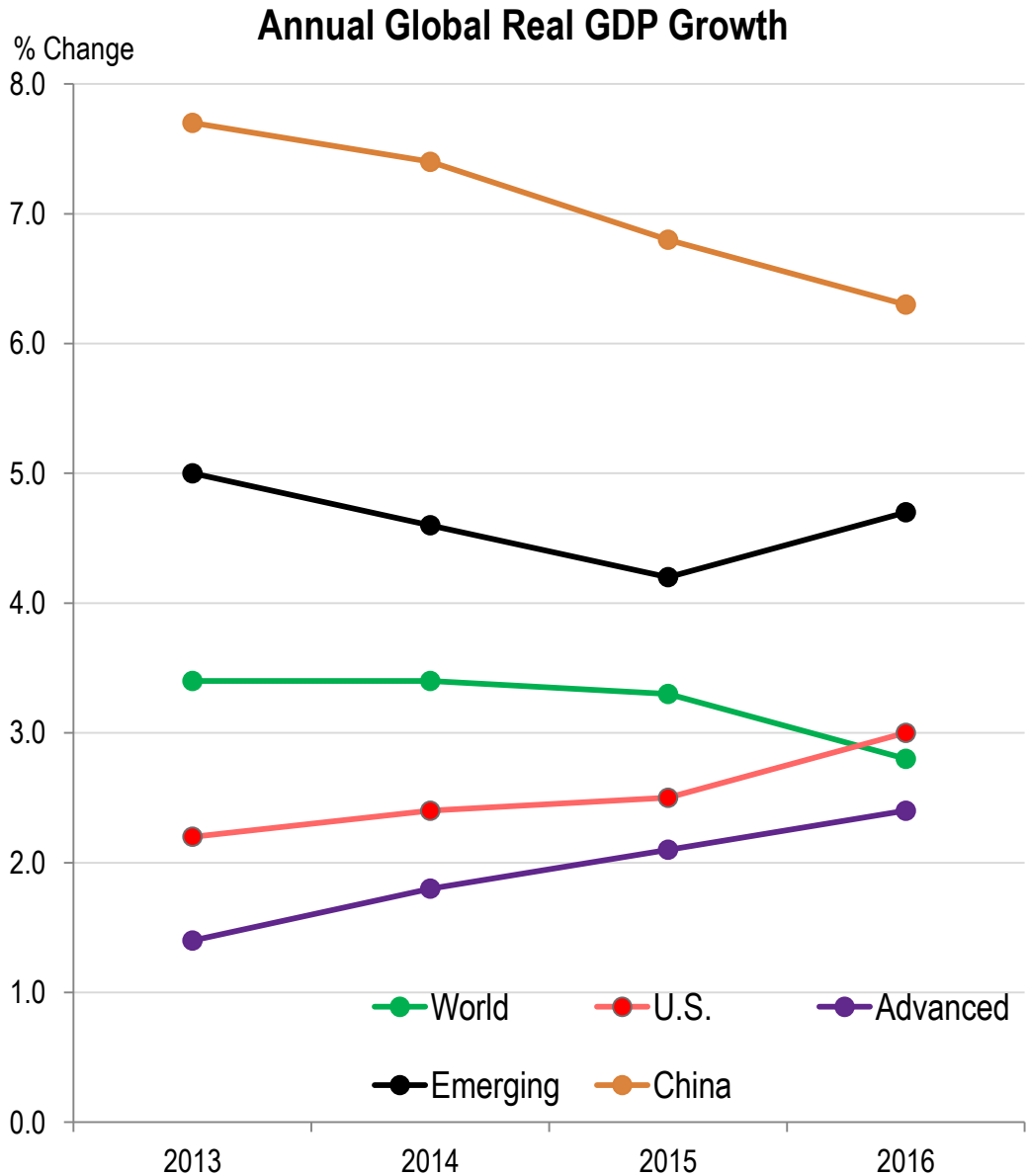
Global and U.S. Economy Gross Domestic Product, Employment, Unemployment, and Wages

Annual Global Real GDP Growth

The IMF projects that global GDP growth (green) will decline in 2015 and 2016 as a result of the decline in the rate of economic growth in China (gold).

The IMF is more optimistic about the rate of growth in the U.S. (red) than many of the country's economists. Growth in the advanced countries (purple) parallels growth in the U.S. (red).

Economic growth in emerging economies (black) will be stronger, but more volatile than growth in the advanced economies.



Source: IMF, July 2015.

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.

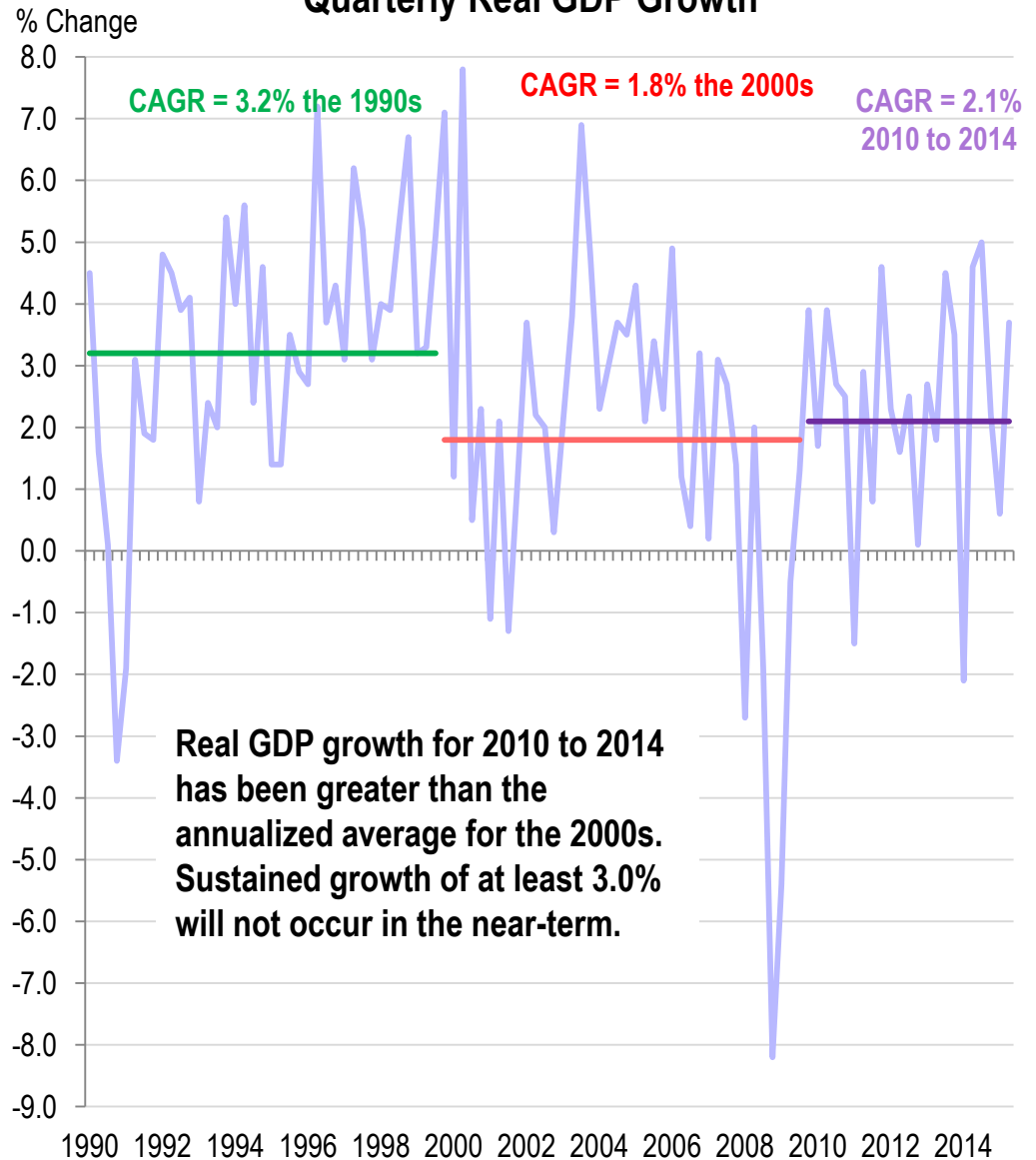
Q1 2015 Real GDP growth was 0.6%. The second estimate of Q2 growth was 3.7%. Projections for Q3 range from 1.0% to 3.0%.

Annualized Real GDP growth for the 1990s was 3.2% (green line). It was 1.8% for the 2000s (red line) and 2.1% from 2010 to 2014 (purple line).

Real GDP growth for the past five years was:

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

Quarterly Real GDP Growth



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

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

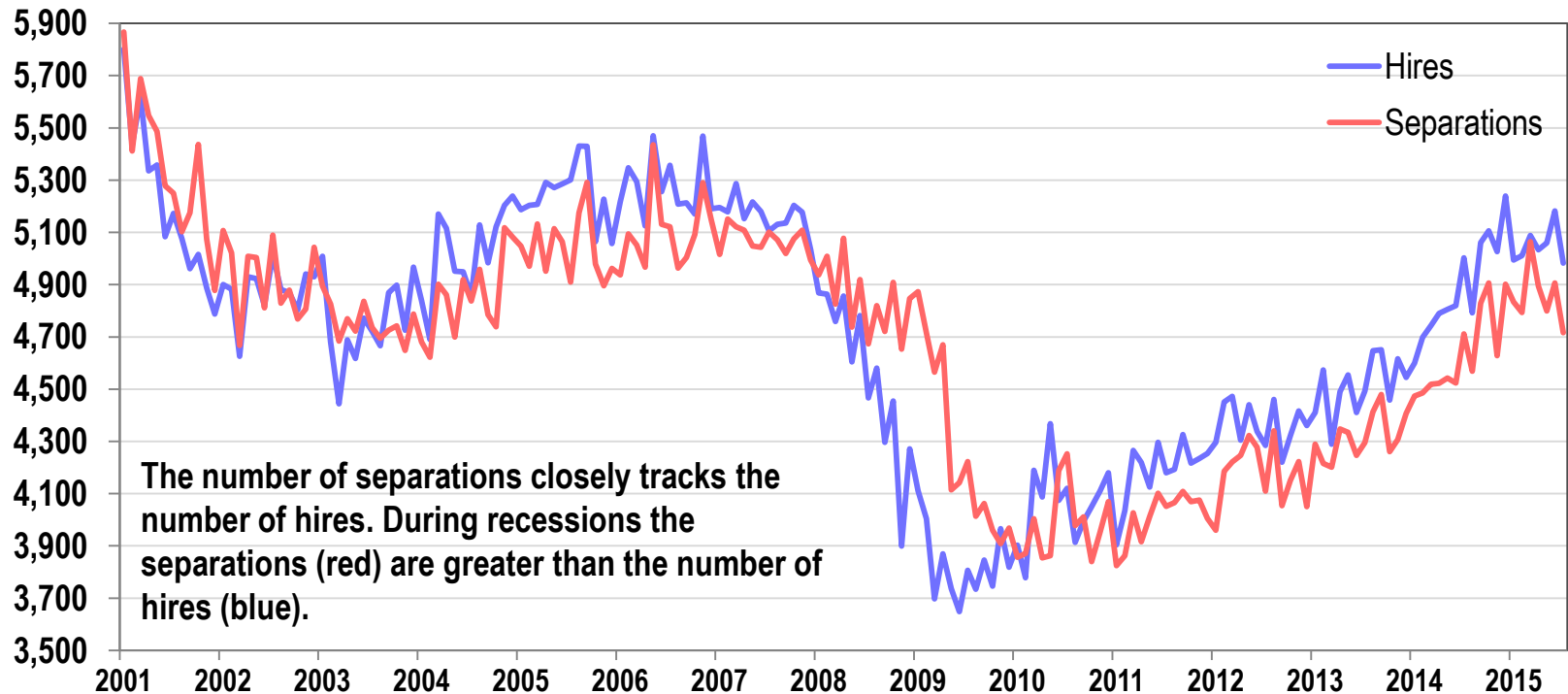


Source: Bureau of Labor Statistics, NSA.

U.S. Hires and Separations

Hires and Separations

Thousands



Source: Bureau of Labor Statistics.

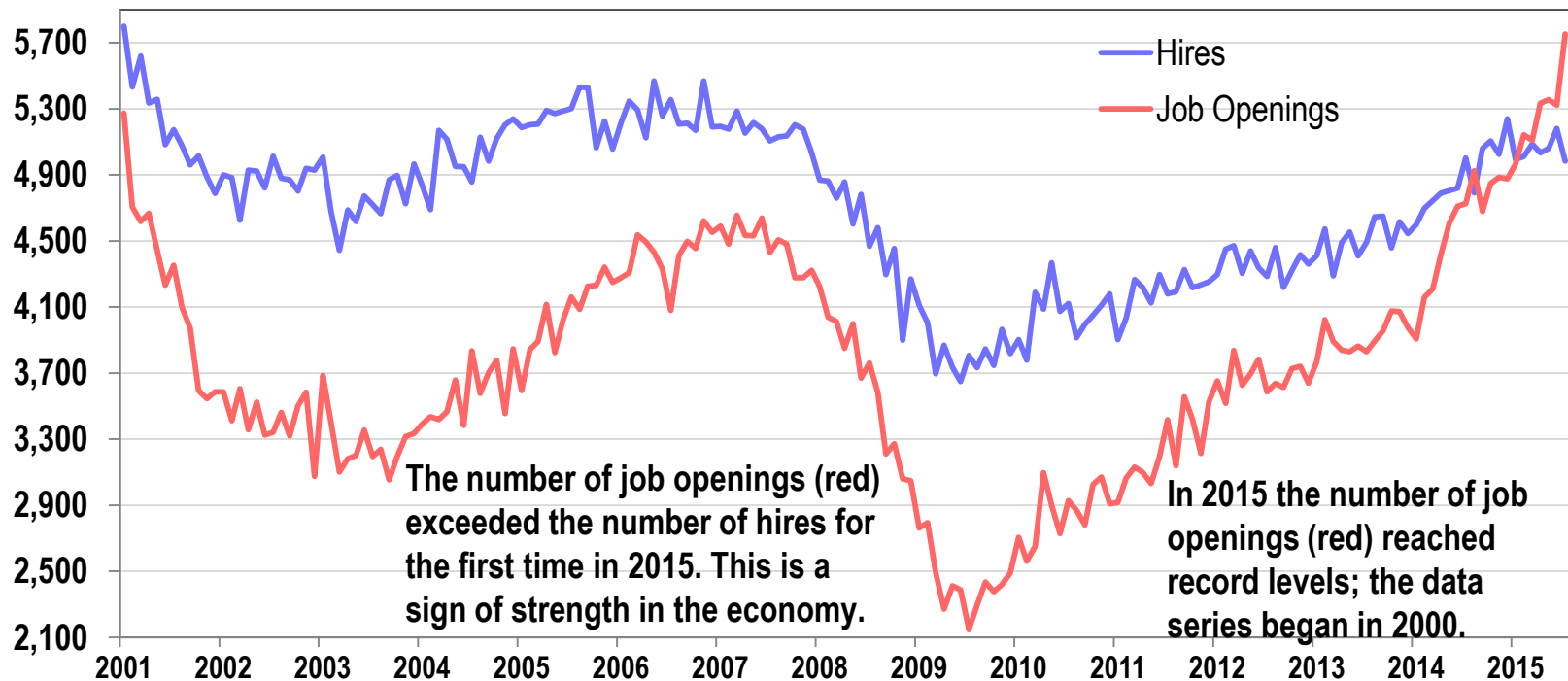
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U.S. Job Openings and Hires

Job Openings and Hires

Thousands



Source: Bureau of Labor Statistics.

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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. They are similar to levels in 2005.

The total number of unemployed (red) was 8.029 million at the end of August. This is 1.3 million above the low point in 2006 and 7.4 million below the high point in 2009.

The unemployment rate for August 2015 was 5.1%, down from 6.1% 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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● Labor Force Participation Rate

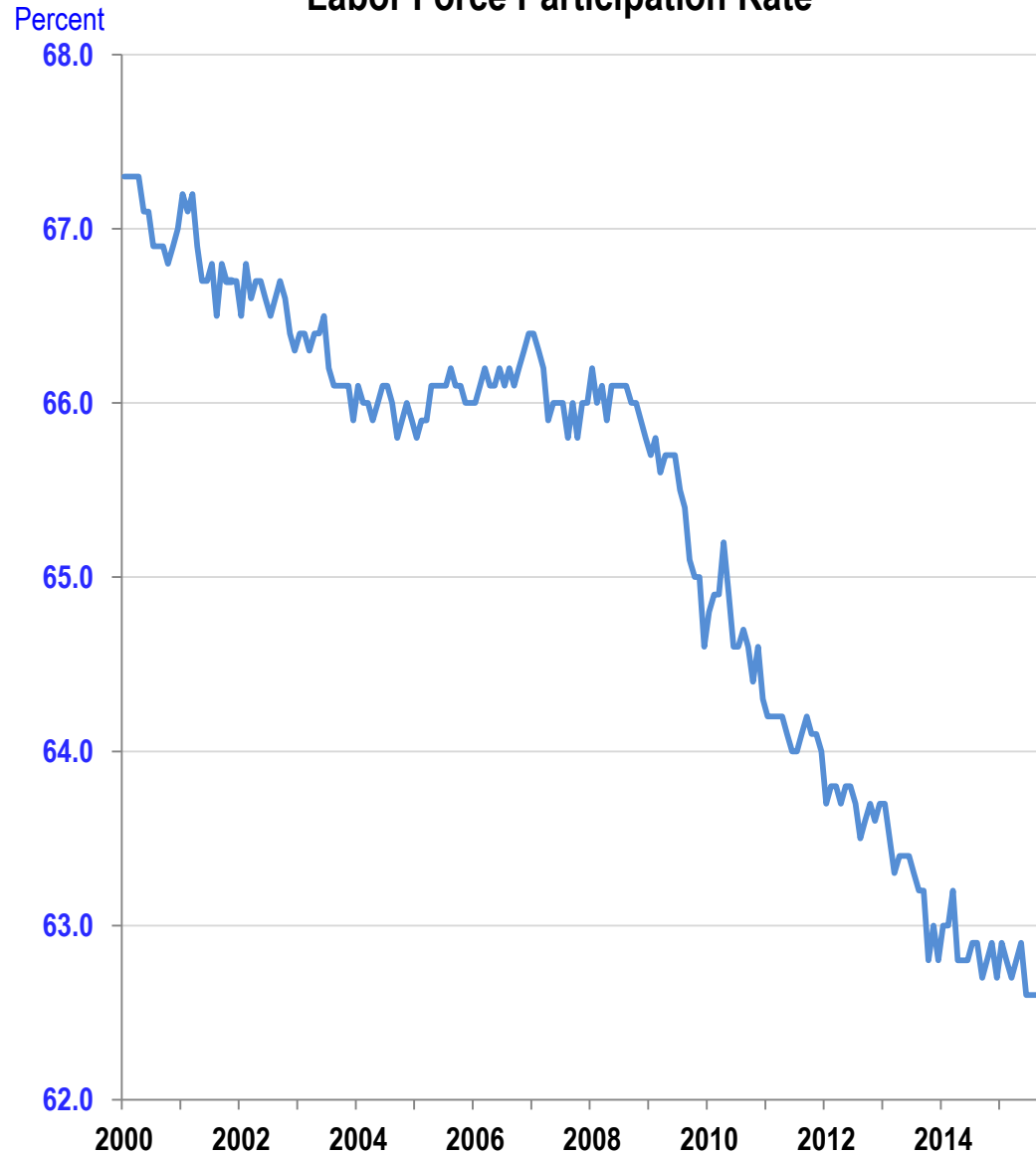


After peaking in 2000, the labor force participation rate declined until mid-2013. During this decline the rate fell from 67.3% to 62.7%. It appears to have stabilized around that value.

The decline in the LFPR is the result of a structural change in the labor market, including a change in demographics. The LFPR for men has continued to decline. It has flattened out for women after years of increasing.

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.

Labor Force Participation Rate



Source: Bureau of Labor Statistics, SA.

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U.S. Average Weekly Earnings of All Employees

The most recent value for weekly earnings was \$878.55.

U.S. Average Weekly Earnings (NSA) for all employees were:

- 2012 \$810.46
- 2013 \$825.11
- 2014 \$845.06

The rate of increase for these wages was:

- 2012 2.4%
- 2013 1.8%
- 2014 2.4%

Wages are about 2.0% higher for the eight months of 2015.

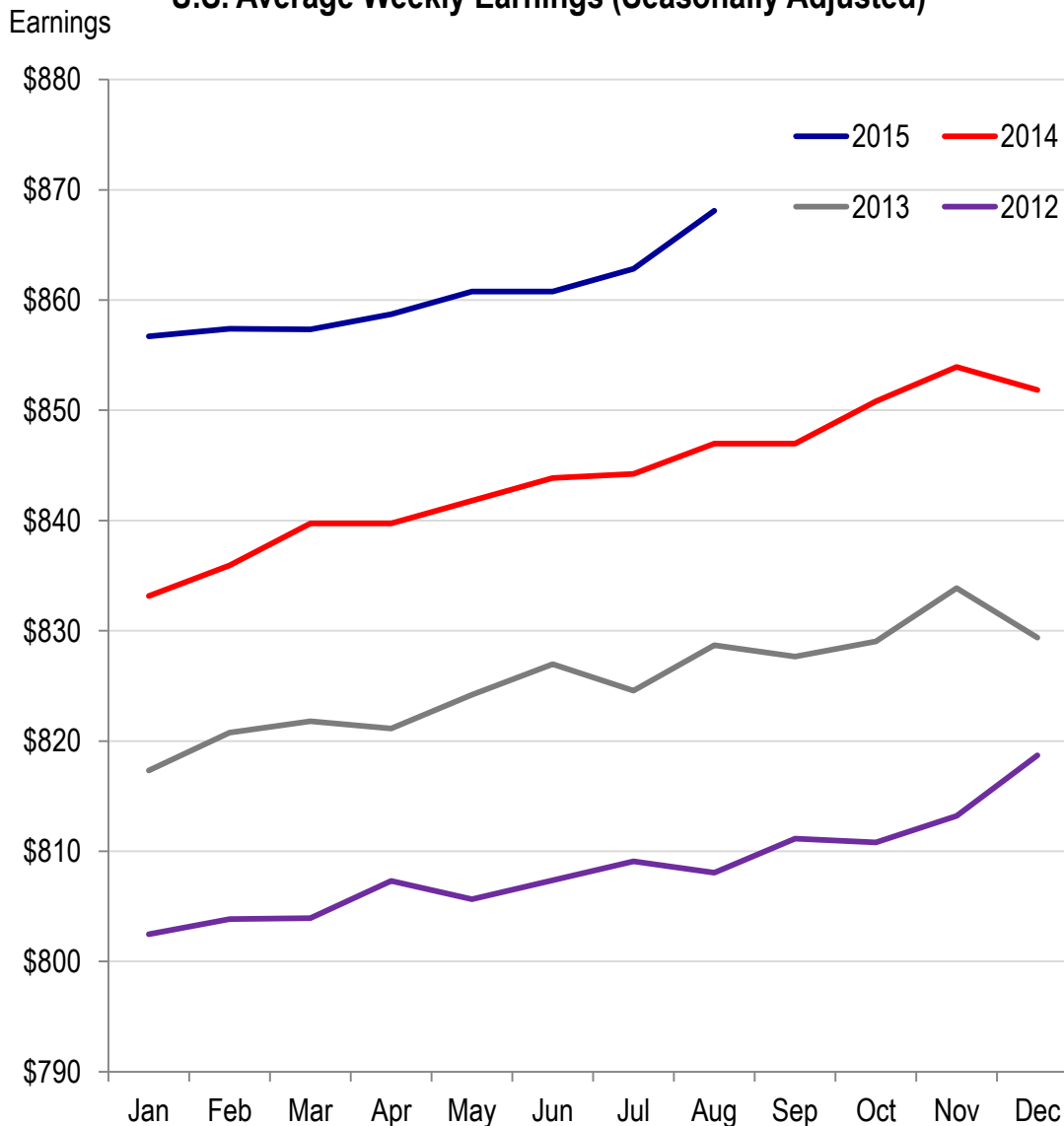
The increase in the CPI for these years was:

- 2012 2.1%
- 2013 1.5%
- 2014 1.6%

Wage increases have been slightly greater than the rate of inflation.

Source: Bureau of Labor Statistics.

U.S. Average Weekly Earnings (Seasonally Adjusted)

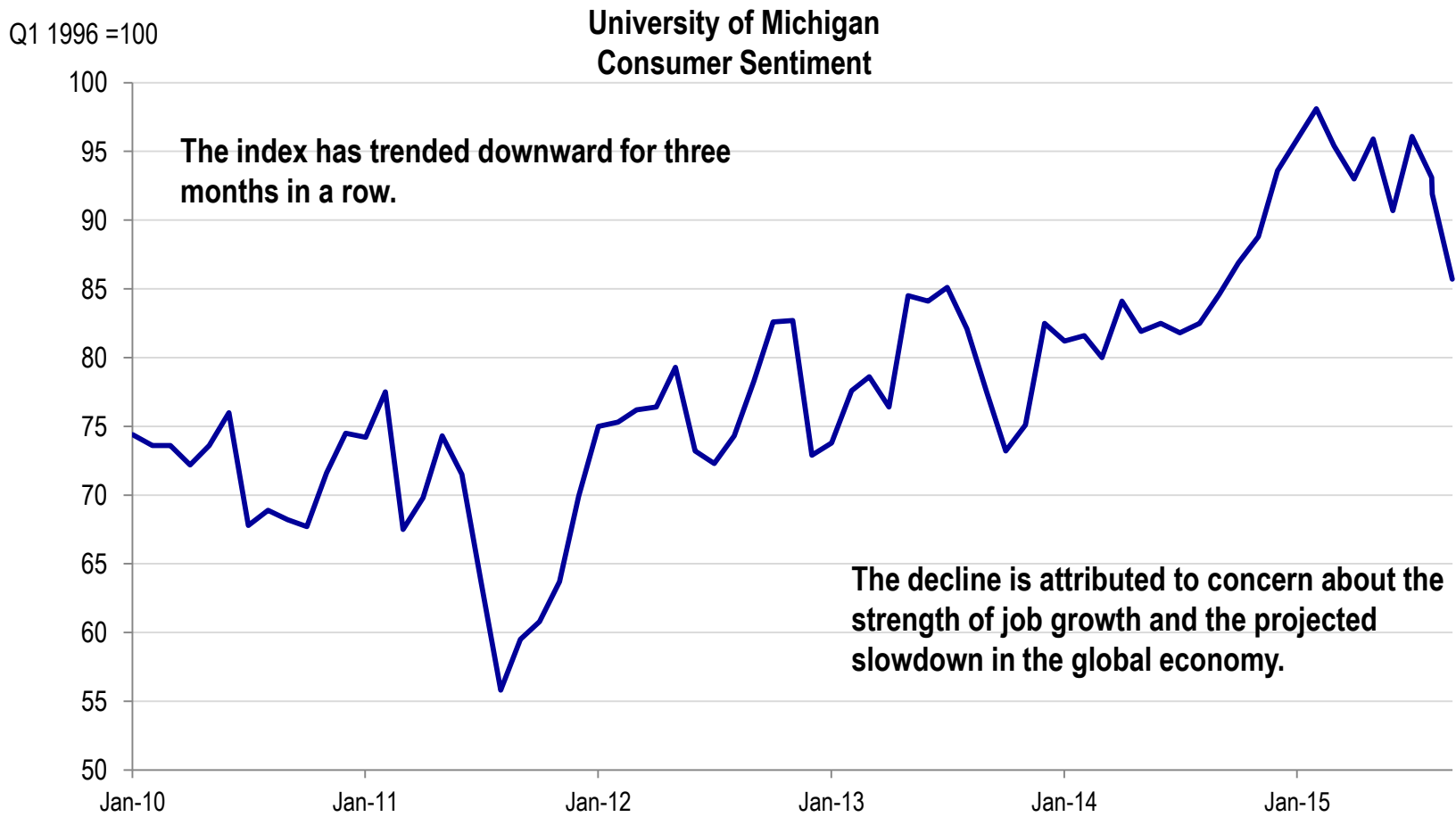




U.S. Economy

Sentiment, Productivity, Equities, Retail, and Construction

University of Michigan Consumer Sentiment

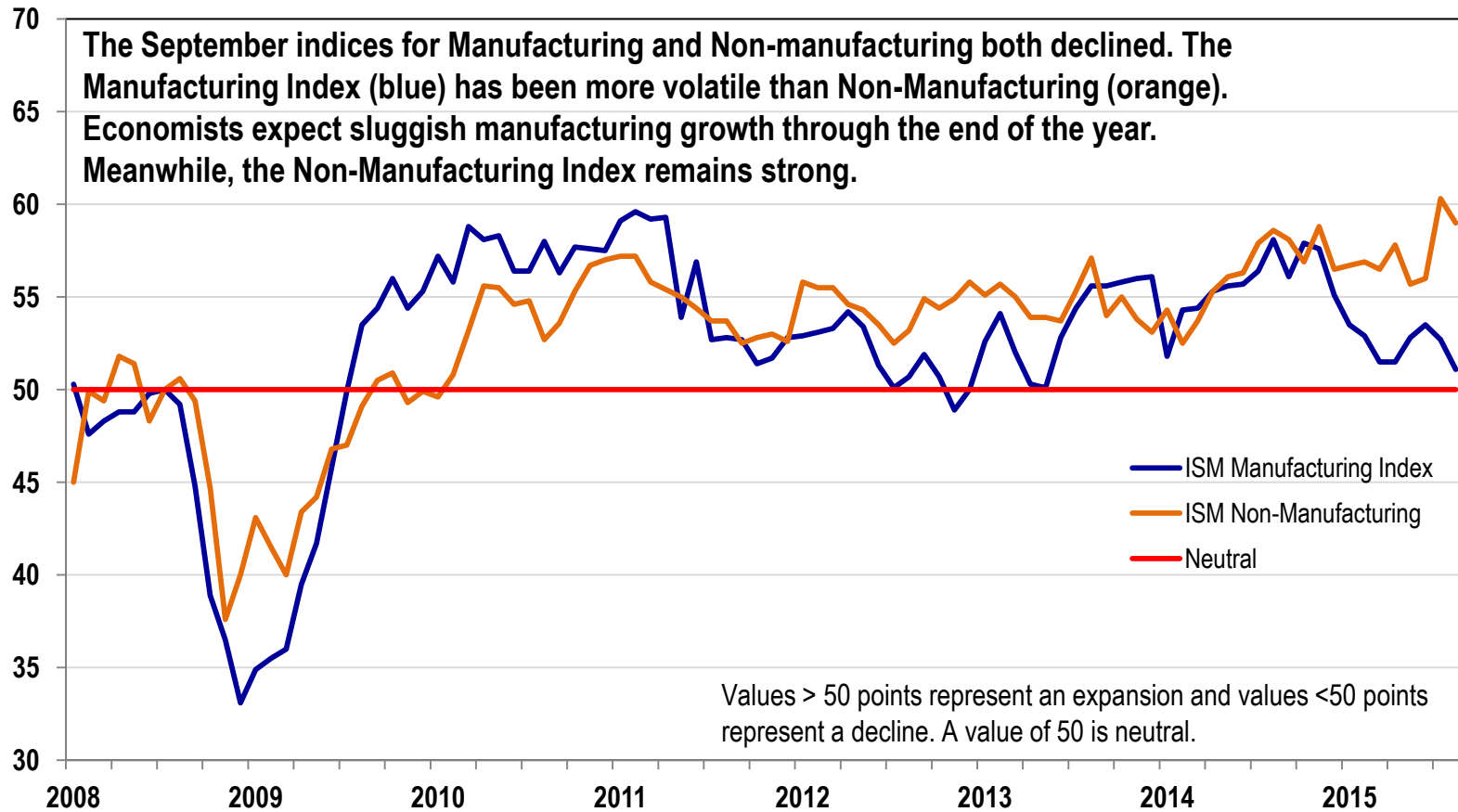


Source: Reuters, FRED.

ISM PMI Composite Indices

Manufacturing vs. Non-manufacturing

ISM Manufacturing vs. Non-Manufacturing Indices



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

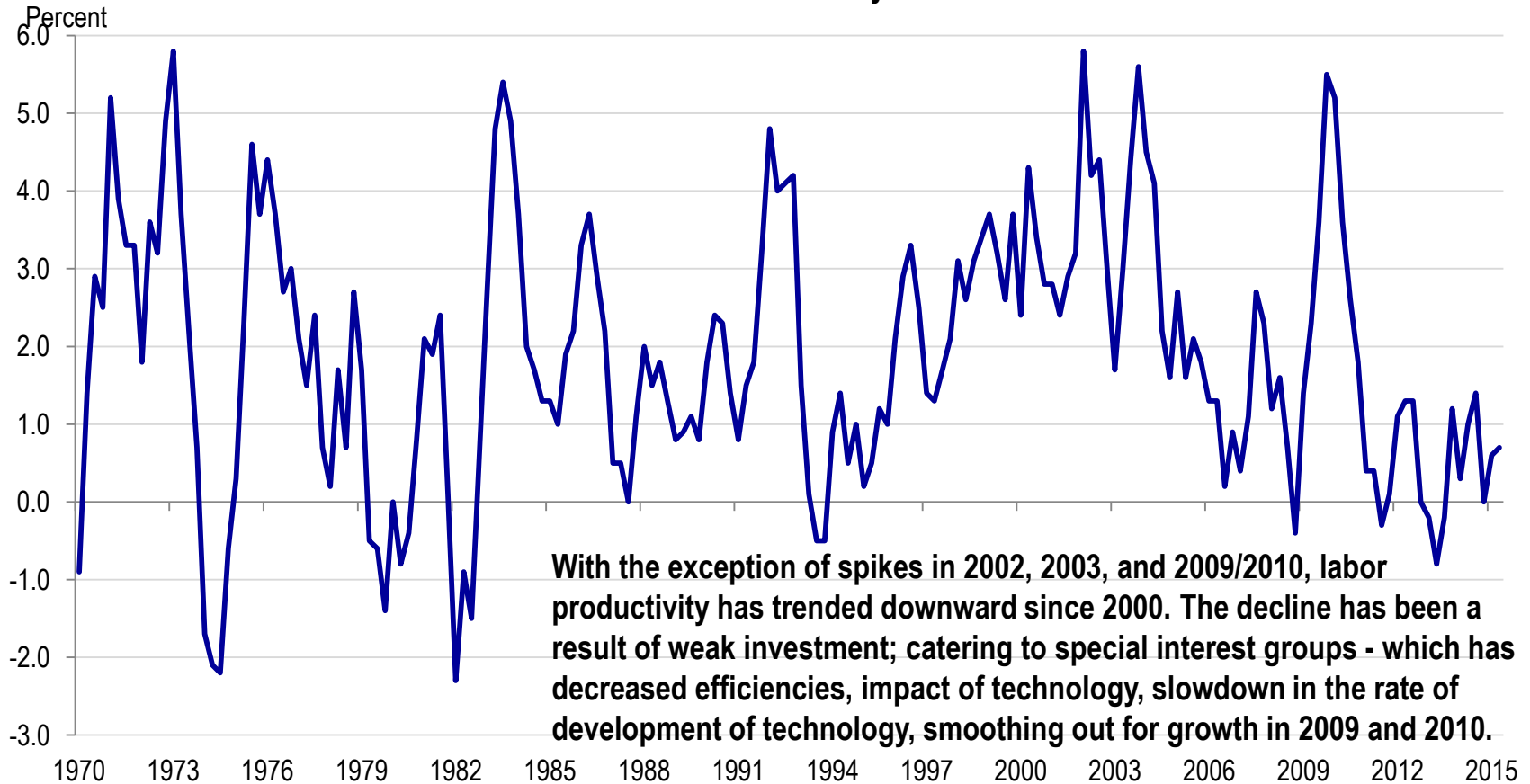
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● Labor Productivity (Output per Hour)

● Percent Change Same Quarter Prior Year

Labor Productivity



Source: Bureau of Labor Statistics, NSA.

Standard and Poor's 500 Index

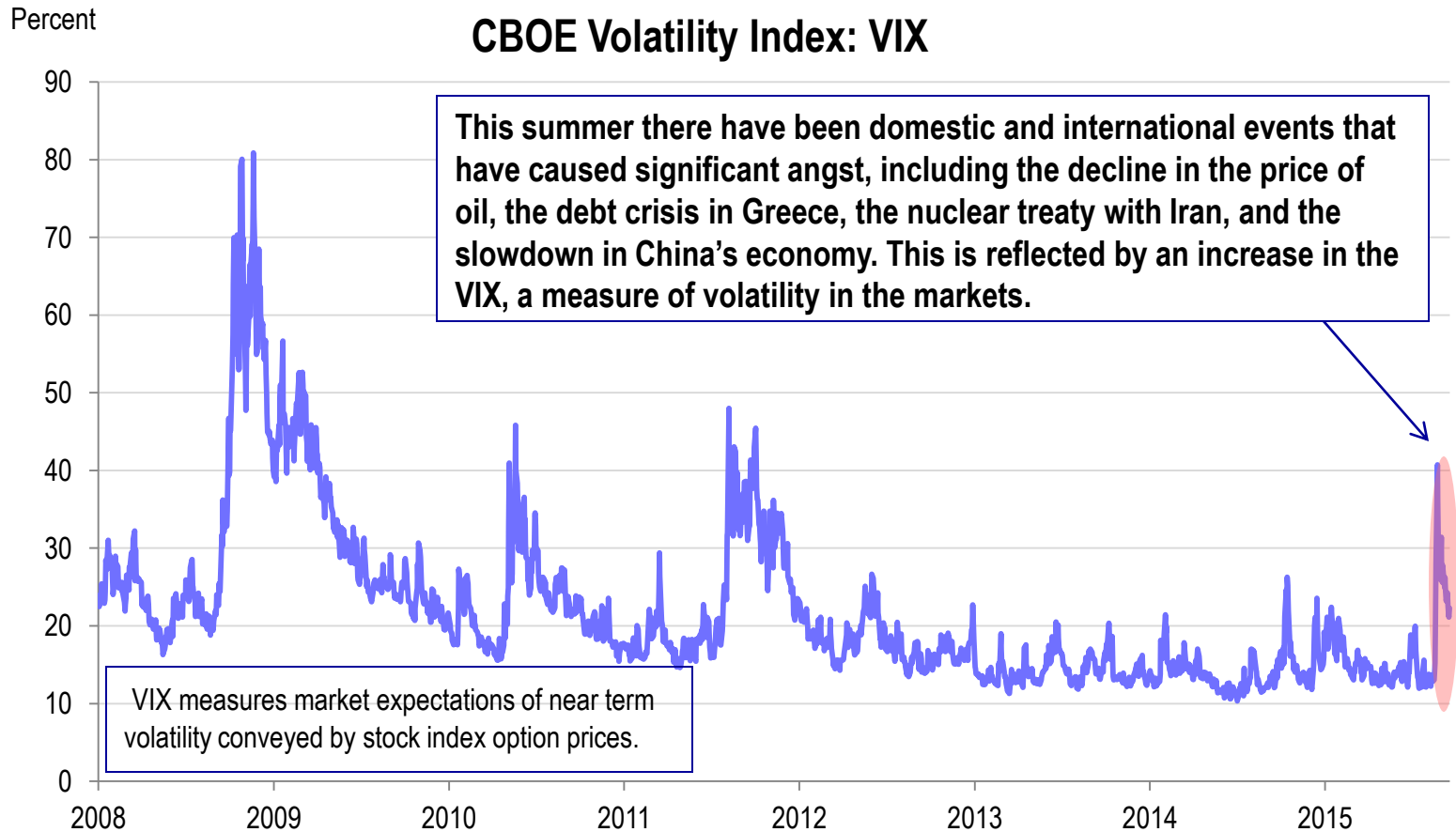


Source: FRED, S&P 500.

● CBOE Volatility Index

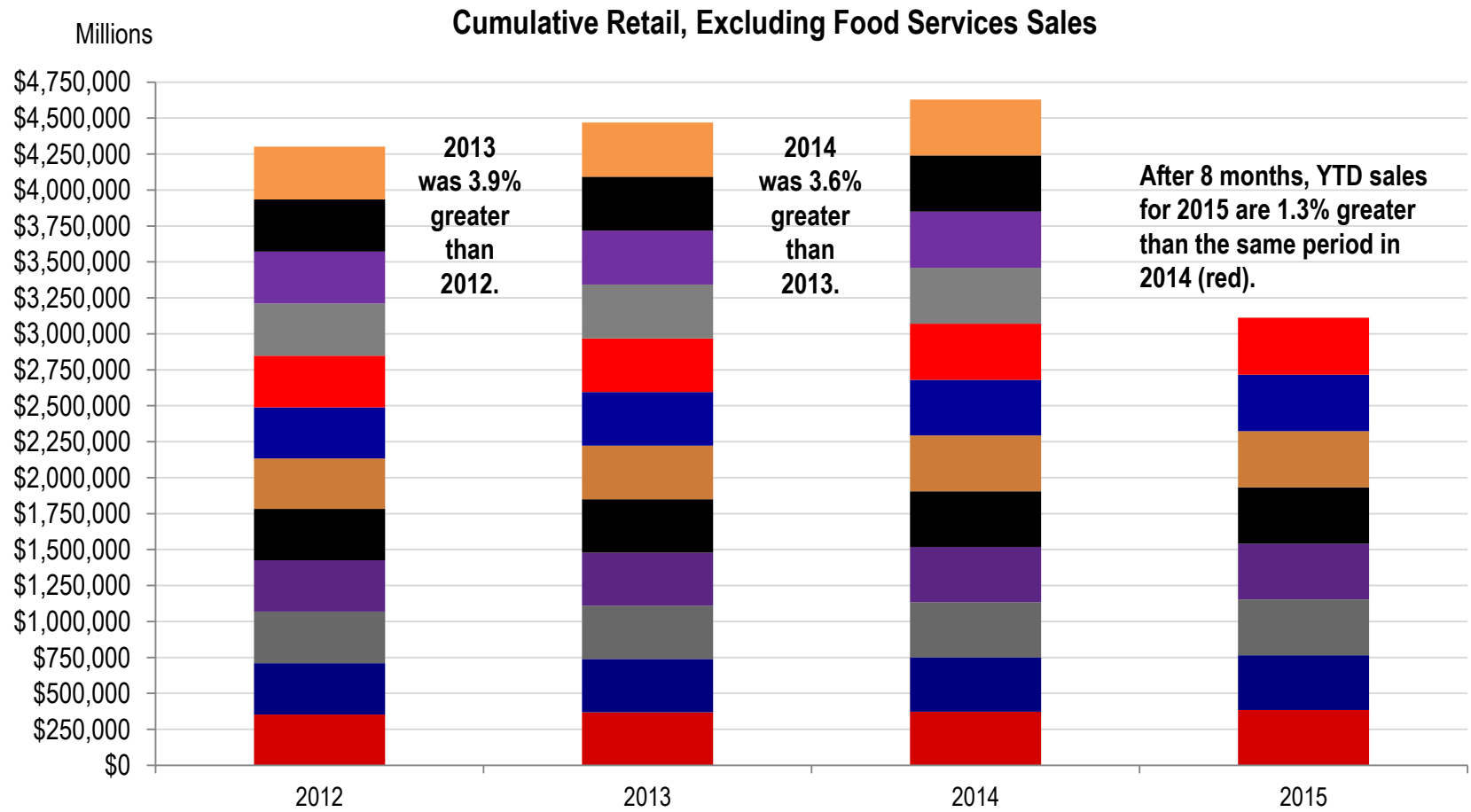
● VIX (VIXCLS)

●



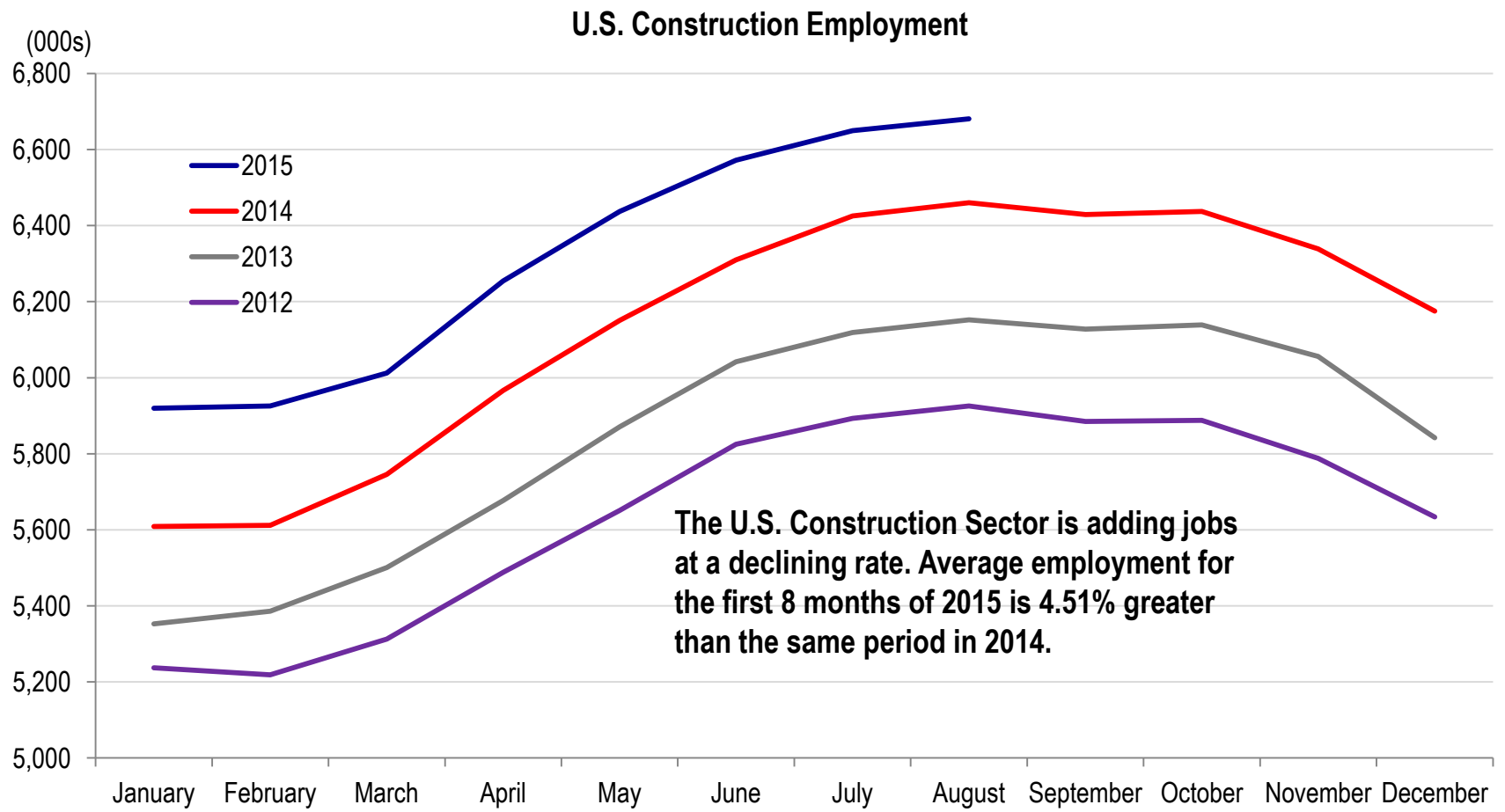
Source: FRED, CBOE.

Cumulative Retail, Excluding Food Services Sales



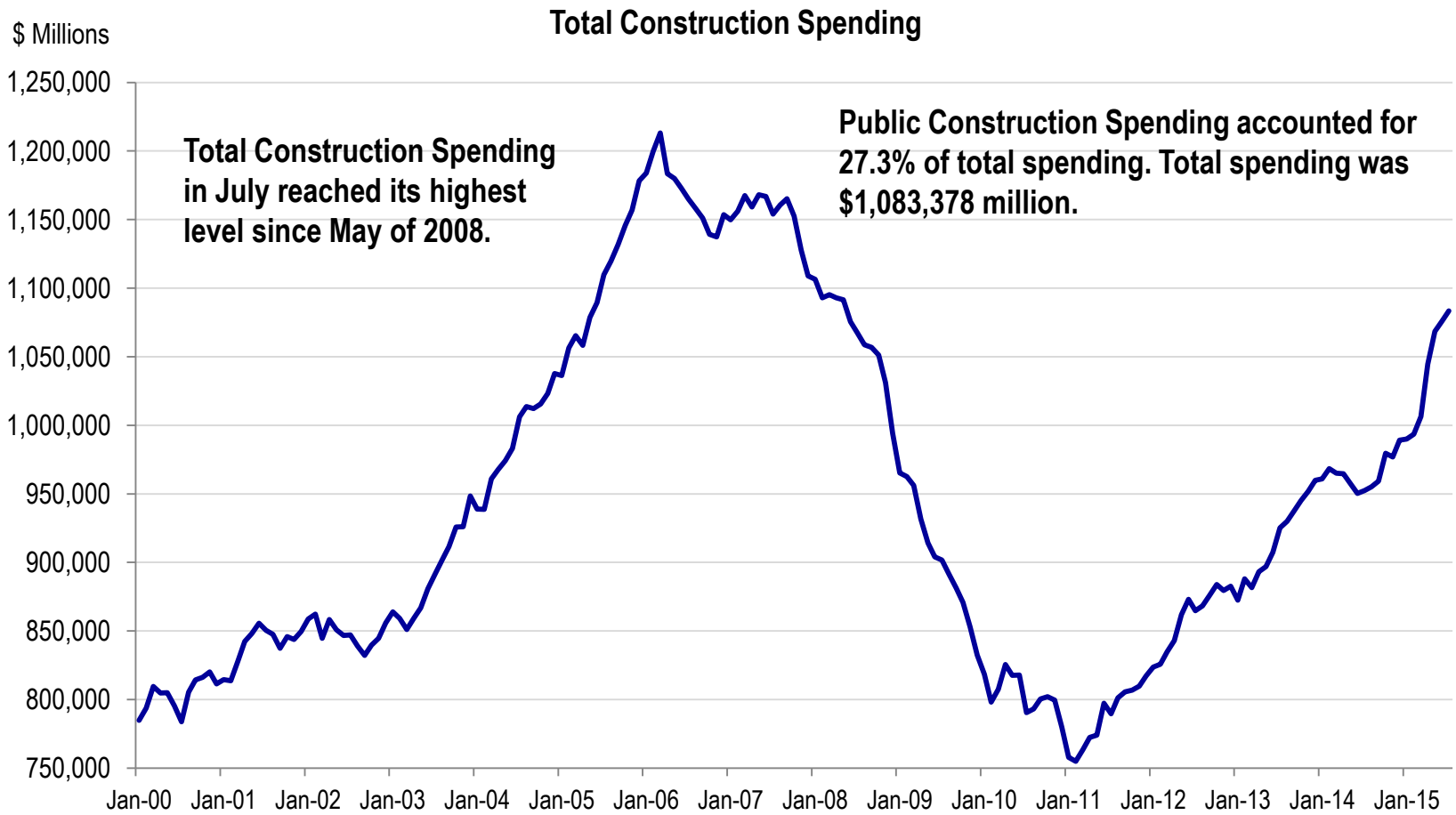
Source: U.S. Census Bureau, FRED. Note: Data is in descending order with December at the top and January at the bottom.

U.S. Construction Employment 2012 to 2015



Source: Bureau of Labor Statistics, NSA.

Total Construction Spending



Source: FRED, Census Bureau.



U.S. Economy

Reasons to Feel Good and Risks

Reasons to Feel Good about the U.S. Economy

The past six weeks have been filled with angst about a series of events. Fortunately, the reasons to be optimistic, listed below, outweigh the risks.

<p>The Fed – The Fed has previously indicated it was confident the U.S. economy was performing well enough that interest rates would be raised. At the last meeting it took a mulligan because of the performance of the stock market and fears of the slowdown in China.</p>	<p>Industry Sentiment - Purchasing managers have a positive outlook for both goods and services, although manufacturing may remain sluggish through the end of the year. The outlook for services is much stronger.</p>
<p>Real GDP - Real GDP growth for the year is projected to be in the 2.5% to 2.9% range – slightly stronger than last year.</p>	<p>Inflation - Inflation is well below the Fed’s target rate of 2.0%. Inflation is unlikely to rise until full-employment is reached – maybe in 2016.</p>
<p>Retail - Consumer spending is expected to be stronger in the second half of the year, although back-to-school sales were projected to be less than 2014.</p>	<p>Construction - There is solid activity in both the residential and non-residential markets. Construction job growth will be constrained by the lack of trained workers.</p>
<p>Jobs - The U.S. is on track to add 3.0 million jobs this year. The strength of the labor market can be verified by the growth in the number of job openings.</p>	<p>Housing Prices - The U.S. housing market remains strong - too strong in some areas such as Colorado.</p>
<p>Consumer Sentiment – The most recent Consumer Sentiment Survey indicates consumers are upbeat, but they are more concerned than a couple of months ago.</p>	<p>Global Growth – Some economists have suggested there will be 3.0% global growth based on the strength of the U.S. economy and 6.0% growth in China.</p>

Economic Risks and Concerns

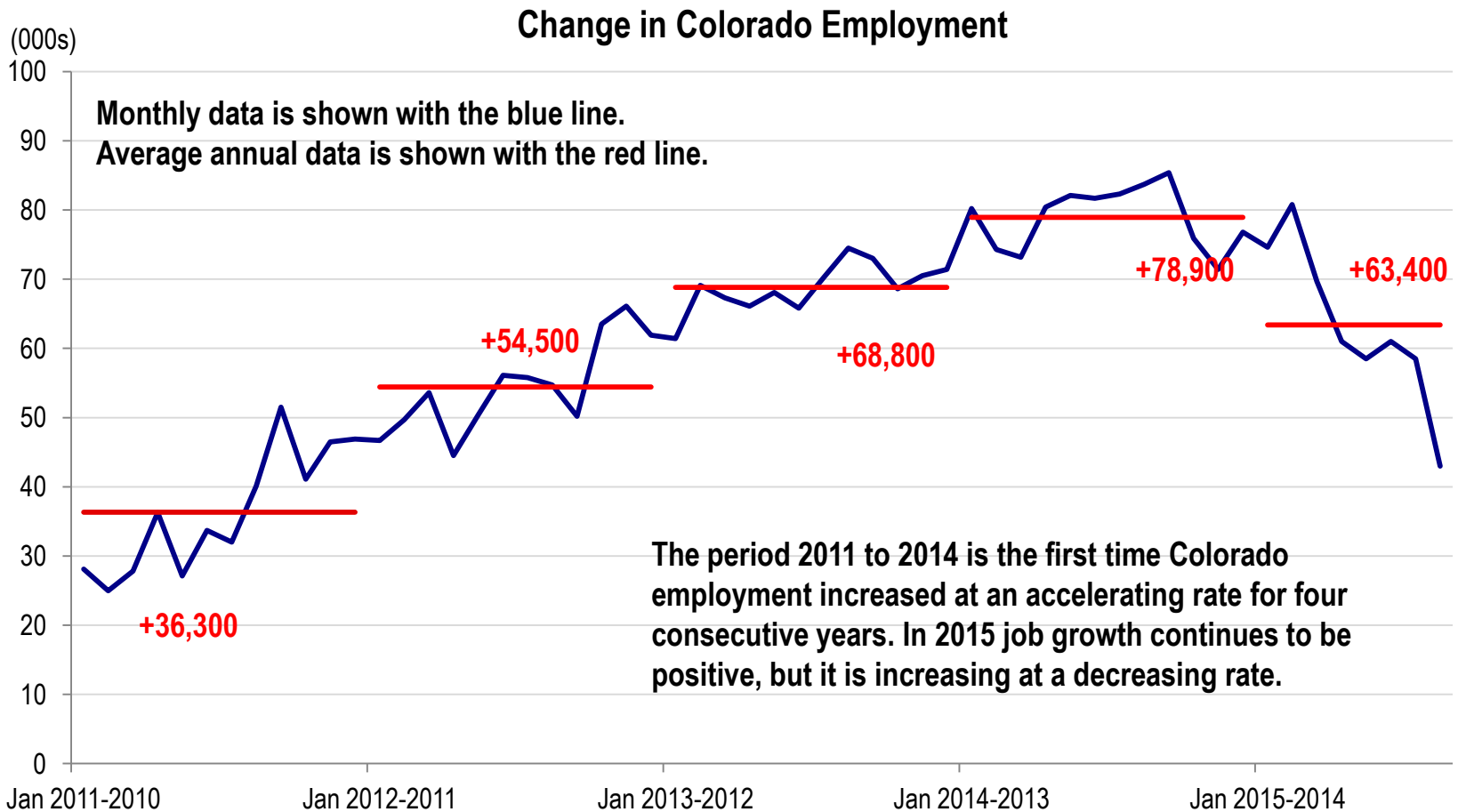
These are the factors that have caused angst to consumers, the media, and industry and political leaders.

<p>The Fed - Janet Yellen and the Fed did not give the economy a vote of confidence. Is the Fed kicking the can down the road or should they be commended for their attention to detail?</p>	<p>Price of Oil - Low prices for a barrel of oil have benefitted consumers (lower prices at the pump) and some industries, but they have hurt the extractive industries and their supply chain.</p>
<p>Real GDP - The rate of growth in business investments is lackluster. Increased demand for goods and services is needed to drive companies to invest in new equipment, software and buildings.</p>	<p>International Situations- The current global situational and foreign policy challenges to the U.S. economy currently include Iran, Syria, Russia, Greece, Israel, Cuba, the EU, and Ukraine – all for different reasons.</p>
<p>Productivity - Labor productivity has trended downward since 2000. This has been caused by weak business investment, catering to special interest groups, and the impact of technology.</p>	<p>China –The devaluation of China’s Yuan and the slowdown in their economy will impact the global economy. Concern has risen about the indirect impact of the downturn on other economies, such as Japan.</p>
<p>Election 2016 – The presidential election season has started early and it has been entertaining, but it is going to be a long and ugly campaign.</p>	<p>Industry Sentiment – The Manufacturing Sector will likely remain sluggish through the end of the year and until business investment increases.</p>
<p>Housing - In some parts of the country the rate of housing price appreciation is becoming problematic.</p>	<p>S&P 500 – Need we say more? Nobody likes volatility!</p>



Colorado Employment and Unemployment

Change in Colorado Employment Year-Over-Year



Source: Bureau of Labor Statistics, NSA.

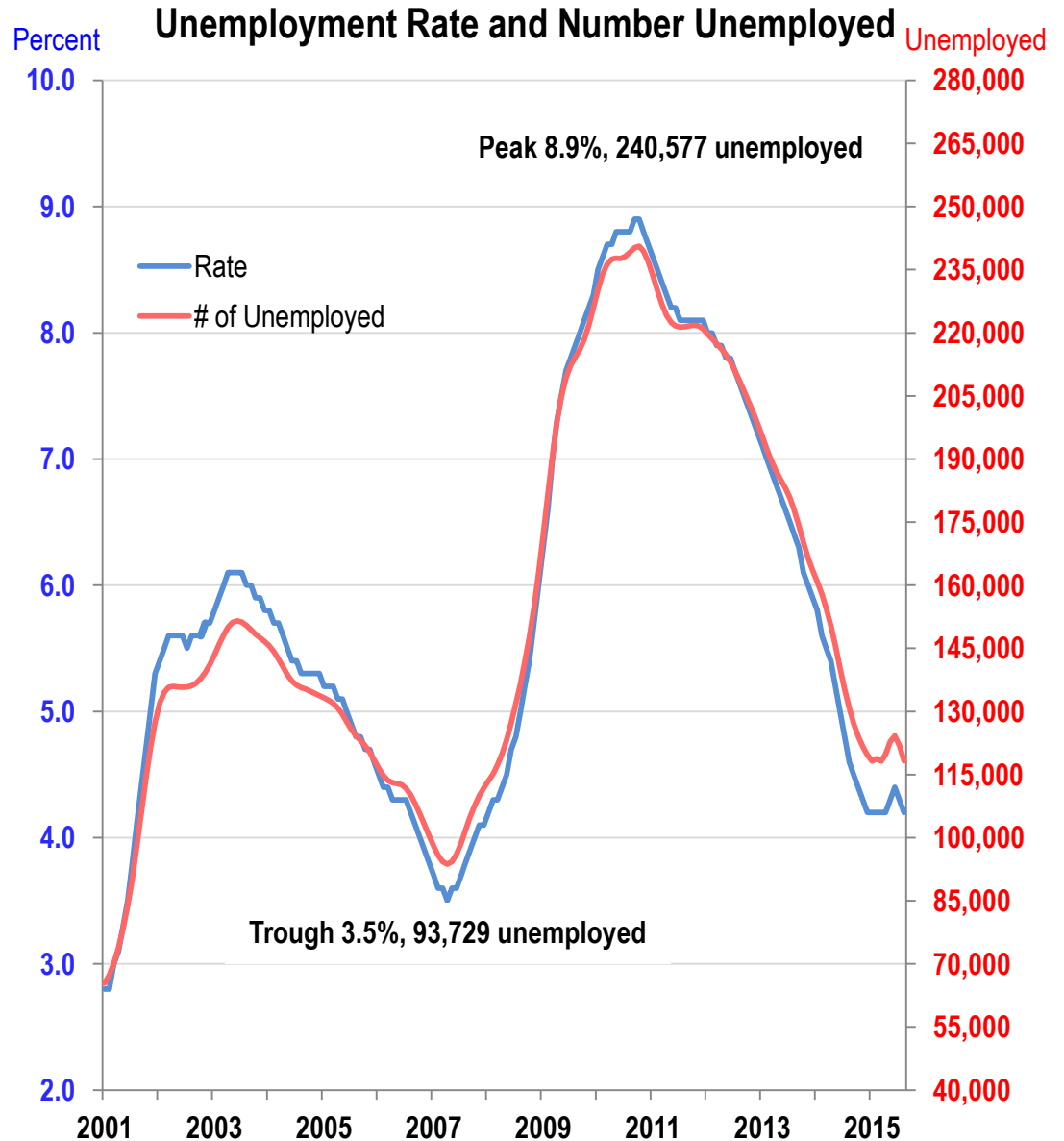
Colorado Unemployment Rate and Number of Unemployed

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

The total number of unemployed workers (red) at the end of August 2015 was 118,247.

The total number of unemployed is 24,518 greater than the trough in May 2007 and 122,330 less than the peak in October 2010.

There is a shortage of trained workers in key sectors and occupations. The 2015 unemployment rate (blue) of 4.2% is down from 4.6% in August 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

cber.co developed an efficient way to forecast and analyze job employment for Colorado. Twenty-two NAICS industries were divided 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:

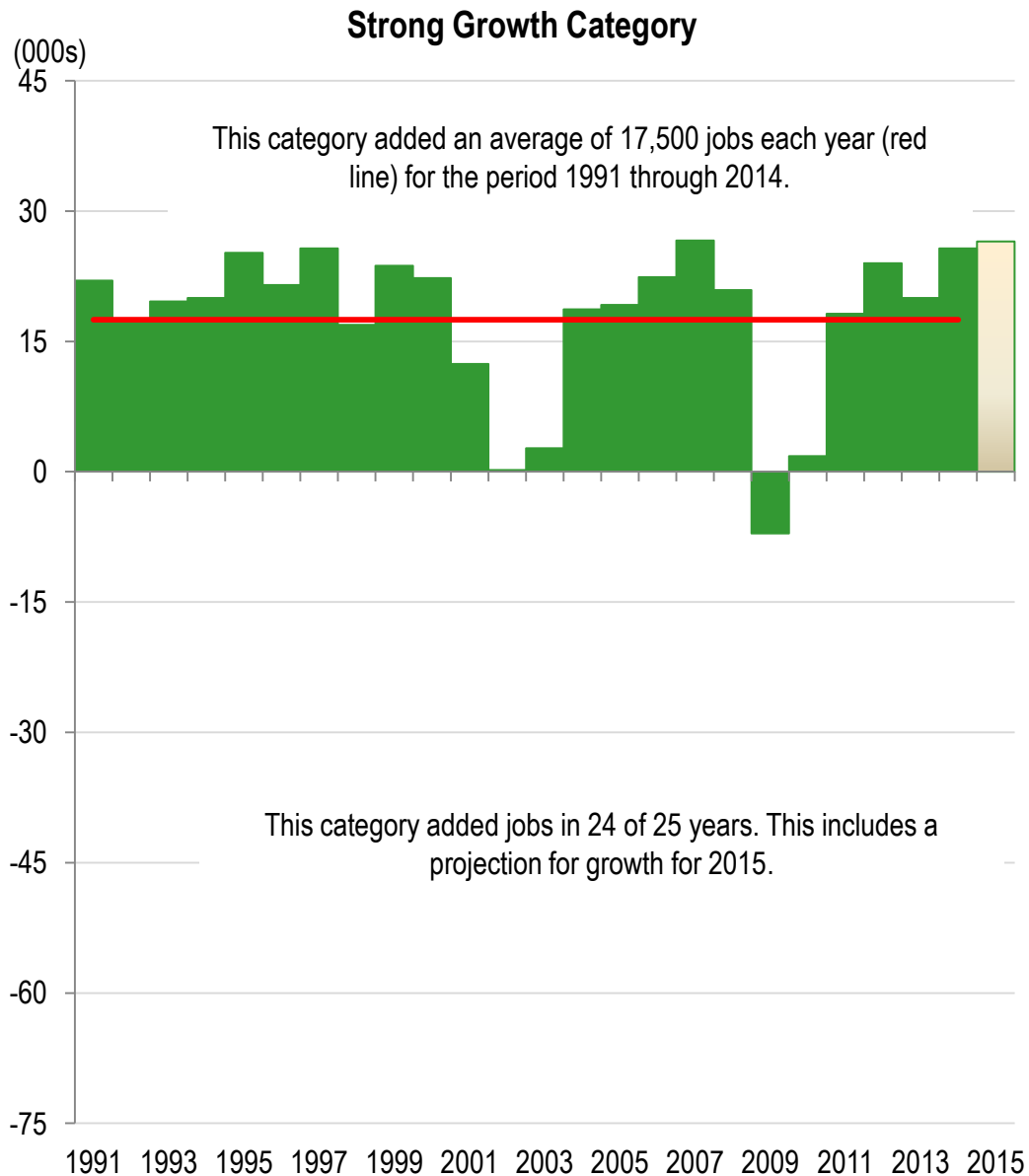
1994 445,200 workers, 25.4% of total employment
 2004 615,900 workers, 28.3% of total employment
 2014 786,700 workers, 32.0% of total employment

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

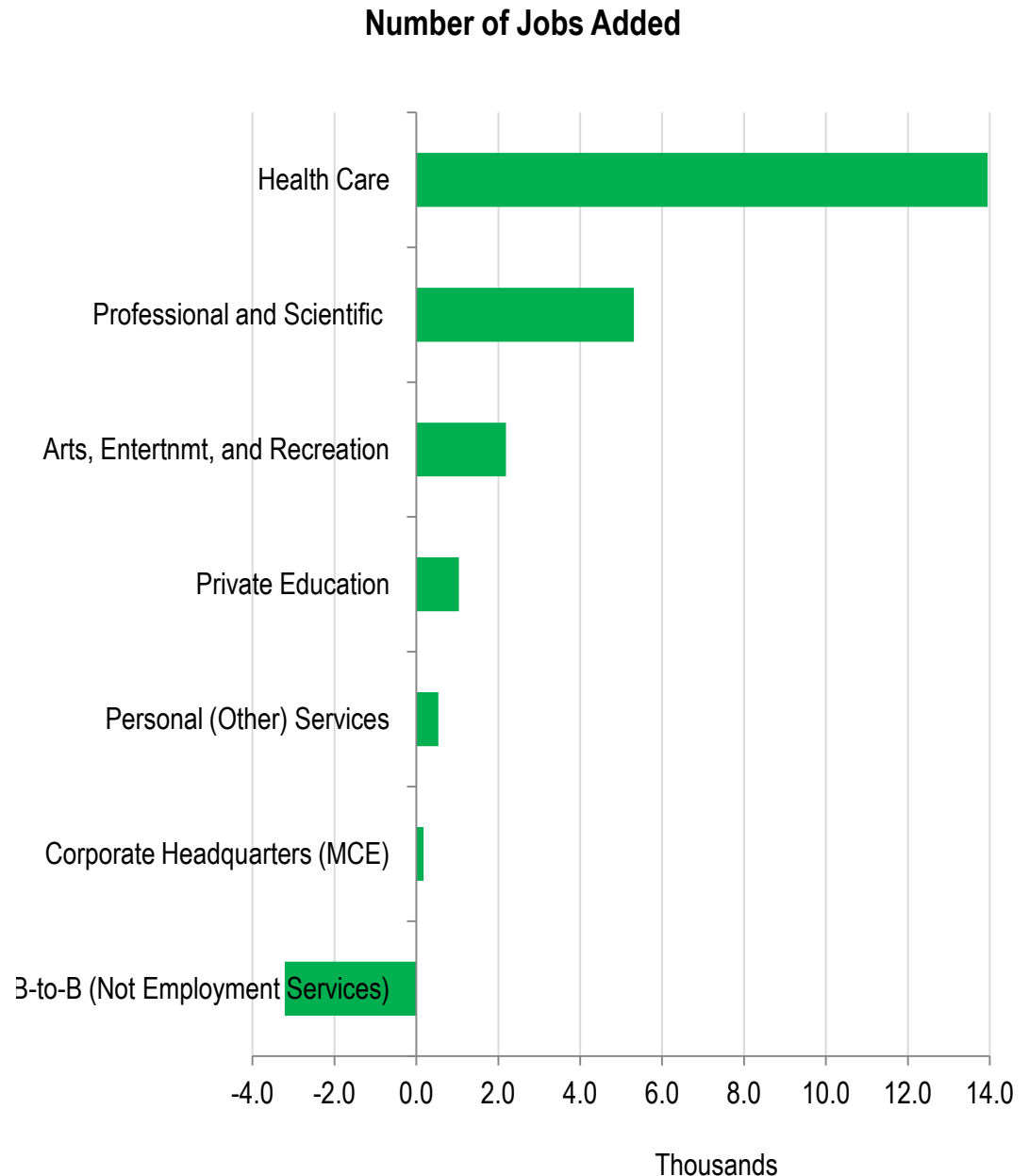
Source: Bureau of Labor Statistics, cber.co.

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● Strong Growth Sectors

- Through the first eight months of 2015 this group of industries added 20,000 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 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, Scientific, and Technical Services were the sectors with the strongest growth for the first eight months of 2015. Most likely the data for Administrative/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:

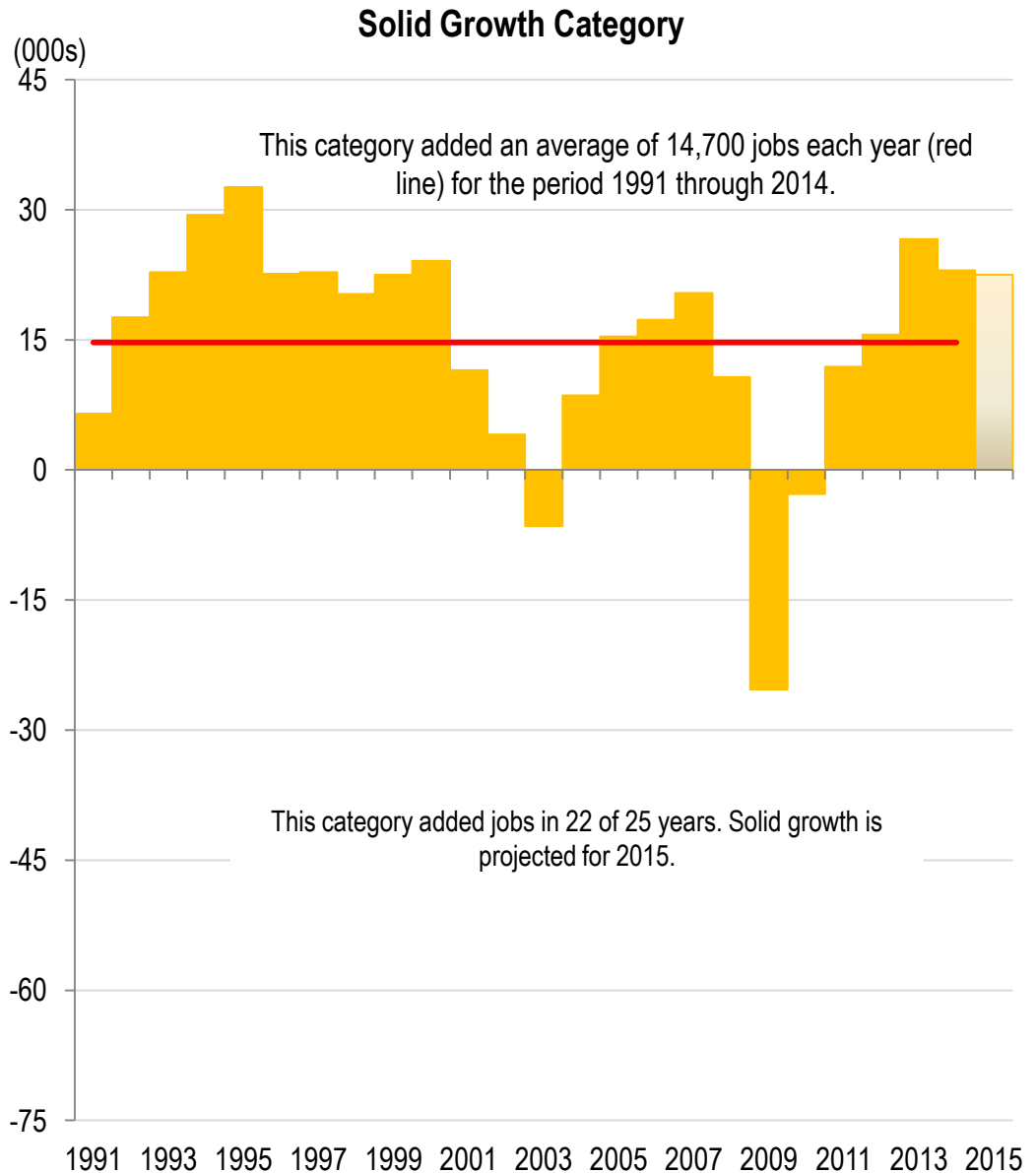
1994 685,400 workers, 39.0% of total employment

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.

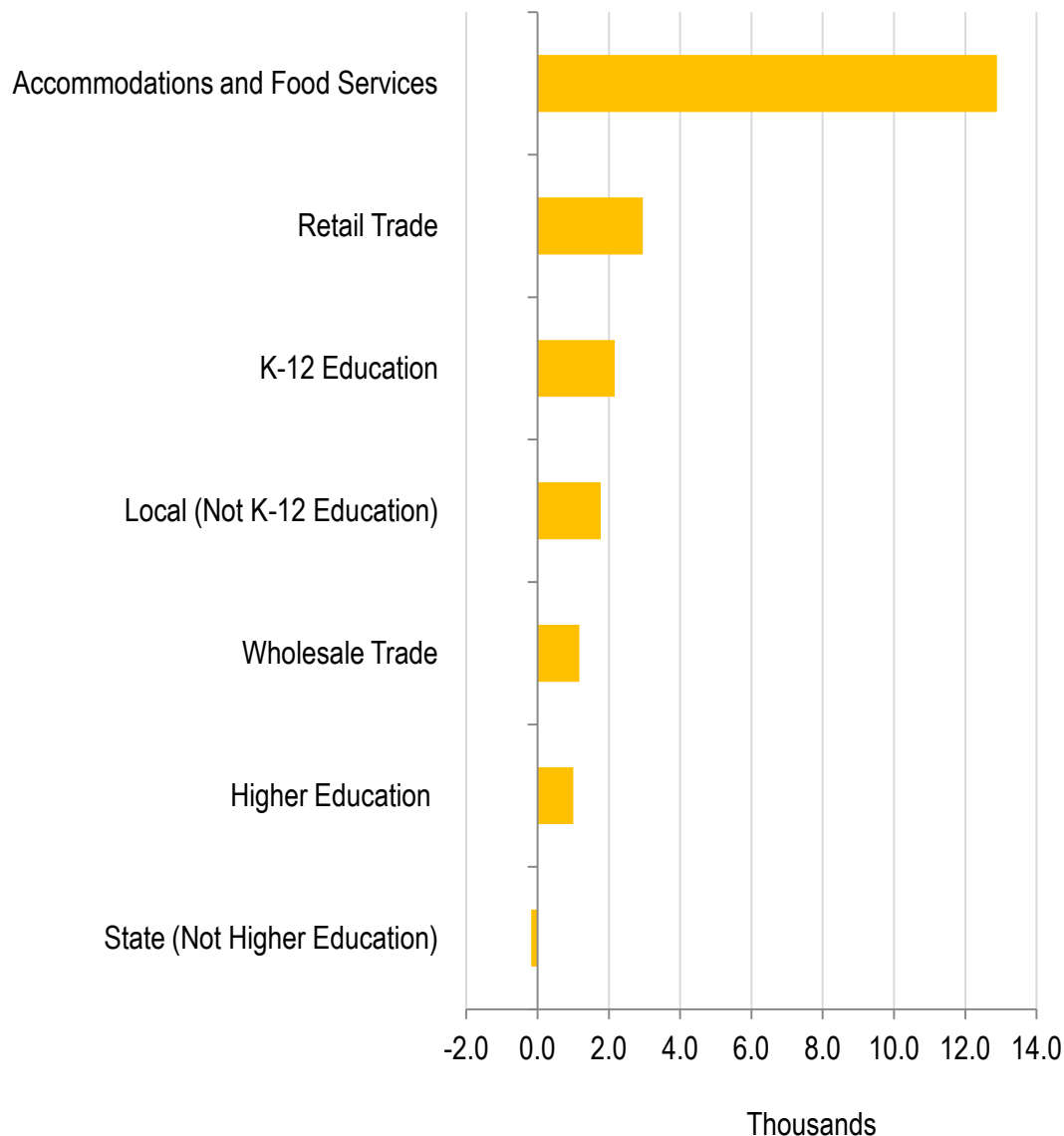
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Solid Growth Sectors

- Through the first eight months of 2015 this group of industries added 21,800 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 eight months of 2015 has occurred in the Accommodations and Food Services, Retail Trade, and Local Government Sectors.

Number of Jobs Added



Source: Bureau of Labor Statistics.

Annual Employment Situation for the Volatile Category

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

The sectors are:

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

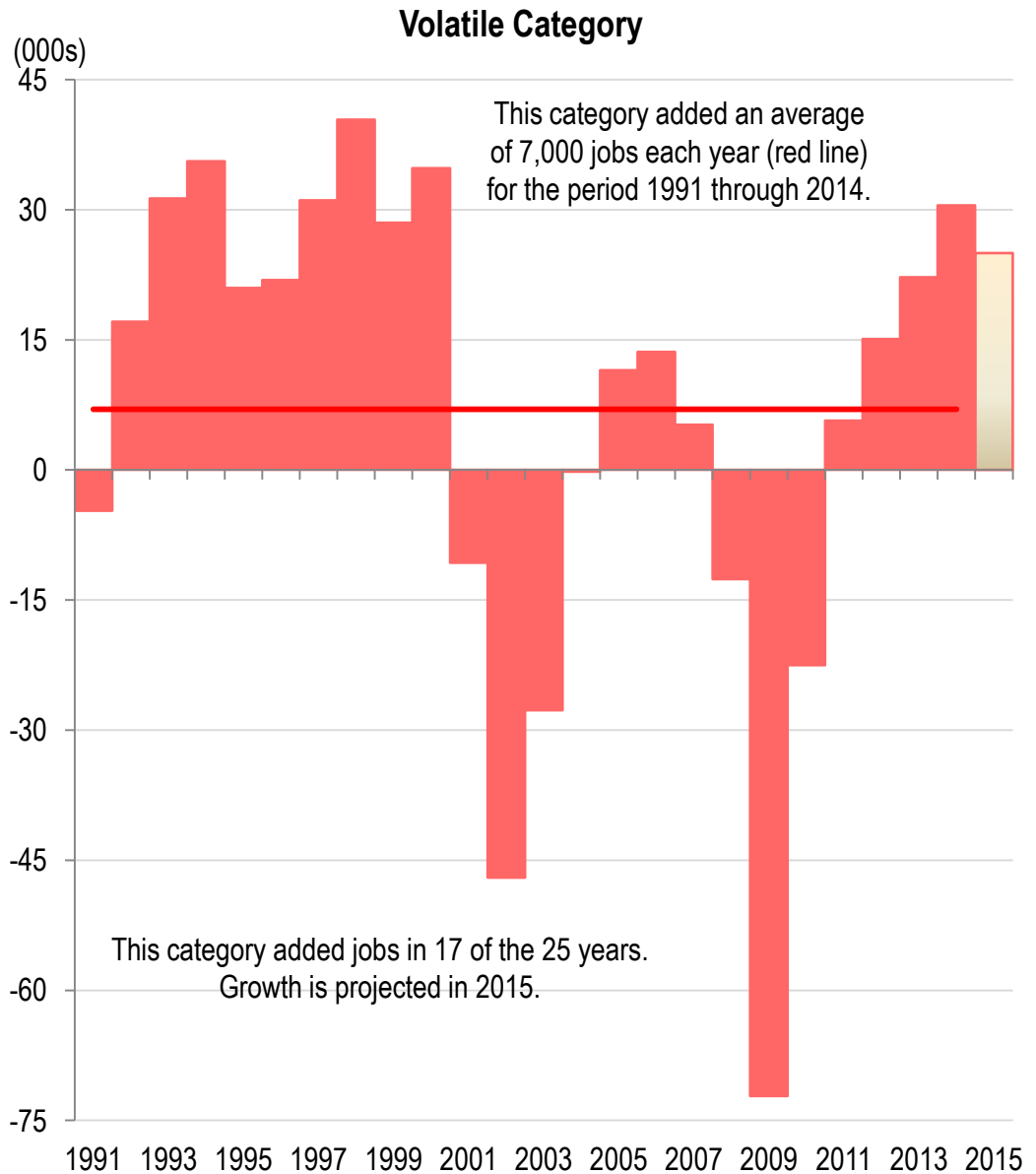
Total employment for this category was:

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.

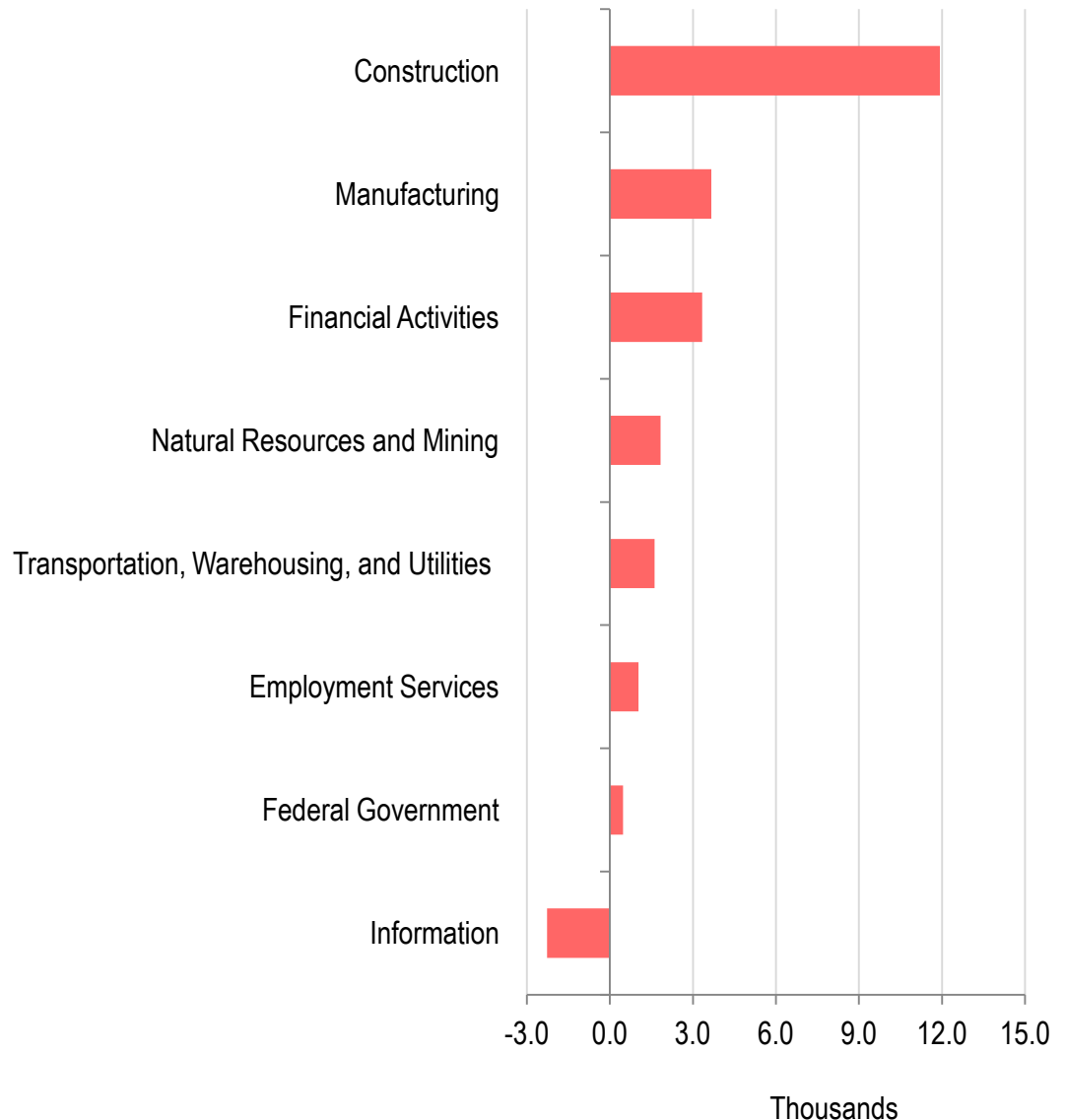
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● Volatile Sectors

- Through the first eight months of 2015 this group of industries added 21,600 jobs compared to the same period in 2014.
- This category is projected to add 23,000 to 27,000 for the year. To date, its performance is slightly below the projected forecast range.
- In 2014 these sectors accounted for 32.3% of total job gains and 29.0% of total employees.
- The Construction, Manufacturing, and Financial Activities Sectors added the greatest number of jobs and the Information Sector lost jobs during the first eight 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 the current BLS data.

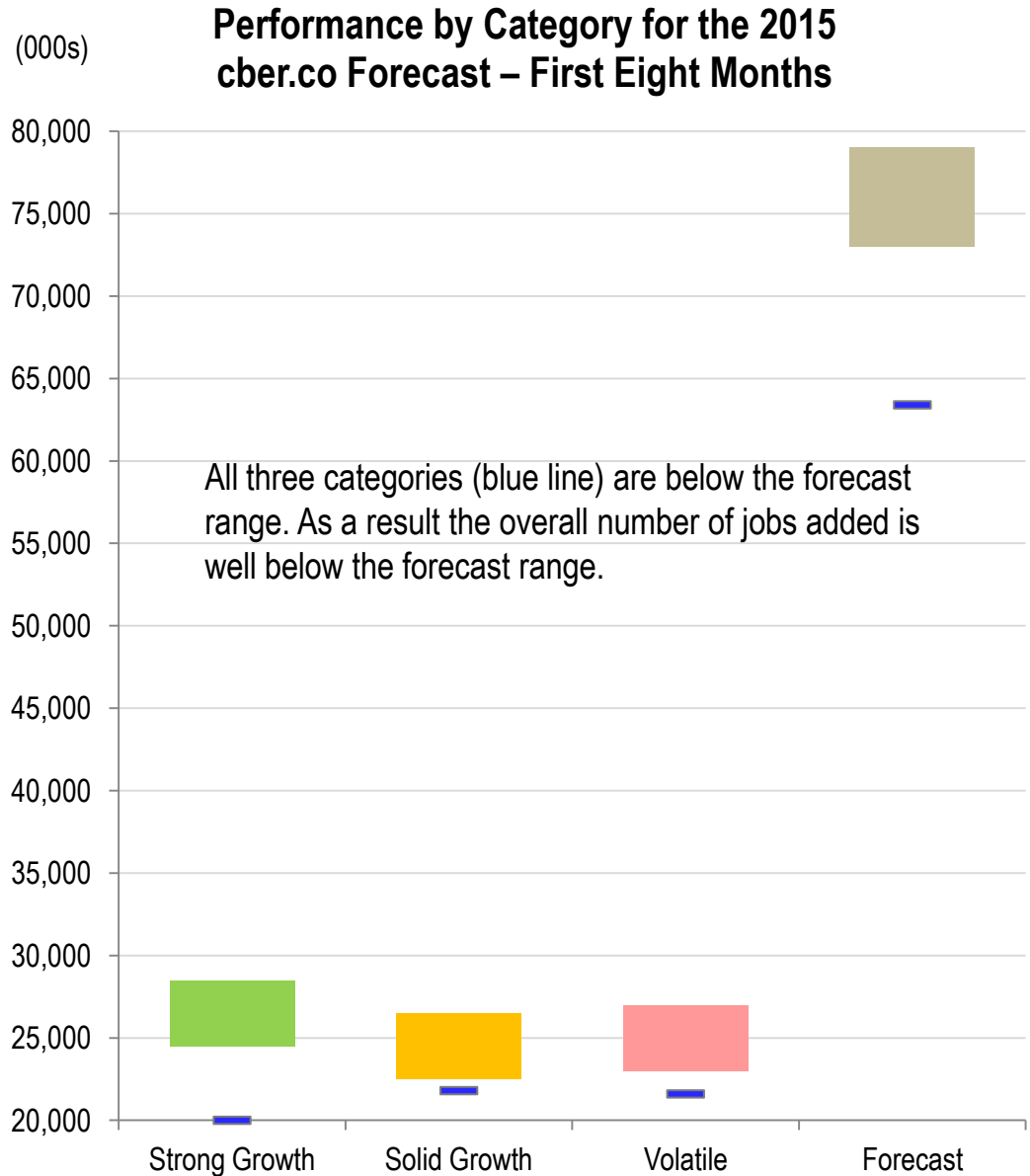
Through the first eight months of 2015, all three categories were below their respective forecast ranges.

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

This analysis does not account for projected upward revisions to employment that will take place in March 2016.

Source: Bureau of Labor Statistics, cber.co.

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Colorado Employment Current and Revised Data



Current vs. Revised Data

Current Data

The previous analysis of the Colorado Wage and Salary (CES) data is based on the current data published by Bureau of Labor Statistics and the Colorado Department of Labor and Employment Labor Market Information group.

The current data show that:

- Colorado job growth was trending downward in Q4 2014.
- After increases in Q1, job growth for 2015 is trending downward.
- Average job growth for Colorado through eight months is 63,400 jobs.
- If this downward trend continues at its current pace, the average annual job growth for 2015 will approach 50,000.
- In other words, average annual employment for 2015 will be about 30,000 less than 2014.

Projections for Revisions

Employment data is subject to four revisions (see next slide). The Colorado Department of Labor and Employment Labor Market Information group has produced projected revisions for Q4 2014 and Q1 2015. The projected revisions show that:

- Q4 2014 data will likely be revised upwards by 12,200 (October), 10,800 (November), 16,300 (December) . In other words Q4 2014 trended upwards and the Colorado economy had strong momentum entering 2015.
- Q1 2015 data will likely be revised upwards by 19,600 (January), 17,800 (February), 17,600 (March). If this is the case, job growth in January will be near record levels. In addition, average annual job growth will be at the same level as 2014 or slightly lower. In other words, average annual employment for 2015 will increase by 73,000 to 79,000 jobs – the same as the 2015 cber.co forecast.

BLS/LMI Data Revision Process

BLS Data Can be Revised Four Times

BLS and LMI Data Revision Process

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 published and April will be updated.) These revisions are usually minor. Most public and private decision makers use this data for short-term forecasts.
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.

1. Preliminary data issued

2. Thirty days later - preliminary data revised

3. March next year – first benchmark revision

4. March next year – second benchmark revision

5. Periodic – minor revisions for various reasons

What we Know from the Data

What we Definitely Know from the Data

- The state is adding jobs.
- About 60% of the jobs will be added by the Health Care, Accommodations and Food Services, and Construction Sectors.
- An additional 25% of the jobs will be added by Professional, Scientific, and Technical Services; Manufacturing, Financial Activities, and Retail Trade.
- The Information Sector will lose jobs this year.
- The data for 2014 will be revised for a “final” time in March. The data for 2015 will be revised in March 2016 and 2017.
- Historically, the benchmark revisions are upwards during periods of strong growth and they are downwards during periods of contraction. The first benchmark revision is usually more significant than the second.

What we Don't Know from the Data

- We don't know the strength of job growth.
- We don't know for sure if the state reached near record level employment in January.
- We don't know whether the state is adding jobs at an increasing rate, a decreasing rate, or if it is flat.

Are we Seeing Trends or Problems with the Data?

The current BLS data suggests the state could add 30,000 fewer jobs in 2015 than 2014. That has only happened 8 previous times (1943, 1974, 1980, 1985, 2001, 2002, 2008, 2009). Six of those times were in a national recession.

- Given the magnitude of the current downward trend, is the state headed into a recession or is the problem with the BLS data?

RegionTrack has completed an analysis of energy states. Tier I states are teetering on the brink of a recession. At this point Tier II states, such as Colorado, are faring better.

- Will Tier I states fall into a recession and will Tier II states eventually follow the path of Tier I states? Will Colorado enter a recession caused by low oil prices or is the problem with the BLS data?

Nationally, job growth has leveled off and China's economic growth is occurring at a slower rate. Given these parameters, a slowdown in Colorado's economy might make sense.

- Are we seeing signs of a legitimate slowdown in job growth or simply a problem with the BLS data?

Based on activity on the streets, other indicators, historical patterns, headlines, discussions with business leaders, and the projected revisions by the CDLE LMI group, it is likely that Colorado will add between 73,000 and 79,000 workers in 2015.



What is the Story on the Streets and in the Headlines?



Headlines

This section includes recent headlines that impact employment in Colorado in the following areas:

- Government – Government organizations are spending to provide better services and create jobs.
- Technology and Aerospace – High tech businesses remain volatile and in a state of flux.
- Recession and Energy – Is the next recession just around the corner? Will it be caused by the drop in the price of oil?
- Retail – Nationally, some retail chains are struggling to remain profitable and relevant.
- Construction – Despite higher than average wage increases, growth of the sector appears to be constrained by the lack of trained workers.

Activity on the streets help tell the story of the Colorado economy.



Recent Headlines

Government

Governments have benefitted from the growth in the economy. They are making investments to provide more services and create jobs.

- The City of Boulder has approved its 2016 budget which includes the addition of 48 employees.
- Governor Hickenlooper has promised \$100 million to make Colorado the "best state for biking."
- The U.S. Treasury CDFI fund has given a \$2 million grant to The Colorado Enterprise Fund to support local small businesses.
- The state approved \$12.8 million in tax credits for two companies that might result in 1,600 jobs. These companies are in the health care and energy solutions industries.
- The Loveland City Council approved a proposal to provide high-tech manufacturing consulting and training organization EWI with \$2 million in funding to open a facility at the Rocky Mountain Center for Innovation and Technology.
- The state rejected a proposal for tax credits for a Colorado company that would increase health care employment by 1,418 jobs. (This seemed like an odd rejection given the need for health-care workers in the state). The justification was the state did not have the workers to fill the jobs and would have to import them.

Recent Headlines

Technology and Aerospace

The Technology and Aerospace Clusters remain volatile and in a state of flux. Changes could significantly change employment in Colorado – positively or negatively.

- Hewlett-Packard has announced worldwide cuts of 25,000 to 30,000. These cuts could negatively impact Colorado or they could add jobs if consolidation brings workers to the state.
- Level 3 has announced a round of layoffs associated with the company's merger with TW Telecom that took place last fall. The location and number of these workers has not been announced.
- Seagate will layoff 70 workers in Longmont
- Astra Zeneca bought the Boulder Amgen facility and may add 400 jobs.
- Aerospace is one of Colorado's targeted high tech industries, yet the industry is in a state of change with increased involvement from the private sector.
- Lockheed Martin could lay off 500 IT workers (nationally).
- Aerojet Rocketdyne made an unsolicited bid of \$2 billion for United Launch Alliance.
- Jeff Bezos announced Cape Canaveral as the base for his commercial aerospace program.

Recent Headlines

The R-word and Energy

Currently, there are not signs of a recession. With the angst in recent weeks, the R word is being discussed. In the case of Colorado, some researchers have forecasted a regional recession cause by low oil prices.

- The former director of the Denver Branch of the Kansas City Fed, Mark Snead, posted in a RegionTrack blog that “the current expansion is getting to be a bit long in the tooth.” It is 74 months and running.
- On a different note, Snead said that the Tier I energy states are on the verge of recession. To date, the economies in Tier II states have been much stronger and job gains in other industries have more than offset job losses in the energy industry. (Snead did not project a downturn for Colorado).
- Synergy Resources paid \$78 million to K.P. Kaufman for assets in the Wattenberg Field. After record oil production in May, June production dropped off slightly. (YTD oil production continues at record levels).
- Debt burden of shale drillers puts 400,000 oil barrels a day at risk

Recent Headlines

Construction and Retail

Nationally, retail sales are slower than anticipated. YTD sales are only 1.3% ahead of last year. The growth of the Construction Sector may be constrained by the lack of trained construction workers.

- The growth of the Construction Sector is constrained by the lack of trained workers.
- Nonseasonally adjusted construction spending is at its highest level since May 2008.
- Colorado ranks high for gains in construction jobs.
- Construction boom update: Colorado wages exceed national averages.
- Best Buy in Broomfield has announced it is closing on October 31.
- A January restructuring caused Macy's to shutter 14 stores and it recently announced it will close an additional 35 to 40 stores in early 2016. The company runs 770 Macy's stores and has closed 52 locations over the last five years while opening 12. It is not known if Colorado stores will be closed.
- Broomfield to buy the former Safeway property for \$3.6 million, a little more than a year after the grocer closed.



Other Snapshots

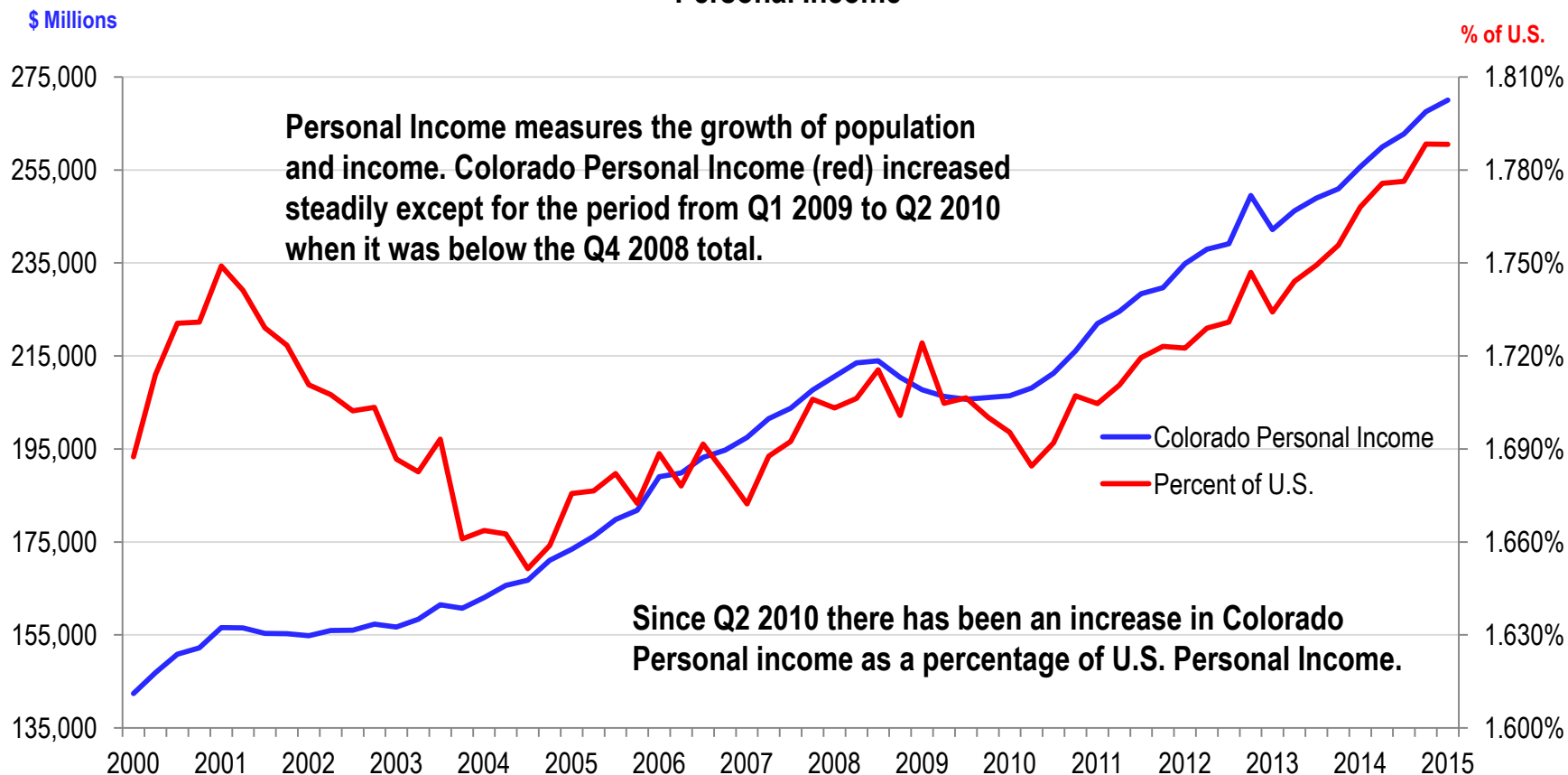
Personal Income, Oil, Construction

This section includes charts that make the following points:

1. Since the end of the Great Recession, Colorado's Personal Income has risen at a faster rate than the U.S.
2. Oil prices have declined; however, Colorado oil production remains at record levels. There may be other business issues that could cause problems.
3. The Colorado Construction Sector remains strong. It has accounted for almost 19% of job growth this year.
4. Changing demographics has the potential to drive sustained growth in the Construction Sector for several years.
5. New car registrations remain strong.

Personal Income

Personal Income



Source: BEA.

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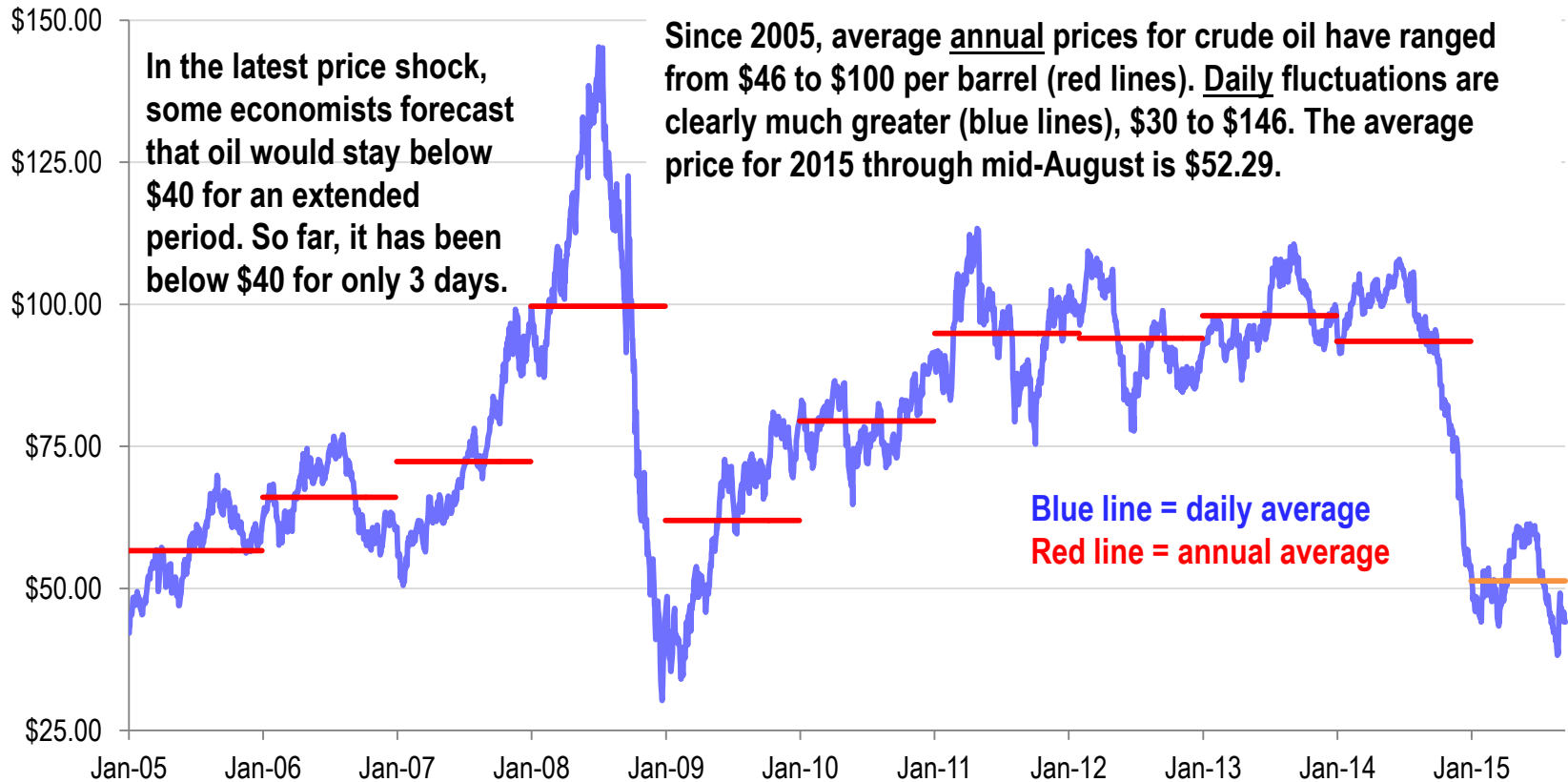
<http://cber.co>

Crude Oil Prices

West Texas Intermediate

Dollars
per Barrel

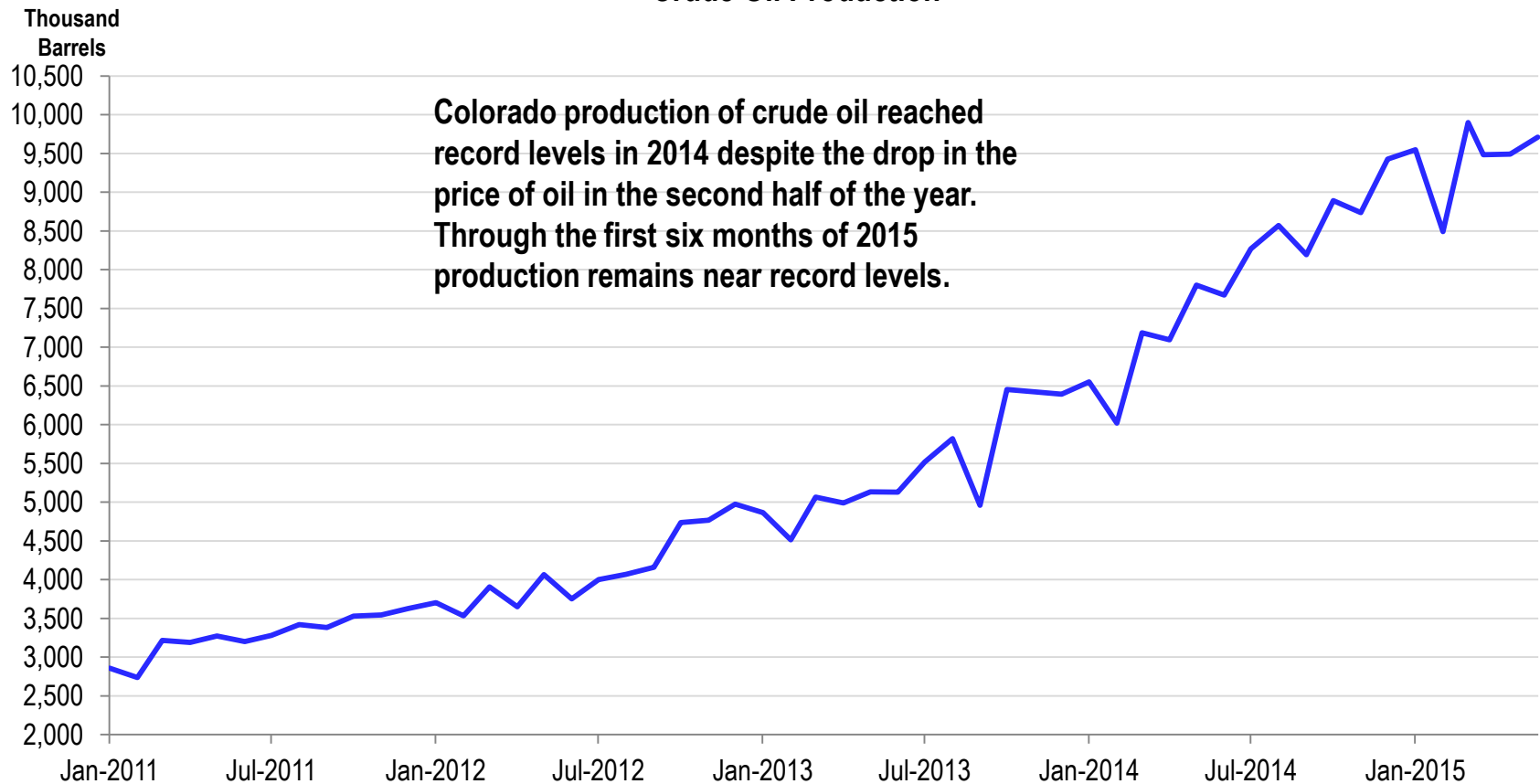
Crude Oil Prices: West Texas Intermediate, Cushing, Oklahoma



Source: FRED, EIA.

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

Crude Oil Production

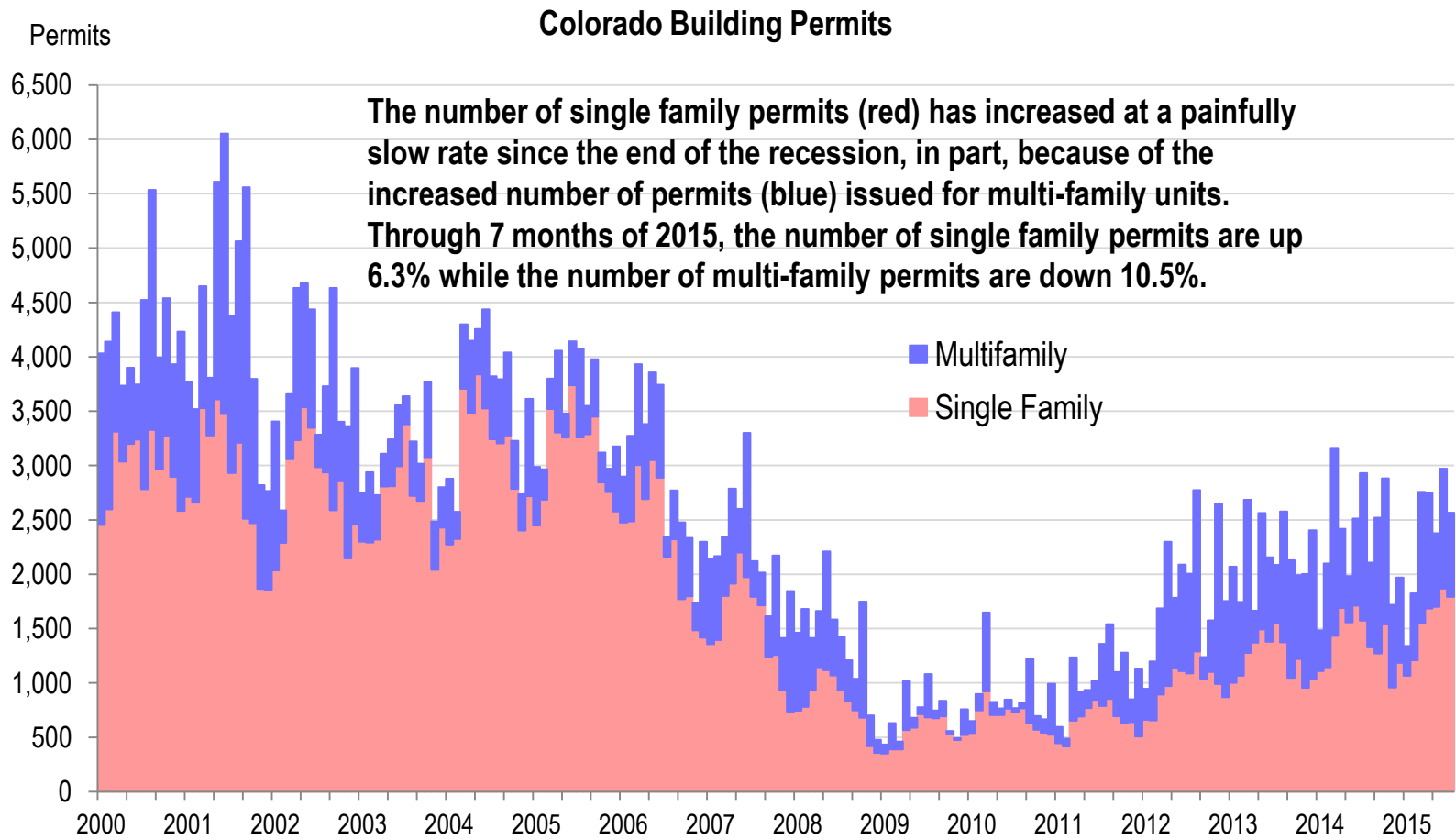


Source: EIA.

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Colorado Building Permits (Units)

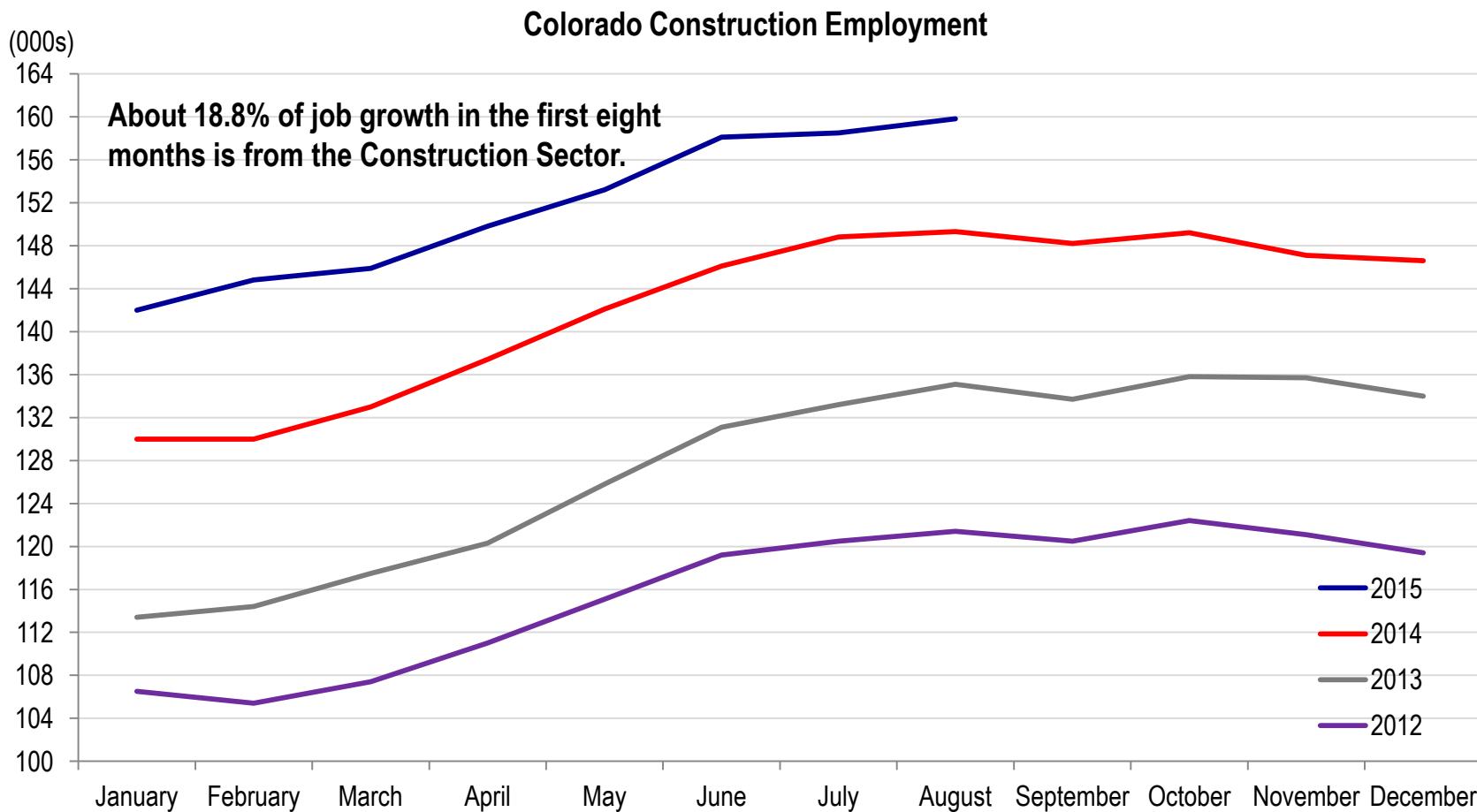


Source: TAMU Real Estate Center, U.S. Census Bureau.

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Colorado Construction Employment 2012 to 2015



Source: Bureau of Labor Statistics, NSA.

Percentage of Population by Category U.S. and Colorado

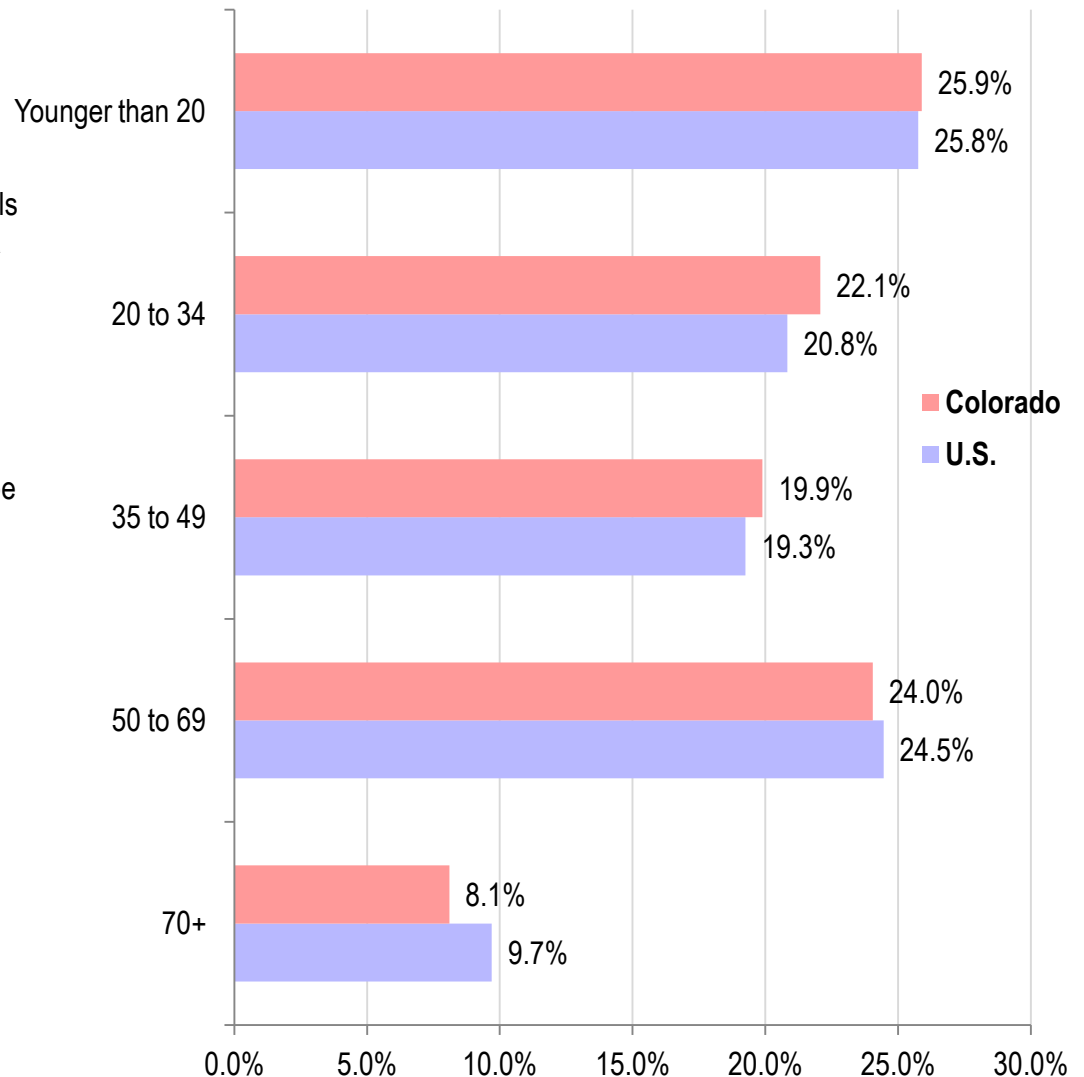
The age breakdown of the U.S. (blue) and Colorado (red) population shows a high percentage of millennials (20 to 34) and baby boomers (50 to 69). Colorado is a “younger” state than the U.S.

In a nutshell, baby boomers will be downsizing or re-locating. Some millennials are living with their parents or in a group situation (four people sharing rent in a house). As their financial situation improves they will be moving to multi-family or single family units and ultimately forming households. Changes in these two categories should benefit the Construction Sector for several years.

Total Colorado population (July 1, 2014) is 5,355,866 and the breakdown by category is:

- <20 1,386,838
- 20 to 34 1,181,859
- 35 to 49 1,065,346
- 50 to 69 1,288,037
- 70+ 433,786

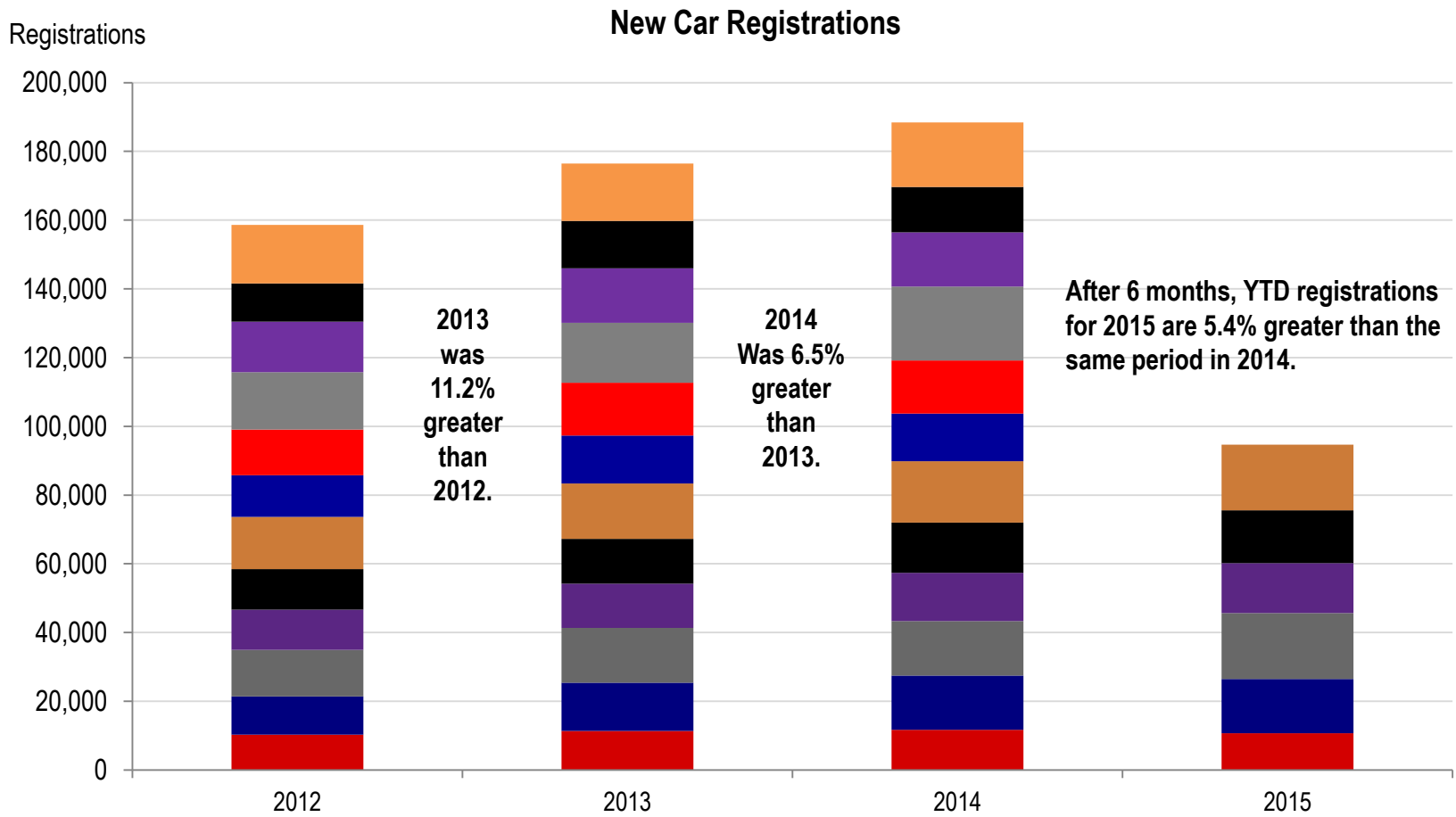
Percentage of Population by Category



Source: Census Bureau.

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New Car Registrations



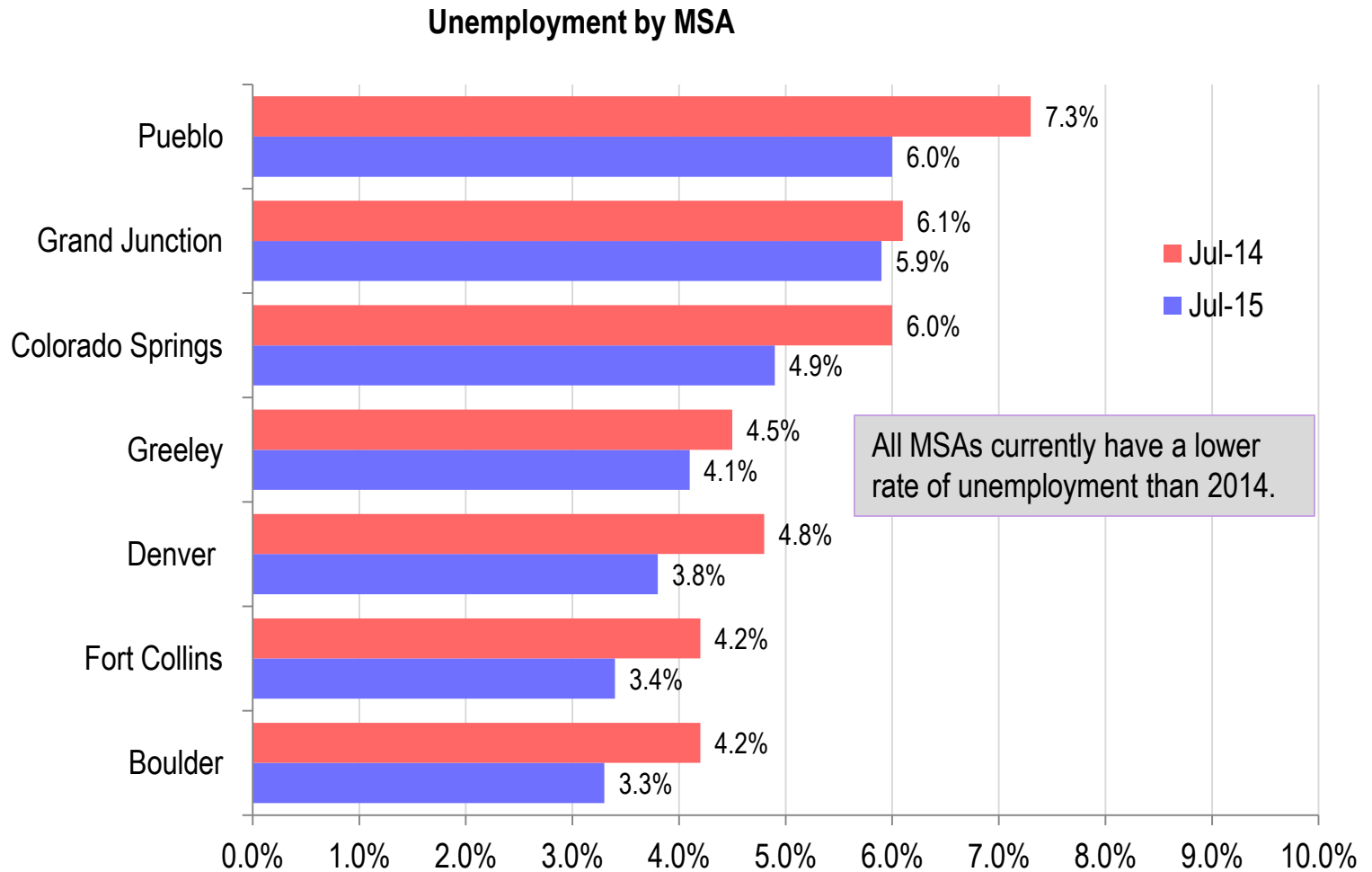
Source: Colorado Auto Dealers Association.

Note: Data is in descending order with December at the top and January at the bottom.



Summary and Total Jobs Added

Unemployment by MSA 2014 vs. 2015



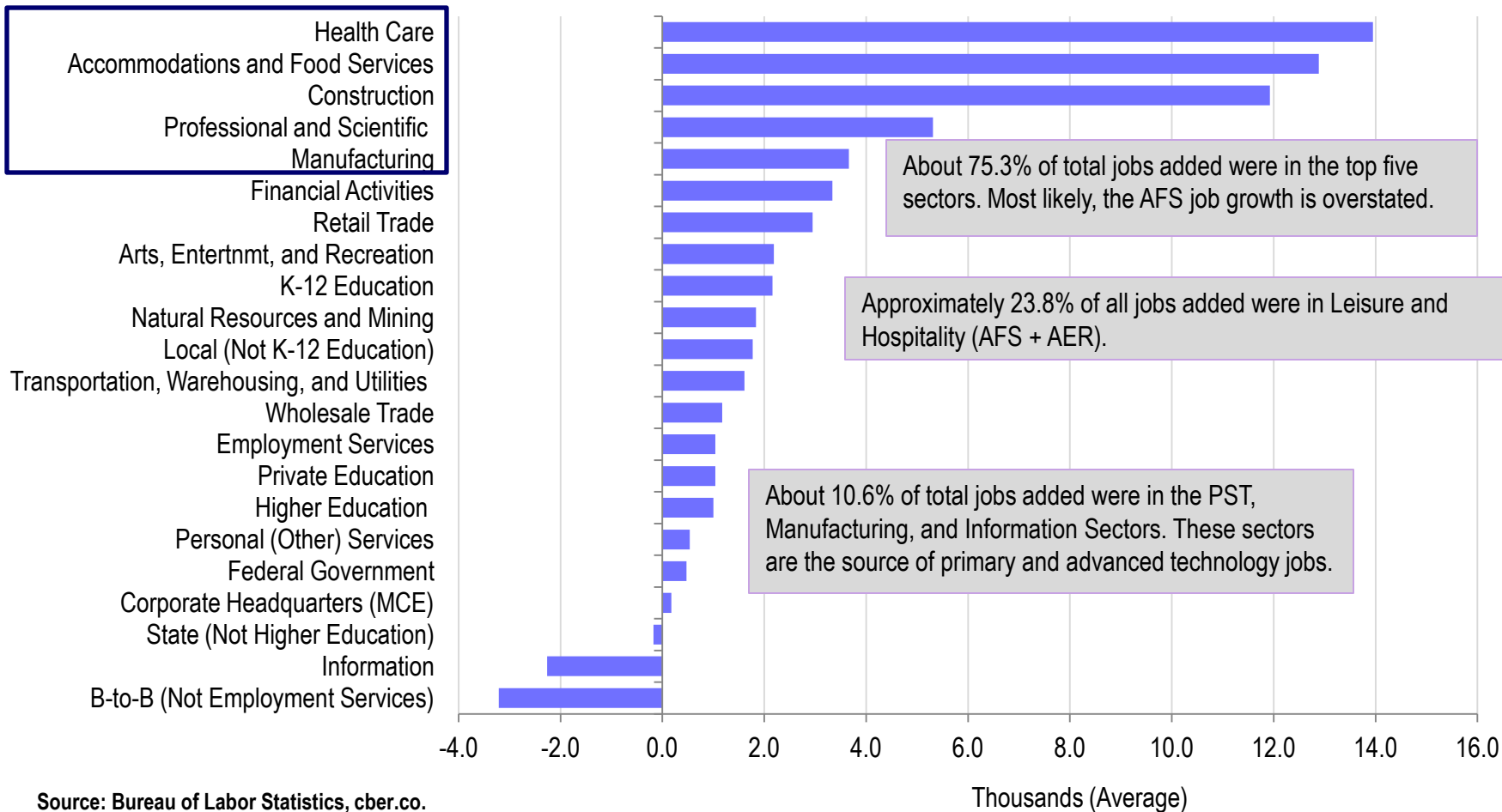
Source: Bureau of Labor Statistics, NSA. Note: MSA unemployment lags by one month and is reported on a non-seasonally adjusted basis.

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Change in Employment First Eight Months 2015

Number of Jobs Added



Source: Bureau of Labor Statistics, cber.co.

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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.

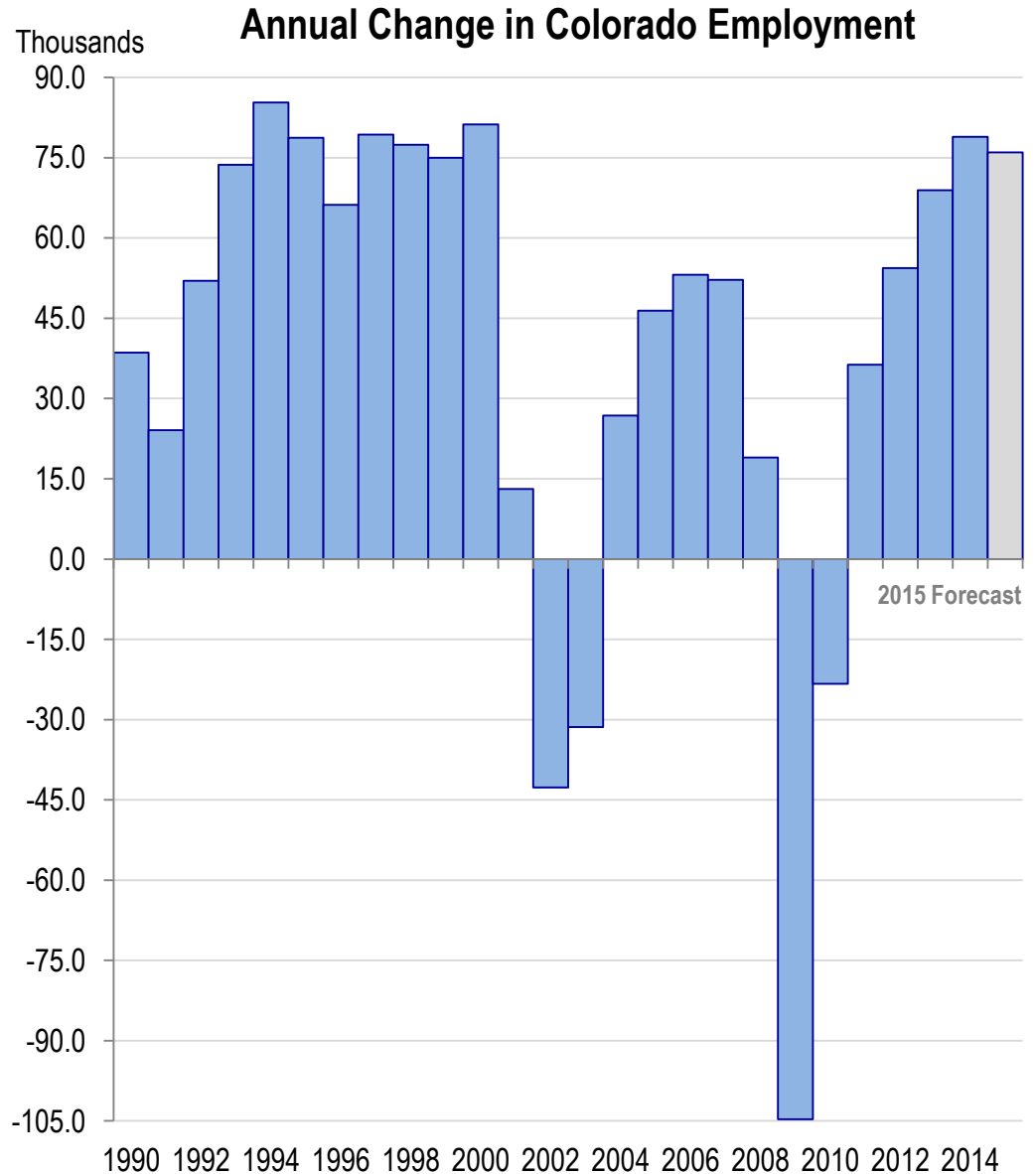
The state is projected to add 73,000 to 79,000 jobs in 2015, an increase of 3.0% to 3.2%.

For the first eight months of 2015 Colorado employment is 63,400 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 and Employment has projected that a significant upward adjustment will be made to the Q4 2014 data and data for the first four months of 2015. These revisions will be made in March 2016. Total employment for 2015 should be in the range of 73,000 to 79,000. This is the level of job growth forecasted by cber.co for 2015.

Source: Bureau of Labor Statistics, cber.co.

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<http://cber.co>



Reasons to Feel Good about the Colorado Economy

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

<p>Momentum – Revised employment data for 2014 will show the Colorado economy had strong momentum coming into 2015. Q1 was equally as strong. These revisions to the 2015 data will be made in March 2016.</p>	<p>Consumer Sentiment – Unofficial measures of consumer sentiment in Colorado are the rising prices in restaurants, longer waiting lines in restaurants, and shoppers carrying bags out of retail stores. These indicators suggest solid consumer sentiment in Colorado.</p>
<p>Job and Establishment Growth – The projected revisions to the job data shows there is solid and diversified job growth much stronger than the current data.</p>	<p>Construction - Growth in the Construction Sector will be fueled by millennials moving into homes and forming households over the next couple of years.</p>
<p>New Car Registrations – Colorado new car registrations remain strong.</p>	<p>Tourism – The Colorado Tourism Sector is having another solid year.</p>
<p>Property Taxes - Local governments and school districts will benefit from higher property values and property taxes.</p>	<p>Government Spending – Governments have demonstrated they have money they are willing to spend.</p>

Economic Risks and Concerns

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

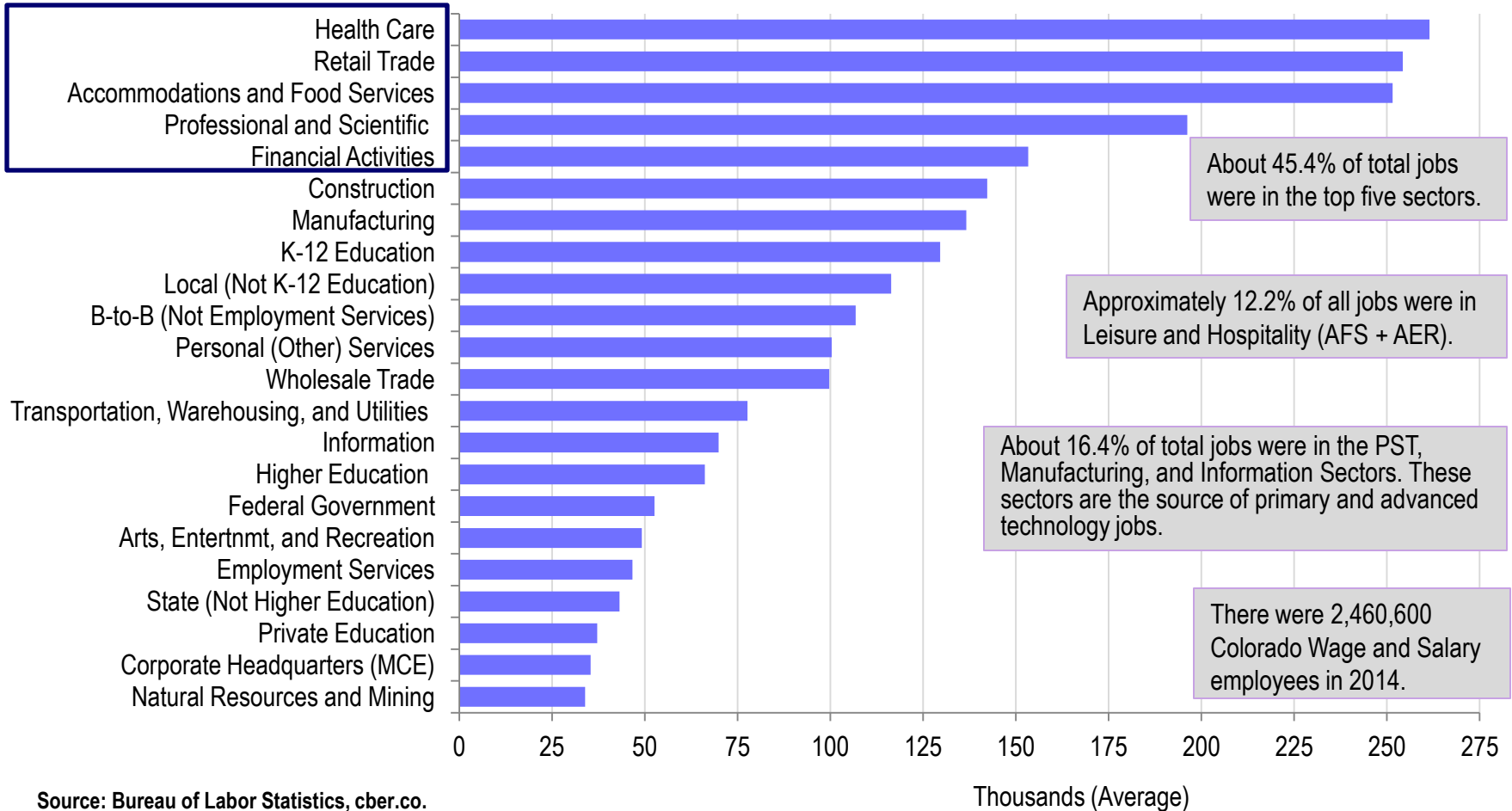
<p>Low Unemployment Rate– Industries such as construction, software, and advanced manufacturing have had difficulty finding trained workers because of low unemployment rates in key occupations.</p>	<p>Weak Wage Growth – Average overall wage growth is weak; however, above-average wage growth has occurred in occupations where there is high demand, such as construction and high-tech occupations.</p>
<p>Manufacturing – The Manufacturing Sector has added jobs since the end of the recession, primarily as a result of demand for renewable energy products. The Manufacturing Sector is important because it provides primary jobs – jobs that bring in wealth from outside Colorado.</p>	<p>Oil and Gas Industry – Some Colorado researchers have surmised the state would tank when the price of oil fell; however, there has not been a significant decline in production and employment. Rig count is down, but production has remained at record levels. Some consolidation has occurred.</p>
<p>Inflation – There is a concern at the national level that inflation is growing below the target rate. Colorado inflation will be above the target rate.</p>	<p>Information Sector – The sector continues to shed jobs at an alarming rate.</p>
<p>Professional, Scientific, and Technical Sector - The number of jobs being added in the PST Sector is solid, but below expectations.</p>	<p>Affordable Housing - It will be more difficult to find attainable and affordable housing as a result of the continued increases in housing prices.</p>



Appendix

2014 Colorado Wage and Salary Employment

Employment



Source: Bureau of Labor Statistics, cber.co.

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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 Eight 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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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 road map for Colorado. As well, he was a co-founder of the Colorado Photonics Industry Association, a trade group for Colorado’s Photonics cluster. Horvath has been an active board member of the group since its inception.

Horvath has also served on the Board of Directors for the Economic Development Council of Colorado, Northwest Denver Business Partnership, Adams County Economic Development, and Broomfield Economic Development Corporation. Horvath has also been the lead for the photonics/electronics cluster, which is part of OEDIT’s early stage and proof of concept programs.