



cber.co Colorado Economic Review Through April 2016

Colorado-based Business and Economic Research
Prepared
May 25, 2016

Overview of Economic Review

This chartbook provides a series of graphs, tables, and discussions that review changes in the global, U.S. and Colorado economies. The global economy continues to be fragile, while the U.S. and Colorado economies are on solid footing. Based on data through the first four months, the state is on track to add 69,500 jobs in 2016. This review is divided into the sections listed below.

Global and U.S. Economy

- Global and U.S. GDP
- U.S. Economy
 - Labor
 - Financial Markets and Corporate Profits
 - Services, Manufacturing, Retail, and Savings
 - Construction and Housing
 - Risks and Reasons to Feel Optimistic

The Colorado Economy

- Population, Employment, and Wages
- Unemployment
- 2016 Colorado Employment by Performance Category
 - Focus on Key Industries in the Volatile Category
Manufacturing, Construction, Extractive Industries
- Summary
- Appendix

Summary of Key Data

Global and United States Economy

Global GDP

2016 Global and Category Real GDP Growth

The current IMF forecast calls for slightly stronger growth in 2016 than in 2015; however, the rate of growth for 2016 was revised downward in January and April.

- ↑ Global 3.2%
- → Mature 1.9%
- ↑ Emerging 4.1%

2016 Real GDP Growth in Advanced Economies

- ↓ Euro Area 1.5%
- ↓ Germany 1.5%
- → France 1.1%
- ↑ Italy 1.1%
- ↓ Spain 1.0%
- → Japan 0.5%
- ↓ U.K. 1.9%

2016 Real GDP Growth in Emerging Economies.

- ↑ Former CIS States -1.1%
- ↑ India 7.5%
- → Emerging and Developing Europe 3.5%
- → Brazil -3.8%
- ↓ Mexico 2.4%
- ↑ Middle East 3.1%
- ↓ Sub-Saharan Africa 1.2%

United States

Real GDP – Annual Real GDP growth will be in the 2.3% to 2.7% range for 2016, similar to 2015. Most likely it will be below the midpoint of that range.

Real Personal Consumption – Annual consumption growth will be in the 2.6% to 3.0% range for 2016, i.e. the consumer will continue to drive the economy.

U.S. Employment – The U.S. will add 2.7 million jobs in 2016. Job growth is currently on target to reach that level of growth.

Unemployment Rate – Average unemployment for 2016 will be 4.6% to 4.8%.

Consumer Price Index – The CPI is estimated to increase by 1.7% in 2016. Through 4 months the U.S. CPI is close to 1.1%.

Price of a Barrel of Oil (WTI) – Oil closed the year at \$36 per barrel. It dropped to \$26 in early 2016 and is at \$50 per barrel.

Case Shiller Housing Prices – In 2015 U.S. housing prices increased by 5.3%, but will appreciate at a slower rate in 2016.

Standard and Poor's 500 – The S&P 500 posted a loss of 0.7% in 2015. It remains below its 2015 peak.

The U.S. economy will post solid growth in 2016.



Global and U.S. GDP

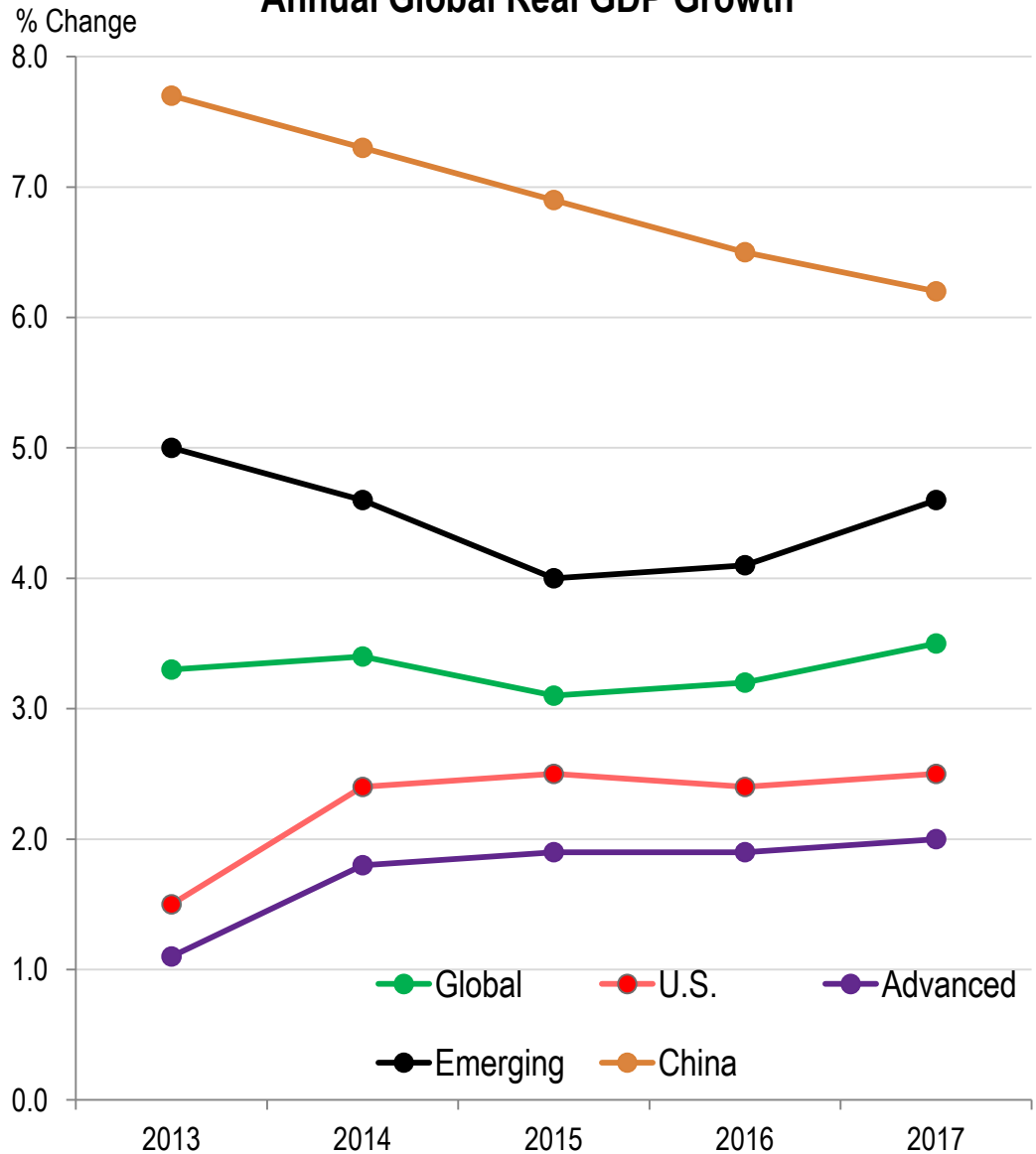
Global Real GDP Growth



In April the International Monetary Fund updated its global forecasts. The IMF forecasts for global, advanced economies, emerging countries, and U.S. GDP growth rates were lowered. Global GDP growth in 2017 will be slightly higher.

The IMF projected that global GDP growth (green) in 2016 would increase at a lower than anticipated rate because of slower GDP growth in China (gold), market volatility, and political developments throughout the world. The IMF expressed concerns about secular stagnation and deflation.

Annual Global Real GDP Growth



Source: IMF, January 2016.

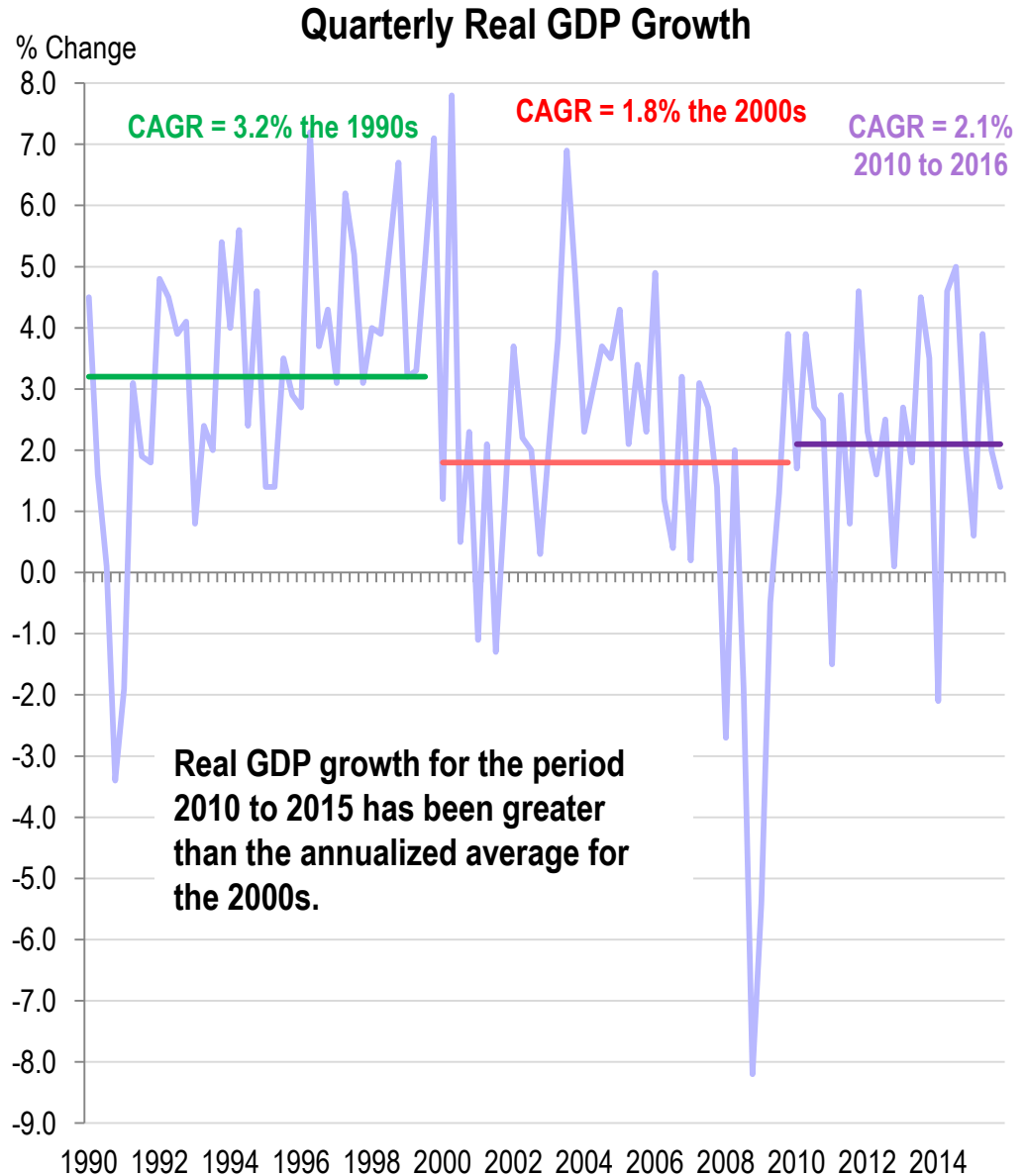
Real US GDP Growth Quarterly

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 2015 (purple line).

Real GDP growth for Q4 2015 was revised upward to 1.4% and the total for the year was 2.4%. The first estimate of Q1 GDP growth was 0.5%. A survey conducted by the Philadelphia Fed projects 2016 Real GDP growth to be 1.7%.

Real GDP growth for recent years was:

- 2010 2.5%
- 2011 1.6%
- 2012 2.2%
- 2013 1.5%
- 2014 2.4%
- 2015 2.4%



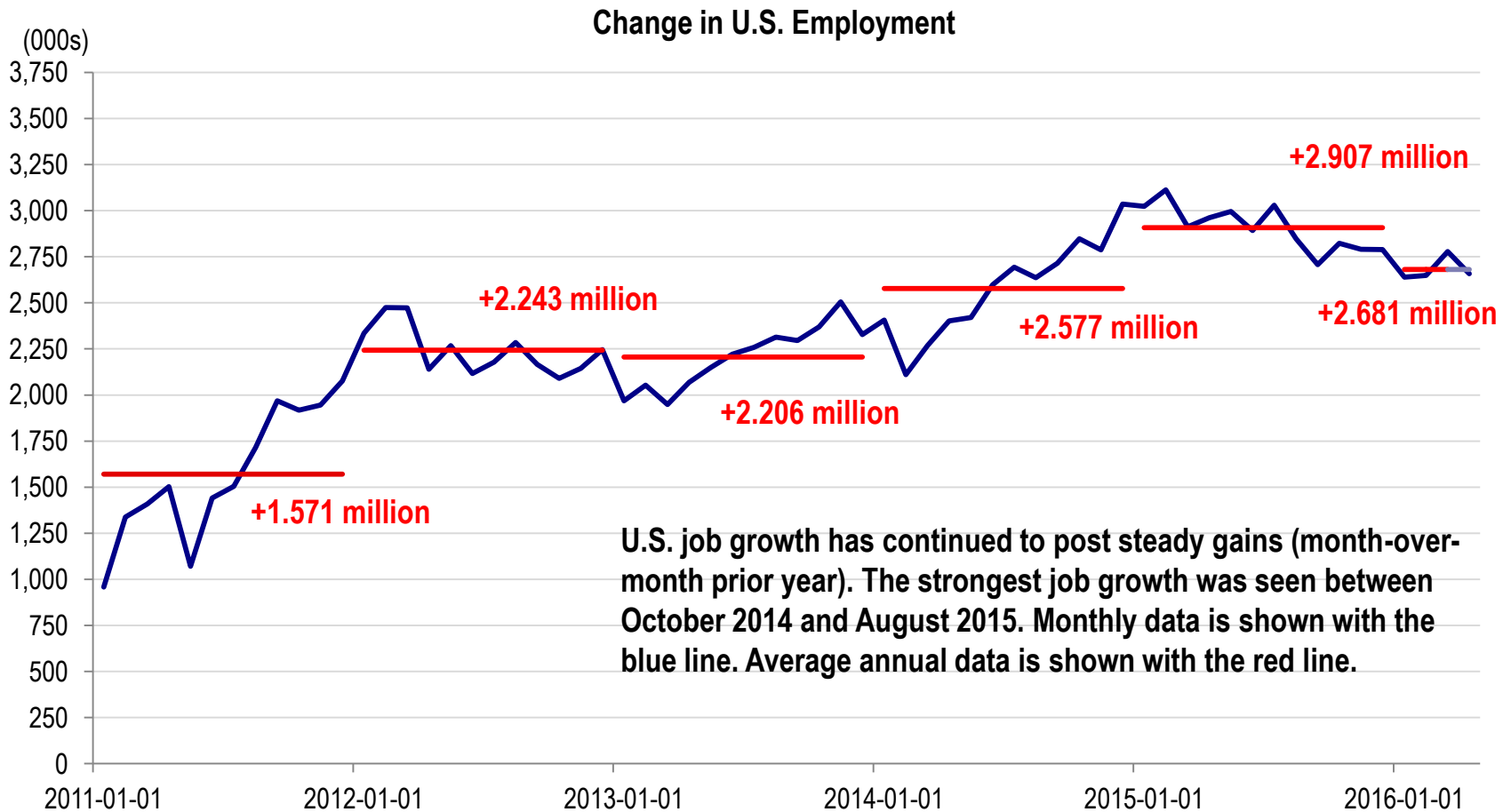
Source: Bureau of Economic Analysis, cber.co, Note GDP chained on 2009.



The United States Economy

Labor

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



Source: Bureau of Labor Statistics, NSA.

● Unemployment

● May 20, 2016 Release

●

April 2016 vs. March 2016

Last Month

The BLS reported that unemployment rates for April 2016 vs. March 2016 were:

- Significantly lower in 5 states.
- Higher in 4 states.
- Stable in 41 states and the District of Columbia.

April 2016 vs. April 2015

One Year Ago

The BLS stated that unemployment rates for April 2016 vs. April 2015 were:

- Significantly lower in 19 states.
- Significantly higher in only two states (Wyoming and North Dakota)
- Stable in 20 states.

In the short-term the unemployment rate for most states is fairly stable; however, there may be room for the state rates to fall slightly lower in the mid to long term.

Source: Bureau of Labor Statistics, SA.

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 7.92 million at the end of April. This is 1.2 million above the low point in 2006 and 7.5 million below the high point in 2009.

The unemployment rate for April was 5.0%, unchanged from the end of 2015.

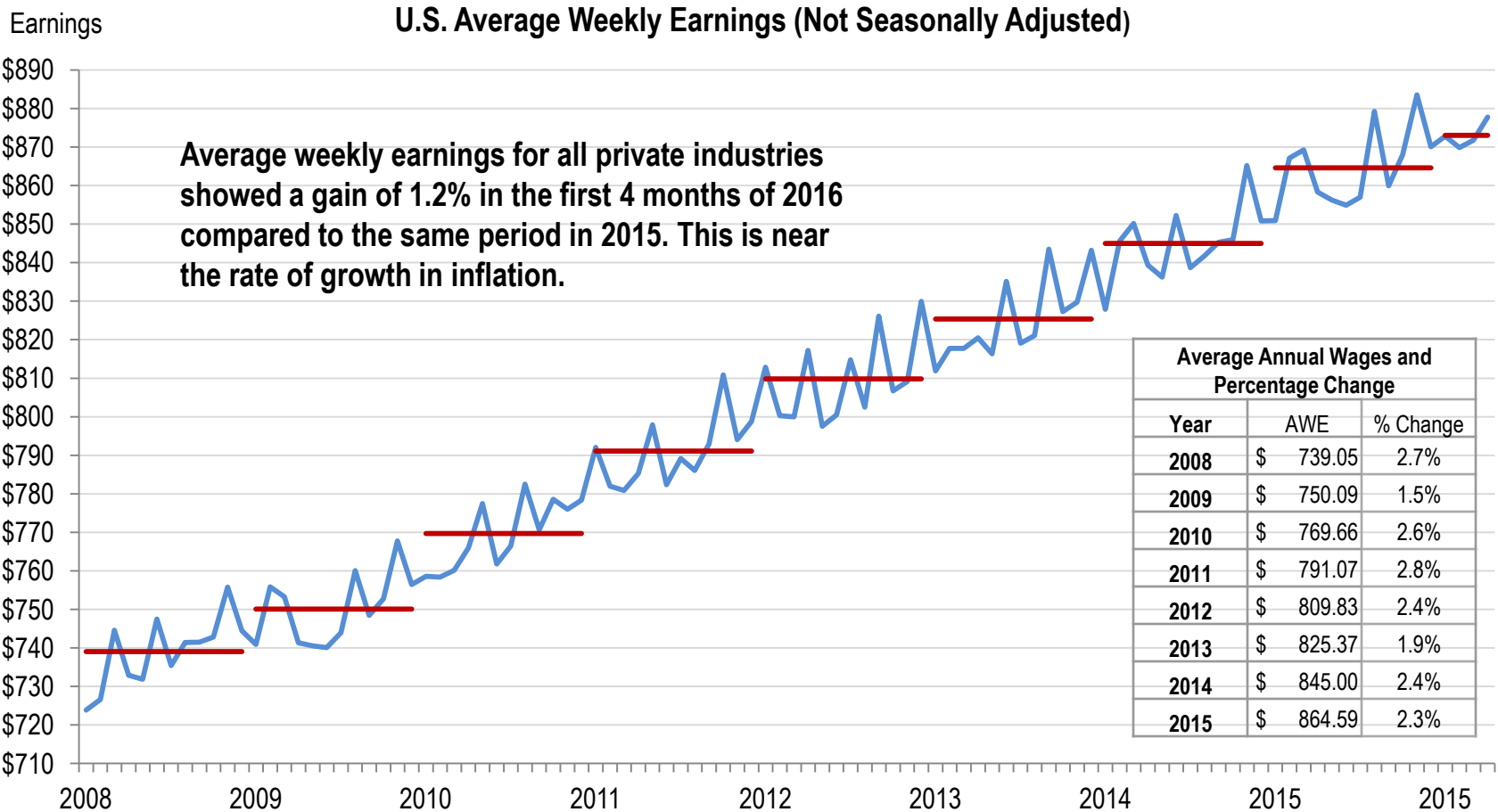
Average unemployment for 2015 was 5.3%, down from 6.2% in 2014 and 7.4% in 2013.



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

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U.S. Average Weekly Earnings of All Employees (Private Sector)



Source: Bureau of Labor Statistics, NSA.



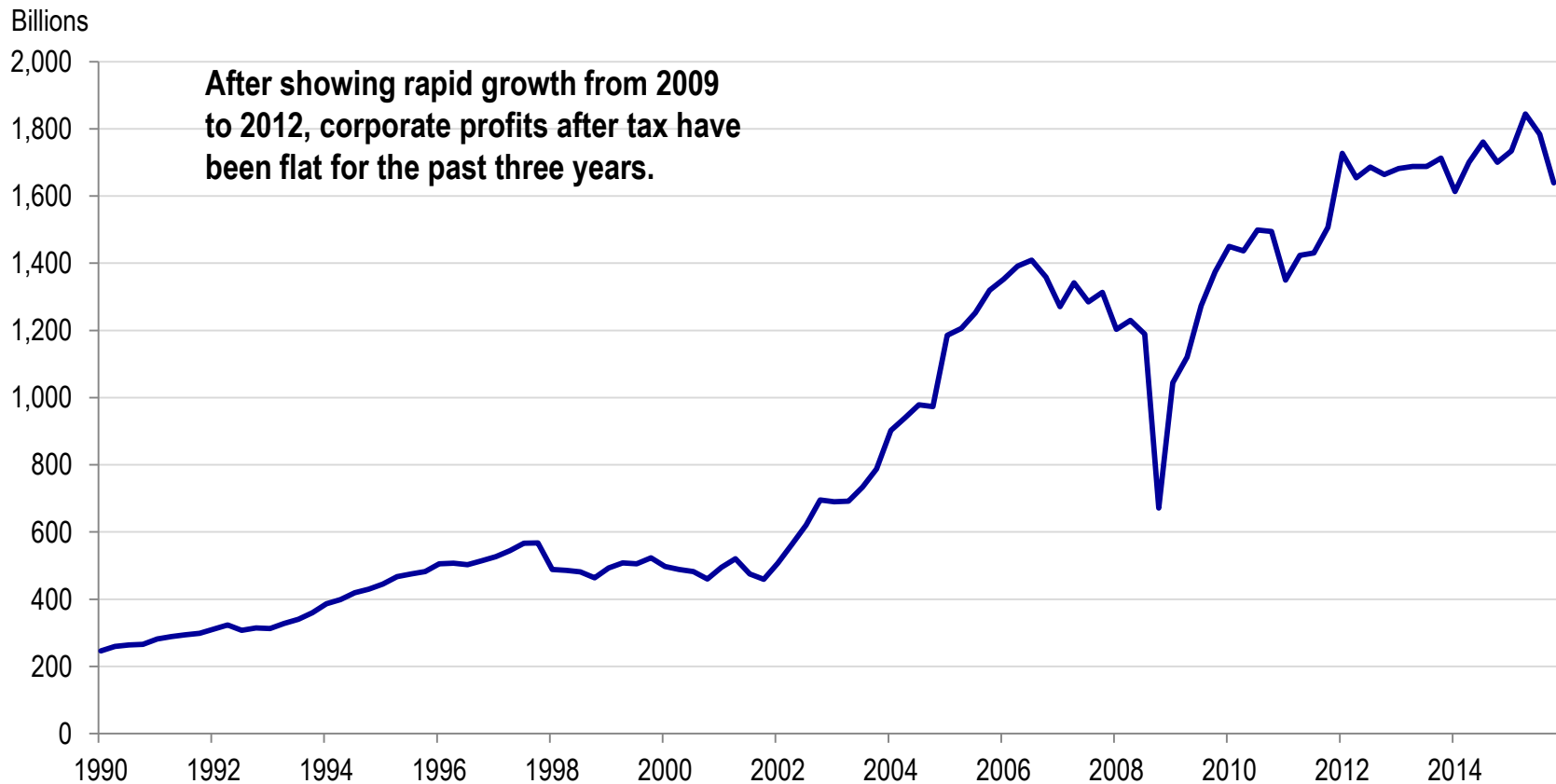
U.S. Economy

Financial Markets and Corporate Profits

Corporate Profits After Tax (without IVA and CCAdj)



Corporate Profits After Tax



Source: FRED, BEA.

● Is the Bull Dead or Is the Bull on Life Support?

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The S&P 500 peaked at 2,131 on May 21, 2015.

On May 25, 2016 the market closed at 2,090.

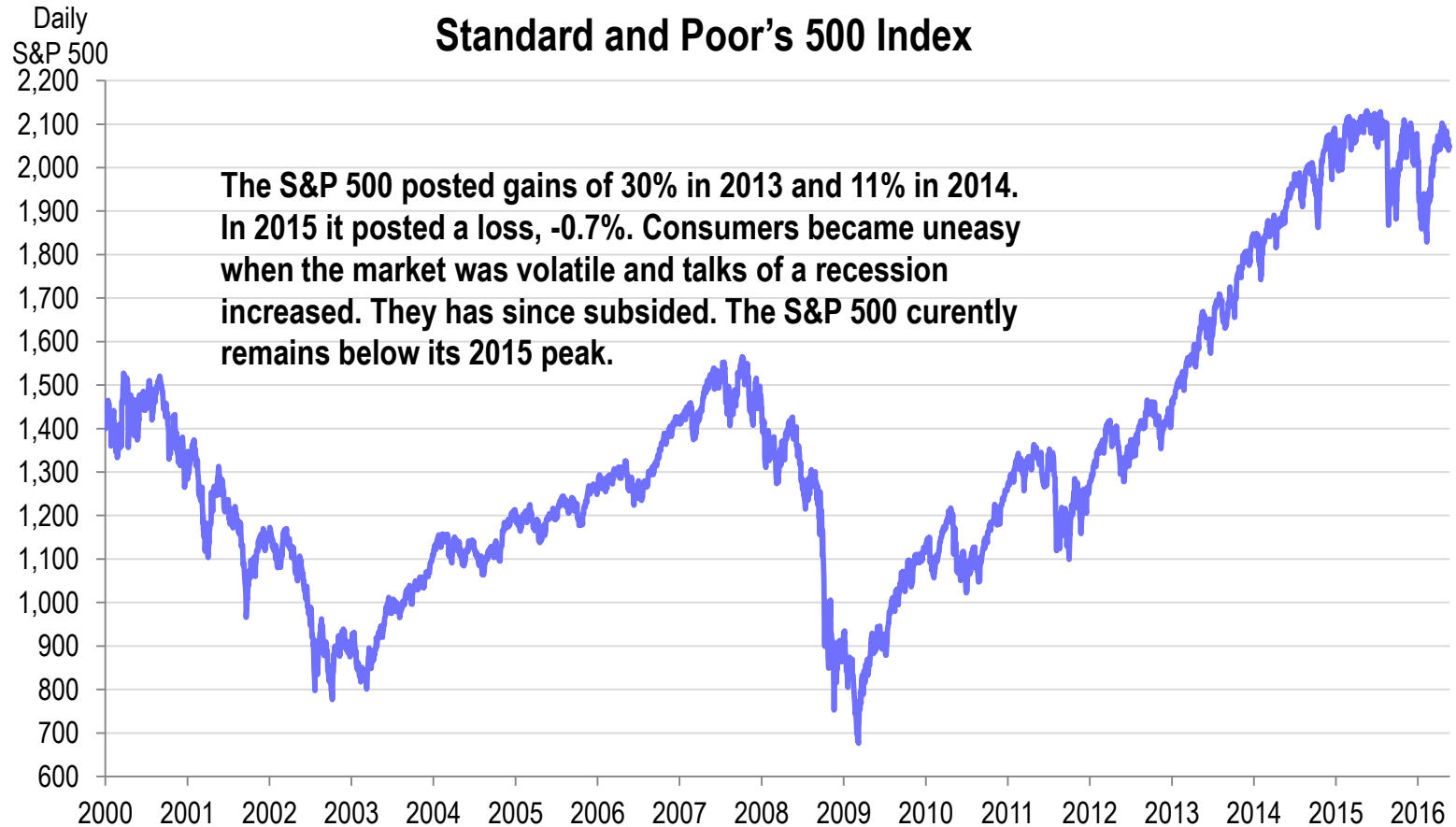
For the past year the market has moved sideways.

Is the bull dead, is it on life support, or does it really matter?

The correction has now lasted over a year and is on track to be the longest correction on the books.

The best news is that the Volatility Index has decreased, so there is less concern and worries about a recession in the near term.

Standard and Poor's 500 Index

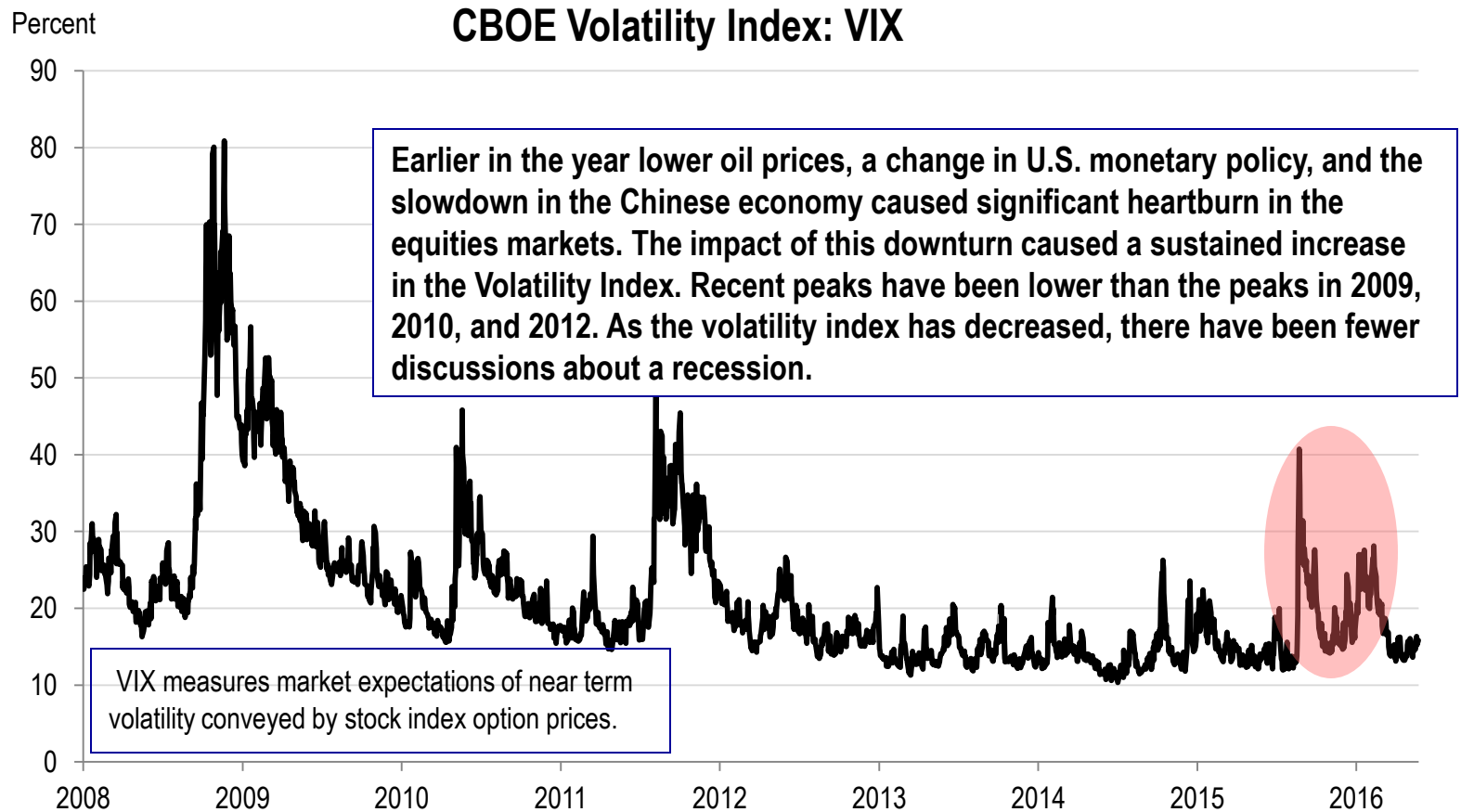


Source: FRED, S&P 500.

● CBOE Volatility Index

● VIX (VIXCLS)

●



Source: FRED, CBOE.



The U.S. Economy

Services, Manufacturing, Retail, and Savings

Services and Manufacturing

Mixed Messages

Purchasing managers in service and manufacturing companies are telling different stories.

- The index for purchasing managers in the services sectors has been above 50 every month since August 2009. Since January 2010 the range of the index has been 50.8 to 60.3. The index trended downwards at the end of 2015, but remained well above 50.
- Manufacturing purchasing managers became optimistic about the economy in mid-2009; however, their level of confidence has been more volatile. It was generally positive (49.5 to 59.0), but dropped back to 50 in both 2012 and 2013. It was at or below 50 from September, 2015 until February, 2016.

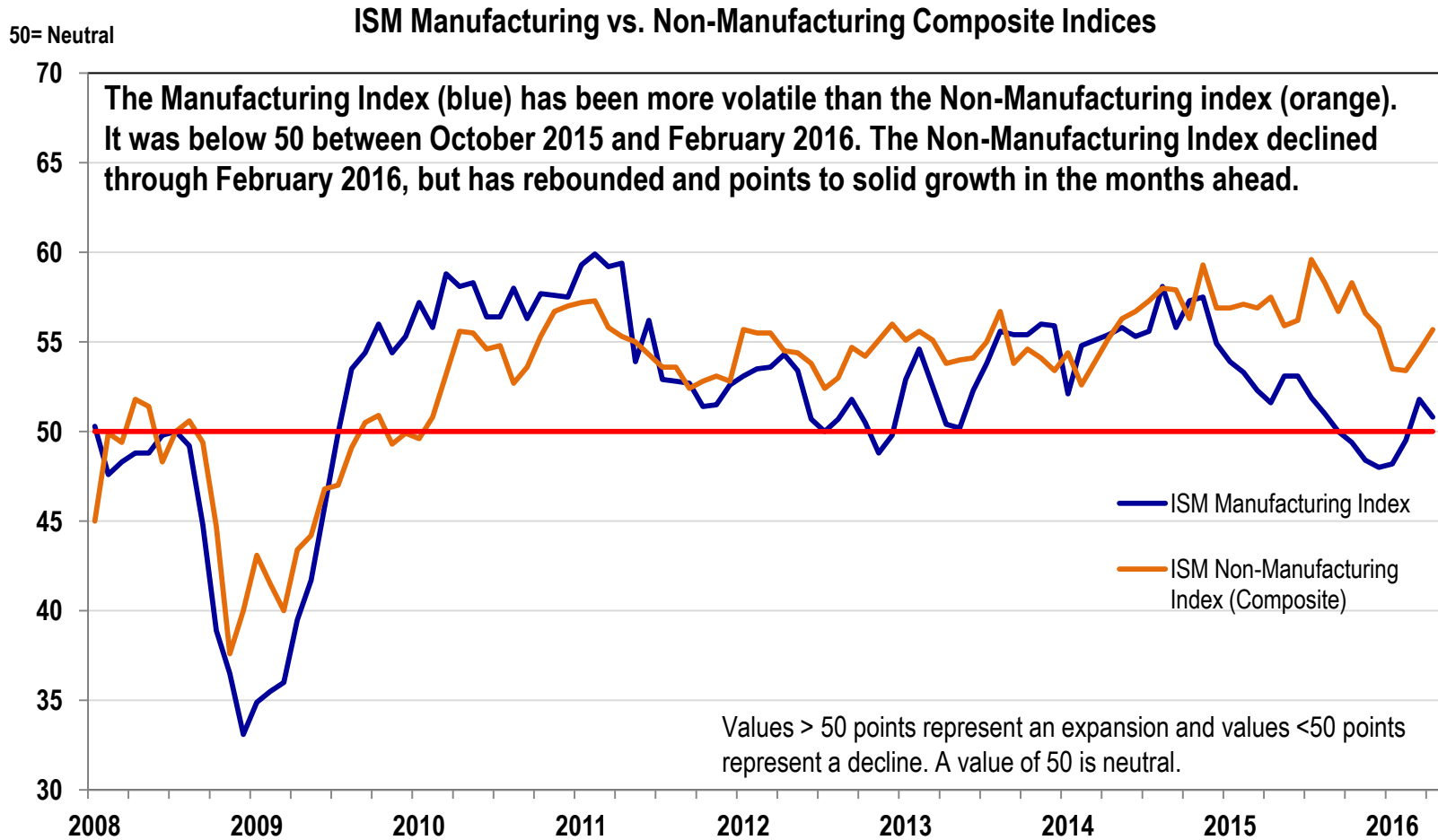
Manufacturing shipments increased at a strong rate between 2010 and 2012 and a solid rate between 2012 and 2014. Since mid-2014 shipments have decreased.

U.S. Manufacturing employment was flat in 2015. (By comparison, Colorado manufacturing has posted solid growth over the past 18 months).

Auto and light truck sales returned to pre-recession levels and posted record sales in 2015. The industry should continue to benefit from low fuel prices and interest rates in 2016, although at a slower rate of growth.

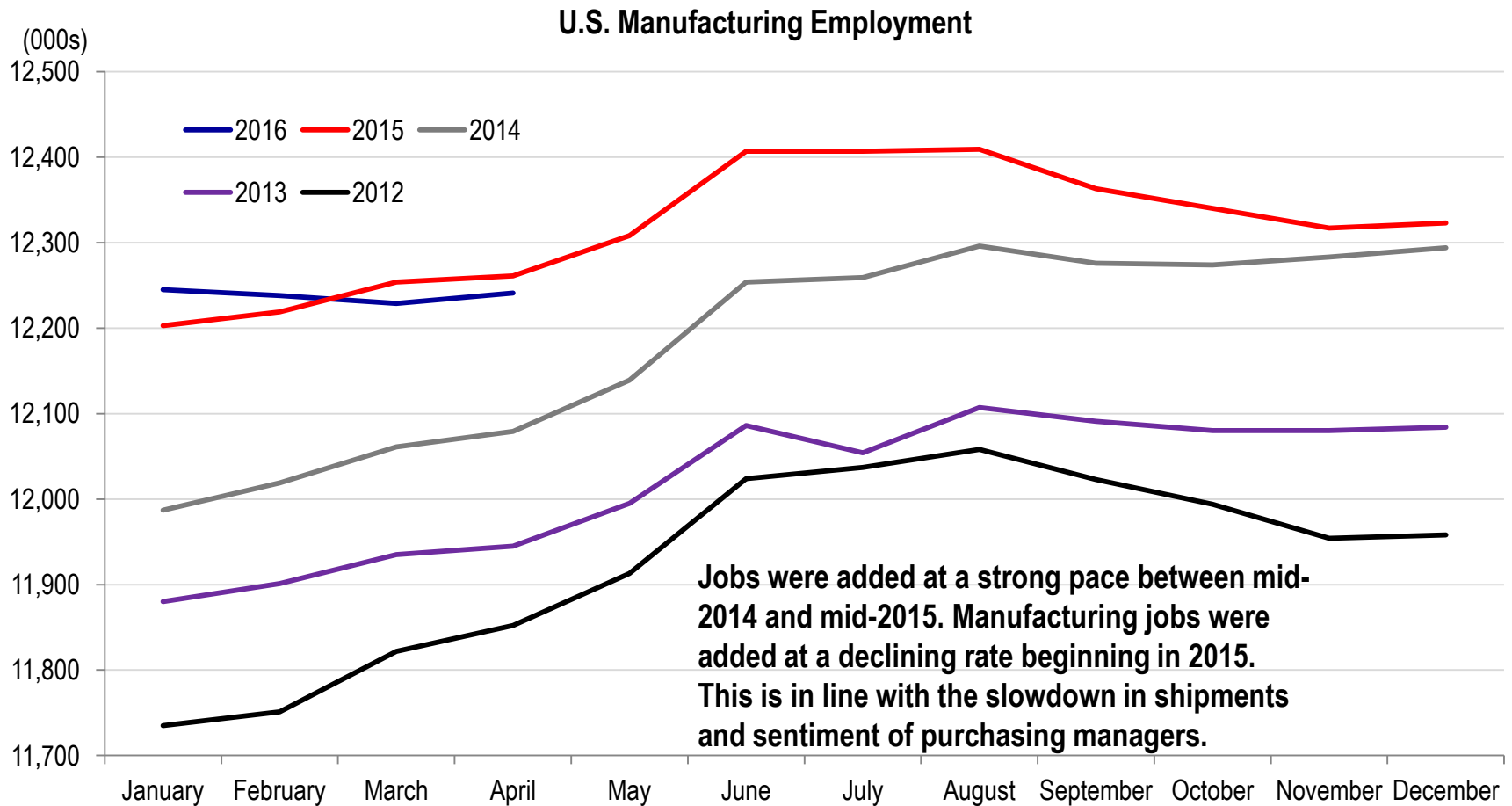
ISM PMI Composite Indices

Manufacturing vs. Non-manufacturing



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

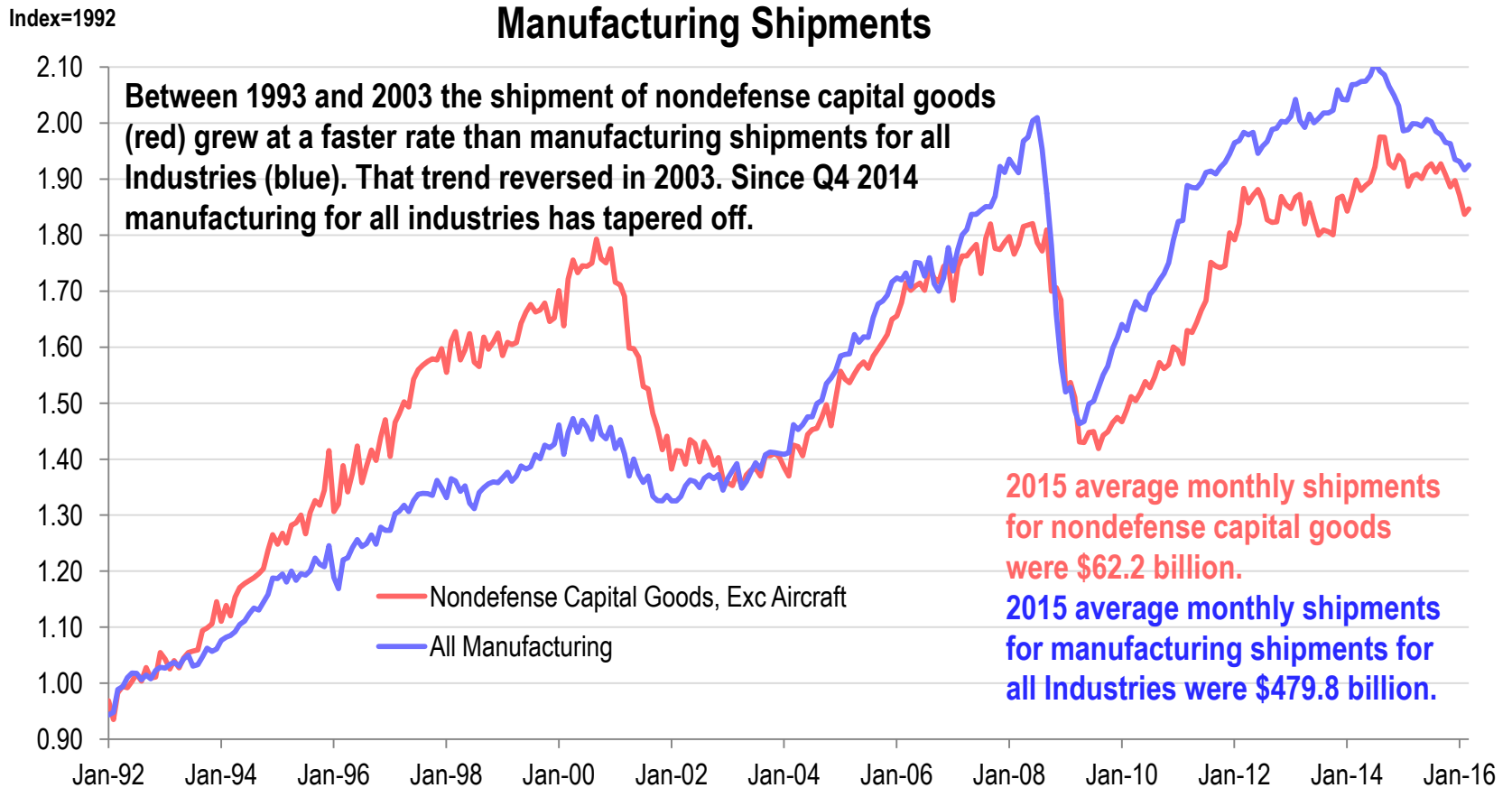
U.S. Manufacturing Employment 2012 to Current



Source: Bureau of Labor Statistics, NSA.

U.S. Manufacturing Shipments

All Industries vs. Nondefense Capital, Excluding Aircraft

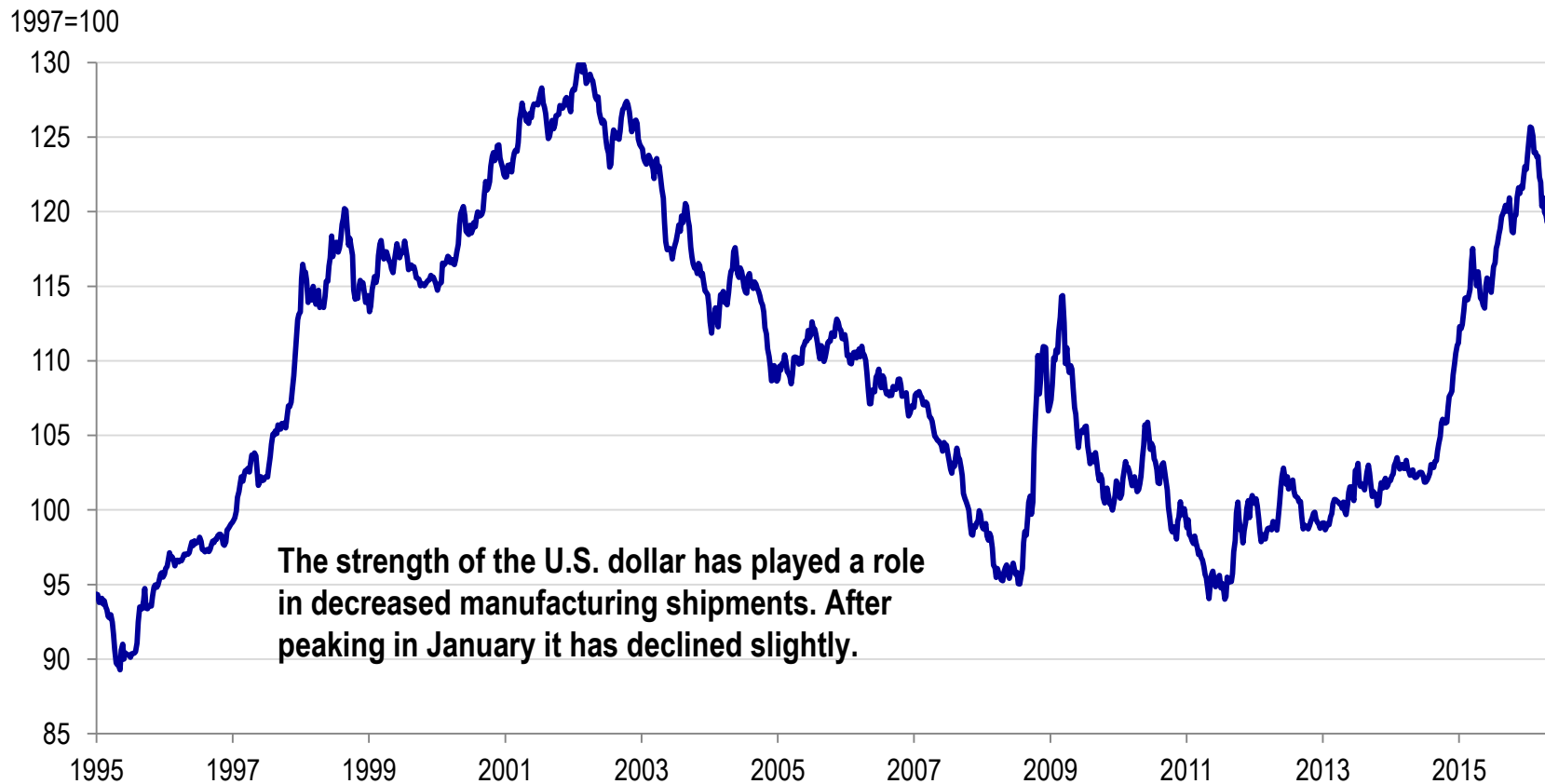


Source: FRED, SA. U.S. Bureau of the Census. Note: Not adjusted for inflation.

Trade Weighted U.S. Dollar Index: Broad

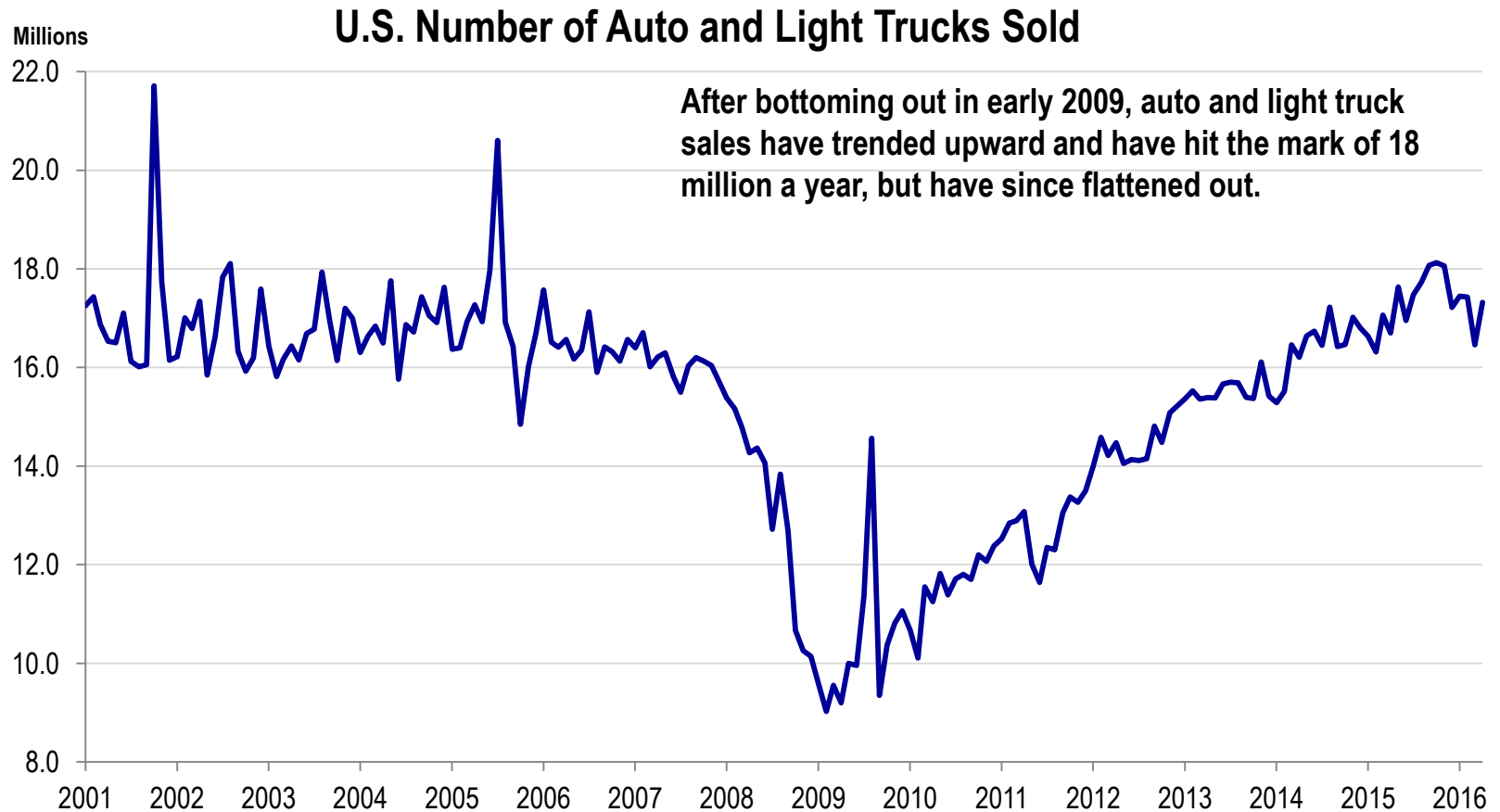


Trade Weighted U.S. Dollar Index: Broad



Source: FRED, The Federal Reserve.

U.S. Weekly Auto and Light Truck Sales



Source: FRED, BEA.

Note: Seasonally Adjusted Annualized Rate.

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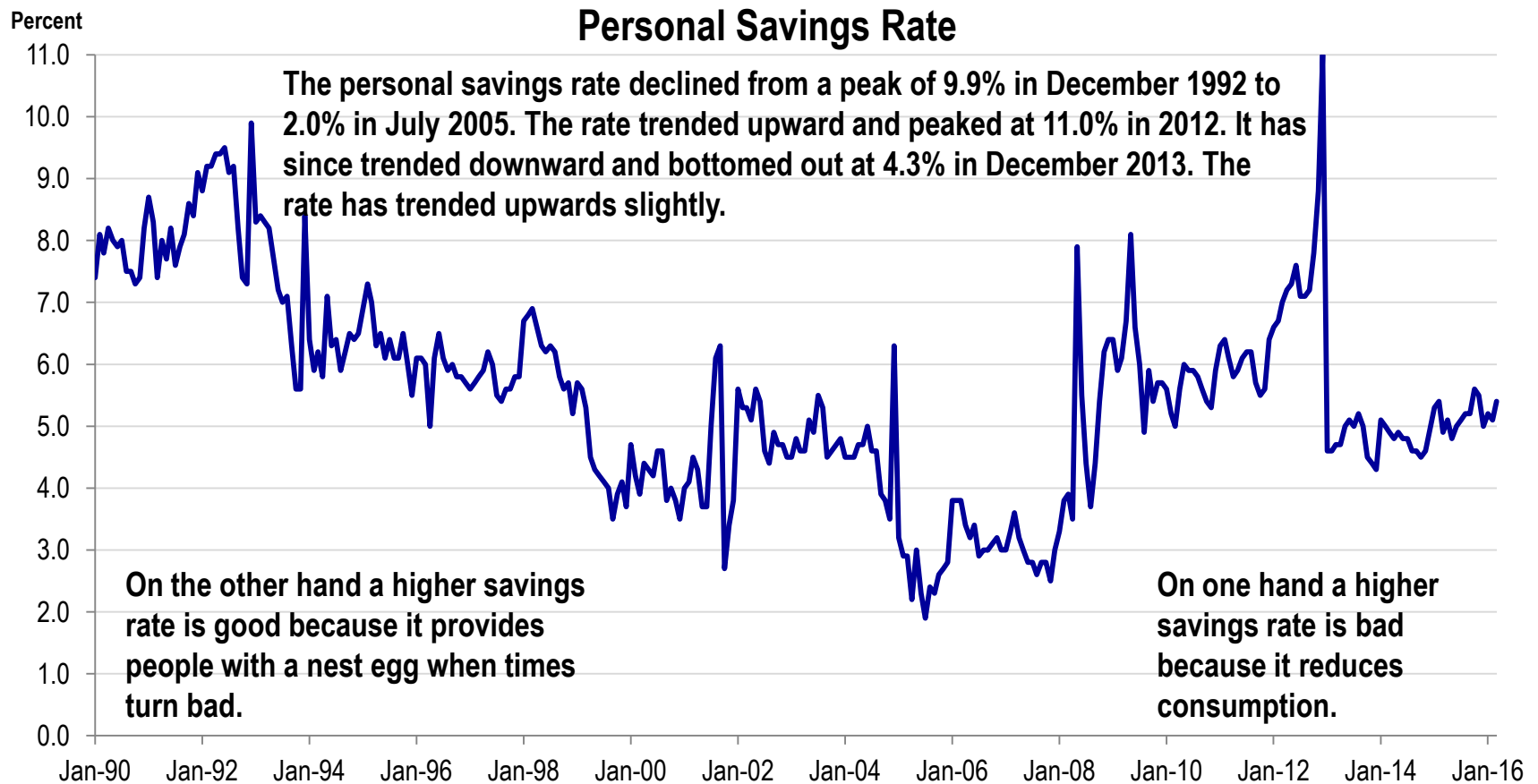
Cumulative Retail, Excluding Food Services Sales



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

U.S. Personal Savings Rate

Percentage of Disposable Personal Income

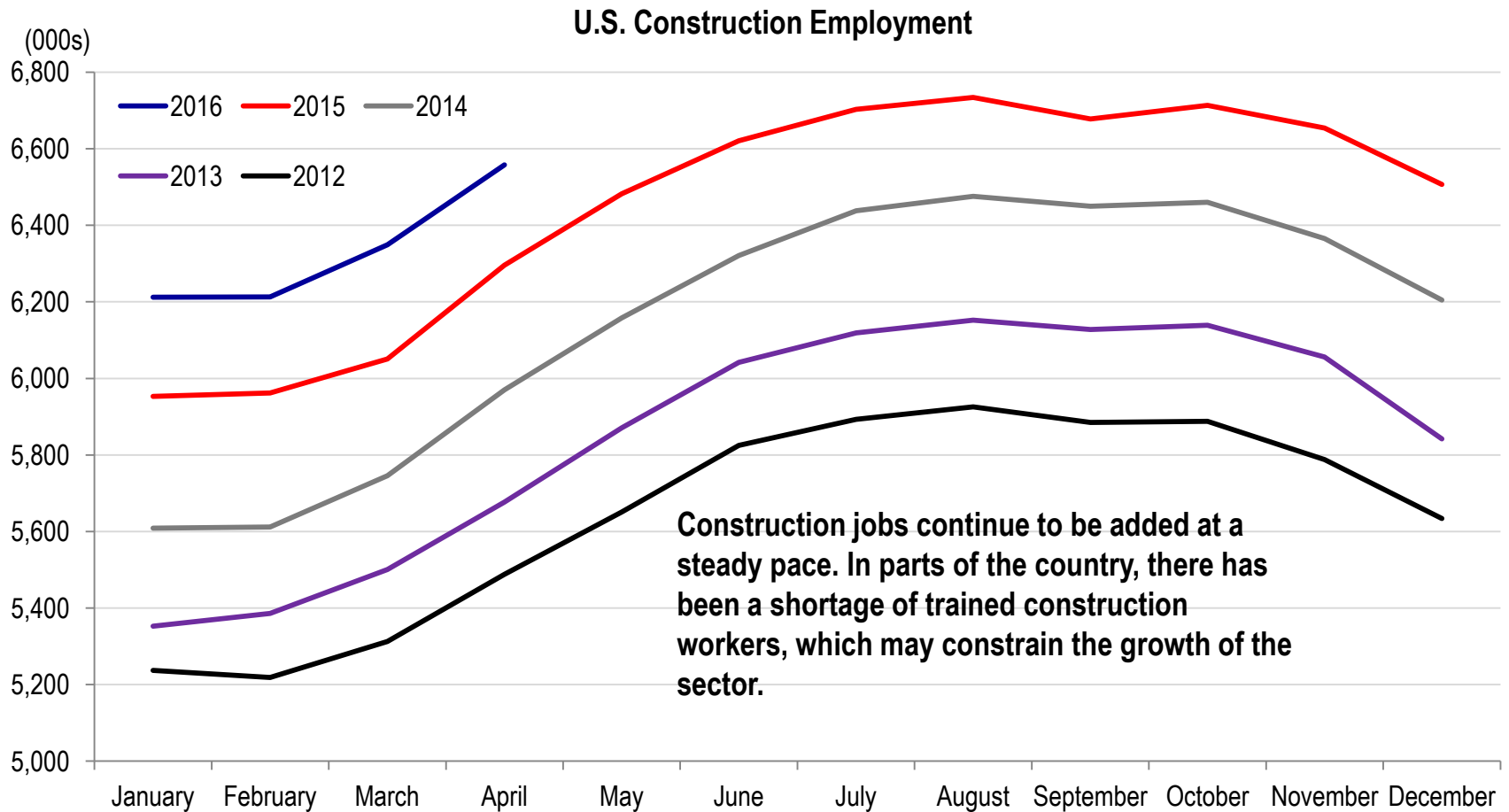


Source: FRED, SA.



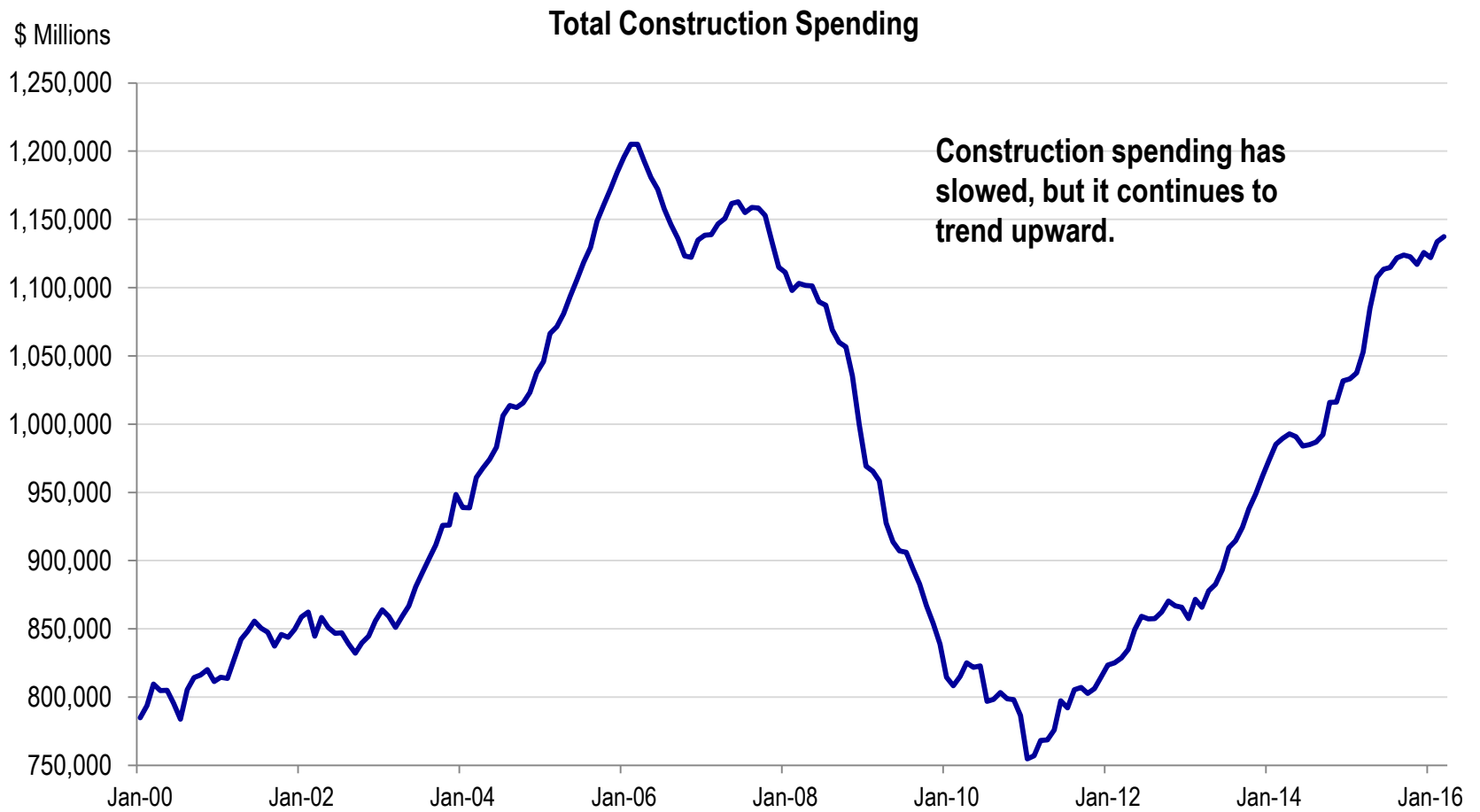
The U.S. Economy Construction and Housing

U.S. Construction Employment 2012 to 2015



Source: Bureau of Labor Statistics, NSA.

Total U.S. Construction Spending

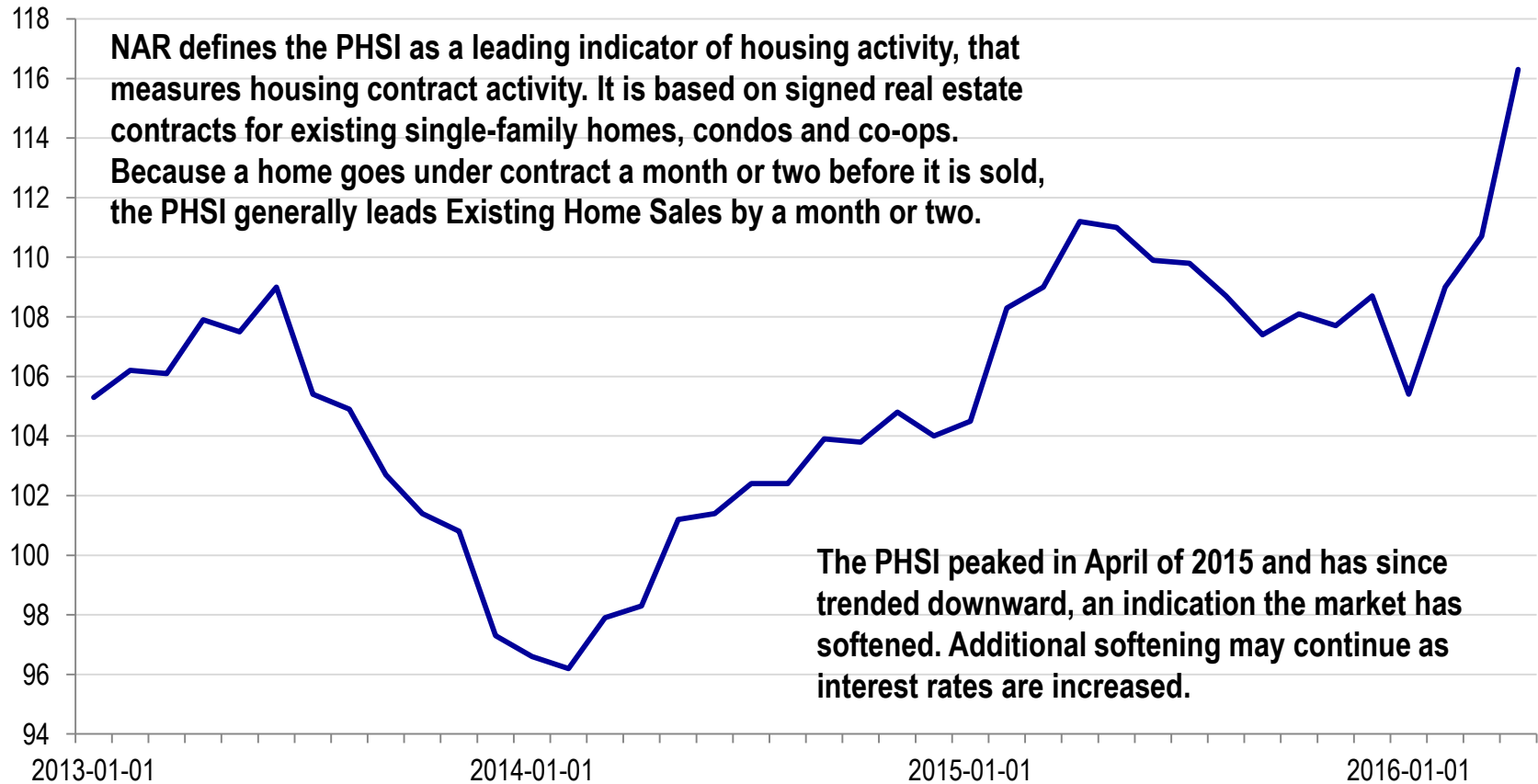


Source: FRED, Census Bureau.

Pending Home Sales Index

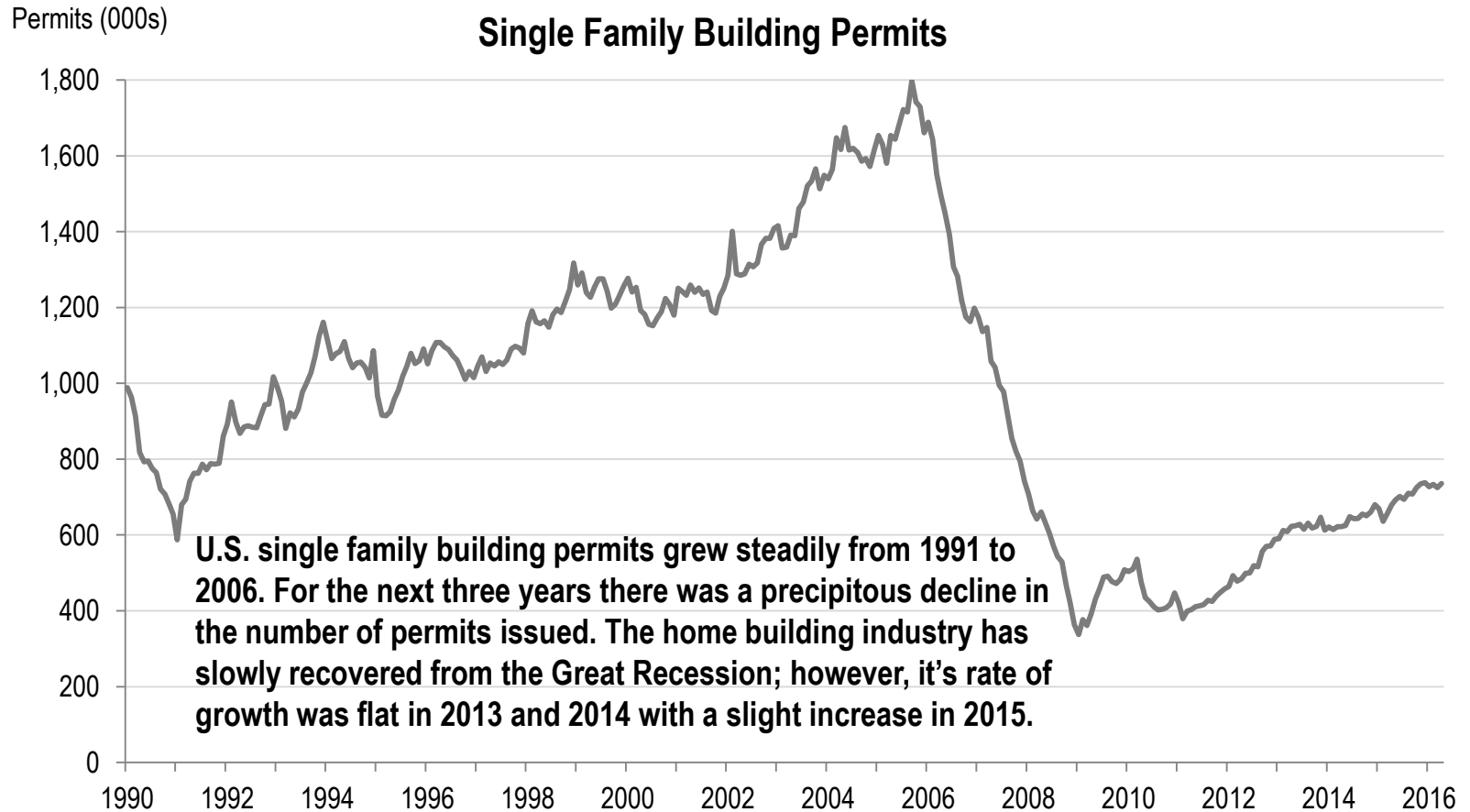
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Pending Home Sales Index



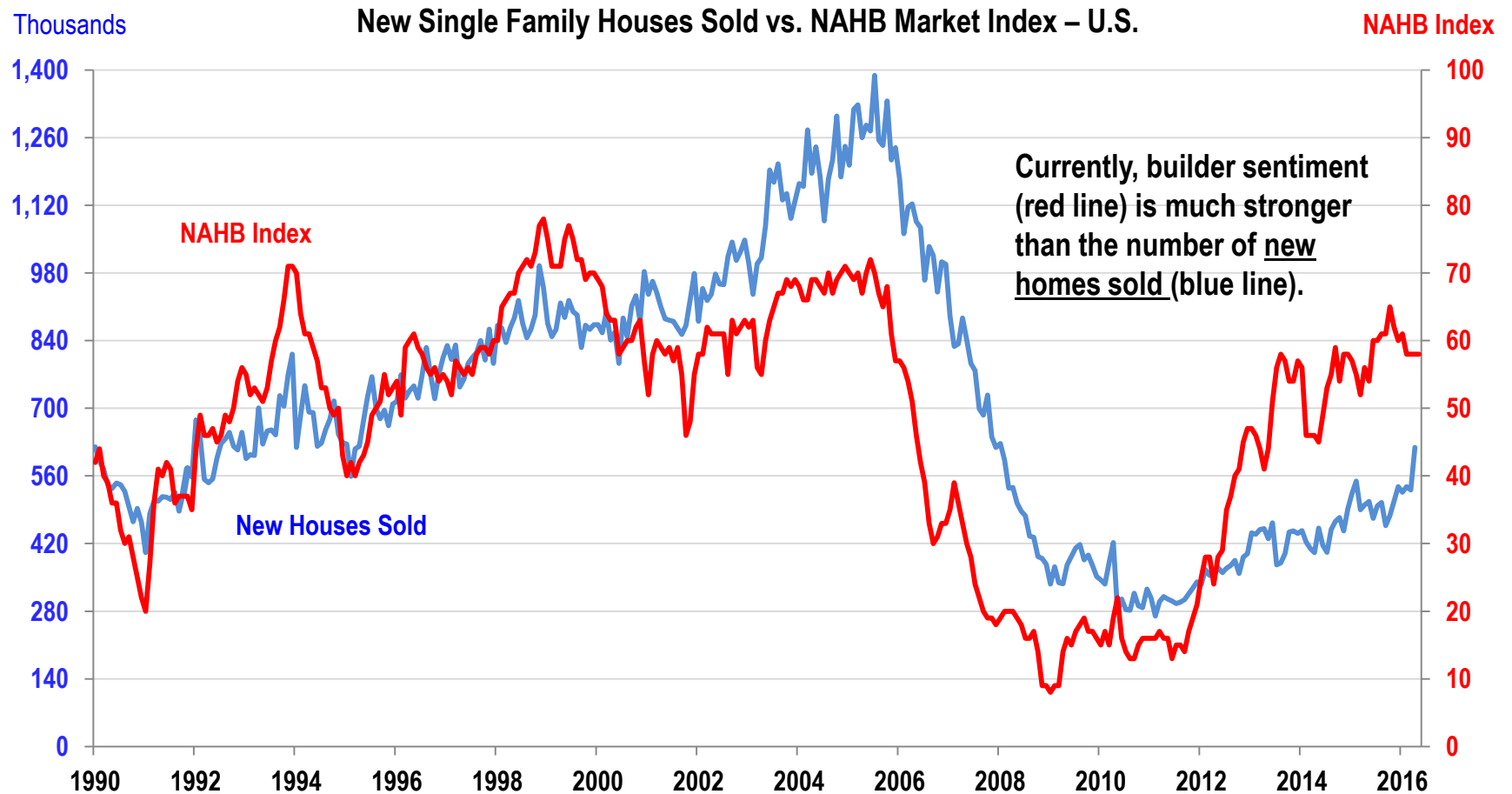
Source: National Association of Realtors, SA.

New Single Family Building Permits – U.S.



Source: FRED, U.S. Census Bureau.

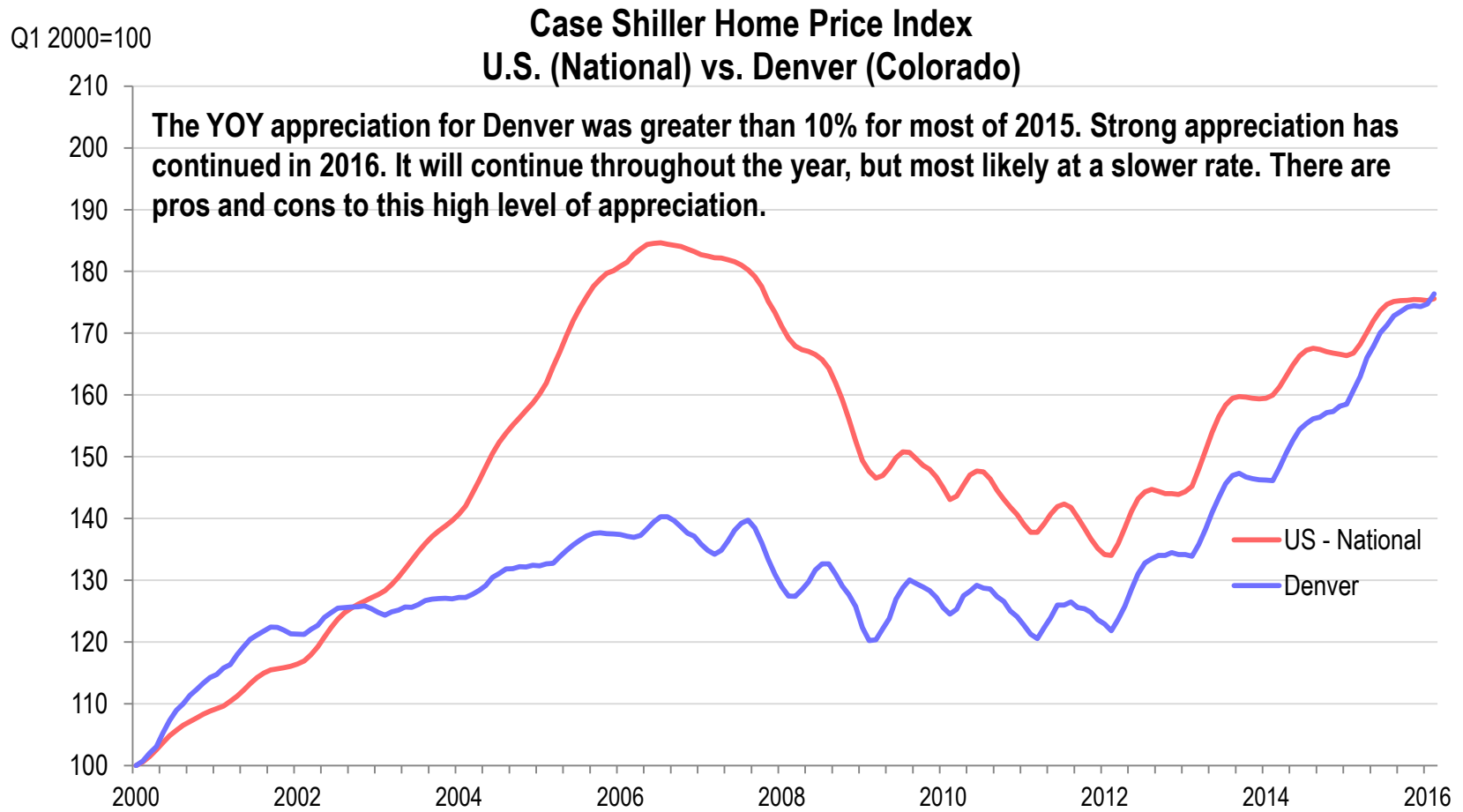
New Single-Family Houses Sold vs. NAHB Market Index



Source: FRED, Census Bureau SA., NAHB.

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

Case Shiller Home Price Index National vs. Denver (Colorado)



Source: S&P Case-Shiller.



The United States Economy Risks and Reasons to Feel Optimistic

Reasons to Feel Good Global and United States Economy

Global GDP

GDP Growth – Currently projections show that GDP growth for 2016 will be greater than 2015 and that 2017 will be better than 2016.

Reasons to be Optimistic – Advanced Economies

- Improvement in the economies of France, Italy, and Spain. Some sectors of the Chinese economy are showing strength.
- The economies of the U.K. and Germany are stronger and holding their own.

Reasons to be Optimistic – Emerging Economies

- At least two-thirds of the global growth is in emerging countries.
 - The former CIS states, most notably Russia, are coming out of a recession.
 - The economy in India will expand by 7.5% in 2016 and 2017.
 - The Mexican economy is stable.
 - Brazil will come out of a recession in 2017.
 - The Middle East will post solid growth.
 - The Sub-Saharan Africa region will also post solid growth.
-

United States

Real GDP – Annual Real GDP growth will be in the 2.3% to 2.7% range for 2016 and 2017. It will be stronger in the second half of 2016.

Reasons to be Optimistic

- Broad-based job growth will offset weaknesses in agriculture and the extractive industries.
- The price of oil is currently on the rise.
- Lower unemployment rates may indicate increased opportunities for unemployed workers.
- Increased demand for labor may result in higher wages, which will benefit workers and cause an increase in consumption or savings.
- Though the Fed is cautious, they are generally optimistic about the U.S. economy. They are optimistic enough that rate hikes are again being discussed.
- The volatility in the equities market seems to have subsided - at least for the moment.

The U.S. economy will post solid growth in employment, personal income, and GDP growth in 2016.

Risks

Global and United States Economy

Global GDP

Fundamentals - The global economy is fragile. Real GDP growth for 2016 will be slightly greater than 2015, with a minimal increase in 2017. At the same time it should be noted that the rate of growth was revised downward in January and April by the IMF.

Risks

- Slower rate of growth in the Chinese economy.
 - Continued financial market volatility.
 - Geopolitical tensions in many countries.
 - Worries about secular stagnation.
 - Concerns about deflation.
 - Fears of inadequate proactive economic policy decisions.
 - Failure to react sufficiently if financial risks materialize.
-

United States

Fundamentals – The U.S. economy is stronger than the global economy and some economists think it is keeping the global economy in positive territory.

Risks

- Some economists have lowered their projections of 2016 Real GDP growth to 1.7%.
 - Manufacturing shipments are sluggish, in part because the U.S. dollar is strong and demand has been diminished.
 - Low oil prices have affected oil-producing states.
 - Regulations and low prices have negatively impacted segments of the mining industry.
 - Low agriculture prices have negatively impacted parts of the country that are agriculture-dependent.
 - The 2016 presidential election is being billed as a contest of negativity. And it is likely to get worse.
-



The Colorado Economy

Summary of Key Data

United States and Colorado

United States

Real GDP – Annual Real GDP growth will be in the 2.3% to 2.7% range for 2016, similar to 2015. Most likely it will be below the midpoint of that range.

Real Personal Consumption – Annual consumption growth will be in the 2.6% to 3.0% range for 2016, i.e. the consumer will continue to drive the economy.

U.S. Employment – The U.S. will add 2.7 million jobs in 2016. Job growth is currently on target to reach that level of growth.

Unemployment Rate – The unemployment rate for 2016 will be 4.6% to 4.8%.

Consumer Price Index – The CPI is estimated to increase by 1.7% in 2016. Through 4 months the U.S. CPI is close to 1.1%.

Price of a Barrel of Oil (WTI) – Oil closed the year at \$36 per barrel. It dropped to \$26 in early 2016 and is at \$50 per barrel.

Case Shiller Housing Prices – In 2015 U.S. housing prices increased by 5.3%, but will appreciate at a slower rate in 2016.

Standard and Poor's 500 – The S&P 500 posted a loss of 0.7% in 2015. It remains below its 2015 peak.

The U.S. economy will post solid growth in 2016.

Colorado

Q3 2015 vs. Q3 2014 GDP (U.S. vs. CO) – For this period, the state Real GDP grew by 3.4% compared to 2.0% for the U.S.

Population - Colorado's population will increase by about 95,000 people in 2016.

Steady Wage and Salary Employment – Average employment for the past 9 months (August through April) is STEADY It is about 67,900 jobs greater than the prior year.

Leading Sectors for Growth – During the first 4 months 71% of the jobs were added in the Accommodations and Food Services; Health Care; Construction, Retail Trade, and Financial Activities.

Broad-Based Growth - There is broad-based growth in the state's employment, GDP, and personal income.

Wage Growth - Colorado wage growth weak in the first 4 months of 2016 compared to the 2015 total.

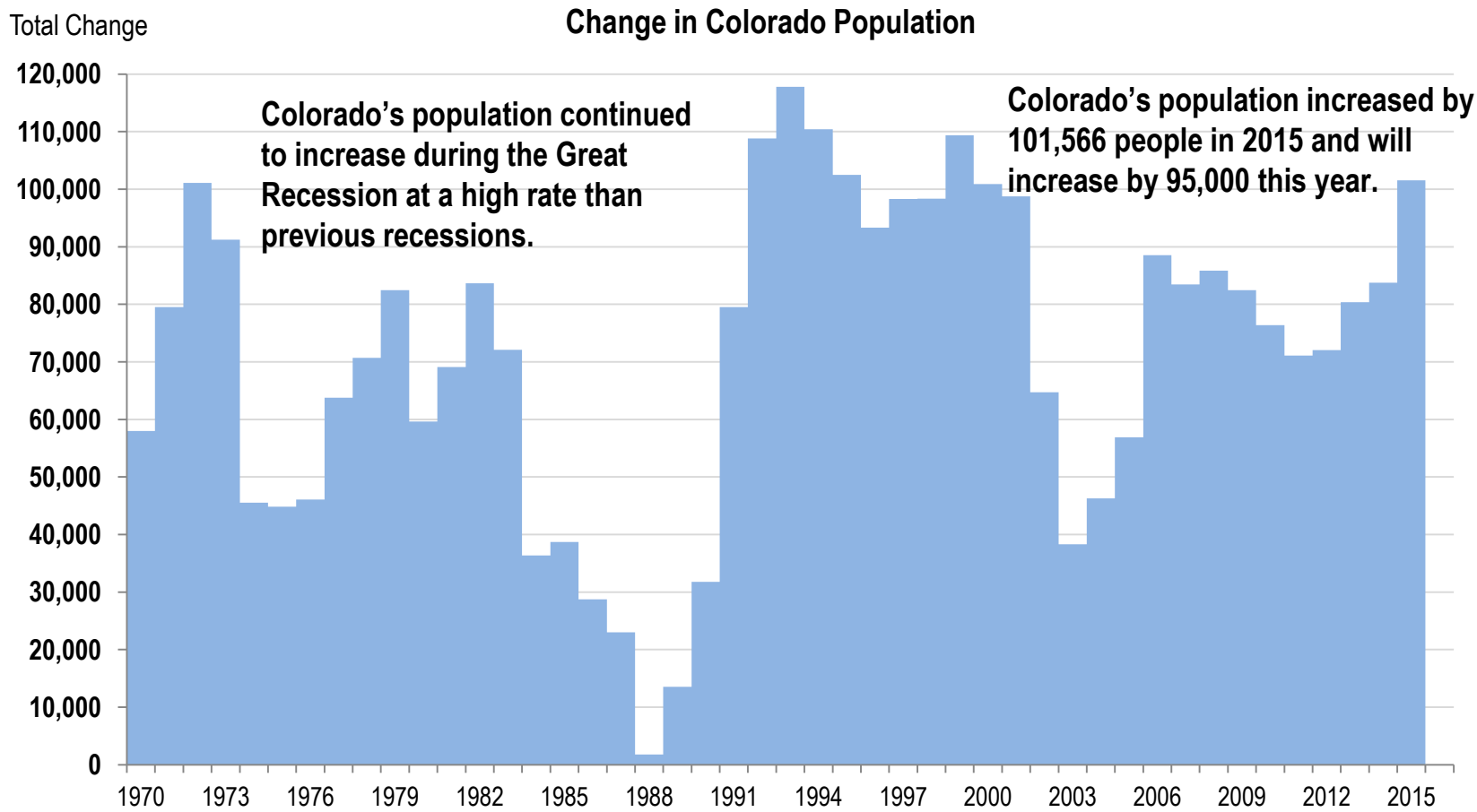
Unemployment Rate – The economy will operate inefficiently when the unemployment rate is below 4.0%.

MSA Unemployment Rate – Boulder and Ft. Collins have the lowest rates at 2.7% and 3.1%, respectively. Grand Junction has the highest rate at 5.9%.



The Colorado Economy Population, Employment, and Wages

Annual Change in Population



Source: Bureau of Economic Analysis, cber.co.

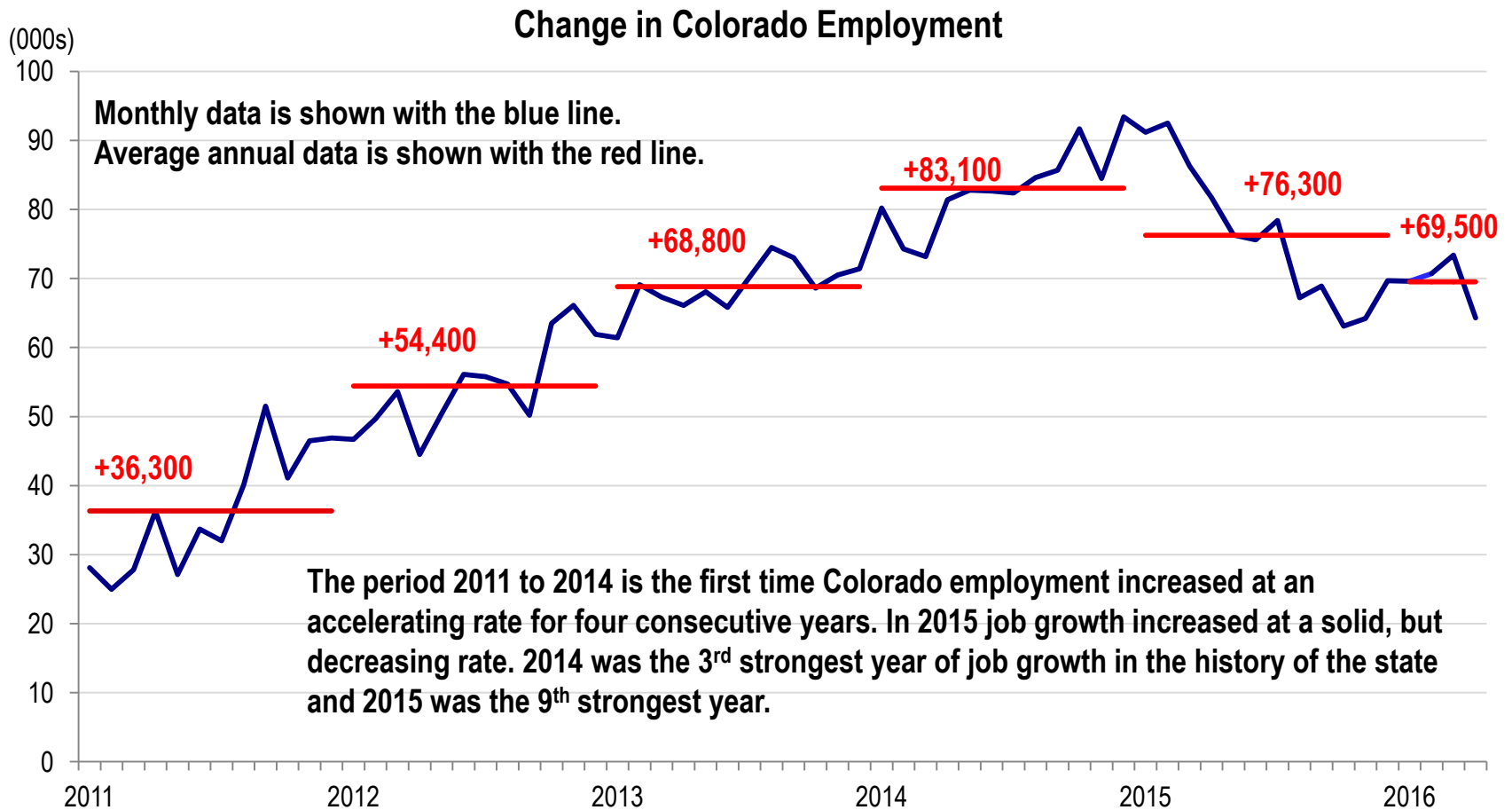


Good News

During the first five months of 2016 the local media has reported that the following companies will be adding jobs in Colorado at some point in the future. This is good news!

- 10,000 new homes expected in Denver this year!
- Amazon to hire hundreds for large fulfillment center.
- Comcast adding 600 jobs at call center in Fort Collins.
- CoorsTek plans advanced-materials center.
- Entertainment facility planned for Thornton.
- Harte Hanks (marketing) acquired Aleutian Consulting and plans local expansion.
- Home Depot plans 1,700 seasonal hires in Denver and Colorado Springs.
- OEDIT has made several announcements about companies it has recruited to the state and investments it has made to support existing companies.
- REI doubling the size of its Ft. Collins store.
- TIAA to add 700 workers.
- Twitter plans expansion in Boulder.
- Vestas hires 100 in Brighton.
- Viega moving U.S. Headquarters to Colorado .
- Virgin America to open customer contact center in Aurora and hire 100.
- Xerox rehiring hundreds of laid off workers in Colorado Springs.
- Zillow will add 150 Denver area jobs.

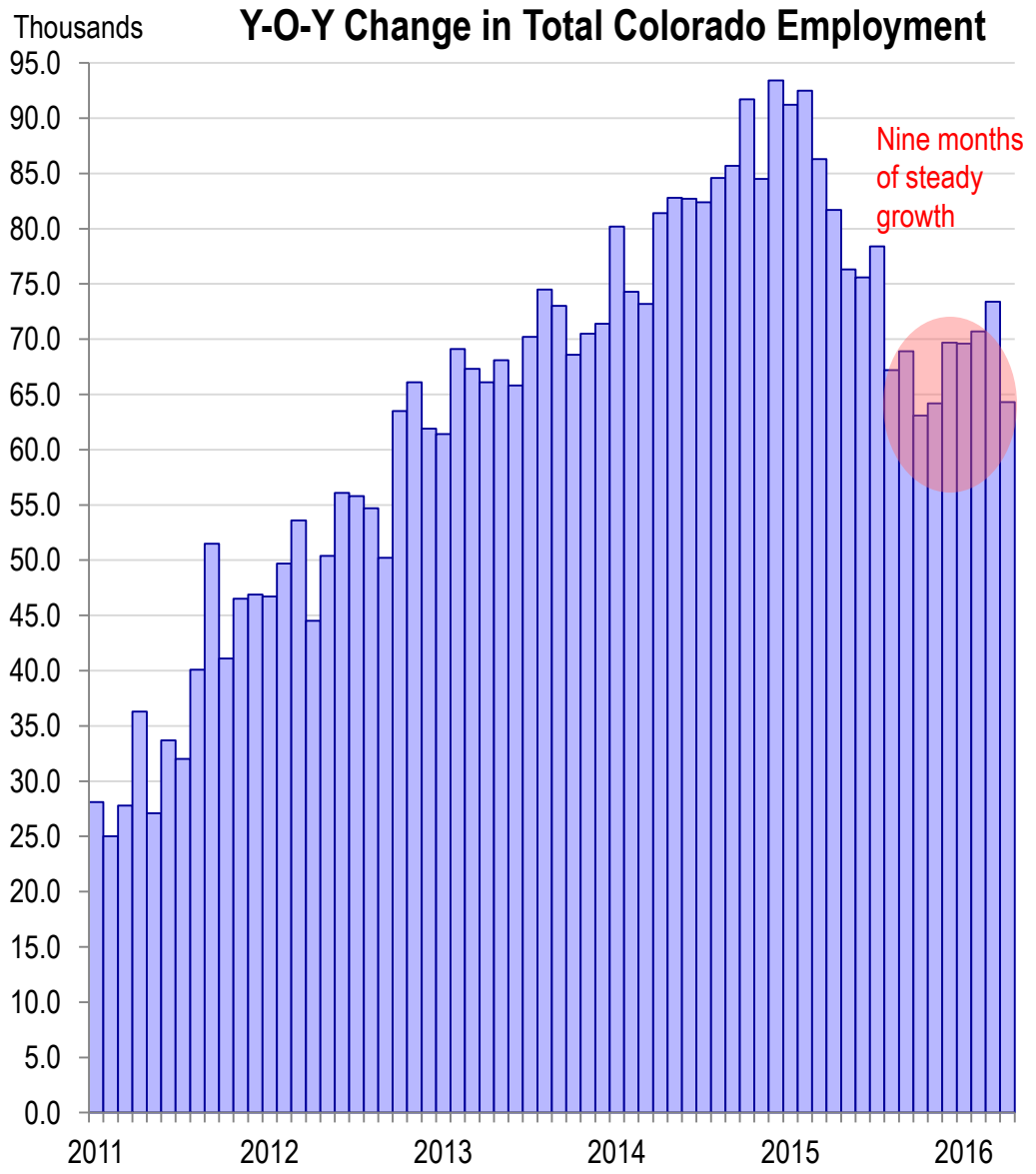
Change in Colorado Employment Year-Over-Year



Source: Bureau of Labor Statistics, NSA.

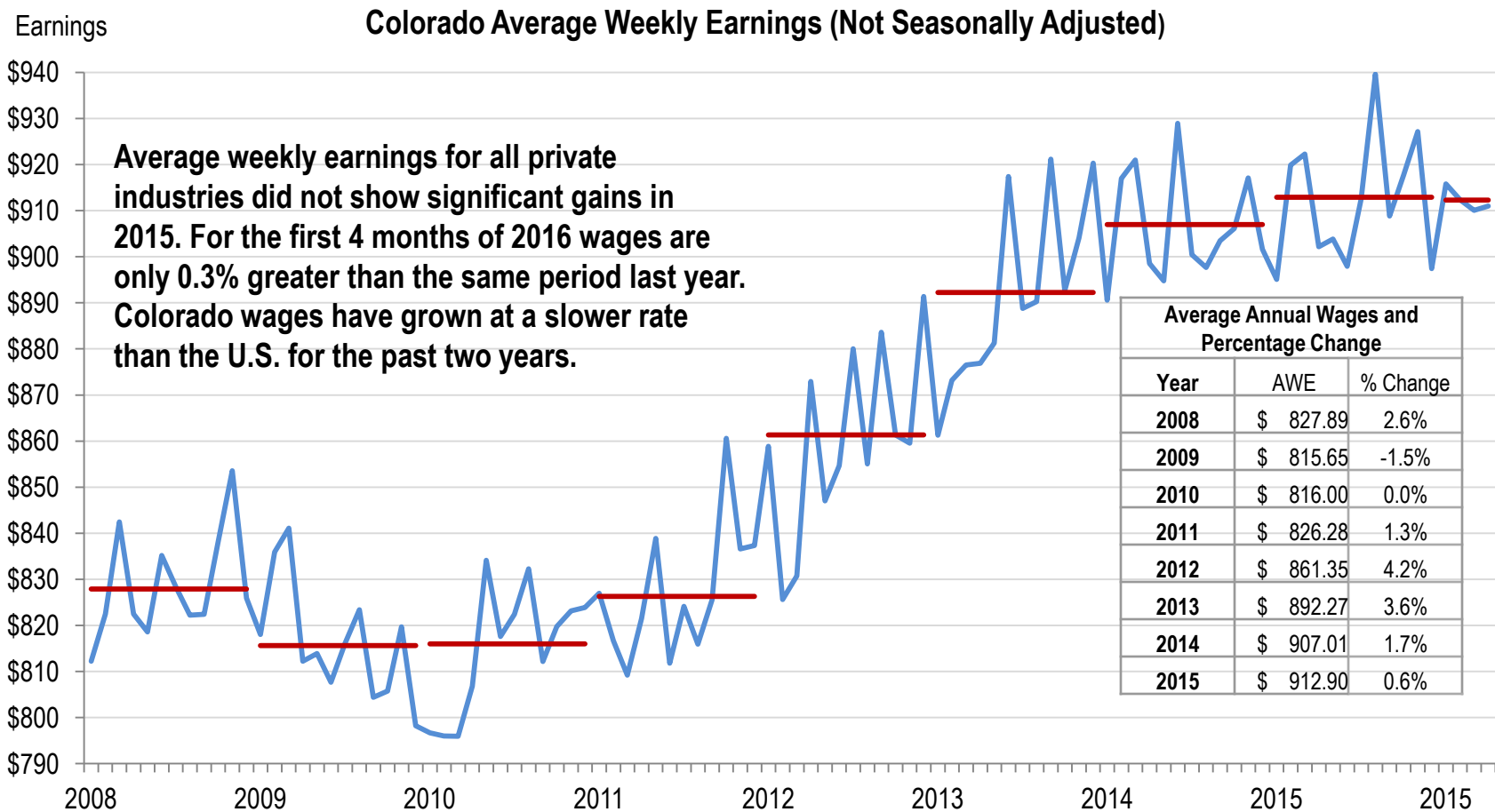
Y-O-Y Change in Total Colorado Employment

The year-over-year change in Colorado employment has been very steady. It averaged 67,900 jobs for the past 9 months (red), with a low of 64,300 jobs added and a high of 73,400 jobs added.



Source: Bureau of Labor Statistics, cber.co.

Colorado Average Weekly Earnings of All Employees (Private Sector)



Source: Bureau of Labor Statistics, NSA.



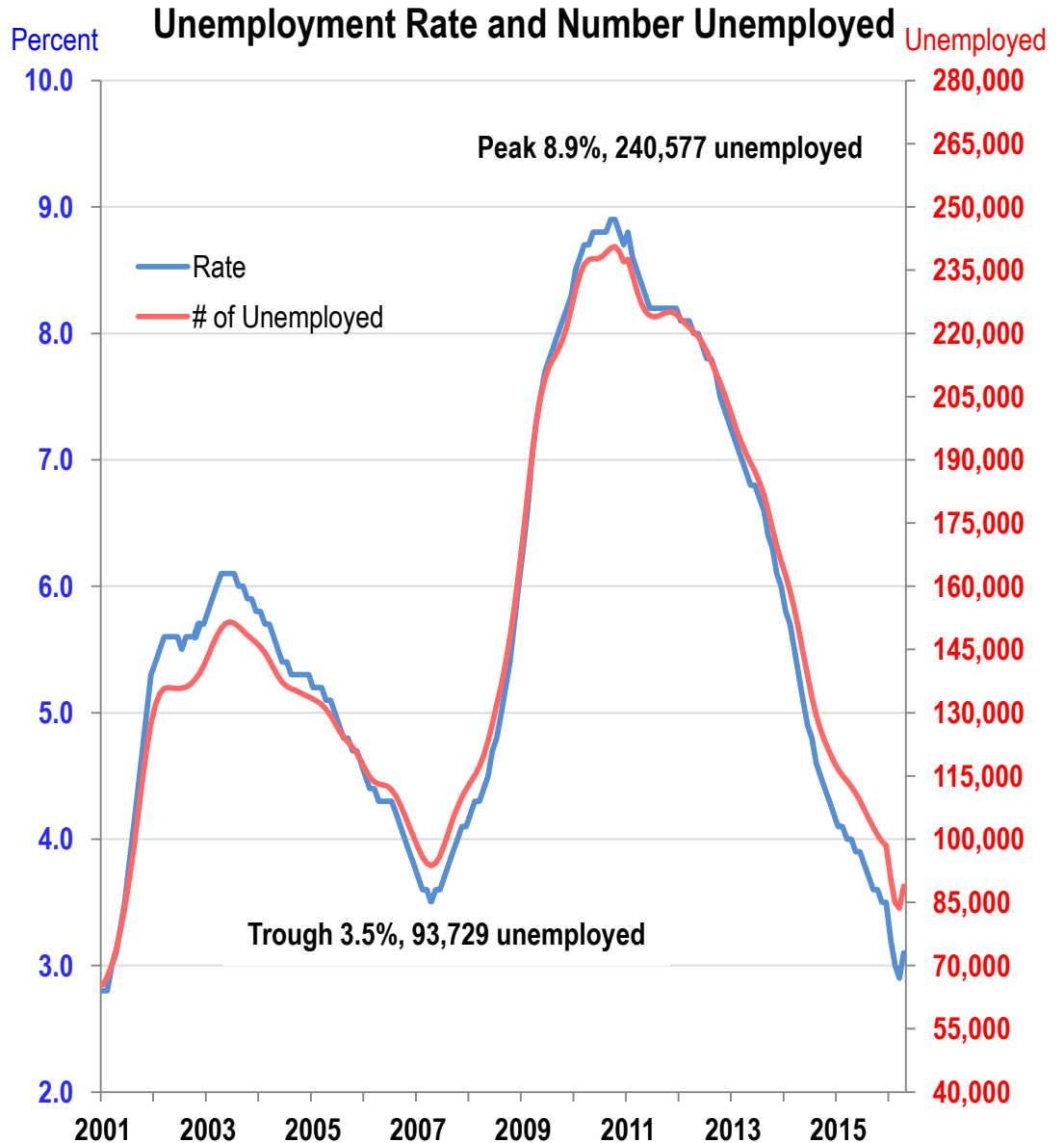
The Colorado Economy Unemployment

Colorado Unemployment Rate and Number of Unemployed

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

The total number of unemployed workers (red) at the end of April 2016 was 88,842. The current total number of unemployed is 4,887 less than the trough in May 2007 and 151,735 less than the peak in October 2010.

Lower unemployment rates have brought about shortages of trained workers in key sectors and occupations.



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

How Low Can it Go?

Natural Rate of Unemployment

In simplistic terms, the natural rate of unemployment is the rate at which an economy operates efficiently. It is typically between 4.5% and 5.0%.

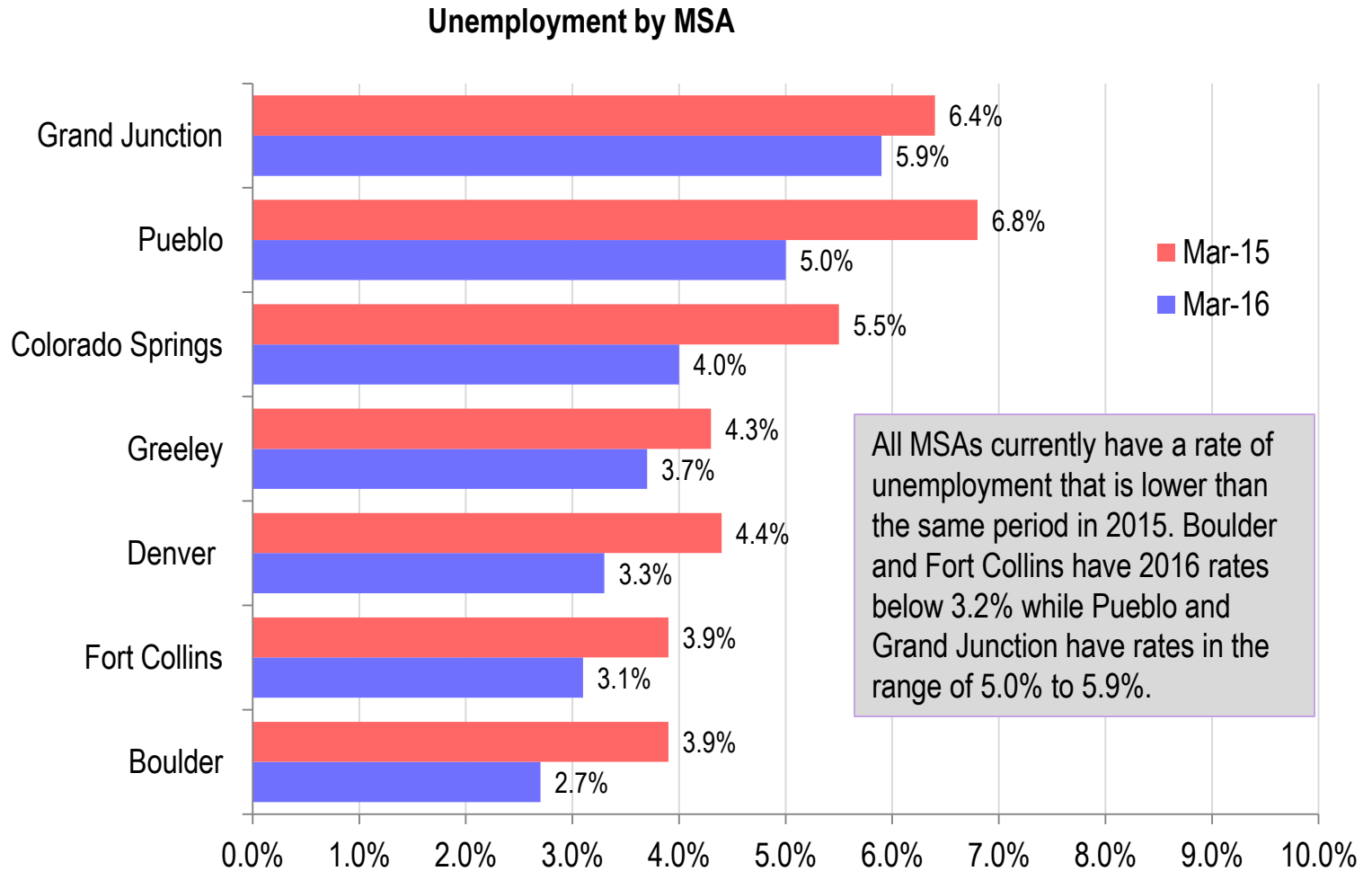
The economy operates inefficiently when:

- The rate of unemployment is too high, as it was during the Great Recession.
- The rate of unemployment is too low. The current rate of unemployment in Colorado, less than 4.0% is too low.

Reasons Low Unemployment May be Bad for the Economy

- Businesses may be forced to pay higher wages. The up side is that workers have more money to spend which theoretically stimulates the economy. On the other hand, businesses may hire fewer workers to keep costs in line or they may need pass the added cost on to the consumer.
- Businesses may be forced to hire unqualified people and properly train them. The upside is that workers are better trained and more marketable. On the other hand, the added cost of training may have to be built into the price of the goods or services.
- During expansionary times, businesses increase their sales by adding workers and/or investing in capital goods or processes. If they cannot find workers they may invest in capital goods or processes that will reduce the need for labor in the long-run. For example, the oil and gas companies have gained efficiencies through capital expenditures that will reduce their long-term demand for employees.
- If companies cannot find qualified workers their services/goods may be of lower quality or they may simply lose business. For example, if a restaurant has wait times greater than an hour because they don't have enough kitchen help then customers may go elsewhere or the food may be lousy. Both are bad alternatives.

Unemployment by MSA 2015 vs. 2016



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

● We're Number One! Ugh!

Colorado typically fares well in most state rankings of critical economic data. Not so in the case of a recent report produced by The Substance Abuse and Mental Health Services Administration.

The report was summed up in an article written by Dr. Keith Humphreys, Stanford professor, for the May 23, 2016 *Washington Post*, entitled, "Where people drink the most booze and do the most drugs". Humphrey indicated that SAMHSA conducts an annual poll to measure whether Americans used opioid painkillers for non-medical reasons or consumed marijuana, alcohol, or cocaine.

Colorado had the dubious honor of being ranked number 1 in all four categories. This is an important issue for companies that use drug-testing as part of their hiring process.

This data supports concerns expressed by some Colorado businesses who are challenged to find qualified and clean (drug-free) employees, particularly when unemployment rates are low.

Source:

<https://www.washingtonpost.com/news/wonk/wp/2016/05/23/where-people-drink-the-most-booze-and-do-the-most-drugs/>

Not so Good News

During the first five months of 2016 the local media has reported the following companies will be laying off workers. The list excludes the oil and gas industry.

- Ag industry expects down year because of low prices
- Baxter International lays off 106
- Constant Contact will have layoffs in Loveland
- Defenses contractor laying off 70 workers (may be temporary)
- Delta Airlines cutting 104 jobs (although that may be a switch to a different contractor)
- Gaiam lays off 34
- Leggett and Platt mattress factory to close, 64 jobs to be lost
- Medtronic to move manufacturing lines from Colorado plant
- NetApp, parent of SolidFire, will cut its work force nationally
- Potash and coal mines are closing
- Qualcomm is selling some of its real estate
- Safeway closing Denver bread plant
- Sky Sox move from Colorado Springs to San Antonio
- United Launch Alliance sheds 375 jobs
- USA Pro Bicycle Challenge won't race in 2016

Struggles continue at retail stores

- Aeropostale closes 3 stores (Colorado)
- Best Buy continues its struggles (national)
- Kohls will cut 18 stores in June (national)
- Nordstrom is cutting hundreds of jobs (national)
- Bankruptcy of Sports Authority and closure of all its stores

City government leaders should take note of the struggles being faced by retailers, particularly those cities that rely heavily on retail sales taxes as a primary source of revenue.



2016 Colorado Employment by Performance Category

Average Employment 1st Four Months

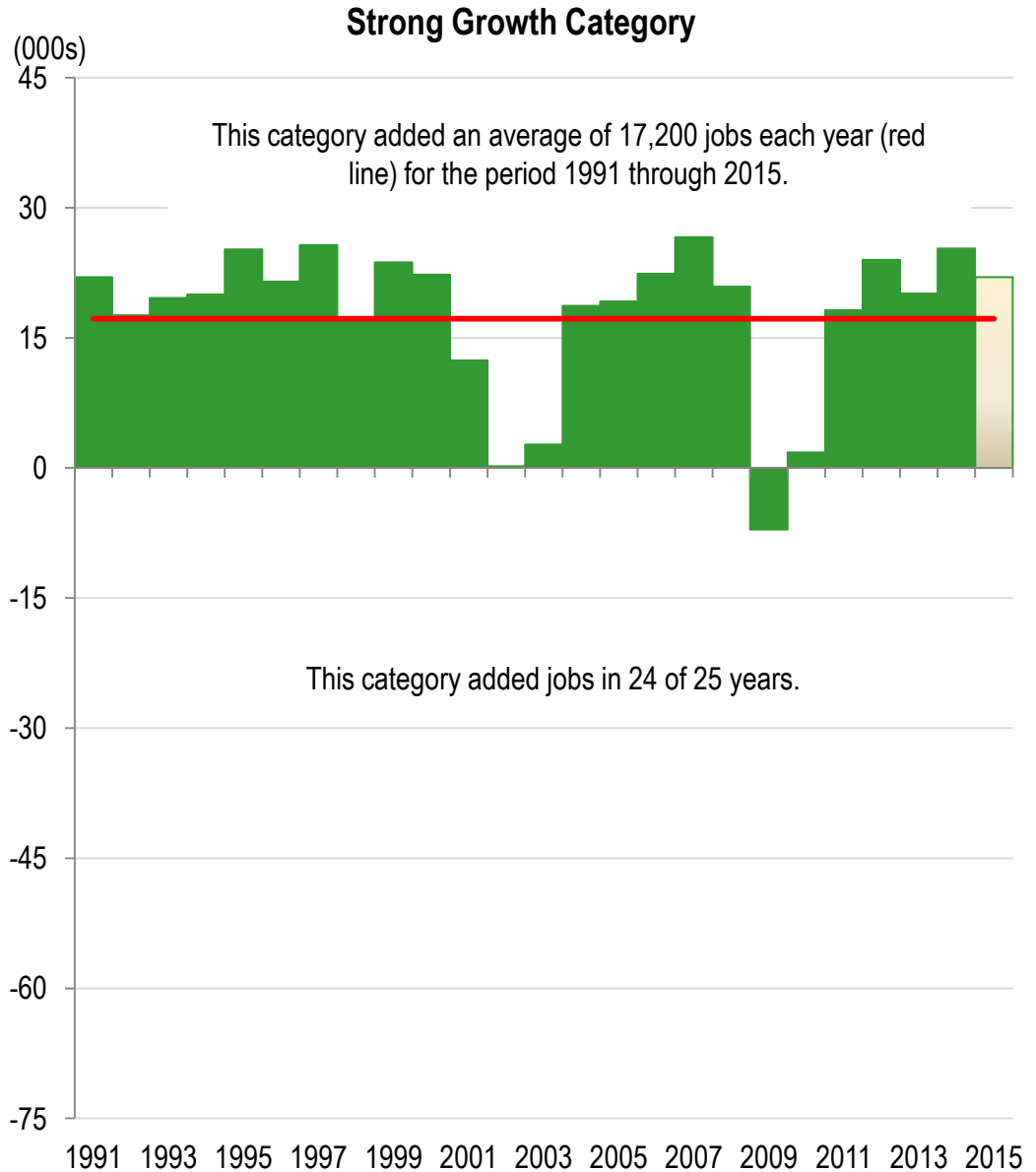
Annual Employment Situation for the Strong Growth Category

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 788,300 workers, 32.0% of total employment

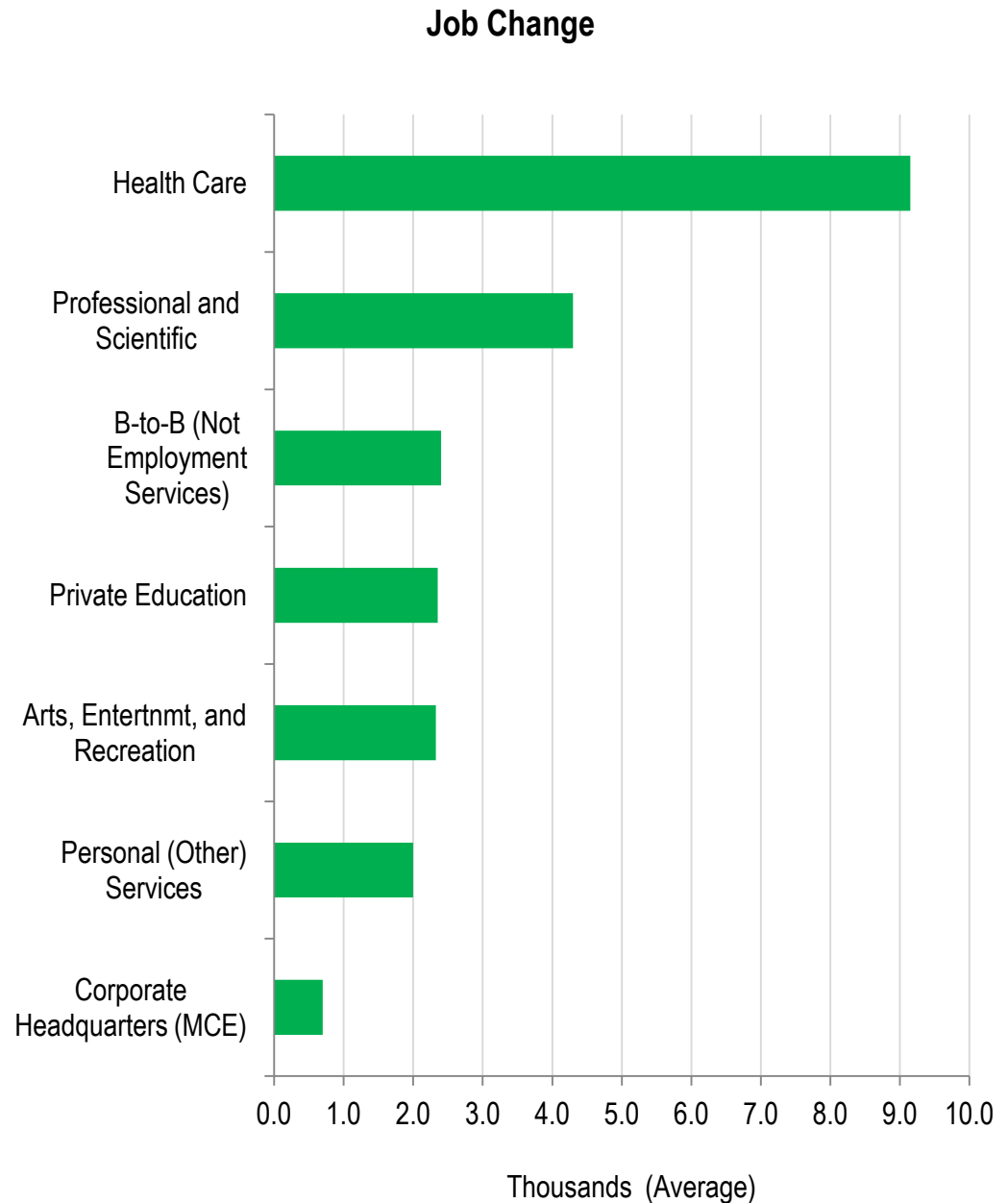


Solid Growth Sectors

- Average employment for the first 4 shows this category of sectors added 23,200 jobs in 2016 compared to the same period last year.

- The Health Care Sector led job growth, followed by the PST sector.

- In 2014, these sectors accounted for 32.4% of total job gains and 32.0% of total employees.



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.

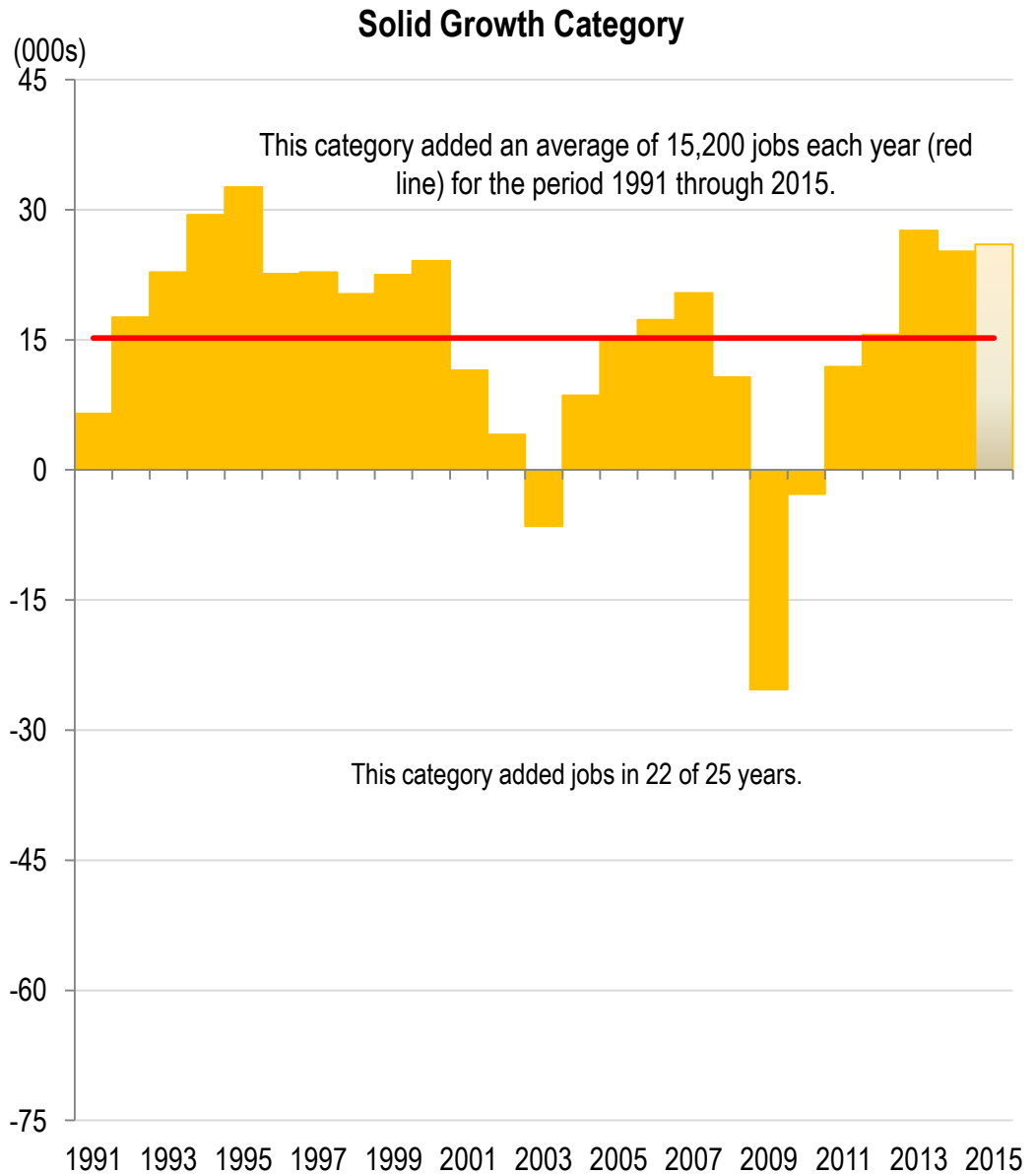
- Wholesale Trade
- Retail Trade
- State (Not Higher Education)
- Higher Education
- Local (Not K-12 Education)
- K-12 Education
- Accommodations and Food Services

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 962,500 workers, 39.0% of total employment.



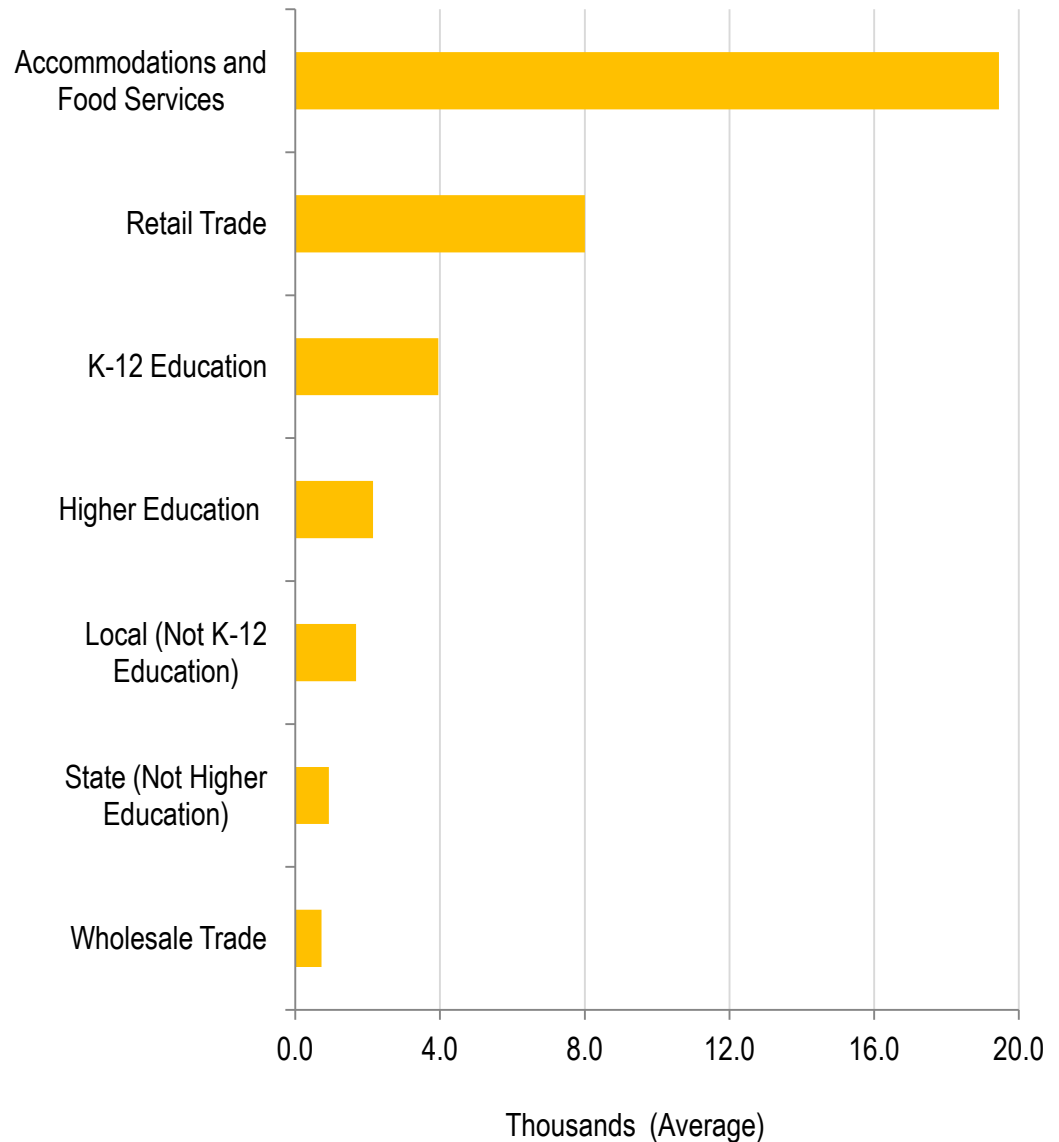
Limited Growth Sectors

- Average employment for the first four months shows this category of sectors added 36,900 jobs in 2016 compared to the same period last year.

- The tourism industry has had a strong year, but most likely the AFS sector is grossly overstated.

- In 2014, these sectors accounted for 29.8% of total job gains and 39.0% of total employees.

Job Change



Source: Bureau of Labor Statistics.

Annual Employment Situation for the Volatile Category

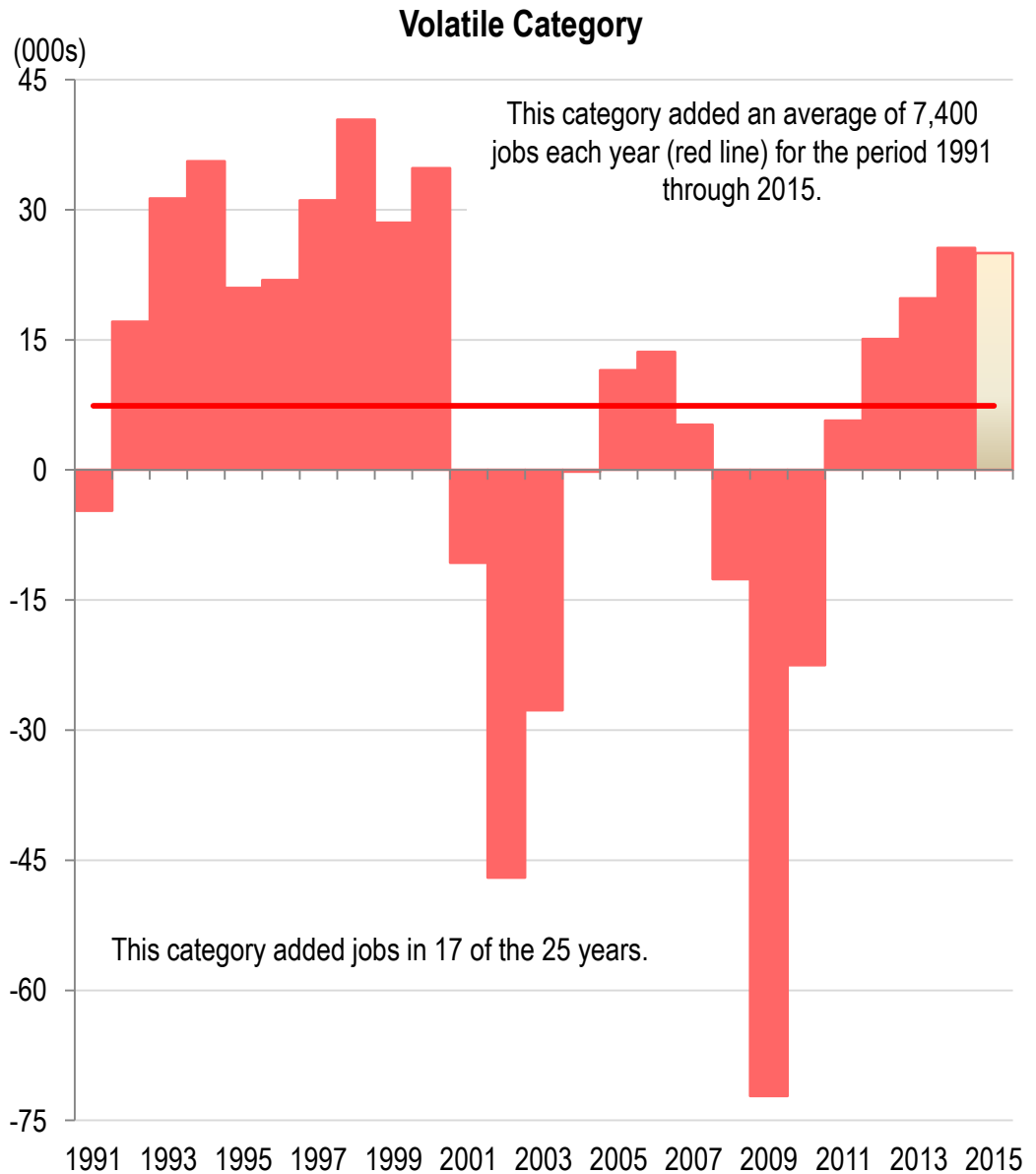
Over the past two decades the sectors listed below were the primary source of volatility in total employment.

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 714,300 workers, 29.0% of total employment



● Volatile Sectors

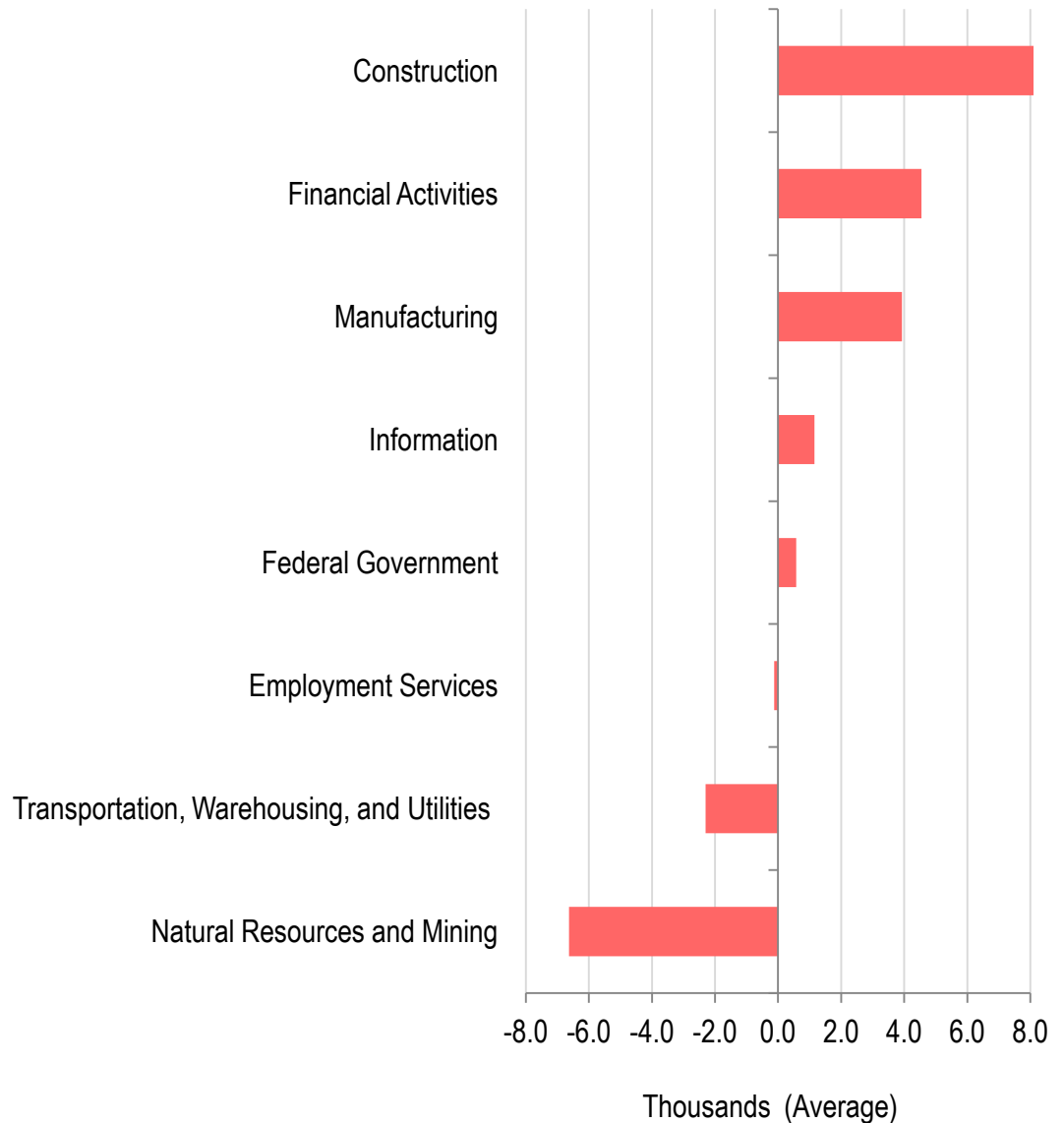
- Average employment for the first four months of 2016 shows this category of sectors added 9,400 jobs in 2016 compared to the same period last year.

- For this period, the Construction, Financial Activities, and Manufacturing Sectors led job growth.

- It is likely the job data for the Employment Services and TWU sectors are understated. Unfortunately, the job losses in the extractive industries are not understated.

- In 2014, these sectors accounted for 38.3% of total job gains and 29.0% of total employees.

Job Change



Source: Bureau of Labor Statistics.

Summary of Performance to cber.co 2016

Employment Forecast



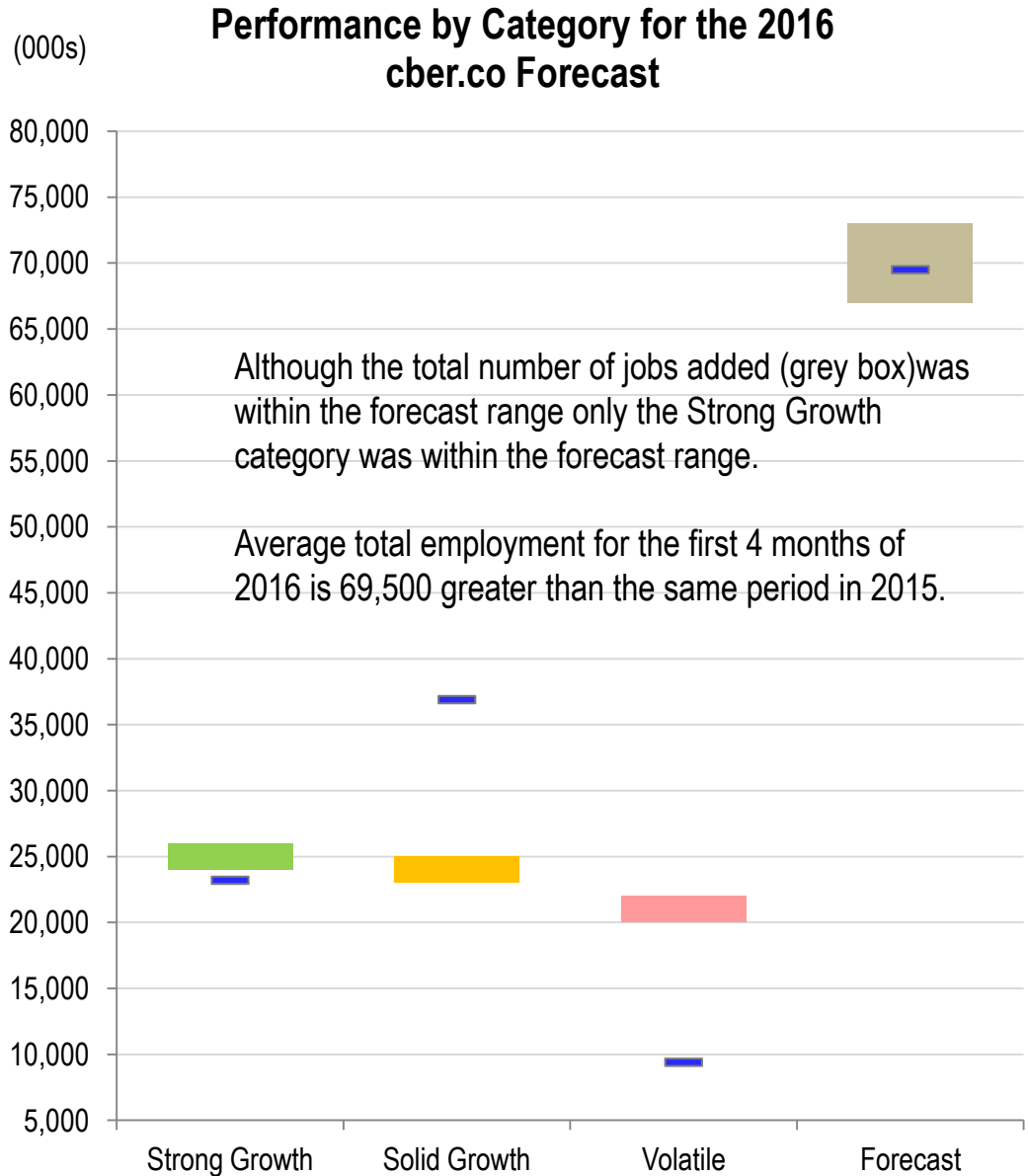
On this chart, the forecast ranges for the categories are:

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

The blue lines indicate the level of change in the average employment for the first 4 months of 2016.

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

Average employment for the first 4 months of 2016 is 69,500 greater than the same period in 2015.



Source: Bureau of Labor Statistics, cber.co.

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



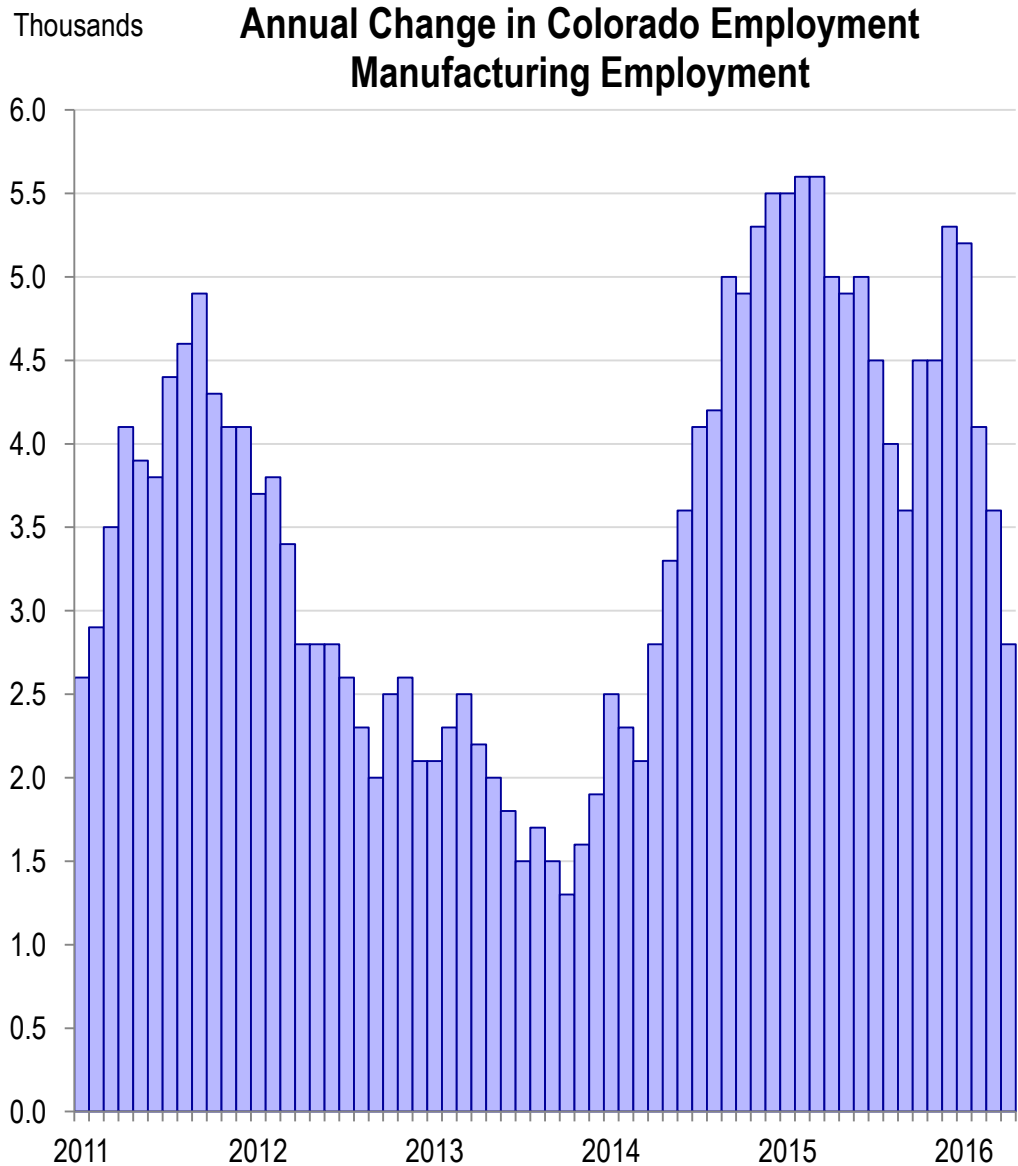
Colorado Employment by Category

Focus on Key Industries in the Volatile Category

Manufacturing, Construction, Extractive Industries

● Annual Employment
● Change in Colorado
● Employment -
● Manufacturing

Since Q4 2010 the year-over-year change in Colorado manufacturing employment has been positive. Between 2011 and 2016 the y-o-y change in employment has fluctuated between 1,500 per month to 5,600 per month.



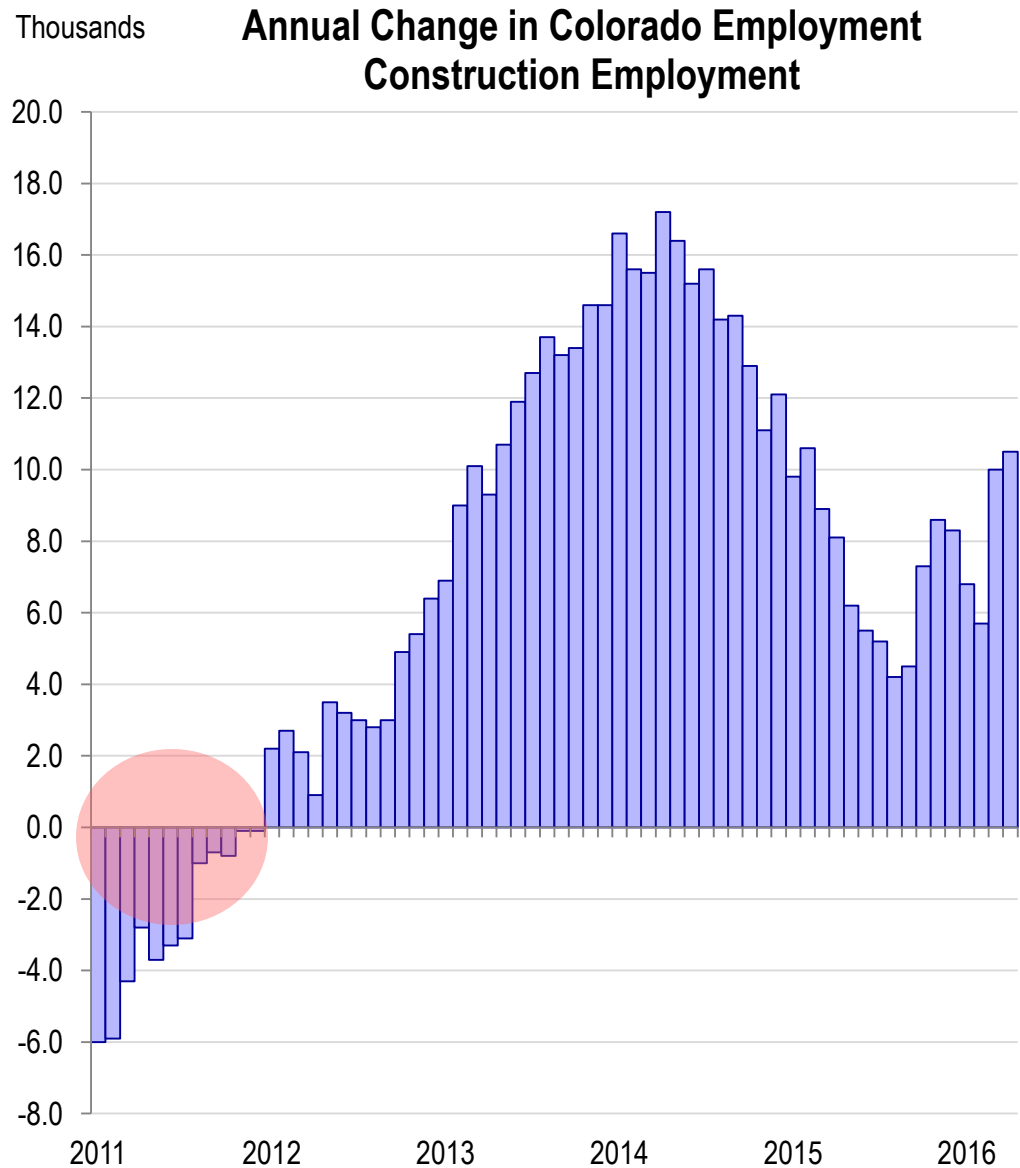
Source: Bureau of Labor Statistics, cber.co.

Annual Employment Change in Colorado Employment - Construction

The year-over-year change in Colorado construction employment was negative throughout 2011 (red).

For this period the y-o-y change has been volatile (which is normal for the industry). The largest change, 17,200 jobs, occurred in April 2014.

Between that peak and August 2015 construction employment increased at a decreasing rate. Since then there has been an increase in the number of jobs added each month.



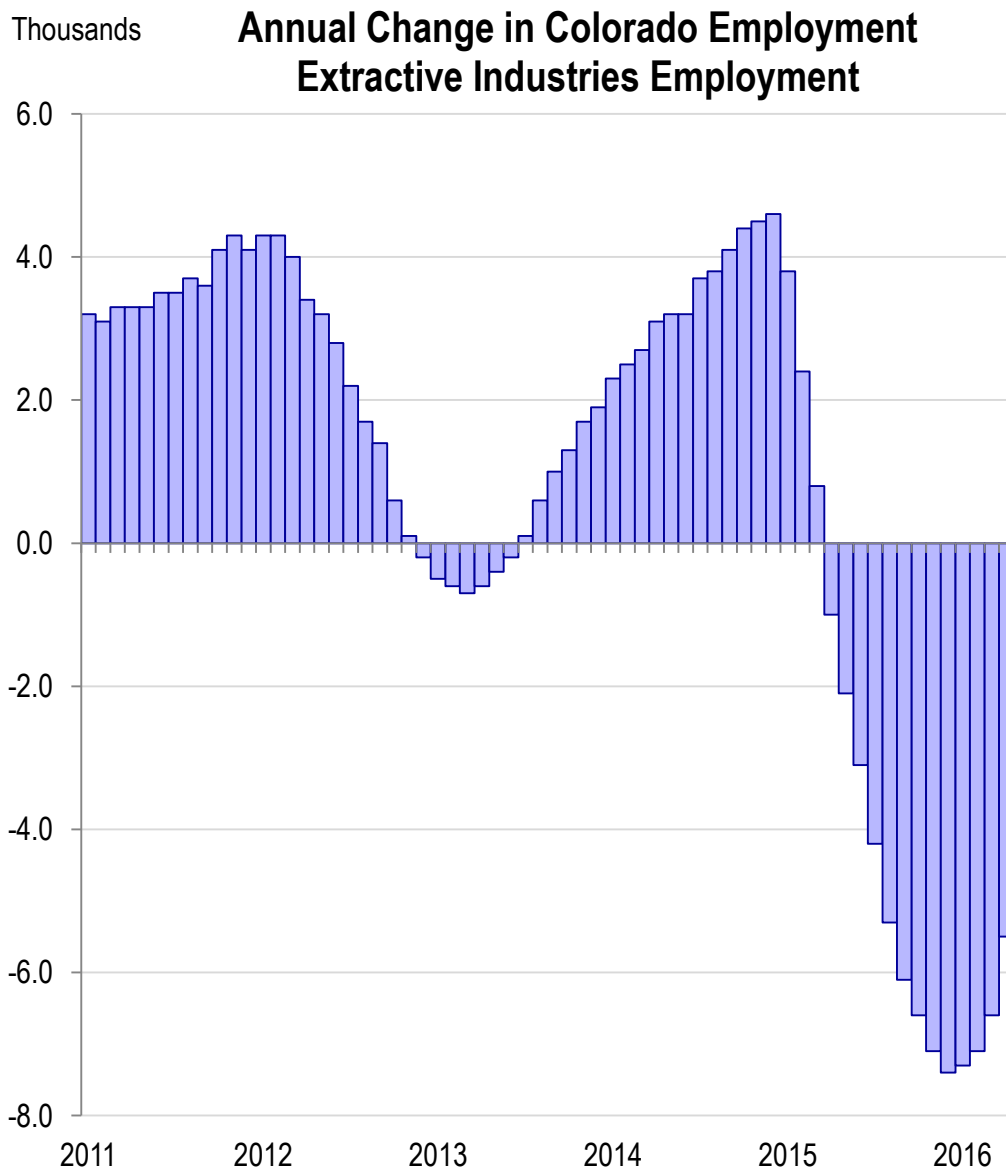
Source: Bureau of Labor Statistics, cber.co.

● Annual Employment
● Change in Colorado
● Employment – Extractive
● Industries

The year-over-year change in Colorado employment in the extractive industries slowed in 2012 and 2013, but accelerated through 2014.

The industry added jobs at a slower rate in Q1 2015 and has lost jobs since.

The greatest number of jobs lost was in December 2015. In 2016 the number of jobs lost has decreased each month.



Source: Bureau of Labor Statistics, cber.co.

The Business and Employment Challenges of the Oil and Gas Industry

During the first five months of 2016 the local media has reported the following oil and gas companies have experienced financial challenges relating the reduced price for a barrel of oil.

Some of the companies impacted

- American Energy Partners to close
- Anadarko make cutbacks
- Bonanza Creek Energy cuts workforce
- Craig Energy files for bankruptcy
- DCP Midstream cuts 65 jobs in state
- Emerald Oil files for bankruptcy
- Encana make cutbacks
- Halliburton and Schlumberger cut thousands in early 2016 (national)
- Marathon oil to see \$950 million in assets, including Colorado holdings
- Sanjel laying off 155 in Ft. Lupton
- Southwestern Energy of Texas to lay off 1,100; Colorado operations on back burner
- Synergy purchases Noble assets in Weld County
- Venoco files for bankruptcy
- WPX completes \$910 million sale of Colorado natural gas assets to Terra Energy

Some of the effects

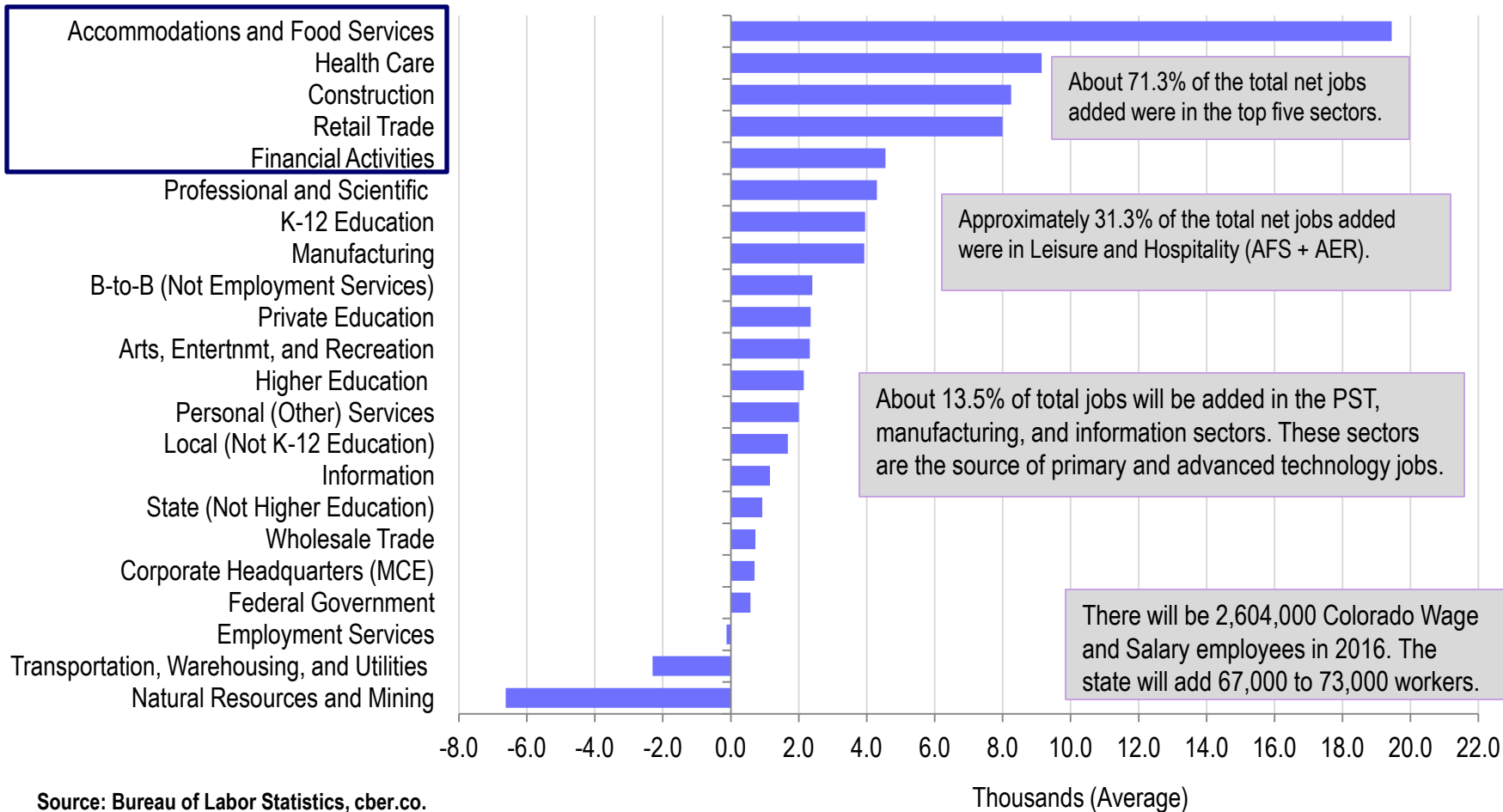
- Oil prices have flirted with \$50 per barrel.
- The Colorado rig count has dropped to 15, down from 37 a year ago.
- Denver office market beginning to feel the pinch of oil and gas woes
- Severance tax drop affects Colorado state budget



The Colorado Economy Summary

Job Changes First 4 Months of 2016 vs. Same Period in 2015

Job Change All Sectors



Source: Bureau of Labor Statistics, cber.co.

Thousands (Average)

Summary of the Colorado Economy

Reasons to be Optimistic

Momentum – Construction is strong, personal income and GDP growth is solid, and the state is outperforming the U.S.

New Car Registrations – Registrations are at record levels in 2016.

Job growth - The number of jobs added is less than 2015; however, there has been steady job growth for the past nine months. Steady growth is manageable!

Establishment growth – The growth in establishments is an indication of solid overall economic growth.

DIA – Passenger traffic is ahead of last year's record pace, the Westin is open, and the train is running from downtown to DIA .

Broad-based Growth – Despite declines in the extractive industries, there is broad-based growth in the state's employment, GDP, and personal income.

Tourism – The state is coming off a strong ski season and poised for a solid summer season.

Local Government Revenue – Local governments have benefitted from increased consumption (retail sales taxes) and increased property valuation (property taxes).

Risks

Low Unemployment Rate – Typically low unemployment is good for the economy. Lower unemployment rates will create inefficiencies in the state's economy.

Extractive Industries – The number of jobs in the extractive industries has declined because of lower prices, regulation, and changes in policy. Hopefully, we've seen the worst.

Agriculture Prices – Low prices for commodities will challenge Colorado farmers and ranchers.

Population – While the state as a whole is experiencing strong population growth, about half of the state's counties are struggling to retain their population. Can construction keep up?

Price of Oil – The price of oil is critical to Colorado's oil and gas industry. The industry will benefit from higher prices.

State Government Revenue– Despite a strong economy the state government has struggled to provide funding for critical needs and services such as infrastructure.

Affordable Housing – Affordable housing is an issue in all counties. Without a doubt it is an inconvenience; however, there is not evidence this has been detrimental to the state – yet.



Appendix



The Colorado Economy Employment Forecast for 2016



Colorado Employment Category 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 total 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/subsectors over the past two decades and grouped them into the three previously mentioned categories. 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.

More importantly, it has produced a better understanding of what is driving the Colorado economy.

Scenarios for the 2016 Colorado Economic Outlook

The recovery from the Great Recession has been less than robust, but it has been **steady**. While there are many potential risks to future growth, the U.S. and state have shown there is enough momentum to show solid, sustained job growth in 2016.

Overall Job Growth

In 2016 Colorado employment will increase by 2.7% to 2.9%. Average employment for 2016 will be 2,604,000 workers .

Strong Growth Category (About 32% of total employment)

The rate of job growth for this category will be **2.9% to 3.2%**.

Solid Growth Category (about 39% of total employment)

In 2016, the rate of job growth will be **2.3% to 2.5%**.

Volatile Growth Category (29% of total employment)

In 2016, the rate of job growth will be **2.7% to 3.0%**.

The performance of the Volatile Growth Category will most likely determine the accuracy of the cber.co 2016 forecast.

There is more downward risk than upside risk to the forecast.

Source: cber.co.

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

2016 Economic Outlook

Optimistic Scenario

- U.S. Real GDP greater than 2.7%.
- Colorado will add more than 73,000 workers, growth greater than 2.9%.

Most Likely Scenario

- U.S. Real GDP 2.3% to 2.7%.
- The U.S. will add at least 2.7 million workers.
- Colorado employment will be 1.8% of U.S employment.
- Colorado will add 67,000 to 73,000 workers, job growth will be 2.7% to 2.9%.

Pessimistic Scenario

- U.S. Real GDP less than 2.3%.
- Less than 67,000 Colorado workers, growth less than 2.7%.

The probability of these scenarios follows:

- Most Likely 60%
- Optimistic 18%
- Pessimistic 22%.

There is slightly more downside risk than upside potential.



2016 cber.co Colorado Employment Forecast

Strong Growth Category + 24,000 to 26,000 Employees

- Professional and Scientific
- Management of Companies and Enterprises
- Business to Business (Not Employment Services)
- Private Education
- Health Care
- Arts, Entertainment, and Recreation
- Other Services.

Solid Growth Category +23,000 to 25,000 Employees

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

In 2016 Colorado will add 67,000 to 73,000 jobs (2.7% to 2.9%).

Twenty-two sectors and subsectors have been placed into three categories based on their growth patterns over the past two decades. Projections for these categories are used in the development of the 2016 employment forecast.

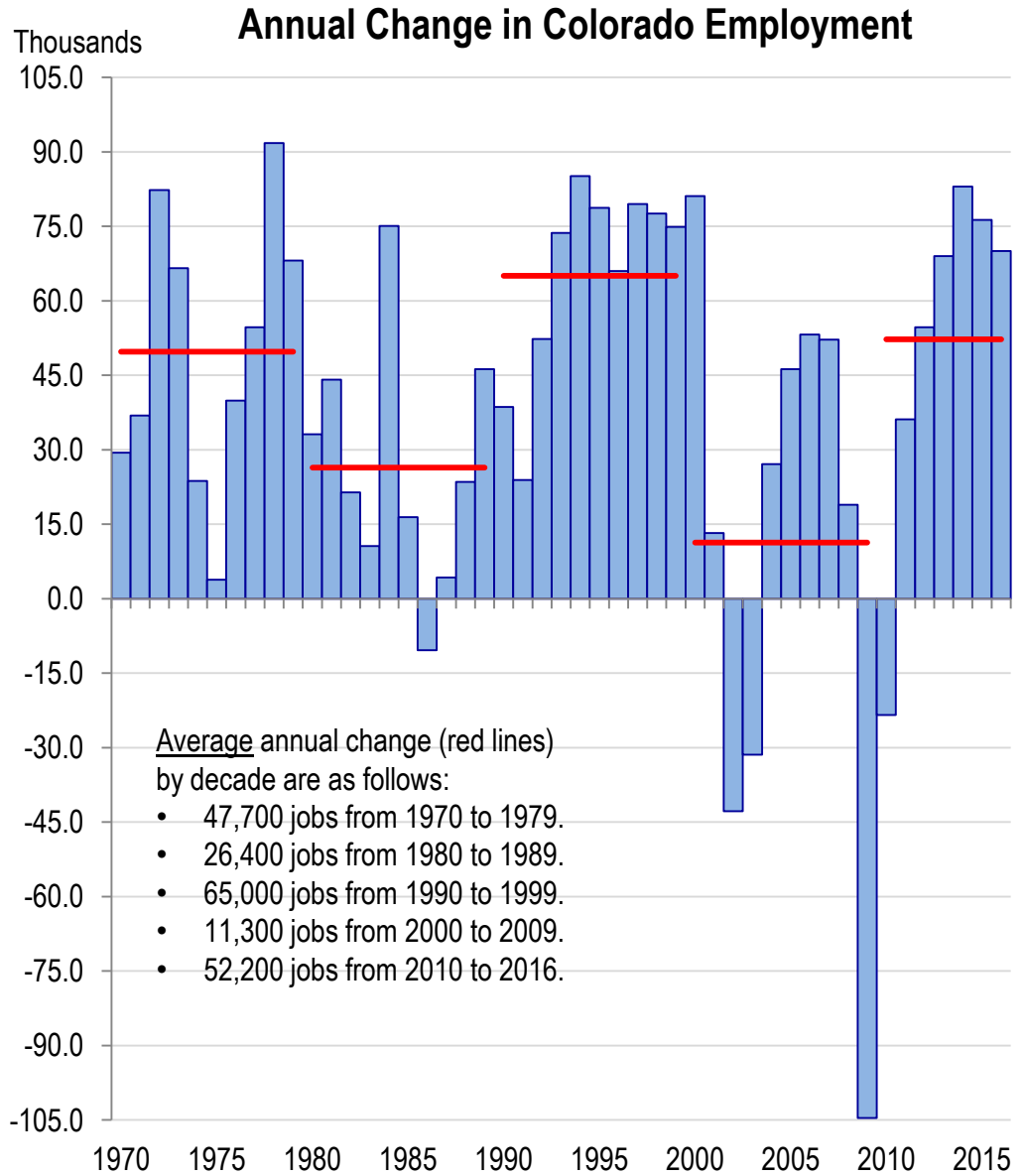
Volatile Growth Category +20,000 to +22,000 Employees

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

Source: cber.co.

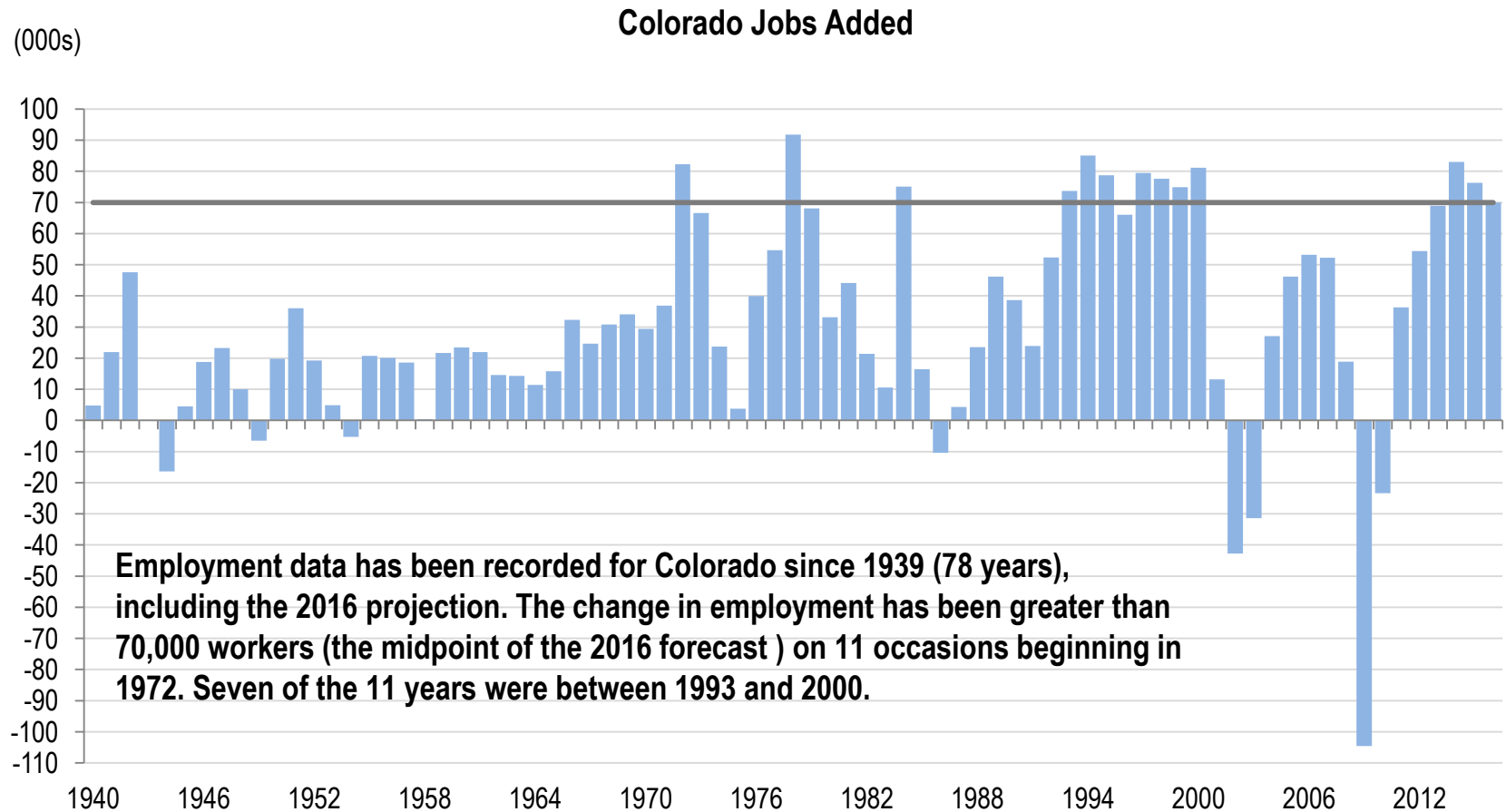
● Annual Employment
 ● Change in Colorado
 ● Employment

The state will add 67,000 to 73,000 jobs in 2016. Colorado employment will increase by 2.7% to 2.9%.



Source: Bureau of Labor Statistics, cber.co.

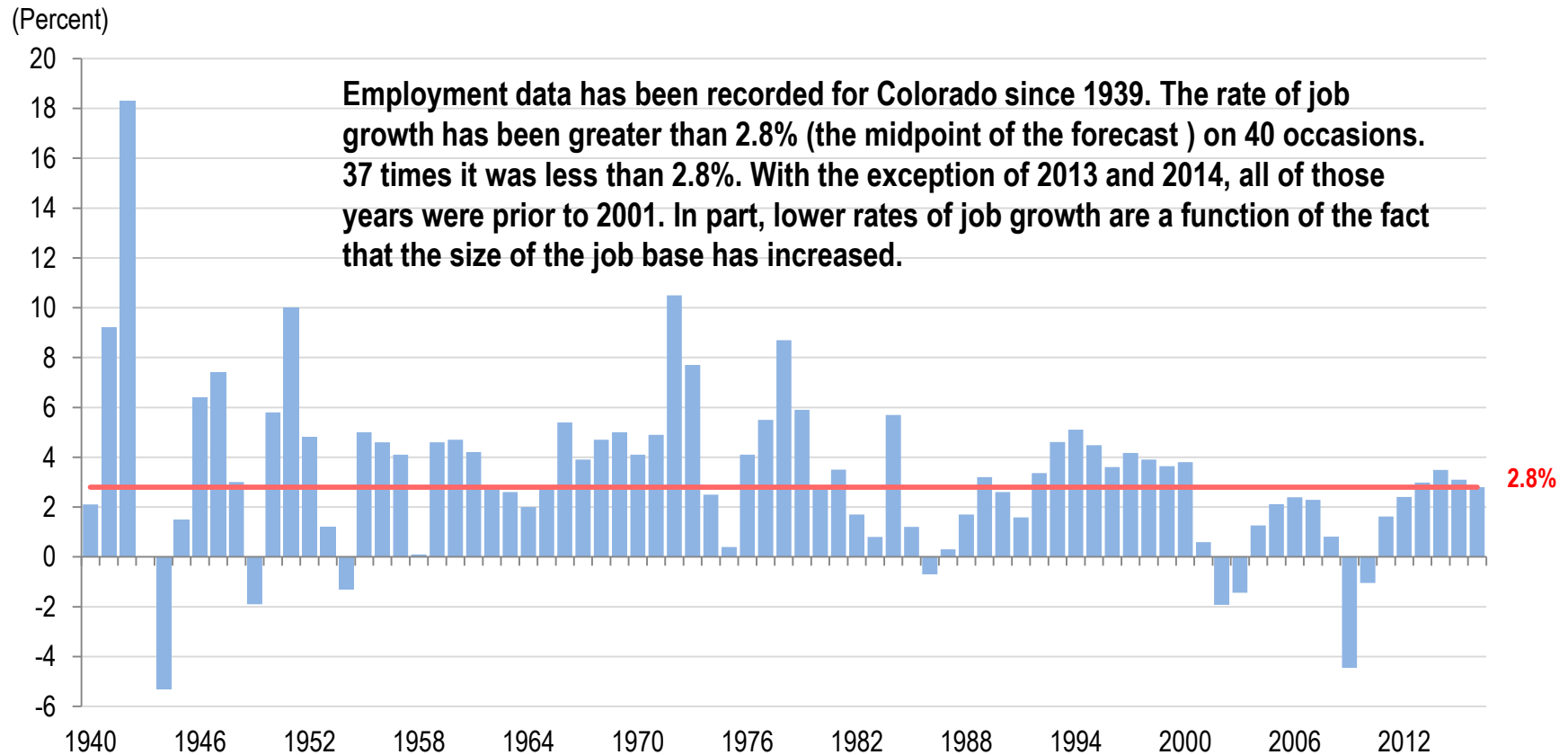
- The Projected Absolute Job Growth for 2016 (Total Jobs Added) will be the 12th Strongest since 1939.
-
-



Source: Bureau of Labor Statistics, cber.co.

- The Projected Rate of Colorado Job Growth for
- 2016 will be the 41th Strongest in 77 Years
-

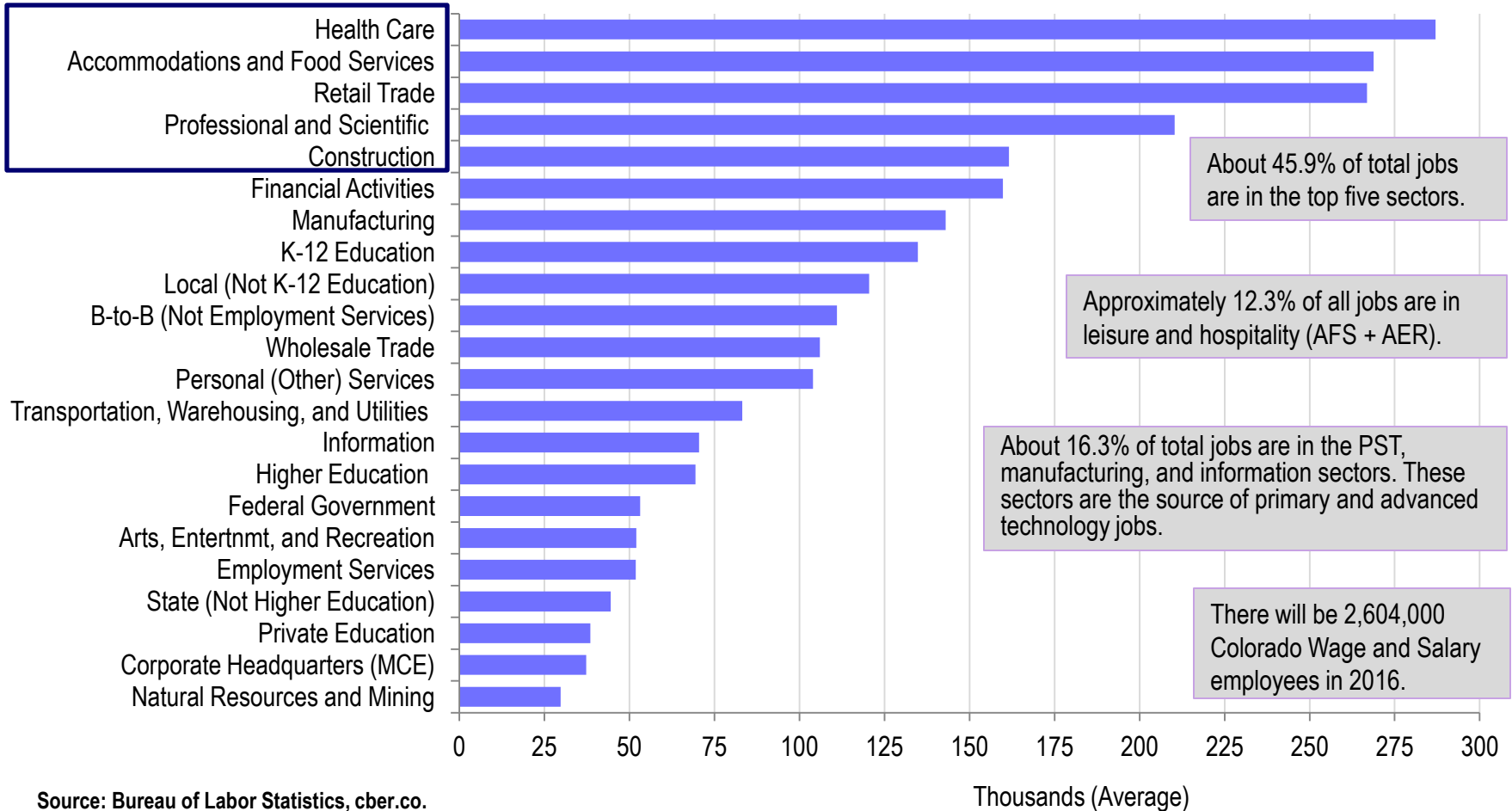
Percentage of Jobs Added



Source: Bureau of Labor Statistics, cber.co.

Colorado Wage and Salary Employment 2016 Forecast

Employment



About 45.9% of total jobs are in the top five sectors.

Approximately 12.3% of all jobs are in leisure and hospitality (AFS + AER).

About 16.3% of total jobs are in the PST, manufacturing, and information sectors. These sectors are the source of primary and advanced technology jobs.

There will be 2,604,000 Colorado Wage and Salary employees in 2016.

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.



cber.co Colorado Economic Review Through April 2016

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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.